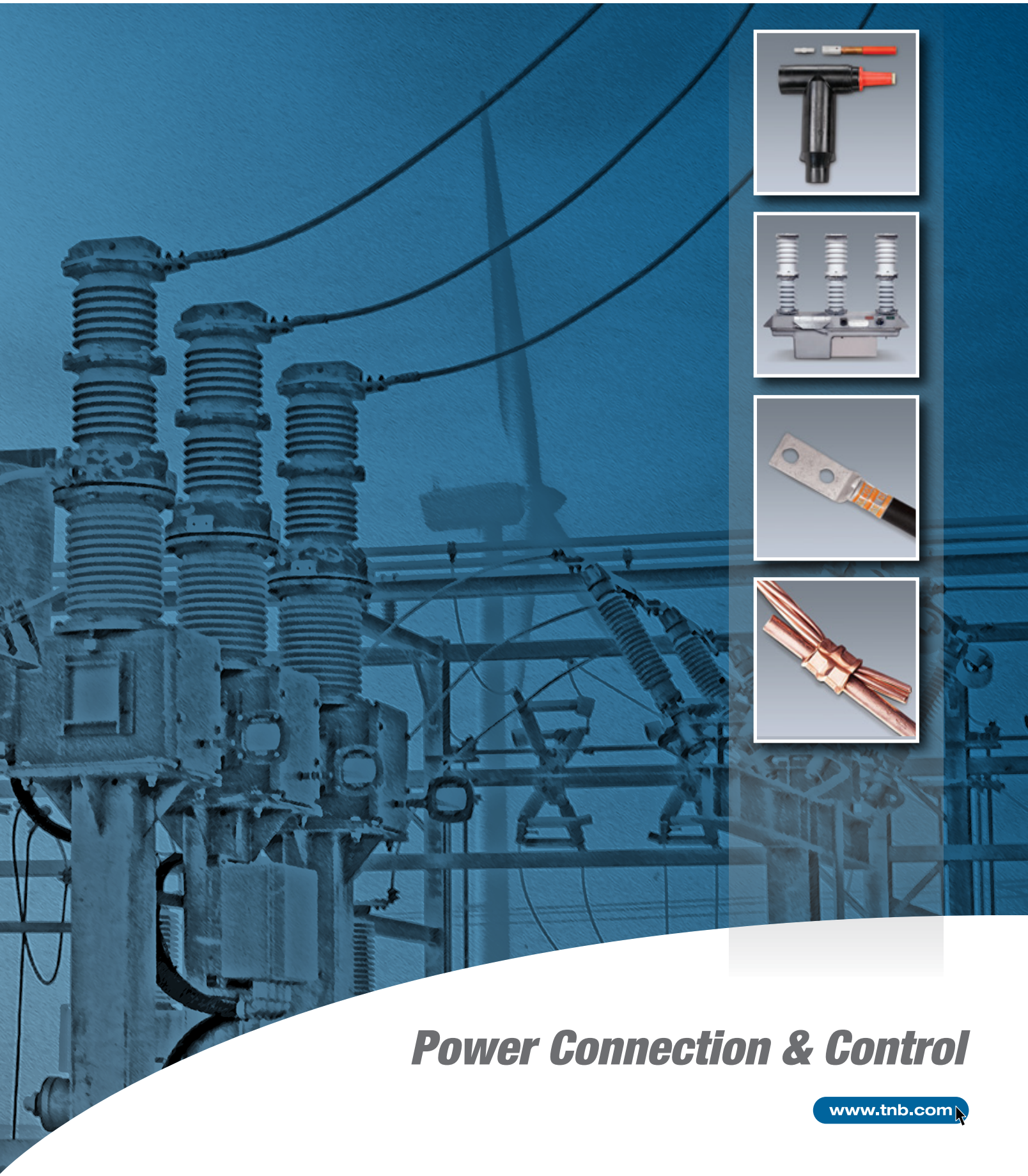
A Global Leader in Innovative...

Wire & Cable Management • Cable Protection Systems
Power Connection & Control • Safety Technology

Thomas&Betts



Power Connection & Control

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Choose Thomas & Betts and connect to the power you need.

For over 100 years, Thomas & Betts has successfully applied innovative design and manufacturing techniques to meet the changing needs of the marketplace. Today, we offer more than 100,000 electrical components and systems to terminate, connect, fasten, protect and identify wires, components and raceway. Our vast offering makes us one of the largest and best sources of electrical components in North America.

At T&B, we're committed to:

- Products which provide solutions to your electrical needs
- Convenience of single-order, single-shipment to your site for thousands of stocking items
- Expert local point of contact for clear, consistent information regarding training, codes and standards
- Quality brands that have proven themselves over time
- Inventive design and manufacture of problem-solving products
- Offering a best-of-class warranty and returns policy
- Uniform carton labeling with additional bar-coding for convenient inventory management
- Nationwide network of stocking electrical distributors
- Outstanding customer service capability
- Supplying you with the right products, convenient packaging, on-time delivery and competitive pricing

We deliver the solutions that make your job easier and offer the power to bring it all together in one package. Call us today and let us help you profit from sourcing your electrical products from the leader, Thomas & Betts.

Healthcare



Wastewater Treatment



Food and Beverage



Oil and Gas



Power Connection & Control

Access the Full Range of Thomas & Betts Electrical Solutions.

Other Thomas & Betts Catalogs...



Wire & Cable Management — CAT1

- Boxes & Covers
- Metal Framing & Cable Tray
- Fastening Systems
- Identification & Supplies



Cable Protection Systems — CAT2

- Industrial Conduit & Fittings
- Flexible Conduit & Fittings
- PVC-Coated Conduit & Fittings
- Commercial Conduit & Fittings



Safety Technology — CAT4

- Hazardous Location Lighting
- Emergency Lighting
- Surge Protection

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Vertical Market Solutions

Single- and Multi-Family Housing









At Thomas & Betts, residential construction goes beyond the simple house on the corner. From a single-family home to a multi-story apartment complex or high-rise condominium, we understand the dynamic challenges faced in the residential market and are committed to providing innovative electrical solutions that promote sustainability, reduce overall project costs and provide a safe working and living environment.

Technology and regulatory evolution is driving change throughout our living areas, and Thomas & Betts is focused on providing solutions that not only solve current real-world problems, but offer the flexibility to accommodate future demands.

For more information, request the Thomas & Betts Electrical Solutions for Single- and Multi-Family Housing brochure, GM-8330.







Commercial and Institutional Facilities





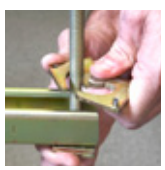




Thomas & Betts understands the challenges faced in commercial and institutional projects and is committed to providing innovative electrical solutions that not only reduce overall project costs, but also increase safety, promote sustainability and even improve cash flow. Whether it's labor-saving rough-in components, custom-designed electrical prefabrication systems, online cloud-based design tools or even our world-class logistics, Thomas & Betts can help bring commercial and institutional projects in on time, within budget and profitably.

For more information, request the Thomas & Betts Electrical Solutions for Commercial and Institutional Facilities brochure, GM-8333.







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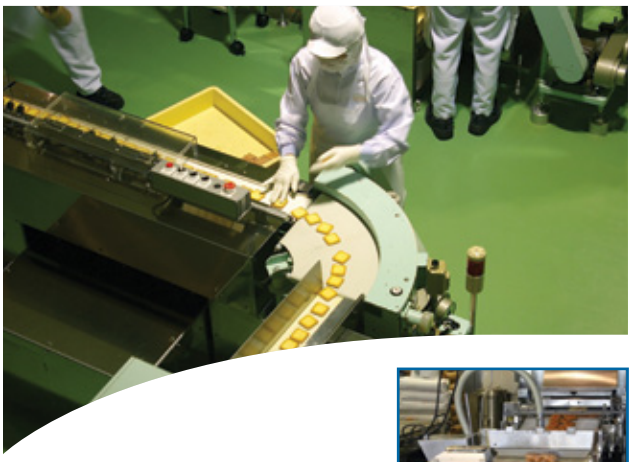
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Vertical Market Solutions

Food and Beverage Processing Industry









At Thomas & Betts, we understand the challenges you face in the food and beverage processing industry today. We're focused on providing electrical solutions that address the critical issues in every area of your operation, so you can focus on plant sustainability, cost, quality, flexibility, food and personnel safety and regulatory challenges across the production cycle. Our family of electrical solutions matches specific application criteria from start to finish inside food processing areas, assuring the quality and reliability of your electrical system throughout your facility, from incoming raw materials through shipping of finished goods. And with the industry's most efficient distribution system, we're prepared to meet your ongoing MRO, OEM and construction needs down the road.

For more information, request the Thomas & Betts Electrical Solutions for Food and Beverage Processing Facilities brochure, GM-8306.







Metals and Mining Industry









Thomas & Betts' long-term presence in the utility and industrial markets continues to drive the development of innovative electrical products that meet the stringent application requirements of metals and mining operations and perform over extended lifecycles. Our solutions are tailored to help you optimize operating costs and improve return on capital investments while protecting the environment and ensuring safety to workers and production assets. Our global network and fast logistics are in place to support your MRO, OEM and construction activities around the world.

For more information, request the Thomas & Betts Electrical Solutions for the Metals and Mining Industry brochure, GM-8332.







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Vertical Market Solutions

Pulp and Paper Processing Industry









At Thomas & Betts, we understand the challenges you face in the pulp and paper processing industry today. We're focused on providing electrical solutions that address the critical issues in every area of your operation, so you can focus on plant sustainability, personnel safety, cost, quality, flexibility and regulatory challenges across the production cycle. Our family of electrical solutions matches specific application criteria from start to finish inside processing areas, assuring the quality and reliability of your electrical system throughout your facility, from incoming raw materials through shipping of finished goods. And with the industry's most efficient distribution system, we're prepared to meet your ongoing MRO, OEM and construction needs today.

For more information, request the Thomas & Betts Electrical Solutions for Pulp and Paper Processing Facilities brochure, GM-8335.







Chemical Industry









Thomas & Betts designs, manufactures and supplies solutions for electrical systems. In order to be profitable running special batches or continuous commodity compounds, you need reliable, robust and cost-effective equipment. Your systems need to operate at peak performance. That's why we invest considerable resources towards R&D, training and channel management. Our products solve real-world problems. Thomas & Betts offers the industry's most advanced materials distribution system, and our commitment shows in our unmatched products, unequaled service and loyalty from end-users, OEMs and contractors.

For more information, request the Thomas & Betts Electrical Solutions for the Chemical Industry brochure, GM-8336.







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Vertical Market Solutions

Oil and Gas Industry









Thomas & Betts designs, manufactures and supplies technically advanced products for electrical systems. Profitable drilling, extracting, processing, transporting and dispensing operations require reliable, robust and cost-effective equipment. That's why we invest extensive amounts on R&D, training and channel management. Our solutions solve real-world problems. Thomas & Betts offers the industry's most advanced materials distribution system, and our commitment shows in our unmatched products, unequaled service and loyalty from end-users and OEMs.

For more information, request the Thomas & Betts Electrical Solutions for the Oil and Gas Industry brochure, GM-8329.

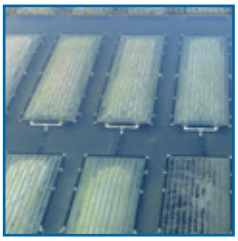






Water/Wastewater Treatment









At Thomas & Betts, we're focused on providing products that address the issues in every area of your wastewater treatment facility, so you can focus on cost, quality, flexibility and regulatory challenges. Our family of products matches specific application criteria from start to finish, assuring the quality and reliability of your electrical system throughout your facility, from power substation to administration buildings. With the industry's most efficient distribution system, we're also prepared to meet your ongoing MRO needs down the road.

For more information, request the Thomas & Betts Electrical Solutions for Wastewater Treatment Facilities brochure, GM-8291.







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Vertical Market Solutions

Civil Infrastructure









At Thomas & Betts, we understand the challenges faced in civil infrastructure. We're focused on providing electrical solutions that address the critical issues in every transportation sector, so you can focus on sustainability, cost, quality, flexibility, safety and regulatory compliance. Our family of quality electrical solutions matches specific application criteria, ensuring the continued reliability of infrastructure. And with the industry's most efficient distribution system, we're prepared to meet your ongoing operation and maintenance needs as well as serve new OEM and construction investments.

For more information, request the Thomas & Betts Electrical Solutions for Civil Infrastructure brochure, GM-8331.







Renewable Energy









The demand for natural, clean and sustainable energy resources has brought solar and wind power generation into the spotlight. Investments and incentives by public and private entities are speeding green development and proliferation, yet the promise is not fully realized. Thomas & Betts is committed to seeing the industry succeed — and thrive. We design integrated solutions with higher quality materials, fewer parts and ease of installation coupled with maintenance in mind in order to reduce product lifecycle costs. We provide the information and training necessary to correctly install and maintain critical structural systems for safe and reliable operation. With solutions from Thomas & Betts, you will meet your cost, quality, performance and regulatory challenges.

For more information, request the Thomas & Betts Electrical Solutions for Renewable Energy brochure, GM-8334.







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Vertical Market Solutions

Power Generation









The power generation industry, which has performed solidly for decades, is undergoing a transformation brought on by government regulations, consumer demand and evolving industry standards. New and emerging technological developments support cleaner and more efficient energy generation and higher availability for plants young and old. Thomas & Betts is leading the way with high-quality, innovative electrical systems and devices that perform optimally with minimal product lifecycle costs. Integrated engineering design solution sets simplify product selection. Fewer, snap-together parts ease installation and maintenance. Training and support services ensure ongoing safe and reliable operation, while warranties instill confidence that our products will perform as required and meet your performance and output demands.

For more information, request the Thomas & Betts Electrical Solutions for Power Generation brochure, GM-8337.







Power Transmission and Distribution









From transmission lines and local distribution networks that crisscross the landscape to the customer premises, you'll find Thomas & Betts products to help you manage and control the constant flow of power. We understand that your customers depend on you to deliver a continuous, uninterrupted power flow, and that you rely on us to provide solutions that enable optimal reliability and efficiency. We also recognize your need to reduce the maintenance, repair and operations costs in your electric power transmission and distribution systems. Whether your systems are overhead or underground, we are your partner in power delivery. Our broad family of electrical solutions enables us to support your design, construction, operations and maintenance requirements economically, with fewer and shorter outages.

For more information, request the Thomas & Betts Electrical Solutions for Power Transmission and Distribution brochure, GM-8338.







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Immediate, Knowledgeable Assistance



Every Thomas & Betts Customer Service Representative is right where the action is — surrounded by all the support and information they need to answer your questions and fill your orders faster than ever. Your calls and faxes are automatically routed to Customer Service Specialists who personally serve your account and can answer questions about products, order status, price and availability, and other service-related inquiries.

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Over 170 Years of Industry Experience



Meeting and exceeding our customers' expectations is a fundamental goal of Thomas & Betts. Call our Technical Services Department and talk LIVE to an expert who'll answer questions and concerns regarding all aspects of our products and services. Our experienced and knowledgeable staff is second to none in the industry!

Tool Services

1-800-284-TOOL

Quality You Can Trust



Trust T&B's dedicated Tool Services Department to answer all questions regarding tool applications, repair, warranties, sales/lease/rental and technical information. Ask about our specialized services, including customer/sales training, demos and calibration/certification of tools.

T&B Online Support

T&B Access®

tnbaccess.tnb.com



T&B Access® is a global sales tool for our distributor partners, offering:

- Quote Requests
- Stock Checks
- Pricing Inquiries
- Cross Reference
- Order Entry
- Order Resolution
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- Document Look-Up
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All of these tools and more are available online 24 hours a day – 7 days a week, without having to make a single phone call. Multi-lingual options are available in English, French and Spanish. T&B Access® now serves over 10,000 satisfied customer users at over 3,500 locations every month.

Web Catalog

www.tnb.com/webcatalog

Thousands of Products at Your Fingertips



U.S. contractors and specifiers have made our web catalog their number one stop. Users can search for technical information by catalog number, UPC code, competitor number, keyword search, product category and/or brand. Having found the item(s) they are searching for, they can then use our ***Where To Buy*** function to locate a T&B local distributor and/or other support services.

T&B Online Tools

Web CAD Library

www.tnb.com/CADLibrary

Over 4,000 2D and 3D CAD Models Available FREE!

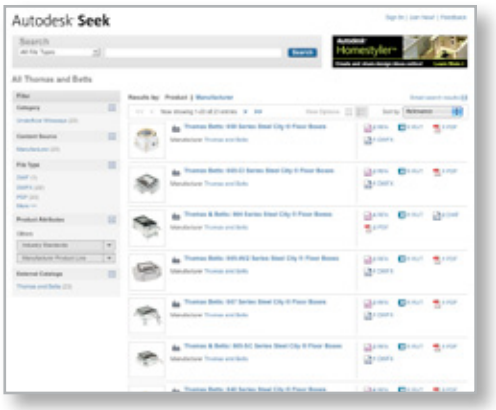
The T&B CAD Library is an on-line source of 2D and 3D CAD models, available FREE to customers who register. Users can download these files to their desktops for import into their working drawings. Drawings are offered in 90 of the most popular native file formats. This is a valuable tool for CAD designers, OEMs and engineering firms, as it will allow them to quickly locate and download T&B drawings into their projects. Over 4,000 drawings of T&B® Fittings, PMA® Cable Protection, Kindorf®, Red•Dot® and Superstrut® products and Steel City® and Carlon® Floor Boxes are currently available.



BIM Library

Now available to you through Autodesk® Seek (**seek.autodesk.com**), our BIM (Building Information Modeling) objects can easily be imported to your Revit® models. These BIM objects are fully standards compliant, Revit® Certified and completely configurable.

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New Products Spotlight

Our New Products Save You Time and Money!

Thomas & Betts has been on the leading edge of engineering and design for more than a century, and new product development continues to keep us at the forefront of the electrical industry today.

T&B engineers and product managers continually study the latest code and technology changes and talk to customers to identify specific needs and opportunities for new product ideas.

But simply being new isn't enough to qualify for development under one of the high-quality Thomas & Betts family of brand names.

A T&B new product must achieve one or more of the following benefits for our customers:

- Lower installed costs
- Improved labor efficiencies
- Compliance with code requirements
- Solve specific application challenges

The following pages highlight new products that meet these criteria within our Power Connection & Control products.



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Blackburn®

Narrow-Tongue Lugs NP-2
Insulated Lugs NP-2
Motor Lead Disconnects NP-2
BP4UCR 6-Ton Battery-Powered Crimping Tool NP-2
BPI42300CR 4-Ton Inline Cordless Crimp Tool NP-3
Hydraulic PowerTap™ System NP-3

Sta-Kon®

Comfort Crimp® Compression Tools NP-3

Homac®

Copper Flood-Seal® Compression Splice Kits NP-3
Temporary Service Adapter System NP-4

Elastimold®

ComboT Integral Separable Connectors NP-4
Switchgear NP-4
Molded Vacuum Reclosers NP-4

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NEW Products

Blackburn®

Blackburn® Narrow-Tongue Lugs



- Narrow-width tongue and barrel, engineered for dimensional consistency the entire length of the lug
- Perfect for connections in limited-space applications
- High-conductivity copper alloy construction
- Featuring the Color-Keyed® system to ensure proper connections

For more information, see page F-23.

Blackburn® Insulated Lugs



- Translucent nylon insulator provides easy viewing of die code/color
- Use with #8 AWG to 250 kcmil copper conductors
- Available in one- and two-hole configurations with standard-length barrel
- Variety of options available — finish, tongue width and angle, bolt hole size/spacing and more
- Featuring the Color-Keyed® system to ensure proper connections

For more information, see page F-24.

Blackburn® Motor Lead Disconnects



- For 600V applications
- Fast, snap-together assembly offers maximum labor savings
- Low-profile assembly fits easily into tight motor housings
- Meets or exceeds the electrical and mechanical performance of bolted connections — without the hassles
- Featuring the Color-Keyed® system to ensure proper connections

For more information, see pages F-53–F-57.

Blackburn® BP4UCR 6-Ton Battery-Powered Crimping Tool



- Lightweight, versatile tool, perfect for service entry connections
- Offers extremely quiet operation with minimal vibration
- Equipped with maximum pressure valve for safety
- Durable molded body offers high resistance to wear and damage in tough field conditions
- Fixed 5/8" BG and D grooves plus 0 die insert; accepts all W style dies

For more information, see page F-86.

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Blackburn®, Sta-Kon® & Homac®

Blackburn® BPI42300CR 4-Ton Inline Cordless Crimp Tool



- Head rotates 180° for ease of use in tight spaces
- Powerful Ni-MH battery yields more crimps per charge
- Bright LED display indicates remaining battery life
- Superior ergonomic design reduces user fatigue

For more information, see page F-86.

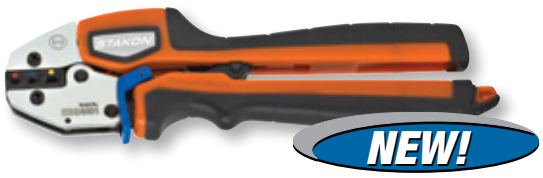
Blackburn® Hydraulic PowerTap™ System



- Wedge tap science meets battery power technology
- Complete system of wedge tap connectors and stirrups plus battery-powered hydraulic installation tool
- Eliminates the purchase, transportation, cleaning, maintenance and disposal costs associated with explosive powder cartridges for fire-on tools
- Provides a quick, safe and reliable means of wedge tap installation

For more information, see pages F-248–F-250.

Sta-Kon® Comfort Crimp® Compression Tools



- Ergonomic design with overmolded grips for user comfort
- Requires up to 75% less handle force than competing tools
- Shure-Stake® mechanism ensures a complete crimp cycle before release for a proper crimp every time
- Color-coded die nests for easy matching with Sta-Kon® insulated terminals

For more information, see page G-38.

Homac® Copper Flood-Seal® Compression Splice Kits



- Radiating rib dissipates heat, centers the watertight insulating cover and seals perfectly every time
- Single-piece Flood-Seal® insulating covers are pre-lubricated and sized for the connection
- Easy installation saves you time and money
- Exceeds ANSI C119.1 requirements

For more information, see page F-369.

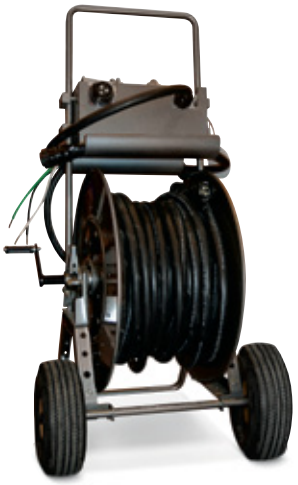
NEW Products

Homac® & Elastimold®

Homac® Temporary Service Adapter System

NEW!

- Ideal for providing short-duration emergency service to improve service reliability and customer satisfaction
- Restores power to customer — keeping the meter running and continuing to generate revenue — while crews conduct troubleshooting and repairs
- Load-side adapter mounts between meter and meter socket at the house in need of power
- Source-side adapter mounts between meter and meter socket at a nearby house with power



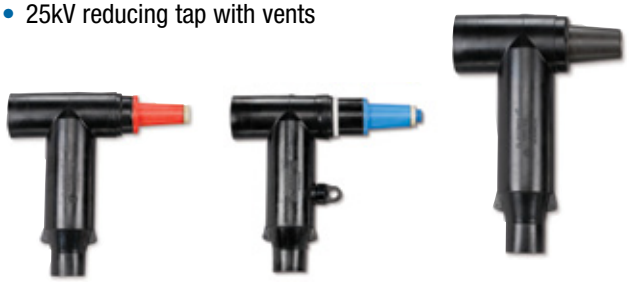
For more information, see pages F-439–F-440.

Elastimold® ComboT Integral Separable Connectors

NEW!

- Shortest stack height
- Eliminates blind assembly
- Fewer interfaces and reduced inventory
- Installs with your standard assembly tools
- Ensures proper installation torque
- IEEE 386 color-coded PBT interfaces
- 25kV reducing tap with vents



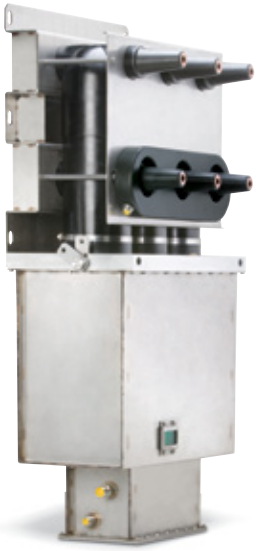


For more information, see pages H-18–H-22.

Elastimold® Switchgear

NEW!

- Solid dielectric insulation and vacuum switching technology — maintenance-free and environmentally friendly, containing no gas or oil
- Automated switchgear
- Variety of electronic controls for optimum overcurrent protection
- Available with high fault-current interruption capabilities for windfarm installations



For more information, see pages H-114–H-140.

Elastimold® Molded Vacuum Reclosers

NEW!



- **Smart** — Our reclosers are Smart Grid ready with three integral load-side voltage sensors and provision to add source-side voltage sensors, if desired. They were designed to be fully compatible with the industry's No. 1 name in controls, Schweitzer Engineering Laboratories.
- **Light** — The three-phase Elastimold® reclosers weigh 33% less than existing typical units. The simplicity of the mechanism design, and the compactness of the encapsulated components, contribute to making Elastimold® reclosers easier to move and install.
- **Flexible** — Elastimold® reclosers are modular, so field upgrades and retrofits are easy and fast. The single-phase reclosers have a pole rotation mounting bracket for easier installation.

For more information, see pages H-141–H-150.

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Blackburn®
Featuring the Color-Keyed® System

Blackburn® Compression Connectors Featuring the Color-Keyed® System



In this section...



Blackburn® Compression Connectors Featuring the Color-Keyed® System

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Overview

The Thomas & Betts Method is Better.

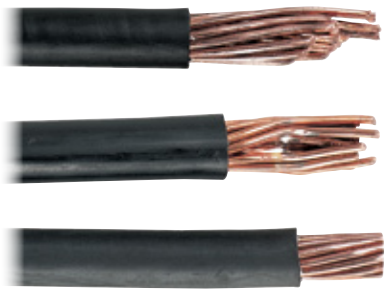
The Thomas & Betts method of installing compression connectors on power cables is designed to provide a high degree of reliability in electrical wiring. This method allows electrical workers to make installations with little effort and at a considerable savings in time. The benefit, of course, is a high-quality connection at a low installed cost.



Just Four Easy Steps to a Perfect Connection!

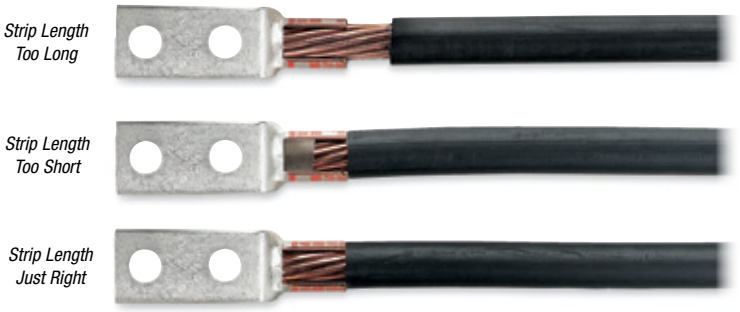
Step 1

Carefully strip the insulation on de-energized wires to avoid nicking or cutting conductors (wire brush if required).



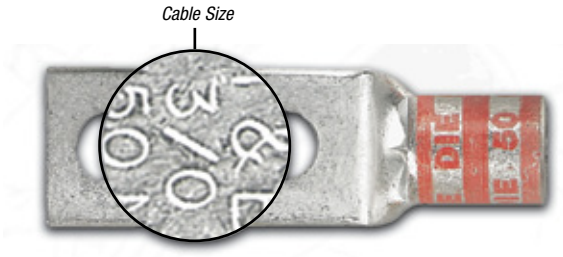


Strip the insulation to the proper length so that conductors can be fully inserted into the connector barrel.



Step 2

Determine the proper Blackburn® Connector for the cable size being used. Connectors are marked to show cable size.



- Connectors marked with just cable size or CU should be used on copper conductors only.
- Connectors marked “AL9”* with the cable size should be used on aluminum conductors only.
- Connectors marked “AL9CU” with the cable size may be used on the aluminum or copper conductors.

** Aluminum lugs with a “9” indicate 90° C rating.*

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Overview

Step 3

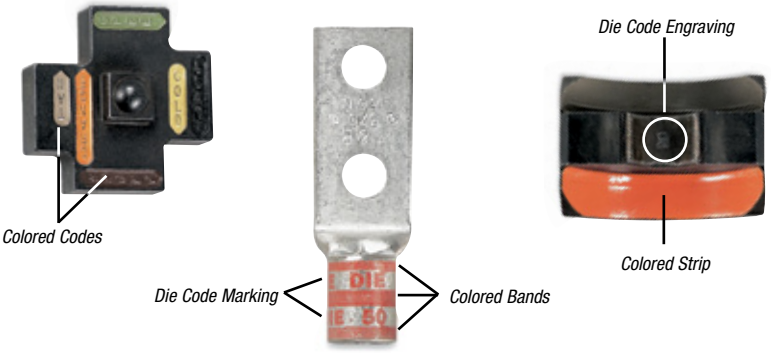
Select the proper installing die and appropriate tool.

Blackburn® Connectors featuring the Color-Keyed® system have colored bands or colored dots that correspond to color markings on the dies.

Connectors and dies also have a die code number marked or stamped on them. Dies have a code number engraved in the crimp surface.







Step 4

Locate tool with correct die in proper position on connector and activate tool.

When making multiple crimps, make the first crimp nearest the tongue and work towards the barrel end.

When properly crimped, the die code number will be embossed on the connector for easy inspection to determine if correct die and connector combination were used.

Copper
Die located BETWEEN bands

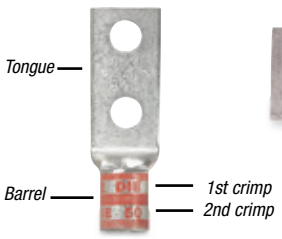


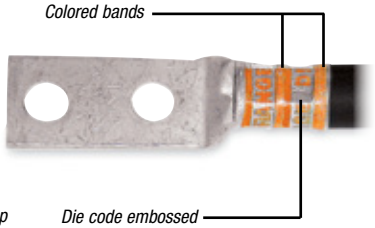
Aluminum
Die located ON Bands



Blackburn® Connectors featuring the Color-Keyed® system are banded by colored stripes or engraving to indicate location of die on connector for compression.

Die location for compression





Thomas & Betts uses full-width and half-width dies dependent on connector size and tool used. Half-width dies are marked with the letter "H" after the die code number.

Refer to the instruction sheet supplied with the connectors for information regarding strip length, die selection and number of compressions required.

Overview

Precision Dies Form a Solid Homogenous Mass…

The T&B method utilizing compression tools with matching dies forms the connector and conductor into a solid, homogenous mass to provide an optimum electrical bond between connector and conductor.

Thomas & Betts method dies are designed to produce a circumferential, hex- or diamond-shaped compression rather than a simple indent. Precision dies are an integral part of the Thomas & Betts method. The precision hardened steel dies exert tremendous, controlled pressure on the connector and conductor. The dies compress the connector around the cable, converting the round strands to hexagonal or diamond shapes and forming the strands and connector into a solid mass. Each die is designed so that all conductors receive the same amount of compression force.

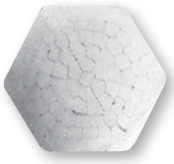
The circumferential compression creates a large area of high-pressure contact between cable and connector which, in turn, assures high conductivity, low resistance, and high pullout values which exceed UL requirements. These features result in a permanent, low installed cost connection. You can install it, and forget it.



The Thomas & Betts System Tells You Where to Place the Installing Die.



Before compression, a typical cross section of cable and connector consists of about 75% metal and 25% air.



After air compression by the T&B Method, the cross section looks like this, nearly 100% metal with virtually no air spaces.

Blackburn® connectors featuring the Color-Keyed® system not only identify the correct installing die to be used for positive compressions, but also indicate the proper placement of the die on the connector. This is done by the bands of color on the connector which match the color on the dies. Compression is made between or on these color bands. The color name is also spelled on the connector as an added means of identification.

Thomas & Betts Dies Offer Inspection Capability.

Copper
Die located BETWEEN bands



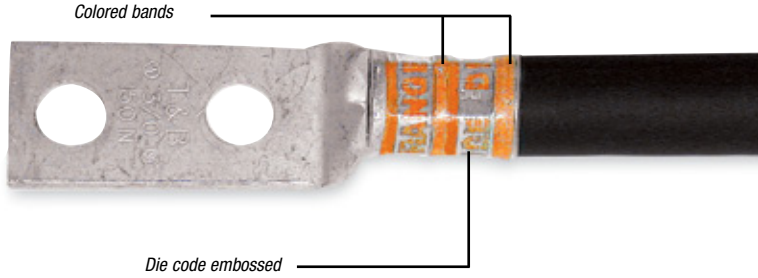
Aluminum
Die located ON Bands



Blackburn® Connectors featuring the Color-Keyed® System are banded by colored stripes or engraving to indicate location of die on connector for compression.

Dies that are used in Thomas & Betts hand and hydraulic tools contain the "die code" numbers which are engraved on the compression surface of the die. Under compression, this number becomes embossed on the completed connection for inspection purposes.

The inspector compares the die code number embossed on the connector with the die table to ensure that the proper connector was compressed with the correct die for that particular size conductor.



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Overview

Quality Tooling with the Shure-Stake® Mechanism

T&B manual tools with the exclusive Shure-Stake® mechanism take the guesswork out of making compression connections. The Shure-Stake® mechanism provides a full cycle compression stroke every time. Once the stroke has started, the tool will not release the connector until the proper amount of force has been applied. This is your assurance of a fully compressed connection. T&B compression tools develop uniform, controlled pressure to each connector within their size range. Thomas & Betts offers electric and battery-powered hydraulic pumps with a Shure-Stake® feature that guarantees a full cycle compression.





Battpac® LT Pump
The newest battery-powered hydraulic pump, rated for 10,000 psi. Portable power for all T&B hydraulic heads, using just one Ni-MH 24V rechargeable battery.



TBM62BSCR
Single-handed battery-powered compression tool, features rotating head and comfortable balance. For connectors up to 500 kcmil CU, 350 kcmil AL.



TBM6S
Hand-operated crimping tool features Shure-Stake® mechanism to ensure a completed crimp. For connectors up to 500 kcmil CU, 350 kcmil AL.

Thomas & Betts Method Components Meet Industry Standards.

Depending on the application, all Thomas & Betts copper connectors meet UL Std. 486A for code stranded and 24 gauge flex, CSA Std. C22.2, No. 65 600-Volt requirements for power and UL Std. 467, CSA Std. 22.2 No. 0.4 requirements for direct buried grounding.

T&B method connectors are available in a range of sizes and styles to accommodate #8 AWG through 1000 kcmil and larger copper or 2000 kcmil and larger aluminum cable. They may be compressed on cable with either manual or hydraulic tools. They are offered with standard length or long barrels, with one bolt or two bolt holes, or in two-way styles, for splicing applications. Two-way connectors are compact, providing high pullout values with low resistance.

Blackburn® two-hole lugs featuring the Color-Keyed® system are ideal for bus bar applications that require two bolts to prevent lug rotation.

The T&B method is the most efficient, highest quality connection that has been engineered and delivers the best electrical performance and highest reliability.

T&B Compression Connectors eliminate risk of problems relating to loose connections when installed properly.

High-Grade Materials Incorporated in Thomas & Betts Method.

Low installed cost connections of superior quality can be achieved only through the use of high-grade components. That is an important part of the T&B method — quality products you can depend on.

Copper Blackburn® connectors featuring the Color-Keyed® system are made of high-conductivity wrought copper, and are electro-tin plated to prevent corrosion and to improve conductivity. Thomas & Betts Blackburn® connectors featuring the Color-Keyed® system offer the thickest tin plating in the industry. Other copper connectors for heavy-duty use and grid grounding applications are made of high-conductivity cast copper, bright finished.

High-conductivity cast aluminum connectors are available for heavy-duty application.

Overview

Special Lugs for Special Problems — Angled, Shaped and Trimmed the Way You Need Them



Thomas & Betts can solve your difficult wire bending and terminating problems in confined power distribution panels, switchgear and motor control enclosures.

We have the design and production capability to deliver exactly the type lug you need, shaped the way you need.

- Straight, 15°, 30°, 45°, 60° and 90° angle
- Stacking or non-stacking
- Narrow tongue or standard
- Tin, silver, lead, nickel

Thomas & Betts offers an extensive line of copper Blackburn® lugs featuring the Color-Keyed® system for #8 AWG through 1000 kcmil flex and code cables. The lug tongues are modified in several different configurations to meet your exact needs: 45° and 90° bend angles, narrow tongues to fit into circuit breakers, offset tongues to stack two cables and special stud hole drilling. These special configurations let you:

1. Run cable directly to the bus bar with no bending.
2. Terminate into very narrow spaces.
3. Utilize minimal bus bar space.

The specially designed lugs help you “clean up” your cabling in crowded enclosures.

The photographs show some examples of how and where the lugs can be used.







Customized Connectors for Copper Cables

- Standard and special tongue angles, stacking and non-stacking, bolt holes sizes and centers, protective platings.
- Specially modified one- and two-hole copper compression lugs, Series 54100, 54200, 54850BE and 54930BE for flex and code copper stranded cables. Material: High-conductivity wrought copper.
- Minimum order quantity: Standard package quantity by cable size. Consult factory for price and delivery. All customized lugs are made to order. A.R.O. Non-cancelable.

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Overview

Order Form

Catalog No. _____ ***Qty.*** _____

(For 54100, 54200, 54800 & 54900 Series Copper Lugs Only)

Design Controls and Requirements

All "MADE-UP" catalog numbers start with a standard or basic catalog number and are followed by the customer-required extra features: tongue shape, bolt hole size, distance between bolt holes, stacking, plating and inspection hole (peep hole). A code letter or a number has been assigned to each extra feature. See CODE TABLE.

Notes: *1) Lack of any of the extra features on the "MADE-UP" catalog number means that the standard Cat. No. features are prevalent.*

2) If either bolt hole size or distance between bolt holes needs to be changed from standard Cat. No., both code numbers will appear on the "MADE-UP" Cat. No. (See example below)

CAT. NO. 54212 UB 04 16 B SP

54212	UB	04	16	B	SP
2-hole 4/0 AWG copper lug basic CAT. NO.	90° tongue	¼" bolt hole	1" hole spacing	bottom stack	silver plating

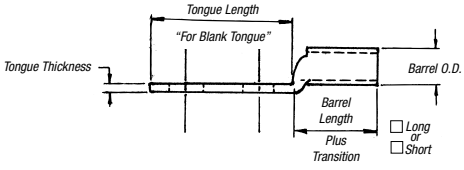
Code Table

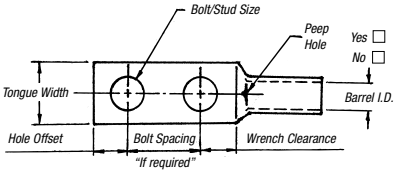
TONGUE SHAPE		BOLT HOLES			BOLT HOLE CENTERS		STACKING		FINISH (PLATING)		INSPECTION HOLE (LONG BARREL)		INSPECTION HOLE (SHORT BARREL)	
TYPE	CODE	SIZE	.020	CODE	DISTANCE .015	CODE	TYPE	CODE	TYPE 1	CODE	I.D.	CODE	I.D.	CODE
15°	UI	#8	.173	02	½"	08	Top	T**	Silver Plate	SP	Peep Hole	PH	Blind End	BE
30°	UT	#10	.204	03	⅝"	10	Bottom	B	Lead Plate	LP				
45°	UF	¼"	.281	04	¾"	12			Nickel Plate	NP				
60°	US	5⁄16"	.344	05	⅞"	14			Plain Finish	PF				
90°	UB	⅜"	.406	06	1"	16			No Marking	NM				
Blank	BT	½"	.531	08	1⅛"	18			Not QTP if					
(No Bolt Hole)		⅝"	.656	10	1¼"	20			suffix other					
		¾"	.812	12	1⅜"	22			than - PF or					
		⅞"	.937	14	1½"	24			standard					
		1"	1.062	16	1⅝"	26			tin plate					
					1¾"	28								
					1⅞"*	30								
					2"*	32								

** These bolt centers not available for bolt holes larger than 13⁄16".*

*** Not required for 45° & 90° top stacking.*

Cable	Code ❑ Weld ❑	
❑ #8	❑ #6	❑ #4
❑ #2	❑ #1	❑ 1/0
❑ 2/0	❑ 3/0	❑ 4/0
❑ 250 kcmil & up (Code Only)		

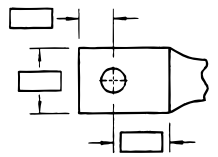




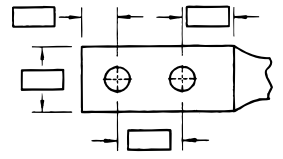
Tongue Specifications— See Chart "A" For Dimensions

Stud Sizes

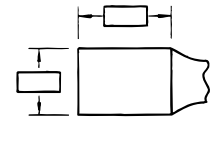
- ❑ #8
- ❑ #10
- ❑ ¼"
- ❑ 5⁄16"
- ❑ ⅜"
- ❑ ½"
- ❑ ⅝"
- ❑ ¾"
- ❑ ⅞"
- ❑ 1"



❑ *Single Hole*



❑ *Double Hole*



❑ *Blank*

Chart A

NOMINAL BOLT HOLE SIZE .015		HOLE OFFSET .030	WRENCH CLEARANCE MIN.	TONGUE WIDTH CABLE SIZE									
				#8 CODE #8 WELD	#6 CODE #6 WELD	#4 CODE	#2 CODE #4 WELD	#1 CODE #2 WELD	1/0 CODE #1 WELD	2/0 CODE 1/0 WELD	3/0 CODE 2/0 WELD	4/0 CODE 3/0 WELD	250 CODE
#8	.173	.200	.240	.406	.437	.562	.593	.672	.750	.825	.937	1.030	1.125
#10	.204	.218	.250	.406	.437	.562	.593	.672	.750	.825	.937	1.030	1.125
¼	.281	.250	.312	.469	.500	.562	.593	.672	.750	.825	.937	1.030	1.125
5⁄16	.344	.375	.406	.562	.562	.562	.675	.672	.750	.825	.937	1.030	1.125
⅜	.406	.375	.440	.578	.578	.594	.675	.672	.750	.825	.937	1.030	1.125
½	.531	.500	.562	—	—	—	.750	.750	.750	.825	.937	1.030	1.125
⅝	.656	.625	.875	—	—	—	—	—	—	—	.937	1.030	1.125
¾	.812	.750	.770	—	—	—	—	—	—	—	—	—	—
⅞*	.937	.875	.890	—	—	—	—	—	—	—	—	—	—
1*	1.062	.937	1.000	—	—	—	—	—	—	—	—	—	—

** These bolt holes available in one-hole lug only.*

Chart B

CABLE SIZE	TONGUE THICKNESS	STRAIGHT LUG BARREL LENGTH PLUS TRANSITION		BARREL		DIM "X" STACKED LUGS			DIM "Y"		DIM "H"	
		SHORT	LONG	O.D.	I.D.	STRAIGHT	45°	90°	SHORT	LONG	SHORT	LONG
#8	.080	.635	.935	.260	.180	.158	.478	.394	.595	.808	.779	1.079
#6	.081	.675	.975	.296	.215	.134	.544	.432	.587	.799	.767	1.067
#4	.099	.685	.985	.365	.266	.175	.622	.502	.637	.849	.838	1.138
#2	.108	.815	1.115	.410	.302	.216	.649	.535	.711	.923	.958	1.258
#1	.106	.825	1.275	.467	.361	.212	.731	.592	.710	1.028	.956	1.406
1/0	.125	.975	1.325	.520	.396	.250	.789	.646	.794	1.042	1.075	1.425
2/0	.125	.965	1.315	.571	.446	.250	.859	.696	.829	1.077	1.125	1.475
3/0	.125	1.085	1.435	.632	.507	.250	.946	.757	.900	1.148	1.225	1.575
4/0	.137	1.255	1.705	.701	.564	.274	1.031	.826	1.015	1.333	1.387	1.837
250	.137	1.375	1.925	.766	.629	.274	1.123	.891	1.085	1.474	1.487	2.037
300	.153	1.900	2.675	.850	.660	.459	1.226	.975	1.180	1.726	1.924	2.679
350	.177	2.090	2.896	.926	.720	.531	1.333	1.103	1.267	1.830	2.096	2.896
400	.173	2.460	2.980	.960	.757	.519	1.370	1.085	1.551	1.913	2.484	2.984
500	.218	2.670	3.610	1.100	.852	.654	1.514	1.225	1.629	2.266	2.669	3.619
600	.244	2.900	3.490	1.200	.926	.732	1.630	1.325	1.762	2.147	2.897	3.497
700	.228	2.784	—	1.255	.997	.684	1.662	1.375	1.780	—	3.011	—
750	.270	3.050	3.925	1.330	1.030	.810	1.745	1.455	1.827	2.434	3.050	3.925
800	.266	3.213	—	1.375	1.079	.800	1.728	1.625	1.952	2.787	3.213	4.554
900	.313	3.450	4.550	1.500	1.145	.940	1.900	1.650	2.065	—	1.387	—
1,000	.297	3.356	4.500	1.550	1.203	.890	2.070	1.675	2.031	2.787	1.487	4.506

Note: *Stacking lugs are available for one bolt only.*
Consult Factory: Straight: 700 kcmil & up.
45°: 400 kcmil & up
90°: 500 kcmil & up

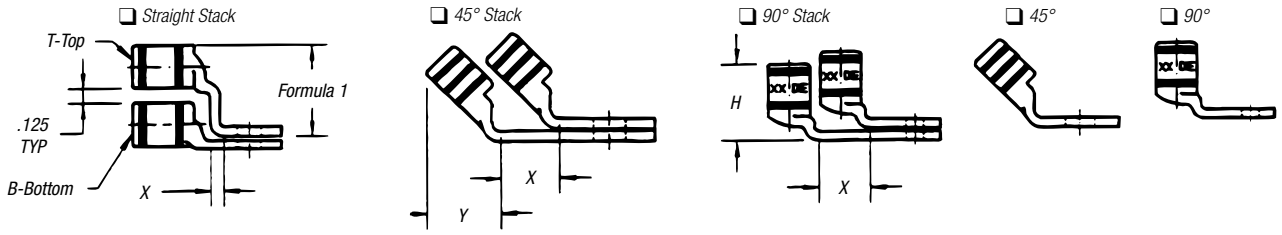
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Overview



Formula 1 = (.125 + 2 (OD) + .037 – Tongue Thickness)

Chart C

	TONGUE WIDTH .030 CODE CABLE SIZE										
BOLT HOLE SIZE	**300 KCMIL 4/0 WELD**	**350 KCMIL**	**400 KCMIL**	**500 KCMIL 400 WELD**	**600 KCMIL 500 WELD**	**1325/24**	**700 KCMIL**	**750 KCMIL**	**800 KCMIL**	**900 KCMIL**	**1000 KCMIL**
#8	—	—	—	—	—	—	—	—	—	—	—
#10	—	—	—	—	—	—	—	—	—	—	—
¼	1.250	1.355	1.410	1.605	1.745	1.805	1.840	1.935	2.010	2.180	2.265
5⁄16	1.250	1.355	1.410	1.605	1.745	1.805	1.840	1.935	2.010	2.180	2.265
⅜	1.250	1.355	1.410	1.605	1.745	1.805	1.840	1.935	2.010	2.180	2.265
½	1.250	1.355	1.410	1.605	1.745	1.805	1.840	1.935	2.010	2.180	2.265
⅝	1.250	1.355	1.410	1.605	1.745	1.805	1.840	1.935	2.010	2.180	2.265
¾	1.250	1.355	1.410	1.605	1.745	1.805	1.840	1.935	2.010	2.180	2.265
⅞*	—	—	—	1.605	1.745	1.805	1.840	1.935	2.010	2.180	2.265
1*	—	—	—	—	1.745	1.805	1.840	1.935	2.010	2.180	2.265

** These bolt holes available in one-hole lug only.*

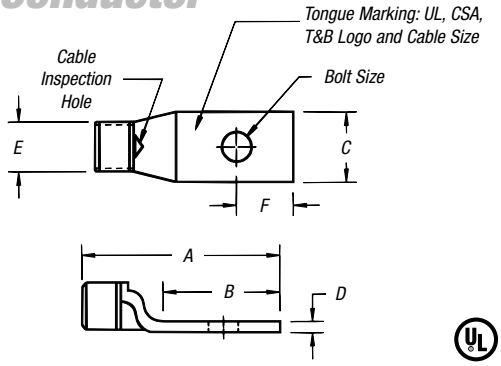
Compression Connectors for Copper Conductor

One-Hole Lugs — Standard Barrel 600V to 35kV

Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate





CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) A	B	C	D	E	F	DIE CODE	DIE COLOR
54101			¼	1.23	.56	.50	.05	.20	¼		
256-30695-1351	#14–10 AWG		#8	1.36	.68	.36	.05	.20	¼	ERG4002	"C" NEST
256-30695-1352			¼	1.36	.68	.41	.05	.20	¼	ERG4005	
256-30695-263			¼	1.69	.81	.50	.07	.20	¼		
54104			#10	1.16	.50	.39	.08	.25	7/32	21	
54130		23 Navy	¼	1.20	.61	.45	.07	.25	¼	21	
54131	#8 AWG	#8 Weld	5/16	1.33	.64	.56	.05	.25	9/32	21	RED
54132		37/24 = 14.9 kcmil	⅜	1.33	.64	.56	.05	.25	9/32	21	
256-30695-424			½	1.75	1.31	1.00	.13	.25	½	21	
256-30695-1361			#12	1.23	.53	.44	.07	.31	7/32	24	
54134			#10	1.23	.53	.44	.07	.31	7/32	24	
54105		#30 Navy	¼	1.23	.53	.44	.07	.31	7/32	24	
54135	#6 AWG	#6 Weld	5/16	1.41	.67	.60	.07	.31	5/16	24	BLUE
54136		61/24 = 24.6 kcmil	⅜	1.41	.67	.60	.07	.31	5/16	24	
256-30695-282		133/.014	⅜	1.41	.75	.56	.06	.31	5/16	24	
256-30695-422			½	1.75	1.31	1.00	.13	.31	½	24	
256-30695-1362			#12	1.38	.60	.55	.09	.37	¼	29	
54138		#4 Weld	#10	1.38	.60	.55	.09	.37	¼	29	
54106		40–50 Navy	¼	1.38	.60	.55	.09	.37	¼	29	
54139	#4 AWG	91/24 = 36.7 kcmil	5/16	1.42	.66	.61	.07	.37	5/16	29	GRAY
54140		133/.0177	⅜	1.42	.66	.61	.07	.37	5/16	29	
256-30695-233		49/.029	⅜	1.56	.75	.59	.06	.37	5/16	29	
256-30695-264		#5 91/24	½	2.20	1.40	1.00	.06	.37	½	29	
54107			¼	1.50	.65	.59	.11	.41	¼	33	
54142-TB		#60 Navy	5/16	1.73	.88	.59	.11	.41	⅜	33	
54143-TB	#2 AWG	125/24 = 50.5 kcmil	⅜	1.65	.80	.59	.11	.41	⅜	33	BROWN
54145-TB		#3 Weld	½	1.92	1.08	.75	.08	.41	½	33	
54108		75 Navy, #2 Weld	¼	1.50	.65	.68	.11	.47	¼	37	
54147	#1 AWG	150/24 = 60.5 kcmil	5/16	1.73	.93	.68	.11	.47	⅜	37	GREEN
54148		175/24 = 70.6 kcmil	⅜	1.78	.98	.68	.11	.47	⅜	37	
54150		133/.0223	½	2.10	1.25	.76	.11	.47	½	37	
54152-TB			¼	1.60	.65	.75	.13	.52	¼	42	
54153-TB		#100 Navy	5/16	1.83	.88	.75	.13	.52	⅜	42	
54109	1/0 AWG	#1 Weld	⅜	1.88	.93	.75	.13	.52	⅜	42	PINK
54155-TB		225/24 = 90.8 kcmil	½	2.20	1.25	.75	.13	.52	½	42	
256-30695-1383		133/.0254	⅝	2.54	1.50	.88	.13	.52	⅝	42	
54157		125 Navy	¼	1.65	.65	.83	.13	.57	¼	45	
54158		1/0 Weld	5/16	1.88	.88	.83	.13	.57	⅜	45	
54110	2/0 AWG	275/24 = 111 kcmil	⅜	1.93	.93	.83	.13	.57	⅜	45	BLACK
54160		427/.0155	½	2.25	1.25	.83	.13	.57	½	45	
256-30695-131		133/.0282	⅝	2.56	1.50	.83	.13	.57	⅝	45	

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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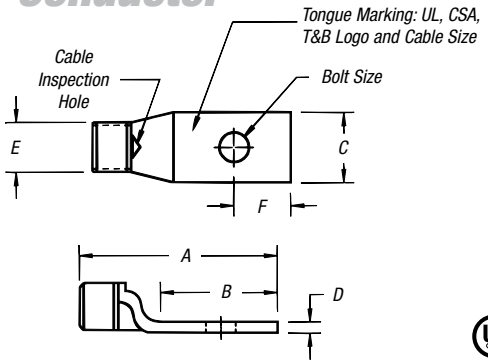
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Compression Connectors for Copper Conductor





CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	WIRE SIZE BOLT SIZE	DIMENSIONS (IN.) A	B	C	D	E	F	DIE CODE	DIE COLOR
54162-TB	3/0 AWG	150 Navy, 2/0 Weld	¼	1.75	.65	.92	.13	.63	¼	50	ORANGE
54163-TB		325/24 = 131 kcmil	5/16	1.98	.88	.92	.13	.63	⅜	50	
54111		133/.0316, 259/.0227	⅜	2.03	.93	.92	.13	.63	⅜	50	
54165-TB		427/.0177	½	2.35	1.25	.92	.13	.63	½	50	
54167	4/0 AWG	200 Navy 3/0 Weld 450/24 = 182 kcmil 703/.0154	¼	1.90	.65	1.03	.14	.70	¼	54	PURPLE
54168			5/16	2.13	.87	1.03	.14	.70	⅜	54	
54112			⅜	2.18	.93	1.03	.14	.70	⅜	54	
54170			½	2.50	1.25	1.03	.14	.70	½	54	
256-30695-1174			¾	2.86	1.56	1.03	.14	.70	¾	54	
58161	250 kcmil	4/0 Weld 550/24 = 222 kcmil 133/.0399 259/.0286 637/.0183	¼	2.23	.78	1.25	.15	.79	⅜	62	YELLOW
58162			5/16	2.33	.88	1.25	.15	.79	⅜	62	
58163			⅜	2.38	.93	1.25	.15	.79	⅜	62	
58165			½	2.76	1.25	1.25	.15	.79	½	62	
58166			⅝	3.03	1.58	1.25	.15	.79	⅝	62	
54172-TB		250 Navy	¼	2.00	.65	1.13	.14	.77	½	62	
54173			5/16	2.23	.88	1.13	.14	.77	⅜	62	
54174			⅜	2.28	.93	1.13	.14	.77	⅜	62	
54113			½	2.60	1.25	1.13	.14	.77	½	62	
58168		250 Weld, 650/24 = 262 kcmil, 259/.0311, 703/.0189	½	2.70	1.25	1.25	.15	.85	½	66	WHITE
54178	300 kcmil	300 Navy	5/16	2.33	.88	1.25	.15	.85	⅜	66	
54179			⅜	2.43	.93	1.25	.15	.85	⅜	66	
54114			½	2.70	1.25	1.25	.15	.85	½	66	
54181			⅝	3.03	1.58	1.25	.15	.85	¾	66	
58171		300 Weld, 259/.034, 427/.0265, 889/.0183 775/24 = 313 kcmil	½	2.85	1.25	1.36	.18	.93	½	71	RED
256-30695-112	350 kcmil	350 Navy	⅜	2.90	1.13	1.36	.18	.93	½	71	
54115			½	2.85	1.25	1.36	.18	.93	½	71	
54183			⅝	3.21	1.58	1.36	.18	.93	¾	71	
58174		350 Weld, 259/.0368, 427/.0285, 703/.0224, 889/.0201	½	3.35	1.25	1.61	.22	1.09	½	76	BLUE
54116	400 kcmil	400 Navy	½	3.20	1.25	1.41	.17	.96	½	76	
54185			⅝	3.53	1.58	1.41	.17	.96	¾	76	

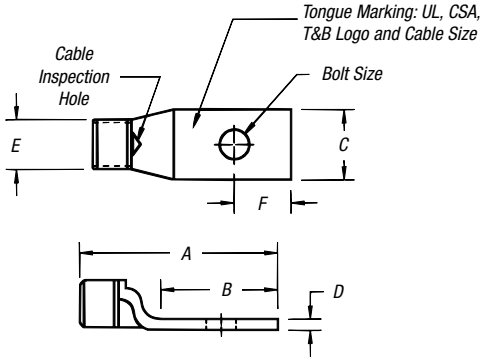
† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

One-Hole Lugs — Standard Barrel 600V to 35kV *(continued)*





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	WIRE SIZE BOLT SIZE	DIMENSIONS (IN.) A	B	C	D	E	F	DIE CODE	DIE COLOR
		400 Weld									
256-30695-1403		925/24 = 373 kcmil	⅜	3.31	1.31	1.61	.22	1.04	⅝	80	N/A
58177		259/.0393 or 427/.0306	½	3.31	1.25	1.61	.22	1.04	½	80	
256-30695-339			⅜	3.10	1.00	1.61	.22	1.10	⅜	87	BROWN
54118	500 kcmil	500 Navy	½	3.30	1.25	1.61	.22	1.10	½	87	
54187			⅝	3.63	1.58	1.61	.22	1.10	⅝	87	
58180		450 Flex, 1127, 4522 1100/24 = 444 kcmil	⅝	3.79	1.58	1.75	.24	1.20	⅝	94	GREEN
256-30695-1370	600 kcmil		½	3.65	1.44	1.75	.24	1.20	31/64	94	
54120			⅝	3.79	1.58	1.75	.24	1.20	⅝	94	
54122-TB	700 kcmil		⅝	3.68	1.58	1.84	.23	1.26	⅝	99	PINK
256-30695-1404		1325/24 = 535 kcmil 500 Flex 427/.0342 259, 4125, 5054	⅜	3.29	1.29	1.81	.28	1.25	21/32	99	
256-30695-1405			½	3.29	1.29	1.81	.28	1.25	21/32	99	
256-30695-840			½	4.00	1.69	1.81	.28	1.25	31/64	99	
58182			⅝	3.83	1.58	1.81	.28	1.25	⅝	99	
256-30695-193	750 kcmil	600 Flex 427	½	4.00	1.69	1.94	.27	1.33	31/64	106	BLACK
54123-TB			⅝	3.87	1.58	1.94	.27	1.33	⅝	106	
58184		1600/24 = 646 kcmil	⅝	3.80	1.58	1.94	.27	1.33	⅝	106	
54124-TB	800 kcmil	800 Navy	⅝	4.04	1.58	2.01	.27	1.38	⅝	107	ORANGE
256-30695-843		1925/24 = 777 kcmil	½	4.31	1.81	2.17	.31	1.50	⅞	115	YELLOW
54126	900 kcmil										
54126		900 Navy	⅝	4.15	1.58	2.17	.31	1.50	⅝	115	
54128	1000 kcmil	1000 Navy	⅝	4.09	1.58	2.27	.30	1.55	⅝	125	N/A

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Note: *Angled Lugs can be readily available as: 15°, 30°, 45°, 60°, and 90°*

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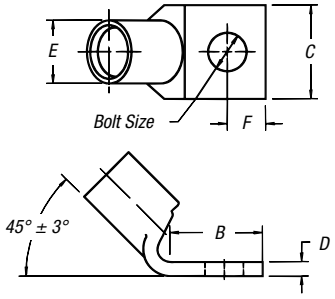
Technical Services
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Compression Connectors for Copper Conductor

One-Hole Lugs — 45° Standard Barrel 600V to 35kV





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	DIE CODE	DIE COLOR
54104UF	#8 AWG	23 Navy	#10	.50	.39	.08	.25	7/32	21	RED
54130UF		#8 Weld	1/4	.61	.45	.07	.25	1/4	21	
54131UF		37/24 = 14.9 kcmil	5/16	.64	.56	.05	.25	9/32	21	
54132UF			3/8	.64	.56	.05	.25	9/32	21	
54134UF	#6 AWG	30 Navy	#10	.53	.44	.07	.31	7/32	24	BLUE
54105UF		#6 Weld	1/4	.53	.44	.07	.31	7/32	24	
54135UF		61/24 = 24.6 kcmil	5/16	.67	.60	.07	.31	5/16	24	
54136UF		133/.014	3/8	.67	.60	.07	.31	5/16	24	
54138UF	#4 AWG	#4 Weld	#10	.60	.55	.09	.37	1/4	29	GRAY
54106UF		40–50 Navy	1/4	.60	.55	.09	.37	1/4	29	
54139UF		91/24 = 36.7 kcmil	5/16	.66	.61	.07	.37	5/16	29	
54140UF		133/.0177	3/8	.66	.61	.07	.37	5/16	29	
256-30695-264UF		49/.029	1/2	1.40	1.00	.06	.37	1/2	29	
		#5–91/24								
54107UF	#2 AWG	60 Navy	1/4	.65	.59	.11	.41	1/4	33	BROWN
54142UF		125/24 = 50.4 kcmil	5/16	.88	.59	.11	.41	3/8	33	
54143UF		#3 Weld	3/8	.80	.59	.11	.41	3/8	33	
54145UF			1/2	1.08	.75	.08	.41	1/2	33	
54108UF	#1 AWG	75 Navy, #2 Weld	1/4	.65	.68	.11	.47	1/4	37	GREEN
54147UF		150/24 = 60.5 kcmil	5/16	.93	.68	.11	.47	3/8	37	
54148UF		175/24 = 70.6 kcmil	3/8	.98	.68	.11	.47	3/8	37	
54150UF		133/.0223	1/2	1.25	.76	.11	.47	1/2	37	
54152UF	1/0 AWG	100 Navy	1/4	.65	.75	.13	.52	1/4	42	PINK
54153UF		#1 Weld	5/16	.88	.75	.13	.52	3/8	42	
54109UF		225/24 = 90.8 kcmil	3/8	.93	.75	.13	.52	3/8	42	
54155UF		133/.0254	1/2	1.25	.75	.13	.52	1/2	42	
54157UF	2/0 AWG	125 Navy	1/4	.65	.83	.13	.57	1/4	45	BLACK
54158UF		1/0 Weld	5/16	.88	.83	.13	.57	3/8	45	
54110UF		275/24 = 111 kcmil	3/8	.93	.83	.13	.57	3/8	45	
54160UF		427/.0155, 133/.0282	1/2	1.25	.83	.13	.57	1/2	45	
54162UF	3/0 AWG	150 Navy, 2/0 Weld	1/4	.65	.92	.13	.63	1/4	50	ORANGE
54163UF		325/24 = 131 kcmil	5/16	.88	.92	.13	.63	3/8	50	
54111UF		133/.0316, 259/.0227	3/8	.93	.92	.13	.63	3/8	50	
54165UF		427/.0177	1/2	1.25	.92	.13	.63	1/2	50	
54167UF	4/0 AWG	200 Navy	1/4	.65	1.03	.14	.70	1/4	54	PURPLE
54168UF		3/0 Weld	5/16	.87	1.03	.14	.70	3/8	54	
54112UF		450/24 = 182 kcmil	3/8	.93	1.03	.14	.70	3/8	54	
54170UF		703/.0154	1/2	1.25	1.03	.14	.70	1/2	54	
58161UF		4/0 Weld	1/4	.78	1.25	.15	.79	3/8	62	YELLOW
58162UF		550/24 = 222 kcmil	5/16	.88	1.25	.15	.79	3/8	62	
58163UF		133/.0399	3/8	.93	1.25	.15	.79	3/8	62	
58165UF		259/.0286	1/2	1.25	1.25	.15	.79	1/2	62	
58166UF		637/.0183	5/8	1.58	1.25	.15	.79	5/8	62	

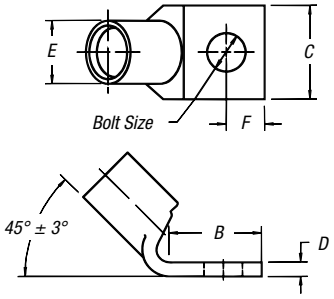
† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

One-Hole Lugs — 45° Standard Barrel 600V to 35kV *(continued)*





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	DIE CODE	DIE COLOR
54172UF	250 kcmil	250 Navy	¼	.65	1.13	.14	.77	¼	62	YELLOW
54173UF			5/16	.88	1.13	.14	.77	⅜	62	
54174UF			⅜	.93	1.13	.14	.77	⅜	62	
54113UF			½	1.25	1.13	.14	.77	½	62	
58168UF		250 Weld, 650/24 = 262 kcmil, 259/.0311, 703/.0189	½	1.25	1.25	.15	.85	½	66	WHITE
54178UF	300 kcmil	300 Navy	5/16	.88	1.25	.15	.85	⅜	66	
54179UF			⅜	.93	1.25	.15	.85	⅜	66	
54114UF			½	1.25	1.25	.15	.85	½	66	
54181UF			⅝	1.58	1.25	.15	.85	⅝	66	
58171UF		300 Weld, 259/.034, 427/.0265, 889/.0183 775/24 = 313 kcmil	½	1.25	1.36	.18	.93	½	71	RED
54115UF06	350 kcmil	350 Navy	⅜	1.25	1.36	.18	.93	½	71	
54115UF			½	1.25	1.36	.18	.93	½	71	
54183UF			⅝	1.58	1.36	.18	.93	⅝	71	
58174UF		350 Weld, 259/.0368, 427/.0285, 703/.0224, 889/.0201	½	1.25	1.61	.22	1.09	½	76	BLUE
54116UF	400 kcmil	400 Navy	½	1.25	1.41	.17	.96	½	76	
54185UF			⅝	1.58	1.41	.17	.96	⅝	76	
58177UF06		400 Weld	⅜	1.31	1.61	.22	1.04	⅝	80	N/A
58177UF		925/24 = 373 kcmil	½	1.25	1.61	.22	1.04	½	80	
54118UF	500 kcmil	500 Navy	½	1.25	1.61	.22	1.10	½	87	BROWN
54187UF			⅝	1.58	1.61	.22	1.10	⅝	87	
58180UF		1100/24 = 444 kcmil, 450, 1127 450, 4522	⅝	1.58	1.75	.24	1.20	½	94	GREEN
54120UF	600 kcmil		⅝	1.58	1.75	.24	1.20	½	94	
54122UF	700 kcmil		⅝	1.58	1.84	.23	1.26	½	99	
58182UF		1325/24 = 535 kcmil	½	1.69	1.81	.28	1.25	13/16	99	PINK
58182UF		427/.0342	⅝	1.58	1.81	.28	1.25	⅝	99	
54123UF	750 kcmil	600 Flex 427 Str.	⅝	1.58	1.94	.27	1.33	⅝	106	BLACK
58184UF		1600/24 = 646 kcmil	⅝	1.58	1.94	.27	1.33	⅝	106	
54124UF	800 kcmil	800 Navy	⅝	1.58	2.01	.27	1.38	⅝	107	ORANGE
54126UF	900 kcmil	1925/24 = 777 kcmil, 900 Navy	⅝	1.58	2.17	.31	1.50	⅝	115	YELLOW
54128UF	1000 kcmil	1000 Navy	⅝	1.58	2.27	.30	1.55	⅝	125	N/A

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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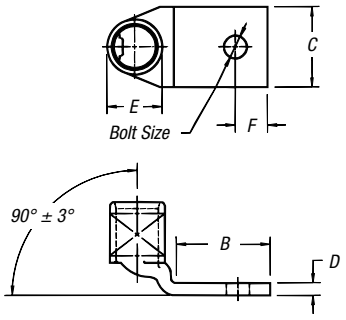
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One-Hole Lugs — 90° Standard Barrel 600V to 35kV

Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate





CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	DIE CODE	DIE COLOR
54104UB	#8 AWG	23 Navy	#10	.50	.39	.08	.25	7/32	21	RED
54130UB		#8 Weld	1/4	.61	.45	.07	.25	1/4	21	
54131UB		37/24 = 14.9 kcmil	5/16	.64	.56	.05	.25	9/32	21	
54132UB			3/8	.64	.56	.05	.25	9/32	21	
54134UB	#6 AWG	30 Navy	#10	.53	.44	.07	.31	7/32	24	BLUE
54105UB		#6 Weld	1/4	.53	.44	.07	.31	7/32	24	
54135UB		61/24 = 24.6 kcmil	5/16	.67	.60	.07	.31	5/16	24	
54136UB		133/.014	3/8	.67	.60	.07	.31	5/16	24	
54138UB	#4 AWG	#4 Weld	#10	.60	.55	.09	.37	1/4	29	GRAY
54106UB		40–50 Navy	1/4	.60	.55	.09	.37	1/4	29	
54139UB		91/24 = 36.7 kcmil	5/16	.66	.61	.07	.37	5/16	29	
54140UB		133/.0177	3/8	.66	.61	.07	.37	5/16	29	
256-30695-264UB		49/.029	1/2	1.40	1.00	.06	.37	1/2	29	
		#5–91/24								
54107UB	#2 AWG	60 Navy	1/4	.65	.59	.11	.41	1/4	33	BROWN
54142UB		125/24 = 50.4 kcmil	5/16	.88	.59	.11	.41	3/8	33	
54143UB		#3 Weld	3/8	.80	.59	.11	.41	3/8	33	
54145UB			1/2	1.08	.75	.08	.41	1/2	33	
54108UB	#1 AWG	75 Navy, #2 Weld	1/4	.65	.68	.11	.47	1/4	37	GREEN
54147UB		150/24 = 60.5 kcmil	5/16	.93	.68	.11	.47	3/8	37	
54148UB		175/24 = 70.6 kcmil	3/8	.98	.68	.11	.47	3/8	37	
54150UB		133/.0223	1/2	1.25	.76	.11	.47	1/2	37	
54152UB	1/0 AWG	100 Navy	1/4	.65	.75	.13	.52	1/4	42	PINK
54153UB		#1 Weld	5/16	.88	.75	.13	.52	3/8	42	
54109UB		225/24 = 90.8 kcmil	3/8	.93	.75	.13	.52	3/8	42	
54155UB		133/.0254	1/2	1.25	.75	.13	.52	1/2	42	
54157UB	2/0 AWG	125 Navy	1/4	.65	.83	.13	.57	1/4	45	BLACK
54158UB		1/0 Weld	5/16	.88	.83	.13	.57	3/8	45	
54110UB		275/24 = 111 kcmil	3/8	.93	.83	.13	.57	3/8	45	
54160UB		427/.0155, 133/.0282	1/2	1.25	.83	.13	.57	1/2	45	
54162UB	3/0 AWG	150 Navy, 2/0 Weld	1/4	.65	.92	.13	.63	1/4	50	ORANGE
54163UB		325/24 = 131 kcmil	5/16	.88	.92	.13	.63	3/8	50	
54111UB		133/.0316, 259/.0227	3/8	.93	.92	.13	.63	3/8	50	
54165UB		427/.0177	1/2	1.25	.92	.13	.63	1/2	50	
54167UB	4/0 AWG	200 Navy	1/4	.65	1.03	.14	.70	1/4	54	PURPLE
54168UB		3/0 Weld	5/16	.87	1.03	.14	.70	3/8	54	
54112UB		450/24 = 182 kcmil	3/8	.93	1.03	.14	.70	3/8	54	
54170UB		703/.0154	1/2	1.25	1.03	.14	.70	1/2	54	
58161UB		4/0 Weld	1/4	.78	1.25	.15	.79	3/8	62	YELLOW
58162UB		550/24 = 222 kcmil	5/16	.88	1.25	.15	.79	3/8	62	
58163UB		133/.0399	3/8	.93	1.25	.15	.79	3/8	62	
58165UB		259/.0286	1/2	1.25	1.25	.15	.79	1/2	62	
58166UB		637/.0183	5/8	1.58	1.25	.15	.79	5/8	62	

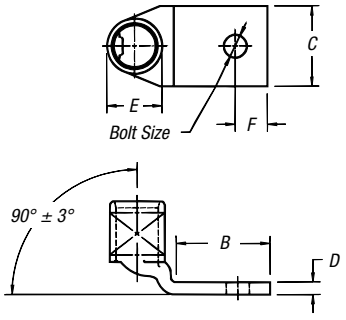
† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

Compression Connectors for Copper Conductor

One-Hole Lugs — 90° Standard Barrel 600V to 35kV *(continued)*





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	DIE CODE	DIE COLOR
54172UB	250 kcmil	250 Navy	¼	.65	1.13	.14	.77	¼	62	YELLOW
54173UB			5/16	.88	1.13	.14	.77	⅜	62	
54174UB			⅜	.93	1.13	.14	.77	⅜	62	
54113UB			½	1.25	1.13	.14	.77	½	62	
58168UB		250 Weld, 650/24 = 262 kcmil, 259/.0311, 703/.0189	½	1.25	1.25	.15	.85	½	66	WHITE
54178UB	300 kcmil	300 Navy	5/16	.88	1.25	.15	.85	⅜	66	
54179UB			⅜	.93	1.25	.15	.85	⅜	66	
54114UB			½	1.25	1.25	.15	.85	½	66	
54181UB			⅝	1.58	1.25	.15	.85	⅝	66	
58171UB		300 Weld, 259/.034, 427/.0265, 889/.0183 775/24 = 313 kcmil	½	1.25	1.36	.18	.93	½	71	RED
256-30695-112UB	350 kcmil	350 Navy	⅜	1.25	1.36	.18	.93	½	71	
54115UB			½	1.25	1.36	.18	.93	½	71	
54183UB			⅝	1.58	1.36	.18	.93	⅝	71	
58174UB		350 Weld, 259/.0368, 427/.0285, 703/.0224, 889/.0201	½	1.25	1.61	.22	1.09	½	76	BLUE
54116UB	400 kcmil	400 Navy	½	1.25	1.41	.17	.96	½	76	
54185UB			⅝	1.58	1.41	.17	.96	⅝	76	
256-30695-1403UB		400 Weld, 925/24 = 373 kcmil	⅜	1.31	1.61	.22	1.04	⅝	80	N/A
58177UB		259/.0393, 427/.0306	½	1.25	1.61	.22	1.04	½	80	
54118UB	500 kcmil	500 Navy	½	1.25	1.61	.22	1.10	½	87	BROWN
54187UB			⅝	1.58	1.61	.22	1.10	⅝	87	
58180UB		1100/24 = 444 kcmil, 450, 1127 450, 4522	⅝	1.58	1.75	.24	1.20	⅝	94	GREEN
54120UB	600 kcmil		⅝	1.58	1.75	.24	1.20	⅝	94	
54122UB	700 kcmil		⅝	1.58	1.84	.23	1.26	⅝	99	PINK
256-30695-840UB		1325/24 = 535 kcmil	½	1.69	1.81	.28	1.25	13/16	99	
58182UB		500 Flex, 427/.0342, 259, 1125, 5054	⅝	1.58	1.81	.28	1.25	⅝	99	
54123UB	750 kcmil	600 Flex 427	⅝	1.58	1.94	.27	1.33	⅝	106	BLACK
58184UB		1600/24 = 646 kcmil	⅝	1.58	1.94	.27	1.33	⅝	106	
54124UB	800 kcmil	800 Navy	⅝	1.58	2.01	.27	1.38	⅝	107	ORANGE
54126UB	900 kcmil	1925/24 = 777 kcmil, 900 Navy	⅝	1.58	2.17	.31	1.50	⅝	115	YELLOW
54128UB	1000 kcmil	1000 Navy	⅝	1.58	2.27	.30	1.55	⅝	125	N/A

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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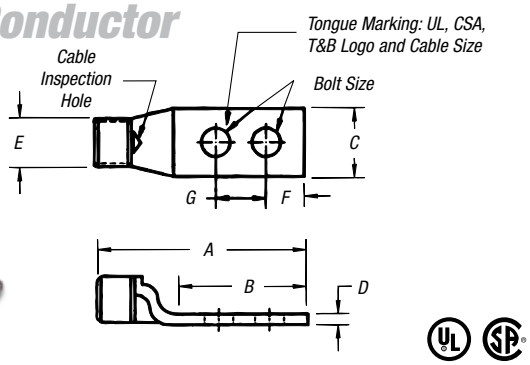
Technical Services
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Compression Connectors for Copper Conductor

Two-Hole Lugs — Standard Barrel 600V to 35kV





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

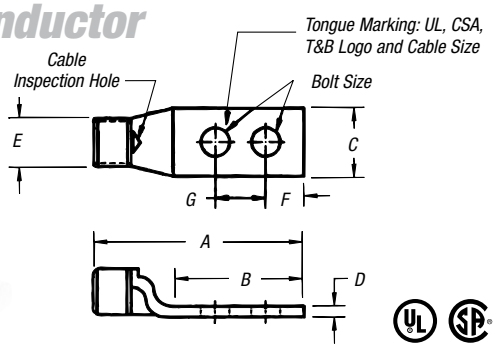
CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) A	B	C	D	E	F	G	DIE CODE	DIE COLOR
54201	#14–10 AWG		1/4	1.86	1.19	.50	.05	.20	1/4	5/8	ERG4002,	"C" NEST
256-30695-1302			3/8	2.48	1.81	.56	.04	.22	3/8	1	ERG4005	
54204			#10	1.88	1.18	.42	.08	.26	1/4	5/8	21	RED
256-31426-33*			#10	1.88	1.18	.41	.06	.26	7/32	5/8-3/4	21	
256-31426-33PH	8 AWG	23 Navy	#10	1.88	1.18	.41	.06	.26	7/32	5/8-3/4	21	
542040410	#7 LS	#8 Weld	1/4	2.01	1.31	.42	.08	.26	1/4	5/8	21	
542040416		37/24 = 14.9 kcmil	1/4	2.38	1.68	.42	.08	.26	1/4	1	21	
256-30695-1094			1/4	2.50	1.81	.56	.05	.26	1/4	3/4	21	
256-30695-251			3/8	2.50	1.81	.56	.05	.26	3/8	1	21	
256-30695-1070			#12	1.81	1.19	.44	.11	.30	1/4	1/2-5/8	24	BLUE
256-30695-1153			#10	1.98	1.28	.44	.08	.30	1/4	1/2	24	
256-30695-1183		30 Navy	#10	1.98	1.19	.44	.08	.30	7/32	5/8-3/4	24	
54205		#6 Weld	1/4	1.98	1.28	.44	.08	.30	1/4	5/8	24	
256-30695-1095	#6 AWG	61/24 = 24.6 kcmil	1/4	2.13	1.31	.43	.08	.30	1/4	3/4	24	
256-30695-252		133/.014	1/4	2.38	1.63	.43	.08	.30	1/4	1	24	
256-30695-372		#5 Weld	1/4	2.13	1.43	.43	.08	.30	1/4	3/4	24	
256-30695-913			1/4	2.38	1.75	.43	.08	.30	1/4	1	24	
256-30695-253			3/8	2.58	1.81	.55	.08	.30	3/8	1	24	
54206		40-50 Navy, #4 Weld	1/4	2.03	1.28	.52	.10	.37	1/4	5/8	29	GRAY
256-30695-1184	#4 AWG	#5, 91/24 = 36.7 kcmil	5/16	2.31	1.63	.52	.10	.37	5/16	1	29	
256-30695-255		133/.0177, 49/.029	3/8	2.56	1.81	.59	.09	.37	3/8	1	29	
54207			1/4	2.13	1.28	.59	.11	.41	1/4	5/8	33	BROWN
256-30695-1355	#3 AWG	#3 Flex	1/4	2.15	1.31	.59	.13	.41	1/4	3/4	33	
256-30695-1185	#2 AWG	60 Navy	1/4	2.38	1.53	.59	.11	.41	1/4	1	33	
256-30695-257		125/24 = 50.4 kcmil	3/8	2.67	1.81	.60	.1	.41	3/8	1	33	
256-30695-1049			1/2	3.75	2.88	.75	.09	.41	5/16	1 3/4	33	
54208		75 Navy, #2 Weld	1/4	2.13	1.28	.68	.11	.47	1/4	5/8	37	GREEN
256-30695-1233	#1 AWG	150/24 = 60.5 kcmil	5/16	2.69	1.62	.69	.13	.47	11/32	1	37	
256-30695-1236		175/24 = 70.6 kcmil, 133/.0223	3/8	2.75	1.81	.68	.11	.47	3/8	1	37	
256-30695-329			1/4	2.75	1.81	.75	.14	.52	3/8	3/4	42	PINK
54255		100 Navy	5/16	2.56	1.56	.75	.14	.52	3/8	7/8	42	
256-30695-1234	1/0 AWG	#1 Weld	5/16	2.75	1.78	.75	.14	.52	1/3	1	42	
54209		225/24 = 90.8 kcmil	3/8	2.88	1.93	.75	.13	.52	3/8	1	42	
256-30695-1265		133/.0254	3/8	3.50	2.57	.75	.14	.52	3/8	1 3/4	42	
256-30695-886			1/2	3.78	2.83	.75	.13	.52	1/2	1 3/4	42	
256-30695-1175			1/4	2.45	1.44	.83	.14	.57	1/4	3/4	45	BLACK
54261		125 Navy	5/16	2.70	1.63	.83	.14	.57	1/3	7/8	45	
256-30695-832	2/0 AWG	1/0 Weld	5/16	2.88	1.81	.81	.14	.57	3/8	1	45	
54210		275/24 = 111 kcmil	3/8	2.93	1.93	.83	.13	.57	3/8	1	45	
54260		133/.0282	1/2	3.83	2.81	.83	.14	.57	3/8	1 3/4	45	
54266		150 Navy, 2/0 Weld	5/16	2.88	1.75	.94	.14	.63	1/3	1	50	ORANGE
54211	3/0 AWG	325/24 = 131 kcmil	3/8	2.94	1.81	.94	.14	.63	3/8	1	50	
54265		133/.0316, 259/.0227, 427/.0177	1/2	3.94	2.81	.94	.14	.63	1/2	1 3/4	50	

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104*** ** Blind End*

Two-Hole Lugs — Standard Barrel 600V to 35kV *(continued)*





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) A	B	C	D	E	F	G	DIE CODE	DIE COLOR
54212			⅜	3.18	1.93	1.03	.14	.70	⅜	1	54	
54270		200 Navy	½	4.25	3.00	1.03	.14	.70	½	1¾	54	
256-30695-1247	4/0 AWG	3/0 Weld	¼	3.06	1.44	1.03	.16	.70	⅜	⅝	54	PURPLE
256-30695-331		450/24 = 182 kcmil	¼	3.06	1.81	1.03	.14	.70	⅜	¾	54	
256-30695-1261		703/.0154	5/16	3.18	1.93	1.03	.14	.70	⅜	1	54	
54213	250 kcmil	250 Navy	⅜	3.28	1.93	1.13	.14	.77	⅜	1	62	
54275			½	4.19	2.81	1.13	.18	.77	½	1¾	62	
256-30695-345		4/0 Weld	⅜	3.25	1.69	1.25	.15	.79	⅜	⅞	62	YELLOW
256-30695-835		550/24 = 222 kcmil	⅜	4.25	2.80	1.25	.15	.79	⅜	1	62	
256-30695-452		133/.0399	⅜	3.13	1.88	1.25	.16	.79	⅜	⅞	62	
58265		259/.0286, 637/.018	½	3.94	2.81	.94	.14	.79	½	1¾	62	
54214	300 kcmil	300 Navy	⅜	3.45	1.93	1.25	.15	.85	⅜	1	66	WHITE
54280		262, 650/24, 250 Weld	½	4.45	3.00	1.25	.15	.85	½	1¾	66	
256-30695-332			¼	3.40	1.81	1.36	.18	.93	⅜	¾	71	
256-30695-1240	350 kcmil	350 Navy	5/16	4.18	2.63	1.36	.18	.93	⅜	1¾	71	RED
54215			⅜	3.51	1.93	1.36	.18	.93	⅜	1	71	
54282			½	4.60	3.00	1.36	.18	.93	½	1¾	71	
54216	400 kcmil	400 Navy	⅜	3.93	1.93	1.41	.17	.96	⅜	1	76	BLUE
54283		313, 775/24, 300 Weld	⅜	3.88	1.93	1.41	.17	.96	⅜	1 1/16	76	
256-30695-439		400 Weld	⅜	4.35	2.25	1.61	.22	1.04	⅝	1	80	
58277		925/24 = 373 kcmil	½	5.06	3.00	1.61	.22	1.04	½	1¾	80	N/A
256-30695-839		259/.0393, 427/.0306	⅜	4.09	2.06	1.61	.22	1.04	½	1	80	
54218			⅜	3.96	1.93	1.61	.22	1.10	⅜	1	87	
54286	500 kcmil	500 Navy	½	5.07	3.00	1.61	.22	1.10	½	1¾	87	BROWN
256-30695-188			½	4.06	2.31	1.63	.22	1.10	½	1¼	87	
54220	600 kcmil	450 Flex I, K	⅜	4.13	1.93	1.75	.24	1.20	⅜	1	94	GREEN
54289		1100/24 = 444 kcmil	½	5.23	3.00	1.75	.24	1.20	½	1¾	94	
256-30695-1406			⅜	4.05	2.11	1.78	.24	1.25	½	1	99	
256-30695-842	700 kcmil		⅜	4.30	2.06	1.80	.28	1.25	½	1	99	
256-30695-898			⅜	4.30	2.06	1.80	.28	1.25	½	1	99	PINK
54291			½	5.18	3.00	1.84	.23	1.25	½	1¾	99	
58281		500 Flex, 535, 1325/24	½	5.23	3.00	1.80	.28	1.25	½	1¾	99	
256-30695-237	750 kcmil	600, 427 Str.	⅜	5.10	2.80	1.94	.27	1.33	⅜	1	106	BLACK
54223			½	5.32	3.00	1.94	.27	1.33	½	1¾	106	
256-30695-1376	800 kcmil	800 Navy	⅜	4.78	2.28	2.01	.27	1.38	7/16	1⅛	107	ORANGE
54224			½	5.50	3.00	2.01	.27	1.38	½	1¾	107	
256-30695-694			⅜	4.65	2.06	2.18	.31	1.50	½	1	115	
54226	900 kcmil	1925/24 = 777 kcmil	½	5.59	3.00	2.18	.31	1.50	½	1¾	115	YELLOW
256-30695-846			⅜	4.60	2.06	2.12	.31	1.50	½	1	115	
256-30695-844			⅝	5.00	2.63	2.18	.31	1.50	9/16	1½	115	
54228	1000 kcmil	1000 Navy	½	5.45	3.00	2.27	.30	1.55	½	1¾	125	N/A

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

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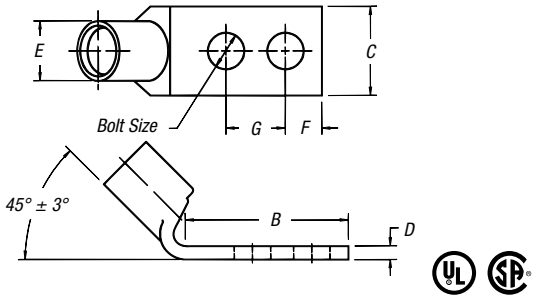
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Two-Hole Lugs — 45° Standard Barrel 600V to 35kV





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

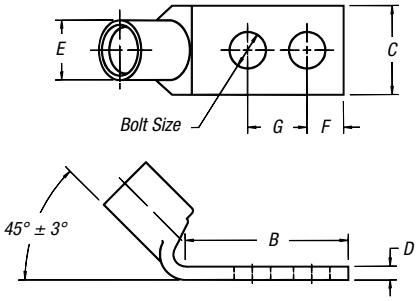
CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	G	DIE CODE	DIE COLOR
56-31426-9	#14–10 AWG		#10	1.22	.37	.05	.2.00	¼	⅝	N/A	**N/A**
54204UF	#8 AWG #7 LS	23 Navy #8 Weld 37/24 = 14.9 kcmil	#10	1.18	.42	.08	.26	¼	⅝	21	**RED**
256-30695-1183UF		30 Navy, #6 Weld	#10	1.19	.44	.08	.30	7⁄32	⅝-¾	24	
54205UF	#6 AWG	61/24 = 24.6 kcmil	¼	1.28	.44	.08	.30	¼	⅝	24	**BLUE**
54205UF0416		133/.014, #5 Weld	¼	1.56	.43	.08	.30	¼	1	24	
54206UF	#4 AWG	40-50 Navy, #4 Weld #5, 91/24 = 36.7 kcmil 133/.0177, 49/.029	¼	1.28	.52	.10	.37	¼	⅝	29	**GRAY**
54207UF	#3 AWG	60 Navy, #3 Flex	¼	1.28	.59	.11	.41	¼	⅝	33	**BROWN**
256-30695-257UF	#2 AWG	125/24 = 50.4 kcmil	⅜	1.81	.60	.11	.41	⅜	1	33	
54208UF	#1 AWG	75 Navy, #2 Weld 150/24 = 60.5 kcmil 175/24 = 70.6 kcmil, 133/.0223	¼	1.28	.68	.11	.47	¼	⅝	37	**GREEN**
54209UF	1/0 AWG	100 Navy #1 Weld	⅜	1.93	.75	.13	.52	⅜	1	42	**PINK**
54209UF0412		225/24 = 90.8 kcmil 133/.0254	¼	1.55	.75	.13	.52	¼	¾	42	
54261UF		125 Navy, 1/0 Weld	5⁄16	1.63	.83	.14	.57	⅓	⅞	45	
54210UF	2/0 AWG	275/24 = 111 kcmil	⅜	1.93	.83	.13	.57	⅜	1	45	**BLACK**
54260UF		133/.0282	½	2.81	.83	.14	.57	⅜	1¾	45	
54266UF		150 Navy, 2/0 Weld 325/24 = 131 kcmil	5⁄16	1.75	.94	.14	.63	⅓	1	50	
54211UF	3/0 AWG	133/.0316	⅜	1.81	.94	.14	.63	⅜	1	50	**ORANGE**
54265UF		259/.0227 427/.0177	½	2.81	.94	.14	.63	½	1¾	50	
54212UF	4/0 AWG	200 Navy 3/0 Weld	⅜	1.93	1.03	.14	.70	⅜	1	54	**PURPLE**
54270UF		450/24 = 182 kcmil 703/.0154	½	3.00	1.03	.14	.70	½	1¾	54	
54213UF	250 kcmil	250 Navy	⅜	1.93	1.13	.14	.77	⅜	1	62	
54275UF			½	2.81	1.13	.18	.77	½	1¾	62	**YELLOW**
256-30695-399UF		4/0 Weld 550/24 = 222 kcmil	⅜	2.80	1.25	.15	.79	⅜	1	62	
58265UF		133/.0399, 259/.0286 637/.018	½	2.81	.94	.14	.79	½	1¾	62	

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

Two-Hole Lugs — 45° Standard Barrel 600V to 35kV *(continued)*





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	WIRE SIZE BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	G	DIE CODE	DIE COLOR
54214UF	300 kcmil	262, 350/24, 250 Weld	⅜	1.93	1.25	.15	.85	⅜	1	66	WHITE
54280UF		300 Navy	½	3.00	1.25	.15	.85	½	1¾	66	
54215UF	350 kcmil	350 Navy	⅜	1.93	1.36	.18	.93	⅜	1	71	RED
54282UF			½	3.00	1.36	.18	.93	½	1¾	71	
54216UF	400 kcmil	400 Navy, 313	⅜	1.93	1.41	.17	.96	⅜	1	76	BLUE
54283UF		775/24, 300 Weld	⅜	1.93	1.41	.17	.96	⅜	1 1/16	76	
58277UF		400 Weld 925/24 = 373 kcmil 259/.0393, 427/.0306	½	3.00	1.61	.22	1.04	½	1¾	80	N/A
54218UF	500 kcmil	500 Navy	⅜	1.93	1.61	.22	1.10	⅜	1	87	BROWN
54286UF			½	3.00	1.61	.22	1.10	½	1¾	87	
54220UF	600 kcmil	450 Flex I, K	⅜	1.93	1.75	.24	1.20	⅜	1	94	GREEN
54289UF		1100/24 = 444 kcmil	½	3.00	1.75	.24	1.20	½	1¾	94	
54291UF	700 kcmil		½	3.00	1.84	.23	1.25	½	1¾	99	PINK
58281UF		500 Flex	½	3.00	1.8	.28	1.25	½	1¾	99	
54223UF0616	750 kcmil	1325/24 535	⅜	2.80	1.94	.27	1.33	⅜	1	106	BLACK
54223UF		600, 427 Str.	½	3.00	1.94	.27	1.33	½	1¾	106	
54224UF	800 kcmil	800 Navy	½	3.00	2.01	.27	1.38	½	1¾	106	
54226UF	900 kcmil	1925/24 = 777 kcmil	½	3.00	2.18	.31	1.50	½	1¾	115	YELLOW
54228UF	1000 kcmil	1000 Navy	½	3.00	2.27	.30	1.55	½	1¾	125	N/A

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

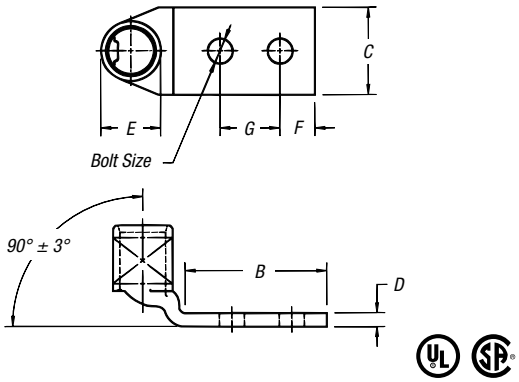
Note: *Angled Lugs can be readily available as: 15°, 30°, 45°, 60°, and 90°*

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Compression Connectors for Copper Conductor

Two-Hole Lugs — 90° Standard Barrel 600V to 35kV Applications





Material: High-Conductivity Wrought Copper
Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	G	DIE CODE	DIE COLOR
CA256-31426-141	#14-10 AWG		#10	1.25	.37	.07	.20	7/32	5/8	ERG4002, ERG4005	"C" NEST
256-31426-6SPH			#10	1.30	.37	.07	.20	7/32	5/8 -3/4		
256-31426-6			#10	1.30	.37	.07	.20	7/32	5/8		
256-31426-6S			#10	1.30	.37	.07	.20	7/32	5/8 -3/4		
256-30695-1409	#8 AWG #7 LS	23 Navy, #8 Weld 37/24 = 14.9 kcmil	#10	1.19	.41	.06	.26	7/32	5/8 -3/4	21	RED
54204UB			#10	1.25	.42	.08	.26	1/4	5/8	21	
256-31426-33UB*			#10	1.19	.41	.06	.26	7/32	5/8 -3/4	21	
256-31426-33UBPH			#10	1.19	.41	.06	.26	7/32	5/8 -3/4	21	
256-30695-1411	#6 AWG	30 Navy #6 Weld 133/.014 #5 Weld	#10	1.19	.44	.08	.30	7/32	5/8 -3/4	24	BLUE
256-30695-1183B			#10	1.19	.44	.08	.30	7/32	5/8 -3/4	24	
256-30695-1356			#10	1.19	.43	.08	.30	7/32	5/8	24	
54205UB			1/4	1.28	.44	.08	.30	1/4	5/8	24	
256-30695-252UB			1/4	1.56	.43	.08	.30	1/4	1	24	
54206UB	#4 AWG	40-50 Navy #4 Weld #5 91/24 = 36.7 kcmil 133/.0177, 49/.029	1/4	1.28	.52	.10	.37	1/4	5/8	29	GRAY
54207UB	#3 AWG #2 AWG	60 Navy #3 Weld 125/24 = 50.4 kcmil	1/4	1.28	.59	.11	.41	1/4	5/8	33	BROWN
54208UB	#1 AWG	75 Navy #2 Weld 150/24 = 60.5 kcmil 175/24 = 70.6 kcmil, 133/.0223	1/4	1.28	.68	.11	.47	1/4	5/8	37	GREEN
54209UB	1/0 AWG	100 Navy, #1 Weld 225/24 = 90.8 kcmil, 133/.0254	3/8	1.93	.75	.13	.52	3/8	1	42	PINK
54209UB0412		225/24 = 90.8 kcmil, 133/.0254	1/4	1.55	.75	.13	.52	1/4	3/4	42	
54261UB	2/0 AWG	125 Navy, 1/0 Weld	5/16	1.63	.83	.14	.57	1 1/32	7/8	45	BLACK
54210UB		275/24 = 111 kcmil	3/8	1.93	.83	.13	.57	3/8	1	45	
54260UB		133/.0282	1/2	2.81	.83	.14	.57	3/8	1 3/4	45	
54266UB	3/0 AWG	150 Navy, 2/0 Weld	5/16	1.75	.94	.14	.63	1 1/32	1	50	ORANGE
54211UB		325/24 = 131 kcmil	3/8	1.81	.94	.14	.63	3/8	1	50	
54265UB		133/.0316, 259/.0227, 427/.0177	1/2	2.81	.94	.14	.63	3/8	1 3/4	50	
54212UB	4/0 AWG	200 Navy, 3/0 Weld	3/8	1.93	1.03	.14	.70	3/8	1	54	PURPLE
54270UB		450/24 = 182 kcmil, 703/.0154	1/2	3.00	1.03	.14	.70	1/2	1 3/4	54	
54213UB	250 kcmil	250 Navy	3/8	1.93	1.13	.14	.77	3/8	1	62	YELLOW
54275UB			1/2	2.81	1.13	.18	.77	1/2	1 3/4	62	
256-30695-399UB		4/0 Weld, 550/24 = 222 kcmil	3/8	2.80	1.25	.15	.79	3/8	1	62	
58265UB		133/.0399, 259/.0286, 637/.018	1/2	2.81	.94	.14	.79	1/2	1 3/4	62	

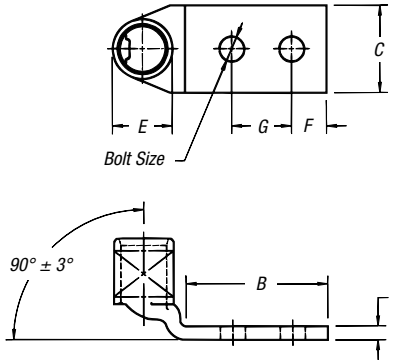
† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

* *Blind End*

Two-Hole Lugs — 90° Standard Barrel 600V to 35kV Applications *(continued)*





Material: High-Conductivity Wrought Copper
Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	G	DIE CODE	DIE COLOR
54214UB	300 kcmil	262, 650/24, 250 Weld	⅜	1.93	1.25	.15	.85	⅜	1	66	WHITE
54280UB		300 Navy	½	3.00	1.25	.15	.85	½	1¾	66	
54215UB	350 kcmil	350 Navy	⅜	1.93	1.36	.18	.93	⅜	1	71	RED
54282UB			½	3.00	1.36	.18	.93	½	1¾	71	
54216UB	400 kcmil	400 Navy	⅜	1.93	1.41	.17	.96	⅜	1	76	BLUE
54283UB		313, 775/24, 300 Weld	⅜	1.93	1.41	.17	.96	⅜	1 1/16	76	
58277UB		400 Weld, 925/24 = 373 kcmil 259/.0393, 427/.0306	½	3.00	1.61	.22	1.04	½	1¾	80	N/A
54218UB	500 kcmil	500 Navy	⅜	1.93	1.61	.22	1.10	⅜	1	87	BROWN
54286UB			½	3.00	1.61	.22	1.10	½	1¾	87	
54220UB	600 kcmil	1100/24 = 444 kcmil	⅜	1.93	1.75	.24	1.20	⅜	1	94	GREEN
54289UB		450 Flex I, K	½	3.00	1.75	.24	1.20	½	1¾	94	
54291UB	700 kcmil		½	3.00	1.84	.23	1.25	½	1¾	99	PINK
58281UB		500 Flex, 1325/24 = 535 kcmil	½	3.00	1.80	.28	1.25	½	1¾	99	
54223UB	750 kcmil	600, 427 Str.	½	3.00	1.94	.27	1.33	½	1¾	106	BLACK
54224UB	800 kcmil	800 Navy	½	3.00	2.01	.27	1.38	½	1¾	106	
54226UB	900 kcmil	1925/24 = 777 kcmil	½	3.00	2.18	.31	1.50	½	1¾	115	YELLOW
54228UB	1000 kcmil	1000 Navy	½	3.00	2.27	.30	1.55	½	1¾	125	N/A

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

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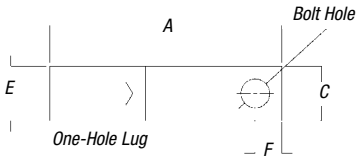
Ideal for confined-space terminations.

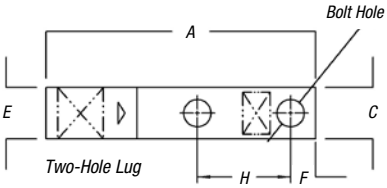
Narrow-Tongue Lugs — One- and Two-Hole, Standard Barrel, 600V Applications

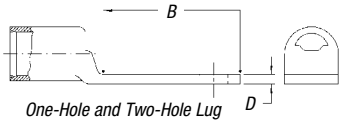


NEW!

Material: High-Conductivity Wrought Copper
Finish: Electro Tin Plate







CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) A	B	C	D	E	F	H	DIE CODE	DIE COLOR
One-Hole Narrow-Tongue Lugs												
54138NT	#4 AWG	91/24	#10	1.31	.56	.37	.10	.37	.25	—	29	GRAY
54107NT	#2–3 AWG	125/24	¼	1.50	.65	.41	.07	.41	.25	—	33	BROWN
54108NT	#1 AWG	150,175/24	¼	1.50	.65	.47	.11	.47	.25	—	37	GREEN
54152NT	1/0 AWG	225/24	¼	1.60	.65	.52	.13	.52	.25	—	42	PINK
54157NT	2/0 AWG	275/24	¼	1.60	.65	.57	.13	.57	.25	—	45	BLACK
54162NT	3/0 AWG	325/24	¼	1.68	.65	.63	.13	.63	.25	—	50	ORANGE
54167NT	4/0 AWG	450/24	¼	1.90	.65	.70	.14	.70	.25	—	54	PURPLE
54172NT	250 kcmil	—	¼	2.00	.65	.77	.14	.77	.25	—	62	YELLOW
54178NT04	300 kcmil	—	¼	2.33	.88	.85	.15	.85	.25	—	66	WHITE
54115NT	350 kcmil	—	½	2.75	1.25	.93	.18	.93	.50	—	71	RED
54115NT06	350 kcmil	—	⅜	2.50	1.00	.93	.18	.93	.38	—	71	
54118NT	500 kcmil	—	½	3.25	1.25	1.10	.22	1.10	.50	—	87	BROWN
54123NT08	750 kcmil	—	½	3.48	1.25	1.33	.27	1.33	.50	—	106	BLACK
54123NT	750 kcmil	—	⅝	3.80	1.58	1.33	.27	1.33	.63	—	106	
Two-Hole Narrow-Tongue Lugs												
54206NT0310	#4 AWG	91/24	#10	1.88	1.13	.37	.10	.37	.25	.63	29	GRAY
54207NT	#2-3 AWG	125/24	¼	2.04	1.19	.41	.11	.41	.25	.63	33	BROWN
54207NT0412	#2-3 AWG	125/24	¼	2.16	1.31	.41	.11	.41	.25	.75	33	
54207NT0416	#2-3 AWG	125/24	¼	2.41	1.56	.41	.11	.41	.25	1.00	33	
54208NT	#1 AWG	150,175/24	¼	2.04	1.19	.47	.11	.47	.25	.63	37	GREEN
54208NT0516	#1 AWG	150,175/24	5/16	2.63	1.78	.47	.11	.47	.38	1.00	37	
54255NT	1/0 AWG	225/24	5/16	2.61	1.66	.52	.14	.52	.38	.88	42	PINK
54261NT	2/0 AWG	275/24	5/16	2.66	1.66	.57	.14	.57	.38	.88	45	BLACK
54210NT	2/0 AWG	275/24	⅜	2.82	1.82	.57	.14	.57	.38	1.00	45	
54266NT	3/0 AWG	325/24	5/16	2.88	1.78	.63	.13	.63	.38	1.00	50	ORANGE
54211NT	3/0 AWG	325/24	⅜	2.92	1.82	.63	.13	.63	.38	1.00	50	
54212NT	4/0 AWG	450/24	⅜	3.07	1.82	.70	.14	.70	.38	1.00	54	PURPLE
54213NT	250 kcmil	—	⅜	3.17	1.82	.77	.14	.77	.38	1.00	62	YELLOW
54275NT	250 kcmil	—	⅜	4.16	2.81	.77	.14	.77	.50	1.75	62	
54282NT	350 kcmil	—	½	4.36	2.81	.93	.18	.93	.50	1.75	71H	RED
54218NT	500 kcmil	—	⅜	4.57	2.57	1.10	.22	1.10	.38	1.75	87	BROWN
54286NT	500 kcmil	—	½	4.81	2.81	1.10	.22	1.10	.50	1.75	87	
54878BENTPH	600 kcmil	—	½	5.83	3.00	1.20	.24	1.20	.50	1.75	94	GREEN
54223NT0628	750 kcmil	—	⅜	4.79	2.57	1.33	.27	1.33	.38	1.75	106H	BLACK
54223NT0616	750 kcmil		⅜	5.00	2.02	1.66	.27	1.33	.38	1.00	106	
54223NT	750 kcmil	—	½	5.04	2.81	1.33	.27	1.33	.50	1.75	106H	
58884BENTPH	—	1600/24	½	6.16	3.00	1.33	.24	1.20	.50	1.75	106H	
58825NT	900 kcmil	1925/24 = 777 kcmil	⅜	5.00	2.13	1.66	.31	1.50	.50	1.00	115	YELLOW
58825NT0828	900 kcmil	1925/24 = 777 kcmil	½	5.75	2.88	1.66	.31	1.50	.50	1.75	115	

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

CAT. NO. **TYPE**
5 4 2 1 2 N T __*

__ = *To Order 45° and 90° Angle Lugs*
UF = *45°*
UB = *90°*

Other options include silver plating (add SP to catalog number), blind end (add BE to catalog number) and peep holes (add PH to catalog number).

Catalog No. Example:

54108NTUB *is a 90° angled one-hole narrow-tongue lug for #1 AWG.*

***** *Special lugs may have other catalog number constructions. Please contact Technical Services.*

Compression Connectors for Copper Conductor

Reduce your installation time and labor costs!

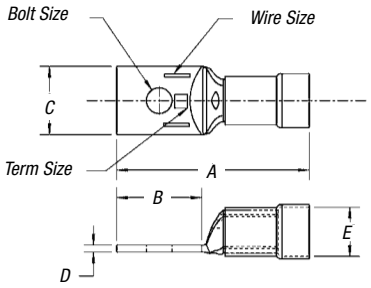
NEW!

Insulated Lugs



Now you can have all of the benefits of Thomas & Betts' industry-leading Blackburn® lugs featuring the Color-Keyed® system — without the time-consuming job of insulating them after installation. These lugs come fitted with a translucent nylon sleeve that provides excellent dielectric strength, while still enabling easy viewing of the color-coding on the barrel. In addition to the standard catalog numbers listed here for one- and two-hole lugs, a variety of custom options makes this the broadest offering of insulated lugs available on the market!

- Translucent nylon insulator provides easy viewing of die code/color
- Use with #8 AWG to 250 kcmil copper conductors
- Available in one- and two-hole configurations with standard-length barrel
- Variety of options available — finish, tongue width and angle, bolt hole size/spacing and more
- Easy to install with standard Blackburn® compression tools TBM6S, 25000, 13642M or 13400 with adapter



Specifications

- Material — Lugs: Seamless copper tubing with electrotin plate finish
- Material — Insulators: Injection-molded nylon
- Temperature Rating: 105° C max.
- Voltage Rating: 600 volts max. (1,000 volts max. in signs and fixtures)
- Listings: UL® Listed, CSA Certified

CAT. NO.	WIRE SIZE	BOLT SIZE	DIMENSIONS (IN.) A	B	C	D	E	HOLE SPACING	DIE FOR TBM6S OR 25000 TOOL	DIE FOR 13642M TOOL
One-Hole Standard-Barrel Nylon-Insulated Lugs										
54104I	#8 AWG	#10	1.49	.50	.39	.08	.35	—	11821-CK	21707M-CK
54105I	#6 AWG	¼"	1.58	.53	.44	.07	.45	—	11822-CK	21708M-CK
54106I	#4 AWG	¼"	1.76	.60	.55	.09	.53	—	11823-CK	21709M-CK
54108I	#1 AWG	¼"	2.06	.65	.68	.11	.60	—	11824-CK	21710M-CK
54109I	1/0 AWG	⅜"	2.36	.93	.75	.13	.64	—	11825-CK	21711M-CK
54110I	2/0 AWG	⅜"	2.43	.93	.83	.13	.69	—	11826-CK	21712M-CK
54111I	3/0 AWG	⅜"	2.54	.93	.92	.13	.77	—	11827-CK	21713M-CK
54112I	4/0 AWG	⅜"	2.75	.93	1.03	.14	.80	—	11828-CK	21714M-CK
54113I	250 kcmil	½"	3.19	1.25	1.13	.14	.88	—	11829-CK	21715M-CK
Two-Hole Standard-Barrel Nylon-Insulated Lugs										
54204I	#8 AWG	#10	2.21	1.18	.42	.08	.35	.625	11821-CK	21707M-CK
54205I	#6 AWG	¼"	2.32	1.28	.44	.08	.45	.625	11822-CK	21708M-CK
54206I	#4 AWG	¼"	2.40	1.28	.52	.10	.53	.625	11823-CK	21709M-CK
54208I	#1 AWG	¼"	2.69	1.28	.68	.11	.60	.625	11824-CK	21710M-CK
54209I	1/0 AWG	⅜"	3.36	1.93	.75	.13	.64	1.000	11825-CK	21711M-CK
54210I	2/0 AWG	⅜"	3.43	1.93	.83	.13	.69	1.000	11826-CK	21712M-CK
54211I	3/0 AWG	⅜"	3.45	1.81	.94	.14	.77	1.000	11827-CK	21713M-CK
54212I	4/0 AWG	⅜"	3.75	1.93	1.03	.14	.80	1.000	11828-CK	21714M-CK
54213I	250 kcmil	½"	3.87	1.93	1.13	.14	.88	1.000	11829-CK	21715M-CK

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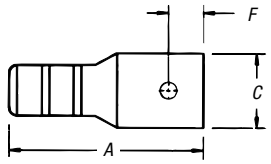
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One-Hole Lugs — Long Barrel 600V to 35kV



Peep Holes Available!
Add suffix -PH





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) A	B	C	D	E	F	DIE CODE	DIE COLOR
54901BE	#14–10 AWG		¼	1.23	.56	.50	.05	.20	¼	ERG4002, ERG4005	"C" NEST
54929BE*	#8 AWG	23 Navy, #8 Flex	#10	1.65	.65	.42	.08	.26	¼	21	RED
54930BE*		37/24 = 14.9 kcmil	¼	1.65	.65	.42	.08	.26	¼	21	
54904BE*	#6 AWG	#6 Flex, 30 Navy, #5 Weld	#10	1.65	.65	.44	.08	.30	¼	24	BLUE
54905BE*			¼	1.65	.65	.44	.08	.30	¼	24	
54908BE*	#4 AWG	40—30 Navy, #4 Weld	#10	1.70	.65	.52	.10	.37	¼	29	GRAY
54906BE*		#5 91/24 = 36.7 kcmil	¼	1.70	.65	.52	.10	.37	¼	29	
54933BE*	#2–3 AWG	125/24 = 50.4 kcmil	#10	1.88	.65	.59	.11	.41	¼	33	BROWN
54942BE*		60 Navy, #3 Weld	5/16	2.03	.88	.59	.11	.41	⅜	33	
54945BE	#1 AWG	75 Navy, #2 Weld	#10	1.95	.65	.68	.11	.47	¼	37	GREEN
54947BE		150/24 = 60.5 kcmil	5/16	2.18	.88	.68	.11	.47	⅜	37	
54946BE	1/0 AWG	100 Navy #1 Weld 225/24 = 90.8 kcmil	#10	1.95	.65	.75	.13	.52	¼	42	PINK
54949BE			5/16	2.18	.88	.75	.13	.52	⅜	42	
54909BE			⅜	2.23	.93	.75	.13	.52	⅜	42	
54950BE			½	2.55	1.25	.75	.13	.52	½	42	
54910BE	2/0 AWG	125 Navy, 1/0 Weld	⅜	2.28	.93	.83	.13	.57	⅜	45	BLACK
54951BE		275/24 = 111 kcmil	½	2.60	1.25	.83	.13	.57	½	45	
54965BE	3/0 AWG	325/24 = 131 kcmil, 150 Navy, 2/0 Weld	½	2.70	1.25	.92	.13	.63	½	50	ORANGE
256-30695-1252	4/0 AWG	200 Navy	¼	2.35	.65	1.03	.14	.70	¼	54	PURPLE
256-30695-1253		450/24 = 182 kcmil	⅜	2.95	1.25	1.03	.14	.70	⅜	54	
54970BE		3/0 Weld	½	2.95	1.25	1.03	.14	.70	½	54	
54913BE	250 kcmil	550/24 = 222 kcmil, 250 Navy, 4/0 Weld	½	3.15	1.25	1.13	.14	.77	½	62	YELLOW
54914BE	300 kcmil	300 Navy, 250 Weld, 262, 650/24	½	3.50	1.25	1.25	.15	.85	½	66	WHITE
54915BE	350 kcmil		½	3.68	1.25	1.36	.18	.93	½	71	RED
54916BE	400 kcmil	400 Navy, 300 Flex	½	3.75	1.25	1.41	.17	.96	½	76	BLUE
54917BE		775/24 = 313 kcmil, 350, 254 Str.	⅝	4.03	1.58	1.41	.17	.96	⅝	76	
54918BE	500 kcmil	925/24 = 373 kcmil	½	4.25	1.25	1.61	.22	1.10	½	87	BROWN
54919BE		400 Weld, 350, 3458 Str.	⅝	4.57	1.58	1.61	.22	1.10	⅝	87	
54921BE	600 kcmil	450 I, K	½	4.10	1.25	1.75	.24	1.20	½	94	GREEN
54920BE		1100/24 = 444 kcmil	⅝	4.39	1.58	1.75	.24	1.20	⅝	94	
54979BE		1325/24 = 535 kcmil	½	4.40	1.25	1.80	.24	1.25	½	99	PINK
54922BE	750 kcmil	1325/24 = 535 kcmil	½	4.40	1.25	1.94	.27	1.33	½	106	BLACK
54923BE		500 Weld	⅝	4.72	1.58	1.94	.27	1.33	⅝	106	
58984BE		1600/24 = 646 kcmil	⅝	4.73	1.58	1.94	.27	1.33	⅝	106	
58926BE	900 kcmil	1925/24 = 777 kcmil	⅝	5.23	1.58	2.17	.310	1.50	⅝	115	YELLOW
54928BE	1000 kcmil		⅝	5.24	1.58	2.27	.30	1.55	⅝	125	N/A
256-30695-918			⅞	5.42	1.82	2.37	.30	1.55	⅞	125	

† *Contact Technical Services for specific stranding listings*

* *UL® Listed for direct burial applications*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

Compression Connectors for Copper Conductor

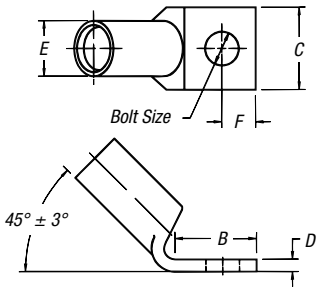
One-Hole Lugs — 45° Long Barrel 600V to 35kV

Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate



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CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	DIE CODE	DIE COLOR
54929BEUF	#8 AWG	23 Navy, #8 Flex	#10	.65	.42	.08	.26	¼	21	RED
54930BEUF		37/24 = 14.9 kcmil	¼	.65	.42	.08	.26	¼	21	
54904BEUF	#6 AWG	61/24 = 24.6 kcmil	#10	.65	.44	.08	.30	¼	24	BLUE
54905BEUF		#6 Flex, 30 Navy	¼	.65	.44	.08	.30	¼	24	
54908BEUF	#4 AWG	40–50 Navy, #4 Weld	#10	.65	.52	.10	.37	¼	29	GRAY
54906BEUF		#5, 91/24 = 36.7 kcmil	¼	.65	.52	.10	.37	¼	29	
54933BEUF	#2–3 AWG	125/24 = 50.4 kcmil	#10	.65	.59	.11	.41	¼	33	BROWN
54942BEUF		60 Navy, #3 Weld	5/16	.88	.59	.11	.41	⅜	33	
54945BEUF	#1 AWG	75 Navy, #2 Weld	#10	.65	.68	.11	.47	¼	37	GREEN
54947BEUF		150/24 = 60.5 kcmil	5/16	.88	.68	.11	.47	⅜	37	
54946BEUF	1/0 AWG	100 Navy 225/24 = 90.8 kcmil #1 Weld	#10	.65	.75	.13	.52	¼	42	PINK
54949BEUF			5/16	.88	.75	.13	.52	⅜	42	
54909BEUF			⅜	.93	.75	.13	.52	⅜	42	
54950BEUF			½	1.25	.75	.13	.52	½	42	
54910BEUF	2/0 AWG	125 Navy, 1/0 Weld	⅜	.93	.83	.13	.57	⅜	45	BLACK
54951BEUF		275/24 = 111 kcmil	½	1.25	.83	.13	.57	½	45	
54965BEUF	3/0 AWG	325/24 = 131 kcmil, 150 Navy, 2/0 Weld	½	1.25	.92	.13	.63	½	50	ORANGE
54970BEUF04	4/0 AWG	200 Navy	¼	1.00	1.03	.14	.70	¼	54	PURPLE
54970BEUF06		450/24 = 182 kcmil	⅜	1.13	1.03	.14	.70	⅜	54	
54970BEUF		3/0 Weld	½	1.25	1.03	.14	.70	½	54	
54913BEUF	250 kcmil	550/24 = 222 kcmil, 250 Navy, 4/0 Weld	½	1.25	1.13	.14	.77	½	62	YELLOW
54914BEUF	300 kcmil	300 Navy, 250 Weld, 262, 650/24	½	1.25	1.25	.15	.85	½	66	WHITE
54915BEUF	350 kcmil		½	1.25	1.36	.18	.93	½	71	RED
54916BEUF	400 kcmil	400 Navy, 300 Weld	½	1.25	1.41	.17	.96	½	76	BLUE
54917BEUF		775/24 = 313 kcmil, 350, 259 Str.	⅝	1.58	1.41	.17	.96	⅝	76	
54918BEUF	500 kcmil	925/24 = 373 kcmil	½	1.25	1.61	.22	1.10	½	87	BROWN
54919BEUF		400 Weld, 350, 3458 Str.	⅝	1.58	1.61	.22	1.10	⅝	87	
54921BEUF	600 kcmil	450 I, K	½	1.25	1.75	.24	1.20	½	94	GREEN
54920BEUF		1100/24 = 444 kcmil	⅝	1.58	1.75	.24	1.20	⅝	94	
54922BEUF	750 kcmil	1325/24 = 535 kcmil	½	1.25	1.94	.27	1.33	½	106	BLACK
54923BEUF		500 Weld	⅝	1.58	1.94	.27	1.33	⅝	106	
58984BEUF		1600/24 = 646 kcmil	⅝	1.58	1.94	.27	1.33	⅝	106	
58926BEUF	900 kcmil	1925/24 = 777 kcmil	⅝	1.58	2.17	.31	1.50	⅝	115	YELLOW
54928BEUF	1000 kcmil		⅝	1.58	2.27	.30	1.55	⅝	125	N/A
54928BEUF12			⅞	1.83	2.37	.30	1.55	⅞	125	

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

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Compression Connectors for Copper Conductor

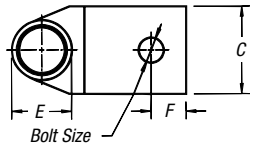
One-Hole Lugs — 90° Long Barrel 600V to 35kV

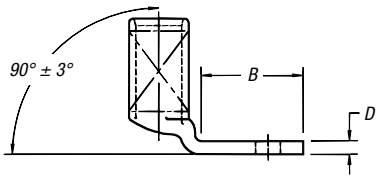
Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate



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CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	DIE CODE	DIE COLOR
54929BEUB	#8 AWG	23 Navy, #8 Flex	#10	.65	.42	.08	.26	¼	21	RED
54930BEUB		37/24 = 14.9 kcmil	¼	.65	.42	.08	.26	¼	21	
54904BEUB	#6 AWG	61/24 = 24.6 kcmil	#10	.65	.44	.08	.30	¼	24	BLUE
54905BEUB		#6 Flex, 30 Navy	¼	.65	.44	.08	.30	¼	24	
54908BEUB	#4 AWG	40–50 Navy, #4 Weld	#10	.65	.52	.10	.37	/4	29	GRAY
54906BEUB		#5, 91/24 = 36.7 kcmil	¼	.65	.52	.10	.37	¼	29	
54933BEUB	#2–3 AWG	125/24 = 50.4 kcmil	#10	.65	.59	.11	.41	¼	33	BROWN
54942BEUB		60 Navy, #3 Weld	5/16	.88	.59	.11	.41	⅜	33	
54945BEUB	#1 AWG	75 Navy, #2 Weld	#10	.65	.68	.11	.47	¼	37	GREEN
54947BEUB		150/24 = 60.5 kcmil	5/16	.88	.68	.11	.47	⅜	37	
54946BEUB	1/0 AWG	100 Navy 225/24 = 90.8 kcmil #1 Weld	#10	.65	.75	.13	.52	¼	42	PINK
54949BEUB			5/16	.88	.75	.13	.52	⅜	42	
54909BEUB			⅜	.93	.75	.13	.52	⅜	42	
54950BEUB			½	1.25	.75	.13	.52	½	42	
54910BEUB	2/0 AWG	125 Navy, 1/0 Weld	⅜	.93	.83	.13	.57	⅜	45	BLACK
54951BEUB		275/24 = 111 kcmil	½	1.25	.83	.13	.57	½	45	
54965BEUB	3/0 AWG	325/24 = 131 kcmil, 150 Navy, 2/0 Weld	½	1.25	.92	.13	.63	½	50	ORANGE
54970BEUB04	4/0 AWG	200 Navy	¼	1.00	1.03	.14	.70	¼	54	PURPLE
54970BEUB06		450/24 = 182 kcmil	⅜	1.13	1.03	.14	.70	⅜	54	
54970BEUB		3/0 Weld	½	1.25	1.03	.14	.70	½	54	
54913BEUB	250 kcmil	550/24 = 222 kcmil, 250 Navy, 4/0 Weld	½	1.25	1.13	.14	.77	½	62	YELLOW
54914BEUB	300 kcmil	300 Navy, 250 Weld, 262, 650/24	½	1.25	1.25	.15	.85	½	66	WHITE
54915BEUB	350 kcmil		½	1.25	1.36	.18	.93	½	71	RED
54916BEUB	400 kcmil	400 Navy, 300 Weld	½	1.25	1.41	.17	.96	½	76	BLUE
54917BEUB		775/24 = 313 kcmil, 350, 259 Str.	⅝	1.58	1.41	.17	.96	⅝	76	
54918BEUB	500 kcmil	925/24 = 373 kcmil	½	1.25	1.61	.22	1.10	½	87	BROWN
54919BEUB		400 Weld, 350, 3458 Str.	⅝	1.58	1.61	.22	1.10	⅝	87	
54921BEUB	600 kcmil	450 I, K	½	1.25	1.75	.24	1.20	½	94	GREEN
54920BEUB		1100/24 = 444 kcmil	⅝	1.58	1.75	.24	1.20	⅝	94	
54922BEUB	750 kcmil	1325/24 = 535 kcmil	½	1.25	1.94	.27	1.33	½	106	BLACK
54923BEUB		500 Weld	⅝	1.58	1.94	.27	1.33	⅝	106	
58984BEUB		1600/24 = 646 kcmil	⅝	1.58	1.94	.27	1.33	⅝	106	
58926BEUB	900 kcmil	1925/24 = 777 kcmil	⅝	1.58	2.17	.31	1.50	⅝	115	YELLOW
54928BEUB	1000 kcmil		⅝	1.58	2.27	.30	1.55	⅝	125	N/A
54928BEUB12			⅞	1.83	2.37	.30	1.55	⅞	125	

† *Contact Technical Services for specific stranding listings*

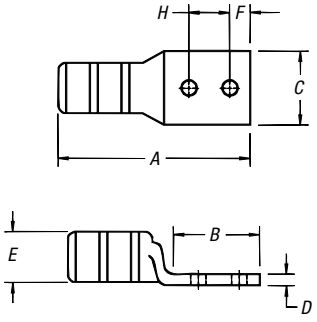
Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

Compression Connectors for Copper Conductor

Two-Hole Lugs — Long Barrel 600V to 35kV



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Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	A	B	C	D	E	F	H	DIE CODE	DIE COLOR
54801BE	#14–10 AWG		¼	1.86	1.19	.50	.05	.20	¼	⅝	ERG4002, ERG4005	"C" NEST
256-31426-3			#10	2.00	1.25	.37	.07	.20	¼	⅝		
256-31426-3SPH			#10	2.00	1.25	.37	.07	.20	7⁄32	⅝ –¾		
256-30695-1298			¼	1.89	1.22	.50	.05	.20	¼	⅝		
256-30695-1730			¼	1.98	1.31	.50	.05	.20	¼	⅝ –¾		
54850BE*	#8 AWG	37/24 = 14.9 kcmil	¼	2.19	1.89	.42	.07	.26	¼	⅝	21	RED
54851BE*		#8 Weld	¼	2.31	1.29	.47	.06	.26	¼	¾	21	
256-30695-1157		23 Navy	⅜	3.00	2.10	.56	.06	.26	⅜	1	21	
54852BE*	#6 AWG	30 Navy 61/24 = 24.6 kcmil #6 Weld #5 Weld	¼	2.28	1.28	.44	.08	.30	¼	⅝	24	BLUE
256-30695-1014			¼	2.63	1.63	.43	.08	.30	¼	1	24	
256-30695-1225*			¼	2.43	1.43	.43	.08	.30	¼	¾	24	
256-30695-1158*			⅜	2.93	1.93	.59	.06	.30	⅜	1	24	
256-30695-868*			½	4.18	3.00	.88	.11	.30	½	1¾	24	
54854BE*	#4 AWG	40–50 Navy #5, 91/24 = 36.7 kcmil #4 Weld	¼	2.31	1.19	.52	.10	.37	¼	⅝	29	GRAY
256-30695-1246*			¼	2.31	1.31	.56	.09	.37	¼	¾	29	
256-30695-1015			¼	2.88	1.88	.58	.09	.37	⅜	1	29	
256-30695-1337			5⁄16	2.75	1.75	.56	.10	.37	11⁄32	1	29	
256-30695-1159*			⅜	3.13	1.98	.59	.09	.37	⅜	1	29	
256-30695-733*			½	4.18	3.00	.88	.09	.37	½	1¾	29	
256-30695-1016	#2–3 AWG	60 Navy #3 Weld 125/24 = 50.4 kcmil	¼	3.06	1.88	.67	.09	.41	⅜	1	33	BROWN
54855BE*			¼	2.43	1.28	.59	.11	.41	¼	⅝	33	
256-30695-1300*			¼	2.63	1.35	.68	.11	.41	¼	¾	33	
54856BE*			5⁄16	2.78	1.63	.59	.11	.41	⅜	¾	33	
54810BE			⅜	3.80	2.57	.59	.11	.41	⅜	1¾	33	
256-30695-1160*			⅜	3.08	1.94	.59	.11	.41	⅜	1	33	
256-30695-869			½	4.02	2.88	.75	.09	.41	⅝	1¾	33	
54811BE*			½	4.28	3.00	.88	.11	.41	½	1¾	33	
54809BE	#1 AWG	75 Navy 150/24 = 60.5 kcmil 175/24 = 70.6 kcmil, #2 Weld	¼	2.88	1.19	.67	.11	.47	¼	⅝	37	GREEN
54812BE			¼	2.75	1.40	.67	.11	.47	¼	¾	37	
54858BE			5⁄16	2.97	1.63	.67	.11	.47	⅜	⅞	37	
256-30695-1161			⅜	3.30	1.98	.67	.11	.47	⅜	1	37	
54857BE			½	4.43	3.00	.88	.11	.47	½	1¾	37	
256-30695-1018	1/0 AWG	100 Navy #1 Weld 225/24 = 90.8 kcmil	¼	3.63	1.88	.75	.13	.52	⅜	1	42	PINK
256-30695-1018P			¼	3.63	1.88	.75	.13	.52	⅜	1	42	
54859BE			¼	2.63	1.19	.75	.13	.52	¼	⅝	42	
54813BE			¼	2.71	1.38	.75	.13	.52	¼	¾	42	
54860BE			5⁄16	2.97	1.63	.75	.13	.52	⅜	⅞	42	
256-30695-1162P			⅜	3.25	1.98	.75	.13	.52	⅜	1	42	
256-30695-1162			⅜	3.23	1.93	.75	.13	.52	⅜	1	42	
256-30695-593*			½	4.33	3.00	.75	.13	.52	⅝	1¾	42	

† *Contact Technical Services for specific stranding listings*

* *UL® Listed for direct-burial applications*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

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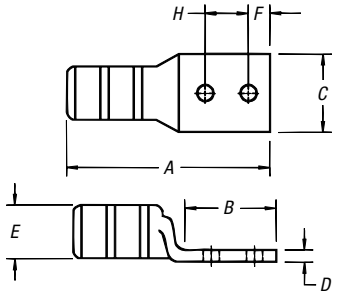
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Two-Hole Lugs — Long Barrel 600V to 35KV *(continued)*



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Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) A	B	C	D	E	F	H	DIE CODE	DIE COLOR
54814BE			¼	2.62	1.25	.83	.13	.57	¼	⅝	45	BLACK
256-30695-1299		125 Navy	¼	2.69	1.31	.81	.13	.57	¼	¾	45	
256-30695-1116	2/0 AWG	275/24 = 111 kcmil	⅜	3.19	1.81	.83	.13	.57	⅜	1	45	
256-30695-1116P		1/0 Weld	⅜	3.19	1.81	.83	.13	.57	⅜	1	45	
54862BE*			½	4.20	2.81	.83	.13	.57	½	1¾	45	
54815BE		2/0 Weld	¼	2.89	1.45	.92	.13	.63	¼	¾	50	ORANGE
54816BE	3/0 AWG	325/24 = 131 kcmil	⅜	3.25	1.63	.92	.13	.63	⅜	1	50	
54864BE		150 Navy	½	4.48	3.00	.94	.13	.63	½	1¾	50	
54817BE			¼	3.15	1.38	1.03	.14	.70	¼	¾	54	PURPLE
54818BE		200 Navy	⅜	4.38	2.63	1.03	.14	.70	⅜	1¾	54	
256-30695-1117	4/0 AWG	450/24 = 182 kcmil	⅜	3.35	1.81	1.03	.14	.70	⅜	1	54	
256-30695-1117P		3/0 Weld	⅜	3.50	1.88	1.03	.14	.70	⅜	1	54	
54866BE*			½	4.70	3.00	1.03	.14	.70	½	1¾	54	
256-30695-1245		250 Navy	⅜	3.83	1.93	1.13	.14	.77	⅜	1	62	YELLOW
256-30695-1245P	250 kcmil	550/24 = 222 kcmil,	⅜	3.83	1.93	1.13	.14	.77	⅜	1	62	
54868BE*		4/0 Weld	½	4.92	3.00	1.13	.14	.77	½	1¾	62	
54819BE	300 kcmil	300 Navy	⅜	5.04	2.80	1.25	.15	.85	⅜	1	66	WHITE
54870BE		250 Weld, 262, 650/24	½	5.23	3.00	1.25	.15	.85	½	1¾	66	
54820BE			¼	4.29	1.93	1.36	.18	.93	¼	¾	71	RED
256-30695-1118	350 kcmil		⅜	4.33	1.93	1.36	.18	.93	⅜	1	71	
256-30695-1118P			⅜	4.33	1.93	1.36	.18	.93	⅜	1	71	
54872BE			½	5.40	3.00	1.36	.18	.93	½	1¾	71	
54822BE		400 Navy	¼	4.38	1.93	1.41	.17	.96	¼	¾	76	BLUE
54821BE	400 kcmil	775/24 = 313 kcmil	⅜	4.43	1.93	1.41	.17	.96	⅜	1	76	
54874BE		300 Flex, 350, 259 Str.	½	5.51	3.00	1.41	.17	.96	½	1¾	76	
54823BE			¼	4.93	1.94	1.61	.22	1.10	¼	¾	87	BROWN
256-30695-1119	500 kcmil	400 Weld, G, H, I 925/24 = 373 kcmil	⅜	5.00	1.93	1.61	.22	1.10	⅜	1	87	
256-30695-1119P		350, K	⅜	5.00	1.93	1.61	.22	1.10	⅜	1	87	
54876BE			½	6.00	3.00	1.61	.22	1.10	½	1¾	87	
54824BE	600 kcmil	450, I, K	⅜	5.70	2.80	1.75	.24	1.20	⅜	1	94	GREEN
54878BE		1100/24 = 444 kcmil	½	5.83	3.00	1.75	.24	1.20	½	1¾	94	
54879BE	700 kcmil	1325/24 = 535 kcmil	½	5.83	3.00	1.80	.24	1.25	½	1¾	99	PINK
256-30695-1222			⅜	5.25	2.06	1.94	.27	1.33	½	1	106	BLACK
256-30695-1222P	750 kcmil	500, G, H, I, K 1325/24 = 535 kcmil	⅜	5.25	2.06	1.94	.27	1.33	½	1	106	
54880BE			½	6.20	3.00	1.94	.27	1.33	½	1¾	106	
58884BE		1600/24 = 646 kcmil	½	6.16	3.00	1.94	.27	1.33	½	1¾	106	
58826BE	900 kcmil	1925/24 = 777 kcmil	½	6.74	3.00	2.18	.31	1.50	½	1¾	115	YELLOW
54826BE	1000 kcmil	1000 Navy	⅜	6.49	2.80	2.27	.30	1.55	⅜	1	125	N/A
54882BE			½	6.66	3.00	2.27	.30	1.55	⅜	1¾	125	
54888BE	1250 kcmil	929, 2300/24	½	7.88	3.00	2.42	.35	1.67	⅝	1¾	140	

† *Contact Technical Services for specific stranding listings*

* *UL® Listed for direct-burial applications*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

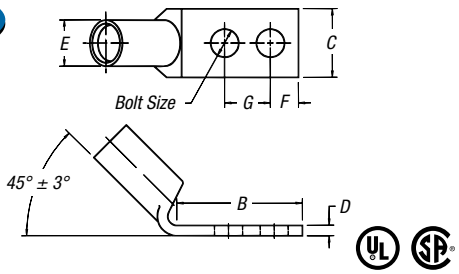
Two-Hole Lugs — 45° Long Barrel 600V to 35kV

Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate



Peep Holes Available!
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CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	G	DIE CODE	DIE COLOR
256-31426-3SPHUF			#10	1.25	.37	.07	.20	7/32	5/8 –3/4	ERG4002, ERG4005	"C" NEST
256-30695-1298UF	#14–10 AWG		1/4	1.22	.50	.05	.20	1/4	5/8		
256-30695-1055UF			1/4	1.31	.50	.13	.36	1/4	5/8 –3/4		
54850BEUF		37/24 = 14.9 kcmil	1/4	1.89	.42	.07	.26	1/4	5/8	21	RED
54851BEUF	#8 AWG	#8 Weld	1/4	1.29	.47	.06	.26	1/4	3/4	21	
54851BEUF0612		23 Navy	3/8	1.42	.47	.06	.26	3/8	3/4	21	
54852BEUF			1/4	1.28	.44	.08	.30	1/4	5/8	24	BLUE
54852BEUF0416		30 Navy	1/4	1.63	.43	.08	.30	1/4	1	24	
54852BEUF0412	#6 AWG	61/24 = 24.6 kcmil	1/4	1.43	.43	.08	.30	1/4	3/4	24	
54852BEUF0616		#6 Weld	3/8	1.93	.59	.06	.30	3/8	1	24	
54852BEUF0828		#5 Weld	1/2	3.00	.88	.11	.30	1/2	1 3/4	24	
54854BEUF			1/4	1.19	.52	.10	.37	1/4	5/8	29	GRAY
54854BEUF0412			1/4	1.31	.56	.09	.37	1/4	3/4	29	
54854BEUF0416		40–50 Navy	1/4	1.88	.58	.09	.37	3/8	1	29	
54854BEUF0516	#4 AWG	#5, 91/24 = 36.7 kcmil	5/16	1.75	.56	.10	.37	11/32	1	29	
54854BEUF0616		#4 Weld	3/8	1.98	.59	.09	.37	3/8	1	29	
54854BEUF0828			1/2	3.00	.88	.09	.37	1/2	1 3/4	29	
54855BEUF0416			1/4	1.88	.67	.09	.41	3/8	1	33	BROWN
54855BEUF			1/4	1.28	.59	.11	.41	1/4	5/8	33	
54855BEUF0412		60 Navy	1/4	1.35	.68	.11	.41	1/4	3/4	33	
54856BEUF	#2–3 AWG	#3 Weld	5/16	1.63	.59	.11	.41	3/8	3/4	33	
54810BEUF		125/24 = 50.4 kcmil	3/8	2.57	.59	.11	.41	3/8	1 3/4	33	
54810BEUF0616			3/8	1.94	.59	.11	.41	3/8	1	33	
54811BEUF			1/2	3.00	.88	.11	.41	1/2	1 3/4	33	
54809BEUF			1/4	1.19	.67	.11	.47	1/4	5/8	37	GREEN
54812BEUF		75 Navy	1/4	1.40	.67	.11	.47	1/4	3/4	37	
54858BEUF	#1 AWG	150/24 = 60.5 kcmil	5/16	1.63	.67	.11	.47	3/8	7/8	37	
54857BEUF0616		175/24 = 70.6 kcmil,	3/8	1.98	.67	.11	.47	3/8	1	37	
54857BEUF		#2 Weld	1/2	3.00	.88	.11	.47	1/2	1 3/4	37	
54859BEUF0416			1/4	1.88	.75	.13	.52	3/8	1	42	PINK
54859BEUF0416PH			1/4	1.88	.75	.13	.52	3/8	1	42	
54859BEUF			1/4	1.19	.75	.13	.52	1/4	5/8	42	
54813BEUF		100 Navy	1/4	1.38	.75	.13	.52	1/4	3/4	42	
54860BEUF	1/0 AWG	#1 Weld	5/16	1.63	.75	.13	.52	3/8	7/8	42	
54860BEUF0616		225/24 = 90.8 kcmil	3/8	1.98	.75	.13	.52	3/8	1	42	
54860BEUF0616PH			3/8	1.93	.75	.13	.52	3/8	1	42	
54860BEUF0828			1/2	3.00	.75	.13	.52	5/8	1 3/4	42	
54814BEUF			1/4	1.25	.83	.13	.57	1/4	5/8	45	BLACK
54814BEUF0412		125 Navy	1/4	1.31	.81	.13	.57	1/4	3/4	45	
54862BEUF0616	2/0 AWG	275/24 = 111 kcmil	3/8	1.81	.83	.13	.57	3/8	1	45	
54862BEUF0616PH		1/0 Weld	3/8	1.81	.83	.13	.57	3/8	1	45	
54862BEUF			1/2	2.81	.83	.13	.57	1/2	1 3/4	45	

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

Thomas&Betts

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Fax: 901.252.1354

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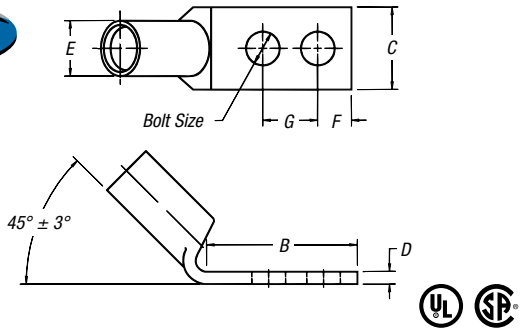
Two-Hole Lugs — 45° Long Barrel 600V to 35kV *(continued)*

Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate



Peep Holes Available!
Add suffix -PH



CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	B	C	D	E	F	G	DIE CODE	DIE COLOR
54815BEUF		2/0 Weld	¼	1.45	.92	.13	.63	¼	¾	50	
54816BEUF	3/0 AWG	325/24 = 131 kcmil	⅜	1.63	.92	.13	.63	⅜	1	50	ORANGE
54864BEUF		150 Navy	½	3.00	.94	.13	.63	½	1¾	50	
54817BEUF			¼	1.38	1.03	.14	.70	¼	¾	54	
54818BEUF		200 Navy	⅜	2.63	1.03	.14	.70	⅜	1¾	54	
54818BEUF0616	4/0 AWG	450/24 = 182 kcmil	⅜	1.81	1.03	.14	.70	⅜	1	54	PURPLE
54818BEUF0616PH		3/0 Weld	⅜	1.88	1.03	.14	.70	⅜	1	54	
54866BEUF			½	3.00	1.03	.14	.70	½	1¾	54	
54868BEUF0616		250 Navy	⅜	1.93	1.13	.14	.77	⅜	1	62	
54868BEUF0616PH	250 kcmil	550/24 = 222 kcmil	⅜	1.93	1.13	.14	.77	⅜	1	62	YELLOW
54868BEUF		4/0 Weld	½	3.00	1.13	.14	.77	½	1¾	62	
54819BEUF	300 kcmil	300 Navy	⅜	2.80	1.25	.15	.85	⅜	1	66	WHITE
54870BEUF		250 Weld, 262, 650/24	½	3.00	1.25	.15	.85	½	1¾	66	
54820BEUF			¼	1.93	1.36	.18	.93	¼	¾	71	
54872BEUF0616	350 kcmil		⅜	1.93	1.36	.18	.93	⅜	1	71	RED
54872BEUF0616PH			⅜	1.93	1.36	.18	.93	⅜	1	71	
54872BEUF			½	3.00	1.36	.18	.93	½	1¾	71	
54822BEUF			¼	1.93	1.41	.17	.96	¼	¾	76	
54821BEUF	400 kcmil	400 Navy 775/24 = 313 kcmil	⅜	1.93	1.41	.17	.96	⅜	1	76	BLUE
54874BEUF			½	3.00	1.41	.17	.96	½	1¾	76	
54823BEUF			¼	1.94	1.61	.22	1.10	¼	¾	87	
54876BEUF0616	500 kcmil	400 Weld, G, H, I 925/24 = 373 kcmil 350, K	⅜	1.93	1.61	.22	1.10	⅜	1	87	BROWN
54876BEUF0616PH			⅜	1.93	1.61	.22	1.10	⅜	1	87	
54876BEUF			½	3.00	1.61	.22	1.10	½	1¾	87	
54824BEUF	600 kcmil	450 Weld, I, K	⅜	2.80	1.75	.24	1.20	⅜	1	94	GREEN
54878BEUF		1100/24 = 444 kcmil	½	3.00	1.75	.24	1.20	½	1¾	94	
54880BEUF0616			⅜	2.06	1.94	.27	1.33	½	1	106	
54880BEUF0616PH	750 kcmil	500, G, H, I, K 1325/24 = 535 kcmil	⅜	2.06	1.94	.27	1.33	½	1	106	BLACK
54880BEUF			½	3.00	1.94	.27	1.33	½	1¾	106	
58884BEUF		1600/24 = 646 kcmil	½	3.00	1.94	.27	1.33	½	1¾	106	
58826BEUF	900 kcmil	1925/24 = 777 kcmil	½	3.00	2.18	.31	1.50	½	1¾	115	YELLOW
54826BEUF	1000 kcmil	1000 Navy	⅜	2.80	2.27	.30	1.55	⅜	1	125	N/A
54882BEUF			½	3.00	2.27	.30	1.55	½	1¾	125	

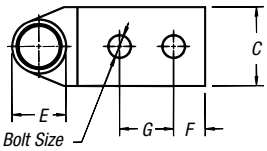
† *Contact Technical Services for specific stranding listings*

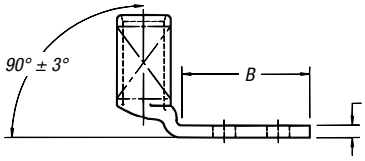
Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

Two-Hole Lugs — 90° Long Barrel 600V to 35kV Applications



Peep Holes Available!
Add suffix -PH





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	G	DIE CODE	DIE COLOR
56-31426-3SPHUB			#10	1.25	.37	.07	.20	7/32	5/8–3/4	ERG4002, ERG4005	"C" NEST
256-30695-1298UB	#14–10 AWG		1/4	1.22	.50	.05	.20	1/4	5/8		
256-30695-1055UB			1/4	1.31	.50	.13	.36	1/4	5/8–3/4		
54850BEUB		37/24 = 14.9 kcmil	1/4	1.89	.42	.07	.26	1/4	13/16	21	RED
54851BEUB	#8 AWG	#8 Weld	1/4	1.29	.47	.06	.26	1/4	3/4	21	
54851BEUB0616		23 Navy	3/8	2.10	.56	.06	.26	3/8	1	21	
54852BEUB			1/4	1.28	.44	.08	.30	1/4	5/8	24	BLUE
256306951014B		30 Navy	1/4	1.63	.43	.08	.30	1/4	1	24	
54852BEUB0412	#6 AWG	61/24 = 24.6 kcmil	1/4	1.43	.43	.08	.30	1/4	3/4	24	
54852BEUB0616		#6 Weld	3/8	1.93	.59	.06	.30	3/8	1	24	
54852BEUB0828			1/2	3.00	.88	.11	.30	1/2	1 3/4	24	
54854BEUB			1/4	1.19	.52	.10	.37	1/4	5/8	29	GRAY
54854BEUB0412			1/4	1.31	.56	.09	.37	1/4	3/4	29	
54854BEUB0416		40–50 Navy	1/4	1.88	.58	.09	.37	3/8	1	29	
54854BEUB0516	#4 AWG	#5, 91/24 = 36.7 kcmil	5/16	1.75	.56	.10	.37	11/32	1	29	
54854BEUB0616		#4 Weld	3/8	1.98	.59	.09	.37	3/8	1	29	
54854BEUB0828			1/2	3.00	.88	.09	.37	1/2	1 3/4	29	
54858BEUB0416			1/4	1.88	.67	.09	.41	3/8	1	33	BROWN
54855BEUB			1/4	1.28	.59	.11	.41	1/4	5/8	33	
54855BEUB0412		60 Navy	1/4	1.35	.68	.11	.41	1/4	3/4	33	
54856BEUB	#2–3 AWG	#3 Weld	5/16	1.63	.59	.11	.41	3/8	3/4	33	
54810BEUB		125/24 = 50.4 kcmil	3/8	2.57	.59	.11	.41	3/8	1 3/4	33	
54810BEUB0616			3/8	1.94	.59	.11	.41	3/8	1	33	
54811BEUB			1/2	3.00	.88	.11	.41	1/2	1 3/4	33	
54809BEUB			1/4	1.19	.67	.11	.47	1/4	5/8	37	GREEN
54812BEUB		75 Navy	1/4	1.40	.67	.11	.47	1/4	3/4	37	
54858BEUB	#1 AWG	150/24 = 60.5 kcmil	5/16	1.63	.67	.11	.47	3/8	7/8	37	
54857BEUB0616		175/24 = 70.6 kcmil	3/8	1.98	.67	.11	.47	3/8	1	37	
54857BEUB		#2 Weld	1/2	3.00	.88	.11	.47	1/2	1 3/4	37	
54859BEUB0416			1/4	1.88	.75	.13	.52	3/8	1	42	PINK
54859BEUB0416PH			1/4	1.88	.75	.13	.52	3/8	1	42	
54859BEUB		100 Navy	1/4	1.19	.75	.13	.52	1/4	5/8	42	
54813BEUB	1/0 AWG	#1 Weld	1/4	1.38	.75	.13	.52	1/4	3/4	42	
54860BEUB		225/24 = 90.8 kcmil	5/16	1.63	.75	.13	.52	3/8	7/8	42	
54860BEUB0616			3/8	1.98	.75	.13	.52	3/8	1	42	
54860BEUB0828			1/2	3.00	.75	.13	.52	5/8	1 3/4	42	
54814BEUB			1/4	1.25	.83	.13	.57	1/4	5/8	45	BLACK
54814BEUB0412		125 Navy	1/4	1.31	.81	.13	.57	1/4	3/4	45	
54862BEUB0616	2/0 AWG	275/24 = 111 kcmil	3/8	1.81	.83	.13	.57	3/8	1	45	
54862BEUB0616PH		1/0 Weld	3/8	1.81	.83	.13	.57	3/8	1	45	
54862BEUB			1/2	2.81	.83	.13	.57	1/2	1 3/4	45	

† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

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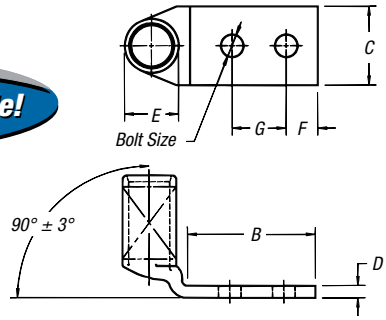
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Two-Hole Lugs — 90° Long Barrel 600V to 35kV Applications *(continued)*



Peep Holes Available!
Add suffix -PH



Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	BOLT SIZE	DIMENSIONS (IN.) B	C	D	E	F	G	DIE CODE	DIE COLOR
54815BEUB		150 Navy	¼	1.45	.92	.13	.63	¼	¾	50	ORANGE
54816BEUB	3/0 AWG	2/0 Weld	⅜	1.63	.92	.13	.63	⅜	¾	50	
54864BEUB		325/24 = 131 kcmil	½	3.00	.94	.13	.63	½	1¾	50	
54817BEUB			¼	1.38	1.03	.14	.70	¼	¾	54	PURPLE
54818BEUB		200 Navy	⅜	2.63	1.03	.14	.70	⅜	1¾	54	
54818BEUB0616	4/0 AWG	450/24 = 182 kcmil	⅜	1.81	1.03	.14	.70	⅜	1	54	
54818BEUB0616PH		3/0 Weld	⅜	1.88	1.03	.14	.70	⅜	1	54	
54866BEUB			½	3.00	1.03	.14	.70	½	1¾	54	
54868BEUB0616		250 Navy	⅜	1.93	1.13	.14	.77	⅜	1	62	YELLOW
54868BEUB0616PH	250 kcmil	550/24 = 222 kcmil	⅜	1.93	1.13	.14	.77	⅜	1	62	
54868BEUB		4/0 Weld	½	3.00	1.13	.14	.77	½	1¾	62	
54819BEUB	300 kcmil	300 Navy	⅜	2.80	1.25	.15	.85	⅜	1	66	WHITE
54870BEUB		250 Weld, 26, 2, 650/24	½	3.00	1.25	.15	.85	½	1¾	66	
54820BEUB			¼	1.93	1.36	.18	.93	¼	¾	71	RED
54872BEUB0616	350 kcmil		⅜	1.93	1.36	.18	.93	⅜	1	71	
54872BEUB0616PH			⅜	1.93	1.36	.18	.93	⅜	1	71	
54872BEUB			½	3.00	1.36	.18	.93	½	1¾	71	
54822BEUB		400 Navy	¼	1.93	1.41	.17	.96	¼	¾	76	BLUE
54821BEUB	400 kcmil	775/24 = 313 kcmil	⅜	1.93	1.41	.17	.96	⅜	1	76	
54874BEUB		300 Weld, 350, 259 Str.	½	3.00	1.41	.17	.96	½	1¾	76	
54823BEUB			¼	1.94	1.61	.22	1.10	¼	¾	87	BROWN
54823BEUB0616	500 kcmil	400 Weld, G, H, I 925/24 = 373 kcmil 350, K	⅜	1.93	1.61	.22	1.10	⅜	1	87	
54876BEUB0616PH			⅜	1.93	1.61	.22	1.10	⅜	1	87	
54876BEUB			½	3.00	1.61	.22	1.10	½	1¾	87	
54824BEUB	600 kcmil	450 Weld, I, K	⅜	2.80	1.75	.24	1.20	⅜	1	94	GREEN
54878BEUB		1100/24 = 444 kcmil	½	3.00	1.75	.24	1.20	½	1¾	94	
54880BEUB0616			⅜	2.06	1.94	.27	1.33	½	1	106	BLACK
54880BEUB0616PH	750 kcmil	500, G, H, I, K 1325/24 = 535 kcmil	⅜	2.06	1.94	.27	1.33	½	1	106	
54880BEUB			½	3.00	1.94	.27	1.33	½	1¾	106	
58884BEUB		1600/24 = 646 kcmil	½	3.00	1.94	.27	1.33	½	1¾	106	
58826BEUB	900 kcmil	1925/24 = 777 kcmil	½	3.00	2.18	.31	1.50	½	1¾	115	YELLOW
54826BEUB	1000 kcmil	1000 Navy	⅜	2.80	2.27	.30	1.55	⅜	1	125	N/A
54882BEUB			⅜	3.00	2.27	.30	1.55	½	1¾	125	

† *Contact Technical Services for specific stranding listings*

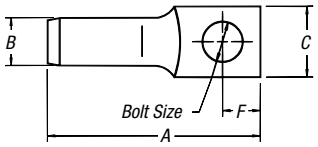
Tooling: ***pp. F-80–F-100***

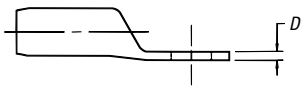
Die Selector Chart: ***pp. F-101–F-104***

Compression Connectors for Copper Conductor

Copper One-Hole Lugs for 600V to 35kV Applications







These connectors are recommended for up to 15kV applications. Installed with standard T&B Cat. No. TBM15I, 13100A, TBM14M hydraulic compression tools with special rounding dies. The compression forms the connector and conductor into a solid mass to provide an optimum electrical bond between connector and conductor. The rounding die-overlapped compressions provide a smooth, round surface. This, combined with the tapered barrel ends, addresses the controlling of potentially damaging electrical stresses of high voltages.

										INSTALLING TOOLS 13100A, TBM15I* & TBM14M		
CAT. NO.	CABLE SIZE†	STUD SIZE (IN.)	DIMENSIONS (IN.) A	B	C	D	E	F	DIE SET CAT. NO.	STRIP LENGTH (IN.)	COLOR CODE
54440	#4 AWG	3/8	2.08	.81	.58	.08	3/8	1/2	15CA29R	1 7/16	GRAY
54443	#2 AWG	3/8	2.25	.81	.66	.09	3/8	1/2	15CA33R	1 7/16	BROWN
54448	#1 AWG	3/8	2.36	.81	.69	.10	3/8	1/2	15CA37R	1 19/32	GREEN
54409	1/0 AWG	3/8	2.38	.81	.75	.12	3/8	1/2	15CA42R	1 5/8	PINK
54460	2/0 AWG	1/2	2.73	1.06	.83	.12	1/2	1/2	15CA45R	1 5/8	BLACK
54465	3/0 AWG	1/2	2.81	1.06	.94	.12	1/2	1/2	15CA49R	1 3/4	ORANGE
54470	4/0 AWG	1/2	2.78	1.06	1.00	.13	1/2	1/2	15CA54R	1 13/16	PURPLE
54413	250 kcmil	1/2	3.19	1.06	1.07	.14	1/2	1/2	15CA60R	2 1/32	RUBY

† *Cable size: Concentric and compact strandings*

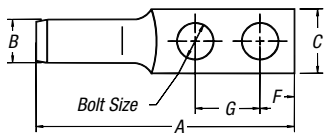
* *Cat. No. TB15500 Die Adapter required for TBM15I*

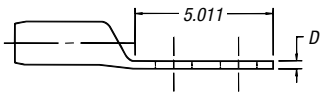
Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Copper Two-Hole Lugs for 600V to 35kV Application







											INSTALLING TOOLS 13100A, TBM15I* & TBM14M		
CAT. NO.	CABLE SIZE†	STUD SIZE (IN.)	DIMENSIONS (IN.) A	B	C	D	E	F	G	DIE SET CAT. NO.	STRIP LENGTH (IN.)	COLOR CODE
54475	1/0 AWG	3/8	3.56	17/32	.77	.12	3/8	3/8	1.00	15CA42R	1 5/8	PINK
54476	2/0 AWG	1/2	4.67	9/16	.83	.12	1/2	1/2	1.75	15CA45R	1 5/8	BLACK
54478	3/0 AWG	1/2	4.75	5/8	.94	.12	1/2	1/2	1.75	15CA49R	1 3/4	ORANGE
54479	4/0 AWG	1/2	4.64	11/16	1.00	.13	1/2	1/2	1.75	15CA54R	1 13/16	PURPLE
54480	250 kcmil	1/2	5.17	3/4	1.08	.14	1/2	1/2	1.75	15CA60R	2 1/32	RUBY
54481	300 kcmil	1/2	5.16	13/16	1.19	.16	1/2	1/2	1.75	15CA66R	23/32	WHITE
54482	350 kcmil	1/2	5.35	7/8	1.29	.19	1/2	1/2	1.75	15CA71R	2 13/32	RED
54483	400 kcmil	1/2	5.35	59/64	1.36	.18	1/2	1/2	1.75	15CA76R	2 13/32	BLUE
54484	500 kcmil	1/2	5.60	1 1/16	1.54	.23	1/2	1/2	1.75	15CA87R	2 13/32	BROWN
54485	600 kcmil	1/2	5.83	1 11/64	1.70	.24	1/2	1/2	1.75	15CA94R	2 9/16	GREEN
54487	750 kcmil	1/2	6.13	1 19/64	1.89	.27	1/2	1/2	1.75	15CA106R	2 3/4	BLACK
54490	1000 kcmil	1/2	6.60	1 1/2	2.18	.31	1/2	1/2	1.75	15C125R•	2 29/32	—

• *No adapter required – TBM15I only*

† *Cable size: Concentric and compact strandings*

TBM14M and 13100A UL Listing limited to 1/0 AWG–500 kcmil cable sizes

* *Cat. No. TB15500 Die Adapter required for TBM15I*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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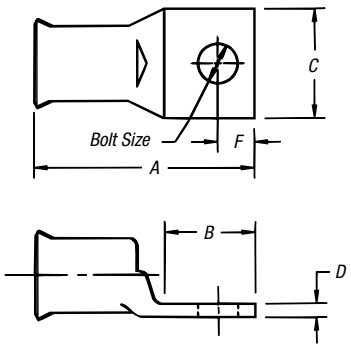
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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Bell-Ended Lugs — Standard Barrel





Bell-Shaped Barrel

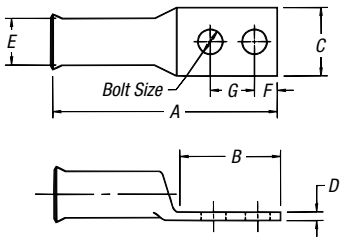
CAT. NO.	WIRE SIZE CODE	WIRE SIZE NAVY	WIRE SIZE FLEX	CLASS G	CLASS H	CLASS I	CLASS K	CLASS M	BOLT SIZE (IN.)	DIMENSIONS (IN.) A	B	C	D	F	DIE CODE	DIE COLOR
54104BS	8	23	37/24	8	8	—	8	8	#10	1 1/16	15/32	13/32	5/64	7/32	21	RED
54105BS	6	30	61/24	5	5	5	5	5	1/4	1 3/16	9/16	7/16	7/64	1/4	24	BLUE
54106BS	4	40–50	91/24	5	5	5	5	5	1/4	1 9/32	9/16	9/16	7/64	1/4	29	GRAY
54139BS	3 & 4	40–50	91/24	4	4	4	4	4	5/16	1 7/16	25/32	19/32	5/64	11/32	29	
54142BS	2	60	125/24	3	3	3	3	3	5/16	1 17/32	23/32	21/32	5/64	11/32	33	BROWN
54147BS	1	75	150, 175/24	2	2	2	2	2	5/16	1 21/23	23/32	43/64	1/8	3/8	37	GREEN
54153BS	1/0	100	225/24	1	1	1	1	1	5/16	1 5/8	23/32	3/4	9/64	3/8	42	PINK
54110BS	2/0	125	275/24	1/0	1/0	1/0	1/0	1/0	3/8	1 7/8	13/16	13/16	9/64	3/8	45	BLACK
54165BS	3/0	150	325/24	2/0	2/0	2/0	2/0	2/0	1/2	2 7/32	1 1/16	15/16	9/64	1/2	50	ORANGE
54170BS	4/0	200	450/24	3/0	3/0	3/0	3/0	3/0	1/2	2 5/16	1 1/16	1 1/32	5/32	1/2	54	PURPLE
58165BS	250	—	550/24	4/0	4/0	—	—	—	1/2	2 15/32	1 1/8	1 1/4	3/16	1/2	62	YELLOW
54114BS	300	300	—	250	250	4/0	4/0	4/0	1/2	2 3/8	1 1/8	1 1/4	3/16	1/2	66	WHITE
54152BS	350	350	650/24	—	—	250	250	250	1/2	2 3/8	1 3/16	1 3/8	13/64	9/16	66	
54185BS	400	400	775/24	300	300	300	300	300	5/8	3 7/16	1 11/16	1 13/32	7/32	13/16	76	BLUE
58177BS	500	—	925/24	400	400	400	350	350	1/2	3	1 5/16	1 5/8	1/4	13/16	80	N/A
58180BS	600	—	1100/24	—	—	450	450	450	5/8	3 5/8	1 11/16	1 25/32	17/64	13/16	94	GREEN
54122BS	700	—	1325/24	500	500	500	500	500	5/8	3 5/8	1 11/16	1 25/32	9/32	13/16	99	PINK
54123BS	750	—	—	600	—	—	—	550	5/8	3 5/8	1 11/16	1 15/16	5/16	13/16	106	BLACK
54124BS	800	800	—	—	—	—	600	—	5/8	3 13/16	1 11/16	2	5/16	5/8	107	ORANGE
54126BS	900	—	1925/24	—	—	—	—	—	5/8	4 1/8	1 13/16	2 3/16	11/32	7/8	115	YELLOW

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Bell-Ended Lugs — Long Barrel





Bell-Shaped Copper Lugs with Two Bolt Holes

CAT. NO.	WIRE SIZE CODE	NAVY	FLEX	CLASS G	CLASS H	CLASS I	CLASS K	CLASS M	BOLT SIZE (IN.)	DIMENSIONS (IN.) A	B	C	D	E	F	G	DIE CODE	DIE COLOR
54850BEBS	8	23	8	8	8	—	8	—	¼	2.19	1.88	.42	.07	.26	.25	.63	21	RED
54851BEBS	8	23	8	8	8	—	8	—	¼	2.31	1.29	.47	.06	.26	.25	.75	21	
54851BE0616BS	8	23	8	8	8	—	8	—	⅜	3.00	2.10	.56	.06	.26	.38	1.00	21	
54852BE0616BS	6	30	6	5	5	5	5	—	⅜	2.93	1.93	.59	.06	.30	.38	1.00	24	BLUE
54852BEBS	6	30	6	5	5	5	5	—	¼	2.28	1.28	.44	.08	.30	.25	.63	24	
54852BE0412BS	6	30	6	5	5	5	5	—	¼	2.43	1.43	.43	.07	.30	.25	.75	24	
54854BEBS	4–3	40–50	5	5	5	5	5	—	¼	2.31	1.19	.52	.10	.37	.25	.63	29	GRAY
54854BE0412BS	4–3	40–50	5	5	5	5	5	—	¼	2.31	1.31	.56	.09	.37	.25	.75	29	
54854BE0616BS	4–3	40–50	5	5	5	5	5	—	⅜	3.13	1.98	.59	.09	.37	.38	1.00	29	
54855BE0412BS	2	60	3	3	3	3	3	3	¼	2.63	1.35	.68	.11	.41	.25	.75	33	BROWN
54855BEBS	2	60	3	3	3	3	3	3	¼	2.43	1.28	.59	.11	.41	.25	.63	33	
54856BEBS	2	60	3	3	3	3	3	3	3⁄16	2.78	1.63	.59	.11	.41	.38	.75	33	
54810BE0616BS	2	60	3	3	3	3	3	3	⅜	3.08	1.94	.59	.11	.41	.38	1.00	33	
54811BEBS	2	60	3	3	3	3	3	3	½	4.28	3.00	.88	.09	.41	.50	1.75	33	
54809BEBS	1	75	2	2	2	2	2	2	¼	2.88	1.19	.67	.11	.47	.25	.63	37	GREEN
54812BEBS	1	75	2	2	2	2	2	2	¼	2.75	1.40	.67	.11	.47	.25	.75	37	
54858BEBS	1	75	2	2	2	2	2	2	5⁄16	2.97	1.63	.67	.11	.47	.38	.88	37	
54857BEBS	1	75	2	2	2	2	2	2	½	4.43	3.00	.88	.10	.47	.50	1.75	37	
54859BEBS	1/0	100	1	1	1	1	1	1	¼	2.63	1.19	.75	.13	.52	.25	.63	42	PINK
54813BEBS	1/0	100	1	1	1	1	1	1	¼	2.71	1.38	.75	.13	.52	.25	.75	42	
54860BEBS	1/0	100	1	1	1	1	1	1	5⁄16	2.97	1.63	.75	.13	.52	.38	.88	42	
54860BE0616BS	1/0	100	1	1	1	1	1	1	⅜	3.23	1.93	.75	.13	.52	.38	1.00	42	
5414BEBS	2/0	125	1/0	1/0	1/0	1/0	1/0	1/0	¼	2.62	1.25	.83	.13	.57	.25	.63	45	BLACK
54814BE0412BS	2/0	125	1/0	1/0	1/0	1/0	1/0	1/0	¼	2.69	1.31	.81	.13	.57	.25	.75	45	
54862BE0616BS	2/0	125	1/0	1/0	1/0	1/0	1/0	1/0	⅜	3.19	1.81	.83	.13	.57	.38	1.00	45	
54862BEBS	2/0	125	1/0	1/0	1/0	1/0	1/0	1/0	½	4.20	2.81	.83	.13	.57	.50	1.75	45	
54815BEBS	3/0	150	2/0	2/0	2/0	2/0	2/0	2/0	¼	2.89	1.45	.92	.13	.63	.25	.75	50	ORANGE
54816BEBS	3/0	150	2/0	2/0	2/0	2/0	2/0	2/0	⅜	3.25	1.63	.92	.13	.63	.38	1.00	50	
54864BEBS	3/0	150	2/0	2/0	2/0	2/0	2/0	2/0	½	4.45	3.00	.92	.13	.63	.50	1.75	50	
54817BEBS	4/0	200	3/0	3/0	3/0	3/0	3/0	3/0	¼	3.15	1.38	1.03	.14	.70	.50	.75	54	PURPLE
54818BE0616BS	4/0	200	3/0	3/0	3/0	3/0	3/0	3/0	⅜	3.35	1.81	1.03	.14	.70	.25	1.00	54	
54818BEBS	4/0	200	3/0	3/0	3/0	3/0	3/0	3/0	⅜	4.38	2.63	1.03	.14	.70	.38	1.75	54	
54866BEBS	4/0	200	3/0	3/0	3/0	3/0	3/0	3/0	½	4.70	3.00	1.03	.14	.70	.50	1.75	54	
54868BE0616BS	250	—	4/0	4/0	4/0	4/0	4/0	4/0	⅜	3.83	1.93	1.13	.14	.77	.50	1.00	62	YELLOW
54868BEBS	250	—	4/0	4/0	4/0	4/0	4/0	4/0	½	4.92	3.00	1.13	.14	.77	.50	1.75	62	
54819BEBS	300	300	262 kcmil	250 kcmil	250	250	250	—	⅜	5.04	2.80	1.25	.15	.85	.50	1.00	66	WHITE
54870BEBS	300	300	262 kcmil	250 kcmil	250	250	250	—	½	5.23	3.00	1.25	.15	.85	.50	1.75	66	
54822BEBS	400	400	313 kcmil	300 kcmil	300	300	300	—	¼	4.38	1.93	1.41	.17	.96	.63	.75	76	BLUE
54821BEBS	400	400	313 kcmil	300 kcmil	300	300	300	—	⅜	4.43	1.93	1.41	.17	.96	.63	1.00	76	
54874BEBS	400	400	313 kcmil	300 kcmil	300	300	300	—	½	5.51	3.00	1.41	.17	.96	.63	1.75	76	
54823BEBS	500	—	373 kcmil	400 kcmil	400	400	350	—	¼	4.93	1.94	1.61	.22	1.10	.50	.75	87	BROWN
54876BE0616BS	500	—	373 kcmil	400 kcmil	400	400	350	—	⅜	5.00	1.93	1.61	.22	1.10	.50	1.00	87	
54876BEBS	500	—	373 kcmil	400 kcmil	400	400	350	—	½	6.00	3.00	1.61	.22	1.10	.50	1.75	87	
54824BEBS	—	—	444 kcmil	—	—	450	450	—	⅜	5.70	2.80	1.75	.24	1.20	.63	1.00	94	GREEN
54878BEBS	—	—	444 kcmil	—	—	450	450	—	½	5.83	3.00	1.75	.24	1.20	.63	1.75	94	
54880BEBS	700	—	535 kcmil	500 kcmil	500	500	500	—	½	6.20	3.00	1.94	.27	1.33	.63	1.75	106	BLACK
58826BEBS	900	—	777 kcmil	—	—	—	—	—	½	6.49	2.80	2.27	.30	1.50	.63	1.75	115	YELLOW

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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Compression Connectors for Copper Conductor

Two-Barrel Lugs 600V to 35kV Applications

Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate



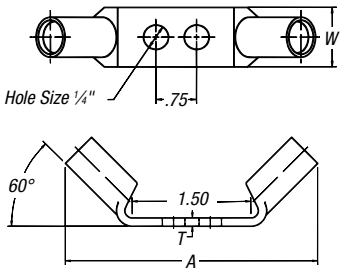


Figure 1

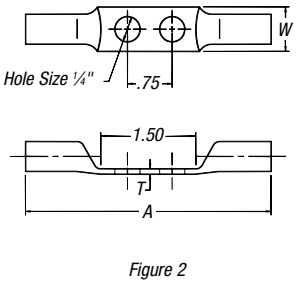


Figure 2

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX	HOLE SIZE (IN.)	FIG. NO.	DIMENSIONS (IN.) A	W	T	DIE CODE	COLOR KEY
256-30695-828	6	61/24	¼	1	2 15/16	7/16	1/16	24	Blue
256-30695-1227	6	61/24	¼	2	3⅜	7/16	1/16	24	Blue

Tooling: ***pp. F-80–F-100***

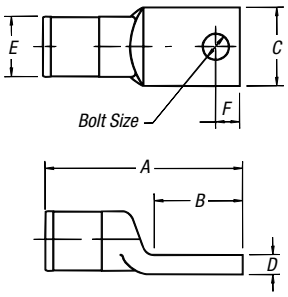
Die Selector Chart: ***pp. F-101–F-104***

Cast Copper One-Hole Lugs 600V to 35kV Applications — Heavy-Duty

Material: Cast Copper

Finish: Electro Tin Plate





CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) A	B	C	D	F	BOLT SIZE (IN.)	DIE CODE
53104	8	1 7/16	¾	½	⅛	9/32	#10	29
53105	6	1 7/16	¾	½	⅛	9/32	¼	29
53106	4	1 7/16	¾	½	⅛	9/32	¼	29
53107	2	2	1	¾	¼	7/16	¼	45
53108	1	2	1	¾	¼	7/16	¼	45
53109	1/0	2	1	¾	¼	7/16	⅜	45
53161*	325/24	2 3/16	¾	13/16	7/32	7/16	⅜	54
53110	2/0	2⅝	1¼	1	9/32	17/32	⅜	66
53111	3/0	2⅝	1¼	1	9/32	17/32	⅜	66
53112	4/0	2⅝	1¼	1	9/32	17/32	⅜	66
53165*	650/24	3 1/16	1⅜	1 3/16	5/16	¾	½	76
53113	250 kcmil	3 1/16	1½	1 3/16	5/16	¾	½	76
53114	300 kcmil	3 1/16	1½	1 3/16	5/16	¾	½	76
53115	350 kcmil	3 13/16	2	1⅜	⅜	13/16	½	99
53116	400 kcmil	3 13/16	2	1⅜	⅜	13/16	½	99
53118	500 kcmil	3 13/16	2	1⅜	⅜	13/16	½	99
53168*	1100/24	3 15/16	1⅝	1⅝	13/32	⅞	½	107
53169*	1325/24	3 5/16	1⅝	1⅝	13/32	⅞	½	107
53123	750 kcmil	4 3/16	2⅛	1⅝	7/16	1	½	112
53173*	2750/24	5 1/16	1⅞	2⅛	9/16	1 3/16	½	150

All other Cat. Nos.: Use hydraulic tools with hex dies.

** No UL/CSA*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Cast Copper Two-Hole Lugs for Code Copper Cable 600V to 35kV

Material: Cast Copper

Finish: Electro Tin Plate



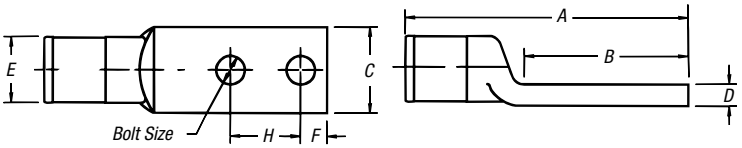


Figure 1

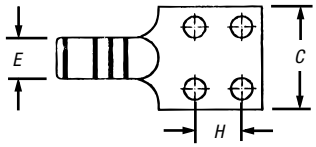


Figure 2

CAT. NO.	CODE CABLE SIZE	BOLT G SIZE (IN.)	DIMENSIONS (IN.) A APPROX.	B	C	D	E	F	H	DIE CODE	NO. OF CRIMPS 12 TON	15 TON	40 TON
256-30695-1055	#14–10 AWG	¼	2	1 5/16	½	⅛	⅜	¼	⅝–¾	29	1	1	1
53204	#8 AWG	¼	2	1 5/16	½	3/32*	⅜	¼	⅝	29	1	1	1
53205	#8 AWG	¼	2	1 5/16	½	⅛	⅜	¼	⅝	29	1	1	1
53206	#4 AWG	¼	2	1 5/16	½	⅛	⅜	¼	⅝	29	1	1	1
53207	#2 AWG	¼	3	2	¾	⅛	1 9/32	½	¾	45	1	1	1
53208	#1 AWG	¼	3	2	¾	¼	1 9/32	½	1	45	1	1	1
53209	1/0 AWG	⅜	3	2	¾	¼	1 9/32	½	1	45	1	1	1
53210	2/0 AWG	⅜	4 5/16	3	¾	3/16*	2 7/32	⅝	1 ¾	66	1	1	1
53211	3/0 AWG	½	4 5/16	3	1	9/32	2 7/32	⅝	1 ¾	66	1	1	1
53212	4/0 AWG	½	4 5/16	3	1	9/32	2 7/32	⅝	1 ¾	66	1	1	1
53213	250 kcmil	½	4 9/16	3	1 3/16	3/16*	1 5/16	⅝	1 ¾	76	1	1	1
53214	300 kcmil	½	4 9/16	3	1 3/16	5/16	1 5/16	⅝	1 ¾	76	1	1	1
53215	350 kcmil	½	5 5/16	3½	1⅜	¼*	1 17/32	⅝	1 ¾	99	2	1	1
53216	400 kcmil	½	5 5/16	3½	1⅜	⅜	1 17/32	⅝	1 ¾	99	2	1	1
53218	500 kcmil	½	5 5/16	3½	1⅜	⅜	1 17/32	⅝	1 ¾	99	2	1	1
53220M	600 kcmil	½	5 5/16	3½	1⅜	17/32	1 23/64	⅝	1 ¾	112	2	1	1
53222M	700 kcmil	½	5 5/16	3½	1⅜	±1/32	1 23/64	⅝	1 ¾	112	2	1	1
53223M	750 kcmil	½	5 5/16	3½	1⅜	±1/32	1 23/64	⅝	1 ¾	112	2	1	1
53269	1325/24	½	5½	3½	1⅜	13/32	1⅜	⅝	1 ¾	107	2	1	1
53224	800 kcmil	½	6	3½	1⅞	5/16*	1 9/16	⅝	1 ¾	130	—	1	1
53226	900 kcmil	½	6	3½	1⅞	15/32	1 9/16	⅝	1 ¾	130	—	1	1
53228	1000 kcmil	½	6	3½	1⅞	15/32	1 9/16	⅝	¾	130	—	1	1
53273	1111 kcmil 2750/24	½	6 3/16	3½	2⅛	9/16	1 29/32	⅝	1 ¾	150	—	—	—
53233	1500 kcmil	½	6¼	3½	2¼	½*	1 29/32	⅝	1 ¾	150	—	1	1
53233L	1500 kcmil	½	7 5/16	3½	2	½	1⅞	⅝	1 ¾	150	—	1	—
53433L**	1500 kcmil	½	7 5/16	3⅛	3	½	1⅞	⅝	1 ¾	150	—	1	—
251-30485-1275	1250 kcmil	½	6 3/16	3½	2⅛	9/16	1 29/32	⅝	1 ¾	150	—	—	—
251-30485-1211	1750 kcmil	—	6⅜	3⅛	3	½	2 3/16	—	—	175	—	—	2 (Fig. 2)
251-30485-1212	1750 kcmil	—	6⅜	3½	2¼	½	2 3/16	—	—	175	—	—	2 (Fig. 1)
53239	2000 kcmil	½	6 3/16	3½	2¾	½	2 3/16	⅝	1 ¾	175	—	—	—
53239L	169/.110 178/.104 2000 kcmil	½	7 5/16	3⅛	2¼	½	2 15/32	⅝	1 ¾	175	—	—	—
53439L**	169/.110 178/.104 2000 kcmil	½	7 5/16	3⅛	3	½	2 3/16	⅝	1 ¾	175	—	—	11421 Die

** Denotes tongue thickness of alternate construction (brazed wrought-copper tongue).*

*** Figure 2. All others Figure 1.*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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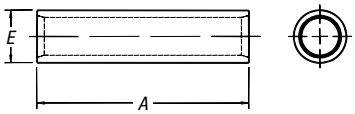
Technical Services
Tel: 888.862.3289

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Compression Connectors for Copper Conductor

Two-Way Splice Connectors — Standard Barrel 600V to 35kV





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

Two-way connectors provide high pullout values, are easy to insulate and provide a low-resistance connection of high quality and low installed cost.

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	DIMENSIONS (IN.) A	DIMENSIONS (IN.) E	DIE CODE	DIE COLOR
54504	#8 AWG	37/24 = 14.9 kcmil, #8 Weld	1.00	.27	21	RED
54505	#6 AWG	61/24 = 24.6 kcmil, #6 Weld, 133/.014	1.00	.30	24	BLUE
54506	#4 AWG	91/24 = 36.7 kcmil, 133/.0177, 49/.029	1.00	.37	29	GRAY
54507	#2 AWG	125/24 = 50.4 kcmil, #4 Weld	1.25	.41	33	BROWN
54508	#1 AWG	150/24 = 60.5 kcmil, 175/24 = 70.6 kcmil, #2 Weld, 133/.0223	1.50	.47	37	GREEN
54509	1/0 AWG	225/24 = 90.8 kcmil, #1 Weld, 133/.0254	1.63	.52	42	PINK
54510	2/0 AWG	275/24 = 111 kcmil, 1/0 Weld, 427/.0155, 133/.0282	1.75	.57	45	BLACK
54511	3/0 AWG	325/24 = 131 kcmil, 2/0 Weld, 133/.0316, 259/.0227, 427/.0177	1.75	.63	50	ORANGE
53962		375/24 = 179 kcmil, 133/.0355, 259/.0255, 427/.0199	1.81	.70	50	
54512	4/0 AWG	450/24 = 182 kcmil, 3/0 Weld, 703/.0154	1.88	.70	54	PURPLE
54513	250 kcmil		2.25	.77	62	YELLOW
53964		550/24 = 222 kcmil, 4/0 Weld, 133/.0399, 259/.0286, 637/.0183	2.13	.79	62	
54514	300 kcmil	—	2.13	.83	66	WHITE
54515	350 kcmil	—	2.25	.90	71	RED
54516	400 kcmil	—	2.75	.93	76	BLUE
53968		1100/24 = 444 kcmil, 500 Weld, 259/.0417, 427/.0325, 703/.0253	3.00	1.13	87	BROWN
54518	500 kcmil	—	2.75	1.11	87	BROWN
54520	600 kcmil	—	3.00	1.18	94	GREEN
54522-TB	700 kcmil	—	3.25	1.23	99	PINK
53969		1325/24 = 535 kcmil, 427/.0342	3.00	1.24	99	
54523-TB	750 kcmil	—	3.00	1.30	106	BLACK
54528	1000 kcmil	—	3.63	1.50	125	N/A
54530	1250 kcmil	—	4.13	1.67	140	

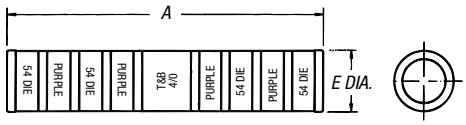
† *Contact Technical Services for specific stranding listings*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Two-Way Splice Connectors — Long Barrel 600V to 35kV





Material: High-Conductivity Wrought Copper

Finish: Electro Tin Plate

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX CLASS G, H, I, K, M†	DIMENSIONS (IN.) A	DIMENSIONS (IN.) E	DIE CODE	DIE COLOR
54804	#8 AWG	37/24 = 14.9 kcmil	1.75	.27	21	RED
54805	#6 AWG	61/24 = 24.6 kcmil	1.75	.31	24	BLUE
54806	#4 AWG	91/24 = 36.7 kcmil	1.75	.39	29	GRAY
54807	#2 AWG	125/24 = 50.4 kcmil	1.88	.43	33	BROWN
54808	#1 AWG	150/24 = 60.5 kcmil, 175/24 = 70.6 kcmil	2.00	.49	37	GREEN
54809*	1/0 AWG	225/24 = 90.8 kcmil	2.00	.54	42	PINK
54810*	2/0 AWG	275/24 = 111 kcmil	2.13	.59	45	BLACK
54811	3/0 AWG	325/24 = 131 kcmil	2.25	.65	50	ORANGE
54812*	4/0 AWG	450/24 = 182 kcmil	2.75	.72	54	PURPLE
54813*	250 kcmil	550/24 = 222 kcmil	3.38	.79	62	YELLOW

† *Contact Technical Services for specific stranding listings*

* *UL Listed for direct burial applications*

CAT. NO.	WIRE SIZE CODE	WIRE SIZE FLEX	DIMENSIONS (IN.) A	DIMENSIONS (IN.) E	DIE CODE	DIE COLOR
54814	300 kcmil	—	3.50	.87	66	WHITE
54815	350 kcmil	650/24 = 262 kcmil	3.75	.95	71	RED
54816	400 kcmil	775/24 = 313 kcmil	3.75	.98	76	BLUE
54818*	500 kcmil	925/24 = 373 kcmil	4.75	1.11	87	BROWN
54820	600 kcmil	1100/24 = 444 kcmil	4.25	1.21	94	GREEN
54823	750 kcmil	1325/24 = 535 kcmil	4.75	1.34	106	BLACK
58524		1600/24 = 646 kcmil	5.00	1.39	106	
58526	900 kcmil	1925/24 = 777 kcmil	5.50	1.51	115	YELLOW
54828	1000 kcmil	—	5.63	1.56	125	
54833	1500 kcmil	—	5.63	1.56	125	N/A
54839	2000 kcmil	—	7.06	2.125	—	

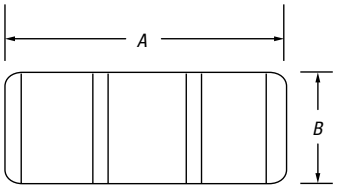
Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Compression Connectors for Copper Conductor

Copper Two-Way Splice Connectors for 600V to 35kV Applications





CAT. NO.	CABLE SIZE+	DIMENSIONS A	DIMENSIONS B	INSTALLING TOOLS 13100A, TBM15I* & TBM14M DIE SET CAT. NO.	INSTALLING TOOLS 13100A, TBM15I* & TBM14M STRIP LENGTH (IN.)	COLOR CODE
54006	#4 AWG	2.00	.37	**15CA29R**	1½	GRAY
54007	#2 AWG	2.13	.41	**15CA33R**	1⅝	BROWN
54008	#1 AWG	2.25	.47	**15CA37R**	1⅝	GREEN
54009	1/0 AWG	2.38	.52	**15CA42R**	1¾	PINK
54010	2/0 AWG	2.38	.57	**15CA45R**	1¾	BLACK
54011	3/0 AWG	2.63	.63	**15CA49R**	1 3/16	ORANGE
54012	4/0 AWG	2.69	.69	**15CA54R**	1 3/16	PURPLE
54013	250 kcmil	3.19	.74	**15CA60R**	2⅛	RUBY
54015	350 kcmil	4.13	.89	**15CA71R**	2⅝	RED
54018	500 kcmil	4.13	1.06	**15CA87R**	2⅝	BROWN
54023	750 kcmil	4.75	1.30	**15CA106R**	2⅞	BLACK

** Cat. No. 15500-TB Die Adapter required for TBM15I*

+ Cable Size: Concentric and Compact strandings

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Cast-Copper Two-Way Splice Connectors for 600V to 35kV Applications — Heavy-Duty



Material: Cast Copper

Finish: Electro Tin Plate

Satisfies requirements of NEC® 250.64(C)(1) for connecting to the grounding electrode system.

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

CAT. NO.	CABLE SIZE	DIE CODE
53504	#8 AWG	29
53505	#6 AWG	29
53506	#4 AWG	29
53507	#2 AWG	45
53508	#1 AWG	45
53509	1/0 AWG	45
53510	2/0 AWG	66
53511	3/0 AWG	66
53512	4/0 AWG	66
53513	250 kcmil	76
53515	350 kcmil	99
53518	500 kcmil	99
53523	750 kcmil	112

Use hydraulic tools with hex dies.

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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Compression Connectors for Copper Conductor

Compact design for low-profile installation.

Copper Reducing Splices

Thomas & Betts copper reducing splices are the most recent addition to the telecom line of copper compression lugs and connectors. They are designed for use in Central Office equipment installations in place of H-Taps in applications where the main cable is stepped down. When space is at a premium and standard H-Tap splicing options are too cumbersome, the Thomas & Betts reducing splices can be the right choice. These splices are available for a range of cables from 750 Flex to 6 Code.

- Requires less "real estate" in a Central Office
- Does not require a cover other than clear heat shrink
- One-person installation — each side crimped separately
- Utilizes standard lug crimping dies — more standard tooling options — lower tonnage tools can now install even the largest splice
- Hand tools can be used on splices for 500 Code/350 Flex and smaller
- Inspection holes verify cable is fully inserted into each barrel



Splices for the following cable combinations are available. Appropriate quantities of pre-cut lengths of UL® Listed clear-heat shrink are provided with each splice.

CAT. NO. CODE	MAIN	COLOR CODE	BRANCH	COLOR
TBRS75F-75C50FHS	750 Flex	YELLOW	750 Code/500 Flex	BLACK
TBRS75F-50C35FHS	750 Flex		500 Code/350 Flex	BROWN
TBRS75F-25C4/0FHS	750 Flex		250 Code/4/0 Flex	YELLOW
TBRS75C50F-75C50FHS	750 Code/500 Flex	BLACK	750 Code/500 Flex	BLACK
TBRS75C50F-50C35FHS	750 Code/500 Flex		500 Code/350 Flex	BROWN
TBRS75C50F-25C4/0FHS	750 Code/500 Flex		250 Code/4/0 Flex	YELLOW
TBRS75C50F-4/0CHS	750 Code/500 Flex		4/0 Code	PURPLE
TBRS4/0C-2CHS	4/0 Code	PURPLE	2 Code	BROWN
TBRS4/0C-6CHS	4/0 Code		6 Code	BLUE
TBRS2/0C1/0F-2CHS	2/0 Code/1/0 Flex	BLACK	2 Code	BROWN
TBRS2/0C1/0F-6CHS	2/0 Code/1/0 Flex		6 Code	BLUE
TBRS1/0C1F-2CHS	1/0 Code/1 Flex	PINK	2 Code	BROWN
TBRS1/0C1F-6CHS	1/0 Code/1 Flex		6 Code	BLUE
TBRS2C-6CHS	2 Code	BROWN	6 Code	

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Compression Connectors for Copper Conductor

Constant O.D. enables faster, easier installation than contoured design.

Cast-Copper Reducing Splices



Thomas & Betts takes the splicing of different-sized conductors to a new level of economy and efficiency with Cast-Copper Reducing Splices. In addition to a lower cost, the key benefit to these splices is in their constant outer diameter. Unlike screw-machined, externally contoured splices, Cast-Copper Reducing Splices require no change of tool or die between crimping each end. Just slide each wire easily into the chamfered barrel, and use the same Color-Keyed tool and die to crimp both ends. The consistent O.D. also makes these splices faster and easier to insulate with clear heat-shrink wrap than a contoured splice. Sand-cast construction ensures high tensile strength for heavy-duty applications, and tin-plated copper material provides high conductivity and superior corrosion resistance.

- Ideal for telecom (inside office/outside plant), commercial, industrial MRO and any other 600V–35kV applications requiring splicing of different-sized conductors
- Tin-plated, sand-cast copper construction provides superior tensile strength, high conductivity, and excellent corrosion resistance
- Easier to install and insulate than screw-machined, contour-designed reducing splices
- Constant O.D. saves time on installation by eliminating the need for crimp tool/die change
- Fast and simple to insulate with clear or colored heat-shrink wrap
- Chamfered barrel facilitates easy wire insertion
- Compact, low-profile design takes up minimal space in cable tray or wire run
- Simple installation with Blackburn® compression tools (see **pp. F-80–F-100)** and dies (see **pp. F-101–F-104)**

CAT. NO.	COND. 1 SIZE	COND 2. SIZE	DIM. A	DIM. E	DIE CODE	DIE COLOR
251-30485-19	4/0 Str.	#2 Str.	2¼"	13/16"	66	WHITE
251-30485-91	500 kcmil Str.	300 kcmil Str.	3⁵/16"	13/16"	99	PINK
251-30485-229	2/0 Str.	250 kcmil Str.	2⅜"	15/16"	76	BLUE
251-30485-247	#2 Str.	#8 Str.	1⁹/16"	19/32"	45	BLACK
251-30485-294	#4 Str.	2/0 Str.	2¼"	27/32"	66	WHITE
251-30485-295	4/0 Str.	#4 Str.	2¼"	13/16"	66	
251-30485-331	4/0 Str.	350 kcmil Str.	3⁵/16"	17/32"	99	PINK
251-30485-445	4/0 Str.	2/0 Str.	2¼"	13/16"	66	WHITE
251-30485-495	1/0 Str.	#2 Str.	1⁹/16"	19/32"	45	BLACK
251-30485-610	#6 Str.	#8 Str.	1⁷/32"	⅜"	29	
251-30485-611	#4 Str.	#8 Str.	1⁷/32"	⅜"	29	GRAY
251-30485-612	#4 Str.	#6 Str.	1⁷/32"	⅜"	29	
251-30485-613	#2 Str.	#6 Str.	1⁹/16"	19/32"	45	BLACK
251-30485-640	4/0 Str.	1/0 Str.	2¼"	13/16"	66	WHITE
251-30485-653	#2 Str.	250 kcmil Str.	2⅜"	15/16"	76	BLUE
251-30485-739	1/0 Str.	250 kcmil Str.	2⅜"	15/16"	76	
251-30485-882	400 kcmil Str.	350 kcmil Str.	3⁵/16"	17/32"	99	PINK
251-30485-950	1/0 Str.	#6 Str.	1⁹/16"	19/32"	45	BLACK
251-30485-951	#6 Str.	2/0 Str.	2¼"	27/32"	66	WHITE
251-30485-1027	1/0 Str.	#4 Str.	1⁹/16"	19/32"	45	BLACK
251-30485-1029	1/0 Str.	#12 Str.	1⁹/16"	37/64"	45	
251-30485-1030	10 Str.	#4 Str.	1⁷/32"	⅜"	29	
251-30485-1031	12 Str.	#4 Str.	1⁷/32"	⅜"	29	
251-30485-1032	#6 Str.	#10 Str.	1⁷/32"	⅜"	29	GRAY
251-30485-1033	#12 Str.	#6 Str.	1⁷/32"	⅜"	29	
251-30485-1034	#14 Str.	#8 Str.	1⁷/32"	⅜"	29	
251-30485-1035	#1 Str.	1/0 Str.	1⁹/16"	19/32"	45	BLACK
251-30485-1044	#10 Str.	#8 Str.	1⁷/32"	⅜"	29	GRAY
251-30485-1045	#12 Str.	#8 Str.	1⁷/32"	⅜"	29	
251-30485-1085	#10 Str.	1/0 Str.	1⁹/16"	19/32"	45	BLACK
251-30485-1086	#10 Str.	2/0 Str.	2¼"	27/32"	66	WHITE
251-30485-1087	#4 Str.	250 kcmil Str.	2⅜"	15/16"	76	BLUE
251-30485-1088	400 kcmil Str.	250 kcmil Str.	3⁵/16"	17/32"	99	PINK
251-30485-1089	#14 Str.	#8 Sol.	1⁷/32"	⅜"	29	
251-30485-1090	#12 Str.	#8 Sol.	1⁷/32"	⅜"	29	
251-30485-1091	#10 Str.	#8 Sol.	1⁷/32"	⅜"	29	GRAY
251-30485-1092	#12 Str.	#6 Sol.	1⁷/32"	⅜"	29	
251-30485-1093	#8 Str.	#6 Sol.	1⁷/32"	⅜"	29	
251-30485-1094	#4 Str.	#6 Sol.	1⁷/32"	⅜"	29	
251-30485-1095	#2 Str.	#6 Sol.	1⁹/16"	19/32"	45	BLACK
251-30485-1096	#12 Str.	#4 Sol.	1⁷/32"	⅜"	29	
251-30485-1097	#10 Str.	#4 Sol.	1⁷/32"	⅜"	29	GRAY
251-30485-1098	#8 Str.	#4 Sol.	1⁷/32"	⅜"	29	
251-30485-1099	#6 Str.	#4 Sol.	1⁷/32"	⅜"	29	
251-30485-1100	1/0 Str.	#4 Sol.	1⁹/16"	19/32"	45	BLACK
251-30485-1130	Cast Solid*	#12–#4 Str.	1⁹/32"	⅜"	29 1	
251-30485-1245	1/0 Flex	#4 Flex	2¼"	13/16"	66	WHITE
251-30485-1246	#4 Flex	#8 Flex	1⁹/16"	37/64"	45	BLACK

**Cast Solid — Field Modifiable Special*

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C-Tap Connectors for Copper Conductor

Positive, all-around compression with low resistance and high pull-out values.

C-Taps for 600V Applications

- Ideal for pigtailing, two-way splicing or tapping to an unbroken continuous main
- Heavy reinforcing ribs help locate compression dies and strengthen compressed joint

Material: High-Conductivity Wrought Copper

Finish: Plain



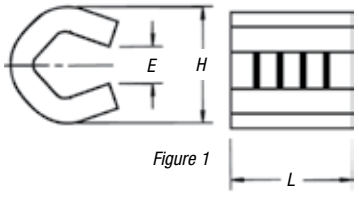


Figure 1

"E" represents gap in side

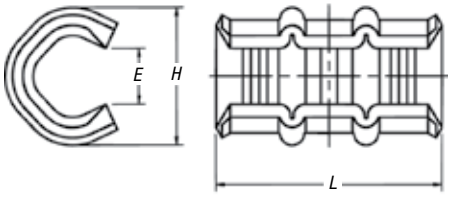


Figure 2

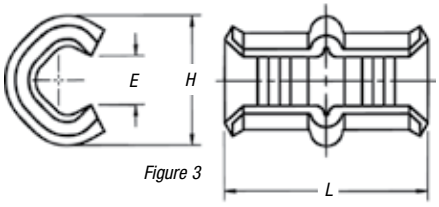


Figure 3

CAT. NO.	FIG. NO.	DIMENSIONS (IN.) L	H	E	COLOR KEY
54705	1	5/16	5/16	7/64	RED
54710	1	9/16	7/16	9/64	BLUE
54715	1	9/16	5/8	11/64	GRAY
54720	2	1 5/32	11/16	7/32	BROWN
54725	2	1 5/32	13/16	1/4	GREEN
54730	2	1 5/32	27/32	9/32	PINK
54735	3	1 11/16	7/8	21/64	BLACK
54740	3	1 11/16	31/32	23/64	ORANGE
54745	3	1 11/16	1 1/16	13/32	PURPLE
54750	3	1 11/16	1 3/16	15/32	YELLOW

UL® approved for direct burial.

For covers, see ***page F-48****.*

Taps can be supplied tin-plated. Add suffix "TP" to any catalog number (i.e., 54725TP).

Typical Cable Combinations

MAIN	BRANCH #12 SOL. OR STR.	#10 SOL. OR STR.	#8 SOL. OR STR.	#6 SOL. OR STR.	#4 STR.	#2 STR.	#1 STR.	1/0 STR.
#10 Sol. or Str.	54705	54710	54715	54715	54720	54730	54735	54740
#8 Sol. or Str.	54710	54715	54715	54720	54720	54730	54735	54740
#6 Sol. or Str.	54715	54715	54720	54720	54725	54730	54735	54740
#4 Str.	54720	54720	54720	54725	54730	54735	54740	54740
#2 Str.	54730	54730	54730	54730	54735	54740	54745	54745
#1 Str.	54735	54735	54735	54735	54740	54745	54745	54750
1/0 Str.	54740	54740	54740	54740	5i740	54745	54750	54750
2/0 Str.	54745	54745	54745	54745	54745	54750	54750	
3/0 Str.	54750	54750	54750	54750	54750	54750		

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***p. F-101–F-104***

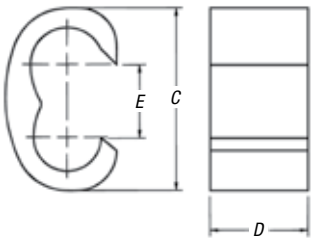
C-Tap Connectors for Copper Conductor

Easy to work with in tight spaces.

C-Taps — Large Size for 600V Applications



- More economical than other taps and split bolts in terms of purchase, inventory, installation time, insulation and maintenance
- Color-coded for easy matching with proper die
- Barely larger than conductor insulation once installed



Material: High-Conductivity Wrought Copper

Finish: Plain

CAT. NO.	WIRE SIZE MAIN	WIRE SIZE BRANCH	DIMENSIONS (IN.) C	D	E	INSTALLING DIE TOOL	INSTALLING DIE CAT. NO.	DIE CODE	NO. OF CRIMPS	COLOR KEY
54755	#1 AWG 1/0 AWG 2/0 AWG 3/0 AWG 4/0 AWG	#1 AWG 1/0–#2 AWG 2/0–#4 AWG 1/0–#6 AWG #1–#8 AWG	1 15/16	3/4	17/32	TBM14M TBM15I TBM12 13100A	**15512** **15512*** **TBM12D-4** **15512**	76 76 76 76	1	**BLUE**
54760	2/0 AWG 3/0 AWG 4/0 AWG 250 kcmil	2/0–#1 AWG 3/0–#3 AWG 4/0–#4 AWG #1–#8 AWG	1 7/16	3/4	19/32	TBM14M TBM15I TBM12 13100A	**15506** **15506*** **TBM12D-3** **15506**	87H 87H 87H 87H	2	**BROWN**
54765	2/0 AWG 3/0 AWG 4/0 AWG 250 kcmil 300 kcmil	2/0–#1 AWG 3/0–#2 AWG 4/0–#4 AWG 3/0–#6 AWG 2/0–#8 AWG	1 11/16	1	41/64	TBM14M TBM15I TBM12 13100A	**15505** **15505*** **TBM12D-2** **15505**	99H 99H 99H 99H	2	**PINK**
54770	4/0 AWG 250 kcmil 300 kcmil 350 kcmil	4/0–2/0 AWG 250 kcmil–#1 AWG 4/0–#4 AWG 3/0–#6 AWG	1 11/16	1	11/16	TBM14M TBM15I TBM12 13100A	**15515** **15515*** **TBM12D-2** **15515**	106H 106H 106H 106H	2	**BLACK**
54775**	250 kcmil 300 kcmil 350 kcmil 400 kcmil 450 kcmil 500 kcmil	250 kcmil 300 kcmil–3/0 AWG 350 kcmil–1/0 AWG 300 kcmil–#2 AWG 250 kcmil–#4 AWG 250 kcmil–#6 AWG	1 7/8	1 1/4	13/16	TBM14M TBM15I TBM12 13100A	**15504** **15504*** **TBM12D-1** **15504**	115H 115H 115H 115H	2	**YELLOW**
54780	350 kcmil 400 kcmil 450 kcmil 500 kcmil	350 kcmil–4/0 AWG 400 kcmil–2/0 AWG 450 kcmil–#1 AWG 500 kcmil–#2 AWG	2 3/16	1 1/4	53/64	TBM15I	**15603**	125H	2	**N/A**
54785	750 kcmil	4/0–#6 AWG	2 1/8	2	1	TBM15I	**15603**	125H	3	
54790	750 kcmil	750 kcmil–4/0 AWG	2 11/16	2	1 5/16	TBM15I	**15603**	125H	3	

UL approved for direct burial.

For covers, see ***p. F-48***

Taps can be supplied tin-plated. Add suffix "TP" to any catalog number (i.e., 54725TP).

** Cat. No. 15500-TB adapter required if using TBM15I and 155XX series dies.*

*** #6 AWG branch must be doubled.*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***p. F-101–F-104***

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Copper H-Tap Connectors for Copper Conductor

Copper H-Taps — 600V Applications









CAT. NO.	FIG. NO.	COLOR CODE	CONDUCTOR SIZE CODE (FLEX CABLE) MAIN	BRANCH 1	BRANCH 2	BRANCH 3	CRIMPING INFORMATION HYDRAULIC HEAD	INSTALLING DIE	# OF CRIMPS	COLOR CODE	DIE CODE	STRIP LENGTH	INSULATING COVERS
CHT750350-1F	1	**WHITE**	(750–500) (750) Flex Only	(750–500) (350) Flex Only	—	—	TBM15I	15620CHF	1	**WHITE**	F	1⅛"	HTC1000
CHT750350-2	2	**YELLOW**	750–500 (550–500)	750–500 (550–350)	—	—	TBM15I	15620CH	1	**YELLOW**	Z	1⅜"	HTC500
CHT75010-3	9		750–350 (550–500)	4/0–1/0 (250–1/0)	1 Str. 2–6 (1–8)	2–14 (2–14)	TBM15I	15620CH	1		Z	1⅛"	
CHT50040-4	2	**BROWN**	500–250 (350–4/0)	500–4/0 (350–4/0)	—	—	TBM15I	15612CH	2	**BROWN**	N	1⅛"	
50010-5	3		500–4/0 (350–4/0)	250–1/0 (4/0–1/0)	1 Str. 2–6 (1–8)	8–14 (8–14)	TBM15I	15612CH	2		N	1⅛"	
CHTCHT2502-6	2	**PURPLE**	250–2 (4/0–2)	250–2 (4/0–2)	—	—	TBM15I• TBM14M	15CA80RCH	1	**PURPLE**	80R	13⁄16"	HTC40
CHT25014-7	4		250–2 (4/0–2)	2–6 Str./Sol. (2–8)	8–14 (8–14)	—	TBM15I• TBM14M	15CA80RCH	1		80R	1⅛"	
CHT250214-8	5		250–2 (4/0–2)	8–14 (8–14)	8–14 (8–14)	—	TBM15I• TBM14M	15CA80RCH	1		80R	1⅛"	
CHT214-9	6	**BROWN**	2–6 Str./ Sol. (2–8)	2–6 Str./Sol. (2–8)	8–14 (8–14)	8–14 (8–14)	TBM15I• TBM14M 13100A	15CA71RCH	3	**BROWN**	71R	⅞"	
CHT814-10	7	**GREEN**	8–14 (8–14)	8–14 (8–14)	—	—	TBM15I• TBM14M 13100A	15CA37RCH	1	**GREEN**	37R	½"	HTC2S
CHT75040-11	8	**YELLOW**	750 Str. (750–500)	350–4/0 Str. Cu. & Flex	—	—	TBM15I	15620CH	1	**YELLOW**	Z	1⅛"	HTC500

• Requires adapter Cat. No. 15500-TB when used with hydraulic head TBM15I.

Material: Copper per ASTM designation B-124-55 Alloy 12

Available packaged with HTC series covers. Add "WC" to standard catalog number.

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***p. F-101–F-104***

Copper H-Tap Connectors for Copper Conductor

Copper H-Taps — 600V Applications *(continued)*

Material: High-Conductivity Extruded Copper

Finish: Electro Tin Plate

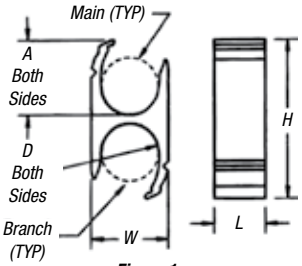


Figure 1

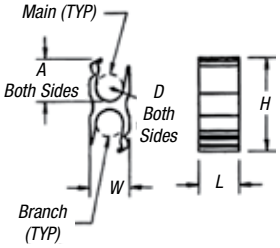


Figure 2

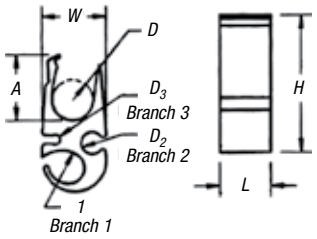


Figure 3

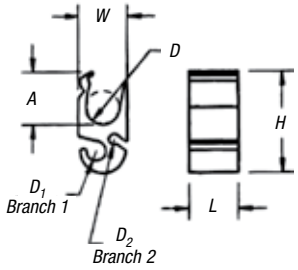


Figure 4

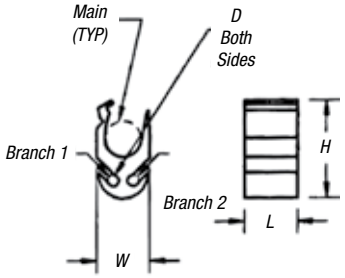


Figure 5

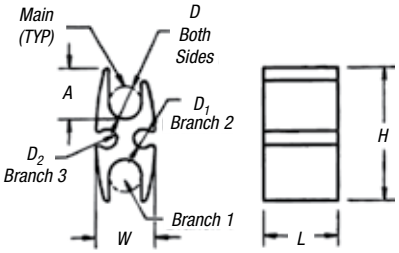


Figure 6

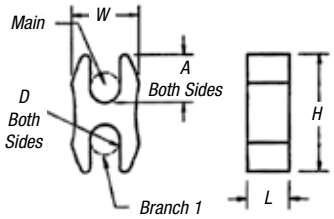


Figure 7

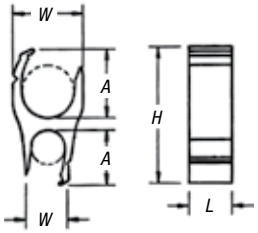


Figure 8

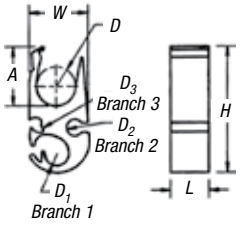


Figure 9

CAT. NO.	FIG. NO.	DIMENSIONS (IN.) H	W	L	A	D	D1	D2	D3	STRIP LENGTH (IN.)	INSULATING COVERS
CHT750350-1F	1	3.46	1.66	1.10	1.73	1.23	—	—	—	1⅛	HTC1000
CHT750350-2	2	3.24	1.50	1.25	1.62	1.02	—	—	—	1⅜	HTC500
CHT75010-3	9	3.13	1.50	1.00	1.54	1.00	.40	.35	.41	1⅛	
CHT75040-11	8	3.19	(1) 1.65	1.00 (2) 1.05	(1) 1.61	(1) 1.24 (2) 1.29	— (2) .80	—	—	1⅛	
CHT50040-4	2	2.64	1.18	1.00	1.32	.80	—	—	—	1⅛	
CHT50010-5	3	2.28	1.30	1.00	1.20	.80	.67	.19	.43	1⅛	
CHT2502-6	2	1.99	.90	.66	1.00	.62	—	—	—	13⁄16	HTC40
CHT25014-7	4	1.63	.90	.90	.96	.52	.35	.19	—	1⅛	
CHT250214-8	5	1.63	.90	.90	.96	.62	.19	.19	—	1⅛	
CHT214-9	6	1.35	.60	.75	.50	.33	.19	.19	—	⅞	
CHT814-10	7	.62	.60	.37	.25	.16	—	—	—	½	HTC2S

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Aluminum H-Tap Connectors

Exclusive FILLERLOK tab design.

Compression Taps for 600V 90° C Applications

- H-type compression taps
- For aluminum-to-aluminum, aluminum-to-copper and copper-to-copper stranded-conductor applications
- Concentric and compact code strandings

Material: High-Conductivity Wrought Aluminum



CAT. NO.	COMBINATIONS MAIN	BRANCH	SIDE TAP	LENGTH (IN.)	COLOR KEY	DIE CODE CAT. NO. TBM6 TBM6S TBM60RS	HYDRAULIC TBM14M 13100A	TBM12 12-TON HEAD	TBM151 15-TON HEAD
63105†	2–6	8–14	—	¾	ORANGE	13474 upper 13477 lower	15530	TBM12D-4	15530*
63110	4–6	4–6	—	1½	GREEN	13470	15501A	TBM12D-H	15001A*
63118	2/0–2	8–14	—	¾		13470	15501A	TBM12D-H	15501A*
63125	2/0–2	1/0–6	—	1½		13470	15501A	TBM12D-H	15501A*
63140	4/0–2/0	2–10	—	1½	BLUE	13471	15502	TBM12D-H	15502*
63148•	4/0–2/0	3/0–1	8–14	3		—	15502	TBM12D-H	15502
63160	500–4/0	4/0–2	2–6	2¾	RED	—	—	—	15612
63169	750–4/0	750–4/0	—	3	BLACK	—	—	—	15620
63170	1000–500	1000–1/0	—	6		—	—	—	15620
63180	750–350	350–1/0	1–6	3		—	—	—	15620

** Use with adapter Cat. No. 15500-TB*

† 63105 also installed by TBM5/TBM5S with 13455 die or TBM8/TBM8S with 13462 die.

• 63148 – #1 CU or AL wire bent double (hairpin)

For Smart Tool Installation

63110, 63118, 63125: Use TBM8-750HG

63140, 63148: Use TBM8-750BH

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***p. F-101–F-104***

Interlocking Insulating Covers for Compression Taps

Better covers for taps.

Soft Shell H-Tap/ C-Tap Covers

Thomas & Betts offers an improved design for one-piece covers of H-Tap and C-Tap connectors. The new design is more size-efficient and includes an easy latch mechanism. The new covers also contain flash barriers to help protect against electrical flashovers. The covers are molded from high-impact polypropylene (UL94V-1) and are UL® Listed, CSA certified to 600V applications at 105° C.

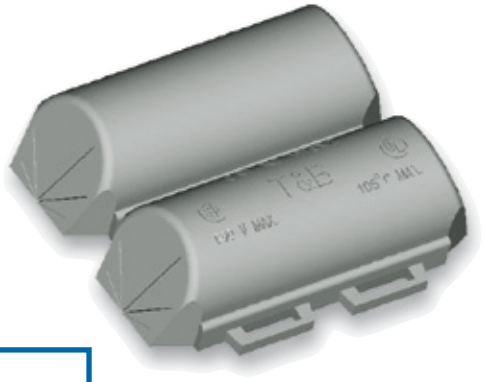
Blackburn® Soft Shell Covers include these features:

- **Size-efficient design**
  Won't take up as much room in the enclosure or vault, easier to store and carry to the job site
- **Easy Latch Mechanism**
  Quick but sturdy cover latch for optimum insulation
- **Flash Barriers**
  Provides protection from electrical flashovers
- **105° C Rating**
  Offers maximum performance and higher than many competitors' temperature ratings
- **High-Impact Polypropylene**
  Constructed from rugged materials for long-lasting protection

Also available in clear, impact-resistant and flame-retardant polycarbonate (UL94V-0). The clear version includes an internal pocket for a visible identification label without opening the cover. Contact Customer Service for shipping and availability.



Smaller size requires less space in enclosure
High-impact polypropylene for rugged, dependable use

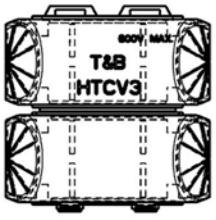


Easy latch mechanism



Clear, polycarbonate
(UL94V-0) version available







CAT. NO.	FOR H-TAPS	FOR C-TAPS	DIMENSIONS (IN.) A	B	C	PKG. QTY.
HTCV1	CHT814-10	54705, 54710, 54715	1¾	⅞	9⁄16	5
HTCV2	CHT214-9, CHT250214-8, CHT25014-7, CHT2502-6	54770, 54775, 54780	3⅜	1⅛	1	5
HTCV3	CHT50010-5, CHT50040-4	54740, 54745, 54750, 54755, 54760, 54765	3 27⁄32	1⅝	1 5⁄16	5
HTCV4	CHT75010-3, CHT750350-2, CHT750350-1F, CHT75040-11	N/A	5⅝	2	1 11⁄16	5
HTCV2CLRFR	CHT214-9, CHT250214-8, CHT25014-7, CHT2502-6	N/A	3⅜	1⅛	1	5

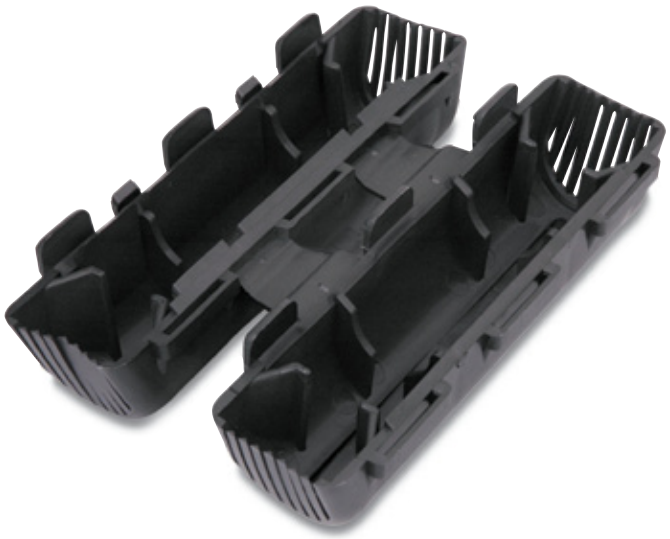
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Interlocking Insulating Covers for Compression Taps

Quick and easy insulation for H-type compression taps.

H-Tap Insulating Covers (Soft Cover)

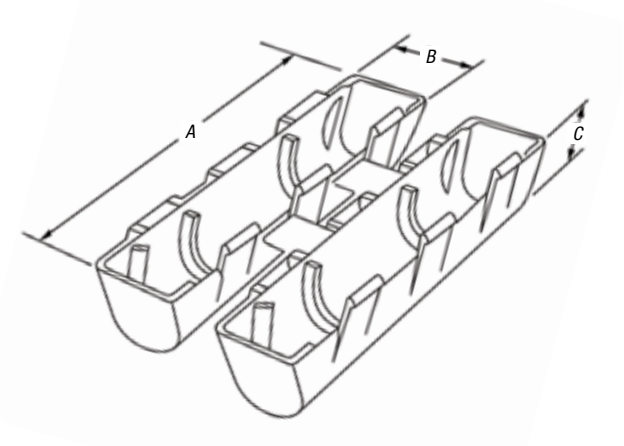
- Eliminates taping
- Provided with three positive locking latches and overlapping fringe for maximum cable insulation



Specifications

- Rating: 90° C, 600V. Made of flame-retardant, high-impact polypropylene.
- Material: Polypropylene
- Color: Black
- Voltage Rating: 600V max.
- Temperature: 90° C





(C) Height — typical both halves

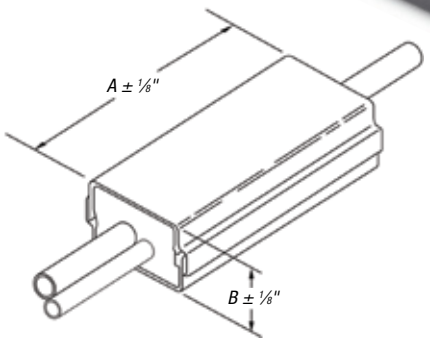
CAT. NO.	WIRE RANGE MAX.	WIRE RANGE MIN.	AL H-TAPS	USE TO INSULATE	DIMENSIONS (IN.) A	B	C	"A" DIM.	"B" DIM.
HT20C	2/0 AWG	#6 AWG	63110/63115 63125/63120	—	4½	1¼	1⅛	—	—
HT40C	4/0 AWG	#6 AWG	63140 63148	—	5 39/64	1 13/32	1 3/16	—	—
HT600C	500 kcmil	#2 AWG	63160	63169	6 13/16	2⅛	1 39/64	—	—
HT1000C	1000 kcmil to 500 kcmil	250 kcmil to 1/0 AWG	63180	—	—	—	—	7.250 (184.15mm)	2.330 +.060
HT1000C-L	1000 kcmil to 500 kcmil	250 kcmil to 250 kcmil	63170	—	—	—	—	10.374 (263.40mm)	2.330 +.060

Interlocking Insulating Covers for Compression Taps

H-Tap Insulating Covers (Hard Covers)

- For use in splice boxes, indoors or in tray indoors
- Easy to use — simply place H-Tap in cover and snap cover closed
- Consult factory for available flame-retardant version
- Hard shell outer covers guard against impact, inner seal keeps out dust
- Installs quickly and easily without special tools — simply snap together
- Eliminates time-consuming taping
- Provides high-quality, neat, uniform installations
- Range-taking design reduces inventory





CAT. NO.	DIMENSIONS (IN.) A (LENGTH)	B (THICK)	C (WIDTH)
HTC2S	2	1⅛	1 7/16
HTC2	3½	1⅛	1 7/16
HTC40	4¼	1 9/16	2
HTC40L2	5¾	1 9/16	2
HTC500	6	1¾	2¾
HTC1000	7	2⅜	3⅜
HTC1000L	10	2⅜	3⅜

Interlocking insulating covers for "H" type compression taps. For use in splice boxes, indoors or in tray indoors. Place the H-Tap in the cover. Snap the cover closed. Consult factory for flame-retardant version.

Technical Data: *HTC2 and HTC2S use insulation wrap instead of end cushions for inner seal.Connector Cat. Nos. 54755 through 54790 and 63148 through 63180 require hydraulic crimping tools. Refer to instruction sheets. Outer Hard Shell Covers — High-impact black thermoplastic (Noryl), Flammability class UL 94V-1Inner Seal — Black neoprene sponge soft closed cell, oxygen index 28% UL 94 HBF*

Temperature Rating — 90° C maximum

Voltage Rating — 600V maximum

Uses insulation wrap instead of end cushions for inner seal.

Note: *Insulation covers are not reusable.*

For H-Tap Applications

CAT. NO.	AL H-TAP	CU H-TAP
HTC2	63105	—
HTC2S	—	CHT814-10
HTC40	63110	CHT214-9
	63118	CHT250214-8
	63125	CHT2514-7
	63140	CHT2502-6
HTC500	63148	CHT50010-5/CHT50040-4
	63160	CHT75010-3/CHT750350-2
HTC1000L	63170	—
HTC1000	63180/63169	CHT750350-1F



These insulating covers provide hard-shell insulated protection for "H" type compression taps and splices, and because there is no taping required, you get uniform quality and appearance each time. The exclusive locking design provides the range-taking capability. Only five H-tap insulating catalog cover numbers accommodate the range of #6 AWG–1000 kcmil in the main, and #12 AWG–500 kcmil in the branch.

For C-Tap Applications

CAT. NO.	C-TAP	COLOR CODE
HTC40	54720	BROWN
	54725	GREEN
	54730	PINK
	54755	BLUE
	54760	BROWN
HTC40L2	54735	BLACK
	54740	ORANGE
	54745	PURPLE
	54750	YELLOW
HTC500	54765	PINK
	54770	BLACK
	54775	YELLOW
	54780	WHITE
	54785	N/A
HTC1000	54790	N/A

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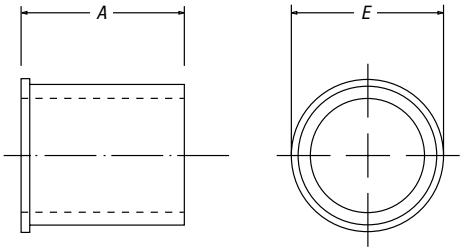
Wire Joints for Copper Conductor

All-around compression ensures high conductivity, low resistance and high pull-out values exceeding UL® requirements.

Compression Wire Joints for Copper Conductor

- Ideal for pigtailing, tapping multiple conductors or two-way splicing
- Form a permanent installation in minimal space
- Easily insulated
- Offer lowest installed cost
- Made of high-conductivity copper and electro-tin-plated
- Colored-coded to dies for positive matching and compression





CAT. NO.	CONNECTOR RANGE: CIRCULAR MIL AREA MIN.	CONNECTOR RANGE: CIRCULAR MIL AREA MAX.	CONNECTOR RANGE: CABLE COMBINATION MIN.	CONNECTOR RANGE: CABLE COMBINATION MAX.	DIM. (IN.) A	DIM. (IN.) E	COLOR CODE	INSTALLING TOOLS: TBM25S/21E DIE CAT. NO.	INSTALLING TOOLS: TBM8/8S DIE CAT. NO.	INSTALLING TOOLS: TBM5/5S DIE CAT. NO.	INSTALLING TOOLS: TBM6 & TBM6S UPPER	INSTALLING TOOLS: TBM6 & TBM6S LOWER
54610	19,590	27,290	(3) #12 sol. or str.	(2) #10 w/(1) #12 sol. or str.	.407	.370	BLUE	Included	—	—	13475	13477
54615	31,140	43,400	(3) #10 sol. or str.	(4) #10 sol. or str.	.407	.430	GRAY	Included	13461	13454	13472	13476
54620	49,530	65,560	(3) #8 sol. or str.	(1) #4 w/(2) #10 sol. or str.	.417	.475	BROWN	Included	—	—	13474	—
54625-TB	66,040	87,130	(4) #8 sol. or str.	(1) #2 str w/(2) #12 sol. or str.	.479	.545	GREEN	—	—	—	—	—
54630	83,480	99,990	(2) #4 sol. or str.	(2) #4 w/(1) #10 sol. or str.	.479	.585	PINK	—	13462	13455	13475	13477
54635	99,060	124,220	(6) #8 str.	(2) #4 w/(2) #8 sol. or str.	.762	.620	BLACK	—	—	—	13474	—
54640	125,220	166,120	(3) #4 sol. or str.	(3) #4 w/(2) #10 sol. or str.	.762	.695	ORANGE	—	—	—	—	—
54645-TB	166,960	193,630	(4) #4 sol. or str.	(2) #1 w/(2) #10 sol. or str.	.824	.770	PURPLE	—	13463	13456	13475	—
54650	189,190	244,020	(3) #2 str.	(2) #1/0 w/(2) #8 str.	.887	.830	YELLOW	—	—	—	13473	13476

Hand tools only.

UL® Listed E9809 — code stranded

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Cast Copper Bus Taps for Copper Conductor

Clamps onto bus bar — no drilling required.

Heavy-Duty Bus Bar Taps — Straight Barrel for 600V to 35kV Applications



- For bus bars up to ¼" thick, 3–6" wide and code copper cable
- Takes up less than 1¼" of bus bar space
- Convex shape of connector tongue exerts great contact pressure on bus bar
- Installs with hydraulic tools and hex crimp dies

Material: High-Conductivity Cast Copper Alloy
Finish: Electro Tin Plate
Contact Material: Beryllium Copper
Finish: Silver

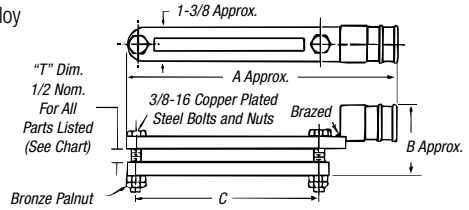


Figure 1

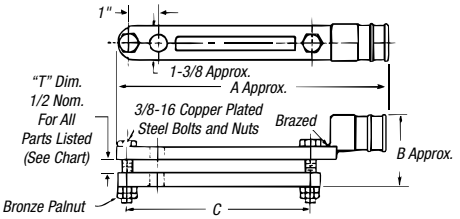


Figure 2

CAT. NO.	WIRE FLEX CODE	WIRE FLEX FLEX	FIG. NO.	BUSBAR WIDTH	DIMENSIONS (IN.) A	B	C	DIE CODE
251-31446-1			1	3	6⅛	2³⁄₃₂	3½	66H
251-31446-7	1/0 AWG	225/24	1	4	7⅛	2³⁄₃₂	4½	66H
251-31446-13			2	5 or 6	9⅛	2³⁄₃₂	6⅜	66H
251-31446-8	2/0 AWG	1/0 AWG	1	4	7⅛	2³⁄₃₂	4½	66H
251-31446-14		275/24	2	5 or 6	9⅛	2³⁄₃₂	6⅜	66H
251-31446-23			1	3	6⅛	2³⁄₁₆	3½	66H
251-31446-22	4/0 AWG	450/24	1	4	7⅛	2³⁄₁₆	4½	66H
251-31446-19			2	6	9⅛	2³⁄₁₆	6⅛	66H
251-31446-29			1	3	5¹¹⁄₁₆	2³⁄₁₆	3⅜	66H
251-31446-30	250 kcmil	4/0 AWG 550/24	1	4	7⅛	2³⁄₁₆	4½	66H
251-31446-31			1	5 or 6	9⅛	2³⁄₁₆	6⁷⁄₁₆	66H
251-31446-3			1	3	6⅝	2³⁄₁₆	3½	99H
251-31446-9	350 kcmil		1	4	7⅝	2³⁄₁₆	4½	99H
251-31446-15			2	5 or 6	9⅝	2³⁄₁₆	6⅜	99H
251-31446-4			1	3	6⅝	2³⁄₁₆	3½	99H
251-31446-10	500 kcmil	350 925/24	1	4	7⅝	2³⁄₁₆	4½	99H
251-31446-16			2	5 or 6	9⅝	2³⁄₁₆	6⅜	99H
251-31446-17	600 kcmil		2	5 or 6	9¾	2¾	6⅜	112H
251-31446-21	700 kcmil		1	6	9¾	2¾	6⁷⁄₁₆	112H
251-31446-6			1	3	6¾	2¾	3½	112H
251-31446-12	750 kcmil	500 1325/24	2	4	7¾	¾	4½	112H
251-31446-18			2	5 or 6	9¾	2¾	6⅜	112H
251-31446-36		750 1925/24	2	5 or 6	9¾	2¾	6⁷⁄₁₆	112H

Styles shown have cable tap on one portion of clamp assembly. Clamp assemblies with cable taps on both portions (top & bottom identical) are also available.

These assemblies are identified by adding suffix "AD" to part numbers shown. ***Example: 251-31446-1AD***

Only use hydraulic tools with hex crimp dies.

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***



Double Cable—Use AD Suffix

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Motor Pigtail Connectors

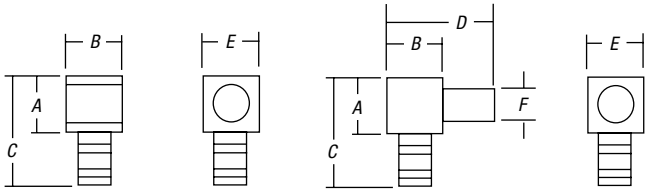
Quick, reliable change-out of electric motors with no bolting, taping or loose connections.



Motor Lead Disconnects

- Complete line of motor lead disconnects for 600V and 5kV applications, covering wire range from #16 AWG through 500 kcmil
- Fast, snap-together assembly offers maximum labor savings
- No need for nuts, bolts and washers or insulating tape — simply slide on reusable boot
- Total assembly fits into tight motor housings
- Quick disconnect — no knife cutting of melted tape, eliminating the risk of accidental cutting of wire insulation, resulting motor downtime and installer exposure
- Meet or exceed electrical and mechanical performance of bolted connections
- Constructed of high-conductivity copper with tin plating
- Female disconnects equipped with beryllium copper interface band for dependable connections

Motor Pigtail Connector — One Line to One Load (2 Wire)



Female Disconnect *Male Disconnect*

CAT. NO.						DIMENSIONS (IN.)						STRIP
FEMALE DISCONNECT	MALE DISCONNECT	WIRE SIZE	BODY SIZE	COLOR CODE	BOOT INSULATION	A	B	C	D	E	F	LENGTH (IN.)
MD1614F-0	MD1614M-0	#16–#14 AWG	0	BLUE	MDBOOT-0	.25	.25	.63	.52	.25	.125	3/88
MD1614F-1	MD1614M-1	#16–#14 AWG	1		MDBOOT-1	.38	.38	.78	.75	.38	.250	3/8
MD1210F-1	MD1210M-1	#12–#10 AWG	1	YELLOW	MDBOOT-1	.38	.38	.78	.75	.38	.250	3/8
MD1210F-2	MD1210M-2	#12–#10 AWG	2		MDBOOT-2	.50	.50	.90	1.00	.50	.370	3/8
MD8F-1	MD8M-1	#8 AWG	1	RED	MDBOOT-1	.38	.38	.82	.75	.38	.250	7/16
MD8F-2	MD8M-2	#8 AWG	2		MDBOOT-2	.50	.50	.95	1.00	.50	.370	7/16
MD6F-1	MD6M-1	#6 AWG	1	BLUE	MDBOOT-1	.38	.38	.88	.75	.38	.250	1/2
MD6F-2	MD6M-2	#6 AWG	2		MDBOOT-2	.50	.50	1.02	1.00	.50	.370	1/2
MD4F-2	MD4M-2	#4 AWG	2	GRAY	MDBOOT-2	.50	.50	1.06	1.00	.50	.370	1/2
MD2F-2	MD2M-2	#2 AWG	2	BROWN	MDBOOT-2	.50	.50	1.09	1.00	.50	.370	17/32
MD2F-3	MD2M-3	#2 AWG	3		MDBOOT-3	.88	.88	1.46	1.75	.88	.500	17/32
MD1F-2	MD1M-2	#1 AWG	2	GREEN	MDBOOT-2	.50	.50	1.23	1.00	.50	.370	9/16
MD1F-3	MD1M-3	#1 AWG	3		MDBOOT-3	.88	.88	1.56	1.75	.88	.500	9/16
MD10F-3	MD10M-3	1/0 AWG	3	PINK	MDBOOT-3	.88	.88	1.56	1.75	.88	.500	9/16
MD20F-3	MD20M-3	2/0 AWG	3	BLACK	MDBOOT-3	.88	.88	1.59	1.75	.88	.500	5/8
MD30F-3	MD30M-3	3/0 AWG	3	ORANGE	MDBOOT-3	.88	.88	1.71	1.75	.88	.500	11/16
MD40F-3	MD40M-3	4/0 AWG	3	PURPLE	MDBOOT-3	.88	.88	1.81	1.75	.88	.500	3/4
MD40F-4	MD40M-4	4/0 AWG	4		MDBOOT-4	1.25	1.25	2.89	2.69	1.25	.813	—
MD250F-4	MD250M-4	250 kcmil	4	YELLOW	MDBOOT-4	1.25	1.25	2.89	2.69	1.25	.813	—
MD350F-4	MD350M-4	350 kcmil	4	RED	MDBOOT-4	1.25	1.25	2.89	2.69	1.25	.813	—
MD500F-4	MD500M-4	500 kcmil	4	BROWN	MDBOOT-4	1.25	1.25	2.89	2.69	1.25	.813	—

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Motor Pigtail Connectors

Quick, easy installation!

Motor Pigtail Connector — One Line to One Load (2 Wire) *(continued)*





600V Version



5kV Version

1. Choose appropriate Blackburn® disconnect for conductor size to be terminated. Note color of bands on disconnect barrel.
2. Select proper installing die by matching die color to disconnect barrel color bands.
3. Install die in T&B tool, insert stripped wire into barrel of disconnect and compress between color bands. Repeat for mating half.
4. Snap the two halves together and slip on insulator over mated connection. Secure insulator with Ty-Rap® cable ties provided with the insulators.

Material: High-Conductivity Copper

Plating: Tin

Insulator: Thermoplastic Elastomer

CAT. NO.		INSTALLING TOOLS							
				TBM6, TBM6S		TBM5 TBM5S	TBM8 TBM8S	HYDRAULIC TOOLS	
FEMALE DISCONNECT	MALE DISCONNECT	WT112M WT111M WT2000 ERG4002	TBM45S	UPPER DIE	LOWER DIE	DIE SET	DIE SET	DIE CODE	COLOR
MD1614F-0	MD1614M-0	BLUE	—	—	—	—	—	—	—
MD1614F-1	MD1614M-1		—	—	—	—	—	—	—
MD1210F-1	MD1210M-1	YELLOW	—	—	—	—	—	—	—
MD1210F-2	MD1210M-2		—	—	—	—	—	—	—
MD8F-1	MD8M-1	—	X	13475	13477	13454	13461	21	RED
MD8F-2	MD8M-2	—	X	13475	13477	13454	13461	21	
MD6F-1	MD6M-1	—	X	13475	13477	13454	13461	24	BLUE
MD6F-2	MD6M-2	—	X	13475	13477	13454	13461	24	
MD4F-2	MD4M-2	—	X	13472	13476	13454	13461	29	GRAY
MD2F-2	MD2M-2	—	X	13474	13477	13454	13461	33	BROWN
MD2F-3	MD2M-3	—	X	13474	13477	13454	13461	33	
MD1F-2	MD1M-2	—	—	13474	13477	13455	13462	37	GREEN
MD1F-3	MD1M-3	—	—	13474	13477	13455	13462	37	
MD10F-3	MD10M-3	—	—	13475	13477	13455	13462	42	PINK
MD20F-3	MD20M-3	—	—	13474	13477	13455	13462	45	BLACK
MD30F-3	MD30M-3	—	—	13474	13477	13455	13462	50	ORANGE
MD40F-3	MD40M-3	—	—	13475	13477	13456	13463	54	PURPLE
MD40F-4	MD40M-4	—	—	13475	13477	13456	13463	54	
MD250F-4	MD250M-4	—	—	13473	13476	13456	13463	62	YELLOW
MD350F-4	MD350M-4	—	—	13472	13476	13458	13466	71H	RED
MD500F-4	MD500M-4	—	—	13478	13478	13458	13468	87H	BROWN

Specifications: *Wire Range: #16 to 4/0 AWG*

Rating: 600V, 90° C

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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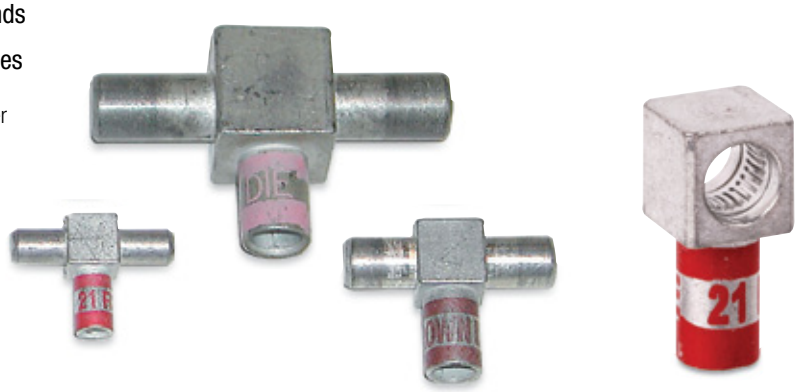
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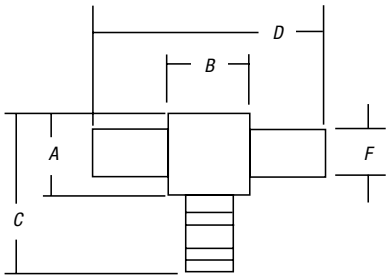
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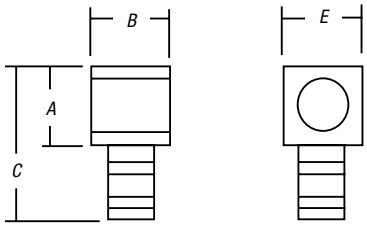
Motor Pigtail Connector — One Line to Two Load (3 Wire)

- KON-TOUR™ louvered contact bands
- Color coded to match installing dies

Material: High-Conductivity Wrought Copper
Finish: Electro-Tin Plate







CAT. NO.						DIMENSIONS (IN.)						
FEMALE DISCONNECT	MALE DISCONNECT	WIRE SIZE	BODY SIZE	COLOR CODE	BOOT INSULATION	A	B	C	D	E	F	STRIP LENGTH (IN.)
MD1614F-0	M2D1614M-0	#16–#14 AWG	0	BLUE	MDBOOT-1	.250	.250	.63	.77	.25	.12	3/8
MD1210F-1	M2D1210M-1	#12–#10 AWG	1	YELLOW	M2DBOOT-1	.380	.380	.780	.750	.380	.25	3/8
MD1210F-2	M2D1210M-2	#12–#10 AWG	2		M2DBOOT-2	.500	.500	.900	1.500	.500	.37	3/8
MD8F-1	M2D8M-1	#8 AWG	1	RED	M2DBOOT-1	.380	.380	.820	1.125	.380	.25	7/16
MD8F-2	M2D8M-2	#8 AWG	2		M2DBOOT-2	.500	.500	.950	1.500	.500	.37	7/16
MD6F-1	M2D6M-1	#6 AWG	1	BLUE	M2DBOOT-1	.380	.380	.875	1.125	.380	.25	1/2
MD6F-2	M2D6M-2	#6 AWG	2		M2DBOOT-2	.500	.500	1.020	1.500	.500	.37	1/2
MD4F-2	M2D4M-2	#4 AWG	2	GRAY	M2DBOOT-2	.500	.500	1.060	1.500	.500	.37	1/2
MD2F-2	M2D2M-2	#2 AWG	2	BROWN	M2DBOOT-2	.500	.500	1.090	1.500	.500	.37	17/32
MD2F-3	M2D2M-3	#2 AWG	3		M2DBOOT-3	.875	.875	1.460	2.630	.875	.50	17/32
MD1F-2	M2D1M-2	#1 AWG	2	GREEN	M2DBOOT-2	.50	.50	1.230	1.500	.500	.37	9/16
MD1F-3	M2D1M-3	#1 AWG	3		M2DBOOT-3	.875	.875	1.560	2.630	.875	.50	9/16
MD10F-3	M2D10M-3	1/0 AWG	3	PINK	M2DBOOT-3	.875	.875	1.560	2.630	.875	.50	9/16
MD20F-3	M2D20M-3	2/0 AWG	3	BLACK	M2DBOOT-3	.875	.875	1.590	2.630	.875	.50	5/8
MD30F-3	M2D30M-3	3/0 AWG	3	ORANGE	M2DBOOT-3	.875	.875	1.710	2.630	.875	.50	11/16
MD40F-3	M2D40M-3	4/0 AWG	3	PURPLE	M2DBOOT-3	.875	.875	1.810	2.630	.875	.50	3/4

Operating Range: 600V max., 1000V max. in signs and fixtures.

Listing: UL® Listed and CSA Certified for #12–#8 AWG solid copper conductors and stranded copper conductors in the sizes shown.

Selection: Always use the same body size when selecting male and female disconnects. For example, to connect a #2 AWG male to a #8 AWG female, select Catalog Numbers M2D2M-2 and MD8F-2. Both have body size 2.
Insulation: Use insulating boots matching the disconnect body size as indicated in the chart. To protect the connection from moisture and dirt, use sealing compound (Catalog Number MDBOOT-SEAL).

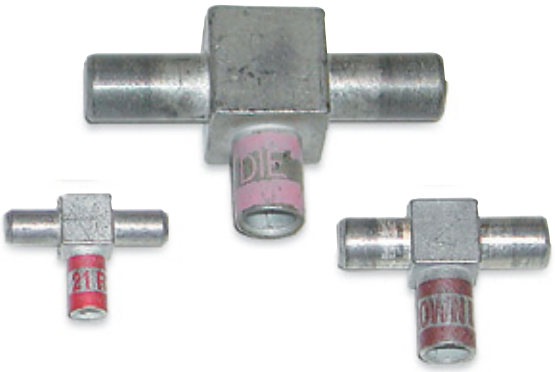
Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Motor Pigtail Connectors

Motor Pigtail Connector — One Line to Two Load (3 Wire) *(continued)*

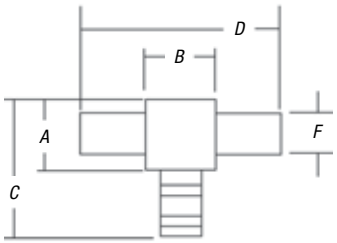


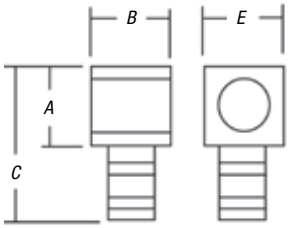




- KON-TOUR™ louvered contact bands
- Color coded to match installing dies

Material: High-Conductivity Wrought Copper
Finish: Electro-Tin Plate





CAT.NO.		INSTALLING TOOLS							
		WT112M WT111M ERG4002 WT2000	TBM6 TBM6S		TBM5 TBM5S	TBM8 TBM8S	HYDRAULIC TOOLS		
FEMALE DISCONNECT	MALE DISCONNECT		TBM25S	UPPER DIE	LOWER DIE	DIE SET	DIE SET	DIE CODE	COLOR
MD1614F-0	M2D1614M-0	BLUE	—	—	—	—	—	—	—
MD1210F-1	M2D1210M-1		—	—	—	—	—	—	—
MD1210F-2	M2D1210M-2	YELLOW	—	—	—	—	—	—	—
MD8F-1	M2D8M-1		X	13475	13477	13454	13461	21	RED
MD8F-2	M2D8M-2	—	X	13475	13477	13454	13461	21	
MD6F-1	M2D6M-1	—	X	13475	13477	13454	13461	24	BLUE
MD6F-2	M2D6M-2	—	X	13475	13477	13454	13461	24	
MD4F-2	M2D4M-2	—	X	13472	13476	13454	13461	29	GRAY
MD2F-2	M2D2M-2	—	X	13474	13477	13454	13461	33	BROWN
MD2F-3	M2D2M-3	—	X	13474	13477	13454	13461	33	
MD1F-2	M2D1M-2	—	—	13474	13477	13455	13462	37	GREEN
MD1F-3	M2D1M-3	—	—	13474	13477	13455	13462	37	
MD10F-3	M2D10M-3	—	—	13475	13477	13455	13462	42	PINK
MD20F-3	M2D20M-3	—	—	13474	13477	13455	13462	45	
MD30F-3	M2D30M-3	—	—	13474	13477	13455	13462	50	ORANGE
MD40F-3	M2D40M-3	—	—	13475	13477	13456	13463	54	PURPLE

Tooling: ***pp. F-80–F-100***
Die Selector Chart: ***pp. F-101–F-104***

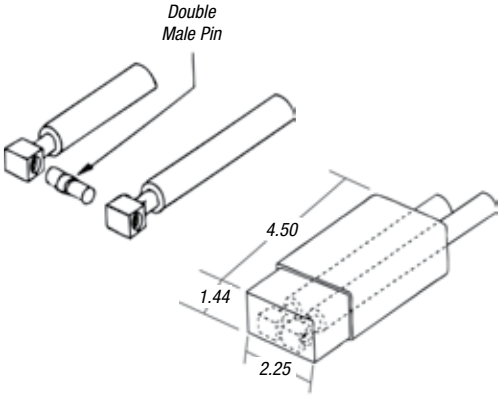
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Motor Pigtail Connectors

5kV Motor Pigtail Connector Supplied with Boot, Pin, Silicon Gel (Two Female Connectors Required)



CAT. NO.	WIRE RANGE AWG	FEMALE DISCONNECT CAT. NO.	COLOR CODE	DIMENSIONS L	W	H	BODY SIZE
5KVBOOT-2L	#8	MD8F-2	RED	4.50	2.25	1.44	2
5KVBOOT-2L	#6	MD6F-2	BLUE	4.50	2.25	1.44	2
5KVBOOT-2L	#4	MD4F-2	GRAY	4.50	2.25	1.44	2
5KVBOOT-2L	#2	MD2F-2	BROWN	4.50	2.25	1.44	2
5KVBOOT-2L	#1	MD1F-2	GREEN	4.50	2.25	1.44	2
5KVBOOT-3L	#2	MD2F-3	BROWN	4.50	2.25	1.44	3
5KVBOOT-3L	#1	MD1F-3	GREEN	4.50	2.25	1.44	3
5KVBOOT-3L	1/0	MD10F-3	PINK	4.50	2.25	1.44	3
5KVBOOT-3L	2/0	MD20F-3	BLACK	4.50	2.25	1.44	3
5KVBOOT-3L	3/0	MD30F-3	ORANGE	4.50	2.25	1.44	3
5KVBOOT-3L	4/0	MD40F-3	PURPLE	4.50	2.25	1.44	3



For easy, reliable sealing of motor disconnect boots.

Sealant

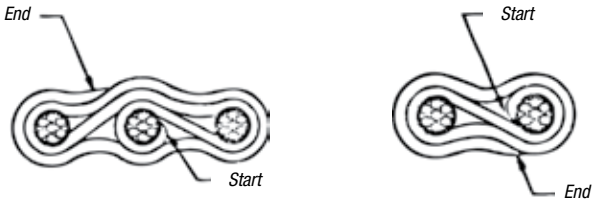


Sealant should be used with T&B Motor Disconnect Boots: MDBOOT-0, MDBOOT-1, MDBOOT-2 and MDBOOT-3.

The cable should be clean and free of grease and other foreign substances.

Apply two layers around each cable at the same distance from the connector.

Slide the assembly into boot, apply Ty-Rap® cable ties and work sealant around wires at end of boot to eliminate voids.



Specifications

- Description: Polybutene Compound
- Application Temperature: 40° F to 100° F
- Service Temperature: -40° F to 180° F
- Dimensions: Width 1",Thickness ⅛", Length (Std. Roll) 10', wrapped on release liner
- Environmental Resistance: Resists normal aging process
- Chemical Resistance: Resists acids, bases and alcohols
- Dielectric Strength: 200V/mil minimum
- Volume Resistivity: 1013 ohms/cm
- Flame Retardancy: Pass VO Vertical Flame Test

CAT. NO.	DESCRIPTION
MDBOOT-SEAL	Sealant

For watertight applications, contact technical services.

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

KUBE® Connectors

Make economical, field-constructible, UL® Listed multiple-tap electrical connections!

KUBE® Connectors Multi-Tap



Leave it to Thomas & Betts to bring you the most versatile, affordable solution for multiple-load installations from a single main conductor. The KUBE® Multi-Tap system gangs multiple permanent, dependable compression taps mounted on a high-conductivity copper rod to achieve a space- and cost-efficient UL® Listed multiple-tap connection you configure in the field. For even more flexibility, you can rotate connectors individually on the Multi-Tap rod to accommodate the bends and angles necessary to install equipment or complete circuitry — without the high cost of flexible-conductor cable.

- Lowest installed cost for the application — eliminates the need for expensive flexible-conductor cable
- Individual connectors can be rotated 360° on rod for multi-directional connections
- Versatile, modular design supports a myriad of connection possibilities
- UL® 486AB Listed and CSA Certified for field installation
- Compression connections maintain integrity even under vibration and high temperatures
- Supports wire sizes from #16 to 4/0 AWG
- Suitable for applications up to 600 volts (1000 volts in signs and fixtures)
- Rods constructed of high-conductivity copper with corrosion-resistant tin plating
- Connectors constructed of electro-tin plated high conductivity copper with louvered contact bands for reliable connections and color coding for easy selection of crimping die
- Two-piece, UL94-V0-rated, polycarbonate insulators snap onto connectors easily for fast, safe installation



This Multi-Tap installation connects 4/0, #1 and #2 AWG cables using MD40F-3, MD1F-3 and MD2F-3 connectors with REC-3 insulators on an R3-6 rod.

Typical Applications

- Commercial construction
- Specialized installations for entertainment applications
- Gutter taps for all applications
- Any other application requiring the running of multiple loads from a main conductor



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KUBE® Multi-Tap makes field installation fast and easy.

How to Order KUBE® Multi-Tap

- Choose your connectors. Note that connectors to be mounted on a single Multi-Tap rod can be for different wire sizes but must be of the same body size.
- Choose insulators of the appropriate body size for the connectors. (One insulator required for each connector.)
- Choose a Multi-Tap rod that matches the body size of your connectors and that has enough positions for the number of connections you need.



1. Crimp Multi-Tap connectors onto de-energized cables.



2. Snap Multi-Tap insulators over connectors.



3. Remove one end nut and spacers from Multi-Tap rod.



4. Slide connector/insulator assemblies onto rod.



5. If any rod positions remain empty, slide on appropriate number of spacers to fill rod.



6. Reapply end nut and tighten.

KUBE® Multi-Tap Connectors

CAT. NO.	WIRE SIZE	BODY SIZE	COLOR CODE
MD1614F-0	#16–#14 AWG	0	BLUE
MD1614F-1	#16–#14 AWG	1	
MD1210F-1	#12–#10 AWG	1	YELLOW
MD1210F-2	#12–#10 AWG	2	
MD8F-1	#8 AWG	1	RED
MD8F-2	#8 AWG	2	
MD6F-1	#6 AWG	1	BLUE
MD6F-2	#6 AWG	2	
MD4F-2	#4 AWG	2	GRAY
MD2F-2	#2 AWG	2	BROWN
MD2F-3	#2 AWG	3	
MD1F-2	#1 AWG	2	GREEN
MD1F-3	#1 AWG	3	
MD10F-3	1/0 AWG	3	PINK
MD20F-3	2/0 AWG	3	BLACK
MD30F-3	3/0 AWG	3	ORANGE
MD40F-3	4/0 AWG	3	PURPLE

Please note that these connectors are the same as our female motor pigtail connectors. For more information on dimensions, compression tool selection and required strip length, see ***pages F-53–F-56.***

KUBE® Multi-Tap Insulators

One insulator required for each connector.

CAT. NO.	FOR CONNECTOR BODY SIZE
REC-0	0
REC-1	1
REC-2	2
REC-3	3

KUBE® Multi-Tap Rods

Includes rod with spacers and end nuts. Rod positions indicate the maximum number of connectors the rod can hold. Spacers are provided to fill any unused positions left open for future connections. Body size of connectors, insulators and rod must match.

CAT. NO.	FOR CONNECTOR BODY SIZE	NO. OF ROD POSITIONS
R0-4	0	4
R0-6	0	6
R0-8	0	8
R0-10	0	10
R0-12	0	12
R1-4	1	4
R1-6	1	6
R1-8	1	8
R1-10	1	10
R1-12	1	12
R2-4	2	4
R2-6	2	6
R2-8	2	8
R2-10	2	10
R2-12	2	12
R3-4	3	4
R3-6	3	6
R3-8	3	8
R3-10	3	10
R3-12	3	12

KUBE® Connectors

A cost-saving breakthrough in 90°, T and cross connections.

KUBE® Flag, Tee and Cross Connectors

Finally there's a fast, easy and affordable way to make those 90°, T and cross electrical connections whenever and wherever you need them. Blackburn® Flags, Tees and Crosses are designed — and UL®/CSA approved — to be used with standard Blackburn® lugs and splices featuring the Color-Keyed® system in field-assembled configurations.

Now you don't need to use high-cost flexible conductor for connections requiring 90° bending radius or expensive brazed or welded connectors for T or cross connections!

- Offers lowest installed cost for the application
- Versatile, modular design enables thousands of field-constructible connection possibilities, including multi-circuit configurations
- Insulated for fast, safe termination and installation
- Used with standard Blackburn® lugs and splices featuring the Color-Keyed® system
- Color coded for easy selection of correct crimping die and easy verification of proper crimp





Specifications

- Connector: Tin-plated copper
- Insulation: Halogen-free polypropylene
- Standards: UL 486, CSA 22.2 #65

Flags, Tees and Crosses

CAT. NO.	WIRE SIZE (AWG)	INSULATOR	STD. PKG. QTY.
Flags			
FLAG1614	#16–#14	F-INSUL-0	20
FLAG1210	#12–#10	F-INSUL-0	10
FLAG8	#8	F-INSUL-1	10
FLAG6	#6	F-INSUL-1	10
FLAG4	#4	F-INSUL-2	6
FLAG2	#2	F-INSUL-2	6
FLAG1	#1	F-INSUL-2	6
FLAG10	1/0	F-INSUL-3	3
FLAG20	2/0	F-INSUL-3	3
FLAG30	3/0	F-INSUL-3	3
FLAG40	4/0	F-INSUL-3	3
FLAG250	250 kcmil	F-INSUL-4	3/15
FLAG350	350 kcmil	F-INSUL-4	3/15
FLAG500	500 kcmil	F-INSUL-4	3/15
Tees			
TEE1614	#16–#14	—	20
TEE1210	#12–#10	—	10
TEE8	#8	—	3
TEE6	#6	—	10
TEE4	#4	—	6
TEE2	#2	—	6
TEE1	#1	—	6
TEE10	1/0	—	3
TEE20	2/0	—	3
TEE30	3/0	—	3
TEE40	4/0	—	3
TEE250	250 kcmil	—	3/15
TEE350	350 kcmil	—	3/15
TEE500	500 kcmil	—	3/15
Crosses			
CROSS1614	#16–#14	—	20/200
CROSS1210	#12–#10	—	10/100
CROSS8	#8	—	10/100
CROSS6	#6	—	10/100
CROSS4	#4	—	6/60
CROSS2	#2	—	6/60
CROSS1	#1	—	6/60
CROSS10	1/0	—	3/30
CROSS20	2/0	—	3/30
CROSS30	3/0	—	3/30
CROSS40	4/0	—	3/30

Flag and Tee Kit Contents:

- Steel carrying case
- TBM25S crimp tool
- 25 each #8, #6 and #4 AWG flag bodies
- 25 each #8, #6 and #4 AWG one-hole lugs
- 10 each #2, #1, 1/0, 2/0, 3/0 and 4/0 AWG flag bodies
- 10 each #2, #1, 1/0, 2/0, 3/0 and 4/0 AWG one-hole lugs
- 50 size 1 flag insulators
- 45 size 2 flag insulators
- 40 size 3 flag insulators
- 10 each #8 and #6 AWG tee bodies
- 20 each #8 and #6 AWG two-way splices
- 6 each #4, #2 and #1 AWG tee bodies
- 12 each #4, #2 and #1 AWG two-way splices
- 3 each 1/0, 2/0, 3/0 and 4/0 AWG tee bodies
- 6 each 1/0, 2/0, 3/0 and 4/0 AWG two-way splices

Flag Insulators

CAT. NO.	DESCRIPTION	STD. PKG. QTY.
F-INSUL-0	For #16–#10 AWG	20/200
F-INSUL-1	For #8, #6 AWG	10/100
F-INSUL-2	For #4, #2, #1 AWG	6/60
F-INSUL-3	For 1/0, 2/0, 3/0, 4/0 AWG	3/30
F-INSUL-4	For 250, 350, 500 kcmil	10/50

Flag and Tee Kit

CAT. NO.	DESCRIPTION	STD. PKG. QTY.
FLAGTEEKIT	Flag and Tee Kit	1

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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Copper Disconnects

Making connections for high-amperage loads has never been easier!

High-Amperage Quick Power Disconnects

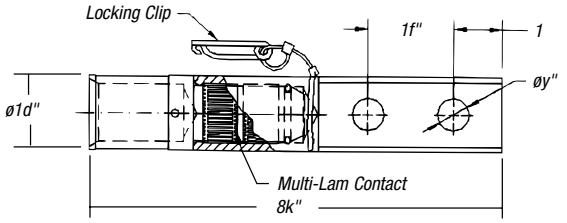
- Designed to be the fastest "off-load" connection possible, while maintaining system integrity
- Uses a multicontact approach to provide low insertion and extraction forces with low resistance and temperature rise
- Enables multiple connections and disconnections without changing or degrading performance characteristics
- Unique construction:
  - Made from 99.9% conductive copper, silver plated
  - Contact design features louvered band of beryllium copper
  - All raised edges of louvered band are deflected, producing a multitude of high-force contact points
  - Each contact point is typically in the force range of 8,000 to 10,000 psi
  - High currents, caused by short circuits or sudden surges, make contact interface even more efficient by increasing contact pressure



CAT. NO.		DIE	
MALE	FEMALE	CONDUCTOR	CODE
272-32175M	**272-32175F**	777 kcmil	115
Future Design	—	646 kcmil	—
Future Design	—	535 kcmil	—
Future Design	—	444 kcmil	—

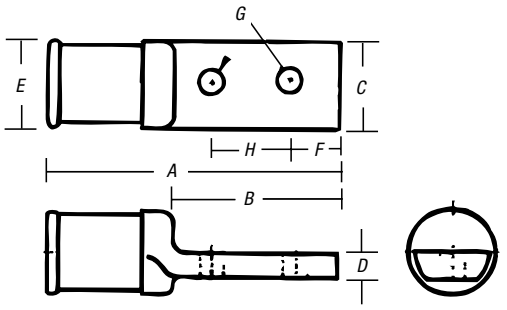
Tooling: ***pp. F-80–F-100***

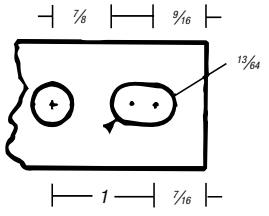
Die Selector Chart: ***pp. F-101–F-104***



T&B Method Traction Motor Disconnect Lugs for Diesel-Electric Locomotives

CAT. NO.	CABLE SIZE	DIMENSIONS A	B	C	D	E APPROX. (IN.)	BOLT SIZE F	G	H	DIE CODE
MD37	37/24	2 7/16	1 3/4	19/32	5/32	3/8	3/8	5/16	7/8	26
MDD61	61/24	2 7/16	1 3/4	19/32	5/32	3/8	3/8	5/16	7/8	26
MD 105	105/24	2 5/8	1 3/4	19/32	5/32	7/16	3/8	5/16	7/8	33
MD 105	91/24	2 5/8	1 3/4	19/32	5/32	7/16	3/8	5/16	7/8	33
MD 125	125/24	2 5/8	1 3/4	19/32	5/32	7/16	3/8	5/16	7/8	33
MD 150	150/24	2 15/16	1 7/8	19/32	.203	5/8	7/16	5/16	7/8	45
MD 175	175/24	2 15/16	1 7/8	19/32	.203	5/8	7/16	5/16	7/8	45
MD 225	225/24	3	1 7/8	1 1/16	.203	23/32	7/16	5/16	7/8	54
MD 275	275/24	3	1 7/8	1 1/16	.203	23/32	7/16	5/16	7/8	54
MD 325	325/24	3	1 7/8	1 1/16	.203	23/32	7/16	5/16	7/8	54
MD 375	375/24	3 1/8	2	25/32	.203	23/32	7/16	5/16	7/8	60
MD 450	450/24	3 1/8	2	25/32	.203	23/32	7/16	5/16	7/8	60
MD 550	550/24	3 3/16	1 7/8	15/16	.203	1	7/16	5/16	7/8	76
MD 650	650/24	3 3/16	1 7/8	15/16	.203	1	7/16	5/16	7/8	76
MD 775	775/24	3 3/16	1 7/8	15/16	.203	1	7/16	5/16	7/8	76
MD 925	925/24	3 3/4	2 1/16	1 1/8	.375	1 5/32	7/16	3/8	1	87
MD 1100	1100/24	3 3/4	2 1/16	1 11/32	.375	1 3/8	7/16	3/8	1	107
MD 1325	1325/24	3 25/32	2 3/32	1 5/32	.375	1 3/4	7/16	3/8	1	107
MD 1600	1600/24	3 3/4	2 1/16	1 11/32	.375	1 3/8	7/16	3/8	1	107
MD 1925*	1925/24	4 1/16	2 3/32	1 11/32	.375	1 1/2	7/16	3/8	1	115
MD 2300	2300/24	4 3/8	2 1/8	1 19/32	.375	1 21/32	7/16	3/8	1	130





Note*: Some parts may not be current on the system. Contact Tech Services for information.*

** MD 1925 supplied with elongated bolt hole.*

Tooling: ***pp. F-80–F-100*** *Die Selector Chart:* ***pp. F-101–F-104***

Connector Kits

Connector Kit for Copper Cables

CAT. NO.	DESCRIPTION	STD. PKG.	WT. EACH
TBM2K-1	Color-Keyed® Connector Kit	1	12

Kit Includes

CAT. NO.	ITEMS	CABLE SIZE		QTY.
54104	One-Hole Lugs	#8		25
54105	One-Hole Lugs	#6		25
54106	One-Hole Lugs	#4		15
54107	One-Hole Lugs	#2, #3		10
54504	2-Way Splice Connectors	#8		15
54505	2-Way Splice	#6		15
54506	2-Way Splice	#4		10
54507	2-Way Splice	#2		5
		MIN.	MAX.	
54610	Pigtails	3–#12	#4–#12	15
54615	Pigtails	#4–#12	#4–#10	15
54620	Pigtails	#3–#8	#1–#4	15
		#10	#10	
54710	C-Taps	#8 #6	#12 #10–#12	15
54615	C-Taps	#8 #4 or# 5	#8–#10 #8–#10–#12	15
54720	C-Taps	#6	#6–#8	
TBM20S OR TBM45S	Manual Crimp Tool	#8	#2	1

UL not applicable



Carrying Cases

MDPWK12 Case Contents

(1) PWK1	(10) MD1210F-1	(6) MD8M-2	(6) MD8F-2	(30) BOOT-1
(10) MD1210M-1	(10) MD8F-1	(6) MD6M-2	(6) MD6F-2	(6) MD1210M-2
(10) MD8M-1	(10) MD6F-1	(6) MD4M-2	(6) MD4F-2	(6) MD1210F-2
(10) MD6M-1	(30) MDBOOT-2	(6) MD2M-2	(6) MD2F-2	

MDPWK23 Case Contents

(1) PWK1	(6) MD1210F-2	(3) MD2M-3	(3) MD2F-3	(6) MD1M-2
(6) MD1210M-2	(6) MD8F-2	(3) MD1M-3	(3) MD1F-3	(36) MDBOOT-2
(6) MD8M-2	(6) MD6F-2	(3) MD10M-3	(3) MD10F-3	(18) MDBOOT-3
(6) MD6M-2	(6) MD4F-2	(3) MD20M-3	(3) MD20F-3	
(6) MD4M-2	(6) MD2F-2	(3) MD30M-3	(3) MD30F-3	
(6) MD2M-2	(6) MD1F-2	(3) MD40M-3	(3) MD40F-3	

MDKITL Case Contents

(1) PWK1	(1) TBM25S	(24) MDBOOT-2	(3) M2D2M-2	(6) MD8M-1
(3) M2D4M-2	(3) M2D6M-2	(3) M2D8M-2	(12) M2DBOOT-2	(6) MD8F-1
(12) MDBOOT-1	(12) MD2F-2	(12) MD4F-2	(12) MD6F-2	(6) MD8M-2
(12) M2D8F-2	(6) MD2M-2	(6) MD4M-2	(6) MD6M-2	(6) MD6M-1
(6) MD6F-1				

CAT. NO.	DESCRIPTION
PWK1	Empty case — includes wall chart; make up your own selection of Blackburn® lugs, splices, taps or motor disconnects featuring the Color-Keyed® system.
PWK4	Metal cabinet that holds four of the PWK1 shells that slide out for easy removal.
MDPWK12	Selection of size 1 and 2 male and female motor disconnects plus insulators; to connect 60 single line to single load motor leads, #12 AWG through #2 AWG; tools not included.
MDPWK23	Selection of size 2 and 3 male and female motor disconnects plus insulators; to connect 54 single line to single load motor leads, #12 AWG through #4/0 AWG; tools not included. Size 2 and 1 male and female motor disconnects plus insulators; to convert single to single line or single line to two line.
MDKITL	Includes Tool.



MDKITL

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800.816.7809
Fax: 901.252.1354
Technical Services
Tel: 888.862.3289
www.tnb.com

Joint Compound

Copper colloidal surface treatment protects, lubricates and enhances conductivity of all electrical connections.



Kopr-Shield® Joint Compound

- Unique, homogenized blend of pure, polished colloidal copper, rust and corrosion inhibitors
- Simultaneously protects, lubricates and enhances conductivity of mating surfaces
- Extremely adhesive compound flows smoothly into uneven contours and voids, ensuring easy application and complete, positive protection and lubrication
- Won't settle-out, thin, thicken, harden or dry out under the most severe environmental conditions
- Excellent temperature characteristics — can be brushed on at -50° F to 250° F (other compounds either turn solid or run like water at these extremes) and remains intact at short terms even at 1,800° F

Good connections are one of the most important aspects of electrical work. Mechanics know how much downtime is caused when fluids or oils leak into the raceway system or when they have to look for a weak link in a ground system caused by a high-resistance connection. Mechanics also know how much time is spent keeping contacts, switches, lugs and other connectors clean or replacing parts because of "green scourge" buildup. Thomas & Betts has the solution to improve connections made in thousands of electrical and raceway installations made each day by electricians everywhere. Kopr-Shield® Compound may be used to your advantage in all electrical installations. When the environment is hostile to electrical and mechanical connections, Kopr-Shield® Compound is a must!

CAT. NO.	DESCRIPTION	STD. PKG.	WT. LBS./C
201-31879	1½-oz. Container with Brush	96	11.46
201-31879-1	4-oz. Container with Brush	24	38.54
CP8-TB	8-oz. Container with Brush	12	64.58
CP16	16-oz. Container with Brush	12	120.83
CP128	1-Gallon Can	4	952.00

Use Kopr-Shield® Compound for battery lugs and cables to:

- Prevent "green scourge" corrosion
- Reduce resistance
- Ease terminal installation and removal

Use Kopr-Shield® Compound for raceways to:

- Lubricate for ease of assembly and disassembly
- Improve grounding continuity (exceeds code requirements)

Use Kopr-Shield® Compound for fuse clips to:

- Eliminate hot spots for even heat distribution
- Prevent oxidation by preventing carbon path formation
- Lubricate for easy installation and removal of fuses

Use Kopr-Shield® Compound for wiping contacts, drum switches and slip rings to:

- Prevent galling, burning, pitting and discoloration
- Suppress arching and dissipation of coronas
- Lubricate for ease of operation

ALUMA-SHIELD® Aluminum Joint Compound



CAT. NO.	CONTAINS	DESCRIPTION
21059	Squeeze Bottle, Pt.	For aluminum cable connections; contains fine zinc particles which break through oxide film on cable strands upon compression of connection; ensures a low resistance contact and seals out air and moisture.
AP8	8-oz. Brush Cap Can	
M53	5-Gallon Can	

Note: *UL® Listed only for use on electrical cables in cable connector assemblies, or on bus bars rated for NEC® applications up to 8kV and 90° C.*

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Connectors for Aluminum/Copper Code Conductor

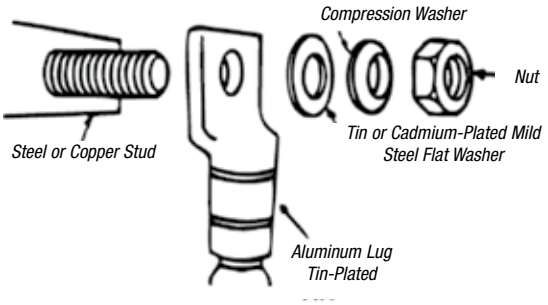
For tight, secure bus-bar connections.

Belleville Compression Washers



- Essential when bolting aluminum lugs and connectors to bus bars with steel or brass hardware
- Maintains constant pressure in heavy-duty, high-temperature applications
- Available with or without flat washer

When bolting aluminum lugs and connectors to bus bars with steel or brass hardware, the recommended practice to ensure a tight connection is to use a Belleville spring washer on top of a flat washer under the bolt head or nut. For heavy-duty service where the heat rise is expected to exceed 30° C above ambient, this procedure maintains constant pressure as the connector metals expand and contract with temperature changes.

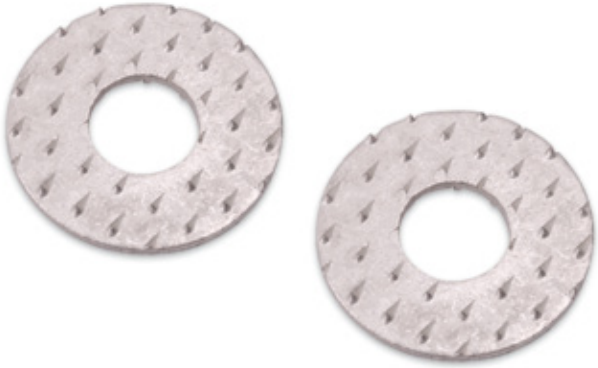


CAT. NO.	BOLT SIZE (IN.)	DIMENSIONS (IN.) FLAT WASHER A	FLAT WASHER B	BELLEVILLE WASHER C	BELLEVILLE WASHER D
Belleville Compression Washers Plus Flat Washer					
60800B	1/4	3/4	.067	11/16	.055
60801B	5/16	7/8	.074	13/16	.065
60802B	3/8	1	.083	15/16	.075
60803B	1/2	1 1/4	.109	13/16	.095
Belleville Compression Washer Only					
60800	1/4	—	—	11/16	.055
60801	5/16	—	—	13/16	.065
60802	3/8	—	—	15/16	.075
60803	1/2	—	—	13/16	.095
60804	5/8	—	—	1 1/2	.110

Note: *Ordering quantity must be in unit quantities and multiples thereof.*
The Belleville washer should be installed with a larger flat washer to spread the high stresses of the spring washer edges over a large area of the lug and/or bus bar.

Quick, dependable and versatile.

Dragon Tooth® Transition Washers



- Connect copper-to-aluminum, copper-to-copper or aluminum-to-aluminum component
- Toothed surface penetrates aluminum and copper oxides
- Lower installed cost — no need to grind aluminum surfaces, apply compounds or use spring-type washers

CAT. NO.	SIZE (IN.)	BOLT TORQUE IN LBS.
DTW14	1/4	50–80
DTW516	5/16	125–160
DTW38	3/8	160–240
DTW12	1/2	390–540
DTW58	5/8	540–730

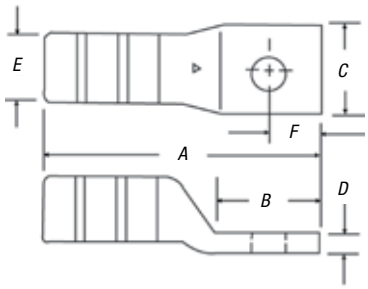
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Connectors for Aluminum/Copper Code Conductor

Perform equally well on both aluminum and copper conductors.

One-Hole Lugs





- For 90° C, 600V to 35kV applications
- Easily matched to the correct Blackburn® installing die featuring the Color-Keyed® system for positive compressions
- Hardened steel dies compress connector around cable, changing round strands to polygonal shapes and cold flowing strands and connector into a solid, homogenous mass
- Long compression areas ensure complete contact
- Multiple compressions prevent creep of aluminum conductors
- Filled with high-temperature oxide-inhibitor compound
- Electro-tin plating prevents electrolytic corrosion of copper to ensure lowest contact resistance

Material: High-Conductivity Wrought Aluminum

Finish: Electro-Tin Plate

CAT. NO.	CABLE SIZE AL/CU	BOLT SIZE (IN.)	DIMENSIONS A	B	C	D	E	F	COLOR CODE	DIE CODE
60096		#10	1.09	.56	.41	.06	.270	.22		
60097	#10 AWG	¼	1.31	.72	.43	.07	.270	.34	21	RED
60099		⅜	1.53	.93	.58	.06	.270	.44		
60101		#10	1.22	.56	.41	.09	.280	.22		
60102	#8 AWG	¼	1.38	.71	.44	.09	.280	.34	24	BLUE
60103		5/16	1.56	.91	.60	.06	.280	.44		
60104-TB		⅜	1.60	.93	.60	.06	.280	.44		
60106		#10	1.52	.59	.47	.13	.350	.22		
60107	#6 AWG	¼	1.67	.75	.47	.13	.350	.34	29	GRAY
60108		5/16	1.83	.91	.63	.09	.350	.44		
60109		⅜	1.86	.93	.63	.09	.350	.44		
60112		¼	1.81	.75	.64	.19	.460	.34		
60113	#4 AWG	5/16	2.00	.91	.64	.19	.460	.44	37	GREEN
60114		⅜	2.03	.93	.64	.19	.460	.44		
60116		¼	1.91	.75	.72	.19	.510	.34		
60117	#2 AWG	5/16	2.06	.91	.72	.19	.510	.44	42	PINK
60118		⅜	2.09	.93	.72	.19	.510	.44		
60120		½	2.25	1.41	.88	.13	.510	.69		
60122		¼	2.30	.81	.75	.19	.560	.34		
60123	#1 AWG	5/16	2.39	.91	.75	.19	.560	.44	45	GOLD
60124		⅜	2.42	.93	.75	.19	.560	.44		
60126		½	2.89	1.41	.88	.16	.560	.69		
60128		¼	2.36	.81	.88	.19	.620	.34		
60129	1/0	5/16	2.51	.97	.88	.19	.620	.44	50	TAN
60130		⅜	2.51	.97	.88	.19	.620	.44		
60132		½	2.95	1.41	.94	.19	.620	.69		
60134		¼	2.48	.87	.97	.22	.700	.34		
60135	2/0	5/16	2.64	1.03	.97	.22	.700	.44	54	OLIVE
60136		⅜	2.64	1.03	.97	.22	.700	.44		
60138		½	3.10	1.41	1.03	.22	.700	.69		
60140		¼	2.58	.87	1.06	.22	.770	.34		
60141	3/0	5/16	2.83	1.09	1.06	.22	.770	.44	60	RUBY
60142		⅜	2.83	1.09	1.06	.22	.770	.44		
60144		½	3.15	1.41	1.06	.22	.770	.69		
60147		5/16	3.53	.88	1.21	.25	.857	.38		
60148	4/0	⅜	3.58	.93	1.21	.25	.857	.38	66	WHITE
60150		½	3.90	1.25	1.21	.25	.857	.50		
60151		⅝	4.65	2.00	1.21	.25	.857	.75		
60154		⅜	3.73	.93	1.29	.27	.917	.38		
60156	250 kcmil	½	4.05	1.25	1.29	.27	.917	.50	71	RED
60157		⅝	4.80	2.00	1.29	.27	.917	.75		
60159		5/16	3.75	.88	1.39	.28	.990	.38		
60160	300 kcmil	⅜	3.80	.93	1.39	.28	.990	.38	76	BLUE
60162		½	4.13	1.25	1.39	.28	.990	.50		
60165	350 kcmil	½	4.83	1.25	1.53	.33	1.090	.50	87	BROWN
60166		⅝	5.58	2.00	1.53	.33	1.090	.75		
60168	400 kcmil	½	4.95	1.25	1.65	.38	1.180	.50	94	GREEN
60171	500 kcmil	½	4.95	1.25	1.79	.38	1.280	.50	99	PINK
60172		⅝	5.70	2.00	1.79	.38	1.280	.75		
60174	600 kcmil	⅝	5.83	2.00	1.92	.37	1.360	.75	106	BLACK
60176	700 kcmil	⅝	5.95	2.00	2.04	.38	1.440	.75	112	PURPLE
60178	750 kcmil	⅝	6.03	2.00	2.13	.40	1.500	.75	115	YELLOW
60184	1000 kcmil	⅝	6.78	2.00	2.50	.50	1.770	.75	140	N/A

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Connectors for Aluminum/Copper Code Conductor

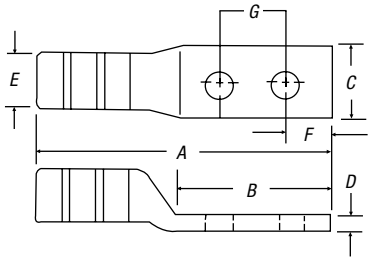
Designed and approved for use with both aluminum and copper conductors.

Two-Hole Lugs



- For 90° C, 600V to 35kV applications
- For aluminum and copper concentric conductors and compact code aluminum strandings
- Filled with oxide-inhibitor compound

Material: High-Conductivity Wrought Aluminum
Finish: Electro-Tin Plate



CAT. NO.	CABLE SIZE	BOLT SIZE (IN.)	DIMENSIONS (IN.) A	B	C	D	E	F	G	DIE CODE	COLOR CODE
60230	1/0 AWG	⅜	3.50	1.90	.880	.19	.62	.38	1.00	50	TAN
60236	2/0 AWG	⅜	3.50	1.90	.970	.22	.70	.38	1.00	54	OLIVE
60238	2/0 AWG	½	5.03	3.41	.970	.22	.70	.75	1.75		
60242	3/0 AWG	⅜	3.66	1.18	1.063	.22	.77	.38	1.00	60	RUBY
60244	3/0 AWG	½	5.16	3.41	1.063	.22	.77	.75	1.75		
60248	4/0 AWG	⅜	4.58	1.93	1.210	.25	.86	.38	1.00	66	WHITE
60250	4/0 AWG	½	5.65	3.00	1.210	.25	.86	.50	1.75		
60254	250 kcmil	⅜	4.73	1.93	1.290	.27	.92	.38	1.00	71	RED
60256	250 kcmil	½	5.80	3.00	1.290	.27	.92	.50	1.75		
60260	300 kcmil	⅜	4.80	1.93	1.390	.28	.99	.38	1.00	76	BLUE
60262	300 kcmil	½	5.88	3.00	1.390	.28	.99	.50	1.75		
60265	350 kcmil	⅜	5.50	1.93	1.530	.33	1.09	.38	1.00	87	BROWN
60267	350 kcmil	½	6.58	3.00	1.530	.33	1.09	.50	1.75		
60268	400 kcmil	⅜	5.63	1.93	1.650	.38	1.18	.38	1.00	94	GREEN
60269	400 kcmil	½	6.70	3.00	1.650	.38	1.18	.50	1.75		
60271	500 kcmil	⅜	5.63	1.93	1.790	.38	1.28	.38	1.00	99	PINK
60273	500 kcmil	½	6.70	3.00	1.790	.38	1.28	.50	1.75		
60274	600 kcmil	⅜	5.75	1.93	1.920	.37	1.36	.38	1.00	106	BLACK
60275	600 kcmil	½	6.83	3.00	1.920	.37	1.36	.50	1.75		
60276	700 kcmil	⅜	5.88	1.93	2.040	.38	1.44	.38	1.00	112	PURPLE
60277	700 kcmil	½	6.95	3.00	2.040	.38	1.44	.50	1.75		
60278*	750 kcmil	½	7.15	3.00	2.130	.40	1.50	.50	1.75	115	YELLOW
60284	1000 kcmil	½	7.78	3.00	2.500	.50	1.77	.50	1.75	140	N/A

Note: *Bolt holes ⅜" on 1" centers, ½" on 1¾" centers.*

** Cat. No. 60278 is also UL® Listed for 900 Compact.*

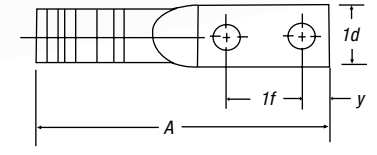
Wire barrel factory-filled with oxide-inhibiting compound.

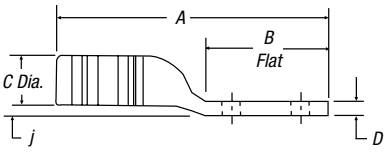
Range-Taking Narrow-Tongue Single-Barrel Lugs



- For 90° C, 600V to 35kV applications
- 1½"-wide tongues
- Bolt holes on 1¾" centers

Material: Aluminum
Finish: Electro-Tin Plate





CAT. NO.	AL-CU CABLE RANGE	BOLT SIZE	NO. OF COMPRESSIONS TBM12M	13642, TBM15	DIMENSIONS (IN.) A	B	C	D	HEX DIE NO.	COLOR CODE
60273N	350–500 kcmil	½"	4	4	6⅞	3⅛	1 9/32	13/32	99H	PINK
60278N	500–750 kcmil	½"	—	4	7⅛	3 1/16	1½	½	115H	YELLOW

** 90° C, 600V to 35kV applications*

All lugs have 1½"-wide tongues. Bolt holes on 1¾" centers.

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

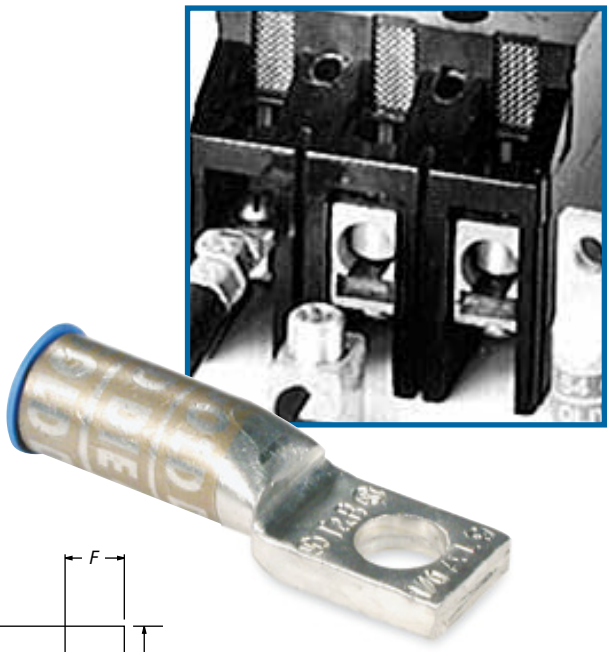
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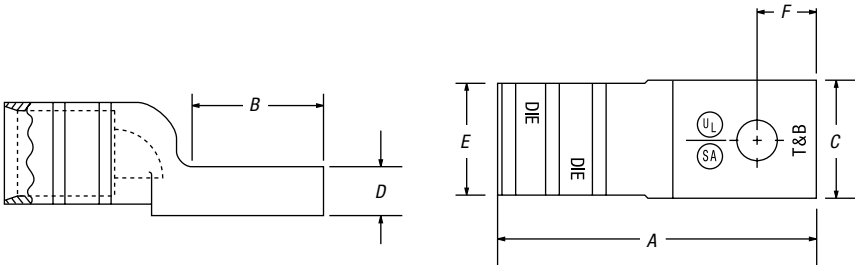
Connectors for Aluminum/Copper Code Conductor

Much smaller than standard aluminum lugs for the same cable size.

One-Hole Aluminum Compact-Size Equipment Lug

- For 90° C, 600V applications
- For use with aluminum cables only
- Can be directly substituted for equipment mechanical lugs in most applications
- Only seven dies handle all 14 lug sizes
- Factory-filled with joint compound
- Electro-tin plated
- Supplied with Neoprene insulating covers





CAT. NO.	ALUMINUM CABLE SIZE	ALUMINUM RANGE TAKING*	BOLT HOLE (IN.)	DIMENSIONS (IN.)					
				A	B	C	D	E	F
61102	#8	—	¼	1.33	.54	.50	.14	.37	.25
61107	#6	—	¼	1.33	.54	.50	.14	.37	.25
61112	#4	—	¼	1.33	.54	.50	.14	.37	.25
61116	#2	—	¼	1.75	.68	.55	.20	.48	.25
61122	#1	—	¼	1.75	.68	.55	.20	.48	.25
61130	1/0	#8–1/0	⅜	2.00	.83	.64	.20	.57	.38
61136	2/0	#1–2/0	⅜	2.00	.83	.64	.20	.57	.38
61142	3/0	—	⅜	2.50	1.08	.78	.23	.70	.38
61148	4/0	2/0–4/0	⅜	2.50	1.08	.78	.23	.70	.38
61156	250 kcmil	—	½	2.50	1.23	.98	.25	.85	.50
61162	300 kcmil	#4–300	½	2.50	1.23	.98	.25	.85	.50
61165	350 kcmil	250–350	½	3.25	1.23	1.20	.41	1.04	.56
61171	500 kcmil	2/0–500	½	3.25	1.23	1.20	.41	1.04	.56
61178	750 kcmil	500–750	⅝	3.75	1.54	1.49	.41	1.33	.81

600V, 90° C

This lug is reduced in size as compared to an aluminum lug of the same cable size. It can be substituted for the equipment mechanical lugs in most cases.

Factory-filled with joint compound. Electro-tin plated. Cover is Neoprene.

** For range-taking capability, use TBM8-750/TBM8-750M1 Smart Tool.*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Connectors for Aluminum/Copper Code Conductor

For aluminum-to-copper, aluminum-to-aluminum or copper-to-copper splicing.

Two-Way Splice Connectors



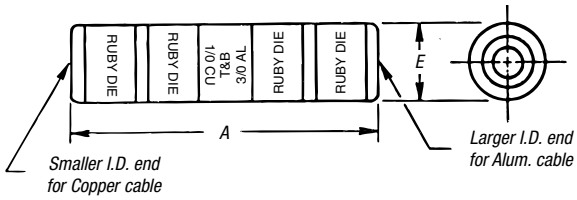
- For 90° C, 600V to 35kV applications
- For aluminum and copper concentric conductors and compact code aluminum strandings
- Permit aluminum conductors to be spliced to copper or aluminum conductors

Material: High-Conductivity Wrought Aluminum

Finish: Electro-Tin Plate

CAT. NO.	CONDUCTOR CODE	DIMENSIONS (IN.) A	DIMENSIONS (IN.) E	DIE CODE	COLOR CODE
60500	#10 Str. AWG	1.00	.27	21	RED
60501	#8 Str. AWG	1.19	.28	24	BLUE
60507	#6 Str. AWG	1.63	.35	29	GRAY
60512	#4 Str. AWG	1.81	.46	37	GREEN
60516	#2 Str. AWG/#3 Str. AWG	1.81	.51	42	PINK
60522	#1 Str. AWG	2.38	.56	45	GOLD
60530	1/0 AWG	2.38	.62	50	TAN
60536	2/0 AWG	2.50	.70	54	OLIVE
60542	3/0 AWG	2.81	.77	60	RUBY
60548	4/0 AWG	3.66	.86	66	WHITE
60554	250 kcmil	3.91	.92	71	RED
60560	300 kcmil	3.97	.99	76	BLUE
60565	350 kcmil	4.97	1.09	87	BROWN
60568	400 kcmil	4.97	1.18	94	GREEN
60571	500 kcmil	4.97	1.28	99	PINK
60574	600 kcmil	5.22	1.36	106	BLACK
60576	700 kcmil	5.44	1.44	112	PURPLE
60578	750 kcmil/900 compact	5.69	1.50	115	YELLOW
60584	1000 kcmil	6.69	1.77	140	—

Splice aluminum conductors to copper conductors of equal ampacities.



Aluminum Reducing Connectors



- For 90° C, 600V applications
- Filled with high-temperature oxide-inhibiting compound
- Designed for the right combination of equivalent sizes (Example: 4/0 AWG aluminum to 2/0 AWG copper)
- Selection table gives aluminum/copper equivalents for all sizes

Material: High-Conductivity Wrought Aluminum

Finish: Electro-Tin Plate

CAT. NO.	CABLE SIZE ALUMINUM	CABLE SIZE COPPER	DIMENSIONS (IN.) A	DIMENSIONS (IN.) E	DIE CODE	COLOR KEY
60905	#8 AWG	#10 AWG	13/16	9/32	24	BLUE
60910	#6 AWG	#8 AWG	1 5/8	11/32	29	GRAY
60915	#4 AWG	#6 AWG	1 13/16	7/16	37	GREEN
60925	#1 AWG	#3 AWG	2 3/8	17/32	45	GOLD
60930	1/0 AWG	#2 AWG	2 3/8	5/8	50	TAN
60935	2/0 AWG	#1 AWG	2 1/2	11/16	54	OLIVE
60940	3/0 AWG	1/0 AWG	2 13/16	3/4	60	RUBY
60945	4/0 AWG	2/0 AWG	3 3/4	7/8	66H	WHITE
60950	250 kcmil	3/0 AWG	4	15/16	71H	RED
60955	300 kcmil	4/0 AWG	4 1/16	1	76H	BLUE
60960	350 kcmil	4/0 AWG	5 1/16	3/32	87H	BROWN
60965	400 kcmil	250 kcmil	5 1/16	1 7/32	94H	GREEN
60970	500 kcmil	350 kcmil	5 1/16	1 5/16	99H	PINK
60975	600 kcmil	400 kcmil	5 5/16	1 11/32	106H	BLACK
60980	700 kcmil	500 kcmil	5 9/16	1 7/16	112H	PURPLE
60985	750 kcmil	500 kcmil	5 13/16	1 1/2	115H	YELLOW

Selection table gives aluminum/copper equivalents for all sizes.

Connectors are filled with a high-temperature oxide-inhibiting compound.

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Installing Tools: *TBM5(s) #10 AWG → 4/0 AWG*
TBM6(s) #10 AWG → 350 kcmil
TBM8(s) #10 AWG → 350 kcmil

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Connectors for Aluminum/Copper Code Connector

Everything you need to connect to a transformer in one convenient kit.

Transformer Lug Kits

- For 90° C, 600V applications
- For use with aluminum cables only
- Include all necessary range-taking compression or mechanical type lugs and bolting hardware to connect to designated transformers



TRANSFORMER		TERMINAL LUGS			KIT CONTENTS							
KVA SIZES	KIT CAT. NO.	AL CABLE RANGE*		QTY.	NUTS	QTY.	BOLTS	QTY.	WASHERS	QTY.	STD. PKG.
Compression											
15-37½ 1Ø 15-45 3Ø	**611CL-SK1**	#8–1/0 AL #4–300 kcmil	Color-Keyed® Compression Equipment Lugs	8 4	¼-20	8	¼-20 x 1"	8	FLAT ¼" SPRING ¼"	8 8	1
50-75 1Ø 75-112½ 3Ø	**611CL-SK2**	#4–300 kcmil AL		12	¼-20	16	¼-20 x 1" ¼-20 x 2"	8 8	FLAT ¼" SPRING ¼"	16 16	1
100-167 1Ø 150-300 3Ø	**611CL-SK3**	#4–300 kcmil AL 2/0–500 kcmil AL		3 22	¼-20 ⅜-16	3 16	¼-20 x ¾" ⅜-16 x 2"	3 16	FLAT ¼" SPRING ¼" FLAT ⅜" SPRING ⅜"	3 3 16 16	1
100-167 1Ø 150-300 3Ø	**611CL-SK3-500**	#4–300 kcmil AL 2/0–500 kcmil AL		3 22	¼-20 ⅜-16	3 16	¼-20 x 1" ⅜-16 x 2"	3 16	FLAT ¼" SPRING ¼" FLAT ⅜" SPRING ⅜"	3 3 16 16	1
500 3Ø	**611CL-SK4**	#500–750 kcmil AL		29	⅜-16	18	⅜-16 x 2"	18	FLAT ⅜" SPRING ⅜"	18 18	1
Mechanical											
15-37½ 1Ø 15-45 3Ø	**622ML-SK1**	#14–2 #6–250 kcmil	Ready Lugs Mechanical Lugs**	8 4	¼-20	8	¼-20 x ¾"	8	FLAT ¼" SPRING ¼"	8 8	1
50-75 1Ø 75-112½ 3Ø	**622ML-SK2**	#6–250 kcmil		12	¼-20	16	¼-20 x ¼" ¼-20 x 1¾"	8 8	FLAT ¼" SPRING ¼"	16 16	1
100-167 1Ø 150-300 3Ø	**622ML-SK3**	#6–250 kcmil 350–800 kcmil		3 22	¼-20 ⅜-16	3 16	¼-20 x ¾" ⅜-16 x 2"	3 16	FLAT ¼" SPRING ¼" FLAT ⅜" SPRING ⅜"	3 3 16 16	1
500 3Ø	**622ML-SK4**	350–800 kcmil		29	⅜-16	18	⅜-16 x 2"	18	FLAT ⅜" SPRING ⅜"	18 18	1

** To ensure proper range-taking compression on Blackburn® equipment lugs, use Smart® Tool (Cat. No. TBM8-750/TBM8-750M-1).*

*** Largest cable in lug can be applied with standard hex or hand tool.*

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

Connectors for Aluminum/Copper Code Conductor

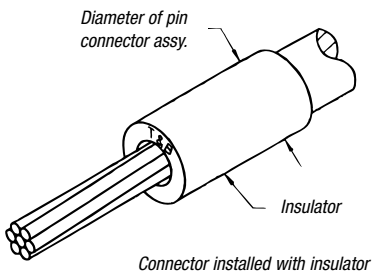
Converts an aluminum cable into a two-sizes-smaller copper pigtail.

Bi-Pin® Bi-Metal Pin Connectors with Insulating Covers

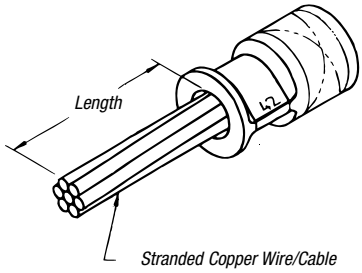


- For 90° C, 600V applications
- Upgrades connection by eliminating cold flow and oxidation of aluminum
- Reduces oversized aluminum cable
- Enables termination of aluminum cable into a copper-only lug
- Barrel prefilled with joint compound

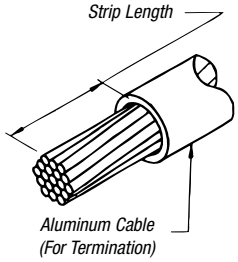
Material: Copper Wire/Aluminum Body
Finish: Electro-Tin Plate
Insulator: Neoprene (600V dielectric rating)



Connector installed with insulator

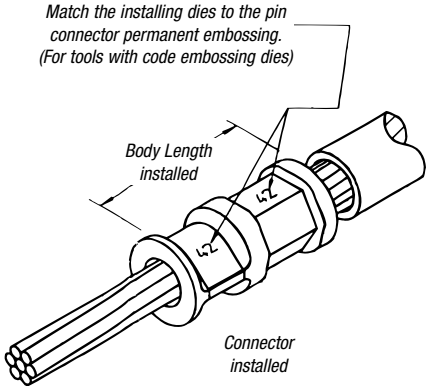


Stranded Copper Wire/Cable (Factory Installed)



CAT. NO.	ALUM. CABLE SIZE	COPPER WIRE SIZE	BODY LENGTH AFTER INSTALLING (IN.)	DIE CODE NO.	COLOR KEY
61905A	#8 AWG	#10 AWG	1⅞	24	BLUE
61910A	#6 AWG	#8 AWG	1⅞	24	
61915A	#4 AWG	#6 AWG	1⁹⁄₁₆	45	GOLD
61920A	#2 AWG	#4 AWG	1⁹⁄₁₆	45	
61925A	#1 AWG	#3 AWG	1⅝	50	
61930A	1/0 AWG	#2 AWG	1⅝	50	ORANGE
61935	2/0 AWG	#1 AWG	1¹⁵⁄₁₆	50	
61940	3/0 AWG	1/0 AWG	2⅛	60	
61945	4/0 AWG	2/0 AWG	2⅛	60	RUBY
61950	250 kcmil	3/0 AWG	2³⁄₁₆	66	WHITE
61955	300 kcmil	4/0 AWG	2½	71H	
61960	350 kcmil	250 kcmil	2½	71H	RED
61963	400 kcmil	250 kcmil	3¼	87H	
61965	500 kcmil	350 kcmil	3¼	87H	BROWN
61970	600 kcmil	400 kcmil	3¼	107H	
61975	700–750 kcmil	500 kcmil	3¼	107H	ORANGE

To inspect installation: Match the installing dies to the pin connector permanent embossing. (For tools with code embossing dies)



Hand Tools — Smart® Tool

Tooling: ***pp. F-80–F-100***

Die Selector Chart: ***pp. F-101–F-104***

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Connectors for Aluminum/Copper Code Conductor

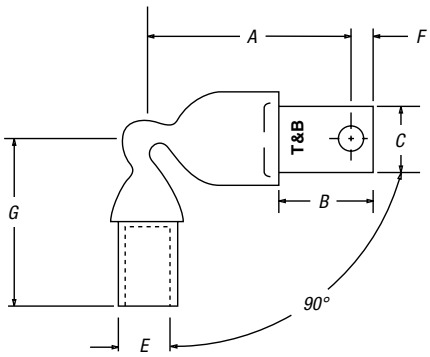
90° Flag Lugs — 600V, 90° C

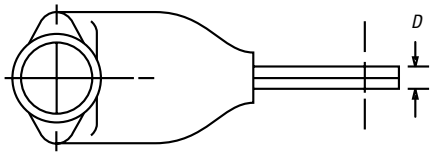
Material: Aluminum
Finish: Electro-Tin Plate
Insulation: PVC Dip Coated



CAT. NO.	CU CABLE SIZE	STUD SIZE (IN.)	PHASE	DIMENSIONS (IN.) A	B	C	D	E	F	G	DIE CODE
			1	1.38							
10A-FT-14NTK	1/0	¼	2	2.13	.94	.64	.19	.62	.25	2.50	50
			3	2.88							
			1	1.93							
20A-FT-14NTK	2/0	¼	2	2.93	1.14	.64	.22	.70	.25	2.50	54
			3	3.93							
			1	2.11							
30A-FT-14NTK	3/0	¼	2	3.11	1.14	.78	.22	.77	.25	2.75	60
			3	4.11							
			1	2.04							
40A-FT-14NTK	4/0	¼	2	3.04	1.14	.78	.25	.86	.25	3.13	66
			3	4.04							

** Each Cat. No. consists of three connectors, (1) connector per phase.*
Connectors supplied with Thomas & Betts oxide-inhibitor compound in wire bore.
Installation tooling: Hand or hydraulic tools.





CAT. NO.	CU CABLE SIZE	STUD SIZE (IN.)	PHASE	DIMENSIONS (IN.) A	B	C	D	E	F	G	DIE CODE
			1	2.31							
250A-FT-14NTK	250 kcmil	¼	2	3.44	1.20	.98	.25	.92	.31	3.00	71
			3	4.57							
			1	2.31							
350A-FT-12NTK	350 kcmil	¼	2	3.69	1.45	1.09	.31	1.09	.56	3.94	87
			3	5.06							
			1	2.56							
500A-FT-12NTK	500 kcmil	¼	2	4.06	1.45	1.20	.38	1.28	.56	4.19	99
			3	5.69							
			1	2.63							
750A-FT-58NTK	750 kcmil	¼	2	4.50	1.70	1.49	.38	1.50	.81	4.39	115
			3	6.25							

Tooling: ***pp. F-80–F-100***
Die Selector Chart: ***pp. F-101–F-104***

Heavy-Duty Battery Connectors

Tin-Plated Straight Battery Connectors

Material: High-Conductivity Copper

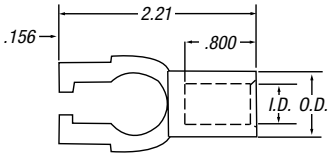
Finish: Electro-Tin Plate

Installing Tools: TBM5-SV, TBM5V, TBM8250, TBM8250S

CAT. NO.	BULK CAT. NO.	SAE CABLE SIZE AND COLOR	DESCRIPTION	I.D.	O.D.	PKG. QTY.	BULK PKG. QTY.	COLOR KEY
BAC4SUBT	BAC4SUBT-C	4 Gauge	Straight Universal	.261	.430	5	100	GRAY
BAC2SUBT	BAC2SUBT-C	2 Gauge	Straight Universal	.340	.550	5	100	GREEN
BAC1SUBT	BAC1SUBT-C	1 Gauge	Straight Universal	.340	.550	5	100	PINK
BAC10SUBT	BAC10SUBT-C	1/0 Gauge	Straight Universal	.455	.625	5	100	BLACK
BAC20SUBT	BAC20SUBT-C	2/0 Gauge	Straight Universal	.502	.676	5	100	ORANGE
BAC30SUBT	BAC30SUBT-C	3/0 Gauge	Straight Universal	.530	.730	5	100	PURPLE
BAC40SUBT	BAC40SUBT-C	4/0 Gauge	Straight Universal	.600	.844	5	100	YELLOW
BAC4SPBT	BAC4SPBT-C	4 Gauge	Straight Positive	.261	.430	5	100	GRAY
BAC4SNBT	BAC4SNBT-C	4 Gauge	Straight Negative	.261	.430	5	100	
BAC2SPBT	BAC2SPBT-C	2 Gauge	Straight Positive	.340	.550	5	100	GREEN
BAC2SNBT	BAC2SNBT-C	2 Gauge	Straight Negative	.340	.550	5	100	
BAC1SPBT	BAC1SPBT-C	1 Gauge	Straight Positive	.340	.550	5	100	PINK
BAC1SNBT	BAC1SNBT-C	1 Gauge	Straight Negative	.340	.550	5	100	
BAC10SPBT	BAC10SPBT-C	1/0 Gauge	Straight Positive	.455	.625	5	100	BLACK
BAC10SNBT	BAC10SNBT-C	1/0 Gauge	Straight Negative	.455	.625	5	100	
BAC20SPBT	BAC20SPBT-C	2/0 Gauge	Straight Positive	.502	.676	5	100	ORANGE
BAC20SNBT	BAC20SNBT-C	2/0 Gauge	Straight Negative	.502	.676	5	100	
BAC30SPBT	BAC30SPBT-C	3/0 Gauge	Straight Positive	.530	.730	5	100	PURPLE
BAC30SNBT	BAC30SNBT-C	3/0 Gauge	Straight Negative	.530	.730	5	100	
BAC40SPBT	BAC40SPBT-C	4/0 Gauge	Straight Positive	.600	.844	5	100	YELLOW
BAC40SNBT	BAC40SNBT-C	4/0 Gauge	Straight Negative	.600	.844	5	100	

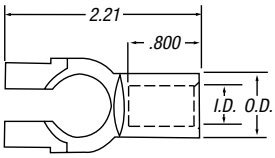


BAC10SUBT





BAC10SPBT



Tin-Plated Flag Battery Connectors

Material: High-Conductivity Copper

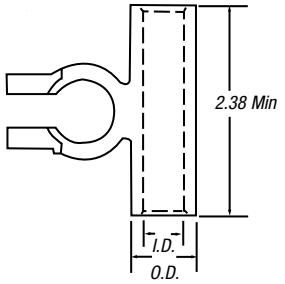
Finish: Electro-Tin Plate

Installing Tools: TBM5-SV, TBM5V, TBM8250, TBM8250S

CAT. NO.	BULK CAT. NO.	SAE CABLE SIZE AND COLOR	DESCRIPTION	I.D.	O.D.	PKG. QTY.	BULK PKG. QTY.	COLOR KEY
BAC10FU	BAC10FNBL	1/0 Gauge	Flag Universal	.455	.625	5	100	BLACK
BAC20FU	BAC20FNBL	2/0 Gauge	Flag Universal	.502	.676	5	100	ORANGE
BAC30FU	BAC30FNBL	3/0 Gauge	Flag Universal	.530	.730	5	100	PURPLE
BAC40FU	BAC40FNBL	4/0 Gauge	Flag Universal	.600	.844	5	100	YELLOW
BAC10FPBT	BAC10FPBT-C	1/0 Gauge	Flag Positive	.455	.625	5	100	BLACK
BAC10FNBT	BAC10FNBT-C	1/0 Gauge	Flag Negative	.455	.625	5	100	
BAC20FPBT	BAC20FPBT-C	2/0 Gauge	Flag Positive	.502	.676	5	100	ORANGE
BAC20FNBT	BAC20FNBT-C	2/0 Gauge	Flag Negative	.502	.676	5	100	
BAC30FPBT	BAC30FPBT-C	3/0 Gauge	Flag Positive	.530	.730	5	100	PURPLE
BAC30FNBT	BAC30FNBT-C	3/0 Gauge	Flag Negative	.530	.730	5	100	
BAC40FPBT	BAC40FPBT-C	4/0 Gauge	Flag Positive	.600	.844	5	100	YELLOW
BAC40FNBT	BAC40FNBT-C	4/0 Gauge	Flag Negative	.600	.844	5	100	



BAC10FNBT



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Heavy-Duty Battery Connectors

Tin-Plated Elbow Battery Connectors

Material: High-Conductivity Copper
Finish: Electro-Tin Plate
Installing Tools: TBM5-SV, TBM5V, TBM8250, TBM8250S

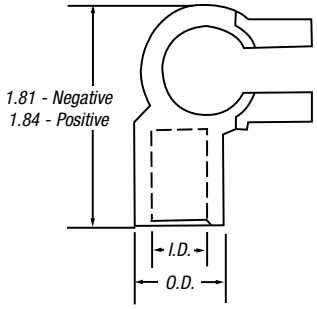


BAC10ELNBT



BAC10ERNBT

CAT. NO.	BULK CAT. NO.	SAE CABLE SIZE AND COLOR	DESCRIPTION	I.D.	O.D.	PKG. QTY.	BULK PKG. QTY.	COLOR KEY
BAC10ERNBT	BAC10ERNBT-C	1/0 Gauge	Right Elbow – Negative	.455	.625	5	100	BLACK
BAC10ERPBT	BAC10ERPBT-C	1/0 Gauge	Right Elbow – Positive	.455	.625	5	100	
BAC20ERNBT	BAC20ERNBT-C	2/0 Gauge	Right Elbow – Negative	.502	.676	5	100	ORANGE
BAC20ERPBT	BAC20ERPBT-C	2/0 Gauge	Right Elbow – Positive	.502	.676	5	100	
BAC30ERNBT	BAC30ERNBT-C	3/0 Gauge	Right Elbow – Negative	.530	.730	5	100	PURPLE
BAC30ERPBT	BAC30ERPBT-C	3/0 Gauge	Right Elbow – Positive	.530	.730	5	100	
BAC40ERNBT	BAC40ERNBT-C	4/0 Gauge	Right Elbow – Negative	.600	.844	5	100	YELLOW
BAC40ERPBT	BAC40ERPBT-C	4/0 Gauge	Right Elbow – Positive	.600	.844	5	100	
BAC10ELNBT	BAC10ELNBT-C	1/0 Gauge	Left Elbow – Negative	.455	.625	5	100	BLACK
BAC10ELPBT	BAC10ELPBT-C	1/0 Gauge	Left Elbow – Positive	.455	.625	5	100	
BAC20ELNBT	BAC20ELNBT-C	2/0 Gauge	Left Elbow – Negative	.502	.676	5	100	ORANGE
BAC20ELPBT	BAC20ELPBT-C	2/0 Gauge	Left Elbow – Positive	.502	.676	5	100	
BAC30ELNBT	BAC30ELNBT-C	3/0 Gauge	Left Elbow – Negative	.530	.730	5	100	PURPLE
BAC30ELPBT	BAC30ELPBT-C	3/0 Gauge	Left Elbow – Positive	.530	.730	5	100	
BAC40ELNBT	BAC40ELNBT-C	4/0 Gauge	Left Elbow – Negative	.600	.844	5	100	YELLOW
BAC40ELPBT	BAC40ELPBT-C	4/0 Gauge	Left Elbow – Positive	.600	.844	5	100	



Tin-Plated Stackable Battery Connector

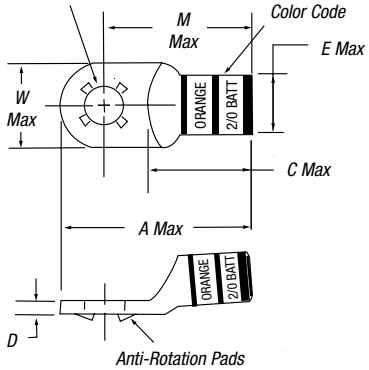
Material: High-Conductivity Copper
Finish: Electro-Tin Plate
Installing Tools: TBM5-SV or TBM5V



BAC1038

CAT. NO.	BULK CAT. NO.	SAE CABLE SIZE AND COLOR	A ±.040	M ±.020	W ±020	C ±.020	E ±.010	STUD SIZE	PKG. QTY.	BULK PKG. QTY.	COLOR KEY
BAC438	273-31853-1	4 Gauge	1.455	1.143	.615	.750	.365	⅜	10	100	GRAY
BAC238	273-31853-2	2 Gauge	1.775	1.400	.675	.850	.467	⅜	10	100	GREEN
BAC138	273-31853-3	1 Gauge	1.875	1.500	.750	.950	.521	⅜	10	100	PINK
BAC1038	273-31853-4	1/0 Gauge	1.925	1.550	.825	1.000	.571	⅜	10	100	BLACK
BAC2038	273-31853-5	2/0 Gauge	2.110	1.645	.930	1.100	.632	⅜	10	100	ORANGE
BAC3038	273-31853-6	3/0 Gauge	2.025	1.650	1.025	1.100	.701	⅜	10	100	PURPLE
BAC4038	273-31853-7	4/0 Gauge	2.275	1.900	1.125	1.350	.766	⅜	10	100	YELLOW

For ⅜" Threaded Stud Maintenance-Free Batteries



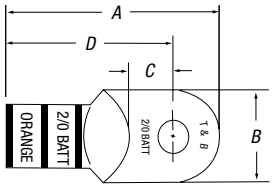
Heavy-Duty Battery Connectors

Blackburn® Starter Lugs

Material: High-Conductivity Copper
Finish: Electro-Tin Plate
Installing Tools: TBM5-SV or TBM5V



BAL414



CAT. NO.	BULK CAT. NO.	SAE CABLE SIZE	STUD SIZE (IN.)	A ±04	B ±02	C ±02	D ±02	PKG. QTY.	BULK PKG. QTY.	COLOR KEY
BAL414	273-31852-1	4 Gauge	¼	1.40	.52	.40	1.15	10	100	GRAY
BAL4516	273-31852-2	4 Gauge	5/16	1.45	.61	.36	1.14	10	100	
BAL438	273-31852-3	4 Gauge	⅜	1.45	.61	.36	1.14	10	100	
BAL2516	—	2 Gauge	5/16	1.59	.69	.40	1.25	10		GREEN
BAL238	273-31852-4	2 Gauge	⅜	1.78	.67	.55	1.40	10	100	
BAL212	273-31852-5	2 Gauge	½	1.77	.76	.54	1.40	10	100	
BAL1516	—	1 Gauge	5/16	1.83	.76	.49	1.50	10		PINK
BAL138	273-31852-6	1 Gauge	⅜	1.85	.75	.55	1.50	10	100	
BAL112	273-31852-7	1 Gauge	½	2.20	.75	.75	1.70	10	100	
BAL10516	—	1/0 Gauge	5/16	1.92	.83	.50	1.50	10		BLACK
BAL1038	273-31852-8	1/0 Gauge	⅜	1.93	.83	.55	1.55	10	100	
BAL1012	273-31852-9	1/0 Gauge	½	1.97	.88	.53	1.53	10	100	
BAL20516	—	2/0 Gauge	5/16	2.06	.93	.50	1.60	10		ORANGE
BAL2038	273-31852-10	2/0 Gauge	⅜	2.11	.93	.55	1.65	10	100	
BAL2012	273-31852-11	2/0 Gauge	½	2.11	.93	.55	1.65	10	100	
BAL30516	—	3/0 Gauge	5/16	2.16	1.03	.55	1.65	10		PURPLE
BAL3038	273-31852-12	3/0 Gauge	⅜	2.03	1.03	.55	1.65	10	100	
BAL3012	273-31852-13	3/0 Gauge	½	2.35	1.03	.75	1.85	10	100	
BAL40516	—	4/0 Gauge	5/16	2.40	1.13	.59	1.84	10		YELLOW
BAL4038	273-31852-14	4/0 Gauge	⅜	2.28	1.12	.55	1.90	10	100	
BAL4012	273-31852-15	4/0 Gauge	½	2.60	1.12	.75	2.10	10	100	

Splices (Two-Way Connectors)

Material: High-Conductivity Copper
Finish: Electro-Tin Plate
Installing Tools: TBM5-SV or TBM5V



BAS4

CAT. NO.	BULK CAT. NO.	SAE CABLE SIZE	PKG. QTY.	BULK PKG. QTY.	COLOR KEY
BAS4	273-31852-16	4 Gauge	10	100	GRAY
BAS2	273-31852-17	2 Gauge	10	100	GREEN
BAS1	273-31852-18	1 Gauge	10	100	PINK
BAS10	273-31852-19	1/0 Gauge	10	100	BLACK
BAS20	273-31852-20	2/0 Gauge	10	100	ORANGE
BAS30	273-31852-21	3/0 Gauge	10	100	PURPLE
BAS40	273-31852-22	4/0 Gauge	10	100	YELLOW

"Y" Splices

Material: High-Conductivity Copper
Finish: Electro-Tin Plate
Installing Tools: TBM5-SV or TBM5V
Insulating Cover: AC5X3



BASY30

CAT. NO.	STRIP CABLE SIZE	SAE CABLE SIZE AND COLOR	LENGTH	COLOR KEY
BASY20	2/0–(2) #2	2/0 Gauge	¾"	ORANGE
BASY30	3/0–(2) #1	3/0 Gauge	¾"	PURPLE
BASY40	4/0–(2) 1/0	4/0 Gauge	⅞"	YELLOW

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Heavy-Duty Battery Connectors

Abrasion resistant and engineered for optimum performance at both high and low temperatures.

Blackburn® Battery/Starter Cables

- Fine flexible copper rope stranding PVC jacket conforms to SAE J1127 specifications
- Layer of paper separates insulation from copper, providing easy stripping with no stranding damage
- Temperature rated for 80° C
- Flexibility ideal for tight spaces and cold environments
- Blackburn® Color-Keyed® system markings for fast and accurate identification
- Marked in 1-ft. increments for easy measurement
- Available in red or black jacket color

CAT. NO.	SAE CABLE SIZE	CABLE LENGTH	CABLE COLOR
BC4-100	4 Gauge	100 ft.	BLACK
BC2-100	2 Gauge	100 ft.	
BC1-100	1 Gauge	100 ft.	
BC10-100	1/0 Gauge	100 ft.	
BC20-100	2/0 Gauge	100 ft.	
BC30-100	3/0 Gauge	100 ft.	
BC40-100	4/0 Gauge	100 ft.	
BC4-1000	4 Gauge	1000 ft.	
BC2-500	2 Gauge	500 ft.	
BC1-500	1 Gauge	500 ft.	
BC10-500	1/0 Gauge	500 ft.	
BC20-500	2/0 Gauge	500 ft.	
BC30-500	3/0 Gauge	500 ft.	
BC40-500	4/0 Gauge	500 ft.	
BC4-1000R	4 Gauge	1000 ft.	RED
BC2-500R	2 Gauge	500 ft.	
BC1-500R	1 Gauge	500 ft.	
BC10-500R	1/0 Gauge	500 ft.	
BC20-500R	2/0 Gauge	500 ft.	
BC30-500R	3/0 Gauge	500 ft.	
BC40-500R	4/0 Gauge	500 ft.	

CAT. NO.	SAE CABLE SIZE	CABLE LENGTH	CABLE COLOR
BC4-25	4 Gauge	25 ft.	BLACK
BC2-25	2 Gauge	25 ft.	
BC1-25	1 Gauge	25 ft.	
BC10-25	1/0 Gauge	25 ft.	
BC20-25	2/0 Gauge	25 ft.	
BC30-25	3/0 Gauge	25 ft.	
BC40-25	4/0 Gauge	25 ft.	
BC4-25R	4 Gauge	25 ft.	RED
BC2-25R	2 Gauge	25 ft.	
BC1-25R	1 Gauge	25 ft.	
BC10-25R	1/0 Gauge	25 ft.	
BC20-25R	2/0 Gauge	25 ft.	
BC30-25R	3/0 Gauge	25 ft.	
BC40-25R	4/0 Gauge	25 ft.	



Material: High-Conductivity Copper
Finish: Electro-Tin Plate
Installing Tools: TBM5-SV or TBM5V



BC10-25



BC10-25R

Specially designed for demanding industrial and OEM requirements.

Heavy-Duty Battery Cable

- 105° C temperature rated and UL® recognized
- Heavier PVC jacket conforms to SAE J1127 specifications
- Blackburn® Color-Keyed® system markings for fast and accurate identification
- Marked in 1-ft. increments for easy measurement
- Layer of paper separates insulation from copper for easy stripping with no strand damage
- 600V rated available in bulk only
- Application specific — call to order



Metric Connectors for Copper Conductor

One-Hole Metric Lugs

Blackburn® metric lugs are manufactured from electrolytic copper tube. The dimensions of the tube are designed to obtain the most efficient electrical conductivity and mechanical strength, resisting vibration and pull out.

Blackburn® metric lugs are annealed to guarantee optimum ductility, which is a necessity for compression connectors having to withstand severe deformation arising when compressed or bending of the tongue that may happen during installation.

Connectors have to perform adequately with vibration loads, and annealing is necessary to avoid material failure between the barrel and the tongue.

The presence of an inspection hole facilitates full insertion of the conductor, and the barrel length is designed to allow easy and accurate positioning of the dies during the crimping operation.

Lugs are electrolytically tin-plated to eliminate oxidation of the copper material. Blackburn® metric lugs complement our connector family and meet a growing need for customer's connector requirements. Details of the appropriate crimping tools and dies are included. Our Technical Services group is always available to provide any technical advice required. Please contact them if sizes are needed additional to those shown in this catalog.

LISTED
WIRE CONNECTOR
71 RA

CAT. NO.	COND. SIZE SQMM LOW STRANDED	COND. SIZE SQMM I FLEXIBLE	Ø STUD MM	DIMENSIONS (MM) ØI	B	M	N	L	D	STD. PKG.	6 TON TBM62BSCR (CRIMPS)	14 TON BPLT14BSCRI (CRIMPS)	26 TON TBM26MCC (CRIMPS)	60 TON TBM60MCC (CRIMPS)
MCC6M4			4	3,6	8,0	5,0	4,0	21,5	4,3	100				
MCC6M5		4÷6	5	3,6	9,0	6,5	6,0	25,0	5,3	100	MCD6-6 (1)	N/A	N/A	N/A
MCC6M6			6	3,6	11,0	7,0	6,0	25,5	6,4	100				
MCC10M4			4	4,6	10,0	5,0	4,0	22,5	4,3	100				
MCC10M5*			5	4,6	10,0	6,5	6,0	26,0	5,3	100				
MCC10M6*		10	6	4,6	11,0	7,0	6,0	26,5	6,4	100	MCD10-6 (1)	MCD10-14 (1)	N/A	N/A
MCC10M8*			8	4,6	15,0	9,0	8,0	30,5	8,4	100				
MCC10M10*			10	4,6	18,0	11,0	10,0	34,5	10,5	100				
MCC16M4*			4	5,8	11,5	5,0	4,0	25,5	4,3	100				
MCC16M5*			5	5,8	11,5	6,5	6,0	29,0	5,3	100				
MCC16M6*		16	6	5,8	11,5	7,0	6,0	29,5	6,4	100	MCD16-6 (1)	MCD16-14 (1)	N/A	N/A
MCC16M8*			8	5,8	15,0	9,0	8,0	33,5	8,4	100				
MCC16M10*			10	5,8	18,0	11,0	10,0	37,5	10,5	100				
MCC25M5*			5	7,0	14,0	6,5	6,0	31,5	5,3	100				
MCC25M6*		25	6	7,0	14,0	7,0	6,0	32,0	6,4	100	MCD25-6 (1)	MCD25-14 (1)	N/A	N/A
MCC25M8*			8	7,0	15,0	9,0	8,0	36,0	8,4	100				
MCC25M10*			10	7,0	18,0	11,0	10,0	40,0	10,5	100				
MCC35M5*			5	8,9	17,0	6,5	6,0	34,0	5,3	100				
MCC35M6*		25	6	8,9	17,0	7,0	6,0	34,5	6,4	100				
MCC35M8*	35	35	8	8,9	17,0	9,0	8,0	38,5	8,4	100	MCD35-6 (1)	MCD35-14 (1)	N/A	N/A
MCC35M10*			10	8,9	19,0	11,0	10,0	42,5	10,5	100				
MCC35M12*			12	8,9	21,0	14,0	12,0	47,5	13,2	50				
MCC50M8*		35	8	10,0	19,0	9,0	8,0	42,5	8,4	50				
MCC50M10*	50	50	10	10,0	20,0	11,0	10,0	46,5	10,5	50	MCD50-6 (2)	MCD50-14 (1)	N/A	N/A
MCC50M12*			12	10,0	21,0	14,0	12,0	51,5	13,2	50				
MCC70M6*			6	11,3	21,0	8,0	7,0	44,0	6,4	50				
MCC70M8*		50	8	11,3	21,0	9,0	8,0	46,0	8,4	50				
MCC70M10*	70	70	10	11,3	21,0	11,0	10,0	50,0	10,5	50	MCD70-6 (2)	MCD70-14 (1)	N/A	N/A
MCC70M12*			12	11,3	22,0	14,0	12,0	55,0	13,2	50				
MCC70M16*			16	11,3	26,0	18,0	16,0	63,0	17,0	50				
MCC95M8*		70	8	13,5	25,0	9,0	8,0	52,5	8,4	25				
MCC95M10*	95	95	10	13,5	25,0	11,0	10,0	56,5	10,5	25	MCD95-6 (2)	MCD95-14 (1)	N/A	N/A
MCC95M12*			12	13,5	25,0	14,0	12,0	61,5	13,2	25				

**UL® Listed*

Note: *See metric compression tools on* ***p. F-100****.*

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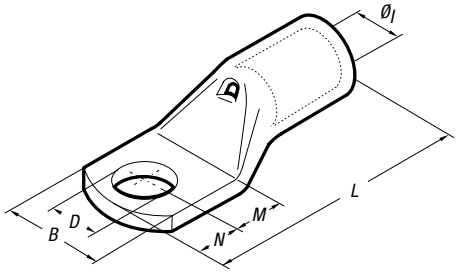
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Metric Connectors for Copper Conductor





LISTED
WIRE CONNECTOR
71 RA

CAT. NO.	COND. SIZE SQMM LOW STRANDED	COND. SIZE SQMM I FLEXIBLE	Ø STUD MM	DIMENSIONS (MM) ØI	B	M	N	L	D	STD. PKG.	6 TON TBM62BSCR (CRIMPS)	14 TON BPLT14BSCRI (CRIMPS)	26 TON TBM26MCC (CRIMPS)	60 TON TBM60MCC (CRIMPS)
MCC120M6			8	—	—	—	—	—	6.4	25				
MCC120M8*			8	15,2	28,5	9,0	8,0	54,0	8.4	25				
MCC120M10*	120	95 120	10	15,2	28,5	11,0	10,0	58,0	10.5	25	MCD120-6 (2)	MCD120-14 (1)	N/A	N/A
MCC120M12*			12	15,2	28,5	14,0	12,0	63,0	13.2	25				
MCC120M16*			16	15,2	28,5	18,0	16,0	71,0	17.0	25				
MCC150M12*	150	120	12	16,7	31,5	16,0	14,0	75,0	13.2	25	MCD150-6	MCD150-14	N/A	N/A
MCC150M16*		150	16	16,7	31,5	19,0	17,0	81,0	17.0	25	(3)	(1)		
MCC185M10*			10	19,2	35,5	13,0	11,0	76,0	10.5	25				
MCC185M12*	185	150 185	12	19,2	35,5	16,0	14,0	82,0	13.2	25	MCD185-6 (3)	MCD185-14 (1)	N/A	N/A
MCC185M16*			16	19,2	35,5	19,0	17,0	88,0	17.0	15				
MCC240M10*			10	21,1	39,0	13,0	11,0	82,0	10.5	15				
MCC240M12*	240	185 240	12	21,1	39,0	16,0	14,0	88,0	13.2	15	MCD240-6 (3)	MCD240-14 (2)	N/A	N/A
MCC240M16*			16	21,1	39,0	19,0	17,0	94,0	17.0	15				
MCC300M10*			10	23,7	44,0	20,0	11,0	96,0	10.5	10				
MCC300M12*	300	240	12	23,7	44,0	20,0	14,0	99,0	13.2	10	N/A	MCD300-14 (3)	N/A	N/A
MCC300M16*			16	23,7	44,0	22,0	19,0	10,0	17.0	10				
MCC400M10			12	27,0	51,0	22,0	19,0	113,0	13.2	5				
MCC400M12	400	300	12	27,0	51,0	22,0	19,0	113,0	13.2	5	N/A	MCD400-14 (3)	MCD400-26 (2)	MCD400-60 (2)
MCC400M16			16	27,0	51,0	22,0	19,0	113,0	17.0	5				
MCC500M10			16						13,2	5				
MCC500M12	500	400	16						17,0	5	N/A	N/A	MCD500-26 (2)	MCD500-60 (2)
MCC500M16			16	30,3	56,5	22,0	19,0	117.0	17,0	5				
MCC630M16	630	500	16	33,4	61,6	22,0	19,0	128.0	17,0	6	N/A	N/A	MCD630-26 (2)	MCD630-60 (2)
MCC630M20			20	33,4	61,6	24,0	23,0	134.0	21,0	6				
MCC800M16	800	630	16	38,0	72,0	24,0	19,0	141.0	17,0	3	N/A	N/A	N/A	MCD800-60 (2)
MCC800M20			20	38,0	72,0	24,0	23,0	145.0	21,0	3				
MCC1000M16	1000	800	16	44,0	80,0	24,0	19,0	158.0	17,0	2	N/A	N/A	N/A	MCD1000-60 (2)
MCC1000M20			20	44,0	80,0	24,0	23,0	162.0	21,0	2				

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Note: *See metric compression tools on* ***p. F-100****.*

Metric Connectors for Copper Conductor

Narrow-Tongue Metric Lugs

Blackburn® narrow-tongue metric lugs feature a contained tongue width.

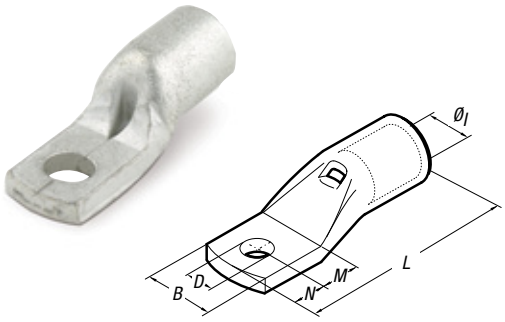
Our lugs have been specifically developed for applications with L.V. circuit breakers with reduced space requirements. The tongue width allows a quicker and easier installation.

Blackburn® narrow-tongue metric lugs are manufactured from electrolytic copper tube.

The specific design of the barrel and dimensions create the best combination of mechanical strength and electrical conductivity.

Blackburn® narrow-tongue metric lugs are annealed to guarantee optimum ductility and are electrolytically tin-plated to avoid oxidation.

The barrel is provided with an internal chamfer for easy insertion of the conductor. The length allows easy positioning of the dies for proper crimping.



CAT. NO.	COND.SIZE FLEXIBLE SQMM	Ø STUD MM	DIMENSIONS (MM) ØI	B	M	N	L	D	STD. PKG.	6 TON TBM62BSCR (CRIMPS)	14 TON BPLT14BSCRI (CRIMPS)
MCCNT10M5	10	5	4,6	9,0	6,5	6,0	26,0	5,3	100	MCD10-6 (1)	MCD10-14 (1)
MCCNT16M5	16	5	5,8	9,0	6,5	6,0	29,0	5,3	100	MCD16-6 (1)	MCD16-14 (1)
MCCNT25M5	25	5	7,0	9,0	6,5	6,0	31,5	5,3	100	MCD25-6 (1)	MCD25-14 (1)
MCCNT35M6	35	6	8,9	11,5	8,0	7,0	36,5	6,4	100	MCD36-6 (1)	MCD35-14 (1)
MCCNT50M6	50	6	10,0	11,5	8,0	7,0	40,5	6,4	50	MCD50-6 (2)	MCD50-14 (1)
MCCNT70M6	70	6	11,3	11,5	8,0	7.0	44,0	6,4	50	MCD70-6 (2)	MCD70-14 (1)
MCCNT95M8	95	8	13,5	15,5	9,0	8,0	52,5	8,	25	MCD95-6 (2)	MCD95-14 (1)
MCCNT120M8	120	8	15,2	19,0	14,0	9,0	60,0	8,4	25	MCD120-6 (2)	MCD120-14 (1)
MCCNT120M10		10	15,2	19,0	14,0	9,0	60,0	10,5	25	MCD120-6 (2)	MCD120-14 (1)
MCCNT150M8	150	8	16,7	19,0	18,0	9,0	70,0	8,4	25	MCD150-6 (3)	MCD150-14 (1)
MCCNT150M10		10	16,7	19,0	18,0	9,0	70,0	10,5	25	MCD150-6 (3)	MCD150-14 (1)
MCCNT185M10	185	10	19,2	24,5	18,0	9,0	77,0	10,5	25	MCD185-6 (3)	MCD185-14 (1)
MCCNT240M10		10	21,1	31,0	13,0	9,0	80,0	10,5	15	MCD240-6 (3)	MCD240-14 (2)
MCCNT240M12	240	12	21,1	31,0	16,0	12,0	86,0	13,2	15	MCD240-6 (3)	MCD240-14 (2)
MCCNT240M16		16	21,1	31,0	19,0	17,0	94,0	17,0	15	MCD240-6 (3)	MCD240-14 (2)
MCCNT300M12	300	12	23,7	31,0	16,0	12,0	95,0	13,2	10	NA	MCD300-14 (3)

Note: *See metric compression tools on* ***p. F-100****.*

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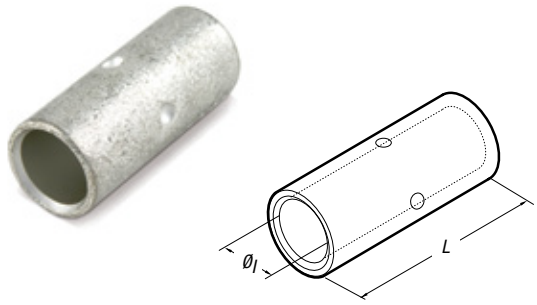
Metric Connectors for Copper Conductor

Two-Way Metric Splice Connectors

Blackburn® metric splice connectors are designed for joining low voltage conductors.

Made of electrolytic copper tube having similar dimensions to the Blackburn® metric lugs, these connectors are also annealed and electrolytically tin-plated.

They feature an internal chamfer at both ends. For easy insertion of the conductor, a center stop is provided to ensure correct positioning.



CAT. NO.	COND. SIZE SQMM LOW STRANDED	COND. SIZE SQMM I FLEXIBLE	DIMENSIONS (MM) ØI	DIMENSIONS (MM) L	STD. PKG.	6 TON TBM62BSCR (CRIMPS)	14 TON BPLT14BSCRI (CRIMPS)	26 TON TBM26MCC (CRIMPS)	60 TON TBM60MCC (CRIMPS)
MCST1	0.25÷1.5	0.25÷1.5	1,8	15	100	N/A	N/A	N/A	N/A
MCST2	1.5÷2.5	1.5÷2.5	2,4	15	100	N/A	N/A	N/A	N/A
MCST6	4÷6	4÷6	3,6	22	100	MCD6-6 (1 + 1)	N/A	N/A	N/A
MCST10	10	10	4,6	25	100	MCD10-6 (1 + 1)	MCD10-14 (1 + 1)	N/A	N/A
MCST16	16	16	5,8	27	100	MCD16-6 (1 + 1)	MCD16-14 (1 + 1)	N/A	N/A
MCST25	25	25	7,0	29	100	MCD25-6 (1 + 1)	MCD25-14 (1 + 1)	N/A	N/A
MCST35	35	25÷35	8,9	33	100	MCD35-6 (1 + 1)	MCD35-14 (1 + 1)	N/A	N/A
MCST50	50	35÷50	10,0	37	50	MCD50-6 (2 + 2)	MCD50-14 (1 + 1)	N/A	N/A
MCST70	70	50÷70	11,3	39	50	MCD70-6 (2 + 2)	MCD70-14 (1 + 1)	N/A	N/A
MCST95	95	70÷95	13,5	43	25	MCD95-6 (2 + 2)	MCD95-14 (1 + 1)	N/A	N/A
MCST120	120	95÷120	15,2	47	25	MCD120-6 (2 + 2)	MCD120-14 (1 + 1)	N/A	N/A
MCST150	150	120÷150	16,7	58	25	MCD150-6 (3 + 3)	MCD150-14 (1 + 1)	N/A	N/A
MCST185	185	150÷185	19,2	64	25	MCD185-6 (3 + 3)	MCD185-14 (1 + 1)	N/A	N/A
MCST240	240	185÷240	21,1	75	15	MCD240-6 (3 + 3)	MCD240-14 (2 + 2)	N/A	N/A
MCST300	300	240	23,7	90	10	N/A	MCD300-14 (3 + 3)	N/A	N/A
MCST400	400	300	27,0	94	5	N/A	MCD400-14 (3 + 3)	MCD400-26 (2 + 2)	MCD400-60 (2 + 2)
MCST500	500	400	30,3	98	6	N/A	N/A	MCD500-26 (2 + 2)	MCD500-60 (2 + 2)
MCST630	600÷630	500	33,4	105	6	N/A	N/A	MCD630-26 (2 + 2)	MCD630-60 (2 + 2)
MCST800	800	600	38,0	112	3	N/A	N/A	N/A	MCD800-60 (2 + 2)
MCST1000	1,000	800	44,0	120	3	N/A	N/A	N/A	MCD1000-60 (2 + 2)

Note: *See metric compression tools on* ***p. F-100****.*

Blackburn® JB12B 12-Ton Manual Hydraulic Crimp Tool

- Self-contained hydraulic crimping tool for copper, aluminum and ASCR connectors
- Two-stage, rapid-ram advance mechanism for fast installation
- 180° head rotation
- Accepts all U-type dies used for Alcoa®, Burndy®, Thomas & Betts® and Blackburn® tools of equivalent tonnage



Creates hex-style crimp

Specifications

- Installing Range:
  - Up to 750 kcmil copper lugs & splices
  - Up to 650 kcmil aluminum lugs & splices
  - CHT814-10 to CHT2502-6 copper H-taps
  - 63105 to 63148 aluminum H-taps
  - 54755 to 54770 C-taps
- Output Force: 12 tons
- Dimensions (L x W x H): 22¾" x 2½" x 4⅞"
- Weight without Dies: 13 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
JB12B	12-Ton Manual Hydraulic Crimp Tool with Carrying Case	1

Integral self-gauging system in tool head ensures proper adjustment before each crimp.

Blackburn® OD Mechanical Compression Tools

- OD58 Tool includes ⅝" fixed die in nose and can also accept other standard insert dies, such as O, D, 840, etc.
- ODF and ODB Tools feature fixed O and D dies for versatility
- ODB Tools also accept other standard MD6 insert dies
- Optional fiberglass handles provides better balance, resulting in easier handling and positioning
- Optional lever action (indicated by L72 suffix) has been optimized and tested to require minimum force to crimp



CAT. NO.	DESCRIPTION	HANDLE LENGTH (IN.)	WEIGHT (LB.)
OD58	Fixed ⅝" Die, Straight Wooden Handles	21	6.5
OD581	Fixed ⅝" Die, Fiberglass Handles	21	6.0
OD583	Fixed ⅝" Die, Curved Wooden Handles	21	6.5
ODF	Fixed O and D Dies, Straight Wooden Handles	21	6.5
ODF1	Fixed O and D Dies, Fiberglass Handles	21	6.0
ODF3	Fixed O and D Dies, Curved Wooden Handles	21	6.5
ODB	Fixed O and D Dies, Straight Wooden Handles	21	6.5
ODB1	Fixed O and D Dies, Fiberglass Handles	21	6.0
ODB3	Fixed O and D Dies, Curved Wooden Handles	21	6.5
OD58L72	Fixed ⅝" Die, Hotstick Handles 1.5" x 72"	72	10.5
ODBL72	Fixed O and D Dies, Hotstick Handles 1.5" x 72"	72	10.5
ODH1	Insulating Head Covers	—	.40

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Tools and Dies

Type OD Tool Dies

CAT. NO.	DESCRIPTION OR COLOR CODE
OJB	O
DBL	D
BY39	510 Hex (non-bow)
BY41	635 Hex (non-bow)
BY43	747 Hex (non-bow)
BY45	T
BY47	K
BY49	B
BY51	J
BY53	P
BY13	3/16
BY15*	7/32 (EEI–1 index 236)
BY17	1/4
BY19	5/16 (index 161.242)
BY21	3/8
BY23	1/2 (index 163)
BY25	9/16
BY27	11/16
BY29	19/32
BY31	5/8 (index 165)
BY33	737
BY35	781
BY37	840 (EEI 11A)
BY55	Wire Cutter (2/0 max.)
BY63	Orange (Nicopress)
BY65	Plum
BY15C*	7/32 Red
BY17C*	1/4 Blue
BY19C*	5/16 Gray
BY21C*	3/8 Brown
BY23C*	1/2 Pink
BY24C*	1/2–1 Gold
BY25C*	9/16 Tan/Orange
BY27C*	11/16 Yellow
BY31C*	5/16–1 Olive/Purple
BY32C*	Ruby
BY35C*	781 White
BY37C*	840 Red
BY28C*	17/32 Black
BY53C*	P Green
ODH1	Insulating Head Cover

**Can also be used with OD58 tool.*

U-Type Dies

CAT. NO.	DESCRIPTION OR COLOR CODE
B58CS	5/8 Die Set
HO	O Die Set
HD	D Die Set
HN	N Die Set
HU	U Die Set
HBKC	BKC
HBKT	BKT
B24EA	EEI 8A
B30EA	EEI 9A
B39EA	EEI 10A
B49EA	EEI 11A (840)
B61EA	EEI 12A
B80EA	EEI 13A
B20AH	EEI 14A
B71AH	—
B72AH	—
B73AH	—
B74AH	—
B75AH	—
B76AH	—
B76SH	—
B06CHI	Pink/Gold
B08CHI	Tan/Orange
B09CHI	Olive/Pruple
B11CH	Red/Blue
B10SH	—
B05CH	Green
B26CH	Ruby/Yellow
B71CH	Red
B72CH	Black
B73CH	Blue
B74CH	Gray
B75CH	Brown
B76CH	Pink
B10CHI	White
B12CHI	Brown

Tools and Dies

Tested up to 75kV, this tool enables you to crimp any connector manufactured to the ANSI C199.4 specification — up to 500 kcmil.

6.2-Ton Battery-Powered Dieless Crimping Tool — 0.9" Jaw Opening



- Compresses Homac®/Anderson-style lugs with 6.2 tons of force, eliminating the need for dies
- Audible bypass lets you know when predetermined pressure is achieved
- Advance and retract buttons on pistol-grip handle enable one-hand operation, freeing the other hand to maneuver the cable
- Weather-resistant housing, built to last in rugged, outdoor conditions

CAT. NO.	COMP. FORCE	CONNECTOR RANGE COPPER AND ALUMINUM LUGS AND SPLICES	DIMENSIONS (IN.)	WEIGHT (LBS.)	WARRANTY
HMC-5630	6.2 Tons	#10–500	13H x 2.5W x 14L	11.5 with Battery	5 Years

Note: *For range-taking connectors, the cable must be the maximum size specified for the connector.*

Tested up to 75kV, this tool crimps any connector manufactured to the ANSI C199.4 specification — from #6 AWG to 750 kcmil.

6.2-Ton Battery-Powered Flip-Top Dieless Crimping Tool — 1.5" Jaw Opening



- Compresses Homac®/Anderson-style lugs with 6.2 tons of force, eliminating the need for dies
- One stationary and three movable indenting nibs close at 90° angles to each other so that the connector is squeezed equally at four strategic points
- External bypass cartridge enables faster pressure adjustment and repair times
- Audible bypass lets you know when predetermined pressure is achieved
- Weather-resistant housing, built to last in rugged, outdoor conditions

CAT. NO.	COMP. FORCE	CONNECTOR RANGE COPPER AND ALUMINUM LUGS AND SPLICES	DIMENSIONS (IN.)	WEIGHT (LBS.)	WARRANTY
HMC-5750	6.2 Tons	#6–750	13H x 2.5W x 15.5L	12 with Battery	5 Years

Note: *For range-taking connectors, the cable must be the maximum size specified for the connector.*

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Tools and Dies

Nothing to lose — a built-in ⅝" die is precision-cast and installs compression connectors from #8 to 4/0.

UT 3 M Installation Tool



- Fast action — one stroke of the tool develops full compression
- SHURE-SQUEEZER™ design ensures proper compression before jaws release
- Weighs only 2.2 lbs.

CAT. NO.	DESCRIPTION
UT 3 M	Installs Compression Connectors from #8 to 4/0

Removable, reversible die installs ½" and ⅝" compression connectors.

UT 3 Installation Tool and Upper Dies



- Also accommodates UT 3-4 G GOLD DIE, a ½" and ⅝" gold upper die for ACSR and UT 3-4 R RED DIE, a ½" and ⅝" red upper die for compressed and compact stranded wire
- Fast action — one stroke of the tool develops full compression
- SHURE-SQUEEZER™ design ensures proper compression before jaws release
- Weighs only 2.2 lbs.

CAT. NO.	DESCRIPTION
Installation Tool	
UT 3	Installs Compression Connectors on ACSR, Stranded, Compressed and Compact Stranded
Upper Dies	
UT 3-4 G GOLD DIE	½" and ⅝" Gold Upper Die for ACSR and Stranded
UT 3-4 R RED DIE	½" and ⅝" Red Upper Die for Compressed and Compact Stranded

Drop-forged cutting blades and fiberglass handles designed for easy field replacement.

Utility Cable Slicers

- Rugged fiberglass handles provide many years of dependable service
- Drop-forged cutting blade's slicing action provides flush, burr-free conductor ends.
- Well-designed handle stops prevent "knuckle busting" during use



CAT. NO.	DESCRIPTION	MAXIMUM RANGE	MAX. OD INC. INSULATION	OVERALL LENGTH (IN.)
UT 4 C	Cable Slicer — Small	600 Al–350 Cu	15/16	21
UT 6 C	Cable Slicer — Large	1000 Al–500 Cu	2	31½

Note: *For use on copper and aluminum cable only. Not for use on steel or ACSR cable. For insulating covers for the area where the blades and handles are joined, please consult your Thomas & Betts representative.*

The compact, dependable tool for turning a screw.

Allen Wrench



- PVC-dipped handle gives you a steady grip while turning
- Available for 5/16" and ⅜" hex screws to match the most popular screw sizes

CAT. NO.	HEX SIZE (IN.)
WA 516	5/16
WA 38	⅜

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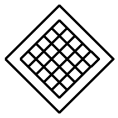
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Tools and Dies

TBM45S Comfort Crimp® Tool

- Requires the lowest handle force of any tool in its class — up to 75% less than competing tools
- Wide installing range of #8–#2 AWG copper and #10–#6 AWG aluminum lugs and splices
- Also installs up to green color-coded C-taps and MD2 Series motor lead disconnects
- Shure-Stake® mechanism ensures a complete crimp cycle before release for a proper crimp every time
- Color-coded die wheel for easy matching with Blackburn® lugs and splices featuring the Color-Keyed® system
- CrimpAssist® foot provides stability when work surface leverage is needed to crimp larger connectors
- UL® Listed for use with Blackburn® compression connectors featuring the Color-Keyed® system



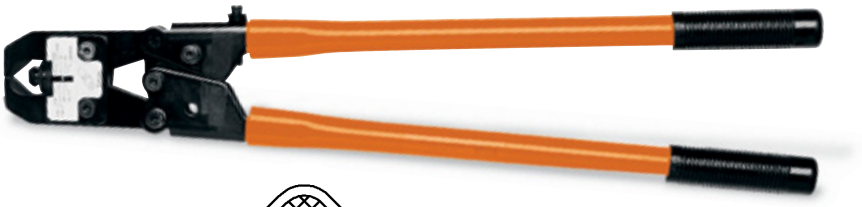
Creates diamond-style crimp



CAT. NO.	DESCRIPTION	PKG. QTY.
TBM45S	Crimp tool with Shure-Stake® mechanism for #8–#2 copper and #10–#6 AWG aluminum Lugs and Splices	1

TBM4S Dieless Crimp Tool

- Wide range of #8 AWG to 250 kcmil for copper lugs and #8 to 4/0 AWG for aluminum lugs
- Adjustable indenter eliminates the need to buy and maintain numerous individual dies
- Shure-Stake® mechanism ensures a properly completed crimp each time
- Easily adjusted by turning knurled adjusting wheel and aligning pointer with proper terminal size
- Dieless, adjustable crimper for Blackburn® compression connectors featuring the Color-Keyed® system





Creates indent-style crimp

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM4S	Dieless crimp tool with Shure-Stake® mechanism for #8 AWG–250 kcmil copper and #8–4/0 AWG aluminum	1

TBM5S Crimp Tool



Creates diamond-style crimp



- Wide range of #8 AWG to 250 kcmil for copper and #10 to 4/0 AWG for aluminum lugs and splices
- Also installs C-taps from 54705 to 54750
- Shure-Stake® mechanism ensures a properly completed crimp each time
- Includes color-coded, die code-embossed installation dies

CAT. NO.	COLOR CODE	DIE CAT. NO	PKG. QTY.
TBM5S	RED	13454	1
	BLUE		
	GRAY		
	BROWN		
	GREEN	13455	
	PINK		
	BLACK		
	ORANGE		
	PURPLE	13456	
	YELLOW		
	GOLD	13457	
	TAN		
	OLIVE		
	RUBY		
	WHITE	13458	

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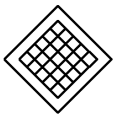
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Tools and Dies

TBM6S Crimp Tool



Creates diamond-style crimp



- Wide ranges of #8 AWG thru 500 kcmil for copper lugs, splices and taps and #10 AWG thru 350 kcmil for aluminum lugs and splices
- Also installs 63105 through 63140 orange, green and blue H-taps
- Shure-Stake® mechanism ensures a properly completed crimp each time
- Comes complete with plastic carrying case and wire brush

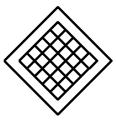
Note: *The TBM6S tool can also be used to crimp Sta-Kon® terminals. See Sta-Kon® section for dies.*

CAT. NO.	COLOR CODE	CAT. NO UPPER DIE	CAT. NO LOWER DIE	PKG. QTY.
TBM6S	RED	13475	13477	1
	BLUE	13475	13477	
	GRAY	13472	13476	
	BROWN	13474	13477	
	GREEN	13474	13477	
	PINK	13475	13477	
	BLACK	13474	13477	
	ORANGE	13474	13477	
	PURPLE	13475	13477	
	YELLOW	13473	13476	
	GOLD	13474	13477	
	TAN	13475	13477	
	OLIVE	13475	13477	
	RUBY	13473	13476	
	WHITE	13473	13476	
	RED	13472	13476	
	BLUE	13472	13476	
	BROWN	13478	13478	

Carrying Cases for TBM5S and TBM6S

CAT. NO.	DESCRIPTION	PKG. QTY.
295-31365M	Steel Carrying Case for TBM5S and TBM6S	1
295-31365	Plastic Carrying Case for TBM5S and TBM6S	1

TBM8S Crimp Tool



Creates diamond-style crimp



- Installs code copper lugs and connectors #8 AWG through 500 kcmil
- Installs aluminum lugs and connectors #10 AWG through 350 kcmil
- Shure-Stake® mechanism ensures positive compression
- Included dies are color coded and provide die-code embossing for easy installation and inspection
- Installs all code copper compression joints and small C-taps
- Comes complete with installing dies and wire brush in plastic carrying case

CAT. NO.	COLOR CODE	DIE CAT. NO	PKG. QTY.
TBM8S	RED	13461	1
	BLUE		
	GRAY		
	BROWN		
	GREEN	13462	
	PINK		
	BLACK		
	ORANGE		
	PURPLE	13463	
	YELLOW		
	GOLD	13464	
	TAN		
	OLIVE		
	RUBY		
	WHITE	13465	
	RED	13466	
	BLUE	13467	
	BROWN	13468	

Lightweight, battery-powered tool.

BPI42300CR 4-Ton Inline Cordless Crimp Tool

- Head rotates 180° for ease of use in tight spaces
- Powerful Ni-MH battery yields more crimps per charge
- Bright LED display indicates remaining battery life
- Includes tool, two Ni-MH batteries, battery adapter, battery charger, carrying case and nine hex crimp dies (TBM6221–TBM6266)



Creates hex-style crimp



Specifications

- Installing Range:
  Up to 300 kcmil copper lugs and splices
  Up to 4/0 AWG aluminum lugs and splices
- Output Force: 4 tons
- Dimensions (L x W x H): 14.6" x 2.6" x 4.2"
- Battery: Ni-MH 9.6V 3.0Ah
- Weight with Battery: 5.3 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
BPI42300CR	4-Ton Inline Cordless Crimp Tool with Accessories	1

Great for overhead lines and service connections.

BP4UCR Rechargeable 6-Ton Crimping Tool

- Jaws rotate 180° for ease of operation in confined spaces
- Ergonomically designed for one-handed operation
- Includes tool, two Ni-MH batteries, battery adapter, recharger and carrying case
- Fixed 5/8 (BG) and D groove in tool head
- D groove accepts all W-style dies; also includes fixed O groove



Specifications

- Installing Range: Service entry connectors requiring 5/8 (BG), D or O crimp die
- Output Force: 6 tons
- Dimensions (L x W x H): 17.7" x 2.6" x 4.7"
- Battery: Ni-MH 9.6V 3.0Ah
- Weight with Battery: 5.3 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
BP4UCR	Rechargeable 6-Ton Crimping Tool with Accessories	1

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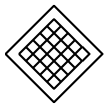
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25000 Air-Operated Bench-Mount Crimp Tool

- Installs copper and aluminum connectors on wire sizes from #8 AWG to 500 kcmil
- Compact, heavy-duty air tool
- Simple to operate — just insert stripped wire into connector barrel, position it in crimping nest and depress foot pedal to actuate crimping dies
- Uses same crimping dies as TBM6S (see **p. F-85**)





Creates diamond-style crimp

CAT. NO.	DESCRIPTION	PKG. QTY.
25000	Air-Operated Bench-Mount Crimp Tool	1

Battpac® LT BPLT62BSCR/BPLT62500BSCR 6-Ton Compression Tools

- Ergonomic design and reduced weight for operator comfort
- New double-speed feature decreases crimp time by doubling jaw speed until it reaches load
- New, more powerful Ni-MH battery has 50% more energy and less memory effect than old batteries
- Rotating head allows maximum flexibility for crimping
- Uses TBM62 Series dies



Creates hex-style crimp

Specifications

- Installing Range:
  - Up to 500 kcmil copper lugs & splices
  - Up to 350 kcmil aluminum lugs & splices
  - 54705 to 54750 C-taps
- Output Force: 6 tons
- Dimensions (L x W x H): 11" x $3\frac{3}{4}$" x $11\frac{7}{8}$"
- Battery: Ni-MH 14.4V 3.0Ah
- Weight with Battery: 8 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
BPLT62BSCR	Battpac® LT Tool Kit. Includes tool, two batteries, charger, shoulder strap, wrist strap, carrying case (no dies).	1
BPLT62500BSCR	Complete Battpac® LT Tool Kit with dies TBM6221 through TBM6287.	1

Battpac® LT BPLT6BSCR/BPLT6500BSCR 6-Ton Compression Tools

- Open yoke design allows for maximum crimping flexibility
- New double-speed feature decreases crimp time by doubling jaw speed until it reaches load
- New, more powerful Ni-MH battery has 50% more energy and less memory effect than old batteries
- Uses 6-Ton Series dies and Blackburn® "O" and "D" Series dies (requires adapter AU-55K, DIEADPODW or DIEADP62); otherwise, uses TBM62 series dies
- Available as a complete kit with 16 TBM series crimp dies for #8 AWG to 500 kcmil copper (#10 AWG to 350 kcmil aluminum)



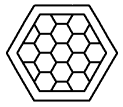
Specifications

- Installing Range:
  - Up to 600 kcmil copper lugs & splices
  - Up to 400 kcmil aluminum lugs & splices
  - CHT814-10 to CHT214-9 copper H-taps
  - 63105 to 63148 aluminum H-taps
  - 54705 to 54750 C-taps
- Output Force: 6 tons
- Dimensions (L x W x H): 11" x 3¾" x 11⅞"
- Battery: Ni-MH 14.4V 3.0Ah
- Weight with Battery: 8 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
BPLT6BSCR	Battpac® LT Tool Kit. Includes tool, two batteries, charger, shoulder strap, carrying case (no dies)	1
BPLT6500BSCR	Battpac® LT Tool Kit with Dies. Includes tool, two batteries, charger, shoulder strap, carrying case and 16 crimp dies from TBM6221 through TBM6287	1

TBM6H 6-Ton Hydraulic Crimping Head

- Lightweight design — weighs less than 7 lbs., including dies
- Embosses die code on connection for easy inspection
- Uses 6-Ton Series and Blackburn "O" and "D" Series dies color-coded for easy matching with Blackburn® connectors featuring the Color-Keyed® System





Specifications

- Installing Range:
  - Up to 600 kcmil copper lugs & splices
  - Up to 400 kcmil aluminum lugs & splices
  - CHT814-10 to CHT214-9 copper H-taps
  - 63105 to 63148 aluminum H-taps
  - 54705 to 54750 C-taps
- Output Force: 6 tons
- Operating Pressure: 10,000 psi nominal
- Dimensions (L x W x H): 12" x 2¼" x 3⁹⁄₁₆"
- Weight without Dies: 6.5 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM6H	6-Ton Hydraulic Head with Steel Case	1
TBM6HD-1	Die Set for #8 AWG thru 500 kcmil (6-TON21 thru 6-TON87)	1

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TBM12 12-Ton Hydraulic Crimp Head

- Rugged steel construction is durable for most applications
- Includes five sets of multi-nested dies
- Dies emboss die code on connectors for easy inspection
- Closed yoke design yields maximum crimp performance
- Uses TBM12D style dies



Creates hex-style crimp



Specifications

- Installing Range:
  - Up to 900 kcmil copper lugs & splices
  - Up to 750 kcmil aluminum lugs & splices
  - 54755 to 54775 C-taps
- Output Force: 12 tons
- Operating Pressure: 10,000 psi nominal
- Dimensions (L x W x H): 14¼" x 2½" x 3⅞"
- Weight without Dies: 9 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM12	12-Ton Hydraulic Head with Steel Case	1

If using old style 11700 Series Die Set, use adapter Cat. No. TBM12D-AR for adaptation to the above tool. Order adapter separately.

13642M 12-Ton Hydraulic Crimping Head

- Rugged steel construction is durable for most applications
- Used for Blackburn® compression connectors featuring the Color-Keyed® System and Sta-Kon® connectors
- The only military-listed hydraulic head (Mil. Spec. MS25441-1)
- Uses 11700 Series dies for Blackburn® connectors; see Sta-Kon® section for Sta-Kon® dies





Creates hex-style crimp

Specifications

- Installing Range:
  - Up to 900 kcmil copper lugs & splices
  - Up to 750 kcmil aluminum lugs & splices
  - 54755 to 54775 C-taps
- Output Force: 12 tons
- Operating Pressure: 10,000 psi nominal
- Dimensions (L x W x H): 14½" x 2½" x 3 15/16"
- Weight without Dies: 9 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
13642M	12-Ton Hydraulic Head with Steel Case	1

Tools and Dies

SMART® Tools

- Tool is "smart" because it requires no dies
- Automatically compresses to the correct depth based on size of connector in jaws
- C-type head swivels 90° for easy crimp positioning
- Forged steel construction is well suited for both field and bench work
- Installs both Color-Keyed® and non-insulated Sta-Kon® connectors

How the SMART® Tool Works

The SMART® Tool was engineered with built-in intelligence* that enables it to sense the connector barrel diameter and automatically apply just the right amount of compression force. This eliminates virtually all air spaces and forms the connector and conductor strands into a solid mass, resulting in a high-quality, low-resistance connection. In addition, the tool clearly embosses "T&B" with each compression for positive verification that the correct tool was used.

** System Novopress*

Uniform, Dependable Connections

The SMART® Tool gives you consistent, high-quality compression connections over a wide range of connector sizes. Available in manual, battery-powered and air-operated versions, this tool easily installs lugs and splices from #8 AWG through 900 kcmil copper or 750 kcmil aluminum — without changing dies. For the specified wire range, all you need is one tool. You always have the right die size, eliminating die-selection mistakes.

Lower Installation Costs

Productivity will be greatly improved with the SMART® Tool, especially when installing a variety of connector sizes or types. Initial investment is low, requiring minimal tool inventory. These benefits add up to lower installed cost.

C-Type Yoke Offers Installation Convenience

The C-type yoke configuration and large die spacing enable the SMART® Tool to slip directly over the connector. This means added speed and convenience when installing two-way splice connectors, especially in confined spaces.

SMART® Tool Range Taking Features

The following size Blackburn® lugs and splices featuring the Color-Keyed® System, when crimped with the SMART® Tools, produce these range taking capabilities:

COPPER		ALUMINUM	
STANDARD WIRE SIZE	RANGE TAKING	STANDARD WIRE SIZE	RANGE TAKING
1/0 AWG	#6–1/0 AWG	1/0 AWG	#6–1/0 AWG
2/0 AWG	#1–2/0 AWG	2/0 AWG	#1–2/0 AWG
4/0 AWG	#2–4/0 AWG	4/0 AWG	#2–4/0 AWG
300 kcmil	2/0 AWG–300 kcmil	300 kcmil	2/0 AWG–300 kcmil
350 kcmil	250–350 kcmil	350 kcmil	250–350 kcmil
500 kcmil	250–500 kcmil	500 kcmil	4/0 AWG–500 kcmil
750 kcmil	500–750 kcmil	750 kcmil	500–750 kcmil

TBM8-750M-1 12-Ton Dieless Manual Hydraulic Tool



Creates indent-style crimp

Specifications

- Installing Range:
  - Up to 900 kcmil copper lugs & splices
  - Up to 750 kcmil aluminum lugs & splices
- Output Force: 12 tons
- Dimensions (L x W): 21½" x 4 7/32"
- Weight: 13 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM8-750M-1	12-Ton Dieless Manual Hydraulic Compression Tool	1

Battpac® LT TBM8-750BSCR 12-Ton Dieless Battery-Powered Tool



Creates indent-style crimp

Specifications

- Installing Range:
  - Up to 900 kcmil copper lugs & splices
  - Up to 750 kcmil aluminum lugs & splices
- Output Force: 12 tons
- Dimensions (L x W x H): 19½" x 3⅜" x 8½"
- Battery: NiCd 14.4V 2.4Ah
- Weight with Battery: 9 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM8-750BSCR	Battpac® LT 12-Ton Dieless Battery-Powered Compression Tool. Includes carrying case, charger, two batteries and carry strap.	1

TBM8-750 12-Ton Dieless Hydraulic Head



Creates indent-style crimp

Specifications

- Installing Range:
  - Up to 900 kcmil copper lugs & splices
  - Up to 750 kcmil aluminum lugs & splices
- Output Force: 12 tons
- Operating Pressure: 10,000 psi nominal
- Dimensions (L x W x H): 14½" x 4 7/32" x 2 9/16"
- Weight: 9 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM8-750	12-Ton Dieless Hydraulic Compression Head	1

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TBM14M 14-Ton Manual Hydraulic Crimp Tool

- Features short fiberglass handles for insulation and ease of use in tight spaces
- Two-stage pump provides rapid advance for fast installation
- Uses standard T&B 15500 Series dies



Creates hex-style crimp

Specifications

- Installing Range:
  - Up to 900 kcmil copper lugs & splices
  - Up to 750 kcmil aluminum lugs & splices
  - CHT814-10 to CHT2502-6 copper H-taps
  - 63105 to 63148 aluminum H-taps
  - 54755 to 54775 C-taps
- Output Force: 14 tons
- Length: 24"
- Weight without Dies: 15.4 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM14M	14-Ton Manual Hydraulic Crimp Tool with Case	1

TBM14MC 14-Ton Compact Manual Hydraulic Crimp Tool

- Improved ergonomic design requires less force
- 180° rotating head for use in tight spaces
- 1.65" jaw opening accommodates large compression terminals and joints
- Dual-speed action pump offers fast advancing speed for approach of die to connector and slower, more powerful speed for crimping
- Built-in safety valve bypasses oil supply at maximum pressure
- Pressure-release system can be easily activated at any stage of compression
- Uses standard T&B 15500 Series dies



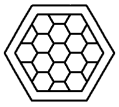
Creates hex-style crimp

Specifications

- Installing Range:
  - Up to 900 kcmil copper lugs & splices
  - Up to 750 kcmil aluminum lugs & splices
  - CHT814-10 to CHT2502-6 copper H-taps
  - 63105 to 63148 aluminum H-taps
  - 54755 to 54775 C-taps
- Output Force: 14 tons
- Length: 20½"
- Weight without Dies: 14 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM14MC	14-Ton Compact Hydraulic Crimp Tool	1

Battpac® LT BPLT14BSCR/BPLT14BSCRI 14-Ton Battery-Powered Compression Tools



Creates hex-style crimp



BPLT14BSCR



BPLT14BSCRI

- Reduced weight and ergonomic design
- Double-speed feature decreases crimp time by doubling jaw speed until it reaches load
- Rotating head allows maximum flexibility for crimping
- Includes two Makita 14.4V Ni-MH batteries (3.0 AMP Hrs.)
- Built-in LED battery power indicator
- On-tool DC power jack

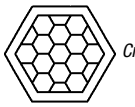
Specifications

- Installing Range:
  - Up to 900 kcmil copper lugs & splices
  - Up to 750 kcmil aluminum lugs & splices
  - CHT814-10 to CHT2502-6 copper H-taps
  - 63105 to 63148 aluminum H-taps
  - 54755 to 54775 C-taps
- Output Force: 14 tons
- Dimensions (L x W x H): 18⅛" x 3⅞" x 10"
- Battery: 14.4V 3.0Ah Ni-MH
- Weight with Battery: 18.1 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
BPLT14BSCR	Battpac® LT 14-Ton Compression Tool. Includes carrying case, charger, two batteries, carry strap	1
BPLT14BSCRI	Same as above, but fully insulated	

13100A 14-Ton Hydraulic Crimping Head

- Rugged design, made to last in field or on bench
- C-yoke provides maximum flexibility for crimping
- Uses standard T&B 15500 Series dies
- Operates on 10,000-psi hydraulic pumps



Creates hex-style crimp



Specifications

- Installing Range:
  - Up to 900 kcmil copper lugs & splices
  - Up to 750 kcmil aluminum lugs & splices
  - CHT814-10 to CHT2502-6 copper H-taps
  - 63105 to 63148 aluminum H-taps
  - 54755 to 54775 C-taps
- Output Force: 14 tons
- Operating Pressure: 10,000 psi nominal
- Dimensions (L x W x H): 11½" x 2½" x 4¼"
- Weight without Dies: 10 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
13100A	14-ton hydraulic head with steel case	1

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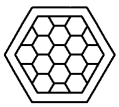
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Battpac® LT BPLT15BSCR 15-Ton Battery-Powered Compression Tool

- Rotating head allows maximum flexibility for crimping
- Double-speed feature decreases crimp time by doubling jaw speed until it reaches load
- Includes two Makita 14.4V Ni-MH batteries (3.0 AMP Hrs.)
- Built-in LED battery power indicator
- On-tool DC power jack



Creates hex-style crimp



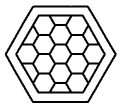
Specifications

- Installing Range:
  - Up to 1500 kcmil copper lugs & splices
  - Up to 1000 kcmil aluminum lugs & splices
  - CHT814-10 to CHT750-350-1F copper H-taps
  - 63105 to 63180 aluminum H-taps
  - 54755 to 54790 C-taps
- Output Force: 15 tons
- Dimensions (L x W x H): 21" x 3½" x 11"
- Battery: 14.4V 3.0Ah Ni-MH
- Weight with Battery: 23.75 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
BPLT15BSCR	Battpac® LT 15-Ton Compression Tool. Includes carrying case, charger, two batteries, and carry strap	1

TBM15I 15-Ton Hydraulic Crimping Head

- Head made of forged steel and insulated with rubber boot
- Longer, slimmer design enables easier access into tight spaces, such as in cable tray and central office applications
- Wider jaw opening eases crimping of larger lugs, C-taps and H-taps
- Uses 15600 Series dies; can also use 15500 Series dies with 15500-TB adapter



Creates hex-style crimp



Specifications

- Installing Range:
  - Up to 1500 kcmil copper lugs & splices
  - Up to 1000 kcmil aluminum lugs & splices
  - CHT814-10 to CHT750-350-1F copper H-taps
  - 63105 to 36180 aluminum H-taps
  - 54755 to 54790 C-taps
- Output Force: 15 tons
- Operating Pressure: 10,000 psi nominal
- Dimensions (L x W x H): 15¾" x 2⅝" x 4⅜"
- Weight without Dies: 16.5 lbs.

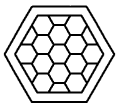
CAT. NO.	DESCRIPTION	PKG. QTY.
TBM15I	Insulated 15-Ton Hydraulic Head with Steel Case	1

15600 Series — Fits directly into tool for larger size connectors, 800 kcmil–1500 kcmil

15500 Series — Used in conjunction with 15500-TB Adapter, #8 AWG–750 kcmil

21940 40-Ton Hydraulic Crimping Head

- Compact design delivers maximum pressure for larger lugs and splices
- Ideal for applications requiring larger lugs up to 2000 kcmil
- Uses 11300 and 11400 Series dies



Creates hex-style crimp



Specifications

- Installing Range:
  - Up to 2000 kcmil copper lugs & splices
  - Up to 2000 kcmil aluminum lugs & splices
- Output Force: 40 tons
- Operating Pressure: 10,000 psi nominal
- Dimensions (L x W x H): 12" x 4¾" x 7⅞"
- Weight without Dies: 40 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
21940	40-Ton Hydraulic Head with Steel Case	1

13606 Foot-/Hand-Operated and 13604 Hand-Operated Hydraulic Pump

- 13606 operates with either foot or hand; 13604 is hand operated only
- Operates all T&B hydraulic heads
- Built-in safety bypass valve
- Factory set at 9,800 psi



13606 Foot-/Hand-Operated Hydraulic Pump

Specifications

- Nominal Pressure: 9,800 psi
- Pumping Capacity: 2.6 cu. in./min. @ 200 psi 0.16 cu. in./min. @ 10,000 psi
- Reservoir Volume: 125 cu.in. (0.54 gal.)
- Max. Handle Force: 130 lbs.
- Dimensions (L x W x H): 23" x 5¾" x 6¾"
- Weight: 29 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
13606	Combination Hand- or Foot-Operated Hydraulic Pump	1
13604	Hand-Operated Hydraulic Pump	1

Battpac® LT BPLT13970P2 Pump

- Small and lightweight
- 60 minutes full recharge
- Highly visible display indicates battery power level
- Socket for 24 VDC external connection
- Operation in any position: on its side or upright
- Separate operation/release buttons protect against accidental operation
- Energy consumption limited by automatic shut-off
- Easily accessible oil top-up inlet



Specifications

- Nominal Pressure: 10,000 psi
- Pumping Capacity: 30 cu. in./min.
- Reservoir Volume: 60 cu. in. (.26 gal.)
- Dimensions (L x W x H): 13½" x 6½" x 12¾"
- Battery: Ni-MH 24V, 3 Ah
- Weight with Battery: 20.9 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
BPLT13970P2	Battpac® LT Pump includes canvas accessories carrying bag, carrying strap, remote hand controller, two batteries, battery charger and non-drip couplings	1
BPLT13970RB	Ni-MH 24V Replacement battery	1
BPLT13970RP	Canvas backpack for pump	1
BPLT13970DC	Power connecting cable with clips	1
BPLT13970FS	Remote foot pedal controller	1

Battery Performance Guide

In tests, the number of crimps obtained from a fully charged battery, using a remote crimping head, was:

- 102 crimps for Cu connectors on 250 kcmil HD Cu conductor
- 98 crimps for C-Tap connectors on #2 AWG HD Cu conductor
- 76 crimps for Cu sleeve connectors on 500 kcmil HD Cu conductor

13600 Electric Hydraulic Pump

- Designed for use with single-acting cylinders and tools rated for 10,000-psi operation
- Supplied with metal carrying case
- 13620 hand switch and 13619 hydraulic hose, both sold separately, required for operation

Specifications

- Motor: ½ hp, 115V, 50–60 Hz, 10 amps
- Pumping Capacity:
  170 cu. in./min. at 100 psi
  32 cu. in./min. at 1,000 psi
  25 cu. in./min. at 5,000 psi
  18 cu. in./min. at 10,000 psi
- Reservoir Volume: 104 cu. in. (.45 gal.)
- Basic Pump Dimension: 6" x 8" x 16"
- Weight: 25 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
13600	Electric Hydraulic Pump — hand or foot switch and non-metallic hose (sold separately) required for operation	1
You may also need…		
13620	Hand Switch – 10 ft.	1
13589A	Foot Switch – 10 ft.	1
13619	10-ft. Non-Metallic Hose	1
13618	20-ft. Non-Metallic Hose	1
13600S	"Sled" type stand for 13600 pump	1



13610A Electric Hydraulic Pump with Shure-Stake® Control

- Shure-Stake® control mechanism requires 9,800 psi pump pressure before recyling to prevent under-crimping
- Designed for use with single-acting cylinders and tools rated for 10,000-psi operation
- Supplied with metal carrying case

Specifications

- Motor Rating: ½ hp, 115V, 50–60 Hz, 12.5 amps
- Pumping Capacity:
  170 cu. in./min. at 100 psi
  32 cu. in./min. at 1,000 psi
  25 cu. in./min. at 5,000 psi
  18 cu. in./min. at 10,000 psi
- Reservoir Volume: 104 cu. in. (.45 gal.)
- Basic Pump Dimension: 8½" x 10½" x 16"
- Weight: 35 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
13610A	Electric Hydraulic Pump with Shure-Stake® control — hand or foot switch and non-metallic hose (sold separately) required for operation	1
You may also need…		
13611	Hand Switch — 10 ft.	1
13612	Foot Switch — 10 ft.	1
13619	10-ft. Non-Metallic Hose	1
13618	20-ft. Non-Metallic Hose	1
13797	Inline Gauge	1



13810 Heavy-Duty Electric Hydraulic Pump with Shure-Stake® Control

- Designed for perfect crimps every time in heavy-duty OEM applications
- Heavy-duty OEM two-stage pump with high flow rate
- Shure-Stake® control mechanism requires 9,800-psi pump pressure before recyling to prevent under-crimping
- Requires hand or foot control (sold separately)

Specifications

- Motor Rating: 1½ hp, 115V, 60 Hz, 23 amps
- Pumping Capacity:
  235 cu. in./min. at 200 psi
  61 cu. in./min. at 8,000 psi
- Reservoir Volume: 462 cu. in./2 gal.
- Dimensions (L x W x H): 10¾" x 15" x 20¾"
- Weight: 60 lbs.



CAT. NO.	DESCRIPTION	PKG. QTY.
13810	Heavy-duty electric hydraulic pump with Shure-Stake® control — hand or foot switch and non-metallic hose (sold separately) required for operation	1
You may also need…		
13611	Hand switch — 10 ft.	1
13612	Foot switch — 10 ft.	1
13619	10-ft. Non-Metallic Hose	1
13618	20-ft. Non-Metallic Hose	1

Battery Connector Crimp Tools

- Adjustable die crimping tool for Blackburn® cast and tubular battery connectors featuring the Color-Keyed® system
- Available with Shure-Stake® mechanism to ensure a complete crimp every time (BCT840S)
- Crimps casting and tubular battery connectors ranging from #4 AWG to 4/0 AWG
- Heavy-duty crimping tool including die for #8 AWG to 4/0 AWG battery connectors, lugs and splices
- The single die is an integral part of the tool; no dies to lose or misplace
- Available with Shure-Stake® mechanism to ensure a complete crimp every time (TBM5SV)



BCT840, BCT840S

TBM5SV, TBM5V

CAT. NO.	DESCRIPTION	PKG. QTY.
BCT840	Dieless Crimp Tool for cast and tubular battery connectors	1
BCT840S	Dieless Crimp Tool with Shure-Stake® mechanism for cast and tubular battery connectors	1
TBM5V	Ratchet Crimp Tool with die for #8 AWG to 4/0 AWG battery connectors	1
TBM5SV	Ratchet Crimp Tool with Shure-Stake® mechanism and die for #8 AWG to 4/0 AWG battery connectors	1

Miscellaneous Hydraulic Pump Accessories

CAT. NO.	DESCRIPTION	PKG. QTY.
21061	Hydraulic Oil	1
13798	Male Pioneer Quick-Disconnect Coupler	1
13799	Female Pioneer Quick-Disconnect Coupler	1
13614	Metallic Reinforced Hose for OEM operations — 10 ft.	1

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Tools and Dies

BCS8-40 Cable Stripper



BCS8-40

CAT. NO.	DESCRIPTION	PKG. QTY.
BCS8-40	Cable stripper for #8 AWG to 4/0 AWG battery cable with replacement blade provided in the handle	1

368-CK Cable Stripper



CAT. NO.	DESCRIPTION	PKG. QTY.
368-CK	Cable stripper for #1 AWG to 1,000 kcmil	1

364RF/366RF Cable Cutters with Fiberglass Handles



CAT. NO.	CABLE SIZE	PKG. QTY.
364RF	Cutter for up to 500 kcmil copper and aluminum	1
366RF	Cutter for up to 1,000 kcmil copper and aluminum	1

For copper and aluminum cable only. Not for steel.
Replacement blades are available through Tool Services.

TBM40HC Hand-Operated Hydraulic Cutting Tool

- Specifically designed to cut copper, aluminum and telecommunications cables up to 3.35" O.D.
- Offers dual-speed action: fast advancing speed for rapid approach of blades to cable and slower, more powerful speed for cutting
- Blades manufactured from high-strength, heat-treated steel to ensure long service life
- Head easily opens to enable cutting of existing run cables
- Head rotates 180°, enabling operator to position for easiest use
- Automatic safety valve bypasses oil when reaching maximum pressure
- Pressure release device can also be activated during any point of operation



Specifications

- Max. Cutting Capacity: 3.35" O.D.
- Dimensions (L x W): 25.69" x 6.89"
- Weight: 14.55 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM40HC	Hand-operated hydraulic cutting tool	1

CSR750 Cable Cutter

- Special advance stroke mechanism requires less handle force
- Cuts copper or aluminum cables up to 750 kcmil
- Short handles (only 10" long) enable use in tight spaces



CAT. NO.	DESCRIPTION	PKG. QTY.
CSR750	Cutter for up to 750 kcmil copper or aluminum	1

Battpac® TBM54BSCT and TBM54BSCTS Battery-Powered Cutters

- Removable battery — simply change for continuous use
- One-handed control of blade advancement and retraction
- TBM54BSCTS cuts up to 750 kcmil copper, 2⅛" O.D. aluminum and 636 kcmil ACSR
- TMB54BSCT cuts up to 1,500 kcmil copper and 2⅛" O.D. aluminum (not for use on ACSR)



Battery Cartridge: (CRCTBP)

Battery Type: Sealed Nickel Cadmium
Voltage: 14.4V DC
Rated Current: 1.9Ah
Dimensions: 3.5"L x 2.7"W x 5.3"H
Weight: 1.6 lbs.

Battery Charger: (CRCTQC)

Input Voltage: 120V AC Single Phase
Charging Capacity: 20 VA
Charging Time: 15 min. CRCTBP & CRCTBPI
45 min. CRCTBPEI
Dimensions: 7.5"L x 3.7"W x 3.5"H
Weight: 4 lbs.

Optional Accessories:

Battery Pack: CRCTBPEI
Battery Cartridge: CRCTBPI or CRCTBP
DC Charger: CRCQC

Guide to Cutting Cycles

This guide indicates the number of cutting cycles that the TBM54BSCT and TBM54BSCTS can be expected to perform when the battery is fully charged. These figures are approximate and will vary according to the charging and other operating conditions, such as temperature, humidity and battery condition.

CAT. NO.	CONDUCTOR	APPROX. CUTTING CYCLES	
		CRCTBPI & CRCTBP	CRCTPBEI
TBM54BSCTS	750 kcmil Cu	35	105
	636 kcmil ACSR	50	150
TBM54BSCT	1,000 kcmil Cu	45	135
	1,500 kcmil Cu; 2⅛" Al	30	90

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM54BSCTS	Battery-powered cutter for up to 750 kcmil Cu, 2⅛" O.D. Al and 636 kcmil ACSR	1
TBM54BSCT	Battery-powered cutter for up to 1,500 kcmil Cu, 2⅛" O.D. Al (not for use on ACSR)	1

Specifications

- Motor: 14.4V DC
- Dimensions (L x W x H): 16" x 4" x 4.5"
- Weight with Battery: 7.2 lbs.

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Technical Services
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Tools and Dies

Battpac® LT BPLT58BSCT Battery-Powered Cutter

- Cuts copper, aluminum and ACSR up to 1½" O.D.
- Also cuts soft steel bolts, rebar and wire rope
- Forged steel head and cutting blades for strength and durability
- Dual forward speeds enhance productivity
- New, more powerful Ni-MH battery has 50% more energy and less memory effect than old batteries



Specifications

- Max. Cutting Capacity:
  Copper, aluminum & ACSR cable to 1½" O.D.
  Rebar, ground rod & standard guy wire to ⅝"
  Soft steel bolts to 1 1/16"
  Wire rope to ¾"
- Dimensions (L x W x H): 19½" x 3⅞" x 9⅞"
- Battery: Ni-MH 14.4V 3.0Ah
- Weight with Battery: 16.7 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
BPLT58BSCT	Battery-Powered Cutter with carrying case, charger, two batteries and carry strap	1

297-32136 Hydraulic Cutting Head

- Heavy-duty cutter with high-strength steel blades
- Cuts both aluminum and copper wire to 1½" O.D.
- Cutter supplied with carrying case



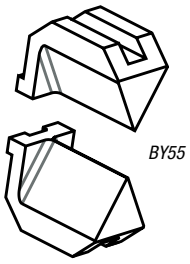
Specifications

- Max. Cutting Capacity (aluminum and copper): 1½" O.D.
- Dimensions (L x W x H): 14½" x 2½" x 4"
- Weight: 8.5 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
297-32136	Hydraulic Cutting Head	1

Cable Slicing Die Sets

- Cuts copper and aluminum insulated cable sizes from #8 AWG through 500 kcmil
- Produces clean, squared-end cut, which eliminates extra trimming of conductor strands



CAT. NO.	MAXIMUM CABLE SIZE	TOOLS	PKG. QTY.
BY55	2/0 AWG	TBM6H and TBM6BSCR	1
40CS	4/0 AWG	TBM14M and 13100A and TBM14BSCR	1
156CS	500 kcmil	TBM15I and TBM15BSCR	1

Type WW Wire Bristle Brush

- Removes oxides from conductor surfaces
- Easy-grip handle with guard to prevent rubber-glove puncture
- Replaceable long-life brushes can be rotated
- Handle and guard coated with durable, nonconductive plastic for safety



CAT. NO.	DESCRIPTION	PKG. QTY.
WWB1	Complete Brush with Handle	1
WRB1	Wire Element Only, Pair	1

21649 Cable Bender



CAT. NO.	DESCRIPTION	PKG. QTY.
21649	Bender for cable up to 750 kcmil	1

CTR-1 C-Tap Removal Tool



CAT. NO.	DESCRIPTION	PKG. QTY.
CTR-1	C-Tap Removal Tool	1

Tools and Dies

TBM25MCC Crimp Tool

- For non-insulated metric connectors
- High-precision treated steel jaws
- Ergonomically designed molded plastic grips
- Compact, lightweight and easy to use
- Toggle-action leverage reduces operator effort
- Shure-Stake® mechanism ensures a properly completed crimp each time
- Automatic handle opening after crimping operation



Specifications

- Wire Range: .25–10 sq. mm
- Dimensions (L x W): 9.21" x 2.87"
- Weight: 1.15 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM25MCC	Mechanical Crimp Tool	1

TBM26MCC 26-Ton Hydraulic Crimping Head

- Installs crimp-type electrical connectors on cables up to 1,000 kcmil
- Includes male automatic coupler for connection to 10,000-psi hydraulic pump
- Optional adapter available for use with semicircular slotted dies common to most C-shaped heads (12-ton) available on the market
- Sturdy steel carrying case complete with die compartment for holding up to 10 sets of dies available on request



Specifications

- Output Force: 25.8 tons
- Operating Pressure: 10,000 psi nominal
- Dimensions (L x W): 12.4" x 4.7"
- Weight: 11.4 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM26MCC	26-Ton Hydraulic Presshead	1

TBM60MCC 60-Ton Hydraulic Crimping Head

- Installs crimp-type electrical connectors on cables up to 2,000 kcmil
- Includes male automatic coupler for connection to 10,000-psi hydraulic pump
- Optional adapter available for use with semicircular slotted dies common to most C-shaped heads (12-ton) available on the market
- Sturdy steel carrying case complete with die compartment for holding up to 10 sets of dies available on request



Specifications

- Output Force: 58.4 tons
- Operating Pressure: 10,000 psi nominal
- Dimensions (L x W): 12" x 7.9"
- Weight: 39.6 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
TBM60MCC	60-Ton Hydraulic Presshead	1

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Tools and Dies

Dies for Standard Lugs & Splices (TBM45S – TBM12)

CONNECTOR SIZE							TBM-8/8S	TBM-5/5S	TBM6/6S / 25000		13642M / 13400 HYDRAULIC HEAD		TBM12 HYDRAULIC HEAD	
CODE COPPER	FLEX/24	AL/CU	COLOR CODE	TBM45S	TBM4S	TBM8-750M-1 TBM8-750BSCR TBM8-750	TBM8 DIE CAT. NO.	TBM5 DIE CAT. NO.	CAT. NO. UPPER DIE	CAT. NO. LOWER DIE	DIE CAT. NO.	DIE CODE NO.	DIE CAT. NO.	DIE CODE NO.
#8 AWG	37/24	10 AWG	RED						13475	13477	11732	21	TBM12D-1	21
#6 AWG	61/24	#8 AWG	BLUE						13475	13477	11733	24	TBM12D-1	24
#4 AWG	91/24	#6 AWG	GRAY				13461	13454	13472	13476	11734	29	TBM12D-2	29
#2 AWG	125/24		BROWN						13474	13477	11735	33	TBM12D-2	33
#1 AWG	150/24	#4 AWG	GREEN	C-Taps Only					13474	13477	11736	37	TBM12D-3	37
1/0 AWG	225/24	#2 AWG	PINK						13475	13477	11737	42	TBM12D-3	42
2/0 AWG	275/24		BLACK				13462	13455	13474	13477	11738	45	TBM12D-4	45
3/0 AWG	325/24		ORANGE						13474	13477	11739	50	TBM12D-4	50
4/0 AWG	450/24		PURPLE						13475	13477	11740	54	TBM12D-5	54
250 kcmil	550/24		YELLOW				13463	13456	13473	13476	11771	62	TMB12D-5	62
		#1 AWG	GOLD						13474	13477	11738	45	TBM12D-4	45
		1/0 AWG	TAN						13474	13477	11739	50	TBM12D-4	50
		2/0 AWG	OLIVE				13464	13457	13475	13477	11740	54	TBM12D-5	54
		3/0 AWG	RUBY						13473	13476	11741	60	TBM12D-5	60
300 kcmil		4/0 AWG	WHITE				13465		13473	13476	11742	66H	TBM12D-5	66H
350 kcmil	775/24 (short)	250 kcmil	RED				13466	13458	13472	13476	11743	71H	TBM12D-4	71H
400 kcmil	775/24 (long)	300 kcmil	BLUE				13467	4/0 only	13472	13476	11744	76H	TBM12D-4	76H
	925/24*		N/A						13479	13476	11745	80H		
			N/A											
500 kcmil		350 kcmil	BROWN				13468		13478	13478	11746-TB	87H	TBM12D-3	87H
600 kcmil	1100/24	400 kcmil	GREEN								11747	94H	TBM12D-3	94H
			GREEN											94H
	1325/24**		PINK											
700 kcmil		500 kcmil	PINK								11748	99H	TBM12D-2	99H
750 kcmil		650 kcmil	BLACK								11749	106H	TBM12D-2	106H
800 kcmil			ORANGE								11750	107H		
		700 kcmil	PURPLE								11751	112H	TBM12D-1	112H
900 kcmil	1925/25	750 kcmil	YELLOW								11753	115H	TBM12D-1	115H
1000 kcmil		800 kcmil												
		1000 kcmil												

** Standard barrel only. Long barrel requires Brown 87H.*

*** Standard barrel only. Long barrel requires Brown 106H.*

Dies for Standard Lugs & Splices (OD58)

CONNECTOR SIZE				OD58	
CODE COPPER	FLEX/24	AL/CU	COLOR CODE	DIE CAT NO.	DIE CODE NO.
#8 AWG	37/24	#10 AWG	RED	BY15C	21
#6 AWG	61/24	#8 AWG	BLUE	BY17C	24
#4 AWG	91/24	#6 AWG	GRAY	BY19C	29
#2 AWG	125/24		BROWN	BY21C	33
#1 AWG	150/24	#4 AWG	GREEN	BY53C	37
1/0	225/24	#2 AWG	PINK	BY23C	42
2/0	275/24		BLACK	BY28C	45
3/0	325/24		ORANGE	BY25C	50
4/0	450/24		PURPLE	BY27C	54
250 kcmil	550/24		YELLOW	BY31C	62
		#1 AWG	GOLD	BY24C	45
		1/0	TAN	BY25C	50
		2/0	OLIVE	BY31C	54
		3/0	RUBY	BY32C	60

Tools and Dies

Dies for Standard Lugs & Splices (BPLT6BSCR – 21940)

CONNECTOR SIZE				BPLT6BSCR/TBM6H				BPLT6BSCR/ BPLT62BSCR			
CODE COPPER	FLEX/24	AL/CU	COLOR CODE	DIE CAT. NO.	DIE CODE NO.	HEX-FLEX® DIE CAT. NO.	HEX-FLEX® DIE CODE NO.	DIE CAT. NO.	DIE CODE NO.	HEX-FLEX® DIE CAT. NO.†	HEX-FLEX® DIE CODE NO.
8 AWG	37/24	10 AWG	RED	6TON21	21	6TON21X	21X	TBM6221	21	TBM6221X	21X
6 AWG	61/24	8 AWG	BLUE	6TON24	24	6TON24X	24X	TBM6224	24	TBM6224X	24X
4 AWG	91/24	6 AWG	GRAY	6TON29	29	6TON29X	29X	TBM6229	29	TBM6229X	29X
2 AWG	125/24		BROWN	6TON33	33	6TON33X	33X	TBM6233	33	TBM6233X	33X
1 AWG	140/24	4 AWG	GREEN	6TON37	37	6TON37X	37X	TBM6237	37	TBM6237X	37X
1/0	225/24	2 AWG	PINK	6TON42	42	6TON42X	42X	TBM6242	42	TBM6242X	42X
2/0	275/24		BLACK	6TON45	45	6TON45X	45X	TBM6245	45	TBM6245X	45X
3/0	325/24		ORANGE	6TON50	50	6TON50X	50X	TBM6250	50	TBM6250X	50X
4/0	450/24		PURPLE	6TON54	54	6TON54X	54X	TBM6254	54	TBM6254X	54X
250 kcmil	550/24		YELLOW	6TON62	62	6TON62X	62X	TBM6262	62	TBM6262X	62X
		1 AWG	GOLD	6TON45	45	6TON66X	66X	TBM6245	45		
		1/0	TAN	6TON50	50			TBM6250	50		
		2/0	OLIVE	6TON54	54			TBM6254	54		
		3/0	RUBY	6TON60	60			TBM6260	60		
300 kcmil		4/0	WHITE	6TON66	66H			TBM6266	66	TBM6266X	66X
350 kcmil	775/24 (short)	250 kcmil	RED	6TON71	71H			TBM6271	71		
400 kcmil	775/24 (long)	300 kcmil	BLUE	6TON76	76H			TBM6276	76		
	925/24*			6TON80	80H			TBM6280	80		
500 kcmil		350 kcmil	BROWN	6TON87	87H			TBM6287	87		
600 kcmil	1100/24	400 kcmil	GREEN GREEN	6TON94	94H						
700 kcmil	1325/24**	500 kcmil	PINK		99H						
750 kcmil		650 kcmil	BLACK		106H						
800 kcmil			ORANGE		107H						
		700 kcmil	PURPLE		112H						
900 kcmil	1925/24	750 kcmil	YELLOW		115H						
1000 kcmil		800 kcmil	N/A								
		1000 kcmil	N/A								

Standard barrel only. Long barrel requires Brown 87H.

**Standard barrel only. Long barrel requires Black 106H.*

***15500 Series dies require 15500-TB adapter. 15500F for full-size die to fit TBM15I without adapter.*

† *HEX-FLEX® Dies are sold separately in halves. The catalog numbers shown in the chart above are for the upper half of the die. For the bottom half (the indenter), order one Cat. No. 6TONX for all 6TONX Series, one Cat. No. TBM62X for all TBM62X Series Die Codes 21X–66X, one Cat. No. 15500X for 15500X Series Die Codes 21X–94X and one Cat. No. 15600X for all 15600X Series Die Codes 62X–115X.*

Dies for Standard C-Taps

CONNECTOR	COLOR CODE	TBM25S DIE NO.	TBM5/5S DIE NO.	TBM6/6S DIE NO.	TBM8/8S DIE NO.	BPLT6BSCR BPLT62BSCR DIE NO.	TBM6H/BPLT6BSCR DIE NO.
54705	RED	Red Nest	13454	13475/13477	13461	TBM6221	6TON21
54710	BLUE	Blue Nest	13454	13475/13477	13461	TBM6224	6TON24
54715	GRAY	Grey Nest	13454	13472/13476	13461	TBM6229	6TON29
54720	BROWN	Brown Nest	13454	13474/13477	13461	TBM6233	6TON33
54725	GREEN	Green Nest	13455	13474/13477	13462	TBM6237	6TON37
54730	PINK	—	13455	13475/13477	13462	TBM6242	6TON42
54735	BLACK	—	13455	13474/13477	13462	TBM6245	6TON45
54740	ORANGE	—	13455	13474/13477	13462	TBM6250	6TON50
54745	PURPLE	—	13456	13475/13477	13463	TBM6254	6TON54
54750	YELLOW	—	13456	13473/13478	13463	TBM6262	6TON62

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Tools and Dies

BPLT14BSCR/TBM14M TBM14MC/13100A/JB12B				BPLT15BSCR/ TBM15I***								21940 (40 TON)	
DIE CAT. NO.	DIE CODE NO.	HEX-FLEX® DIE CAT. NO.†	HEX-FLEX® DIE CODE NO.	DIE CAT. NO.	DIE CODE NO.	FULL DIE CAT. NO	FULL DIE, DIE CODE NO.	HEX-FLEX® DIE CAT. NO.†	HEX-FLEX® DIE CODE NO.	HEX-FLEX® FULL DIE CAT. NO.†	HEX-FLEX® DIE CODE NO.	DIE CAT. NO.	DIE CODE NO.
15520	21	15520X	21X	15520	21	15520F	21	15520X	21X				
15522	24	15522X	24X	15522	24	15522F	24	15522X	24X				
15527-CK	29	15527X	29X	15527-CK	29	15527F	29	15527X	29X			11401	29
15528	33	15528X	33X	15528	33	15528F	33	15528X	33X			11402	33
15513-CK	37	15513X	37X	15513-CK	37	15513F	37	15513X	37X			11333	37
15508	42	15508X	42X	15508	42H	15508F	42	15508X	42X			11334	42
15526	45	15526X	45X	15526	45	15526F	45	15526X	45X			11405	45
15530	50	15530X	50X	15530	50	15530F	50	15530X	50X			11406	50
15511	54	15511X	54X	15511	54H	15511F	54	15511X	54X			11407	54H
15510-CK	62	15510X	62X	15510-CK	62	15510F	62	15510X	62X	15662X	62X	297-31669-7	62
15526	45			15526	45							11405	45
15530	50			15530	50							11406	50
15511	54			15511	54H							11407	54
15532-CK	60			15532-CK	60	15532F	60					11408	60
15534	66	15534X	66X	15534	66	15534F	66	15534X	66X	15666X	66X	11409	66
15514-CK	71H	15514X	71X	15514-CK	71H	15514F	71	15514X	71X	15671X	71X	11363	71
15512	76	15512X	76X	15512	76	15512F	76	15512X	76X	15676X	76X	11410	76
15517	80H	15517X	80X	15517	80H			15517X	80X	15606X	80X		
				15606	80H								
15506	87H	15506X	87X	15506	87H	15506F	87H	15506X	87X	15687X	87X	11423	87
		15536X	94X	15611	94H			15536X	94X	15611X	94X	11364	94
15536-CK	94H			15536-CK	94H								
15505	99H			15505	99H	15505F	99H			15605X	99X	11424	99
15515-CK	106H			15515-CK	106H	15515F	106H			15615X	106X	74506	106
15540	107H			15608	107H					15608X	107X	11425	107
				15609	112H							11426	112
15504	115H			15504	115H	15504F	115H			15604X	115X	11308	115
				15603	125H							11416	125
				15602	140H							11418	140
				15601	150H							11419	150

Dies for Large C-Taps

CONNECTOR	COLOR CODE	13642M/13400 DIE NO.	TBM12 DIE NO.	13100A/JB12B/TBM14M/ BPLT14BSCR DIE NO.	TBM15I/ BPLT15BSCR DIE NO.
54755	BLUE	11744	TBM12D-4	15512	15512
54760	BROWN	11746-TB	TBM12D-3	15506	15506
54765	PINK	11748	TBM12D-2	15505	15505
54770	BLACK	11749	TBM12D-2	15515-CK	15515-CK
54775	YELLOW	11753	TBM12D-1	15504	15504
54780	WHITE	—	—	—	15603
54785	N/A	—	—	—	15603
54790	N/A	—	—	—	15603

Tools and Dies

Dies for Aluminum H-Taps

CONNECTOR	COLOR CODE	TBM5/5S DIE NO.	TBM6/6S DIE NO.	TBM8/8S DIE NO.	TBM12 DIE NO.	TBM6H/ BPLT6BSCR DIE NO.	13100A/JB12B/ TBM14M/ BPLT14BSCR DIE NO.	TBM15I/ BPLT15BSCR DIE NO.
63105	ORANGE	13455	13474/13477	13462	TBM12D-4	6TON50	15530	15530
63110	GREEN	—	13470	—	TBM12D-H	OJB	15501A	15501A
63118		—	13470	—	TBM12D-H	OJB	15501A	15501A
63125		—	13470	—	TBM12D-H	OJB	15501A	15501A
63140	BLUE	—	13471	—	TBM12D-H	DBL	15502	15502
63148		—	13471	—	TBM12D-H	DBL	15502	15502
63160	RED	—	—	—	—	—	—	15612
63169	BLACK	—	—	—	—	—	—	15620
63170		—	—	—	—	—	—	15620
63180		—	—	—	—	—	—	15620

Dies for Copper H-Taps

CONNECTOR	COLOR CODE	TBM6H/ BPLT6BSCR DIE NO.	13100A/JB12B/ TBM14M/ BPLT14BSCR DIE NO.	TBM15I/ BPLT15BSCR DIE NO.
CHT814-10	GREEN	6TON37R	15CA37RCH	15CA37RCH
CHT214-9	BROWN	6TON71R	15CA71RCH	15CA71RCH
CHT250214-8	PURPLE	—	15CA80RCH	15CA80RCH
CHT25014-7		—	15CA80RCH	15CA80RCH
CHT2502-6		—	15CA80RCH	15CA80RCH
CHT50010-5	BROWN	—	—	15612CH
CHT50040-4		—	—	15612CH
CHT75010-3	YELLOW	—	—	15620CH
CHT750350-2		—	—	15620CH
CHT75040-11		—	—	15620CH
CHT750350-1F	WHITE	—	—	15620CHF

Dies for High-Voltage Connectors

DIE CODE NO.	TBM15I, TBM14M, 13100A	
	ADAPTER TYPE**	NON-ADAPTER TYPE
29R	15CA29R	—
33R	15CA33R	—
37R	15CA37R	—
42R	15CA42R	—
45R	15CA45R	—
49R	15CA49R	—
54R	15CA54R	—
60R	15CA60R	—
66R	15CA66R	—
71R	15CA71R	—
76R	15CA76R	—
87R	15CA87R	—
94R	15CA94R†	—
106R	15CA106R†	—
125R	—	15C125R*

**To be used with TBM15I only.*

***Use 15500-TB adapter with TBM15I tool.*

†Not UL Listed in TBM14M/13100A tool.

Dies for Figure 6 & Figure 8 Ground Connectors

CONNECTOR	CABLE ELEMENT A	TO CABLE ELEMENT B	TO GROUND ROD ELEMENT B	TO REBAR ELEMENT B	DIE SELECTION	
					ELEMENT A	ELEMENT B
54855L	#6 Sol. – #2 Str.	#6 Sol. – #2 Str.	—	—	15501A	15501A
54865L	#1 Str. – 250 kcmil	#6 Sol. – #2 Str.	½" – ⅝" Rod	⅜" – ½" #3 – #4 Rebar	15G86R	15501A
54875L	#2 Str. – 250 kcmil	#2 Str. – 250 kcmil	½" – ⅝" Rod	⅜" – ½" #3 – #4 Rebar	15G86R	15G86R
54885L	250 kcmil – 500 kcmil	#6 Sol. – #2 Str.	⅝" – ¾" Rod	⅝" – ¾" #3 – #4 Rebar	15G126R	15501A
54895L	250 kcmil – 500 kcmil	#2 Str. – 250 kcmil	⅝" – ¾" Rod	⅝" – ¾" #4 – #5 Rebar	15G126R	15G86R
54900L	250 kcmil – 500 kcmil	#2 Str. – 250 kcmil	⅝" – ¾" Rod	⅝" – ¾" #4 – #5 Rebar	15G121R	15G121R

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In this section...



Blackburn® Compression Connectors

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Compression Connectors F-108–F-120
Aluminum Lugs F-121–F-135
Aluminum Splices F-136–F-144
Tees F-145–F-150

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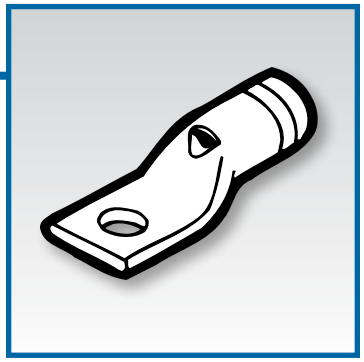
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Overview

Type CTL

Copper Short-Barrel Connectors

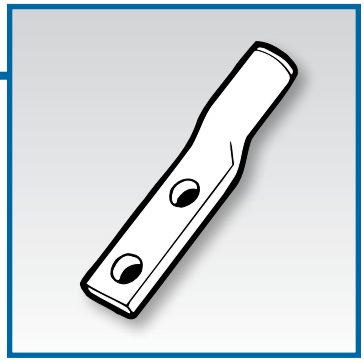
See pages F-108–F-109



Type CTL-L, LCN

Copper Long-Barrel Connectors

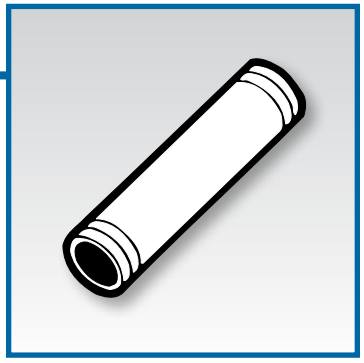
See pages F-110–F-111



Type CSP, CU

Copper Compression Splices

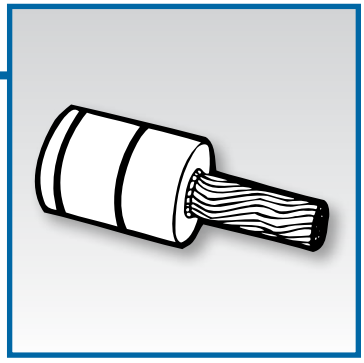
See pages F-112–F-113



Type PA

Pin Adapter Terminals

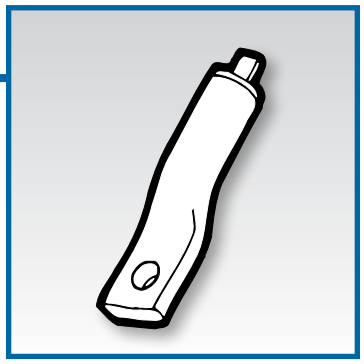
See page F-114



Type ATL

Aluminum Compression Connectors

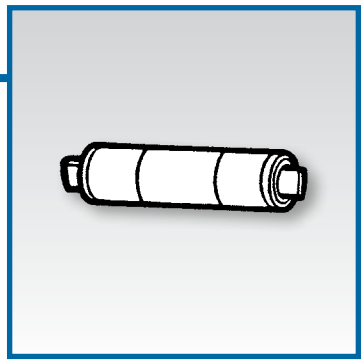
See pages F-116–F-117



Type ASP

Aluminum Splices

See page F-116



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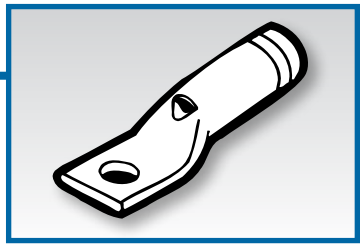
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Overview

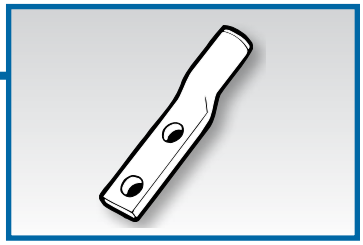
Aluminum One-Hole NEMA Lugs

See pages F-121, F-125, F-131–F-132



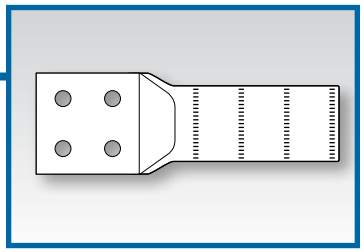
Aluminum Two-Hole NEMA Lugs

See pages F-122–F-123, F-126, F-129



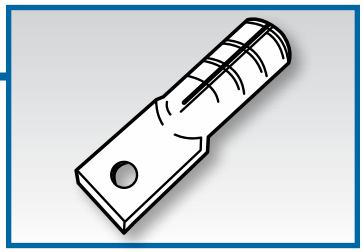
Aluminum Four-Hole NEMA Lugs

See pages F-124, F-130



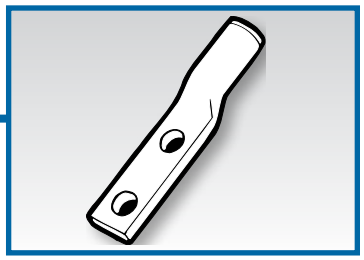
Aluminum Meter Socket Lugs

See pages F-127–F-128



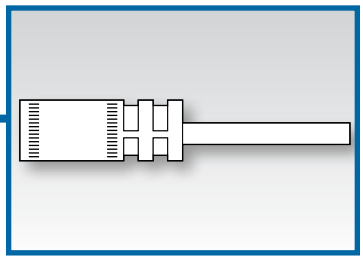
Multi-Range Die-Less, Slotted-Tang Compression and Bi-Metallic Lugs

See pages F-133–F-135



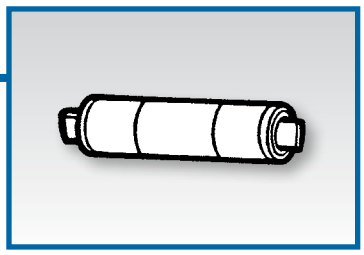
Aluminum Pin Terminals

See page F-133



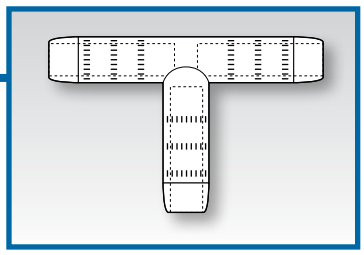
Aluminum Splices

See pages F-136–F-144



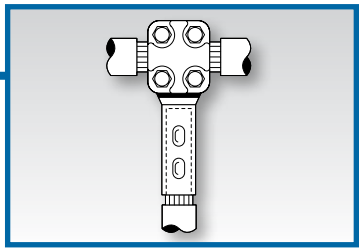
Aluminum and Copper Tees

See pages F-145–F-148



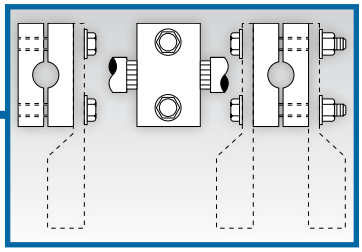
Copper Tin-Plated Clamp Tee Connectors

See page F-149



Aluminum and Copper NEMA Lug Tee Taps for Cable Buses

See page F-150



Compression Connectors

Specially designed for industrial and building applications.

Type CTL — Copper One-Hole Lugs, Short Barrel

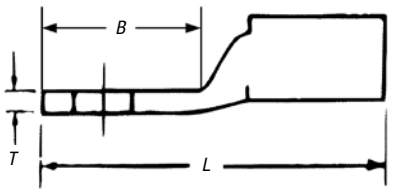


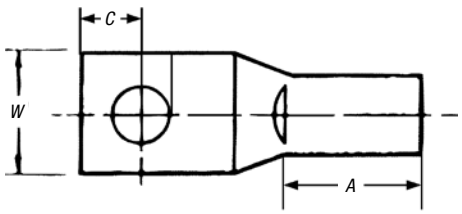
Copper Compression Connectors

- For use with copper conductor: AWG stranded, flexible cable, welding cable and portable cord
- Specially designed for industrial and building applications
- Made of high-conductivity seamless copper tubing
- Tin plated for corrosion resistance
- Specially chamfered barrel for ease of installation
- Color coded for matching die identification
- Can be used for high-voltage application up to 35kV provided proper high-voltage insulation techniques are used
- UL® Listed for AWG conductor when installed with Blackburn®, Burndy®, T&B® or Anderson tools
- Comply with Subpart 111.60-17 of Federal Register's Coast Guard Electrical Engineering Rules and Regulations

Short-Barrel Connectors

- Designed for regular-duty applications
- Ideal for confined areas





CAT. NO.	CONDUCTOR SIZE (CU)	STUD SIZE	DIMENSIONS (IN.) A	B	C	L	W	T	DIE COLOR CODE
CTL8-10	#8 Str.	10	13/32	1/2	7/32	1 5/32	3/8	1/16	RED
CTL8-14		1/4	13/32	19/32	1/4	1 3/16	7/16	1/16	
CTL8-516		5/16	13/32	5/8	9/32	1 5/16	9/16	1/16	
CTL6-10	#6 Str. or #6 Weld	10	7/16	17/32	7/32	1 7/32	7/16	1/16	BLUE
CTL6-14		1/4	7/16	17/32	7/32	1 7/32	7/16	1/16	
CTL6-516		5/16	7/16	21/32	9/32	1 13/32	19/32	1/16	
CTL6-38		3/8	7/16	21/32	9/32	1 13/32	19/32	1/16	
CTL4-10	#4 Str.	10	1/2	19/32	1/4	1 3/8	17/32	3/32	GRAY
CTL4-14		1/4	1/2	19/32	1/4	1 3/8	17/32	3/32	
CTL4-516		5/16	1/2	21/32	5/16	1 13/32	19/32	1/16	
CTL4-38		3/8	1/2	21/32	5/16	1 13/32	19/32	1/16	
CTL2-14	#2 Str. or #3 Weld	1/4	19/32	21/32	1/4	1 1/2	9/16	3/32	BROWN
CTL2-516		5/16	19/32	7/8	3/8	1 23/32	9/16	3/32	
CTL2-38		3/8	19/32	29/32	3/8	1 3/4	9/16	3/32	
CTL2-12		1/2	19/32	1 1/16	1/2	1 29/32	3/4	1/16	
CTL1-14	#1 Str. or #2 Weld	1/4	19/32	21/32	1/4	1 1/2	21/32	3/32	GREEN
CTL1-516		5/16	19/32	7/8	3/8	1 23/32	21/32	3/32	
CTL1-38		3/8	19/32	29/32	3/32	1 3/4	21/32	3/32	
CTL1-12		1/2	19/32	1 1/4	1/2	2 3/32	3/4	3/32	
CTL10-516	1/0 Str. or #1 Weld	5/16	11/16	7/8	3/8	1 13/16	3/4	1/8	PINK
CTL10-38		3/8	11/16	29/32	3/8	1 7/8	3/4	1/8	
CTL10-12		1/2	11/16	1 1/4	1/2	2 3/16	3/4	1/8	
CTL20-38	2/0 Str. or 1/0 Weld	3/8	13/16	29/32	3/8	2 1/32	13/16	1/8	BLACK
CTL20-12		1/2	13/16	1 1/4	1/2	2 11/32	13/16	1/8	
CTL30-38	3/0 Str. or 2/0 Weld	3/8	13/16	29/32	3/8	2 1/32	29/32	1/8	ORANGE
CTL30-12		1/2	13/16	1 1/4	1/2	2 11/32	29/32	1/8	
CTL40-38	4/0 Str. or 3/0 Weld	3/8	15/16	29/32	3/8	2 5/32	1 3/32	1/8	PURPLE
CTL40-12		1/2	15/16	1 1/4	1/2	2 1/2	1 1/32	1/8	
CTL250-12	250 kcmil or 4/0 Weld	1/2	1 1/32	1 1/4	1/2	2 19/32	1 1/8	1/8	YELLOW
CTL300-12	300 kcmil	1/2	1 1/32	1 1/4	1/2	2 25/32	1 3/16	5/32	WHITE
CTL350-12	350 kcmil	1/2	1 1/32	1 1/4	1/2	2 25/32	1 11/32	5/32	RED
CTL400-12	400 kcmil	1/2	1 1/32	1 1/4	1/2	3 3/16	1 13/32	5/32	BLUE
CTL400-58		5/8	1 1/32	1 9/16	5/8	3 1/2	1 13/32	5/32	
CTL500-12	500 kcmil	1/2	1 13/32	1 1/4	1/2	3 1/4	1 19/32	7/32	BROWN
CTL500-58		5/8	1 13/32	1 9/16	5/8	3 9/16	1 19/32	7/32	
CTL600-58	600 kcmil	5/8	1 9/16	1 9/16	5/8	3 23/32	1 3/4	7/32	GREEN
CTL750-58	750 kcmil	5/8	1 1/2	1 9/16	5/8	3 25/32	1 29/32	1/4	BLACK
CTL1000-58	1,000 kcmil	5/8	1 3/4	1 9/16	5/8	4 1/32	2 1/4	9/32	N/A

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Ideal for use in confined areas.

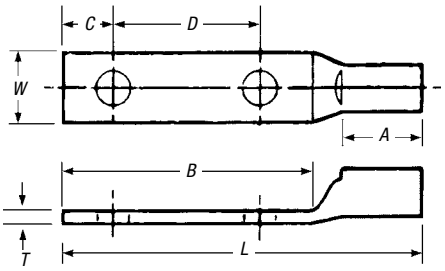
Type CTL — Copper Two-Hole Lugs, Short Barrel

Copper Compression Connectors

- For use with copper conductor: AWG stranded, flexible cable, welding cable and portable cord
- Specially designed for industrial and building applications
- Made of high-conductivity seamless copper tubing
- Tin plated for corrosion resistance
- Specially chamfered barrel for ease of installation
- Color coded for matching die identification
- Can be used for high-voltage application up to 35kV provided proper high-voltage insulation techniques are used
- UL® Listed for AWG conductor when installed with Blackburn®, Burndy®, T&B® or Anderson tools
- Comply with Subpart 111.60-17 of Federal Register's Coast Guard Electrical Engineering Rules and Regulations

Short-Barrel Connectors

- Designed for regular-duty applications
- Ideal for confined areas





CAT. NO.	CONDUCTOR SIZE (CU)	STUD SIZE	DIMENSIONS (IN.) A	B	C	D	L	W	T	DIE COLOR CODE
CTL6-214	#6 Str. or #6 Weld	1/4	1/2	1 1/4	1/4	5/8	1 31/32	13/32	1/16	BLUE
CTL4-214	#4 Str. or #4 Weld		1/2	1 1/4	1/4	5/8	2 1/32	1/2	3/32	GRAY
CTL2-2516	#2 Str. or #3 Weld	5/16	19/32	1 5/8	3/8	3/4	2 15/32	9/16	3/32	BROWN
CTL1-2516	#1 Str. or #2 Weld		19/32	1 3/4	3/8	7/8	2 19/32	21/32	3/32	GREEN
CTL10-2516	1/0 Str. or #1 Weld		11/16	1 3/4	3/8	7/8	2 11/16	3/4	1/8	PINK
CTL202	2/0 Str. or 1/0 Weld	1/2	13/16	2 13/16	1/2	1 3/4	3 13/16	13/16	1/8	BLACK
CTL302	3/0 Str. or 2/0 Weld		25/32	2 13/16	1/2	1 3/4	3 15/16	15/16	1/8	ORANGE
CTL402	4/0 Str. or 3/0 Weld		15/16	3	1/2	1 3/4	4 1/4	1 3/32	1/8	PURPLE
CTL2502	250 kcmil or 4/0 Weld		1 1/32	3	1/2	1 3/4	4 11/32	1 1/8	5/32	YELLOW
CTL3002	300 kcmil		1 1/32	3	1/2	1 3/4	4 17/32	13/16	5/32	WHITE
CTL3502	350 kcmil		1 1/32	3	1/2	1 3/4	4 17/32	1 11/32	5/32	RED
CTL4002	400 kcmil		1 11/32	3	1/2	1 3/4	4 15/16	1 13/32	5/32	BLUE
CTL5002	500 kcmil		1 3/8	3	1/2	1 3/4	5	1 17/32	7/32	BROWN
CTL6002-38	600 kcmil	3/8	1 17/32	1 29/32	3/8	1 3/4	5 1/8	1 23/32	7/32	GREEN
CTL6002-12	600 kcmil	1/2	1 17/32	3	1/2	1 3/4	5 1/8	1 23/32	7/32	
CTL7502	750 kcmil		1 1/2	3	1/2	1 3/4	5 7/32	1 29/32	1/4	BLACK
CTL10002	1000 kcmil		1 3/4	3	1/2	1 3/4	5 7/32	2 1/4	9/32	N/A

Compression Connectors

Ideal for industrial, oil rig, mining, welding and transportation electrical termination applications.

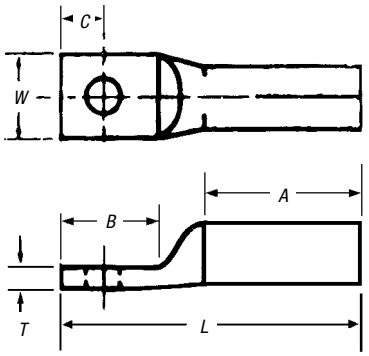
Type CTL-L — Copper One-Hole Lugs, Long Barrel

Copper Compression Connectors

- For use with copper conductor: AWG stranded, flexible cable, welding cable and portable cord
- Specially designed for industrial and building applications
- Made of high-conductivity seamless copper tubing
- Tin plated for corrosion resistance
- Specially chamfered barrel for ease of installation
- Color coded for matching die identification
- Can be used for high-voltage application up to 35kV provided proper high-voltage insulation techniques are used
- UL® Listed for AWG conductor when installed with Blackburn®, Burndy®, T&B® or Anderson tools
- Comply with Subpart 111.60-17 of Federal Register's Coast Guard Electrical Engineering Rules and Regulations

Long-Barrel Connectors

- Ideal for industrial, oil rig, mining, welding and transportation electrical termination applications
- Heavy-duty design permits additional crimp for added mechanical strength





CAT. NO.	CONDUCTOR SIZE	FLEXIBLE CONDUCTOR	STRANDING	STUD	DIMENSIONS (IN.) A	B	C	L	W	T	DIE COLOR
CTL8L-14	#8 Str.	#8	37/24		25/32	5/8	1/4	1 5/8	13/32	1/16	RED
CTL6L-14	#6 Str.	#6	61/24	1/4	25/32	5/8	1/4	1 5/8	13/32	1/16	BLUE
CTL4L-14	#4 Str.	#5	91/24		25/32	5/8	1/4	1 11/16	1/2	3/32	GRAY
CTL2L-516	#2 Str.	#3	125/24		7/8	7/8	3/8	2 1/32	9/16	3/32	BROWN
CTL1L-516	#1 Str.	#2	150/24	5/16	13/32	7/8	3/8	2 5/32	21/32	3/32	GREEN
CTL10L-516	1/0 Str.	#1	225/24		13/32	7/8	3/8	2 7/32	3/4	1/8	PINK
CTL20L-38	2/0 Str.	1/0	275/24	3/8	13/32	29/32	3/8	2 1/4	1 3/16	1/8	BLACK
CTL30L-12	3/0 Str.	2/0	325/24		1 1/8	1 1/4	1/2	2 11/16	2 9/32	1/8	ORANGE
CTL40L-12	4/0 Str.	—	—		1 3/8	1 1/4	1/2	2 15/16	1 1/32	1/8	PURPLE
CTL250L-12	250 kcmil	3/0	450/24	1/2	1 19/32	1 1/4	1/2	3 1/8	1 1/8	1/8	YELLOW
CTL300L-12	300 kcmil	4/0	550/24		1 25/32	1 1/4	1/2	3 17/32	1 3/16	1/8	WHITE
CTL350L-12	350 kcmil	263 kcmil	650/24		1 27/32	1 1/4	1/2	3 19/32	1 11/32	5/32	RED
CTL400L-58	400 kcmil	313 kcmil	775/24		1 27/32	1 9/16	5/8	4 1/32	1 13/32	5/32	BLUE
CTL500L-58	500 kcmil	373 kcmil	925/24		2 11/32	1 9/16	5/8	4 1/2	1 19/32	3/16	BROWN
CTL600L-58	600 kcmil	444 kcmil	1100/24	5/8	2 1/8	1 9/16	5/8	4 5/16	1 23/32	7/32	GREEN
CTL750L-58	750 kcmil	535 kcmil	1325/24		2 3/8	1 9/16	5/8	4 21/32	1 29/32	1/4	BLACK
CTL1000L-58	1000 kcmil	646 kcmil 777 kcmil	1600/24 1925/24		2 1/8	1 9/16	5/8	5 5/32	2 1/4	9/32	N/A

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Made of high-conductivity seamless copper tubing, tin plated for corrosion resistance.



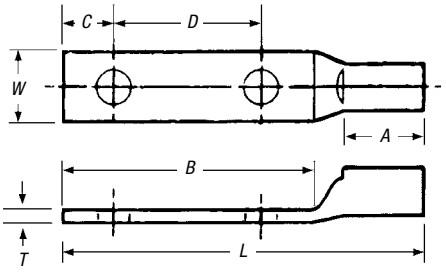
Type LCN — Copper Two-Hole Lugs, Long Barrel

Copper Compression Connectors

- For use with copper conductor: AWG stranded, flexible cable, welding cable and portable cord
- Specially designed for industrial and building applications
- Made of high-conductivity seamless copper tubing
- Tin plated for corrosion resistance
- Specially chamfered barrel for ease of installation
- Color coded for matching die identification
- Can be used for high-voltage application up to 35kV provided proper high-voltage insulation techniques are used
- UL® Listed for AWG conductor when installed with Blackburn®, Burndy®, T&B® or Anderson tools
- Comply with Subpart 111.60-17 of Federal Register's Coast Guard Electrical Engineering Rules and Regulations

Long-Barrel Connectors

- Ideal for industrial, oil rig, mining, welding and transportation electrical termination applications
- Heavy-duty design permits additional crimp for added mechanical strength



CAT. NO.	CONDUCTOR SIZE (CU)	FLEXIBLE CONDUCTOR SIZE	STRANDING	STUD SIZE	DIMENSIONS (IN.) A	B	C	D	L	W	T	DIE COLOR CODE
LCN8-14	#8 Str.	#8	37/24	¼	25/32	1 3/16	¼	5/8	2 1/8	15/32	1/16	RED
LCN6-14	#6 Str.	#6	61/24		25/32	1 1/4	¼	5/8	2 1/4	13/32	1/16	BLUE
LCN6-12	#6 Str.	#6	61/24	½	25/32	3	½	1 3/4	4 5/32	7/8	3/32	
LCN4-14	#4 Str.	#5	91/24	¼	25/32	1 3/16	¼	5/8	2 3/16	17/32	3/16	GRAY
LCN4-12	#4 Str.	#5	91/24	½	25/32	3	½	1 3/4	4 5/32	7/8	3/32	
LCN2-516	#2 Str.	#3	125/24	5/16	7/8	1 5/8	3/8	3/4	2 15/16	9/16	3/32	BROWN
LCN2-12	#2 Str.	#3	125/24	½	7/8	3	½	1 3/4	4 1/4	7/8	3/32	
LCN1-516	#1 Str.	#2	150/24	5/16	1 1/32	1 5/8	3/8	7/8	2 31/32	21/32	3/32	GREEN
LCN1-12	#1 Str.	#2	150/24		1 1/32	3	½	1 3/4	4 13/32	7/8	3/32	
LCN10	1/0	#1	225/24		1 1/32	3	½	1 3/4	3 31/32	3/4	1/8	PINK
LCN20	2/0	1/0	275/24		1 5/16	3	½	1 3/4	4 3/16	13/16	1/8	BLACK
LCN30	3/0	2/0	325/24		1 1/8	2 15/16	½	1 3/4	4 7/16	15/16	1/8	ORANGE
LCN40	4/0	—	—		1 3/8	3	½	1 3/4	4 11/16	1 1/32	1/8	PURPLE
LCN250	250 kcmil	3/0	450/24		1 19/32	3	½	1 3/4	4 29/32	1 1/16	1/8	YELLOW
LCN300	300 kcmil	4/0	550/24	½	1 25/32	3	½	1 3/4	5 3/32	1 3/16	1/8	WHITE
LCN350	350 kcmil	263 kcmil	650/24		1 27/32	3	½	1 3/4	5 11/32	1 11/32	5/32	RED
LCN400	400 kcmil	313 kcmil	775/24		1 27/32	3	½	1 3/4	5 7/16	1 13/32	1/8	BLUE
LCN500	500 kcmil	373 kcmil	925/24		2 11/32	3	½	1 3/4	5 15/16	1 19/32	3/16	BROWN
LCN600	600 kcmil	444 kcmil	1100/24		2 1/8	3	½	1 3/4	5 3/4	1 23/32	7/32	GREEN
LCN75	750 kcmil	535 kcmil	1325/24		2 3/8	3	½	1 3/4	6 3/32	1 29/32	1/4	BLACK
LCN99	1000 kcmil	646 kcmil 777 kcmil	1600/24 1925/24		2 7/8	3	½	1 3/4	6 13/32	2 1/4	9/32	N/A

Compression Connectors

Designed for regular-duty applications.

Type CSP — Copper Splices, Short Barrel

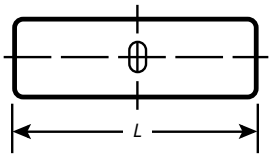


Copper Compression Connectors

- For use with copper conductor: AWG stranded, flexible cable, welding cable and portable cord
- Specially designed for industrial and building applications
- Made of high-conductivity seamless copper tubing
- Tin plated for corrosion resistance
- Specially chamfered barrel for ease of installation
- Color coded for matching die identification
- Can be used for high-voltage application up to 35kV provided proper high-voltage insulation techniques are used
- UL® Listed for AWG conductor when installed with Blackburn®, Burndy®, T&B® or Anderson tools
- Comply with Subpart 111.60-17 of Federal Register's Coast Guard Electrical Engineering Rules and Regulations

Short-Barrel Connectors

- Designed for regular-duty applications
- Ideal for confined areas





CAT. NO.	CONDUCTOR SIZE (CU)	LENGTH L (IN.)	DIE COLOR CODE
CSP8	#8 Str. AWG	1	RED
CSP6	#6 Str. AWG	1	BLUE
CSP4	#4 Str. AWG	1	GRAY
CSP2	#3–2 Str. AWG	1¼	BROWN
CSP1	#1 Str. AWG	1½	GREEN
CSP10	1/0 Str. AWG	1⅝	PINK
CSP20	2/0 Str. AWG	1¾	BLACK
CSP30	3/0 Str. AWG	1¾	ORANGE
CSP40	4/0 Str. AWG	1⅞	PURPLE
CSP250	250 kcmil	2¼	YELLOW
CSP300	300 kcmil	2⅛	WHITE
CSP350	350 kcmil	2¼	RED
CSP400	400 kcmil	2¾	BLUE
CSP500	500 kcmil	2¾	BROWN
CSP600	600 kcmil	3	GREEN
CSP750	750 kcmil	3	BLACK
CSP1000	1000 kcmil	3⅜	N/A

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Heavy-duty design permits additional crimp for added mechanical strength.

Type CU — Copper Splices, Long Barrel

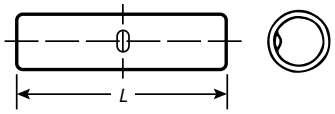
Copper Compression Connectors

- For use with copper conductor: AWG stranded, flexible cable, welding cable and portable cord
- Specially designed for industrial and building applications
- Made of high-conductivity seamless copper tubing
- Tin plated for corrosion resistance
- Specially chamfered barrel for ease of installation
- Color coded for matching die identification
- Can be used for high-voltage application up to 35kV provided proper high voltage insulation techniques are used
- UL® Listed for AWG conductor when installed with Blackburn®, Burndy®, T&B® or Anderson tools
- Comply with Subpart 111.60-17 of Federal Register's Coast Guard Electrical Engineering Rules and Regulations

Long-Barrel Connectors

- Ideal for industrial, oil rig, mining, welding and transportation electrical termination applications
- Heavy-duty design permits additional crimp for added mechanical strength





CAT. NO.	CONDUCTOR SIZE (CU)	FLEXIBLE CONDUCTOR CMA	FLEXIBLE CONDUCTOR STRANDING	LENGTH L (IN.)	DIE COLOR CODE
CU8	#8 Str. AWG	8	37/24	1¾	RED
CU6	#6 Str. AWG	6	61/24		BLUE
CU4	#4 Str. AWG	5	91/24		GRAY
CU2	#2 Str. AWG	3	125/24	1⅞	BROWN
CU1	#1 Str. AWG	2	150/24	2	GREEN
CU10	1/0 Str. AWG	1	225/24		PINK
CU20	2/0 Str. AWG	1/0	275/24	2⅛	BLACK
CU30	3/0 Str. AWG	2/0	325/24	2¼	ORANGE
CU40	4/0 Str. AWG	—	—	2¾	PURPLE
CU250	250 kcmil	3/0	450/24	3⅜	YELLOW
CU300	300 kcmil	4/0	550/24	3½	WHITE
CU350	350 kcmil	263	650/24	3¾	RED
CU400	400 kcmil	313	755/24		BLUE
CU500	500 kcmil	373	925/24	4¾	BROWN
CU600	600 kcmil	444	1100/24	4¼	GREEN
CU750	750 kcmil	535	1325/24	4¾	BLACK
CU1000	1000 kcmil	646 777	1600/24 1925/24	5⅝	N/A

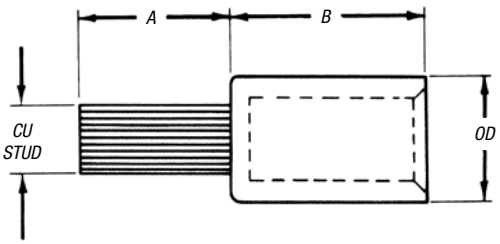
Compression Connectors

Insulating covers included.

Type PA — Pin Adapter Terminals

- Connector for aluminum conductor only
- Pigtail may be inserted into either aluminum or copper connectors
- 90° C rating per UL® 486B
- Tin-plated stranded copper wire pigtail
- Tin-plated aluminum barrel prefilled with oxide inhibitor and capped





CAT. NO.	CONDUCTOR SIZE	COPPER STUD SIZE	DIMENSIONS (IN.) A	B	O.D.	DIE COLOR CODE
PA06	#6 Str. AWG	8	7/8	1 11/32	.640	N/A
PA04	#4 Str. AWG	6	7/8	1 11/32	.640	
PA02	#2 Str. AWG	4	7/8	1 11/32	.640	
PA01	#1 Str. AWG	3	1	1 11/32	.640	
PA11	1/0 Str. AWG	2	1 1/4	1 19/32	.906	RED
PA21	2/0 Str. AWG	1	1 7/8	1 19/32	.906	
PA31	3/0 Str. AWG	1/0	1 3/8	1 7/8	.906	
PA41	4/0 Str. AWG	2/0	1 3/8	1 7/8	.906	
PA25	250 kcmil	3/0	1 1/2	2 1/16	1.155	BROWN
PA30	300 kcmil	4/0	1 5/8	2 1/16	1.155	
PA35	350 kcmil	4/0	1 5/8	2 1/16	1.155	
PA40	400 kcmil	250 kcmil	1 7/8	2 3/32	1.375	PINK
PA50	500 kcmil	350 kcmil	1 7/8	2 3/32	1.375	
PA60	600 kcmil	350 kcmil	1 7/8	2 3/4	1.500	YELLOW
PA75	750 kcmil	500 kcmil	2	2 3/4	1.500	

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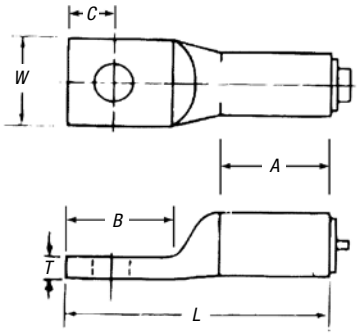
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Use with aluminum or copper conductor.

Type ATL — Aluminum One-Hole Lugs

- Specifically designed for use with aluminum conductor (concentric, compressed or compact)
- Also listed for use with copper conductor
- Made of high-conductivity seamless aluminum tubing
- Tin plated for corrosion resistance
- Chamfered barrels for ease of installation
- Can be used for high-voltage application up to 35kV, provided high-voltage insulation techniques are used
- Color coded for quick, easy die identification
- Prefilled with oxide-inhibiting compound
- UL® Listed when installed with Blackburn®, Burndy®, T&B® or Anderson tools





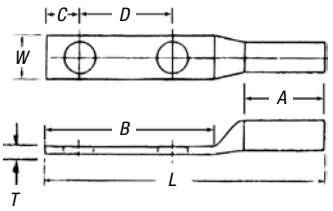
CAT. NO.	CONDUCTOR SIZE (AL OR CU)	STUD SIZE	DIMENSIONS (IN.) A	B	C	L	W	T	DIE COLOR CODE
ATL8-10	#8 Str. AWG	10	1/2	19/32	7/32	1 9/32	13/32	3/32	BLUE
ATL8-14		1/4	1/2	11/16	11/32	1 3/8	7/16	3/32	
ATL6-10	#6 Str. AWG	10	25/32	9/16	7/32	1 1/2	15/32	1/8	GRAY
ATL6-14		1/4	25/32	23/32	15/32	1 21/32	15/32	1/8	
ATL6-38		3/8	27/32	29/32	7/16	1 27/32	5/8	3/32	
ATL4-14	#4 Str. AWG	1/4	27/32	13/16	11/32	1 29/32	5/8	3/16	GREEN
ATL4-516		5/16	27/32	1	7/16	2 1/16	5/8	3/16	
ATL4-38		3/8	27/32	29/32	7/16	2	5/8	3/16	
ATL2-14	#2 Str. AWG	1/4	27/32	25/32	11/32	1 15/16	2 3/32	3/16	PINK
ATL2-516		5/16	27/32	7/8	7/16	2 11/32	3/4	3/16	
ATL2-38		3/8	27/32	29/32	7/16	2 1/16	2 3/32	3/16	
ATL1-516	#1 Str. AWG	5/16	27/32	7/8	7/16	2 1/32	2 3/32	3/16	GOLD
ATL1-38		3/8	27/32	29/32	7/16	2 3/8	3/4	3/16	
ATL10-516	1/0 Str. AWG	5/16	1 5/32	1	7/16	2 17/32	7/8	3/16	TAN
ATL10-38		3/8	1 5/32	11/16	7/16	2 19/32	7/8	3/16	
ATL10-12		1/2	1 5/32	1 3/8	11/16	2 15/16	15/16	3/16	
ATL20-38	2/0 Str. AWG	3/8	1 3/16	1	7/16	2 5/8	31/32	7/32	OLIVE
ATL20-12		1/2	1 3/16	1 3/8	11/16	3	1 1/32	7/32	
ATL30-38	3/0 Str. AWG	3/8	1 11/32	1 1/16	7/16	2 13/16	1 1/16	7/32	RUBY
ATL30-12		1/2	1 11/32	1 3/8	11/16	3 1/8	1 1/16	7/32	
ATL40-38	4/0 Str. AWG	3/8	1 7/8	1 3/32	3/8	3 3/4	1 3/16	1/4	WHITE
ATL40-12		1/2	1 7/8	1 1/4	1/2	3 7/8	1 3/16	1/4	
ATL250-12	250 kcmil	1/2	2 1/32	1 1/4	1/2	4 1/32	1 9/32	1/4	RED
ATL300-38	300 kcmil	3/8	2	1 5/16	3/8	4 3/16	1 3/8	9/32	BLUE
ATL300-12		1/2	2	1 5/16	1/2	4 3/16	1 3/8	9/32	
ATL350-12	350 kcmil	1/2	2 11/16	1 5/16	1/2	4 7/8	1 1/2	5/16	BROWN
ATL400-58	400 kcmil	5/8	2 11/16	1 1/4	1/2	4 15/16	1 5/8	3/8	GREEN
ATL500-12	500 kcmil	1/2	2 11/16	1 1/4	1/2	4 15/16	1 25/32	3/8	PINK
ATL500-58		5/8	2 11/16	2	3/4	5 11/16	1 25/32	3/8	
ATL600-12	600 kcmil	1/2	2 11/16	2	3/4	5 13/16	1 29/32	11/32	BLACK
ATL750-12	750 kcmil	1/2	2 7/8	1 1/4	1/2	5 1/4	2 1/8	3/8	N/A
ATL750-58		5/8	2 7/8	2	3/4	6 1/32	2 1/8	3/8	

Compression Connectors

Made of high-conductivity seamless aluminum tubing, tin plated for corrosion resistance.

Type ATL — Aluminum Two-Hole Lugs

- Specifically designed for use with aluminum or copper conductor (concentric, compressed or compact)
- Made of high-conductivity seamless aluminum tubing
- Tin plated for corrosion resistance
- Chamfered barrels for ease of installation
- Can be used for high-voltage application up to 35kV, provided high-voltage insulation techniques are used
- Color coded for quick, easy die identification
- Prefilled with oxide-inhibiting compound
- UL® Listed when installed with Blackburn®, Burndy®, T&B® or Anderson tools





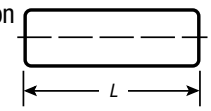
CAT. NO.	CONDUCTOR SIZE (CU)	STUD SIZE	DIMENSIONS (IN.) A	B	C	D	L	W	T	DIE COLOR CODE
ATL102-38	1/0 Str. AWG	3/8	1 5/32	2 1/16	3/8	1	3 19/32	7/8	3/16	TAN
ATL102	1/0 Str. AWG		1 3/16	3	1/2	1 3/4	4 9/16	15/16	3/16	
ATL202	2/0 Str. AWG		1 3/16	3 3/8	3/4	1 3/4	5	31/32	7/32	OLIVE
ATL302	3/0 Str. AWG		1 11/32	3 3/8	3/4	1 3/4	5 5/32	1 1/16	7/32	RUBY
ATL402	4/0 Str. AWG		1 7/8	3	1/2	1 3/4	5 5/8	1 3/16	1/4	WHITE
ATL2502	250 kcmil		2 1/32	3	1/2	1 3/4	5 25/32	1 9/32	1/4	RED
ATL3002	300 kcmil	1/2	2	3	1/2	1 3/4	5 7/8	1 3/8	9/32	BLUE
ATL3502	350 kcmil		2 11/16	3	1/2	1 3/4	6 9/16	1 1/2	5/16	BROWN
ATL4002	400 kcmil		2 11/16	3	1/2	1 3/4	6 11/16	1 5/8	3/8	GREEN
ATL5002	500 kcmil		2 11/16	3	1/2	1 3/4	6 11/16	1 25/32	3/8	PINK
ATL6002	600 kcmil		2 11/16	3	1/2	1 3/4	6 13/16	1 29/32	11/32	BLACK
ATL7502	750 kcmil		2 7/8	3	1/2	1 3/4	7 1/8	2 1/8	3/8	N/A

Chamfered barrels enable easier installation.

Type ASP – Aluminum Splices

- Specifically designed for use with aluminum-to-aluminum, aluminum-to-copper or copper-to-copper conductor (concentric, compressed or compact)
- Made of high-conductivity seamless aluminum tubing
- Tin plated for corrosion resistance
- Chamfered barrels for ease of installation
- Can be used for high-voltage application up to 35kV, provided high-voltage insulation techniques are used
- Color-coded for quick, easy die identification
- Prefilled with oxide-inhibiting compound
- UL® Listed when installed with Blackburn®, Burndy®, T&B® or Anderson tools





CAT. NO.	CONDUCTOR SIZE (AL OR CU)	LENGTH L (IN.)	DIE COLOR CODE
ASP8	#8 Str. AWG	1 1/4	BLUE
ASP6	#6 Str. AWG	1 5/8	GRAY
ASP4	#4 Str. AWG	1 7/8	GREEN
ASP2	#2 Str. AWG	1 7/8	PINK
ASP1	#1 Str. AWG	2 3/8	GOLD
ASP10	1/0 Str. AWG	2 3/8	TAN
ASP20	2/0 Str. AWG	2 1/2	OLIVE
ASP30	3/0 Str. AWG	2 7/8	RUBY
ASP40	4/0 Str. AWG	3 3/4	WHITE
ASP250	250 kcmil	4	RED
ASP300	300 kcmil	4	BLUE
ASP350	350 kcmil	3 7/8	BROWN
ASP400	400 kcmil	4 7/8	GREEN
ASP500	500 kcmil	5	PINK
ASP600	600 kcmil	5 1/8	BLACK
ASP750	750 kcmil	5 3/8	N/A
ASP1000	1,000 kcmil	6	

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Compression Connectors

Tool and Die Index for Short Barrel — Types CTL, CTL-2 and CSP

COPPER STRAND WIRE SIZE	DIE COLOR CODE	BLACKBURN® TOOLS						BURNDY® TOOLS				T&B® TOOLS						ANDERSON TOOLS			
		MECH. 0D58	CRIMPS PER END	MECH. NRG 2506	CRIMPS PER END	HYD. JB12B•	CRIMPS PER END	MECH. MY29-3	CRIMPS PER END	HYD. Y35, Y39, Y46	CRIMPS PER END	MECH. TBM5S	CRIMPS PER END	MECH. TBM8S	CRIMPS PER END	HYD. TBM15	CRIMPS PER END	CU WIRE RANGE	VC6† VC6FT (CRIMPS PER END)	VC7† VC7FT (CRIMPS PER END)	VC8C†† (CRIMPS PER END)
8	RED	7/32	3	**	1	B71CH	1	**	1			13454	2	13461	2	21	2				
6	BLUE	J ¼	3	**	1	B73CH	1	**	1	U5CRT	2	13454	2	13461	2	24	2				
4	GRAY	5/16	3	**	1	B74CH	1	**	1	U4CRT	2	13454	2	13461	2	29	2				
3	WHITE			**	2			**	2	U3CRT	2										
2	BROWN	3/8	4	**	2	B75CH	1	**	2	U2CRT	2	13454	2	13461	2	33	2	6–2	1*	2	
1	GREEN	P	4	**	2	B05CH	1	**	2	U1CRT	2	13455	3	13462	3	37	2	6–1	1	2	
1/0	PINK	½	4	**	2	B06CHI	2	**	2	U25RT	2	13455	3	13462	3	42H	3	6–1/0	1	2	
2/0	BLACK	17/32	4	**	2	B72CH	1	**	2	U26RT	2	13455	3	13462	3	45	2	4–2/0	1	2	
3/0	ORANGE	9/16	4	**	2	B08CH	1	**	2	U27RT	2	13455	4	13462	4	50	2	2–3/0	2	2	
4/0	PURPLE	5/8-1	4	**	2	B09CH	2	**	2	U28RT	2	13456	4	13463	4	54H	3	1–4/0	2	2	
250	YELLOW	11/16	4	**	2	B26CH	2	**	2	U29RT	2	13456	4	13463	4	62	2	1/0–250†	2	2	
300	WHITE					B10CHI B10CH	2			U30RT	2			13465	4	66	2	2/0–300†	2	2	
350	RED					B11CH	2			U31RT	2			13465	4	71H	3	3/0–350†	2	3	
400	BLUE					B11CH	2			U32RT	3			13467	4	76	2	4/0–400†	2	3	
500	BROWN					B12CHI B12CH	2			U34RT	3			13468	5	87H	3	4/0–500V	2	3	
600	GREEN					B36CH[1]	3			U36RT[3]	3					94H	3	250–600		3 VC7FT only	
750	BLACK					B39CH[1] 6039RT[2]	3 1			U39RT[3]	3					106H	3	500–750		4 VC7FT only	2
1000	—					6044RT[2]	1			P44RT[4]	4					125H	4	750–1000			2

Tool and Die Index for Long Barrel — Types CTL-L, LCN and CU

COPPER STRAND WIRE SIZE	DIE COLOR CODE	BLACKBURN® TOOLS						BURNDY® TOOLS				T&B® TOOLS						ANDERSON TOOLS			
		MECH. 0D58	CRIMPS PER END	MECH. NRG 2506	CRIMPS PER END	HYD. JB12B•	CRIMPS PER END	MECH. MY29-3	CRIMPS PER END	HYD. Y35, Y39, Y46	CRIMPS PER END	MECH. TBM5S	CRIMPS PER END	MECH. TBM8S	CRIMPS PER END	HYD. TBM15	CRIMPS PER END	CU WIRE RANGE	VC6† VC6FT (CRIMPS PER END)	VC7† VC7FT (CRIMPS PER END)	VC8C†† (CRIMPS PER END)
8	RED	7/32	4	**	2	B71CH	2	**	2			13454	2	13461	2	21	3				
6	BLUE	J ¼	4	**	2	B73CH	2	**	2	U5CRT	2	13454	2	13461	2	24	3				
4	GRAY	5/16	4	**	2	B74CH	2	**	2	U4CRT	2	13454	2	13461	2	29	3				
3	WHITE			**	3	**	2	U3CRT	2												
2	BROWN	3/8	5	**	3	B75CH	2	**	3	U2CRT	2	13454	2	13461	2	33	3	6–2	2	4	
1	GREEN	P	5	**	3	B05CH	2	**	3	U1CRT	2	13455	4	13462	3	37	3	6–1	2	5	
1/0	PINK	½	5	**	3	B06CHI	2	**	3	U25RT	2	13455	4	13462	4	42H	4	6–1/0	2	5	
2/0	BLACK	17/32	5	**	3	B72CH	2	**	3	U26RT	2	13455	4	13462	4	45	3	4–2/0	2	5	
3/0	ORANGE	9/16	5	**	4	B08CH	2	**	4	U27RT	3	13455	6	13462	6	50	3	2–3/0	3	6	
4/0	PURPLE	5/8-1	6	**	4	B09CH	3	**	4	U28RT	3	13456	6	13463	6	54H	5	1–4/0	3	6	
250	YELLOW	11/16	6	**	4	B26CH	3	**	4	U29RT	3	13456	6	13463	6	62	3	1/0–250	3	6	
300	WHITE					B10CHI B10CH	3			U30RT	3			13465	6	66	3	2/0–300	3	6	
350	RED					B11CH	3			U31RT	4			13465	6	71H	4	3/0–350	3	6	
400	BLUE					B11CH	3			U32RT	4			13467	6	76	3	4/0–400	3	6	
500	BROWN					B12CHI B12CH	4			U34RT	5			13468	8	87H	4	4/0–500	3	6	2†††
600	GREEN					B36CH[1]	6			U36RT[3]	5					94H	4	250–600		8 VC7FT only	3††††
750	BLACK					B39CH[1] 6039RT[2]	6 2			U39RT[3]	6					106H	6	500–750		9 VC7FT only	4
1000	—					6044RT[2]	2			P44RT[4]	6					125H	5	750–1000			2

** CSA Listed range 4–2 with VC6 and VC6FT*
*** Adjustable Indent Tool, no insert dies required*
• JB12A, JB12B, HCT1239, HCT7508-12, HCT7508H

[1] HCT7508-12, HCT1239, HCT7508H only
[2] JB60A, JB60B only
[3] Y39, Y46 only
[4] Y46 only

† Users of VC6 and VC7 tools must strip off an extra 1⅛" of insulation from end of cable to permit removal of tool over conductor sizes 250 kcmil and larger on CU connectors

†† Also use VC8 tool with aluminum nibs
††† VC8 tool crimps 500 kcmil only
†††† VC8 tool crimps 500-600 kcmil only

Compression Connectors

For flexible rope stranded or flexible stranded tinned copper locomotive conductor, welding cable and portable cord.

Tool and Die Index for Short Barrel — Types CTL, CTL-2 and CSP

CONDUCTOR TYPE						BLACKBURN® TOOLS		BURNDY® TOOLS				T&B® TOOLS		ANDERSON TOOLS			
LOCOMOTIVE				STRANDED CU AWG SIZE	DIE COLOR CODE	HYD. JB12B*	CRIMPS PER END	MECH. MY29-11	CRIMPS PER END	HYD. Y35 Y39 Y46	CRIMPS PER END	HYD. TBM15	CRIMPS PER END	CU WIRE RANGE FOR LOCOMOTIVE CABLE	VC6† VC6FT (CRIMPS PER END)	VC7† VC7FT (CRIMPS PER END)	VC8C†† (CRIMPS PER END)
SIZE	STRANDING	WELDING CABLE	PORTABLE CORD														
6	37/24	—	8	8	RED	B71CH	1	**	1	—	—	21	2				
6	61/24	6	6	6	BLUE	B73CH	1	**	1	U5CD-1 Y34PR[3]	1	24	2				
5	91/24			4	GRAY	B74CH	1	**	1	U4CD-1 Y34PR	1	29	2				
4	105/24	4	4	3	WHITE			**	2	U3CD-1 Y34PR	1						
3	125/24	3	3	2	BROWN	B75CH	1	**	2	U2CD-1 Y34PR	1	33	2	4–3	1	2	
2	150/24	2	2	1	GREEN	B05CH	1	**	2	U1CD-1 Y34PR	1	37	2	4–2	1	2	
1	225/24	1	1	1/0	PINK	B06CHI	2	**	2	U250-1 Y34PR	1	42H	3	4–1	1	2	
1/0	275/24	1/0	1/0	2/0	BLACK	B72CH	1	**	2	U26CD-1 Y34PR	1	45	2	4–1/0	1	2	
2/0	325/24	2/0	2/0	3/0	ORANGE	B08CH	1	**	2	U270-1 Y34PR	2	50	2	2–2/0	2	2	
—	—	3/0	3/0	4/0	PURPLE	B09CH	2	**	2	U280-1 Y34PR	2	54H	3				
3/0	450/24	4/0		250	YELLOW	B26CH	2	**	2	U290-1 Y34PR[3]	2	62	2	1/0–3/0†	2	2	
4/0	550/24		4/0	300	WHITE	B12CHI B12CH	2			U300-1 Y34PR[3]	2	66	2	2/0–4/0†	2		
263	650/24			300	RED	B11CH	2			U310-1 Y34PR[3]	2	71H	3	3/0–263†	2	3	
313	775/24			400	BLUE	B11CH	2			Y320-1 Y34PR[3]	2	76	2	4/0–313V	2	3	
373	925/24			500	BROWN	B10CHI B10CH	2			U340-1 Y34PRV		87H	3	4/0–373†	2	3	2†††
444	1100/24			600	GREEN	B36CH	3			C360 Y46PR[4]	2	94H	3	262–444		3 VC7FT Only	2†††
535	1325/24			750	BLACK	B39CH[1] 6039RT[2]	1			C390 Y46PR[4]	2	106H	3	373–535		4 VC7FT Only	2
646	1600/24																
777	1925/24			1000	—	6044RT[2]	1			C440 Y46PR[4]	2	125H	4	535–777			2

** JB12A, JB12B, HCT7508-12, HCT7508H, HCT1239*

*** Adjustable Indent Tool, no insert dies required*

[1] HCT7508-12, HCT7508H, HCT1239 only

[2] JB60A, JB60B only

[3] Y39 only

[4] Y48B only

† User of VC6 and VC7 tools must strip off an extra 1⅝" of insulation from end of cable to permit removal of tool over conductor sizes 250 kcmil and larger on CSP connectors

†† Also use VC8 tool with aluminum nibs

††† VC8 tool crimps 500 kcmil only

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Compression Connectors

For flexible rope stranded or flexible stranded tinned copper locomotive conductor welding cable and portable cord.

Tool and Die Index for Long Barrel — Types CTL-L, LNC and CU

CONDUCTOR TYPE						BLACKBURN® TOOLS		BURNDY® TOOLS				T&B® TOOLS		ANDERSON TOOLS			
LOCOMOTIVE				STRANDED CU AWG SIZE	DIE COLOR CODE	HYD. JB12B*	CRIMPS PER END	MECH. MY29-11	CRIMPS PER END	HYD. Y35 Y39 Y46	CRIMPS PER END	HYD. TBM15	CRIMPS PER END	CU WIRE RANGE FOR LOCOMOTIVE CABLE	VC6† VC6FT (CRIMPS PER END)	VC7† VC7FT (CRIMPS PER END)	VC8C†† (CRIMPS PER END)
SIZE	STRANDING	WELDING CABLE	PORTABLE CORD														
8	37/24	—	8	8	RED	B71CH	2	**	2	—	—	21	3				
6	61/24	6	6	6	BLUE	B73CH	2	**	2	U5CD-1 Y34PR[3]	2	24	3				
6	91/24			4	GRAY	B74CH	2	**	2	U4CD-1 Y34PR	2	29	3				
4	105/24	4	4	3	WHITE			**	3	U3CD-1 Y34PR	2						
3	125/24	3	3	2	BROWN	B75CH	2	**	3	U2CD-1 Y34PR	2	33	3	4–2	2	4	
2	150/24	2	2	1	GREEN	B05CH	2	**	3	U1CD-1 Y34PR	2	37	3	4–2	2	5	
1	225/24	1	1	1/0	PINK	B06CHI	3	**	3	U250-1 Y34PR	2	42H	4	4–1	2	5	
1/0	275/24	1/0	1/0	2/0	BLACK	B72CH	2	**	3	U26CD-1 Y34PR	2	45	3	4–1/0	2	5	
2/0	325/24	2/0	2/0	3/0	ORANGE	B08CH	2	**	4	U270-1 Y34PR	2	50	3	2–2/0	3	6	
—	—	3/0	3/0	4/0	PURPLE	B09CH	3	**	4	U280-1 Y34PR	3	54H	5				
3/0	450/24	4/0		250	YELLOW	B26CH	3	**	4	U290-1 Y34PR[3]	3	62	3	1/0–3/0†	3	6	
4/0	550/24		4/0	300	WHITE	B12CHI B12CH	3			U300-1 Y34PR[3]	3	66	3	2/0–4/0†	3	6	
263	650/24			350	RED	B11CH	3			U310-1 Y34PR[3]	3	71H	4	3/0–263†	3	6	
313	775/24			400	BLUE	B11CH	2			Y320-1 Y34PR[3]	3	76	3	4/0–313†	3	6	
373	925/24			500	BROWN	B2CHI B12CH	4			U340-1 Y34PR[3]		87H	3	4/0–373†	3	6	3†††
444	1100/24			600	GREEN	B36CH	6			C360 Y46PR[4]	2	94H	4	262–444		8 VC7FT Only	3†††
535	1325/24			750	BLACK	B39CH[1] 6039RT[2]	2			C390 Y48PR[4]	2	106H	6	373–535		9 VC7FT Only	4
646 777	1600/24 1925/24			1000	—	6044RT[2]	2			C440 Y46PR[4]	2	125H	5	535–777			4
1111	2750/24			1500	—	6030AH[2]	2			C460 Y46PR[4]	2	—	—	1111	—	—	4

** JB12A, JB12B, HCT7508-12, HCT7508H, HCT1239*

*** Adjustable Indent Tool. No insert dies required*

[1] HCT7508-12, HCT7508H, HCT1239 only

[2] JB60A, JB60B only

[3] Y39 only

[4] Y48B only

† User of VC6 and VC7 tools must strip off an extra 1⅝" of insulation from end of cable to permit removal of tool over conductor sizes 250 kcmil and larger on CSP connectors

†† Also use VC8 tool with aluminum nibs

††† VC8 tool crimps 500 kcmil only

Tool and Die Index for One- and Two-Hole Lugs, Splices — Types ATL and ASP

AL OR CU STRAND WIRE SIZE	DIE COLOR CODE	BLACKBURN® TOOLS						BURNDY® TOOLS				T&B® TOOLS						ANDERSON TOOLS		
		MECH. 0D58	CRIMPS PER END	MECH. NRG 2506	CRIMPS PER END	HYD. JB12B•	CRIMPS PER END	MECH. MY29-3	CRIMPS PER END	HYD. Y35, Y39	CRIMPS PER END	MECH. TBM5S	CRIMPS PER END	MECH. TBM8S	CRIMPS PER END	HYD. TBM15	CRIMPS PER END	AL OR CU WIRE RANGE	VC6† VC6FT (CRIMPS PER END)	VC8C
8	BLUE	¼	2	**	1	B73CH	1	**	1	U8CABT	1	13454	2	13461	2	24	2			
6	GRAY	5/16	2	**	1	B74CH	1	**	1	U6CABT	2	13454	2	13461	2	29	2			
4	GREEN	P	3	**	2	B05CH	1	**	2	U4CABT	2	13455	2	13462	2	37	2			
2	PINK	½	4	**	2	B06CHI	2	**	2	U2CABT	2	13455	3	13462	3	42H	3	6–2	2	
1	GOLD	½-1	3	**	2	B06CHI	2	**	2	U1CABT	2	13455	3	13464	3	45	2	4–1	2	
1/0	TAN	9/16	4	**	2	B06CH	2	**	2	U25ART	2	13457	3	13464	3	50	2	6–1/0	2	
2/0	OLIVE	5/8-1	4	**	2	B09CH	2	**	2	U26ART	2	13457	3	13464	3	54H	3	4–2/0	2	
3/0	RUBY	688	5	**	2	B26CH	2	**	2	U27ART	2	13457	3	13464	3	60	2	4–3/0	2	
4/0	WHITE	781	5	**	2	B10CHI	2	**	2	U28ART	2	13457	3	13465	4	66	3	2–4/0	2	
250	RED	781	5	**		B11CH	3	**	2	U29ART	2	13473	4	13466	5	71H	4	1/0–250†	2	
300	BLUE	840				B11CH	3			U30ART	2					76	2	1/0–300†		
350	BROWN					B12CHI	4			U31ART	2			13468	7	87H	4	2/0–350†	2	
400	GREEN					B36CH	6			U32ART	4					94	2	3/0–400†	2	
500	PINK					B76CH	4			U34ART	4					99H	4	4/0–500†	2	
600	BLACK					6039RT[1]	2			U36ART	4					106	2	350–600 AL 350–600 CU	3††	
750	—					6024AH[1]	1	U39RT2[2]	4	U39ART-2[3]	4					125H	5	500–750 AL 600 CU		2†††
1000						6030AH[1]	2	P44ART[2]	3							150H	5	750–1000 AL		2†††

• *JB12A, JB12B, HCT7508-12, HCT1239*

** *Adjustable Indent Tool, no insert dies required*

[1] *JB60A, JB60B only*

[2] *Y46 only*

[3] *Y39 only*

† *Users of VC6 and VC7 tools must strip off an extra 1⅝" of insulation from end of cable to permit removal of tool over conductor sizes 250 kcmil and larger on CU connectors*

†† *VC6FT tool only*

††† *With AL nibs for VC8C*

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Aluminum Lugs

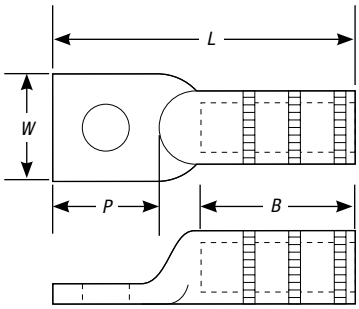
General-purpose lugs for aluminum and copper terminations.

Aluminum One-Hole NEMA Lugs

- Dual-rated for use with aluminum and copper conductors
- Made from aluminum for high strength and high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All lugs marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



AL 500-48



CAT. NO.	CONDUCTOR RANGE CONCENTRIC	COMPRESSED	COMPACT	ACSR	BOLT SIZE	INSTALLING DIES	B	L	P	W
AL 6-14	#6	—	—	—	¼	TP, 29, 161, 5⁄16	¾	2 5⁄32	⅞	9⁄16
AL 4-516	#4	—	—	—	5⁄16	TB, 37, 375, 162	15⁄16	2¼	31⁄32	⅝
AL 4-14		—	—	—	¼	TB, 37, 375, 162	15⁄16	2¼	31⁄32	⅝
AL 2-14	#2	—	—	—	¼	TQ, 45, 348, 163, ½, 6A	59⁄64	2⅜	1 1⁄32	¾
AL 2-38		—	—	—	⅜	TQ, 45, 348, 163, ½, 6A	59⁄64	2⅜	1 1⁄32	¾
AL 1-38	#1	—	—	—	⅜	TQ, 45, 348, 163, ½, 6A	59⁄64	2⅜	1 1⁄32	¾
AL 1/0-38	1/0	—	—	—	⅜	TU, 52, BG, 243, ⅝	1⅜	3⅛	1 5⁄16	⅞
AL 1/0-48		—	—	—	½	TU, 52, BG, 243, ⅝	1⅜	3⅛	1 5⁄16	⅞
AL 2/0-38	2/0	—	—	—	⅜	TW-TY, 58, 297, ⅝-1	1 5⁄16	3 3⁄16	1 7⁄32	15⁄16
AL 2/0-48		—	—	—	½	TW-TY, 58, 297, ⅝-1	1 5⁄16	3 3⁄16	1 7⁄32	15⁄16
AL 3/0-38	3/0	—	—	—	⅜	737, 467	1 9⁄16	3 7⁄16	1 5⁄16	1 1⁄16
AL 3/0-48		—	—	—	½	737, 467	1 9⁄16	3 7⁄16	1 5⁄16	1 1⁄16
AL 4/0-38	4/0	—	—	—	⅜	TX, 71H, 298, 840, 11A	1 7⁄16	3 9⁄16	1 11⁄32	1 3⁄16
AL 4/0-48		—	—	—	½	TX, 71H, 298, 840, 11A	1 7⁄16	3 9⁄16	1 11⁄32	1 3⁄16
AL 250-48	250, 4/0	—	—	4/0	½	TX, 76, 249, 840, 11A	1 9⁄16	3⅝	1 5⁄16	1 15⁄64
AL 300-48	300, 266.8	—	350	266.8 (18/1)	½	TH, 87H, 251, 470, 1, 12A	2 3⁄16	4	1 5⁄16	1⅜
AL 350-48	350, 336.4	—	400	266.8 (26/7), 336.4 (18/1)	½	96, 299, 655, 1⅛-1, 13A	2 3⁄16	4¼	1 5⁄16	1½
AL 400-48	400, 397.5	—	—	336.4 (26/7), 397.5 (18/1)	½	96, 299, 655, 1⅛-1, 13A	2½	4⅞	1¼	1⅝
AL 400-58		—	—	336.4 (26/7), 397.5 (18/1)	⅝	96, 299, 655, 1⅛-1, 13A	2½	4⅞	1¼	1⅝
AL 500-48	500, 477	—	600	379.5 (26/7), 477 (18/1)	½	106A, 300, 317, 1 5⁄16, 14A	3	5 7⁄16	1½	1¾
AL 500-58		—	600	379.5 (26/7), 477 (18/1)	⅝	106A, 300, 317, 1 5⁄16, 14A	3	5 7⁄16	1½	1¾
AL 600-48	600, 550	—	—	477 (26/7), 556.5 (18/1)	½	1 5⁄16, 115H, 786, 936, 473	3	5 21⁄32	1 9⁄16	1 15⁄16
AL 600-58		—	—	477 (26/7), 556.5 (18/1)	⅝	1 5⁄16, 115H, 786, 936, 473	3	5 21⁄32	1 9⁄16	1 15⁄16
AL 750-48	750, 700	—	—	636 (26/7)	½	140H, 301, 342, 1½	3⅜	6⅜	1⅞	1¾
AL 750-58		—	—	636 (26/7)	⅝	140H, 301, 342, 1½	3⅜	6⅜	1⅞	1¾
AL 800-48	800	—	—	—	½	1½, 474, 140H	3 9⁄16	6⅝	2 1⁄32	1¾
AL 800-58		—	—	—	⅝	1½, 474, 140H	3 9⁄16	6⅝	2 1⁄32	1 3⁄16
AL 1000-48	1000, 954	—	—	795 (26/7), 954 (45/7)	½	161, 292, 302, 319, 1¾	4⅝	7 15⁄16	1⅞	2 7⁄16
AL 1000-58		—	—	795 (26/7), 954 (45/7)	⅝	161, 292, 302, 319, 1¾	4⅝	7 15⁄16	1⅞	2 7⁄16

Note: *For tin plating, add "TN" suffix to the catalog number. All tin-plated lugs are UL Listed through 1000 kcmil.*
For straight lugs with tapered ends used in high-voltage applications, please consult your Thomas & Betts representative.

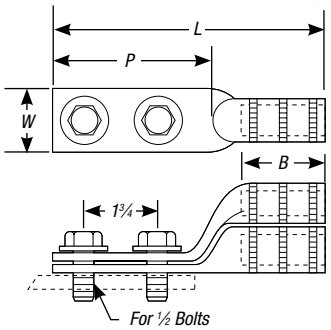
Aluminum Lugs

General-purpose lugs for aluminum and copper terminations.

Aluminum Two-Hole NEMA Lugs



- Dual-rated for use with aluminum and copper conductors
- Made from aluminum for high strength and high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All lugs marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



STRAIGHT LUG CAT. NO.	STACKING LUG CAT. NO.	CONDUCTOR RANGE				BOLT SIZE	INSTALLING DIES	B	L	P	W
		CONCENTRIC	COMPRESSED	COMPACT	ACSR						
SA 6 N	**ASL 6 N**	#6	#6	#6, #4	#6	4	TU, 52, BG, 243, ⅝, CSA 22	1 15/32	5¼	3 3/16	⅞
SA 4 N	**ASL 4 N**	#4	#4	—	#4	2	TU, 52, BG, 243, ⅝, CSA 22	1 15/32	5¼	3 3/16	⅞
SA 2 N	**ASL 2 N**	#2–#1	#1	#1	#2	1/0	TU, 52, BG, 243, ⅝, CSA 22	1½	5 3/16	3¼	1
AL 1/0 N	**ASL 1/0 N**	1/0	—	2/0	1/0	2/0	TU, 52, BG, 243, ⅝	1½	5¼	3 3/16	⅞
AL 2/0 N	**ASL 2/0 N**	2/0	—	—	—	—	TW-TY, 58, 297, ⅝-1	1½	5¼	3 3/16	1 5/16
AL 3/0 N	**ASL 3/0 N**	3/0	—	—	—	—	TV, 66, 167, 467, 10A	1 7/16	5½	3¼	1 1/16
AL 4/0 N	**ASL 4/0 N**	4/0	—	—	—	—	TX, 71H, 298, 840, 11A	1 15/16	6	3 11/32	1 15/64
AL 250 N	**ASL 250 N**	250, 4/0	—	250–300	4/0 (6/1)	—	TX, 76, 249, 840, 11A	1 15/16	6	3 11/32	1 15/64
AL 300 N	**ASL 300 N**	300, 266.8	—	350	266.8 (18/1)	—	TH, 87H, 251, 470, 1, 12A	2 3/16	6 9/16	3 3/16	1 11/32
AL 350 N	**ASL 350 N**	350, 336.4	—	—	266.8 (26/7), 336.4 (18/1)	—	96, 299, 655, 1⅛-1, 705, 13A	2 3/16	6 9/16	3 11/16	1¾
AL 336 NSC	**—**	397.5–400	—	—	336.4 (26/7), 397.5 (18/1)	—	11/4, 99H, 317, 20AH	4 3/16	9	3 11/16	1 21/32
AL 400 N	**ASL 400 N**	400, 397.5	—	—	336.4 (26/7), 397.5 (18/1)	—	96, 472, 655, 1⅛-1, 1⅛-2, 705, 316 13A	2 7/16	7 5/16	3 3/16	1¾
AL 500 N	**ASL 500 N**	500, 477	—	500–600	397.5 (26/7), 477 (18/1)	—	106A, 300, 317, 1 5/16, 14A, 15A	2 15/16	8¼	3 3/16	1¾
AL 500 N 608	**—**	500, 477	—	600	397.5 (26/7), 477 (18/1)	—	608	3⅓	8¼	3 3/16	1¾
AL 600 N	**ASL 600 N**	600, 550	—	—	477 (26/7), 556.5 (18/1)	—	1 5/16, 115H, 786, 936, 473	2 15/16	7¾	3⅝	1¾*
AL 700 N 608	**—**	700, 600	—	700–795	—	—	125H, 608	3 1/16	7⅞	3½	1¾
AL 750 N	**ASL 750 N**	750, 700	—	—	636 (26/7)	—	140H, 301, 342, 1½	3 5/16	8¼	3¾	1¾*
AL 750 N 608	**ASL 750 N 608**	750, 700	—	—	636 (26/7)	—	125H, 608	3⅜	8¼	3⅝	1¾
AL 800 N	**ASL 800 N**	800, 795	—	—	663 (30/19), 715.5 (54/7)	—	140H, 474, 342, 724, 1½	3 11/32	8 5/16	3⅝	1¾*
AL 800 N 608	**—**	800, 700	—	—	636 (30/19), 715.5 (54/7)	—	608	3⅓	8¼	3⅝	1¾
AL 1000 N	**ASL 1000 N**	1000, 954	—	—	795 (26/7, 30/19), 954 (45/7)	—	161, 292, 302, 319, 1¾	4 1/16	8 9/16	3⅝	2 7/16
AL 1000 SSN	**ASL 1000 SSN**	1000	—	—	—	—	161, 292, 302, 319, 1¾	4 1/16	9⅞	1⅞	2 7/16
AL 1000 NMSNP	**—**	1000	—	—	—	—	161, 292, 302, 319, 1¾	4 1/16	9½	3⅝	1¾
AL 954 NMSNP	**—**	—	—	—	954 (54/7)	—	161, 292, 302, 319, 1¾	4 1/16	9⅜	3⅝	1¾
AL 1250 N	**ASL 1250 N**	1200–1300	—	—	1113 (45/7), 1192.5 (45/7)	—	161, 727, 352	4 1/16	9 11/16	3⅝	2 21/32
AL 1750 N	**ASL 1750 N**	1750	—	—	—	—	214, 735, 225	5½	10⅞	3⅞	3 13/32
AL 2000 N	**ASL 2000 N**	2000	—	—	—	—	479	6 1/16	11 15/16	3⅞	3 13/32

** Trimmed to 1¾" maximum to fit side by side on NEMA spades.*

Note: *For tin plating, add "TN" suffix to the catalog number. All tin-plated lugs are UL Listed through 2000 kcmil. For straight lugs with tapered ends used in high-voltage applications, please consult your Thomas & Betts representative.*

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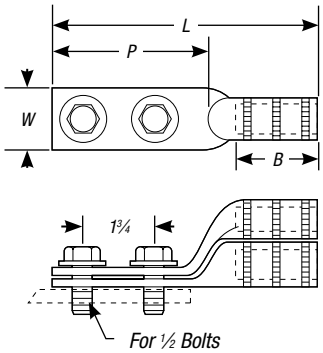
Aluminum Lugs

General-purpose lugs for aluminum and copper terminations.

Aluminum Tin-Plated Two-Hole NEMA Lugs



- Dual-rated for use with aluminum and copper conductors
- Aluminum provides high strength and high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All lugs marked with conductor sizes and die references for easy identification
- All lugs meet or exceed ANSI C119.4 specifications



STRAIGHT LUG CAT. NO.	STACKING LUG CAT. NO.	CONDUCTOR RANGE					INSTALLING DIES	B	L	P	W
		CONCENTRIC	COMPRESSED	COMPACT	ACSR	SOLID					
SA 6 NTN	**ASL 6 NTN**	#6	#6	#6, #4	#6	#4	TU, 52, BG, 243, ⅝, CSA 22	1 15/32	5¼	3 3/16	⅞
SA 4 NTN	**ASL 4 NTN**	#4	#4	—	#4	#2	TU, 52, BG, 243, ⅝, CSA 22	1 15/32	5¼	3 3/16	⅞
SA 2 NTN	**SAL 2 NTN**	#2–#1	#1	#1	#2	1/0	TU, 52, BG, 243, ⅝, CSA 22	1½	5 5/16	3¼	1
AL 1/0 NTN *	**ASL 1/0 NTN***	1/0	—	2/0	1/0	2/0	TU, 52, BG, 243, ⅝	1½	5¼	3 3/16	⅞
AL 2/0 NTN*	**ASL 2/0 NTN***	2/0	—	—	—	—	TW-TY, 58, 297, ⅝-1	1½	5¼	3 3/16	1 5/16
AL 3/0 NTN*	**ASL 3/0 NTN***	3/0	—	—	—	—	TV, 66, 167, 467, 10A	1 7/16	5½	3¼	1 1/16
AL 4/0 NTN*	**ASL 4/0 NTN***	4/0	—	—	—	—	TX, 71H, 298, 840, 11A	1 15/16	6	3 11/32	1 15/64
AL 250 NTN*	**ASL 250 NTN***	250, 4/0	—	250–300	4/0 (6/1)	—	TX, 76, 249, 840, 11A	1 15/16	6	3 11/32	1 15/64
AL 300 NTN*	**ASL 300 NTN***	300, 266.8	—	350	266.8 (18/1)	—	TH, 87H, 251, 470, 1, 12A	2 3/16	6 9/16	3 9/16	1 11/32
AL 350 NTN*	**ASL 350 NTN***	350, 336.4	—	—	266.8 (26/7), 336.4 (18/1)	—	96, 299, 655, 1⅛-1, 705, 13A	2 3/16	6 9/16	3 11/16	1¾
AL 336 NSCTN	**—**	397.5–400	—	—	336.4 (26/7), 397.5 (18/1)	—	1¼, 99H, 317, 20AH	4 3/16	9	3 11/16	1 21/32
AL 400 NTN*	**ASL 400 NTN***	400, 397.5	—	—	336.4 (26/7), 397.5 (18/1)	—	96, 472, 655, 1⅛-1, 1⅛-2, 705, 316, 13A	2 7/16	7 5/16	3 9/16	1¾
AL 500 NTN*	**ASL 500 NTN***	500, 477	—	500–600	397.5 (26/7), 477 (18/1)	—	106A, 300, 317, 1 5/16, 14A, 15A	2 15/16	8¼	3 9/16	1¾
AL 500 N 608 TN	**—**	500, 477	—	600	397.5 (26/7), 477 (18/1)	—	608	3⅓	8¼	3 9/16	1¾
AL 600 NTN*	**ASL 600 NTN***	600, 550	—	—	477 (26/7), 556.5 (18/1)	—	1 5/16, 115H, 786, 936, 473	2 15/16	7¾	3⅝	1¾
AL 700 N 608 TN	**—**	700, 600	—	700–795	—	—	125H, 608	3 1/16	7⅞	3½	1¾
AL 750 NTN*	**ASL 750 NTN***	750, 700	—	—	636 (26/7)	—	140H, 301, 342, 1½	3 15/16	8¼	3¾	1¾
AL 750 N 608*	**ASL 750 N 608***	750, 700	—	—	636 (26/7)	—	125H, 608	3⅜	8¼	3⅝	1¾
AL 800 NTN*	**ASL 800 NTN***	800, 795	—	—	663 (30/19), 715.5 (54/7)	—	140H, 474, 342, 724, 1½	3 11/32	8 5/16	3⅝	1¾
AL 800 N 608 TN	**—**	800, 700	—	—	636 (30/19), 715.5 (54/7)	—	608	3⅓	8¼	3⅝	1¾
AL 954 NMS	**—**	—	—	—	954 (54/7)	—	161, 292, 302, 319, 1¾	4 1/16	9⅜	3⅝	1¾
AL 1000 NTN*	**ASL 1000 NTN***	1000, 954	—	—	795 (26/7, 30/19), 954 (45/7)	—	161, 292, 302, 319, 1¾	4 9/16	8 9/16	3⅝	2 1/16
AL 1000 SSNTN	**ASL 1000 SSNTN**	1000	—	—	—	—	161, 292, 302, 319, 1¾	4 9/16	9⅞	1⅞	2 1/16
AL 1000 NMS	**—**	1000	—	—	—	—	161, 292, 302, 319, 1¾	4 1/16	9½	3⅝	1¾
AL 1250 NTN	**ASL 1250 NTN**	1200–1300	—	—	1113 (45/7), 1192.5 (45/7)	—	161, 727, 352	4 1/16	9 1/16	3⅝	2 21/32
AL 1750 NTN	**ASL 1750 NTN**	1750	—	—	—	—	214, 735, 225	5½	10⅞	3⅞	3 13/32
AL 2000 NTN	**ASL 2000 NTN**	2000	—	—	—	—	479	6 1/16	11 5/16	3⅞	3 13/32

** UL Listed.*

Note: *For two-hole lugs without tin plating, see* ***previous page****.*
For straight lugs with tapered ends used in high-voltage applications, please consult your Thomas & Betts representative.

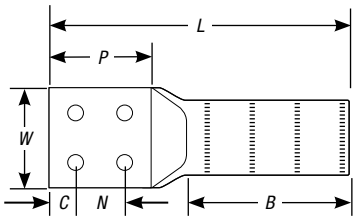
Aluminum Lugs

General-purpose lugs for aluminum and copper terminations.

Aluminum Four-Hole NEMA Lugs



- Dual-rated for use with aluminum and copper conductors
- Made from aluminum for high strength and high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All lugs marked with conductor sizes and die references for easy identification



CAT. NO.	CONCENTRIC	ACSR	INSTALLING DIES	B	N	C	W	P	L
AL 1000-4N	1000	—	161, 302, 292, 319, 1¾	4⁹⁄₁₆	1¾	⅝	3	4	10
AL 14136 X	1033.5–1300	900–1113	161, 727, 352	7¹¹⁄₁₆			3	4¼	13¾
AL 1033-4N	—	1033.5 (54/7)	34AH	6⅜			3⅜	3¹¹⁄₁₆	12¾
AL 1250-4N	1250	—	161, 727, 352	4⅝			3	3⁹⁄₁₆	10
AL 1272-4N	1272	—	161, 727, 352, 579	6⁷⁄₁₆			3	3⅝	11¼
AL 1590-4N	1590	1272 (45/7)	728, 38AH, 189	8⁷⁄₁₆			3	3⅝	13½
AL 1750-4N	1750	—	214, 735, 40AH, 225	6¹¹⁄₁₆		⅞	3½	3¾	12⅛
AL 2000-4N	1700–2000	1510.5–1590	214, 735, 40AH, 225	6¹¹⁄₁₆			3½	3¾	12⅛
AL 2300-4N	2250–2300	2167 (72/7)	44AH	11¾		1⅛	4	4½	18½
AL 2500-4N	2500	2156–2167	214	9⅛			3½	4	15⅜

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

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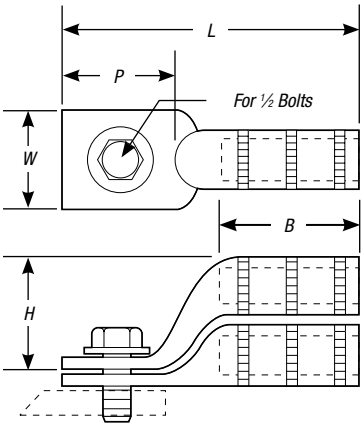
Aluminum Lugs

Designed for general applications and for installation on Homac® 125 Series insulated buses.



Aluminum One-Hole NEMA Lugs — Common Die Series

- Entire conductor range installed by four dies to reduce your die inventory
- Stacking lugs double terminal capacity of transformer spades and buses to save money
- Dual-rated for use with aluminum and copper conductors
- Made from aluminum for high strength and high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All lugs marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



STRAIGHT LUG CAT. NO.	STACKING LUGS CAT. NO.	CONDUCTORS — AL OR CU					INSTALLING DIES	B	H	L	P	W
		CONCENTRIC	COMPRESSED	COMPACT	SOLID	ACSR						
SA 12-48	—	#12	—	—	#12	—	TU, 52, BG, 243, ⅝, CSA 22	23/32	—	2 9/16	1¼	⅞
SA 10-48	—	#12	—	—	#12	—						
SA 8-48	—	#8	—	—	#6	—		1 5/16		3⅛	1 5/16	
SA 6-48	—	#6	#6	#4	#4	#6						
SA 4-48	—	#4	#4	#4	#2	#4						
SA 3-48	—	#2	#2	#1, #2	#1	—						
SA 2-48	SASL 2-48	#1, #2	#1	#1	1/0	#2			1½			
SA 386-48	—	#1	1/0	1/0	—	—			—			
SA 1/0-48	SASL 1/0-48	1/0	1/0	2/0	—	1/0			1½			
SA 2/0-48	SASL 2/0-48	2/0	2/0	3/0	3/0	2/0 (6/1)	TX, 76, 249, 840, 845, 11A, CSA 24	1 25/64	1¾	3 21/64	1 11/32	1 5/32
SA 3/0-48	SASL 3/0-48	3/0	4/0	4/0	—	3/0						
SA 4/0-48	SASL 4/0-48	4/0, 250	4/0, 250	250, 300	—	4/0			1 3/16			
SA 300-48	—	300	300	350	—	266.8 (18/1)	96, 299, 655, 321, 316, 13A, 1⅛-1, 472, CSA 28	1 19/32	—	3⅝		1¼
SA 350-48	—	336.4–350	350	400	—	266.8 (26/7), 336.4 (18/1)						
SA 400-48	—	336.4–400	400	500	—	336.4 (18/1), 397.5 (18/1)						

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*
To order a stud size not specified with a terminal lug on this page, change the last two digits from "48" (designating a ½" stud) to "38" (for a ⅜" stud).

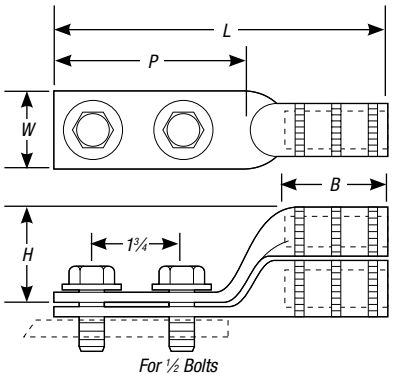
Aluminum Lugs

Designed for general applications and for installation on Homac® 125-N Series insulated buses.

Aluminum Two-Hole NEMA Lugs — Common Die Series



- Entire conductor range installed by four dies to reduce your die inventory
- Stacking lugs double terminal capacity of transformer spades and buses to save money
- Dual-rated for use with aluminum and copper conductors
- Made from aluminum for high strength and high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All lugs marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



For ½ Bolts

STRAIGHT LUG CAT. NO.	STACKING LUGS CAT. NO.	CONDUCTORS — AL OR CU					INSTALLING DIES	B	H	L	P	W
		CONCENTRIC	COMPRESSED	COMPACT	SOLID	ACSR						
SA 8 N	—	#8	—	—	#6	—	TU, 52, BG, 243, 5, CSA 22	1 5/16	—	5⅛	3 3/16	⅞
SA 6 N	**SASL 6 N**	#6	#6	#4	#4	#6		1 5/16	1½	5⅛	3 3/16	⅞
SA 4 N	—	#4	#4	#4	#2	#4		1 5/16	—	5⅛	3 3/16	⅞
SA 3 N	—	#2	#2	#1, #2	#1	—		1 5/16	—	5⅛	3 3/16	⅞
SA 2 N	—	#1, #2	#1	#1	1/0	#2		1½	—	5 5/16	3⅛	1
SA 386 N	—	#1, 1/0	#1, 1/0	1/0	—	#1		1 27/32	—	5½	3	⅞
AL 1/0 N	**ASL 1/0 N**	1/0	1/0	2/0	2/0	1/0		1½	1½	5¼	3 3/16	⅞
SA 2/0 N	**SASL 2/0 N**	2/0	2/0	3/0	3/0	2/0 (6/1)	TX, 76, 249, 840, 845, 11A, CSA 24	1 5/16	1¾	6	3⅜	1¼
SA 3/0 N	**SASL 3/0 N**	3/0	4/0	4/0	—	3/0		1 5/16	1¾	6	3 5/16	1 5/32
SA 4/0 N	**SASL 4/0 N**	4/0, 250	4/0, 250	250, 300	—	4/0		1 5/16	1 3/16	6	3 5/16	1 7/32
SA 300 N	—	300	300	350	—	266.8 (18/1)	96, 299, 655, 705, 321, 316, 13A, 1⅛-1, 472, CSA 28	2 1/16	—	6¼	3	1¼
SA 350 N	—	336.4–350	350	400	—	266.8 (26/7), 336.4 (18/1)		2 3/16	—	6¼	3	1¼
SA 400 N	—	336.4–400	400	500	—	336.4 (18/1), 397.5 (18/1)		2 7/16	—	6⅜	3	1¼

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

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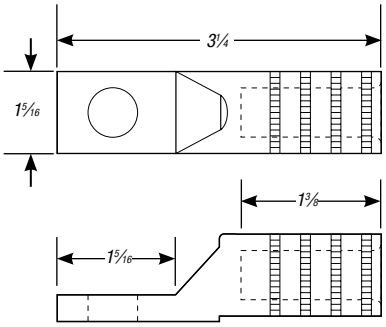
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Aluminum Lugs

Just one die installs the entire conductor range for meter pan and general applications.





Aluminum Meter Socket Lugs — 840 Common Die Series

- All installation done with one die to reduce your die inventory
- Made from aluminum for high strength and high conductivity
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor to prevent oxidation
- All lugs marked with conductor sizes and die references for easy identification
- Lugs meet or exceed ANSI C119.4 specifications

½ BOLT CAT. NO.	⅜ BOLT CAT. NO.	CONDUCTORS — AL OR CU				INSTALLING DIES
		CONCENTRIC	COMPRESSED	COMPACT	SOLID	
SAKM 6-48	SAKM 6-38	#6	#6	#6	—	840, 845, TX,76,249,11A
SAKM 4-48	SAKM 4-38	#4	#4	#4	—	
SAKM 2-48	SAKM 2-38	#2	#2	#2 & #1	#1	
SAKM1-48	SAKM 1-38	#1	#1	1/0	1/0	
SAKM 1/0-48	SAKM 1/0-38	1/0	1/0	2/0	2/0	
SAKM 2/0-48	SAKM 2/0-38	2/0	2/0	3/0	3/0	
SAKM 3/0-48	SAKM 3/0-38	3/0	3/0	4/0	—	
SAKM 4/0-48	SAKM 4/0-38	4/0	4/0	250	—	
SAKM 250-48*	SAKM 250-38*	250	250	300	—	
SAKM 300-48*	SAKM 300-38*	300	300	350	—	
SAKM 350-48*	SAKM 350-38*	350	350	—	—	

** For aluminum conductors only.*

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

Aluminum Lugs

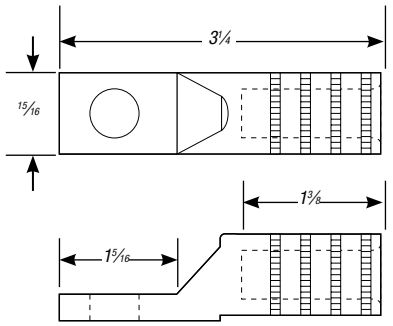
Dual-rated, corrosion-resistant lugs available with star holes.

Aluminum Tin-Plated Meter Socket Lugs — Star Hole

- Made from aluminum for high strength and high conductivity
- Dual-rated for use with aluminum and copper conductors
- Tin plated to resist corrosion
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture



MSL 350



CAT. NO.	CONDUCTOR SIZE	INSTALLING DIES	W	L	P	B
MSL 4	#4 str. cpt.	840, 845, TX, 76, 249, 11A	15⁄16	3¼	1 5⁄16	1⅜
MSL 2	#2 str. cpt. sol.					
MSL 1/0	1/0 str. cpt.					
MSL 2/0	2/0 str. cpt.					
MSL 3/0	3/0 str. cpt.					
MSL 4/0	4/0 str. cpt.					
MSL 250	250 str. cpt.					
MSL 300	300 str. cpt.					
MSL 350	350 str. cpt.					
MSL 500	500 str.	106A, 300, 317, 1 5⁄16, 15A	1¾	4⅞	1¾	3 3⁄16

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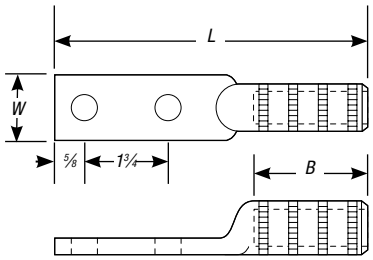
Lugs designed for general-purpose substation and switchyard equipment use.

Aluminum Two-Hole NEMA Lugs — Common Die Series



SAB 500-N

- Entire conductor range installed by three common dies to reduce your die inventory
- Dual-rated for use with aluminum and copper conductors
- Made from aluminum for high strength and high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All lugs marked with conductor sizes and die references for easy identification



CAT. NO.	CONCENTRIC	COMPRESSED	COMPACT	ACSR	INSTALLING DIES	L	W	B
SAK 4 N	#4	—	—	—	TX, 76, 249, 840, 11A	5¾	1¼	2
SAK 2 N	#1, #2	—	—	#2		5¾	1¼	2
SAK 1/0 N	1/0	2/0	2/0	1/0		5¾	1¼	2
SAK 300 N	—	—	350	—		6¼	1¼	2 1/16
SAK 350 N	350	—	—	—		6¼	1¼	2 1/16
SAB 3/0 N	3/0	—	—	3/0	96, 299, 655, 1⅛–1, 13A	6⅜	1½	2¼
SAB 4/0 N	4/0, 250	—	—	4/0		6⅜	1½	2¼
SAB 250 N	266.8–300	—	—	266.8 (18/1)		6⅜	1½	2¼
SAB 500 N	477–500	—	600	397.5 (26/7, 30/7), 477 (18/1)		6⅜	1¼	2¼
SAM 400 N	397.5–400	—	500	336.4 (30/7), 397.5 (18/1)	106, 300, 317, 1 5/16, 14A, 15A	8 29/64	1¾	3 13/16
SAM 556 N	500–556	—	—	477 (26/7), 556.5 (18/1)		8⅜	1¾	3 27/32
SAM 600 N	600	—	—	—		8⅜	1¾	3 27/32

Aluminum Lugs

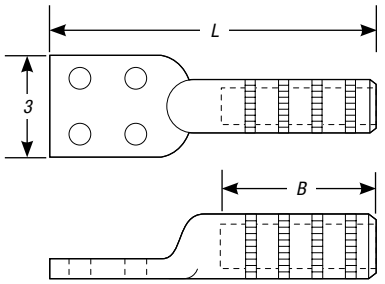
Durable four-hole lugs for general-purpose substation and switchyard equipment use.

Aluminum Four-Hole NEMA Lugs — Common Die Series

- Entire conductor range installed by three common dies to reduce your die inventory
- Dual-rated for use with aluminum and copper conductors
- Made from aluminum for high strength and high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All lugs marked with conductor sizes and die references for easy identification



SAM 500-4N



CAT. NO.	CONCENTRIC	COMPACT	ACSR	L	B	INSTALLING DIES
SAM 3/0-4N*	3/0	—	—	8⅛	3⁵⁄₁₆	1⁵⁄₁₆, 300, 14A, 106, 317
SAM 4/0-4N*	4/0	—	4/0	8⅛	3⁵⁄₁₆	
SAM 250-4N*	250	—	—	8⅛	3⁵⁄₁₆	
SAM 300-4N*	300	—	—	7⅝	3²¹⁄₆₄	
SAM 350-4N*	336.4–350	—	266.8 (26/7), 336.4 (18/1)	7⅝	3²¹⁄₆₄	
SAM 400-4N*	397.5–400	—	336.4 (30/7), 397.5 (18/1)	7⅝	3²¹⁄₆₄	
SAM 500-4N*	500	—	—	8¼	3⁵⁄₁₆	
SAM 600-4N*	556.5–600	—	—	8¼	3⁵⁄₁₆	
SAL 500-4N*	500	—	477 (18/1)	8¼	3⅜	140H, 301, 342, 1½
SAL 600-4N	600	—	477 (24/7, 30/7)	7⅝	3⅝	
SAL 650-4N	600, 636, 650	—	556.5 (24/7, 26/7)	7⅝	3⅝	
SAL 750-4N	700–750	—	636 (26/7)	9	4⁷⁄₃₂	
SAL 800-4N	700–800	954	636 (26/7)	8¾	4³⁄₃₂	
SAL 1000-4N	1000	1000	795 (30/19), 874 (54/7)	8¾	4⁵⁄₃₂	
SAL 1033-4N	1033	—	900 (54/7), 954 (45/7)	9	4⁵⁄₃₂	

** Designates two-piece welded design.*

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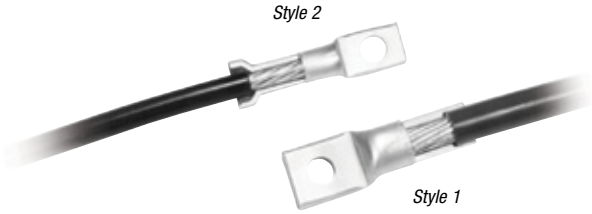
Aluminum Lugs

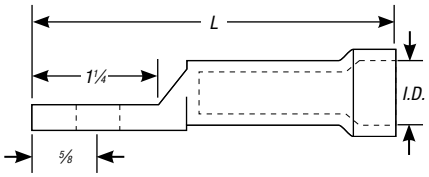
If you need rain protection, these lugs have you covered.

Aluminum Shrouded One-Hole Lugs — Common Die Series

- Rainshield protection for insulated cables prevents rainwater from entering cable
- Entire conductor range installed with three common dies to reduce your die inventory
- Made from aluminum for high strength and high conductivity
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor to prevent oxidation
- Marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications







CAT. NO.	CONDUCTOR SIZES CONCENTRIC	CONDUCTOR SIZES COMPACT	SHROUD I.D.	COMPRESSION DIE SIZE	L	STYLE
⅝ Compression Die Series						
RSG 6-48	#6	—	.400	⅝, 8A, 243, TU, 52, BG	3⅜	2
RSG 4-48	#4	#4	.450			
RSG 2-48	#2 & #1	#1	.635		3⅜	1
RSG 1/0-48	1/0	2/0	.640			
840 Compression Die Series						
RSK 1/0-48	1/0	2/0	.640	840, 11A, 249, 76, TX	3¾	2
RSK 2/0-48	2/0	3/0	.750			
RSK 3/0-48	3/0	4/0	.750			
RSK 4/0-48	4/0	4/0	.750			
RSK 250-48	4/0–250	350	.812			
RSK 350-48	350	—	.927		4⁷⁄₁₆	1
1⅛ Compression Die Series						
RSB 300-48	300	300	.927	1⅛-1, 12A, 96, 299, 655	4½	2
RSB 350-48	350	300	.927			

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*
To order a terminal lug for a ⅜" stud, change a catalog number's "-48" suffix (designating a ½" stud) to a "-38" suffix.
To order with hardware as kits, add "-TMH" suffix to the catalog number.

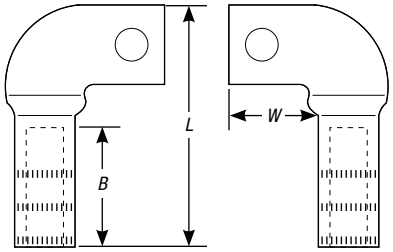
Aluminum Lugs

For application in meter pans and in other metal-enclosed gear to enable easier wiring where clearances are minimal.



Aluminum Tin-Plated One-Hole Lugs

- Made from aluminum for high strength and high conductivity
- Tin plated for resistance against corrosion
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor to prevent oxidation
- All lugs marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



LEFT-HAND LUG CAT. NO.	RIGHT-HAND LUG CAT. NO.	CONDUCTOR SIZE			INSTALLING DIES	B	L	W
		CONCENTRIC	COMPRESSED	COMPACT				
AL 1/0-48 LTN	**AL 1/0-48 RTN**	1/0	1/0	2/0	⅝, BG, TU	1⅜	2 11⁄16	1⅜
AL 2/0-48 LTN	**AL 2/0-48 RTN**	2/0	2/0	—	1⅝, 297, TW-TY	1⅜	2 11⁄16	1⅜
AL 3/0-48 LTN	**AL 3/0-48 RTN**	3/0	3/0	—	737, 467	1⅜	3¾	1⅜
AL 4/0-48 LTN	**AL 4/0-48 RTN**	4/0	4/0	—	840, 298, TX	1½	4	1¾
AL 250-48 LTN	**AL 250-48 RTN**	250	250	300	840, 324, TX	1⅝	4⅛	1¾
AL 300-48 LTN	**AL 300-48 RTN**	300	300	350	1, 470, TH	1⅝	4⅜	1½
AL 350-48 LTN	**AL 350-48 RTN**	350	350	350	1⅛-1, 299, 96	1⅝	4⅜	1½
AL 400-48 LTN	**AL 400-48 RTN**	400	400	400	1⅛, 472, 96	2½	5¾	1½
AL 500-48 LTN	**AL 500-48 RTN**	500	500	500	1 5⁄16, 300, 106A	2½	5¾	1½
AL 750-48 LTN	**AL 750-48 RTN**	700–750	800	800	1½, 301, 140H	3¼	6⅜	3½

Note: *For NEMA-drilled lugs, substitute a "-NLTN" suffix for a "-48 xTN" suffix to the catalog number. Thus AL 350-48 RTN becomes AL 350-NLTN. NEMA drilling is 2 9⁄16" holes on 1¾" centers.*

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Aluminum Lugs

Save yourself a die job with these multi-range lugs.

Aluminum Multi-Range Die-Less Lugs

- Made from aluminum for high strength and high conductivity
- Tin plated for resistance against corrosion
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor to prevent oxidation
- All lugs marked with conductor sizes for easy identification



AL 4/0 NTN

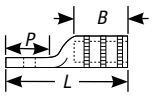


Fig. 1

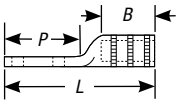


Fig. 2

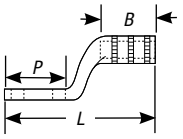


Fig. 3

CAT. NO.	CONDUCTOR RANGE ALUM. OR COPPER	TOOL	FIGURE	BOLT SIZE	B	L	P
AL 1/0-48 TN	#6 str.–1/0 str.	VC 5/VC 6	1	½	1⅜	3 3/16	1 5/16
AL 1/0 NTN	#6 str.–1/0 str.		2		1⅜	5¼	3¼
ASL 1/0 NTN	#6 str.–1/0 str.		3		1⅜	5¼	3
AL 4/0-48 TN	#2 str.–4/0 str.		1		1 7/16	3 3/16	1⅜
AL 4/0 NTN	#2 str.–4/0 str.		2		2	6	3 5/16
ASL 4/0 NTN	#2 str.–4/0 str.		3		2	6	3
AL 300-48 TN	1/0 str.–300	VC 6	1		2¼	4	1 5/16
AL 300 NTN	1/0 str.– 300		2		2¼	6 3/16	3 3/16
AASL 300 NTN	1/0 str.–300		3		2¼	6 3/16	3
SAB 500-48 TN	4/0 str.–500		1		2½	4 9/16	1½
SAB 500 NTN	4/0 str.–500		2		2¼	6⅜	3⅛
AASL 500 NTN	4/0 str.–500		3		2½	6⅞	2⅞
AL 750 N 608 TN	4/0 str.–750	VC 8	2		3¾	8¼	3⅜

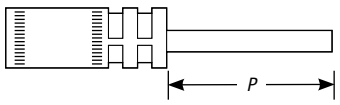
Note: *To order a stud size not specified here with a terminal lug, substitute a "-58" suffix (designating a ⅝" stud) for a "-48" suffix (designating a ½" stud) to the catalog number.*

The pins you need for hassle-free terminations.

Aluminum Pin Terminals

- Made from pure electrolytic aluminum and soft-drawn, tinned, solid copper wire for the high strength and conductivity of aluminum and the flexibility of copper
- Offer bi-metallic transitions from all aluminum, ACSR and aluminum-alloy conductors to copper clamp-type equipment bushings to eliminate compatibility problems with connections





CAT. NO.	CONDUCTOR SIZE	DECIMAL RANGE MIN. O.D.	DECIMAL RANGE MAX. O.D.	TOOL	CU PIN	P
PTA 1/0	#10 sol.–1/0 ACSR	.102	.398	VC 5/6	#2	6
PTA 4/0	#4 sol.–4/0 ACSR	.204	.563	VC 5/6	2/0	
PTA 350	2/0 str.–336.4 (18/1) ACSR	.414	.684	VC 6	4/0	

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*
For other pin lengths, please contact your Thomas & Betts representative.

Aluminum Lugs

Compress these lugs with standard tools and dies.

Slotted-Tang Compression Terminal Lugs

- Dual-rated for use with a wide range of aluminum and copper conductors
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- Small boss on both sides of lug tang fits the indent on the bus, preventing the lug from rotating
- Slot enables lug to be bolted to the bus, so the bus doesn't have to be removed
- RUS Accepted



Fig. 1 *Fig. 2* *Fig. 3* *Fig. 4*

CAT. NO.	COLOR CODE	CONDUCTOR SIZE			FIG. NO.	INSTALLATION DIES	
		CONCENTRIC	COMPRESSED COMPACT	SOL.		MECH. TOOLS	HYDR. TOOLS
LAC6	Blue	#6 str.	#6	#5 sol.	1	BY37, 840	B49EA, U-K840
LAC4	Orange	#4 str.	#4	#3 sol.			
LAC3	Purple	#3 str.	—	#2 sol.			
LAC2	Red	#2 str.	#2	#1 sol.			
LAC1	White	#1 str.	#1	1/0 sol.			
LAC10	Yellow	1/0 str.	1/0	2/0 sol.			
LAC20	Gray	2/0 str.	2/0	3/0 sol.	2	BY37, 840U	B49EA, K840
LAC30	Black	3/0 str.	3/0	4/0 sol.			
LAC40	Pink	4/0 str.	4/0	—			
LAC42	Orange	#4 str.	#4	#3 sol.			
LAC32	Purple	#3 str.	—	#2 sol.			
LAC22	Red	#2 str.	#2	#1 sol.			
LAC12	White	#1 str.	#1	1/0 sol.			
LAC102	Yellow	1/0 str.	1/0	2/0 sol.			
LAC202	Gray	2/0 str.	2/0	3/0 sol.			
LAC302	Black	3/0 str.	3/0	4/0 sol.			
LAC402	Pink	4/0 str.	4/0	—			
LAC25	Green	350, 266.6	250	—	3	—	B80EA, 1.1, 655
LAC35	Brown	300, 350	350	—			
LAC50	Aqua	400, 500	500	—			
LAC125	Green	250, 266.8	250	—	4		
LAC135	Brown	300, 350	350	—			
LAC150	Aqua	400, 500	500	—			

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Aluminum Lugs

Corrosion-resistant one- and two-hole lugs for ACSR and aluminum conductors.



Bi-Metallic Lugs

- Aluminum barrel provides high strength
- Tin-plated copper pad provides high conductivity and corrosion resistance
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture

CPL Series — One-Hole

	CONDUCTOR SIZE		
CAT. NO.	ACSR	AL	BOLT SIZE
CPL 4-48	#4	#4	½
CPL 2-48	#2	#2	
CPL 1/0-48	1/0	1/0	
CPL 4/0-48	4/0	4/0	

CPL-N Series — Two-Hole

	CONDUCTOR SIZE		
CAT. NO.	ACSR	AL	BOLT SIZE
CPL 4 N	#4	#4	½
CPL 2 N	#2	#2	
CPL 1/0 N	1/0	1/0	
CPL 2/0 N	2/0	2/0	
CPL 3/0 N	3/0	3/0	
CPL 4/0 N	4/0	4/0–250	
CPL 300 N	266.8	266.8–300	
CPL 350 N	336.4	336.4–350	
CPL 477 N	397.5	396.5–477	
CPL 556 N	477	500–556.5	
CPL 600 N	556.5	600	
CPL 800 N	605–666.6	715.5–800	
CPL 1000 N	715.5–874.5	874.5–1000	
CPL 1113 N	900–1113	1033.5–1113	
CPL 2000 N	1780–1900	2000	

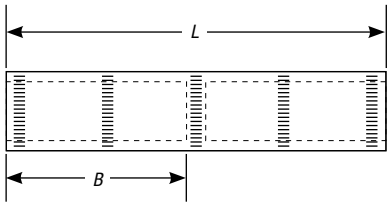
Aluminum Splices

For general applications.

Aluminum Tin-Plated Straight Splices



- Made from aluminum for high strength and high conductivity
- Solid center stop ensures proper cable insertion
- Dual-rated for use with aluminum and copper conductors
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All splices marked with conductor sizes and die references for easy identification
- Meet or exceed ANSI C119.4 specifications; splices with tin plating are UL® Listed through 1000 kcmil



CAT. NO.	CONCENTRIC	COMPACT	ACSR	L	B	INSTALLNG DIES
ASC 6	#6	—	—	1 5/8	3/4	TP, 29, 161, 5/16
ASC 4	#4	—	—	2	1	TB, 37, 375, 162
ASC 2	#2	—	—	2	15/16	TQ, 45, 348, 163, 1/2, 6A
ASC 1	#1	—	—	2	15/16	TQ, 45, 348, 163, 1/2
ASC 1/0	1/0	—	—	2 1/4	31/32	TU, 52, BG, 243, 5/8
ASC 2/0	2/0	—	—	2 5/16	1 3/32	TW-TY, 58, 297, 5/8-1
ASC 3/0	3/0	—	—	2 5/8	1 1/4	TV, 66, 167, 467, 10A
ASC 4/0	4/0	—	—	2 3/4	1 5/16	TX, 71H, 298, 840, 11A
ASC 250	4/0–250	300	4/0	2 15/16	1 3/8	TX, 76, 249, 840, 11A
ASC 300	266.8–300	350	266.8 (18/1)	3 1/8	1 7/16	TH, 87H, 251, 470, 1, 12A
ASC 350	336.4–350	400	266.8 (26/7), 336.4 (18/1)	3 3/8	1 39/64	96, 299, 655, 1 1/8-1, 13A
ASC 400	397.5–400	—	336.4 (26/7), 397.5 (18/1)	3 3/4	1 3/4	96, 472, 655, 1 1/8-1, 13A
ASC 500	477–500	600	397.5 (26/7), 477 (18/1)	3 7/8	1 27/32	106A, 300, 317, 1 5/16, 14A
ASC 600	550–600	—	477 (26/7), 556.5 (18/1)	4 1/8	1 15/16	1 5/16, 115H, 786, 936, 473
ASC 750	700–750	—	636 (26/7)	4 11/16	2 7/32	140H, 301, 342, 1 1/2
ASC 750-608*	700–750	—	636 (26/7)	4 11/16	2 7/32	125H, 608, 786, 1 1/2, 936
ASC 800	800	—	—	4 3/4	2 1/4	140H, 342, 474, 1 1/2
ASC 1000	954–1000	—	795 (26/7), 954 (45/7)	5 1/4	2 3/8	161, 292, 302, 319, 1 3/4
ASC 1250	1250	—	—	8	3 1/16	161, 727, 352, 1 7/8
ASC 1500	1500	—	—	6 1/2	3 1/8	189, 478, 728

** Not UL Listed.*

Note: *For splices with tin plating, add "-TN" suffix to the catalog number. Splices with tin plating are UL Listed through 1000 kcmil.*

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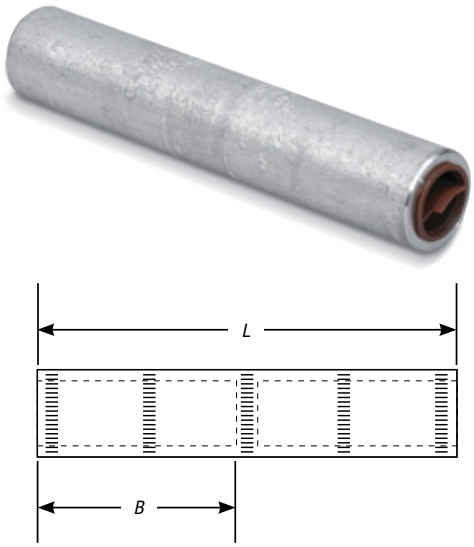
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Aluminum Splices

Splices for general applications.

Aluminum Straight Splices

- Made from aluminum for high strength and high conductivity
- Solid center stop ensures proper cable insertion
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor and capped to prevent oxidation and keep out moisture
- All splices marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications; all tin-plated splices are UL® Listed



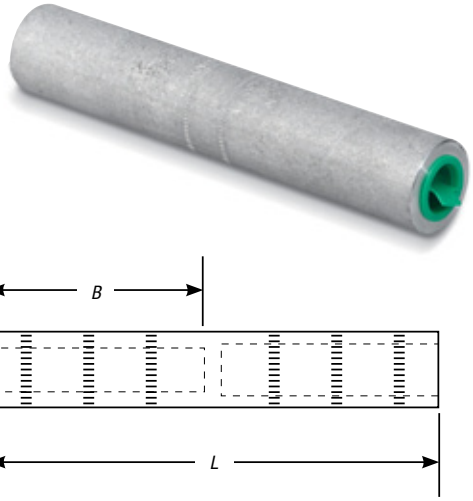
CAT. NO.	CONCENTRIC	COMPACT	ACSR	L	B	INSTALLING DIES
AC 4	#4	—	—	2¼	1	TB, 37, 375
AC 2	#2	—	—	3 15/32	1 37/64	TQ, 45, 348, 163, ½
AC 1	#1	—	—	3 15/32	1 37/64	TQ, 45, 348, 163, ½
AC 1/0	1/0	—	—	3 1/16	1 13/32	TU, 52, BG, 243, ⅝, 8A
AC 2/0	2/0	—	—	3 1/16	1 13/32	TU, 52, BG, 243, ⅝, 8A
AC 3/0	3/0	—	—	4	1¾	TV, 66, 167, 781, 247, 10A
AC 4/0	4/0	250	—	3¾	1¾	TX, 71H, 298, 840, 660, 11A
AC 250	4/0–250	—	4/0	5¼	2 5/16	TX, 76, 249, 840, 11A
AC 300	266.8–300	—	266.8 (18/1)	5¾	2 11/16	TH, 87H, 251, 840, 470, 12A
AC 350	336.4–350	—	266.8 (26/7), 336.4 (18/1)	6⅝	3⅛	96, 299, 655, 1⅛-1, 13A
AC 400	397.5–400	—	336.4 (26/7), 397.5 (18/1)	7 9/32	3½	96, 472, 655, 705, 1⅛-1, 13A
AC 500	477–500	600	397.5 (26/7, 30/7), 477 (18/1)	7 19/32	3 37/64	106A, 300, 317, 15/16, 14A
AC 600	600	—	477 (26/7), 556.5 (18/1)	7 27/32	3 47/64	15/16, 115H, 786, 936, 473
AC 750	700–750	—	636 (26/7)	8 9/32	3 31/32	140H, 301, 342, 1½
AC 800	750–800	—	636 (30/19), 715.5 (54/7)	8½	4 1/16	140H, 474, 342, 724, 1½H, 1⅝
AC 1000	954–1000	—	795 (26/7), 954 (45/7)	9 15/16	4 9/32	161, 292, 302, 319, 1¾

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

Aluminum Splices

Solid center stop ensures proper cable insertion.

Aluminum Straight Reducing Splices



- Made from aluminum for high strength and high conductivity.
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor and capped to prevent oxidation
- All splices marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications:

	WIRE SIZE				
CAT. NO.	FROM	TO	L	B	INSTALLING DIES
AC 2 R 4	#2	#4	4 9/16	1 7/8	TQ, 45, 348, 6A, ½
AC 1/0 R 2	1/0	#2	4 9/16	1 7/8	8A, BG, TU, 5/8
AC 2/0 R 1	2/0	#1	4 9/16	1 7/8	TWTY, 60, 245, 9A, 5/8 1
AC 3/0 R 1/0	3/0	1/0	5	2	781, TU, 56
AC 4/0 R 2/0	4/0	2/0	5 1/4	2 1/8	TX, 71H, 298, 11A, 840
AC 250 R 3/0	250	3/0	5 1/4	2 1/8	840, 11A, 249, TX
AC 300 R 4/0	300	4/0	8 3/16	3 17/32	96, 299, 1 1/8
AC 350 R 4/0	350	4/0	8 3/16	3 17/32	96, 299, 1 1/8
AC 400 R 250	400	250	8 19/32	3 1/16	96, 472, 1 1/8
AC 500 R 300	500	300	8 19/32	3 13/16	106, 300, 317, 1 5/16
AC 500 R 350	500	350	8 11/16	3 13/16	106, 300, 317, 1 5/16
AC 500 R 400	500	400	8 7/8	3 13/16	106, 300, 317, 1 5/16
AC 600 R 350	600	350	8 7/8	3 15/16	115, 473, 1 5/16
AC 600 R 500	600	500	9 1/4	3 15/16	115, 473, 1 5/16
AC 750 R 500	750	500	9 5/8	4 7/32	140, 301, 1 1/2
AC 750 R 600	750	600	9 5/8	4 7/32	140, 301, 1 1/2
AC 1000 R 500	1000	500	9 7/8	4 5/8	161, 302, 1 3/4
AC 1000 R 750	1000	750	9 7/8	4 5/8	161, 302, 1 3/4

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

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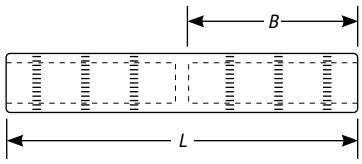
Aluminum Splices

Splices designed for general URD applications.



Aluminum Straight Splices — Common Die Series

- Entire conductor range installed with six common dies to reduce your die inventory
- Made from aluminum for high strength and high conductivity
- Solid center stop ensures proper cable insertion
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor to prevent oxidation
- All splices marked with conductor sizes and die references easy identification
- Meets or exceeds ANSI C119.4 specifications



CAT. NO.	CONCENTRIC	COMPRESSED	COMPACT	SOLID	B	L	INSTALLING DIES
SAC 4	#4	#4	#4	—	1 13/32	3	5/8, 8A, BG, TU, 52
SAC 2	#2	#2	#1, #2	#1	1 13/32		CSA 22, 5/8, 8A, BG
SAC 1	#1	#1	1/0	1/0	1 13/32		CSA 22, 5/8, 8A, BG
SAC 1/0	1/0	1/0	2/0	2/0	1 13/32		CSA 22, 5/8, 8A, BG
SAC 2/0	2/0	2/0	3/0	3/0	1 7/8	4	840, 249, TX, CSA 24
SAC 3/0	3/0	3/0	4/0	—	1 7/8		840, 249, TX, CSA 24, 845
SAC 4/0	4/0	4/0	4/0, 250	—	1 7/8		840, 249, TX, CSA 24, 845
SAC 250	250	250	—	—	1 7/8		840, 249, TX, CSA 24, 11A
SAC 300	300	300	—	—	2 3/8	5	96, 299, 655, 1 1/8-1, 13A
SAC 350	350	350	—	—	2 3/8		96, 299, 655, 321, 1 1/8-1, 13A
SAC 400	400	400	500	—	2 5/8	5 11/16	106A, 300, 317, 15A
SAC 500	477–500	—	600	—	2 5/8		106A, 300, 317, 1 5/16, 15A
SAC 600	600	—	—	—	3 3/8	7	1 1/2, 140, 301, 724
SAC 750	700–750	—	—	—	3 13/32		140H, 301, 342, 724, 1 1/2
SAC 1000	1000	—	—	—	3 5/16		1 3/4, 161, 302, 292, 319

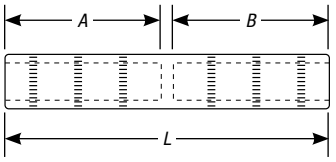
Aluminum Splices

Reducers for general URD applications.

Aluminum Straight Reducing Splices — Common Die Series



- Install with six common dies to reduce your die inventory
- Dual-rated for use with aluminum and copper conductors
- Bores coated with oxide inhibitor to prevent oxidation
- Marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



CAT. NO.	SIDE A			SIDE B			A–B	L	INSTALLING DIES
	CONCENTRIC/ COMPRESSED	COMPACT	SOLID	CONCENTRIC/ COMPRESSED	COMPACT	SOLID			
SAC 4 R 6	#4	#4	—	#6	#6	—	1 7/16	3	CSA 22, 5/8, BG, 243
SAC 2 R 4	#2	#1, #2	#1	#4	#4	—			
SAC 1 R 2	#1	1/0	1/0	#2	#1, #2	#1			
SAC 1/0 R 4	1/0	2/0	2/0	#4	#4	—			
SAC 1/0 R 2	1/0	2/0	2/0	#2	#1, #2	#1			
SAC 1/0 R 1	1/0	2/0	2/0	#1	1/0	1/0			
SAC 2/0 R 2	2/0	3/0	3/0	#2	#1, #2	#1	1 7/8	4	840, 249, TX, CSA 24
SAC 2/0 R 1/0	2/0	3/0	3/0	1/0	2/0	2/0			
SAC 3/0 R 1/0	3/0	4/0	—	1/0	2/0	2/0			
SAC 3/0 R 2/0	3/0	4/0	—	2/0	3/0	3/0			
SAC 4/0 R 2	4/0	250	—	#2	#1, #2	#1			
SAC 4/0 R 1/0	4/0	250	—	1/0	2/0	2/0			
SAC 4/0 R 2/0	4/0	250	—	2/0	3/0	3/0			
SAC 250 R 3/0	250	—	—	3/0	4/0	—			
SAC 250 R 4/0	250	—	—	4/0	250	—			
SAC 300 R 250	300	—	—	4/0–250	—	—	2 3/8	5	96, 299, 655, 1 1/8-1, 13A
SAC 350 R 2	350	—	—	#2	#1, #2	#1			
SAC 350 R 1/0	350	—	—	1/0	2/0	2/0			
SAC 350 R 2/0	350	—	—	2/0	3/0	3/0			
SAC 350 R 3/0	350	—	—	3/0	4/0	—			
SAC 350 R 4/0	350	—	—	4/0	250	—			
SAC 350 R 250	350	—	—	250	—	—			
SAC 500 R 2	500	—	—	#2	—	—	2 21/32	5 11/16	1 5/16, 5A, 300, 106, 317
SAC 500 R 1/0	500	—	—	1/0	—	—			
SAC 500 R 2/0	500	—	—	2/0	—	—			
SAC 500 R 3/0	500	—	—	3/0	—	—			
SAC 500 R 4/0	500	—	—	4/0	250	—			
SAC 500 R 300	500	—	—	300	—	—			
SAC 500 R 350	500	—	—	350	—	—			
SAC 500 R 400	500	—	—	400	—	—			
SAC 750 R 1/0	750	—	—	1/0	—	—	3	6 1/4	140H, 301, 342
SAC 750 R 4/0	750	—	—	4/0	250	—			
SAC 750 R 250	750	—	—	250	—	—			
SAC 750 R 350	750	—	—	350	—	—			
SAC 750 R 500	750	—	—	500	—	—			
SAC 1000 R 400	1000	—	—	400	—	—	3 3/8	7	161, 302, 292, 319, 1 3/4
SAC 1000 R 500	1000	—	—	500	—	—			
SAC 1000 R 750	1000	—	—	750	—	—			

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

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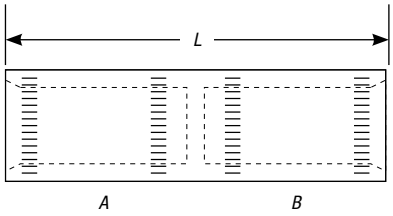
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Aluminum Splices

Built to resist corrosion and provide high strength and high conductivity.

Aluminum Tin-Plated Straight Splices — ⅝ Common Die Series





- Made from aluminum for high strength and high conductivity
- Solid center stop ensures accurate wire positioning and forces oxide inhibitor over and through conductor strands
- Most are dual-rated for use with aluminum and copper conductors
- Tin plated to resist corrosion and extend shelf life
- Prefilled with oxide inhibitor to improve contact and seal out moisture after installation
- Color-coded end caps seal splices from contaminants
- All splices marked with conductor sizes, die references and compression locations for easy identification and installation
- Meets or exceeds ANSI C119.4 specifications

CAT. NO.	WIRE SIZE A	WIRE SIZE B	CONDUCTOR A	CONDUCTOR B	INSTALLING DIES	L
SG 88	#8	#8	AL-CU	AL-CU		
SG 68	#6	#8	AL-CU	AL-CU		
SG 66	#6	#6	AL-CU	AL-CU		
SG 48	#4	#8	AL-CU	AL-CU		
SG 46	#4	#6	AL-CU	AL-CU		
SG 44	#4	#4	AL-CU	AL-CU		
SG 26	#2	#6	AL-CU	AL-CU		2
SG 24	#2	#4	AL-CU	AL-CU		
SG 22	#2	#2	AL-CU	AL-CU		
SG 11	#1	#1	AL-CU	AL-CU	⅝, 8A, BG, TU, 243	
SG 106	1/0	#6	AL-CU	AL-CU		
SG 104	1/0	#4	AL-CU	AL-CU		
SG 102	1/0	#2	AL-CU	AL-CU		
SG 1010	1/0	1/0	AL-CU	AL-CU		
SG 206	2/0	#6	AL	AL-CU		
SG 204	2/0	#4	AL	AL-CU		
SG 202	2/0	#2	AL	AL-CU		2⅛
SG 2010	2/0	1/0	AL	AL-CU		
SG 2020	2/0	2/0	AL	AL		

Note: *For watertight protection, see the FSS 20 Flood-Seal® insulating splice cover on* ***page F-378.***

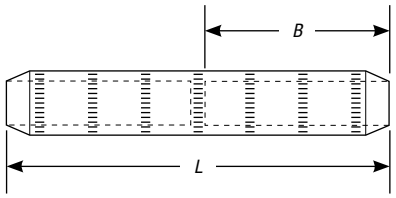
Aluminum Splices

Tapered ends enable use in high-voltage applications up to 69kV.

Aluminum Tapered Splices



- Solid center stop ensures proper cable insertion
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor to prevent oxidation
- All splices marked with die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



CAT. NO.	CONCENTRIC	L	B	INSTALLING DIES
ATC 3	#3	2 23/32	1 3/32	½, TQ, 6A, 163
ATC 2	#2	2 23/32	1 3/32	½, TQ, 6A, 163
ATC 1	#1	3	1 13/32	TU, 52, BG, 243, ⅝, 8A
ATC 1/0	1/0	3	1 13/32	⅝, TU, BG, 296
ATC 2/0	2/0	3 1/16	1⅜	TW-TY, 58, 297, ⅝-1
ATC 3/0	3/0	3	1⅜	TV, 66, 247
ATC 4/0	4/0	3 23/32	1 23/32	TX, 71H, 298, 840
ATC 250	250	3 21/32	1 49/64	TX, 76, 249, 840, 11A
ATC 300	300	4 5/16	2 1/32	1, TH, 87H, 470, 251, 12A
ATC 350	350	5	2 21/64	96, 472, 655, 1⅛-1, 13A
ATC 400	400	5 7/32	2 25/64	96, 472, 655, 705, 1⅛-1, 13A
ATC 500	500	5½	2 19/32	1 5/16, 106A, 300, 317, 15A
ATC 600	600	5 29/32	2 13/16	115H, 786, 936, 1 5/16
ATC 750	700–750	6 63/64	3⅜	140H, 301, 342, 1½
ATC 800	795–800	7 5/16	3 15/32	140, 1½, 1⅝
ATC 1000	1000	8 27/32	4 7/64	161, 302, 292, 319, 1¾
ATC 1250	1250	9¾	4 11/16	161, 352, 579, 30AH
ATC 1500	1500	9¾	4 11/16	189R, 478, L46ART
ATC 1750	1750	11½	5 7/32	189, 728, 38AH
ATC 2000	2000	14	6 13/16	189, 478, 728

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

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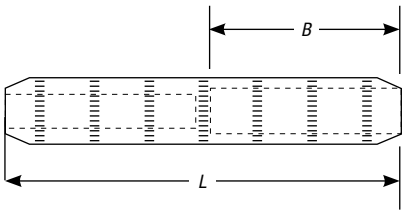
Aluminum Splices

Tapered ends enable use in high-voltage applications up to 69kV.



Aluminum Tapered Reducing Splices

- Solid center stop ensures proper cable insertion, prevents moisture migration
- Dual-rated for use with aluminum and copper conductors
- Connector bores are coated with oxide inhibitor to prevent oxidation
- All splices marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



	WIRE SIZE				
CAT. NO.	FROM	TO	L	B	INSTALLING DIES
ATC 2 R 4	#2	#4	2⅞	1⅜	½
ATC 1/0 R 4	1/0	#4	3	1 7/16	
ATC 1/0 R 2	1/0	#2	3	1 7/16	
ATC 2/0 R 2	2/0	#2	4	1⅞	
ATC 2/0 R 1/0	2/0	1/0	4	1⅞	
ATC 3/0 R 1/0	3/0	1/0	4	1⅞	
ATC 4/0 R 1/0	4/0	1/0	4	1⅞	249, 840, TX, 76, 11A
ATC 4/0 R 2/0	4/0	2/0	4	1⅞	
ATC 4/0 R 2	4/0	#2	4	1⅞	
ATC 250 R 3/0	250	3/0	4	1⅞	
ATC 350 R 2	350	#2	4 15/16	2⅜	
ATC 350 R 1/0	350	1/0	4 15/16	2⅜	
ATC 350 R 2/0	350	2/0	4 15/16	2⅜	
ATC 350 R 3/0	350	3/0	4 15/16	2⅜	655, 299, 1-18-1, 96, 13A
ATC 350 R 4/0	350	4/0	4 15/16	2⅜	
ATC 350 R 250	350	250	4 15/16	2⅜	
ATC 500 R 2	500	#2	5⅝	2 9/16	
ATC 500 R 1/0	500	1/0	5⅝	2 9/16	
ATC 500 R 2/0	500	2/0	5⅝	2 9/16	
ATC 500 R 4/0	500	4/0	5⅝	2 9/16	
ATC 500 R 250	500	250	5⅝	2 9/16	300, 317, 1 5/16, 106, 15A
ATC 500 R 300	500	300	5⅝	2 9/16	
ATC 500 R 350	500	350	5⅝	2 9/16	
ATC 500 R 350-608	500	350	5⅝	2 9/16	125H, 608, 786, 936
ATC 750 R 2	750	#2	9⅞	4⅜	
ATC 750 R 1/0	750	1/0	9⅞	4⅜	
ATC 750 R 4/0	750	4/0	9⅞	4⅜	301, 1½, 140, 342
ATC 750 R 350	750	350	9⅞	4⅜	
ATC 750 R 500	750	500	9⅞	4⅜	
ATC 750 R 500-608	750	500	9⅞	4⅜	125H, 608, 786, 936
ATC 1000 R 500	1000	500	9⅞	4⅜	
ATC 1000 R 750	1000	750	9⅞	4⅜	302, 161, 292, 319, 727
ATC 1250 R 750	1250	750	9⅞	4⅜	

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

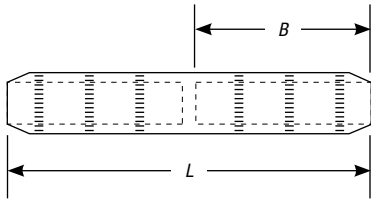
Aluminum Splices

Entire conductor range is installed with six common dies.



Aluminum Tapered Splices — Common Die Series

- Solid center stop ensures proper cable insertion, prevents moisture migration
- Dual-rated for use with aluminum and copper conductors
- Connector bores are coated with oxide inhibitor to prevent oxidation
- All splices marked with die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



CAT. NO.	WIRE SIZE	L	B	INSTALLING DIES
SATC 4	#4	3	1 7/16	52, TU, 243, 5/8, BG
SATC 2	#2		1 7/16	
SATC 1	#1		1 7/16	
SATC 1/0	1/0		1 7/16	
SATC 2/0	2/0	4	1 7/16	TX, 76, 11A, 249, 840
SATC 3/0	3/0		1 7/16	
SATC 4/0	4/0		1 1/8	
SATC 250	250		1 7/16	
SATC 300	300	5	2 5/16	96, 13A, 1 1/8-1, 299, 321, 655
SATC 350	350		2 5/16	
SATC 400	400	5½	2 5/8	96, 472, 655, 1 1/8-1, 13A
ATC 500	500		2 5/8	317, 106A
SATC 750	700–750	7	3 3/8	140, 301, 342, 1½

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

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Tees

For aluminum and copper connections, these dual-rated components suit you to a tee.



AT 350-350

Aluminum Tees

- Made from aluminum for high strength and high conductivity
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor to prevent oxidation
- All tees marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications

CAT. NO.	RUN	TAP	L	T
AT 2-4	#2	#4	5½	2½
AT 2-2		#2		
AT 1/0-4	1/0	#4		
AT 1/0-2		#2		
AT 1/0-1/0		1/0		
AT 2/0-2	2/0	#2	6	
AT 2/0-1/0		1/0		
AT 2/0-2/0		2/0		
AT 3/0-2	3/0	#2		3
AT 3/0-1/0		1/0		
AT 3/0-3/0		3/0		
AT 4/0-2	4/0	#2		
AT 4/0-1/0		1/0		
AT 4/0-2/0		2/0		
AT 4/0-4/0		4/0		3⅛
AT 250-2	250	#2		
AT 250-1/0		1/0		
AT 250-2/0		2/0		
AT 250-3/0		3/0		
AT 250-250		250		
AT 300-1/0	300	1/0	6⅞	
AT 300-2/0		2/0		
AT 300-4/0		4/0		
AT 300-300		300		

CAT. NO.	RUN	TAP	L	T
AT 350-2	350	#2	6⅝	2½
AT 350-1/0		1/0		2½
AT 350-3/0		3/0		3
AT 350-4/0		4/0		3
AT 350-350		350		3⅛
AT 500-1/0	500	1/0	8	3
AT 500-4/0		4/0		3
AT 500-350		350		3⅛
AT 500-500		500		3⅛
AT 750-1/0	750	1/0		2½
AT 750-4/0		4/0		3
AT 750-350		350		3⅛
AT 750-500		500	9	3⅜
AT 750-750		750		3½
AT 1000-4/0	1000	4/0	9⅞	3⅛
AT 1000-350		350		3⅛
AT 1000-500		500		5½
AT 1000-750		750		7⅛
AT 1000-1000		1000		7⅛

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*
For other available sizes, please consult your Thomas & Betts representative.

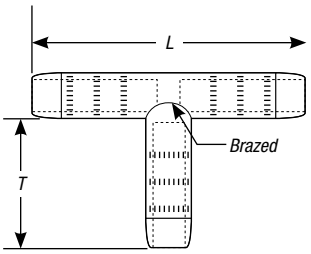
Tees

Tees available in many run and tap sizes for your high-voltage applications.



Aluminum Tapered Tees

- Made from aluminum for high strength and high conductivity
- Tapered ends enable use in high-voltage applications up to 69kV
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor to prevent oxidation
- All tees marked with conductor sizes and die references for easy identification
- Meets or exceeds ANSI C119.4 specifications



CAT. NO.	RUN	TAP	L	T
ATT 2-4	#2	#4	4¼	2½
ATT 2-2		#2		2½
ATT 1/0-4	1/0	#4	5½	2½
ATT 1/0-2		#2		2½
ATT 1/0-1/0		1/0		2½
ATT 2/0-2	2/0	#2	6	2½
ATT 2/0-1/0		1/0		2½
ATT 2/0-2/0		2/0		2½
ATT 3/0-2	3/0	#2	6⅝	3
ATT 3/0-1/0		1/0		3
ATT 3/0-3/0		3/0		3
ATT 4/0-2	4/0	#2		2½
ATT 4/0-1/0		1/0		2½
ATT 4/0-2/0		2/0		2½
ATT 4/0-4/0		4/0		3
ATT 250-2	250	#2		3
ATT 250-1/0		1/0		3
ATT 250-2/0		2/0		3
ATT 250-3/0		3/0		3
ATT 250-250		250		3
ATT 300-1/0	300	1/0		3⅛
ATT 300-2/0		2/0		3⅛
ATT 300-4/0		4/0		3⅛
ATT 300-300		300		3⅛

CAT. NO.	RUN	TAP	L	T
ATT 350-2	350	#2	6⅝	2½
ATT 350-1/0		1/0		2½
ATT 350-3/0		3/0		3
ATT 350-4/0		4/0		3
ATT 350-350		350		3¼
ATT 400-1/0	400	1/0	7¾	4
ATT 400-4/0		4/0		4
ATT 400-400		400		4
ATT 500-1/0	500	1/0		4
ATT 500-4/0		4/0	8	3
ATT 500-350		350		3⅛
ATT 500-500		500		5½
ATT 750-1/0	750	1/0		3
ATT 750-4/0		4/0		3
ATT 750-350		350		3⅛
ATT 750-500		500	9	5½
ATT 750-750		750		4
ATT 1000-4/0	1000	4/0	9⅞	3⅛
ATT 1000-350		350		3⅛
ATT 1000-500		500		5½
ATT 1000-750		750		6
ATT 1000-1000		1000		6
ATT 1500-1500	1500	1500	14	6

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*
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Tees

Tees available in many run and tap sizes for various copper conductors.

Copper Tin-Plated Tees

- Made from tin-plated copper for high conductivity, resistance to corrosion
- All tees marked with conductor sizes and die references for easy identification



250 T 250

CAT. NO.	CONDUCTOR SIZE RUN	TAP
2 T 2	#2	#2
1/0 T 6	1/0	#6
1/0 T 4		#4
1/0 T 2		#2
1/0 T 1		#1
1/0 T 1/0		1/0
2/0 T 6	2/0	#6
2/0 T 4		#4
2/0 T 2		#2
2/0 T 1		#1
2/0 T 1/0		1/0
2/0 T 2/0		2/0
3/0 T 1/0	3/0	1/0
3/0 T 3/0		3/0
4/0 T 2	4/0	#2
4/0 T 1		#1
4/0 T 1/0		1/0
4/0 T 2/0		2/0
4/0 T 4/0		4/0
250 T 2	250	#2
250 T 1		#1
250 T 1/0		1/0
250 T 2/0		2/0
250 T 4/0		4/0
250 T 250		250
300 T 300	300	300

CAT. NO.	CONDUCTOR SIZE RUN	TAP
350 T 1/0	350	1/0
350 T 2/0		2/0
350 T 4/0		4/0
350 T 350		350
400 T 1/0	400	1/0
400 T 2/0		2/0
400 T 4/0		4/0
400 T 250		250
400 T 300		300
400 T 350		350
400 T 400		400
500 T 1/0	500	1/0
500 T 2/0		2/0
500 T 4/0		4/0
500 T 250		250
500 T 350		350
500 T 400		400
500 T 500		500
600 T 2/0	600	2/0
600 T 4/0		4/0
600 T 350		350
600 T 500		500
600 T 600		600
750 T 350	750	350
750 T 500		500
750 T 750		750
1000 T 500	1000	500
1000 T 1000		1000

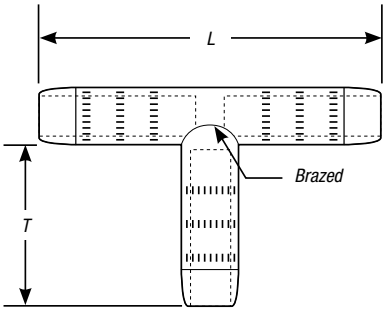
Tees

Tapered ends enable use in high-voltage applications up to 69kV.



Copper Tin-Plated Tapered Tees

- Produced from seamless copper tubing for high conductivity
- Tin-plated to resist corrosion



CAT. NO.	RUN	TAP	L	T
TT 2-2	#2	#2	3 1/16	1 1/2
TT 1/0-6	1/0	#6	3 3/16	1 1/2
TT 1/0-4		#4	3 13/16	1 1/2
TT 1/0-2		#2	3 3/8	1 1/2
TT 1/0-1		#1	3 15/16	1 1/2
TT 1/0-1/0		1/0	4	1 1/2
TT 2/0-6	2/0	#6	3 29/32	1 1/2
TT 2/0-4		#4	3 31/32	1 1/2
TT 2/0-2		#2	4 1/32	1 1/2
TT 2/0-1		#1	4 3/32	1 1/2
TT 2/0-1/0		1/0	4 5/32	1 1/2
TT 2/0-2/0		2/0	4 5/32	1 1/2
TT 3/0-1/0	3/0	1/0	4 7/16	1 5/8
TT 3/0-3/0		3/0	4 7/16	1 7/8
TT 4/0-2	4/0	#2	4 3/16	1 3/4
TT 4/0-1		#1	4 3/16	1 3/4
TT 4/0-1/0		1/0	4 1/4	1 3/4
TT 4/0-2/0		2/0	4 5/16	1 3/4
TT 4/0-4/0		4/0	4 7/16	1 3/4
TT 250-2	250	#2	4 1/4	1 3/4
TT 250-1		#1	4 1/4	1 3/4
TT 250-1/0		1/0	4 5/16	1 3/4
TT 250-2/0		2/0	4 3/8	1 3/4
TT 250-4/0		4/0	4 1/2	1 3/4
TT 250-250		250	4 9/16	1 3/4
TT 300-300	300	300	4 9/16	1 3/4

Note: *For other available sizes, please consult your Thomas & Betts representative.*

CAT. NO.	RUN	TAP	L	T
TT 350-1/0	350	1/0	5 37/64	2 13/16
TT 350-2/0		2/0	5 37/64	2 13/16
TT 350-4/0		4/0	5 23/32	2 13/16
TT 350-350		350	5 29/32	2 13/16
TT 400-1/0	400	1/0	5 21/32	2 3/8
TT 400-2/0		2/0	5 21/32	2 3/8
TT 400-4/0		4/0	5 25/32	2 3/8
TT 400-250		250	5 27/32	2 3/8
TT 400-300		300	5 29/32	2 3/8
TT 400-400		400	6 1/32	2 3/8
TT 500-1/0	500	1/0	6 23/64	2 19/32
TT 500-2/0		2/0	6 23/64	2 19/32
TT 500-4/0		4/0	6 15/32	2 19/32
TT 500-250		250	6 17/32	2 19/32
TT 500-350		350	6 21/32	2 19/32
TT 500-400		400	6 23/32	2 19/32
TT 500-500		500	6 23/32	2 19/32
TT 600-2/0	600	2/0	7 3/16	3 3/32
TT 600-4/0		4/0	7 7/16	3 3/32
TT 600-350		350	7 7/16	3 3/32
TT 600-500		500	7 11/16	3 3/32
TT 600-600		600	7 7/8	3 3/32
TT 750-350	750	350	9 1/2	4 1/4
TT 750-500		500	9 1/2	4 1/4
TT 750-750		750	9 1/2	4 1/4
TT 1000-500	1000	500	9 1/2	4 1/4
TT 1000-1000		1000	9 1/2	4 1/4

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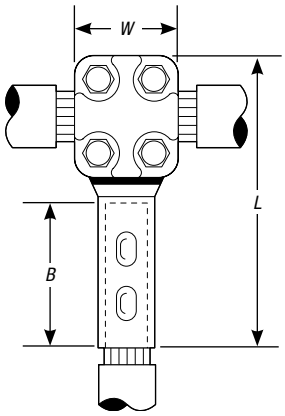
www.tnb.com

Get permanent compression on the tap and be able to disconnect in the future.

Copper Tin-Plated Clamp Tee Connectors



- Constructed of cast copper and seamless copper tubing for high strength and high conductivity
- Tin plated to resist corrosion



CAT. NO.	CONDUCTOR SIZE RUN	CONDUCTOR SIZE TAP	B	L	W
2131-1	750	2/0 str.	1½	4⅞	2¹⁄₁₆
2131-2		4/0 str.	1⅝	5	
2131-3		250	1⅝	5	
2131-4		350	2	5⅜	
2131-5		500	2¼	5⅝	
2131-6		750	2⅞	6¼	
2131-7	1000	2/0 str.	1½	4⅞	
2131-8		4/0 str.	1⅝	5	
2131-9		250	1⅝	5	
2131-10		350	2	5⅜	
2131-11		500	2¼	5⅝	
2131-12		750	2⅞	6¼	
2131-13		1000	3	6⅜	
2131-14	1500	2/0 str.	1½	4⅞	
2131-15		4/0 str.	1⅝	5	
2131-16		250	1⅝	5	
2131-17		350	2	5⅜	
2131-18		500	2¼	5⅝	
2131-19		750	2⅞	6¼	
2131-20		1000	3	6⅜	
2131-21		1500	3³⁄₁₆	6⅞	
2131-22		2000	3¼	8	2½

Tees

Ring bus and cable ring bus applications now have reliable connect and disconnect points.

Aluminum and Copper NEMA Lug Tee Taps for Cable Buses

- ANLTT Series for aluminum mains and NLTT Series for copper mains — choose the taps that match your system
- Multiple options available to accommodate all sizes of standard NEMA drilled compression lugs
- Tin plated to resist corrosion



NLTT 1000

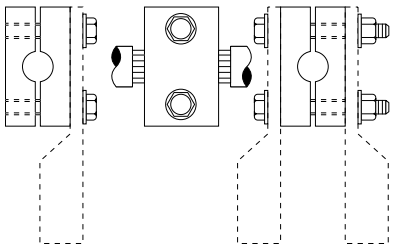


Figure 1 *Figure 2*

Tin-Plated Aluminum NEMA Lug Tee Taps

CAT. NO.	MAIN CONDUCTOR	FIGURE NUMBER/TAPS	WIDTH
ANLTT 4/0	4/0	2	1½
ANLTT 350	350		1½
ANLTT 500	500		1½
ANLTT 750	750		1¾
ANLTT 1000	1000		1¾
ANLTT 1500	1500		2½
ANLT 4/0	4/0	1	1½
ANLT 350	350		1½
ANLT 500	500		1½
ANLT 750	750		1¾
ANLT 1000	1000		1¾
ANLT 1500	1500		2½

Tin-Plated Copper NEMA Lug Tee Taps

CAT. NO.	MAIN CONDUCTOR	FIGURE NUMBER/TAPS	WIDTH
NLTT 4/0	4/0	2	1½
NLTT 350	350		1½
NLTT 500	500		1½
NLTT 750	750		1¾
NLTT 1000	1000		1¾
NLTT 1500	1500		2½
NLT 4/0	4/0	1	1½
NLT 350	350		1½
NLT 500	500		1½
NLT 750	750		1¾
NLT 1000	1000		1¾
NLT 1500	1500		2½

Note: *For insulating covers, see* ***page F-378****.*
For sizes not listed, please consult your Thomas & Betts representative.

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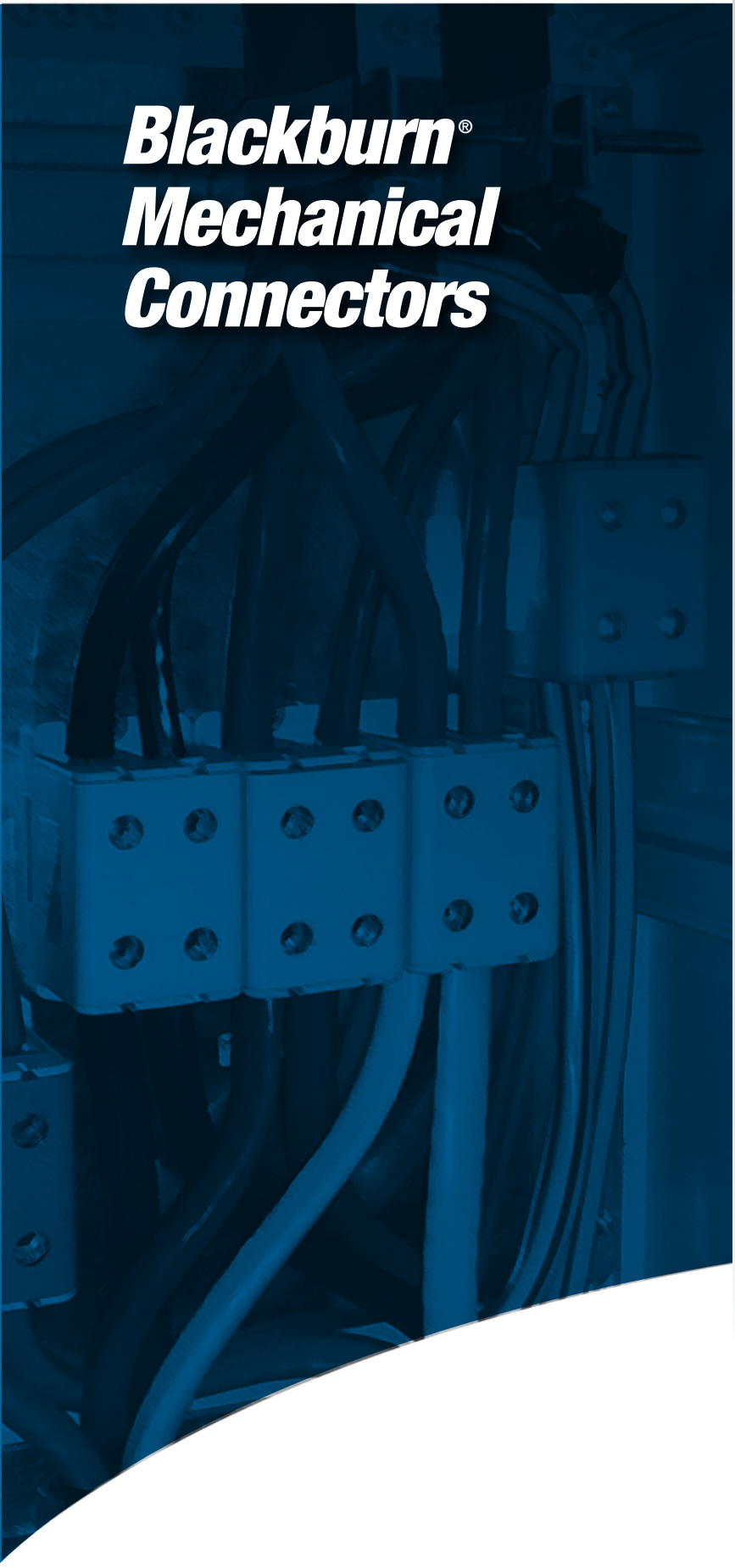
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Blackburn®

Blackburn® Mechanical Connectors



In this section...



Blackburn® Mechanical Connectors

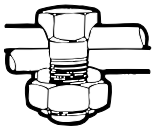
Overview F-152
Split-Bolt Connectors F-153–F-155
Service Post Connectors F-156–F-157
Parallel Groove Connectors F-158
Insulation Piercing Connectors F-159
Two-Bolt Connectors F-160–F-161
Insulated Multi-Taps F-162–F-169
Power Distribution Blocks F-170–F-172
Anti-Rotational Connectors F-173
Dual-Rated Mechanical Connectors F-174–F-180
Copper Mechanical Connectors F-181–F-189
Clamp Connectors F-190

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Overview

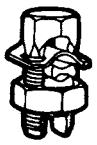
Type H, HPS, HPW



Copper Split-Bolt Connectors

See pages F-153–F-154

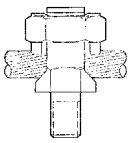
Type APS, AAW, CA



Aluminum Split-Bolt Connectors

See pages F-154–F-155

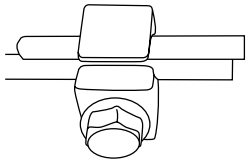
Type SP



Service Post Connectors

See pages F-156–F-157

ViceLock™



See page F-158

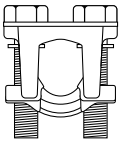
Type IPC



Insulation Piercing Connectors

See page F-159

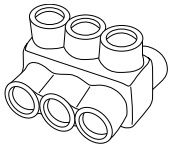
Type 2B, 2BX, 2BW, 2BPW



Two-Bolt Connectors

See pages F-160–F-161

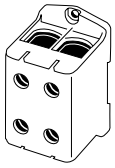
Insulated Multi-Tap



CSB and AMT Connectors

See pages F-162–F-169

PDS



Power Distribution Blocks

See pages F-170–F-172

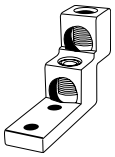
Type ADR



Dual-Rated Mechanical Connectors

See pages F-173–F-177

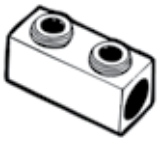
Type ASL



Dual-Rated Mechanical Connectors

See pages F-177–F-178

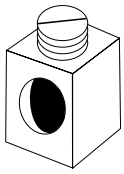
Type ASR



Splicer Reducer

See page F-179

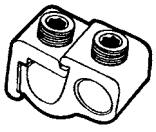
Type BX



Rectangular Connectors

See page F-179

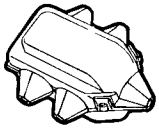
Type GP, GT



Aluminum Parallel Tap Connectors

See pages F-179–F-180

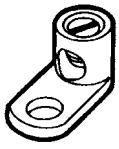
Type TC



Insulating Covers

See page F-180

Type L, TL



Copper Mechanical Connectors

See page F-181

Type S



Copper Splice

See page F-181

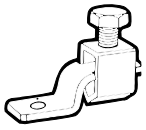
UFSK, DBSK



Direct-Burial Splice Kits

See page F-182

Type STC, BTC



Copper Mechanical Connectors

See page F-182

LOCKTITE®



LOCKTITE® Connectors

See pages F-183–F-189

Tap



Tap Connectors

See page F-189

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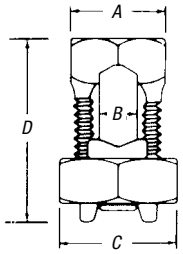
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Split-Bolt Connectors

For copper-to-copper connections.

Type H — High-Strength Split-Bolt Connectors





- Bolt and nut of high-strength corrosion-resistant bronze alloy
- Pressure bar is copper through 40H, copper alloy for 350 kcmil and above
- Bolt and nut of hex design up to 350 kcmil
- Tested and Listed to UL486C, UL467 for grounding and for direct burial through Cat. No. 40H

CAT. NO.	CONDUCTOR RANGE (AWG OR KCMIL) RANGE FOR EQUAL MAIN AND TAP	MIN. TAP WITH ONE MAX. MAIN	DIMENSIONS (IN.) A	B	C	D
9H	10 Str.–12 Sol.	14 Sol.	3/8	.146	1/2	25/32
8H	8 Str.–10 Sol.	14 Sol.	3/8	.146	1/2	25/32
8H3*	8 Str.–12 Sol.	16 Str.	3/8	.146	1/2	29/32
6H	6 Sol.–8 Sol.	14 Sol.	15/32	.170	21/32	31/32
6H3*	6 Sol.–10 Sol.	16 Str.	15/32	.170	21/32	1 1/8
4H	4 Sol.–8 Sol.	14 Sol.	17/32	.235	23/32	1 1/16
4H3*	4 Sol.–8 Sol.	16 Str.	17/32	.235	23/32	1 9/32
3H	3 Sol.–8 Sol.	16 Str.	17/32	.235	23/32	1 1/16
3H3*	4 Str.–8 Sol.	16 Str.	17/32	.235	23/32	1 9/32
2H	2 Sol.–6 Sol.	14 Sol.	19/32	.271	25/32	1 1/4
2H3*	2 Sol.–6 Sol.	14 Sol.	19/32	.271	25/32	1 15/32
1H	2 Str.–6 Sol.	14 Sol.	11/16	.330	7/8	1 11/32
1H3**	2 Str.–6 Sol.	14 Sol.	11/16	.330	7/8	1 3/8
10H	1/0 Str.–4 Sol.	14 Sol.	3/4	.385	15/16	1 19/32
20H	2/0 Str.–2 Sol.	14 Sol.	7/8	.443	1 1/16	1 13/16
30H	4/0 Str.–2 Sol.	6 Sol.	1	.580	1 5/16	2 5/32
40H	250 kcmil–1 Str.	8 Sol.	1	.580	1 5/16	2 5/32
350M	350 kcmil–250 kcmil	1/0 Str.	15/16	.717	1 21/32	2 11/16
500M	500 kcmil–400 kcmil	2/0 Str.	1 1/2	.842	1 7/8	3 1/32
750M	750 kcmil–600 kcmil	4/0 Str.	1 15/16	1.029	2 1/4	3 21/32
1000M	1,000 kcmil–800 kcmil	4/0 Str.	2 1/4	1.185	2 17/32	4 1/32

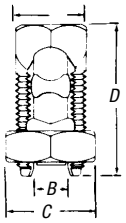
** Will accommodate three wires of maximum size.* *The H3 bolts are not UL Listed or CSA Certified.*

*** Will accommodate three #2 Stranded wires.* *UL recognizes solid and stranded conductor configurations for sizes #8 and smaller and stranded configurations only for sizes #6 and larger.*

For use on copper, aluminum and ACSR conductors.

Type HPS — Plated Split-Bolt Connectors with Spacer





- Bolt and pressure bar of copper alloy, completely tin plated for corrosion resistance
- Contoured spacer of electrolytic copper up through 4/0, bronze alloy for 350 kcmil and above, all tin plated
- Most connectors are UL® Listed and CSA Certified for copper conductor only
- Blackburn Contax® paste recommended when used on aluminum conductor

CAT. NO.	CONDUCTOR RANGE (AWG OR KCMIL) RANGE FOR EQUAL MAIN AND TAP ACSR	RANGE FOR EQUAL MAIN AND TAP COPPER OR ALUMINUM	MIN. TAP WITH ONE MAX. MAIN	DIMENSIONS (IN.) A	B	C	D
9HPS	—	10 Str.–12 Sol.	12 Sol.	3/8	.146	1/2	29/32
8HPS	—	8 Str.–12 Sol.	12 Sol.	3/8	.146	1/2	29/32
6HPS	8	6 Sol.–12 Sol.	12 Sol.	15/32	.170	21/32	1 1/8
4HPS	6–8	4 Sol.–12 Sol.	12 Sol.	17/32	.235	23/32	1 9/32
2HPS	4–8	2 Sol.–8 Sol.	8 Sol.	19/32	.271	25/32	1 15/32
1HPS	2–8	1 Str.–8 Sol.	8 Sol.	11/16	.330	7/8	1 3/8
10HPS	1–6	1/0 Str.–6 Sol.	6 Sol.	3/4	.385	15/16	1 13/16
20HPS	1/0–6	2/0 Str.–6 Str.	6 Sol.	7/8	.443	1 1/16	2 1/16
40HPS	4/0–4	4/0 Str.–4 Sol.	4 Sol.	1	.580	1 5/16	2 15/32
350HPS	266.8–1/0	350 kcmil–1/0 Str.	2 Sol.	1 5/16	.717	1 21/32	2 11/16
500HPS*	397.5–1/0	500 kcmil–1/0 Str.	1/0 Str.	1 1/2	.842	1 7/8	3 1/32
750HPS*	666.6–4/0	750 kcmil–4/0 Str.	2/0 Str.	1 15/16	1.029	2 1/4	3 21/32
1000HPS*	900–477	1,000 kcmil–500 kcmil	4/0 Str.	2 1/4	1.185	2 17/32	4 1/32

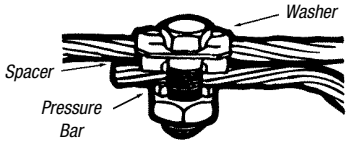
** Not CSA Certified. UL 486A.*

Split-Bolt Connectors

For combinations of copper, aluminum and ACSR conductors.

Type HPW — Plated Split-Bolt Connectors with Spacer and Washer

- Bolt and pressure bar of high-strength copper alloy completely tin plated
- Spacer and washer of electrolytic copper up through 4/0, bronze alloy 350 kcmil and above, all tin plated
- Contoured spacer and bell mouth washer distribute pressure over large area of conductor
- Large contoured spacer provides wide separation between copper and aluminum conductors
- Blackburn Contax® paste recommended when used with aluminum conductor



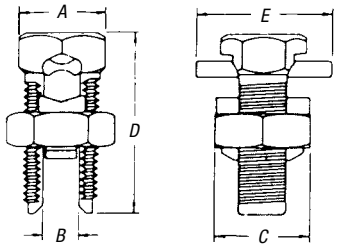


	CONDUCTOR RANGE (AWG)						
	RANGE FOR EQUAL MAIN AND TAP	RANGE FOR EQUAL MAIN AND TAP	MIN. TAP WITH ONE MAX. MAIN	DIMENSIONS (IN.)			
CAT. NO.	ACSR	COPPER OR ALUMINUM		A	B	C	D
6HPW	8	6 Sol.–12 Sol.	12 Sol.	15/32	.170	21/32	1 1/8
4HPW	6–8	4 Sol.–12 Sol.	12 Sol.	17/32	.235	23/32	1 9/32
2HPW	4–8	2 Sol.–8 Sol.	8 Sol.	19/32	.271	25/32	1 15/32
1HPW	2–8	1 Str.–8 Sol.	8 Sol.	1 1/16	.330	7/8	1 5/8
10HPW	1–6	1/0 Str.–6 Sol.	6 Sol.	3/4	.385	15/16	1 13/16
20HPW	1/0–6	2/0 Str.–6 Sol.	6 Sol.	7/8	.443	1 1/16	2 1/16
40HPW	4/0–4	4/0 Str.–4 Sol.	4 Sol.	1	.580	15/16	2 15/32

Accommodates all aluminum and copper conductor combinations.

Type APS — Aluminum Dual-Rated Split-Bolt Connectors

- Six bolts cover range from #10 to 4/0 AWG
- Install with standard wrenches
- Corrosion-resistant tin-plated aluminum
- Tested and Listed to UL® 486B, 90° C requirements





CAT. NO.	CONDUCTOR RANGE EQUAL MAIN & TAP	DIMENSIONS (IN.)				
		A	B	C	D	E
APS06	6–10 Str.	17/32	.21	23/32	1.27	1 1/4
APS04	4–10 Str.	19/32	.27	25/32	1.48	1 1/4
APS02	2–8 Str.	1 1/16	.33	7/8	1.63	1 1/4
APS11	1/0–4 Str.	7/8	.44	1 1/8	2.07	1 1/2
APS21	2/0–4 Str.	7/8	.44	1 1/8	2.07	1 1/2
APS41	4/0–2 Str.	1 1/8	.54	1 1/2	2.47	1.55
APS350*	350 kcmil–4 Str.	1 7/16	.70	1 11/16	3.36	2 1/4
APS500*	500 kcmil–2 Str.	1 11/16	.84	2	3.62	2 5/8

** Square head design not CSA certified*

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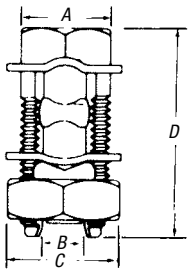
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Split-Bolt Connectors

For all-aluminum applications.

Type AAW — Aluminum Split-Bolt Connectors with Spacer and Washers

- Bolt, nut, pressure bar and contoured spacer of aluminum alloy
- Large contoured spacer provides wide separation
- Nut anodized to prevent thread galling
- Blackburn Contax® paste recommended when used on aluminum conductor



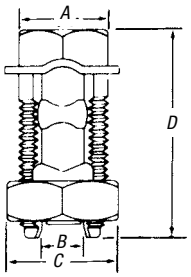


	CONDUCTOR RANGE (AWG)			DIMENSIONS (IN.)			
	RANGE FOR EQUAL MAIN AND TAP	RANGE FOR EQUAL MAIN AND TAP	MIN. TAP WITH ONE MAX. MAIN				
CAT. NO.	ACSR	ALUMINUM		A	B	C	D
6AAW	6–8	4 Sol.–8 Sol.	10 Sol.	17/32	.236	23/32	1 9/32
4AAW	4–8	2 Sol.–8 Sol.	8 Sol.	19/32	.272	25/32	1 15/32
2AAW	2–8	1 Str.–8 Sol.	8 Sol.	11/16	.330	7/8	1 5/8
1AAW	1–4	1/0 Str.–2 Sol.	4 Sol.	7/8	.443	1 1/8	2 1/16
10AAW	1/0–4	2/0 Str.–2 Sol.	4 Sol.	7/8	.443	1 1/8	2 1/16
40AAW	4/0–4	4/0 Str.–4 Sol.	4 Sol.	1	.580	1 1/4	2 15/32

Contoured spacer and bell-mouth washer distribute pressure over large area of conductor.

Type CA — Aluminum Split-Bolt Connectors with Spacer and Washer

- Bolt, nut and washer made of high-strength aluminum alloy
- Pressure bar and contoured spacer made of electrolytic copper
- Spacer is completely tin plated
- Bolt and nut are anodized to prevent seizing of threads and reduce galvanic corrosion when in contact with copper conductor
- Blackburn Contax® paste recommended with this connector





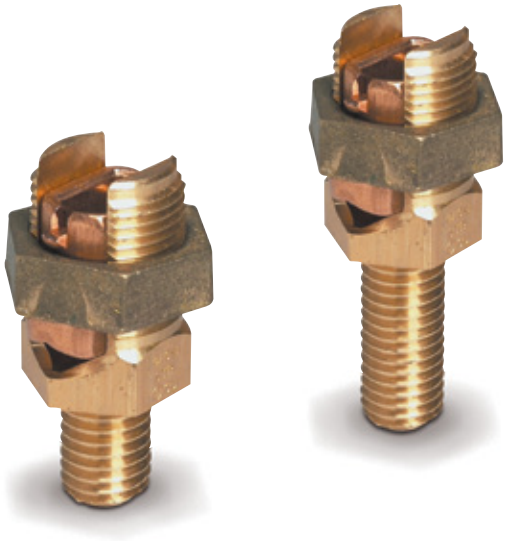
	CONDUCTOR RANGE (AWG)		DIMENSIONS (IN.)			
	RANGE FOR EQUAL MAIN AND TAP	MIN. TAP WITH ONE MAX. MAIN				
CAT. NO.	COPPER OR ALUMINUM		A	B	C	D
6CA	4 Sol.–6 Sol.	4 Sol.–12 Sol.	17/32	.236	23/32	1 9/32
4CA	2 Sol.–4 Sol.	2 Sol.–10 Sol.	19/32	.272	25/32	1 15/32
2CA	1 Str.–4 Sol.	1 Str.–8 Sol.	11/16	.330	7/8	1 5/8
1CA	1/0 Str.–2 Sol.	1/0 Str.–6 Sol.	7/8	.443	1 1/8	2 1/16
10CA	2/0 Str.–2 Sol.	2/0 Str.–6 Sol.	7/8	.443	1 1/8	2 1/16
40CA	4/0 Str.–2/0 Sol.	4/0 Str.–4 Sol.	1	.580	1 1/4	2 15/32

Service Post Connectors

For grounding of steel structures, fence posts or transformers using one or two cables.

Service Post Connectors

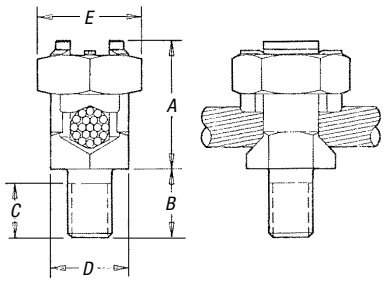
- For copper-to-copper connections
- For tapping one or two cables from bus bar
- Hex design bolts machined from high-conductivity bronze alloy
- Nuts and pressure bars cold-formed from high-strength copper or copper alloy
- Available in sizes for #12 – 500 kcmil stranded and #12 – #2 solid copper conductor
- Available in both single- and double-conductor versions
- UL® 486A and UL® 467 Listed



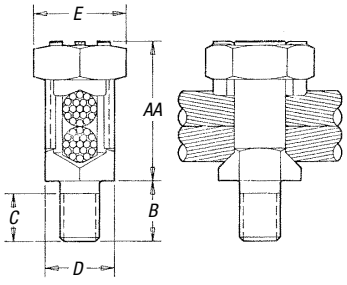
Blackburn Service Post Connectors are designed for applications including steel structure, fence post or transformer grounding involving one or two cables. They can also be used to tap one or two cables from bus bar.

Bolts used in the Service Post Connectors are machined from high-conductivity bronze alloy while the nuts are cold-formed from high strength, corrosion-resistant copper alloy. Pressure bars are copper through 4/0 size, while copper alloy is used for 350 kcmil size and above.

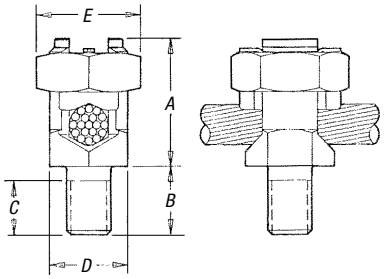
Bolts and nuts are of the traditional Blackburn® hex design for easy installation.



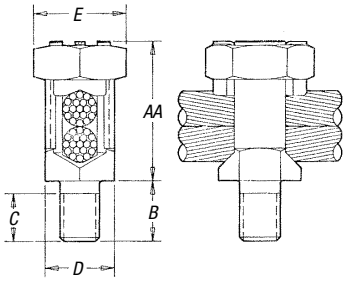
Single-Conductor Short Stud



Double-Conductor Short Stud



Single-Conductor Long Stud



Double-Conductor Long Stud

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Service Post Connectors

Single- and Double-Conductor Service Post Connectors, Short Stud

CAT. NO.		CONDUCTOR RANGE AWG MM² STRANDED MAX.	STRANDED MIN.	SOLID MAX.	SOLID MIN.	DIAMETER RANGE (IN.)	STUD SIZE	DIMENSIONS (IN.) A	AA	B	C	D	E
SP-DS	SP-SS												
SP0DS	SP0SS	8 6mm²	12 4mm²	8 10mm²	12 4mm²	.146–.081 —	¼–20 x ½	11/16	13/16	½	55/64	15/32	½
SP1DS	SP1SS	7 10mm²	10 6mm²	6 10mm²	10 6mm²	.164–.102 —	¼–20 x ½	13/16	31/32	½	55/64	15/32	21/32
SP2DS	SP2SS	5 16mm²	10 6mm²	4 —	10 —	.206–.102 —	5/16–18 x ⅝	15/16	1⅛	⅝	53/64	17/32	23/32
SP3DS	SP3SS	3 25mm²	10 6mm²	2 —	10 —	.26–.102 —	⅜–16 x ⅝	½	1¼	⅝	61/64	⅝	25/32
SP4DS	SP4SS	1 35mm²	8 10mm²	2 —	8 —	.332–.129 —	⅜–16 x ⅝	11/16	1⅜	⅝	61/64	11/16	⅞
SP5DS	SP5SS	1/0 50mm²	2 35mm²	1/0 —	2 —	.373–.258 —	½–13 x ¾	1¼	1 19/32	¾	1 5/64	¾	15/16
SP6DS	SP6SS	2/0 50mm²	2 35mm²	2/0 —	2 —	.419–.258 —	½–13 x ¾	1 13/32	1 13/16	¾	1 5/64	⅞	1 1/16
SP8DS	SP8SS	4/0 95mm²	2 35mm²	4/0 —	1 —	.528–.289 —	⅝–11 x 1	1 9/16	2 1/16	1	1 19/64	1	1 5/16
SP9DS	SP9SS	350 150mm²	1/0 50mm²	— —	— —	.681–.373 —	⅝–11 x 1	2	2¾	1¼	1 19/64	1 5/16	1 11/16
SP10DS	SP10SS	500 240mm²	3/0 95mm²	— —	— —	.814–.47 —	¾–10 x 1¼	2¼	3⅛	1¾	1 31/64	1½	1⅞

Single- and Double-Conductor Service Post Connectors, Long Stud

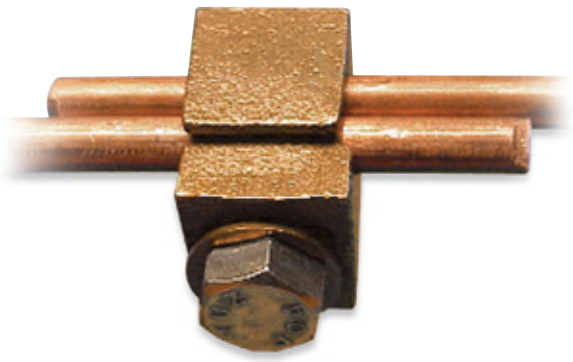
CAT NO.		CONDUCTOR RANGE AWG MM² STRANDED MAX.	STRANDED MIN.	SOLID MAX.	SOLID MIN.	DIAMETER RANGE (IN.)	STUD SIZE	DIMENSIONS (IN.) A	AA	B	C	D	E
SP-SL	SP-DL												
SP0SL	SP0DL	8 6mm²	12 4mm²	8 10mm²	12 4mm²	.146–.081 —	¼–20 x 1	11/16	13/16	1	55/64	15/32	½
SP1SL	SP1DL	7 10mm²	10 6mm²	6 10mm²	10 6mm²	.164–.102 —	¼–20 x 1	13/16	31/32	1	55/64	15/32	21/32
SP2SL	SP2DL	5 16mm²	10 6mm²	4 —	10 —	.206–.102 —	5/16–18 x 1	15/16	1⅛	1	53/64	17/32	23/32
SP3SL	SP3DL	3 25mm²	10 6mm²	2 —	10 —	.26–.102 —	⅜–16 x 1⅛	1	1¼	1⅛	61/64	⅝	25/32
SP4SL	SP4DL	1 35mm²	8 10mm²	2 —	8 —	.332–.129 —	⅜–16 x 1⅛	1 1/16	1⅜	1⅛	61/64	11/16	⅞
SP5SL	SP5DL	1/0 50mm²	2 35mm²	1/0 —	2 —	.373–.258 —	½–13 x 1¼	1¼	1 19/32	1¼	1 5/64	¾	15/16
SP6SL	SP6DL	2/0 50mm²	2 35mm²	2/0 —	2 —	.419–.258 —	½–13 x 1¼	1 13/32	1 13/16	1¼	1 5/64	⅞	1 1/16
SP8SL	SP8DL	4/0 95mm²	2 35mm²	4/0 —	1 —	.528–.289 —	⅝–11 x 1½	1 9/16	2 1/16	1½	1 19/64	1	1 5/16
SP9SL	SP9DL	350 150mm²	1/0 50mm²	— —	— —	.681–.373 —	⅝–11 x 1½	2	2¾	1½	1 19/64	1 5/16	1 11/16
SP10SL	SP10DL	500 240mm²	3/0 95mm²	— —	— —	.814–.47 —	¾–10 x 1¾	2¼	3⅛	1½	1 31/64	1½	1⅞

Parallel Groove Connectors

Create a superior electrical connection — while saving time and money.

Blackburn® Bronze ViceLock® Connectors

- Offer superior electrical performance
- Make a permanent connection
- Vibration resistant
- Install quickly and easily with no need for special or heavy tools
- Can be installed with live line tools
- V-grooves enable easy conductor alignment
- Simple to install without cross-threading
- Full thread engagement design increases bolt strength
- High-pressure/torque ratio ensures a low electrical resistance connection
- Helps reduce inventory by accepting a wide range of conductors





Specifications

- Silicon bronze material (CDA956000) for higher yield strength
- Large sizes include stainless steel hardware
- Bellcore approved

Typical Applications

- Distribution loads
- Service bonding
- Tap connections
- Ground connections
- Also has grounding capability with a variety of cable tray, channel and strut applications

	2 CONDUCTORS WIRE RANGE*			INNER	MASTER	COMPETITOR CROSS REF.	
CAT. NO.	MAX.	MIN.	DECIMAL (IN.)	CTN. QTY.	CTN. QTY.	FARGO	RELIABLE
VGC68	#6 Sol.	#10 Sol.	.162–.101	50	250	GC-5006	BVC-6
VGC68SH	#6 Sol.	#10 Sol.	.162–.101	50	250	GC-5006SH	—
VGC44	#4 Str.	#8 Sol.	.232–.128	50	250	GC-5004	BVC-4
VGC23	#2 Sol.	#6 Sol.	.286–.162	50	250	GC-5002	BVC-2
VGC12	#2 Str.	#5 Sol.	.320–.181	50	250	GC-5002S	BVC-2S
VGC2010	1/0 Str.	#4 Sol.	.390–.204	50	250	GC-5020	BVC-20
VGC3020	2/0 Str.	#3 Sol.	.438–.229	25	125	GC-5020S	BVC-20S
VGC4040	4/0 Str.	#1 Sol.	.552–.289	25	125	GC-5040	BVC-40

** Wire range indicates each connector's ability to accommodate two wires of the same size shown in the "MAX." or "MIN." columns.*

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Insulation Piercing Connectors

No need to strip conductor insulation or use tape after installation.

Type IPC — Talon Insulation Piercing Connectors

- For copper-to-copper, copper-to-aluminum and aluminum-to-aluminum applications (insulated conductor only)
- Performs as splice or tap for non-tension applications up to 600 volts, depending on size of connector
- Self insulated for hot line applications
- Six sizes cover range from #10–500 kcmil
- UL® 486B Listed AL9CU (90° C rated)



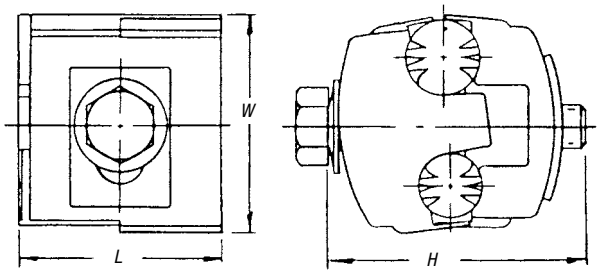


Fig. 1

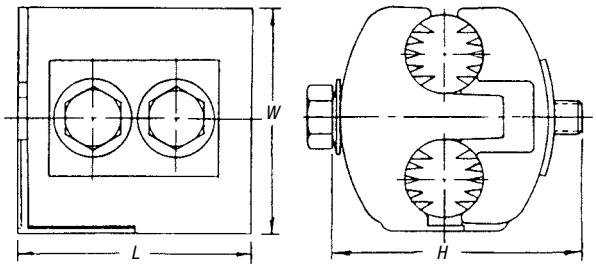


Fig. 2

CAT. NO.	AL OR CU CONDUCTOR RANGE AWG/MM² MAIN	TAP	NO. BOLTS	FIG.	DIMENSIONS (IN.) W	H	L
IPC1102*	1/0–8 50–6	2–8 35–6	1	1	29/16	2	1 17/32
IPC4111	4/0–1/0 95–50	1/0–6 50–16	2	2	2½	3	1 19/32
IPC4141	4/0–1/0 95–50	4/0–1/0 95–50	2	2	2⅝	3¼	1 29/32
IPC5041*	500–350 240–185	4/0–4 90–25	1	1	2	2½	2⅛
IPC3535	350–4/0 185–95	350–4/0 185–95	2	2	2 1/16	2½	2⅛
IPC3541	350–4/0 185–95	4/0–10 95–6	1	1	2¾	3	2⅝

** 600V Rating (all others 300V).*

Two-Bolt Connectors

Neoprene washers capture bolts in bottom casting for easy installation.

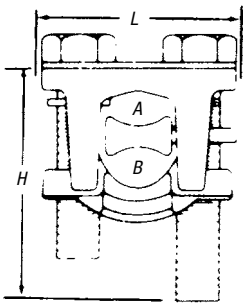


Type 2B — Two-Bolt Connector without Spacer

- Castings and bolts of high-strength copper alloy
- Removable cap
- UL® 486A Listed for copper conductor only

	CONDUCTOR RANGE (AWG OR KCMIL)				CONDUCTOR DIAMETER (B)		BOLT HEAD	DIMENSIONS (IN.)		
	MAIN		TAP							
CAT. NO.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.		L	H	D
2B10	1/0 Str.	2 Str.	1/0 Str.	10 Sol.	.746	.394	½	1 5/16	1¾	5/16
2B20BB	2/0 Str.	2 Str.	2/0 Str.	8 Sol.	.838	.420	½	1 5/16	1¼	5/16
2B40	4/0 Str.	1/0 Str.	4/0 Str.	6 Sol.	1.056	.530	9/16	1 23/32	1¾	⅜
2B350	350 kcmil	4/0 Str.	350 kcmil	4 Sol.	1.362	.726	¾	2⅛	2	½
2B500	500 kcmil	350 kcmil	500 kcmil	4 Sol.	1.626	.883	¾	2¼	2½	½
2B800	800 kcmil	600 kcmil	800 kcmil	2 Sol.	2.062	1.149	¾	2½	2½	½
2B1000	1000 kcmil	750 kcmil	1000 kcmil	2 Sol.	2.304	1.255	15/16	2 31/32	2¾	⅝

UL 486A



Extra-long bolt enables top casting to swing free over two conductors of maximum range.

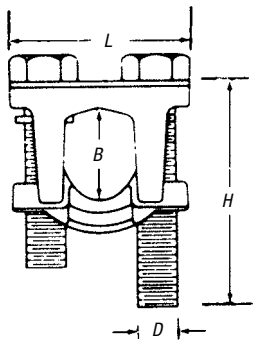


Type 2BX — One-Piece Two-Bolt Connector without Spacer

- Single-piece construction
- Castings and bolts of high-strength copper alloy
- Neoprene washer holds free bolt in place during installation
- UL® 486A Listed for copper conductor only

	CONDUCTOR RANGE (AWG OR KCMIL)				CONDUCTOR DIAMETER (B)		BOLT HEAD	DIMENSIONS (IN.)		
	MAIN		TAP							
CAT. NO.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.		L	H	D
2B10X	1/0 Str.	2 Str.	1/0 Str.	10 Sol.	.746	.394	½	1 5/16	1½	5/16
2B20X	2/0 Str.	2 Str.	2/0 Str.	8 Sol.	.838	.420	½	1 5/16	1½	5/16
2B40X	4/0 Str.	1/0 Str.	4/0 Str.	6 Sol.	1.056	.530	9/16	1 23/32	1⅞	⅜
2B350X	350 kcmil	4/0 Str.	350 kcmil	4 Sol.	1.362	.726	¾	2⅛	2¼	½
2B500X	500 kcmil	350 kcmil	500 kcmil	4 Sol.	1.626	.883	¾	2¼	2½	½
2B800X	800 kcmil	600 kcmil	800 kcmil	2 Sol.	2.062	1.149	¾	2½	2¾	½
2B1000X	1000 kcmil	750 kcmil	1000 kcmil	2 Sol.	2.304	1.255	15/16	2 31/32	3¼	⅝

UL 486A



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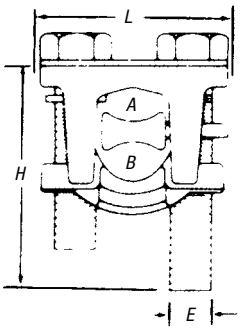
Two-Bolt Connectors

Ringed, contoured spacer swings easily over conductor.

Type 2BW — Two-Bolt Connector with Spacer



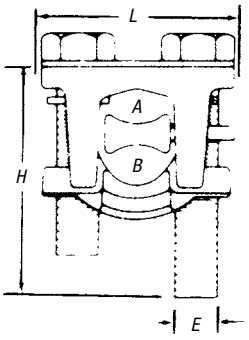
- For use on copper conductors only
- Single-piece construction spacer
- Castings and bolts made of high-strength copper alloy
- Spacer made of ductile, high-conductivity copper alloy
- UL® 486A Listed for copper conductor only



	CONDUCTOR RANGE (AWG OR KCMIL)				CONDUCTOR DIAMETER					DIMENSIONS (IN.)		
	MAIN		TAP		A		B					
CAT. NO.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	BOLT HEAD	L	H	E
2B10W	1/0 Str.	2 Str.	1/0 Str.	10 Sol.	.373	.292	.373	.102	½	1 5/16	1 5/8	5/16
2B20W	2/0 Str.	2 Str.	2/0 Str.	8 Sol.	.419	.292	.419	.128	½	1 5/16	1 5/8	5/16
2B40W	4/0 Str.	1/0 Str.	4/0 Str.	6 Sol.	.528	.368	.528	.162	9/16	1 23/32	2 1/8	3/8
2B350W	350 kcmil	4/0 Str.	350 kcmil	4 Sol.	.681	.522	.681	.204	¾	2 1/8	2½	½
2B500W	500 kcmil	350 kcmil	500 kcmil	4 Sol.	.813	.679	.813	.204	¾	2¼	2¾	½
2B800W	800 kcmil	600 kcmil	800 kcmil	2 Sol.	1.031	.891	1.031	.258	¾	2½	3¼	½
2B1000W	1000 kcmil	750 kcmil	1000 kcmil	2 Sol.	1.152	.997	1.152	.258	15/16	2 31/32	3¾	5/8

For use on copper, aluminum and ACSR conductors.

Type 2BPW — Two-Bolt Connector with Spacer





- Single-piece construction spacer
- UL® 486A Listed for copper conductor only

	CONDUCTOR RANGE (AWG OR KCMIL)				CONDUCTOR DIAMETER					DIMENSIONS (IN.)		
	MAIN		TAP		A		B					
CAT. NO.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	BOLT HEAD	L	H	E
2B10PW	1/0–2	1/0–6	1/0 Str.–2 Str.	1/0 Str.–2 Sol.	.398	.292	.398	.102	½	1 5/16	1 5/8	5/16
2B20PW	2/0–2	2/0–6	2/0 Str.–2 Str.	1/0 Str.–2 Sol.	.447	.292	.447	.128	½	1 5/16	1 5/8	5/16
2B40PW	4/0–1/0	4/0–6	4/0 Str.–1/0 Str.	4/0 Str.–1/0 Sol.	.563	.368	.563	.162	9/16	1 23/32	2 1/8	3/8
2B350PW	350–4/0	350–4	350–4/0	350–4 Sol.	.680	.522	.680	.204	¾	2 1/8	2½	½
2B500PW	397.5–336.4	397.5–4	500–350	500–4 Sol.	.813	.679	.813	.204	¾	2¼	2¾	½
2B800PW	666.6–397.5	666.6–2	800–600	800–2 Sol.	1.031	.891	1.031	.258	¾	2½	3¼	½
2B1000PW	900–666.6	900–2	1000–750	1000–2 Sol.	1.162	.997	1.162	.258	15/16	2 31/32	3¾	5/8

Insulated Multi-Taps

These dual-rated blocks can be used with copper or aluminum cable.

Aluminum Multi-Tap Encapsulated Cable Blocks — One-Way Configuration

- Versatile design supports a wide range of cable sizes and number of outlets available in one-way configurations
- Clear PVC insulation enables safe and time-saving installation with no taping required
- Meets or exceeds ANSI C119.4 specifications



CSB 250-5 S



CSR 2/0

CAT. NO.	NO. OF OUTLETS	WIRE RANGE	SCREW SIZE	DIMENSIONS (IN.) LENGTH	WIDTH	HEIGHT
Splices						
CSR 2/0	2	#14–2/0	⅜ Hex	2¾	⅞	1⅜
CSR 250	2	#6–250		4⅛	1⅛	2⅛
CSR 350	2	#6–350		4¾	1⅜	2½
CSR 500	2	2/0–500		6½	1⅝	2⅞
Cable Blocks						
CSB 4-2 S	2	#4–#14	Slotted	1⅛	1⅝	1$^{5}/_{16}$
CSB 4-3 S	3			1$^{9}/_{16}$		
CSB 4-4 SAH*	4			2$^{1}/_{16}$		
CSB 4-5 S	5			2$^{9}/_{16}$		
CSB 4-6 S	6			3$^{1}/_{16}$		
CSB 4-7 S	7			3$^{9}/_{16}$		
CSB 4-8 SAH*	8			4$^{1}/_{16}$		
CSB 2/0-2 S	2	2/0–#14	⅜ Hex	1⅝	1¾	1⅜
CSB 2/0-3 S	3			2⅜		
CSB 2/0-4 S	4			3⅛		
CSB 2/0-5 S	5			3⅞		
CSB 2/0-6 S	6			4⅝		
CSB 2/0-7 S	7			5⅜		
CSB 2/0-8 S	8			6⅛		
CSB 250-2 S	2	250–#6	$^{5}/_{16}$ Hex	1⅞	2⅝	2⅛
CSB 250-3 S	3			2$^{27}/_{32}$		
CSB 250-4 S	4			3$^{13}/_{16}$		
CSB 250-5 S	5			4$^{25}/_{32}$		
CSB 250-6 S	6			5¾		
CSB 250-7-S	7			6¾		
CSB 250-8 S	8			7$^{45}/_{64}$		
CSB 350-2 S	2	350–#10	$^{5}/_{16}$ Hex	2¼	3⅛	2½
CSB 350-3 S	3			3¼		
CSB 350-4 S	4			4¼		
CSB 350-5 S	5			5¼		
CSB 350-6 S	6			6¼		
CSB 350-7 S	7			7¼		
CSB 350-8 S	8			8¼		
CSB 500-2 S	2	500-#6	$^{5}/_{16}$ Hex	2⅞	3$^{3}/_{16}$	2¾
CSB 500-3 S	3			4⅛		
CSB 500-4 S	4			5⅜		
CSB 500-5 S	5			6⅝		
CSB 500-6 S	6			7⅞		
CSB 500-7 S	7			9⅛		
CSB 500-8 S	8			10⅜		

** Not UL Listed, includes hex screw.*

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Insulated Multi-Taps

These dual-rated blocks can be used with copper or aluminum cable.

Aluminum Multi-Tap Encapsulated Cable Blocks — Two-Way Configuration

- Versatile design supports a wide range of cable sizes and number of outlets available in one-way configurations
- Clear PVC insulation enables safe and time-saving installation with no taping required
- Meets or exceeds ANSI C119.4 specifications



CSB 500-8

CAT. NO.	NO. OF OUTLETS	WIRE RANGE	SCREW SIZE	DIMENSIONS (IN.) LENGTH	WIDTH	HEIGHT
CSB 4-2	2	#4–#14	Slotted	1 1/8	1 5/8	1 5/16
CSB 4-3	3			1 9/16		
CSB 4-4	4			2 1/16		
CSB 4-5	5			2 9/16		
CSB 4-6	6			3 1/16		
CSB 4-7	7			3 9/16		
CSB 4-8	8			4 1/16		
CSB 2/0-2	2	2/0–#14	3/16 Hex	1 5/8	1 3/4	1 3/8
CSB 2/0-3	3			2 3/8		
CSB 2/0-4	4			3 1/8		
CSB 2/0-5	5			3 7/8		
CSB 2/0-6	6			4 5/8		
CSB 2/0-7	7			5 3/8		
CSB 2/0-8	8			6 1/8		
CSB 250-2	2	250–#6	5/16 Hex	1 7/8	2 5/8	2 1/8
CSB 250-3	3			2 27/32		
CSB 250-4	4			3 13/16		
CSB 250-5	5			4 25/32		
CSB 250-6	6			5 3/4		
CSB 250-7	7			6 3/4		
CSB 250-8	8			7 45/64		
CSB 350-2	2	350–#10	3/8 Hex	2 1/4	3 1/8	2 1/2
CSB 350-3	3			3 1/4		
CSB 350-4	4			4 1/4		
CSB 350-5	5			5 1/4		
CSB 350-6	6			6 1/4		
CSB 350-7	7			7 1/4		
CSB 350-8	8			8 1/4		
CSB 500-2	2	500–#6	3/8 Hex	2 7/8	3 3/16	2 3/4
CSB 500-3	3			4 1/8		
CSB 500-4	4			5 3/8		
CSB 500-5	5			6 5/8		
CSB 500-6	6			7 7/8		
CSB 500-7	7			9 1/8		
CSB 500-8	8			10 3/8		
CSB 750-2	2	750–1/0	3/8 Hex	3	3 3/8	2 1/4
CSB 750-3	3			4 7/16		
CSB 750-4	4			5 3/16		
CSB 750-5	5			7 1/4		
CSB 750-6	6			8 5/8		
CSB 750-7	7			10		
CSB 750-8	8			1 17/16		
CSB 750-9	9			12 13/16		
CSB 750-10	10			14 1/4		

Insulated Multi-Taps

Superior connections with lower installation costs.

AMT Connectors

- PVC insulation eliminates insulation failures and reduces outage costs
- UV-resistant material
- Compact design provides space efficiencies
- UL® Listed

The high quality and built-in flexibility of Blackburn® AMT Connectors reduce the cost of field installations on splices, taps and terminations. They're easy and quick to install and provide superior insulation that lasts the life of the connection.



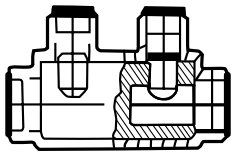


Fig.1

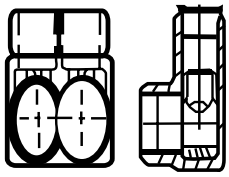


Fig. 2

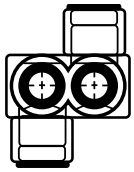


Fig.3

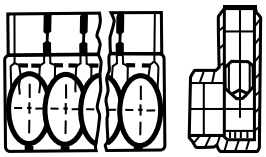


Fig. 4

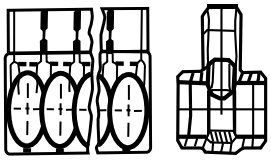


Fig. 5

AMT Aluminum Splice

CAT. NO.	FIGURE	NO. OF PORTS	WIRE RANGE	LENGTH	WIDTH	HEIGHT	HEX SIZE	STD. PKG. QTY.
AMTSR10	1	—	1/0–14 STR.	3.25	0.94	1.63	3/16	4
AMTSR250	1	—	250 kcmil–6 STR.	3.96	1.19	2.17	5/16	4
AMTSR350	1	—	350 kcmil–6 STR.	4.43	1.31	2.62	5/16	2
AMTSR500	1	—	500 kcmil–4 STR.	5.38	1.44	3.03	3/8	2
AMTSR750	1	—	750 kcmil–250 kcmil	7.25	1.75	3.16	1/2	2

AMT Splice Offset

CAT. NO.	FIGURE	NO. OF PORTS	WIRE RANGE	LENGTH	WIDTH	HEIGHT	HEX SIZE	STD. PKG. QTY.
AMTTC4	3	2	4–14 STR.	1.24	1.25	1.42	1/8	12
AMTT10	3	2	1/0–14 STR.	1.63	1.63	1.63	3/16	6
AMTT20	3	2	2/0–14 STR.	1.41	1.50	1.35	Slotted Screw	25
AMTT30	3	2	3/0–6 STR.	1.89	1.68	1.86	3/16	6
AMTT250	3	2	250 kcmil–10 STR.	2.03	2.63	2.2	5/16	25

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Insulated Multi-Taps

AMT Multi-Port Connector "Same Side"

CAT. NO.	FIG.	NO. OF PORTS	WIRE RANGE	LENGTH	WIDTH	HEIGHT	HEX SIZE	STD. PKG. QTY.
AMTC4	2	2	4–14 STR.	1.11	1.10	1.35	Slotted Screw	25
AMTS4142	2	2	4–14 STR.	1.24	1.22	1.42	1/8	12
AMTS4143	4	3	4–14 STR.	1.7	1.22	1.42	1/8	12
AMTS4144	4	4	4–14 STR.	2.16	1.22	1.42	1/8	6
AMTS4145	4	5	4–14 STR.	2.61	1.22	1.42	1/8	6
AMTS4146	4	6	4–14 STR.	3.07	1.22	1.42	1/8	6
AMTS4147	4	7	4–14 STR.	3.53	1.22	1.42	1/8	4
AMTS4148	4	8	4–14 STR.	3.99	1.22	1.42	1/8	4
AMTS4149	4	9	4–14 STR.	4.45	1.22	1.42	1/8	4
AMTS41410	4	10	4–14 STR.	4.9	1.22	1.42	1/8	4
AMTS41411	4	11	4–14 STR.	5.36	1.22	1.42	1/8	3
AMTS41412	4	12	4–14 STR.	5.82	1.22	1.42	1/8	3
AMTS41413	4	13	4–14 STR.	6.28	1.22	1.42	1/8	2
AMTS41414	4	14	4–14 STR.	6.74	1.22	1.42	1/8	2
AMTS10142	2	2	1/0–14 STR.	1.67	1.53	1.63	3/16	12
AMTS10143	4	3	1/0–14 STR.	2.29	1.53	1.63	3/16	12
AMTS10144	4	4	1/0–14 STR.	2.92	1.53	1.63	3/16	6
AMTS10145	4	5	1/0–14 STR.	3.54	1.53	1.63	3/16	6
AMTS10146	4	6	1/0–14 STR.	4.17	1.53	1.63	3/16	6
AMTS10147	4	7	1/0–14 STR.	4.79	1.53	1.63	3/16	4
AMTS10148	4	8	1/0–14 STR.	5.42	1.53	1.63	3/16	4
AMTS10149	4	9	1/0–14 STR.	6.04	1.53	1.63	3/16	4
AMTS101410	4	10	1/0–14 STR.	6.67	1.53	1.63	3/16	4
AMTS101411	4	11	1/0–14 STR.	7.29	1.53	1.63	3/16	3
AMTS101412	4	12	1/0–14 STR.	7.92	1.53	1.63	3/16	3
AMTS101413	4	13	1/0–14 STR.	8.54	1.53	1.63	3/16	2
AMTS101414	4	14	1/0–14 STR.	9.17	1.53	1.63	3/16	2
AMT20	2	2	2/0–14 STR.	1.41	1.10	1.35	5/16	25
AMTS3062	2	2	3/0–6 STR.	1.89	1.58	1.86	3/16	12
AMTS3063	4	3	3/0–6 STR.	2.65	1.58	1.86	3/16	6
AMTS3064	4	4	3/0–6 STR.	3.42	1.58	1.86	3/16	6
AMTS3065	4	5	3/0–6 STR.	4.18	1.58	1.86	3/16	4
AMTS3066	4	6	3/0–6 STR.	4.95	1.58	1.86	3/16	4
AMTS3067	4	7	3/0–6 STR.	5.71	1.58	1.86	3/16	3
AMTS3068	4	8	3/0–6 STR.	6.48	1.58	1.86	3/16	3
AMTS3069	4	9	3/0–6 STR.	7.24	1.58	1.86	3/16	3
AMTS30610	4	10	3/0–6 STR.	8	1.58	1.86	3/16	2
AMTS30611	4	11	3/0–6 STR.	8.77	1.58	1.86	3/16	2
AMTS30612	4	12	3/0–6 STR.	9.54	1.58	1.86	3/16	2
AMTS30613	4	13	3/0–6 STR.	10.3	1.58	1.86	3/16	2
AMTS30614	4	14	3/0–6 STR.	11.07	1.58	1.86	3/16	2
AMT250	2	2	250 kcmil–10 STR.	2.03	2.00	2.20	5/16	25
AMTS25062	4	2	250 kcmil–6 STR.	2.17	1.91	2.17	5/16	6
AMTS25063	4	3	250 kcmil–6 STR.	3.07	1.91	2.17	5/16	6
AMTS25064	4	4	250 kcmil–6 STR.	3.96	1.91	2.17	5/16	6
AMTS25065	4	5	250 kcmil–6 STR.	4.85	1.91	2.17	5/16	4
AMTS25066	4	6	250 kcmil–6 STR.	5.75	1.91	2.17	5/16	4
AMTS25067	4	7	250 kcmil–6 STR.	6.64	1.91	2.17	5/16	3
AMTS25068	4	8	250 kcmil–6 STR.	7.53	1.91	2.17	5/16	3
AMTS25069	4	9	250 kcmil–6 STR.	8.42	1.91	2.17	5/16	3

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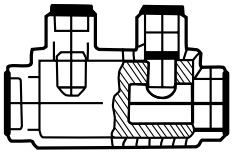


Fig. 1

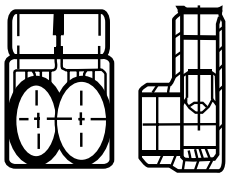


Fig. 2

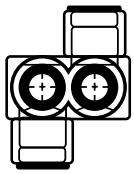


Fig. 3

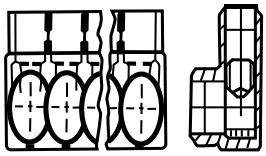


Fig. 4

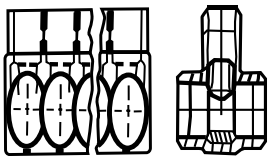


Fig. 5

Insulated Multi-Taps

AMT Multi-Port Connector "Same Side" *(continued)*

CAT. NO.	FIG.	NO. OF PORTS	WIRE RANGE	LENGTH	WIDTH	HEIGHT	HEX SIZE	STD. PKG. QTY.
AMTS250610	4	10	250 kcmil–6 STR.	9.32	1.91	2.17	5⁄16	2
AMTS250611	4	11	250 kcmil–6 STR.	10.21	1.91	2.17	5⁄16	2
AMTS250612	4	12	250 kcmil–6 STR.	11.1	1.91	2.17	5⁄16	2
AMTS250613	4	13	250 kcmil–6 STR.	12	1.91	2.17	5⁄16	1
AMTS250614	4	14	250 kcmil–6 STR.	12.89	1.91	2.17	5⁄16	1
AMT350	2	2	350 kcmil–10 STR.	2.35	2.13	2.63	5⁄16	25
AMTS35062	2	2	350 kcmil–6 STR.	2.51	2.03	2.62	5⁄16	4
AMTS35063	4	3	350 kcmil–6 STR.	3.56	2.03	2.62	5⁄16	4
AMTS35064	4	4	350 kcmil–6 STR.	4.61	2.03	2.62	5⁄16	3
AMTS35065	4	5	350 kcmil–6 STR.	5.66	2.03	2.62	5⁄16	3
AMTS35066	4	6	350 kcmil–6 STR.	6.71	2.03	2.62	5⁄16	2
AMTS35067	4	7	350 kcmil–6 STR.	7.76	2.03	2.62	5⁄16	2
AMTS35068	4	8	350 kcmil–6 STR.	8.81	2.03	2.62	5⁄16	2
AMTS35069	4	9	350 kcmil–6 STR.	9.86	2.03	2.62	5⁄16	2
AMTS350610	4	10	350 kcmil–6 STR.	10.91	2.03	2.62	5⁄16	2
AMTS350611	4	11	350 kcmil–6 STR.	11.96	2.03	2.62	5⁄16	1
AMTS350612	4	12	350 kcmil–6 STR.	13.01	2.03	2.62	5⁄16	1
AMTS350613	4	13	350 kcmil–6 STR.	14.06	2.03	2.62	5⁄16	1
AMTS350614	4	14	350 kcmil–6 STR.	15.11	2.03	2.62	5⁄16	1
AMT500	2	2	500 kcmil–6 STR.	2.62	2.16	2.91	3⁄8	25
AMTS50042	2	2	500 kcmil–4 STR.	2.97	2.28	3.04	3⁄8	3
AMTS50043	4	3	500 kcmil–4 STR.	4.12	2.28	3.04	3⁄8	3
AMTS50044	4	4	500 kcmil–4 STR.	5.28	2.28	3.04	3⁄8	3
AMTS50045	4	5	500 kcmil–4 STR.	6.44	2.28	3.04	3⁄8	2
AMTS50046	4	6	500 kcmil–4 STR.	7.59	2.28	3.04	3⁄8	2
AMTS50047	4	7	500 kcmil–4 STR.	8.75	2.28	3.04	3⁄8	2
AMTS50048	4	8	500 kcmil–4 STR.	9.9	2.28	3.04	3⁄8	2
AMTS50049	4	9	500 kcmil–4 STR.	11.06	2.28	3.04	3⁄8	2
AMTS500410	4	10	500 kcmil–4 STR.	12.22	2.28	3.04	3⁄8	1
AMTS500411	4	11	500 kcmil–4 STR.	13.37	2.28	3.04	3⁄8	1
AMTS500412	4	12	500 kcmil–4 STR.	14.53	2.28	3.04	3⁄8	1
AMTS500413	4	13	500 kcmil–4 STR.	15.68	2.28	3.04	3⁄8	1
AMTS500414	4	14	500 kcmil–4 STR.	16.84	2.28	3.04	3⁄8	1
AMTS7502502	4	2	750 kcmil–250 kcmil	3.47	2.75	3.31	½	3
AMTS7502503	4	3	750 kcmil–250 kcmil	4.89	2.75	3.31	½	3
AMTS7502504	4	4	750 kcmil–250 kcmil	6.32	2.75	3.31	½	2
AMTS7502505	4	5	750 kcmil–250 kcmil	7.74	2.75	3.31	½	1
AMTS7502506	4	6	750 kcmil–250 kcmil	9.16	2.75	3.31	½	1
AMTS7502507	4	7	750 kcmil–250 kcmil	10.58	2.75	3.31	½	1
AMTS7502508	4	8	750 kcmil–250 kcmil	12	2.75	3.31	½	1
AMTS7502509	4	9	750 kcmil–250 kcmil	13.43	2.75	3.31	½	1
AMTS75025010	4	10	750 kcmil–250 kcmil	14.85	2.75	3.31	½	1
AMTS75025011	4	11	750 kcmil–250 kcmil	16.27	2.75	3.31	½	1
AMTS75025012	4	12	750 kcmil–250 kcmil	17.69	2.75	3.31	½	1
AMTS75025013	4	13	750 kcmil–250 kcmil	19.11	2.75	3.31	½	1
AMTS75025014	4	14	750 kcmil–250 kcmil	20.54	2.75	3.31	½	1

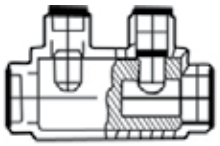


Fig. 1

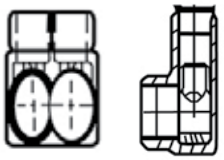


Fig. 2

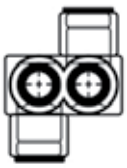


Fig. 3

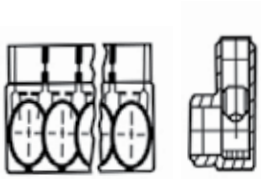


Fig. 4

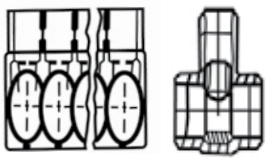


Fig. 5

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Insulated Multi-Taps

AMT Multi-Port Connector "Double" Both Sides

CAT. NO.	FIG.	NO. OF PORTS	WIRE RANGE	LENGTH	WIDTH	HEIGHT	HEX SIZE	STD. PKG. QTY.
AMTD4142	5	2	4–14 STR.	1.24	1.25	1.42	1/8	12
AMTD4143	5	3	4–14 STR.	1.7	1.25	1.42	1/8	12
AMTD4144	5	4	4–14 STR.	2.16	1.25	1.42	1/8	6
AMTD4145	5	5	4–14 STR.	2.61	1.25	1.42	1/8	6
AMTD4146	5	6	4–14 STR.	3.07	1.24	1.42	1/8	6
AMTD4147	5	7	4–14 STR.	3.53	1.25	1.42	1/8	4
AMTD4148	5	8	4–14 STR.	3.99	1.25	1.42	1/8	4
AMTD4149	5	9	4–14 STR.	4.45	1.25	1.42	1/8	4
AMTD41410	5	10	4–14 STR.	4.9	1.25	1.42	1/8	4
AMTD41411	5	11	4–14 STR.	5.36	1.25	1.42	1/8	3
AMTD41412	5	12	4–14 STR.	5.82	1.25	1.42	1/8	3
AMTD41413	5	13	4–14 STR.	6.28	1.25	1.42	1/8	2
AMTD41414	5	14	4–14 STR.	6.74	1.25	1.42	3/16	2
AMTD10142	5	2	1/0–14 STR.	1.67	1.63	1.63	3/16	12
AMTD10143	5	3	1/0–14 STR.	2.29	1.63	1.63	3/16	12
AMTD10144	5	4	1/0–14 STR.	2.92	1.63	1.63	3/16	6
AMTD10145	5	5	1/0–14 STR.	3.54	1.63	1.63	3/16	6
AMTD10146	5	6	1/0–14 STR.	4.17	1.63	1.63	3/16	6
AMTD10147	5	7	1/0–14 STR.	4.79	1.63	1.63	3/16	4
AMTD10148	5	8	1/0–14 STR.	5.42	1.63	1.63	3/16	4
AMTD10149	5	9	1/0–14 STR.	6.04	1.63	1.63	3/16	4
AMTD101410	5	10	1/0–14 STR.	6.67	1.63	1.63	3/16	4
AMTD101411	5	11	1/0–14 STR.	7.29	1.63	1.63	3/16	3
AMTD101412	5	12	1/0–14 STR.	7.92	1.63	1.63	3/16	3
AMTD101413	5	13	1/0–14 STR.	8.54	1.63	1.63	3/16	2
AMTD101414	5	14	1/0–14 STR.	9.17	1.63	1.63	3/16	2
AMTD3062	5	2	3/0–6 STR.	1.89	1.68	1.86	3/16	6
AMTD3063	5	3	3/0–6 STR.	2.65	1.68	1.86	3/16	6
AMTD3064	5	4	3/0–6 STR.	3.42	1.68	1.86	3/16	6
AMTD3065	5	5	3/0–6 STR.	4.18	1.68	1.86	3/16	4
AMTD3066	5	6	3/0–6 STR.	4.95	1.68	1.86	3/16	4
AMTD3067	5	7	3/0–6 STR.	5.71	1.68	1.86	3/16	3
AMTD3068	5	8	3/0–6 STR.	6.48	1.68	1.86	3/16	3
AMTD3069	5	9	3/0–6 STR.	7.24	1.68	1.86	3/16	3
AMTD30610	5	10	3/0–6 STR.	8.01	1.68	1.86	3/16	2
AMTD30611	5	11	3/0–6 STR.	8.77	1.68	1.86	3/16	2
AMTD30612	5	12	3/0–6 STR.	9.54	1.68	1.86	3/16	2
AMTD30613	5	13	3/0–6 STR.	10.3	1.68	1.86	3/16	2
AMTD30614	5	14	3/0–6 STR.	11.07	1.68	1.86	3/16	2
AMTD25062	5	2	250 kcmil–6 STR.	2.17	2.13	2.17	5/16	6
AMTD25063	5	3	250 kcmil–6 STR.	3.07	2.13	2.17	5/16	6
AMTD25064	5	4	250 kcmil–6 STR.	3.96	2.13	2.17	5/16	6
AMTD25065	5	5	250 kcmil–6 STR.	4.85	2.13	2.17	5/16	4
AMTD25066	5	6	250 kcmil–6 STR.	5.75	2.13	2.17	5/16	4
AMTD25067	5	7	250 kcmil–6 STR.	6.64	2.13	2.17	5/16	3
AMTD25068	5	8	250 kcmil–6 STR.	7.53	2.13	2.17	5/16	3
AMTD25069	5	9	250 kcmil–6 STR.	8.42	2.13	2.17	5/16	3
AMTD250610	5	10	250 kcmil–6 STR.	9.32	2.13	2.17	5/16	2
AMTD250611	5	11	250 kcmil–6 STR.	10.21	2.13	2.17	5/16	2
AMTD250612	5	12	250 kcmil–6 STR.	11.1	2.13	2.17	5/16	2
AMTD250613	5	13	250 kcmil–6 STR.	12	2.13	2.17	5/16	1
AMTD250614	5	14	250 kcmil–6 STR.	12.89	2.13	2.17	5/16	1

continued on next page

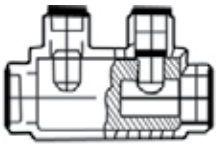


Fig. 1

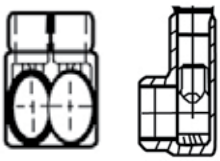


Fig. 2

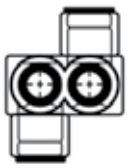


Fig. 3

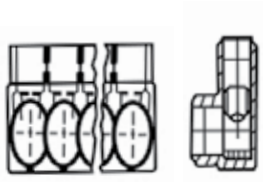


Fig. 4

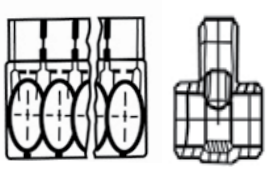


Fig. 5

Insulated Multi-Taps

AMT Multi-Port Connector "Double" Both Sides *(continued)*

CAT. NO.	FIG.	NO. OF PORTS	WIRE RANGE	LENGTH	WIDTH	HEIGHT	HEX SIZE	STD. PKG. QTY.
AMTD35062	5	2	350 kcmil–6 STR.	2.51	2.25	2.62	5/16	4
AMTD35063	5	3	350 kcmil–6 STR.	3.56	2.25	2.62	5/16	4
AMTD35064	5	4	350 kcmil–6 STR.	4.61	2.25	2.62	5/16	3
AMTD35065	5	5	350 kcmil–6 STR.	5.67	2.25	2.62	5/16	3
AMTD35066	5	6	350 kcmil–6 STR.	6.71	2.25	2.62	5/16	3
AMTD35067	5	7	350 kcmil–6 STR.	7.76	2.25	2.62	5/16	2
AMTD35068	5	8	350 kcmil–6 STR.	8.81	2.25	2.62	5/16	2
AMTD35069	5	9	350 kcmil–6 STR.	9.86	2.25	2.62	5/16	2
AMTD350610	5	10	350 kcmil–6 STR.	10.91	2.25	2.62	5/16	2
AMTD350611	5	11	350 kcmil–6 STR.	11.96	2.25	2.62	5/16	1
AMTD350612	5	12	350 kcmil–6 STR.	13.01	2.25	2.62	5/16	1
AMTD350613	5	13	350 kcmil–6 STR.	14.06	2.25	2.62	5/16	1
AMTD350614	5	14	350 kcmil–6 STR.	15.11	2.25	2.62	5/16	1
AMTD50042	5	2	500 kcmil–4 STR.	2.97	2.63	3.04	3/8	3
AMTD50043	5	3	500 kcmil–4 STR.	4.12	2.63	3.04	3/8	3
AMTD50044	5	4	500 kcmil–4 STR.	5.28	2.63	3.04	3/8	3
AMTD50045	5	5	500 kcmil–4 STR.	6.44	2.63	3.04	3/8	2
AMTD50046	5	6	500 kcmil–4 STR.	7.59	2.63	3.04	3/8	2
AMTD50047	5	7	500 kcmil–4 STR.	8.75	2.63	3.04	3/8	2
AMTD50048	5	8	500 kcmil–4 STR.	9.9	2.63	3.04	3/8	2
AMTD50049	5	9	500 kcmil–4 STR.	11.06	2.63	3.04	3/8	2
AMTD500410	5	10	500 kcmil–4 STR.	12.22	2.63	3.04	3/8	1
AMTD500411	5	11	500 kcmil–4 STR.	13.37	2.63	3.04	3/8	1
AMTD500412	5	12	500 kcmil–4 STR.	14.53	2.63	3.04	3/8	1
AMTD500413	5	13	500 kcmil–4 STR.	15.68	2.63	3.04	3/8	1
AMTD500414	5	14	500 kcmil–4 STR.	16.84	2.63	3.04	3/8	1
AMTD7502502	5	2	750 kcmil–250 kcmil	3.47	3.25	3.31	1/2	3
AMTD7502503	5	3	750 kcmil–250 kcmil	4.89	3.25	3.31	1/2	3
AMTD7502504	5	4	750 kcmil–250 kcmil	6.32	3.25	3.31	1/2	2
AMTD7502505	5	5	750 kcmil–250 kcmil	7.74	3.25	3.31	1/2	1
AMTD7502506	5	6	750 kcmil–250 kcmil	9.16	3.25	3.31	1/2	1
AMTD7502507	5	7	750 kcmil–250 kcmil	10.58	3.25	3.31	1/2	1
AMTD7502508	5	8	750 kcmil–250 kcmil	12	3.25	3.31	1/2	1
AMTD7502509	5	9	750 kcmil–250 kcmil	13.43	3.25	3.31	1/2	1
AMTD75025010	5	10	750 kcmil–250 kcmil	14.85	3.25	3.31	1/2	1
AMTD75025011	5	11	750 kcmil–250 kcmil	16.27	3.25	3.31	1/2	1
AMTD75025012	5	12	750 kcmil–250 kcmil	17.69	3.25	3.31	1/2	1
AMTD75025013	5	13	750 kcmil–250 kcmil	19.11	3.25	3.31	1/2	1
AMTD75025014	5	14	750 kcmil–250 kcmil	20.54	3.25	3.31	1/2	1

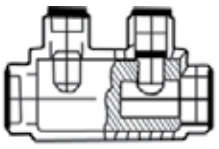


Fig. 1

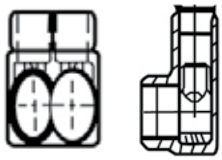


Fig. 2

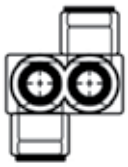


Fig. 3

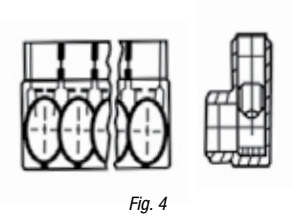


Fig. 4

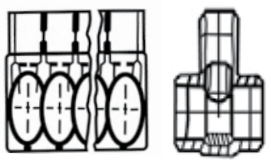


Fig. 5

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Insulated Multi-Taps

AMT Multi-Port Connector "Double" Both Sides *(continued)*

CAT. NO.	FIG.	NO. OF PORTS	WIRE RANGE	LENGTH	WIDTH	HEIGHT	HEX SIZE	STD. PKG. QTY.
AMTDM3062	5	2	3/0–6 STR.	3.42	1.68	1.86	3/16	6
AMTDM3063	5	3	3/0–6 STR.	4.18	1.68	1.86	3/16	4
AMTDM3064	5	4	3/0–6 STR.	4.95	1.68	1.86	3/16	4
AMTDM3065	5	5	3/0–6 STR.	5.71	1.68	1.86	3/16	3
AMTDM3066	5	6	3/0–6 STR.	6.48	1.68	1.86	3/16	3
AMTDM3067	5	7	3/0–6 STR.	7.24	1.68	1.86	3/16	3
AMTDM3068	5	8	3/0–6 STR.	8.01	1.68	1.86	3/16	2
AMTDM3069	5	9	3/0–6 STR.	8.77	1.68	1.86	3/16	2
AMTDM30610	5	10	3/0–6 STR.	9.54	1.68	1.86	3/16	2
AMTDM30611	5	11	3/0–6 STR.	10.3	1.68	1.86	3/16	2
AMTDM30612	5	12	3/0–6 STR.	11.07	1.68	1.86	3/16	2
AMTDM25062	5	2	250 kcmil–6 STR.	3.96	2.13	2.17	5/16	6
AMTDM25063	5	3	250 kcmil–6 STR.	4.85	2.13	2.17	5/16	4
AMTDM25064	5	4	250 kcmil–6 STR.	5.73	2.13	2.17	5/16	4
AMTDM25065	5	5	250 kcmil–6 STR.	6.64	2.13	2.17	5/16	3
AMTDM25066	5	6	250 kcmil–6 STR.	7.53	2.13	2.17	5/16	3
AMTDM25067	5	7	250 kcmil–6 STR.	8.42	2.13	2.17	5/16	3
AMTDM25068	5	8	250 kcmil–6 STR.	9.32	2.13	2.17	5/16	2
AMTDM25069	5	9	250 kcmil–6 STR.	10.21	2.13	2.17	5/16	2
AMTDM250610	5	10	250 kcmil–6 STR.	11.1	2.13	2.17	5/16	2
AMTDM250611	5	11	250 kcmil–6 STR.	12	2.13	2.17	5/16	1
AMTDM250612	5	12	250 kcmil–6 STR.	12.89	2.13	2.17	5/16	1
AMTDM35062	5	2	350 kcmil–6 STR.	4.61	2.25	2.62	5/16	3
AMTDM35063	5	3	350 kcmil–6 STR.	5.67	2.25	2.62	5/16	3
AMTDM35064	5	4	350 kcmil–6 STR.	6.71	2.25	2.62	5/16	3
AMTDM35065	5	5	350 kcmil–6 STR.	7.76	2.25	2.62	5/16	2
AMTDM35066	5	6	350 kcmil–6 STR.	8.81	2.25	2.62	5/16	2
AMTDM35067	5	7	350 kcmil–6 STR.	9.86	2.25	2.62	5/16	2
AMTDM35068	5	8	350 kcmil–6 STR.	10.91	2.25	2.62	5/16	2
AMTDM35069	5	9	350 kcmil–6 STR.	11.96	2.25	2.62	5/16	1
AMTDM350610	5	10	350 kcmil–6 STR.	13.01	2.25	2.62	5/16	1
AMTDM350611	5	11	350 kcmil–6 STR.	14.06	2.25	2.62	5/16	1
AMTDM350612	5	12	350 kcmil–6 STR.	15.11	2.25	2.62	5/16	1
AMTDM50042	5	2	500 kcmil–4 STR.	5.25	2.63	3.04	3/8	3
AMTDM50043	5	3	500 kcmil–4 STR.	6.44	2.63	3.04	3/8	2
AMTDM50044	5	4	500 kcmil–4 STR.	7.59	2.63	3.04	3/8	2
AMTDM50045	5	5	500 kcmil–4 STR.	8.75	2.63	3.04	3/8	2
AMTDM50046	5	6	500 kcmil–4 STR.	9.9	2.63	3.04	3/8	2
AMTDM50047	5	7	500 kcmil–4 STR.	11.06	2.63	3.04	3/8	2
AMTDM50048	5	8	500 kcmil–4 STR.	12.22	2.63	3.04	3/8	1
AMTDM50049	5	9	500 kcmil–4 STR.	13.37	2.63	3.04	3/8	1
AMTDM500410	5	10	500 kcmil–4 STR.	14.53	2.63	3.04	3/8	1
AMTDM500411	5	11	500 kcmil–4 STR.	15.68	2.63	3.04	3/8	1
AMTDM500412	5	12	500 kcmil–4 STR.	16.84	2.63	3.04	3/8	1
AMTDM7502502	5	2	750 kcmil–250 kcmil	6.32	3.25	3.31	1/2	2
AMTDM7502503	5	3	750 kcmil–250 kcmil	7.74	3.25	3.31	1/2	1
AMTDM7502504	5	4	750 kcmil–250 kcmil	9.16	3.25	3.31	1/2	1
AMTDM7502505	5	5	750 kcmil–250 kcmil	10.58	3.25	3.31	1/2	1
AMTDM7502506	5	6	750 kcmil–250 kcmil	12	3.25	3.31	1/2	1
AMTDM7502507	5	7	750 kcmil–250 kcmil	13.43	3.25	3.31	1/2	1
AMTDM7502508	5	8	750 kcmil–250 kcmil	14.85	3.25	3.31	1/2	1
AMTDM7502509	5	9	750 kcmil–250 kcmil	16.27	3.25	3.31	1/2	1
AMTDM75025010	5	10	750 kcmil–250 kcmil	17.69	3.25	3.31	1/2	1
AMTDM75025011	5	11	750 kcmil–250 kcmil	19.11	3.25	3.31	1/2	1
AMTDM75025012	5	12	750 kcmil–250 kcmil	20.54	3.25	3.31	1/2	1

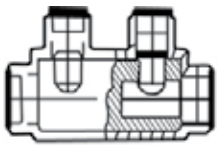


Fig. 1

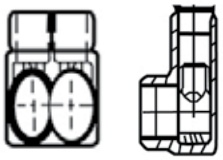


Fig. 2

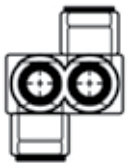


Fig. 3

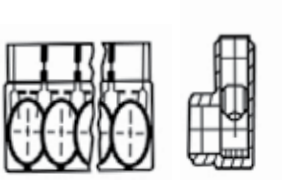


Fig. 4

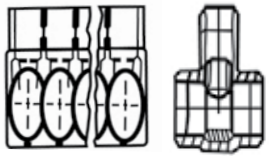


Fig. 5

Power Distribution Blocks

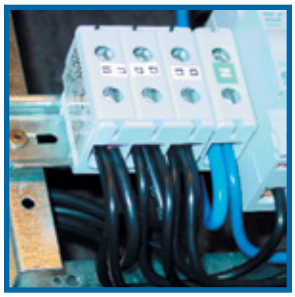
Features

- Insulated housing provides fast, clean, safe installation and controlled dielectric strength
- Grooved contact surfaces penetrate conductor oxides for best contact
- Easily installed and position-locked with DIN rail or screw mounting

Typical Applications

- Ideal for OEM use in electrical, electronics, panel, switchboard, switchgear, automation and control manufacturing
- Also suitable for industrial/commercial retrofit contractors, installation technicians, maintenance and service providers
- Use in distribution panels, control boxes, automation products, ESS centers and more







Blackburn® Power Distribution Blocks are suitable for all panel building applications and various terminal enclosure solutions; for extending or branching the cables or changing the conductor type.

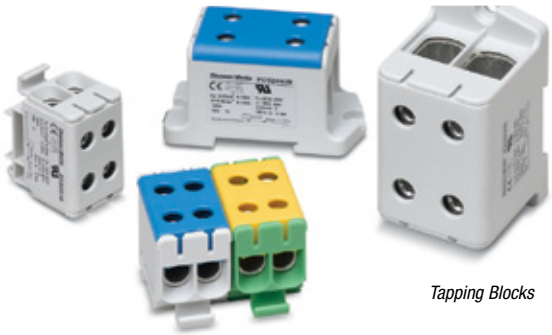
Specifications

- Max. Voltage: 600V
- Max. Temperature: 80° C
- Flammability Rating: V-2 (UL94)
- Standards & Testing:

  UL1059, Category XCFR2, File Number E66436; SFS 2663; VDE 0220, Teil 1/11.71, Teil 2/11.71, SEN 241510, SEN 245012; IEC 61238 class B



Terminal Blocks



Tapping Blocks

Terminal Blocks

- One-pole feedthrough terminal blocks
- Three-pole version (Cat. No. PDS3610) supports three-phase systems
- Designed for connecting or extending both aluminum and copper conductors

Tapping Blocks

- One pole, four identical terminals
- Suitable for extending or branching both aluminum and copper conductors
- Standard catalog no. is gray (Add B suffix for blue or G suffix for green/yellow)

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Conductor Table

Conductors that can be used with the Power Distribution Blocks — number, cross-section and type.

- Requirements of a specific apparatus may restrict the number of conductors
- Usually a maximum of three adjacent standard cross-sections in one space
- In general, the conductors connected to one conductor space of a connector must be of the same type
- Table values require careful installation
- We recommend use of ferrules when using fine-stranded conductors
- After installation, check that all conductors are pressed into a connection
- The nominal current of the power distribution blocks must not be exceeded
- According to some installation standards, each incoming and outgoing protection and neutral conductor in a panel must have its own separate power distribution blocks
- The conductor numbers below refer only to industrially installed power distribution blocks (internal connections in a panel)

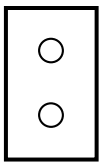


Figure 1

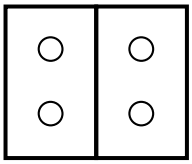


Figure 2

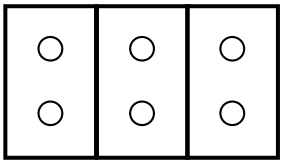


Figure 3

Cross-sections of conductors (AWG/kcmil) and number of conductors/space
The conductor numbers below refer only to industrially installed

CAT. NO.	AWG/ KCMIL	8	6	4	3	2	1	1/0	2/0	3/0	4/0	250	300	350	400	500	FIGURE
PDS610	Al Cu Cu Cu	 3	1 1 2 	1 1 	1 1 	1 1 	1 1 										Figure 1
PDS3610	Al Cu Cu Cu	 3	1 1 2 	1 1 	1 1 	1 1 	1 1 										Figure 3
PDS440	Al Cu Cu Cu	 	 2 3	1 1 2 	1 1 2 	1 1 2 	1 1 	1 1 	1 1 	1 1 	1 1 	 	 	 	 	 	Figure 1
PDS2300	Al Cu Cu Cu	 	 	 	 	1 1 2 3	1 1 2 	1 1 2 	1 1 	1 1 	1 1 	1 1 	1 1 	 	 	 	Figure 2
PDS30500	Al Cu Cu Cu	 	 	 	 	 2 3	 2 3	 2 3	 2 	1 1 	1 1 	1 1 	1 1 	1 1 	1 1 	1 1 	Figure 1
PDS2610	Al Cu Cu Cu	 3	1 1 2 	1 1 	1 1 	1 1 	1 1 										Figure 2
PDS2440	Al Cu Cu Cu	 	 2 3	1 1 2 	1 1 2 	1 1 2 	1 1 	1 1 	1 1 	1 1 	1 1 	 	 	 	 	 	Figure 2
PDS22300	Al Cu Cu Cu	 	 	 	 	1 1 2 3	1 1 2 	1 1 2 	1 1 	1 1 	1 1 	1 1 	1 1 	 	 	 	Figure 2
PDS230500	Al Cu Cu Cu	 	 	 	 	 2 3	 2 3	 2 3	 2 	1 1 	1 1 	1 1 	1 1 	1 1 	1 1 	1 1 	Figure 2

Power Distribution Blocks

CAT. NO.	WIRE RANGE	MAX. CURRENT	TIGHTENING TORQUE	ALLEN HEX SOCKET HEAD TERMINAL SCREW	MOUNTING	OVERALL DIMENSIONS	COLOR	PKG. QTY.
Terminal Blocks								
PDS610	1/0 – 6 AWG Cu or Al	150A Cu/120A Al	90 lb.-in.	5mm	Top Hat Rail	.7"W x 1.9"H x 1.7"D	GRAY	30
PDS610B	1/0 – 6 AWG Cu or Al	150A Cu/120A Al	90 lb.-in.	5mm	Top Hat Rail	.7"W x 1.9"H x 1.7"D	BLUE	30
PDS610G	1/0 – 6 AWG Cu or Al	150A Cu/120A Al	90 lb.-in.	5mm	Top Hat Rail	.7"W x 1.9"H x 1.7"D	YELLOW GREEN	30
PDS3610	1/0 – 6 AWG Cu or Al	150A Cu/120A Al	90 lb.-in.	5mm	Top Hat Rail	1.9"W x 1.9"H x 1.7"D	GRAY	30
PDS440	4/0 – 4 AWG Cu or Al	230A Cu/180A Al	126 lb.-in.	5mm	Top Hat Rail or Screw	.9"W x 3.4"H x 1.9"D		30
PDS440B	4/0 – 4 AWG Cu or Al	230A Cu/180A Al	126 lb.-in.	5mm	Top Hat Rail or Screw	.9"W x 3.4"H x 1.9"D	BLUE	30
PDS440G	4/0 – 4 AWG Cu or Al	230A Cu/180A Al	126 lb.-in.	5mm	Top Hat Rail or Screw	.9"W x 3.4"H x 1.9"D	YELLOW GREEN	30
PDS2300	300 – 2 AWG Cu or Al	285A Cu/230A Al	216 lb.-in.	8mm	Top Hat Rail or Screw	1.2"W x 3.7"H x 2.3"D	GRAY	30
PDS2300B	300 – 2 AWG Cu or Al	285A Cu/230A Al	216 lb.-in.	8mm	Top Hat Rail or Screw	1.2"W x 3.7"H x 2.3"D	BLUE	30
PDS2300G	300 – 2 AWG Cu or Al	285A Cu/230A Al	216 lb.-in.	8mm	Top Hat Rail or Screw	1.2"W x 3.7"H x 2.3"D	YELLOW GREEN	30
PDS30500	500 – 3/0 AWG Cu or Al	380A Cu/ 310A Al	360 lb.-in.	8mm	Screw	1.5"W x 5.1"H x 2.6"D	GRAY	30
PDS30500B	500 – 3/0 AWG Cu or Al	380A Cu/ 310A Al	360 lb.-in.	8mm	Screw	1.5"W x 5.1"H x 2.6"D	BLUE	30
PDS30500G	500 – 3/0 AWG Cu or Al	380A Cu/ 310A Al	360 lb.-in.	8mm	Screw	1.5"W x 5.1"H x 2.6"D	YELLOW GREEN	30
Tapping Blocks								
PDS2610	1/0 – 6 AWG Cu or Al	150A Cu/120A Al	90 lb.-in.	5mm	Top Hat Rail	1.2"W x 1.9"H x 1.7"D	GRAY	30
PDS2610B	1/0 – 6 AWG Cu or Al	150A Cu/120A Al	90 lb.-in.	5mm	Top Hat Rail	1.2"W x 1.9"H x 1.7"D	BLUE	30
PDS2610G	1/0 – 6 AWG Cu or Al	150A Cu/120A Al	90 lb.-in.	5mm	Top Hat Rail	1.2"W x 1.9"H x 1.7"D	YELLOW GREEN	30
PDS2440	4/0 – 4 AWG Cu or Al	230A Cu/180A Al	126 lb.-in.	5mm	Top Hat Rail or Screw	1.7"W x 3.4"H x 1.9"D	GRAY	30
PDS2440B	4/0 – 4 AWG Cu or Al	230A Cu/180A Al	126 lb.-in.	5mm	Top Hat Rail or Screw	1.7"W x 3.4"H x 1.9"D	BLUE	30
PDS2440G	4/0 – 4 AWG Cu or Al	230A Cu/180A Al	126 lb.-in.	5mm	Top Hat Rail or Screw	1.7"W x 3.4"H x 1.9"D	YELLOW GREEN	30
PDS22300	300 – 2 AWG Cu or Al	285A Cu/230A Al	216 lb.-in.	8mm	Top Hat Rail or Screw	2"W x 3.7"H x 2.3"D	GRAY	30
PDS22300B	300 – 2 AWG Cu or Al	285A Cu/230A Al	216 lb.-in.	8mm	Top Hat Rail or Screw	2"W x 3.7"H x 2.3"D	BLUE	30
PDS22300G	300 – 2 AWG Cu or Al	285A Cu/230A Al	216 lb.-in.	8mm	Top Hat Rail or Screw	2"W x 3.7"H x 2.3"D	YELLOW GREEN	30
PDS230500	500 – 3/0 AWG Cu or Al	380A Cu/310A Al	360 lb.-in.	8mm	Screw	2.5"W x 5.1"H x 2.6"D	GRAY	30
PDS230500B	500 – 3/0 AWG Cu or Al	380A Cu/310A Al	360 lb.-in.	8mm	Screw	2.5"W x 5.1"H x 2.6"D	BLUE	30
PDS230500G	500 – 3/0 AWG Cu or Al	380A Cu/310A Al	360 lb.-in.	8mm	Screw	2.5"W x 5.1"H x 2.6"D	YELLOW GREEN	30

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Anti-Rotational Connectors

"No-turn" design keeps connector securely in place — even under vibration.

Anti-Rotational Connectors

Blackburn® Anti-Rotational Connectors are designed with a rib on the bottom that keeps the connectors from turning, so there's no need to apply excessive torque and there's no danger of loosening connectors.

The unique "no-turn" rib provides a secure connection that eliminates the conductor pinching that results from connector movement.

The "no-turn" design solves a unique problem for electricians and installers. Larger conductors tend to get damaged in over-torque conditions, and connectors are prone to loosen in applications where there is vibration, such as motor loads.

Inspectors and local standards boards are requiring electricians and installers to make provisions to eliminate these conditions, and Blackburn® Anti-Rotational Connectors are the solution.

- Unique bottom rib keeps connector from turning
- Eliminates the need for excessive torque, which can damage large conductors
- Prevents connector loosening, even in heavy-vibration applications



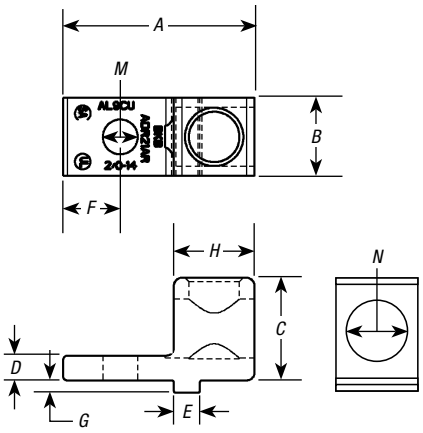


Fig. 1

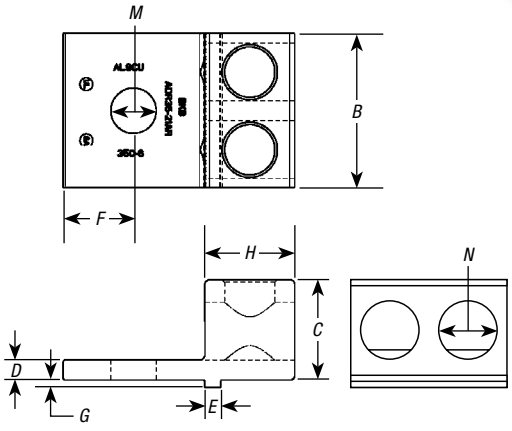


Fig. 2

CAT. NO.	WIRE RANGE	BOLT HOLE (IN.)	DIMENSIONS										FIG.
			A	B	C	D	E	F	G	H	M	N	
ADR21-AR	2/0–14 AWG	¼	1.470	.600	.790	.190	.200	.438	.094	.620	.267	.453	1
ADR30-AR	300 kcmil–6 AWG	7/16	2.000	1.000	1.120	.250	.200	.468	.094	1.000	.330	.656	1
ADR35-AR	350 kcmil–6 AWG	5/16	2.250	1.120	1.125	.250	.200	.485	.094	1.120	.408	.719	1
ADR60-AR	600 kcmil–2 AWG	½	3.120	1.500	1.560	.440	.200	.720	.094	1.380	.408	.938	1
ADR35-21-AR	350 kcmil–6 AWG	⅜	2.880	1.500	1.250	.250	.200	.875	.094	1.120	.563	.719	2
ADR60-21-AR	600 kcmil–2 AWG	½	3.120	2.400	1.560	.440	.200	.555	.094	1.380	.531	.938	2

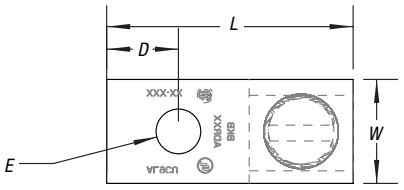
Dual-Rated Mechanical Connectors

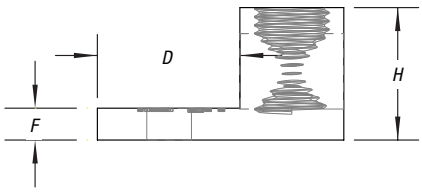
All-aluminum-body lugs for use on copper and aluminum conductors.

- Easy installation — no special tools required
- Tin plated for low contact resistance
- UL® 486B tested, AL9CU rated
- Slotted screw on lugs up through 2/0 str.; 5/16" socket screw on sizes 250 through 350 kcmil; 3/8" hex socket on sizes 500 kcmil and above

Type ADR— ALCÜL™ Single-Conductor, One-Hole Mount*





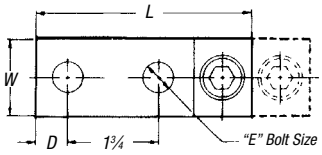


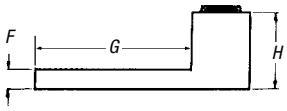
CAT. NO.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	D	E	F	G
Slotted Screw									
ADR6	#6 Str.	#14	1 3/64	1/2	31/64	15/64	1/4	5/64	43/64
ADR2	#2 Str.	#14	1 5/32	1/2	9/16	19/64	1/4	7/64	11/16
ADR11	1/0 Str.	#14	1 15/32	5/8	25/32	7/16	1/4	3/16	27/32
ADR21	2/0 Str.	#14	1 15/32	5/8	25/32	7/16	1/4	3/16	27/32
Socket Screw									
ADR25	250	#6 Str.	2	1	1 1/8	15/32	5/16	1/4	1
ADR30	300	#6 Str.	2	1	1 1/8	15/32	5/16	1/4	1
ADR35	350	#6 Str.	2 1/4	1 1/8	1 1/4	1/2	3/8	1/4	1 1/8
ADR50	500	#4 Str.	2 13/16	1 1/2	1 9/16	3/4	3/8	5/16	1 19/32
ADR60	600	#2 Str.	3 3/16	1 1/2	1 9/16	13/16	3/8	7/16	1 13/16
ADR6004*	600 (2) 250	#4 Str. (2) 1/0 Str.	2 13/16	1 3/8	1 13/16	5/8	3/8	5/16	1 1/2
ADR80	800	300	3 3/8	1 3/4	1 15/16	5/8	5/8	1/2	1 3/4
ADR99	1000	500	3 3/8	1 3/4	1 15/16	5/8	5/8	1/2	1 3/4

** Not UL Listed or CSA Certified.*

Type ADR— ALCÜL™ Single-Conductor, Two-Hole Mount*







CAT. NO.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	D	E	F	G
ADR35-12#	350 kcmil	6 Str.	4 1/4	1 1/4	1 3/8	5/8	1/2	5/16	3
ADR60-12D	600 kcmil	2 Str.	5 5/16	1 1/2	1 1/2	5/8	1/2	3/8	3 1/16
ADR80-12D	800 kcmil	300 kcmil	6 3/16	1 3/4	1 7/8	5/8	1/2	9/16	3 7/16
ADR99-12D	1,000 kcmil	500 kcmil	6 3/16	1 3/4	1 7/8	5/8	1/2	9/16	3 7/16

** NEMA spacing: 1¾" centers*

UL Listed. Connectors accommodating conductors 600 kcmil and larger have double row of set screws (D suffix).

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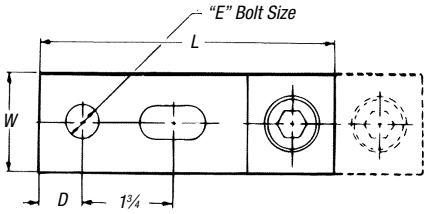
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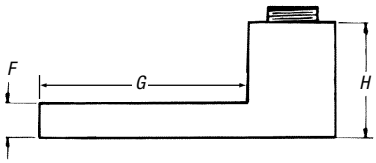
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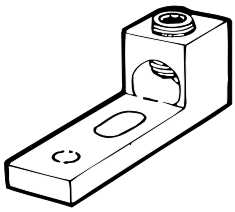
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Dual-Rated Mechanical Connectors

Type ADR — ALCÜL™ Single-Conductor, Switchgear Mount*





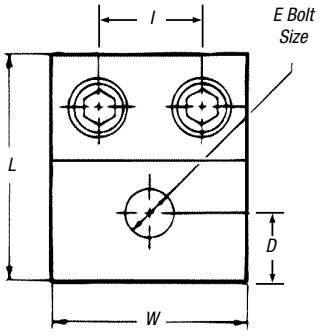


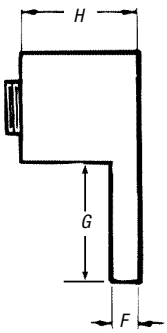
	CONDUCTOR RANGE (AL OR CU)		DIMENSIONS (IN.)						
CAT. NO.	MAX.	MIN.	L	W	H	D	E	F	G
ADR25-12S	250 kcmil	3/0 Str.	3	1	13/16	1/2	3/8	1/4	2
ADR35-12S	350 kcmil	4 Str.	4 11/16	1 1/4	1 9/16	23/32	1/2	7/16	3 5/16
ADR50-12S	500 kcmil	400 kcmil	4 11/16	1 1/4	1 9/16	23/32	1/2	7/16	3 5/16
ADR80-12DS	800 kcmil	300 kcmil	6 3/16	1 5/8	1 7/8	23/32	1/2	9/16	3 7/16
ADR99-12DS	1,000 kcmil	350 kcmil	6 3/16	1 5/8	1 7/8	23/32	1/2	9/16	3 7/16

** NEMA Spacing: 1¾" centers except ADR25-12S: 1" centers.*

Connectors accommodating conductors 600 kcmil and larger have double row of set screws (D suffix).

Type ADR — ALCÜL™ Two-Conductor, One-Hole Mount







	CONDUCTOR RANGE (AL OR CU)		DIMENSIONS (IN.)							
CAT. NO.	MAX.	MIN.	L	W	H	D	E	F	G	I
ADR11-21	1/0 Str.	#14	1 15/32	1 7/32	25/32	7/16	1/4	3/16	27/32	35/64
ADR21-21*	2/0 Str.	#14	1 15/32	1 1/4	25/32	27/64	1/4	3/16	27/32	21/32
ADR25-21	250	#6 Str.	2 9/16	1 41/64	1 3/16	7/8	3/8	1/4	1 9/16	13/16
ADR35-21	350	#6 Str.	2 7/8	1 59/64	1 1/4	7/8	1/2	1/4	1 3/4	61/64
ADR60-21	600	#2 Str.	3 3/16	2 13/32	1 9/16	5/8	1/2	7/16	1 13/16	1 7/32
ADR80-21	800	300	3 3/8	3 3/16	1 15/16	7/8	5/8	1/2	1 3/4	1 5/8
ADR99-21	1000	500	3 3/8	3 3/16	1 15/16	7/8	5/8	1/2	1 3/4	1 5/8

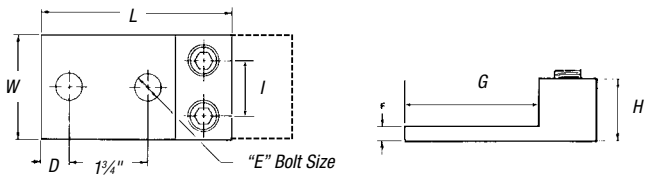
** Not CSA Certified.*

UL 486B

AL9CU

Dual-Rated Mechanical Connectors

Type ADR — ALCÜL™ Two-Conductor, Two-Hole Mount*





CAT. NO.	FIG.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	D	E	F	G	I
ADR35-22	1	350 kcmil	6 Str.	4¼	2 19/64	1⅜	⅝	½	5/16	3	1 7/32
ADR60-22D	2	600 kcmil	2 Str.	5 5/16	2¾	1½	⅝	½	⅜	3 1/16	1 7/16
ADR80-22D	2	800 kcmil	300 kcmil	6 3/16	3½	1⅞	⅝	½	9/16	3 7/16	1 13/16
ADR99-22D	2	1,000 kcmil	500 kcmil	6 3/16	3½	1⅞	⅝	½	9/16	3 7/16	1 13/16

** NEMA Spacing: 1¾" centers.*

Connectors accommodating conductors 600 kcmil and larger have double row of set screws (D suffix).

UL 486B, AL9CU

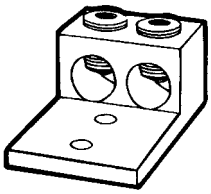


Fig. 1

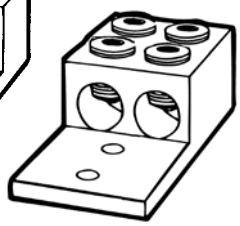


Fig. 2

Type ADR — ALCÜL™ Three-Conductor, Two-Hole Mount*

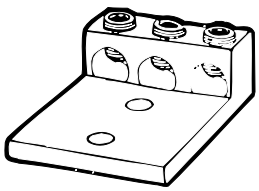


Fig. 1

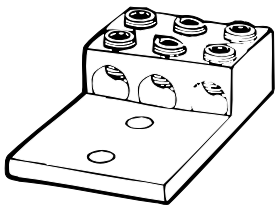


Fig. 2

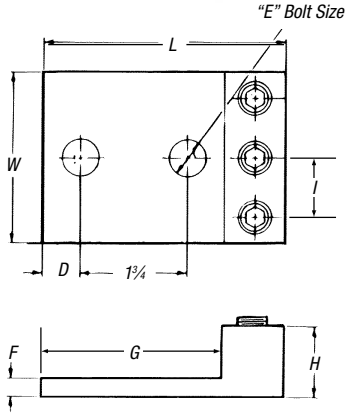


CAT. NO.	FIG.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	D	E	F	G	I
ADR02-32	1	2 Str.	14 AWG	2 3/16	1⅝	⅝	1 1/32	5/16	3/16	1 11/16	9/16
ADR11-32	1	1/0 Str.	14 AWG	2 29/32	2	⅞	1 1/32	⅜	¼	2 5/32	45/64
ADR31-32	1	3/0 Str.	6 Str.	4	2 13/16	1 3/16	⅝	½	5/16	3	31/32
ADR25-32	1	250 kcmil	6 Str.	4 3/16	2 13/16	1¼	⅝	½	¼	3 1/16	31/32
ADR35-32	1	350 kcmil	6 Str.	4 3/16	3 3/16	1¼	⅝	½	¼	3 1/16	1 1/32
ADR50-32	1	500 kcmil	4 Str.	4 11/16	3¾	1 9/16	⅝	½	7/16	3 5/16	1¼
ADR60-32D	2	600 kcmil	2 Str.	5 5/16	4 3/16	1½	⅝	½	⅜	3 1/16	1 7/16
ADR80-32	2	800 kcmil	300 kcmil	6 3/16	4½	1⅞	⅝	½	9/16	3 7/16	1 9/16
ADR99-32	2	1,000 kcmil	500 kcmil	6 3/16	4¾	1⅞	⅝	½	9/16	3 7/16	1 41/64

** NEMA Spacing: 1¾" centers except ADR02-32 (⅞" centers) and ADR11-32 (1" centers).*

Connectors accommodating conductors 600 kcmil and larger have double row of set screws (D suffix).

UL 486B, AL9CU



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Type ADR — ALCÜL™ Three-Conductor, Four-Hole Mount**

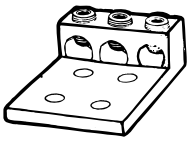


Fig. 1

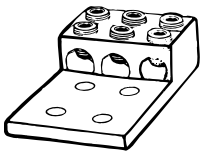
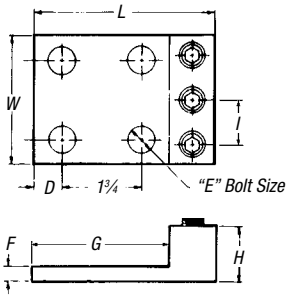


Fig. 2





CAT. NO.	FIG.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	D	E	F	G	I
ADR02-34	1	2 Str.	14 AWG	2 3/16	1 5/8	5/8	11/32	5/16	3/16	1 11/16	9/16
ADR11-34	1	1/0 Str.	14 AWG	2 29/32	2	7/8	11/32	3/8	1/4	2 5/32	45/64
ADR31-34	1	3/0 Str.	6 Str.	4	2 13/16	1 3/16	5/8	1/2	5/16	3	31/32
ADR25-34*	1	250 kcmil	6 Str.	4 3/16	2 13/16	1 1/4	5/8	1/2	1/4	3 1/16	31/32
ADR35-34*	1	350 kcmil	6 Str.	4 3/16	3 3/16	1 1/4	5/8	1/2	1/4	3 1/16	1 1/32
ADR50-34*	1	500 kcmil	2 Str.	4 11/16	3 3/4	1 9/16	5/8	1/2	7/16	3 5/16	1 1/4
ADR60-34D	2	600 kcmil	2 Str.	5 5/16	4 3/16	1 1/2	5/8	1/2	3/8	3 1/16	1 7/16
ADR80-34*	2	800 kcmil	300 kcmil	6 3/16	4 1/2	1 7/8	5/8	1/2	9/16	3 7/16	1 9/16
ADR99-34*	2	1,000 kcmil	500 kcmil	6 3/16	4 3/4	1 7/8	5/8	1/2	9/16	3 7/16	1 41/64

** UL Listed.*

*** NEMA Spacing: 1¾" centers except ADR02-34 (⅞" centers) and ADR11-34 (1" centers). Connectors accommodating conductors 600 kcmil and larger have double row of set screws.*

UL 486B, AL9CU

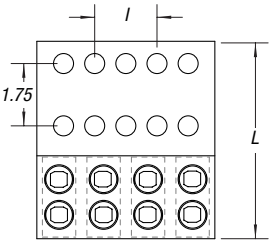
Type ADR — ALCÜL™ Four-Conductor, Four-Hole Mount*

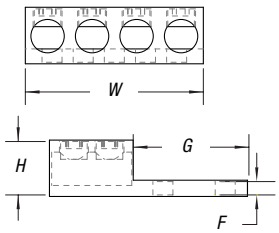


Fig. 1



Fig. 2



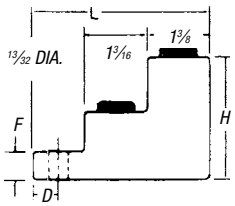


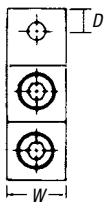
CAT. NO.	CONDUCTOR RANGE MAX.	MIN.	L	W	H	MOUNTING HOLES	G	F
ADR25-44	250	#6	4.00	4.06	1.19	1.75	3.00	.31
ADR35-44	350	#6	4.31	3.94	1.38	1.75	3.00	.31
ADR60-44D	600	#2	5.50	5.00	1.50	1.75	3.25	.38
ADR80-44D	800	350	5.97	6.00	1.81	1.75	3.63	.50

** NEMA Spacing: 1¾" centers.*

Connectors accommodating conductors 600 kcmil and larger have double row of set screws (D Suffix).

Type ASL — ALCÜL™ Two-Conductor, One-Hole Mount





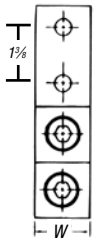


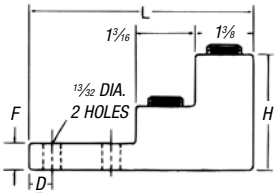
CAT. NO.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	D	F	MTG. HOLE DIA.
ASL30-21	300 kcmil	6 Str.	3	1⅛	2	15/32	½	5/16

Dual-Rated Mechanical Connectors

Type ASL — ALCÜL™ Two-Conductor, Two-Hole Mount







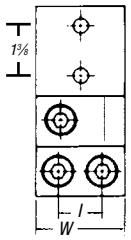
CAT. NO.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	D	F
ASL60-22	600 kcmil	2 Str.	4 29/32	1½	3	¾	⅜
ASL75-22	750 kcmil	3/0 Str.	4 29/32	1½	3	¾	⅜

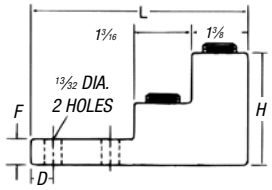
UL 486B

AL9CU

Type ASL — ALCÜL™ Three-Conductor, Two-Hole Mount

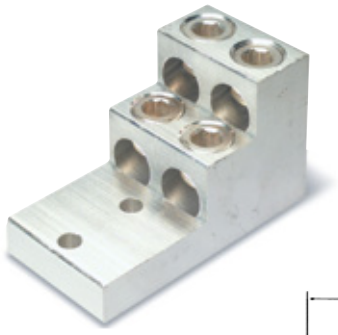


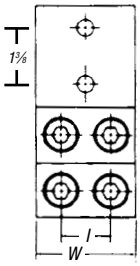


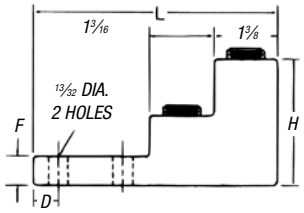


CAT. NO.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	D	F	I
ASL60-32	600 kcmil	2 Str.	4 29/32	2½	3	¾	⅜	1 7/32
ASL75-32	750 kcmil	3/0 Str.	4 29/32	2 27/21	3	¾	⅜	1 5/16

Type ASL — ALCÜL™ Four-Conductor, Two-Hole Mount







CAT. NO.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	D	F	I
ASL60-42	600 kcmil	2 Str.	4 29/32	2½	3	¾	⅜	1 7/32
ASL75-42	750 kcmil	3/0 Str.	4 29/32	2 27/21	3	¾	⅜	1 5/16

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Dual-Rated Mechanical Connectors

Type ASR — ALCÜL™ Splicer Reducer with Solid Barrier Wire Stop

T&B CAT. NO.	CONDUCTOR RANGE (AL OR CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	I	SCREWS
ASR0214*	#2	#14	.95	.45	.56	.53	2
ASR1114*	1/0	#14	1.31	.54	.60	.68	2
ASR2506	250	#6	2.18	.81	1.00	1.12	2
ASR3506	350	#6	2.56	1.12	1.29	1.48	2
ASR7525**	750	250	6.00	1.53	1.95	1.93	4

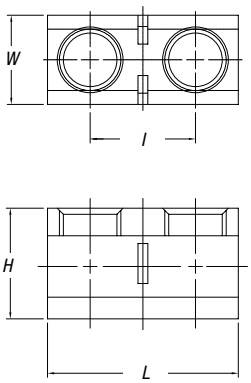
** Slotted screws*

*** Two set screws per end. Not CSA Certified.*

UL 486B

AL9CU



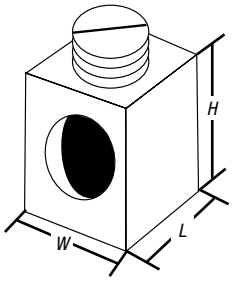


Type BX — ALCÜL™ Rectangular Connectors

- Features anti-rotational boss
- UL486B Recognized (90° C rating)

CAT. NO.	CONDUCTOR RANGE MAX.	MIN.	STYLE & SIZE OF BOSS	BOSS HOLE TAPPED	DIMENSIONS (IN.) L	W	H
BX0214	2	14 CU 12 AL	Square .229 in.	10-32	15/32	15/32	9/16
BX1114	14 CU 1/0	Square 12 AL	.229 in.	10-32	5/8	17/32	39/64





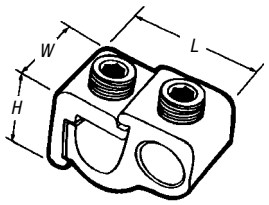
Type GP — Aluminum Dual-Rated Mechanical Parallel Tap Connectors

CAT. NO.	CONDUCTOR RANGE (AL OR CU) MAIN	TAP	DIMENSIONS (IN.) W	L	H
GP-2*	2–12 Str.	4–14	5/8	1 3/8	7/8
GP-0	1/0–2	1/0–14	3/4	1 3/4	1
GP-250-0	250–1/0	1/0–14	1 1/16	2 1/32	1 5/16
GP-250	250–1/0	250–6	1 1/16	2 9/32	1 5/16
GP-350	350–4/0	350–6	1 1/4	2 9/16	1 7/16
GP-500	500–350	500–2	1 3/8	3 1/8	1 3/4
GP-750	750–500	500–2	1 1/2	3 3/8	2

** Slotted screw, tap side.*

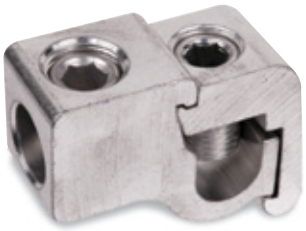
To include insulating cover, add suffix WC.





Dual-Rated Mechanical Connectors

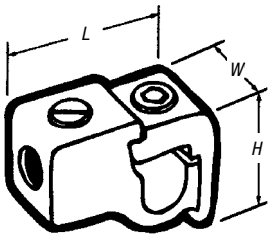
Type GT — Aluminum Dual-Rated Mechanical Parallel Tap Connectors



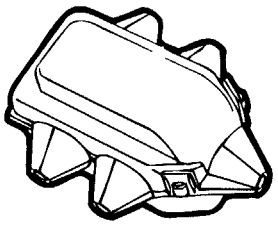
CAT. NO.	CONDUCTOR RANGE (AL OR CU) MAIN	TAP	DIMENSIONS (IN.) W	L	H
GT-2*	2–12 Str.	4–14	5/8	1 3/8	7/8
GT-0	1/0–2	1/0–14	3/4	1 3/4	1
GT-250-0	250–1/0	1/0–14	1 1/16	2 9/32	1 5/16
GT-250	250–1/0	250–6	1 1/16	2 9/32	1 5/16
GT-350	350–4/0	350–6	1 1/4	2 9/16	1 7/16
GT-500	500–350	500–2	1 3/8	3 1/8	1 3/4
GT-750	750–500	500–2	1 1/2	3 3/8	2

** Slotted screw, tap side.*

To include insulating cover, add suffix WC.

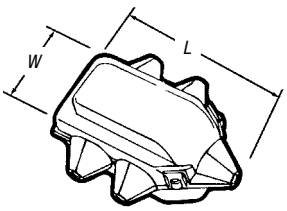


Type TC — Insulating Covers for GP-GT



CAT. NO.	DIMENSIONS (IN.) L	W	H	USE WITH CONNECTOR
TC-2	2 1/8	1 3/4	1 1/16	GP-2, GT-2
TC-10	2 1/2	2 13/32	1 1/4	GP-0, GT-0
TC250350	3 1/8	2 17/32	1 19/32	GP-250, GT-250, GP-350, GP-250-0, GT-250-0, GT-350
TC-500	4 1/4	3 1/8	2 1/16	GP-500, GT-500
TC-750	4 5/8	3 7/8	2 1/2	GP-750, GT-750

Color of all covers is black.



Tightening Torque Values for Aluminum Dual-Rated Socket Screw Connectors

AWG OR CIRCULAR MIL SIZE	TIGHTENING TORQUE IN IN.-LB. SCREW DRIVER	WRENCH	AWG OR CIRCULAR MIL SIZE	TIGHTENING TORQUE IN IN.-LB. SCREW DRIVER	WRENCH
12	20	75	4/0	—	200
10	20	75	250	—	250
8	20	75	350	—	250
6	35	100	500	—	300
4	35	100	600	—	300
2	50	125	700	—	300
1	50	125	750	—	300
1/0	50	150	800	—	400
2/0	50	150	1,000	—	400
3/0	—	200			

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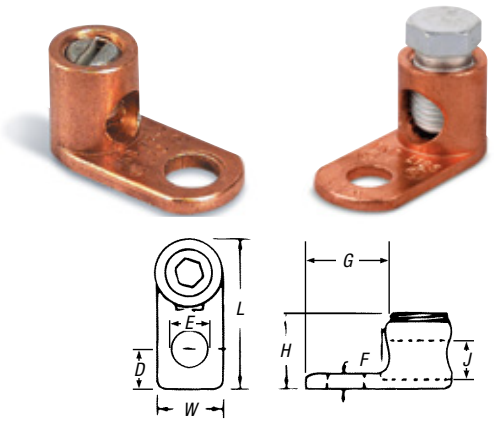
Copper Mechanical Connectors

Type L — Single-Conductor, One-Hole Mount

- Cat. Nos. L400 and L650 cast from high-strength bronze alloy
- Cat. Nos. L35, L70, L125 and L250 cold forged from pure electrolytic copper with 99% conductivity

CAT. NO.		CONDUCTOR RANGE		DIMENSIONS (IN.)							
SOCKET	HEX	MAX.	MIN.	L	W	H	F	D	J	E	G
L35*	—	8 Str.	14 Sol.	13/16	3/8	3/8	3/32	13/64	11/64	13/64	1/2
L70*	—	4 Str.	14 Sol.	1 1/8	17/32	35/64	3/32	9/32	9/32	9/32	21/32
L125BB	L125H	1/0 Str.	8 Sol.	1 1/2	47/64	3/4	3/32	3/8	27/64	21/64	27/32
L250	L250H	250 kcmil	6 Str.	1 61/64	15/16	1 1/16	1/8	29/64	5/8	13/32	1 3/32
L400BB	L400H	500 kcmil	4/0 Str.	3	1 13/32	1 15/32	9/32	5/8	7/8	9/16	1 5/8
L650	L650H	1,000 kcmil	500 kcmil	4	2	2 3/16	17/32	3/4	1 1/4	9/16	2

** Sizes L35 and L70 have screwdriver slot head screws only. UL 486A.*

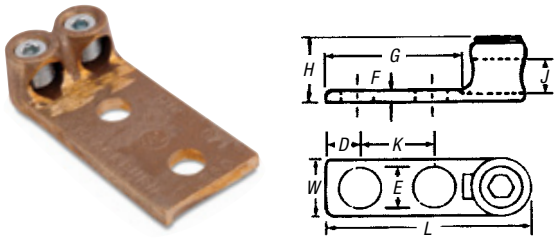


Type L — Single-Conductor, Two-Hole Mount

- For use where large contact area is required to provide more secure mounting
- Cast from high-strength bronze alloy

CAT. NO.		CONDUCTOR RANGE		DIMENSIONS (IN.)								
SOCKET	HEX	MAX.	MIN.	L	W	H	F	D	K	E	G	J
L1252	L1252H	1/0 Str.	4 Str.	2 13/16	25/32	13/16	3/16	7/16	1	11/32	2	27/64
L2502	L2502H	250 kcmil	1/0 Str.	3	1 1/16	1 1/32	15/64	7/16	1	13/32	1 7/8	5/8
L4002	L4002H	500 kcmil	4/0 Str.	3 3/8	1 13/32	1 15/32	5/16	7/16	1	13/32	1 15/16	57/64
L6502	L6502H	1000 kcmil	500 kcmil	4 15/16	2	2	3/8	9/16	1 1/2	9/16	2 3/4	1 1/4

UL 486A



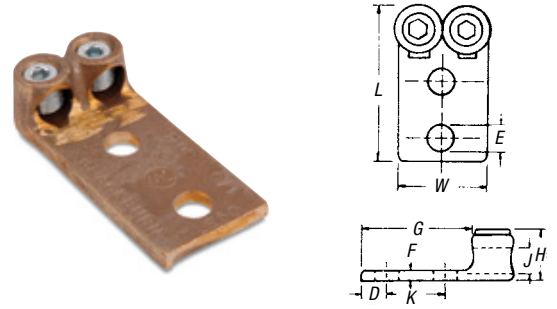
Type TL — Two-Conductor, Two-Hole Mount

- Conveniently terminates parallel conductors

CAT. NO.		CONDUCTOR RANGE		DIMENSIONS (IN.)								
SOCKET	HEX	MAX.	MIN.	L	W	H	F	D	K	E	G	J
TL250	TL250H	250 kcmil	1/0 Str.	4 5/16	1 7/8	1 1/16	9/32	1 3/4	5/8	9/16	3 3/16	5/8
TL400	TL400H	500 kcmil	4/0 Str.	4 3/4	2 9/16	1 9/16	13/32	1 3/4	1 1/16	9/16	3	7/8
TL650	TL650H	1,000 kcmil	500 kcmil	5 9/16	3 1/4	2 3/16	9/16	1 3/4	5/8	9/16	3 3/8	1 1/4

Four hole NEMA tang on TL650.

UL 486A.

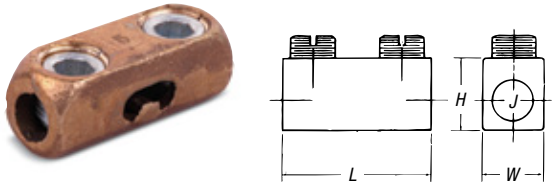


Type S — Copper End-to-End Splice Connector

- Cast of high-strength copper alloy
- Plated steel socket head set screws

	CONDUCTOR RANGE		DIMENSIONS (IN.)				
CAT. NO.	MAX.	MIN.	L	W	H	J	I
S100BB	1 Str.	4 Sol.	1 11/16	5/8	11/16	3/8	15/16
S225BB*	4/0 Str.	1 Str.	2 3/16	27/32	31/32	9/16	1 3/16
S400BB	500 kcmil	4/0 Str.	2 7/8	1 3/16	1 5/16	7/8	1 5/8

** Not UL Listed.*



Copper Mechanical Connectors

Fast, easy installation.

Direct-Burial Splice Kits

- Includes outer heat-shrink tubing insulator with adhesive sealant for rugged, watertight protection
- For underground feeder (UF) cable, UFSK148DB's four-in-one connector supports four-conductor, three-phase-plus-neutral or single-phase wiring systems
- For non-UF cable, DBSK82 offers easy-to-install, one-piece, aluminum alloy connector



CAT. NO.	DESCRIPTION	WIRE RANGE	STD. PKG. QTY.
UFSK148DB	UF Direct-Burial Splice Kit	#14–#8 AWG	10
DBSK82	Direct-Burial Splice Kit (non-UF)	#8–#2 AWG	10

Type STC — Copper Single-Conductor, One-Hole Mount Lug with Straight Tang

- Uniquely designed pressure bar and notched v-bottom collar provide vise-like grip between conductor and terminal
- Made of electrolytic seamless copper with zinc-plated steel screws
- UL486A tested for copper conductor



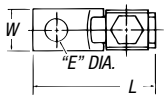


Fig. I


Fig. II

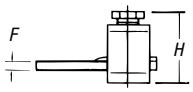


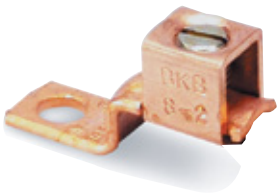
Fig. III

CAT. NO.	FIG. NO.	CONDUCTOR RANGE (CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	F	E	D
STC1014*	1	#10	#14	1	5/16	1/2	5/64	5/32	3/16
STC0614	2	#6 Str.	#14	1 9/64	3/8	11/16	5/64	13/64	7/32
STC0414	2	#4 Str.	#14	1 1/4	1/2	27/32	3/32	17/64	1/4
STC0208	3	#2 Str.	#8 Str.	1 15/32	1/2	31/32	3/32	17/64	1/4
STC1102	3	1/0 Str.	#2 Str.	1 15/16	5/8	1 1/4	1/8	17/64	7/16
STC3104	3	3/0 Str.	#4 Str.	2 1/4	3/4	1 9/16	1/8	13/32	7/16
STC4102	3	4/0 Str.	#2 Str.	2 3/8	1	1 21/32	1/8	11/32	1/2
STC3511	3	350	1/0 Str.	3 1/4	1	1 5/8	3/16	13/32	5/8
STC5011	3	500	1/0 Str.	3 7/8	1 1/2	1 13/16	3/16	13/32	15/16
STC9960	3	1000	600	5	2	2-5/8	1/4	17/32	1 1/8

** Not CSA Certified.*

Mechanical lug for use with copper conductors.

Type BTC — Copper Single-Conductor One-Hole Mount Lug with Offset Tang



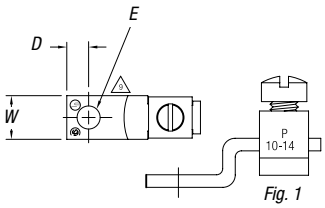


Fig. 1

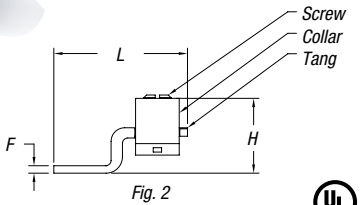


Fig. 2

CAT. NO.	FIG. NO.	CONDUCTOR RANGE (CU) MAX.	MIN.	DIMENSIONS (IN.) L	W	H	F	E	D
BTC1014*	1	#10	#14	1	5/16	43/64	5/64	5/32	3/16
BTC0614	2	#6 Str.	#14	1 3/32	3/8	25/32	5/64	13/64	7/32
BTC0208	2	#2 Str.	#8 Str.	1 15/32	1/2	27/32	3/32	17/64	1/4
BTC1102	2	1/0 Str.	#2 Str.	1 25/32	5/8	1 13/32	1/8	17/64	7/16
BTC3104	2	3/0 Str.	#4 Str.	2 3/64	3/4	1 9/16	1/8	13/32	7/16
BTC4102	2	4/0 Str.	#2 Str.	2 9/16	1	1 61/64	1/8	11/32	1/2
BTC3511	2	350	1/0 Str.	3 1/4	1	2 1/2	3/16	13/32	5/8
BTC5011	2	500	1/0 Str.	4 1/4	1 1/2	2 21/32	3/16	13/32	15/16
BTC9960	2	1000	600	4 3/4	2	3 9/16	1/4	17/32	1 1/8

** Not CSA Certified.*

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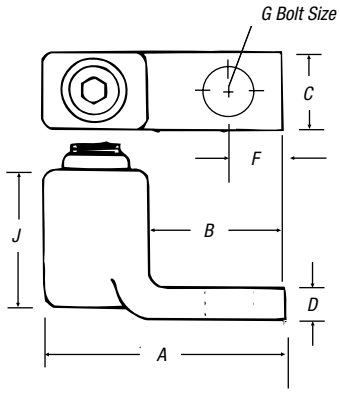
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Only nine lug sizes fit cables from #14 to 1000 kcmil.

LOCKTITE® One-Hole Lugs

- Easily installed with key wrench
- Saddle and cable socket make direct, all-around, low-resistance contact with cable
- Convenient peephole permits easy inspection
- For use with code copper conductor (600V)





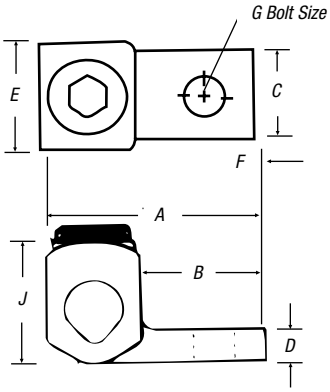
CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) G	A	B	C	D	J	F
31003†	14 to 8	¼	1⅛	9/16	½	⅛	17/32	9/32
31005-TB†	8 to 4	¼	1⅛	⅝	½	⅛	17/32	9/32
31007	4 to 1	¼	1⅜	13/16	⅝	7/32	1	11/32
31009	1 to 2/0	⅜	1 15/16	1	13/16	¼	1 3/16	7/16
31011	2/0 to 4/0	⅜	2⅜	1¼	1	9/32	1 13/32	17/32
31013	4/0 to 300	½	2¾	1½	1 3/16	5/16	1 17/32	⅝
31015	300 to 500	½	3 1/16	1 11/16	1⅜	11/32	1 13/16	¾
31017	500 to 750	½	3 25/32	2 3/16	1⅝	13/32	2⅛	1
31019	750 to 1000	⅝	4 5/16	2 15/32	1⅞	15/32	2 11/32	1 3/16

†*With Filister Head Screw. All others, hex socket screws.*

LOCKTITE® One-Hole Flag-Type Lugs

- For use with code copper conductor (600V)





CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) G	A	B	C	D	J	F	E
31005-AL†	8 to 4	¼	1⅛	⅝	½	⅛	17/32	9/32	½

†*With Filister Head Screw.*

Bolt holes and spacings listed are standard, but lugs with blank tongues can be furnished.

For torque requirements, see ***page F-188****.*

Copper Mechanical Connectors

All the outstanding LOCKTITE® lug features — plus two-bolt capacity.

LOCKTITE® One-Hole 90° Upright Lugs

- For use with code copper conductor (600V)



CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) G	A	B	C	D	J	F
31005-UAL†	8 to 4	1/4	1 1/8	5/8	1/2	1/8	1/2	9/32
31007-UAL	4 to 1	1/4	1 21/32	13/16	5/8	7/32	13/16	11/32
31009-UAL	1 to 2/0	3/8	2 1/32	1	13/16	1/4	15/16	7/16
31011-UAL	2/0 to 4/0	3/8	2 1/2	1 1/4	1	9/32	1 1/8	17/32

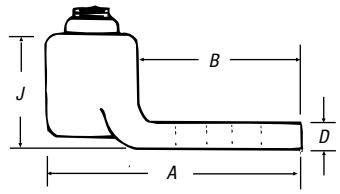
†With Filister Head Screw. All others, hex head screws.

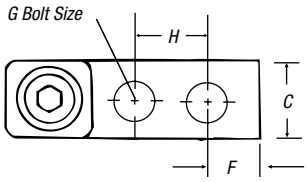
Bolt holes and spacings listed are standard, but lugs with blank tongues can be furnished.

LOCKTITE® Two-Hole Lugs

- Easy installation
- High conductivity
- Wide cable range
- Long tongue adapted for two bolts
- For use with code copper conductor (600V)







CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) G	A	B	C	D	J	F	H
32003†	14 to 8	1/4	1 11/16	1 1/4	1/2	1/8	15/32	9/32	5/8
32005†	8 to 4	1/4	1 3/4	1 1/4	1/2	1/8	17/32	9/32	5/8
32007	4 to 1	1/4	2 1/4	1 7/16	5/8	7/32	7/8	9/32	3/4
32009	1 to 2/0	3/8	2 7/8	1 15/16	13/16	1/4	13/32	7/16	1
32011	2/0 to 4/0	3/8	3 1/8	2	1	9/32	15/16	7/16	1
32013	4/0 to 300	3/8	3 3/8	2 1/8	1 3/16	5/16	1 9/16	7/16	1
32015	300 to 500	3/8	3 1/2	2 1/8	1 3/8	11/32	1 27/32	7/16	1
32017	500 to 750	1/2	4 19/32	3	1 3/4	13/32	2 1/8	9/16	1 1/2
32019	750 to 1,000	1/2	4 27/32	3	1 7/8	15/32	2 11/32	9/16	1 1/2

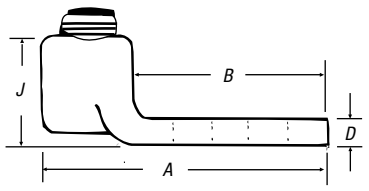
†With Filister Head Screw. All others, hex head screws.

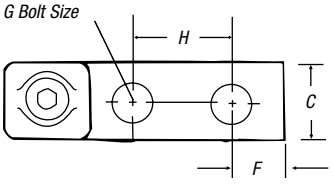
For torque requirements, see **page F-188**.

LOCKTITE® Two-Hole NEMA-Drilled Lugs

- Furnished with bolt holes and spacings to fit equipment with NEMA-type connector mounting pads
- For use with code copper conductor (600V)







CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) G	A	B	C	D	J	F	H
32207	4 to 1	3/8	2 13/16	2	3/4	7/32	7/8	7/16	1
32209	1 to 2/0	1/2	3 15/16	3	1	1/4	11/16	9/16	1 3/4
32211	2/0 to 4/0	1/2	4 1/8	3	1	9/32	1 9/32	9/16	1 3/4
32213	4/0 to 300	1/2	4 3/16	3	1 3/16	5/16	1 15/32	9/16	1 3/4
32215	300 to 500	1/2	4 7/8	3 1/2	1 3/8	11/32	1 13/16	9/16	1 3/4
32217	500 to 750	1/2	5 3/32	3 1/2	1 3/4	13/32	2 1/8	9/16	1 3/4
32219	750 to 1,000	1/2	5 1/4	3 1/2	3	15/32	2 1/8	9/16	1 3/4

For torque requirements, see **page F-188**.

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Copper Mechanical Connectors

All the same features as the standard LOCKTITE® lug — with two or three barrels.



LOCKTITE® Double- and Triple-Barrel NEMA-Drilled Lugs for 600V Applications

- Screw tightening
- Serrated saddle
- Built-in lockwasher
- For use with code copper conductor (600V)

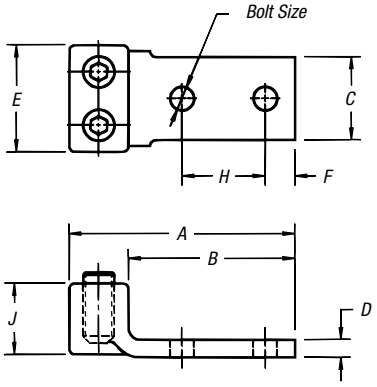


Fig. A

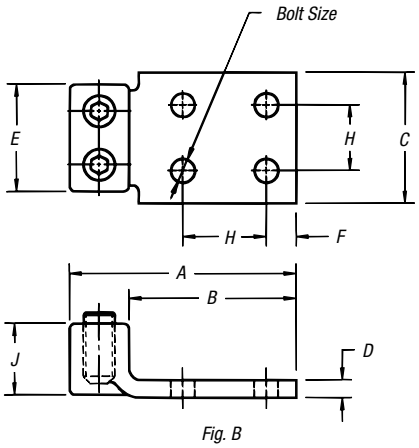


Fig. B

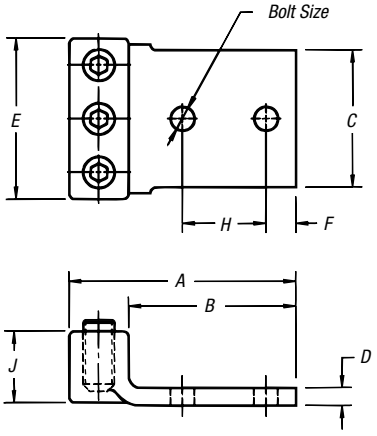


Fig. C

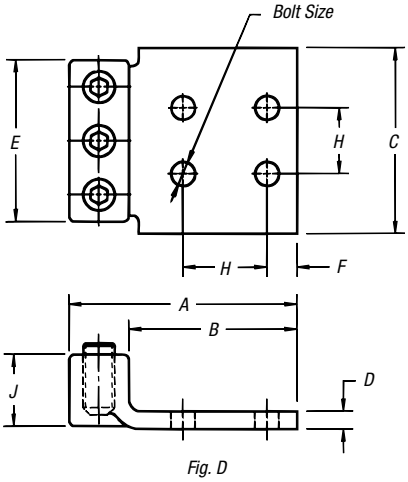


Fig. D

CAT. NO.	CABLE SIZE	FIG.	BOLT SIZE	DIMENSIONS (IN.)							
				A	B	C	D	E	F	H	J
32003BD†	14 to 8	A	¼	2 3/16	1¾	⅝	⅛	1 1/16	9/32	⅝	15/32
32005BD†	8 to 4	A	¼	2½	2	1	⅛	1	9/32	⅝	17/32
32007BD	4 to 1	A	⅜	2 13/16	2	1¼	7/32	1¼	7/16	1	29/32
32009BD	1 to 2/0	A	½	4 7/16	3½	1½	¼	1 9/16	⅝	1¾	13/32
32011BD	2/0 to 4/0	A	½	4⅝	3½	1¾	9/32	1¾	⅝	1¾	15/16
32013BD	4/0 to 300	A	½	4¾	3½	2	5/16	2⅛	⅝	1¾	1 9/16
32015BD	300 to 500	A	½	5⅜	3 15/16	2½	11/32	2½	⅝	1¾	1 13/16
32017BD	500 to 700	B	½	5 19/32	4	4	13/32	2 15/16	⅝	1¾	2⅛
32019BD	750 to 1000	B	½	5 27/32	4	4	15/32	3¼	⅝	1¾	2 11/32
32011TB	2/0 to 4/0	C	½	4⅝	3⅜	2½	9/32	2¾	⅝	1¾	15/16
32013TB	4/0 to 300	C	½	4¾	3½	3	5/16	3¼	⅝	1¾	1 17/32
32015TB	300 to 500	D	½	5⅜	4	4	11/32	3¾	⅝	1¾	1 13/16
32017TB	500 to 750	D	½	5 19/32	4	4	13/32	4⅜	⅝	1¾	2⅛
32019TB	750 to 1,000	D	½	5 27/32	4	4	15/32	4 13/16	⅝	1¾	2 11/32

†With Filister Head Screw.

*For torque requirements, see **page F-188**.*

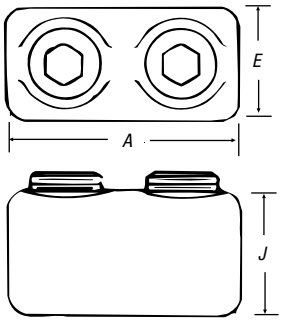
Copper Mechanical Connectors

Join two cables end-to-end.

LOCKTITE® Two-Way Connectors

- Cables held by saddle and tightened by screws
- Built-in lockwashers
- For use with code copper conductor (600V)





CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) A	E	J
32503†	14 Sol. to 8 Sol.	1⅛	⅜	15/32
32505†	8 Sol. to 4 Str.	1⅜	½	17/32
32507	4 Sol. to 1 Str.	1⅝	⅝	27/32
32509	1 Sol. to 2/0	1⅞	¾	1 1/32
32511	2/0 to 4/0	2 5/16	15/16	1¼
32513	4/0 to 300	2 9/16	1⅛	1½
32515	300 to 500	2¾	1¼	1 25/32
32517	500 to 750	3⅛	1½	2 1/16
32519	750 to 1,000	3⅞	1 11/16	2 9/32

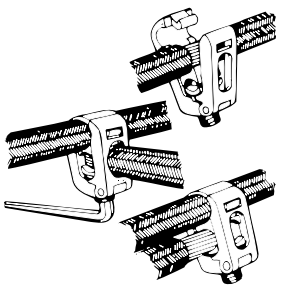
†With Filister Head Screw.

For torque requirements, see **page F-188**.

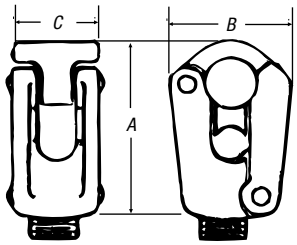
Designed for easy, one-person installation.

LOCKTITE® Tee-Parallel Taps

- Tap hangs on main while branch is inserted
- Simply tighten screw to lock in place
- For use with code copper conductor (600V)







CAT. NO.	CABLE SIZE MAIN	BRANCH	DIMENSIONS (IN.) A	B	C
35011	300 to 500	2 to 3/0	2½	1¾	1¼
35013	300 to 500	4/0 to 500	3 1/16	1⅞	1⅝
35015	500 to 750	2 to 3/0	2 13/16	1 15/16	1¼
35017	500 to 750	4/0 to 500	3⅜	2 1/16	1⅝
35019	500 to 750	500 to 750	4	2 1/16	2 1/16

For torque requirements, see **page F-188**.

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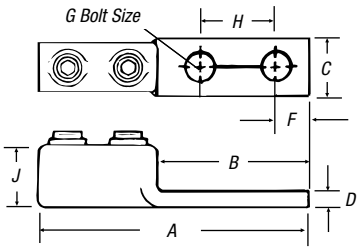
Copper Mechanical Connectors

For stranded, solid, flexible and other types of cables.

LOCKTITE® Tandem-Type Two-Hole NEMA-Drilled Lugs

- Each lug takes a range of wire sizes
- Bolt holes and spacings listed are standard
- For use with code copper conductor (600V)





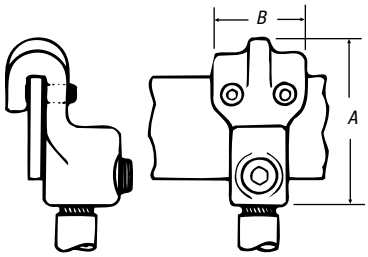
CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) G	A	B	C	D	J	F	H
32007TL	4 to 1	3/8	3 3/16	2	3/4	7/32	29/32	7/16	1
32009TL	1 to 2/0	1/2	4 15/16	3	1	1/4	1 3/32	9/16	1 3/4
32011TL	2/0 to 4/0	1/2	5 3/8	3	1	9/32	1 5/16	9/16	1 3/4
32013TL	4/0 to 300	1/2	5 5/8	3	1 3/16	5/16	1 9/16	9/16	1 3/4
32015TL	300 to 500	1/2	6 11/32	3 1/2	1 3/8	11/32	—	5/8	1 3/4
32017TL	500 to 750	1/2	6 23/32	3 1/2	1 3/4	13/32	2 1/8	5/8	1 3/4

For easy installation in hard-to-reach places.

LOCKTITE® Ground Bus Taps for ¼" Copper Bus Bar

- Eliminate the need to drill holes in the ground bus
- Can be placed quickly at any location
- Install with only a key wrench
- Standard LOCKTITE® lug grip securely holds tapping cable
- For use with code copper condutor (600V)





CAT. NO.	WIRE SIZE (IN.)	DIMENSIONS (IN.) A	B	BUS THICKNESS
31207	8 to 4	2 1/4	1 3/4	1/4
31208	4 to 1	2 3/16	1 3/4	1/4
31209	1 to 2/0	2 3/4	1 3/4	1/4
31210	2/0 to 4/0	2 3/4	1 3/4	1/4
31211	4/0 to 300	2 7/8	1 3/4	1/4
31212	300 to 500	3	1 3/4	1/4

*For torque requirements, see **page F-188**.*

LOCKTITE® Pigtail Connectors

- For use with code copper conductor (600V)

CAT. NO.	SIZE	CABLE FIG.	DIMENSIONS (IN.) A	J
31305	10 to 8	A	1/2	17/32
31307	8 to 6	A	3/4	27/32
31309	6 to 4	B	7/8	1 1/32
31311	4 to 2	B	1 1/16	1 1/4
31313	1 to 2/0	B	1 3/16	1 1/2
31315	2/0 to 4/0	B	1 5/16	1 25/32

*For torque requirements, see **page F-188**.*

Note: *To order with hex head screws (available on all except 10–8 code size), add prefix H to catalog number.*

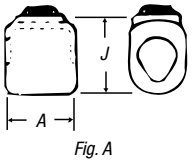


Fig. A



Fig. B



Copper Mechanical Conductors

Each connector accommodates a wide range of conductor sizes.

LOCKTITE® Stud Connectors

- Fast, simple installation
- Convenient pigtail is easy to tape
- To order with hex head screws, add prefix H to catalog number
- Standard tapping shown in diagrams
- Other tapping to meet specific requirements available on request
- For use with code copper conductor (600V)



Type MS Type FL

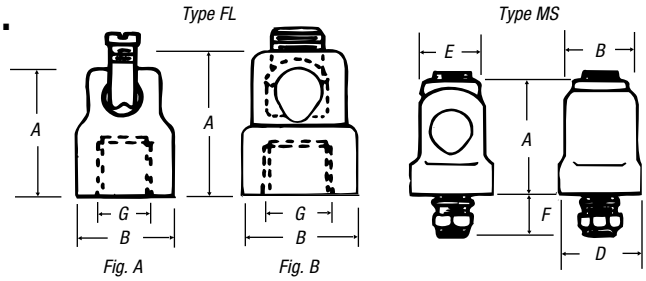


Fig. A Fig. B

Male — Type MS

CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) A	B	D	E	F	STUD SIZE (IN.)
31007-T	4 to 1	1⅜	25/32	⅞	⅝	¾	⅜-16
31009-T	1 to 2/0	1⅜	⅞	1	¾	¾	⅜-16
31011-T	2/0 to 4/0	1⅜	1 1/16	1 3/16	⅞	1	½-13
31013-T	4/0 to 300	1⅞	1 3/16	1⅜	1 1/16	1	½-13
31015-T	300 to 500	2 5/32	1 5/16	1½	1¼	1	½-13

Female — Type FL

CAT. NO.	CABLE SIZE	FIG.	DIMENSIONS (IN.) G	A	B
31262†	8 to 4	A	⅜-16	1 1/16	⅝
31263	4 to 1	B	⅜-16	1 15/32	¾
31265	4 to 1	B	½-13	1 15/32	¾
31267	2/0 to 4/0	B	½-13	2 3/16	1 3/16

†*With Filister Head Screw.*

Designed to grip cable firmly between its strong body and serrated copper tongue.

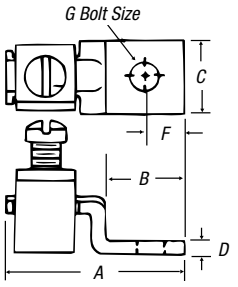
LOCKTITE® LUG-IT One-Hole Lugs, Offset Tongue

- Double laps at top give greater thread strength and lock screw when tightened
- Copper tongue makes a low-resistance terminal
- For use with code copper conductor(600V)

T&B Recommended Tightening Torque for Copper Connections

SIZE OF CONDUCTOR RANGES	WRENCH TORQUE IN.-LBS.	SCREW DRIVER TORQUE IN.-LBS.
14 to 8	—	20
8 to 4	—	35
4 to 1	125	—
1 to 2/0	150	—
2/0 to 4/0	200	—
4/0 to 300	250	—
300 to 500	300	—
500 to 750	300	—
750 to 1,000	400	—





CAT. NO.	CABLE SIZE	DIMENSIONS (IN.) G	A	B	C	D	F
35301	14 to 6	#10	1 3/16	½	⅜	.064	7/32
35401	8 to 2	¼	1 7/16	⅝	½	.081	¼
35501*†	4 to 2/0	¼	1 13/16	13/16	¾	.101	⅜
35601*†	1/0 to 4/0	⅜	2 17/32	1 3/32	1	.128	½

* *Aluminum body.*

†*Hex head bolt.*

Add suffix G to above Cat. Nos. for lug connector with green screw for grounding identification.

For torque requirements, see table at ***left.***

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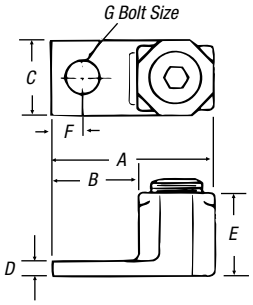
Copper Mechanical Conductors

High pull-out strength and low resistance.

LOCKTITE® Cone Screw Lugs

- Conically shaped screw compresses copper conductor so each strand is forced to carry its share of the load
- Exerts equal pressure on each conductor strand
- For use with code copper conductor (600V)





CAT. NO.	WIRE RANGE	DIMENSIONS (IN.) G	A	B	C	D	E	F	TORQUE (IN.-LBS.)
71003	14–8	#10	13/16	7/16	3/8	3/32	3/8	3/16	20*
71005	14–4	1/4	1 5/32	5/8	9/16	1/8	19/32	9/32	35*
71010	4–2/0	3/8	1 21/32	27/32	23/32	3/16	25/32	3/8	150
71014	2–4/0	3/8	1 7/8	29/32	15/16	3/16	31/32	3/8	200
71015	1–250	3/8	2 1/32	29/32	1	7/32	1	3/8	250
71020	2/0–500	1/2	2 3/4	1 1/4	1 11/32	9/32	1 15/32	9/16	300

Add suffix G to lug Cat. No. 71003, 71005, 71010 and 71014 for lug with green screw for grounding identification.

UL File No. E-9609.

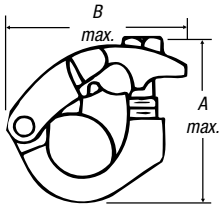
**Indicates screwdriver torque; all others indicate torque wrench.*

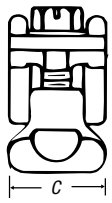
The most economical, easiest to install, approved connector for large to small branch taps.

HINJON Junior Tee-Parallel Taps

- All-around-grip jaws
- Automatically adjusts to size of main and branch
- Fast, simple installation with just a screwdriver or pliers
- Fitting can be easily taped







T&B Recommended Tightening Torque

SIZE OF CONDUCTOR RANGES	WRENCH TORQUE IN.-LBS.	SCREW DRIVER TORQUE IN.-LBS.
14 to 8	20	20
14 to 4	35	35
4 to 2/0	150	—
2 to 4/0	200	—
1 to 250	250	—
2/0 to 500	300	—

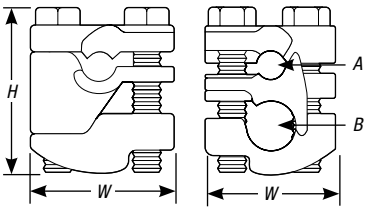
CAT. NO.	CABLE SIZE MAIN	BRANCH	DIMENSIONS (IN.) A	B	C
35107	8 to 4	14 to 8	1 1/16	7/8	5/8
35109	4 to 1/0	14 to 4	1 1/4	1	1 1/16
35111	1/0 to 4/0	14 to 4	1 3/4	1 3/8	27/32
35112	1/0 to 4/0	8 to 1	1 5/8	1 9/16	27/32
35115	300 to 500	14 to 4	1 7/8	1 13/16	1

Clamp Connectors

Connectors for a variety of applications.

XT™ Clamp for Tee Tap, Cross, Parallel and End-to-End Connectors





- Copper alloy castings provide high strength for heavy-duty applications
- Silicon-bronze bolts built to handle frequent moves, adds and changes

	CONDUCTOR RANGE (AWG OR KCMIL)				CONDUCTOR DIAMETER							
	MAIN		TAP		A		B		DIMENSIONS (IN.)			BOLT SIZE (IN.)
CAT. NO.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	L	H	W	
XT12	4/0 str.	#1 str.	#2 str.	#6 sol.	.528	.328	.292	.162	1½	1 13/16	1½	5/16
XT13			4/0 str.	#1 str.	.528	.328	.528	.328	1⅞	2	1⅞	⅜
XT21	500	250	#2 str.	#6 sol.	.813	.574	.292	.162	2 1/16	2 3/16	1⅝	⅜
XT22			4/0 str.	#1 str.	.813	.574	.528	.328	2⅛	2 3/16	2⅛	⅜
XT23*			500	250	.813	.574	.813	.574	2⅛	2 3/16	2 1/26	⅜
XT33*	1000	500	500	250	1.152	.811	.813	.574	2¼	3	2 15/16	⅜
XT34*			1000	500	1.152	.811	1.152	.811	2 11/16	3⅛	2 11/16	7/16

** 4-bolt clamps*

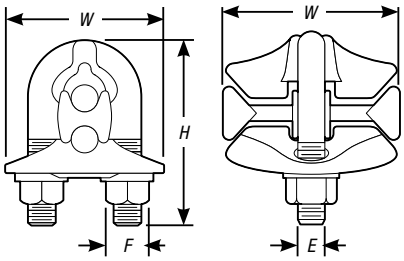
Note: *For tin-plating option, add "-P" suffix to the catalog number.*

Deadend loop connections.

DLC™ Single U-Bolt Aluminum Fittings



DLC2106



- Top and bottom pressure pads cast of high-strength, heat-treated, aluminum-silicon alloy
- Hardware made of galvanized steel provides added strength and durability

	CONDUCTOR RANGE (AWG OR KCMIL)				CONDUCTOR DIAMETER								
	ACSR		AWG OR KCMIL		A		B		DIMENSIONS (IN.)				
CAT. NO.	MAIN	TAP	MAIN	TAP	MAX.	MIN.	MAX.	MIN.	W	L	H	F	E
DLC2106*	2/0–#6	2/0–#6	2/0 str.–#6 sol.	2/0 str.–#6 sol.	.447	.162	.447	.162	1⅞	1½	3¼	9/16	⅜
DLC23*	4/0–#1, #2–#6 AR	4/0–1/0	266.8– 1/0 str.	266.8– 1/0 str.	.563	.368	.609	.368	2⅜	2⅞	4	¾	½
DLC25	336.4–1/0, 1/0–#6 AR	336.4–1/0, 1/0–#6 AR	397.5–1/0 str.	397.5–1/0 str.	.684	.368	.743	.368	2⅜	3 3/16	4	¾	½

** RUS Accepted.* *AR — with Armor Rod.*

Note: *For oxide-inhibitor option with aluminum-to-copper applications, add "-9" suffix to the catalog number.*

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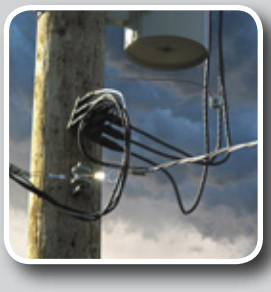
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Blackburn®

Blackburn® Overhead Connectors



In this section...



Blackburn® Overhead Connectors

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Service Entrance Splices F-194–F-201
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PowerTap™ Tools and Accessories F-247
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Storm-Safe® Service Entrance Disconnects

Mechanical breakaway link separates service at the pole to prevent damage to utility equipment and customer premises.

Storm-Safe® Breakaway Service Entrance Kits — Two and Three Service

- Downed-line safety — separates at the pole, not the weatherhead, so the line always comes down de-energized
- Crew safety — the correction is made well below the high-voltage bushings, making it safer for crews to work during a storm outage
- Quick restoration of power by simply replacing the mechanical breakaway link and re-inserting the contacts
- Disconnect service without pulling the meter
- Internal O-ring prevents moisture ingress into the contact, and external Flood-Seal® insulating rockets seal the entire system from the elements
- Dual-rated for use with aluminum and copper conductors
- Meets ANSI C119.4-2004 specifications



SS 2 K



SS 3 K



SSP 1/0 FN 500 K

Breakaway Service Entrance Kits

CAT. NO.	CONTACT BLOCK	ASSEMBLY	INSULATING ROCKETS	½–13 BOLTS
SS 2 K — Two-Service Base Kit				
SS 2 K	1	(1) U-Bolt	(2) Flood-Seal®	3
SS 3 K — Three-Service Base Kit				
SS 3 K	1	(1) U-Bolt	(2) Flood-Seal®	3

Note: *SS 2 K requires two SSP Pin Kits (**right**). SS 3 K requires three SSP Pin Kits (**right**).*

Pin Kits

CAT. NO.	TRIPLEX BLOCK	NEUTRAL ASSEMBLY	BREAKAWAY ROCKETS
SSP 1/0 FN 500 K	1/0, 1/0, 1/0 ACSR	Full Neutral	500
SSP 1/0 FN 750 K			750
SSP 1/0 RN 500 K	1/0, 1/0, #2	Reduced Neutral	500
SSP 1/0 RN 750 K			750
SSP 2 FN 500 K	#2, #2, #2	Full Neutral	500
SSP 2 FN 750 K			750
SSP 2 RN 500 K	#2, #2, #4	Reduced Neutral	500
SSP 2 RN 750 K			750
SSP 4 FN 500 K	#4, #4, #4	Full Neutral	500
SSP 4 FN 750 K			750
SSP 4 RN 500 K	#4, #4, #6	Reduced Neutral	500
SSP 4 RN 750 K			750

Note: *Kit consists of two pin terminals, one neutral pin terminal, one SSL Link Kit (breakaway link and bail) and two Flood-Seal® insulating rockets. Three pin kits are required for a three-service base kit and two pin kits are required for a two-service base kit.*

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Mechanical breakaway link separates service at the pole to prevent damage to utility equipment and customer premises.

Storm-Safe® Breakaway Service Entrance Kits — Single Service

- Downed-line safety — separates at the pole, not the weatherhead, so the line always comes down de-energized
- Crew safety — the correction is made well below the high-voltage bushings, making it safer for crews to work during a storm outage
- Quick restoration of power by simply replacing the mechanical breakaway link and re-inserting the contacts
- Disconnect service without pulling the meter
- Internal O-ring prevents moisture ingress into the contact, and external Flood-Seal® insulating rockets seal the entire system from the elements
- Dual-rated for use with aluminum and copper conductors
- Meets ANSI C119.4-2004 specifications



SS1 4 FN 750 K



SSL 750 K

Breakaway Service Entrance Kits

CAT. NO.	TRIPLEX BLOCK	NEUTRAL ASSEMBLY	BREAKAWAY ROCKETS
SS1 1/0 FN 500 K	1/0, 1/0, 1/0 ACSR	Full Neutral	500
SS1 1/0 FN 750 K			750
SS1 1/0 RN 500 K	1/0, 1/0, #2	Reduced Neutral	500
SS1 1/0 RN 750 K			750
SS1 2 FN 750 K	#2, #2, #2	Full Neutral	500
SS1 2 FN 500 K			750
SS1 2 RN 750 K	#2, #2, #4	Reduced Neutral	500
SS1 2 RN 500 K			750
SS1 4 FN 500 K	#4, #4, #4	Full Neutral	500
SS1 4 FN 750 K			750
SS1 4 RN 500 K	#4, #4, #6	Reduced Neutral	500
SS1 4 RN 750 K			750

Note: *Kit consists of two sockets, one neutral socket, two pin terminals, one neutral pin terminal, one SSL Link Kit (breakaway link and bail), two Flood-Seal® insulating splice covers and one Flood-Seal insulating rocket.*

SSL — Link Kits

CAT. NO.	BREAKAWAY ROCKETS
SSL 500 K	500
SSL 750 K	750

Note: *Kit consists of one breakaway link and one bail.*

Service Entrance Splices

Basic, uninsulated splices for service entrances.

Uninsulated Aluminum Service Entrance Compression Splices — ½" Die Series

- Constructed from aluminum for high conductivity
- Solid center barriers and large chamfers for easy cable insertion
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All splices are color coded and marked with strip lengths, installation die codes and compression locations, providing easy identification for easy installation
- Comply with ANSI C119.4 when properly installed on aluminum-to-aluminum or aluminum-to-copper conductors
- RUS Accepted



Q 1 U 54

	CONDUCTOR A				CONDUCTOR B			
CAT. NO.	COLOR	SOL.	STR.	ACSR	COLOR	SOL.	STR.	ASCR
Q 1 U 52	GREEN	#6	#8	—	GREEN	#6	#8	—
Q 1 U 53					BROWN	#8	#10	—
Q 1 U 54	BLUE	#4	—	#6-6/1	BLUE	#4	—	#6-6/1
Q 1 U 55					GREEN	#6	#8	—
Q 1 U 56					BROWN	#8	#10	—
Q 1 U 57	ORANGE	#2	—	#4-6/1, 7/1	ORANGE	#2	—	#4-6/1, 7/1
Q 1 U 58					BLUE	#4	—	#6-6/1
Q 1 U 59					GREEN	#6	#8	—
Q 1 U 60					BROWN	#8	#10	—
Q 1 U 65	RED	#1	#1 & #2	#2-6/1, 7/1	RED	#1	#1 & #2	#2-6/1, 7/1
Q 1 U 67					ORANGE	#2	—	#4-6/1, 7/1
Q 1 U 68					BLUE	#4	—	#6-6/1
Q 1 U 69					GREEN	#6	#8	—
Q 1 U 70					BROWN	#8	#10	—

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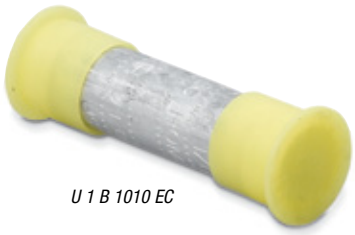
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Service Entrance Splices

Standard 2" length compression splices.

Aluminum Service Entrance Compression Splices — U 1 B™ and CS™ ⅝" Die Series

- Constructed from aluminum for high conductivity
- Solid center barriers and large chamfers for easy cable insertion
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All splices are color coded and marked with strip lengths, installation die codes and compression locations, providing easy identification for easy installation
- Comply with ANSI C119.4 when properly installed on aluminum-to-aluminum or aluminum-to-copper conductors
- RUS Accepted



U 1 B 1010 EC



CS73

U 1 B SERIES CAT. NO.	CS SERIES CAT. NO.	CONDUCTOR A				CONDUCTOR B			
		COLOR	ACSR	STR.	SOL.	COLOR	ACSR	STR.	SOL.
U 1 B 11	**—**	BROWN	—	#10	#8	BROWN	—	#10	#8
U 1 B 88	**CS61**	GREEN	—	#8	#6	GREEN	—	#8	#6
U 1 B 81	**—**					BROWN	—	#10	#8
U 1 B 66	**CS64**	BLUE	#6 (6/1)	—	#4	BLUE	#6 (6/1)	—	#4
U 1 B 68	**CS63**					GREEN	—	#8	#6
U 1 B 61	**CS62**					BROWN	—	#10	#8
U 1 B 612	**—**			6		BLACK	—	#12	#10
U 1 B 44	**CS68**	ORANGE	#4 (6/1, 7/1)	—	#2	ORANGE	#4 (6/1, 7/1)	—	#2
U 1 B 46	**CS67**					BLUE	#6 (6/1)	—	#4
U 1 B 48	**CS66**					GREEN	—	#8	#6
U 1 B 41	**CS65**					BROWN	—	#10	#8
U 1 B 22	**CS73**	RED	#2 (6/1, 7/1)	#1 & #2	#1	RED	#2 (6/1, 7/1)	#1 & #2	#1
U 1 B 24	**CS72**					ORANGE	#4 (6/1, 7/1)	—	#2
U 1 B 26	**CS71**					BLUE	#6 (6/1)	—	#4
U 1 B 28	**CS70**					GREEN	—	#8	#6
U 1 B 21	**CS69**					BROWN	—	#10	#8
U 1 B 1010	**CS78**	YELLOW	1/0 (6/1)	1/0	#1	YELLOW	1/0 (6/1)	1/0	—
U 1 B 102	**CS77**					RED	#2 (6/1, 7/1)	#1 & #2	#1
U 1 B 104	**CS76**					ORANGE	#4 (6/1, 7/1)	—	#2
U 1 B 106	**CS75**					BLUE	#6 (6/1)	—	#4
U 1 B 108	**CS74**					GREEN	—	#8	#6
—	**CS84**	GRAY	—	2/0	—	YELLOW	1/0 (6/1)	1/0	—
—	**CS85**					GRAY	—	2/0	—

Service Entrance Splices

For standard conductors.

Insulated Aluminum Service Entrance Compression Splices — U and ICS ⅝" Die Series (Standard Length, 2 25/32" Long)



URR 22



ICS73-1

- Constructed from aluminum for high conductivity
- Solid center barriers and large chamfers for easy cable insertion
- Tough stabilized nylon sleeves resist installing-tool pressure and provide reliable 600V insulation
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All splices are color coded and marked with strip lengths, installation die codes and compression locations, providing easy identification for easy installation
- Splices have colored end caps to make identification easy
- Comply with ANSI C119.4 when properly installed on aluminum-to-aluminum or aluminum-to-copper conductors
- RUS Accepted

		CONDUCTOR A						CONDUCTOR B					
						DIAMETER (IN.)						DIAMETER (IN.)	
U SERIES CAT. NO.	ICS SERIES CAT. NO.	COLOR	ACSR	STR.	SOL.	MAX.	MIN.	COLOR	ACSR	STR.	SOL.	MAX.	MIN.
UGBR 81	—	GREEN	—	#8	#6	.162	.144	BROWN	—	#10	#8	.128	.114
UGG 88	ICS61-1							GREEN	—	#8	#6	.162	.144
UBBR 61	ICS62-1	BLUE	#6	#6	#4	.204	.184	BROWN	—	#10	#8	.128	.114
UBG 68	ICS63-1							GREEN	—	#8	#6	.162	.144
UBB 66	ICS64-1							BLUE	#6	#6	#4	.204	.184
UOBR 41	ICS65-1	ORANGE	#4	#4	#2	.258	.213	BROWN	—	#10	#8	.128	.114
UOG 48	ICS66-1							GREEN	—	#8	#6	.162	.144
UOB 46	ICS67-1							BLUE	#6	#6	#4	.204	.184
UOO 44	ICS68-1							ORANGE	#4	#4	#2	.258	.213
URBR 21	—	RED	#2	#1 & #2	—	.328	.268	BROWN	—	#10	#8	.128	.114
URG 28	ICS70-1							GREEN	—	#8	#6	.162	.144
URB 26	ICS71-1							BLUE	#6	#6	#4	.204	.184
URO 24	ICS72-2							ORANGE	#4	#4	#2	.258	.213
URR 22	ICS73-1							RED	#2	#1 & #2	—	.328	.268
UYG 08	ICS74-1	YELLOW	1/0	1/0	—	.398	.368	GREEN	—	#8	#6	.162	.144
UYB 06	ICS75-1							BLUE	#6	#6	#4	.204	.184
UYO 04	ICS76-1							ORANGE	#4	#4	#2	.258	.213
UYR 02	ICS77-1							RED	#2	#1 & #2	—	.328	.268
UYY 00	ICS78-1							YELLOW	1/0	1/0	—	.398	.368

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Service Entrance Splices

For standard conductors.

Insulated Aluminum Service Entrance Compression Splices — U 1 N ⅝" Die Series (Longer Length, 3¼" Long)

- Constructed from aluminum for high conductivity
- Solid center barriers and large chamfers for easy cable insertion
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All splices are color coded and marked with strip lengths, installation die codes and compression locations, providing easy identification for easy installation
- Comply with ANSI C119.4 when properly installed on aluminum-to-aluminum or aluminum-to-copper conductors
- RUS Accepted



U 1 N 106

	CONDUCTOR A				CONDUCTOR B			
CAT. NO.	COLOR	SOL.	STR.	ACSR	COLOR	SOL.	STR.	ASCR
U 1 N 16	BROWN	#8	#10	—	GREEN	#6	#8	—
U 1 N 11					BROWN	#8	#10	—
U 1 N 12					RED	#1	#2	#2-6/1, 7/1
U 1 N 88	GREEN	#6	#8	—	GREEN	#6	#8	—
U 1 N 81					BROWN	#8	#10	—
U 1 N 66	BLUE	#4	—	#6-6/1	BLUE	#4	—	#6-6/1
U 1 N 68					GREEN	#6	#8	—
U 1 N 61					BROWN	#8	#10	—
U 1 N 44	ORANGE	#2	—	#4-6/1, 7/1	ORANGE	#2	—	#4-6/1, 7/1
U 1 N 46					BLUE	#4	—	#6-6/1
U 1 N 48					GREEN	#6	#8	—
U 1 N 41					BROWN	#8	#10	—
U 1 N 22	RED	#1	#1 & #2	#2-6/1, 7/1	RED	#1	#1 & #2	#2-6/1, 7/1
U 1 N 24					ORANGE	#2	#3 & #4	#4-6/1, 7/1
U 1 N 26					BLUE	#4	#5 & #6	#6-6/1
U 1 N 28					GREEN	#6	#8	—
U 1 N 21					BROWN	#8	#10	—
U 1 N 1010	YELLOW	#1	1/0	1/0-6/1	YELLOW	—	1/0	1/0-6/1
U 1 N 102					RED	#1	#1 & #2	#2-6/1
U 1 N 104					ORANGE	#2	—	#4-6/1
U 1 N 106					BLUE	#4	—	#6-6/1
U 1 N 108					GREEN	#6	#8	—

Service Entrance Splices

For compact conductors.

Insulated Aluminum Service Entrance Compression Splices — U ⅝" Die Series (Longer Length — 3¼" Long)

- Constructed from aluminum for high conductivity
- Solid center barriers and large chamfers for easy cable insertion
- Tough stabilized-nylon sleeves resist installing-tool pressure and provide reliable 600V insulation
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All splices are color coded and marked with strip lengths, installation die codes and compression locations, providing easy identification for easy installation
- Comply with ANSI C119.4 when properly installed on aluminum-to-aluminum or aluminum-to-copper conductors
- RUS Accepted



U 22 RR



U 68 BG


U 44 00

	CONDUCTOR A				CONDUCTOR B				
CAT. NO.	COLOR	STR.	COMPT.	COMP.	COLOR	STR.	COMPT.	SOL.	COMP.
U 61 BBR	BLUE	#6	#6	#6	BROWN	#10	—	#8	—
U 68 BG					GREEN	#8	#8	—	#8
U 66 BB		#4	#4	#4	BLUE	#6	#6	—	#6
U 41 OBR	ORANGE	#4	#4	#4	BROWN	#10	—	#8	—
U 48 OG					GREEN	#8	#8	—	#8
U 46 OB					BLUE	#6	#6	—	#6
U 44 OO					ORANGE	#4	#4	—	#4
U 21 RBR	RED	#2	#2	#2	BROWN	#10	—	#8	—
U 28 RG					GREEN	#8	#8	—	#8
U 26 RB					BLUE	#6	#6	—	#6
U 24 RO					ORANGE	#4	#4	—	#4
U 22 RR					RED	#2	#2	—	#2
U 101 YBR	YELLOW	1/0	1/0	1/0	BROWN	#10	—	#8	—
U 108 YG					GREEN	#8	#8	—	#8
U 106 YB					BLUE	#6	#6	—	#6
U 104 YO					ORANGE	#4	#4	—	#4
U 102 YR					RED	#2	#2	—	#2
U 1010 YY					YELLOW	1/0	1/0	—	1/0

Note: *Sold in standard carton quantities only.*

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Service Entrance Splices

At 5½" long, these splices are ideal for heavy-duty overhead services.

Insulated Aluminum Service Entrance Compression Splices — 840 Die Series

- Constructed from aluminum for high conductivity
- Solid center barriers and large chamfers for easy cable insertion
- Tough stabilized-nylon sleeves resist installing-tool pressure and provide reliable 600V insulation
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All splices are color coded and marked with strip lengths, installation die codes and compression locations, providing easy identification for easy installation
- Comply with ANSI C119.4 when properly installed on aluminum-to-aluminum or aluminum-to-copper conductors
- RUS Accepted



X 1 N 204



IKL47

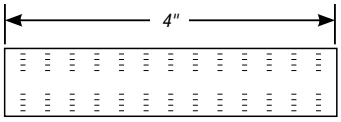
X 1 N SERIES CAT. NO.	IKL SERIES CAT. NO.	CONDUCTOR A					CONDUCTOR B				
		COLOR	ACSR	STR.	COMPR.	COMPT.	COLOR	ACSR	STR.	COMPR.	COMPT.
X 1 N 104	IKL34	YELLOW	1/0	1/0	1/0	2/0	ORANGE	#4	#4	#4	—
X 1 N 102	IKL35						RED	#2	#1	#1	1/0
X 1 N 1010	IKL36						YELLOW	1/0	1/0	1/0	2/0
X 1 N 204	IKL44	GRAY	2/0	2/0	2/0	3/0	ORANGE	#4	—	—	—
X 1 N 202	IKL45						RED	#2	#1	#1	1/0
X 1 N 2010	IKL46						YELLOW	1/0	1/0	1/0	2/0
X 1 N 2020	IKL47						GRAY	2/0	2/0	2/0	3/0
X 1 N 304	IKL54	BLACK	3/0	3/0	3/0	4/0	ORANGE	#4	—	—	—
X 1 N 302	IKL55						RED	#2	#1	#1	1/0
X 1 N 3010	IKL56						YELLOW	1/0	1/0	1/0	2/0
X 1 N 3020	IKL57						GRAY	2/0	2/0	2/0	3/0
X 1 N 3030	IKL58						BLACK	3/0	3/0	3/0	4/0
X 1 N 404	IKL64	PINK	4/0	4/0	4/0	250	ORANGE	#4	—	—	—
X 1 N 402	IKL65						RED	#2	#1	#1	1/0
X 1 N 4010	IKL66						YELLOW	1/0	1/0	1/0	2/0
X 1 N 4020	IKL67						GRAY	2/0	2/0	2/0	3/0
X 1 N 4030	IKL68						BLACK	3/0	3/0	3/0	4/0
X 1 N 4040	IKL69						PINK	4/0	4/0	4/0	250

Service Entrance Splices

Ideal for large residential and commercial service drops.

Uninsulated Aluminum Service Entrance Compression Splices — 840 Die Series

- Constructed from aluminum for high conductivity
- Solid center barriers enable quick wire positioning, proper distribution of inhibitor around the wire and current equalization on stranded conductors
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- Splices marked with strip lengths, die codes and compression locations, providing easy identification for easy installation
- Comply with ANSI C119.4 when properly installed on aluminum-to-aluminum or aluminum-to-copper conductors; also tested and approved for EEI installing dies
- RUS Accepted





X 1 U 2020

	CONDUCTOR A					CONDUCTOR B				
		SOLID					SOLID			
CAT. NO.	COLOR	AL	CU	STRANDED	ASCR	COLOR	AL	CU	STRANDED	ASCR
X 1 U 44	ORANGE	#2	#2	—	#4	ORANGE	#2	#2	—	#4
X 1 U 24	RED	#1	#1	#1 & #2	#2	ORANGE	#2	#2	—	#4
X 1 U 22						RED	#1	#1	#1 & #2	#2
X 1 U 104	YELLOW	1/0, 2/0	—	1/0	1/0	ORANGE	#2	#2	—	#4
X 1 U102						RED	#1	#1	#1 & #2	#2
X 1 U 1010						YELLOW	1/0 & 2/0	—	1/0	1/0
X 1 U 204	GRAY	3/0	—	2/0	2/0	ORANGE	#2	#2	—	#4
X 1 U 202						RED	#1	#1	#1 & #2	#2
X 1 U 2010						YELLOW	1/0 & 2/0	—	1/0	1/0
X 1 U 2020						GRAY	3/0	—	2/0	2/0
X 1 U 304	BLACK	4/0	—	3/0	3/0	ORANGE	#2	#2	—	#4
X 1 U 302						RED	#1	#1	#1 & #2	#2
X 1 U 3010						YELLOW	1/0 & 2/0	—	1/0	1/0
X 1 U 3020						GRAY	3/0	—	2/0	2/0
X 1 U 3030						BLACK	4/0	—	3/0	3/0
X 1 U 404	PINK	—	—	4/0	4/0	ORANGE	#2	#2	—	#4
X 1 U 402						RED	#1	#1	#1 & #2	#2
X 1 U 4010						YELLOW	1/0 & 2/0	—	1/0	1/0
X 1 U 4020						GRAY	3/0	—	2/0	2/0
X 1 U 4030						BLACK	4/0	—	3/0	3/0
X 1 U 4040						PINK	—	—	4/0	4/0

Note: *When using EEI 11A die, space compressions ⅛" apart.*

When installing with UT 5 tool, use H5 (upper) and H6 (lower) dies. When installing with a hydraulic tool, use 76 (2) die.

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Uninsulated Aluminum Service Entrance Compression Splices — 840 Die Series *(continued)*

	CONDUCTOR A					CONDUCTOR B				
		SOLID					SOLID			
CAT. NO.	COLOR	AL	CU	STRANDED	ASCR	COLOR	AL	CU	STRANDED	ASCR
X 1 U 266	BLUE	350	—	250–266.8	266.8	BLUE	350	—	250–266.8	266.8
X 1 U 2664						ORANGE	#2	#2	#3 & #4	#4
X 1 U 2662						RED	#1	#1	#1 & #2	#2
X 1 U 26610						YELLOW	1/0 & 2/0	—	1/0	1/0
X 1 U 26620						GRAY	3/0	—	2/0	2/0
X 1 U 26630						BLACK	4/0	—	3/0	3/0
X 1 U 26640						PINK	—	—	4/0	4/0
X 1 U 336	BROWN	397.5–400	—	300–350	336.4 (18/1)	BROWN	397.5–400	—	300–350	336.4 (18/1)
X 1 U 3364						ORANGE	#2	#2	#3 & #4	#4
X 1 U 3362						RED	#1	#1	#1 & #2	#2
X 1 U 33610						YELLOW	1/0 & 2/0	—	1/0	1/0
X 1 U 33620						GRAY	3/0	—	2/0	2/0
X 1 U 33630						BLACK	4/0	—	3/0	3/0
X 1 U 33640						PINK	—	—	4/0	4/0
X 1 U 33626						BLUE	350	—	250–266.8	266.8

Break through and bolt down.

Insulation-Piercing Splice and Tap Connectors

- Constructed from aluminum for high conductivity
- Shear-head bolt design always provides the correct torque
- Provided with either ½" or ⅝" bolt head sizes to cover a wide range of aluminum or copper main and tap conductors
- Dual-rated for use in 90° applications with aluminum or copper conductors



Style 1
IPST 25040



Style 2
IPST 500350

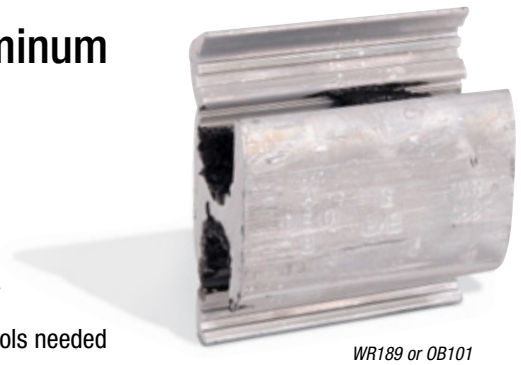
		CONDUCTOR RANGE		HEX BOLT SIZE (IN.)	TORQUE (LB.)
CAT. NO.	STYLE	MAIN	TAP		
IPST 102*	1	1/0–#8	#2–#10	½	80
IPST 1010*		1/0–#8	1/0–#8	½	125
IPST 2001		2/0–#4	#10–#14	½	80
IPST 402		4/0–#3	#2–#10	½	125
IPST 4020*		4/0–#2	2/0–#6	½	125
IPST 4040*		4/0–#2	4/0–#4	½	160
IPST 25040		250–#1	4/0–#4	½	160
IPST 75001		750–3/0	#10–#14	⅝	80
IPST 350350	2	350–1/0	350–1/0	⅝	330
IPST 50040		500–2/0	4/0–#4	⅝	330
IPST 500350		500–4/0	350–1/0	⅝	330
IPST 750500		750–250	500–250	⅝	330

Note: *Not UL Listed. Includes blue adapter for use on bare cable.*

Aluminum H-Tap Connectors and Covers

For combinations of aluminum-to-aluminum and aluminum-to-copper conductors.

WR™ Wide-Range Aluminum Tap Connectors



WR189 or OB101

- Made of 1350 aluminum alloy for high strength and high conductivity
- Standard compression tools and dies install all sizes — no special tools needed
- Field-proven ribbed design enables excellent connector/conductor contact without distorting the conductor's shape
- Fold-in tabs provide positive tab interlock as tool closes
- Prefilled with oxide inhibitor held captive in the rib/connection area
- RUS Accepted
- Complies with ANSI C119.4 specifications

WR™ O and D Die Seven-Connector Program

CAT. NO.	CONNECTOR NUMBER	CONDUCTOR RANGE										DIAMETER (IN.)				CONNECTOR LENGTH (IN.)
		STANDARD CONDUCTOR						COMPACT CONDUCTOR								
		MAIN			TAP			MAIN		TAP		MAIN		TAP		
		ACSR	STR.	SOL.	ACSR	STR.	SOL.	ACSR	STR.	ACSR	STR.	MAX.	MIN.	MAX.	MIN.	
WR159 or OB 44	1	#2, #4, #6	#1, #2, #3, #4, #6	#2, #4, #6	#2, #4, #6	#1, #2, #3, #4, #6	#2, #4, #6	#1, #2, #4, #6	#1, #2, #3, #4, #6	#1,# 2, #4, #6	#1, #2, #3, #4, #6	.332	.162	.332	.162	1 7/16
OB 1																1½
WR189 or OB 101	2	1/0, #1, #2	2/0, 1/0, #1, #2	3/0, 2/0, 1/0, #1	#2, #4, #6	#1, #2, #3, #4, #6	1/0, #1, #2, #4, #6	2/0, 1/0, #1, #2	2/0, 1/0, #1, #2	#1, #2, #4, #6	#1, #2, #3, #4, #6	.419	.266	.332	.162	1 11/16
OB 2																1¾
WR289 or DB 202	3	2/0, 1/0	3/0, 2/0	4/0, 3/0	#2, #4, #6	#1, #2, #3, #4, #6	1/0, #1, #2, #4, #6	2/0, 1/0, #1, #2	2/0, 1/0, #1, #2	#1, #2, #4, #6	#1, #2, #3, #4, #6	.470	.398	.332	.162	1 13/16
DB 3																1⅞
WR279 or DB 2020	4	2/0, 1/0, #1	3/0, 2/0, 1/0	—	2/0, 1/0, #1	3/0, 2/0, 1/0	—	3/0, 2/0, 1/0	3/0, 2/0, 1/0	3/0, 2/0, 1/0	3/0, 2/0, 1/0	.470	.336	.470	.336	1 13/16
WR379 or DB 404	5	4/0, 3/0	4/0	—	#2, #4, #6	#1, #2, #3, #4, #6	1/0, #1, #2, #4, #6	266 18¾, 250, 4/0	266, 250, 4/0	#1, #2, #4, #6	#1, #2, #3, #4, #6	.563	.475	.332	.162	1 13/16
DB 5																1⅞
WR399 or DB 4020	6	4/0, 3/0	4/0, 3/0	—	2/0, 1/0, #1	2/0, 1/0	3/0, 2/0	266 18¾, 4/0, 3/0	266, 250, 4/0	2/0, 1/0	3/0, 2/0, 1/0	.563	.461	.447	.338	2 3/16
DB 6																2½
WR419 or DB 4040	7	4/0, 3/0	4/0, 3/0	—	4/0, 3/0	4/0, 3/0	—	266 18¾, 4/0, 3/0	266, 250, 4/0	266 18¾, 4/0, 3/0	266, 250, 4/0	.563	.461	.563	.461	2 7/16
DB 7																2½

Note: *Connector numbers 1 and 2 use "O" Die; 3–7 use "D" Die.*

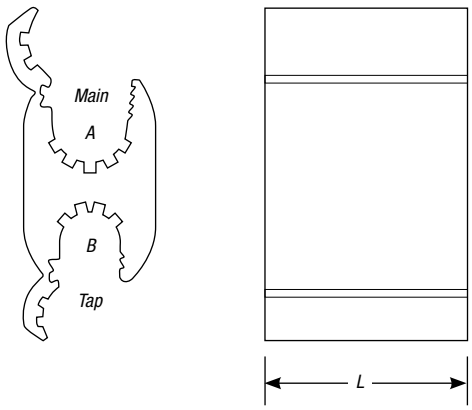
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Aluminum H-Tap Connectors and Covers





WR259

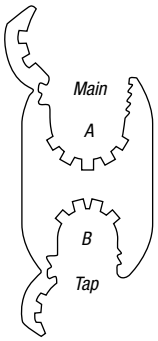
WR™ Supplemental O and D Die Connectors

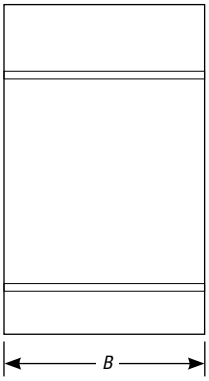
CAT. NO.	CONDUCTOR RANGE										DIAMETER (IN.)				CONNECTOR LENGTH (IN.)
	STANDARD CONDUCTOR						COMPACT CONDUCTOR								
	MAIN			TAP			MAIN		TAP		MAIN		TAP		
	ACSR	STR.	SOL.	ACSR	STR.	SOL.	ACSR	STR.	ACSR	STR.	MAX.	MIN.	MAX.	MIN.	
WR149	#4, #6	#3, #4, #6	#2, #3, #4, #6	#4, #6	#3, #4, #6	#2, #3, #4, #6	#4, #6	#2, #3, #4, #6	#3, #4, #6	#2, #3, #4, #6	.266	.162	.266	.162	1½
WR179	1/0, #1, #2, #3	1/0, #1, #2	#1	#4, #6	#3, #4, #6	#2, #3, #4, #6	1/0, #1, #2	2/0, 1/0, #1, #2	#4, #6	#2, #3, #4, #6	.398	.266	.266	.162	1¾
WR199	1/0, #1, #2, #3	1/0, #1, #2	#1	#2, #3, #4	#1, #2, #3, #4	#1, #2	1/0, #1, #2	2/0, 1/0, #1, #2	#1, #2, #3, #4	#1, #2	.398	.266	.332	.232	1¾
WR1010 or OB 1010	1/0, #1, #2, #3, #4	2/0, 1/0, #1, #2, #3, #4	1/0, #1, #2	1/0, #1, #2, #3, #4	2/0, 1/0, #1, #2, #3, #4	1/0, #1, #2	2/0, 1/0, #1, #2, #3, #4	2/0, 1/0, #1, #2	2/0, 1/0, #1, #2, #3, #4	2/0, 1/0, #1, #2	.419	.232	.419	.232	1¾
WR259	1/0, #1	2/0, 1/0	—	1/0, #1	2/0, 1/0	—	2/0, 1/0	2/0, 1/0	2/0, 1/0	2/0, 1/0	.419	.326	.412	.292	1⅞
WR299	2/0, 1/0	3/0, 2/0	—	#4, #6	#3, #4, #6	#2, #3, #4, #6	3/0, 2/0	3/0	#4, #6	#2, #3, #4, #6	.470	.398	.266	.162	1½
WR219	1/0, #1	1/0, #1	—	1/0, #1, #2	1/0, #1	—	1/0	2/0, 1/0	1/0	2/0, 1/0	.398	.324	.398	.316	1⅞
WR239	2/0, 1/0	2/0, 1/0	—	#2, #3, #4	#1, #2, #3	#1, #2	2/0, 1/0	4/0, 3/0	#1, #2, #3, #4	#1, #2	.447	.365	.332	.236	1⅞
WR229	2/0	3/0, 2/0	—	1/0, #1, #2	1/0, #1	—	3/0, 2/0	3/0	1/0, #1	2/0, 1/0	.470	.410	.398	.316	1⅞
WR269	2/0	2/0	—	2/0, 1/0	2/0, 1/0	—	2/0	3/0	2/0, 1/0	3/0, 2/0, 1/0	.447	.410	.447	.336	1⅞

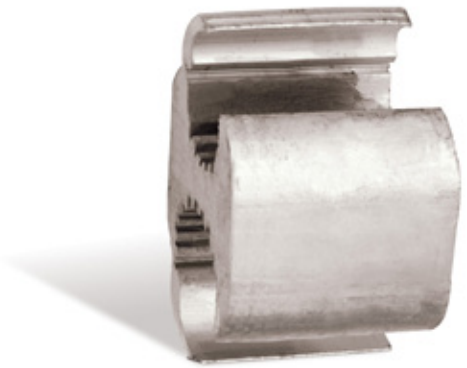
Note: *WR149–WR1010 use "O" connector die; all others use "D" connector die.*
WR1010 and WR299 use four indents with a mechanical tool; all others use five indents.
All die connectors use two indents with a hydraulic tool.

Aluminum H-Tap Connectors and Covers

WR™ Wide-Range Aluminum Tap Connectors *(continued)*







WR Connector

WR™ Supplemental D Connectors

	CONDUCTOR RANGE										DIAMETER (IN.)				
	STANDARD CONDUCTOR*						COMPACT CONDUCTOR								
	MAIN			TAP			MAIN		TAP		MAIN		TAP		
CAT. NO.	ACSR	STR.	SOL.	ACSR	STR.	SOL.	ACSR	STR.	ACSR	STR.	MAX.	MIN.	MAX.	MIN.	CONNECTOR LENGTH (IN.)
WR319	3/0	3/0	—	#2, #3, #4	#1, #2, #3, #4	#1, #2	3/0	4/0	#1, #2, #3, #4	#1, #2	.502	.461	.332	.299	1⅞
WR339	3/0	3/0	—	2/0, 1/0, #1	2/0, 1/0	—	3/0	4/0	2/0, 1/0	3/0, 2/0, 1/0	.502	.461	.447	.336	2⅛
WR359	4/0, 3/0	4/0, 3/0	—	#4, #6	#3, #4, #6	#2, #3, #4, #6	266, 4/0, 3/0	266, 250, 4/0	1/0, #1, #2	1/0, #1, #2	.563	.461	.266	.162	1⅞
WR369	4/0, 3/0	4/0, 3/0	—	#1, #2, #3, #4	1/0, #1, #2, #3	#1	266, 4/0, 3/0	266, 250, 4/0	1/0, #1, #2	1/0, #1, #2	.563	.461	.374	.266	1⅞
WR369†	4/0, 3/0, 2/0	4/0, 3/0	—	1/0, #1, #2, #3, #4	1/0, #1, #2, #3, #4	1/0, #1, #2	266, 4/0, 3/0	266, 250, 4/0, 3/0	1/0, #1, #2, #3, #4	1/0, #1, #2	.563	.423	.373	.232	1⅞
WR389	4/0, 3/0	4/0, 3/0	—	2/0, 1/0	3/0, 2/0	—	266, 4/0, 3/0	266, 250, 4/0	3/0, 2/0	3/0, 2/0	.563	.461	.470	.376	2¾16
WR389†	4/0, 3/0, 2/0	4/0, 3/0	—	2/0, 1/0, #1	3/0, 2/0, 1/0	—	266, 4/0, 3/0	266, 250, 4/0	3/0, 2/0, 1/0	3/0, 2/0, 1/0	.563	.423	.470	.336	2¾16

** Will accept conductors of the same wire sizes with a 3% reduction of diameter (compressed).*

† Conductor range possible only when crimped with a hydraulic tool.

Note: *WR359 and WR369 use four indents with a mechanical tool; WR319 uses five indents with a mechanical tool; W339 and WR389 use six indents with a mechanical tool. WR369 can also use five indents with a mechanical tool.*
All die connectors use two indents with a hydraulic tool.

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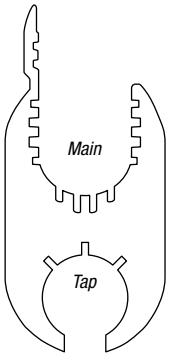


Fig. 1

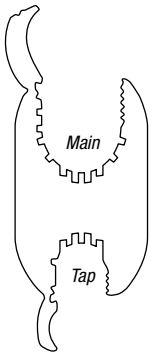
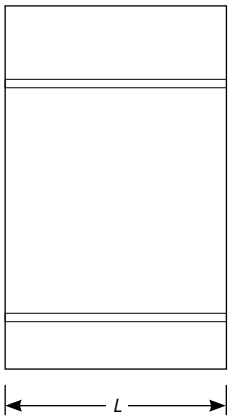


Fig. 2





WR715

WR™ N Die Tap Connectors

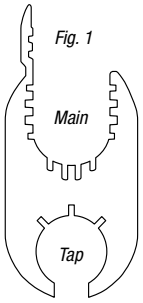
CAT. NO.	CONDUCTOR RANGE: STANDARD CONDUCTOR* MAIN ACSR	STANDARD CONDUCTOR* MAIN STR.	STANDARD CONDUCTOR* TAP ACSR	STANDARD CONDUCTOR* TAP STR.	STANDARD CONDUCTOR* TAP SOL.	COMPACT CONDUCTOR MAIN ACSR	COMPACT CONDUCTOR MAIN STR.	COMPACT CONDUCTOR TAP ACSR	COMPACT CONDUCTOR TAP STR.	DIAMETER (IN.) MAIN MAX.	DIAMETER (IN.) MAIN MIN.	DIAMETER (IN.) TAP MAX.	DIAMETER (IN.) TAP MIN.	CONNECTOR LENGTH (IN.)
WR715	397[18⅘], 336, 266	400, 397, 350, 336, 300, 266, 250	2/0, 1/0, #1, #2, #3, #4, #6	2/0, 1/0, #1, #2, #3, #4, #6	3/0, 2/0, 1/0, #1, #2, #3, #4, #6	477, 397, 336	500, 477, 397, 350	2/0, 1/0, #1, #2, #3, #4, #6	3/0, 2/0, 1/0, #1, #2, #3, #4, #6	.753	.502	.447	.162	2
WR775	397[18⅘], 336, 266, 4/0	400, 397, 350, 336, 300, 266, 250, 4/0	397[18⅘], 336, 266, 4/0	400, 397, 350, 336, 300, 266, 250, 4/0	—	477, 397, 336, 266	500, 477, 397, 350, 336, 300, 266, 250	477, 397, 336, 266	500, 477, 397, 336, 300, 266, 250	.743	.502	.743	.520	3
WR815	477[18⅘], 397, 336, 266, 4/0	556, 500, 400, 397, 350, 336, 300, 266, 250	2/0, 1/0, #1, #2, #3, #4, #6	2/0, 1/0, #1, #2, #3, #4, #6	3/0, 2/0, 1/0, #1 #2, #3, #4, #6	556, 477, 397, 336, 266	556, 477, 397, 336, 266, 250	2/0, 1/0, #1, #2, #3, #4, #6	3/0, 2/0, 1/0, #1, #2, #3, #4, #6	.858	.502	.447	.162	2
WR835 or NB 50040	477[18⅘], 397, 336, 266, 4/0	556, 500, 400, 397, 350, 336, 300, 266, 250	4/0, 3/0, 2/0, 1/0	4/0, 3/0, 2/0, 1/0	4/0, 3/0, 2/0	556, 477, 397, 336, 266	556, 477, 397, 350, 336, 300, 266, 250	266, 4/0, 3/0, 2/0	250, 4/0, 3/0	.858	.502	.563	.368	2
WR875†	477[18⅘], 397, 336, 266, 4/0	556, 500, 400, 397, 350, 336, 300, 266, 250	477[18⅘] 266	350, 336, 300, 266, 250	397, 366	556, 477, 397, 336, 266	556, 477, 397, 350, 336, 300, 336, 300	397, 336, 266	400, 397, 350, 336, 300, 266, 250	.858	.502	.684	.520	3
WR885 or NB 500	477[18⅘], 397, 336, 266, 4/0	500, 400, 397, 350, 336, 300, 266, 250, 4/0	477[18⅘], 397, 336, 266, 4/0	500, 400, 397, 350, 336, 300, 266, 250, 4/0	—	556, 477, 397, 336, 266	556, 477, 397, 350, 336, 300, 266, 250	556, 477, 397, 336, 266	556, 477, 397, 350, 336, 300, 266, 250	.814	.502	.814	.520	3

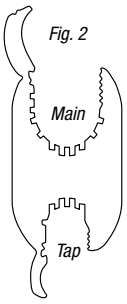
** Will accept conductors of the same wire sizes with a 3% reduction of diameter (compressed).*

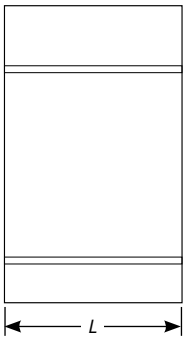
† See ***Fig. 2***.

Note: *All die connectors can be used with Blackburn JB12A, JB12B, 12A and Y-35 tools.*
All die connectors are for use with hydraulic tools, 12-ton and greater.
WR715, WR815 and WR835 use two indents with a hydraulic tool; all others use three indents.

WR™ Wide-Range Aluminum Tap Connectors *(continued)*









WR699

WR™ N Die Tap Connectors *(continued)*

CAT. NO.	CONDUCTOR RANGE									DIAMETER (IN.)				CONNECTOR LENGTH (IN.)
	STANDARD CONDUCTOR*					COMPACT CONDUCTOR								
	MAIN		TAP			MAIN		TAP		MAIN		TAP		
	ACSR	STR.	ACSR	STR.	SOL.	ACSR	STR.	ACSR	STR.	MAX.	MIN.	MAX.	MIN.	
WR699	397[18⅞], 336, 266	400, 397, 350, 336, 300, 266, 250	#4, #6	#3, #4, #6	#2, #3, #4, #6	477, 397, 336	477, 397, 350, 336, 300	#4, #6	#2, #3, #4, #6	.743	.570	.266	.162	2
WR719	397[18⅞], 336, 266	400, 397, 350, 336, 300, 266, 250	2/0, 1/0, #1, #2, #3	2/0, 1/0, #1, #2	3/0, 2/0, 1/0, #1	477, 397, 336	477, 397, 350, 336, 300	2/0, 1/0, #1, #2	3/0, 2/0, 1/0, #1	.743	.570	.447	.289	2
WR739	397[18⅞] 336, 266	400, 397, 350, 336, 300, 266, 250	4/0, 3/0, 2/0, 1/0	4/0, 3/0, 2/0	4/0	477, 397, 336	477, 397, 350, 336, 300	266, 4/0, 3/0	266, 250, 4/0	.743	.570	.563	.398	2
WR779	397[18⅞], 336, 266	400, 397, 350, 336, 300, 266, 250	397[18⅞], 336, 266	400, 397, 350, 336, 266, 250	477, 397	477, 397, 336	477, 397, 350, 336, 300	477, 397, 336	477, 397, 336	.743	.570	.743	.570	3
WR799	477[18⅞], 266	500, 250	#4, #6	#3, #4, #6	#2, #3, #4, #6	477[18⅞], 266	500, 250	#3, #4, #6	#2, #3, #4, #6	.814	.575	.270	.160	2
WR819	477[18⅞], 397, 336	556, 500, 477, 450, 400, 397, 350, 336	2/0, 1/0, #1, #2, #3	2/0, 1/0, #1, #2	3/0, 2/0, 1/0, #1	556, 477, 397	556, 477, 397	2/0, 1/0, #1, #2	3/0, 2/0, 1/0, #1	.858	.659	.477	.289	2
WR839	477[18⅞], 397, 336	556, 500, 477, 450, 400, 397, 350, 336	4/0, 3/0, 2/0	4/0, 3/0	4/0	556, 477, 397	556, 477, 397	266, 4/0, 3/0	266, 4/0, 3/0	.858	.659	.563	.477	2
WR879†	477[18⅞], 397, 336	556, 500, 477, 450, 400, 397, 350, 336	336[18⅞], 266	350, 336, 300, 266	397	556, 477, 397	556, 477, 397	397, 336	397, 350, 336	.858	.659	.684	.593	3
WR889	477[18⅞], 397, 336	500, 400, 397, 350, 336	477[18⅞], 397, 336	500, 400, 397, 350, 336	—	556, 477, 397, 336	556, 477, 397, 350	556, 477, 397, 336	556, 477, 397, 350	.814	.666	.814	.666	3

** Will accept conductors of the same wire sizes with a 3% reduction of diameter (compressed).*

*† See **Figure 2**.*

***Note**: All die connectors can be used with Blackburn JB12A, JB12B, WH2, PH2, 12A and Y-35 tools.*
All die connectors are for use with hydraulic tools, 10-ton and greater.
WR779, WR879 and WR889 use three indents with a hydraulic tool; all others use two indents.

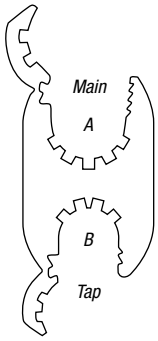
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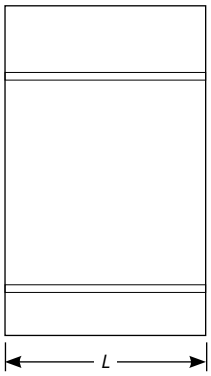
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Aluminum H-Tap Connectors and Covers







WR909

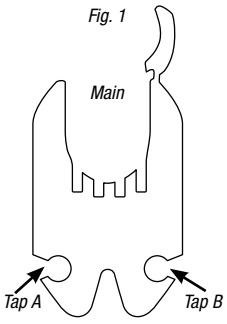
WR™ R Die Tap Connectors

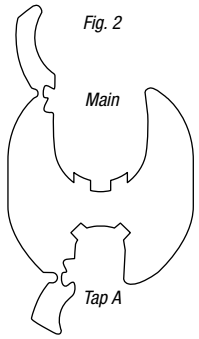
	CONDUCTOR RANGE								DIAMETER (IN.)				
	STANDARD CONDUCTOR				COMPACT CONDUCTOR								
	MAIN		TAP		MAIN		TAP		MAIN		TAP		CONNECTOR LENGTH
CAT. NO.	ACSR	STR.	ACSR	STR.	ACSR	STR.	ACSR	STR.	MAX.	MIN.	MAX.	MIN.	(IN.)
WR909	556[18/1], 477, 397, 336, 300	600, 556, 550, 500, 477, 450, 397, 350, 336	336[18/1], 266, 4/0, 3/0, 2/0, 1/0	350, 336, 266, 250, 4/0, 3/0, 2/0	636, 556, 477, 397	700, 636, 556, 500, 477, 450	397½, 336, 266, 4/0, 3/0, 2/0	397, 350, 336, 300, 266, 250, 4/0, 3/0	.893	.666	.684	.398	4¾
WR929	556[18/1], 477,397, 336, 300	600, 556, 550, 500, 477, 450, 397, 350, 336	556[18/1], 477, 397 336, 300	600, 556, 550, 477, 450, 400, 397, 350, 336	636, 556, 477, 397	700, 636, 556, 500, 477, 450	636, 556, 477, 397	700, 636, 556, 477, 450	.893	.666	.893	.666	4¾
WR949	795[26/7], 715, 666, 636, 605, 556, 477[30/7]	900, 874, 800, 795, 750, 715, 700, 636, 600	336[18/1], 266, 4/0, 3/0, 2/0, 1/0	350, 336, 266, 250, 4/0, 3/0, 2/0	954, 874, 795	1000, 954, 874, 795, 750	397[18/1], 336, 266, 4/0, 3/0, 2/0	397, 350, 336, 300, 266, 250, 4/0, 3/0	1.108	.883	.684	.398	4¾
WR969	795[26/7], 715, 666, 636, 605, 556, 477[30/7]	900, 874, 800, 795, 750, 715, 700, 636, 600	556[18/1], 477, 397, 336, 300	600, 556, 550, 500, 477, 450, 400, 397, 350, 336	954, 874, 795	1000, 954, 874, 795	636, 556, 477, 397	700, 636, 556, 477, 450	1.108	.883	.893	.666	4¾
WR989	795[26/7], 715, 666, 636, 605, 556, 477[30/7]	900, 874, 800, 795, 750, 715, 700, 636, 600	795[26/7], 715, 666, 636, 605, 556, 477[30/7]	900, 874, 800, 795, 750, 715, 700, 636, 600	954, 874, 795	1000, 954, 874, 795, 750	954, 874, 795	1000, 954, 874, 795, 750	1.108	.883	1.108	.883	4¾
WR999	954[45/7], 900, 874, 795, 715, 666	1033, 1000, 900, 800, 795, 750	954[45/7], 900, 874, 795, 750, 666	1033, 1000, 900, 800, 795, 750	954, 900	1000, 900	954, 900, 874	1000, 900	1.172	.997	1.172	.994	4¾

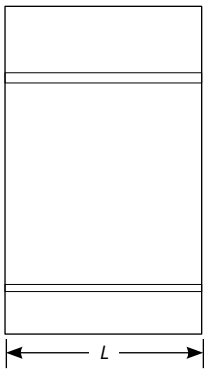
***Note**: All die connectors can be used with Blackburn JB60A, JB60B, Y60, 60A and PH-3 tools.*
All die connectors use four indents with a mechanical tool.

Aluminum H-Tap Connectors and Covers

WR™ Wide-Range Aluminum Tap Connectors *(continued)*








WR502


WR9

WR™ Street Lighting Compression Connectors

CAT. NO.	FIGURE NO.	CONDUCTOR RANGE: STANDARD CONDUCTOR*: MAIN: ACSR	MAIN: STR.	MAIN: SOL.	TAP A: STR.	TAP A: SOL.	TAP B: STR.	TAP B: SOL.	DIAMETER (IN.): MAIN: MAX.	MAIN: MIN.	TAP A: MAX.	TAP A: MIN.	TAP B: MAX.	TAP B: MIN.	CONNECTOR LENGTH (IN.)
WR9	2	#3, #4, #6	#2, #3, #4, #6	#1, #2, #3, #4	#8, #10, #12, #14	#8, #10, #12, #14	—	—	.292	.184	.146	.064	—	—	13⁄16
WR139	1	1/0, #1, #2, #3, #4	2/0, 1/0, #1, #2, #3	#1, #2	#8, #10	#6, #8, #10	#12, #14	#12, #14	.419	.250	.162	.100	.092	.064	1½
WR502	1	4/0, 3/0	4/0, 3/0	—	#8, #10	#6, #8, #10	#12, #14	#12, #14	.563	.461	.162	.100	.092	.064	1½
WR502†	1	4/0, 3/0, 2/0, 1/0	4/0, 3/0, 2/0, 1/0	—	#8, #10	#6, #8, #10	#12, #14	#12, #14	.563	.365	.162	.100	.092	.064	1½

** Will accept conductors of the same wire size with a 3% reduction of diameter (compressed).*
† This range is possible only when crimped with a hydraulic tool.

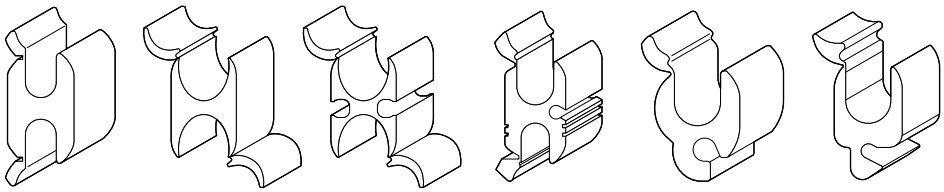
***Note**: WR9 uses a 5⁄8" BG connector die; WR139 uses an "O" connector die; WR502 uses a "D" connector die.*
WR9 uses three indents with a mechanical tool; all others use four indents.
WR139 and WR502 use two indents with a hydraulic tool.

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Deadend aluminum, ACSR or aluminum-alloy conductors.

Aluminum H-Type Compression Connectors

- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- Connectors fully marked with installation and compression location information, providing easy identification for easy installation
- Comply with ANSI C119.4 when properly installed on aluminum-to-aluminum or aluminum-to-copper conductors
- RUS Accepted



Style 1 *Style 2* *Style 3* *Style 4* *Style 5* *Style 6*

		STANDARD CONDUCTOR/ACSR/AAC													
		MAIN GROOVE, "A" RANGE				TAP GROOVE, "B" RANGE			SIDE GROVE, "C" RANGE						
CAT. NO.	STYLE	GROOVE "A" DECIMAL RANGE	ACSR	STR.	SOL.	GROOVE "B" DECIMAL RANGE	ACSR	STR.	SOL.	GROOVE "C" DECIMAL RANGE	STR.	SOL.	L	DIE	TAP CVR.
UB 214	5	.325–.162	#2 7/7–#6 6/7	#2(7)–#6(7)	#1–#6	.146–.064	—	#8–#14	#7–#14	—	—	—	¾	⅝ or BG	CO 20 B
OB 2014	6	.447–.292	2/0 6/7–#2 6/7	2/0(19)–#2(7)	—	.146–.064	—	#8–#14	#7–#14	—	—	—	¾	0	
OB 22	4	.325–.162	#2 7/7–#6 6/7	#2(7)–#6(7)	#2–#6	.325–.162	#2 7/7–#6 6/7	#2(7)–#6(7)	#2–#6	.148–.062	#8–#14	#8–#14	1½	0	
OB 103	1	.398–.162	1/0 6/7–#6 6/7	1/0(19)–#6(7)	#2–#6	.332–.162	#2 7/7–#6 6/7	#1(19)–#6(7)	#2–#6	—	—	—	1½	0	
NB 60020	2	.915–.575	556.5 24/7–266.8 18/7	600(61)–250(37)	—	.419–.162	1/0 6/7–#6 6/7	2/0(19)–#6(7)	2/0–#6	—	—	—	2⅛	N	
ZB 954	2	1.196–.586	954 54/7–266.8 18/7	1000(61)–266.8(7)	—	1.196–.568	954 54/7–266.8 18/7	1000(61)–266.8(7)	—	—	—	—	6	Z or R	—
ZB 95440	3	1.140–.586	795 30/19–266.8 18/7	750(61)–266.8(7)	—	.741–.522	336.4 30/7–4/0 6/7	350(37)–4/0(7)	—	.292–.162	#2–#6	#2–#6	3	Z or R	—
ZB 95410	3	1.140–.586	795 30/19–266.8 18/7	750(61)–266.8(7)	—	.563–.368	4/0 6/7–1/0 6/7	4/0(19)–1/0(7)	—	.292–.162	#2–#6	#2–#6	3	Z or R	—

***Note**: For connector covers, see **next page**. Install with hydraulic tools only. Use UT 5 tool with "O" and "D" connector dies; use UT 15 tool with "O," "D," "N" or "Z" connector dies. For more information, please consult your Thomas & Betts representative. For Kearney, use "O" and "D" connector dies with mechanical or hydraulic tools. For Burndy®, use "O" and "D-3" connector dies with mechanical or hydraulic tools; use "N," "Z" or "R" connector dies with hydraulic tools.*

Aluminum H-Tap Connectors and Covers

Secure double-locking latches provide a close-fitting top and bottom seal.

H-Type Connector Covers

- Thin strips of the "grass skirt" mold around the conductors to provide a highly reliable end enclosure
- Tapered drains in both cover halves prevent accumulation of water within the cover, regardless of which half of the cover is down
- Made from black polypropylene to resist the elements, UV sun rays and common contaminants



CO 20 B



CN 600 B

H-Type Connector Covers

CAT. NO.	H (IN.)	L (IN.)	W (IN.)
CO 20 B	2¼	4½	1⅜
CD 40 B	2⅜	5⅝	1¾
CN 600 B	2 15/16	6⅞	2

Type C H-Type Compression Connector Covers

CAT. NO.	CAPACITY (BEFORE COMPRESSION)	H (IN.)	L (IN.)	W (IN.)
C2BB	All ⅝" O.D. Sleves 2" long or less	1.10	4.00	1.05
C5BB	All O Die Taps 1.75" long or less	1.60	3.75	1.25
C7	All D Die Taps 2.5" long or less	1.80	5.00	1.45
C9	All N and D Die Taps 2" long or less	2.75	4.25	2.00
C9L	All N and D Die Taps 5" long or less	2.75	7.25	2.00

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Copper H-Tap Connectors

Efficient design requires less crimping force.

Copper H-Type Compression Connectors

- Made of pure electrolytic copper for high conductivity
- Full-length tab makes installation easy
- Installs with standard compression tools and dies
- RUS Accepted



Fig. 1

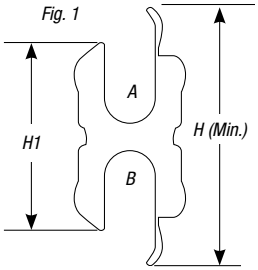
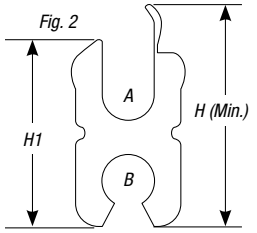


Fig. 2



		CONDUCTOR RANGE											INSTALLATION INFORMATION						
		STANDARD CONDUCTOR*				DIAMETER (IN.)*				DIMENSIONAL INFORMATION			MECHANICAL TOOLS†			HYDRAULIC TOOLS†			
		MAIN		TAP		MAIN		TAP											
CAT. NO.	FIG. NO.	SOL.	STR.	SOL.	STR.	MAX.	MIN.	MAX.	MIN.	H MIN.	H 1	CONNECTOR LENGTH	OD 58	TYPE O	MD SERIES	JB12A JB12B	H SERIES	Y-35	TBM15/ Y42/Y46
CF44-1	1	#4, #6	#6	#4, #6, #8	#6	.204	.162	.204	.128	.971	.729	13⁄16	B, T, 5⁄8	B, T, 5⁄8	W-KB, W-BG	BKT	B	BKT, U-BG	BKT, U-B
CFS44-1	2	#4, #6	#6	#4, #6, #8	#8	.204	.162	.204	.128	.864	.743	13⁄16	B, T, 5⁄8	B, T, 5⁄8	W-KB, W-BG	BKT	BKT	BKT, U-BG	BKT, U-BG
CF22-1	1	#2, #4	#4	#2, #4	#4	.258	.204	.258	.204	1.162	.813	13⁄16	K	K	W-KK	—	—	—	BKT
CFS22-1	2	#2, #4	#4	#2, #6	#6	.258	.204	.258	.162	1.017	.842	13⁄16	K	K	W-KK	W-KK	BKT	BKT	BKT
CF102-1	1	—	1/0, #1, #2	#2, #4, #6	#4	.373	.292	.258	.162	1.54	1.1	27⁄32	—	—	—	0	0	0	0
CF1010-1	1	—	1/0, #1, #2	—	1/0, #1, #2	.373	.292	.373	.292	1.61	1.05	27⁄32	—	—	—	0	0	0	0
CF202-1	1	—	2/0, 1/0	—	2/0, 1/0, #1, #2	.419	.368	.258	.204	1.67	1.269	7⁄8	—	—	—	K-C	C	K-C	K-C
CF2020-1	1	—	2/0, 1/0	—	2/0, 1/0, #1, #2	.419	.368	.414	.292	1.74	1.22	7⁄8	—	—	—	K-C	C	K-C	K-C
CF402-1	1	—	4/0, 3/0, 2/0	#2, #4	#4	.528	.414	.258	.204	1.983	1.423	7⁄8	—	—	—	D∞	D∞	D∞	D∞
CF4010-1	1	—	4/0, 3/0, 2/0	—	1/0, #1, #2	.528	.414	.373	.292	1.992	1.423	1 1⁄8	—	—	—	D∞	D∞	D∞	D∞
CF4040-1	1	—	4/0, 3/0, 2/0	—	4/0, 3/0, 2/0	.528	.414	.528	.414	2.252	1.483	1 1⁄8	—	—	—	D∞	D∞	D∞	D∞

** Decimal dimensions are for conventional conductor, not Copperweld® or Alumoweld®.*
† Use three indents with mechanical tools and one indent with hydraulic tools. At 15 ton/head, use appropriate die adapters.
∞ Blackburn "D" dies.

Stirrup Connectors

Protect main conductors from arcing damage.

WRQ and WRS Stirrup Connectors

- Guard main conductors against arcs — perfect for when hot line taps are installed
- Utilize standard WR connectors and plated copper bails for high conductivity and corrosion resistance



WRS



WRQ

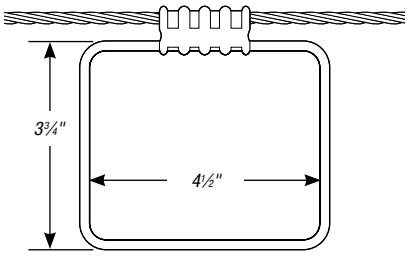


Fig. 1

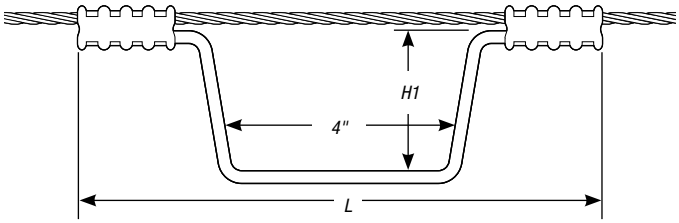


Fig. 2

WRQ and WRS Stirrup Connectors

FIGURE 1 CAT. NO.	FIGURE 2 CAT. NO.	CONDUCTOR RANGE ACSR	CONDUCTOR RANGE AWG	DIAMETER (IN.) MAX.	DIAMETER (IN.) MIN.	COPPER BAIL	INSTALLATION DIES MECH.	INSTALLATION DIES HYD.	DIMENSIONS TYPE WRS L	DIMENSIONS TYPE WRS H
WRQ154	**WRS154**	#2–#6	#1 str.–#6 sol.	.332	.162	#4 sol.	0	0	10	7/8
WRQ152	**WRS152**	#2–#6	#1 str.–#6 sol.	.332	.162	#2 sol.	0	0	10	7/8
WRQ172	**WRS172**	1/0–#3	1/0 str.–#1 sol.	.398	.281	#2 sol.	0	0	10	7/8
WRQ232	**WRS232**	2/0–1/0	2/0 str.–1/0 str.	.447	.368	#2 sol.	D	D	10	7/8
WRQ352	**WRS352**	4/0–3/0	4/0 str.–3/0 str.	.563	.46	#2 sol.	D	D	10	7/8
—	**WRS719**	397 18/19–266	400 str.–250 str.	.743	.6	2/0 sol.	—	N	12¼	3 3/16
—	**WRS819**	477 26/7–266	500 str.–336 str.	.858	.666	2/0 sol.	—	N	12¼	3 3/16
WRQ698	—	477 26/7–266	500 str.–250 str.	.858	.574	#2 sol.	—	N	12¼	3 3/16

** Decimal dimensions are for conventional conductor, not Copperweld® or Alumoweld®.*

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Stirrup Connectors

Aluminum conductor elements are designed to be preloaded for faster installation into hotstick tools.

SC and QC Stirrup Connectors

- Use standard O, D and N dies — no special compression tools needed
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- Bail made of tin-plated copper wire for high conductivity and corrosion resistance
- Wide range of stirrups fit #6 solid to 500 kcmil wire sizes
- Knurled design resists rotation



SC0

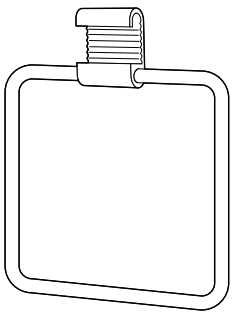


Fig. 1

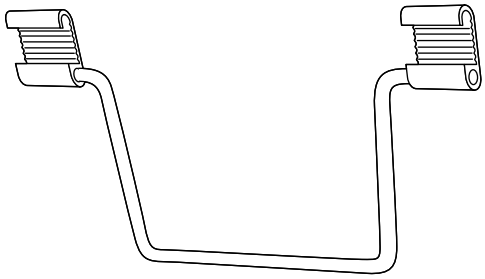


Fig. 2

FIGURE 1 CAT. NO.	FIGURE 2 CAT. NO.	CONDUCTOR RANGE				BAIL (TIN PLATED)		INSTALLATION DIES		DIMENSIONS	
				DIAMETER							
		ACSR	AWG	IN.	MM	SIZE	DIA. (MM)	MECH.	HYD.	L	H1
QC002	SC002	#2–#6	#2 str.–#6 sol.	.325–.162	8.25–.412	#2 sol.	6.35	0	0	8¾	3⅛
QC021	SC021	2/0–#2	2/0 str.–#2 sol.	.414–.292	10.51–7.41	#2 sol.	6.35	0	0	8¾	3⅛
QCD41	SCD41	4/0–3/0	4/0 str.–3/0 sol.	.563–.464	14.29–10.51	#2 sol.	6.35	D	—	8¾	3⅛
QCN50	SCN50	47718/1–4/0	500–4/0 str.	.814–.528	20.66–13.40	1/0 sol.	6.22	—	N	11	3 11/16

Stirrup Connectors

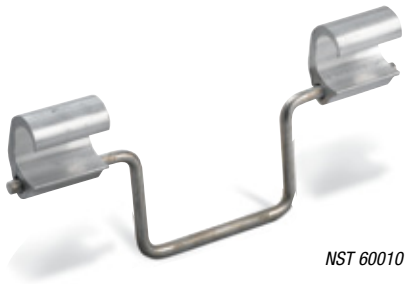
Protect conductors from arc and mechanical damage where hot line clamps are used.

Anti-Rotational Hot-Line Stirrups

- For aluminum, AAAC and ACSR conductors
- Can be pre-loaded into a hotstick installing tool, hooked over the line and compressed
- Connector is made from aluminum, and factory-installed bail is tin-plated solid copper for high conductivity and corrosion resistance
- Diamond knurling at tap connections and in the hot-line clamping area improve both mechanical and electrical performance
- Connectors prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All connectors marked with wire size, installation die codes and compression locations, providing easy identification for easy installation



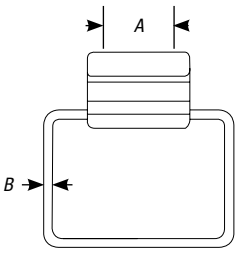
NC 60010



NST 60010

C-Type Stirrups

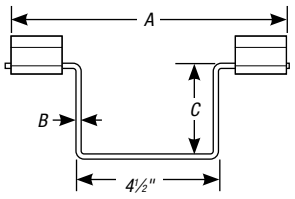
CAT. NO.	CONDUCTOR SIZE ACSR	STR.	SOL.	A	B	DIE
OC 42	#4	#4	#6–#4	1⅞	2	0
OC 22	#4–#2	#4–#2	#2	1⅞	2	0
OC 102	#4–1/0	#2–1/0	—	1⅞	2	0
DC 402	3/0–4/0	3/0–4/0	—	2¾	2	D
NC 40010	266.8 (18/1)–397.5 (18/1)	250 (37)–400 (37)	—	2⅛	1/0	N
NC 60010	397.5 (18/1)–556.5 (18/1)	477–600	—	2⅛	1/0	N



Crank-Type Stirrups

CAT. NO.	CONDUCTOR SIZE ACSR	STR.	A	B	C	DIE
OST 42	#4	#6 sol.–#4	10	2	2¾	0
OST 22	#4–#2	#4–#2	10	2	2¾	0
OST 102	#4–1/0	#2–1/0	10	2	2¾	0
OB 103 ST	#6–1/0	#6–1/0	9½	2	2¾	0
DST 402	3/0–4/0	3/0–4/0	10	2	2¾	D
NST 40010	266.8 (18/1)–397.5 (18/1)	250 (37)–400 (37)	12	1/0	2⅞	N
NST 60010	397.5 (26/7)–556.5 (18/1)	477–600	12	1/0	2⅞	N
DB 404 ST*	3/0–4/0	3/0–4/0	12	2	2¾	D
NB 50040 ST*	4/0–477 (18/1)	4/0–500	10	2/0	2⅞	N

** Designates H-Tap style.*



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Stirrup Connectors

Protect aluminum and ACSR main conductors from arc and mechanical damage where hot-line clamps are used.

Anti-Rotational Paltrap™ Hot-Line Stirrups

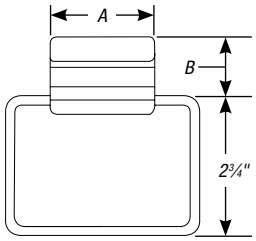


- For aluminum, 5005, AAAC and ACSR conductors
- Can be pre-loaded into a hotstick installing tool, hooked over the line and compressed
- Paltrap connector is made from aluminum, and factory-installed bail is tin-plated solid copper for high conductivity and corrosion resistance
- Connectors prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All connectors marked with wire size, installation die codes and compression locations, providing easy identification for easy installation

Anti-Rotational Paltrap™ Hot-Line Stirrups

CAT. NO.	MAIN CONDUCTOR SOL.	STR.	ASCR	A	B	INSTALLING DIE
QH 6 S	#4 and #6	#6	#6	2 1/16	1	TQ, 12, ½,
QH 4 S	#2	#4	#4	2 1/16	1	42
SH 2 S	—	#2	#2	2 3/8	1 3/16	45, TS, 13, 9/16

***Note**: Bails may be ordered separately for field assembly of stirrups using Paltrap connectors. Specify catalog number HLB 2 for #2 tinned solid copper bail or catalog number HLB 10 for 1/0 tinned solid copper bail.*



Designed for distribution service connections with standard hotsticks.

Copper Tin-Plated Bails



S 4425



HLB 2

- Choose from seven bail types, all handling either #2 or 1/0 conductor sizes
- Tin plated to resist corrosion

Copper Tin-Plated Bails

CAT. NO.	SIZE	FIG.	H	L
HLB 2	#2	1	2 3/8	4 1/4
HLB 10	1/0	1	2 3/4	4 3/8
S 4425*	#2	2	4	4 1/4
S 4425-1/0	1/0	2	4	4 1/4
OL 4425	#2	3	3 1/8	4 1/4
HLCB 2	#2	4	2 3/4	4 1/2

** S 4425 is split in the center and recommended for H-Type connector applications.*

Fig. 1

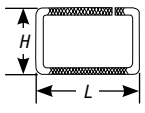


Fig. 2

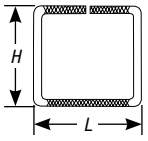


Fig. 3

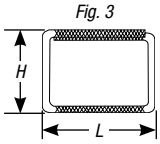
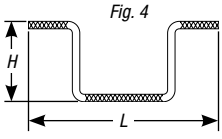


Fig. 4

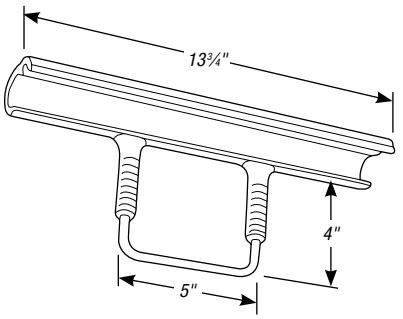


Stirrup Connectors

The single-piece stirrup for a large, workhorse conductor.

CCS Compression Stirrup





- Bail made of tin-plated copper wire for high conductivity and corrosion resistance
- Use U or 6024 dies — no special compression tools needed

CCS Compression Stirrup

CAT. NO.	CONDUCTOR RANGE MAX.–MIN.	DIAMETER MAX.–MIN.	COPPER BAIL TIN PLATED
CCS44	800–636 str.	1.032–.918	2/0 sol.

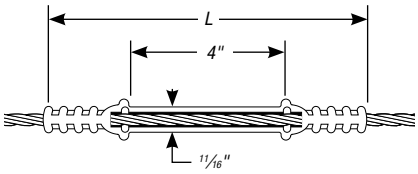
Covers and protects conductors from arcing when line clamps are attached or disconnected.

LP Compression Line Protector Sleeves



LP10

- Fit #4, #2 and 1/0 conductors
- Feature a hot-line clamp-bearing surface measuring 11⁄16" diameter by 4" long
- Use ⅝", BG and G dies — no special compression tools needed



Hot line clamp bearing surface: 11⁄16" dia. x 4" length

LP Compression Line Protector Sleeves

	ACSR	AWG	DIAMETER MAX.	DIAMETER MIN.	LENGTH	INSTALLING DIES
LP4	#4	#4	.257	.232	8	⅝ Peach, BG, G
LP2	#2	#2	.316	.292	8	⅝ Peach, BG, G
LP10	1/0	1/0	.398	.373	8	0

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Hot-Line Clamps

Hot-line clamps built for all seasons.

HLC™ Hot-Line Clamps (Protected Thread)



- Eyebolt coated with grease to ensure easy turning in all weather conditions
- Built for general/copper applications and available for a wide conductor range

CAT. NO.	BODY	FOR WIRE COMBINATION	CONDUCTOR RANGE MAIN ACSR	MAIN AWG OR KCMIL	TAP ACSR.	TAP AWG
HLC2108*	Bronze	Copper to Copper	—	2/0–#8	—	2/0
HLC2108P	Plated Bronze	General Purpose	2/0–#6	2/0–#8	2/0–#6	2/0–#8
HLC2108AP9	Plated Aluminum	General Purpose	2/0–#6	2/0–#8	2/0–#6	2/0–#8
HLC3974	Bronze	Copper to Copper	—	400–#6 sol.	—	4/0–#6 sol.
HLC3974P	Plated Bronze	General Purpose	—	400–#6 sol.	3/0–#6	4/0–#6 sol.
HLC3974AP	Plated Aluminum	General Purpose	397.5–#6	400–#6 sol.	3/0–#6	4/0–#6 sol.

** RUS Accepted.*
***Note**: For oxide-inhibitor option, add "-9" suffix to the catalog number.*

Reliable performance for years to come.

PGH™ Center-Bolt Parallel-Groove Hot-Tap Clamps



- Tight, secure fittings to positively secure main and tap wires
- Catalog numbers ending with 9 are prefilled with oxide inhibitor to prevent oxidation and keep out moisture

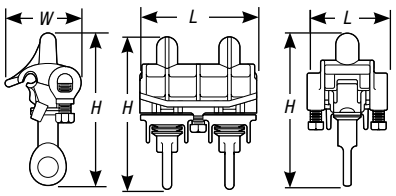


Fig. 1 *Fig. 2* *Fig. 3*

STD. CAT. NO.	PREFILLED CAT NO.	CONDUCTOR RANGE MAIN ACSR	MAIN AWG OR KCMIL	TAP ACSR	TAP AWG	CONDUCTOR DIAMETER (IN.) MAIN MAX.	MAIN MIN.	TAP MAX.	TAP MIN.	CENTER BOLTS NO.	CENTER BOLTS DIA.	FIG.	DIMENSIONS (IN.) W	H	L
—	**PGH29**	2/0–#8	2/0 str.–#8 sol.	1/0–#8	1/0 str.–#8 sol.	.447	.128	.398	.128	1	½	1	2⅜	5¾	2⅜
PGH4	**PGH49**	397.5–#6, 2/0–#6	450–#4 sol.	3/0–#6	4/0 str.–#6 sol.	.781	.198	.528	.162	1		1	3⁵⁄₁₆	6⁵⁄₁₆	2⁷⁄₁₆
—	**PGH69**	397.5[19]⁄₁–#2 AR	1000–4/0 str.	266–#6	300–#6 sol.	1.152	.522	.657	.162	2		2	4	6¾	4¼
—	**PGH6129***	874–4/0, 397. 5[19]⁄₁–#2 AR	1000–4/0 str.	266–#6	300–#6 sol.	1.152	.522	.657	.162	1		3	3⅜	6¾	3⁷⁄₁₆
Copper Clamps															
PGH3	**PGH39**	—	2/0 str.–#8 sol.	—	2/0 Str.#8 sol.	.419	.419	.128	.128	1	7⁄16	1	2⅜	5¼	1¼

** PGH6129 has two hex-head bolt and pressure pad tap conductor retainers.* *AR — with Armor Rod.*
***Note**: Copper clamps are for use on copper conductors only.*

Mechanical Service Entrance Connectors

Long-lasting connectors with bodies and screws made of high-strength copper alloy.

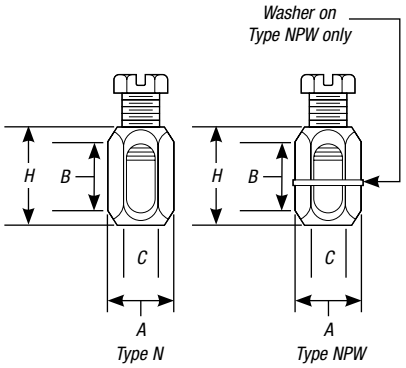
N and NPW Service Entrance Connectors

- Both types have a slotted hex-head screw for strong, tight connections
- Type NPW is tin plated to resist corrosion
- Type NPW has a tin-plated phosphor bronze washer to protect the conductor and evenly distribute pressure
- Type NPW is dual-rated for use on ACSR and copper conductors



6N

	CONDUCTOR RANGE (AWG)				DIMENSIONS				
	ACSR		COPPER						BOLT
CAT. NO.	MAX.	MIN.	MAX.	MIN.	A	B	C	D	HEAD
10N	—	—	#10 str.	#14 sol.	3/8	.337	.156	.562	9/32
6N	#8	#8	#6 str.	#10 sol.	7/16	.415	.191	.656	5/16
4N	#6	#8	#4 str.	#6 sol.	1/2	.515	.243	.775	3/8
—	#4	#8	#2 str.	#6 sol.	21/32	.643	.304	.97	1/8
10NPW	—	—	#10 str.	#14 sol.	3/8	.337	.156	.562	9/32
6NPW	#8	#8	#6 str.	#10 sol.	7/16	.415	.191	.656	5/16
4NPW	#6	#8	#4 str.	#6 sol.	1/2	.515	.243	.775	3/8
2NPW	#4	#8	#2 str.	#6 sol.	21/32	.643	.304	.97	1/8

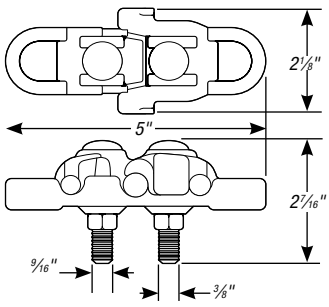


House not adjacent to a pole? This is the span clamp you need.

MS Neutral Span Clamp



- A combination aerial cable-neutral parallel-groove connector and dead-ending clamp
- Accommodates up to four service drops
- Taps may be installed later, independent of existing connections
- High-strength, one-piece construction
- Castings are of high-strength aluminum alloy
- Hardware is made of galvanized steel



	CONDUCTOR RANGE			
	ACSR		AWG	
CAT. NO.	MAIN	TAP	MAIN	TAP
MS4	4/0–#4	1/0–#6	4/0 str.–#2 sol.	1/0 str.–#6 sol.

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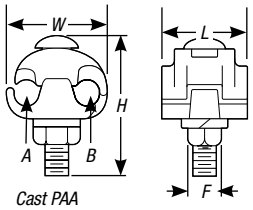
Parallel-Groove Connectors

High-strength, heat-treated cast aluminum alloy provides secure connections.

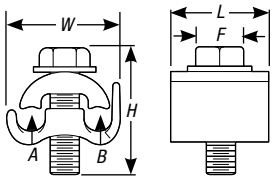
PAA One- and Two-Bolt Aluminum Parallel-Groove Clamps

- Galvanized steel carriage bolt, nut and lockwasher included
- Dual-rated for use on aluminum, ACSR and copper conductors
- Available prefilled with oxide inhibitor to prevent oxidation on copper-to-aluminum connections





Cast PAA



PAA339

STANDARD CAT. NO.	PREFILLED CAT. NO.	CONDUCTOR RANGE MAIN ACSR	CONDUCTOR RANGE MAIN AL/CU	CONDUCTOR RANGE TAP ASCR	CONDUCTOR RANGE TAP AL/CU	CONDUCTOR DIAMETER MAIN MAX.	CONDUCTOR DIAMETER MAIN MIN.	CONDUCTOR DIAMETER TAP MAX.	CONDUCTOR DIAMETER TAP MIN.	DIMENSIONS (IN.) F	H	L	W	BOLT SIZE
—	PAA29	#2–#6	#2 str.–#6 sol.	#2–#6	#2 str.–#6 sol.	.316	.162	.316	.162	9/16	1 13/16	11 3/32	1 3/8	5/16
—	PAA339	1/0–#6	1/0 str.–#6 sol.	1/0–#6	1/0 str.–#6 sol.	.398	.162	.398	.162	9/16	1 9/16	1 1/4	1 1/2	3/8
PAA4	PAA49	1/0–#6	1/0 str.–#6 sol.	1/0–#6	1/0 str.–#6 sol.	.398	.162	.398	.162	9/16	2 7/32	1 3/16	1 1/2	3/8
PAA5	PAA59	1/0–#8	1/0 str.–#8 sol.	1/0–#8	1/0 str.–#8 sol.	.398	.128	.398	.128	9/16	2 7/32	1 11/32	1 1/2	3/8
PAA6	PAA69	1/0–#8	2/0 str.–#8 sol.	1/0–#8	2/0 str.–#8 sol.	.414	.128	.414	.128	9/16	2 7/32	1 3/8	1 5/8	3/8
PAA10*	PAA109	336.4–1/0, 1/0–#6 AR	400–1/0 str., 1/0–#6 AR	1/0–#8	1/0 str.–#8 sol.	.741	.368	.398	.128	9/16	2 15/32	2	1 3/4	3/8
PAA12	PAA129	4/0–#2	4/0 str.–#2 sol.	4/0–#2	4/0 str.–#2 sol.	.563	.258	.563	.258	3/4	2 1/4	2	2	1/2
PAA400†	PAA4009†	336.4–1/0, 1/0–#6 AR	400–1/0 str., 1/0–#6 AR	336.4–1/0	400–1/0 str.	.741	.368	.741	.368	3/4	3 1/4	3 3/4	2 1/2	1/2

** RUS Listed.*

† PAA400 and PAA4009 are two bolt clamps.

AR = Over armor rod.

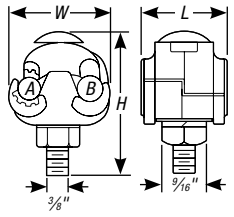
***Note**: For hex-head bolt option, add "-3" suffix to the catalog number.*

Our most corrosion-resistant groove clamp ever!

PAC Aluminum Parallel-Groove Clamps with Copper Liner

- Pressure-cast aluminum body effectively seals out moisture and resists corrosion
- Clamp separates conductors to reduce the possibility of galvanic corrosion





STANDARD CAT. NO.	PREFILLED CAT. NO.	CONDUCTOR RANGE MAIN ACSR	CONDUCTOR RANGE MAIN AL	CONDUCTOR RANGE TAP COPPER	CONDUCTOR DIAMETER MAIN	CONDUCTOR DIAMETER TAP	DIMENSIONS (IN.) H	W	L
PAC345	PAC3459	1/0–#8	1/0 str.–#8 sol.	1/0 str.–#8 sol.	.398–.128	.373–.128	2 7/32	1 17/32	1 1/4
PAC7*	PAC79	336.4–1/0, 1/0–#6 AR	400–2/0 str., 1/0–#6 AR	1/0 str.–#8 sol.	.741–.398	.373–.128	2 15/32	1 5/8	1 7/8

** RUS Listed.*

***Note**: For hex-head bolt option, add "-3" suffix to the catalog number.*

Parallel-Groove Connectors

Galvanized steel hardware provides high strength for heavy-duty applications.

PAE Parallel-Extruded Type Groove Clamps



- Install with live line tools you already have
- Dual-rated for aluminum-to-copper connections
- Prefilled with oxide inhibitor ("-9" suffix in chart) to prevent oxidation on copper-to-aluminum connections

***Note**: For aluminum-hardware option, add "-7" suffix to the catalog number.*
For tin-plating option, add "-P" suffix to the catalog number.
For wax-dip option that provides oxide protection for aluminum-to-aluminum connections, add "-6" suffix to the catalog number.

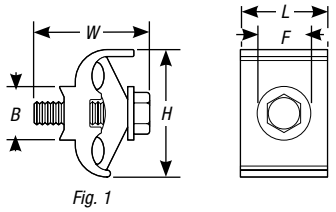


Fig. 1

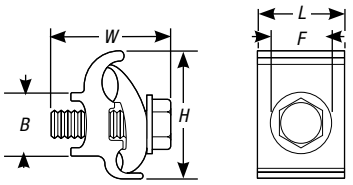


Fig. 2

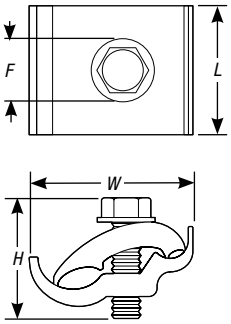


Fig. 3

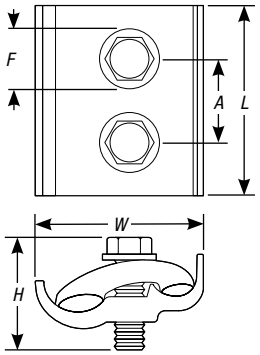


Fig. 4

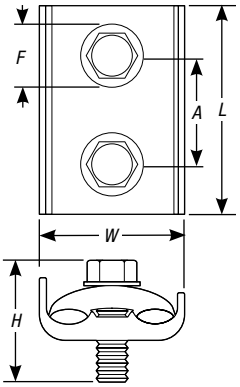


Fig. 5

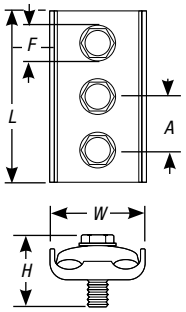


Fig. 6

	CONDUCTOR RANGE		CONDUCTOR DIAMETER (IN.) MAIN		CONDUCTOR DIAMETER (IN.) TAP		DIMENSIONS (IN.)							GALVANIZED ALUMINUM	
CAT. NO.	MAIN	TAP	MAX.	MIN.	MAX.	MIN.	FIG.	H	W	L	F	B	A	STEEL BOLT THD. SIZE.	BOLT THD. SIZE
PAE-335-79	1/0 str.–#6 sol.	1/0 str.–#6 sol.	.398	.162	.398	.162	1	1 9/16	1 1/2	1 1/4	9/16	—	—	3/8–16 UNC	3/8–16 UNC
PAE-2121-9*	2/0 ACSR–#6 sol., #6 AR	2/0 ACSR–#6 sol., #6 AR	.447	.162	.447	.162	1	2	1 3/8	1 3/8	9/16	7/8	—	3/8–16 UNC	3/8–16 UNC
PAE-2121X-79	2/0 ACSR–#6 sol., #6 AR	2/0 ACSR–#6 sol., #6 AR	.447	.162	.447	.162	1	2	1 3/8	1 3/8	9/16	7/8	—	—	3/8–16 UNC
PAE-4141-9*	4/0 ACSR–#2 sol., #4–#6 AR	4/0 ACSR–#2 sol., #4–#6 AR	.563	.258	.563	.258	1	2	2	1 3/8	9/16	7/8	—	3/8–16 UNC	3/8–16 UNC
PAE-3921-9-2	397.5 ACSR–3/0 str., 2/0–#6 AR	2/0 str.–#6 sol., #6 AR	.743	.464	.414	.162	2	2 9/16	2 1/4	1 5/8	3/4	1 1/8	—	1/2–13 UNC	1/2–13 UNC
PAE-9941-9	1000–397.5 ACSR, 336.4–2/0 AR	4/0 ACSR–#2 sol., #4–#6 AR	1.152	.743	.563	.258	3	2 13/16	2 59/64	2 1/4	3/4	—	—	1/2–13 UNC	1/2–13 UNC
PAE-3931-9-2	397.5 ACSR–3/0 str., 2/0–#6 AR	3/0 ACSR–2 str., #6 AR	.743	.464	.502	.292	4	2 9/16	2 5/16	3 3/8	3/4	—	1 3/4	1/2–13 UNC	1/2–13 UNC
PAE-3939-9-2	397.5 ACSR–3/0 str., 2/0–#6 AR	397.5 ACSR–3/0 str., 2/0–#6 AR	.743	.464	.743	.464	5	2 9/16	2 9/16	3 3/8	3/4	—	1 7/8	1/2–13 UNC	5/8–11 UNC
PAE-9921-9	1000–397.5 ACSR, 336.4–2/0 AR	2/0 str.–#6 sol., #6 AR	1.152	.743	.414	.162	3	2 13/16	2 3/16	2 1/4	3/4	—	—	1/2–13 UNC	5/8–11 UNC
PAE-9939-9	1000–397.5 ACSR, 336.4–2/0 AR	397.5 ACSR–3/0 str., 2/0–#6 AR	1.152	.743	.743	.464	4	2 13/16	3 7/64	3 1/2	3/4	—	1 1/2	1/2–13 UNC	5/8–11 UNC
PAE-9999-9	1000–397.5 ACSR, 336.4–2/0 AR	1000–397.5 ACSR, 336.4–2/0 AR	1.152	.743	1.152	.743	6	2 13/16	3 1/2	6	3/4	—	2	1/2–13 UNC	5/8–11 UNC

** RUS Accepted.*
AR = Over armor rod.

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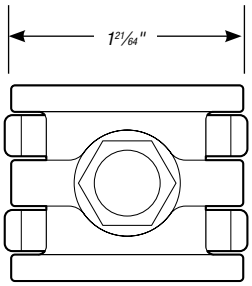
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These jumper clamps are sized right for #8 solid copper to 1/0 ACSR or 2/0 copper.

K Series Jumper Clamps



- Made of copper alloy for high strength and durability
- Silicon-bronze hex-head washer bolt ensures a super-secure fitting
- Parallel-groove design eliminates the need to remove the bolt for installation
- Available unplated, plated or with plating in one groove — choose the model that works best with your wiring

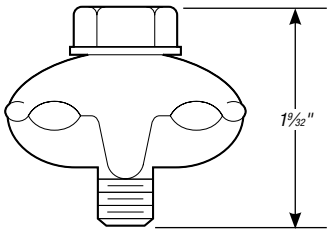


Jumper Clamp with Plated and Copper Grooves

CAT. NO.	PLATED GROOVE		COPPER GROOVE	
	MAX.	MIN.	MAX.	MIN.
K1	1/0 ASCR, #2 SCG amerductor, 7/16 galv. strand	#6 ACSR, #12 SCG amerductor, #8 solid iron	2/0 str. copper, 7/16 Copperweld*, 2A Copperweld*	#8 solid copper, #9–12D Copperweld*, etc.

** Trademark of Copperweld.*

***Note**: Plated with plating removed from one groove. For use with aluminum, amerductor or galvanized steel strand to copper or copper-bonded steel wires.*



Jumper Clamp with Both Grooves Plated

CAT. NO.	BOTH GROOVES PLATED	
	MAX.	MIN.
K2	1/0 ASCR, #2 SCG amerductor, 7/16 galvanized steel strand	#6 ACSR, #12 SCG amerductor, #8 solid iron

***Note**: Clamp is plated. For use with amerductor, aluminum or galvanized steel stranding.*

Jumper Clamp with Both Grooves Unplated

CAT. NO.	BOTH GROOVES UNPLATED	
	MAX.	MIN.
K3	2/0 str. copper, 7/16 Copperweld*, 2A Copperweld*	#8 solid copper, 9½D Copperweld*, etc.

** Trademark of Copperweld.*

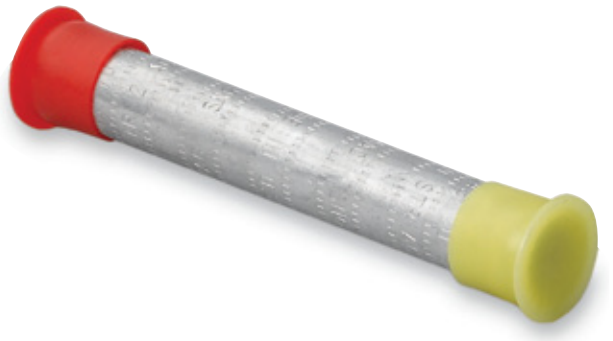
***Note**: Clamp is not plated. For copper-to-copper connections.*

Full- and Semi-Tension Compression Splices

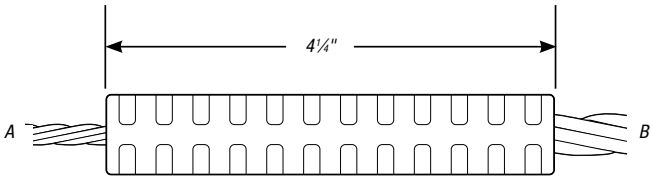
Aluminum construction provides high conductivity.

Aluminum Semi-Tension Neutral Compression Splices — Common Die Series

- Solid center stops ease cable insertion
- Prefilled with oxide inhibitor and topped with color-coded caps to prevent oxidation and keep out moisture
- All splices marked with installation die codes and compression locations, providing easy identification for easy installation
- Designed to develop 40% of the conductor's rated strength
- Meets or exceeds ANSI C119.4 specifications



SNG 02



Aluminum Semi-Tension Neutral Compression Splices

CAT. NO.	CONDUCTOR A		CONDUCTOR B		INSTALLING DIES
	ACSR	STR.	ACSR	STR.	
SNG 66	#6	#6	#6	#6	
SNG 44	#4	#4	#4	#4	
SNG 22	#2	#2	#2	#2	
SNG 00	1/0	1/0	1/0	1/0	
SNG 46	#4	#4	#6	#6	TU, 52, ⅝, BG, 243, 8A
SNG 24	#2	#2	#4	#4	
SNG 02	1/0	1/0	#2	#2	
SNG 26	#2	#2	#6	#6	
SNG 11	#1	#1	#1	#1	

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

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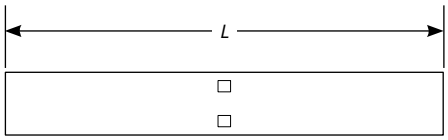
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Designed to develop 25% of the conductor's rated strength.

Aluminum Loop Compression Splices

- Versatile compression splices for ACSR, ACAR, AAAC 5005 and AAC conductors
- Constructed from aluminum for high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All splices marked with wire size, installation die codes and compression locations, providing easy identification for easy installation
- Meets or exceeds ANSI C119.4 specifications





Aluminum Loop Compression Splices

CAT. NO.	WIRE SIZE: ACSR, ACAR†, 5005†, AAAC	WIRE SIZE: AAC	LENGTH (IN.)	EEI* DIE CODE	INSTALLING TOOLS AND DIES (COMPRESSION PER END): DIES — UT5 TYPE	INSTALLING TOOLS AND DIES (COMPRESSION PER END): DIES — HYDRAULIC
SNG 00	1/0 (6/1)	1/0	4¼	8A	TU	243, 52, ⅝, BG
Z 1 A 10	2/0 (6/1)	2/0	6⅜	—	TZ (6)	58, 60, 245, 9A
Z 1 A 51	—	3/0	4¼	10A	TZ (4)	
866*	3/0 (6/1)	3/0	6⅜	10A	TV (9)	
867*	4/0 (6/1)	4/0–250	6⅜	11A	TX (9)	249, 76 (3), 76H (6), 840
869	266.8	266–300	7½	11A	TH (6)	87 (3), 87H (6)
H 1 A 33	336.4 (18/1)	336–350	6⅜	11A		
872*	336.4	336.4–350	7½	13A	—	96 (3), 96H (6), 472, 655
874*	397.5	397.5–477	7½	14A		106 (3), 106A (6), 719, 327
876*	477	500–556.6	7½	15A		115 (3), 115H (6), 318
879	556.5	600–700	9¾	—		125 (3), 125H (6), 1⅛, 608
883	605–666.6	715.5–800	12¾	—		140 (4), 140H (8)
892	715.5–874.5	874.5–1000	12¾	—		150 (4), 150H (8), 725, 352, 319, 292

** When using EEI dies, space compressions ⅛" apart.*

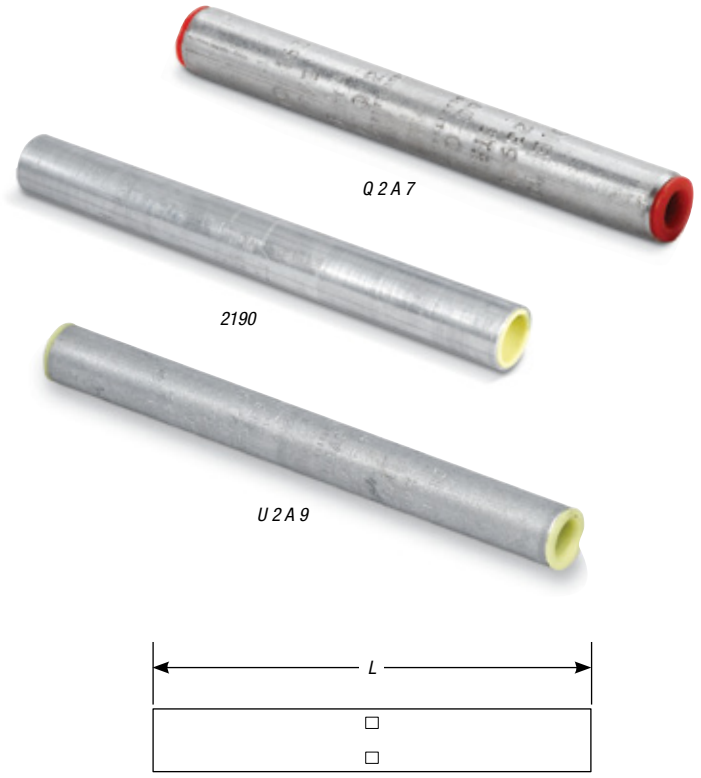
† Select diameter equivalent to ACSR.

Full- and Semi-Tension Compression Splices

Seamless aluminum tubing provides high conductivity.

Aluminum Full-Tension Compression Splices for Aluminum Conductors

- Sleeves have an internal taper that acts as a funnel-like entrance for easy insertion of conductors and provides stress relief on the conductor strands upon compression
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- All splices marked with conductor size and die references, providing easy identification for easy installation
- Designed to develop 95% or more of the conductor's rated strength
- Meets or exceeds ANSI C119.4 specifications



Aluminum Full-Tension Compression Splices

CAT. NO.	WIRE SIZE	LENGTH (IN.)	INSTALLING DIES
SNG44	#4 str.	4¼	243, TU, 52, 518, 8A, BG
Q 2 A 7	#2 str.	4½	TQ, 163, 239, ½, 6A
U 2 A 9	1/0	6¼	TU, 52, 243, 19/32, CSA 22, 8A
W 2 A 20	2/0 str.	6½	TW-TY, 245, 635, 9A
Z 2 A 10	2/0 str.	6½	166
Z 2 A 51	3/0 str.	6½	166
2169	3/0 str.	8¼	TV, 66, 694, 702, 781, 10A
2170	4/0–250 str.	8¼	TX, 76, 249, 840, 11A
2174	266–300 str.	10⅜	87
2176	336.4–350 str.	10	96H, 655, 1⅛–1, 321, 13A
2178	397.5–400 str.	10	96H, 655, 1⅛–1, 13A
2182	450–477 str.	13	106, 14A, 1 5/16
2183	556.5 str.	10⅜	115H, 318, 1 5/16, 15A
2186	636 str.	13⅜	125
2187	750–795 str.	13⅜	140
2188	795 str.	13⅜	140, 1½
2190	874.5–1000 str.	13⅜	150

Note: *For wire sizes over 1000 kcmil, please consult your Thomas & Betts representative.*

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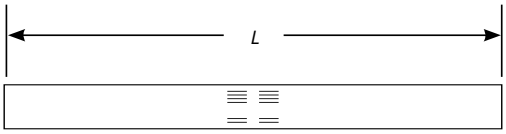
Full- and Semi-Tension Compression Splices

Simplify hot-line distribution construction and eliminate the separate splicing of ACSR core wires.

Aluminum Full-Tension Compression Splices for ACSR and Aluminum-Alloy Conductors







- Constructed from seamless aluminum tubing for high conductivity
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- Sleeves have an internal taper that acts as a funnel-like entrance for easy insertion of conductors and provides stress relief on the conductor strands upon compression
- Solid barriers in the center of the sleeves ensure all-around distribution and penetration of the oxide inhibitor to all strands
- All splices marked with conductor size and die references, providing easy identification for easy installation
- Designed to develop 95% or more of the conductor's rated strength
- Meets or exceeds ANSI C119.4 specifications

Aluminum Full-Tension Compression Splices

CAT. NO.	WIRE SIZE	L (IN.)	INSTALLING DIES
BS 66	#6 AAC, #6 ACSR (6/1)	6⅝	TB, 239, ½
BS 46	#4 AAC, #4 ACSR (6/1), #4 AAAC	9⁷⁄₁₆	TB, 239, ½
BS 467	#4 AAC, #4 ACSR (6/1), #4 ACSR (7/1), #4 AAAC	10⅜	TB, 239, ½
DS 26	#2 AAC, #2 ACSR (6/1)	12¼	BG, TW-TY
DS 267	#2 AAC, #2 ACSR (6/1), #2 ACSR (7/1), #2 AAAC	11¼	BG, TW-TY
WS 10	1/0 AAC, 1/0 ACSR (6/1), 1/0 AAAC	12⅜	TW-TY, 58, 245
RS 10	1/0 AAC, 1/0 ACSR (6/1), 1/0 AAAC	13	167, 247, 702, 737
MS 20	2/0 AAC, 2/0 ACSR (6/1), 2/0 AAAC	17⅛	TM, 62, 1¹⁄₁₆
16100	3/0 AAC, 3/0 ACSR (6/1), 3/0 AAAC	17⅛	76H, 658
16101	4/0 AAC, 4/0 ACSR (6/1), 4/0 AAAC	17⅞	87, 654
16104	336.4 (18/1) ACSR	19	96, 655, 1⅛–1, 13A
16106	397.5 (18/1) ACSR	28	96
16477	477 (18/1) ACSR	30	115H

Note: *For wire sizes over 1000 kcmil, please consult your Thomas & Betts representative.*

Full- and Semi-Tension Compression Splices

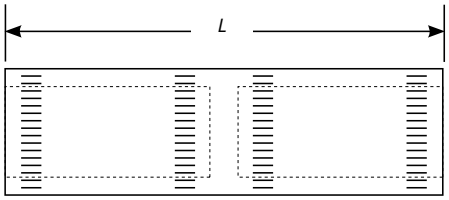
Compression splices for a wide conductor range, no dies needed.

Aluminum Multi-Range Dieless Compression Splices — Minimum and Partial Tension



SGAC 500

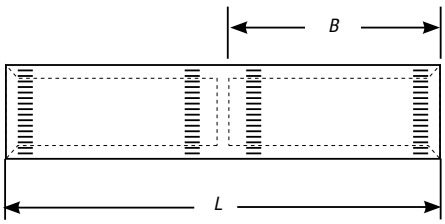
- Made from aluminum for high strength and high conductivity
- Solid center stop ensures proper cable insertion
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor and capped to prevent oxidation
- All splices marked with conductor sizes for easy identification



Minimum Tension

CAT. NO.	CONDUCTOR SIZE	DECIMAL RANGE MIN. O.D.	DECIMAL RANGE MAX. O.D.	TOOL	L
SGAC 1/0	#10 sol. – 1/0 ACSR	.102	.398	VC-5/VC-6	2
SNG 00	#10 sol. – 1/0 ACSR	.102	.398	VC-5/VC-6	4¼
SGAC 3/0	#8 sol. – 3/0 str.	.128	.470	VC-5/VC-6	3
SGAC 250	#4 sol. – 266.8 – 4/0 ACSR	.204	.593	VC-5/VC-6	4
SGAC 350	2/0 str. – 350 – 336.4 (18/1)	.414	.684	VC-6	5
SGAC 500	4/0 str. – 500 – 477 (18/1)	.522	.814	VC-6	5
SGAC 8650	350 str. – 636 (36/1) 400 copper max.	.681	.940	VC-8	8⅞
SGAC 8800	397.5 str. – 795 (36/1) 500 copper max.	.724	1.040	VC-8	10⅝

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*





SKAC 500

Partial Tension

CAT. NO.	CONDUCTOR SIZE	DECIMAL RANGE MIN. O.D.	DECIMAL RANGE MAX. O.D.	TOOL	B (IN.)	L (IN.)
SKAC 2/0	#2 str. – 2/0 ACSR	.292	.447	VC-5/VC-6	3⅛	6½
SKAC 4/0	1/0 str. – 4/0 ACSR	.368	.563	VC-5/VC-6	3⅛	8
SKAC 500	4/0 str. – 477 (18/1) ACSR	.522	.814	VC-6	3⅛	8
SKAC 600	300 – 477 (26/7) ACSR	.629	.858	VC-6	5⁷⁄₁₆	11⅛
SKAC 700	556.5 – 636 (36/1) ACSR	.858	.930	VC-8	6⁹⁄₁₆	12⅞
SKAC 800	700 – 795 (36/1) ACSR	.964	1.040	VC-8	6⁹⁄₁₆	12⅞

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Full- and Semi-Tension Compression Splices

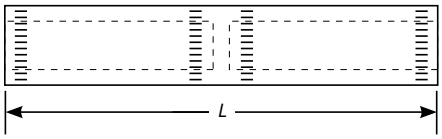
Aluminum compression splices provide high strength and high conductivity.

Aluminum Multi-Range Dieless Compression Splices — Full Tension

- Solid center stop ensures proper cable insertion
- Dual-rated for use with aluminum and copper conductors
- Connector bores coated with oxide inhibitor and capped to prevent oxidation
- All splices marked with conductor size and die references, providing easy identification for easy installation
- Designed to develop 95% or more of the conductor's rated strength
- Meets or exceeds ANSI C119.4 specifications.

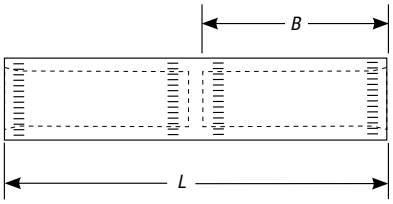






AAC Series — Full Tension

CAT. NO.	CONDUCTOR SIZE	DECIMAL RANGE MIN. O.D.	DECIMAL RANGE MAX. O.D.	TOOL	L
U 2 A 9	#4 str. – 1/0 str. aluminum	.232	.368	VC-5/VC-6	6¼
AAC 4/0 FT	1/0 str. – 4/0 str. aluminum	.368	.522		8
AAC 350 FT	4/0 str. – 350 aluminum – 336.4 (18/1)	.522	.681	VC-6	9½
AAC 500 FT	336.4 str.–500 aluminum	.666	.795		12½





ACSR Series — Full Tension

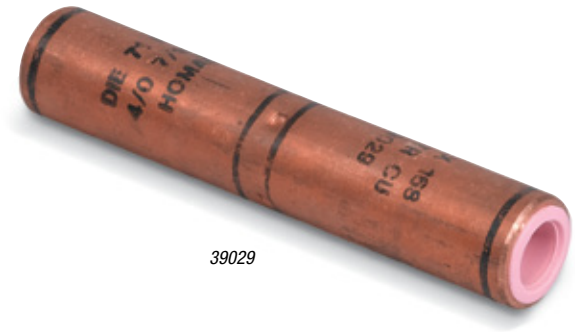
CAT. NO.	CONDUCTOR SIZE	DECIMAL RANGE MIN. O.D.	DECIMAL RANGE MAX. O.D.	TOOL	B (IN.)	L (IN.)
U2A9	#4 str.–1/0 str. aluminum	.232	.368	VC-5/VC-6	6¼	14¼
ACSR 2 FT	#4 str. – #2 str. aluminum, #4 (6/1)–#2 (7/1) ACSR, #6 sol.–#4 sol. copper, #6 str.–#2 str. copper	.162	.325		7	14¼
ACSR 1/0 FT	#2 str.–1/0 (6/1) ACSR	.292	.398		8⅜	17
ACSR 2/0 FT	#2 str.–2/0 str. aluminum, #2 (6/1)–2/0 (6/1) ACSR, #2 str.–1/0 str. copper	.292	.447		9⅛	18½
ACSR 4/0 FT	1/0 str. – 4/0 str. aluminum 1/0 (6/1)–4/0 (6/1) ACSR, 1/0 str.–3/0 str. copper	.368	.563	VC-6	9⅞	20
ACSR 397.5 FT	4/0–397.5 str. aluminum, 4/0 (6/1)–397.5 (18/1) ACSR, 3/0 str.–4/0 str. copper	.470	.743		11	23

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

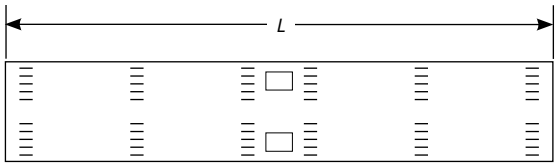
Seamless copper tubing provides high conductivity.

Copper Loop Compression Splices

- All splices marked with wire size, installation die codes and compression locations, providing easy identification for easy installation
- Designed to develop 25% or more of the conductor's rated strength
- Meets or exceeds ANSI C119.4 specifications



39029



Copper Loop Compression Splices

CAT. NO.	WIRE SIZE	L (IN.)	INSTALLING TOOLS AND DIES (COMPRESSIONS PER END) DIES-UT 5 TYPE	DIES-HYDRAULIC
J 1 C 1	#8 sol. & str.	2¼	TJ (2)	161
J 1 C 3	#6 sol. & str.		TJ (2)	161
L 1 C 5	#4 sol. & str.		TLTN (2)	162
Q 1 C 7	#2 sol. & #2 (7) str.		TQ (2)	—
S 1 C 7	#2 (3) str.	4¼	TS (4)	—
S 1 C 51	#1 sol.		TS (4)	—
S 1 C 8	#1 (7–19) str.		TS (4)	—
S 1 C 52	1/0 sol.		TS (4)	—
U 1 C 9	1/0 (7–19) str.	4½	TU (4)	52 (2)
39023	2/0 (7–19) str.		TZ (4)	58 (2)
39026	3/0 (7–19) str.		—	62 (2), 167
39029	4/0 (7–19) str.		—	71 (2), 168

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

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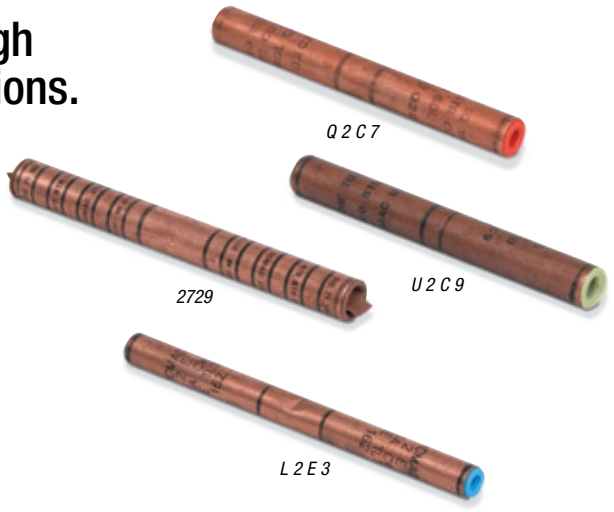
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Full- and Semi-Tension Compression Splices

Seamless copper tubing provides high conductivity for full-tension applications.

Copper Full-Tension Compression Splices

- All splices marked with wire size, installation die codes and compression locations, providing easy identification for easy installation
- Designed to develop 95% or more of the conductor's rated strength
- Meets or exceeds ANSI C119.4 specifications
- Selected models are RUS Accepted





Copper Full-Tension Compression Splices

CAT. NO.	WIRE SIZE	L	INSTALLING DIES
Copper Conductors			
J2C1	#8 sol. & str.	1 5/16	TJ, 161
J2C3*	#6 sol. & str.	2 1/4	TJ, 161, J
L2C4	#4 sol.	3 1/4	TLTN, 162, 3/8
L2C5*	#4 str.	3 1/4	TLTN, 162, 3/8
Q2C6	#2 sol.	4 3/8	TQ, 1/2, 163
Q2C7	#2 (7) str.	4 3/8	TQ, 1/2, 163
S2C7*	#2 (3) str.	4 1/4	TS, 9/16, 164
S2C52	1/0 str.	4 1/4	TS, 9/16, 164
U2C9*	1/0 (7–19) str.	5 1/4	TU
Z2C1	2/0 (7–19) str.	5 1/4	TZ, 166
2723	2/0 (7–19) str.	6 1/2	58, 245
2726	3/0 (7–19) str.	6 1/2	62, 167
2729	4/0 (7–19) str.	8 3/8	71, 840, 168
Copperweld® Copper Conductors			
L2E1*	8A	5 3/16	TLTN, 162
L2E3*	6A	5 3/16	TLTN, 162
CFT Series			
CFT8S-J	#8 sol.	2	J161
CFT6S-J	#6 sol.	2 1/4	J161
CFT4S-P	#4 sol.	2 3/4	P162
CFT2S-X	#2 sol.	3	X163
CFT8J	#8 (7) str.	2 1/4	J161
CFT6J	#6 (7) str.	2 1/4	J161
CFT4P	#4 (7) str.	2 3/4	P162
CFT2X	#4 (7) str.	3	X163

** RUS Accepted*

Note: *For tin-plating option, add "-TN" suffix to the catalog number.*

Compression Pin Terminals

For use on aluminum secondary conductors connected to copper clamp-type bushings.

Flood-Seal® Insulated Compression Pin Terminals

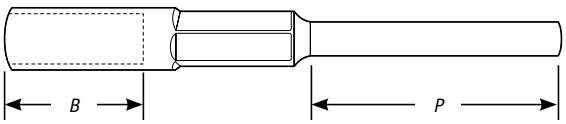
- Fabricated from pure electrolytic aluminum and soft-drawn, tinned copper wire to provide the high strength and conductivity of aluminum and the flexibility of copper
- Flood-Seal® covers provided to ensure a watertight seal on the pin as well as around the aluminum cable insertion; also rated up to 600V
- Oxide inhibitor prevents oxidation
- All pin terminals marked with die references for easy identification

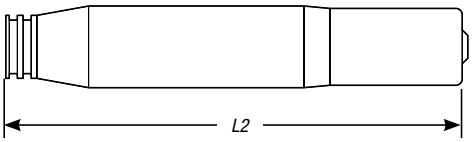


RU 5



RU 5 U 10





Flood-Seal® Insulated Compression Pin Terminals

CAT. NO.	CONDUCTOR SIZE ALUM. STR.	CONDUCTOR SIZE ACSR	SOLID CU PIN	INSTALLING DIES	P (IN.)	B (IN.)
RU 5 U 4	#4	#4	#4	TU, 52, BG, 243, 5/8, 8A	2	15/16
RU 5 U 2	#2	#2	#4	TU, 52, BG, 243, 5/8, 8A	2	15/16
RU 5 U 10	1/0	1/0	#2	TU, 52, BG, 243, 5/8, 8A	2½	15/16
RG 5 U 10	1/0	1/0	#2	5/8–1, 297, 245, TW-TY, 5/8 GOLD	2½	1¾
RG 5 U 20	2/0	2/0	1/0	5/8–1, 297, 245, TW-TY, 5/8 GOLD	2½	1¾
RX 5 U 30	3/0	3/0	1/0	TX, 76, 249, 840, 11A	3	1⅞
RX 5 U 40	4/0	4/0	2/0	TX, 76, 249, 840, 11A	3	1⅞
RX 5 U 336	300–350	336.4 (18/1)	4/0	TX, 76, 249, 840, 11A	4	1⅞

Flood-Seal® Insulators Only

CAT. NO.	CONDUCTOR SIZE ALUM. STR.	CONDUCTOR SIZE ACSR	L2 (IN.)
RU 5	#4–1/0	#4–1/0	3 13/16
RG 5	1/0 & 2/0	1/0 & 2/0	5 11/16
RX 5	3/0–336.4	3/0–336.4	6 7/16

Note: *For special die requirements, additional pin lengths and offset pin styles, please consult your Thomas & Betts representative. For other wire barrel diameters suitable for non-listed dies, please consult your Thomas & Betts representative.*

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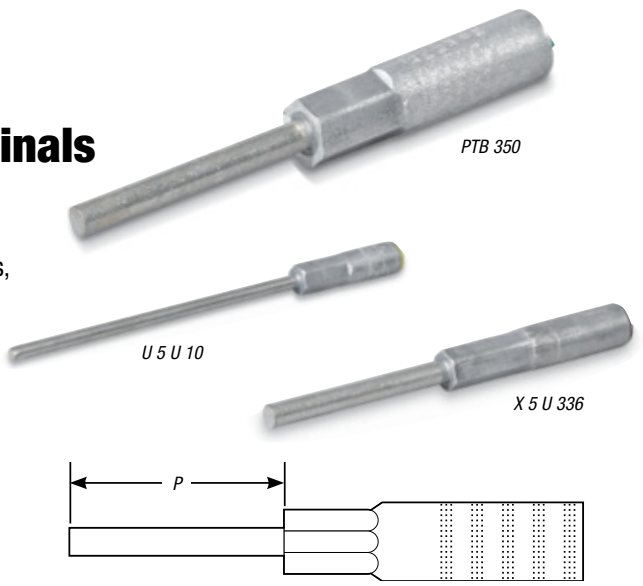
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Compression pin terminals for a variety of conductor sizes.

Aluminum Compression Pin Terminals — Q 5, U 5, X 5 and PT Series

- Connect aluminum and ACSR to copper-alloy equipment clamps, eliminating cold-flow problems of aluminum conductor in copper clamps
- Annealed, tin-plated copper pin ensures high conductivity and bends easily to aid in cable training
- Oxide inhibitor and metal sealant prevent oxidation and protect pin/body from moisture intrusion
- All pin terminals marked with wire size, installing dies and compression locations for easy identification



Q 5, U 5 and X 5 Series

	CONDUCTOR SIZE					
	ALUMINUM					
CAT. NO.	SOL.	STR.	ACSR	INSTALLING DIES	SOLID CU PIN	P (IN.)
Q 5 U 8	#6	#8	—	½, 163, TQ, 6A*	4 (.204)	2
Q 5 U 6	#4	#5 & #6	#6		4 (.204)	2
Q 5 U 4	#2	#3 & #4	#4		4 (.204)	2
Q 5 U 2	—	#1 & #2	#2		4 (.204)	2
U 5 U 8	#6	#8	—		4 (.204)	2
U 5 U 6	#4	#5 & #6	#6	⅝, 52, BG, TU, 8A*	4 (.204)	2
U 5 U 4	#2	#3 & #4	#4		4 (.204)	2
U 5 U 2	—	#1 & #2	#2		4 (.204)	2
U 5 U 10	—	1/0	1/0		2 (.257)	2½
X 5 U 10	—	1/0	1/0	840, WK840, 249, TX, 11A*	2 (.257)	2½
X 5 U 20	—	2/0	2/0		1/0 (.325)	2½
X 5 U 30	—	3/0	3/0		1/0 (.325)	3
X 5 U 40	—	4/0	4/0		2/0 (.365)	3
X 5 U 266	—	250–266.8	266.8		3/0 (.410)	3½
X 5 U 366	—	300–350	336.4 (18/1)		4/0 (.460)	4

** When using EE1 dies, space compressions ⅛" apart.*

PT Series

	CONDUCTOR SIZE				
CAT. NO.	ALUM. STR.	ASCR	INSTALLING DIES	SOLID CU PIN	P (IN.)
PTB 300	266.8 & 300	266.8 (18/1)	96, 472, 705, 1-⅛-1	.460	4
PTB 350	336.4 & 350	266.8 (26/7), 336.4 (18/1)		.460	
PTB 400	397.7 & 400	336.4 (26/7), 397.5 (18/1)		.460	
PTM 500	447 & 500 & 600 CPT	397.5, 477 (26/7, 18/1)	106A, 300, 426, 1⅝6, 317	.562	5
PTM 556	500 & 556.5	477 (26/7), 556.5 (18/1)		.562	
PTL 636	600 & 636	556.5, 636 (36/1, 26/7)	140H, 301, 724, 1½	.562	6
PTL 750	700 & 750	636 (26/7)		.750	
PTL 800	795 & 800	715.5 (26/7), 795 (36/1)		.750	
PTL 1000	954 & 1000	795 (26.7), 954 (45/7)		.875	

Note: *For additional pin lengths and offset pin styles, please consult your Thomas & Betts representative.*

Compression Pin Terminals

Connect aluminum and ACSR to copper-alloy equipment clamps and eliminate cold-flow problems.

Aluminum Compression Pin Terminals — SAPT Series

- Made from aluminum for high strength and conductivity
- Annealed, tin-plated copper pin ensures high conductivity and bends easily to aid in cable training
- Oxide inhibitor prevents oxidation
- Metal sealant protects pin/body from moisture intrusion
- All pin terminals marked with wire size, installing dies and compression locations for easy identification



SAPT 4/0–206

SAPT Series

CAT. NO.	ACSR	STR.	COMPR.	COMPT.	SOL.	PIN DIA.	PIN LENGTH	DIES	BARREL INSERTION
SAPT 6-26	—	#6	—	—	—	2 (.257)	6	TU, 52, BG, 243, ⅝	1¾
SAPT 4-26		#4			#2	2 (.257)	6	TU, 52, BG, 243, ⅝	1¾
SAPT 2-24	#2	#2			1/0	2 (.257)	4	BG, ⅝, 620H, ⁹⁄₁₆	1¾
SAPT 2-12	—	#2			—	2 (.257)	12	TU, 52, BG, 243, ⅝	1¾
SAPT 2-26		#1, #2			1/0	2 (.257)	6	TU, 52, BG, 243, ⅝	1¾
SAPT 2-1017		#1, #2				1/0 (.325)	17	TU, 52, BG, 243, ⅝	1¾
SAPT 2-26-840		#1, #2				2 (.257)	6	TX, 76, 249, 840, 11A	1¾
SAPT 1-12E		#1	#1	1/0		2 (.257)	12	TU, 52, BG, 243, ⅝	1¾
SAPT 1S-26		#2		—	—	2 (.257)	6	TU, 52, BG, 243, ⅝	1¾
SAPT 1/0-10		1/0	—			2 (.257)	10	TU, 52, BG, 243, ⅝	1¾
SAPT 1/0-1017 CC	1/0	1/0				1/0 (.325)	17	TU, 52, BG, 243, ⅝	1¾
SAPT 1/0-106		1/0				1/0 (.325)	6	TU, 52, BG, 243, ⅝	1¾
SAPT 1/0-12	—	1/0				2 (.257)	12	TU, 52, BG, 243, ⅝	1¾
SAPT 1/0-26		1/0				2 (.257)	6	TU, 52, BG, 243, ⅝	1¾
SAPT 1/0-26-840		1/0				2 (.257)	6	TX, 76, 249, 840, 11A	1¾
SAPT 3/0-106		3/0				1/0 (.325)	6	TX, 76, 249, 840, 11A	2¼
SAPT 4/0-1018 CC		4/0				1/0 (.325)	18	TX, 76, 249, 840, 11A	2½
SAPT 4/0-106		4/0				1/0 (.325)	6	TX, 76, 249, 840, 11A	2½
SAPT 4/0-2012		4/0				2/0 (.365)	12	TX, 76, 249, 840, 11A	2½
SAPT 4/0-206		4/0				2/0 (.365)	6	TX, 76, 249, 840, 11A	2½
SAPT 4/0-26		4/0				2 (.257)	6	TX, 76, 249, 840, 11A	2½
SAPT 350-6	266.8 (26/7), 336.4 (18/1)	336.4–350				(.562)	6	1⅛-1, 96, 299, 655, 316, 13A, 321, 94H	2½

Note: *For additional pin lengths and offset pin styles, please consult your Thomas & Betts representative.*

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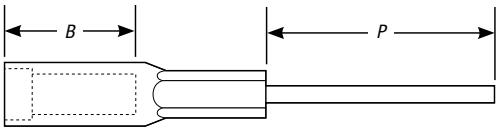
Rainshield protection for insulated cable installed in exposed areas.

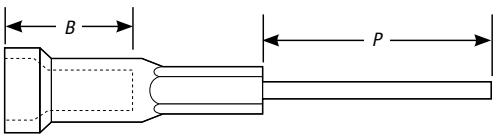
Shrouded Compression Pin Terminals — Common Die Series

- Made from pure electrolytic aluminum for high strength and high conductivity
- Tin-plated copper pin ensures high conductivity and bends easily to aid in cable training
- Prefilled with oxide inhibitor to prevent oxidation
- Metal sealant protects pin/body from moisture intrusion
- All pin terminals marked with die references for easy identification



PTSK 4/0





Shrouded Compression Pin Terminals — Common Die Series

CAT. NO.	CONDUCTOR SIZE ALUM. STRANDED	CONDUCTOR SIZE ACSR	SOLID CU PIN	SHROUD I.D.	INSTALLING DIES	P (IN.)	B (IN.)	STYLE
PTSG 6	#6	#6	.204	.400	52, TU, BG, 8A, 5/8, 243	2	1⅞	2
PTSG 4	#4	#4	.204	.450		2	1⅞	
PTSG 21	#2–#1	#2–#1	.258	.604		2	1⅞	1
PTSG 1/0	1/0	1/0	.258	.640		2¼	1⅞	
PTSK 1/0	1/0	1/0	.258	.640	840, 11A, 76, TX, 249	4	1¾	2
PTSK 2/0	2/0	2/0	.324	.750		4	1¾	
PTSK 3/0	3/0	3/0	.324	.750		4	1¾	
PTSK 4/0	4/0	4/0	.364	.750		4	1¾	
PTSB 350	336.4–350	266.6 (26/7), 366.4 (18/1)	.460	.937	1⅛–1, 299, 655, 96, 13A	4	3⅛	
PTSL 636	600–636	556.5 (26/7), 636 (36/1)	.562	1.125	1½, 301, 724, 140H	6	3⅜	

** For special die requirements, please consult your Thomas & Betts representative.*

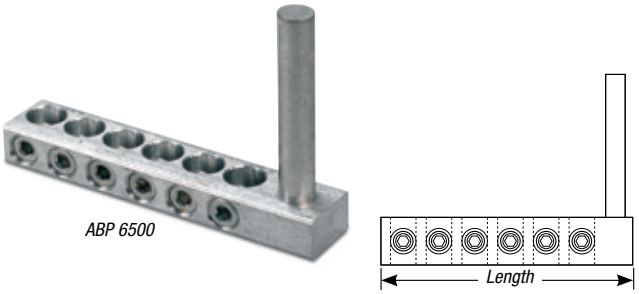
Note: *For additional pin lengths and offset pin styles, please consult your Thomas & Betts representative.*

Multi-Tap Eyebolt Connectors

Designed with factory-mounted 90° angle copper studs for installation in pole-type transformers with secondary eyebolt connections.

Aluminum Overhead Transformer Eyebolt Multi-Tap Set-Screw Connectors

- Made from high-strength aluminum alloy to maintain constant bolting pressure on conductors
- Screws designed for optimum electrical connection and maximum conductor-contact pressure
- Dual-rated for use with aluminum and copper conductors
- Meets or exceeds ANSI C119.4 specifications



ABP 6500

Multi-Tap Set-Screw Connectors

CAT. NO.	NO. OF OUTLETS	LENGTH (IN.)	STUD SIZE	CABLE RANGE
ABP 240	2	2⅝	½ x 4	#6–250
ABP 340	3	3⅜		
ABP 440	4	4⅛₃₂		
ABP 540	5	4⅝₁₆		
ABP 640	6	5¾		
ABP 740	7	6½		
ABP 840	8	7⅜₃₂		
ABP 2350	2	3⅜₁₆	⅝ x 4	#6–350
ABP 3350	3	4⅛		
ABP 4350	4	5		
ABP 5350	5	5¹⁵⁄₁₆		
ABP 6350	6	6¹³⁄₁₆		
ABP 7350	7	7¾		
ABP 8350	8	8⅝		
ABP 2500	2	3⅝	¾ x 4½	#2–500
ABP 3500	3	4⅝		
ABP 4500	4	5⅝		
ABP 5500	5	6⅝		
ABP 6500	6	7⅝		
ABP 7500	7	8⅝		
ABP 8500	8	9⅝		
ABP 2750	2	4¼		1/0–750
ABP 3750	3	5⅝		
ABP 4750	4	6¹⁵⁄₁₆		
ABP 5750	5	8⅜₃₂		
ABP 6750	6	9⅝		
ABP 7750	7	10⁶¹⁄₆₄		
ABP 8750	8	12⅝₁₆		

Note: *For special pin lengths and insulating boots, please consult your Thomas & Betts representative.*

For installing pin sizes slightly different than the norm.

Specialty Aluminum Overhead Transformer Eyebolt Multi-Tap Set-Screw Connector

- Made from high-strength aluminum alloy to maintain constant bolting pressure on conductors
- Screws designed for optimum electrical connection and maximum conductor-contact pressure
- Dual-rated for use with aluminum and copper conductors



ABP 3168

Specialty Connector

CAT. NO.	NO. OF OUTLETS	LENGTH (IN.)	STUD SIZE	CABLE RANGE
ABP 3168	4	4¼	½	#6–250

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Multi-Tap Eyebolt Connectors

Insulated for pole-type transformers in high-moisture environments.

Aluminum Flood-Seal® Overhead Transformer Eyebolt Multi-Tap Set-Screw Connectors

- Made from high-strength aluminum alloy to maintain constant bolting pressure on conductors
- Screws designed for optimum electrical connection and maximum conductor-contact pressure
- Factory-mounted 90° angle copper studs install in pole-type transformers with secondary eyebolt connections
- Flood-Seal® rubber insulation ensures a fully insulated, watertight connection
- Dual-rated for use with aluminum and copper conductors
- Meets or exceeds ANSI C119.4 specifications



RABP 4350

Multi-Tap Set-Screw Connectors

CAT. NO.	CONDUCTOR RANGE	OUTLETS	EXPOSED PIN SIZE
RABP 4350	#12–350	4	½ x 2
RABP 5350		5	
RABP 6350		6	

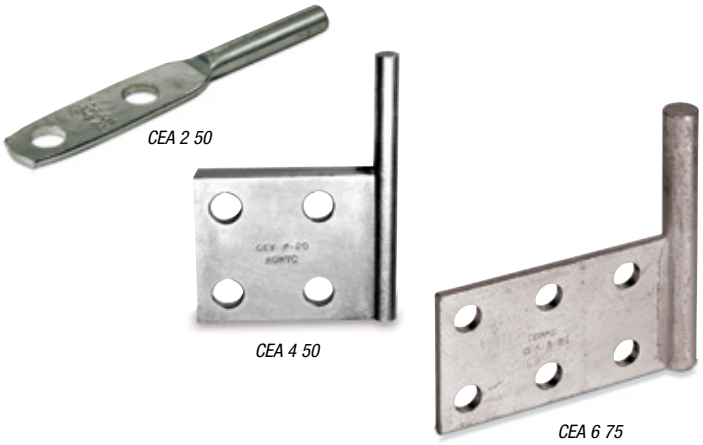
Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*

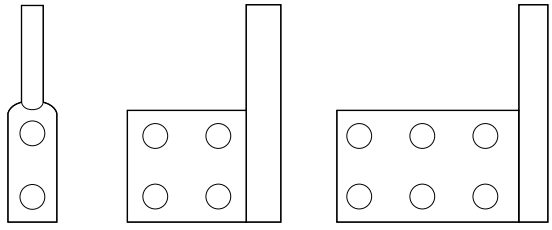
Multi-Tap Eyebolt Connectors

Gain bolting pads for terminal assembly.

Tin-Plated Overhead Transformer Eyebolt Adapters

- Made from tin-plated copper to provide high conductivity and resist corrosion
- Dual-rated to accept copper or aluminum one-hole terminals and two-hole NEMA-drilled terminals





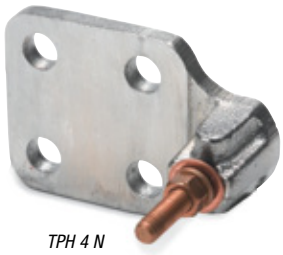
CAT. NO.	FIG. NO.	PIN DIAMETER	EXPOSED PIN SIZE
CEA 2 50	1	½	2⅝
CEA 4 50	2	½	2¼
CEA 4 75		¾	2¾
CEA 6 50	3	½	2¼
CEA 6 75		¾	2¾
CEA 6 100		1	2¾

Note: *All bolt holes are 9⁄16" spaced on 1¾" centers.*
For special pin lengths, please consult your Thomas & Betts representative.

Pads sit flush and interlock with bushing.

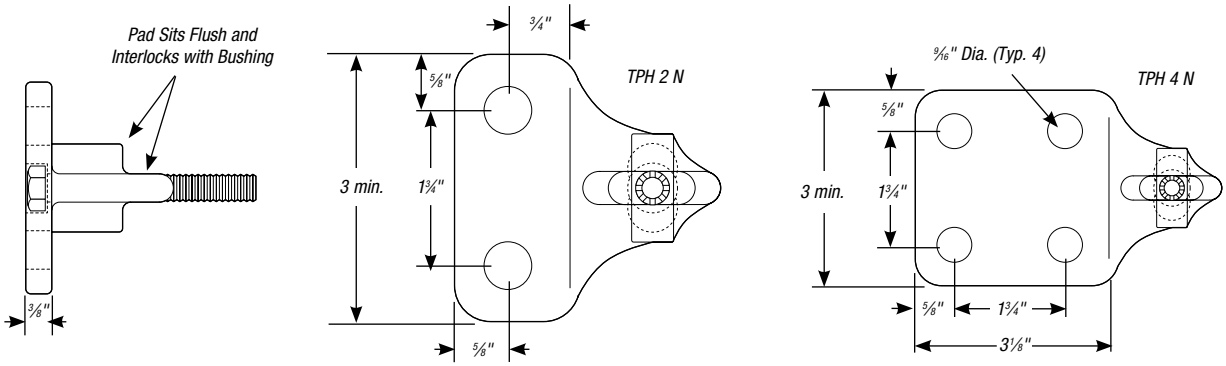
Transformer Bushing Pads

- Accommodate two or four terminals bolted to either side of the pad
- Cast in high-grade bronze and tin plated
- Built for heavy-duty jobs and resists corrosion



CAT. NO.	MOUNT HOLES
TPH 2 N	2
TPH 4 N	4

Note: *For other available configurations, please consult your Thomas & Betts representative.*



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Automatic Splices and Dead-Ends

Make quick, dependable overhead tension splices and speed up installation time.

ATS Autoset® Automatic Splices



Blackburn® automatic connectors make fast and dependable overhead tension splices that take a bite out of installation time. The conductor simply slips into the color-coded, funnel-shaped end piece and automatically enters the pilot cup with a gentle push. The pilot cup guides the conductor past the unique serrated jaws and into the center of the connector. When the conductor meets the center stop, the pull-back locks it into position as the jaws firmly clamp down. The more pull, the more bite, which provides an instant, positive and automatic connection.

- Color-coded, funnel-shaped end pieces provide instant visual identification of maximum conductor size and swiftly guide conductor into position for insertion
- Pilot caps envelop cable strands and guide the conductors into the center of the splice
- Die-cast precision-made jaws provide optimum contact area for a greater range of conductor sizes
- Compression spring positions the jaw for positive conductor acceptance
- Tubular center stop automatically determines proper insertion length of both conductors
- High-strength aluminum-alloy tubing covers the connection for superior corrosion protection and long-lasting durability
- Color-coded tape enables identification of the minimum conductor size of wide-range connectors — it further eliminates errors and speeds up installations!

CAT. NO.	CONDUCTOR RANGE ACSR	AAAC	AAC	DECIMAL RANGE	COLOR CODE	OVERALL LENGTH (IN.)
ATS4-S	#4⁶/₁, 7/1	#4	#4	.232–.260	4 – Orange	11.50
ATS4	#4⁶/₁, 7/1	#4	#4	.232–.260	4 – Orange	13.75
ATS42	#4⁶/₁, 7/1	#4–#2	#4–#2	.232–.332	4 – Orange, 2 – Red	13.75
ATS2	#2⁶/₁, 7/1	#2	#2	.292–.332	2 – Red	13.75
ATS10	1/0⁶/₁	1/0	1/0	.368–.410	1/0 – Yellow	16.25
ATS1020	1/0⁶/₁	1/0–2/0	1/0–2/0	.368–.461	1/0 – Yellow, 2/0 – Gray	16.25
ATS20	2/0⁷/₁	2/0	2/0	.414–.461	2/0 – Gray	16.25
ATS30	3/0⁶/₁	3/0	3/0	.461–.522	3/0 – Black	16.25
ATS3040	3/0⁶/₁	3/0–4/0	3/0–4/0	.461–.575	3/0 – Black, 4/0 – Pink	23.50
ATS40	4/0⁶/₁, 266¹⁸/₁	4/0	4/0	.475–.575	4/0 – Pink	23.50
ATS266336	266²⁶/₇*, 336¹⁸/₁, 336²⁶/₇*	312.8*	266–336	.586–.684	Green	23.50
ATS397477	397¹⁸/₁, 397²⁶/₇*, 477¹⁸/₁*	394.5*	397–477	.720–.858	Blue	23.50

** Application limited to maximum 10,000 lb. tensile.*

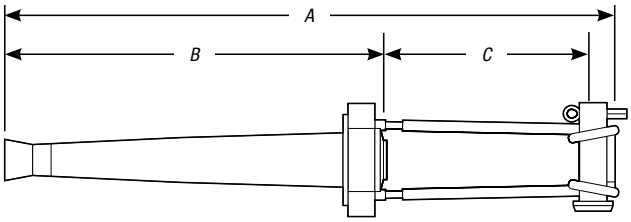
Automatic Splices and Dead-Ends

This dead-end installs quickly and easily, reducing maintenance costs and inventory.

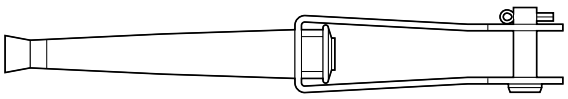
ATD-ZB Stainless Steel Bail



- Color-coded, funnel-shaped end piece provides instant visual identification of maximum conductor size and swiftly guides conductor into position for insertion
- Pilot cap envelops cable strand and guides the conductor into the center of the splice
- Die-cast precision-made jaws provide optimum contact area for a greater range of conductor sizes
- Compression spring positions the jaw for positive conductor acceptance
- Special microcrystalline-based inhibitor coats the jaws and tube's inner diameter, seals the connection and provides a high-pressure lubricant for long-term, continuous performance
- Factory-installed dust covers repel dirt and debris
- Versatile for deadending ACSR, AAC and AAAC conductors
- Breaking strength exceeds 95% of conductor's rated strength, up to a maximum of 10,000 lbs.
- Galvanized steel clevis pin and stainless steel cotter pin (included) enable the bail to be used with standard deadend suspension insulators
- Color-coded tape enables identification of the minimum conductor size of wide-range connectors — it further eliminates errors and speeds up installations



Type ZB



ATD-ZB Stainless Steel Bail

CAT. NO.	CONDUCTOR RANGE ACSR	AAAC	AAC	DECIMAL RANGE	COLOR CODE	APPROXIMATE DIMENSIONS (IN.) A	B	C
ATD42ZB	#4⁶/₁, ⁷/₁; #2⁶/₁, ⁷/₁	#4, #2	#4, #2	.232–.332	4 – Orange, 2 – Red	12¹³/₁₆	7¹³/₁₆	5¹/₁₆
ATD1020ZB	1/0⁶/₁, 2/0⁶/₁	1/0, 2/0	1/0, 2/0	.368–.461	1/0 – Yellow, 2/0 – Gray	14½	9	4¹⁵/₁₆
ATD3040ZB	3/0⁶/₁, 4/0⁶/₁	3/0, 4/0	3/0, 4/0	.461–.575	3/0 – Black, 4/0 – Pink	20¾	11¾	8½
ATD266336ZB	266¹⁸/₁, 336¹⁸/₁	266, 336	266, 336	.586–.684	Green	20¾	11¾	8½
ATD397477ZB	397¹⁸/₁, 477¹⁸/₁	397, 477	397, 477	.720–.858	Blue	20¾	11¾	8½

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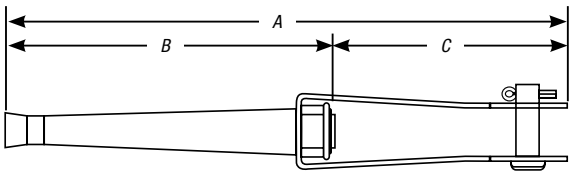
Grab and go — slots are provided for use with standard pulling hooks.

ATD-CB Clevis Bracket

- Versatile for dead-ending ACSR, AAC and AAAC conductors
- Breaking strength exceeds 95% of conductor's rated strength, up to a maximum of 10,000 lbs.
- Galvanized steel clevis pin and stainless steel cotter pin (included) enable the bail to be used with standard deadend suspension insulators



ATD42CB



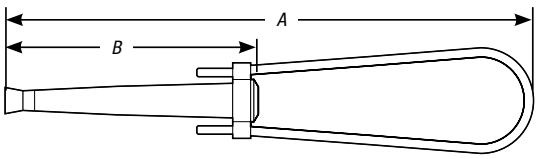
ATD-CB Clevis Bracket

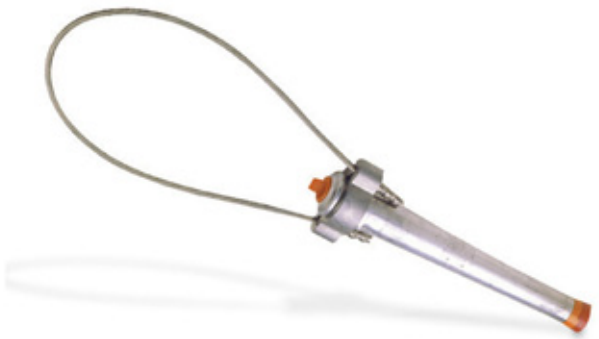
CAT. NO.	CONDUCTOR RANGE ACSR	AAAC	AAC	DECIMAL RANGE	COLOR CODE	APPROXIMATE DIMENSIONS (IN.) A	B	C
ATD42CB	#4⅘, 7⁄1; #2⅖, 7⁄1	#4, # 2	#4, #2	.232–.332	4 – Orange, 2 – Red	12 9⁄16	7 3⁄16	5 1⁄16
ATD1020CB	1/0⅔, 2/0⅔	1/0, 2/0	1/0, 2/0	.368–.461	1/0 – Yellow, 2/0 – Gray	15 1⁄4	9	5 3⁄8
ATD3040CB	3/0⅔, 4/0⅔	3/0, 4/0	3/0, 4/0	.461–.575	3/0 – Black, 4/0 – Pink	20 3⁄4	11 3⁄4	6 1⁄2
ATD266336CB	266⅛, 336⅛	266, 336	266, 336	.586–.684	Green	19 3⁄16	11 3⁄4	6 1⁄2
ATD397477CB	397⅛, 477⅛	397, 477	397, 477	.720–.858	Blue	19 3⁄16	11 3⁄4	6 1⁄2

Use with spool-type and other insulators when flexibility is a must.

ATD-FB Flexible Bail

- Versatile for dead-ending ACSR, AAC and AAAC conductors
- Breaking strength exceeds 95% of conductor's rated strength





ATD42FB

ATD-FB Flexible Bail

CAT. NO.	CONDUCTOR RANGE ACSR	AAAC	AAC	DECIMAL RANGE	COLOR CODE	APPROXIMATE DIMENSIONS (IN.) A	B
ATD42FB	#4⅘, 7⁄1; #2⅖, 7⁄1	#4, #2	#4, #2	.232 –.332	4 – Orange, 2 – Red	14 3⁄16	7 3⁄16
ATD1020FB	1/0⅔, 2/0⅔	1/0, 2/0	1/0, 2/0	.368 –.461	1/0 – Yellow, 2/0 – Gray	18 7⁄8	9

Automatic Splices and Dead-Ends

Installation made easy — no tools required.

ATDG™ Guystrand Connectors for Steel Strand Applications

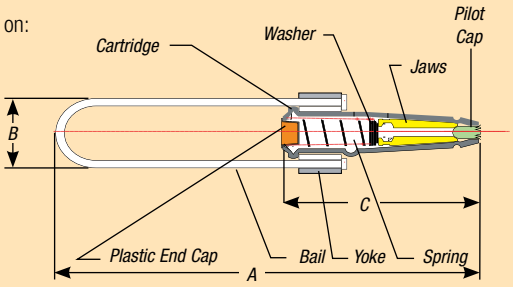


- Tapered cartridge is made of aluminum and steel jaws have hardened zinc plating for durability
- Connectors can handle tensile loads in excess of 90% of the rated strength of the recommended strand and they exceed 90% of the strand rated breaking strength
- Pilot cap and jaw eliminate incorrect insertions
- Slotted access window enables jaw adjustment for repositioning, removal or retensioning of strand (dead-ends)
- Aluminum cartridge and internal components are lubricated for long-term, continuous performance and corrosion resistance

Steel Strand Automatic Dead-Ends

These steel strand automatic dead-ends are designed and recommended for use on:

- Common grade
- Siemens-Martin
- High-strength utility grade
- EHS
- Galvanized
- Bethalume
- Aluminized steel strand (per ASTM A 474, A 475)



ATDG™ Guystrand Connectors for Steel Strand Applications

CAT. NO.	TYPE	STRAND NOMINAL DIAMETER IN. (MM)	STRAND† SIZE	STRAND† RBS LBS. (KN)	DIMENSIONS IN. (MM) A	B	C
ATDG14	Std. Bail	¼ (6.35)	¼ (6.6M)	6,650 (29.58)	9.2 (233.7)	1.7 (43.2)	4.0 (101.6)
ATDG516		5⁄16 (7.94)	5⁄16 (6M)	11,200 (49.82)	9.5 (241.3)	1.8 (45.7)	4.5 (114.3)
ATDG38*		⅜ (9.52)	⅜ (10M)	15,400 (68.50)	11.5 (292.1)	2.3 (58.4)	5.0 (127)
ATDG716*		7⁄16 (11.11)	7⁄16 (18M)	20,800 (92.52)	14 (355.6)	2.8 (71.1)	6.8 (172.7)
ATDG14-L	Long Bail	¼ (6.35)	¼ (6.6M)	6,650 (29.58)	13.4 (340.4)	1.7 (43.2)	4.0 (101.6)
ATDG516-L		5⁄16 (7.94)	5⁄16 (6M)	11,200 (49.82)	15.1 (383.5)	1.8 (45.7)	4.5 (114.3)
ATDG38-L*		⅜ (9.52)	⅜ (10M)	15,400 (68.50)	17.0 (431.8)	2.3 (58.4)	5.0 (127)
ATDG716-L*		7⁄16 (11.11)	7⁄16 (18M)	20,800 (92.52)	22 (558.8)	2.8 (71.1)	6.8 (172.7)

** Items for ⅜" and 7⁄16" steel strand are not EHS rated.*

† RBS rating listed is for 7-wire EHS strand.

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Automatic Splices and Dead-Ends

Steel strand automatic splices that require no tools for quick and easy installations.

ATSG™ Splices

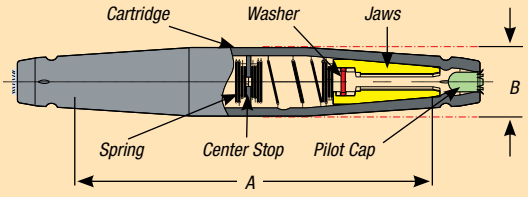


- Tapered cartridge is made of aluminum and steel jaws have hardened zinc plating for durability
- Connectors can handle tensile loads in excess of 90% of the rated strength of the recommended strand and they exceed 90% of the strand rated breaking strength
- Pilot cap and jaw eliminate incorrect insertions
- Aluminum cartridge and internal components are lubricated for long-term, continuous performance and corrosion resistance

Steel Strand Automatic Splices

These steel strand automatic splices are designed and recommended for use on:

- Common grade
- Siemens-Martin
- High-strength utility grade
- EHS
- Galvanized
- Bethalume
- Aluminized steel strand (per ASTM A 474, A 475)



ATSG™ Splices

CAT. NO.	STRAND NOMINAL DIAMETER IN. (MM)	STRAND† SIZE	STRAND† RBS LBS. (KN)	DIMENSIONS IN. (MM) A	DIMENSIONS IN. (MM) B
ATSG14	¼ (6.35)	¼ (6.6M)	6,650 (29.58)	6.4 (162.6)	.9 (22.8)
ATSG516	5⁄16 (7.94)	5⁄16 (6M)	11,200 (49.82)	7.2 (182.9)	1.1 (27.9)
ATSG38*	⅜ (9.52)	⅜ (10M)	15,400 (68.50)	7.8 (198.1)	1.3 (33.0)
ATSG716*	7⁄16 (11.11)	7⁄16 (18M)	20,800 (92.52)	12.5 (317.5)	1.6 (40.6)

** Items for ⅜" and 7⁄16" steel strand are not EHS rated.*

† RBS rating listed is for 7-wire EHS strand.

Service Wedges

Dead-end self-supporting drop wire.



W™ Aluminum Service Wedge Clamps

- Drop wire may be cut to exact length for adjustments in drop wire sag
- Can be attached to bare neutral at any point in the span
- Flexible and rigid bails grip ACSR, AAC and AAAC conductors

CAT. NO.	DESCRIPTION	CONDUCTOR RANGE			DIMENSIONS (IN.)		TYPICAL TENSILE VALUES		COLOR CODE
		ACSR	AL	AAAC	D	L	CONDUCTOR	VALUE (LB.)	
W62–1	W-1 Series aluminum wedge and slider	#2–#6	#1 str.–#6 sol.	#2–#6	2⅜	12	2⅙ ACSR	1200	Orange
W62–1 FC					flex.	17½			
W20–1		1/0–#4	2/0 str.–#2 sol.	1/0–4	2⅜	12½	1/0⅙ ACSR	1800	Blue
W20–1 FC					flex.	18½			
W40–1*		4/0–2/0	4/0 str.–2/0 sol.	4/0–2/0	2⅜	12¾	4/0⅙ ACSR	1900	Red
W40–1 FC*					flex.	18½			
W62–1 B†	W-1B Series iridited aluminum wedge and slider	2–#6	#1 str.–#6 sol.	#2–#6	2⅜	12	2⅙ ACSR	1200	Orange
W62–1 BFC†					flex.	17½			
W20–1 B†		1/0–#4	2/0 str.–#2 sol.	1/0–#4	2⅜	12½	1/0⅙ ACSR	1800	Blue
W20–1 BFC†					flex.	18½			
W40–1 B*†		4/0–2/0	4/0 str.–2/0 sol.	4/0–2/0	2⅜	12¾	4/0⅙ ACSR	1900	Red
W40–1 BFC*†					flex.	18½			

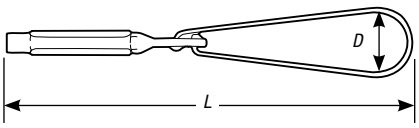
** W40 series clamps rated 850 lb. ultimate tension for 1/0 ACSR, AL or AAAC.*

† For extremely corrosive areas.

***Note:** Catalog numbers with "FC" suffix have a flexible bail.*

The wedge clamp that stands up to corrosion.





W™ Stainless Steel Wedge Clamp

- Stainless steel wedge and slider
- Rigid bail grips copper neutral conductors
- Drop wire may be cut to exact length for adjustments in drop wire sag
- Can be attached to bare neutral at any point in the span

CAT. NO.	CONDUCTOR RANGE		DIMENSIONS (IN.)		TYPICAL TENSILE VALUES		COLOR CODE
	STRANDED	SOLID	D	L	CONDUCTOR	VALUE (LB.)	
W62D	#2–#6	#1–#6	2⅜	12	#2–#7 str. AAC	1300	Orange

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PowerTap™ Wedges

Reliable performance in the harshest of environments.

PowerTap™ Wedges



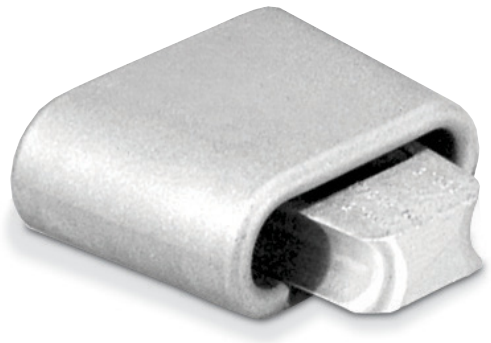
- Low stresses produced at interfaces preclude significant conductor creep and minimize loss of clamping force on connectors
- Contact forces are nearly constant during temperature changes or conductor compaction
- Driving action helps remove oxidation from conductor and lowers contact resistance
- RUS Accepted

CAT. NO.	WIRE COMBINATIONS
Small Taps — Use Shell PT-White	
PT 1010	1/0–#2
PT 1011	#2–#2, 1/0–#4
PT 1012	#2–#4, 1/0–#6
PT 1013	#4–#4, #2–#6
PT 1014	#6–#6, #4–#6
PT 1015	#8–#8
Medium Taps — Use Shell PT-Blue	
PT 4001	1/0–1/0, 2/0–#2, 1/0–#2
PT 4002	2/0–2/0, 3/0–1/0, 4/0–#2
PT 4003	3/0–#6, 2/0–#6
PT 4004	2/0–#4, 3/0–#4
PT 4005	2/0–1/0, 3/0–#2
PT 4006	4/0–#4
PT 4007	4/0–#4
PT 4008	3/0–2/0, 4/0–1/0
PT 4009	3/0–3/0, 4/0–2/0
PT 4010	4/0–3/0
PT 4011	4/0–4/0
266 kcmil Taps — Use Shell PT-Blue	
PT 26601	266.8–#6
PT 26602	266.8–#4
PT 26603	266.8–#2
PT 26604	266.8–1/0
PT 26605	266.8–2/0
PT 26606	266.8–3/0
PT 26607	266.8–4/0
PT 26608	—
PT 26609	266.8–266.8
350 kcmil Taps — Use Shell PT-Blue	
PT 35000	350–#6
PT 35001	350–#4
PT 35002	350–#2
PT 35003	350–1/0
PT 35004	350–2/0
PT 35005	350–3/0
PT 35006	350–4/0
PT 35007	350–350

Note: *For a kit containing a wedge and PowerTap shell, add "-K" suffix to the catalog number.*

Continued on following page.

PowerTap™ Wedges *(continued)*



CAT. NO.	WIRE COMBINATIONS
336–556 kcmil Taps —Use Shell PT-Yellow	
PT 33601	336.4–336.4
PT 33602	336.4–266.8
PT 33603	336.4–4/0
PT 33604	336.4–3/0
PT 33605	336.4–2/0
PT 33606	336.4–1/0
PT 33607	336.4–#2
PT 33608	336.4–#4
PT 33609	336.4–#6
PT 47701	477–#2 or –#3
PT 47702	477–#4 or –#5
PT 47703	477–#6
PT 55601	556.5–477 or –556.5
PT 55602	477–477; 556.5–336.4
PT 55603	477–336.4; 556.5–266.8
PT 55604	477–266.8; 556.4–3/0 or –4/0
PT 55605	477–4/0; 556.5–2/0
PT 55606	477–3/0; 556.5–#1
PT 55607	477–2/0; 556.5–#1
PT 55608	477–1/0; 556.5–#2
PT 55609	556.5–#2 or –#3
PT 55611	556.5–#4 or –#5
PT 55612	556.5–#6
795 kcmil Taps — Use Shell PT-Yellow	
PT 79500	795–795
PT 79501	795–715
PT 79502	795–636
PT 79503	795–556.5
PT 79504	795–477
PT 79505	795–397.5
PT 79506	795–336.4
PT 79507	795–266.4
PT 79508	795–4/0
PT 79509	795–3/0
PT 79510	795–2/0
PT 79511	795–1/0
PT 79512	795–#2
PT 79513	795–#4
PT 79514	795–#6

CAT. NO.	WIRE COMBINATIONS
1033.5 kcmil Taps — Use Shell PT-Yellow	
PT 103300	1033.5–1033.5
PT 103301	1033.5–954
PT 103302	1033.5–795
PT 103303	1033.5–715.5
PT 103304	1033.5–636
PT 103305	1033.5–556.5
PT 103306	1033.5–477
PT 103307	1033.5–397.5
PT 103308	1033.5–336.4
PT 103309	1033.5–266.8
PT 103310	1033.5–4/0
PT 103311	1033.5–3/0
PT 103312	1033.5–2/0
PT 103313	1033.5–1/0
PT 103314	1033.5–#2
PT 103315	1033.5–#4
PT 103316	1033.5–#6
1192 kcmil Taps — Use Shell PT-Yellow	
PT 119200	1192.5–1192.5
PT 119201	1192.5–1033.5
PT 119202	1192.5–954
PT 119203	1192.5–795
PT 119204	1192.5–715.5
PT 119205	1192.5–636
PT 119206	1192.5–556.5
PT 119207	1192.5–477
PT 119208	1192.5–397.5
PT 119209	1192.5–336.4
PT 119210	1192.5–266.8
PT 119211	1192.5–4/0
PT 119212	1192.5–3/0
PT 119213	1192.5–2/0
PT 119214	1192.5–1/0
PT 119215	1192.5–#2
PT 119216	1192.5–#4
PT 119217	1192.5–#6

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PowerTap™ Wedges

Aluminum stirrup connectors built for strength, conductivity and longevity.

PowerTap™ Stirrups

- Bail made of tin-plated copper wire for high conductivity and corrosion resistance
- Wide range of stirrups fit a variety of clamp sizes
- Low stresses produced at interfaces preclude significant conductor creep and minimize loss of clamping force on connectors
- Contact forces remain nearly constant during temperature changes or conductor compaction
- Driving action helps remove oxidation from conductor and lowers contact resistance
- RUS Accepted



CAT. NO.	WIRE SIZE	BAIL SIZE
Use Shell PT-Blue		
PT 4020 S 2	#1, 1/0, 2/0	#2
PT 4005 S 10	1/0, 2/0	1/0
PT 4004 S 2	2/0, 3/0	#2
PT 4007 S 2	3/0, 4/0	#2
PT 4007 S 10	3/0, 4/0	1/0
PT 4008 S 20	3/0, 4/0	2/0
PT 26602 S 2	266.8	#2
PT 26603 S 10	266.8	1/0
PT 35002 S 10	350 AAC	1/0
PT 35002 S 2	350 AAC	#2
Use Shell PT-White		
PT 1050 S 2	#6	#2
PT 1011 S 2	#5, #4, #2	#2

CAT. NO.	WIRE SIZE	BAIL SIZE
Use Shell PT-Yellow		
PT 33606 S 10	336.4	1/0
PT 33605 S 20	336.4	2/0
PT 33604 S 40	336.4	4/0
PT 47701 S 10	397.4, 477	1/0
PT 55607 S 20	397.4, 477	2/0
PT 55606 S 40	397.4, 477	4/0
PT 55608 S 10	556	1/0
PT 55607 S 20	556	2/0
PT 55605 S 40	556	4/0
PT 79511 S 40	636	4/0
PT 79512 S 20	636	2/0
PT 79511 S 20	795	2/0
PT 79509 S 40	795	4/0
PT 103312 S 40	1033.5	4/0

Strong lugs that withstand corrosion.

PowerTap™ Terminal Lugs

- 2-hole paddle, 4-hole paddle and 4-hole flag models available
- Fit a variety of lug sizes



PT 2 N 795

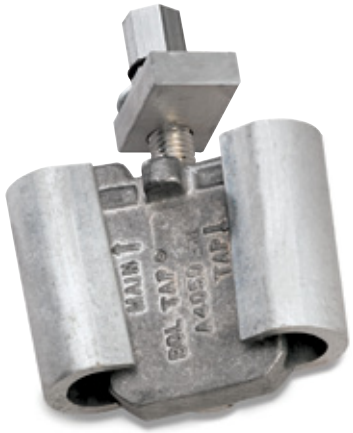
CAT. NO.	WIRE SIZE	TAP GROOVE	SPADE TYPE
PT 2 N 4/0	#2–#6, 1/0–4/0, 266.8	4/0 str.	2-Hole Paddle
PT 2 N 336	336.4, 397.5, 477, 556.5	336.4 str.	2-Hole Paddle
PT 2 N 795	636, 795, 954, 1033.5	795 str.	2-Hole Paddle
PT 4 N 4/0	#2–#6, 1/0–4/0, 266.8	4/0 str.	4-Hole Paddle
PT 4 N 336	336.4, 397.5, 477, 556.5	336.4 str.	4-Hole Paddle
PT 4 N 795	636, 795, 954, 1033.5	795 str.	4-Hole Paddle
PT 4 N 336 F	336.4, 397.5, 477, 556.5	336.4 str.	4-Hole Flag
PT 4 N 795 F	636, 795, 954, 1033.5	795 str.	4-Hole Flag

BolTap™ Wedges

Fast and easy installation saves you time and money.

BolTap™ Wedges

- Only hammer and wrench needed for installation
- Removable and reusable
- Wide conductor range further reduces inventory



A 4055

CAT. NO.	CONDUCTOR COMBINATIONS
A 4025	266.8–#4 or –#6; 336–#4 or –#6; 350–#4 or –#6
A 4030	266.8–#2 or –1/0; 336–#6, –#4 or –#2; 350–#2; 397–#6 or –#4; 477–#6; 500–#6
A 4035	266.8–1/0, –2/0, –3/0 or –4/0; 336–#2, –1/0, –2/0 or–3/0; 350–1/0 or –2/0; 397–#4, –#2, –1/0 or –2/0; 477–#6, –#4 or –#2; 500–#4 or –#2; 556–#6, –#5 or –#4
A 4040	266.8–3/0, –4/0, –250 or –266; 336–2/0, –3/0, –4/0 or –250; 350–2/0, –3/0, –4/0 or –250; 397–1/0, –2/0, –3/0 or –4/0; 477–#2, –1/0 or –2/0; 500–#2, –1/0 or –2/0; 556–#2 or –1/0
A 4045	266.8–266 or –300; 336–4/0, –250, –266 or –300; 350–4/0, –266 or –300; 397–3/0, –4/0, –250 or –266; 477–1/0, –2/0, –3/0 or –4/0; 500–2/0, –3/0 or –4/0; 566–1/0, –2/0 or –3/0
A 4050	336–266, –300, –336 or –350; 350–336 or –350; 397–4/0, –250, –266, –300, –336 or –350; 477–3/0, –4/0, –250, –266 or –300; 500–4/0, –250, –266 or –300; 556–3/0, –4/0, –250 or –266
A 4055	336–336 or –397; 397–336, –350 or –397; 477–266, –300, –336 or –350; 556–266, –300 or –336
A 4060	397–397 or –500; 477–336, –350, –397, –477 or –500; 500–336, –397 or –500; 556–336, –350, –397 or –500
A 4065	477–397, –477 or –556; 556–397, –477 or –556
A 5035	556; 653; 750–#6
A 5040	556–#4 or –#2; 605–#6 or –#4; 636–#6, –#4 or –#2; 653–#6 or –#4; 750–#6
A 5045	556–1/0 or –2/0; 605–#2, –1/0, –2/0 or –3/0; 636–#2, –1/0 or –2/0; 653–#2, –1/0, –2/0 or –3/0; 750–1/0 or –2/0; 795–#6, –#4 or –#2; 954–#6

CAT. NO.	CONDUCTOR COMBINATIONS
A 5050	556–3/0 or –4/0; 605–3/0 or –4/0; 636–1/0, –2/0, –3/0 or –4/0; 653–3/0 or –4/0; 750–3/0 or –4/0; 795–#4, –#2, –1/0 or –2/0; 954–#4
A 5055	336–3/0, –4/0, –250, –266 or –300; 556–250, –266 or –300; 605–4/0 or –250; 653–4/0 or –250; 750–4/0, –250, –266 or –300; 795–1/0, –2/0, –3/0, –4/0 or –250; 954–1/0
A 5060	556–266, –336 or –350; 605–266, –300, –336 or –350; 636–266, –300, –336 or –350; 653–266, –300, –336 or –350; 750–266, –336, –350 or –397; 795–3/0, –4/0, –250, –266 or –300; 954–2/0, –3/0 or –4/0
A 5065	336–336, –397, –477 or –500; 556–336, –397, –477 or –500; 605–397, –477 or –500; 653–336, –397, –477 or –500; 750–397, –477 or –500; 795–250, –266, –300, –336 or –350; 954–4/0, –250, –266 or –300
A 5070	556–477, –556, –636 or –750; 605–477 or –556; 653–477 or –556; 750–477, –556 or –750; 795–266, –336, –397, –477 or –350; 954–266, –336 or –350
A 5075	556–556; 605–556, –605, –636, –653 or –750; 636–556, –605, –636, –653 or –750; 653–556, –605, –636, –653 or –750; 795–397, –477, –500, –636 or –750; 954–397, –477 or –500
A 5080	636–636; 795–477, –556, –605, –636, –653, –750 or –795; 954–477, –556, –636 or –750
A 5085	795–605, –636 or –795; 954–605, –636, –653 or –795
A 5090	795–795; 954–795 or –954

Note: *Conductor combinations shown are for reference only.*
Consult your Thomas & Betts representative for verification or for conductor combinations not shown.
For shear-head option, add "-SH" suffix to the catalog number.
For BolTap stirrups, please consult your Thomas & Betts representative.

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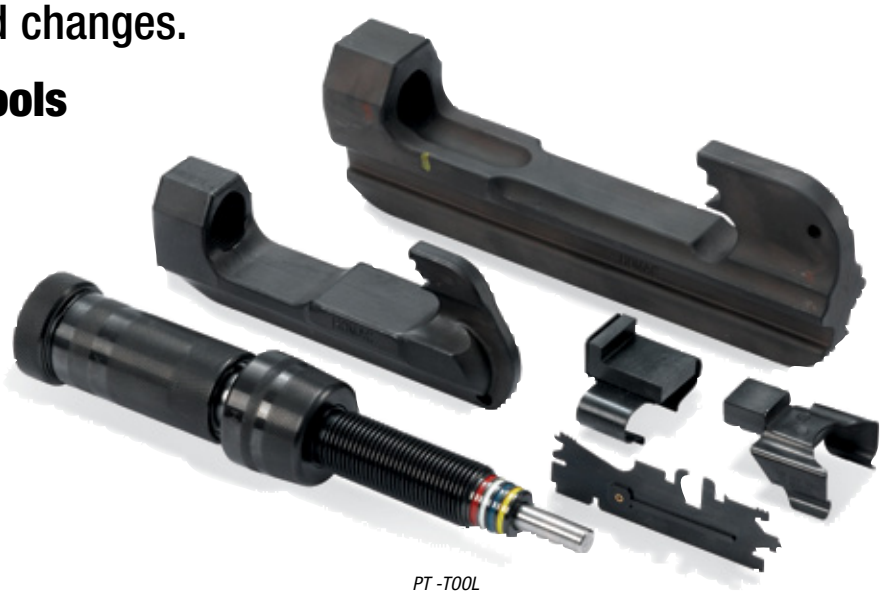
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PowerTap™ Tools and Accessories

On-the-go equipment to make clean moves, adds and changes.

PowerTap™ Fire-On Tools and Accessories

- Long-lasting tool comes with heads of your choice to simplify installation
- Shells, take-off clips and carrying case sold separately to complete your system
- Cleaning tool and cleaning kit also available for maintaining your PowerTap™ equipment
- Tools and accessories are also compatible with other leading connector manufacturers' products



PT -TOOL

PT-TOOL CLEANING KIT includes:

- (1) powder solvent
- (1) gun oil
- (1) shotgun cleaning rod
- (1) small shotgun bore brush
- (1) large shotgun bore brush
- (1) small shotgun bore swab
- (1) large shotgun bore swab
- (1) small brass brush

Fig. 1



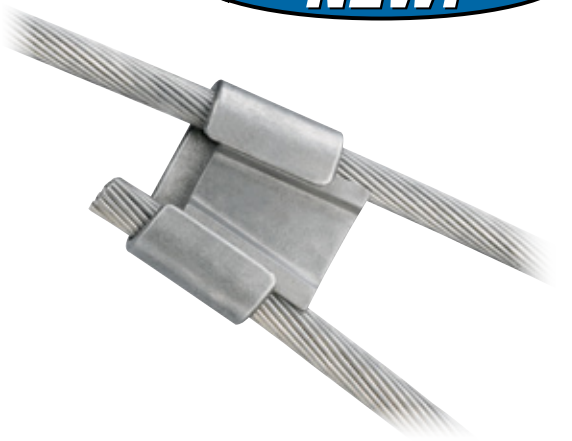
CAT. NO.	DESCRIPTION
PowerTap™ Tool	
PT-TOOL	(1) Large Head, (1) Small Head, (1) Power Unit
PT-TOOL S	(1) Small Head, (1) Power Unit
PT-TOOL L	(1) Large Head, (1) Power Unit
PowerTap™ Shells	
PT-RED	Red
PT-WHITE	White
PT-BLUE	Blue
PT-YELLOW	Yellow
PowerTap™ Take-Off Clips	
PT-CLIP, WHITE/BLUE	White & Blue
PT-CLIP, YELLOW	Yellow
PowerTap™ Cleaning Tool	
PT-CLEANING TOOL	Cleaning Tool
PowerTap™ Cleaning Kit	
PT-TOOL CLEANING KIT	See Fig. 1
PowerTap™ Carrying Case	
PT-CARRYING CASE	Carrying Case

Hydraulic PowerTap™ System

Wedge tap science meets battery-power technology!

Hydraulic PowerTap™ System Wedge Tap

NEW!

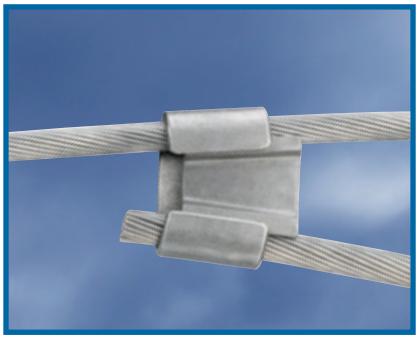


Hundreds of thousands of fired-on wedge connectors are installed on the electrical grid each year. Fired-on wedge connectors are installed using powder-actuated tools that use explosive cartridges. These tools are more costly to operate and maintain because cartridges don't always actuate and extensive cleaning is needed to remove the carbon build up caused by normal cartridge detonation. In addition, the life cycle of the cartridges themselves adds direct cost to installations — purchase price, freight, inventory and, finally, the disposal of cartridges after installation.

The new Blackburn® Hydraulic PowerTap™ System is a game changer. The Blackburn® HPT System provides the reliability of wedge connector technology without the hassles of traditional installation tools through the use of a battery-powered hydraulic tool. This technology allows the installer to get the job done quickly and safely the first time, without misfires. The HPT System eliminates the purchase, transportation, cleaning, maintenance and disposal costs associated with cartridges.

Thomas & Betts offers a complete line of wedge taps for use with the HPT Tool. The Blackburn® Hydraulic PowerTap™ System is your best choice for the safest, most reliable wedge tap connection.

Installation Sequence for the Blackburn® Hydraulic PowerTap™ System



Place cables into connector.



Place tool head assembly on connector and tighten.



Attach power unit to tool head assembly using the unique quick-connect coupler.



Activate power unit.



Release power unit trigger. Remove the entire tool assembly from the connection.



The tool head can now be disassembled by pressing the lever on the quick-connect coupling — ready for the next install or for transport.

Thomas&Betts

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Hydraulic PowerTap™ System

Blackburn® Hydraulic PowerTap™ Connectors

CAT. NO.	WIRE COMBINATIONS
Connectors Installed with Small Tool Head and Low Tool Setting	
HPT 1010	1/0–#2
HPT 1011	#2–#2, 1/0–#4
HPT 1012	#2–#4, 1/0–#6
HPT 1013	#4–#4, #2–#6
HPT 1014	#6–#6, #4–#6
HPT 1015	#8–#8
HPT 4001	1/0–1/0, 2/0–#2, 1/0–#2
HPT 4002	2/0–2/0, 3/0–1/0, 4/0–#2
HPT 4003	3/0–#6, 2/0–#6
HPT 4004	2/0–#4, 3/0–#4
HPT 4005	2/0–1/0, 3/0–#2
HPT 4006	4/0–#4
HPT 4007	4/0–#4
HPT 4008	3/0–2/0, 4/0–1/0
HPT 4009	3/0–3/0, 4/0–2/0
HPT 4010	4/0–3/0
HPT 4011	4/0–4/0
HPT 26601	266.8–#6
HPT 26602	266.8–#4
HPT 26603	266.8–#2
HPT 26604	266.8–1/0
HPT 26605	266.8–2/0
HPT 26606	266.8–3/0
HPT 26607	266.8–4/0
HPT 26609	266.8–266.8
HPT 35000	350–#6
HPT 35001	350–#4
HPT 35002	350–#2
HPT 35003	350–1/0
HPT 35004	350–2/0
HPT 35005	350–3/0
HPT 35006	350–4/0
HPT 35007	350–350
HPT 33601	336.4–336.4

CAT. NO.	WIRE COMBINATIONS
Connectors Installed with Large Tool Head and High Tool Setting	
HPT 33602	336.4–266.8
HPT 33603	336.4–4/0
HPT 33604	336.4–3/0
HPT 33605	336.4–2/0
HPT 33606	336.4–1/0
HPT 33607	336.4–#2
HPT 33608	336.4–#4
HPT 33609	336.4–#6
HPT 47701	477–#2 or –#3
HPT 47702	477–#4 or –#5
HPT 47703	477–#6
HPT 55601	556.5–477 or –556.5
HPT 55602	477–477; 556.5–336.4
HPT 55603	477–336.4; 556.5–266.8
HPT 55604	477–266.8; 556.4–3/0 or –4/0
HPT 55605	477–4/0; 556.5–2/0
HPT 55606	477–3/0; 556.5–#1
HPT 55607	477–2/0; 556.5–#1
HPT 55608	477–1/0; 556.5–#2
HPT 55609	556.5–#2 or –#3
HPT 55611	556.5–#4 or –#5
HPT 55612	556.5–#6
HPT 79500	795–795
HPT 79501	795–715
HPT 79502	795–636
HPT 79503	795–556.5
HPT 79504	795–477
HPT 79505	795–397.5
HPT 79506	795–336.4
HPT 79507	795–266.4
HPT 79508	795–4/0

CAT. NO.	WIRE COMBINATIONS
Connectors Installed with Large Tool Head and High Tool Setting (cont.)	
HPT 79509	795–3/0
HPT 79510	795–2/0
HPT 79511	795–1/0
HPT 79512	795–#2
HPT 79513	795–#4
HPT 79514	795–#6
HPT 103300	1033.5–1033.5
HPT 103301	1033.5–954
HPT 103302	1033.5–795
HPT 103303	1033.5–715.5
HPT 103304	1033.5–636
HPT 103305	1033.5–556.5
HPT 103306	1033.5–477
HPT 103307	1033.5–397.5
HPT 103308	1033.5–336.4
HPT 103309	1033.5–266.8
HPT 103310	1033.5–4/0
HPT 103311	1033.5–3/0
HPT 103312	1033.5–2/0
HPT 103313	1033.5–1/0
HPT 103314	1033.5–#2
HPT 103315	1033.5–#4
HPT 103316	1033.5–#6

Blackburn® Hydraulic PowerTap™ Stirrups

CAT. NO.	WIRE COMBINATIONS	BALL SIZE
Stirrups Installed with Small Tool Head and Low Tool Setting		
HPT 4020 S 2	#1, 1/0, 2/0	#2
HPT 4005 S 10	1/0, 2/0	1/0
HPT 4004 S 2	2/0, 3/0	#2
HPT 4007 S 2	3/0, 4/0	#2
HPT 4007 S 10	3/0, 4/0	1/0
HPT 4008 S 20	3/0, 4/0	2/0
HPT 26602 S 2	266.8	#2
HPT 26603 S 10	266.8	1/0
HPT 35002 S 10	350 AAC	1/0
HPT 35002 S 2	350 AAC	#2
HPT 1050 S 2	#6	#2
HPT 1011 S 2	#5, #4, #2	#2
Stirrups Installed with Large Tool Head and High Tool Setting		
HPT 33606 S 10	336.4	1/0
HPT 33605 S 20	336.4	2/0
HPT 33604 S 40	336.4	4/0
HPT 47701 S 10	397.4, 477	1/0
HPT 55607 S 20	397.4, 477	2/0
HPT 55606 S 40	397.4, 477	4/0
HPT 55608 S 10	556	1/0
HPT 55607 S 20	556	2/0
HPT 55605 S 40	556	4/0
HPT 79511 S 40	636	4/0
HPT 79512 S 20	636	2/0
HPT 79511 S 20	795	2/0
HPT 79509 S 40	795	4/0
HPT 103312 S 40	1033.5	4/0

Hydraulic PowerTap™ System

Hydraulic PowerTap™ System Tool

- Power unit and tool head feature a unique quick-connect coupler that engages easily and stays locked until the release lever is depressed
  - – Quick-connect coupler enables easy assembly of cable and connector without power unit being engaged
  - – Once the assembly has been made, power unit can be engaged, using quick-connect coupler to complete final wedge insertion
  - – Integrated positive-stop valve precisely matches output pressure of tool to the wedge tap connector being installed
  - – Audible bypass alerts you when optimum pressure is achieved
- Tool operates without cartridges
  - – Lower installed cost
  - – No powder fouling — minimizes cleaning and maintenance
  - – Elimination of powder actuation improves safety
- Ergonomic pistol-grip handle ensures user comfort
- Rugged, weather-resistant housing is built to last in outdoor conditions





Blackburn® Battery-Powered Wedge Connector Tool

	INCLUDES							
CAT. NO.	POWER UNIT	SMALL TOOL HEAD*	LARGE TOOL HEAD**	COUPLING ASSEMBLY	2 BATTERIES	BATTERY CHARGER	CONNECTOR REMOVAL CLIPS	CARRYING CASE
HPT-TOOL	X	X	X	X	X	X	X	X
HPT-TOOL-S	X	X		X	X	X	X	X
HPT-TOOL-L	X		X	X	X	X	X	X
HPT-TOOL-PU	X			X	X	X		X

** Small tool head installs connector catalog numbers HPT 1010 through HPT 35007 and stirrup catalog numbers HPT 4020 S 2 through HPT 1011 S 2.*
*** Large tool head installs connector catalog numbers HPT 33601 through HPT 103316 and stirrup catalog numbers HPT 33606 S 10 through HPT 103312 S 40.*

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Blackburn® Grounding Systems

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Blackburn® Grounding Systems

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Cast Copper Connectors for Grounding F-269
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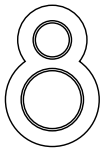
Overview

Figure 6



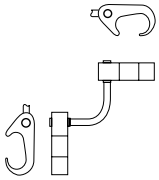
See page F-255

Figure 8



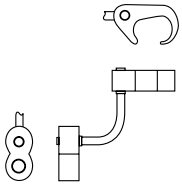
See page F-255

Figure 6–6



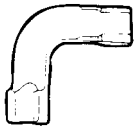
See page F-256

Figure 6–8



See page F-256

Type GRD, GG



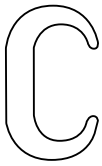
Ground Grid Connectors
See pages F-257–F-260

C-Taps



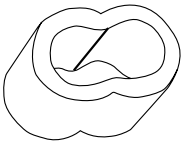
See pages F-261–F-262

C-Crimp



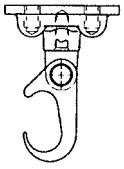
See page F-261

Type GR



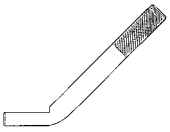
Pigtail Connectors
See page F-263

Grounding Plate



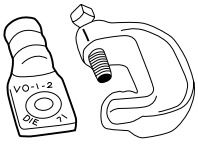
See page F-263

Grounding Studs



See page F-264

I-Beam



See page F-265

Two-Way Connector



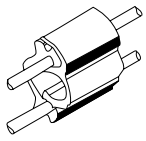
See page F-265

Bus Bar Connector



Ground Bus Bar Connector
See page F-267

SnapTap® Connector



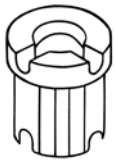
See page F-268

Type GG, GGH, JAB, G



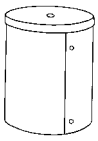
Ground Rod Clamps
See pages F-270–F-271

Type DGC



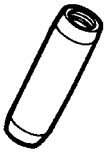
Drive-on Ground Clamps
See page F-271

Ground Electrode Boxes



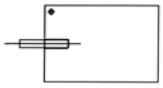
See page F-272

Couplings



Sectional Ground Rod Couplings
See page F-273

Ground Plate



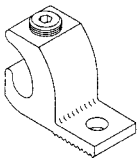
See page F-274

Type GTC



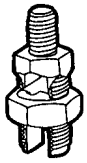
Tower Ground Clamps
See page F-275

Type LL, CULL



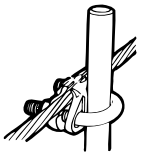
Lay-In Lug Connectors
See page F-276

Type SP



Service Post Connectors
See page F-277

Type GUV



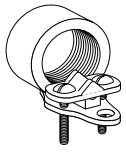
U-Bolt Ground Clamps
See page F-278

Ground Clamp



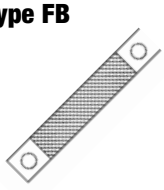
Cast Bronze Ground Clamp
See pages F-279–F-285

Type CH



Conduit Hubs
See page F-284

Type FB



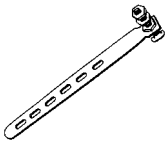
Flexible Braid Connectors
See pages F-287–F-294

Control Mat



Metallic Gradient Control Mat
See page F-296

Type FJ



Flexible Ground Clamp
See page F-296

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E-Z-Ground® Grounding Connectors

Compression Method Grounding Connectors save 50–75% in time and labor costs.

- Eliminate exothermic welding
- Reduce labor and labor costs
- Minimize possibility of poor connections
- Install in any weather — cut downtime
- Enhance safety
- Easy to install — no special training



This installation method results in a long-lasting low installed cost connection. You can install it and forget it.

Before compression, typical cable connector cross section of cable and connector consists of about 75% metal and 25% air. After Thomas & Betts method compression, the cross section shows 100% metal with virtually no air spaces.

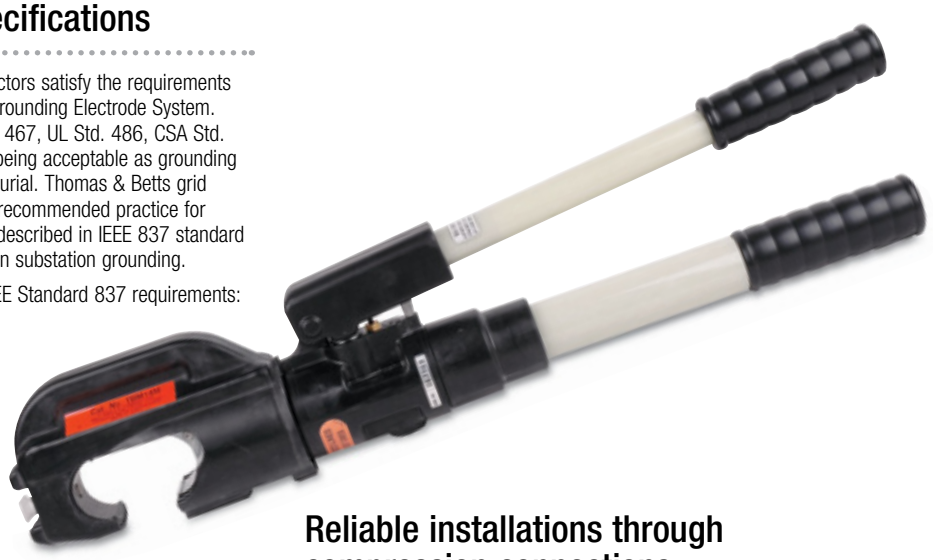
Thomas & Betts introduces a method of compression to replace exothermic welding and its associated disadvantages. This compression method is designed to provide quick, reliable connections for grid grounding at significantly lower installed costs because compression connectors install in less time, in any weather, and are unaffected by moisture, reducing downtime. In addition, our compression connectors for grid grounding require no special training for installation. They are made of high-conductivity wrought and cast copper, and are used for connecting and tapping cross grid, loop lines and ground rods for direct-burial or concrete-embedded ground grid systems. The Thomas & Betts compression system uses standard electrical connector installation tools.

Meets all applicable specifications

Thomas & Betts grid and ground rod connectors satisfy the requirements of NEC® Article 250 for connecting to the Grounding Electrode System. They also meet the requirements of UL Std. 467, UL Std. 486, CSA Std. C22.2 No. 41 and CSA Std. C22.2 No. 65 being acceptable as grounding and bonding equipment suitable for direct burial. Thomas & Betts grid and ground rod connectors also satisfy the recommended practice for the selection of grounding connector joints described in IEEE 837 standard for qualifying permanent connections used in substation grounding.

The connectors conform to the following IEEE Standard 837 requirements:

- 350° C current cycling
- Freeze-thaw test
- Accelerated aging — nitric acid/salt spray
- Mechanical, tensile and electromagnetic force (EMF) criteria

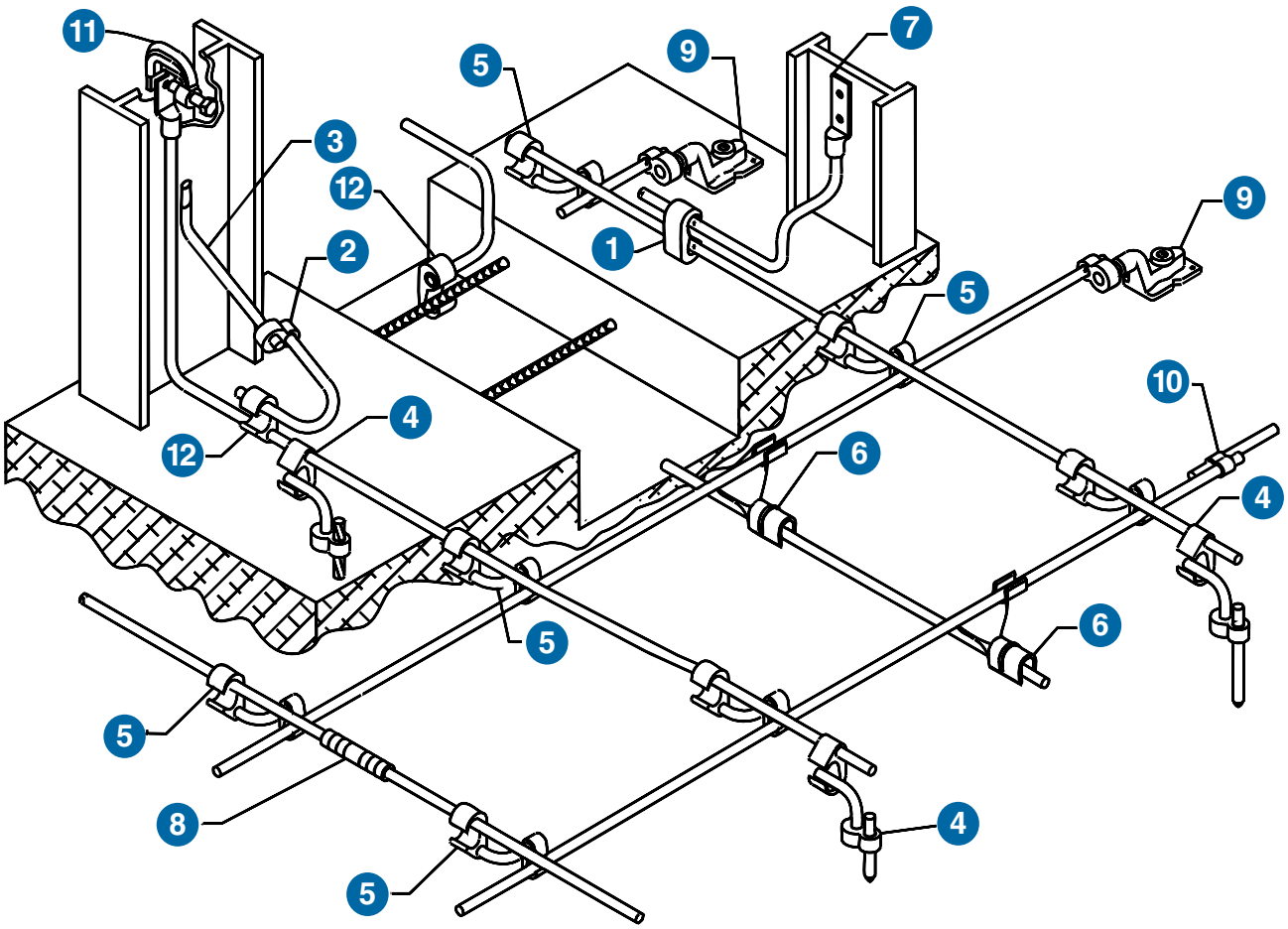


Reliable installations through compression connections

The Thomas & Betts method, utilizing compression tools with matching dies, forms the connector and conductor into a solid, homogeneous mass to provide an optimum electrical bond between connector and conductor. The dies are designed to produce a circumferential, hex-shaped compression rather than a simple indent. The circumferential compression creates a large area of high-pressure contact between cable and connector which, in turn, ensures high conductivity, low resistance and high pullout values exceeding all industry requirements.

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

E-Z-Ground® Grounding Connectors



Thomas & Betts offers its complete line of grid-ground compression connectors. Our E-Z-Ground® connectors are designed for direct burial and offer a safe, efficient alternative to exothermic welding products. Grid-ground installations do not require explosive charges, and can be installed in various climate conditions. These range-taking products will reduce the number of connectors and dies needed for your installation.

Thomas & Betts E-Z-Ground® products meet all applicable standards (IEEE 837, UL467, CSA 22.2). Connectors are prefilled with oxide inhibitor and sealed.

1. C-Taps
2. Figure 8 Connector
3. Steel Grounding Stud TBG Series
4. Figure 6–8 Connectors
5. Figure 6–6 Connectors
6. GG Connectors
7. Lug
8. Splice/Two-Way Connector
9. Grounding Plate
10. Pigtail Connectors
11. I Beam Clamp
12. Figure 6 Connector

Thomas&Betts

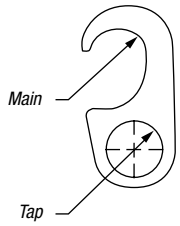
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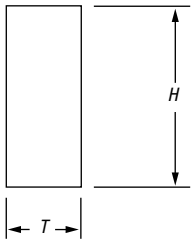
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Figure 6 Compression Ground Tap Connector







DB

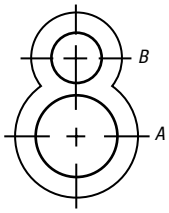
MEETS IEEE 837 REQUIREMENTS

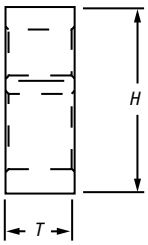
CAT. NO.	APPLICATION MAIN	APPLICATION TAP	CABLE TO REBAR APPLICATION A GROUND ROD	CABLE TO REBAR APPLICATION B CABLE RANGE	DIMENSIONS (IN.) T	DIMENSIONS (IN.) H	DIES FOR TBM 14M, 13100A OR TBM15I
54855	1/0 Str.–.250 kcmil or ½"–⅝" Rod	#4 Sol.–#2 Str.	#3 Rebar ⅜ thru ½ #4 Rebar	#4 Sol.–#2 Str.	¾"	1 15/16"	15G86R
54860	1/0 Str.–.250 kcmil or ½"–⅝" Rod	1/0 Str.–2/0 Str.	#3 Rebar ⅜ thru ½ #4 Rebar	1/0 Str.–2/0 Str.	¾"	2 3/16"	15G86R
54865-CK	1/0 Str.–250 kcmil or ½"–⅝" Rod	3/0 Str.–250 kcmil	#3 Rebar ⅜ thru ½ #4 Rebar	3/0 Str.–.250 kcmil	¾"	2 3/16"	15G86R
54875	#6 Sol.–#2 Str.	#6 Sol.–#2 Str.	—	—	¾"	2 9/16"	15501A
54885	250 kcmil–500 kcmil or ⅝"–¾" Rod	#4 Sol.–#2 Str.	#5 Rebar ⅝ thru ¾ #6 Rebar	#4 Sol.–#2 Str.	¾"	1 15/16"	15G126R
54890	250 kcmil–500 kcmil or ⅝"–¾" Rod	1/0 Str.–2/0 Str.	#5 Rebar ⅝ thru ¾ #6 Rebar	1/0 Str.–2/0 Str.	¾"	2 1/8"	15G126R
54895	250 kcmil–500 kcmil or ⅝"–¾" Rod	3/0 Str.–250 kcmil	#5 Rebar ⅝ thru ¾ #6 Rebar	3/0 Str.–250 kcmil	¾"	2 3/16"	15G126R
54900	250 kcmil–500 kcmil or ⅝"–¾" Rod	350 kcmil–500 kcmil	#5 Rebar ⅝ thru ¾ #6 Rebar	350 kcmil–500 kcmil	1 3/8"	2 7/16"	15G121R

** Tin-plated version available of galvanized ground rods. Add suffix -TP.*

Figure 8 Compression Ground Rod Tap Connector







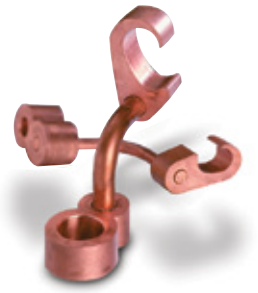
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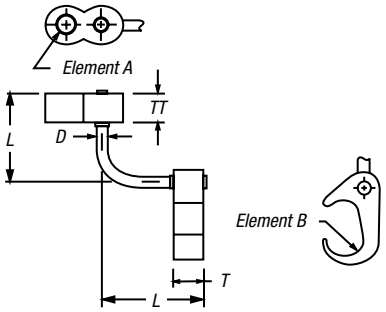
MEETS IEEE 837 REQUIREMENTS

CAT. NO.	A GROUND ROD	B CABLE RANGE	DIMENSIONS (IN.) T	DIMENSIONS (IN.) H	DIES FOR TBM14M, 13100A OR TBM15I
GR12-202	½"	#2 AWG–2/0 AWG	⅞"	1 15/16"	15G121R
GR58-202	⅝"	#2 AWG–2/0 AWG	⅞"	1 31/32"	15G121R
GR34-202	¾"	#2 AWG–2/0 AWG	⅞"	2 3/16"	15G121R
GR1-202	1"	#2 AWG–2/0 AWG	⅞"	2 9/16"	15G121R
GR12-40250	½"	3/0 AWG–250 kcmil	⅞"	1 15/16"	15G121R
GR58-40250	⅝"	3/0 AWG–250 kcmil	⅞"	2 1/8"	15G121R
GR34-40250	¾"	3/0 AWG–250 kcmil	⅞"	2 3/16"	15G121R
GR1-40250	1"	3/0 AWG–250 kcmil	⅞"	2 7/16"	15G121R
GR58-300500	⅝"	300–500 kcmil	⅞"	2 1/8"	15G121R
GR34-300500	¾"	300–500 kcmil	⅞"	2 7/16"	15G121R
GR1-300500	1"	300–500 kcmil	⅞"	2 11/16"	15G121R

Tooling: ***pages F-80–F-100****.*
Die Selector Chart: ***pages F-101–F-104****.*

Figure 6 to 8 Compression Ground Rod to Grid Connectors





DB

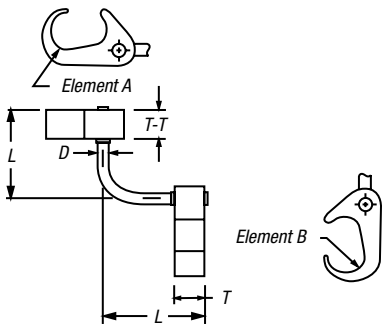
MEETS IEEE 837 REQUIREMENTS

CAT. NO.	A GROUND ROD	B CABLE RANGE	DIMENSIONS (IN.) D	DIMENSIONS (IN.) L	DIES FOR TBM14M, 13100A OR TBM15I ELEMENT A	DIES FOR TBM14M, 13100A OR TBM15I ELEMENT B
54855LR12*	½"	#2 AWG–250 kcmil	5⁄16"	2½"	15G86R	15G121R
54885LR12*	½"	250 kcmil–500 kcmil	5⁄16"	2½"	15G126R	15G121R
54865LR58*	5⁄8"	#2 AWG–250 kcmil	5⁄16"	2½"	15G86R	15G121R
54895LR58*	5⁄8"	250 kcmil–500 kcmil	5⁄16"	2½"	15G126R	15G121R
54875LR34*	¾"	#2 AWG–250 kcmil	½"	2⅝"	15G86R	15G121R
54900LR34*	¾"	250 kcmil–500 kcmil	½"	2⅝"	15G121R	15G121R
54910LR100	1"	#2 AWG–250 kcmil	½"	2⅝"	15G86R	15G121R
54920LR100	1"	250 kcmil–500 kcmil	½"	2⅝"	15G126R	15G121R

** Tin-plated version available for galvanized ground rods. Add suffix -TP.*

Figure 6 to 6 Compression Ground Grid Connectors





DB

MEETS IEEE 837 REQUIREMENTS

CAT. NO.	CABLE TO CABLE ELEMENT A	CABLE TO CABLE ELEMENT B	ELEMENT B TO GROUND ROD	ELEMENT B TO REBAR	DIMENSIONS (IN.) D	DIMENSIONS (IN.) T	DIMENSIONS (IN.) T-T	DIE SELECTION FOR TBM14M, 13100A OR TBM15I A	DIE SELECTION FOR TBM14M, 13100A OR TBM15I B
54855L	#6 Sol.–#2 Str.	#6 Sol.–#2 Str.	—	—	⅞"	¾"	¾"	15501A	15501A
54865L	#1 Str.–250 kcmil	#6 Sol.–#2 Str.	½"–⅝"	⅜–½" #3–#4 Rebar	⅞"	¾"	¾"	15G86R	15501A
54875L	#2 Str.–250 kcmil	#2 Str.–250 kcmil	½"–⅝"	⅜–½" #3–#4 Rebar	⅞"	¾"	¾"	15G86R	15G86R
54885L	250 kcmil–500 kcmil	#6 Sol.–#2 Str.	⅝"–½"	⅝–¾" #5–#6 Rebar	⅞"	¾"	¾"	15G126R	15501A
54895L	250 kcmil–500 kcmil	#2 Str.–250 kcmil	⅝"–½"	⅝–¾" #5–#6 Rebar	⅞"	¾"	¾"	15G126R	15G86R
54900L	250 kcmil–500 kcmil	250 kcmil–500 kcmil	⅝"–½"	⅝–¾" #5–#6 Rebar	⅞"	1⅛"	1⅛"	15G121R15	G121R

Tooling: ***pp. F-80–F-100****.*

Die Selector Chart: ***pp. F-101–F-104****.*

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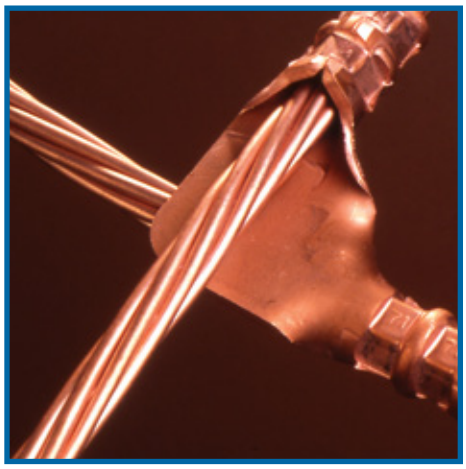
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E-Z-Ground® Grounding Connectors

One-piece construction for cable-to-cable, cable-to-rod, "T" and "X" connections.



Cable-to-Cable or Cable-to-Rod Connectors

- Suitable for direct burial or in concrete
- Replaces exothermic welds
- Made from high-conductivity wrought copper
- Conforms to IEEE 837 standard
- UL467

DB

CAT. NO.	CABLE TO CABLE RANGE			DIE CODE	GROUND ROD	ROD TO CABLE		
	MAIN	DIE CODE	BRANCH			DIE CODE	CABLE	DIE CODE
GG21-21	#2 or #1	45	#2 or #1	45	—	—	—	—
GG10-10	1/0	54	1/0	54	—	—	—	—
GG2030-21	2/0 or 3/0	60	#2	45	—	—	—	—
GG2030-10	2/0 or 3/0	60	1/0	54	—	—	—	—
GG2030-2030	2/0 or 3/0	60	2/0 or 3/0	50	—	—	—	—
GG40250-21	4/0 or 250	71	#2 #1	45 50	½" ⅝"	71 80H	#2 or #1 #2 or #1	45 50
GG40250-10	4/0 or 250	71	1/0	54	½" ⅝"	71 80H	1/0	65
GG40250-2030	4/0 or 250	71	2/0 or 3/0	60	½" ⅝"	71 80H	2/0 or 3/0 2/0 or 3/0	60 60
GG40250-40250	4/0 or 250	71	4/0 or 250	71	½" ⅝"	71 80H	4/0 or 250 4/0 or 250	71 71
GG350-350	350 kcmil	80H	350	80H	—	—	—	—
GG500-40250	500 kcmil	87	4/0 or 250	71	⅝" ¾"	80H 87H	500 500	87 87
GG500-500	500 kcmil	87	500	87	¾"	87	500	87
GG500-350	500 kcmil	87H	350	80	⅝" ¾"	87H	350	80H
GG500-2030	500 kcmil	87H	2/0 or 3/0	60	⅝" ¾"	87H	2/0 or 3/0	60

Tooling: ***pp. F-80–F-100****.*

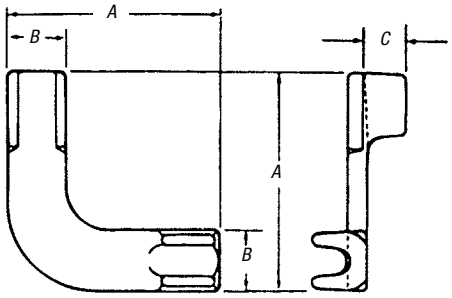
Die Selector Chart: ***p. F-101–F-104****.*

E-Z-Ground® Grounding Connectors

For copper cable-to-cable ground-grid connections.

Type GRD — Cable-to-Cable Connector

- Cast of high-conductivity bronze alloy
- Suitable for direct burial





DB UL

CAT. NO.	CONDUCTOR SIZE MAIN MAX.	MAIN MIN.	MAIN MAX. (MM²)	MAIN MIN. (MM²)	TAP MAX.	TAP MIN.	TAP MAX. (MM²)	TAP MIN. (MM²)	GROUND ROD	INSTALLATION INFORMATION HYD. TOOL	DIE	NO. CRIMPS	DIMENSIONS (IN.) A	B	C
GRD2	1	2	42.4	33.6	1	2	42.4	33.6	—	TBM14M	B09CH	1	2½	11/16	11/16
GRD20	2/0	1/0	67.4	53	2/0	1/0	67.4	53	—	TBM14M	B10CH	1	3	13/16	7/8
GRD420	250 kcmil	4/0	126.6	107	2/0	1/0	67.4	53	5/8	TBM14M	B12CH	2	3⅝	11/16	13/16
GRD40	250 kcmil	4/0	126.6	107	250 kcmil	4/0	126.6	107	5/8	TBM14M	B12CH	2	3⅝	11/16	13/16

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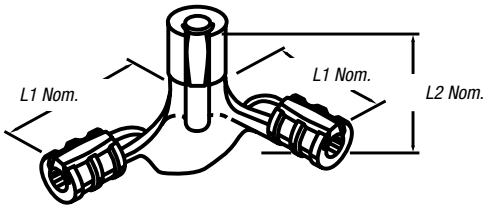
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E-Z-Ground® Grounding Connectors

For connecting perpendicular runs of stranded copper cable to ground rod.

Two Cables-to-Ground Rod Connector — Heavy-Duty Cast Copper††





DB

CAT. NO.	CABLE SIZE MAIN	CABLE SIZE TAP	GROUND ROD DIA.	TBM15I DIE FOR CABLE CODE	OVERALL DIM. (IN.) L1	OVERALL DIM. (IN.) L2	TBM15I DIE FOR GROUND ROD CODE
53065-58GR	250 or 4/0	250 or 4/0	⅝" & ½"	87H	4 15/16	3¼	87H
53065-34GR	250 or 4/0	250 or 4/0	¾"	87H	4 15/16	3¾	106H

Installs with Hydraulic Tools with hex crimp dies.
†† Does not meet IEEE 837.

Copperweld* Conductors & Rebar — for Use with Cast Copper Connectors

CABLE SIZE	REINFORCING ROD SIZE	COPPERWELD CONDUCTOR SIZE
#2, #1 AWG	—	(3) #8 or (3) #6
1/0, 2/0 AWG	#3	⅜ — (7) #8 or 7/16 — (7) #7
4/0 AWG, 250 kcmil	#4	7/16 — (19) #9 or (7) #5
300–350 kcmil	#5	21/32 — (19) #8 or ⅝ — (7) #4
500 kcmil	#6	13/16 — (19) #6

** Reg. Trademark Copperweld Corporation.*

UL Listed for use with cast copper connectors.

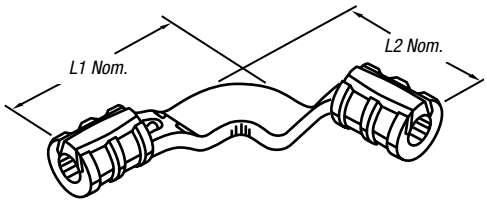
Tooling: ***pp. F-80–F-100****.*

Die Selector Chart: pp. ***F-101–F-104****.*

Grounding Grid Connectors — Heavy-Duty Cast Copper††



53055





53065

DB

CAT. NO.	ROD TO CABLE RANGE		CABLE TO CABLE RANGE		ROD TO CABLE INSTALLING DIE CODE FOR TBM14M, 13100A OR TBM15I		OVERALL DIMENSION (IN.)	
	ROD SIZE (IN.)	CABLE RANGE	MAIN	BRANCH	ROD BARREL	CABLE BARREL	L1	L2
53055	—	—	1/0–2/0 AWG	1/0–2/0 AWG	—	66	3 7/8	3 7/8
53059†	1/2–5/8	#2–#1 AWG	4/0 AWG–250 kcmil	#2–#1 AWG	87H	54H	4 5/32	4 9/16
53060†	1/2–5/8	1/0–2/0 AWG	4/0 AWG–250 kcmil	1/0–2/0 AWG	87H	87H	4 7/16	4 5/16
53065†	1/2–5/8	4/0 AWG–250 kcmil	4/0 AWG–250 kcmil	4/0 AWG–250 kcmil	87H	87H	4 1/16	4 5/16
53069†	3/4	1/0–2/0 AWG	300–350 kcmil	1/0–2/0 AWG	106H	66	4 19/32	4 19/32
53071†	3/4	4/0 AWG–250 kcmil	300–350 kcmil	4/0 AWG–250 kcmil	106H	106H	5 1/4	4 25/32
53073†	3/4	1/0–2/0 AWG	500 kcmil	1/0–2/0 AWG	125H*	66	4 13/16	4 7/8
53075†	1	4/0 AWG–250 kcmil	500 kcmil	4/0 AWG–250 kcmil	125H*	87H	6 9/16	5
53080†	1	500 kcmil	500 kcmil	500 kcmil	125H*	125H*	5 3/16	5 3/16

Cat. No. 15500 adapter is required for all 15500 Series dies, not for 15600 Series.

† Ground rods 4/0–250 wire barrels suitable for 1/2" and 5/8" rod.

500 kcmil wire barrels suitable for 1" rods.

300–500 kcmil wire barrels suitable for 5/8" rods.

Hydraulic tools only.

†† Does not meet IEEE 837.

** 125H die for 15-ton tool only.*

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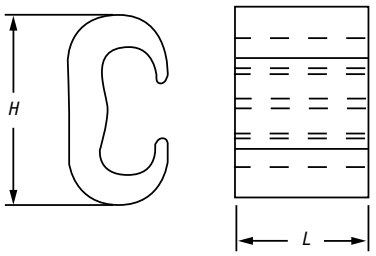
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E-Z-Ground® Grounding Connectors

C-Taps





DB

MEETS **IEEE** 837 REQUIREMENTS

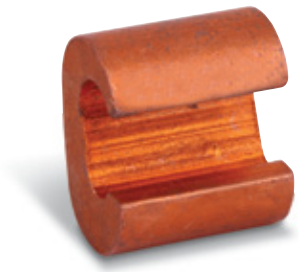
CAT. NO.	MAIN	TAP	DIMENSION (IN.) H	DIMENSION (IN.) L	DIES FOR TBM14M 13100A OR TBM15I *	CRIMPS
CTP22	#6 Sol.–#2 Str.	#6 Sol.–#2 Str.**	1.16	.75	HBKC	1
CTP202	#1 Str.–2/0 Str.	#6 Sol.–#2 Str.**	1.41	.75	15501A	1
CTP2020	#1 Str.–2/0 Str.	#1 Str.–2/0 Str.	1.54	.75	15501A	1
CTP25020	3/0 Str.–250 kcmil	#6 Sol.–2/0**	1.97	.75	15G86R	1
CTP250250	3/0 Str.–250 kcmil	3/0 Str.–250 kcmil	2.06	.88	15G86R	1
CTP50020	300–500 kcmil	#6 Sol.–2/0**	2.42	.88	15G121R	2
CTP500250	300–500 kcmil	3/0 Str.–250 kcmil	2.67	.88	15G121R	2
CTP500500	300–500 kcmil	300–500 kcmil	2.91	1.10	15G121R	3

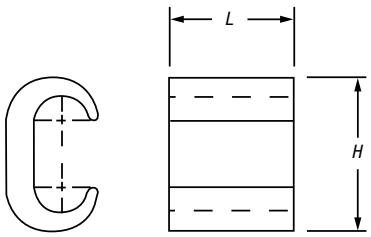
Material: High-Conductivity Copper.

** Cat. No. 15500 adapter required if using TBM15I and 155XX series dies.*

*** #6 AWG branch must be doubled.*

Copper C-Crimps††





DB

CAT. NO.	RUN	TAP	DIE INDEX	INSTALLING DIE TBM14M 13100A, TBM151	DIMENSION (IN.) H	DIMENSION (IN.) L
BC48	#6 Sol.–#4 Str.	#8 Sol.–#8 Str.	BG or ⅝	B58CS	41/64	9/16
BC46-BB	#6 Sol.–#4 Str.	#6 Sol.–#6 Str.	BG or ⅝	B58CS	41/64	¾
BC44	#6 Sol.–#4 Str.	#4 Sol.–#4 Str.	BG or ⅝	B58CS	41/64	51/64
BC24	#2 Sol.–#2 Str.	#8 Sol.–#4 Str.	C	HBKC	¾	63/64
BC22	#2 Sol.–#2 Str.	#2 Sol.–#2 Str.	C	HBKC	¾	1 3/64
BC202	1/0 Sol.–2/0 Str.	#8 Sol.–#2 Str.	E or O	HO	15/16	1 5/16
BC2020-BB	1/0 Sol.–2/0 Str.	1/0 Str.–2/0 Str.	E or O	HO	15/16	1 11/32
BC402	3/0 Str.–4/0 Str.	#6 Sol.–#2 Str.	F or D3	HD	1 1/16	1⅝
BC4020	3/0 Str.–4/0 Str.	1/0 Sol.–2/0 Str.	F or D3	HD	1 1/16	1 5/16
BC4040	3/0 Str.–4/0 Str.	3/0 Sol.–4/0 Str.	F or D3	HD	1 1/16	1 5/16

†† Does not meet IEEE 837.

Material: High-Conductivity Copper.

UL 467 Listed.

Tooling: ***pp. F-80–F-100****.*

Die Selector Chart: ***pp. F-101–F-104****.*

E-Z-Ground® Grounding Connectors

Perform line tap-offs, dead-ending and grounding on a range of conductors.

Copper C-Type Compression Taps

- Can be held in the dies or jaws of an installation tool, then hooked directly over the line for time-saving installations
- Manufactured from pure electrical-grade copper for a highly conductive, low resistance, reliable connection
- Die references marked on connector for easy identification
- RUS Accepted



CC 4040

Copperweld-Copper Conductor

8A — Use C-Tap accommodating #6 str. Copper
6A — Use C-Tap accommodating #4 str. Copper
4A — Use C-Tap accommodating #2 str. Copper
2A — Use C-Tap accommodating 1/0–2/0 Copper

Copper C-Type Compression Taps

CAT. NO.	WIRE RANGE A GROOVE	WIRE RANGE B GROOVE	INSTALLING DIES	LENGTH (IN.)
CC 48	#6 sol.–#4 str.	#8 sol.–#8 str.	TU, BG, 5/8	5/8
CC 46	#6 sol.–#4 str.	#6 sol.–#6 str.		
CC 44	#6 sol.–#4 str.	#4 sol.–#4 str.		
CC 24*	#2 sol.–#2 str.	#8 sol.–#4 str.	TM or C	3/4
CC 22	#2 sol.–#2 str.	#2 sol.–#2 str.		
CC 202	1/0 sol.–2/0 str.	#8 sol.–#2 str.	E or O	7/8
CC 2020	1/0 sol.–2/0 str.	1/0 sol.–2/0 str.		
CC 402	3/0 sol.–4/0 str.	#6 sol.–#2 str.	F or D3	1 1/16
CC 4020	3/0 sol.–4/0 str.	1/0 sol.–2/0 str.		
CC 4040	3/0 str.–4/0 str.	3/0 str.–4/0 str.		

** When using #1 Str. in the A Groove, the B Groove will accommodate #6 or #8 Str. or #8 Sol.*

***Note**: For tin-plating option, add "–TN" suffix to the catalog number.*

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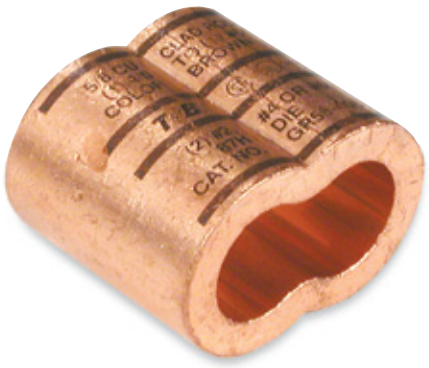
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E-Z-Ground® Grounding Connectors

Hex compression intimately bonds cable directly to ground rod.

Pigtail Connectors

- Figure-8 connectors
- Conforms to IEEE 837 standard
- UL467 Listed





When connecting cable to ground rod for direct burial or in concrete, the connector shall be wrought copper with minimum conductivity of 99% I.A.C.S., such as Thomas & Betts series GR12-306. Hex compression with die code embossing shall be used.

DB UL CSA MEETS IEEE 837 REQUIREMENTS

CAT. NO.	CABLE RANGE	GROUND ROD	DIE CODE FOR TBM14M, 13100A OR TBM15I
GR12-306	One Cable: 3/0 to #6 AWG Two Cables: #2 to #6 AWG	½"	87H
GR58-406	One Cable: 4/0 to #6 AWG Two Cables: #2 to #6 AWG	⅝"	87H
GR34-4010	One Cable: 4/0 to 1/0 AWG	¾"	99H

Tooling: ***pp. F-80–F-100***.

Die Selector Chart: ***pp. F-101–F-104***.

Ground Plates



DB UL CSA MEETS IEEE 837 REQUIREMENTS

CAT. NO.	FIG.	CABLE RANGE	H	DIES
GP2250-2	1	#2–250 kcmil	3⅜"	15G86R
GP2250-4	2	#2–250 kcmil	4 7/32"	15G86R
GP250500-2	1	250–500 kcmil	3⅜"	15G126R
GP250500-4	2	250–500 kcmil	4 7/32"	15G126R

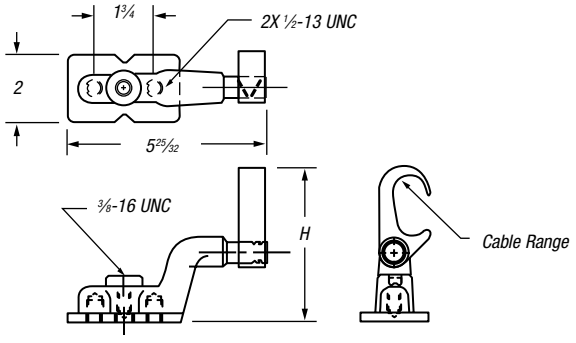


Fig. 1

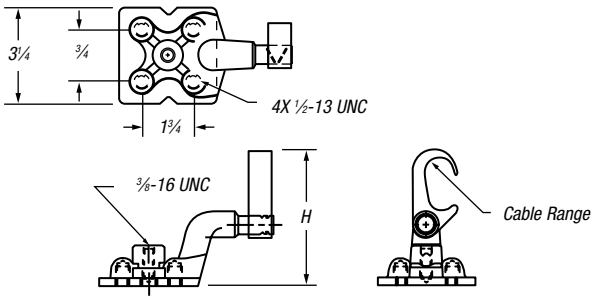


Fig. 2

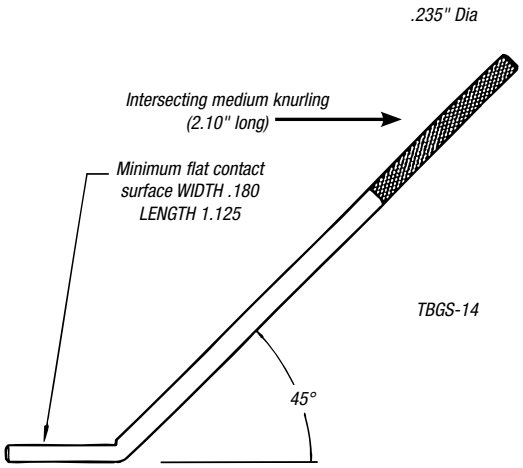
E-Z-Ground® Grounding Connectors

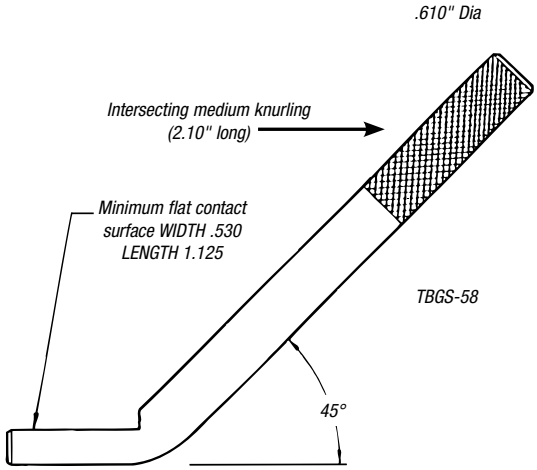
Knurling ensures excellent mechanical pull-out and electrical continuity.

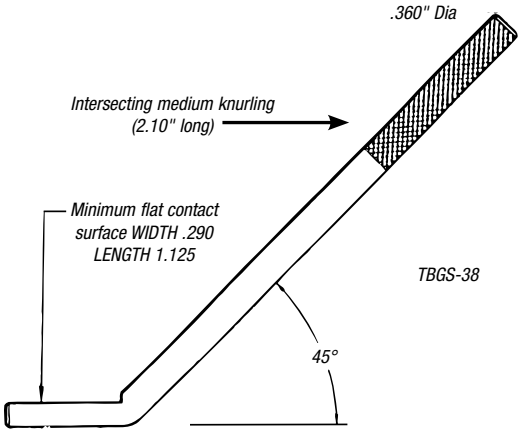
Type TBGS — Structural Grounding Studs

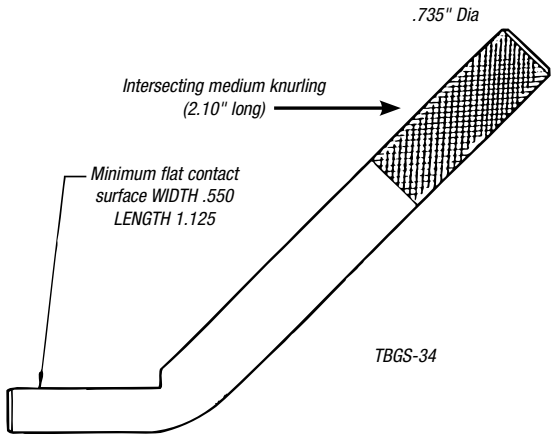
- Easily welded to steel structures with minimal construction welding equipment
- Connect to grounding conductors with appropriate Thomas & Betts grounding connectors
- Knurled portion of stud resists pull-out and provides electrical continuity to ensure the integrity of the grounding circuit
- Constructed of high-strength steel and coated with corrosion-resistant copper cyanide

CAT. NO.	ROD SIZE
TBGS-14	¼"
TBGS-38	⅜"
TBGS-58	⅝"
TBGS-34	¾"









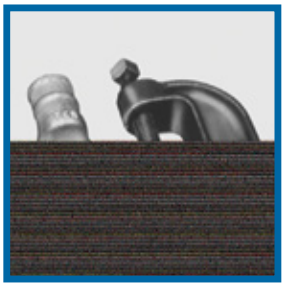
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E-Z-Ground® Grounding Connectors

Connect ground cable to I-beam or any 1" maximum structural steel member — without welding or drilling.

I-Beam Ground Clamp





- Breakaway bolt head shears at predetermined torque to ensure tight connection
- Heavy-duty compression lug provides excellent current-carrying capabilities
- Surface of steel must be cleaned in accordance with installation instruction sheet provided with product
- Connector made of high-conductivity cast copper bright dip
- Clamp made of drop-forged high-grade steel, zinc plated

MEETS IEEE 837 REQUIREMENTS

CAT. NO.	WIRE RANGE	TBM15I INSTALLING TOOL, DIE CODE
IBG2-10	#2 thru 1/0 AWG	71
IBG20-40	2/0 thru 4/0 AWG	87
IBG350-500	350 thru 500 kcmil	115

Hydraulic tooling with hex crimp dies.

Satisfies requirements of NEC® 250.64(C)(1) for connecting to grounding electrode system.

Cast Copper Two-Way Connector — Heavy-Duty



- Made from high-conductivity cast copper
- Electro-tin-plated finish

DB

CAT. NO.	DIE SIZE	DIE CODE
53504	#8 AWG	29
53505	#6 AWG	29
53506	#4 AWG	29
53507	#2 AWG	45
53508	#1 AWG	45
53509	1/0 AWG	45
53510	2/0 AWG	66
53511	3/0 AWG	66
53512	4/0 AWG	66
53513	250 kcmil	76
53515	350 kcmil	99
53518	500 kcmil	99
53523	750 kcmil	112

Use hydraulic tools with hex dies.

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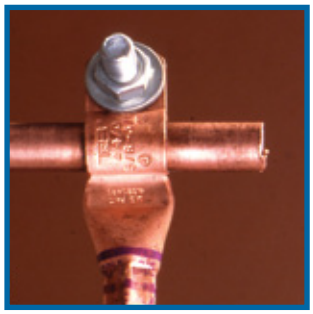
E-Z-Ground® Grounding Connectors

Provides a permanent, reliable connection.

Ground Clamp

- Crimps to cable
- Clamps to ground rod and rebar
- Uses standard Color-Keyed® hand and hydraulic tools
- Color coded for easy installation die selection
- Made from high-conductivity wrought copper
- Furnished with stainless steel hardware, ¼" washers, bolts and nuts
- UL467 — approved for direct burial





DB

CAT. NO.	WIRE SIZE	GROUND ROD DIAMETER (IN.)	REBAR # (IN.)	BOLT SIZE (IN.)	DIE CODE
CC2C-45R	#2–#3 AWG	½ or ⅝	⅘	¼	33-BROWN
CC1C-45R	#1 AWG	½ or ⅝	⅘	¼	37-GREEN
CC10C-56R	1/0 AWG	⅝ or 3¼	⅝	⅜	42-PINK
CC20C-56R	2/0 AWG	⅝ or 3¼	⅝	⅜	45-BLACK
CC40C-56R	4/0 AWG	⅝ or ¾	⅝	⅜	54-PURPLE

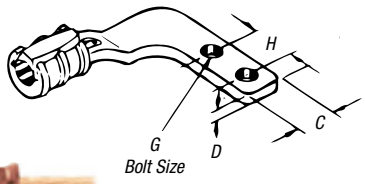
UL467 – Approved for direct burial.

Terminate or connect continuous runs of copper cable to flat surfaces.

Flat-Surface Ground Clamp

- Captivated "keeper bar" design extends cable range and helps hold cable prior to crimping, facilitating installation
- Saddles marked with conductor size and die code
- Conductor can be assembled to saddle with standard dies and hydraulic tools
- Made from high-conductivity cast copper





DB

CAT. NO.	WIRE RANGE	BOLT HOLE	DIE CODE NO.*	UNIT QUAN.	STD. PKG.	WT. PER 100	HEX DIE		INCHES				
							CAT. NO.	DIE CODE NO.	L1	L2	D	C	H
53055FL	1/0–2/0 AWG	⅜"	66	2	10	75	15534*	66	4 3/32	3 21/32	9/32	1⅜	1
53065FL	4/0 AWG–250 kcmil	⅜"	87H	2	10	112	15506**	87H	4½	4 3/32	5/16	1⅜	1

** TM14M, 13100A, TBM15I with hex crimp dies.*

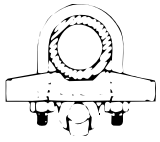
*** TBM15I with hex crimp dies only.*

Bond copper conductors to steel or aluminum fence post or top rail of round fence posts.

Grid-to-Fence Ground Clamp

- Provide quick, dependable installation at low installed cost
- Use no incendiary materials
- Body made from cast copper alloy with steel U-bolt





CAT. NO.	GROUND CABLE RANGE	DIE CODE	STEEL & ALUMINUM LINE POST RANGE (IN.)
FG2040R2	2/0–3/0–4/0 Str.	76	2
FG2040R25	2/0–3/0–4/0 Str.	76	2½
FG2040R3	2/0–3/0–4/0 Str.	76	3
FG210R2	#2–#1–1/0 Sol. or Str.	66	2
FG210R25	#2–#1–1/0 Sol. or Str.	66	2½
FG210R3	#2–#1–1/0 Sol. or Str.	66	3

Install with hydraulic tooling with hex crimp dies.

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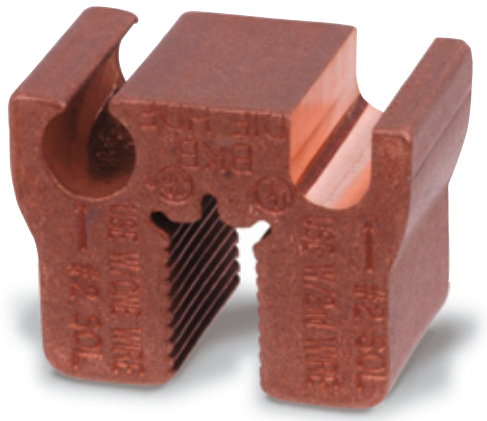
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Tel: 888.862.3289

www.tnb.com

E-Z-Ground® Grounding Connectors

Cuts installation time in half — with results superior to conventional connectors.

E-Z-Ground® Bus Bar Connector



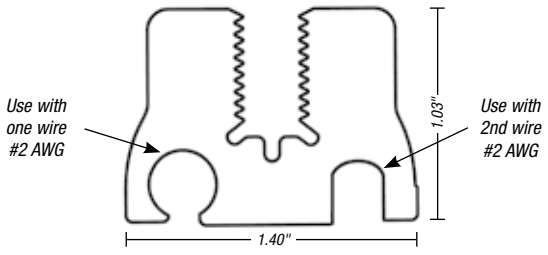
- Unique design
- Fast and easy installation
- Superior low-resistance, high-conductivity connections
- Installs with conventional compression tools
- Produces a permanent connection with any combination of copper from #6 to #2 solid or stranded conductor, to ¼" copper bus bar
- Made from pure wrought copper and prefilled with oxide inhibitor
- UL® Listed and CSA certified
- Insulated with die HDF

E-Z-Ground® Bus Bar Connectors install in less than two minutes with one easy crimp! The connector attaches directly to the bus, saving the labor-intensive process of drilling and tapping. The unique jaw interface of the E-Z-Ground® Bus Bar Connector grips the copper bus, resulting in a low-resistance, high-conductivity connection.

The E-Z-Ground® Bus Bar Connector can be used in OEM applications or telecom applications — cellular, PCS and others. It provides a continuous ground to the copper bus bar, making it ideal for hut and tower applications. The design enables installation in virtually any position, horizontal or vertical, and is suitable for inside and outside plant use. Installation can be completed using any T&B compression tool that accepts U-shaped die sets and is rated 12-ton or higher.

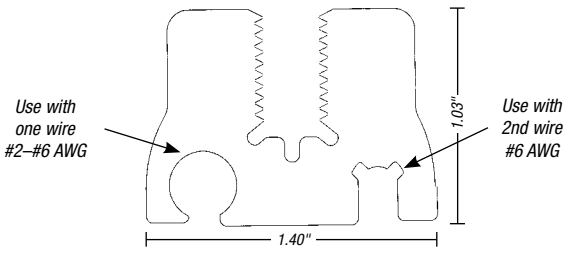
CAT. NO.	BUS BAR THICKNESS (IN.)	CONDUCTOR RANGE	STD. PKG. QTY.
GBBC22	¼	#2 AWG–#2 AWG	1
GBBC26	¼	#6 AWG–#2 AWG	1

Use this side of the connector when using only one wire.



¼ Bus GBBC22

Use this side of the connector only when using two wires.

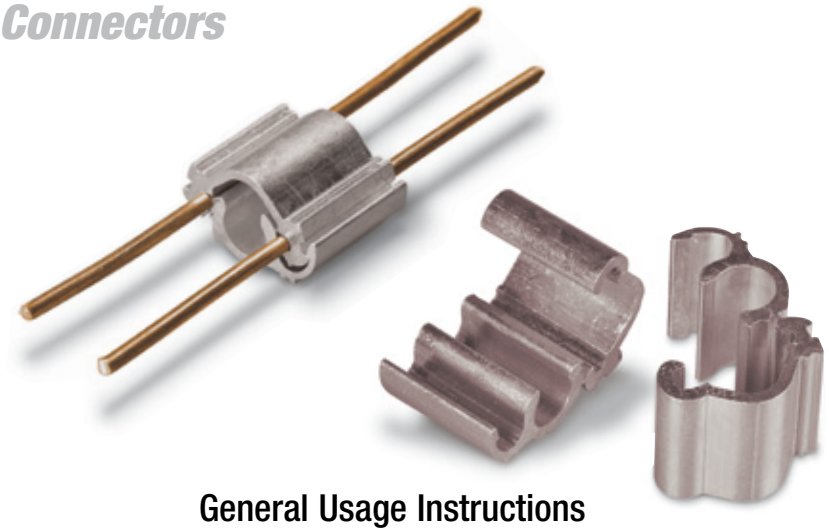


¼ Bus GBBC26

E-Z-Ground® Grounding Connectors

A "snap" to assemble — no special tools required.

SnapTap® Connector



- Designed for bonding and grounding applications using copper, steel strand and ground rod
- Easily installed with channel locks or pliers
- Made from high-strength aluminum alloy with tin plating
- Offers excellent electrical and mechanical characteristics
- UL467 tested — exceeds performance requirements

With the SnapTap® Connector, you can achieve an electrically superior, pressure-fit connection in seconds without expensive tooling. The connector is also easy to disassemble, requiring only a flat-head screwdriver to release the connected body. A one-piece design keeps parts together, minimizing loss of components prior to assembly. Simply separate the pieces and snap them in place for installation. An audible "snap" indicates that the connection is complete and properly installed.

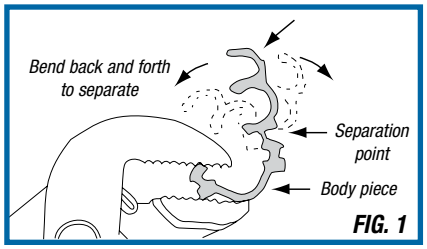


FIG. 1

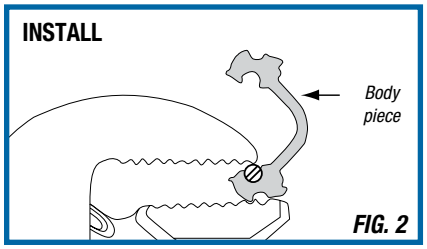


FIG. 2

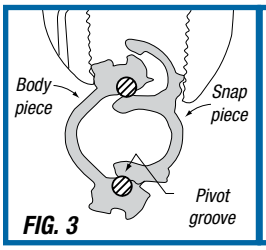
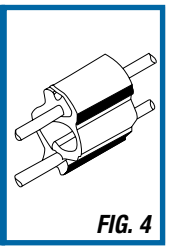


FIG. 3


FIG. 4

General Usage Instructions

Separate

No special tools required. Use ordinary parallel jaw pliers to separate the connector into two parts. Hold one side of connector with pliers and bend opposite side back and forth until parts separate (see **Fig. 1**).

Caution: Be careful not to pinch fingers or thumb when separating parts. Keep fingers out of bend path when bending part against plier jaws.

Installation

1. Strip the insulation from each de-energized conductor. Be careful not to nick the conductor. Clean the conductor ends with a wire brush or emery cloth if necessary.
2. Place each conductor into the grooves in BODY piece. Press conductors with pliers to align and seat into grooves (see **Fig. 2**).
3. Hold the conductors and BODY piece until it stops. Use parallel jaw pliers and grip the SNAP and BODY pieces as shown (see **Fig. 3**). Apply pressure until connector "snaps" into place. Visually inspect snap to verify full insertion. The connection is now complete (see **Fig. 4**).

Removal

The connector can be disassembled using a flat-head screwdriver to pry the SNAP piece from BODY piece.

	CONNECTOR DESCRIPTION		PACKAGING		STANDARD ORDER QUANTITY
	MAIN	BRANCH	INNER PACK	OUTER PACK	
JP62	#2 AWG Sol. Copper	#6 AWG Sol. Copper	20	200	200
JP66	#6 AWG Sol. Copper	#6 AWG Sol. Copper	20	200	200
JP146	¼" Steel Strand	#6 AWG Sol. Copper	20	200	200
JP5166	5/16" Steel Strand	#6 AWG Sol. Copper	20	200	200
JP386	⅜" Steel Strand	#6 AWG Sol. Copper	20	200	200
JP126	½" Steel Strand	#6 AWG Sol. Copper	20	200	200
JP126G	½" Ground Rod	#6 AWG Sol. Copper	20	200	200
JP2614	¼" Steel Strand	(2) #6 AWG Sol. Copper	20	200	200
JP26516	5/16" Steel Strand	(2) #6 AWG Sol. Copper	20	200	200
JP2638	⅜" Steel Strand	(2) #6 AWG Sol. Copper	20	200	200
JP2612G*	½" Ground Rod	(2) #6 AWG Sol. Copper	20	200	200

Note: *All Toolless Connectors are UL Listed. Only items with (*) are CSA listed.*

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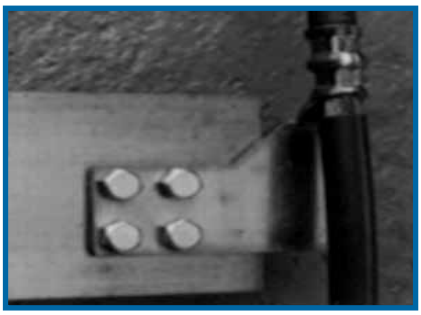
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Cast Copper Connectors for Grounding

A low-cost method of connecting directly to bus bar, eliminating an interface connection.



Riser Cable Flag Connectors for 600V Applications

- Made from high-conductivity wrought copper, plain finish
- All bolt holes are ⅜" on 1" centers

CAT. NO.	FIG. NO.	CABLE SIZE	COLOR KEY	DIE CODE	NO. OF CRIMPS	MATERIAL THK. (IN.)	DIMENSIONS (IN.) A	B	C
GFL2-1	1	#2–#1 AWG 150/24 175/24	**PINK**	42	1	3/32	3 5/8	4	2 5/16
GFL10-20	1	1/0 AWG 2/0 AWG 225/24 275/24	**BLACK** **ORANGE** **BLACK**	45 50 45 45	1	3/32	3 5/8	4	2 5/16
GFL40-250	1	4/0–250 kcmil 325/24 450/24 550/24	**RED**	71	2	5/32	4 1/4	4 1/4	2 7/16
GFL350	1	350 kcmil 650/24 775/24	**N/A**	80	2	5/32	4 1/4	4 1/2	2 3/8
GFL500[1]	1	500 kcmil 925/24	**BROWN**	94	2	5/32	5 1/4	4 7/8	2 3/8
GFL750[1, 2]	2	750 kcmil 1100/24 1325/24 1600/24	**BLACK**	106	4	5/32	8 5/8	4 3/4	2 5/8

[1]*TBM15I only.*

[2]*Both "U" barrels must be crimped to a single, continuous out length of conductor. It is not to be used as a splice.*

Tooling: ***pages F-80–F-100****.*

Die Selector Chart: ***pages F-101–F-104****.*

Installing tools: T&B Cat. No. TBM15I, TBM15BSCR, 13100A, TBM14M and TBM14BSCR hydraulic tools only.

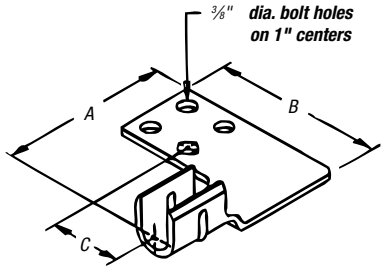


Fig. 1

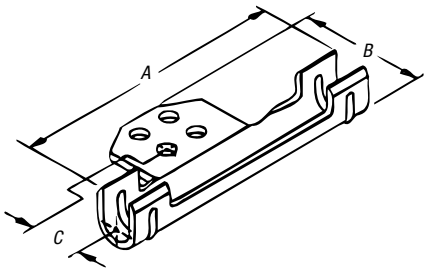


Fig. 2

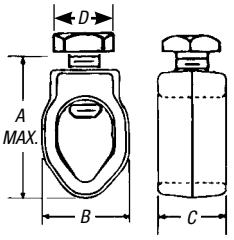
Ground Rod Clamps

UL Listed for both copper-clad and galvanized ground rods.

Type JWR — Wide-Range Ground Rod Clamp



- UL Listed for direct burial in earth/concrete
- Constructed from bronze alloy and high-performance stainless steel bolt
- Provides wide range of connection sizes
- More than 300 lbs. torque capacity



DB

CAT. NO.	NOMINAL ROD DIA. (IN.)	NOMINAL ROD DIA. (MM)	WIRE RANGE MAX.	WIRE RANGE MIN.	WIRE RANGE MAX. (MM²)	DIMENSIONS (IN.) MIN. (MM²)	A (MAX.) BOLT	B	C	D
JWR	3/8*	9.5	1/0 Str.	10 Sol.	53.4	5.2	1.535	1.050	.812	.652
	1/2	12.7	1/0 Str.	10 Sol.	53.4	5.2	1.535	1.050	.812	.652
	5/8	15.8	1/0 Str.	10 Sol.	53.4	5.2	1.535	1.050	.812	.652
	3/4	19.0	1/0 Str.	8 Sol.	53.4	8.3	1.535	1.050	.812	.652

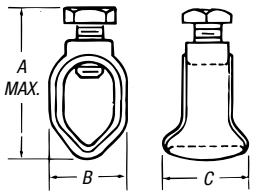
** 3/8" rod not recognized/listed by UL.*

Long bearing surface of clamp on ground wire secures ground connection.

Type JAB — Ground Rod Clamps



- Cast of high-strength corrosion-resistant copper alloy
- Both hex head bolts and socket set screws available
- UL Listed for direct burial



TYPE JABH

DB

CAT. NO. SOCKET SET SCREW	CAT. NO. HEX HEAD BOLT	NOMINAL ROD DIA. (IN.)	NOMINAL ROD DIA. (MM)	WIRE RANGE MAX.	WIRE RANGE MIN.	WIRE RANGE MAX. (MM²)	WIRE RANGE MIN. (MM²)	DIMENSIONS (IN.) A (MAX.) SOCKET SCREW	A (MAX.) HEX BOLT	SCREW THREAD SIZE UNC-2A	B	C	D
JAB12*	JAB12H	1/2	12.7	2 Str.	10 Sol.	33.6	5.2	1 19/32	2 3/32	7/16–14	27/32	7/8	19/32
JAB58	JAB58H	5/8	15.8	1/0 Str.	8 Sol.	53.4	8.3	1 27/32	2 13/64	7/16–14	29/32	1	11/16
JAB34	JAB34H	3/4	19.0	1/0 Str.	8 Sol.	53.4	8.3	2	2 11/32	7/16–14	11/16	1	51/64
—	JAB34C	3/4 + 5/8	15.8 to 19.0	4/0 Str.	8 Sol.	95.0	8.3	—	2 11/32	7/16–14	1 1/8	1 1/32	13/16
JAB1	JAB1H	1	25.0	4/0 Str.	8 Sol.	107.1	8.3	2 1/4	3	7/16–14	1 11/32	1 1/16	1

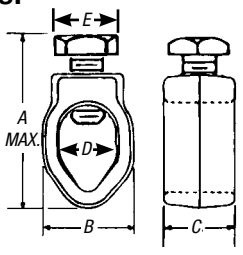
** Not CSA listed* *Add suffix P to Cat. No. for tin-plated clamp.*

A dependable ground connection offered at a substantial savings.

Type G — Budget-Line Ground Clamps



- Cast of high-strength corrosion-resistant copper alloy
- Furnished with hex head bolts
- Simplified, compact design makes lasting, trouble-free connection
- UL Listed for direct burial



DB

CAT. NO.	NOMINAL ROD DIA. (IN.)	NOMINAL ROD DIA. (MM)	WIRE RANGE MAX.	WIRE RANGE MIN.	WIRE RANGE MAX. (MM²)	WIRE RANGE MIN. (MM²)	DIMENSIONS (IN.) A (MAX.) BOLT	SCREW THREAD SIZE UNC-2A	B	C	D	E
G3*	3/8	9.5	4 Str.	10 Sol.	21.1	5.2	1 3/8	5/16–18	11/16	1/2	27/64	3/8
G4	1/2	12.7	2 Str.	10 Sol.	33.6	5.2	—	3/8–16	27/32	3/8	37/64	1/2
G5‡	5/8	15.8	2 Str.	10 Sol.	33.6	5.2	—	3/8–16	29/32	3/8	43/64	1/2
G6	3/4	19.0	2 Str.	10 Sol.	33.6	5.2	—	3/8–16	1 1/16	3/8	13/16	1/2

** Not UL Listed.* *‡ RUS Accepted.* *Add suffix P to Cat. No. for tin-plated clamp.*

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Ground Rod Clamps

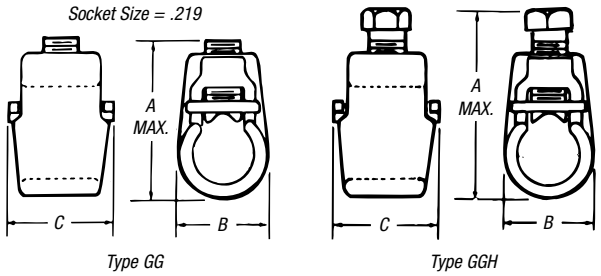
Axial groove keeps wire and rod in perfect alignment.

Types GG and GGH — Heavy-Duty Ground Rod Clamps

- Cast of high-strength corrosion-resistant copper alloy
- Both hex head bolts and socket set screws available
- Floating pressure bar distributes pressure evenly over large area of ground wire







CAT. NO.*		NOMINAL ROD DIA.		WIRE RANGE				DIMENSIONS (IN.)				
SOCKET SET SCREW	HEX HEAD BOLT	(IN.)	(MM)	MAX.	MIN.	MAX. (MM^2)	MIN. (MM^2)	A (MAX.) SOCKET SCREW	A (MAX.) HEX BOLT	SCREW THREAD SIZE UNC-2A	B	C
GG12	GG12H	½	12.7	2 Str.	8 Sol.	33.6	8.3	1 13/64	1 13/16	7/16–14	27/32	15/16
GG58	GG58H	5/8	15.8	2 Str.	8 Sol.	53.6	8.3	1 51/64	2 7/32	7/16–14	61/64	15/16
—	GG34H	¾	19.0	4/0 Str.	8 Sol.	120.6	8.3	—	3	½–14	1 3/8	1 1/4

** Add suffix P to Cat. No. for tin-plated clamp.* *GG34H has no pressure bar or axial groove.*

Drive-on design provides easy, tool-free installation, high-reliability compression-fit connection and room for one or two ground leads.



Type DGC — Drive-On Ground Clamps

- High-strength copper alloy provides increased tensile strength and long-term corrosion resistance for direct-burial applications
- UL486A and UL467 Listed
- RUS Listed

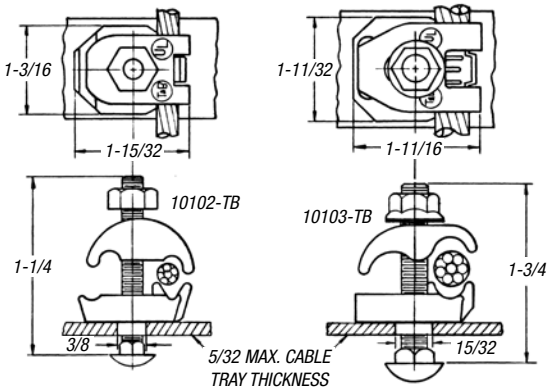
DB

CAT. NO.	GROUND ROD SIZE	GROUND WIRE SIZE
DGC58-44‡	5/8 (.555–.565)	(1) or (2) #4 Sol.
DGC58-66‡	5/8 (.555–.565)	(1) or (2) #6 Sol.
DGC58-46*	5/8 (.555–.565)	(1) #4 Sol., (1) #6 Sol.

‡ RUS Listed

** Not UL Listed*

Grounding Connector



- Malleable iron construction
- For use on cable tray up to 5/32" thick



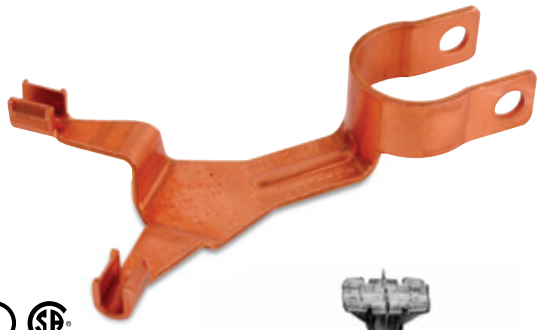
CAT. NO.	GROUND WIRE RANGE (AWG)	CARRIAGE BOLT SIZE
10102-TB	#8 Solid to #2 Stranded	5/16"–18
10103-TB	#4 Stranded to 4/0 Stranded	3/8"–16

Raised Floor Systems

Compresses #8 AWG through 4/0 AWG cable.

Signal Reference Grid Connector

- Clamps onto pedestal posts up to 1" diameter square and 1¼" round
- Can be used as an "X" or "T" configuration cable to post
- High-conductivity wrought-copper construction





CAT. NO.	CONDUCTOR	INSTALLING TOOLS AND DIE CODES TBM14M AND TBM15I		
		DIE CAT. NO.	DIE CODE	COLOR CODE
SRG8-4	#8	15527	29	GRAY
	#6 to #4	15528	33	BROWN
SRG2-1	#2 & #1	15508	42	PINK
SRG10-20	1/0 & 2/0	15530	50	ORANGE
SRG30-40	3/0 & 4/0	15511	54	PURPLE

Secures signal reference grid wire to raised-floor support posts.

Signal Reference Grid Clamp

- Range-taking design accepts #8 to #4 AWG grid wire and fits 1" round and ¾" square trade size support posts
- Lay-in feature means no kinks or bends
- Quick, easy installation
- Only one screw to tighten
- Enables grid wire to make direct, low-resistance contact with support posts
- Stamped-steel construction, zinc plated





CAT. NO.	DESCRIPTION	WIRE RANGE
3900	¾" square to 1" round	#8–#4
3900BP (BULK PACK)	¾" square to 1" round	#8–#4

UL File No. E-3060.

Approved for grounding and bonding per UL 467.

Ground Electrode Boxes



CAT. NO.	DESCRIPTION	WT./100 STANDARD		PACKAGE
		LB.	KG	
51628	Pregalvanized steel	1180	536.3	5
51629	Hot-dip galvanized	1200	545.4	5

14-gauge steel. 10" diameter, 12" depth.

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Ground Rod Accessories

Streamlined design reduces driving friction.

Type C — Sectional Ground Rod Couplings

- Threaded couplings of high-strength, corrosion-resistant alloy
- Tapped for use on all standard threaded sectional rods



CAT. NO.	SIZE (NOMINAL DIAMETER)	THREAD SIZE
50C	½"	½"–13 UNS
50LC*†	½" L	9/16"–12 UNS
60C*‡	⅝"	⅝"–11 UNS
70C*	¾"	¾"–10 UNS
80C*	1"	1"–8 UNS

** UL Listed 467 (425H).*

† CSA lists rods ½" and larger, 10' and longer.

‡ RUS Listed.

Use with all standard threaded couplings.

Type DS — Driving Studs

- Made of high-strength steel
- Compatible with all standard threaded couplings



CAT. NO.	SIZE (NOMINAL DIAMETER)	THREAD SIZE
50DS	½"	½"–13 UNS
50LDS*†	½" L	9/16"–12 UNS
60DS*‡	⅝"	⅝"–11 UNS
70DS*	¾"	¾"–10 UNS
80DS*	1"	1"–8 UNS

** UL Listed 467 (425H).*

† CSA lists rods ½" and larger, 10' and longer.

‡ REA Listed.

For joining non-threaded, copper-bonded steel ground rods.

Threadless Couplings and Driving Cap

- Couplings manufactured of high-strength corrosion-resistant copper alloy
- High-strength hardened steel driving cap prevents "mushrooming" of ground rod while driving to ensure proper fit of coupling



CAT. NO.	DESCRIPTION	DIMENSIONS (IN.) LENGTH	DIMENSIONS (IN.) DIAMETER
50LCNT*	½" L threadless coupling	3.0	.78
60CNT2*	⅝" threadless coupling	2.5	.69
70CNT*	¾" threadless coupling	3.0	.97
60DSNT	⅝" threadless driving cap	4.0	.88

** UL Listed.*

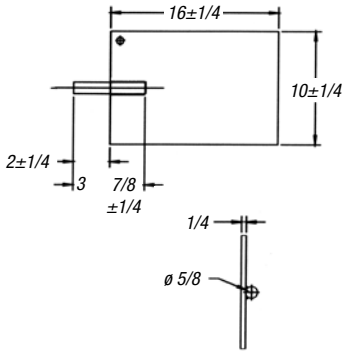
Ground Plates

As efficient as two 10-ft. x ⅝" ground rods.

Galvanized Ground Plates

- ¼" thick, hot-dipped galvanized
- Must be buried at least 600mm (24") below finish grade level, according to CEC Rule 10-702





CAT. NO.	DESCRIPTION	CONDUCTOR RANGE
1016TB	Galvanized ground plates	#8 Sol. to 1/0 Str.
1016BTB	Galvanized ground plates with JAB58H connector	#8 Sol. to 1/0 Str.

More efficient than butt-wrapping poles.

Type GP — Copper Pole Bottom Ground Plates for Multigrounded Neutral Construction

- Made of electrolytic sheet copper
- Built-in high-pressure connector for ground lead, or supplied with #6 AWG copper pigtail pre-attached
- Plates are grooved for trapping moisture



	PIGTAIL WIRE RANGE				DIAMETER OF PLATE	
CAT. NO.	MIN.	MAX.	MIN. (MM^2)	MAX. (MM^2)	(IN.)	(MM)
GP100	#14 Str.	#4 Sol.	6.3	25.6	7½	191
GP110	#14 Str.	#4 Sol.	6.3	25.6	10	254
GP114	#14 Str.	#4 Sol.	6.3	25.6	14	356
GP1003	#6 AWG solid CU Pigtail with 18" conductor	—	—	7½	191	
GP1008	#6 AWG solid CU Pigtail with 8-ft. conductor	—	—	7½	191	
GP1108	#6 AWG solid CU Pigtail with 8-ft. conductor	—	—	10	254	

Installed cost considerably less than butt-wrapped poles.

Type PB — Copper Pole Ground Plates

- Installed on butt end of utility poles to provide an economical, low-resistance neutral ground
- Plate portion fabricated of .025" pure copper
- PBGW connector is eye-bolt type, cast of corrosion-resistant aluminum bronze alloy, with silicon bronze nut and lockwasher
- PBH connector features riveted all-copper terminal lug for connecting to grounding conductor



	WIRE RANGE SURFACE AREA			
CAT. NO.	MAX.	MIN.	FINISHED SIZE	SQ. IN.
PBGW	2/0 Str.	#10 Sol.	7 x 7⅝	56
PBH‡	#4 Str.	#14 Sol.	7 x 7⅝	56

‡ *RUS Listed.*

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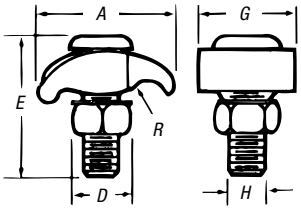
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Bolt features square shank to prevent turning and enable clamp to be tightened with a single wrench.

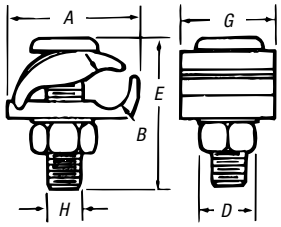
Type GTC — Tower Ground Clamps

- Castings of high-strength, corrosion-resistant copper alloy
- GTC23 and GTC24 are two-piece clamps for connecting ground lead cable to flat metal surface — ideal for grounding substations on tower footings
- GTC13 and GTC14 are economical one-piece clamps, which perform the same function as two-piece clamps, except under-pad support is omitted and conductor connects directly to tower
- Add suffix L to catalog number for ½" channel thickness



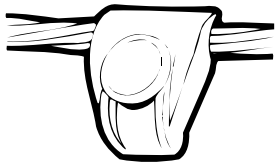


Type GTC 13 and 14



Type GTC 23 and 24

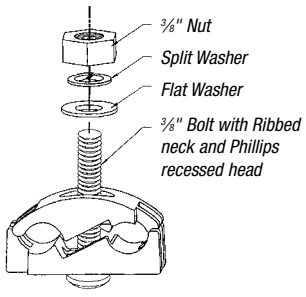
CAT. NO.	CONDUCTOR RANGE MAX.	MIN.	MAX. (MM²)	MIN. (MM²)	CHANNEL THICKNESS	DIMENSION (IN.) A	B	D	E	G	H	R
GTC13	2/0 Str.	#4 Sol.	67.4	21.1	¼	1 15/32	—	9/16	1 21/32	13/32	3/8	7/32
GTC14	250 kcmil	2/0 Str.	126.6	67.4	¼	1 15/16	—	3/4	1 15/16	1 13/32	½	5/16
GTC23	2/0 Str.	#4 Sol.	67.4	21.1	¼	1 41/64	7/16	9/16	1 21/32	1 3/32	3/8	—
GTC24	250 kcmil	2/0 Str.	126.6	21.1	¼	1 61/64	5/8	3/4	1 15/16	1 3/8	½	—



For use with aluminum or copper conductors.

CTG250 Wide-Range Tower Ground Clamp

- May be used in aluminum or galvanized-steel cable tray
- Ribbed neck on the bolt prevents rotation during tightening if .440" dia. hole is used





CAT. NO.	WIDE RANGE (2 SIDES)	HEIGHT	WIDTH	DEPTH	NUT (FLATS)
CTG250	#2 Sol. (.258 Dia.) 250 kcmil (.575 Dia.)	1.95	2.00	1.13	.560

Tin-plate body

Galvanized hardware

Structure Grounding

Dual-rated for both copper and aluminum conductor.

Aluminum Lay-in Lug Connector

- Manufactured from 6061-T6 aluminum alloy for maximum strength and conductivity
- Open-faced design enables installer to quickly lay-in grounding conductor as jumper to multiple conduits with no break in ground conductor

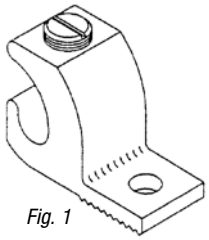


Fig. 1

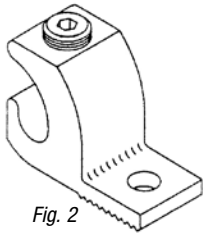
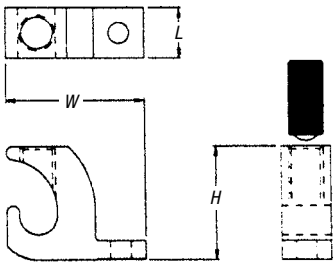


Fig. 2





CAT. NO.	FIG. NO.	COND. RANGE AWG IN.	COND. RANGE AWG (MM²)	STUD SIZE IN.	STUD SIZE (MM)	DIMENSIONS H IN.	DIMENSIONS H (MM)	DIMENSIONS W IN.	DIMENSIONS W (MM)	DIMENSIONS L IN.	DIMENSIONS L (MM)
LL414	1	4–14	16–1.5	.22	5.59	.78	19.81	.38	9.65	1.07	27.18
LL1014	1	1/0–14	50–1.5	.27	6.86	1.17	29.72	.60	15.24	1.50	38.10
LL306	2	3/0–6	70–16	.33	8.38	1.56	39.62	.80	20.32	2.00	50.80
LL2506	2	250–6	120–16	.33	8.38	1.79	45.47	.80	20.32	2.20	55.88

90° C Rating (486B Listed)

UL® Listed for direct burial.

Copper Lay-In Lug Connector

- Ideal for swimming pool grounding applications
- Carries “DB” marking for direct burial
- Open-faced design enables installer to quickly lay-in grounding conductor as jumper to multiple conduits with no break in ground conductor

DB



CAT. NO.	COND. RANGE AWG IN.	COND. RANGE AWG (MM²)	STUD SIZE IN.	STUD SIZE (MM)	DIMENSIONS H IN.	DIMENSIONS H (MM)	DIMENSIONS W IN.	DIMENSIONS W (MM)	DIMENSIONS L IN.	DIMENSIONS L (MM)
CULL414	4–14	16–1.5	.22	5.59	.78	19.81	.38	9.65	1.07	27.18
CULL414-TP*	4–14	16–1.5	.22	5.59	.78	19.81	.38	9.65	1.07	27.18

90° C Rating (486B Listed)

** Tin plated*

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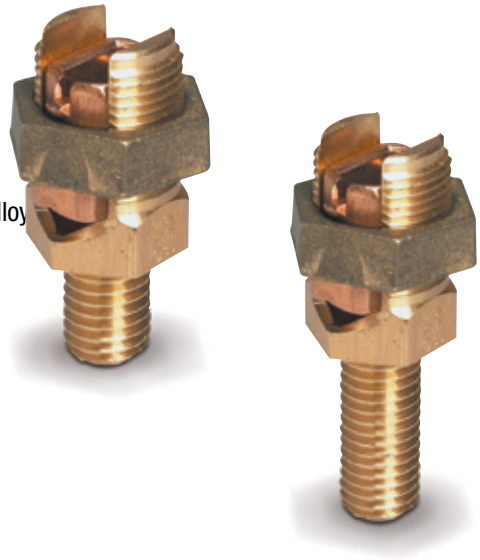
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Designed for grounding one or two cables to steel structure or transformer.

Service Post Connectors

- For copper-to-copper connections
- Can also be used to tap one or two cables from bus bar
- Bolts machined from high-conductivity bronze alloy
- Nuts cold-formed from high-strength, corrosion-resistant copper alloy
- Pressure bars copper through 4/0 and copper alloy for 350 kcmil and above
- Bolts and nuts of traditional Blackburn hex design for easy installation
- Available in sizes to accommodate AWG copper conductor ranges of #12–500 kcmil stranded and #12–#2 solid
- Both single- and double-conductor and short- and long-stud versions available
- UL486A and UL467 Listed



Type SP-S — Service Post Connectors, Short Stud

CAT. NO. CONDUCTOR		CONDUCTORS STRANDED		AWG MM² SOLID		DIAMETER RANGE (IN.)	STUD SIZE
DOUBLE	SINGLE	MAX.	MIN.	MAX.	MIN.		
SP0DS	SP0SS	8 6mm²	12 4mm²	8 10mm²	12 4mm²	.146–.081 —	¼–20 x ½
SP1DS	SP1SS	7 10mm²	10 6mm²	6 10mm²	10 6mm²	.164–.102 —	¼–20 x ½
SP2DS	SP2SS	5 16mm²	10 6mm²	4 —	10 —	.206–.102 —	5⁄16–18 x 5⁄8
SP3DS	SP3SS	3 25mm²	10 6mm²	2 —	10 —	.26–.102 —	3⁄8–16 x 5⁄8
SP4DS	SP4SS	1 35mm²	8 10mm²	2 —	8 —	.332–.129 —	3⁄8–16 x 5⁄8
SP5DS	SP5SS	1/0 50mm²	2 35mm²	1/0 —	2 —	.373–.258 —	½–13 x ¾
SP6DS	SP6SS	2/0 50mm²	2 35mm²	2/0 —	2 —	.419–.258 —	½–13 x ¾
SP8DS	SP8SS	4/0 95mm²	2 35mm²	4/0 —	1 —	.528–.289 —	5⁄8–11 x 1
SP9DS	SP9SS	350 150mm²	1/0 50mm²	— —	— —	.681–.373 —	5⁄8–11 x 1
SP10DS	SP10SS	500 240mm²	3/0 95mm²	— —	— —	.814–.47 —	¾–10 x 1¼

Type SP-L — Service Post Connectors, Long Stud

CAT. NO. CONDUCTOR		CONDUCTORS STRANDED		AWG MM² SOLID		DIAMETER RANGE (IN.)	STUD SIZE
DOUBLE	SINGLE	MAX.	MIN.	MAX.	MIN.		
SP0DL	SP0SL	8 6mm²	12 4mm²	8 10mm²	12 4mm²	.146–.081 —	¼–20 x 1
SP1DL	SP1SL	7 10mm²	10 6mm²	6 10mm²	10 6mm²	.164–.102 —	¼–20 x 1
SP2DL	SP2SL	5 16mm²	10 6mm²	4 —	10 —	.206–.102 —	5⁄16–18 x 1
SP3DL	SP3SL	3 25mm²	10 6mm²	2 —	10 —	.26–.102 —	3⁄8–16 x 1⅛
SP4DL	SP4SL	1 35mm²	8 10mm²	2 —	8 —	.332–.129 —	3⁄8–16 x 1⅛
SP5DL	SP5SL	1/0 50mm²	2 35mm²	1/0 —	2 —	.373–.258 —	½–13 x 1¼
SP6DL	SP6SL	2/0 50mm²	2 35mm²	2/0 —	2 —	.419–.258 —	½–13 x 1¼
SP8DL	SP8SL	4/0 95mm²	2 35mm²	4/0 —	1 —	.528–.289 —	5⁄8–11 x 1½
SP9DL	SP9SL	350 150mm²	1/0 50mm²	— —	— —	.681–.373 —	5⁄8–11 x 1½
SP10DL	SP10SL	500 240mm²	3/0 95mm²	— —	— —	.814–.47 —	¾–10 x 1¾

Ground Clamps

Excellent for connecting multiple electrodes with a single cable, such as in substation grounding.

Type GUV — U-Bolt Ground Clamps



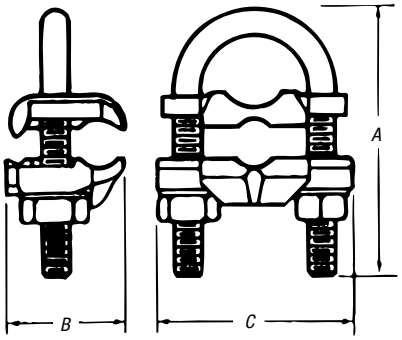
- For connecting copper or copper-clad steel grounding conductor to ground rod or pipe
- Specially designed spacer provides proper alignment between cable and electrode and affords more positive contact area
- All components cast or forged from copper alloy
- UL467 Listed for direct burial

DB

	CONDUCTOR RANGE (CU)		NOMINAL ROD SIZE (IN)		IPS PIPE SIZE		DIMENSIONS (IN.)		
CAT. NO.*	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	A	B	C
GUV584	4	8	¾	⅝	⅜	—	2 13/16	1 9/16	2¼
GUV5821	2/0	4	¾	⅝	⅜	—	2 13/16	1 9/16	2¼
GUV5825	250	2/0	¾	⅝	⅜	—	2 13/16	1 9/16	2¼
GUV784	4	8	1	⅞	¾	½	2¾	1 9/16	2⅝
GUV7821	2/0	4	1	⅞	¾	½	2¾	1 9/16	2⅝
GUV7825	250	2/0	1	⅞	¾	½	2¾	1 9/16	2⅝
GUV1184	4	8	1¼	1⅛	1	—	3 5/16	1 9/16	2¾
GUV11821	2/0	4	1¼	1⅛	1	—	3 5/16	1 9/16	2¾
GUV1384	4	8	1½	1⅜	1¼	—	3 7/16	1 9/16	2 15/16
GUV13821	2/0	4	1½	1⅜	1¼	—	3 7/16	1 9/16	2 15/16
GUV13825	250	2/0	1½	1⅜	1¼	—	3 7/16	1 9/16	2 15/16
GUV1584	4	8	1⅞	1⅝	1½	—	3 15/16	1 9/16	3 3/16
GUV15821	2/0	4	1⅞	1⅝	1½	—	3 15/16	1 9/16	3 3/16
GUV15825	250	2/0	1⅞	1⅝	1½	—	3 15/16	1 9/16	3 3/16
GUV204	4	8	2⅜	2	2	—	4 7/16	1 9/16	3 11/16
GUV2021	2/0	4	2⅜	2	2	—	4 7/16	1 9/16	3 11/16
GUV2025	250	2/0	2⅜	2	2	—	4 7/16	1 9/16	3 11/16
GUV21221	2/0	4	2⅞	2½	2½	—	4 15/16	1 9/16	4 3/16
GUV21225	250	2/0	2⅞	2½	2½	—	4 15/16	1 9/16	4 3/16
GUV3021	2/0	4	3½	3	3	—	5 9/16	1 9/16	4 13/16
GUV3025	250	2/0	3½	3	3	—	5 9/16	1 9/16	4 13/16
GUV31221	2/0	4	4	3½	3½	—	6 1/16	1 9/16	5½
GUV4021	2/0	4	4½	4	4	—	6 5/16	1 9/16	5 11/16
GUV4025	250	2/0	4½	4	4	—	6 5/16	1 9/16	5 11/16

** For tin plating, add suffix P to Cat. No. Contact factory for price and availability.*

UL does not list tin-plated bronze grounding devices.



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Ground Clamps

Water Pipe Ground Clamps



CAT. NO.	GROUND WIRE SIZE	WATER PIPE SIZE
2-TB	#6, #4, #2	½", ¾", 1" or rebar 4-10
3-TB	#6, #4, #2	1¼", 1½" or 2"
4	#6, #4, #2	2½", 3" or 3½"
5-TB	#6, #4, #2	4", 4½" or 5"
6	#6, #4, #2	6"

Malleable iron. #6 – #2 AWG ground wire.

Water Pipe Ground Clamps



CAT. NO.	GROUND WIRE SIZE	WATER PIPE SIZE
3902	#4–4/0 AWG	½"–1"
3903	#4–4/0 AWG	1¼"–2"
3904	#4–4/0 AWG	2½"–3½"
3905-TB	#4–4/0 AWG	4"–5"
3906-TB	#4–4/0 AWG	6"
3907	#4–4/0 AWG	8"
3908	#4–4/0 AWG	10"
3909-TB	#4–4/0 AWG	12"

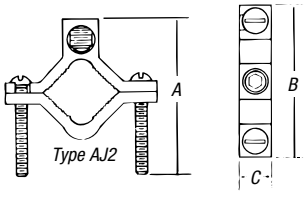
CAT. NO.	GROUND WIRE SIZE	WATER PIPE SIZE
3902BU*	#4–4/0 AWG	½"–1"
3903BU*	#4–4/0 AWG	1¼"–2"
3904BU*	#4–4/0 AWG	2½"–3½"
3905BU*	#4–4/0 AWG	4"–5"
3906BU*	#4–4/0 AWG	6"
3907BU*	#4–4/0 AWG	8"
3908BU*	#4–4/0 AWG	10"
3909BU*	#4–4/0 AWG	12"

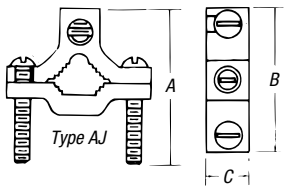
** UL Listed for direct burial*

For connecting grounding conductor to either steel or copper pipe, rod or tubing.

Aluminum Water Pipe Clamp

- For use with copper or aluminum conductor
- Tin plated for corrosion resistance







CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE MAX.	CONDUCTOR RANGE MIN.	DIMENSIONS (IN.) A	DIMENSIONS (IN.) B	DIMENSIONS (IN.) C	STEEL CLAMP SCREW	ALUMINUM WIRE SCREW
AJ	½–1	1/0 Str.	#14 Sol.	2½	2¼	⅝	¼–20	7/16–20 slot
AJ-2	1½–2	250 kcmil	#6	3⅜	3¾	⅞	5/16–18	11/16–20 socket
AJ-2124	2½–4	250 kcmil	#6	5 9/16	6 9/16	⅞	⅜–16	11/16–20 socket

UL Listed for both copper and aluminum conductors to steel pipe and copper water tubing

Ground Clamps

Economically priced clamps.

Die-Cast Clamps

- Made of die-cast zinc alloy with zinc-plated screws
- Model BJA for use with armored cable



CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE MAX.	CONDUCTOR RANGE MIN.
BJ-1	½"–1"	#2 str.	#10 sol.
BJA*	½"–1"	#6 AWG	#8 AWG

** Not UL Listed*

Flexible copper strap makes alignment easy.

Cast Bronze Clamps with Copper Strap

- For grounding rigid conduit systems
- Same features as "JP" clamp plus flexible copper strap
- Strap helps protect conduit system from water system vibrations
- Furnished with zinc-plated screws



CAT. NO.	CONDUIT SIZE	WATER PIPE SIZE	CONDUCTOR RANGE MAX.	CONDUCTOR RANGE MIN.
JPS-12	½"	½"–1"	#6 sol.	#10 sol.
JPS-34	¾"	½"–1"	2/0 str.	#10 sol.
JPS-1	1"	½"–1"	3/0 str.	#10 sol.

Add suffix C to Cat. No. to specify plating.

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Ground Clamps

Connects copper ground wire to water pipe or copper tubing.

Cast Bronze Ground Clamps

- High-strength, high-conductivity copper alloy (over 80% copper)
- UL467 Listed for direct burial

DB



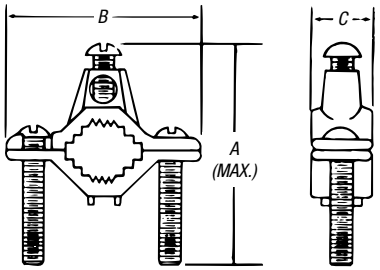
CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE
JD	½"–1"	#2 str.–#10 str.
J2D	1¼"–2"	#2 str.–#10 str.

For connecting grounding conductor to water pipe or copper tube.

Type J — Cast Bronze Ground Clamps

- Cast of high-strength, highly conductive copper alloy
- Screws plated for corrosion resistance
- UL® Listed



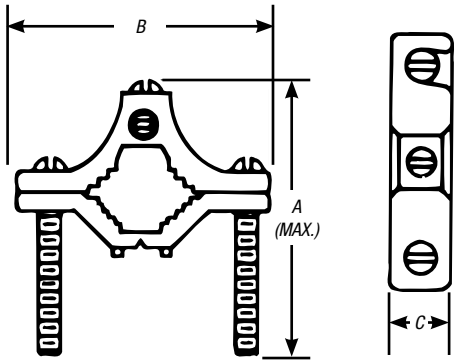


CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE		DIMENSIONS (IN.)		
		MAX.	MIN.	A (MAX.)	B	C
J	½"–1"	#2 str.	#10 sol.	2¾	2 1/32	23/32
J2BB	1¼"–2"	#2 str.	#10 sol.	3¾	3½	13/16
J2124	2½"–4"	#4 str.	#10 sol.	6	6 5/16	1
J6	4¼"–6"	#4 str.	#10 sol.	7¼	8⅛	1

Ground Clamps

Similar to aluminum water pipe clamp but lighter in construction.

Budget Price Cast Bronze Clamp





CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE MAX.	CONDUCTOR RANGE MIN.	DIMENSIONS (IN.) A	DIMENSIONS (IN.) B	DIMENSIONS (IN.) C
JJR	½"–1"	#4 Str.	#10 Sol.	2 15/32	25/32	17/32

Add suffix C to Cat. No. to specify plating.

Lay-in feature reduces installation time for difficult bends or continuous loops of ground wire.

Type JDLI — Direct-Burial Ground Clamp

- UL® Listed for direct burial in earth/concrete
- UL® Listed for connection to ground rod, pipe or rebar up to 1"
- Constructed from bronze alloy and high performance stainless steel bolts
- Designed for easy installation of difficult bends or continuous loops



DB

CAT. NO.	PIPE SIZE	REBAR SIZE	GROUND ROD SIZE	CONDUCTOR RANGE	MECH. CONN./SPLICE (UL LISTED)
JDLI	½"–1"	⅜"–1"	¼"–1"	#10 Sol.–#2 Str.	(2) #8 Sol.

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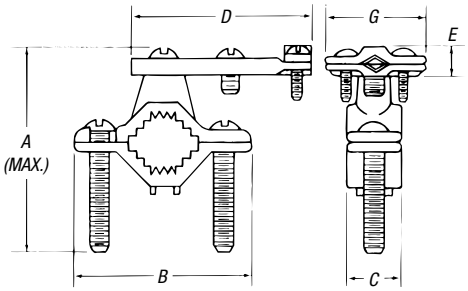
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Ground Clamps

For connecting armored cable to water pipe.

Cast Bronze Clamp

- Clamping portion similar to standard "J" clamp
- Special pressure bar grips armor or outer cable insulation to reduce chance of grounding conductor being pulled out
- Furnished with zinc-plated screws





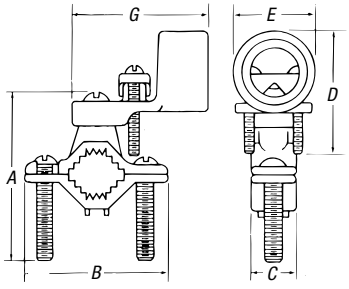
CAT. NO.	WATER PIPE SIZE	CONDUCTOR RANGE MAX.	CONDUCTOR RANGE MIN.	DIMENSIONS (IN.) A	B	C	D	E	G
JA	½"–1"	#6 sol.	#10 sol.	2¾	2 11/32	25/32	2 9/32	15/32	1⅜
JA-2	1¼"–2"	#6 sol.	#10 sol.	3¾	3½	13/16	2 9/32	15/32	1⅜
JA-2124	2½"–4"	#6 sol.	#10 sol.	6	6 5/16	1	2 9/32	15/32	1⅜

Add suffix C to Cat. No. to specify plating.

For grounding rigid conduit systems.

Cast Bronze Clamps for Conduit

- Continuity from rigid conduit system to ground provided by cast bronze threaded conduit hub
- Hub swings 360° for easy alignment
- Heavy brass washer protects clamped grounding conductor
- Furnished with zinc-plated screws
- Cast bronze pipe clamping portion identical to that used in "JA" clamp





CAT. NO.	CONDUIT SIZE	WATER PIPE SIZE	CONDUCTOR RANGE MAX.	CONDUCTOR RANGE MIN.	DIMENSIONS (IN.) A	B	C	D	E	G
JP-12	½	½"–1"	#6 sol.	#10 sol.	2¾	2 11/32	23/32	1 9/64	1	2½
JP-212	½	1¼"–2"	#6 sol.	#10 sol.	3¾	3½	13/16	1 9/64	1	2½
JP-212412	½	2½"–4"	#6 sol.	#10 sol.	6	6 5/16	1	1 9/64	1	2½
JP-34	¾	½"–1"	#2/0 str.	#10 sol.	2¾	2 11/32	23/32	2 5/16	1¼	2 3/16
JP-234	¾	1¼"–2"	#2/0 str.	#10 sol.	3¾	3½	13/16	2 5/16	1¼	2 3/16
JP-212434	¾	2½"–4"	#2/0 str.	#10 sol.	6	6 5/16	1	2 5/16	1¼	2 3/16
JP-1	1	½"–1"	#3/0 str.	#10 sol.	2¾	2 11/32	23/32	2 5/16	1½	2⅜
JP-21	1	1¼"–2"	#3/0 str.	#10 sol.	3¾	3½	13/16	2 5/16	1½	2⅜
JP-21241	1	2½"–4"	#3/0 str.	#10 sol.	6	6 5/16	1	2 5/16	1½	2⅜

Add suffix C to Cat. No. to specify plating.

Ground Clamps

Hub swings 360° for ease of alignment.

Type JPT — Cast Bronze Clamps for Conduit

- Pipe clamping portion identical to "JA" clamp
- Pressure-bar type conduit hub adjusts to fit ½" or ¾" EMT or ½" rigid conduit
- Brass washer provides positive contact with grounding conductor
- Furnished with zinc-plated screws



CAT. NO.	CONDUIT SIZE	PIPE SIZE	CONDUCTOR RANGE MAX.	CONDUCTOR RANGE MIN.
JPT	½" or ¾" EMT ½" Rigid	½" to 1"	#6 Sol.	#10 Sol.
JPT2		1¼" to 2"		
JPT4		2½" to 4"		

Conduit Hubs



CAT. NO.	GROUND WIRE SIZE AWG	CONDUIT SIZE
3930	#8 to #2	½" Conduit
3940	#8 to #2	¾" Conduit
3950	#8 to 3/0	1" Conduit
3951	#8 to 4/0	1¼" Conduit

Material: Malleable iron

Provides positive connection between rigid conduit and water system.

Type CH — Bronze Conduit Hubs

- Used in conjunction with "J" clamp
- Rugged cast-bronze threaded hub



CAT. NO.	CONDUIT SIZE (IN.)	CONDUCTOR RANGE MAX.	CONDUCTOR RANGE MIN.
CH12	½	#6 Sol.	#10 Sol.
CH34	¾	2/0 Str.	#10 Sol.
CH1BB	1	3/0 Str.	#10 Sol.

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Ground Clamps

Ground Clamp

CAT. NO.	MATERIAL	WATER PIPE, COPPER TUBING SIZE	GRD. ROD SIZE
3826†	M.I.	½", ¾"	½"–1"
3846†	Bronze	½", ¾"	½"–1"
3849•	Brass	½"–1" O.D.	
3840-TB*	M.I.	½", ¾" or 1"	

† For unarmored copper wire #6, #4.

• For copper and aluminum conductors; for 14 thru 2 cu. unarmored copper wire — corrosive and outdoor use. UL approved for direct burial.

** #8 thru #4 AWG. Not CSA Certified.*



3849



3826

Ground Clamps for K&L Grade Copper Tubing Only

CAT. NO.	GROUND WIRE RANGE	WATER PIPE & GROUND ROD SIZE/DESC.
3844*	#8–#4	½"–1"
3888†	#8–#4	½"–1" also rebar 4–10
961	#8	⅜"–1"
962**	#8	⅜"–2"
963**	#8	⅜"–3"

CAT. NO.	DESCRIPTION/CABLE SIZE
31215	Strain-Relief Grounding Lug, #6–#2
31216	Grounding Clamp, 1" Hook-Type, #6–#2
31253	Grounding Clamp, 1-½" Hook-Type, #6–#2
31217	Ground Clamp, 1" Straight-Type, #6–#2
31224	Grounding Clamp, 1-½" Straight-Type, #6–#2
31230	Wing Screw only

** With steel screws.* *** With bronze screws, not CSA Certified — or UL Listed.*

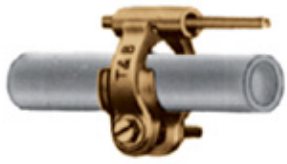
† UL approved for direct burial. Silicon bronze screws.





961
For radio, motor frame and equipment grounding

31215
Disconnect static ground clamp and lug, straight-type (cable not supplied), UL not applicable



3840-TB



3844
For armored and unarmored wire

Cable Tray Ground Clamp

Material: Malleable iron

Standard Finish: Zinc plated

CAT. NO.	DESCRIPTION
10105*	For Single Conductors #4 sol. to 2/0 str.
10109**	For Single Conductors 2/0 sol. to 4/0 str.

** UL Listed #4 to 2/0 AWG copper.*

*** UL Listed 2/0 to 4/0 AWG copper/aluminum.*

CSA File No. 2884.



Ground Clamps

For aluminum and steel cable trays with regular or reinforced flanges.

Tray Clamps

- Serrations and biting teeth on clamping saddle provide a high-quality bond between conduit and clamp
- Can be clamped to any position in a 90° arc
- Hardened steel screws bite into tray and provide positive bond
- Malleable iron hub and steel U-bolt accept conduit from any angle



CAT. NO.	CLAMP TYPE	CONDUIT SIZE
6209	Swivel	½"–¾"
6210	Straight	½"–¾"
6211	Swivel	1"–1¼"
6212	Straight	1"–1¼"
6214	Swivel	1½"–2"
6216	Swivel	2½"–3"
6218	Swivel	3½"–4"

Efficiently grounds trailer frames, cable trays, CATV and telephone pedestals.

Beam Grounding Clamp

- Connects #6 to #14 solid copper conductor to metal frames where continuity of grounding can be assured
- 7/16" silicon bronze hex-head bolt installs with cam-wrench, socket or crescent wrench
- Tin-plated square-head bolt enables installation with pliers when tighter ground connection is needed
- Ground wire hole access from four directions minimizes need to bend ground wire
- Designed so ground wire may be installed on clamp prior to mounting clamp on metal frame, reducing installation time
- Beam and ground wire connection can be tightened separately with disconnecting integrity of ground circuit
- High-strength copper alloy (91% nom.) provides greater conductivity, durability and corrosion resistance without the need for plating
- High-strength anchoring bolt penetrates paint or metal oxide



CAT. NO.	DESCRIPTION	CONDUCTOR SIZE (AWG)
TGC	Square-Head Tin-Plated Steel Bolt	#6 to #14 sol.

Listed to UL467

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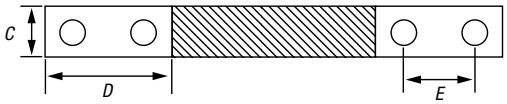
Flexible Braid

Flexible copper braids for use in substation and grounding applications.

Type FB — Flexible Braids

- Tin-plated copper braids and ferrules for high conductivity and corrosion resistance
- Enables linear expansion, equipment vibration and offset connections
- Certified C22.2 No. 41 Grounding & Bonding Equipment
- Listed UL467 and UL486A Grounding & Bonding Equipment





Type FB — Flexible Braids

CAT. NO.†	CIRCULAR MILS	BOLT HOLE	NO. OF BRAIDS IN FERRULE	THICKNESS	DIMENSIONS C WIDTH	D FERRULE LENGTH	E DISTANCE CTR. TO CTR.
FBB12-1*	24000	¼	1	.140	.625	.750	N/A
FBC12-1*	48000	7/16	1	.148	1.000	1.300	N/A
FBD12-1*	76800	7/16	1	.200	1.000	1.300	N/A
FBD12*	76800	7/16	1	.200	1.000	2.500	1.25
FB2D12-1*	153600	7/16	2	.250	1.250	1.500	N/A
FB2D12*	153600	7/16	2	.250	1.250	2.500	1.25
FB3D12-1*	230400	7/16	3	.350	1.250	1.500	N/A
FB3D12*	230400	7/16	3	.350	1.250	2.500	1.25
FBXD12-1*	105600	9/16	1	.250	1.250	1.500	N/A
FBXD12*	105600	9/16	1	.250	1.250	2.500	1.25
FB2XD12-1*	211200	9/16	2	.350	1.250	1.500	N/A
FB2XD12	211200	9/16	2	.350	1.250	2.500	1.25
FB3XD12-1*	316800	9/16	3	.400	1.250	1.500	N/A
FB3XD12*	316800	9/16	3	.400	1.250	2.500	1.25
FBE12-1*	168000	9/16	1	.500	1.250	2.500	N/A
FBE12*	168000	9/16	1	.250	1.250	3.500	1.75
FB2E12-1*	336000	9/16	1	.500	1.250	2.500	N/A
FB2E12*	336000	9/16	2	.500	1.250	3.500	1.75
FB3E12	504000	9/16	3	.750	1.250	3.500	1.75
FB4E12	672000	9/16	4	1.000	1.250	3.500	1.75
FBF12	230400	9/16	1	.300	1.500	3.500	1.75
FB2F12	460800	9/16	2	.450	1.500	3.500	1.75
FB3F12	691200	9/16	3	.600	1.625	3.500	1.75
FB4F12	921600	9/16	4	.750	1.625	3.500	1.75
FBG12	307200	9/16	1	.380	1.500	3.500	1.75
FB2G12	614400	9/16	2	.630	1.625	3.500	1.75
FB3G12	921600	9/16	3	.850	1.625	3.500	1.75
FB4G12	1228800	9/16	4	1.000	1.880	3.500	1.75

† *Catalog number shown in 12" lengths. Standard lengths offered in 6, 12, 18, 24, 30 and 36 inches (end to end). Change the 12 in the above catalog numbers to the desired length. (-1) indicates one bolt hole per ferrule.*

See amperage tables on next page as a reference for grounding and bonding, or continuous current applications.

FB4 series is not listed/certified.

For custom flexible braids, contact Customer Service.

Flexible Braid in a Roll — 10-Foot Minimum

CAT. NO.	CIRCULAR MILS.	THICKNESS (IN.)	WIDTH (IN.)
FBBRL	24000	.140	.625
FBCRL	48000	.148	1.000
FBDRL	76800	.200	1.000
FBXDRL	105600	.250	1.250

Ferrules or lugs not included.

Flexible Braid Selection Guide

Minimum Size Flexible Braid for Continuous-Current Applications

CAT. NO.	CIRCULAR MILS	AMPERAGE CAPACITY
FBB12-1	24000	95
FBC12-1	48000	145
FBD12-1	76800	190
FBD12	76800	190
FB2D12-1	153600	330
FB2D12	153600	630
FB3D12-1	230400	470
FB312	230400	470
FBXD12-1	105600	235
FBXD12	105600	235
FB2XD12-1	211200	400
FB2XD12	211200	400
FB3XD12-1	316800	600
FB3XD12	316800	600

CAT. NO.	CIRCULAR MILS	AMPERAGE CAPACITY
FBE12-1	16800	340
FBE12	16800	340
FB2E12-1	336000	530
FB2E12	336000	530
FB3E12	504000	700
FB4E12	672000	805
FBF12	230400	360
FB2F12	460800	600
FB3F12	691200	820
FB4F12	921600	1000
FBG12	307200	415
FB2G12	614400	700
FB3G12	921600	960
FB4G12	1228800	1200

Grounding and Bonding Applications

Minimum Size Conductors for Bonding Raceways and Equipment

RATING OR SETTING OF OVERCURRENT DEVICE IN CIRCUIT AHEAD OF EQUIPMENT, CONDUIT, ETC. NOT EXCEEDING — AMPERES	COPPER WIRE CIRCULAR MILS
200	26240 (6 AWG)
300	41740 (4 AWG)
400	52620 (3 AWG)
500	66360 (2 AWG)
600	83690 (1 AWG)
800	105600 (1/0)
1000	133100 (2/0)
1200	167800 (3/0)
1600	211600 (4/0)
2000	250000
2500	350000
3000	400000
4000	500000
5000	700000
6000	800000

Based on table 16 C.E.C.

Minimum Size of Bare Copper Grounding Conductor

MAXIMUM AVAILABLEN SHORT CIRCUIT CURRENT AMPERES	MAXIMUM FAULT DURATION WITH EXOTHERMIC WELD, COMPRESSION OR BOLTED JOINT .5 SECONDS CIRCULAR MILS	1.0 SECOND CIRCULAR MILS
5 000	26240	41740
10 000	52620	83690
15 000	83690	105600
20 000	105600	167800
25 000	133100	211600
35 000	211600	250000
40 000	211600	300000
50 000	250000	350000
60 000	300000	500000
70 000	350000	600000
80 000	400000	600000
90 000	500000	700000
100 000	500000	700000

Based on table 51 C.E.C.

Size calculated in accordance with IEEE No. 80.

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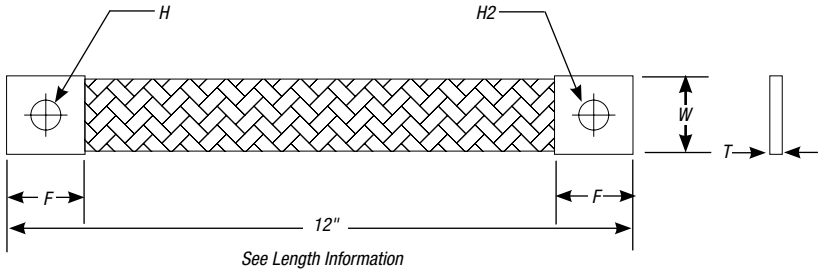
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Flexible Braid

Connect transformers, generators or busbars wherever there is severe vibration or misalignment.

1-Hole NEMA Extra-Flexible Jumpers — FBE1H™ Series

- 36 AWG individual wires in braid construction for extra flexibility
- 99.9% pure copper ferrules on each end provide high conductivity
- Individual wires are tinned prior to weaving to deliver maximum protection from corrosion





CAT. NO.	AMPACITYΔ 65° C*	NO. OF BRAIDS IN ASSEMBLY	W IN. (MM)	F IN. (MM)	H IN. (MM)	H2 IN. (MM)	T IN. (MM)	WEIGHT LB. (KG)
FBE1H035A1	350	1	1½ (38.1)	1½ (38.1)	9/16 (14.3)	9/16 (14.3)	3/16 (4.7)	.49 (.22)
FBE1H035A2					9/16 (14.3)	7/16 (11.1)		
FBE1H035A3					7/16 (11.1)	7/16 (11.1)		
FBE1H050A1	500	2	1½ (38.1)	1½ (38.1)	9/16 (14.3)	9/16 (14.3)	¼ (6.4)	.84 (.38)
FBE1H050A2					9/16 (14.3)	7/16 (11.1)		
FBE1H050A3					7/16 (11.1)	7/16 (11.1)		
FBE1H070A1	700	4	1½ (38.1)	1½ (38.1)	9/16 (14.3)	9/16 (14.3)	3/8 (9.5)	1.54 (.70)
FBE1H070A2					9/16 (14.3)	7/16 (11.1)		
FBE1H070A3					7/16 (11.1)	7/16 (11.1)		
FBE1H100A1	1000	6	1 9/16 (39.6)	1 9/16 (39.6)	9/16 (14.3)	9/16 (14.3)	½ (12.7)	2.31 (1.05)
FBE1H100A2					9/16 (14.3)	7/16 (11.1)		
FBE1H100A3					7/16 (11.1)	7/16 (11.1)		

** Temperature rise test per CEI60694, IEEE/ANSI C37.34–1994.*

***Note**: Standard total lengths are 12". For different lengths, add your desired length to the end of the catalog number (e.g., FBE1H035A1-16 for 16" long). Ferrules are tinned. For other options, please consult your Thomas & Betts representative.*

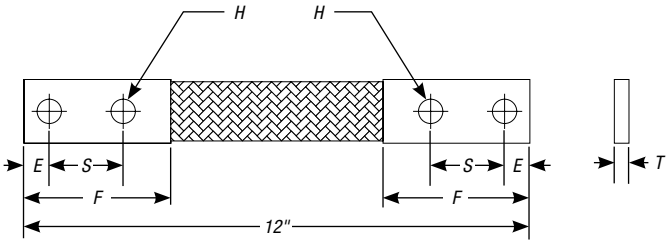
Flexible Braid

Connect your equipment in high-vibration areas.

2-Hole NEMA Extra-Flexible Jumpers — FBE2H™ Series



- 36 AWG individual wires in braid construction for extra flexibility
- 99.9% pure copper ferrules on each end provide high conductivity
- Individual wires are tinned prior to weaving to deliver maximum protection from corrosion



CAT. NO.	AMPACITY Δ 65° C*	NO. OF BRAIDS IN ASSEMBLY	W IN. (MM)	F IN. (MM)	E IN. (MM)	S IN. (MM)	H IN. (MM)	T IN. (MM)	WEIGHT LB. (KG)
FBE2H040A1	400	1	1½ (38.1)					3⁄16 (4.7)	.63 (.286)
FBE2H070A1	700	2	1½ (38.1)					¼ (6.4)	.97 (.440)
FBE2H090A1	900	3	1½ (38.1)					11⁄32 (8.7)	1.30 (.590)
FBE2H110A1	1100	4	1½ (38.1)	1½ (38.1)	5⁄8 (15.9)	1¾ (44.4)	9⁄16 (14.3)	3⁄8 (9.5)	1.66 (.753)
FBE2H150A1	1500	6	1½ (38.1)					½ (12.7)	2.26 (1.025)
FBE2H170A1	1700	9	1 9⁄16 (39.6)					¾ (19)	3.71 (1.683)
FBE2H200A1	2000	13	1 9⁄16 (39.6)					1 (25.4)	5.21 (2.363)

** Temperature rise test per CEI60694, IEEE/ANSI C37.34–1994.*

Note: *Standard total lengths are 12". For different lengths, add your desired length to the end of the catalog number (e.g., FBE2H040A1-16 for 16" long). Ferrules are tinned. For other options, please consult your Thomas & Betts representative.*

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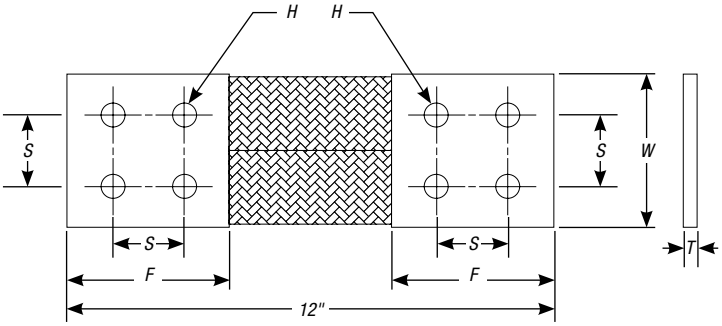
Flexible Braid

Misalignments? Now you can properly connect your equipment.

4-Hole NEMA Extra-Flexible Jumpers — FBE4H™ Series



- 36 AWG individual wires in braid construction for extra flexibility
- 99.9% pure copper ferrules on each end provide high conductivity
- Individual wires are tinned prior to weaving to deliver maximum protection from corrosion



CAT. NO.	AMPACITY Δ 65° C*	NO. OF BRAIDS IN ASSEMBLY	W IN. (MM)	F IN. (MM)	S IN. (MM)	H IN. (MM)	T IN. (MM)	WEIGHT LB. (KG)
FBE4H140A1	1400	4	3 (76.2)	3 (76.2)	1¾ (44)	9/16 (14.3)	¼ (6.4)	1.91 (.866)
FBE4H150A1	1500	6	3 (76.2)	3 (76.2)			11/32 (8.7)	2.57 (1.166)
FBE4H235A1	2350	8	3¾ (95.3)	4 (101.6)			⅜ (9.5)	4.00 (1.814)
FBE4H245A1	2450	12	3¾ (95.3)	4 (101.6)			½ (12.7)	5.32 (2.413)
FBE4H250A1	2500	16	3⅝ (92.1)	4 (101.6)			⅝ (15.9)	6.60 (2.994)
FBE4H340A1	3400	30	4 (101.6)	4 (101.6)			⅞ (22.2)	11.36 (5.153)
FBE4H400A1	4000	40	4 (101.6)	4 (101.6)			1⅛ (28.6)	15.57 (7.062)

** Temperature rise test per CEI60694, IEEE/ANSI C37.34–1994.*

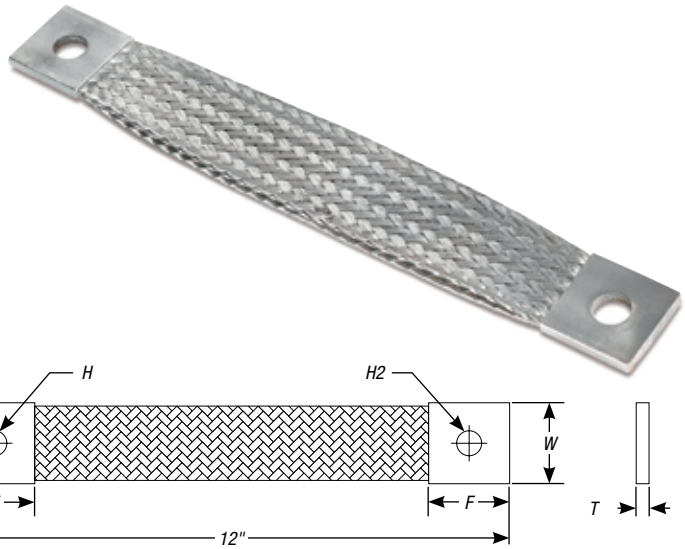
Note: *Standard total lengths are 12". For different lengths, add your desired length to the end of the catalog number (e.g., FBE4H140A1-16 for 16" long). Ferrules are tinned. For other options, please consult your Thomas & Betts representative.*

Flexible Braid

Get the flexibility you need to connect transformers, generators or busbars.

1-Hole NEMA Flexible Jumpers — FBS1H™ Series

- 30 AWG individual wires in braid construction for flexibility with connections
- 99.9% pure copper ferrules on each end provide high conductivity
- Individual wires are tinned prior to weaving to deliver maximum protection from corrosion



FBS1H™ Series

CAT. NO.	AMPACITY Δ 65° C*	W IN. (MM)	F IN. (MM)	H IN. (MM)	H2 IN. (MM)	T IN. (MM)	WEIGHT LB. (KG)
FBS1H035A1	350	1¼ (31.8)	1½ (38.1)	9/16 (14.3)	9/16 (14.3)	¼ (6.4)	.48 (.218)
FBS1H035A2		1¼ (31.8)	1½ (38.1)	9/16 (14.3)	7/16 (11.1)		
FBS1H035A3		1¼ (31.8)	1½ (38.1)	7/16 (11.1)	7/16 (11.1)		
FBS1H055A1	500	1⅜ (34.9)	1½ (38.1)	9/16 (14.3)	9/16 (14.3)	7/32 (5.6)	.63 (.286)
FBS1H055A2		1⅜ (34.9)	1½ (38.1)	9/16 (14.3)	7/16 (11.1)		
FBS1H055A3		1⅜ (34.9)	1½ (38.1)	7/16 (11.1)	7/16 (11.1)		
FBS1H070A1	700	1½ (38.1)	1½ (38.1)	9/16 (14.3)	9/16 (14.3)	¼ (6.4)	.95 (.431)
FBS1H070A2		1½ (38.1)	1½ (38.1)	9/16 (14.3)	7/16 (11.1)		
FBS1H070A3		1½ (38.1)	1½ (38.1)	7/16 (11.1)	7/16 (11.1)		
FBS1H070A4		2 (50.8)	2 (50.8)	9/16 (14.3)	9/16 (14.3)		
FBS1H100A1	1000	1¾ (44.4)	2 (50.8)	9/16 (14.3)	9/16 (14.3)	½ (12.7)	1.23 (.558)
FBS1H100A2		1¾ (44.4)	2 (50.8)	9/16 (14.3)	7/16 (11.1)		
FBS1H100A3		1¾ (44.4)	2 (50.8)	7/16 (11.1)	7/16 (11.1)		

** Temperature rise test per CEI60694, IEEE/ANSI C37.34–1994.*

Note: *Standard total lengths are 12". For different lengths, add your desired length to the end of the catalog number (e.g., FBS1H035A1-16 for 16" long). Ferrules are tinned. For other options, please consult your Thomas & Betts representative.*

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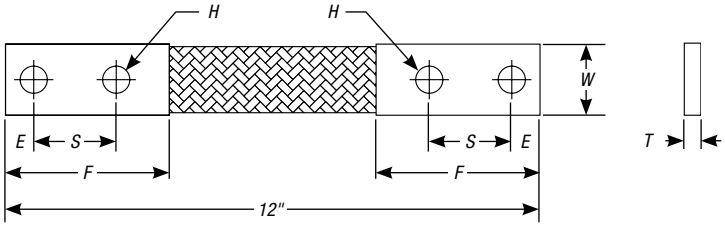
Flexible Braid

These 2-hole jumpers make connections wherever there is severe vibration.

2-Hole NEMA Flexible Jumpers — FBS2H™ Series

- 30 AWG individual wires in braid construction for flexibility with connections
- 99.9% pure copper ferrules on each end provide high conductivity
- Individual wires are tinned prior to weaving to deliver maximum protection from corrosion





FBS2H™ Series

CAT. NO.	AMPACITY Δ 65° C*	NO. OF BRAIDS IN ASSEMBLY	W IN. (MM)	F IN. (MM)	E IN. (MM)	S IN. (MM)	H IN. (MM)	T IN. (MM)	WEIGHT LB. (KG)
FBS2H040A1	400	1	1½ (38.1)					3⁄16 (4.7)	.63 (.286)
FBS2H070A1	700	2	1½ (38.1)					¼ (6.4)	.98 (.445)
FBS2H090A1	900	3	1½ (38.1)					11⁄32 (8.7)	1.31 (.594)
FBS2H110A1	1100	4	1½ (38.1)	3½ (88.9)	5⁄8 (15.9)	1¾ (44.4)	9⁄16 (14.3)	3⁄8 (9.5)	1.67 (.757)
FBS2H150A1	1500	6	1½ (38.1)					½ (12.7)	2.29 (1.039)
FBS2H170A1	1700	9	1 9⁄16 (39.6)					¾ (19)	3.76 (1.706)
FBS2H200A1	2000	13	1 9⁄16 (39.6)					1 (25.4)	5.26 (2.386)

** Temperature rise test per CEI60694, IEEE/ANSI C37.34–1994.*

Note: *Standard total lengths are 12". For different lengths, add your desired length to the end of the catalog number (e.g., FBS1H035A1-16 for 16" long). Ferrules are tinned. For other options, please consult your Thomas & Betts representative.*

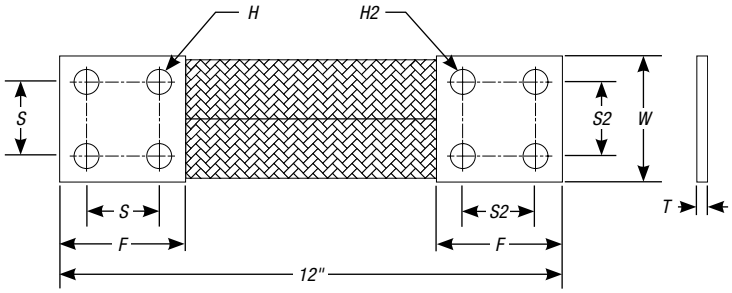
Flexible Braid

Make the most secure connections wherever there is severe vibration or misalignment.



4-Hole NEMA Flexible Jumpers — FBS4H™ Series

- 30 AWG individual wires in braid construction for flexibility with connections
- 99.9% pure copper ferrules on each end provide high conductivity
- Individual wires are tinned prior to weaving to deliver maximum protection from corrosion



FBS4H™ Series

CAT. NO.	AMPACITY Δ 65° C*	W IN. (MM)	F IN. (MM)	S IN. (MM)	H IN. (MM)	S2 IN. (MM)	H2 IN. (MM)	T IN. (MM)	WEIGHT LB. (KG)
FBS4H130A1	1300	3 (76.2)	3 (76.2)	1¾ (44.4)	9/16 (14.3)	1¾ (44.4)	9/16 (14.3)	¼ (6.4)	1.93 (.875)
FBS4H130A2				1¾ (44.4)	9/16 (14.3)	1½ (38.1)	7/16 (11.1)		
FBS4H130A3				1½ (38.1)	7/16 (11.1)	1½ (38.1)	7/16 (11.1)		
FBS4H150A1	1500			1¾ (44.4)	9/16 (14.3)	1¾ (44.4)	9/16 (14.3)	5/16 (7.9)	2.62 (1.188)
FBS4H150A2				1¾ (44.4)	9/16 (14.3)	1½ (38.1)	7/16 (11.1)		
FBS4H150A3				1½ (38.1)	7/16 (11.1)	1½ (38.1)	7/16 (11.1)		
FBS4H215A1	2150			1¾ (44.4)	9/16 (14.3)	1¾ (44.4)	9/16 (14.3)	⅜ (9.5)	3.31 (1.501)
FBS4H215A2				1¾ (44.4)	9/16 (14.3)	1½ (38.1)	7/16 (11.1)		
FBS4H215A3				1½ (38.1)	7/16 (11.1)	1½ (38.1)	7/16 (11.1)		
FBS4H235A1	2350			1¾ (44.4)	9/16 (14.3)	1¾ (44.4)	9/16 (14.3)	½ (12.7)	4.69 (2.127)
FBS4H235A2				1¾ (44.4)	9/16 (14.3)	1½ (38.1)	7/16 (11.1)		
FBS4H235A3				1½ (38.1)	7/16 (11.1)	1½ (38.1)	7/16 (11.1)		

** Temperature rise test per CEI60694, IEEE/ANSI C37.34–1994.*

Note: *Standard total lengths are 12". For different lengths, add your desired length to the end of the catalog number (e.g., FBS4H130A1-16 for 16" long). Ferrules are tinned. For other options, please consult your Thomas & Betts representative.*

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Intersystem Bonding

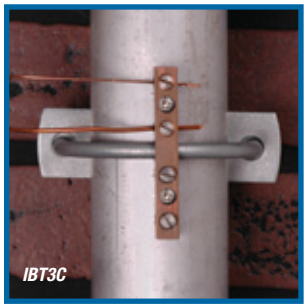
Meets NEC® Section 250.94 requirements for intersystem bonding termination!



Intersystem Bonding Termination Ground Clamps

- Convenient, reliable grounding for communications, satellite, CATV and utility services
- Accepts the full range of #14 to #6 AWG ground wire commonly used in the CATV and telephone industries
- Meets or exceeds industry requirements, Bellcore standards and NEC® Section 250.94 requirements
- UL® Listed to UL467, CSA Certified to C22.2 No. 41-07







Meter Box Clamps

- Two-piece clamp mounts vertically on the side or horizontally across the top of a meter box – without interfering with cover removal
- Steel clamp brackets mechanically galvanized to ASTM B695 with stainless steel hardware for superior corrosion resistance
- Single, shallow, pointed bolt enables fast and easy installation and positive ground connection
- Dual steel points on slotted bracket penetrate painted surfaces, also ensuring a positive ground connection
- Available in two adjustable sizes to fit any meter box

Wall/Pipe Clamps

- Mounts easily on walls (wood, aluminum, brick, mortar or composite material), water pipes or conduit (metallic or plastic) for versatility
- Unique design enables form fit and alignment with wall or pipe for effective ground and neat, clean appearance to finished installation
- Available in two versions: tin-plated aluminum or bare copper, both with stainless steel screws

CAT. NO.	DESCRIPTION	GROUND WIRE RANGE (AWG)
Intersystem Bonding Termination Ground Clamps for Meter Boxes		
IBT1	Meter Box Clamp, 7" – 10¼" Adjustment Range	#14–#6
IBT2	Meter Box Clamp, 11½" – 15¼" Adjustment Range	#14–#6
Intersystem Bonding Termination Ground Clamps for Wall or Pipe Mounting (includes U-bolt clamp for pipe mounting)		
IBT3A	Wall or Pipe Clamp, Aluminum	#14–#6
IBT3C	Wall or Pipe Clamp, Copper	#14–#6
Intersystem Bonding Termination Ground Bars for Wall Mounting		
IBT3AB	Bar only, Aluminum	#14–#6
IBT3CB	Bar only, Copper	#14–#6

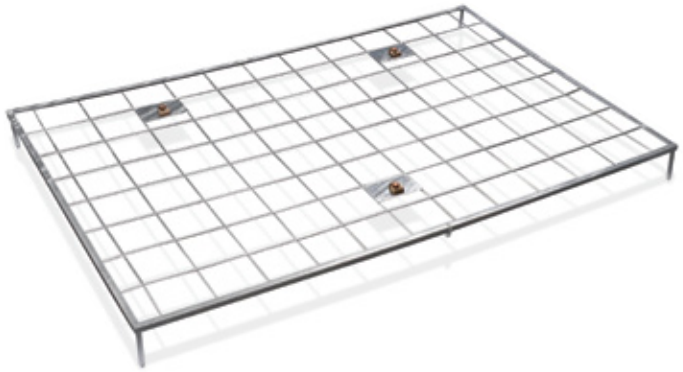
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Grounding Accessories

Avoid ground potential differences.

Metallic Gradient Control Mat

- Reduces risk and prevents build-up of dangerous potential differences between high-voltage equipment or structures and user standing on ground surface
- CEC Rule 36-308 compliant



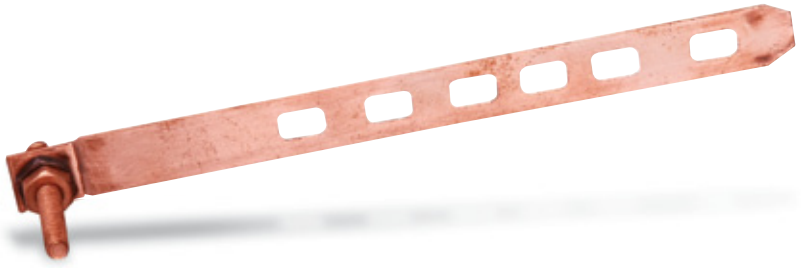
CAT. NO.	DESCRIPTION	WT./100 LB.	WT./100 KG	STD. PKG. QTY.
64663	Mat with Connectors	3,000	1,363	1
64660	Mat without Connectors	2,900	1,318	1

4 ft. x 6 ft. hot-dip galvanized mat is made from 6" x 6" welded mesh, ¼" diameter. Silicone bronze connector, bolt, nut and lockwasher.

For connecting to steel pipe or copper water tube.

Type FJ — Flexible Ground Clamp

- Accommodates ⅜", ½", ¾", 1" and 1¼" pipe sizes
- Accommodates ½", ¾", 1" and 1¼" copper water tube sizes
- Accommodates copper ground wire #18 through #12
- Specially designed “T” bolt
- 22-gauge soft copper strap with unique locking slots
- Hex head nuts may be tightened with standard wrench or special telephone company hex head driver



CAT. NO.	COPPER GROUND WIRE SIZE MAX.	COPPER GROUND WIRE SIZE MIN.	PIPE SIZE (IN.) MAX.	PIPE SIZE (IN.) MIN.	COPPER TUBE SIZE (IN.) MAX.	COPPER TUBE SIZE (IN.) MIN.
FJ	12	18	1¼	⅜	1¼	½

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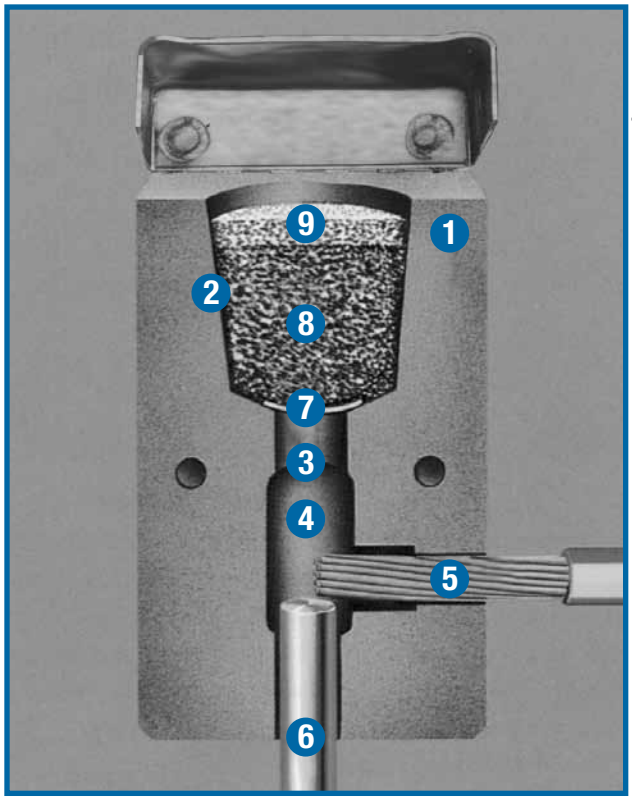
The Blackburn® Exothermic Welding Process

The Blackburn® Exothermic Welding process is a simple, self-contained method of forming high-quality electrical connections. The compact process requires no external power or heat source, making it completely portable.

Connections are made inside a semi-permanent graphite mold using the high-temperature reaction of powdered copper oxide and aluminum.

Exothermic Welding Equipment is used by some of the world's most demanding customers. T&B is the only manufacturer that can offer exothermic welding, as well as compression and bolted connectors for grounding applications.





This is how it works

The Mold (1) features a Crucible (2), a Tap Hole (3) and a Weld Cavity (4). The Conductors (5 and 6) to be joined, are located in the Weld Cavity as shown, and the Mold is closed. A steel Retaining Disc (7) is located in the bottom of the crucible, to retain the Weld Powder (8) and Starting Powder (9) which are poured in on top.

Ignited with a spark gun, the starting powder sets off an exothermic reaction in the weld powder, reducing it to molten copper alloy. This instantaneously melts the retaining disc, and flows down the tap hole, to the weld cavity, where it partially melts the conductors, before cooling to leave a fusion weld of great mechanical and electrical integrity.

How to use this catalog

Refer to the pictorial index at the beginning of each catalog section to determine the type of connection that you wish to make. Turn to the relevant page, and study the table. There is an illustration for each connection type, and each table provides the following information:

- **The Weld Powder size required**: Unless otherwise stated, one weld powder is required for each connection made.
- **The Mold required**: The mold part number to the left shows precisely what the mold can do, and indicates its cost.
- **The Handle Clamp required**: Handle clamps relate directly to mold price keys. For example, handle clamp HCPK4 is for use with price key 4 molds.
- **Mold Price Key:** This relates to the size of graphite block used to manufacture the mold, and determines its price. The simplest and smallest molds have the lowest price key numbers.
- **Sleeves required**: Stranded conductors of #6 AWG or less require sleeves, which prevent burning of the strands, and improve the mechanical strength of the connection.
- **Packing**: Molds for connecting stranded conductors to reinforcing bar (CRE type) require sealing with packing.
- **Mold Sealing Compound**: Required when making connections to steel surfaces and pipes. Requirement is indicated by a statement at the foot of the table.

Mold Part Number

EXAMPLE: **CC2 - 4 - 250K4/0**

CC2 – A 'Tee' connection for stranded/solid circular conductor

4 – Price Key 4

250K4/0 – For a 250K strand run with a 4/0 strand tap

Exothermic Welding System

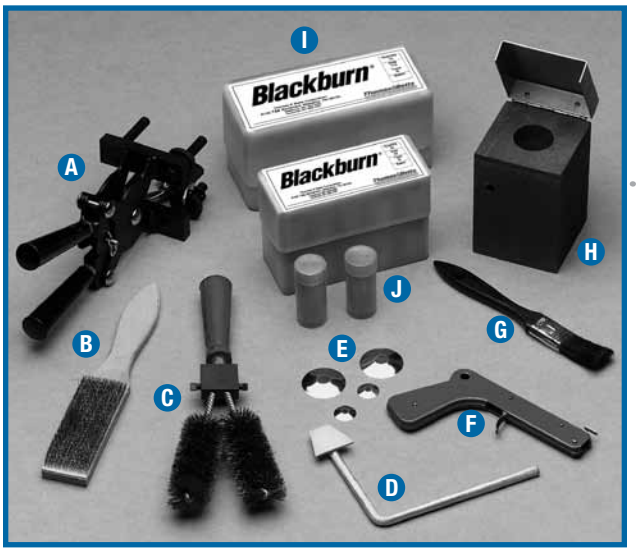
The Blackburn® Exothermic Welding Connection

The majority of Blackburn® connections have at least twice the cross sectional area of the conductors being joined, and an equivalent or greater current carrying capacity.

Because the connection is a fusion of high conductivity, high copper content alloy, it will withstand repeated fault currents, and will not loosen in the way that mechanical connectors can.

Corrosion resistance is exceptional, too, due to the alloy's very high copper content (in excess of 90%).





- **A** Handle Clamp
- **B** File Card Brush
- **C** Cable Brush
- **D** Mold Scraper
- **E** Retaining Discs
- **F** Flint Gun
- **G** Mold Brush
- **H** Mold
- **I** Powder Boxes
- **J** Cartridges

Standards Compliance

A representative range of Blackburn® connections has been successfully tested in accordance with the requirements of IEEE 837-1989 — Standard for Qualifying Permanent Connections Used in Substation Grounding.

Testing in accordance with UL and CSA. Contact T&B Technical Services at 888-862-3289 for listings and certificates.

Blackburn® Equipment and Accessories

Weld Powders

Blackburn® weld powders are contained in plastic cartridges, and are packed in plastic boxes of 10 or 20, depending on their size. Different joints require different powder sizes, and the size relates to the powder's nominal weight in grams.

The weld powder packaging also contains retaining discs and starting powder. The retaining discs are contained in a separate bag within the box. The starting powder is compacted into the bottom of the cartridge, underneath the weld powder, and is released by tapping the cartridge base firmly.

Blackburn® weld powders are suitable for making connections from copper to copper and from copper to steel.

Molds

Blackburn® graphite molds are dedicated to producing one type of connection. With care, they should be capable of producing up to 75 connections each. Mold size and complexity varies, and is denoted by a price key, from one upwards.

Each mold carries a tag which gives the mold part number, the weld powder size for use with the mold and the conductor sizes for which it is intended.

Handle Clamps

Handle clamps provide a means of both handling the mold, and also of clamping the mold halves together (or of clamping the mold to the surface to which a connection is to be made).

Standard Tools

A flint gun is required to start the reaction.

Cleaning tools for conductors, surfaces and molds include:

Cable Brush — for cleaning cables and other circular conductors such as rods.

Mold Scraper — for removing slag from the mold crucible, after firing.

Mold Brush — for final mold cleaning.

File Card Brush — for cleaning conductors and surfaces.

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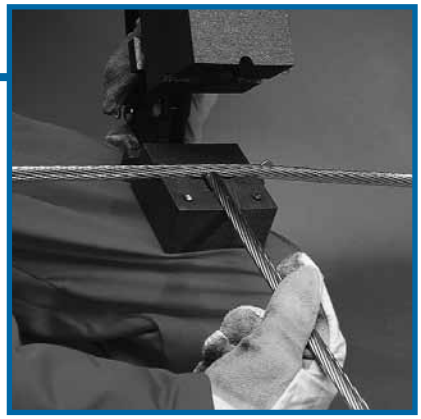
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Exothermic Welding System

How to Make a Blackburn® Exothermic Connection

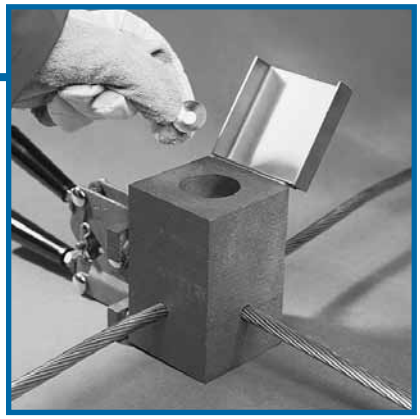
1

Position the clean conductors in the mold after making sure the mold is dry, by pre-heating or making a test joint.



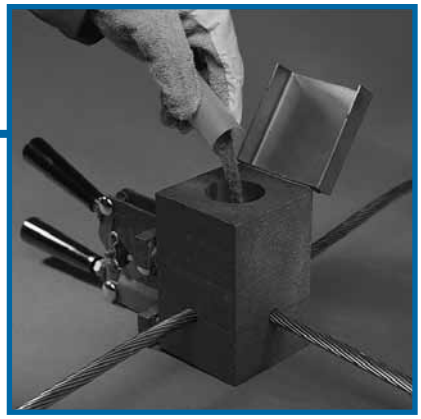
2

Place the metal retaining disc in the bottom of the mold crucible.



3

Pour the powder into the crucible, spreading some starting powder onto the mold edge.



4

Close the lid, and ignite with the flint gun from the side, firing the spark onto the starting powder.



5

The reaction takes place safely inside the mold.



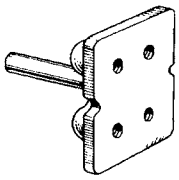
6

Once the joint is finished, the mold should be cleaned using a mold scraper and brush ready for the next joint.

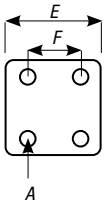


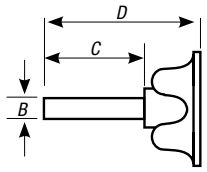
Exothermic Welding System

Four-Hole Earth Points



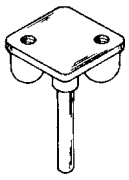
GPC110



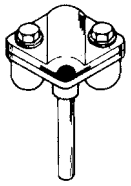


CAT. NO.	A HOLE SIZE	B IN. DIA.	C IN.	D IN.	E IN.	F IN.
GPC110	4 x 5/16 UNC x 9/16"	27/64	2	3	2½	1 13/32
GPC111	As GPC110, with a pre-welded 20" long tail of 2/0 AWG PVC-insulated cable.					

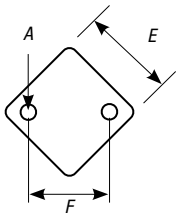
Two-Hole Earth Points



GPC125



GPC115 - GPC120

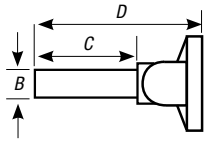


Complete with Front Plate

CAT. NO.	CONDUCTOR TYPE	B IN. DIA.	C IN.	D IN.	E IN.	F IN.
GPC115	1" x 1/8" Tape or 2/0 AWG Cable	27/64	2	3⅛	2 3/16	1¾
GPC116	As GPC115, with a pre-welded 20" long tail of 2/0 AWG PVC-insulated cable.					
GPC120	1"x 1/8" Tape or 5/16" dia. Solid	27/64	2	3⅛	2 3/16	1¾
GPC121	As GPC120, with a pre-welded 20" long tail of 2/0 AWG PVC-insulated cable.					



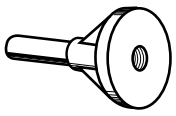
GPC116 -GPC121



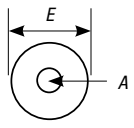
Without Front Plate

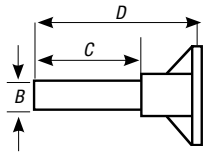
CAT. NO.	A HOLE SIZE	B IN. DIA.	C IN.	D IN.	E IN.	F IN.
GPC125	2 x 5/16 UNC x ½"	27/64	2	3⅛	2 3/16	1¾
GPC126	As GPC125, with a pre-welded 20" long tail of 2/0 AWG PVC-insulated cable.					

One-Hole Earth Points



GPC100 -GPC101



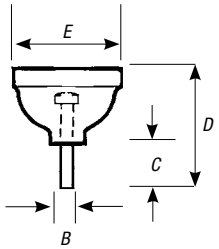


CAT. NO.	A HOLE SIZE	B IN. DIA.	C IN.	D IN.	E IN.
GPC100	1 x 5/16 UNC x 5/8"	27/64	2 3/16	3⅛	1⅜
GPC101	1 x ⅜ UNC x 5/8"	27/64	2 3/16	3⅛	1⅜
GPC105	As GPC100, with a pre-welded 20" long tail of 2/0 AWG PVC-insulated cable.				
GPC106	As GPC101, with a pre-welded 20" long tail of 2/0 AWG PVC-insulated cable.				

Static Earth Receptacle



GRX005



CAT. NO.	B IN. DIA.	C IN.	D IN.	E IN.
GRX005	27/64	1½	3⅜	2 11/16

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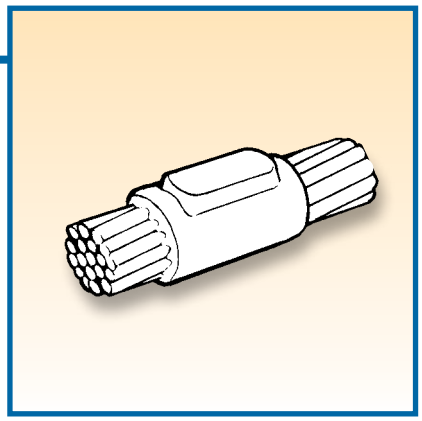
Exothermic Welding System

Cable to Cable Quick Reference

Below represents our standard range. Other types can be produced to order.

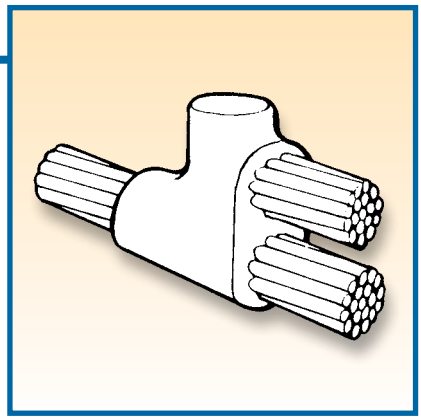
CC1

See page F-302



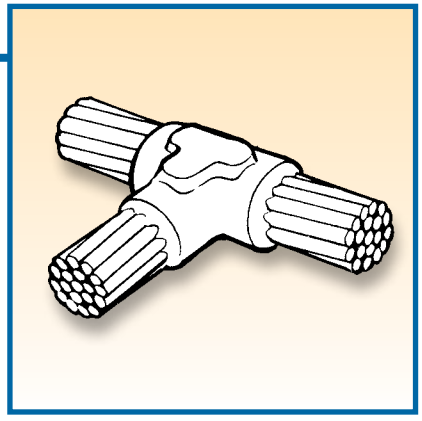
CC6

See page F-306



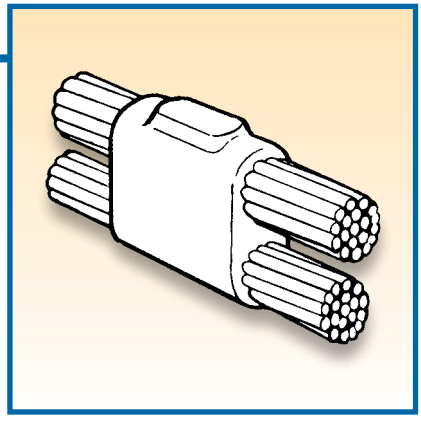
CC2

See pages F-303–F-304



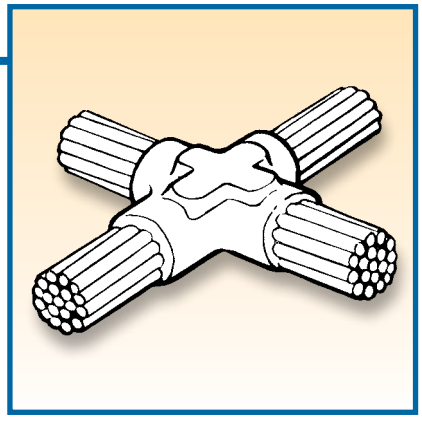
CC7

See pages F-307–F-308



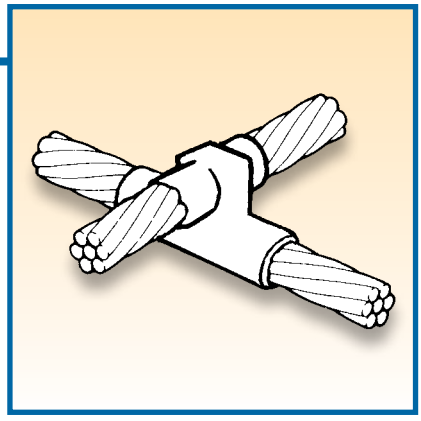
CC4

See page F-305



CC11

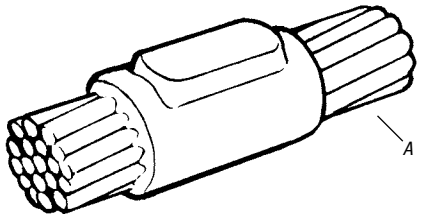
See page F-309



Exothermic Welding System

CC1 Cable to Cable

- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CC1-3-#3	3	32BKB	HCPK3	—	1
CC1-3-#2	2	32BKB	HCPK3	—	1
CC1-3-#2S	2 solid	32BKB	HCPK3	—	1
CC1-3-#1	1	32BKB	HCPK3	—	1
CC1-3-#1S	1 solid	32BKB	HCPK3	—	1
CC1-4-1/0	1/0	45BKB	HCPK4	—	1
CC1-4-1/0S	1/0 solid	45BKB	HCPK4	—	1
CC1-4-2/0	2/0	65BKB	HCPK4	—	1
CC1-4-3/0	3/0	90BKB	HCPK4	—	1
CC1-4-4/0	4/0	90BKB	HCPK4	—	1
CC1-4-4/0S	4/0 solid	90BKB	HCPK4	—	1
CC1-4-250K	250	115BKB	HCPK4	—	1
CC1-4-300K	300	115BKB	HCPK4	—	1
CC1-4-350K	350	150BKB	HCPK4	—	1
CC1-4-500K	500	200BKB	HCPK4	—	1
CC1-5-750K	750	2 x 150BKB	HCPK5	—	1
CC1-5-1000K	1000	2 x 200BKB	HCPK5	—	1

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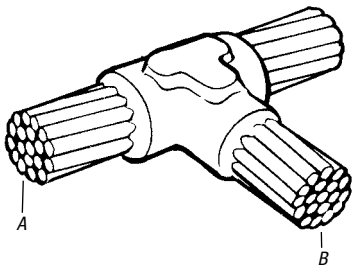
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Exothermic Welding System

CC2 Cable to Cable

- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CC2-4-#4#4	4	4	32BKB	HCPK4	—	1
CC2-4-#2S#2	2 solid	2	45BKB	HCPK4	—	1
CC2-4-#2S#2S		2 solid	45BKB	HCPK4	—	1
CC2-4-#2S#4		4	45BKB	HCPK4	—	1
CC2-4-#2#2	2	2	45BKB	HCPK4	—	1
CC2-4-#2#2S		2 solid	45BKB	HCPK4	—	1
CC2-4-#2#4		4	45BKB	HCPK4	—	1
CC2-4-#1#1	1	1	45BKB	HCPK4	—	1
CC2-4-#1#2		2	45BKB	HCPK4	—	1
CC2-4-#1#2S		2 solid	45BKB	HCPK4	—	1
CC2-4-#1#4		4	45BKB	HCPK4	—	1
CC2-4-1/01/0	1/0	1/0	90BKB	HCPK4	—	1
CC2-4-1/0#1		1	45BKB	HCPK4	—	1
CC2-4-1/0#2		2	45BKB	HCPK4	—	1
CC2-4-1/0#2S		2 solid	45BKB	HCPK4	—	1
CC2-4-1/0#4		4	45BKB	HCPK4	—	1
CC2-4-2/02/0	2/0	2/0	90BKB	HCPK4	—	1
CC2-4-2/01/0		1/0	90BKB	HCPK4	—	1
CC2-4-2/0#1		1	45BKB	HCPK4	—	1
CC2-4-2/0#2		2	45BKB	HCPK4	—	1
CC2-4-2/0#2S		2 solid	45BKB	HCPK4	—	1
CC2-4-2/0#4		4	45BKB	HCPK4	—	1
CC2-4-3/03/0	3/0	3/0	115BKB	HCPK4	—	1
CC2-4-3/02/0		2/0	90BKB	HCPK4	—	1
CC2-4-3/01/0		1/0	90BKB	HCPK4	—	1
CC2-4-3/0#1		1	45BKB	HCPK4	—	1
CC2-4-3/0#2		2	45BKB	HCPK4	—	1
CC2-4-3/0#2S		2 solid	45BKB	HCPK4	—	1
CC2-4-3/0#4		4	45BKB	HCPK4	—	1
CC2-4-4/04/0	4/0	4/0	150BKB	HCPK4	—	1
CC2-4-4/03/0		3/0	115BKB	HCPK4	—	1
CC2-4-4/02/0		2/0	90BKB	HCPK4	—	1
CC2-4-4/01/0		1/0	90BKB	HCPK4	—	1
CC2-4-4/0#1		1	90BKB	HCPK4	—	1
CC2-4-4/0#2		2	90BKB	HCPK4	—	1
CC2-4-4/0#2S		2 solid	90BKB	HCPK4	—	1
CC2-4-4/0#4		4	90BKB	HCPK4	—	1
CC2-4-250K250K	250	250	150BKB	HCPK4	—	1
CC2-4-250K4/0		4/0	150BKB	HCPK4	—	1
CC2-4-250K4/0		3/0	150BKB	HCPK4	—	1
CC2-4-250K2/0		2/0	90BKB	HCPK4	—	1
CC2-4-250K1/0		1/0	90BKB	HCPK4	—	1
CC2-4-250K#1		1	90BKB	HCPK4	—	1
CC2-4-250K#2		2	90BKB	HCPK4	—	1
CC2-4-250K#2S		2 solid	90BKB	HCPK4	—	1
CC2-4-250K#4		4	90BKB	HCPK4	—	1

CC2 Cable to Cable *(continued)*

CAT. NO.	WIRE SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CC2-4-300K300K	300	300	200BKB	HCPK4	—	1
CC2-4-300K250K		250	150BKB	HCPK4	—	1
CC2-4-300K4/0		4/0	150BKB	HCPK4	—	1
CC2-4-300K3/0		3/0	150BKB	HCPK4	—	1
CC2-4-300K2/0		2/0	90BKB	HCPK4	—	1
CC2-4-300K1/0		1/0	90BKB	HCPK4	—	1
CC2-4-300K#1		1	90BKB	HCPK4	—	1
CC2-4-300K#2		2	90BKB	HCPK4	—	1
CC2-4-300K#2S		2 solid	90BKB	HCPK4	—	1
CC2-4-300K#4		4	90BKB	HCPK4	—	1
CC2-4-350K350K	350	350	200BKB	HCPK4	—	1
CC2-4-350K300K		300	200BKB	HCPK4	—	1
CC2-4-350K250K		250	200BKB	HCPK4	—	1
CC2-4-350K4/0		4/0	150BKB	HCPK4	—	1
CC2-4-350K3/0		3/0	150BKB	HCPK4	—	1
CC2-4-350K2/0		2/0	90BKB	HCPK4	—	1
CC2-4-350K1/0		1/0	90BKB	HCPK4	—	1
CC2-4-350K#1		1	90BKB	HCPK4	—	1
CC2-4-350K#2		2	90BKB	HCPK4	—	1
CC2-4-350K#4		4	90BKB	HCPK4	—	1
CC2-4-500K500K	500	500	2 X 150BKB	HCPK4	—	1
CC2-4-500K350K		350	200BKB	HCPK4	—	1
CC2-4-500K300K		300	200BKB	HCPK4	—	1
CC2-4-500K250K		250	200BKB	HCPK4	—	1
CC2-4-500K4/0		4/0	150BKB	HCPK4	—	1
CC2-4-500K2/0		2/0	90BKB	HCPK4	—	1
CC2-4-500K1/0		1/0	90BKB	HCPK4	—	1
CC2-4-500K#1		1	90BKB	HCPK4	—	1
CC2-4-500K#2		2	90BKB	HCPK4	—	1
CC2-4-500K#4		4	90BKB	HCPK4	—	1
CC2-5-750K750K	750	750	2 X 250BKB	HCPK5	—	1
CC2-5-750K500K		500	2 X 200BKB	HCPK5	—	1
CC2-4-750K350K		350	250BKB	HCPK4	—	1
CC2-4-750K300K		300	200BKB	HCPK4	—	1
CC2-4-750K250K		250	200BKB	HCPK4	—	1
CC2-4-750K4/0		4/0	150BKB	HCPK4	—	1
CC2-4-750K2/0		2/0	150BKB	HCPK4	—	1
CC2-4-750K1/0		1/0	150BKB	HCPK4	—	1
CC2-5-1000K1000K	1000	1000	2 X 250BKB	HCPK5	—	1
CC2-5-1000K750K		750	2 X 250BKB	HCPK5	—	1
CC2-5-1000K500K		500	2 X 200BKB	HCPK5	—	1
CC2-4-1000K350K		350	250BKB	HCPK4	—	1
CC2-4-1000K300K		300	200BKB	HCPK4	—	1
CC2-4-1000K250K		250	200BKB	HCPK4	—	1
CC2-4-1000K4/0		4/0	150BKB	HCPK4	—	1
CC2-4-1000K2/0		2/0	150BKB	HCPK4	—	1
CC2-4-1000K1/0		1/0	150BKB	HCPK4	—	1

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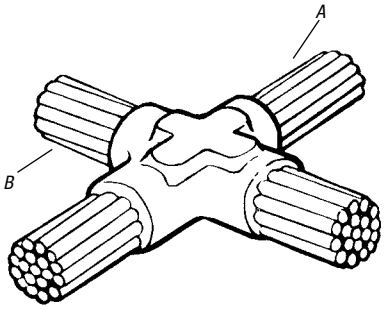
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CC4 Cable to Cable

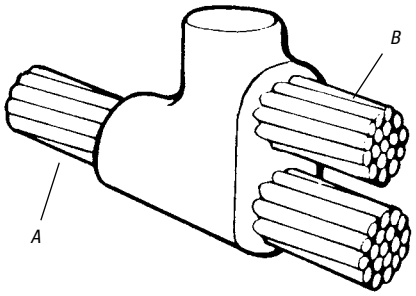
- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CC4-4-#4#4	4	4	45BKB	HCPK4	—	1
CC4-4-#2#2	2	2	65BKB	HCPK4	—	1
CC4-4-#2#4		4	65BKB	HCPK4	—	1
CC4-4-#2S#2S	2 solid	2 solid	65BKB	HCPK4	—	1
CC4-4-#1#1	1	1	65BKB	HCPK4	—	1
CC4-4-#1#2		2	65BKB	HCPK4	—	1
CC4-4-#1#4		4	65BKB	HCPK4	—	1
CC4-4-1/01/0	1/0	1/0	90BKB	HCPK4	—	1
CC4-4-1/0#1		1	90BKB	HCPK4	—	1
CC4-4-1/0#2		2	90BKB	HCPK4	—	1
CC4-4-1/0#4		4	90BKB	HCPK4	—	1
CC4-4-2/02/0	2/0	2/0	115BKB	HCPK4	—	1
CC4-42/01/0		1/0	115BKB	HCPK4	—	1
CC4-4-2/0#1		1	115BKB	HCPK4	—	1
CC4-4-2/0#2		2	115BKB	HCPK4	—	1
CC4-4-3/03/0	3/0	3/0	115BKB	HCPK4	—	1
CC4-4-3/02/0		2/0	150BKB	HCPK4	—	1
CC4-4-3/01/0		1/0	115BKB	HCPK4	—	1
CC4-4-3/0#1		1	115BKB	HCPK4	—	1
CC4-4-3/0#2		2	115BKB	HCPK4	—	1
CC4-4-4/04/0	4/0	4/0	200BKB	HCPK4	—	1
CC4-4-4/03/0		3/0	200BKB	HCPK4	—	1
CC4-4-4/02/0		2/0	150BKB	HCPK4	—	1
CC4-4-4/01/0		1/0	150BKB	HCPK4	—	1
CC4-4-4/0#1		1	115BKB	HCPK4	—	1
CC4-4-4/0#2		2	115BKB	HCPK4	—	1
CC4-4-250K250K	250	250	200BKB	HCPK4	—	1
CC4-4-250K4/0		4/0	200BKB	HCPK4	—	1
CC4-4-250K3/0		3/0	200BKB	HCPK4	—	1
CC4-4-250K2/0		2/0	150BKB	HCPK4	—	1
CC4-4-250K1/0		1/0	150BKB	HCPK4	—	1
CC4-4-250K#1		1	115BKB	HCPK4	—	1
CC4-4-250K#2		2	115BKB	HCPK4	—	1
CC4-4-300K300K	300	300	250BKB	HCPK4	—	1
CC4-4-300K250K		250	250BKB	HCPK4	—	1
CC4-4-300K4/0		4/0	200BKB	HCPK4	—	1
CC4-4-300K3/0		3/0	200BKB	HCPK4	—	1
CC4-4-300K2/0		2/0	150BKB	HCPK4	—	1
CC4-4-300K1/0		1/0	150BKB	HCPK4	—	1
CC4-4300K#1		1	115BKB	HCPK4	—	1
CC4-4-300K#2		2	115BKB	HCPK4	—	1
CC4-4-350K350K	350	350	250BKB	HCPK4	—	1
CC4-4-350K300K		300	250BKB	HCPK4	—	1
CC4-4-4350K250K		250	250BKB	HCPK4	—	1
CC4-4-350K4/0		4/0	200BKB	HCPK4	—	1
CC4-4-350K3/0		3/0	200BKB	HCPK4	—	1
CC4-350K2/0		2/0	200BKB	HCPK4	—	1
CC4-4-350K1/0		1/0	200BKB	HCPK4	—	1
CC4-4-350K#1		1	150BKB	HCPK4	—	1
CC4-4-350K#2		2	150BKB	HCPK4	—	1
CC4-5-500K500K	500	500	2 x 250BKB	HCPK5	—	1
CC4-5-500K350K		350	2 x 200BKB	HCPK5	—	1
CC4-5-500K300K		300	2 x 200BKB	HCPK5	—	1
CC4-5-500K250K		250	2 x 150BKB	HCPK5	—	1
CC4-5-500K4/0		4/0	2 x 150BKB	HCPK5	—	1
CC4-5-500K3/0		3/0	2 x 150BKB	HCPK5	—	1
CC4-4-500K2/0		2/0	250BKB	HCPK4	—	1
CC4-4-500K1/0		1/0	250BKB	HCPK4	—	1

CC6 Cable to Cable

- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CC6-4-#4#4	4	4	45BKB	HCPK4	—	1
CC6-4-#2#2	2	2	65BKB	HCPK4	—	1
CC6-4-#2#4		4	65BKB	HCPK4	—	1
CC6-4-#2S#2S	2 solid	2 solid	65BKB	HCPK4	—	1
CC6-4-#1#1	1	1	65BKB	HCPK4	—	1
CC6-4-#1#2		2	65BKB	HCPK4	—	1
CC6-4-#1#4		4	65BKB	HCPK4	—	1
CC6-4-1/01/0	1/0	1/0	90BKB	HCPK4	—	1
CC6-4-1/0#1		1	90BKB	HCPK4	—	1
CC6-4-1/0#2		2	90BKB	HCPK4	—	1
CC6-4-1/0#4		4	90BKB	HCPK4	—	1
CC6-4-2/02/0	2/0	2/0	115BKB	HCPK4	—	1
CC6-42/01/0		1/0	115BKB	HCPK4	—	1
CC6-4-2/0#1		1	115BKB	HCPK4	—	1
CC6-4-2/0#2		2	115BKB	HCPK4	—	1
CC6-4-3/03/0	3/0	3/0	115BKB	HCPK4	—	1
CC6-4-3/02/0		2/0	150BKB	HCPK4	—	1
CC6-4-3/01/0		1/0	115BKB	HCPK4	—	1
CC6-4-3/0#1		1	115BKB	HCPK4	—	1
CC6-4-3/0#2		2	115BKB	HCPK4	—	1
CC6-4-4/04/0	4/0	4/0	200BKB	HCPK4	—	1
CC6-4-4/03/0		3/0	200BKB	HCPK4	—	1
CC6-4-4/02/0		2/0	150BKB	HCPK4	—	1
CC6-4-4/01/0		1/0	150BKB	HCPK4	—	1
CC6-4-4/0#1		1	115BKB	HCPK4	—	1
CC6-4-4/0#2		2	115BKB	HCPK4	—	1
CC6-4-250K250K	250	250	200BKB	HCPK4	—	1
CC6-4-250K4/0		4/0	200BKB	HCPK4	—	1
CC6-4-250K3/0		3/0	200BKB	HCPK4	—	1
CC6-4-250K2/0		2/0	150BKB	HCPK4	—	1
CC6-4-250K1/0		1/0	150BKB	HCPK4	—	1
CC6-4-250K#1		1	115BKB	HCPK4	—	1
CC6-4-250K#2		2	115BKB	HCPK4	—	1
CC6-4-300K300K	300	300	250BKB	HCPK4	—	1
CC6-4-300K250K		250	250BKB	HCPK4	—	1
CC6-4-300K4/0		4/0	200BKB	HCPK4	—	1
CC6-4-300K3/0		3/0	200BKB	HCPK4	—	1
CC6-4-300K2/0		2/0	150BKB	HCPK4	—	1
CC6-4-300K1/0		1/0	150BKB	HCPK4	—	1
CC6-4300K#1		1	115BKB	HCPK4	—	1
CC6-4-300K#2		2	115BKB	HCPK4	—	1
CC6-4-350K350K	350	350	250BKB	HCPK4	—	1
CC6-4-350K300K		300	250BKB	HCPK4	—	1
CC6-4-4350K250K		250	250BKB	HCPK4	—	1
CC6-4-350K4/0		4/0	200BKB	HCPK4	—	1
CC6-4-350K3/0		3/0	200BKB	HCPK4	—	1
CC6-4-350K2/0		2/0	200BKB	HCPK4	—	1

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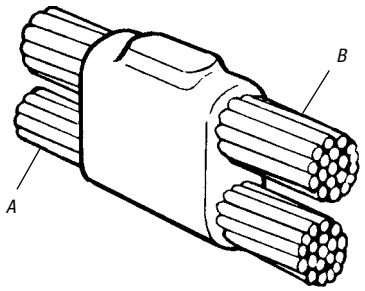
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Exothermic Welding System

CC7 Cable to Cable

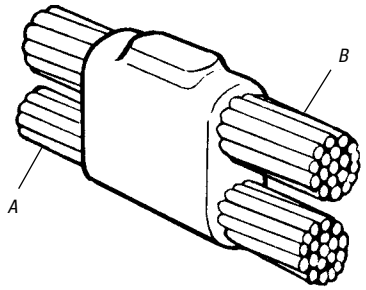
- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CC7-4-#4#4	4	4	32BKB	HCPK4	—	1
CC7-4-#4#6		6	32BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-#4#6S		6 solid	32BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-#4#8		8	32BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-#2S#2	2 solid	2	65BKB	HCPK4	—	1
CC7-4-#2S#2S		2 solid	65BKB	HCPK4	—	1
CC7-4-#2S#4		4	65BKB	HCPK4	—	1
CC7-4-#2S#6		6	45BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-#2S#6S		6 solid	45BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-#2S#8		8	45BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-#2S#8S		8 solid	45BKB	HCPK4	2 x SLEEVE#8S	1
CC7-4-#2#2	2	2	65BKB	HCPK4	—	1
CC7-4-#2#4		4	65BKB	HCPK4	—	1
CC7-4-#2#6		6	45BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-#2#6S		6 solid	45BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-#2#8		8	45BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-#2#8S		8 solid	45BKB	HCPK4	2 x SLEEVE#8S	1
CC7-4-#1S#1	1 solid	1	65BKB	HCPK4	—	1
CC7-4-#1S#2		2	65BKB	HCPK4	—	1
CC7-4-#1S#2S		2 solid	65BKB	HCPK4	—	1
CC7-4-#1S#4		4	65BKB	HCPK4	—	1
CC7-4-#1S#6		6	65BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-#1S#6S		6 solid	65BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-#1S#8		8	45BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-#1S#8S		8 solid	45BKB	HCPK4	2 x SLEEVE#8S	1
CC7-4-#1#1	1	1	65BKB	HCPK4	—	1
CC7-4-#1#1S		1 solid	65BKB	HCPK4	—	1
CC7-4-#1#2		2	65BKB	HCPK4	—	1
CC7-4-#1#2S		2 solid	65BKB	HCPK4	—	1
CC7-4-#1#4		4	65BKB	HCPK4	—	1
CC7-4-#1#6		6	65BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-#1#6S		6 solid	65BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-#1#8		8	45BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-#1#8S		8 solid	45BKB	HCPK4	2 x SLEEVE#8S	1
CC7-4-1/0S1/0	1/0 solid	1/0	90BKB	HCPK4	—	1
CC7-4-1/0S1/0S		1/0 solid	90BKB	HCPK4	—	1
CC7-4-1/0S#1		1	65BKB	HCPK4	—	1
CC7-4-1/0S#1S		1 solid	65BKB	HCPK4	—	1
CC7-4-1/0S#2		2	65BKB	HCPK4	—	1
CC7-4-1/0S#2S		2 solid	65BKB	HCPK4	—	1
CC7-4-1/0S#4		4	65BKB	HCPK4	—	1
CC7-4-1/0S#6		6	65BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-1/0S#6S		6 solid	65BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-1/0S#8		8	65BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-1/0S#8S		8 solid	65BKB	HCPK4	2 x SLEEVE#8S	1
CC7-4-1/01/0	1/0	1/0	90BKB	HCPK4	—	1
CC7-4-1/01/0S		1/0 solid	90BKB	HCPK4	—	1
CC7-4-1/0#1		1	65BKB	HCPK4	—	1
CC7-4-1/0#1S		1 solid	65BKB	HCPK4	—	1
CC7-4-1/0#2		2	65BKB	HCPK4	—	1
CC7-4-1/0#2S		2 solid	65BKB	HCPK4	—	1
CC7-4-1/0#4		4	65BKB	HCPK4	—	1
CC7-4-1/0#6		6	65BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-1/0#6S		6 solid	65BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-1/0#8		8	65BKB	HCPK4	2 x SLEEVE#8	1

CC7 Cable to Cable (*continued*)

- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CC7-4-1/0#8S	1/0	8 solid	65BKB	HCPK4	2 X SLEEVE#8S	1
CC7-4-2/02/0	2/0	2/0	115BKB	HCPK4	—	1
CC7-4-2/01/0		1/0	115BKB	HCPK4	—	1
CC7-4-2/01/0S		1/0 solid	115BKB	HCPK4	—	1
CC7-4-2/0#1		1	90BKB	HCPK4	—	1
CC7-4-2/0#1S		1 solid	90BKB	HCPK4	—	1
CC7-4-2/0#2		2	90BKB	HCPK4	—	1
CC7-4-2/0#4		4	90BKB	HCPK4	—	1
CC7-4-2/0#6		6	90BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-2/0#6S		6 solid	90BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-2/0#8		8	65BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-2/0#8S		8 solid	65BKB	HCPK4	2 x SLEEVE#8S	1
CC7-4-3/03/0	3/0	3/0	150BKB	HCPK4	—	1
CC7-4-3/02/0		2/0	150BKB	HCPK4	—	1
CC7-4-3/01/0		1/0	115BKB	HCPK4	—	1
CC7-4-3/01/0S		1/0 solid	115BKB	HCPK4	—	1
CC7-4-3/0#1		1	115BKB	HCPK4	—	1
CC7-4-3/0#1S		1 solid	115BKB	HCPK4	—	1
CC7-4-3/0#2		2	115BKB	HCPK4	—	1
CC7-4-3/0#2S		2 solid	115BKB	HCPK4	—	1
CC7-4-3/0#4		4	115BKB	HCPK4	—	1
CC7-4-3/0#6		6	90BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-3/0#6S		6 solid	90BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-3/0#8		8	90BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-3/0#8S		8 solid	90BKB	HCPK4	2 x SLEEVE#8S	1
CC7-4-4/0S4/0	4/0 solid	4/0	200BKB	HCPK4	—	1
CC7-4-4/0S4/0S		4/0 solid	200BKB	HCPK4	—	1
CC7-4-4/0S3/0		3/0	200BKB	HCPK4	—	1
CC7-4-4/0S2/0		2/0	150BKB	HCPK4	—	1
CC7-4-4/0S1/0		1/0	150BKB	HCPK4	—	1
CC7-4-4/0S1/0S		1/0 solid	150BKB	HCPK4	—	1
CC7-4-4/0S#1		1	150BKB	HCPK4	—	1
CC7-4-4/0S#1S		1 solid	150BKB	HCPK4	—	1
CC7-4-4/0S#2		2	150BKB	HCPK4	—	1
CC7-4-4/0S#2S		2 solid	150BKB	HCPK4	—	1
CC7-4-4/0S#4		4	150BKB	HCPK4	—	1
CC7-4-4/0S#6		6	90BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-4/0S#6S		6 solid	90BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-4/0S#8		8	90BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-4/0S#8S		8 solid	90BKB	HCPK4	2 x SLEEVE#8S	1
CC7-4-4/04/0	4/0	4/0	200BKB	HCPK4	—	1
CC7-4-4/04/0S		4/0 solid	200BKB	HCPK4	—	1
CC7-4-4/03/0		3/0	200BKB	HCPK4	—	1
CC7-4-4/02/0		2/0	150BKB	HCPK4	—	1
CC7-4-4/01/0		1/0	150BKB	HCPK4	—	1
CC7-4-4/01/0S		1/0 solid	150BKB	HCPK4	—	1
CC7-4-4/0#1		1	150BKB	HCPK4	—	1
CC7-4-4/0#1S		1 solid	150BKB	HCPK4	—	1
CC7-4-4/0#2		2	150BKB	HCPK4	—	1
CC7-4-4/0#2S		2 solid	150BKB	HCPK4	—	1
CC7-4-4/0#4		4	150BKB	HCPK4	—	1
CC7-4-4/0#6		6	90BKB	HCPK4	2 x SLEEVE#6	1
CC7-4-4/0#6S		6 solid	90BKB	HCPK4	2 x SLEEVE#6S	1
CC7-4-4/0#8		8	90BKB	HCPK4	2 x SLEEVE#8	1
CC7-4-4/0#8S		8 solid	90BKB	HCPK4	2 x SLEEVE#8S	1

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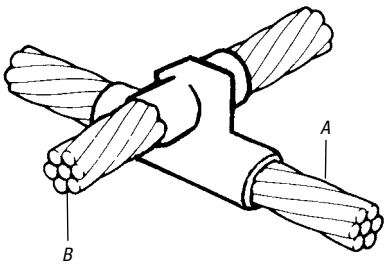
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Exothermic Welding System

CC11 Cable to Cable

- Stranded conductor
- Solid circular conductor



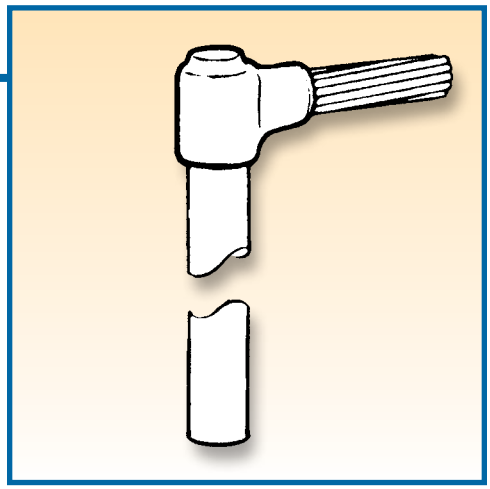
CAT. NO.	WIRE SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CC11-7-#6S#6S	6 solid	6 solid	32BKB	HCPK7	4 x SLEEVE#6S	1
CC11-7-#6#6	6	6	45BKB	HCPK7	4 x SLEEVE#6	1
CC11-7-#4#4	4	4	65BKB	HCPK7	—	1
CC11-7-#2#2	2	2	90BKB	HCPK7	—	1
CC11-7-#2#4		4	65BKB	HCPK7	—	1
CC11-7-#2S#2S	2 solid	2 solid	90BKB	HCPK7	—	1
CC11-7-#1#1	1	1	115BKB	HCPK7	—	1
CC11-7-#1#2		2	90BKB	HCPK7	—	1
CC11-7-#1#4		4	90BKB	HCPK7	—	1
CC11-7-1/01/0	1/0	1/0	150BKB	HCPK7	—	1
CC11-7-1/0#1		1	150BKB	HCPK7	—	1
CC11-7-1/0#2		2	115BKB	HCPK7	—	1
CC11-7-1/0#4		4	115BKB	HCPK7	—	1
CC11-7-2/02/0	2/0	2/0	200BKB	HCPK7	—	1
CC11-7-2/01/0		1/0	200BKB	HCPK7	—	1
CC11-7-2/0#1		1	150BKB	HCPK7	—	1
CC11-7-2/0#2		2	150BKB	HCPK7	—	1
CC11-7-3/03/0	3/0	3/0	250BKB	HCPK7	—	1
CC11-7-3/02/0		2/0	200BKB	HCPK7	—	1
CC11-7-3/01/0		1/0	200BKB	HCPK7	—	1
CC11-7-3/0#1		1	150BKB	HCPK7	—	1
CC11-7-3/0#2		2	150BKB	HCPK7	—	1
CC11-7-4/04/0	4/0	4/0	250BKB	HCPK7	—	1
CC11-7-4/03/0		3/0	250BKB	HCPK7	—	1
CC11-7-4/02/0		2/0	200BKB	HCPK7	—	1
CC11-7-4/01/0		1/0	200BKB	HCPK7	—	1
CC11-7-4/0#1		1	150BKB	HCPK7	—	1
CC11-7-4/0#2		2	150BKB	HCPK7	—	1
CC11-7-250K250K	250	250	2 x 150BKB	HCPK7	—	1
CC11-7-250K4/0		4/0	2 x 150BKB	HCPK7	—	1
CC11-7-250K3/0		3/0	2 x 150BKB	HCPK7	—	1
CC11-7-250K2/0		2/0	250BKB	HCPK7	—	1
CC11-7-250K1/0		1/0	250BKB	HCPK7	—	1
CC11-7-250K#1		1	200BKB	HCPK7	—	1
CC11-7-250K#2		2	150BKB	HCPK7	—	1
CC11-8-300K300K	300	300	2 x 200BKB	HCPK8	—	1
CC11-8-300K250K		250	2 x 200BKB	HCPK8	—	1
CC11-7-300K4/0		4/0	2 x 150BKB	HCPK7	—	1
CC11-7-300K3/0		3/0	2 x 150BKB	HCPK7	—	1
CC11-7-300K2/0		2/0	250BKB	HCPK7	—	1
CC11-7-300K1/0		1/0	250BKB	HCPK7	—	1
CC11-7-300K#1		1	200BKB	HCPK7	—	1
CC11-7-300K#2		2	150BKB	HCPK7	—	1
CC11-8-350K350K	350	350	2 x 250BKB	HCPK8	—	1
CC11-8-350K300K		300	2 x 250BKB	HCPK8	—	1
CC11-8-350K250K		250	2 x 250BKB	HCPK8	—	1
CC11-8-350K4/0		4/0	2 x 200BKB	HCPK8	—	1
CC11-8-350K3/0		3/0	2 x 200BKB	HCPK8	—	1
CC11-7-350K2/0		2/0	2 x 150BKB	HCPK7	—	1
CC11-7-350K1/0		1/0	250BKB	HCPK7	—	1
CC11-7-350K#1		1	200BKB	HCPK7	—	1
CC11-7-350K#2		2	200BKB	HCPK7	—	1
CC11-8-500K500K	500	500	3 x 250BKB	HCPK8	—	1
CC11-8-500K350K		350	3 x 200BKB	HCPK8	—	1
CC11-8-500K300K		300	3 x 200BKB	HCPK8	—	1
CC11-8-500K250K		250	2 x 250BKB	HCPK8	—	1
CC11-8-500K4/0		4/0	2 x 250BKB	HCPK8	—	1
CC11-8-500K3/0		3/0	2 x 250BKB	HCPK8	—	1
CC11-8-500K2/0		2/0	2 x 200BKB	HCPK8	—	1
CC11-8-500K1/0		1/0	2 x 150BKB	HCPK8	—	1

Exothermic Welding System

Cable to Ground Rod Quick Reference

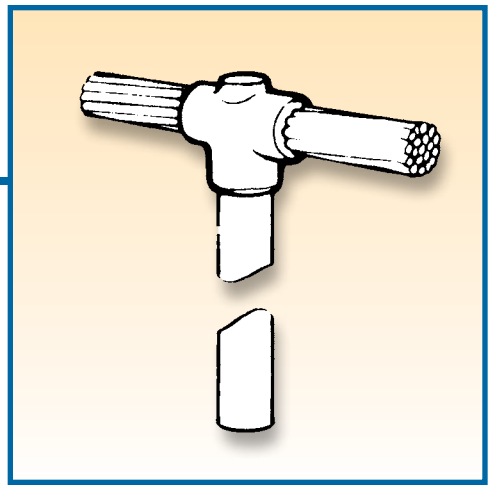
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See page F–311



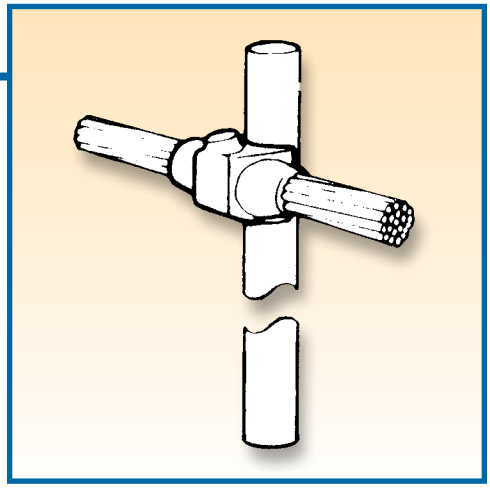
CR2

See page F-312



CR3

See page F-313



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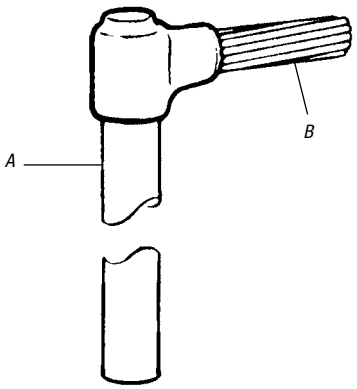
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CR1 Cable to Ground Rod

- Stranded conductor
- Solid circular conductor



CAT. NO.	ROD SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CR1-3-500#6	½" Nominal Diameter Actual Shank Dia. .476" (Non UL Rod)	6	65BKB	HCPK3	SLEEVE#6	1
CR1-3-500#6S		6 solid	65BKB	HCPK3	SLEEVE#6S	1
CR1-3-500#4		4	65BKB	HCPK3	—	1
CR1-3-500#4S		4 solid	45BKB	HCPK3	—	1
CR1-3-500#2		2	65BKB	HCPK3	—	1
CR1-3-500#2S		2 solid	65BKB	HCPK3	—	1
CR1-4-500#1		1	65BKB	HCPK4	—	1
CR1-4-5001/0		1/0	90BKB	HCPK4	—	1
CR1-4-5001/0S		1/0 solid	90BKB	HCPK4	—	1
CR1-4-5002/0		2/0	90BKB	HCPK4	—	1
CR1-4-5003/0		3/0	90BKB	HCPK4	—	1
CR1-4-5004/0		4/0	90BKB	HCPK4	—	1
CR1-4-500250K		250	90BKB	HCPK4	—	1
CR1-4-500300K		300	90BKB	HCPK4	—	1
CR1-3-500L#6	½" True Diameter Actual Shank Dia. .502" (UL Rod)	6	45BKB	HCPK3	1 x SLEEVE#6	1
CR1-3-500L#6S		6 solid	45BKB	HCPK3	1 x SLEEVE#6S	1
CR1-3-500L#4		4	45BKB	HCPK3	—	1
CR1-3-500L#4S		4 solid	45BKB	HCPK3	—	1
CR1-3-500L#2		2	65BKB	HCPK3	—	1
CR1-3-500L#2S		2 solid	65BKB	HCPK3	—	1
CR1-4-500L#1		1	65BKB	HCPK4	—	1
CR1-4-500L1/0		1/0	90BKB	HCPK4	—	1
CR1-4-500L1/0S		1/0 solid	90BKB	HCPK4	—	1
CR1-4-500L2/0		2/0	90BKB	HCPK4	—	1
CR1-4-500L3/0		3/0	90BKB	HCPK4	—	1
CR1-4-500L4/0		4/0	90BKB	HCPK4	—	1
CR1-4-500L250K		250	90BKB	HCPK4	—	1
CR1-4-500L300K		300	90BKB	HCPK4	—	1
CR1-3-625#6	⅝" Nominal Diameter Actual Shank Dia. .560"	6	65BKB	HCPK3	1 x SLEEVE#6	1
CR1-3-625#6S		6 solid	65BKB	HCPK3	1 x SLEEVE#6S	1
CR1-3-625#4		4	65BKB	HCPK3	—	1
CR1-3-625#4S		4 solid	65BKB	HCPK3	—	1
CR1-4-625#2		2	65BKB	HCPK4	—	1
CR1-4-625#2S		2 solid	65BKB	HCPK4	—	1
CR1-4-625#1		1	65BKB	HCPK4	—	1
CR1-4-6251/0		1/0	90BKB	HCPK4	—	1
CR1-4-6251/0S		1/0 solid	90BKB	HCPK4	—	1
CR1-4-6252/0		2/0	90BKB	HCPK4	—	1
CR1-4-6253/0		3/0	90BKB	HCPK4	—	1
CR1-4-6254/0		4/0	90BKB	HCPK4	—	1
CR1-4-625250K		250	90BKB	HCPK4	—	1
CR1-4-625300K		300	115BKB	HCPK4	—	1
CR1-4-625350K		350	115BKB	HCPK4	—	1
CR1-4-625500K		500	150BKB	HCPK4	—	1
CR1-3-750#6	¾" Nominal Diameter Actual Shank Dia. .678"	6	32BKB	HCPK3	1 x SLEEVE#6	1
CR1-3-750#6S		6 solid	32BKB	HCPK3	1 x SLEEVE#6S	1
CR1-3-750#4		4	45BKB	HCPK3	—	1
CR1-3-750#4S		4 solid	45BKB	HCPK3	—	1
CR1-4-750#2		2	90BKB	HCPK4	—	1
CR1-4-750#2S		2 solid	90BKB	HCPK4	—	1
CR1-4-750#1		1	90BKB	HCPK4	—	1
CR1-4-7501/0		1/0	90BKB	HCPK4	—	1
CR1-4-7501/0S		1/0 solid	90BKB	HCPK4	—	1
CR1-4-7502/0		2/0	90BKB	HCPK4	—	1
CR1-4-7503/0		3/0	90BKB	HCPK4	—	1
CR1-4-7504/0		4/0	90BKB	HCPK4	—	1
CR1-4-750250K		250	90BKB	HCPK4	—	1
CR1-4-750300K		300	115BKB	HCPK4	—	1
CR1-4-750350K		350	115BKB	HCPK4	—	1
CR1-4-750500K		500	150BKB	HCPK4	—	1

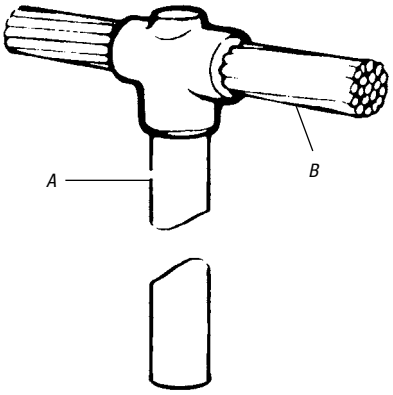
For connections to threaded rods, remove top threaded section.

United States
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Technical Services
Tel: 888.862.3289

CR2 Cable to Ground Rod

- Stranded conductor
- Solid circular conductor



CAT. NO.	ROD SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CR2-3-500#6	½" Nominal Diameter Actual Shank Dia. .476" (Non UL Rod)	6	65BKB	HCPK3	SLEEVE#6	1
CR2-3-500#6S		6 solid	65BKB	HCPK3	SLEEVE#6S	1
CR2-3-500#4		4	65BKB	HCPK3	—	1
CR2-3-500#4S		4 solid	65BKB	HCPK3	—	1
CR2-4-500#2		2	90BKB	HCPK3	—	1
CR2-4-500#2S		2 solid	90BKB	HCPK3	—	1
CR2-4-500#1		1	90BKB	HCPK4	—	1
CR2-4-5001/0		1/0	90BKB	HCPK4	—	1
CR2-4-5001/0S		1/0 solid	90BKB	HCPK4	—	1
CR2-4-5002/0		2/0	90BKB	HCPK4	—	1
CR2-4-5003/0		3/0	115BKB	HCPK4	—	1
CR2-4-5004/0		4/0	115BKB	HCPK4	—	1
CR2-4-500250K		250	150BKB	HCPK4	—	1
CR2-4-500300K		300	200BKB	HCPK4	—	1
CR2-3-500L#6	½" True Diameter Actual Shank Dia. .502" (UL Rod)	6	65BKB	HCPK3	SLEEVE#6	1
CR2-3-500L#6S		6 solid	65BKB	HCPK3	SLEEVE#6S	1
CR2-3-500L#4		4	65BKB	HCPK3	—	1
CR2-3-500L#4S		4 solid	65BKB	HCPK3	—	1
CR2-4-500L#2		2	90BKB	HCPK3	—	1
CR2-4-500L#2S		2 solid	90BKB	HCPK3	—	1
CR2-4-500L#1		1	90BKB	HCPK4	—	1
CR2-4-500L1/0		1/0	90BKB	HCPK4	—	1
CR2-4-500L1/0S		1/0 solid	90BKB	HCPK4	—	1
CR2-4-500L2/0		2/0	90BKB	HCPK4	—	1
CR2-4-500L3/0		3/0	115BKB	HCPK4	—	1
CR2-4-500L4/0		4/0	115BKB	HCPK4	—	1
CR2-4-500L250K		250	150BKB	HCPK4	—	1
CR2-4-500L300K		300	200BKB	HCPK4	—	1
CR2-3-625#6	⅝" Nominal Diameter Actual Shank Dia. 0.560"	6	32BKB	HCPK3	SLEEVE#6	1
CR2-3-625#6S		6 solid	32BKB	HCPK3	SLEEVE#6S	1
CR2-3-625#4		4	32BKB	HCPK3	—	1
CR2-3-625#4S		4 solid	32BKB	HCPK3	—	1
CR2-4-625#2		2	90BKB	HCPK4	—	1
CR2-4-625#2S		2 solid	90BKB	HCPK4	—	1
CR2-4-625#1		1	90BKB	HCPK4	—	1
CR2-4-6251/0		1/0	90BKB	HCPK4	—	1
CR2-4-6251/0S		1/0 solid	115BKB	HCPK4	—	1
CR2-4-6252/0		2/0	115BKB	HCPK4	—	1
CR2-4-6253/0		3/0	115BKB	HCPK4	—	1
CR2-4-6254/0		4/0	115BKB	HCPK4	—	1
CR2-4-625250K		250	150BKB	HCPK4	—	1
CR2-4-625300K		300	200BKB	HCPK4	—	1
CR2-4-625350K		350	200BKB	HCPK4	—	1
CR2-4-625500K		500	250BKB	HCPK4	—	1
CR2-3-750#6	¾" Nominal Diameter Actual Shank Dia. .678"	6	65BKB	HCPK3	SLEEVE#6	1
CR2-3-750#6S		6 solid	65BKB	HCPK3	SLEEVE#6S	1
CR2-3-750#4		4	65BKB	HCPK3	—	1
CR2-3-750#4S		4 solid	65BKB	HCPK3	—	1
CR2-4-750#2		2	90BKB	HCPK4	—	1
CR2-4-750#2S		2 solid	90BKB	HCPK4	—	1
CR2-4-750#1		1	90BKB	HCPK4	—	1
CR2-4-7501/0		1/0	115BKB	HCPK4	—	1
CR2-4-7501/0S		1/0 solid	115BKB	HCPK4	—	1
CR2-4-7502/0		2/0	115BKB	HCPK4	—	1
CR2-4-7503/0		3/0	115BKB	HCPK4	—	1
CR2-4-7504/0		4/0	115BKB	HCPK4	—	1
CR2-4-750250K		250	150BKB	HCPK4	—	1
CR2-4-750300K		300	200BKB	HCPK4	—	1
CR2-4-750350K		350	200BKB	HCPK4	—	1
CR2-4-750500K		500	250BKB	HCPK4	—	1

For connections to threaded rods, remove top threaded section.

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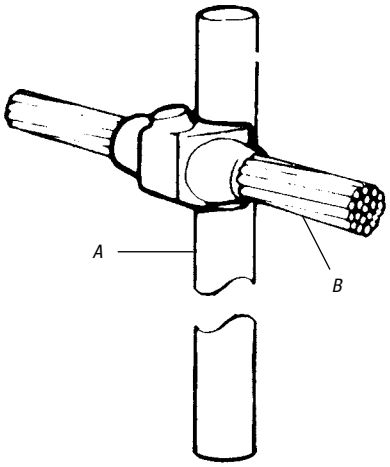
Technical Services
Tel: 888.862.3289

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Exothermic Welding System

CR3 Cable to Ground Rod

- Stranded conductor
- Solid circular conductor



CAT. NO.	ROD SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CR3-9-5001/0	½" Nominal Diameter Actual Shank Dia. .476" (Non UL Rod)	1/0	115BKB	HCPK4 and FRAME1	—	1
CR3-9-5001/0S		1/0 solid	115BKB	HCPK4 and FRAME1	—	1
CR3-9-5002/0		2/0	115BKB	HCPK4 and FRAME1	—	1
CR3-9-5003/0		3/0	150BKB	HCPK4 and FRAME1	—	1
CR3-9-5004/0		4/0	150BKB	HCPK4 and FRAME1	—	1
CR3-9-500250K		250	150BKB	HCPK4 and FRAME1	—	1
CR3-9-500300K		300	200BKB	HCPK4 and FRAME1	—	1
CR3-9-500L1/0	½" Nominal Diameter Actual Shank Dia. .502" (UL Rod)	1/0	115BKB	HCPK4 and FRAME1	—	1
CR3-9-500L1/0S		1/0 solid	115BKB	HCPK4 and FRAME1	—	1
CR3-9-500L2/0		2/0	115BKB	HCPK4 and FRAME1	—	1
CR3-9-500L3/0		3/0	150BKB	HCPK4 and FRAME1	—	1
CR3-9-500L4/0		4/0	150BKB	HCPK4 and FRAME1	—	1
CR3-9-500L250K		250	150BKB	HCPK4 and FRAME1	—	1
CR3-9-500300K		300	200BKB	HCPK4 and FRAME1	—	1
CR3-9-6251/0	⅝" Nominal Diameter Actual Shank Dia. .560"	1/0	115BKB	HCPK4 and FRAME1	—	1
CR3-9-6251/0S		1/0 solid	115BKB	HCPK4 and FRAME1	—	1
CR3-9-6252/0		2/0	115BKB	HCPK4 and FRAME1	—	1
CR3-9-6253/0		3/0	150BKB	HCPK4 and FRAME1	—	1
CR3-9-6254/0		4/0	150BKB	HCPK4 and FRAME1	—	1
CR3-9-625250K		250	150BKB	HCPK4 and FRAME1	—	1
CR3-9-625300K		300	200BKB	HCPK4 and FRAME1	—	1
CR3-9-625350K		350	250BKB	HCPK4 and FRAME1	—	1
CR3-10-625500K		500	2 x 200BKB	HCPK5 and FRAME2	—	1
CR3-9-7501/0	¾" Nominal Diameter Actual Shank Dia. .678"	1/0	115BKB	HCPK5 and FRAME2	—	1
CR3-9-7501/0S		1/0 solid	115BKB	HCPK4 and FRAME1	—	1
CR3-9-7502/0		2/0	115BKB	HCPK4 and FRAME1	—	1
CR3-9-7503/0		3/0	115BKB	HCPK4 and FRAME1	—	1
CR3-9-7504/0		4/0	115BKB	HCPK4 and FRAME1	—	1
CR3-9-750250K		250	200BKB	HCPK4 and FRAME1	—	1
CR3-9-750300K		300	200BKB	HCPK4 and FRAME1	—	1
CR3-10-750350K		350	2 x 150BKB	HCPK5 and FRAME2	—	1
CR3-10-750500K		500	2 x 250BKB	HCPK5 and FRAME2	—	1

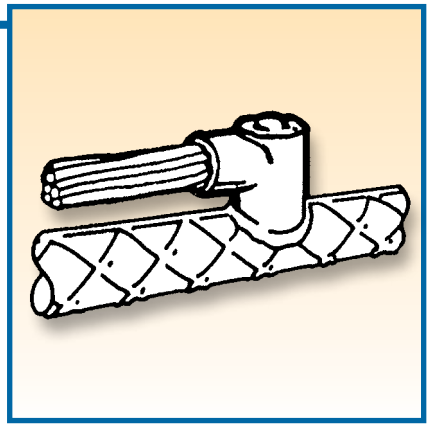
For connections to threaded rods, remove top threaded section.

Exothermic Welding System

Cable to Rebar Quick Reference

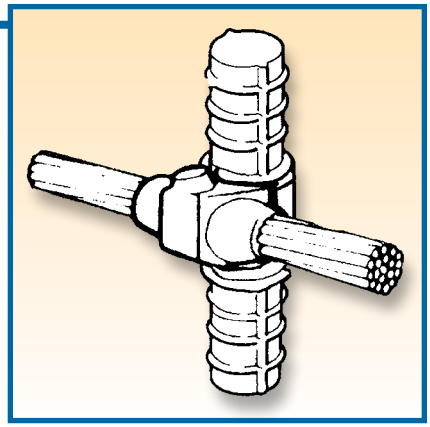
CRE1

See page F-315



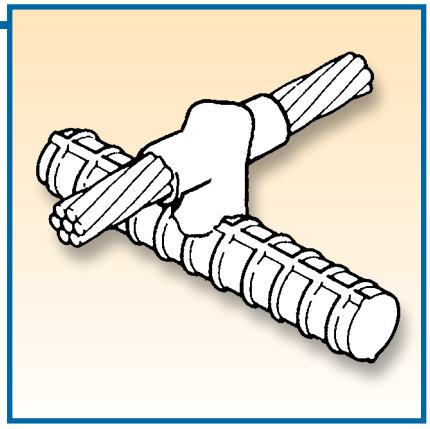
CRE3

See page F-315



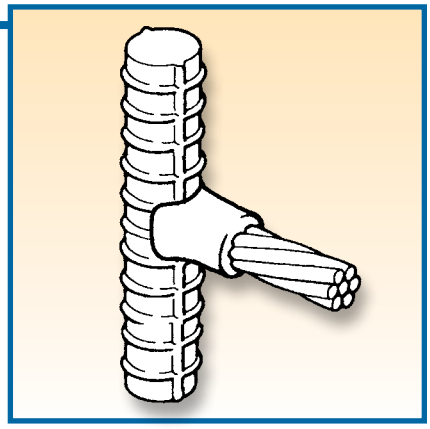
CRE4

See page F-316



CRE6

See page F-316



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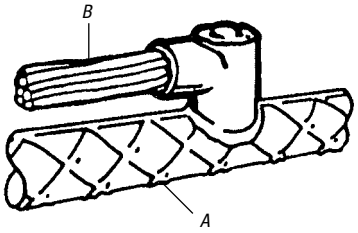
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Exothermic Welding System

CRE1 Cable to Rebar

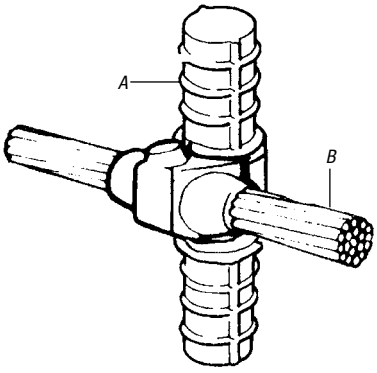
- Stranded conductor
- Solid circular conductor



CAT. NO.	REBAR SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	PACKING	STD. CTN.
CRE1-4-#43R	3	4	32BKB	HCPK4	—	None	1
CRE1-4-#2S3R		2 solid	45BKB	HCPK4	—	None	1
CRE1-4-#23R		2	45BKB	HCPK4	—	None	1
CRE1-4-#13R		1	65BKB	HCPK4	—	None	1
CRE1-4-1/03R		1/0	90BKB	HCPK4	—	None	1
CRE1-4-2/03R		2/0	90BKB	HCPK4	—	None	1
CRE1-4-3/03R		3/0	115BKB	HCPK4	—	None	1
CRE1-3-#4Z	4–7	4	32BKB	HCPK3B	—	Pack-A	1
CRE1-3-#2SZ		2 solid	45BKB	HCPK3B	—	Pack-A	1
CRE1-3-#2Z		2	45BKB	HCPK3B	—	Pack-A	1
CRE1-3-#1Z		1	65BKB	HCPK3B	—	Pack-A	1
CRE1-3-1/0Z		1/0	90BKB	HCPK3B	—	Pack-A	1
CRE1-3-2/0Z		2/0	90BKB	HCPK3B	—	Pack-A	1
CRE1-3-3/0Z		3/0	115BKB	HCPK3B	—	Pack-A	1
CRE1-3-4/0Z		4/0	115BKB	HCPK3B	—	Pack-A	1
CRE1-3-#4Y	8–11	4	32BKB	HCPK3B	—	Pack-A	1
CRE1-3-#2SY		2 solid	45BKB	HCPK3B	—	Pack-A	1
CRE1-3-#2Y		2	45BKB	HCPK3B	—	Pack-A	1
CRE1-3-#1Y		1	65BKB	HCPK3B	—	Pack-A	1
CRE1-3-1/0Y		1/0	90BKB	HCPK3B	—	Pack-A	1
CRE1-3-2/0Y		2/0	90BKB	HCPK3B	—	Pack-A	1
CRE1-3-3/0Y		3/0	115BKB	HCPK3B	—	Pack-A	1
CRE1-3-4/0Y		4/0	115BKB	HCPK3B	—	Pack-A	1

CRE3 Cable to Rebar

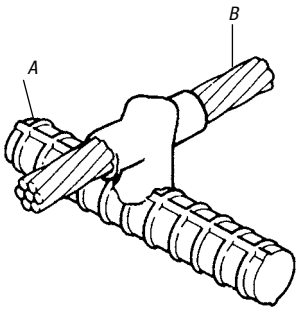
- Stranded conductor
- Solid circular conductor



CAT. NO.	REBAR SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	PACKING	STD. CTN.
CRE3-3-#4Z	4–7	4	90BKB	HCPK3A	—	Pack-A	1
CRE3-3#2SZ		2 solid	90BKB	HCPK3A	—	Pack-A	1
CRE3-3-#2Z		2	90BKB	HCPK3A	—	Pack-A	1
CRE3-4-#1Z		1	115BKB	HCPK3A	—	Pack-A	1
CRE3-4-1/0Z		1/0	115BKB	HCPK3A	—	Pack-A	1
CRE3-4-2/0Z		2/0	115BKB	HCPK3A	—	Pack-A	1
CRE3-4-3/0Z		3/0	150BKB	HCPK3A	—	Pack-A	1
CRE3-4-4/0Z		4/0	150BKB	HCPK3A	—	Pack-A	1
CRE3-3-#4Y	8–11	4	90BKB	HCPK3A	—	Pack-A	1
CRE3-3-#2SY		2 solid	90BKB	HCPK3A	—	Pack-A	1
CRE3-3-#2Y		2	90BKB	HCPK3A	—	Pack-A	1
CRE3-4-#1Y		1	115BKB	HCPK3A	—	Pack-A	1
CRE3-4-1/0Y		1/0	115BKB	HCPK3A	—	Pack-A	1
CRE3-4-2/0Y		2/0	115BKB	HCPK3A	—	Pack-A	1
CRE3-4-3/0Y		3/0	150BKB	HCPK3A	—	Pack-A	1
CRE3-4-4/0Y		4/0	150BKB	HCPK3A	—	Pack-A	1

CRE4 Cable to Rebar

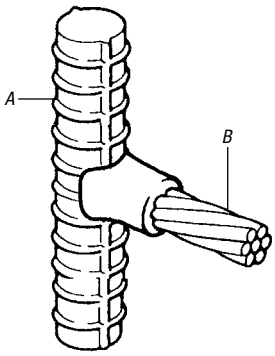
- Stranded conductor
- Solid circular conductor



CAT. NO.	REBAR SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	CRADLE	SLEEVE	PACKING	STD. CTN.
CRE4-3-#4Z	4–7	4	65BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-#2SZ		2 solid	90BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-#2Z		2	90BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-#1Z		1	90BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-1/0Z		1/0	115BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-2/0Z		2/0	115BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-3/0Z		3/0	115BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-4/0Z		4/0	115BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-#4Y	8–11	4	65BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-#2SY		2 solid	90BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-#2Y		2	90BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-#1Y		1	90BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-1/0Y		1/0	115BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-2/0Y		2/0	115BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-3/0Y		3/0	115BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1
CRE4-3-4/0Y		4/0	115BKB	HCPK3B	HCPK3BMOD	—	Pack-A	1

CRE6 Cable to Rebar

- Stranded conductor
- Solid circular conductor



CAT. NO.	REBAR SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	PACKING	STD. CTN.
CRE6-3-#4Z	4–7	4	65BKB	HCPK3A	—	Pack-A	1
CRE6-3#2SZ		2 solid	65BKB	HCPK3A	—	Pack-A	1
CRE6-3-#2Z		2	65BKB	HCPK3A	—	Pack-A	1
CRE6-3-#1Z		1	90BKB	HCPK3A	—	Pack-A	1
CRE6-4-1/0Z		1/0	115BKB	HCPK3A	—	Pack-A	1
CRE6-4-2/0Z		2/0	115BKB	HCPK3A	—	Pack-A	1
CRE6-4-3/0Z		3/0	150BKB	HCPK3A	—	Pack-A	1
CRE6-4-4/0Z		4/0	150BKB	HCPK3A	—	Pack-A	1
CRE6-3-#4Y	8–11	4	65BKB	HCPK3A	—	Pack-A	1
CRE6-3-#2SY		2 solid	65BKB	HCPK3A	—	Pack-A	1
CRE6-3-#2Y		2	65BKB	HCPK3A	—	Pack-A	1
CRE6-3-#1Y		1	90BKB	HCPK3A	—	Pack-A	1
CRE6-4-1/0Y		1/0	115BKB	HCPK3A	—	Pack-A	1
CRE6-4-2/0Y		2/0	115BKB	HCPK3A	—	Pack-A	1
CRE6-4-3/0Y		3/0	150BKB	HCPK3A	—	Pack-A	1
CRE6-4-4/0Y		4/0	150BKB	HCPK3A	—	Pack-A	1

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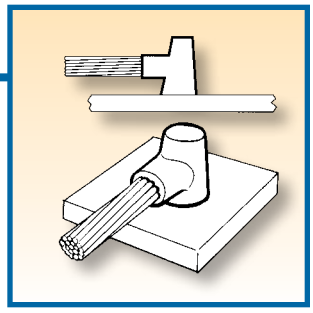
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Exothermic Welding System

Cable to Steel Surface and Pipe Quick Reference

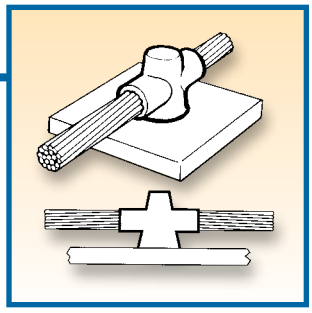
CS1

See page F-318



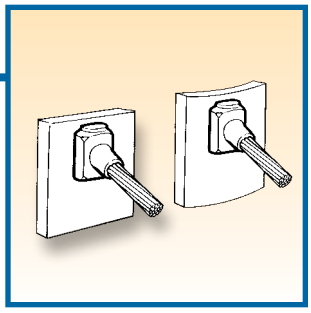
CS2

See page F-318



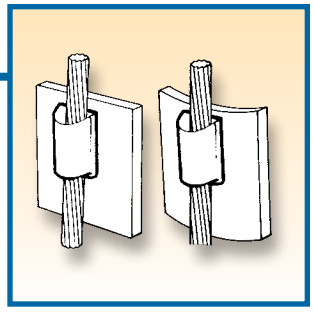
CS3

See page F-319



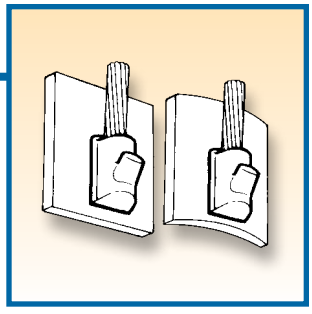
CS4

See page F-320



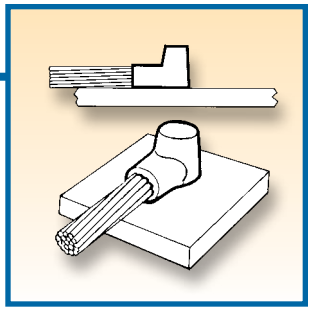
CS7

See page F-321



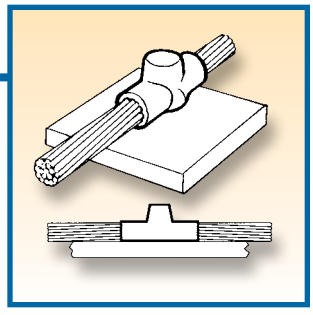
CS8

See page F-322



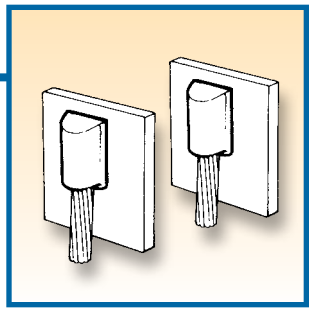
CS9

See page F-322



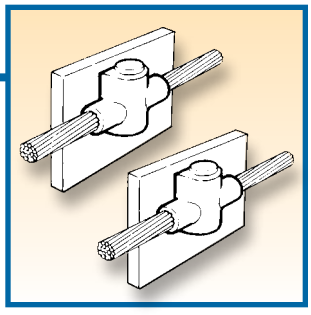
CS25

See page F-323



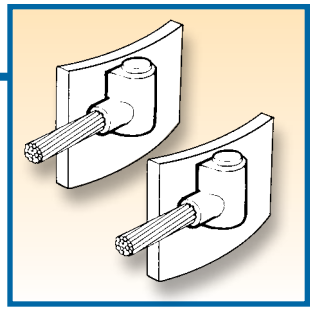
CS27

See page F-324



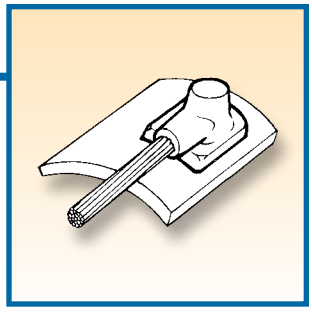
CS31

See page F-325



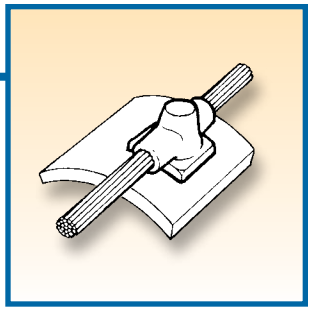
CS32

See page F-326



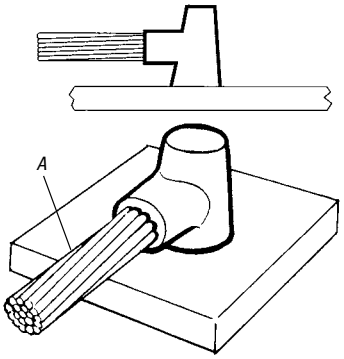
CS34

See page F-327



CS1 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor

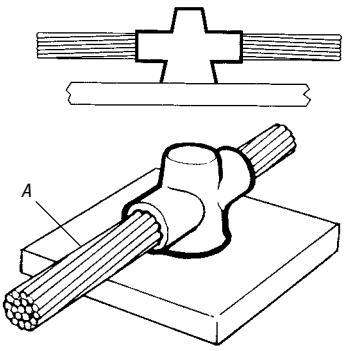


CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS1-4-1/0	1/0	90BKB	HCPK4	—	1
CS1-4-2/0	2/0	90BKB	HCPK4	—	1
CS1-4-3/0	3/0	115BKB	HCPK4	—	1
CS1-4-4/0	4/0	115BKB	HCPK4	—	1
CS1-4-250K	250	115BKB	HCPK4	—	1
CS1-4-300K	300	150BKB	HCPK4	—	1
CS1-4-350K	350	200BKB	HCPK4	—	1
CS1-4-500K	500	200BKB	HCPK4	—	1
CS1-4-750K	750	2 x 150BKB	HCPK4	—	1
CS1-4-1000K	1000	2 x 200BKB	HCPK4	—	1

Mold Sealing Compound (MSC) will be required if surface is uneven.

CS2 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS2-4-1/0	1/0	90BKB	HCPK4	—	1
CS2-4-2/0	2/0	115BKB	HCPK4	—	1
CS2-4-3/0	3/0	115BKB	HCPK4	—	1
CS2-4-4/0	4/0	150BKB	HCPK4	—	1
CS2-4-250K	250	150BKB	HCPK4	—	1
CS2-4-300K	300	200BKB	HCPK4	—	1
CS2-4-350K	350	250BKB	HCPK4	—	1
CS2-5-500K	500	2 x 150BKB	HCPK4	—	1

Mold Sealing Compound (MSC) will be required if surface is uneven.

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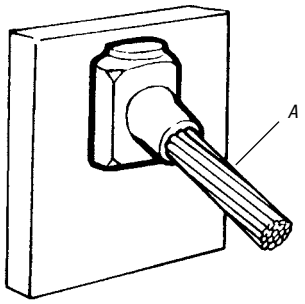
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CS3 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor

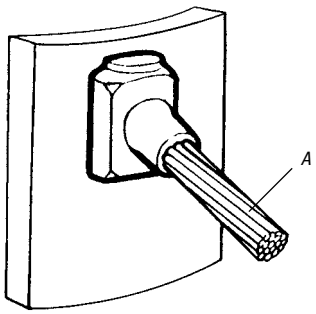


CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS3-4-#6	#6	45BKB	HCPK4	SLEEVE#6	1
CS3-4-#4	#4	45BKB	HCPK4	—	1
CS3-4-#2S	#2 solid	45BKB	HCPK4	—	1
CS3-4-#2	#2	45BKB	HCPK4	—	1
CS3-4-#1	#1	65BKB	HCPK4	—	1
CS3-4-1/0	1/0	90BKB	HCPK4	—	1
CS3-4-2/0	2/0	90BKB	HCPK4	—	1
CS3-4-3/0	3/0	115BKB	HCPK4	—	1
CS3-4-4/0	4/0	115BKB	HCPK4	—	1
CS3-4-250K	250	115BKB	HCPK4	—	1
CS3-4-300K	300	150BKB	HCPK4	—	1
CS3-4-350K	350	200BKB	HCPK4	—	1
CS3-4-500K	500	200BKB	HCPK4	—	1
CS3-5-750K	750	2 X 150BKB	HCPK5	—	1
CS3-5-1000K	1000	2 X 200BKB	HCPK5	—	1

Mold Sealing Compound (MSC) will be required if surface is uneven.

CS3 Cable to Steel Surface and Pipe — For Pipes

- Stranded conductor
- Solid circular conductor



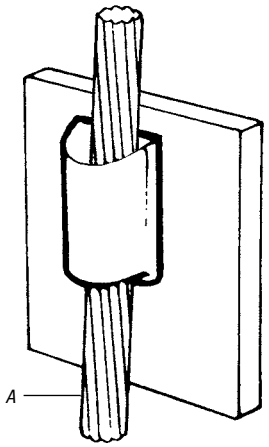
CAT. NO.	WIRE SIZE (A)	PIPE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS3-4-#4C	#4	1½"–2¾"	45BKB	HCPK4	—	1
CS3-4-#4D		2¾"–6½"	45BKB	HCPK4	—	1
CS3-4-#4F		6½"–10"	45BKB	HCPK4	—	1
CS3-4-#4G		10"–14"	45BKB	HCPK4	—	1
CS3-4-#2SC	#2 solid	1½"–2¾"	45BKB	HCPK4	—	1
CS3-4-#2SD		2¾"–6½"	45BKB	HCPK4	—	1
CS3-4-#2SF		6½"–10"	45BKB	HCPK4	—	1
CS3-4-#2SG		10 –14"	45BKB	HCPK4	—	1
CS3-4-#2C	#2	1½"–2¾"	45BKB	HCPK4	—	1
CS3-4-#2D		2¾"–6½"	45BKB	HCPK4	—	1
CS3-4-#2F		6½"–10"	45BKB	HCPK4	—	1
CS3-4-#2G		10"–14"	45BKB	HCPK4	—	1
CS3-4-#1C	#1	1½"–2¾"	65BKB	HCPK4	—	1
CS3-4-#1D		2¾"–6½"	65BKB	HCPK4	—	1
CS3-4-#1F		6½"–10"	65BKB	HCPK4	—	1
CS3-4-#1G		10"–14"	65BKB	HCPK4	—	1
CS3-4-#1/0C	1/0	1½" –2¾"	90BKB	HCPK4	—	1
CS3-4-#1/0D		2¾"–6½"	90BKB	HCPK4	—	1
CS3-4-#1/0F		6½"–10"	90BKB	HCPK4	—	1
CS3-4-#1/0G		10"–14"	90BKB	HCPK4	—	1
CS3-4-#2/0C	2/0	1½"–2¾"	90BKB	HCPK4	—	1
CS3-4-#2/0D		2¾"–6½"	90BKB	HCPK4	—	1
CS3-4-#2/0F		6½"–10"	90BKB	HCPK4	—	1
CS3-4-#2/0G		10"–14"	90BKB	HCPK4	—	1
CS3-4-#3/0C	3/0	1½"–2¾"	115BKB	HCPK4	—	1
CS3-4-#3/0D		2¾"–6½"	115BKB	HCPK4	—	1
CS3-4-#3/0F		6½"–10"	115BKB	HCPK4	—	1
CS3-4-#3/0G		10"–14"	115BKB	HCPK4	—	1
CS3-4-#4/0C	4/0	1½"–2¾"	115BKB	HCPK4	—	1
CS3-4-#4/0D		2¾"–6½"	115BKB	HCPK4	—	1
CS3-4-#4/0F		6½"–10"	115BKB	HCPK4	—	1
CS3-4-#4/0G		10"–14"	115BKB	HCPK4	—	1

OVER 14": USE CS3 FOR FLAT SURFACE.

Use Mold Sealing Compound (MSC) to ensure effective sealing.

CS4 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor

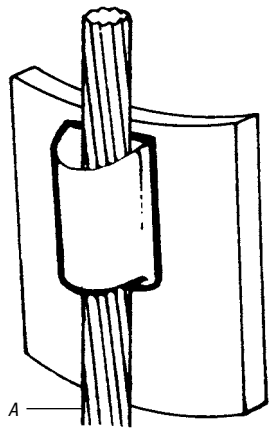


CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS4-4-#6	#6	90BKB	HCPK4	SLEEVE#6	1
CS4-4-#4	#4	90BKB	HCPK4	—	1
CS4-4-#2S	#2 solid	115BKB	HCPK4	—	1
CS4-4-#2	#2	115BKB	HCPK4	—	1
CS4-4-#1	#1	115BKB	HCPK4	—	1
CS4-5-1/0	1/0	200BKB	HCPK5	—	1
CS4-5-2/0	2/0	200BKB	HCPK5	—	1
CS4-5-3/0	3/0	250BKB	HCPK5	—	1
CS4-5-4/0	4/0	250BKB	HCPK5	—	1
CS4-5-250K	250	250BKB	HCPK5	—	1

Mold Sealing Compound (MSC) will be required if surface is uneven.

CS4 Cable to Steel Surface and Pipe — For Pipes

- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	PIPE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS4-4-#4C	#4	1½" – 2¾"	90BKB	HCPK4	—	1
CS4-4-#4D		2¾" – 6½"	90BKB	HCPK4	—	1
CS4-4-#4F		6½" – 10"	90BKB	HCPK4	—	1
CS4-4-#4G		10" – 14"	90BKB	HCPK4	—	1
CS4-4-#2SC	#2 solid	1½" – 2¾"	115BKB	HCPK4	—	1
CS4-4-#2SD		2¾" – 6½"	115BKB	HCPK4	—	1
CS4-4-#2SF		6½" – 10"	115BKB	HCPK4	—	1
CS4-4-#2SG		10" – 14"	115BKB	HCPK4	—	1
CS4-4-#2C	#2	1½" – 2¾"	115BKB	HCPK4	—	1
CS4-4-#2D		2¾" – 6½"	115BKB	HCPK4	—	1
CS4-4-#2F		6½" – 10"	115BKB	HCPK4	—	1
CS4-4-#2G		10" – 14"	115BKB	HCPK4	—	1
CS4-4-#1C	#1	1½" – 2¾"	115BKB	HCPK4	—	1
CS4-4-#1D		2¾" – 6½"	115BKB	HCPK4	—	1
CS4-4-#1F		6½" – 10"	115BKB	HCPK4	—	1
CS4-4-#1G		10" – 14"	115BKB	HCPK4	—	1
CS4-5-1/0C	1/0	1½" – 2¾"	200BKB	HCPK5	—	1
CS4-5-1/0D		2¾" – 6½"	200BKB	HCPK5	—	1
CS4-5-1/0F		6½" – 10"	200BKB	HCPK5	—	1
CS4-5-1/0G		10" – 14"	200BKB	HCPK5	—	1
CS4-5-2/0C	2/0	1½" – 2¾"	200BKB	HCPK5	—	1
CS4-5-2/0D		2¾" – 6½"	200BKB	HCPK5	—	1
CS4-5-2/0F		6½" – 10"	200BKB	HCPK5	—	1
CS4-5-2/0G		10" – 14"	200BKB	HCPK5	—	1
CS4-5-3/0C	3/0	1½" – 2¾"	250BKB	HCPK5	—	1
CS4-5-3/0D		2¾" – 6½"	250BKB	HCPK5	—	1
CS4-5-3/0F		6½" – 10"	250BKB	HCPK5	—	1
CS4-5-3/0G		10" – 14"	250BKB	HCPK5	—	1
CS4-5-4/0C	4/0	1½" – 2¾"	250BKB	HCPK5	—	1
CS4-5-4/0D		2¾" – 6½"	250BKB	HCPK5	—	1
CS4-5-4/0F		6½" – 10"	250BKB	HCPK5	—	1
CS4-5-4/0G		10" – 14"	250BKB	HCPK5	—	1

OVER 14": USE CS4 FOR FLAT SURFACE.

Use Mold Sealing Compound (MSC) – ensure effective sealing.

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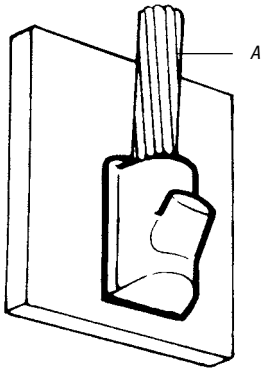
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CS7 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor

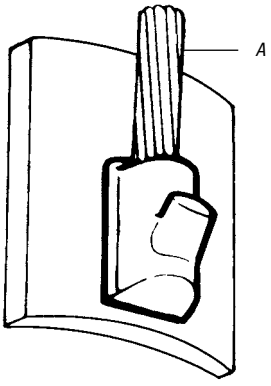


CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS7-4-#4	#4	65BKB	HCPK4	—	1
CS7-4-#2S	#2 solid	65BKB	HCPK4	—	1
CS7-4-#2	#2	65BKB	HCPK4	—	1
CS7-4-#1	#1	90BKB	HCPK4	—	1
CS7-4-1/0	1/0	90BKB	HCPK4	—	1
CS7-4-2/0	2/0	150BKB	HCPK4	—	1
CS7-5-3/0	3/0	200BKB	HCPK4	—	1
CS7-5-4/0	4/0	200BKB	HCPK4	—	1
CS7-5-250K	250	200BKB	HCPK4	—	1
CS7-5-300K	300	250BKB	HCPK4	—	1
CS7-6-350K	350	2 X 150BKB	HCPK5	—	1
CS7-6-500K	500	2 X 200BKB	HCPK5	—	1

Use Mold Sealing Compound (MSC) to ensure effective sealing.

CS7 Cable to Steel Surface and Pipe — For Pipes

- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	PIPE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS7-4-#4C	#4	1½" to 2¾"	65BKB	HCPK4	—	1
CS7-4-#4D		2¾" to 6½"	65BKB	HCPK4	—	1
CS7-4-#4F		6½" to 10"	65BKB	HCPK4	—	1
CS7-4-#4G		10" to 14"	65BKB	HCPK4	—	1
CS7-4-#2SC	#2 solid	1½" to 2¾"	65BKB	HCPK4	—	1
CS7-4-#2SD		2¾" to 6½"	65BKB	HCPK4	—	1
CS7-4-#2SF		6½" to 10"	65BKB	HCPK4	—	1
CS7-4-#2SG		10" to 14"	65BKB	HCPK4	—	1
CS7-4-#2C	#2	1½"–2¾"	65BKB	HCPK4	—	1
CS7-4-#2D		2¾"–6½"	65BKB	HCPK4	—	1
CS7-4-#2F		6½"–10"	65BKB	HCPK4	—	1
CS7-4-#2G		10"–14"	65BKB	HCPK4	—	1
CS7-4-#1C	#1	1½"–2¾"	90BKB	HCPK4	—	1
CS7-4-#1D		2¾"–6½"	90BKB	HCPK4	—	1
CS7-4-#1F		6½"–10"	90BKB	HCPK4	—	1
CS7-4-#1G		10"–14"	90BKB	HCPK4	—	1
CS7-4-1/0C	1/0	1½"–2¾"	90BKB	HCPK4	—	1
CS7-4-1/0D		2¾"–6½"	90BKB	HCPK4	—	1
CS7-4-1/0F		6½"–10"	90BKB	HCPK4	—	1
CS7-4-1/0G		10"–14"	90BKB	HCPK4	—	1
CS7-4-2/0C	2/0	1½"–2¾"	150BKB	HCPK4	—	1
CS7-4-2/0D		2¾"–6½"	150BKB	HCPK4	—	1
CS7-4-2/0F		6½"–10"	150BKB	HCPK4	—	1
CS7-4-2/0G		10"–14"	150BKB	HCPK4	—	1
CS7-5-3/0C	3/0	1½"–2¾"	200BKB	HCPK4	—	1
CS7-5-3/0D		2¾"–6½"	200BKB	HCPK4	—	1
CS7-5-3/0F		6½"–10"	200BKB	HCPK4	—	1
CS7-5-3/0G		10"–14"	200BKB	HCPK4	—	1
CS7-5-4/0C	4/0	1½"–2¾"	200BKB	HCPK4	—	1
CS7-5-4/0D		2¾"–6½"	200BKB	HCPK4	—	1
CS7-5-4/0F		6½"–10"	200BKB	HCPK4	—	1
CS7-5-4/0G		10"–14"	200BKB	HCPK4	—	1

OVER 14": USE CS7 FOR FLAT SURFACE.

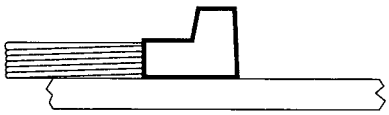
Use Mold Sealing Compound (MSC) to ensure effective sealing.

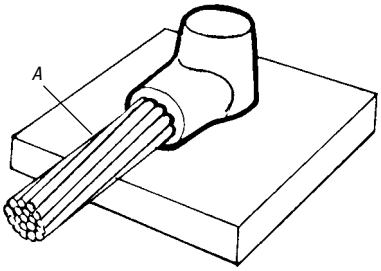
United States
Tel: 901.252.8000
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Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

CS8 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor





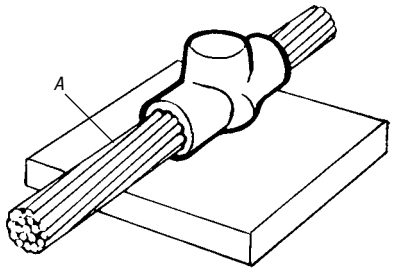
CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS8-2-#6	#6	45BKB	HCPK2	SLEEVE#6	1
CS8-2-#4	#4	45BKB	HCPK2	—	1
CS8-2-#2S	#2 solid	45BKB	HCPK2	—	1
CS8-2-#2	#2	45BKB	HCPK2	—	1
CS8-2-#1	#1	65BKB	HCPK2	—	1

Use Mold Sealing Compound (MSC) to ensure effective sealing.

CS9 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor





CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS9-2-#6	#6	45BKB	HCPK2	SLEEVE#6	1
CS9-2-#4	#4	45BKB	HCPK2	—	1
CS9-2-#2S	#2 solid	45BKB	HCPK2	—	1
CS9-2-#2	#2	45BKB	HCPK2	—	1
CS9-2-#1	#1	65BKB	HCPK2	—	1

Use Mold Sealing Compound (MSC) to ensure effective sealing.

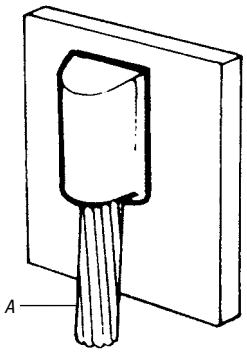
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Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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CS25 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor

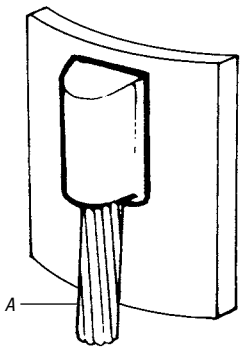


CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS25-4-#4	#4	65BKB	HCPK4	—	1
CS25-4-#2S	#2 solid	65BKB	HCPK4	—	1
CS25-4-#2	#2	65BKB	HCPK4	—	1
CS25-4-#1	#1	90BKB	HCPK4	—	1
CS25-4-1/0	1/0	115BKB	HCPK4	—	1
CS25-4-2/0	2/0	115BKB	HCPK4	—	1
CS25-4-3/0	3/0	150BKB	HCPK4	—	1
CS25-4-4/0	4/0	150BKB	HCPK4	—	1
CS25-4-250K	250	200BKB	HCPK4	—	1
CS25-4-300K	300	200BKB	HCPK4	—	1
CS25-4-350K	350	250BKB	HCPK4	—	1
CS25-4-500K	500	250BKB	HCPK4	—	1

Use Mold Sealing Compound (MSC) to ensure effective sealing.

CS25 Cable to Steel Surface and Pipe — For Pipes

- Stranded conductor
- Solid circular conductor



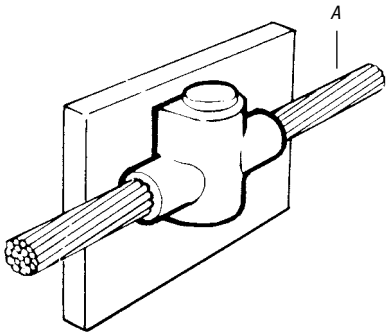
CAT. NO.	WIRE SIZE (A)	PIPE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN
CS25-4-#4C	#4	1½"–2¾"	65BKB	HCPK4	—	1
CS25-4-#4D		2¾"–6½"	65BKB	HCPK4	—	1
CS25-4-#4F		6½"–10"	65BKB	HCPK4	—	1
CS25-4-#4G		10"–14"	65BKB	HCPK4	—	1
CS25-4-#2SC	#2 solid	1½"–2¾"	65BKB	HCPK4	—	1
CS25-4-#2SD		2¾"–6½"	65BKB	HCPK4	—	1
CS25-4-#2SF		6½"–10"	65BKB	HCPK4	—	1
CS25-4-#2SG		10"–14"	65BKB	HCPK4	—	1
CS25-4-#2C	#2	1½"–2¾"	65BKB	HCPK4	—	1
CS25-4-#2D		2¾"–6½"	65BKB	HCPK4	—	1
CS25-4-#2F		6½"–10"	65BKB	HCPK4	—	1
CS25-4-#2G		10"–14"	65BKB	HCPK4	—	1
CS25-4-#1C	#1	1½"–2¾"	90BKB	HCPK4	—	1
CS25-4-#1D		2¾"–6½"	90BKB	HCPK4	—	1
CS25-4-#1F		6½"–10"	90BKB	HCPK4	—	1
CS25-4-#1G		10"–14"	90BKB	HCPK4	—	1
CS25-4-1/0C	1/0	1½"–2¾"	90BKB	HCPK4	—	1
CS25-4-1/0D		2¾"–6½"	90BKB	HCPK4	—	1
CS25-4-1/0F		6½"–10"	90BKB	HCPK4	—	1
CS25-4-1/0G		10"–14"	90BKB	HCPK4	—	1
CS25-4-2/0C	2/0	1½"–2¾"	150BKB	HCPK4	—	1
CS25-4-2/0D		2¾"–6½"	150BKB	HCPK4	—	1
CS25-4-2/0F		6½"–10"	150BKB	HCPK4	—	1
CS25-4-2/0G		10"–14"	150BKB	HCPK4	—	1
CS25-4-3/0C	3/0	1½"–2¾"	200BKB	HCPK4	—	1
CS25-4-3/0D		2¾"–6½"	200BKB	HCPK4	—	1
CS25-4-3/0F		6½"–10"	200BKB	HCPK4	—	1
CS25-4-3/0G		10"–14"	200BKB	HCPK4	—	1
CS25-4-4/0C	4/0	1½"–2¾"	200BKB	HCPK4	—	1
CS25-4-4/0D		2¾"–6½"	200BKB	HCPK4	—	1
CS25-4-4/0F		6½"–10"	200BKB	HCPK4	—	1
CS25-4-4/0G		10"–14"	200BKB	HCPK4	—	1

OVER 14": USE CS7 FOR FLAT SURFACE.

Use Mold Sealing Compound (MSC) to ensure effective sealing.

CS27 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor

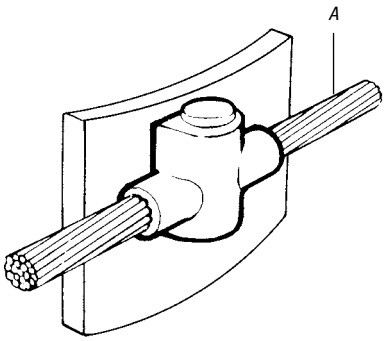


CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS27-4-#6	#6	45BKB	HCPK4	SLEEVE#6	1
CS27-4-#4	#4	45BKB	HCPK4	—	1
CS27-4-#2S	#2 solid	45BKB	HCPK4	—	1
CS27-4-#2	#2	45BKB	HCPK4	—	1
CS27-4-#1	#1	65BKB	HCPK4	—	1
CS27-4-1/0	1/0	115BKB	HCPK4	—	1
CS27-4-2/0	2/0	115BKB	HCPK4	—	1
CS27-4-3/0	3/0	150BKB	HCPK4	—	1
CS27-4-4/0	4/0	150BKB	HCPK4	—	1
CS27-4-250K	250	150BKB	HCPK4	—	1

Use Mold Sealing Compound (MSC) to ensure effective sealing.

CS27 Cable to Steel Surface and Pipe — For Pipes

- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	PIPE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN
CS27-4-#4C	#4	1½"–2¾"	45BKB	HCPK4	—	1
CS27-4-#4D		2¾"–6½"	45BKB	HCPK4	—	1
CS27-4-#4F		6½"–10"	45BKB	HCPK4	—	1
CS27-4-#4G		10"–14"	45BKB	HCPK4	—	1
CS27-4-#2SC	#2 solid	1½"–2¾"	45BKB	HCPK4	—	1
CS27-4-#2SD		2¾"–6½"	45BKB	HCPK4	—	1
CS27-4-#2SF		6½"–10"	45BKB	HCPK4	—	1
CS27-4-#2SG		10"–14"	45BKB	HCPK4	—	1
CS27-4-#2C	#2	1½"–2¾"	45BKB	HCPK4	—	1
CS27-4-#2D		2¾"–6½"	45BKB	HCPK4	—	1
CS27-4-#2F		6½"–10"	45BKB	HCPK4	—	1
CS27-4-#2G		10"–14"	45BKB	HCPK4	—	1
CS27-4-#1C	#1	1½"–2¾"	65BKB	HCPK4	—	1
CS27-4-#1D		2¾"–6½"	65BKB	HCPK4	—	1
CS27-4-#1F		6½"–10"	65BKB	HCPK4	—	1
CS27-4-#1G		10"–14"	65BKB	HCPK4	—	1
CS27-4-110C	1/0	1½"–2¾"	115BKB	HCPK4	—	1
CS27-4-110D		2¾"–6½"	115BKB	HCPK4	—	1
CS27-4-110F		6½"–10"	115BKB	HCPK4	—	1
CS27-4-110G		10"–14"	115BKB	HCPK4	—	1
CS27-4-210C	2/0	1½"–2¾"	115BKB	HCPK4	—	1
CS27-4-210D		2¾"–6½"	115BKB	HCPK4	—	1
CS27-4-210F		6½"–10"	115BKB	HCPK4	—	1
CS27-4-210G		10"–14"	115BKB	HCPK4	—	1
CS27-4-310C	3/0	1½"–2¾"	150BKB	HCPK4	—	1
CS27-4-310D		2¾"–6½"	150BKB	HCPK4	—	1
CS27-4-310F		6½"–10"	150BKB	HCPK4	—	1
CS27-4-310G		10"–14"	150BKB	HCPK4	—	1
CS27-4-410C	4/0	1½"–2¾"	150BKB	HCPK4	—	1
CS27-4-410D		2¾"–6½"	150BKB	HCPK4	—	1
CS27-4-410F		6½"–10"	150BKB	HCPK4	—	1
CS27-4-410G		10"–14"	150BKB	HCPK4	—	1

OVER 14": USE CS7 FOR FLAT SURFACE.

Use Mold Sealing Compound (MSC) to ensure effective sealing.

Thomas&Betts

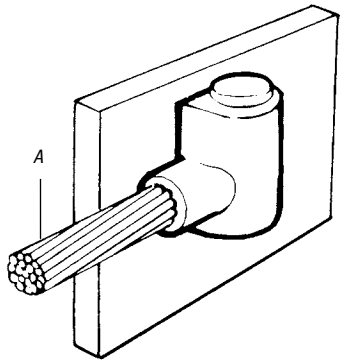
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CS31 Cable to Steel Surface and Pipe — For Flat Surfaces

- Stranded conductor
- Solid circular conductor



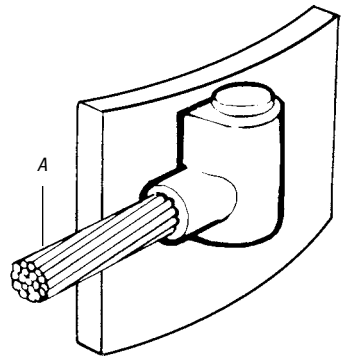
CAT. NO.	WIRE SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS31-4-#6	#6	45BKB	HCPK4	SLEEVE#6	1
CS31-4-#4	#4	45BKB	HCPK4	—	1
CS31-4-#2S	#2 solid	45BKB	HCPK4	—	1
CS31-4-#2	#2	45BKB	HCPK4	—	1
CS31-4-#1	#1	65BKB	HCPK4	—	1
CS31-4-1/0	1/0	90BKB	HCPK4	—	1
CS31-4-2/0	2/0	90BKB	HCPK4	—	1
CS31-4-3/0	3/0	115BKB	HCPK4	—	1
CS31-4-4/0	4/0	115BKB	HCPK4	—	1
CS31-4-250K	250	115BKB	HCPK4	—	1
CS31-4-300K	300	150BKB	HCPK4	—	1
CS31-4-350K	350	200BKB	HCPK4	—	1
CS31-4-500K	500	200BKB	HCPK4	—	1

Add "R" or "L" to denote wire exiting left or right. (Example: CS31-6-#6R for #6 wire exiting on the right.)

Use Mold Sealing Compound (MSC) to ensure effective sealing.

CS31 Cable to Steel Surface and Pipe — For Pipes

- Stranded conductor
- Solid circular conductor



CAT. NO.	WIRE SIZE (A)	PIPE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS31-4-#4C	#4	1½"–2¾"	45BKB	HCPK4	—	1
CS31-4-#4D		2¾"–6½"	45BKB	HCPK4	—	1
CS31-4-#4F		6½"–10"	45BKB	HCPK4	—	1
CS31-4-#4G		10"–14"	45BKB	HCPK4	—	1
CS31-4-#2SC	#2 solid	1½"–2¾"	45BKB	HCPK4	—	1
CS31-4-#2SD		2¾"–6½"	45BKB	HCPK4	—	1
CS31-4-#2SF		6½"–10"	45BKB	HCPK4	—	1
CS31-4-#2SG		10"–14"	45BKB	HCPK4	—	1
CS31-4-#2C	#2	1½"–2¾"	45BKB	HCPK4	—	1
CS31-4-#2D		2¾"–6½"	45BKB	HCPK4	—	1
CS31-4-#2F		6½"–10"	45BKB	HCPK4	—	1
CS31-4-#2G		10"–14"	45BKB	HCPK4	—	1
CS31-4-#1C	#1	1½"–2¾"	65BKB	HCPK4	—	1
CS31-4-#1D		2¾"–6½"	65BKB	HCPK4	—	1
CS31-4-#1F		6½"–10"	65BKB	HCPK4	—	1
CS31-4-#1G		10"–14"	65BKB	HCPK4	—	1
CS31-4-1/0C	1/0	1½"–2¾"	90BKB	HCPK4	—	1
CS31-4-1/0D		2¾"–6½"	90BKB	HCPK4	—	1
CS31-4-1/0F		6½"–10"	90BKB	HCPK4	—	1
CS31-4-1/0G		10"–14"	90BKB	HCPK4	—	1
CS31-4-2/0C	2/0	1½"–2¾"	90BKB	HCPK4	—	1
CS31-4-2/0D		2¾"–6½"	90BKB	HCPK4	—	1
CS31-4-2/0F		6½"–10"	90BKB	HCPK4	—	1
CS31-4-2/0G		10"–14"	90BKB	HCPK4	—	1
CS31-4-3/0C	3/0	1½"–2¾"	115BKB	HCPK4	—	1
CS31-4-3/0D		2¾" to 6½"	115BKB	HCPK4	—	1
CS31-4-3/0F		6½"–10"	115BKB	HCPK4	—	1
CS31-4-3/0G		10"–14"	115BKB	HCPK4	—	1
CS31-4-4/0C	4/0	1½"–2¾"	115BKB	HCPK4	—	1
CS31-4-4/0D		2¾"–6½"	115BKB	HCPK4	—	1
CS31-4-4/0F		6½"–10"	115BKB	HCPK4	—	1
CS31-4-4/0G		10"–14"	115BKB	HCPK4	—	1

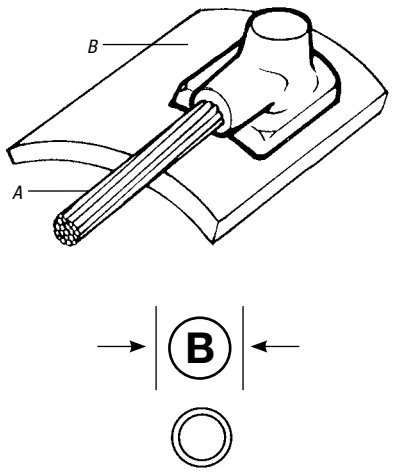
OVER 14": USE CS31 FOR FLAT SURFACE.

Add "R" or "L" to denote wire exiting left or right. (Example: CS31-6-#6R for #6 wire exiting on the right.)

Use Mold Sealing Compound (MSC) to ensure effective sealing.

CS32 Cable to Steel Surface and Pipe — For Pipes

- Stranded conductor



CAT. NO.	WIRE SIZE (A)	PIPE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS32-2-#4C	#4	1½"–2¾"	45BKB	HCPK2	—	1
CS32-2#4D		2¾"–6½"	45BKB	HCPK2	—	1
CS32-2-#4F		6½"–10"	45BKB	HCPK2	—	1
CS32-2-#4G		10"–14"	45BKB	HCPK2	—	1
CS32-2-#2SC	#2 solid	1½"–2¾"	45BKB	HCPK2	—	1
CS32-2-#2SD		2¾"–6½"	45BKB	HCPK2	—	1
CS32-2-#2SF		6½"–10"	45BKB	HCPK2	—	1
CS32-2-#2SG		10"–14"	45BKB	HCPK2	—	1
CS32-2-#2C	#2	1½"–2¾"	45BKB	HCPK2	—	1
CS32-2-#2D		2¾"–6½"	45BKB	HCPK2	—	1
CS32-2-#2F		6½"–10"	45BKB	HCPK2	—	1
CS32-2-#2G		10"–14"	45BKB	HCPK2	—	1
CS32-2-#1D	#1	2¾"–6½"	65BKB	HCPK2	—	1
CS32-2-#1F		6½"–10"	65BKB	HCPK2	—	1
CS32-2-#1G		10"–14"	65BKB	HCPK2	—	1
OVER 14": USE CS8 FOR FLAT SURFACE.						
CS32-4-#1/0D	1/0	2¾"–6½"	90BKB	HCPK4	—	1
CS32-4-#1/0F		6½"–10"	90BKB	HCPK4	—	1
CS32-4-#1/0G		10"–14"	90BKB	HCPK4	—	1
CS32-4-#2/0D	2/0	2¾"–6½"	90BKB	HCPK4	—	1
CS32-4-#2/0F		6½"–10"	90BKB	HCPK4	—	1
CS32-4-#2/0G		10"–14"	90BKB	HCPK4	—	1
CS32-4-#3/0D	3/0	2¾"–6½"	90BKB	HCPK4	—	1
CS32-4-#3/0F		6½"–10"	90BKB	HCPK4	—	1
CS32-4-#3/0G		10"–14"	90BKB	HCPK4	—	1
CS32-4-#4/0D	4/0	2¾"–6½"	90BKB	HCPK4	—	1
CS32-4-#4/0F		6½"–10"	90BKB	HCPK4	—	1
CS32-4-#4/0G		10"–14"	90BKB	HCPK4	—	1
OVER 14": USE CS1 FOR FLAT SURFACE.						

Add "R" or "L" to denote wire exiting left or right. (Example: CS31-6-#6R for #6 wire exiting on the right.)

Use Mold Sealing Compound (MSC) to ensure effective sealing.

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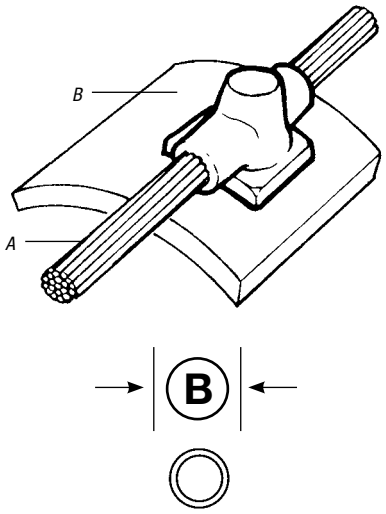
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CS34 Cable to Steel Surface and Pipe — For Pipes

- Stranded conductor



CAT. NO.	WIRE SIZE (A)	PIPE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CS34-2-#4C	#4	1½" to 2¾"	45BKB	HCPK2	—	1
CS34-2-#4D		2¾" to 6½"	45BKB	HCPK2	—	1
CS34-2-#4F		6½" to 10"	45BKB	HCPK2	—	1
CS34-2-#4G		10" to 14"	45BKB	HCPK2	—	1
CS34-2-#2SC	#2S	1½" to 2¾"	45BKB	HCPK2	—	1
CS34-2-#2SD		2¾" to 6½"	45BKB	HCPK2	—	1
CS34-2-#2SF		6½" to 10"	45BKB	HCPK2	—	1
CS34-2-#2SG		10" to 14"	45BKB	HCPK2	—	1
CS34-2-#2C	#2	1½" to 2¾"	45BKB	HCPK2	—	1
CS34-2-#2D		2¾" to 6½"	45BKB	HCPK2	—	1
CS34-2-#2F		6½" to 10"	45BKB	HCPK2	—	1
CS34-2-#2G		10" to 14"	45BKB	HCPK2	—	1
CS34-2-#1D	#1	2¾" to 6½"	65BKB	HCPK2	—	1
CS34-2-#1F		6½" to 10"	65BKB	HCPK2	—	1
CS34-2-#1G		10" to 14"	65BKB	HCPK2	—	1
OVER 14": USE CS8 FOR FLAT SURFACE						
CS34-4-#1/0D	1/0	2¾" to 6½"	90BKB	HCPK4	—	1
CS34-4-#1/0F		6½" to 10"	90BKB	HCPK4	—	1
CS34-4-#1/0G		10" to 14"	90BKB	HCPK4	—	1
CS34-4-#2/0D	2/0	2¾" to 6½"	115BKB	HCPK4	—	1
CS34-4-#2/0F		6½" to 10"	115BKB	HCPK4	—	1
CS34-4-#2/0G		10" to 14"	115BKB	HCPK4	—	1
CS34-4-#3/0D	3/0	2¾" to 6½"	115BKB	HCPK4	—	1
CS34-4-#3/0F		6½" to 10"	115BKB	HCPK4	—	1
CS34-4-#3/0G		10" to 14"	115BKB	HCPK4	—	1
CS34-4-#4/0D	4/0	2¾" to 6½"	150BKB	HCPK4	—	1
CS34-4-#4/0F		6½" to 10"	150BKB	HCPK4	—	1
CS34-4-#4/0G		10" to 14"	150BKB	HCPK4	—	1
OVER 14": USE CS1 FOR FLAT SURFACE						

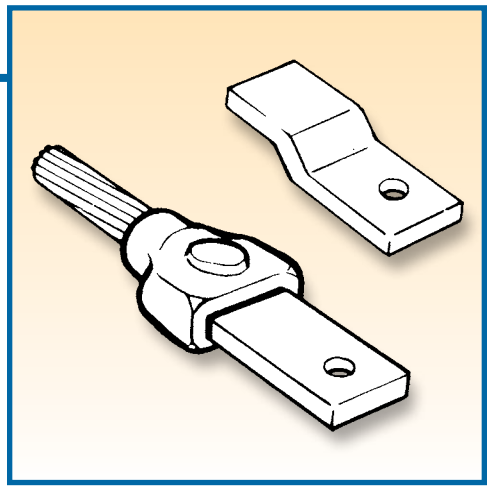
Use Mold Sealing Compound (MSC) to ensure effective sealing.

Exothermic Welding System

Cable to Bar Quick Reference

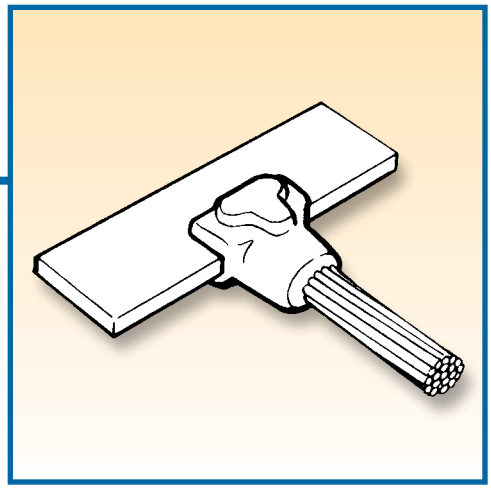
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See page F-329



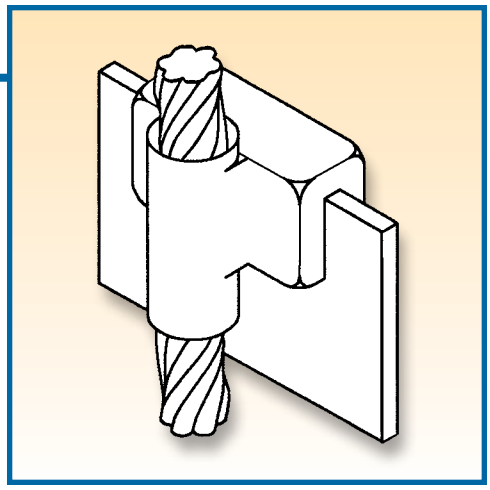
CB4

See page F-330



CB29

See page F-331



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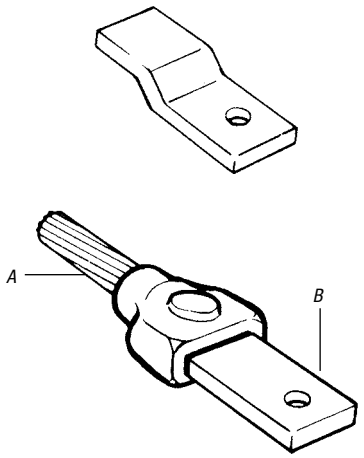
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CB1 Cable to Bar — For Pipes

- Stranded conductor
- Solid circular conductor
- Rectangular tape or bar

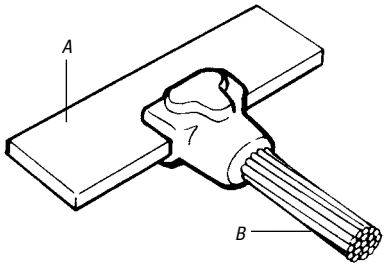


CAT. NO.	WIRE SIZE (A)	BAR SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CB1-4-#4181	#4	⅛" x 1"	45BKB	HCPK4	—	1
CB1-4-#2181	#2 solid	⅛" x 1"	45BKB	HCPK4	—	1
CB1-4-#2181	#2	⅛" x 1"	45BKB	HCPK4	—	1
CB1-4-#1181	#1	⅛" x 1"	45BKB	HCPK4	—	1
CB1-4-1/0181	1/0	⅛" x 1"	45BKB	HCPK4	—	1
CB1-4-1/03161		3/16" x 1"	65BKB	HCPK4	—	1
CB1-4-1/0141		¼" x 1"	65BKB	HCPK4	—	1
CB1-4-2/0181	2/0	⅛" x 1"	65BKB	HCPK4	—	1
CB1-4-2/03161		3/16" x 1"	65BKB	HCPK4	—	1
CB1-4-2/0141		¼" x 1"	65BKB	HCPK4	—	1
CB1-4-3/018	3/0	⅛" x 1"	65BKB	HCPK4	—	1
CB1-4-3/0161		3/16" x 1"	90BKB	HCPK4	—	1
CB1-4-3/0141		¼" X 1"	90BKB	HCPK4	—	1
CB1-4-4/03161	4/0	3/16" x 1"	90BKB	HCPK4	—	1
CB1-4-4/0141		¼" x 1"	90BKB	HCPK4	—	1
CB1-4-4/014112		¼" x 1½"	90BKB	HCPK4	—	1
CB1-4-4/0142		¼" x 2"	90BKB	HCPK4	—	1
CB1-4-4/0143		¼" x 3"	90BKB	HCPK4	—	1
CB1-4-250K3161	250	3/16" x 1"	90BKB	HCPK4	—	1
CB1-4-250K141		¼" x 1"	90BKB	HCPK4	—	1
CB1-4-250K14112		¼" x 1½"	90BKB	HCPK4	—	1
CB1-4-250K142		¼" x 2"	90BKB	HCPK4	—	1
CB1-4-250K143		¼" x 3"	90BKB	HCPK4	—	1
CB1-4-300K141	300	¼" x 1"	90BKB	HCPK4	—	1
CB1-4-300K14112		¼" x 1½"	90BKB	HCPK4	—	1
CB1-4-300K142		¼" x 2"	90BKB	HCPK4	—	1
CB1-4-300K143		¼" x 3"	90BKB	HCPK4	—	1
CB1-4-350K141	350	¼" x 1"	115BKB	HCPK4	—	1
CB1-4-350K14112		¼" x 1½"	115BKB	HCPK4	—	1
CB1-4-350K142		¼" x 2"	115BKB	HCPK4	—	1
CB1-4-350K143		¼" x 3"	115BKB	HCPK4	—	1
CB1-4-500K14112	500	¼" x 1½"	200BKB	HCPK4	—	1
CB1-4-500K142		¼" x 2"	200BKB	HCPK4	—	1
CB1-4-500K143		¼" x 3"	200BKB	HCPK4	—	1
CB1-4-500K38112		⅜" x 1½"	200BKB	HCPK4	—	1
CB1-5-750K142	750	¼" x 2"	2 x 150BKB	HCPK5	—	1
CB1-5-750K143		¼" x 3'	2 x 150BKB	HCPK5	—	1
CB1-5-750K38112		⅜" x 1½"	2 x 150BKB	HCPK5	—	1
CB1-5-750K382		⅜" x 2"	2 x 150BKB	HCPK5	—	1
CB1-5-750K383		⅜" x 3"	2 x 150BKB	HCPK5	—	1
CB1-5-1000K143	1000	¼" x 3"	2 x 200BKB	HCPK5	—	1
CB1-5-1000K382		⅜" x 2"	2 x 200BKB	HCPK5	—	1
CB1-5-1000K383		⅜" x 3"	2 x 200BKB	HCPK5	—	1
CB1-5-1000K122		½" x 2"	2 x 200BKB	HCPK5	—	1
CB1-5-1000K123		½" x 3"	2 x 200BKB	HCPK5	—	1

Exothermic Welding System

CB4 Cable to Bar — For Flat Surfaces

- Stranded conductor
- Solid circular conductor
- Rectangular tape or bar



CAT. NO.	BAR SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CB4-4-#2S14112	¼" x 1½" and wider	#2 solid	45BKB	HCPK4	—	1
CB4-4-214112		#2	45BKB	HCPK4	—	1
CB4-4-1/014112		1/0	90BKB	HCPK4	—	1
CB4-4-2/014112		2/0	90BKB	HCPK4	—	1
CB4-4-3/014112		3/0	90BKB	HCPK4	—	1
CB4-4-4/014112		4/0	90BKB	HCPK4	—	1
CB4-4-250K14112		250	115BKB	HCPK4	—	1
CB4-4-300K14112		300	115BKB	HCPK4	—	1
CB4-4-350K14112		350	150BKB	HCPK4	—	1
CB4-4-500K1411		500	200BKB	HCPK4	—	1
CB4-4-#2S38112	⅜" x 1½" and wider	#2 solid	65BKB	HCPK4	—	1
CB4-4-#238112		#2	65BKB	HCPK4	—	1
CB4-4-1/038112		1/0	90BKB	HCPK4	—	1
CB4-4-2/038112		2/0	90BKB	HCPK4	—	1
CB4-4-4/038112		4/0	115BKB	HCPK4	—	1
CB4-4-250K38112		250	150BKB	HCPK4	—	1
CB4-4-300K38112		300	150BKB	HCPK4	—	1
CB4-4-350K38112		350	200BKB	HCPK4	—	1
CB4-4-500K38112		500	250BKB	HCPK4	—	1
CB4-5-750K38112		750	2 x 150BKB	HCPK5	—	1
CB4-5-1000K38112		1000	2 x 200BKB	HCPK5	—	1
CB4-4-#2S12112	½" x 1½" and wider	#2 solid	90BKB	HCPK4	—	1
CB4-4-#212112		#2	90BKB	HCPK4	—	1
CB4-4-1/012112		1/0	115BKB	HCPK4	—	1
CB4-4-2/012112		2/0	115BKB	HCPK4	—	1
CB4-4-3/012112		3/0	150BKB	HCPK4	—	1
CB4-4-4/012112		4/0	150BKB	HCPK4	—	1
CB4-4-250K12112		250	200BKB	HCPK4	—	1
CB4-4-300K12112		300	200BKB	HCPK4	—	1
CB4-4-350K12112		350	250BKB	HCPK4	—	1
CB4-5-500K12112		500	2 x 150BKB	HCPK5	—	1
CB4-5-750K12112		750	2 x 200BKB	HCPK5	—	1
CB4-5-1000K12112		1000	2 x 250BKB	HCPK5	—	1

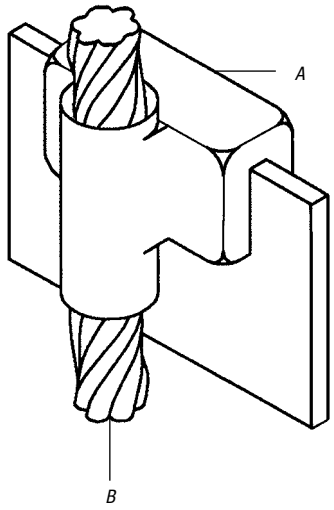
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CB29 Cable to Bar — For Flat Surfaces



CAT. NO.	BAR SIZE (A)	WIRE SIZE (B)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
CB29-9-#2S142	¼" x 2" and wider	#2 solid	250BKB	HCPK4	—	1
CB29-9-#2142		#2	250BKB	HCPK4	—	1
CB29-10-#1142		#1	2 x 150BKB	HCPK5	—	1
CB29-10-1/0142		1/0	2 x 200BKB	HCPK5	—	1
CB29-10-2/0142		2/0	2 x 200BKB	HCPK5	—	1
CB29-10-4/0142		4/0	2 x 250BKB	HCPK5	—	1
CB29-10-250K142		250	2 x 250BKB	HCPK5	—	1
CB29-10-500K142		500	2 x 250BKB	HCPK5	—	1
CB29-10-750K142		750	3 x 200BKB	HCPK5	—	1
CB29-9-#2S382	⅜" x 2" and wider	#2 solid	250BKB	HCPK4	—	1
CB29-9-#2382		#2 solid	250BKB	HCPK4	—	1
CB29-10-#1382		#1	2 x 150BKB	HCPK5	—	1
CB29-10-1/0382		1/0	2 x 200BKB	HCPK5	—	1
CB29-102/0382		2/0	2 x 200BKB	HCPK5	—	1
CB29-104/0382		4/0	2 x 250BKB	HCPK5	—	1
CB29-10-250K382		250	2 x 250BKB	HCPK5	—	1
CB29-10-500K382		500	2 x 250BKB	HCPK5	—	1
CB29-10-750K382		750	3 x 200BKB	HCPK5	—	1
CB29-10-#2S122	½" x 2" and wider	#2 solid	2 x 150BKB	HCPK5	—	1
CB29-10-#2122		#2	2 x 150BKB	HCPK5	—	1
CB29-10-#1122		#1	2 x 200BKB	HCPK5	—	1
CB29-10-1/0122		1/0	2 x 250BKB	HCPK5	—	1
CB29-10-2/0122		2/0	2 x 250BKB	HCPK5	—	1
CB29-10-4/0122		4/0	3 x 200BKB	HCPK5	—	1
CB29-10-250K122		250	3 x 200BKB	HCPK5	—	1
CB29-10-500K122		500	3 x 200BKB	HCPK5	—	1
CB29-10-750K		750	3 x 250BKB	HCPK5	—	1

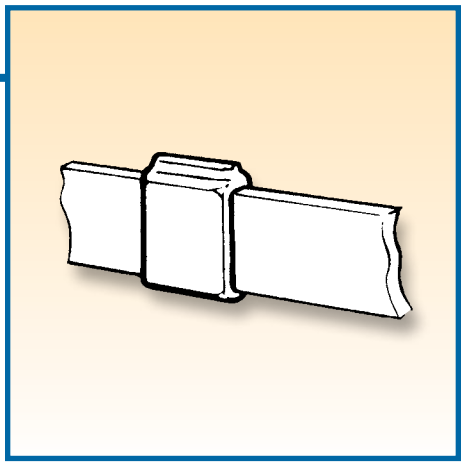
Use Mold Sealing Compound (MSC) to ensure effective sealing.

Exothermic Welding System

Bar to Bar Quick Reference

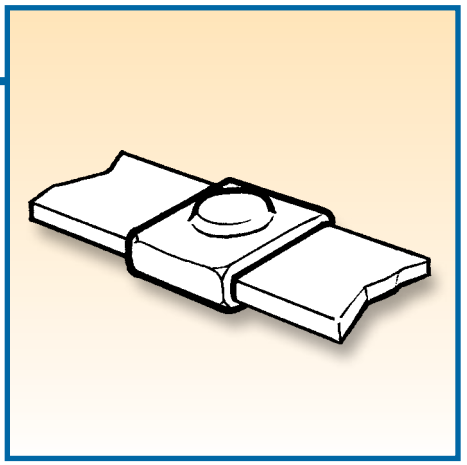
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See page F-333



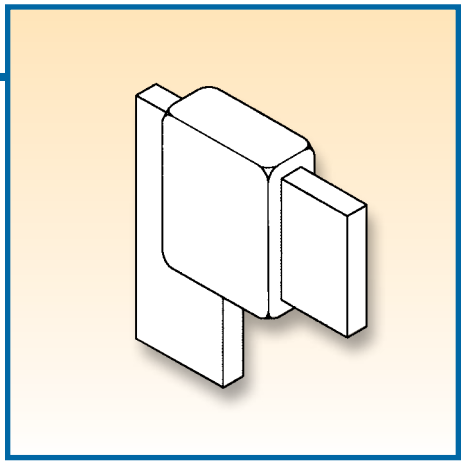
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See page F-334



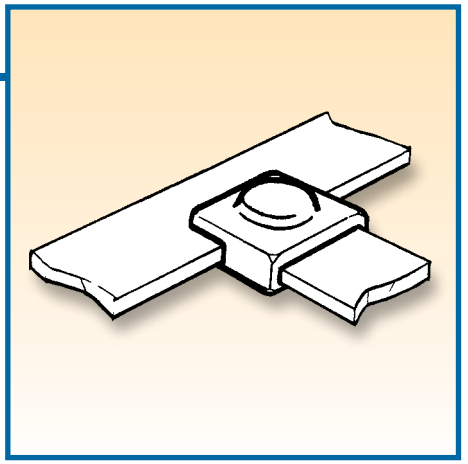
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See page F-333



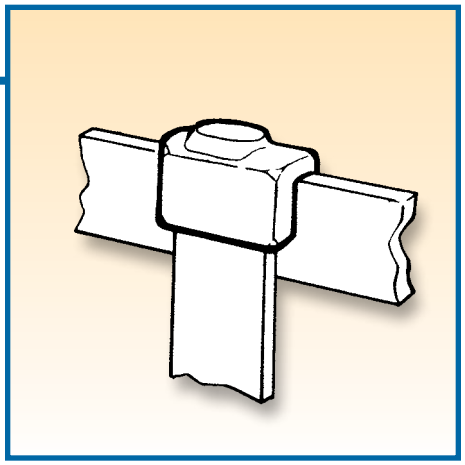
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See page F-335



BB3

See page F-334



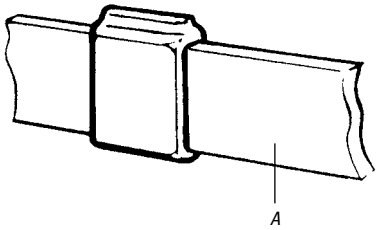
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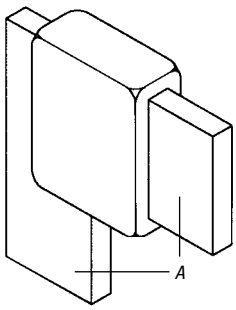
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BB1 Bar to Bar — For Flat Surfaces



CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BB1-4-181	⅛" x 1"	45BKB	HCPK4	—	1
BB1-4-18112	⅛" x 1½"	65BKB	HCPK4	—	1
BB1-4-182	⅛" x 2"	90BKB	HCPK4	—	1
BB1-4-183	⅛" x 3"	200BKB	HCPK4	—	1
BB1-4-184	⅛" x 4"	250BKB	HCPK4	—	1
BB1-4-3161	3⁄16" x 1"	65BKB	HCPK4	—	1
BB1-4-3162	3⁄16" x 2"	115BKB	HCPK4	—	1
BB1-4-141	¼" x 1"	90BKB	HCPK4	—	1
BB1-4-14114	¼" x 1¼"	115BKB	HCPK4	—	1
BB1-4-14112	¼" x 1½"	150BKB	HCPK4	—	1
BB1-4-142	¼" x 2"	200BKB	HCPK4	—	1
BB1-4-14212	¼" x 2½"	250BKB	HCPK4	—	1
BB1-5-143	¼" x 3"	2 x 200BKB	HCPK5	—	1
BB1-5-144	¼" x 4"	2 x 250BKB	HCPK5	—	1
BB1-4-381	⅜" x 1"	150BKB	HCPK5	—	1
BB1-4-38112	⅜" x 1½"	250BKB	HCPK4	—	1
BB1-5-382	⅜" x 2"	2 x 150BKB	HCPK5	—	1
BB1-5-383	⅜" x 3"	2 x 250BKB	HCPK5	—	1
BB1-5-384	⅜" x 4"	3 x 200BKB	HCPK5	—	1
BB1-4-121	½" x 1"	200BKB	HCPK4	—	1
BB1-5-122	½" x 2"	2 x 200BKB	HCPK5	—	1

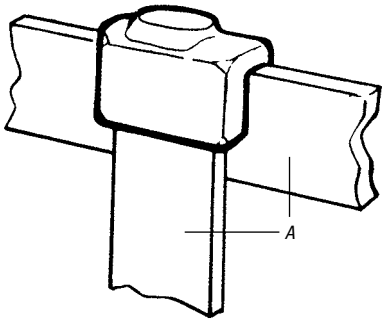
BB2 Bar to Bar — For Flat Surfaces



CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BB2-4-181	⅛" x 1"	45BKB	HCPK4	—	1
BB2-4-18112	⅛" x 1½"	65BKB	HCPK4	—	1
BB2-4-182	⅛" x 2"	90BKB	HCPK4	—	1
BB2-4-183	⅛" x 3"	200BKB	HCPK4	—	1
BB2-4-184	⅛" x 4"	250BKB	HCPK4	—	1
BB2-4-3161	3⁄16" x 1"	65BKB	HCPK4	—	1
BB2-4-3162	3⁄16" x 2"	115BKB	HCPK4	—	1
BB2-4-141	¼" x 1"	90BKB	HCPK4	—	1
BB2-4-14114	¼" x 1¼"	115BKB	HCPK4	—	1
BB2-4-14112	¼" x 1½"	150BKB	HCPK4	—	1
BB2-4-142	¼" x 2"	200BKB	HCPK4	—	1
BB2-4-14212	¼" x 2½"	250BKB	HCPK4	—	1
BB2-5-143	¼" x 3"	2 x 200BKB	HCPK5	—	1
BB2-5-144	¼" x 4"	2 x 250BKB	HCPK5	—	1
BB2-4-381	⅜" x 1"	150BKB	HCPK5	—	1
BB2-4-38112	⅜" x 1½"	250BKB	HCPK4	—	1
BB2-5-382	⅜" x 2"	2 x 150BKB	HCPK5	—	1
BB2-5-383	⅜" x 3"	2 x 250BKB	HCPK5	—	1
BB2-5-384	⅜" x 4"	3 x 200BKB	HCPK5	—	1
BB2-4-121	½" x 1"	200BKB	HCPK4	—	1
BB2-5-122	½" x 2"	2 x 200BKB	HCPK5	—	1

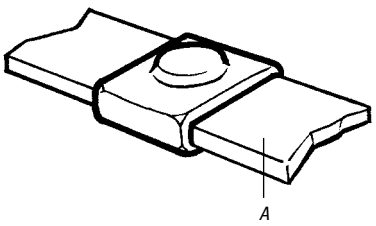
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BB3 Bar to Bar — For Flat Surfaces



CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BB3-4-181	⅛" x 1"	45BKB	HCPK4	—	1
BB3-4-18112	⅛" x 1½"	65BKB	HCPK4	—	1
BB3-4-182	⅛" x 2"	90BKB	HCPK4	—	1
BB3-4-183	⅛" x 3"	200BKB	HCPK4	—	1
BB3-4-184	⅛" x 4"	250BKB	HCPK4	—	1
BB3-4-3161	3⁄16" x 1"	65BKB	HCPK4	—	1
BB3-4-3162	3⁄16" x 2"	115BKB	HCPK4	—	1
BB3-4-141	¼" x 1"	90BKB	HCPK4	—	1
BB3-4-14114	¼" x 1¼"	115BKB	HCPK4	—	1
BB3-4-14112	¼" x 1½"	150BKB	HCPK4	—	1
BB3-4-142	¼" x 2"	200BKB	HCPK4	—	1
BB3-4-14212	¼" x 2½"	250BKB	HCPK4	—	1
BB3-5-143	¼" x 3"	2 x 200BKB	HCPK5	—	1
BB3-5-144	¼" x 4"	2 x 250BKB	HCPK5	—	1
BB3-4-381	⅜" x 1"	150BKB	HCPK5	—	1
BB3-4-38112	⅜" x 1½"	250BKB	HCPK4	—	1
BB3-5-382	⅜" x 2"	2 x 150BKB	HCPK5	—	1
BB3-5-383	⅜" x 3"	2 x 250BKB	HCPK5	—	1
BB3-5-384	⅜" x 4"	3 x 200BKB	HCPK5	—	1
BB3-4-121	½" x 1"	200BKB	HCPK4	—	1
BB3-5-122	½" x 2"	2 x 200BKB	HCPK5	—	1

BB7 Bar to Bar — For Flat Surfaces



CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BB7-4-181	⅛" x 1"	45BKB	HCPK4	—	1
BB7-4-18112	⅛" x 1½"	65BKB	HCPK4	—	1
BB7-4-182	⅛" x 2"	90BKB	HCPK4	—	1
BB7-4-183	⅛" x 3"	200BKB	HCPK4	—	1
BB7-4-184	⅛" x 4"	250BKB	HCPK4	—	1
BB7-4-3161	3⁄16" x 1"	65BKB	HCPK4	—	1
BB7-4-3162	3⁄16" x 2"	115BKB	HCPK4	—	1
BB7-4-141	¼" x 1"	90BKB	HCPK4	—	1
BB7-4-14114	¼" x 1¼"	115BKB	HCPK4	—	1
BB7-4-14112	¼" x 1½"	150BKB	HCPK4	—	1
BB7-4-142	¼" x 2"	200BKB	HCPK4	—	1
BB7-4-14212	¼" x 2½"	250BKB	HCPK4	—	1
BB7-5-143	¼" x 3"	2 x 200BKB	HCPK5	—	1
BB7-5-144	¼" x 4"	2 x 250BKB	HCPK5	—	1
BB7-4-381	⅜" x 1"	150BKB	HCPK5	—	1
BB7-4-38112	⅜" x 1½"	250BKB	HCPK4	—	1
BB7-5-382	⅜" x 2"	2 x 150BKB	HCPK5	—	1
BB7-5-383	⅜" x 3"	2 x 250BKB	HCPK5	—	1
BB7-5-384	⅜" x 4"	3 x 200BKB	HCPK5	—	1
BB7-4-121	½" x 1"	200BKB	HCPK4	—	1
BB7-5-122	½" x 2"	2 x 200BKB	HCPK5	—	1

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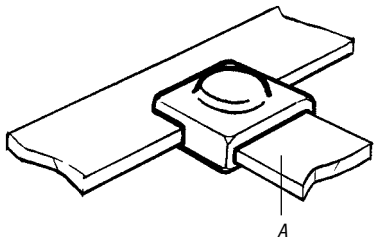
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BB14 Bar to Bar — For Flat Surfaces



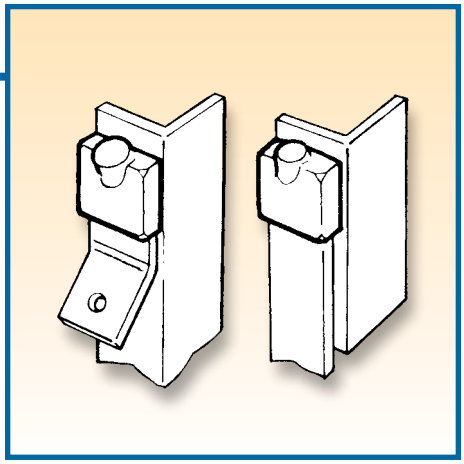
CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BB14-4-181	1/8" x 1"	45BKB	HCPK4	—	1
BB14-4-18112	1/8" x 1 1/2"	65BKB	HCPK4	—	1
BB14-4-182	1/8" x 2"	90BKB	HCPK4	—	1
BB14-4-183	1/8" x 3"	200BKB	HCPK4	—	1
BB14-4-184	1/8" x 4"	250BKB	HCPK4	—	1
BB14-4-3161	3/16" x 1"	65BKB	HCPK4	—	1
BB14-4-3162	3/16" x 2"	115BKB	HCPK4	—	1
BB14-4-141	1/4" x 1"	90BKB	HCPK4	—	1
BB14-4-14114	1/4" x 1 1/4"	115BKB	HCPK4	—	1
BB14-4-14112	1/4" x 1 1/2"	150BKB	HCPK4	—	1
BB14-4-142	1/4" x 2"	200BKB	HCPK4	—	1
BB14-4-14212	1/4" x 2 1/2"	250BKB	HCPK4	—	1
BB14-5-143	1/4" x 3"	2 x 200BKB	HCPK5	—	1
BB14-5-144	1/4" x 4"	2 x 250BKB	HCPK5	—	1
BB14-4-381	3/8" x 1"	150BKB	HCPK5	—	1
BB14-4-38112	3/8" x 1 1/2"	250BKB	HCPK4	—	1
BB14-5-382	3/8" x 2"	2 x 150BKB	HCPK5	—	1
BB14-5-383	3/8" x 3"	2 x 250BKB	HCPK5	—	1
BB14-5-384	3/8" x 4"	3 x 200BKB	HCPK5	—	1
BB14-4-121	1/2" x 1"	200BKB	HCPK4	—	1
BB14-5-122	1/2" x 2"	2 x 200BKB	HCPK5	—	1

Exothermic Welding System

Bar to Steel Surface Quick Reference

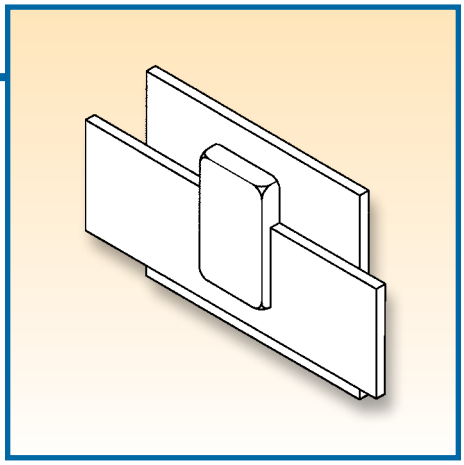
BS1

See page F-337



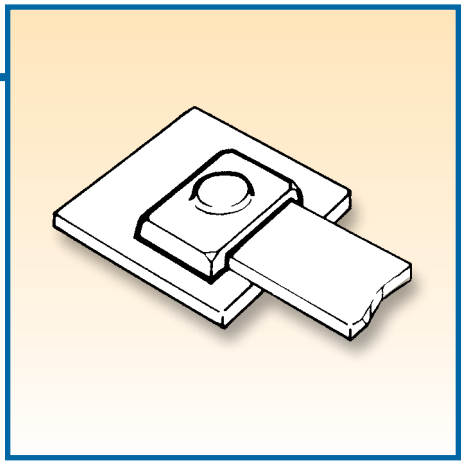
BS4

See page F-338



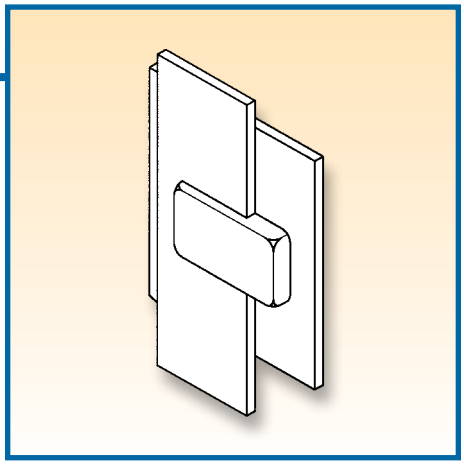
BS2

See page F-337



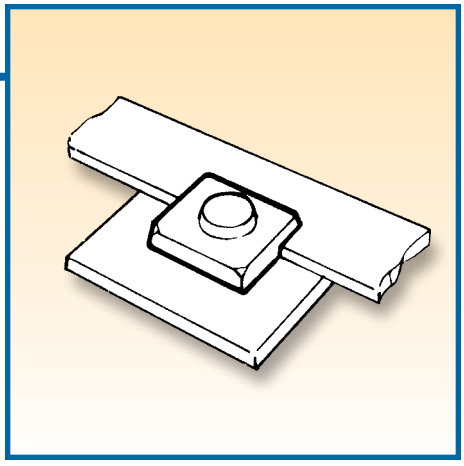
BS5

See page F-339



BS3

See page F-338



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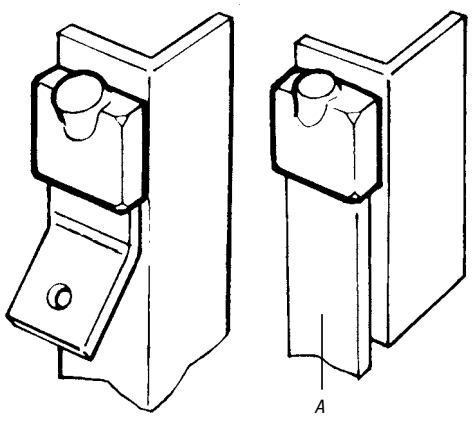
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BS1 Bar to Steel Surface — For Flat Surfaces

- Rectangular tape or bar

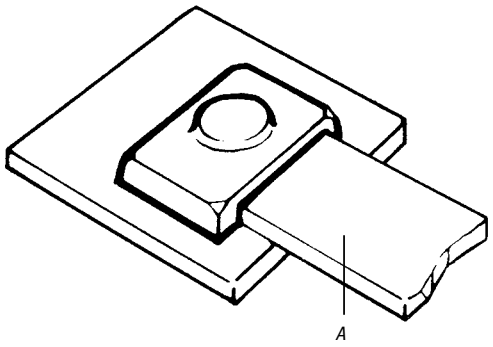


CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BS1-4-181	⅛" x 1"	115BKB	HCPK4	4	1
BS1-4-18112	⅛" x 1½"	150BKB	HCPK4	4	1
BS1-4-182	⅛" x 2"	200BKB	HCPK4	4	1
BS1-4-3161	3⁄16" x 1"	150BKB	HCPK4	4	1
BS1-4-316112	3⁄16" x 1½"	200BKB	HCPK4	4	1
BS1-4-3162	3⁄16" x 2"	250BKB	HCPK4	4	1
BS1-4-141	¼" x 1"	150BKB	HCPK4	4	1
BS1-4-14114	¼" x 1¼"	200BKB	HCPK4	4	1
BS1-4-14112	¼" x 1½"	250BKB	HCPK4	4	1
BS1-5-142	¼" x 2"	2 x 150BKB	HCPK4	4	1
BS1-4-381	⅜" x 1"	200BKB	HCPK5	4	1
BS1-4-38112	⅜" x 1½"	250BKB	HCPK4	4	1
BS1-5-382	⅜" x 2"	2 x 200BKB	HCPK5	5	1
BS1-4-121	½" x 1"	250BKB	HCPK4	4	1
BS1-5-12112	½" x 1½"	2 x 200BKB	HCPK5	5	1
BS1-5-122	½" x 2"	2 x 250BKB	HCPK5	5	1

Mold Sealing Compound (MSC) will be required if surface is uneven.

BS2 Bar to Steel Surface — For Flat Surfaces

- Rectangular tape or bar

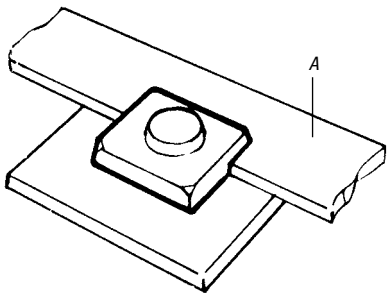


CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BS2-4-181	⅛" X 1"	115BKB	HCPK4	—	1
BS2-4-18112	⅛" X 1½"	150BKB	HCPK4	—	1
BS2-4-182	⅛" X 2"	200BKB	HCPK4	—	1
BS2-4-3161	3⁄16" X 1"	150BKB	HCPK4	—	1
BS2-4-316112	3⁄16" X 1½"	200BKB	HCPK4	—	1
BS2-4-3162	3⁄16" X 2"	250BKB	HCPK4	—	1
BS2-4-141	¼" X 1"	150BKB	HCPK4	—	1
BS2-4-14114	¼" X 1¼"	200BKB	HCPK4	—	1
BS2-4-14112	¼" X 1½"	250BKB	HCPK4	—	1
BS2-5-142	¼" X 2"	2 X 150BKB	HCPK4	—	1
BS2-4-381	⅜" X 1"	200BKB	HCPK5	—	1
BS2-4-38112	⅜" X 1½"	250BKB	HCPK4	—	1
BS2-5-382	⅜" X 2"	2 X 200BKB	HCPK5	—	1
BS2-4-121	½" X 1"	250BKB	HCPK4	—	1
BS2-5-12112	½" X 1½"	2 X 200BKB	HCPK5	—	1
BS2-5-122	½" X 2"	2 X 250BKB	HCPK5	—	1

Mold Sealing Compound (MSC) will be required if surface is uneven.

BS3 Bar to Steel Surface — For Flat Surfaces

- Rectangular tape or bar

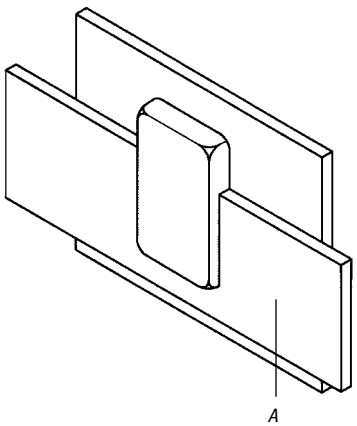


CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BS3-4-181	⅛" x 1"	115BKB	HCPK4	—	1
BS3-4-18112	⅛" x 1½" and wider	150BKB	HCPK4	—	1
BS3-4-3161	3⁄16" x 1"	150BKB	HCPK4	—	1
BS3-4-316112	3⁄16" x 1½" and wider	200BKB	HCPK4	—	1
BS3-4-141	¼" x 1"	150BKB	HCPK4	—	1
BS3-4-14114	¼" x 1¼"	200BKB	HCPK4	—	1
BS3-4-14112	¼" x 1½" and wider	250BKB	HCPK4	—	1
BS3-4-381	⅜" x 1"	200BKB	HCPK5	—	1
BS3-4-38112	⅜" x 1½" and wider	250BKB	HCPK4	—	1
BS3-4-121	½" x 1"	250BKB	HCPK4	—	1
BS3-5-12112	½" x 1½" and wider	2 x 200BKB	HCPK5	—	1

Mold Sealing Compound (MSC) will be required if surface is uneven.

BS4 Bar to Steel Surface — For Flat Surfaces

- Rectangular tape or bar



CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BS4-4-181	⅛" x 1"	115BKB	HCPK4	—	1
BS4-4-18112	⅛" x 1½"	150BKB	HCPK4	—	1
BS4-4-182	⅛" x 2"	200BKB	HCPK4	—	1
BS4-4-3161	3⁄16" x 1"	150BKB	HCPK4	—	1
BS4-4-316112	3⁄16" x 1½"	200BKB	HCPK4	—	1
BS4-4-3162	3⁄16" x 2"	250BKB	HCPK4	—	1
BS4-4-141	¼" x 1"	150BKB	HCPK4	—	1
BS4-4-14114	¼" x 1¼"	200BKB	HCPK4	—	1
BS4-4-14112	¼" x 1½"	250BKB	HCPK4	—	1
BS4-5-142	¼" x 2"	2 x 150BKB	HCPK4	—	1
BS4-4-381	⅜" x 1"	200BKB	HCPK5	—	1
BS4-4-38112	⅜" x 1½"	250BKB	HCPK4	—	1
BS4-5-382	⅜" x 2"	2 x 200BKB	HCPK5	—	1
BS4-4-121	½" x 1"	250BKB	HCPK4	—	1
BS4-5-12112	½" x 1½"	2 x 200BKB	HCPK5	—	1
BS4-5-122	½" x 2"	2 x 250BKB	HCPK5	—	1

Mold Sealing Compound (MSC) will be required if surface is uneven.

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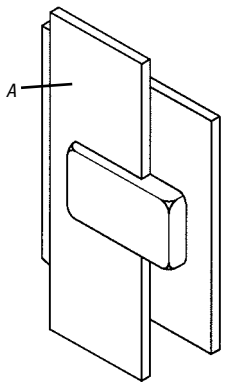
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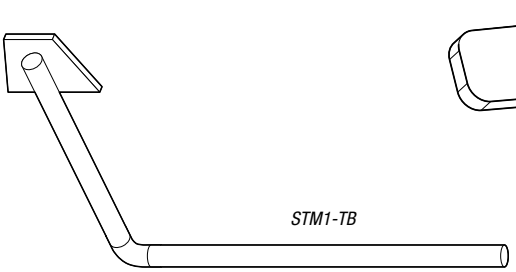
BS5 Bar to Steel Surface — For Flat Surfaces

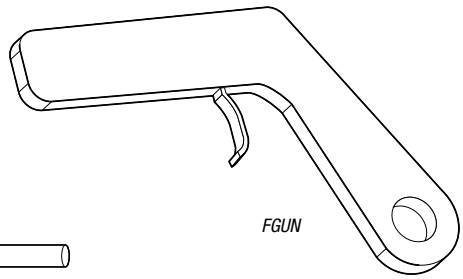


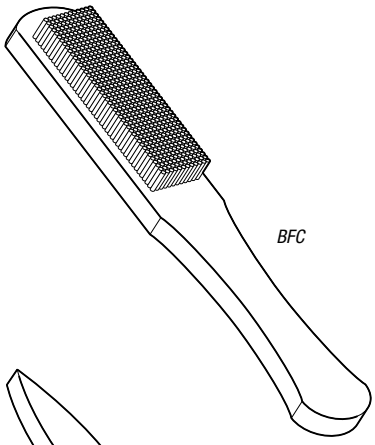
CAT. NO.	BAR SIZE (A)	WELDING POWDER SIZE	HANDLE CLAMP TYPE	SLEEVE	STD. CTN.
BS5-4-181	⅛" x 1"	115BKB	HCPK4	—	1
BS5-4-18112	⅛" x 1½"	150BKB	HCPK4	—	1
BS5-4-182	⅛" x 2" and wider	200BKB	HCPK4	—	1
BS5-4-3161	3⁄16" x 1"	150BKB	HCPK4	—	1
BS5-4-316112	3⁄16" x 1½"	200BKB	HCPK4	—	1
BS5-4-3162	3⁄16" x 2" and wider	250BKB	HCPK4	—	1
BS5-4-141	¼" x 1"	150BKB	HCPK4	—	1
BS5-4-14114	¼" x 1¼"	200BKB	HCPK4	—	1
BS5-4-14112	¼" x 1½"	250BKB	HCPK4	—	1
BS5-5-142	¼" x 2" and wider	2 x 150BKB	HCPK5	—	1
BS5-4-381	⅜" x 1"	200BKB	HCPK5	—	1
BS5-4-38112	⅜" x 1½"	250BKB	HCPK4	—	1
BS5-5-382	⅜" x 2" and wider	2 x 200BKB	HCPK5	—	1
BS5-4-121	½" x 1"	250BKB	HCPK4	—	1
BS5-5-12112	½" x 1½"	2 x 200BKB	HCPK5	—	1
BS5-5-122	½" x 2" and wider	2 x 250BKB	HCPK5	—	1

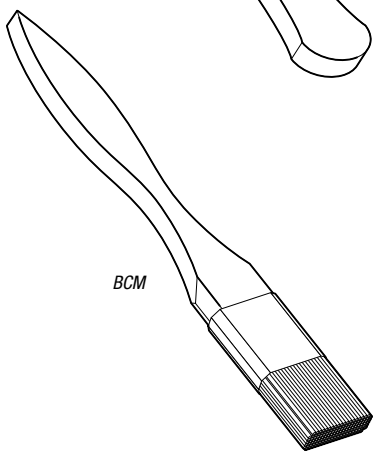
Mold Sealing Compound (MSC) will be required if surface is uneven.

Tools and Accessories









CAT. NO.	DESCRIPTION	APPLICATIONS	STD. CTN.
WWB1	Cable Cleaning Brush	Cleaning of stranded and other circular section conductors	6
WRB1	Replacement Elements (Pair)		3
BFC	Card Cloth Brush	Cleaning of conductors and surfaces	10
FGUN	Flint Ignitor Gun	Starting powder ignition	10
BCM	Mold Cleaning Brush	Soft brush for mold cleaning	10
STM1-TB	Mold Scraper Tool	Break up and removal of slag in mold crucible	10
MSC	Mold Sealing Compound	Mold sealing on uneven surfaces, and general mold sealing	5
PACK-A	Packing	Mold sealing on rebar surfaces	50
SLEEVE#6	Sleeve for #6 wire	Prevents burning of small section wire	100
SLEEVE#6S	Sleeve for #6S wire	Prevents burning of small section wire	100
SLEEVE#8	Sleeve for #8 wire	Prevents burning of small section wire	100
SLEEVE#8S	Sleeve for #8S wire	Prevents burning of small section wire	100
SHIM	Copper shim	For sealing around undersize conductors	100

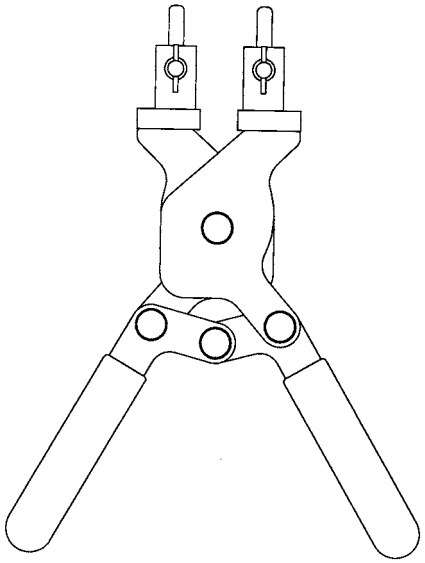
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United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

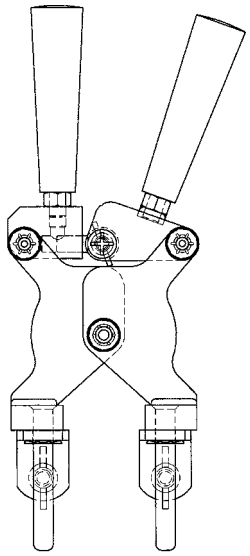
Technical Services
Tel: 888.862.3289

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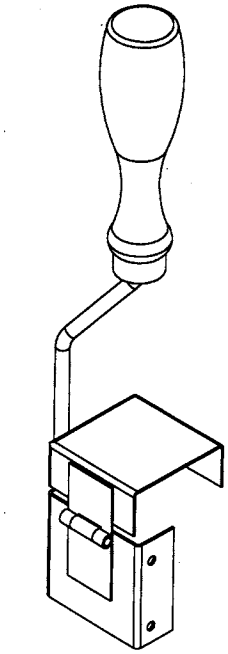
Handle Clamps



HCPK3

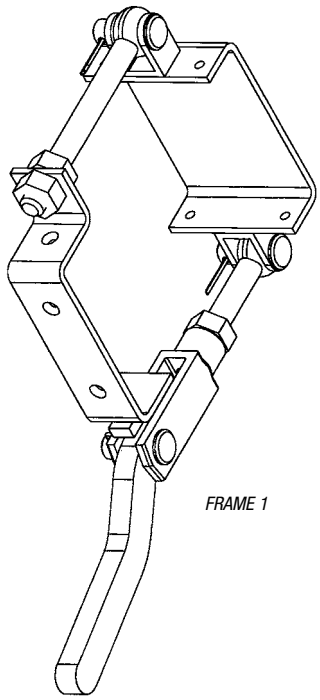


HCPK4



HCPK2

CAT. NO.	DESCRIPTION	APPLICATIONS	STD. CTN.
HCPK1	Price Key 1 Handle	For use on price key 1 molds	1
HCPK2	Price Key 2 Handle	For use on price key 2 molds	1
HCPK3	Price Key 3 Handle Clamp	For use on price key 3 molds	1
HCPK3A	Price Key 3A Handle Clamp	Type 3A molds (connections to vertical rebars)	1
HCPK3B	Price Key 3B Handle Clamp	Type 3B molds (connections to horizontal rebars)	1
HCPK3BMOD	Price Key 3B Modified Clamp	Type 3B molds (cross connections to horizontal rebars)	1
HCPK4	Price Key 4 Handle Clamp	For use on price key 4 molds	1
HCPK5	Price Key 5 Handle Clamp	For use on price key 5 molds	1
HCPK7	Price Key 7 Handle Clamp	For use on price key 7 molds	1
HCPK8	Price Key 8 Handle Clamp	For use on price key 8 molds	1
FRAME1	Price Key 9 Frame	For use with HCPK4 on price key 9 molds	1
FRAME2	Price Key 10 Frame	For use with HCPK5 on price key 10 molds	1



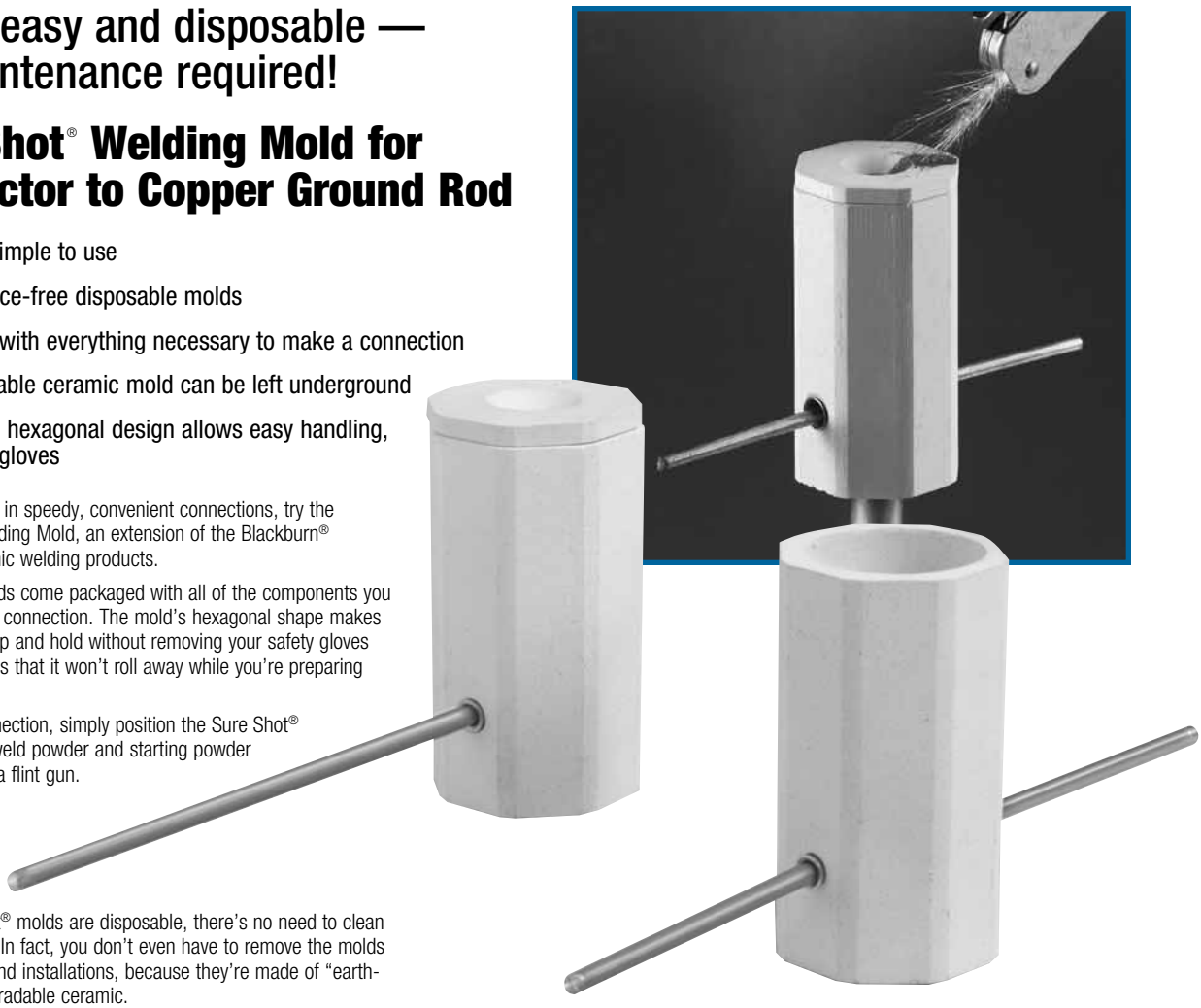
FRAME 1

Exothermic Welding System

Quick, easy and disposable — no maintenance required!

Sure Shot® Welding Mold for Conductor to Copper Ground Rod

- Fast and simple to use
- Maintenance-free disposable molds
- Packaged with everything necessary to make a connection
- Biodegradable ceramic mold can be left underground
- Ergonomic hexagonal design allows easy handling, even with gloves



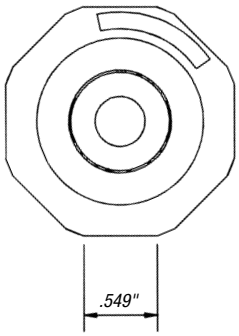
For the ultimate in speedy, convenient connections, try the Sure Shot® Welding Mold, an extension of the Blackburn® line of exothermic welding products.

Sure Shot® molds come packaged with all of the components you need to make a connection. The mold's hexagonal shape makes it easy to pick up and hold without removing your safety gloves and also ensures that it won't roll away while you're preparing the connection.

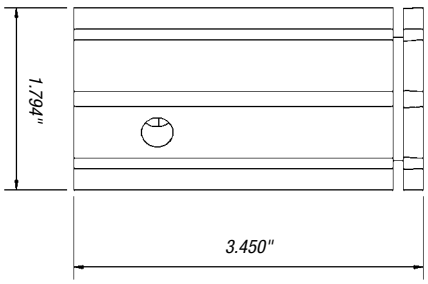
To make a connection, simply position the Sure Shot® mold, add the weld powder and starting powder and ignite with a flint gun. It's that easy.

Since Sure Shot® molds are disposable, there's no need to clean them after use. In fact, you don't even have to remove the molds from underground installations, because they're made of "earth-friendly" biodegradable ceramic.

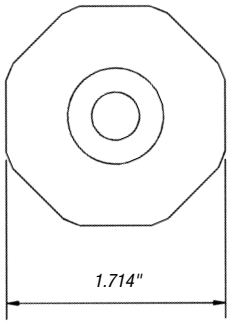
Dimensions



Cover



Welding Mold



Disk

Thomas&Betts

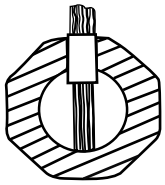
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Tel: 901.252.8000
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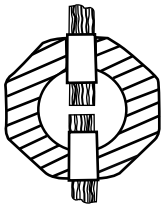
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Exothermic Welding System

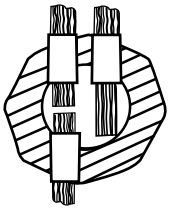
SCR1



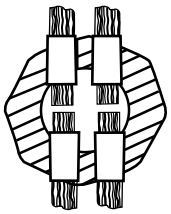
SCR2



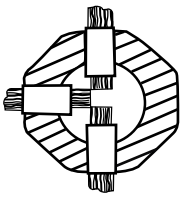
SCR17



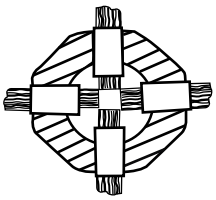
SCR24



SCR25



SCR27



Wire Positioning

CAT. NO.	GROUND ROD SIZE	CONDUCTOR SIZE	
		SOLID	STRANDED
Blackburn® Type SCR1			
SCR1-58-6808	5/8"	6, 8	8
SCR1-58-3446	5/8"	3, 4	4, 6
SCR1-58-1223	5/8"	1, 2	2, 3
SCR1-58-2010	5/8"	2/0, 1/0	1/0, 1
SCR1-58-0020	5/8"	—	2/0
SCR1-34-6808	3/4"	6, 8	8
SCR1-34-3446	3/4"	3, 4	4, 6
SCR1-34-1223	3/4"	1, 2	2, 3
SCR1-34-2010	3/4"	2/0, 1/0	1/0, 1
SCR1-34-0020	3/4"	—	2/0
SCR1-34-0040	3/4"	—	4/0
Blackburn® Type SCR2			
SCR2-58-6808	5/8"	6, 8	8
SCR2-58-3446	5/8"	3, 4	4, 6
SCR2-58-1223	5/8"	1, 2	2, 3
SCR2-58-2010	5/8"	2/0, 1/0	1/0, 1
SCR2-58-0020	5/8"	—	2/0
SCR2-34-6808	3/4"	6, 8	8
SCR2-34-3446	3/4"	3, 4	4, 6
SCR2-34-1223	3/4"	1, 2	2, 3
SCR2-34-2010	3/4"	2/0, 1/0	1/0, 1
SCR2-34-0020	3/4"	—	2/0
SCR2-34-0040	3/4"	—	4/0
Blackburn® Type SCR17			
SCR17-58-6808	5/8"	6, 8	8
SCR17-58-3446	5/8"	3, 4	4, 6
SCR17-58-1223	5/8"	1, 2	2, 3
SCR17-34-6808	3/4"	6, 8	8
SCR17-34-3446	3/4"	3, 4	4, 6
SCR17-34-1223	3/4"	1, 2	2, 3
Blackburn® Type SCR24			
SCR24-58-6808	5/8"	6, 8	8
SCR24-58-3446	5/8"	3, 4	4, 6
SCR24-58-1223	5/8"	1, 2	2, 3
SCR24-34-6808	3/4"	6, 8	8
SCR24-34-3446	3/4"	3, 4	4, 6
SCR24-34-1223	3/4"	1, 2	2, 3
Blackburn® Type SCR25			
SCR25-58-6808	5/8"	6, 8	8
SCR25-58-3446	5/8"	3, 4	4, 6
SCR25-58-1223	5/8"	1, 2	2, 3
SCR25-34-6808	3/4"	6, 8	8
SCR25-34-3446	3/4"	3, 4	4, 6
SCR25-34-1223	3/4"	1, 2	2, 3
Blackburn® Type SCR27			
SCR27-58-6808	5/8"	6, 8	8
SCR27-58-3446	5/8"	3, 4	4, 6
SCR27-34-6808	3/4"	6, 8	8
SCR27-34-3446	3/4"	3, 4	4, 6
SCR27-34-1223	3/4"	1, 2	2, 3

** The weight per 100 is 20 lbs. and the standard carton/outer pack is six for all catalog numbers.*

Exothermic Welding System

Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
BAC-JE	M-1135	**BB1-4-121**
BAC-EE	M-1122	**BB1-4-141**
BAC-EG	M-1124	**BB1-4-14112**
BAC-EF	M-1123	**BB1-4-14114**
BAC-EH	M-1125	**BB1-4-142**
BAC-EJ	M-6346	**BB1-4-14212**
BAC-CE	M-1118	**BB1-4-181**
BAC-CG	M-2557	**BB1-4-18112**
BAC-CH	M-1119	**BB1-4-182**
BAC-CK	M-6298	**BB1-4-183**
BAD-CM	M-5315	**BB1-4-184**
BAC-DE	M-1120	**BB1-4-3161**
BAC-DH	M-1121	**BB1-4-3162**
BAC-GE	M-1130	**BB1-4-381**
BAC-GG	M-1131	**BB1-4-38112**
BAD-JH	M-1136	**BB1-5-122**
BAD-EK	M-1126	**BB1-5-143**
BAD-EM	M-1127	**BB1-5-144**
BAD-GH	M-1132	**BB1-5-382**
BAD-GK	M-1133	**BB1-5-38**
BAD-GM	M-1134	**BB1-5-384**
EPC-JE	M-1247	**BB2-4-121**
EPC-EE	M-1234	**BB2-4-141**
EPC-EG	M-1236	**BB2-4-14112**
EPC-EF	M-1235	**BB2-4-14114**
EPC-EH	M-1237	**BB2-4-142**
EPC-EJ	M-6352	**BB2-4-14212**
EPC-CE	M-1230	**BB2-4-181**
EPC-CG	M-6347	**BB2-4-18112**
EPC-CH	M-1231	**BB2-4-182**
EPC-CK	M-6348	**BB2-4-183**
EPD-CM	M-6351	**BB2-4-184**
EPC-DE	M-1232	**BB2-4-3161**
EPC-DH	M-1233	**BB2-4-3162**
EPC-GE	M-1242	**BB2-4-381**
EPC-GG	M-1243	**BB2-4-38112**
EPD-JH	M-1248	**BB2-5-122**
EPD-EK	M-1238	**BB2-5-143**
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EPD-GK	M-1245	**BB2-5-383**
EPD-GM	M-1246	**BB2-5-384**
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BQC-EGEG	M-1104	**BB3-4-14112**
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BQC-CHCH	M-1099	**BB3-4-182**
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BWC-DG	M-6355	**BS1-4-316112**
BWC-DH	M-6356	**BS1-4-3162**
BWC-GE	M-1049	**BS1-4-381**
BWC-GG	M-6357	**BS1-4-38112**
BWD-JG	M-6358	**BS1-5-12112**
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BWD-EH	M-1048	**BS1-5-142**
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CGC-JE	M-1084	**BS2-4-121**
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CHC-DG	M-7163	**BS3-4-316112**
CHC-GE	M-1093	**BS3-4-381**
CHC-GG	M-1094	**BS3-4-38112**
CHD-JG	M-1096	**BS3-5-12112**
CCC-JE	M-1060	**BS4-4-121**
CCC-EE	M-1056	**BS4-4-141**

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Thermoweld is a trademark of Continental Industries.

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Exothermic Welding System

Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
CCC-EG	M-6369	**BS4-4-14112**
CCC-EF	M-5566	**BS4-4-14114**
CCC-CE	M-1054	**BS4-4-181**
CCC-CG	M-6360	**BS4-4-18112**
CCC-CH	M-1055	**BS4-4-182**
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CCC-DH	M-6367	**BS4-4-3162**
CCC-GE	M-1058	**BS4-4-381**
CCC-GG	M-6370	**BS4-4-38112**
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CCD-EH	M-1057	**BS4-5-142**
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LAC-1YCE	M-977	**CB1-4-#1181**
LAC-1VCE	M-975	**CB1-4-#2181**
LAC-1TCE	—	**CB1-4-#2S181**
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LAC-2GEE	M-981	**CB1-4-2/0141**
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LAC-2VEK	M-1916	**CB1-4-250K143**
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LAC-2LCE	M-6284	**CB1-4-3/0181**
LAC-2LDE	M-982	**CB1-4-3/03161**
LAC-3AEE	M-991	**CB1-4-300K141**
LAC-3AEG	M-993	**CB1-4-300K14112**
LAC-3AEH	M-6288	**CB1-4-300K142**
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LAC-3DEH	M-6289	**CB1-4-350K142**
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LAD-4YJH	M-1011	**CB1-5-1000K122**
LAD-4YJK	M-6295	**CB1-5-1000K123**
LAD-4YEK	M-6292	**CB1-5-1000K143**
LAD-4YGH	M-1009	**CB1-5-1000K382**
LAD-4YGK	M-1922	**CB1-5-1000K383**
LAD-4LEH	M-1006	**CB1-5-750K142**
LAD-4LEK	M-1921	**CB1-5-750K143**
LAD-4LGG	M-1007	**CB1-5-750K38112**
LAD-4LGH	M-1008	**CB1-5-750K382**
LAD-4LGK	M-6291	**CB1-5-750K383**
LQJ-JH1Y	—	**CB29-10-#1122**
LQJ-EH1Y	—	**CB29-10-#1142**
LQJ-GH1Y	—	**CB29-10-#1382**
LQJ-JH1V	—	**CB29-10-#2122**
LQJ-JH1T	—	**CB29-10-#2S122**
LQJ-JH2C	—	**CB29-10-1/0122**
LQJ-EH2C	—	**CB29-10-1/0142**
LQJ-GH2C	—	**CB29-10-1/0382**
LQJ-JH2G	—	**CB29-10-2/0122**
LQJ-EH2G	—	**CB29-10-2/0142**
LQJ-GH2G	—	**CB29-10-2/0382**
LQJ-JH2V	—	**CB29-10-250K122**
LQJ-EH2V	—	**CB29-10-250K142**
LQJ-GH2V	—	**CB29-10-250K382**
LQJ-JH2Q	—	**CB29-10-4/0122**
LQJ-EH2Q	—	**CB29-10-4/0142**
LQJ-GH2Q	—	**CB29-10-4/0382**
LQJ-JH3Q	—	**CB29-10-500K122**
LQJ-EH3Q	—	**CB29-10-500K142**
LQJ-GH3Q	—	**CB29-10-500K382**
LQJ-JH4L	—	**CB29-10-750K122**
LQJ-EH4L	—	**CB29-10-750K142**
LQJ-GH4L	—	**CB29-10-750K382**
LQE-EH1V	—	**CB29-9-#2142**
LQE-GH1V	—	**CB29-9-#2382**
LQE-EH1T	—	**CB29-9-#2S142**
LQE-GH1T	—	**CB29-9-#2S382**

Cadweld is a trademark of Erico International Corporation.

Thermoweld is a trademark of Continental Industries.

Exothermic Welding System

Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
LJC-JG1V	—	**CB4-4-#212112**
LJC-EG1V	—	**CB4-4-#214112**
LJC-GG1V	—	**CB4-4-#238112**
LJC-JG1T	—	**CB4-4-#2S12112**
LJC-EG1T	—	**CB4-4-#2S14112**
LJC-GG1T	—	**CB4-4-#2S38112**
LJC-JG2C	M-1671	**CB4-4-1/012112**
LJC-EG2C	M-1651	**CB4-4-1/014112**
LJC-GG2C	M-1660	**CB4-4-1/038112**
LJC-JG2G	M-1672	**CB4-4-2/012112**
LJC-EG2G	M-1652	**CB4-4-2/014112**
LJC-GG2G	M-1661	**CB4-4-2/038112**
LJC-JG2V	M-1675	**CB4-4-250K12112**
LJC-EG2V	M-1655	**CB4-4-250K14112**
LJC-GG2V	M-1664	**CB4-4-250K38112**
LJC-JG2L	M-1673	**CB4-4-3/012112**
LJC-EG2L	M-1653	**CB4-4-3/014112**
LJC-GG2L	M-1662	**CB4-4-3/038112**
LJC-JG3A	M-1676	**CB4-4-300K12112**
LJC-EG3A	M-1656	**CB4-4-300K14112**
LJC-GG3A	M-1665	**CB4-4-300K38112**
LJC-JG3D	M-1677	**CB4-4-350K12112**
LJC-EG3D	M-1657	**CB4-4-350K14112**
LJC-GG3D	M-1666	**CB4-4-350K38112**
LJC-JG2Q	M-1674	**CB4-4-4/012112**
LJC-EG2Q	M-1654	**CB4-4-4/014112**
LJC-GG2Q	M-1663	**CB4-4-4/038112**
LJC-EG3Q	M-1659	**CB4-4-500K14112**
LJC-GG3Q	M-1668	**CB4-4-500K38112**
LJD-JG4Y	M-1681	**CB4-5-1000K12112**
LJD-GG4Y	M-1670	**CB4-5-1000K38112**
LJD-JG3Q	M-1679	**CB4-5-500K12112**
LJD-JG4L	M-1680	**CB4-5-750K12112**
LJD-GG4L	M-1669	**CB4-5-750K38112**
XBC-1Y1Y	M-2691	**CC11-7-#1#1**
XBC-1Y1V	M-2692	**CC11-7-#1#2**
XBC-1Y1L	M-2693	**CC11-7-#1#4**
XBC-1V1V	M-2689	**CC11-7-#2#2**
XBC-1V1L	M-2690	**CC11-7-#2#4**
XBC-1T1T	M-2689-S	**CC11-7-#2S#2S**
XBC-1L1L	M-2687	**CC11-7-#4#4**
XBP-1H1H	M-5432	**CC11-7-#6#6**
XBP-1G1G	M-5432-S	**CC11-7-#6S#6S**
XBM-2C1Y	M-2695	**CC11-7-1/0#1**
XBM-2C1V	M-2696	**CC11-7-1/0#2**
XBM-2C1L	M-2697	**CC11-7-1/0#4**
XBM-2C2C	M-2694	**CC11-7-1/01/0**
XBM-2G1Y	M-2700	**CC11-7-2/0#1**
XBM-2G1V	M-2701	**CC11-7-2/0#2**
XBM-2G2C	M-2699	**CC11-7-2/01/0**
XBM-2G2G	M-2698	**CC11-7-2/02/0**

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
XBM-2V1Y	M-2718	**CC11-7-250K#1**
XBM-2V1V	M-2719	**CC11-7-250K#2**
XBM-2V2C	M-2717	**CC11-7-250K1/0**
XBM-2V2G	M-2716	**CC11-7-250K2/0**
XBM-2V2V	M-2713	**CC11-7-250K250K**
XBM-2V2L	M-2715	**CC11-7-250K3/0**
XBM-2V2Q	M-2714	**CC11-7-250K4/0**
XBM-2L1Y	M-2705	**CC11-7-3/0#1**
XBM-2L1V	M-2706	**CC11-7-3/0#2**
XBM-2L2C	M-2704	**CC11-7-3/01/0**
XBM-2L2G	M-2703	**CC11-7-3/02/0**
XBM-2L2L	M-2702	**CC11-7-3/03/0**
XBM-3A1Y	M-2726	**CC11-7-300K#1**
XBM-3A1V	M-2727	**CC11-7-300K#2**
XBM-3A2C	M-2725	**CC11-7-300K1/0**
XBM-3A2G	M-2724	**CC11-7-300K2/0**
XBM-3A2L	M-2723	**CC11-7-300K3/0**
XBM-3A2Q	M-2722	**CC11-7-300K4/0**
XBM-3D1Y	M-2735	**CC11-7-350K#1**
XBM-3D1V	M-2736	**CC11-7-350K#2**
XBM-3D2C	M-2734	**CC11-7-350K1/0**
XBM-3D2G	M-2733	**CC11-7-350K2/0**
XBM-2Q1Y	M-2711	**CC11-7-4/0#1**
XBM-2Q1V	M-2712	**CC11-7-4/0#2**
XBM-2Q2C	M-2710	**CC11-7-4/01/0**
XBM-2Q2G	M-2709	**CC11-7-4/02/0**
XBM-2Q2L	M-2708	**CC11-7-4/03/0**
XBM-2Q2Q	M-2707	**CC11-7-4/04/0**
XBM-3Q2C	M-2755	**CC11-7-500K1/0**
XBV-3A2V	M-2721	**CC11-8-300K250K**
XBV-3A3A	M-2720	**CC11-8-300K300K**
XBV-3D2V	M-2730	**CC11-8-350K250K**
XBV-3D2L	M-2732	**CC11-8-350K3/0**
XBV-3D3A	M-2729	**CC11-8-350K300K**
XBV-3D3D	M-2728	**CC11-8-350K350K**
XBV-3D2Q	M-2731	**CC11-8-350K4/0**
XBV-3Q2G	M-2754	**CC11-8-500K2/0**
XBV-3Q2V	M-2751	**CC11-8-500K250K**
XBV-3Q2L	M-2753	**CC11-8-500K3/0**
XBV-3Q3A	M-2750	**CC11-8-500K300K**
XBV-3Q3D	M-2749	**CC11-8-500K350K**
XBV-3Q2Q	M-2752	**CC11-8-500K4/0**
XBV-3Q3Q	M-2747	**CC11-8-500K500K**
SST-1Y	M-5626	**CC1-3-#1**
SST-1X	M-5626-S	**CC1-3-#1S**
SST-1V	M-5625	**CC1-3-#2**
SST-1T	M-5625-S	**CC1-3-#2S**
SST-1Q	M-5624	**CC1-3-#3**
—	—	**CC1-4-#2**
SSC-2C	M-205	**CC1-4-1/0**
SSC-2B	M-205-S	**CC1-4-1/0S**

Cadweld is a trademark of Erico International Corporation. *Thermoweld is a trademark of Continental Industries.*

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Exothermic Welding System

Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
SSC-2G	M-206	**CC1-4-2/0**
SSC-2V	M-209	**CC1-4-250K**
SSC-2L	M-207	**CC1-4-3/0**
SSC-3A	M-210	**CC1-4-300K**
SSC-3D	M-211	**CC1-4-350K**
SSC-2Q	M-208	**CC1-4-4/0**
SSC-2P	M-208-S	**CC1-4-4/0S**
SSC-3Q	M-213	**CC1-4-500K**
SSD-4Y	M-215	**CC1-5-1000K**
SSD-4L	M-214	**CC1-5-750K**
TAC-1Y1Y	M-225	**CC2-4-#1#1**
TAC-1Y1V	M-226	**CC2-4-#1#2**
TAC-1Y1T	M-5879	**CC2-4-#1#2S**
TAC-1Y1L	M-227	**CC2-4-#1#4**
TAC-1V1V	M-223	**CC2-4-#2#2**
TAC-1V1T	M-5869	**CC2-4-#2#2S**
TAC-1T1L	M-224	**CC2-4-#2#4**
TAC-1V1L	M-5859	**CC2-4-#2#4**
TAC-1T1V	M-5856	**CC2-4-#2S#2**
TAC-1T1T	M-223-S	**CC2-4-#2S#2S**
TAC-1L1L	M-221	**CC2-4-#4#4**
TAC-2C1Y	M-229	**CC2-4-1/0#1**
TAC-2C1V	M-230	**CC2-4-1/0#2**
TAC-2C1T	M-5311	**CC2-4-1/0#2S**
TAC-2C1L	M-231	**CC2-4-1/0#4**
TAC-2C2C	M-228	**CC2-4-1/01/0**
TAC-4Y2C	M-308	**CC2-4-1000K1/0**
TAC-4Y2G	M-307	**CC2-4-1000K2/0**
TAC-4Y2V	M-305	**CC2-4-1000K250K**
TAC-4Y3A	M-304	**CC2-4-1000K300K**
TAC-4Y3D	M-303	**CC2-4-1000K350K**
TAC-4Y2Q	M-306	**CC2-4-1000K4/0**
TAC-2G1Y	M-234	**CC2-4-2/0#1**
TAC-2G1V	M-235	**CC2-4-2/0#2**
TAC-2G1T	M-8093	**CC2-4-2/0#2S**
TAC-2G1L	M-5475	**CC2-4-2/0#4**
TAC-2G2C	M-233	**CC2-4-2/01/0**
TAC-2G2G	M-232	**CC2-4-2/02/0**
TAC-2V1Y	M-252	**CC2-4-250K#1**
TAC-2V1V	M-253	**CC2-4-250K#2**
TAC-2V1T	M-5889	**CC2-4-250K#2S**
TAC-2V1L	M-5425	**CC2-4-250K#4**
TAC-2V2C	M-251	**CC2-4-250K1/0**
TAC-2V2G	M-250	**CC2-4-250K2/0**
TAC-2V2V	M-247	**CC2-4-250K250K**
TAC-2V2L	M-249	**CC2-4-250K3/0**
TAC-2V2Q	M-248	**CC2-4-250K4/0**
TAC-2L1Y	M-239	**CC2-4-3/0#1**
TAC-2L1V	M-240	**CC2-4-3/0#2**
TAC-2L1T	M-5884	**CC2-4-3/0#2S**
TAC-2L1L	M-5574	**CC2-4-3/0#4**

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
TAC-2L2C	M-238	**CC2-4-3/01/0**
TAC-2L2G	M-237	**CC2-4-3/02/0**
TAC-2L2L	M-236	**CC2-4-3/03/0**
TAC-3A1Y	M-260	**CC2-4-300K#1**
TAC-3A1V	M-261	**CC2-4-300K#2**
TAC-3A1T	M-5903	**CC2-4-300K#2S**
TAC-3A1L	M-6397	**CC2-4-300K#4**
TAC-3A2C	M-259	**CC2-4-300K1/0**
TAC-3A2G	M-258	**CC2-4-300K2/0**
TAC-3A2V	M-255	**CC2-4-300K250K**
TAC-3A2L	M-257	**CC2-4-300K3/0**
TAC-3A3A	M-254	**CC2-4-300K300K**
TAC-3A2Q	M-256	**CC2-4-300K4/0**
TAC-3D1Y	M-269	**CC2-4-350K#1**
TAC-3D1V	M-270	**CC2-4-350K#2**
TAC-3D1L	M-6398	**CC2-4-350K#4**
TAC-3D2C	M-268	**CC2-4-350K1/0**
TAC-3D2G	M-267	**CC2-4-350K2/0**
TAC-3D2V	M-264	**CC2-4-350K250K**
TAC-3D2L	M-266	**CC2-4-350K3/0**
TAC-3D3A	M-263	**CC2-4-350K300K**
TAC-3D3D	M-262	**CC2-4-350K350K**
TAC-3D2Q	M-265	**CC2-4-350K4/0**
TAC-2Q1Y	M-245	**CC2-4-4/0#1**
TAC-2Q1V	M-246	**CC2-4-4/0#2**
TAC-2Q1T	M-5348	**CC2-4-4/0#2S**
TAC-2Q1L	M-5021	**CC2-4-4/0#4**
TAC-2Q2C	M-244	**CC2-4-4/01/0**
TAC-2Q2G	M-243	**CC2-4-4/02/0**
TAC-2Q2L	M-242	**CC2-4-4/03/0**
TAC-2Q2Q	M-241	**CC2-4-4/04/0**
TAC-3Q1Y	M-288	**CC2-4-500K#1**
TAC-3Q1V	M-289	**CC2-4-500K#2**
TAC-3Q1L	M-8113	**CC2-4-500K#4**
TAC-3Q2C	M-287	**CC2-4-500K1/0**
TAC-3Q2G	M-286	**CC2-4-500K2/0**
TAC-3Q2V	M-284	**CC2-4-500K250K**
TAC-3Q3A	M-283	**CC2-4-500K300K**
TAC-3Q3D	M-282	**CC2-4-500K350K**
TAC-3Q2Q	M-285	**CC2-4-500K4/0**
TAC-3Q3Q	M-280	**CC2-4-500K500K**
TAC-4L2C	M-298	**CC2-4-750K1/0**
TAC-4L2G	M-297	**CC2-4-750K2/0**
TAC-4L2V	M-295	**CC2-4-750K250K**
TAC-4L3A	M-294	**CC2-4-750K300K**
TAC-4L3D	M-293	**CC2-4-750K350K**
TAC-4L2Q	M-296	**CC2-4-750K4/0**
TAD-4Y4Y	M-299	**CC2-5-1000K1000K**
TAD-4Y3Q	M-301	**CC2-5-1000K500K**
TAD-4Y4L	M-300	**CC2-5-1000K750K**
TAD-4L3Q	M-291	**CC2-5-750K500K**

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Exothermic Welding System

Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
TAD-4L4L	M-290	**CC2-5-750K750K**
—	—	**CC2HD-4-4/04/0**
XAC-1Y1Y	M-427	**CC4-4-#1#1**
XAC-1Y1V	M-428	**CC4-4-#1#2**
XAC-1Y1L	M-429	**CC4-4-#1#4**
XAC-1V1V	—	**CC4-4-#2#2**
XAC-1V1L	—	**CC4-4-#2#4**
XAC-1T1T	—	**CC4-4-#2S#2S**
XAC-1L1L	—	**CC4-4-#4#4**
XAC-2C1Y	M-431	**CC4-4-1/0#1**
XAC-2C1V	M-432	**CC4-4-1/0#2**
XAC-2C1L	M-433	**CC4-4-1/0#4**
XAC-2C2C	M-430	**CC4-4-1/01/0**
XAC-2G1Y	M-436	**CC4-4-2/0#1**
XAC-2G1V	M-437	**CC4-4-2/0#2**
XAC-2G2C	M-435	**CC4-4-2/01/0**
XAC-2G2G	M-434	**CC4-4-2/02/0**
XAC-2V1Y	M-454	**CC4-4-250K#1**
XAC-2V1V	M-455	**CC4-4-250K#2**
XAC-2V2C	M-453	**CC4-4-250K1/0**
XAC-2V2G	M-452	**CC4-4-250K2/0**
XAC-2V2V	M-449	**CC4-4-250K250K**
XAC-2V2L	M-451	**CC4-4-250K3/0**
XAC-2V2Q	M-450	**CC4-4-250K4/0**
XAC-2L1Y	M-441	**CC4-4-3/0#1**
XAC-2L1V	M-442	**CC4-4-3/0#2**
XAC-2L2C	M-440	**CC4-4-3/01/0**
XAC-2L2G	M-439	**CC4-4-3/02/0**
XAC-2L2L	M-438	**CC4-4-3/03/0**
XAC-3A1Y	M-462	**CC4-4-300K#1**
XAC-3A1V	M-463	**CC4-4-300K#2**
XAC-3A2C	M-461	**CC4-4-300K1/0**
XAC-3A2G	M-460	**CC4-4-300K2/0**
XAC-3A2V	M-457	**CC4-4-300K250K**
XAC-3A2L	M-459	**CC4-4-300K3/0**
XAC-3A3A	M-456	**CC4-4-300K300K**
XAC-3A2Q	M-458	**CC4-4-300K4/0**
XAC-3D1Y	M-471	**CC4-4-350K#1**
XAC-3D1V	M-472	**CC4-4-350K#2**
XAC-3D2C	M-470	**CC4-4-350K1/0**
XAC-3D2G	M-469	**CC4-4-350K2/0**
XAC-3D2V	M-466	**CC4-4-350K250K**
XAC-3D2L	M-468	**CC4-4-350K3/0**
XAC-3D3A	M-465	**CC4-4-350K300K**
XAC-3D3D	M-464	**CC4-4-350K350K**
XAC-3D2Q	M-467	**CC4-4-350K4/0**
XAC-2Q1Y	M-447	**CC4-4-4/0#1**
XAC-2Q1V	M-448	**CC4-4-4/0#2**
XAC-2Q2C	M-446	**CC4-4-4/01/0**
XAC-2Q2G	M-445	**CC4-4-4/02/0**
XAC-2Q2L	M-444	**CC4-4-4/03/0**
XAC-2Q2Q	M-443	**CC4-4-4/04/0**
XAC-3Q2C	M-491	**CC4-4-500K1/0**
XAC-3Q2G	M-490	**CC4-4-500K2/0**
XAD-3Q2V	M-487	**CC4-5-500K250K**
XAD-3Q2L	M-489	**CC4-5-500K3/0**
XAD-3Q3A	M-486	**CC4-5-500K300K**
XAD-3Q3D	M-485	**CC4-5-500K350K**
XAD-3Q2Q	M-488	**CC4-5-500K4/0**
XAD-3Q3Q	M-483	**CC4-5-500K500K**
PCC-1Y1V	M-1282	**CC6-4-#1#2**
PCC-1Y1L	M-1283	**CC6-4-#1#4**
PCC-1Y1H	M-1284	**CC6-4-#1#6**
PCC-1Y1G	M-1285	**CC6-4-#1#6S**
PCC-1Y1D	M-1286	**CC6-4-#1#8S**
PCC-1V1V	M-1276	**CC6-4-#2#2**
PCC-1V1L	M-1277	**CC6-4-#2#4**
PCC-1V1H	M-1278	**CC6-4-#2#6**
PCC-1V1G	M-1279	**CC6-4-#2#6S**
PCC-1V1D	M-1280	**CC6-4-#2#8S**
PCC-1T1V	—	**CC6-4-#2S#2**
PCC-1T1T	—	**CC6-4-#2S#2S**
PCC-1T1H	—	**CC6-4-#2S#6**
PCC-1T1G	—	**CC6-4-#2S#6S**
PCC-1T2C	—	**CC6-4-#2S1/0**
PCC-1T2G	—	**CC6-4-#2S2/0**
PCC-1L1L	—	**CC6-4-#4#4**
PCC-1L1H	—	**CC6-4-#4#6**
PCC-1L1G	—	**CC6-4-#4#6S**
PCC-1L1D	—	**CC6-4-#4#8S**
PCC-2C1V	M-1289	**CC6-4-1/0#2**
PCC-2C1L	M-1290	**CC6-4-1/0#4**
PCC-2C1H	M-1291	**CC6-4-1/0#6**
PCC-2C1G	M-1292	**CC6-4-1/0#6S**
PCC-2C1D	M-1293	**CC6-4-1/0#8S**
PCC-2G1V	M-1297	**CC6-4-2/0#2**
PCC-2G1L	M-1298	**CC6-4-2/0#4**
PCC-2G1H	M-1299	**CC6-4-2/0#6**
PCC-2G1G	M-1300	**CC6-4-2/0#6S**
PCC-2G1D	M-1301	**CC6-4-2/0#8S**
—	—	**CC6-4-2/02/0**
PCC-2Q1Y	M-1305	**CC6-4-4/0#1**
PCC-2Q1V	M-1306	**CC6-4-4/0#2**
PCC-2Q1L	M-1307	**CC6-4-4/0#4**
PCC-2Q1H	M-1308	**CC6-4-4/0#6**
PCC-2Q1G	M-1309	**CC6-4-4/0#6S**
PCC-2Q1D	M-1310	**CC6-4-4/0#8S**
—	—	**CC6-4-4/02/0**
—	—	**CC6-4-4/04/0**
PTC-1Y1Y	M-1315	**CC7-4-#1#1**
PTC-1Y1X	M-6013	**CC7-4-#1#1S**
PTC-1Y1V	M-1316	**CC7-4-#1#2**

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Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
PTC-1Y1T	M-6017	**CC7-4-#1#2S**
PTC-1Y1L	M-1317	**CC7-4-#1#4**
PTC-1Y1H	M-5636	**CC7-4-#1#6**
PTC-1Y1G	M-5637	**CC7-4-#1#6S**
PTC-1Y1E	M-5638	**CC7-4-#1#8**
PTC-1Y1D	M-5639	**CC7-4-#1#8S**
PTC-1X1Y	M-5998	**CC7-4-#1S#1**
PTC-1X1V	M-6001	**CC7-4-#1S#2**
PTC-1X1T	M-1316-S	**CC7-4-#1S#2S**
PTC-1X1L	M-6008	**CC7-4-#1S#4**
PTC-1X1H	M-6010	**CC7-4-#1S#6**
PTC-1X1G	M-5636-S	**CC7-4-#1S#6S**
PTC-1X1E	M-6012	**CC7-4-#1S#8**
PTC-1X1D	M-5638-S	**CC7-4-#1S#8S**
PTC-1V1V	M-1313	**CC7-4-#2#2**
PTC-1V1L	M-1314	**CC7-4-#2#4**
PTC-1V1H	M-5631	**CC7-4-#2#6**
PTC-1V1G	M-5632	**CC7-4-#2#6S**
PTC-1V1E	M-5634	**CC7-4-#2#8**
PTC-1V1D	M-5635	**CC7-4-#2#8S**
PTC-1T1V	M-5973	**CC7-4-#2S#2**
PTC-1T1T	M-1313-S	**CC7-4-#2S#2S**
PTC-1T1L	M-5987	**CC7-4-#2S#4**
PTC-1T1H	M-5989	**CC7-4-#2S#6**
PTC-1T1G	M-5631-S	**CC7-4-#2S#6S**
PTC-1T1E	M-5993	**CC7-4-#2S#8**
PTC-1T1D	M-5634-S	**CC7-4-#2S#8S**
PTC-1L1L	M-1311	**CC7-4-#4#4**
PTC-1L1H	M-5627	**CC7-4-#4#6**
PTC-1L1G	M-8882	**CC7-4-#4#6S**
PTC-1L1E	M-5629	**CC7-4-#4#8**
PTC-1L1D	M-5630	**CC7-4-#4#8S**
PTC-2C1Y	M-1319	**CC7-4-1/0#1**
PTC-2C1X	M-6036	**CC7-4-1/0#1S**
PTC-2C1V	M-1320	**CC7-4-1/0#2**
PTC-2C1T	M-6044	**CC7-4-1/0#2S**
PTC-2C1L	M-1321	**CC7-4-1/0#4**
PTC-2C1H	M-5642	**CC7-4-1/0#6**
PTC-2C1G	M-1208	**CC7-4-1/0#6S**
PTC-2C1E	M-5644	**CC7-4-1/0#8**
PTC-2C1D	M-5645	**CC7-4-1/0#8S**
PTC-2C2C	M-1318	**CC7-4-1/01/0**
PTC-2C2B	M-6035	**CC7-4-1/01/0S**
PTC-2B1Y	M-6019	**CC7-4-1/0S#1**
PTC-2B1X	M-1319-S	**CC7-4-1/0S#1S**
PTC-2B1V	M-6023	**CC7-4-1/0S#2**
PTC-2B1T	M-1320-S	**CC7-4-1/0S#2S**
PTC-2B1L	M-6026	**CC7-4-1/0S#4**
PTC-2B1H	M-6806	**CC7-4-1/0S#6**
PTC-2B1G	M-5462-S	**CC7-4-1/0S#6S**
PTC-2B1E	M-6028	**CC7-4-1/0S#8**
PTC-2B1D	M-5644-S	**CC7-4-1/0S#8S**
PTC-2B2C	M-6227	**CC7-4-1/0S1/0**
PTC-2B2B	M-1318-S	**CC7-4-1/0S1/0S**
PTC-2G1Y	M-1324	**CC7-4-2/0#1**
PTC-2G1X	M-6052	**CC7-4-2/0#1S**
PTC-2G1V	M-1325	**CC7-4-2/0#2**
PTC-2G1L	M-5659	**CC7-4-2/0#4**
PTC-2G1H	M-5342	**CC7-4-2/0#6**
PTC-2G1G	M-5652	**CC7-4-2/0#6S**
PTC-2G1E	M-5668	**CC7-4-2/0#8**
PTC-2G1D	M-5943	**CC7-4-2/0#8S**
PTC-2G2C	M-1323	**CC7-4-2/01/0**
PTC-2G2B	M-6047	**CC7-4-2/01/0S**
PTC-2G2G	M-1322	**CC7-4-2/02/0**
PTC-2L1Y	M-1329	**CC7-4-3/0#1**
PTC-2L1X	M-6064	**CC7-4-3/0#1S**
PTC-2L1V	M-1330	**CC7-4-3/0#2**
PTC-2L1T	M-6065	**CC7-4-3/0#2S**
PTC-2L1L	M-6046	**CC7-4-3/0#4**
PTC-2L1H	M-5676	**CC7-4-3/0#6**
PTC-2L1G	M-5679	**CC7-4-3/0#6S**
PTC-2L1E	M-5680	**CC7-4-3/0#8**
PTC-2L1D	M-5682	**CC7-4-3/0#8S**
PTC-2L2C	M-1328	**CC7-4-3/01/0**
PTC-2L2B	M-6062	**CC7-4-3/01/0S**
PTC-2L2G	M-1327	**CC7-4-3/02/0**
PTC-2L2L	M-1326	**CC7-4-3/03/0**
PTC-2Q1Y	M-1335	**CC7-4-4/0#1**
PTC-2Q1X	M-6804	**CC7-4-4/0#1S**
PTC-2Q1V	M-1336	**CC7-4-4/0#2**
PTC-2Q1T	M-6805	**CC7-4-4/0#2S**
PTC-2Q1L	M-5340	**CC7-4-4/0#4**
PTC-2Q1H	M-5684	**CC7-4-4/0#6**
PTC-2Q1G	M-6552	**CC7-4-4/0#6S**
PTC-2Q1E	M-5686	**CC7-4-4/0#8**
PTC-2Q1D	M-5688	**CC7-4-4/0#8S**
PTC-2Q2C	M-1334	**CC7-4-4/01/0**
PTC-2Q2B	M-2551	**CC7-4-4/01/0S**
PTC-2Q2G	M-1333	**CC7-4-4/02/0**
PTC-2Q2L	M-1332	**CC7-4-4/03/0**
PTC-2Q2Q	M-1331	**CC7-4-4/04/0**
PTC-2Q2P	M-6803	**CC7-4-4/04/0S**
PTC-2P1Y	M-6089	**CC7-4-4/0S#1**
PTC-2P1X	M-1335-S	**CC7-4-4/0S#1S**
PTC-2P1V	M-6090	**CC7-4-4/0S#2**
PTC-2P1T	M-1336-S	**CC7-4-4/0S#2S**
PTC-2P1L	M-6109	**CC7-4-4/0S#4**
PTC-2P1H	M-6111	**CC7-4-4/0S#6**
PTC-2P1G	M-5684-S	**CC7-4-4/0S#6S**
PTC-2P1E	M-6112	**CC7-4-4/0S#8**
PTC-2P1D	M-5686-S	**CC7-4-4/0S#8S**

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Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
PTC-2P2C	M-6085	**CC7-4-4/0S1/0**
PTC-2P2B	M-1334-S	**CC7-4-4/0S1/0S**
PTC-2P2G	M-6082	**CC7-4-4/0S2/0**
PTC-2P2L	M-6081	**CC7-4-4/0S3/0**
PTC-2P2Q	M-6071	**CC7-4-4/0S4/0**
PTC-2P2P	M-1331-S	**CC7-4-4/0S4/0S**
GRT-14A1V	—	**CR1-3-500#2**
GRT-14A1T	—	**CR1-3-500#2S**
GRT-14A1L	M-8403	**CR1-3-500#4**
GRT-14A1K	M-8403-S	**CR1-3-500#4S**
GRT-14A1H	M-8402	**CR1-3-500#6**
GRT-14A1G	M-8402-S	**CR1-3-500#6S**
GRT-14B1V	—	**CR1-3-500L#2**
GRT-14B1T	—	**CR1-3-500L#2S**
GRT-14B1L	M-8403-T	**CR1-3-500L#4**
GRT-14B1K	M-8403-ST	**CR1-3-500L#4S**
GRT-14B1H	M-8402-T	**CR1-3-500L#6**
GRT-14B1G	M-8402-ST	**CR1-3-500L#6S**
GRT-161L	M-8415	**CR1-3-625#4**
GRT-161K	M-8415-S	**CR1-3-625#4S**
GRT-161H	M-8414	**CR1-3-625#6**
GRT-161G	M-8414-S	**CR1-3-625#6S**
GRP-181L	M-8426	**CR1-3-750#4**
GRP-181K	M-8426-S	**CR1-3-750#4S**
GRT-181H	M-8422	**CR1-3-750#6**
GRT-181G	M-8422-S	**CR1-3-750#6S**
GRC-151Y	M-496	**CR1-4-500#1**
GRC-152C	M-497	**CR1-4-5001/0**
GRC-152B	M-497-S	**CR1-4-5001/0S**
GRC-152G	M-498	**CR1-4-5002/0**
GRC-152V	M-501	**CR1-4-500250K**
GRC-152L	M-499	**CR1-4-5003/0**
GRC-153A	M-502	**CR1-4-500300K**
GRC-152Q	M-500	**CR1-4-5004/0**
GRC-141Y	M-496-T	**CR1-4-500L#1**
GRC-142C	M-497-T	**CR1-4-500L1/0**
GRC-142B	M-497-ST	**CR1-4-500L1/0S**
GRC-142G	M-498-T	**CR1-4-500L2/0**
GRC-142V	M-501-T	**CR1-4-500L250K**
GRC-142L	M-499-T	**CR1-4-500L3/0**
GRC-143A	M-502-T	**CR1-4-500L300K**
GRC-142Q	M-500-T	**CR1-4-500L4/0**
GRC-161Y	M-504	**CR1-4-625#1**
GRC-161V	M-503	**CR1-4-625#2**
GRT-161V	—	**CR1-4-625#2**
GRC-161T	—	**CR1-4-625#2S**
GRT-161T	—	**CR1-4-625#2S**
GRC-162C	M-505	**CR1-4-6251/0**
GRC-162B	M-505-S	**CR1-4-6251/0S**
GRC-162G	M-506	**CR1-4-6252/0**
GRC-162V	M-509	**CR1-4-625250K**
GRC-162L	M-507	**CR1-4-6253/0**
GRC-163A	M-510	**CR1-4-625300K**
GRC-163D	M-511	**CR1-4-625350K**
GRC-162Q	M-508	**CR1-4-6254/0**
GRC-163Q	M-513	**CR1-4-625500K**
GRC-181Y	M-514	**CR1-4-750#1**
GRC-181V	M-5781	**CR1-4-750#2**
GRC-181T	—	**CR1-4-750#2S**
GRC-182C	M-515	**CR1-4-7501/0**
GRC-182B	M-515-S	**CR1-4-7501/0S**
GRC-182G	M-516	**CR1-4-7502/0**
GRC-182V	M-519	**CR1-4-750250K**
GRC-182L	M-517	**CR1-4-7503/0**
GRC-183A	M-520	**CR1-4-750300K**
GRC-183D	M-521	**CR1-4-750350K**
GRC-182Q	M-518	**CR1-4-7504/0**
GRC-183Q	M-523	**CR1-4-750500K**
—	—	**CR17-4-7504/0**
GTT-14A1L	M-8435	**CR2-3-500#4**
GTT-14A1K	M-8435-S	**CR2-3-500#4S**
GTT-14A1H	M-8434	**CR2-3-500#6**
GTT-14A1G	M-8434-S	**CR2-3-500#6S**
GTT-14B1L	M-8435-T	**CR2-3-500L#4**
GTT-14B1K	M-8435-ST	**CR2-3-500L#4S**
GTT-14B1H	M-8434-T	**CR2-3-500L#6**
GTT-14B1G	M-8434-ST	**CR2-3-500L#6S**
GTT-161L	M-8442	**CR2-3-625#4**
GTT-161K	M-8442-S	**CR2-3-625#4S**
GTT-161H	M-8441	**CR2-3-625#6**
GTT-161G	M-8441-S	**CR2-3-625#6S**
GTP-181L	M-8454	**CR2-3-750#4**
GTP-181K	M-8454-S	**CR2-3-750#4S**
GTP-181H	M-8452	**CR2-3-750#6**
GTP-181G	M-8452-S	**CR2-3-750#6S**
GTC-151Y	M-538	**CR2-4-500#1**
GTC-151V	M-537	**CR2-4-500#2**
GTC-151T	—	**CR2-4-500#2S**
GTC-152C	M-539	**CR2-4-5001/0**
GTC-152B	M-539-S	**CR2-4-5001/0S**
GTC-152G	M-540	**CR2-4-5002/0**
GTC-152V	M-543	**CR2-4-500250K**
GTC-152L	M-541	**CR2-4-5003/0**
GTC-153A	M-544	**CR2-4-500300K**
GTC-152Q	M-542	**CR2-4-5004/0**
GTC-141Y	M-538-T	**CR2-4-500L#1**
GTC-141V	M-537-T	**CR2-4-500L#2**
GTC-141T	—	**CR2-4-500L#2S**
GTC-142C	M-539-T	**CR2-4-500L1/0**
GTC-142B	—	**CR2-4-500L1/0S**
GTC-142G	M-540-T	**CR2-4-500L2/0**
GTC-142V	M-543-T	**CR2-4-500L250K**

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Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
GTC-142L	M-541-T	**CR2-4-500L3/0**
GTC-143A	M-544-T	**CR2-4-500L300K**
GTC-142Q	M-542-T	**CR2-4-500L4/0**
GTC-161Y	M-546	**CR2-4-625#1**
GTC-161V	M-545	**CR2-4-625#2**
GTC-161T	—	**CR2-4-625#2S**
GTC-162C	M-547	**CR2-4-6251/0**
GTC-162B	M-547-S	**CR2-4-6251/0S**
GTC-162G	M-548	**CR2-4-6252/0**
GTC-162V	M-551	**CR2-4-625250K**
GTC-162L	M-549	**CR2-4-6253/0**
GTC-163A	M-552	**CR2-4-625300K**
GTC-163D	M-553	**CR2-4-625350K**
GTC-162Q	M-550	**CR2-4-6254/0**
GTC-163Q	M-555	**CR2-4-625500K**
GTC-181Y	M-557	**CR2-4-750#1**
GTC-181V	M-556	**CR2-4-750#2**
GTC-181T	—	**CR2-4-750#2S**
GTC-182C	M-558	**CR2-4-7501/0**
GTC-182B	M-558-S	**CR2-4-7501/0S**
GTC-182G	M-559	**CR2-4-7502/0**
GTC-182V	M-562	**CR2-4-750250K**
GTC-182L	M-560	**CR2-4-7503/0**
GTC-183A	M-563	**CR2-4-750300K**
GTC-183D	M-564	**CR2-4-750350K**
GTC-182Q	M-561	**CR2-4-7504/0**
GTC-183Q	M-566	**CR2-4-750500K**
GYJ-163Q	M-1593	**CR3-10-625500K**
GYJ-183D	M-1599	**CR3-10-750350K**
GYJ-183Q	M-1601	**CR3-10-750500K**
GYE-152C	M-1581	**CR3-9-5001/0**
GYE-152B	M-1581-S	**CR3-9-5001/0S**
GYE-152G	M-1582	**CR3-9-5002/0**
GYE-152V	M-1584	**CR3-9-500250K**
GYE-152L	M-6267	**CR3-9-5003/0**
GYE-153A	M-1585	**CR3-9-500300K**
GYE-152Q	M-1583	**CR3-9-5004/0**
GYE-142C	M-1581-T	**CR3-9-500L1/0**
GYE-142B	M-1581-ST	**CR3-9-500L1/0S**
GYE-142G	M-1582-T	**CR3-9-500L2/0**
GYE-142V	M-1584-T	**CR3-9-500L250K**
GYE-142L	M-6267-T	**CR3-9-500L3/0**
GYE-143A	M-1585-T	**CR3-9-500L300K**
GYE-142Q	M-1583-T	**CR3-9-500L4/0**
—	—	**CR3-9-625#2**
GYE-162C	M-1586	**CR3-9-6251/0**
GYE-162B	M-1586-S	**CR3-9-6251/0S**
GYE-162G	M-1587	**CR3-9-6252/0**
GYE-162V	M-1589	**CR3-9-625250K**
GYE-162L	M-8305	**CR3-9-6253/0**
GYE-163A	M-1590	**CR3-9-625300K**
GYE-163D	M-1591	**CR3-9-625350K**
GYE-162Q	M-1588	**CR3-9-6254/0**
GYE-182C	M-1594	**CR3-9-7501/0**
GYE-182B	M-1594-S	**CR3-9-7501/0S**
GYE-182G	M-1595	**CR3-9-7502/0**
GYE-182V	M-1597	**CR3-9-750250K**
GYE-182L	M-6608	**CR3-9-7503/0**
GYE-183A	—	**CR3-9-750300K**
GYE-182Q	M-1596	**CR3-9-7504/0**
RR	—	**CRE1-3-#1Y**
RR	—	**CRE1-3-#1Z**
RR	—	**CRE1-3-#2SY**
RR	—	**CRE1-3-#2SZ**
RR	—	**CRE1-3-#2Y**
RR	—	**CRE1-3-#2Z**
RR	—	**CRE1-3-#4Y**
RR	—	**CRE1-3-#4Z**
RR	—	**CRE1-3-1/0Y**
RR	—	**CRE1-3-1/0Z**
RR	—	**CRE1-3-2/0Y**
RR	—	**CRE1-3-2/0Z**
RR	—	**CRE1-3-3/0Y**
RR	—	**CRE1-3-3/0Z**
RR	—	**CRE1-3-4/0Y**
RR	—	**CRE1-3-4/0Z**
RRC-511Y	M-7503	**CRE1-4-#13R**
RRC-511V	M-7502	**CRE1-4-#23R**
RRC-511T	—	**CRE1-4-#2S3R**
RRC-511L	M-7501	**CRE1-4-#43R**
RRC-512C	M-7504	**CRE1-4-1/03R**
RRC-512G	M-7505	**CRE1-4-2/03R**
RRC-512L	M-7506	**CRE1-4-3/03R**
RRC-512Q	M-7507	**CRE1-4-4/03R**
RC	—	**CRE3-3-#2SY**
RC	—	**CRE3-3-#2SZ**
RC	—	**CRE3-3-#2Y**
RC	—	**CRE3-3-#2Z**
RC	—	**CRE3-3-#4Y**
RC	—	**CRE3-3-#4Z**
—	—	**CRE3-3-1/0Y**
—	—	**CRE3-3-1/0Z**
—	—	**CRE3-3-2/0Y**
—	—	**CRE3-3-2/0Z**
RC	—	**CRE3-4-#1Y**
RC	—	**CRE3-4-#1Z**
RC	—	**CRE3-4-1/0Y**
RC	—	**CRE3-4-1/0Z**
RC	—	**CRE3-4-2/0Y**
RC	—	**CRE3-4-2/0Z**
RC	—	**CRE3-4-3/0Y**
RC	—	**CRE3-4-3/0Z**

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Thermoweld is a trademark of Continental Industries.

Exothermic Welding System

Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
RC	—	**CRE3-4-4/0Y**
RC	—	**CRE3-4-4/0Z**
RD	—	**CRE4-3-#1Y**
RD	—	**CRE4-3-#1Z**
RD	—	**CRE4-3-#2SY**
RD	—	**CRE4-3-#2SZ**
RD	—	**CRE4-3-#2Y**
RD	—	**CRE4-3-#2Z**
RD	—	**CRE4-3-#4Y**
RD	—	**CRE4-3-#4Z**
RD	—	**CRE4-3-1/0Y**
RD	—	**CRE4-3-1/0Z**
RD	—	**CRE4-3-2/0Y**
RD	—	**CRE4-3-2/0Z**
RD	—	**CRE4-3-3/0Y**
RD	—	**CRE4-3-3/0Z**
RD	—	**CRE4-3-4/0Y**
RD	—	**CRE4-3-4/0Z**
RJ	—	**CRE6-3-#1Y**
RJ	—	**CRE6-3-#1Z**
RJ	—	**CRE6-3-#2SY**
RJ	—	**CRE6-3-#2SZ**
RJ	—	**CRE6-3-#2Y**
RJ	—	**CRE6-3-#2Z**
RJ	—	**CRE6-3-#4Y**
RJ	—	**CRE6-3-#4Z**
RJ	—	**CRE6-4-1/0Y**
RJ	—	**CRE6-4-1/0Z**
RJ	—	**CRE6-4-2/0Y**
RJ	—	**CRE6-4-2/0Z**
RJ	—	**CRE6-4-3/0Y**
RJ	—	**CRE6-4-3/0Z**
RJ	—	**CRE6-4-4/0Y**
RJ	—	**CRE6-4-4/0Z**
HSC-2C	M-644	**CS1-4-1/0**
HSD-4Y	M-654	**CS1-4-1000K**
HSC-2G	M-645	**CS1-4-2/0**
HSC-2V	M-648	**CS1-4-250K**
HSC-2L	M-646	**CS1-4-3/0**
HSC-3A	M-649	**CS1-4-300K**
HSC-3D	M-650	**CS1-4-350K**
HSC-2Q	M-647	**CS1-4-4/0**
HSC-3Q	M-652	**CS1-4-500K**
HSD-4L	M-653	**CS1-4-750K**
HTC-2C	M-616	**CS2-4-1/0**
HTC-2G	M-617	**CS2-4-2/0**
HTC-2V	M-620	**CS2-4-250K**
HTC-2L	M-618	**CS2-4-3/0**
HTC-3A	M-621	**CS2-4-300K**
HTC-3D	M-622	**CS2-4-350K**
HTC-2Q	M-619	**CS2-4-4/0**

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
VBC-1Y	M-5361	**CS25-4-#1**
VBC-1Y-V3	—	**CS25-4-#1C**
VBC-1Y-V5	—	**CS25-4-#1D**
VBC-1Y-V8	—	**CS25-4-#1F**
VBC-1Y-V21C	—	**CS25-4-#1G**
VBC-1V	M-2781	**CS25-4-#2**
VBC-1V-V3	—	**CS25-4-#2C**
VBC-1V-V5	—	**CS25-4-#2D**
VBC-1V-V8	—	**CS25-4-#2F**
VBC-1V-V21C	—	**CS25-4-#2G**
VBC-1T	—	**CS25-4-#2S**
VBC-1T-V3	—	**CS25-4-#2SC**
VBC-1T-V5	—	**CS25-4-#2SD**
VBC-1T-V8	—	**CS25-4-#2SF**
VBC-1T-V21	—	**CS25-4-#2SG**
VBC-1L	M-5359	**CS25-4-#4**
VBC-1L-V3	—	**CS25-4-#4C**
VBC-1L-V5	—	**CS25-4-#4D**
VBC-1L-V8	—	**CS25-4-#4F**
VBC-1L-V21	—	**CS25-4-#4G**
VBC-2C	M-2189	**CS25-4-1/0**
VBC-2C-V3	—	**CS25-4-1/0C**
VBC-2C-V5	—	**CS25-4-1/0D**
VBC-2C-V8	—	**CS25-4-1/0F**
VBC-2C-V20	—	**CS25-4-1/0G**
VBC-2G	M-2540	**CS25-4-2/0**
VBC-2G-V3	—	**CS25-4-2/0C**
VBC-2G-V5	—	**CS25-4-2/0D**
VBC-2G-V8	—	**CS25-4-2/0F**
VBC-2G-V20	—	**CS25-4-2/0G**
VBC-2V	M-8165	**CS25-4-250K**
VBC-2L	M-5362	**CS25-4-3/0**
VBC-2L-V3	—	**CS25-4-3/0C**
VBC-2L-V5	—	**CS25-4-3/0D**
VBC-2L-V8	—	**CS25-4-3/0F**
VBC-2L-V20	—	**CS25-4-3/0G**
VBC-3A	M-5363	**CS25-4-300K**
VBC-3D	M-9029	**CS25-4-350K**
VBC-2Q	M-8718	**CS25-4-4/0**
VBC-2Q-V3	—	**CS25-4-4/0C**
VBC-2Q-V5	—	**CS25-4-4/0D**
VBC-2Q-V8	—	**CS25-4-4/0F**
VBC-2Q-V20	—	**CS25-4-4/0G**
VBR-3Q	M-8512	**CS25-4-500K**
HTD-3Q	M-624	**CS2-5-500K**
VGC-1Y	M-6279	**CS27-4-#1**
VGC-1Y-V3	—	**CS27-4-#1C**
VGC-1Y-V5	—	**CS27-4-#1D**
VGC-1Y-V8	—	**CS27-4-#1F**
VGC-1Y-V21C	—	**CS27-4-#1G**
VGC-1V	M-5822	**CS27-4-#2**

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Exothermic Welding System

Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
VGC-1V-V3	—	**CS27-4-#2C**
VGC-1V-V5	—	**CS27-4-#2D**
VGC-1V-V8	—	**CS27-4-#2F**
VGC-1V-V21C	—	**CS27-4-#2G**
VGC-1T	—	**CS27-4-#2S**
VGC-1T-V3	—	**CS27-4-#2SC**
VGC-1T-V5	—	**CS27-4-#2SD**
VGC-1T-V8	—	**CS27-4-#2SF**
VGC-1T-V21	—	**CS27-4-#2SG**
VGC-1H	M-5245	**CS27-4-#4**
VGC-1L	M-5816	**CS27-4-#4**
VGC-1L-V3	—	**CS27-4-#4C**
VGC-1L-V5	—	**CS27-4-#4D**
VGC-1L-V8	—	**CS27-4-#4F**
VGC-1L-V21	—	**CS27-4-#4G**
VGC-2C	M-1168	**CS27-4-1/0**
VGC-2C-V3	—	**CS27-4-1/0C**
VGC-2C-V5	—	**CS27-4-1/0D**
VGC-2C-V8	—	**CS27-4-1/0F**
VGC-2C-V20	—	**CS27-4-1/0G**
VGC-2G	M-9242	**CS27-4-2/0**
VGC-2G-V3	—	**CS27-4-2/0C**
VGC-2G-V5	—	**CS27-4-2/0D**
VGC-2G-V8	—	**CS27-4-2/0F**
VGC-2G-V20	—	**CS27-4-2/0G**
VGC-2V	M-2520	**CS27-4-250K**
VGC-2L	M-6195	**CS27-4-3/0**
VGC-2L-V3	—	**CS27-4-3/0C**
VGC-2L-V5	—	**CS27-4-3/0D**
VGC-2L-V8	—	**CS27-4-3/0F**
VGC-2L-V20	—	**CS27-4-3/0G**
VGC-2Q	M-2177	**CS27-4-4/0**
VGC-2Q-V3	—	**CS27-4-4/0C**
VGC-2Q-V5	—	**CS27-4-4/0D**
VGC-2Q-V8	—	**CS27-4-4/0F**
VGC-2Q-V20	—	**CS27-4-4/0G**
VNC-1Y	M-6060	**CS31-4-#1**
VGC-1Y-V3	—	**CS31-4-#1C**
VGC-1Y-V5	—	**CS31-4-#1D**
VGC-1Y-V8	—	**CS31-4-#1F**
VGC-1Y-V21C	—	**CS31-4-#1G**
VNC-1V	M-2569	**CS31-4-#2**
VGC-1V-V3	—	**CS31-4-#2C**
VGC-1V-V5	—	**CS31-4-#2D**
VGC-1V-V8	—	**CS31-4-#2F**
VGC-1V-V21C	—	**CS31-4-#2G**
VNC-1T	—	**CS31-4-#2S**
VGC-1T-V3	—	**CS31-4-#2SC**
VGC-1T-V5	—	**CS31-4-#2SD**
VGC-1T-V8	—	**CS31-4-#2SF**
VGC-1T-V21	—	**CS31-4-#2SG**

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
VNC-1L	M-2761	**CS31-4-#4**
VGC-1L-V3	—	**CS31-4-#4C**
VGC-1L-V5	—	**CS31-4-#4D**
VGC-1L-V8	—	**CS31-4-#4F**
VGC-1L-V21	—	**CS31-4-#4G**
VNC-1H	M-5910	**CS31-4-#6**
VNC-2C	M-5419	**CS31-4-1/0**
VGC-2C-V3	—	**CS31-4-1/0C**
VGC-2C-V5	—	**CS31-4-1/0D**
VGC-2C-V8	—	**CS31-4-1/0F**
VGC-2C-V20	—	**CS31-4-1/0G**
VNC-2G	M-2567	**CS31-4-2/0**
VGC-2G-V3	—	**CS31-4-2/0C**
VGC-2G-V5	—	**CS31-4-2/0D**
VGC-2G-V8	—	**CS31-4-2/0F**
VGC-2G-V20	—	**CS31-4-2/0G**
VNC-2V	M-2568	**CS31-4-250K**
VNC-2L	M-6072	**CS31-4-3/0**
VGC-2L-V3	—	**CS31-4-3/0C**
VGC-2L-V5	—	**CS31-4-3/0D**
VGC-2L-V8	—	**CS31-4-3/0F**
VGC-2L-V20	—	**CS31-4-3/0G**
VNC-3A	M-6061	**CS31-4-300K**
VNC-3D	M-6067	**CS31-4-350K**
VNC-2Q	M-9253	**CS31-4-4/0**
VGC-2Q-V3	—	**CS31-4-4/0C**
VGC-2Q-V5	—	**CS31-4-4/0D**
VGC-2Q-V8	—	**CS31-4-4/0F**
VGC-2Q-V20	—	**CS31-4-4/0G**
VNC-3Q	M-8359	**CS31-4-500K**
HAA-1Y-325C	M-6269	**CS32-2-#1D**
HAA-1Y-7C	M-6270	**CS32-2-#1F**
HAA-1Y-11C	M-6271	**CS32-2-#1G**
HAA-1V-162C	M-6016	**CS32-2-#2C**
HAA-1V-350C	M-2576	**CS32-2-#2D**
HAA-1V-7C	M-2514	**CS32-2-#2F**
HAA-1V-11C	M-2515	**CS32-2-#2G**
HAA-1T-162C	—	**CS32-2-#2SC**
HAA-1T-350C	—	**CS32-2-#2SD**
HAA-1T-7C	—	**CS32-2-#2SF**
HAA-1T-11C	—	**CS32-2-#2SG**
HAA-1L-162C	M-8014	**CS32-2-#4C**
HAA-1L-350C	M-8015	**CS32-2-#4D**
HAA-1L-7C	M-2516	**CS32-2-#4F**
HAA-1L-11C	M-2517	**CS32-2-#4G**
HAH-2C-350C	M-8504	**CS32-4-1/0D**
HAH-2C-8C	M-8505	**CS32-4-1/0F**
HAH-2C-20C	M-6272	**CS32-4-1/0G**
HAH-2G-350C	M-2776	**CS32-4-2/0D**
HAH-2G-8C	M-6273	**CS32-4-2/0F**
HAH-2G-20C	M-6274	**CS32-4-2/0G**

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Exothermic Welding System

Cross Reference

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
HAH-2L-350C	M-6275	**CS32-4-3/0D**
HAH-2L-8C	M-6276	**CS32-4-3/0F**
HAH-2L-20C	M-6278	**CS32-4-3/0G**
HAH-2Q-350C	M-9236	**CS32-4-4/0D**
HAH-2Q-8C	M-9237	**CS32-4-4/0F**
HAH-2Q-20C	M-9238	**CS32-4-4/0G**
VSC-1Y	M-589	**CS3-4-#1**
VSC-1Y-V3C	M-2482	**CS3-4-#1C**
VSC-1Y-V5C	M-2483	**CS3-4-#1D**
VSC-1Y-V8C	M-2484	**CS3-4-#1F**
VSC-1Y-V21C	M-2485	**CS3-4-#1G**
VSC-1V	M-588	**CS3-4-#2**
VSC-1V-V3C	M-9233	**CS3-4-#2C**
VSC-1V-V5C	M-2480	**CS3-4-#2D**
VSC-1V-V8C	M-2583	**CS3-4-#2F**
VSC-1V-V21C	M-2481	**CS3-4-#2G**
VSC-1T	—	**CS3-4-#2S**
VSC-1T-V3C	—	**CS3-4-#2SC**
VSC-1T-V5C	—	**CS3-4-#2SD**
VSC-1T-V8C	—	**CS3-4-#2SF**
VSC-1T-V21C	—	**CS3-4-#2SG**
VSC-1L	M-586	**CS3-4-#4**
VSC-1L-V3C	M-2476	**CS3-4-#4C**
VSC-1L-V5C	M-2477	**CS3-4-#4D**
VSC-1L-V8C	M-2478	**CS3-4-#4F**
VSC-1L-V21C	M-2479	**CS3-4-#4G**
VSC-1H	M-585	**CS3-4-#6**
VSC-2C	M-590	**CS3-4-1/0**
VSC-2C-V3C	M-2486	**CS3-4-1/0C**
VSC-2C-V5C	M-2487	**CS3-4-1/0D**
VSC-2C-V8C	M-2488	**CS3-4-1/0F**
VSC-2C-V21C	M-2489	**CS3-4-1/0G**
HCA-1Y-350C	—	**CS34-2-#1D**
HCA-1Y-7C	—	**CS34-2-#1F**
HCA-1Y-11C	—	**CS34-2-#1G**
HCA-1V-162C	—	**CS34-2-#2C**
HCA-1V-350C	—	**CS34-2-#2D**
HCA-1V-7C	—	**CS34-2-#2F**
HCA-1V-11C	—	**CS34-2-#2G**
HCA-1T-162C	—	**CS34-2-#2SC**
HCA-1T-350C	—	**CS34-2-#2SD**
HCA-1T-7C	—	**CS34-2-#2SF**
HCA-1T-11C	—	**CS34-2-#2SG**
HCA-1L-162C	—	**CS34-2-#4C**
HCA-1L-350C	—	**CS34-2-#4D**
HCA-1L-7C	—	**CS34-2-#4F**
HCA-1L-11C	—	**CS34-2-#4G**
VSC-2G	M-591	**CS3-4-2/0**
VSC-2G-V3C	M-8833	**CS3-4-2/0C**
VSC-2G-V5C	M-2490	**CS3-4-2/0D**
VSC-2G-V8C	M-2491	**CS3-4-2/0F**

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
VSC-2G-V21C	M-2492	**CS3-4-2/0G**
VSC-2V	M-594	**CS3-4-250K**
VSC-2L	M-592	**CS3-4-3/0**
VSC-2L-V3C	M-2493	**CS3-4-3/0C**
VSC-2L-V5C	M-2494	**CS3-4-3/0D**
VSC-2L-V8C	M-2495	**CS3-4-3/0F**
VSC-2L-V21C	M-2496	**CS3-4-3/0G**
VSC-3A	M-595	**CS3-4-300K**
VSC-3D	M-596	**CS3-4-350K**
VSC-2Q	M-593	**CS3-4-4/0**
VSC-2Q-V3C	M-9021	**CS3-4-4/0C**
VSC-2Q-V5C	M-2497	**CS3-4-4/0D**
VSC-2Q-V8C	M-2498	**CS3-4-4/0F**
VSC-2Q-V21C	M-2499	**CS3-4-4/0G**
HTC-2C-350C	—	**CS34-4-1/0D**
HTC-2C-8C	—	**CS34-4-1/0F**
HTC-2C-20C	—	**CS34-4-1/0G**
HTC-2G-350C	—	**CS34-4-2/0D**
HTC-2G-8C	—	**CS34-4-2/0F**
HTC-2G-20C	—	**CS34-4-2/0G**
HTC-2L-350C	—	**CS34-4-3/0D**
HTC-2L-8C	—	**CS34-4-3/0F**
HTC-2L-20C	—	**CS34-4-3/0G**
HTC-2Q-350C	—	**CS34-4-4/0D**
HTC-2Q-8C	—	**CS34-4-4/0F**
HTC-2Q-20C	—	**CS34-4-4/0G**
VSC-3Q	M-598	**CS3-4-500K**
VSD-4Y	M-600	**CS3-5-1000K**
VSD-4L	M-599	**CS3-5-750K**
VVC-1Y	M-1219	**CS4-4-#1**
VVC-1Y-V3	—	**CS4-4-#1C**
VVC-1Y-V5	—	**CS4-4-#1D**
VVC-1Y-V8	—	**CS4-4-#1F**
VVC-1Y-V21	—	**CS4-4-#1G**
VVC-1V	M-1218	**CS4-4-#2**
VVC-1V-V3	—	**CS4-4-#2C**
VVC-1V-V5	—	**CS4-4-#2D**
VVC-1V-V8	—	**CS4-4-#2F**
VVC-1V-V21	—	**CS4-4-#2G**
VVC-1T	—	**CS4-4-#2S**
VVC-1T-V3	—	**CS4-4-#2SC**
VVC-1T-V5	—	**CS4-4-#2SD**
VVC-1T-V8	—	**CS4-4-#2SF**
VVC-1T-V21	—	**CS4-4-#2SG**
VVC-1L	M-1216	**CS4-4-#4**
VVC-1L-V3	—	**CS4-4-#4C**
VVC-1L-V5	—	**CS4-4-#4D**
VVC-1L-V8	—	**CS4-4-#4F**
VVC-1L-V21	—	**CS4-4-#4G**
VVC-1H	M-1215	**CS4-4-#6**
VVR-2C	M-1220	**CS4-5-1/0**

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Cross Reference

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VVR-2C-V3	—	**CS4-5-1/0C**
VVR-2C-V5	—	**CS4-5-1/0D**
VVR-2C-V8	—	**CS4-5-1/0F**
VVR-2C-V20	—	**CS4-5-1/0G**
VVR-2G	M-1221	**CS4-5-2/0**
VVR-2G-V3	—	**CS4-5-2/0C**
VVR-2G-V5	—	**CS4-5-2/0D**
VVR-2G-V8	—	**CS4-5-2/0F**
VVR-2G-V20	—	**CS4-5-2/0G**
VVR-2V	M-1224	**CS4-5-250K**
VVR-2L	M-1222	**CS4-5-3/0**
VVR-2L-V3	—	**CS4-5-3/0C**
VVR-2L-V5	—	**CS4-5-3/0D**
VVR-2L-V8	—	**CS4-5-3/0F**
VVR-2L-V20	—	**CS4-5-3/0G**
VVR-2Q	M-1223	**CS4-5-4/0**
VVR-2Q-V3	—	**CS4-5-4/0C**
VVR-2Q-V5	—	**CS4-5-4/0D**
VVR-2QV8	—	**CS4-5-4/0F**
VVR-2Q-V20	—	**CS4-5-4/0G**
VFC-1Y	M-1639	**CS7-4-#1**
VFC-1Y-V3	—	**CS7-4-#1C**
VFC-1Y-V5	—	**CS7-4-#1D**
VFC-1Y-V8	—	**CS7-4-#1F**
VFC-1Y-V21	—	**CS7-4-#1G**
VFC-1V	M-1638	**CS7-4-#2**
VFC-1V-V3	—	**CS7-4-#2C**
VFC-1V-V5	—	**CS7-4-#2D**
VFC-1V-V8	—	**CS7-4-#2F**
VFC-1V-V21	—	**CS7-4-#2G**
VFC-1T	—	**CS7-4-#2S**
VFC-1T-V3	—	**CS7-4-#2SC**
VFC-1T-V5	—	**CS7-4-#2SD**
VFC-1T-V8	—	**CS7-4-#2SF**
VFC-1T-V21	—	**CS7-4-#2SG**
VFC-1L	M-1636	**CS7-4-#4**
VFC-1L-V3	—	**CS7-4-#4C**
VFC-1L-V5	—	**CS7-4-#4D**
VFC-1L-V8	—	**CS7-4-#4F**
VFC-1L-V21	—	**CS7-4-#4G**
VFC-2C	M-1640	**CS7-4-1/0**
VFC-2C-V3	—	**CS7-4-1/0C**
VFC-2C-V5	—	**CS7-4-1/0D**
VFC-2C-V8	—	**CS7-4-1/0F**
VFC-2C-V20	—	**CS7-4-1/0G**
VFC-2G	M-1641	**CS7-4-2/0**
VFC-2G-V3	—	**CS7-4-2/0C**
VFC-2G-V5	—	**CS7-4-2/0D**
VFC-2G-V8	—	**CS7-4-2/0F**
VFC-2G-V20	—	**CS7-4-2/0G**
VFR-2V	M-1644	**CS7-5-250K**

CADWELD CAT. NO.	THERMOWELD CAT. NO.	BLACKBURN CAT. NO.
VFR-2L	M-1642	**CS7-5-3/0**
VFR-2L-V3	—	**CS7-5-3/0C**
VFR-2L-V5	—	**CS7-5-3/0D**
VFR-2L-V8	—	**CS7-5-3/0F**
VFR-2L-V20	—	**CS7-5-3/0G**
VFR-3A	M-1645	**CS7-5-300K**
VFR-2Q	M-1643	**CS7-5-4/0**
VFR-2Q-V3	—	**CS7-5-4/0C**
VFR-2Q-V5	—	**CS7-5-4/0D**
VFR-2Q-V8	—	**CS7-5-4/0F**
VFR-2Q-V20	—	**CS7-5-4/0G**
VFF-3D	M-1646	**CS7-6-350K**
VFF-3Q	M-1648	**CS7-6-500K**
HAA-1Y	M-631	**CS8-2-#1**
HAA-1V	M-630	**CS8-2-#2**
HAA-1T	—	**CS8-2-#2S**
HAA-1L	M-629	**CS8-2-#4**
HAA-1H	M-628	**CS8-2-#6**
HCA-1Y	M-605	**CS9-2-#1**
HCA-1V	M-604	**CS9-2-#2**
HCA-1T	—	**CS9-2-#2S**
HCA-1L	M-603	**CS9-2-#4**
HCA-1H	M-602	**CS9-2-#6**
15	15	**15BKB**
25	25	**25BKB**
32	32	**32BKB**
45	45	**45BKB**
65	65	**65BKB**
90	90	**90BKB**
115	115	**115BKB**
150	150	**150BKB**
200	200	**200BKB**
250	250	**250BKB**
L160	40-0106-00	**HCPK4**
L159	40-0107-00	**HCPK5**
T314	38-0135-00	**WWB1**
T314A	38-0135-01	**WRB1**
T313	38-0306-00	**BFC**
T320	38-0309-00	**FGUN**
T394	38-3922-00	**BCM**
B136A/B	40-0319-01/3/5/6	**STM1**
T403	38-4129-00	**MSC**
B144A/B/C/E	38-4061/2/3/4-00	**PACK-A**

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Exothermic Welding System

Sure Shot® Cross Reference — Type CR1

GROUND ROD SIZE	CONDUCTOR SIZE SOLID	CONDUCTOR SIZE STRANDED	CADWELD CAT. NO. TYPE GR (CR1)	THERMOWELD CAT. NO. TYPE CR-1	BLACKBURN CAT. NO. TYPE CR1
½"	6, 8	8	GR1-141G	—	—
	3, 4	4, 6	GR1-141L	—	—
	1, 2	2, 3	GR1-141V	—	—
⅝"	6, 8	8	GR1-161G	M-2012	**SCR1-58-6808**
	3, 4	4, 6	GR1-161L	M-2013	**SCR1-58-3446**
	1, 2	2, 3	GR1-161V	M-2014	**SCR1-58-1223**
	2/0, 1/0	1/0, 1	GR1-162C	M-2015	**SCR1-58-2010**
	—	2/0	GR1-162G	M-2016	**SCR1-58-0020**
¾"	6, 8	8	GR1-181G	M-2017	**SCR1-34-6808**
	3, 4	4, 6	GR1-181L	M-2018	**SCR1-34-3446**
	1, 2	2, 3	GR1-181V	M-2019	**SCR1-34-1223**
	2/0, 1/0	1/0, 1	GR1-182C	M-2020	**SCR1-34-2010**
	—	2/0	GR1-182G	M-2021	**SCR1-34-0020**
	—	4/0	GR1-182Q	—	**SCR1-34-0040**

Sure Shot® Cross Reference — Type CR2

GROUND ROD SIZE	CONDUCTOR SIZE SOLID	CONDUCTOR SIZE STRANDED	CADWELD CAT. NO. TYPE GR (CR2)	THERMOWELD CAT. NO. TYPE CR-2	BLACKBURN CAT. NO. TYPE CR1
½"	6, 8	8	GT1-141G	—	—
	3, 4	4, 6	GT1-141L	—	—
	1, 2	2, 3	GT1-141V	—	—
⅝"	6, 8	8	GT1-161G	M-2027	**SCR2-58-6808**
	3, 4	4, 6	GT1-161L	M-2028	**SCR2-58-3446**
	1, 2	2, 3	GT1-161V	M-2029	**SCR2-58-1223**
	2/0, 1/0	1/0, 1	GT1-162C	M-2030	**SCR2-58-2010**
	—	2/0	—	—	**SCR2-58-0020***
¾"	6, 8	8	GT1-181G	M-2031	**SCR2-34-6808**
	3, 4	4, 6	GT1-181L	M-2032	**SCR2-34-3446**
	1, 2	2, 3	GT1-181V	M-2033	**SCR2-34-1223**
	2/0, 1/0	1/0, 1	GT1-182C	M-2034	**SCR2-34-2010**
	—	2/0	—	—	**SCR2-34-0020***
	—	4/0	—	—	**SCR2-34-0040***

** Future development.*

Sure Shot® Cross Reference — Type CR17

GROUND ROD SIZE	CONDUCTOR SIZE SOLID	CONDUCTOR SIZE STRANDED	CADWELD CAT. NO. TYPE GR (CR17)	THERMOWELD CAT. NO. —	BLACKBURN CAT. NO. TYPE CR1
½"	6, 8	8	NT1-141G	—	—
	3, 4	4, 6	NT1-141L	—	—
	1, 2	2, 3	—	—	—
⅝"	6, 8	8	NT1-161G	—	**SCR17-58-6808**
	3, 4	4, 6	NT1-161L	—	**SCR17-58-3446**
	1, 2	2, 3	NT1-161V	—	**SCR17-58-1223**
	2/0, 1/0	1/0, 1	—	—	**SCR17-58-2010***
	—	2/0	—	—	**SCR17-58-0020***
¾"	6, 8	8	NT1-181G	—	**SCR17-34-6808**
	3, 4	4, 6	NT1-181L	—	**SCR17-34-3446**
	1, 2	2, 3	NT1-181V	—	**SCR17-34-1223**
	2/0, 1/0	1/0, 1	—	—	**SCR17-34-2010***
	—	2/0	—	—	**SCR17-34-0020***
	—	4/0	—	—	**SCR17-34-0040***

** Future development.*

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Sure Shot® Cross Reference — Type CR24

GROUND ROD SIZE	CONDUCTOR SIZE SOLID	CONDUCTOR SIZE STRANDED	CADWELD CAT. NO. TYPE NX (CR24)	THERMOWELD CAT. NO. TYPE CR-24	BLACKBURN CAT. NO. TYPE CR24
½"	6, 8	8	NX1-141G	—	—
	3, 4	4, 6	NX1-141L	—	—
	1, 2	2, 3	—	—	—
⅝"	6, 8	8	NX1-161G	—	**SCR24-58-6808**
	3, 4	4, 6	NX1-161L	—	**SCR24-58-3446**
	1, 2	2, 3	NX1-161V	—	**SCR24-58-1223**
	2/0, 1/0	1/0, 1	—	—	**SCR24-58-2010***
	—	2/0	—	—	**SCR24-58-0020***
	—	4/0	—	—	**SCR24-34-0040***
¾"	6, 8	8	NX1-181G	—	**SCR24-34-6808**
	3, 4	4, 6	NX1-181L	—	**SCR24-34-3446**
	1, 2	2, 3	NX1-181V	—	**SCR24-34-1223**
	2/0, 1/0	1/0, 1	—	—	**SCR24-34-2010***

Sure Shot® Cross Reference — Type CR25

GROUND ROD SIZE	CONDUCTOR SIZE SOLID	CONDUCTOR SIZE STRANDED	CADWELD CAT. NO. —	THERMOWELD CAT. NO. TYPE CR-25	BLACKBURN CAT. NO. TYPE CR25
⅝"	6, 8	8	—	M-2006	—
	3, 4	4, 6	—	M-2007	—
	1, 2	2, 3	—	M-2008	—
¾"	2/0, 1/0	1/0, 1	—	M-2023	**SCR17-58-6808**
	6, 8	8	—	M-2068	**SCR17-58-3446**
	3, 4	4, 6	—	M-2069	**SCR17-58-1223**

** Future development.*

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Conductor Properties

SIZE (AWG OR KCMIL)	CONDUCTORS									DIRECT CURRENT RESISTANCE AT 75° C (167° F)					
	AREA		STRANDING			OVERALL				COPPER				ALUMINUM	
				DIAMETER		DIAMETER		AREA		UNCOATED		COATED			
	MM²	CIRCULAR MILS	QUANTITY	MM	IN.	MM	IN.	MM²	IN.²	OHM/KM	OHM/KFT	OHM/KM	OHM/KFT	OHM/KM	OHM/KFT
18	.823	1620	1	—	—	1.02	.040	.823	.001	25.5	7.77	26.5	8.08	42.0	12.8
18	.823	1620	7	.39	.015	1.16	.046	1.06	.002	26.1	7.95	27.7	8.45	42.8	13.1
16	1.31	2580	1	—	—	1.29	.051	1.31	.002	16.0	4.89	16.7	5.08	26.4	8.05
16	1.31	2580	7	.49	.019	1.46	.058	1.68	.003	16.4	4.99	17.3	5.29	26.9	8.21
14	2.08	4110	1	—	—	1.63	.064	2.08	.003	10.1	3.07	10.4	3.19	16.6	5.06
14	2.08	4110	7	.62	.024	1.85	.073	2.68	.004	10.3	3.14	10.7	3.26	16.9	5.17
12	3.31	6530	1	—	—	2.05	.081	3.31	.005	6.34	1.93	6.57	2.01	10.45	3.18
12	3.31	6530	7	.78	.030	2.32	.092	4.25	.006	6.50	1.98	6.73	2.05	10.69	3.25
10	5.261	10380	1	—	—	2.588	.102	5.26	.008	3.984	1.21	4.148	1.26	6.561	2.00
10	5.261	10380	7	.98	.038	2.95	.116	6.76	.011	4.070	1.24	4.226	1.29	6.679	2.04
8	8.367	16510	1	—	—	3.264	.128	8.37	.013	2.506	.764	2.579	.786	4.125	1.26
8	8.367	16510	7	1.23	.049	3.71	.146	10.76	.017	2.551	.778	2.653	.809	4.204	1.28
6	13.30	26240	7	1.56	.061	4.67	.184	17.09	.027	1.608	.491	1.671	.510	2.652	.808
4	21.15	41740	7	1.96	.077	5.89	.232	27.19	.042	1.010	.308	1.053	.321	1.666	.508
3	26.67	52620	7	2.20	.087	6.60	.260	34.28	.053	.802	.245	.833	.254	1.320	.403
2	33.62	66360	7	2.47	.097	7.42	.292	43.23	.067	.634	.194	.661	.201	1.045	.319
1	42.41	83690	19	1.69	.066	8.43	.332	55.80	.087	.505	.154	.524	.160	.829	.253
1/0	53.49	105600	19	1.89	.074	9.45	.372	70.41	.109	.399	.122	.415	.127	.660	.201
2/0	67.43	133100	19	2.13	.084	10.62	.418	88.74	.137	.3170	.0967	.329	.101	.523	.159
3/0	85.01	167800	19	2.39	.094	11.94	.470	111.9	.173	.2512	.0766	.2610	.0797	.413	.126
4/0	107.2	211600	19	2.68	.106	13.41	.528	141.1	.219	.1996	.0608	.2050	.0626	.328	.100
250	—	—	37	2.09	.082	14.61	.575	168	.260	.1687	.0515	.1753	.0535	.2778	.0847
300	—	—	37	2.29	.090	16.00	.630	201	.312	.1409	.0429	.1463	.0446	.2318	.0707
350	—	—	37	2.47	.097	17.30	.681	235	.364	.1205	.0367	.1252	.0382	.1984	.0605
400	—	—	37	2.64	.104	18.49	.728	268	.416	.1053	.0321	.1084	.0331	.1737	.0529
500	—	—	37	2.95	.116	20.65	.813	336	.519	.0845	.0258	.0869	.0265	.1391	.0424
600	—	—	61	2.52	.099	22.68	.893	404	.626	.0704	.0214	.0732	.0223	.1159	.0353
700	—	—	61	2.72	.107	24.49	.964	471	.730	.0603	.0184	.0622	.0189	.0994	.0303
750	—	—	61	2.82	.111	25.35	.998	505	.782	.0563	.0171	.0579	.0176	.0927	.0282
800	—	—	61	2.91	.114	26.16	1.030	538	.834	.0528	.0161	.0544	.0166	.0868	.0265
900	—	—	61	3.09	.122	27.79	1.094	606	.940	.0470	.0143	.0481	.0147	.0770	.0235
1000	—	—	61	3.25	.128	29.26	1.152	673	1.042	.0423	.0129	.0434	.0132	.0695	.0212

FPN: The construction information is per NEMA WC8-1992 or ANSI/UL 1581-1998. The resistance is calculated per National Bureau of Standards Handbook 100, dated 1966, and Handbook 109, dated 1972.

70–625 TABLES

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Table B.310.1

Ampacities of Two or Three Insulated Conductors, Rated 0 Through 2000 Volts, Within an Overall Covering (Multiconductor Cable), in Raceway in Free Air Based on Ambient Air Temperature of 30° C (86° F)

Temperature Rating of Conductor (See Table 310.13)

SIZE (AWG OR KCMIL)	60° C (140° F)	75° C (167° F)	90° C (194° F)	60° C (140° F)	75° C (167° F)	90° C (194° F)	SIZE (AWG OR KCMIL)
	TYPES TW, UF	TYPES RHW THHW, THW, THWN, XHHW, ZW	TYPES THHN, THHW, THW-2, THWN-2, RHH, RHW-2, USE-2, XHHN, XHHW-2, ZW-2	TYPE TW	TYPES RHW THHW, THW, THWN, XHHW	TYPES THHN, THHW, THW-2, THWN-2, RHH, RHW-2, USE-2, XHHW, XHHW-2, ZW-2	
	COPPER			ALUMINUM OR COPPER-CLAD ALUMINUM			
14	16*	18*	21*	—	—	—	14
12	20*	24*	27*	16*	18*	21*	12
10	27*	33*	36*	21*	25*	28*	10
8	36	43	48	28	33	37	8
6	48	58	65	38	45	51	6
4	66	79	89	51	61	69	4
3	76	90	102	59	70	79	3
2	88	105	119	69	83	93	2
1	102	121	137	80	95	106	1
1/0	121	145	163	94	113	127	1/0
2/0	138	166	186	108	129	146	2/0
3/0	158	189	214	124	147	167	3/0
4/0	187	223	253	147	176	197	4/0
250	205	245	276	160	192	217	250
300	234	281	317	185	221	250	300
350	255	305	345	202	242	273	350
400	274	328	371	218	261	295	400
500	315	378	427	254	303	342	500
600	343	413	468	279	335	378	600
700	376	452	514	310	371	420	700
750	387	466	529	321	384	435	750
800	397	479	543	331	397	450	800
900	415	500	570	350	421	477	900
1000	448	542	617	382	460	521	1000

Correction Factors

AMBIENT TEMP. (°C)	*For ambient temperatures other than 30° C (86° F), multiply the ampacities shown above by the appropriate factor shown below.*						AMBIENT TEMP. (°F)
21–25	1.08	1.05	1.04	1.08	1.05	1.04	70–77
26–30	1.00	1.00	1.00	1.00	1.00	1.00	79–86
31–35	.91	.94	.96	.91	.94	.96	88–95
36–40	.82	.88	.91	.82	.88	.91	97–104
41–45	.71	.82	.87	.71	.82	.87	106–113
46–50	.58	.75	.82	.58	.75	.82	115–122
51–55	.41	.67	.76	.41	.67	.76	124–131
56–60	—	.58	.71	—	.58	.71	133–140
61–70	—	.33	.58	—	.33	.58	142–158
71–80	—	—	.41	—	—	.41	160–176

** Unless otherwise specifically permitted elsewhere in this Code, the overcurrent protection for these conductor types shall not exceed 15 amperes for 14 AWG, 20 amperes for 12 AWG, and 30 amperes for 10 AWG copper; or 15 amperes for 12 AWG and 25 amperes for 10 AWG aluminum and copper-clad aluminum.*

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Metric Conductors

WIRE SIZE MM	WIRE SIZE AWG	CIRC MILS	# OF STRANDS	STRAND DIAMETER	DIAMETER MM	DIAMETER INCH	COLOR CODE	DIE CODE
10	8	19,730	1	3.57	3.57	.140	Red	21
10	8	19,730	7	1.35	4.05	.159	Red	21
16	6	31,558	1	4.50	4.50	.177	Blue	24
16	6	31,558	7	1.70	5.10	.200	Blue	24
25	2	49,325	7	2.14	6.42	.253	Gray	29
25	2	49,325	19	1.35	6.75	.266	Brown	33
35	1	69,055	19	1.53	7.65	.300	Green	37
50	1/0	98,650	19	1.78	8.90	.350	Pink	42
70	2/0	138,110	19	2.14	10.70	.421	Black	45
95	3/0	187,500	19	2.52	12.60	.496	Orange	50
95	3/0	187,500	37	1.78	12.46	.490	Orange	50
120	250	236,760	37	2.03	14.21	.560	Purple	54
150	300	295,950	37	2.25	15.75	.620	White	66
185		365,000	61	2.52	17.64	.695	Red	71
240	500	473,500	61	2.25	20.25	.797	Brown	87
300		591,900	61	2.52	22.68	.893	Green	94
400		789,200	61	2.85	25.65	1.000	Black	106
400		789,200	91	2.36	25.96	1.022	Black	106
500		986,500	61	3.20	28.80	1.134	—	125
500		986,500	91	2.65	29.15	1.148	—	—
630		1,243,000	127	2.52	32.76	1.290	—	—
800		1,578,400	127	2.85	37.05	1.459	—	—
1000		1,973,000	127	3.20	41.60	1.638	—	—

Table C1

Maximum Number of Conductors or Fixture Wires in Electrical Metallic Tubing (EMT) (Based on Table 1, Chapter 9)

CONDUCTORS											
	CONDUCTOR	METRIC DESIGNATOR (TRADE SIZE)									
TYPE	SIZE (AWG/KCMIL)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)
RHH, RHW, RHW-2	14	4	7	11	20	27	46	80	120	157	201
	12	3	6	9	17	23	38	66	100	131	167
	10	2	5	8	13	18	30	53	81	105	135
	8	1	2	4	7	9	16	28	42	55	70
	6	1	1	3	5	8	13	22	34	44	56
	4	1	1	2	4	6	10	17	26	34	44
	3	1	1	1	4	5	9	15	23	30	38
	2	1	1	1	3	4	7	13	20	26	33
	1	0	1	1	1	3	5	9	13	17	22
	1/0	0	1	1	1	2	4	7	11	15	19
	2/0	0	1	1	1	2	4	6	10	13	17
	3/0	0	0	1	1	1	3	5	8	11	14
	4/0	0	0	1	1	1	3	5	7	9	12
	250	0	0	0	1	1	1	3	5	7	9
	300	0	0	0	1	1	1	3	5	6	8
	350	0	0	0	1	1	1	3	4	6	7
	400	0	0	0	1	1	1	2	4	5	7
	500	0	0	0	0	1	1	2	3	4	6
	600	0	0	0	0	1	1	1	3	4	5
	700	0	0	0	0	0	1	1	2	3	4
	750	0	0	0	0	0	1	1	2	3	4
	800	0	0	0	0	0	1	1	2	3	4
	900	0	0	0	0	0	1	1	1	3	3
	1000	0	0	0	0	0	1	1	1	2	3
TW, THHW, THW, THW-2	14	8	15	25	43	58	96	168	254	332	424
	12	6	11	19	33	45	74	129	195	255	326
	10	5	8	14	24	33	55	96	145	190	243
	8	2	5	8	13	18	30	53	81	105	135
RHH*, RHW*, RHW-2*	14	6	10	6	28	39	64	112	169	221	282
	12	4	8	13	23	31	51	90	136	177	227
	10	3	6	10	18	24	40	70	106	138	177
	8	1	4	6	10	14	24	42	63	83	106

CONDUCTORS											
	CONDUCTOR	METRIC DESIGNATOR (TRADE SIZE)									
TYPE	SIZE (AWG/KCMIL)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)
RHH*, RHW*, RHW-2*, TW, THW, THHW, THW-2	6	1	3	4	8	11	18	32	48	63	81
	4	1	1	3	6	8	13	24	36	47	60
	3	1	1	3	5	7	12	20	31	40	52
	2	1	1	2	4	6	10	17	26	34	44
	1	1	1	1	3	4	7	12	18	24	31
	1/0	0	1	1	2	3	6	10	16	20	26
	2/0	0	1	1	1	3	5	9	13	17	22
	3/0	0	1	1	1	2	4	7	11	15	19
	4/0	0	0	1	1	1	3	6	9	12	16
	250	0	0	1	1	1	3	5	7	10	13
	300	0	0	1	1	1	2	4	6	8	11
	350	0	0	0	1	1	1	4	6	7	10
	400	0	0	0	1	1	1	3	5	7	9
	500	0	0	0	1	1	1	3	4	6	7
	600	0	0	0	1	1	1	2	3	4	6
	700	0	0	0	0	1	1	1	3	4	5
	750	0	0	0	0	1	1	1	3	4	5
	800	0	0	0	0	1	1	1	3	3	5
	900	0	0	0	0	0	1	1	2	3	4
	1000	0	0	0	0	0	1	1	2	3	4
THHN, THWN, THWN-2	14	12	22	35	61	84	138	241	364	476	608
	12	9	16	26	45	61	101	176	266	347	443
	10	5	10	16	28	38	63	111	167	219	279
	8	3	6	9	16	22	36	64	96	126	161
	6	2	4	7	12	16	26	46	69	91	116
	4	1	2	4	7	10	16	28	43	56	71
	3	1	1	3	6	8	13	24	36	47	60
	2	1	1	3	5	7	11	20	30	40	51
	1	1	1	1	4	5	8	15	22	29	37
	1/0	1	1	1	3	4	7	12	19	25	32
	2/0	0	1	1	2	3	6	10	16	20	26
	3/0	0	1	1	1	3	5	8	13	17	22
	4/0	0	1	1	1	2	4	7	11	14	18
	250	0	0	1	1	1	3	6	9	11	15
	300	0	0	1	1	1	3	5	7	10	13
	350	0	0	1	1	1	2	4	6	9	11
	400	0	0	0	1	1	1	4	6	8	10
	500	0	0	0	1	1	1	3	5	6	8
	600	0	0	0	1	1	1	2	4	5	7
	700	0	0	0	1	1	1	2	3	4	6
	750	0	0	0	0	1	1	1	3	4	5
	800	0	0	0	0	1	1	1	3	4	5
	900	0	0	0	0	1	1	1	3	3	4
	1000	0	0	0	0	1	1	1	2	3	4

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Table C4

Maximum Number of Conductors or Fixture Wires in Intermediate Metal Conduit (IMC) (Based on Table 1, Chapter 9)

CONDUCTORS												
	CONDUCTOR	METRIC DESIGNATOR (TRADE SIZE)										
TYPE	SIZE (AWG/KCMIL)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)
RHH, RHW, RHW-2	14	4	8	13	22	30	49	70	108	144	186
	12	4	6	11	18	25	41	58	89	120	154
RHH, RHW, RHW-2	10	3	5	8	15	20	33	47	72	97	124
	8	1	3	4	8	10	17	24	38	50	65
	6	1	1	3	6	8	14	19	30	40	52
	4	1	1	3	5	6	11	15	23	31	41
	3	1	1	2	4	6	9	13	21	28	36
	2	1	1	1	3	5	8	11	18	24	31
	1	0	1	1	2	3	5	7	12	16	20
	1/0	0	1	1	1	3	4	6	10	14	18
	2/0	0	1	1	1	2	4	6	9	12	15
	3/0	0	0	1	1	1	3	5	7	10	13
	4/0	0	0	1	1	1	3	4	6	9	11
	250	0	0	1	1	1	1	3	5	6	8
	300	0	0	0	1	1	1	3	4	6	7
	350	0	0	0	1	1	1	2	4	5	7
	400	0	0	0	1	1	1	2	3	5	6
	500	0	0	0	1	1	1	1	3	4	5
	600	0	0	0	0	1	1	1	2	3	4
	700	0	0	0	0	1	1	1	2	3	4
	750	0	0	0	0	1	1	1	1	3	4
	800	0	0	0	0	0	1	1	1	3	3
	900	0	0	0	0	0	1	1	1	2	3
	1000	0	0	0	0	0	1	1	1	2	3
	1250	0	0	0	0	0	1	1	1	1	2
	1500	0	0	0	0	0	0	1	1	1	1
	1750	0	0	0	0	0	0	1	1	1	1
	2000	0	0	0	0	0	0	1	1	1	1
TW, THHW, THW, THW-2	14	10	17	27	47	64	104	147	228	304	392
	12	7	13	21	36	49	80	113	175	234	301
	10	5	9	15	27	36	59	84	130	174	224
	8	3	5	8	15	20	33	47	72	97	124
RHH*, RHW*, RHW-2	14	6	11	18	31	42	69	98	151	202	261
RHH*, RHW*, RHW-2*	12	5	9	14	25	34	56	79	122	163	209
	10	4	7	11	19	26	43	61	95	127	163
RHH*, RHW*, RHW-2*	8	2	4	7	12	16	26	37	57	76	98
RHH*, RHW*, RHW-2*	6	1	3	5	9	12	20	28	43	58	75
	4	1	2	4	6	9	15	21	32	43	56

CONDUCTORS												
	CONDUCTOR	METRIC DESIGNATOR (TRADE SIZE)										
TYPE	SIZE (AWG/KCMIL)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)
TW, THW, THHW, THW-2	3	1	1	3	6	8	13	18	28	37	48
	2	1	1	3	5	6	11	15	23	31	41
	1	1	1	1	3	4	7	11	16	22	28
	1/0	1	1	1	3	4	6	9	14	19	24
	2/0	0	1	1	2	3	5	8	12	16	20
	3/0	0	1	1	1	3	4	6	10	13	17
	4/0	0	1	1	1	2	4	5	8	11	14
	250	0	0	1	1	1	3	4	7	9	12
	300	0	0	1	1	1	2	4	6	8	10
	350	0	0	1	1	1	2	3	5	7	9
	400	0	0	0	1	1	1	3	4	6	8
	500	0	0	0	1	1	1	2	4	5	7
	600	0	0	0	1	1	1	1	3	4	5
	700	0	0	0	0	1	1	1	3	4	5
	750	0	0	0	0	1	1	1	2	3	4
	800	0	0	0	0	1	1	1	2	3	4
	900	0	0	0	0	1	1	1	2	3	4
	1000	0	0	0	0	0	1	1	1	3	3
THHN, THWN, THWN-2	14	14	24	39	68	91	149	211	326	436	562
	12	10	17	29	49	67	109	154	238	318	410
	10	6	11	18	31	42	68	97	150	200	258
	8	3	6	10	18	24	39	56	86	115	149
	6	2	4	7	13	17	28	40	62	83	107
	4	1	3	4	8	10	17	25	38	51	66
	3	1	2	4	6	9	15	21	32	43	56
	2	1	1	3	5	7	12	17	27	36	47
	1	1	1	2	4	5	9	13	20	27	35
	1/0	1	1	1	3	4	8	11	17	23	29
	2/0	1	1	1	3	4	6	9	14	19	24
	3/0	0	1	1	2	3	5	7	12	16	20
	4/0	0	1	1	1	2	4	6	9	13	17
	250	0	0	1	1	1	3	5	8	10	13
	300	0	0	1	1	1	3	4	7	9	12
	350	0	0	1	1	1	2	4	6	8	10
	400	0	0	1	1	1	2	3	5	7	9
	500	0	0	0	1	1	1	3	4	6	7
	600	0	0	0	1	1	1	2	3	5	6
	700	0	0	0	1	1	1	1	3	4	5
	750	0	0	0	1	1	1	1	3	4	5
	800	0	0	0	0	1	1	1	3	4	5
	900	0	0	0	0	1	1	1	2	3	4
	1000	0	0	0	0	1	1	1	2	3	4

***Note**: This table is for concentric stranded conductors only. For compact stranded conductors, Table C4(A) should be used.*

** Types RHH, RHW, and RHW-2 without outer covering.*

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Table C8

Maximum Number of Conductors or Fixture Wires in Rigid Metal Conduit (RMC) (Based on Table 1, Chapter 9)

CONDUCTORS														
	CONDUCTOR	METRIC DESIGNATOR (TRADE SIZE)												
TYPE	SIZE (AWG/KCMIL)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)	129 (5)	155 (6)
RHH, RHW, RHW-2	14	4	7	12	21	28	46	66	102	136	176	276	398
	12	3	6	10	17	23	38	55	85	113	146	229	330
	10	3	5	8	14	19	31	44	68	91	118	185	267
	8	1	2	4	7	10	16	23	36	48	61	97	139
	6	1	1	3	6	8	13	18	29	38	49	77	112
	4	1	1	2	4	6	10	14	22	30	38	60	87
	3	1	1	2	4	5	9	12	19	26	34	53	76
	2	1	1	1	3	4	7	11	17	23	29	46	66
	1	0	1	1	1	3	5	7	11	15	19	30	44
	1/0	0	1	1	1	2	4	6	10	13	17	26	38
	2/0	0	1	1	1	2	4	5	8	11	14	23	33
	3/0	0	0	1	1	1	3	4	7	10	12	20	28
	4/0	0	0	1	1	1	3	4	6	8	11	17	24
	250	0	0	0	1	1	1	3	4	6	8	13	18
	300	0	0	0	1	1	1	2	4	5	7	11	16
	350	0	0	0	1	1	1	2	4	5	6	10	15
	400	0	0	0	1	1	1	1	3	4	6	9	13
	500	0	0	0	1	1	1	1	3	4	5	8	11
	600	0	0	0	0	1	1	1	2	3	4	6	9
	700	0	0	0	0	1	1	1	1	3	4	6	8
	750	0	0	0	0	0	1	1	1	3	3	5	8
	800	0	0	0	0	0	1	1	1	2	3	5	7
	900	0	0	0	0	0	1	1	1	2	3	5	7
	1000	0	0	0	0	0	1	1	1	1	3	4	6
TW, THHW, THW, THW-2	14	9	15	25	44	59	98	140	216	288	370	581	839
	12	7	12	19	33	45	75	107	165	221	284	446	644
	10	5	9	14	25	34	56	80	123	164	212	332	480
	8	3	5	8	14	19	31	44	68	91	118	185	267
RHH*, RHW*, RHW-2*	14	6	10	17	29	39	65	93	143	191	246	387	558
RHH*, RHW*, RHW-2*	12	5	8	13	23	32	52	75	115	154	198	311	448
	10	3	6	10	18	25	41	58	90	120	154	242	350
RHH*, RHW*, RHW-2*	8	1	4	6	11	15	24	35	54	72	92	145	209

CONDUCTORS													
	CONDUCTOR	METRIC DESIGNATOR (TRADE SIZE)											
TYPE	SIZE (AWG/KCMIL)	16 (½)	21 (¾)	27 (1)	35 (1¼)	41 (1½)	53 (2)	63 (2½)	78 (3)	91 (3½)	103 (4)	129 (5)	155 (6)
RHH*, RHW*, RHW-2*, TW, THW, THHW, THW-2	6	1	3	5	8	11	18	27	41	55	71	111	160
	4	1	1	3	6	8	14	20	31	41	53	83	120
	3	1	1	3	5	7	12	17	26	35	45	71	103
	2	1	1	2	4	6	10	14	22	30	38	60	87
	1	1	1	1	3	4	7	10	15	21	27	42	61
	1/0	0	1	1	2	3	6	8	13	18	23	36	52
	2/0	0	1	1	2	3	5	7	11	15	19	31	44
	3/0	0	1	1	1	2	4	6	9	13	16	26	37
	4/0	0	0	1	1	1	3	5	8	10	14	21	31
	250	0	0	1	1	1	3	4	6	8	11	17	25
	300	0	0	1	1	1	2	3	5	7	9	15	22
	350	0	0	0	1	1	1	3	5	6	8	13	19
	400	0	0	0	1	1	1	3	4	6	7	12	17
	500	0	0	0	1	1	1	2	3	5	6	10	14
	600	0	0	0	1	1	1	1	3	4	5	8	12
	700	0	0	0	0	1	1	1	2	3	4	7	10
	750	0	0	0	0	1	1	1	2	3	4	7	10
	800	0	0	0	0	1	1	1	2	3	4	6	9
	900	0	0	0	0	1	1	1	1	3	4	6	8
	1000	0	0	0	0	0	1	1	1	2	3	5	8
THHN, THWN, THWN-2	14	13	22	36	63	85	140	200	309	412	531	833	1202
	12	9	16	26	46	62	102	146	225	301	387	608	877
	10	6	10	17	29	39	64	92	142	189	244	383	552
	8	3	6	9	16	22	37	53	82	109	140	221	318
	6	2	4	7	12	16	27	38	59	79	101	159	230
	4	1	2	4	7	10	16	23	36	48	62	98	141
	3	1	1	3	6	8	14	20	31	41	53	83	120
	2	1	1	3	5	7	11	17	26	34	44	70	100
	1	1	1	1	4	5	8	12	19	25	33	51	74
	1/0	1	1	1	3	4	7	10	16	21	27	43	63
	2/0	0	1	1	2	3	6	8	13	18	23	36	52
	3/0	0	1	1	1	3	5	7	11	15	19	30	43
	4/0	0	1	1	1	2	4	6	9	12	16	25	36
	250	0	0	1	1	1	3	5	7	10	13	20	29
	300	0	0	1	1	1	3	4	6	8	11	17	25
	350	0	0	1	1	1	2	3	5	7	10	15	22
	400	0	0	1	1	1	2	3	5	7	8	13	20
	500	0	0	0	1	1	1	2	4	5	7	11	16
	600	0	0	0	1	1	1	1	3	4	6	9	13
	700	0	0	0	1	1	1	1	3	4	5	8	11
	750	0	0	0	0	1	1	1	3	4	5	7	11
	800	0	0	0	0	1	1	1	2	3	4	7	10
	900	0	0	0	0	1	1	1	2	3	4	6	9
	1000	0	0	0	0	1	1	1	1	3	4	6	8

***Note**: This table is for concentric stranded conductors only. For compact stranded conductors, Table C8(A) should be used.*

** Types RHH, RHW, and RHW-2 without outer covering.*

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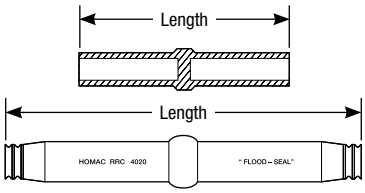
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CAT. NO.	COLOR CODE	WIRE SIZE FROM	WIRE SIZE TO	CONNECTOR LENGTH	INSULATOR LENGTH	INSTALLING DIES	STRIP
RRK 4	Orange	#4	#4	2	5½	½ (3)	1
RRK 2	Red	#2	#2	3	5½	⅝ (5)	1½
RRK 24	Red/Orange	#2	#4			⅝ (5)	
RRK 1	Red	#1	#1			⅝ (5)	
RRK 10	Yellow	1/0	1/0			⅝ (5)	
RRK 102	Yellow/Red	1/0	#2			⅝ (5)	
RRK 20	Gray	2/0	2/0			⅝ (5)	
RRK 201	Gray/Red	2/0	#1			⅝ (5)	
RRK 202	Gray/Red	2/0	#2			⅝ (5)	
RRK 2010	Gray/Yellow	2/0	1/0			⅝ (5)	
RRK 30	Black	3/0	3/0	4¼	7¼	⅝ (7)	2¼
RRK 3010	Black/Yellow	3/0	1/0			⅝ (5)	
RRK 3020	Black/Gray	3/0	2/0			⅝ (7)	
RRK 40	Pink	4/0	4/0			⅝ (7)	
RRK 4010	Pink/Yellow	4/0	1/0			⅝ (7)	
RRK 4020	Pink/Gray	4/0	2/0			⅝ (7)	
RRK 4030	Pink/Black	4/0	3/0			⅝ (7)	
RRK 40-840	Pink	4/0	4/0	4½	7½	840, 249, 11A	2¼
RRK 250	None	250	250			840, 249, 11A	
RRK 300	None	300	300			840, TX, 76, 249, 11A	
RRK 350	None	350	350			840, TX, 76, 249, 11A	
RRK 350300	None	350	300			840, TX, 76, 249, 11A	
RRK 35040	None	350	4/0			840, TX, 76, 249, 11A	
RRK 500	None	500	500	6¾	10¾	472, 655, 13A, 96, 1⅛-2	2¼

Note: *For copper splice kits, add "CU" suffix to the catalog number.*

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RRK 40 HS

CAT. NO.	COLOR CODE	WIRE SIZE FROM	WIRE SIZE TO	CONNECTOR LENGTH	INSULATOR LENGTH	INSTALLING DIES	STRIP
RRK 4 HS	Orange	#4	#4	2	5½	½ (3)	1
RRK 2 HS	Red	#2	#2	3	5½	⅝ (5)	1½
RRK 24 HS	Red/Orange	#2	#4			⅝ (5)	
RRK 1 HS	Red	#1	#1			⅝ (5)	
RRK 10 HS	Yellow	1/0	1/0			⅝ (5)	
RRK 102 HS	Yellow/Red	1/0	#2			⅝ (5)	
RRK 20 HS	Gray	2/0	2/0			⅝ (5)	
RRK 201 HS	Gray/Red	2/0	#1			⅝ (5)	
RRK 202 HS	Gray/Red	2/0	#2			⅝ (5)	
RRK 2010 HS	Gray/Yellow	2/0	1/0			⅝ (5)	
RRK 30 HS	Black	3/0	3/0	4¼	7¼	⅝ (7)	2¼
RRK 3010 HS	Black/Yellow	3/0	1/0			⅝ (5)	
RRK 3020 HS	Black/Gray	3/0	2/0			⅝ (7)	
RRK 40 HS	Pink	4/0	4/0			⅝ (7)	
RRK 4010 HS	Pink/Yellow	4/0	1/0			⅝ (7)	
RRK 4020 HS	Pink/Gray	4/0	2/0			⅝ (7)	
RRK 4030 HS	Pink/Black	4/0	3/0			⅝ (7)	
RRK 40-840 HS	Pink	4/0	4/0	4¼	7¼	840, 249, 11A	2¼
RRK 250 HS	None	250	250			840, 249, 11A	
RRK 300 HS	None	300	300			840, TX, 76, 249, 11A	
RRK 350 HS	None	350	350			840, TX, 76, 249, 11A	
RRK 350300 HS	None	350	300			840, TX, 76, 249, 11A	
RRK 35040 HS	None	350	4/0			840, TX, 76, 249, 11A	
RRK 500 HS	None	500	500	6¾	10¾	472, 655, 13A, 96, 1⅛-2	2¼

Note: *Use the Homac UT 3 or UT 3 M tool for wire sizes up to 4/0.*

Aluminum Compression Splice Kits

Dual-rated kits approved for a wide range of aluminum or copper connections.

Aluminum Flood-Seal® Compression Splice Kits

- All kits include one submersible splice cover and one aluminum compression splice to ensure a fully insulated, watertight repair splice, no tape required
- Prefilled with oxide inhibitor and capped to prevent oxidation and keep out moisture.



FSK 500

CAT. NO.	WIRE SIZE FROM	WIRE SIZE TO	SPLICE COVER	CAT. NO.	WIRE SIZE FROM	WIRE SIZE TO	SPLICE COVER
FSK 4	#4	#4		**FSK 350 R 4/0**	350	4/0	
FSK 2	#2	#2		**FSK 350**	350	350	
FSK 1	#1	#1		**FSK 400**	400	400	
FSK 1/0	1/0	1/0	FSS 20	**FSK 500 R 4/0**	500	4/0	FSS 500
FSK 1/0 R 2	1/0	#2		**FSK 500 R 350**	500	350	
FSK 2/0 R 1/0	2/0	1/0		**FSK 500**	500	500	
FSK 2/0	2/0	2/0		**FSK 600**	600	600	
FSK 4/0 R 2/0	4/0	2/0		**FSK 750**	750	750	
FSK 3/0	3/0	3/0		**FSK 750 R 500**	750	500	
FSK 4/0	4/0	4/0	FSS 350	**FSK 1000 R 500**	1000	500	FSS 1000
FSK 250	250	250		**FSK 1000 R 750**	1000	750	
FSK 300	300	300		**FSK 1000**	1000	1000	

Note: *For kits with copper splices or with open-ended splice covers, please consult your Thomas & Betts representative.*

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Aluminum Compression Splice Kits

Dual-rated kits include submersible splice cover.

In-Line Compression Splice Kits

- Heat-shrink kits include pre-sized heat-shrink tubing enabling you to crimp the two pieces together, then heat the splice with a hot-air gun to get a fully sealed, watertight repair splice
- Flood-Seal® kits include a rubber insulating cover that fits snugly for maximum heat dissipation
- All kits also include one submersible splice cover to ensure a fully insulated, watertight repair splice
- Dual-rated and approved for a wide range of aluminum or copper connections
- Prefilled with oxide inhibitor and capped to prevent oxidation and keep out moisture



ULSK 500 HS



ULSK 40

Heat-Shrink ULSK-HS, Pre-Sized Heat-Shrink Tubing Included

CAT. NO.	CONDUCTOR SIZE
ULSK 6 HS	#6
ULSK 4 HS	#4
ULSK 2 HS	#2
ULSK 1 HS	#1
ULSK 1/0 HS	1/0
ULSK 2/0 HS	2/0
ULSK 3/0 HS	3/0
ULSK 4/0 HS	4/0
ULSK 250 HS	250
ULSK 300 HS	300
ULSK 350 HS	350
ULSK 400 HS	400
ULSK 500 HS	500
ULSK 600 HS	600
ULSK 750 HS	750
ULSK 800 HS	800
ULSK 1000 HS	1000

Note: *For reducing kits, please contact your Thomas & Betts representative.*

Flood-Seal® ULSK Series

CAT. NO.	CONDUCTOR SIZE	SPLICE COVER
ULSK 8	#8	FSS 20
ULSK 6	#6	
ULSK 4	#4	
ULSK 2	#2	
ULSK 1	#1	
ULSK 1/0	1/0	
ULSK 2/0	2/0	FSS 350
ULSK 3/0	3/0	
ULSK 4/0	4/0	
ULSK 250	250	
ULSK 300	300	FSS 500L
ULSK 350	350	
ULSK 400	400	
ULSK 500	500	
ULSK 600	600	FSS 1000
ULSK 750	750	
ULSK 800	800	
ULSK 1000	1000	

Aluminum Mechanical Splice Kits

Range taking — no compression tools and dies required.

Aluminum Flood-Seal® Mechanical Splice Kits

- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- Dual-rated and approved for use with aluminum or copper conductors
- EPDM rubber splice covers ensure a fully insulated, watertight repair splice — there's no taping, heat shrink or mastic required
- Sized for most conductors perfect for repairing any 2-, 3- or 4-wire installation
- RUS Accepted


USK 2/0


USK 350-18


USK 350


USK 350-12


SL 3-2 K


UH 11


UH 11 L


URS 125


USK 4/0 SL


FSS 42-212 AH


UH 11 SL


MTB 350-1


MTB 350

CAT. NO.	CONDUCTOR RANGE	CONNECTOR LENGTH	NUMBER OF SCREWS PER SIDE
Two-Wire Kits			
USK 2/0 (SLOTTED SCREW)	#14–2/0	1½	1
USK 2/0 AH		1½	
USK 4/0	#4–4/0	2	
USK 350*	#6–350	2 9/16	
USK 350-4		4	
USK 350-12*†		12	
USK 350-18*†		18	
UH 11		4 1/16	2
UH 11 L†		6½	
USK 350-12 DS		12	
USK 350-18 DS†		18	
USK 500	#2–500	4 3/16	
USK 500 L†		7½	
USK 500-12†		12	
USK 500-16†		16	
USK 750	250–750	16 1/16	

CAT. NO.	CONDUCTOR RANGE	CONNECTOR LENGTH
Compression-Type Repair Kits		
URS 125	#2–350 (standard one-hole lugs)	17½
Three-Wire Kits		
SL 3-2 K	#4–#14 CU / 2–14 AL	3
USK 4/0 SL	Side "A" (#6–350), Side "B" (1/0–4/0 with #6–#14 sol. tap)	Accommodates 3 wires
Four-Wire Kits		
FSS 42-212 AH	#2–#12	4
UH 11 SL	Side "A" (#6–350), Side "B" (1/0–4/0 with #6–#14 sol. tap)	Accommodates 4 wires
MTB 350-1	#6–350	4
MTB 350		

** UL Listed.*
† Repair kits.

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Copper Compression Splice Kits

Dissipate heat and make perfect watertight connections.

Copper Flood-Seal® Compression Splice Kits

Homac® Copper Flood-Seal® Compression Splice Kits enable you to quickly make watertight copper-to-copper splice connections or repair copper service cables damaged by dig-ins or failures and restore their watertight integrity.

The unique design of the splice/cover combination makes this the fastest and easiest watertight splicing solution available. The pre-greased insulating cover slides effortlessly onto the cable. After you've prepared the cable and crimped the splice, simply slide the cover back over the splice until it is positively centered and mates with the connector rib. That's it — no cutting, taping, heat guns or pull cords!

- Radiating Rib dissipates heat, centers the watertight insulating cover and seals perfectly every time
- Single-piece Flood-Seal® insulating covers are pre-lubricated and sized for the connection
- Easy installation saves you time and money
- Exceeds ANSI C119.1 requirements

NEW!



RRK 2 CU



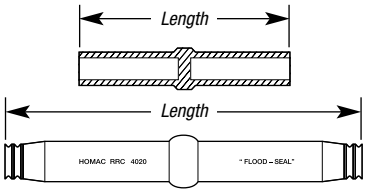
RRK 20 CU



RRK 250 CU



RRK 500 CU



CAT. NO.	WIRE SIZE	CONNECTOR LENGTH	INSULATOR LENGTH	INSTALLING DIES	STRIP LENGTH
RRK 2 CU	#2	2	4⅛	TQ, 42, 163, ½	1
RRK 10 CU	1/0	2½	5½	TU, 52, BG, 243, ⅝	1⅛
RRK 20 CU	2/0	2½	5½	TU, 52, BG, 243, ⅝	1⅛
RRK 30 CU	3/0	2½	5½	TU, 52, BG, 243, ⅝	1⅛
RRK 40 CU	4/0	2⅝	7¼	TW-TY, 54, 243	1¼
RRK 250 CU	250	2⅝	7½	840, 76, 249	1¼
RRK 350 CU	350	2⅝	7½	840, 76, 249	1¼
RRK 500 CU	500	3¾	9½	96, 472, 655, 1⅛-2	1¾

Copper Compression Splice Kits

Make copper splices using kits with either a rubber insulating cover or heat-shrink tubing.

Copper In-Line Compression Splice Kits



- Flood-Seal® kits include a rubber insulating cover that fits snugly for maximum heat dissipation
- Heat-shrink kits include pre-sized heat-shrink tubing, enabling you to crimp the two pieces of wire together, then heat the splice with a hot-air gun to get a fully sealed, watertight repair splice
- All kits include one submersible splice cover to ensure a fully insulated, watertight repair splice
- Connectors have a center cable stop to ensure equal cable insertion

Heat-Shrink ULCK-HS, Pre-Sized Heat-Shrink Tubing Included

SERIES COPPER CONDUCTOR CAT. NO.	CONDUCTOR SIZE
ULCK 8 HS	#8
ULCK 6 HS	#6
ULCK 4 HS	#4
ULCK 2 HS	#2
ULCK 1 HS	#1
ULCK 1/0 HS	1/0
ULCK 2/0 HS	2/0
ULCK 3/0 HS	3/0
ULCK 4/0 HS	4/0
ULCK 250 HS	250
ULCK 300 HS	300
ULCK 350 HS	350
ULCK 400 HS	400
ULCK 500 HS	500
ULCK 600 HS	600
ULCK 750 HS	750
ULCK 1000 HS	1000

Note: *For kits with open-ended splice covers, for splices not shown or for reducing kits, please consult your Thomas & Betts representative.*

Flood-Seal® ULCK

SERIES COPPER CONDUCTOR CAT. NO.	CONDUCTOR SIZE	SPLICE COVER
ULCK 8	#8	FSS 20
ULCK 6	#6	
ULCK 4	#4	
ULCK 2	#2	
ULCK 1	#1	
ULCK 1/0	1/0	
ULCK 2/0	2/0	FSS 350
ULCK 3/0	3/0	
ULCK 4/0	4/0	
ULCK 250	250	
ULCK 300	300	FSS 500L
ULCK 350	350	
ULCK 400	400	
ULCK 500	500	
ULCK 600	600	FSS 1000
ULCK 750	750	
ULCK 800	800	
ULCK 1000	1000	

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Mechanical Street Light Connectors

Two connector styles to match your application.

Flood-Seal® Street and Highway Lighting Mechanical Connectors

- EPDM Flood-Seal® housing ensures a fully insulated, watertight and submersible connection.
- Dual-rated to accept aluminum or copper conductors ranging from #14 to 1/0 AWG.



RAB 1/0-4 (Style 1)

CAT. NO.	CONDUCTOR RANGE	OUTLETS	STYLE
RAB 1/0-2	#14 – 1/0	2	Style 1 
RAB 1/0-3		3	
RAB 1/0-4		4	
RAB 1/0-5		5	
RAB 1/0-6		6	
RAB 1/0-7		7	
RAB 1/0-8		8	
RAB 1/0-9		9	
RAB 1/0-10		10	
RAB 1/0-21		3	Style 2 
RAB 1/0-22		4	
RAB 1/0-31		4	
RAB 1/0-32		5	
RAB 1/0-33		6	
RAB 1/0-42		6	

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*

Insulated connectors for above-ground applications.

Insulated Street and Highway Lighting Mechanical Connectors

- Rubber insulation ensures an insulated connection
- Models with street light connectors fit a range of mains and taps
- SLV Series features clear PVC to enable safe and time-saving installation
- SLV Series sized for a range of conductors — perfect for multiple installation types
- BY Series features a PVC boot and locking insulator to ensure a fully insulated connection; the connector stays on until removal is necessary



RB 210-8 SL



SLV 42-212



BY 320

CAT. NO.	DESCRIPTION
RB Series — Rubber Insulated	
RB 210-8 SL	Main 1/0 max., Tap #12 – #8
RB 210-8 SS	Main 1/0 max., Tap #12 – #8
RB 6240 SL	Main 2/0 – #14, Tap #14 – #6
SLV Series — Clear PVC Encapsulated	
SLV 240-24	Main (2) 4/0 – #6, Tap (2) #4 – #14
SLV 42-212	#12 – #2
BY Series — PVC Insulated	
BY 320	#14 – 2/0

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*

Breakaway Street Light Kits

Everything you need for copper connections to roadway lighting.

Flood-Seal® Street and Highway Lighting Compression Fuse and Non-Fused Kits — In-Line

Copper In-Line Fuse Kits include Flood-Seal housing, fuse clips, silicone lubricant and instruction sheet. Fuse is not included. Fuse Kits accept non-glass standard cartridge fuses of 13/32" diameter and 1½" length.

Copper In-Line Non-Fused Kits include Flood-Seal housing, connecting link, silicone lubricant and instruction sheet.

- EPDM rubber housing ensures a fully insulated, watertight and submersible connection
- Breakaway design separates under tension so wires don't break
- Safe separations — fuse or connecting link stays in load side when separated
- Rated for 600V, 30A maximum — perfect for heavy-duty applications

Compression In-Line Fuse Kits

SINGLE HOUSING CAT. NO.	TWIN HOUSING CAT. NO.	CU WIRE SIZE STR.	CU WIRE SIZE SOL.	INSTALLATION TOOL
SLK 6	SLT 6	#14–#10	#14–#8	T&B WT111M, C Die or Equal
		#8–#6	#6–#4	T&B TBM20S, Blue Die or Equal
SLK 2	SLT 2	#4	#2	T&B TBM20S, Gray Die or Equal
		#2	—	T&B TBM20S, Brown Die or Equal



SINGLE HOUSING CAT. NO.	TWIN HOUSING CAT. NO.	#6 SIDE CU WIRE SIZE STR.	#6 SIDE CU WIRE SIZE SOL.	#6 SIDE INSTALLATION TOOL	#2 SIDE CU WIRE SIZE STR.	#2 SIDE CU WIRE SIZE SOL.	#2 SIDE INSTALLATION TOOL
SLK 6–2	SLT 6–2	#14–#10	#14–#8	T&B WT111M, C Die or Equal	#4	#2	T&B TBM20S, Gray Die or Equal
		#8–#6	#6–#4	T&B TBM20S, Blue Die or Equal	#2	—	T&B TBM20S, Brown Die or Equal

Compression In-Line Non-Fused Kits

SINGLE HOUSING CAT. NO.	TWIN HOUSING CAT. NO.	CU WIRE SIZE STR.	CU WIRE SIZE SOL.	INSTALLATION TOOL
SDK 6	SDT 6	#14–#10	#14–#8	T&B WT111M, C Die or Equal
		#8–#6	#6–#4	T&B TBM20S, Blue Die or Equal
SDK 2	SDT 2	#4	#2	T&B TBM20S, Gray Die or Equal
		#2	—	T&B TBM20S, Brown Die or Equal



SINGLE HOUSING CAT. NO.	TWIN HOUSING CAT. NO.	#6 SIDE CU WIRE SIZE STR.	#6 SIDE CU WIRE SIZE SOL.	#6 SIDE INSTALLATION TOOL	#2 SIDE CU WIRE SIZE STR.	#2 SIDE CU WIRE SIZE SOL.	#2 SIDE INSTALLATION TOOL
SDK 6–2	SDT 6–2	#14–#10	#14–#8	T&B WT111M, C Die or Equal	#4	#2	T&B TBM20S, Gray Die or Equal
		#8–#6	#6–#4	T&B TBM20S, Blue Die or Equal	#2	—	T&B TBM20S, Brown Die or Equal

***Note**: For 60A options, add "-60" suffix to the catalog number.*
For larger wire sizes, please consult your Thomas & Betts representative.

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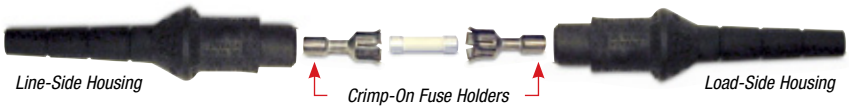
Breakaway Street Light Kits

Versatile kits for roadway lighting fixtures, flood and area lighting fixtures and power distribution systems.

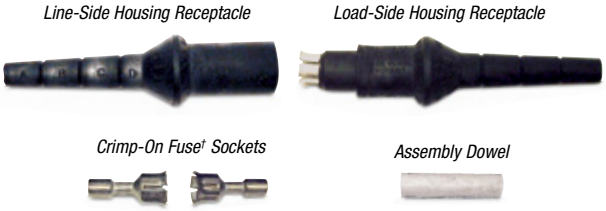
Breakaway Single-Pole and Double-Pole Street Light Kits

All Kits include line- and load-side housings, metal fuse sockets, assembly dowel, lubricant, wiper and installation instructions. Fuse is not included. Fuse Kits accept non-glass standard cartridge fuses of 13/32" diameter and 1½" length.

- Watertight and easy to install — doesn't require tape, compound or heat source for fitting
- Individual fusing enables separation of kit without de-energizing complete circuit
- Breakaway-style fuse holder eliminates risk of electrical shock — exposed current-carrying components are all contained in load side of kit
- Readily identifiable problem area simplifies maintenance
- Rated for 600V, 30A maximum — perfect for heavy-duty applications



Type 65 U



Single-Pole In-Line

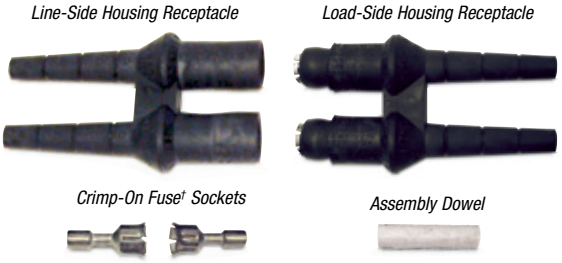
CAT. NO.	CONDUCTOR SIZE AWG	CONDUCTOR MATERIAL*
65 U	#14–#6	Copper
65 LC	#4 or #2	Copper

** Available in aluminum.*

† Fuse not included with kit. Do NOT use glass fuses.

***Note**: Electrical rating for 600V, .10–30A, 13/32" x 1½" fuse. Maximum overall length: 7¾" installed, diameter: 1⅛".*

Type D 65 U



Double-Pole In-Line

CAT. NO.	CONDUCTOR SIZE AWG	CONDUCTOR MATERIAL*
D 65 U	#14–#6	Copper
D 65 LC	#4 or #2	Copper

** Available in aluminum.*

† Fuse not included with kit. Do NOT use glass fuses.

***Note**: Electrical rating for 600V, .10–30A, 13/32" x 1½" fuse. Maximum overall length: 7¾" installed, diameter: 2 5/16".*

Breakaway Street Light Kits

Ideal for heavy-duty applications.

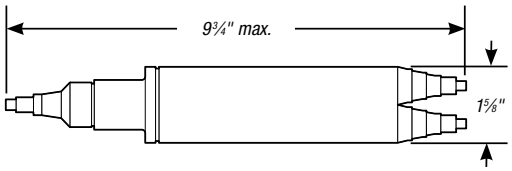
Flood-Seal® Street and Highway Lighting Mechanical Fuse and Disconnect Kits — Y-Type



Aluminum and Copper Y-Type Fuse Kits include Flood-Seal housing, fuse clips, two aluminum lugs, hardware, silicone lubricant and instruction sheet. Fuse is not included.

Aluminum and Copper Y-Type Disconnect Kits include Flood-Seal housing, fuse clips, connecting link, two aluminum or copper lugs, hardware, silicone lubricant and instruction sheet.

- EPDM rubber housing ensures a fully insulated, watertight and submersible connection
- Safe separations—fuse or connecting link stays in load side when separated
- Dual-rated and approved for a wide range of aluminum or copper conductors
- Rated for 600V, 30A maximum—perfect for heavy-duty applications
- Some Fuse Kits can even accept a 60A fuse



600 Volt, 30 Amp Max.

CAT. NO.	WIRE SIZE STRANDED	FUSED/NON-FUSED	INSTALLING DIES
FYA-6	#6	Fused (Aluminum Run, Copper Tap)	52, BG, 243, ⅝
FYA-4	#4		52, BG, 243, ⅝
FYA-2	#2		52, BG, 243, ⅝
FYA-1/0	1/0		52, BG, 243, ⅝
FYA-2/0	2/0		58, 297, 245, ⅝-1
FYC-8	#8	Fused (Copper Run, Copper Tap)	¼, 6, TC, 21
FYC-6	#6		J, 7, TE, 24
FYC-4	#4		5⁄16, 8, TP, 29
FYC-2	#2		⅜, 10, TL-TN, 33
FYC-1	#1		⅜, 11K TB, 37
FYC-1/0	1/0		½, 12, TQ, 42
FYC-2/0	2/0		9⁄16, 13, TS, 45

***Note**: If fixture or tap wire is aluminum, add the following suffixes to the catalog number:*

-2A for 14–10 Stranded or 12–8 Solid. For example, FYC 1/0-2A.
-3A for 8–6 Stranded or 6–4 Solid. For example, FYA 1/0-3A.

600 Volt, 30 Amp Max.

CAT. NO.	WIRE SIZE STRANDED	FUSED/NON-FUSED	INSTALLING DIES
DYA-6	#6	Non-Fused (Aluminum Run, Copper Tap)	52, BG, 243, ⅝
DYA-4	#4		52, BG, 243, ⅝
DYA-2	#2		52, BG, 243, ⅝
DYA-1/0	1/0		52, BG, 243, ⅝
DYA-2/0	2/0		58, 297, 245, ⅝-1
DYC-8	#8	Non-Fused (Copper Run, Copper Tap)	¼, 6, TC, 21
DYC-6	#6		J, TE, 24
DYC-4	#4		5⁄16, 8, TP, 29
DYC-2	#2		⅜, 10, TL-TN, 33
DYC-1	#1		⅜, 11K TB, 37
DYC-1/0	1/0		½, 12, TQ, 42
DYC-2/0	2/0		9⁄16, 13, TS, 45

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Breakaway Street Light Kits

Breakaway design prevents wire breakage.

Flood-Seal® Street and Highway Lighting Compression Fuse and Disconnect Kits — YY-Type



YY-Type Fuse Kits include Flood-Seal housing, fuse clips, silicone lubricant and instruction sheet. Fuse is not included. Fuse Kits accept non-glass standard cartridge fuses of 13/32" diameter and 1½" length.

YY-Type Disconnect Kits include Flood-Seal housing, connecting link, silicone lubricant and instruction sheet.

- EPDM rubber housing ensures a fully insulated, watertight and submersible connection
- Breakaway design separate under tension so wires don't break
- Safe separations—fuse or connecting link stays in load side when separated
- Rated for 600V, 30A maximum—perfect for heavy-duty applications

Aluminum

CAT. NO.	FUSED/NON-FUSED	CONDUCTOR SIZE	
		MAIN	TAP
YFA 8	Fused	#8	#14–#6
YFA 6		#6	
YFA 4		#4	
YFA 2		#2	
YFA 1/0		1/0	
YFA 2/0		2/0	
YDA 8	Non-Fused	#8	#14–#6
YDA 6		#6	
YDA 4		#4	
YDA 2		#2	
YDA 1/0		1/0	
YDA 2/0		2/0	

Copper

CAT. NO.	FUSED/NON-FUSED	CONDUCTOR SIZE	
		MAIN	TAP
YFC 8	Fused	#8	#14–#6
YFC 6		#6	
YFC 4		#4	
YFC 2		#2	
YFC 1/0		1/0	
YFC 2/0		2/0	
YDC 8	Non-Fused	#8	#14–#6
YDC 6		#6	
YDC 4		#4	
YDC 2		#2	
YDC 1/0		1/0	
YDC 2/0		2/0	

***Note**: 600V, 30A fuse not included. Fused kits accept standard cartridge fuse with 13/32" diameter, 1½" length, non-glass type.*

Breakaway Street Light Kits

In-line mechanical kit options for aluminum or copper conductors.

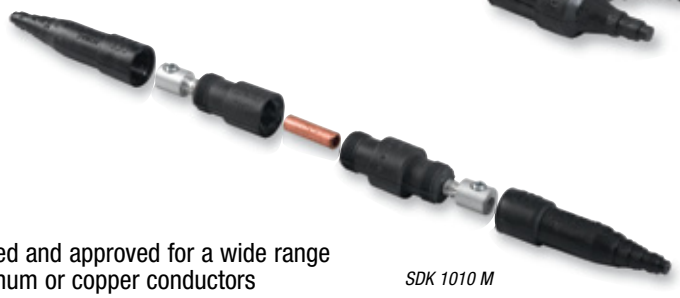
Flood-Seal® Street and Highway Lighting Mechanical Fuse and Disconnect Kits — In-Line

In-Line Fuse Kits include Flood-Seal housing, fuse clips, silicone lubricant and instruction sheet. Fuse is not included. Fuse Kits accept non-glass standard cartridge fuses of 13/32" diameter and 1½" length. SLK 22-60 M, SLK 102-60 M and SLK 1010-60 M Fuse Kitscan also accept a 60A fuse measuring 2¼" long.

In-Line Non-Fused Kits include Flood-Seal housing, connecting link, silicone lubricant and instruction sheet.



SDT M



SDK 1010 M

- EPDM rubber housing ensures a fully insulated, watertight and submersible connection
- Safe separations — fuse or connecting link stays in load side when separated
- Dual-rated and approved for a wide range of aluminum or copper conductors
- Rated for 600V, 30A maximum — perfect for heavy-duty applications
- Some fuse kits can even accept a 60A fuse

CAT. NO.	FUSED/NON-FUSED	CONDUCTOR RANGE (AL/CU) STRANDED	SOLID
In-Line Kits			
SLK M	Fused	12, 10, 8, 6, 4	12, 10, 8, 6,4
SLT M†			
SDK M	Non-Fused		
SDT M†			
In-Line Variable-Range Kits			
SLK 22 M	Fused	#2–#14	#2–#14
SLK 102 M		1/0–#2	#2–#14
SLK 1010 M		1/0–#2	1/0–#2
SLK 22-60 M*		#2–#14	#2–#14
SLK 102-60 M*		1/0–#2	#2–#14
SLK 1010-60 M*		1/0–#2	1/0–#2
SDK 22 M	Non-Fused	#2–#14	#2–#14
SDK 102 M		1/0–#2	#2–#14
SDK 1010 M		1/0–#2	1/0–#2

† Indicates twin housing.

** 60A fuse max. 60A fuses are 2¼" long.*

***Note**: 600V, 30A fuse not included. Fused kits accept standard cartridge fuse with 13/32" diameter, 1½" length, non-glass type.*

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Breakaway Street Light Kits

Standard and mechanical run compression tap kits for your roadway lighting jobs.

Flood-Seal® Street and Highway Lighting Mechanical Fuse and Disconnect Kits — Y-Type



Mechanical Y-Type Fuse Kits include Flood-Seal housing, fuse clips, dowel and silicone lubricant. Fuse is not included. Fuse Kits accept non-glass standard cartridge fuses of 13/32" diameter and 1½" length.

- EPDM Flood-Seal® housing ensures a fully insulated, watertight and submersible connection
- Breakaway design separates under tension so wires don't break
- Safe separations — fuse or connecting link stays in load side when separated
- Re-enterable to enable sectionalizing
- Matching ampacity rating — run or feeder lugs have the same ampacity rating as the cable, up to 2/0
- Rated for 600V, 30A maximum — perfect for heavy-duty applications
- Y-Type mechanical run compression taps use a ⅛" hex wrench for easy installation

Street and Highway Lighting Mechanical Fuse and Disconnect Kits — Y

CAT. NO.	FUSED/NON-FUSED	CONDUCTOR RANGE (AL/CU) MAIN	CONDUCTOR RANGE (AL/CU) TAP
Y-Type Disconnect Kits			
FYU M	Fused	#14–#2	#12–#4
DYU M	Non-Fused		
Y-Line Mechanical Run Compression Kits			
FYU 6	Fused	#14–#2	#14–#6
FYU 2			#4–#2
DYU 6	Non-Fused		#14–#6
DYU 2			#4–#2

Street and Highway Lighting Mechanical Fuse and Disconnect Kits — YY

CAT. NO.	FUSED/NON-FUSED	CONDUCTOR RANGE (AL/CU)
YY-Type Disconnect Kits		
YFU M	Fused	#14–#4 Cu
YDU M	Non-Fused	#14–#2 Cu

***Note**: 600V, 30A fuse not included. Fused kits accept standard cartridge fuse with 13/32" diameter, 1½" length, non-glass type.*

Insulating Covers and End Caps

Watertight, fully insulated covers for a variety of splice applications.

Flood-Seal® Insulating Covers



- Sizes for most conductors — perfect for copper or aluminum conductors ranging from #14 AWG to 1500 kcmil
- Easy-to-install, waterproof twin-tap covers
- Cut the proper cable rings at each end of the Twin-Tap cover and slide cover halves over cables; the cover halves are mated, enclosing the compression tap in a waterproof seal
- Eliminate taping to significantly reduce labor and material cost of splice preparation
- Rated 600 volts — built for heavy-duty loads
- RUS Accepted

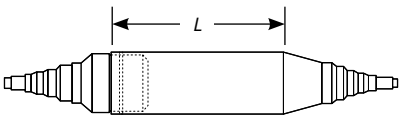
FSS Series

CAT. NO.	COPPER CONDUCTOR RANGE	ALUMINUM CONDUCTOR RANGE	CABLE INSULATION DIAMETER RANGE	L
FSS 20	#14–2/0	#14–2/0	.150–.600	2¼
FSS 20 L	#14–2/0	#14–2/0	.150–.600	3⅝
FSS 350	#14–350	#14–350	.150–.980	4 7/16
FSS 350 L	#14–350	#14–350	.150–.980	7½
FSS 500	#14–500	#14–500*	.150–1.175	4 7/16
FSS 500 L	#14–500	#14–500	.150–1.175	7⅝
FSS 1000 S	#2–1000	#2–750	.370–1.600	5
FSS 1000	#2–1000	#2–1000	.370–1.600	10
FSS 1000-16	#2–1000	#2–1000	.370–1.600	13 9/16
FSS 1000 L	#2–1500	#2–1000	.370–1.600	18⅛

** For 500 kcmil aluminum, remove liner from cap.*



FSS 350



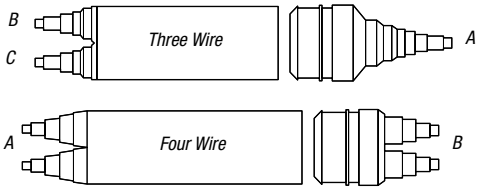
Twin-Tap*

CAT. NO.	CONDUCTOR RANGE A	B	C
FSS 1010-4	#14–1/0	#14–1/0	N/A
FSS 4010-4	#14–250	#14–1/0	N/A
FSS 4010-4 L	#8–250	#14–1/0	N/A
FSS 4040	#14–500	#14–250	#14–250
FSS 4040 L	#14–500	#8–250	#14–2/0
FSS 5010	#14–500	#14–2/0	#14–2/0
FSS 5035	#2–1500	#14–500	#14–400
FSS 5035-4	#14–500	#14–400	N/A

** Not UL Listed.*



FSS 4040 *FSS 5035-4*



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Insulating Covers and End Caps

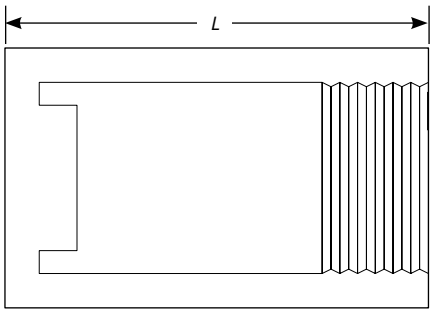
Cap off your cable with our cable end caps.

Flood-Seal® Cable End Caps

- EPDM rubber construction and multiple internal sealing ring design enables each cap to fit wide decimal range
- Reusable to save money
- Durable and unaffected by sun, rain or soil
- Tight fitting to prevent accidental removal
- Watertight — doesn't require tape, compound or heat source for fitting
- Dielectrically tested to ANSI C119.1 requirement (2,200 volts AC for one minute)







Cable End Caps — 660V Cable Application

		DECIMAL RANGE		MM		CONCENTRIC		COMPRESSED		COMPACT	
CAT. NO.	L	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
CAP 35	¾	.250	.425	6.4	10.8	#6	#2	#6	#2	#6	#2
CAP 45	⅞	.360	.562	9.1	14.3	#2	1/0	#2	1/0	#2	2/0
CAP 55	1	.455	.626	11.6	15.9	#1	3/0	#1	3/0	#1	3/0
CAP 65	1¼	.575	.750	14.6	19.0	2/0	250	3/0	300	3/0	300
CAP 85	1⅜	.720	.973	18.3	24.7	250	400	350	400	250	400
CAP 95*	1⅞	.970	1.185	24.6	30.1	500	700	500	750	600	800
CAP 105*	2⅛	1.120	1.400	28.4	35.6	750	1000	750	1000	800	1000
CAP 125*	2⅜	1.200	1.475	30.5	37.5	750	1000	750	1000	800	1000
CAP 130*	2½	1.390	1.650	35.3	41.9	1233.7	1250	—	—	—	—
CAP 135*	2⅝	1.465	1.750	37.2	44.5	1500	1578.8	—	—	—	—
CAP 145*	2⅞	1.650	1.925	41.9	49.0	1973.5	2000	—	—	—	—
CAP 150*	3	1.860	2.230	47.2	56.6			Fits High-Voltage Cable Only			
CAP 155*	3	2.150	2.500	54.6	63.5			Fits High-Voltage Cable Only			

** Indicates cap with internal protective button.*

***Note**: Conductor ranges shown are for outer diameter over cable insulation. For cable sizes not listed, please consult your Thomas & Betts representative.*

Pipe and Conduit Seals

Rubber-insulated end caps for commercial pipes and conduits.

Flood-Seal® Pipe/Conduit Seals



- Flood-Seal® EPDM rubber seals out water, insects, rodents and dirt
- Durable unaffected by sun, rain or soil
- Easily removable
- Ideal for installations or cable replacements
- Tight fitting to prevent accidental removal

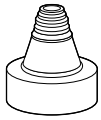
CAT. NO.	PIPE SIZE (IPS)	STYLE	RANGES		OUTSIDE BODY LENGTH
			CONDUCTOR	DECIMAL	
CIC 75-3	¾	10	#14–#10	—	1½
CIC 50-3	½	10	#14–#10	—	1⅜
CIC 1-4	1	4	(4)#14–#4	SL–.380	2 13/32
CIC 150	1½	5	—	.720–1.200	1⅜
CIC 15-320		6	(3)#2–2/0	.370–.580	1⅜
CIC 15-420		6	(4)#2–2/0	.370–.580	1⅜
C-5230	2	4	(2)#14–350, (1)#14–1/0	SL–.910, SL–.540	1½
C-5035		4	(1)#14–400, (1)#14–500	SL–.980, SL–1.175	1 15/16
C-5231		4	(3)#14–350, (1)#14–4/0	SL–.980, SL–.690	2
CIC 200		5	—	1.093–1.562	2
CIC 201		5	—	.937–1.145	4
PS 2		7	(3)#14–250	SL–.765	13/16
3133	2½	2	300–1500	.760–1.880	2⅛
3133-6		2	300–1500	.760–1.880	6⅛
CIC 25-440		4	(4)#2–4/0	.390–.690	2¼
CAP 250		1	NA	NA	3
PS 25		7	(2)#14–350, (1)#14–250	SL–.980, SL–.765	13/16
3135	3	2	350–2000	.830–2.234	2½
CAP 300		1	NA	NA	2½
CVC 3*		6	—	(3)1.093–1.562	2 11/16
CNC 3-1G		9	—	(1)1.031–1.531, (1).280–.420	2½
PS 3		7	(3)#14–350, (1)#14–250	SL–.980, SL–.765	13/16
PSX 3	3½	9	(3)#14–350, (1)#14–250	SL–.980, SL–.765	2½
PSX 35		8	(3)#14–500, (1)#14–250 & 350–500	SL–1.175 SL–.765	3 15/16
3138		4	#14–400	SL–.980	2
6318	4	3	—	1.500–3.00	2 11/16
CAP 400		1	NA	NA	2 11/16
CNC 4-1G		9	—	(1)1.031–1.531, (1).280–.420	2⅝
CVC 4*		6	—	(3)1.125–1.875	3 3/16
PS 4		7	(3)#14–500, (1)#14–350	SL–1.175, SL–.980	1¾
CIC 401		2	—	.830–2.234	3⅛
CAP 500	5	1	NA	NA	2 15/16
CVC 5*		6	—	1.250–2.00	3 3/16
PS 5		7	(3)#2–1500, (1)#14–500	.370–1.600, SL–1.175	2⅛
PS 6	6	7	(4)#2–1500	.370–1.600	2¾

** Vent cap, not watertight.*

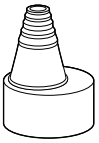
***Note**: For sizes not listed, please consult your Thomas & Betts representative.*



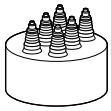
Style 1
No Outlets



Style 2
1 Outlet



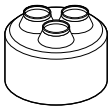
Style 3
1 Outlet



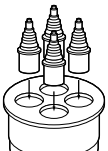
Style 4
2, 3, 4 or 6 Outlets



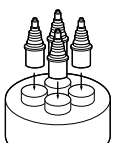
Style 5
1 Outlet



Style 6
3 or 4 Outlets



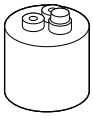
Style 7
3 or 4 Outlets



Style 8
4 Outlets



Style 9
2 or 4 Outlets



Style 10
3 Outlets

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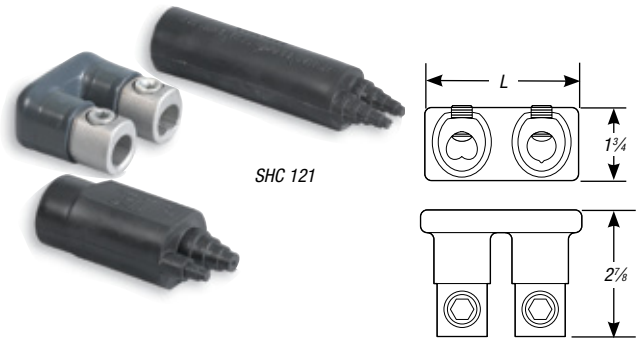
Flood-Seal® Multi-Port Connectors

Save outlet space.

Aluminum Flood-Seal® Mechanical Connectors

These connectors feature the Sweetheart® outlet configuration that nests two equal-sized service cables from #6 to 2/0 or two different-sized cables from #2 to 2/0, saving you outlet space and consequent cost. Unique cable outlets permit the use of street light wire either in original construction or as a later addition. Connectors are dual-rated, PVC insulated, supplied with insulating rockets and prefilled with oxide inhibitor.

- Aluminum-alloy connector construction for high strength and high conductivity; dual-rated for use with copper or aluminum cable
- Exceed ANSI C119.1 and C119.4 requirements and are RUS Accepted
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds



SHC 121

Flood-Seal® Mechanical Connectors

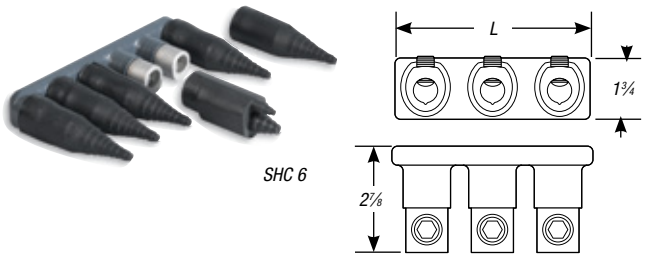
CAT. NO.	CABLE RANGE FEEDER OUTLET S/L	OUTLETS	L
SHC 21	#6–350 #14 sol.–#6	2	3¼
SHC 22		2	3¼
SHC 121		3	5¼
SHC 212		3	5¼
SHC 2112		4	7
SHC 21212		5	8⅞

***Note**: In catalog number, 1 designates outlet with street light (S/L) option; 2 designates Sweetheart outlet. Sweetheart outlet nests two equal-sized service cables from #6 to 2/0 or two different-sized cables from #2 to 2/0. Feeder outlet houses cables from #6 to 350 kcmil (cable range when using a street light tap is 1/0 to 350 kcmil).*

Flood-Seal® Mechanical Connectors with Street Light Option

CAT. NO.	CABLE RANGE	OUTLETS	L
SHC 2	#6–350	2	3¼
SHC 3		3	5¼
SHC 4		4	7
SHC 5		5	8⅞
SHC 6		6	10¾
SHC 8		8	14½


For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number.



SHC 6

***Note:** All outlets are provided with insulating rocket sleeves, with one sleeve having the street light capability. Cable range is 1/0 to 350 kcmil when using a street light tap.*

Flood-Seal® Mechanical 500 kcmil Connectors

CAT. NO.	WIRE RANGE	OUTLETS	L
SHC 500-2	#2–500	2	3⅞
SHC 500-3		3	6¼
SHC 500-4		4	8⅝
SHC 500-5		5	10⅝
SHC 500-6		6	12⅞
SHC 500-8		8	17⅜



SHC 500-4

Flood-Seal® Multi-Port Connectors

Save outlet space and use street light wire.

Aluminum Flood-Seal® Mechanical Connectors — 4/0 Series

Aluminum Flood-Seal® Mechanical Connectors feature ball-bottom screws that support the widest conductor range and aid in breaking up aluminum oxides. Wide-range cable outlets permit the use of street light wire either in original construction or as a later addition. Sweetheart® connectors are dual-rated, PVC insulated, supplied with insulating rockets and prefilled with oxide inhibitor.

- Dual-rated for use with a wide range of aluminum or copper cable
- Aluminum-alloy connector construction for high strength and high conductivity
- Sweetheart outlet configuration doubles cable capacity and halves space requirements
- Single-screw design with outlets sealed with Flood-Seal® EPDM rockets
- Street light option supports the use of streetlight wire (#14 to #4 AWG)
- Exceed ANSI C119.1 and C119.4 requirements and Western Underground Committee Guidelines and are RUS accepted.
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds

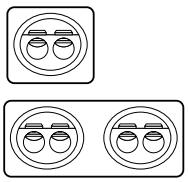


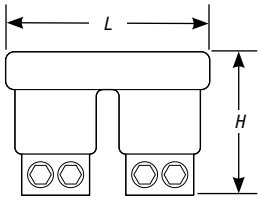
SHC 500-440 SL

Mechanical Connectors for 4/0 Series

CAT. NO.	WIRE RANGE	L	H
SHC 240	#4–4/0	2 5/16	3 3/16
SHC 440		4 5/8	

End View of Outlets

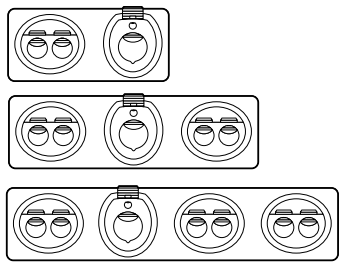


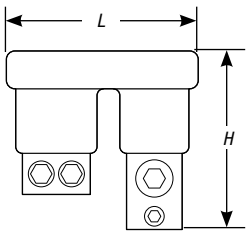


Mechanical Connectors for 4/0 Outlets with 500 kcmil Feeder

CAT. NO.	WIRE RANGE	L	H
SHC 500-240 SL	Tap #4–4/0	4 1/2	4 1/8
SHC 500-440 SL	Feeder #2–500	6 3/4	
SHC 500-640 SL	S/L #14–#4	9 1/8	

Top View of Outlets





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Flood-Seal® Multi-Port Connectors

For direct burial or above-ground pedestal installation.

Aluminum Flood-Seal® Twin-Screw Mechanical Connectors

- Flood-Seal® insulating rockets field tested in more than 10 million applications
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- Ball-bottom screws support the widest conductor range and aid in breaking up aluminum oxides
- Aluminum-alloy connector construction for high strength and high conductivity
- Dual-rated for use with a wide range of copper or aluminum conductors
- Exceed ANSI C119.1 and C119.4 requirements and Western Underground Committee Guidelines

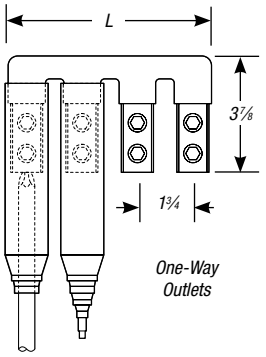


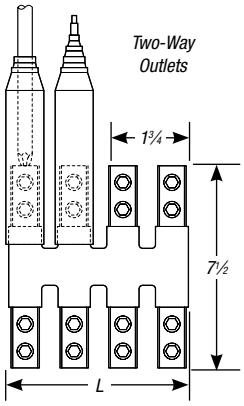
350 kcmil Series

ONE-WAY CAT. NO.	OUTLETS ONE-WAY	TWO-WAY CAT. NO.	OUTLETS TWO-WAY	LENGTH	CABLE RANGE
UH 2 R	2	**UH 22 R**	4	3¼	#6–350
UH 3 R	3	**UH 33 R**	6	5¼	
UH 4 R	4	**UH 44 R**	8	7	
UH 5 R	5	**UH 55 R**	10	8⅞	
UH 6 R	6	**UH 66 R**	12	10¾	
UH 8 R	8	**UH 88 R**	16	14½	



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number.



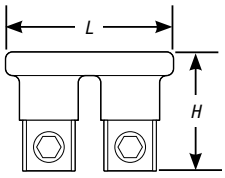


500 kcmil Series

CAT. NO.	WIRE RANGE	OUTLETS	L	H
UH 500-2 R	#2–500	2	3⅞	4¾
UH 500-3 R		3	6⅛	
UH 500-4 R		4	8⅜	
UH 500-5 R		5	10⅝	
UH 500-6 R		6	12⅞	
UH 500-8 R		8	17⅜	



UH 500-4 R



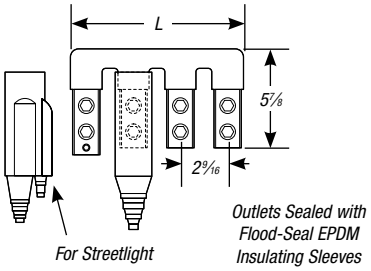
Flood-Seal® Multi-Port Connectors

Versatile for direct burial or above-ground pedestals.

Aluminum Flood-Seal® Twin-Screw Mechanical Connectors — UH 750 Series

- Flood-Seal® insulating rockets field tested in more than 10 million applications
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- Street light outlet option — wide-range cable outlets support the use of street light wire
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- Aluminum-alloy connector construction for high strength and high conductivity
- Dual-rated to accept a wide range of copper or aluminum conductors
- Exceed ANSI C119.1 and C119.4 requirements as well as Western Underground Committee Guidelines





Submersible Connector with Street Light Outlet

CAT. NO.	OUTLETS	LENGTH	CABLE RANGE
UH 750-4 SLR	4	9½	1/0–750, S/L #14–#2
UH 750-6 SLR	6	14⅝	

Dual-Outlet Connectors with Street Light Port

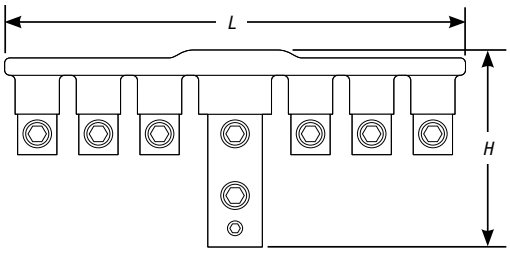


4/0 Outlets with 750 kcmil Feeder

CAT. NO.	WIRE RANGE	OUTLETS	L	H
UH 750-240 SLR	Feeder 1/0–750, Tap #12–4/0, S/L #14–#4	(2) 4/0 (1) 750	5½	5½
UH 750-440 SLR		(4) 4/0 (1) 750	8½	
UH 750-640 SLR		(6) 4/0 (1) 750	11½	

350 Outlets with 750 kcmil Feeder

CAT. NO.	WIRE RANGE	OUTLETS	L	H
UH 750-235 SLR	Feeder 1/0–750, Tap #12–4/0, S/L #14–#4	(2) 350 (1) 750	5⅝	6
UH 750-435 SLR		(4) 350 (1) 750	9⅜	
UH 750-635 SLR		(6) 350 (1) 750	13⅛	



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Flood-Seal® Multi-Port Connectors

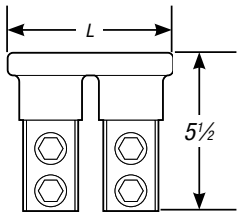
Twin screws double the reliability of ordinary set-screw connectors.

Aluminum Flood-Seal® Twin-Screw Mechanical Connectors — UH 1000 Series

- Flood-Seal® insulating rockets field tested in more than 10 million applications, and serve as waterproof spare outlet caps until used as waterproof cable insulators
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- Prefilled with oxide inhibitor to prevent oxidation and keep out moisture
- Aluminum-alloy connector construction for high strength and high conductivity
- Dual-rated to accept a wide range of copper or aluminum conductors
- Exceed ANSI C119.1 and C119.4 requirements as well as Western Underground Committee Guidelines



UH 1000-4 R



Twin-Screw One-Way Configuration

CAT. NO.	CONDUCTOR RANGE	OUTLETS	LENGTH
UH 1000-2 R	#2–1000	2	4 13/16
UH 1000-4 R		4	9 15/16
UH 1000-6 R		6	15
UH 1000-8 R		8	20 1/8

***Note**: For two-way configurations, please consult your Thomas & Betts representative.*



UH 1000-22 R

Twin-Screw Two-Way Configuration

CAT. NO.	CONDUCTOR RANGE	OUTLETS
UH 1000-22 R	#2–1000	4
UH 1000-33 R		6
UH 1000-44 R		8
UH 1000-55 R		10
UH 1000-66 R		12
UH 1000-88 R		16



UH 1000-242 R

UH 1000 Series with 350 Services

CAT. NO.	CONDUCTOR RANGE	OUTLETS
UH 1000-21 R	Feeder #2–1000, Tap #6–350, SL #14–#6	3
UH 1000-222 R		6
UH 1000-242 R		8

Flood-Seal® Multi-Port Connectors

High-performance, dual-rated connectors.

Aluminum Flood-Seal® Multi-Port Connectors — RAB Series

- Flood-Seal® insulating rockets serve as waterproof spare outlet caps until used and are also resealable
- 6061-T6 aluminum connector construction provides high strength and high conductivity
- Dual-rated to accept a wide range of aluminum and copper conductors
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- RAB 1/0 Series offers compact design — great for street light applications
- RUS Accepted



RAB 1/0-21

RAB 1/0-3



RAB 6

RAB 1/0 Series

CAT. NO.	CONDUCTOR RANGE	OUTLETS	LENGTH
RAB 1/0-2	#14–1/0	2	1¾
RAB 1/0-3		3	2³⁹⁄₆₄
RAB 1/0-4		4	3⁷⁄₁₆
RAB 1/0-5		5	4⁹⁄₃₂
RAB 1/0-6		6	5⅛
RAB 1/0-7		7	5³¹⁄₃₂
RAB 1/0-8		8	6¹³⁄₁₆
RAB 1/0-9		9	7²¹⁄₃₂
RAB 1/0-10		10	8½
RAB 1/0-21		3	2³⁹⁄₆₄
RAB 1/0-22		4	3⁷⁄₁₆
RAB 1/0-31		4	3⁷⁄₁₆
RAB 1/0-32		5	4⁹⁄₃₂
RAB 1/0-33		6	5⅛
RAB 1/0-42		6	5⅛

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*

RAB 350 Series

CAT. NO.	CONDUCTOR RANGE	OUTLETS	LENGTH
RAB 2-C	#12 sol.–350	2	2⁷⁄₁₆
RAB 3-C		3	3⅝
RAB 4-C		4	4¹³⁄₁₆
RAB 5-C		5	6
RAB 6-C		6	7⅛
RAB 8-C		8	9⁹⁄₁₆
RAB 10-C		10	11¹⁵⁄₁₆

***Note**: The RAB 350 Series comes standard with inward-seal rockets. For outward-seal rockets, please consult your Thomas & Betts representative. Provided with oxide inhibitor.*



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number.

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Flood-Seal® Multi-Port Connectors

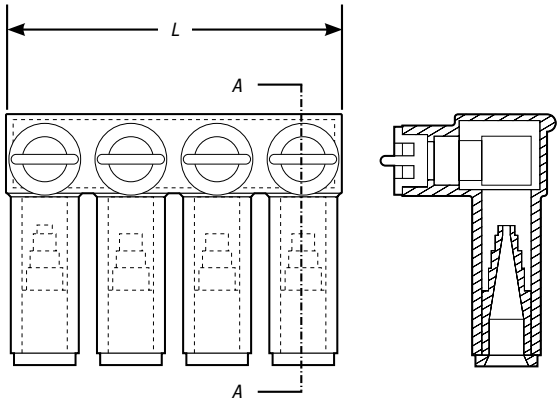
Ideal for direct-burial, pedestal or vault installations.

Aluminum Flood-Seal® Multi-Port Connectors — RAB and USB Series

- Field-adaptable cable sleeves enable installation on a wide range of conductor sizes
- Standard aluminum set screws with 5⁄16" socket hex spread compressive forces over conductor strands, reduce strand damage, result in lower contact resistance and provide high set-screw torque retention
- Compact design enables installation in limited spaces
- Dual-rated to accept a wide range of aluminum and copper conductors
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- Built tough for rugged conditions — tough enough to withstand rough handling in the field, have an excellent dielectric strength rating (>700V/mil) and have excellent aging characteristics under continuous high operating temperatures (to 130° C)
- All connectors have oxide inhibitor and silicone grease to keep out moisture and make installation easy and convenient
- Comply with ANSI C119.1 and C119.4 as well as Western Underground C.G. 2.5
- RAB Series is RUS Accepted



USB43S



RAB 500 Series

CAT. NO.	PORTS	CABLE RANGE	LENGTH IN.	LENGTH MM
RAB 35-C	3	#12–500	4.5	114
RAB 45-C	4		6.0	152
RAB 55-C	5		7.5	191
RAB 65-C	6		9.0	229
RAB 85-C	8		12.0	305

***Note**: Provided with oxide inhibitor.*

USB 350 Series

CAT. NO.	PORTS	CABLE RANGE	LENGTH IN.	LENGTH MM
USB33S	3	#12–350	3.6	91
USB43S	4		4.7	121
USB53S	5		5.9	150
USB63S	6		7.1	179
USB83S	8		9.4	238

***Note**: Provided with oxide inhibitor.*



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number.

Flood-Seal® Multi-Port Connectors

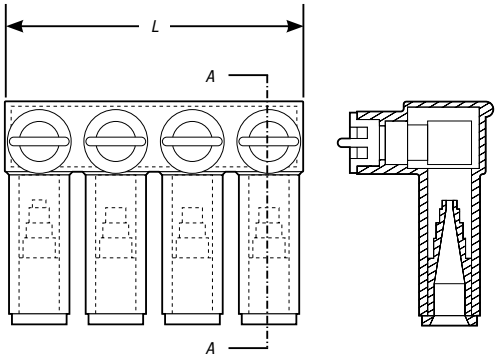
Universal use! Install in direct-burial, handhole, pedestal or vault applications.

Aluminum Flood-Seal® Multi-Port Connectors — RXL Series

- Wide port spacing makes installation easier
- Field-adaptable cable sleeves enable installation on a wide range of conductor sizes
- Bars constructed of 6061-T6 aluminum alloy for high strength and high conductivity
- Standard aluminum set screws with 5/16" socket hex spread compressive forces over conductor strands, reduce strand damage, result in lower contact resistance and provide high set-screw torque retention
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- Comply with ANSI C119.1 and C119.4 and Western Underground C.G. 2.5 and are RUS Listed
- Dual-rated to accept a wide range of aluminum and copper conductors



RXL 4



RXL 350 Series

CAT. NO.	OUTLETS	CABLE RANGE	LENGTH IN.	LENGTH MM
RXL 3-C	3	#12–350	4.3	109
RXL 4-C	4		5.8	147
RXL 5-C	5		7.3	185
RXL 6-C	6		8.8	223
RXL 8-C	8		11.8	299

***Note**: Provided with oxide inhibitor.*



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number.



RXL 600-6

RXL 600 Series

CAT. NO.	OUTLETS	CABLE RANGE
RXL 600-3-C	3	#6–600
RXL 600-4-C	4	
RXL 600-5-C	5	
RXL 600-6-C	6	
RXL 600-31-C	4	
RXL 600-22-C	4	
RXL 600-33-C	6	
RXL 600-42-C	6	

***Note**: Provided with oxide inhibitor.*



RXL 600-31

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Flood-Seal® Multi-Port Connectors

The fully insulated and watertight connectors for direct-burial, handhole, pedestal and overhead applications.

Aluminum Flood-Seal® Multi-Port Connectors — RXM Series

- Flood-Seal® EPDM insulating rockets field tested in more than 10 million applications
- 6061-T6 aluminum connector construction provides high strength and high conductivity
- Dual-rated to accept a wide range of copper or aluminum conductors, from #2 solid to 1000 kcmil
- Ball-bottom screws support the widest conductor range and aid in breaking up aluminum oxides
- EPDM rubber cap is easy to find, prevents accidental removal and can be easily removed with pliers
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds



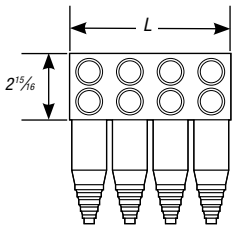
RXM 4



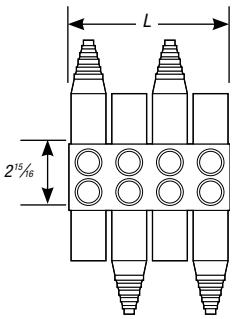
RXM 22

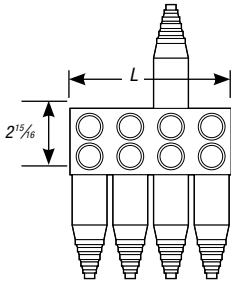


RXM 31



Cables Enter from One Side Only





Cable Entry One Side Only

CAT. NO.	OUTLETS	LENGTH
RXM 2	2	3 1/16
RXM 4	4	7 1/4
RXM 6	6	10 7/8
RXM 8	8	14 1/2
RXM 10	10	18 1/8
RXM 12	12	21 3/4

Cable Entry from Either Side

CAT. NO.	OUTLETS	LENGTH
RXM 22	4	7 1/4
RXM 33	6	10 7/8
RXM 44	8	14 1/2
RXM 66	12	2 13/42

Example: RXM 22 accommodates a maximum of four cables, accessible from either side.

Custom Orders

CAT. NO.	OUTLETS	LENGTH
RXM 31	4	7 1/4
RXM 42	6	10 7/8

Order using first number (RXM 31) for outlets needed on one side and second number (RXM 31) for outlets needed on opposite side.

For configurations up to a total of 12 outlets, please consult your Thomas & Betts representative.

***Note:** For oxide-inhibitor option, add "-C" suffix to the catalog number.*

Flood-Seal® Multi-Port Connectors

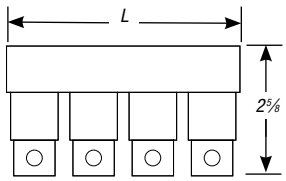
Suitable for direct burial or installation in an enclosure.

Aluminum Flood-Seal® 95 Series Connectors

- Single-hole drilled ideal for residential applications
- Dual-rated for use with aluminum or copper lugs from #12 to 350 kcmil
- All outlets and lugs (see kits **below**) approved for full cable rating — safe and reliable.
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- RUS Accepted



FS 95-6



95 Series Connectors

CAT. NO.	OUTLETS	LENGTH
FS 95-2	2	2¾
FS 95-3	3	4¼
FS 95-4	4	5¾
FS 95-5	5	7¼
FS 95-6	6	8¾
FS 95-7	7	10¼
FS 95-8	8	11¾
FS 95-9	9	13¼
FS 95-10	10	14¾

Kits have insulating outlet sleeve or heat-shrink sleeve and lug.

Flood-Seal® 95 Series Terminal Kits

- Three die sets install the complete range of lugs, from #8 to 350 kcmil
- Lugs prefilled with oxide-inhibiting compound and capped to prevent oxidation and keep out moisture



CFB 350 CS

95 Series Terminal Kits

FORCE-FIT KIT CAT. NO.	HEAT-SHRINK KIT CAT. NO.	CONCENTRIC	COMPRESSED	COMPACT	SOLID	DIE REFERENCE
CFG 8 CS	CFG 8 HS	#8	—	—	#6	⅝ , BG, 687, 243, TU, 52, 8A
CFG 6 CS	CFG 6 HS	#6	#6	#6	—	
CFG 4 CS	CFG 4 HS	#4	#4	#4	—	
CFG 2 CS	CFG 2 HS	#2	#2	#2 & #1	#1	
CFG 1 CS	CFG 1 HS	#1	#1	1/0	1/0	
CFG 1/0 CS	CFG 1/0 HS	1/0	1/0	2/0	2/0	
CFK 1/0 CS	CFK 1/0 HS	1/0	1/0	2/0	2/0	840, 324, 249, 658, TX, 76, 11A
CFK 2/0 CS	CFK 2/0 HS	2/0	2/0	3/0	3/0	
CFK 3/0 CS	CFK 3/0 HS	3/0	3/0	4/0	4/0	
CFK 4/0 CS	CFK 4/0 HS	4/0	4/0	250	—	
CFK 250 CS	CFK 250 HS	250	250	300	—	
CFB 250 CS	CFB 250 HS	250	250	300	—	1⅛-1, 299–655, 96, 13A, 321, 326
CFB 300 CS	CFB 300 HS	300	300	350	—	
CFB 350 CS	CFB 350 HS	336.4–350	350	350	—	

Note: *For a hex-headed bolt, add "-H" suffix to the catalog number.*
Force-Fit Kit includes (1) dual-rated aluminum center-formed lug, (1) ⅜" Allen head mounting bolt, (1) Belleville washer and (1) insulating Flood-Seal® rocket.
Heat-Shrink Kit includes (1) dual-rated aluminum center-formed lug, (1) ⅜" Allen head mounting bolt, (1) Belleville washer and (1) heat-shrink tubing.

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Flood-Seal® Multi-Port Connectors

Choose one-way configuration or two-way configuration.

Aluminum Flood-Seal® 125 Series Connectors

- Dual-rated for use with aluminum or copper lugs from #12 to 500 kcmil
- Designed for maximum contact to ensure cooler operation and more reliable joints
- Outlets equipped with ½" hex-head bolts with captive Belleville washers to accept standard one- or two-hole NEMA aluminum or copper lugs
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- All outlets approved for full cable rating — safe and reliable
- All Flood-Seal® connectors comply with ANSI C119.4
- RUS Accepted



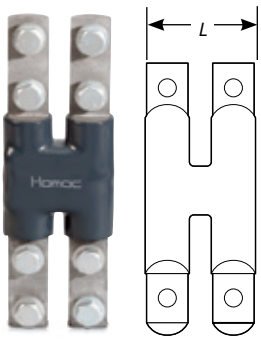
FSN 6-125



FS 3-125



FS 22-48



FSN 22

One-Way Configuration

ONE-BOLT DESIGN CAT. NO.	TWO-BOLT DESIGN CAT. NO.	OUTLETS	L
FS 2-125	FSN 2-125	2	3½
FS 3-125	FSN 3-125	3	5⅜
FS 4-125	FSN 4-125	4	7¼
FS 5-125	FSN 5-125	5	9⅛
FS 6-125	FSN 6-125	6	11
FS 7-125	FSN 7-125	7	12⅞
FS 8-125	FSN 8-125	8	14¾
FS 9-125	FSN 9-125	9	16⅝
FS 10-125	FSN 10-125	10	18½

Two-Way Configuration

ONE-BOLT DESIGN CAT. NO.	TWO-BOLT DESIGN CAT. NO.	OUTLETS	L
FS 11-48	FSN 11	2	1½
FS 22-48	FSN 22	4	3⅜
FS 33-48	FSN 33	6	5¼
FS 44-48	FSN 44	8	7⅛
FS 55-48	FSN 55	10	8⅞
FS 66-48	FSN 66	12	10¾
FS 77-48	FSN 77	14	12⅝
FS 88-48	FSN 88	16	14½
FS 99-48	FSN 99	18	16⅜

***Note**: To order insulating sleeves for EPDM Two-Way Connectors, see **page F-395**. Order lugs separately.*

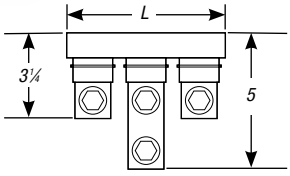
Flood-Seal® Multi-Port Connectors

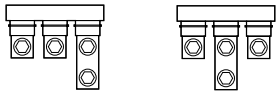
One-way connectors with rubber insulation or two-way connectors with PVC insulation for #8 to 500 kcmil cable.



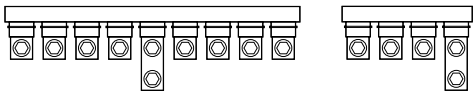
Aluminum Flood-Seal® 125 Series Connectors — One- and Two-Hole Type

- Designed for maximum contact to ensure cooler operation and more reliable joints
- Outlets equipped with ½" hex-head bolts with captive Belleville washers to accept standard one- or two-hole NEMA aluminum or copper lugs
- All outlets approved for full cable rating — safe and reliable
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- All Flood-Seal® connectors meet or exceed ANSI C119.4
- RUS Accepted

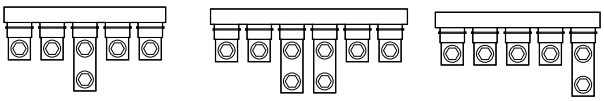




FS 21-125 FS 111-125



FS 414-125 FS 31-125



FS 212-125 FS 222-125 FS 41-125



FS 313-125 FS 323-125

EPDM-Insulated, One-Way Configuration

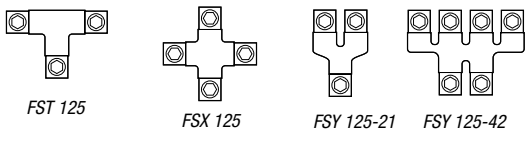
CAT. NO.	OUTLETS	LENGTH
FS 21-125	3	5⅜
FS 111-125	3	5⅜
FS 414-125	9	16⅝
FS 31-125	4	7¼
FS 212-125	5	9⅛
FS 222-125	6	11
FS 41-125	5	9⅛
FS 313-125	7	12⅞
FS 323-125	8	14¾

Note: *To order insulating sleeves for EPDM One-Way Connectors, see* ***page F-395****.*

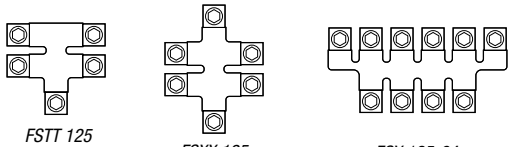
PVC-Insulated, Two-Way Configuration

CAT. NO.	OUTLETS
FST 125	3
FSTT 125	5
FSX 125	4
FSXX 125	6
FSY 125-21	3
FSY 125-42	6
FSY 125-64	10

T Type *X Type* *Y Type*



FST 125 FSX 125 FSY 125-21 FSY 125-42



FSTT 125 FSXX 125 FSY 125-64

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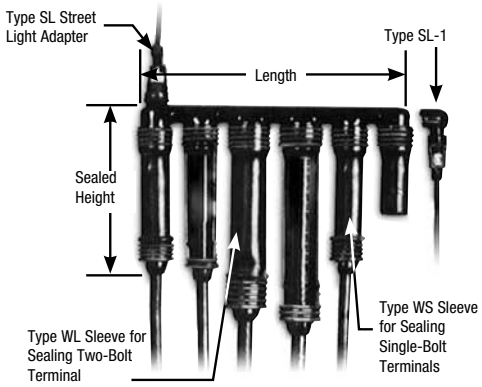
Flood-Seal® Multi-Port Connectors

Get the port and terminal options you need for pedestal, vault, handhole or direct-burial applications.

Flood-Seal® Bus Connectors



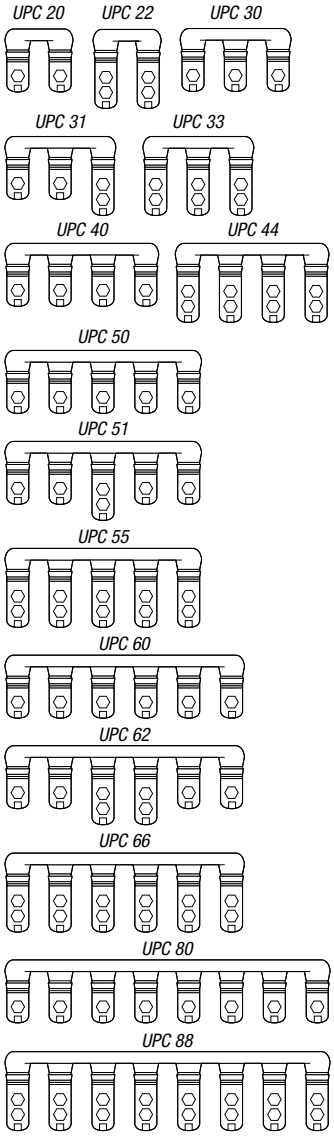
- Flood-Seal® EPDM sleeves features, waterproof O-ring sealing system
- Type WS sleeve seals single-bolt terminals and Type WL sleeve seals two-bolt terminals
- Indent on terminals mates with boss on compression lugs to prevent lugs from rotating
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds



CAT. NO.	NO. OF PORTS	2-BOLT LARGE TERM.	1-BOLT SMALL TERM.	DIMENSIONS IN. (MM) LENGTH	DIMENSIONS IN. (MM) HEIGHT WITH SLEEVE
UPC 20	2	0	2	3.3 (84)	6.5 (165)
UPC 22	2	2	0	3.8 (97)	8.8 (222)
UPC 30	3	0	3	5.2 (132)	6.5 (165)
UPC 31	3	1	2	5.3 (135)	8.8 (222)
UPC 33*	3	3	0	5.9 (151)	8.8 (222)
UPC 40	4	0	4	7.1 (179)	6.5 (165)
UPC 41	4	1	3	7.3 (186)	8.8 (222)
UPC 42	4	2	2	7.6 (192)	8.8 (222)
UPC 44*	4	4	0	8.1 (205)	8.8 (222)
UPC 50	5	0	5	8.9 (227)	6.5 (165)
UPC 51	5	1	4	9.2 (233)	8.8 (222)
UPC 52	5	2	3	9.4 (240)	8.8 (222)
UPC 55*	5	5	0	10.2 (259)	8.8 (222)
UPC 60	6	0	6	10.8 (248)	6.5 (165)
UPC 61	6	1	5	11.1 (281)	8.8 (222)
UPC 62	6	2	4	11.3 (287)	8.8 (222)
UPC 66*	6	6	0	12.3 (312)	8.8 (222)
UPC 80	8	0	8	14.6 (370)	6.5 (165)
UPC 81	8	1	7	14.8 (376)	8.8 (222)
UPC 88*	8	8	0	16.6 (421)	8.8 (222)

** For streetlight adapter option, add "-SL-1" suffix to catalog number.*

Note: *Maximum size conductor — single bolt: 350 kcmil; double bolt: 500 kcmil. For compression lugs, see* ***pages F-121–F-135****.*



Flood-Seal® Multi-Port Connectors

Great for pedestal, vault, light pole base or direct-burial jobs.

Submersible Street Light Connectors

- Rated for 600V, 100A — built for heavy-duty loads; helps bring power to nearly all types of street lights
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds
- Dual-rated and approved for #12 solid through #4 stranded aluminum or copper connections



USL 11

CAT. NO.	PORTS	WIDTH IN.	HEIGHT W/ SLEEVE IN.	SCREW TYPE
USL 11	2	—	6.3	Slotted
USL 30	3	3.6	3.1	Slotted
USL 11 H	2	—	5.3	Hex-Socket
USL 30 H	3	3.6	3.1	Hex-Socket

Note: *For contour-plated set-screw option that does not damage the conductor when tightened down, add "-H" suffix to the catalog number.*

Connect your small conductors to a Squid® bus junction.

Street Light Adapter

- 356-T6 aluminum connector construction provides high strength and high conductivity
- Dual-rated for small conductors — connect #10 solid through #4 stranded cables to a standard Squid® bus junction



CAT. NO.	DESCRIPTION
SLA 1	Street Light Adapter

Make seals without tape, compound or heat source.

Squid® Sealing Sleeves

- EPDM rubber sealing sleeve grips the conductor insulation on one end and seals onto the insulated bus on the other end
- Sleeves provided with plug installed — can be used as terminal covers
- SC adapter available — perfect to use when #2 compact standard 600V underground service entrance cable has an insulation outer diameter less than .390"



WS 2 P



WL 3 P



WB 20 P



SC & WHB 3 P



SPL 6

CAT. NO.	FOR USE ON	SEALING RANGE (COND. O.D. OVER INSULATION)	LENGTH IN.
WS 2 P	Single-Bolt UPC, SCU	.4–.9	6 1/16
WL 2 P	Two-Bolt UPC, UPB, SCU	.4–.9	8 5/16
WL 3 P	UPC, UPB, SCU	.5–1.2	8 5/16
WB 20 P	UB	.4–.9	5 3/8
SC	Small Conductor Adapter for WS, WL 2 and WB Sleeves	.2 –.4	—
WHB 3 P	UBC Bus (large terminal)	.5–1.3	7 3/8
SPL 6	Squid Type WL Sleeves, for #6 Stranded through 4/0 Connections	.6–.7	—

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Flood-Seal® Multi-Port Connectors

High-conductivity aluminum connectors.

Aluminum Flood-Seal® 175 Series Connectors

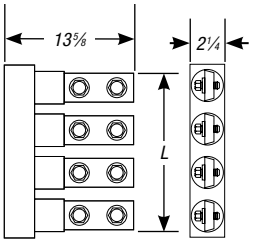
- EPDM rubber insulation precision molded for uniform quality
- Connector made of extruded high-conductivity electrolytic aluminum for added dimensional stability
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds



One-Way Configuration

CAT. NO.	OUTLETS	L
FS 175-2	2	6
FS 175-3	3	9
FS 175-4	4	12
FS 175-5	5	15
FS 175-6	6	18
FS 175-7	7	21
FS 175-8	8	24

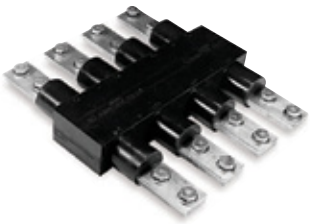


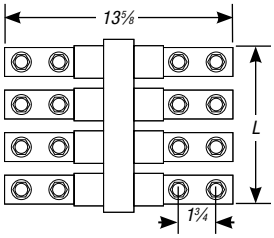


Two-Way Configuration

CAT. NO.	OUTLETS	L
FS 22-175	4	6
FS 33-175	6	9
FS 44-175	8	12
FS 55-175	10	15
FS 66-175	12	18
FS 88-175	16	24
FS 1010-175	20	27
FS 1212-175	24	30

Note: *For special applications or a greater number of outlets, please consult your Thomas & Betts representative.*





Accessories — sold separately



FS 1175 Flood-Seal® EPDM rubber insulating sleeve covers the entire conductor range. Use the Flood-Seal® 175 Dual Adapter Kit (**page F-397**) for two conductors per outlet.



AL-NTN series aluminum lugs, 1/0 to 2000 kcmil. See **page F-123**.

Flood-Seal® Multi-Port Connectors

EPDM rubber-insulated copper connectors for commercial or industrial installations!

Copper Flood-Seal® 175 Series Connectors

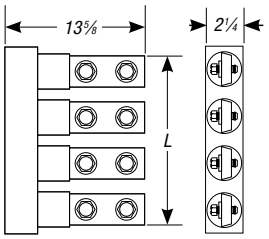
- EPDM rubber insulation precision molded for uniform quality
- Accommodates limiter terminals
- Hardware included — ready for use
- All outlets approved for full cable rating
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds



One-Way Configuration

CAT. NO.	OUTLETS	L
FS 175-2 CU	2	6
FS 175-3 CU	3	9
FS 175-4 CU	4	12
FS 175-5 CU	5	15
FS 175-6 CU	6	18
FS 175-7 CU	7	21
FS 175-8 CU	8	24

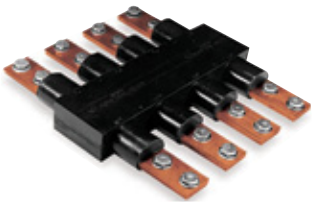


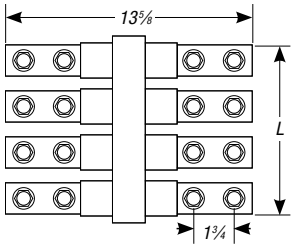


Two-Way Configuration

CAT. NO.	OUTLETS	L
FS 22-175 CU	4	6
FS 33-175 CU	6	9
FS 44-175 CU	8	12
FS 55-175 CU	10	15
FS 66-175 CU	12	18
FS 88-175 CU	16	24
FS 1010-175 CU	20	27
FS 1212-175 CU	24	30

Note: *For special applications or a greater number of outlets, please consult your Thomas & Betts representative.*





Accessories — sold separately



FS 1175 Flood-Seal® EPDM rubber insulating sleeve covers the entire conductor range. Use the Flood-Seal® 175 Dual Adapter Kit (**page F-397**) for two conductors per outlet.

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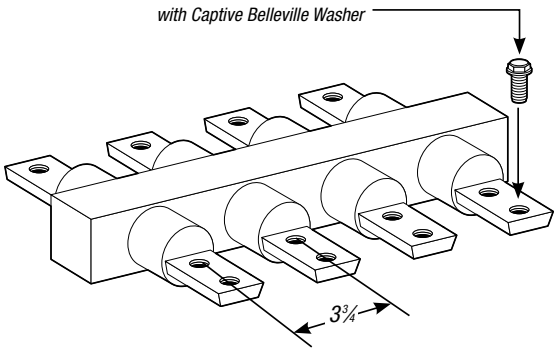
Flood-Seal® Multi-Port Connectors

Rubber insulation ensures a watertight connection.

Flood-Seal® 175 Series Bus Connectors

- Outlets equipped with ½-13 UNC hex-head screws with captive Belleville washers to accept two-hole NEMA aluminum or copper compression lugs
- All connectors are 100% Hi-Pot tested at 4000V for 60 seconds





FXL 175 Aluminum Series — for Two-Hole NEMA Lugs up to 1000 kcmil

CAT. NO.	OUTLETS
FXL 22-175	4
FXL 33-175	6
FXL 44-175	8
FXL 66-175	12

FXL 175 Copper Series — for Two-Hole NEMA Lugs up to 1000 kcmil

CAT. NO.	OUTLETS
FXL 22-175 CU	4
FXL 33-175 CU	6
FXL 44-175 CU	8
FXL 66-175 CU	12



FS 1175 Flood-Seal® EPDM rubber insulating sleeve covers the entire conductor range. Order separately — please consult your Thomas & Betts representative.

Adapter kit enables installer to pull two connections off one leg.

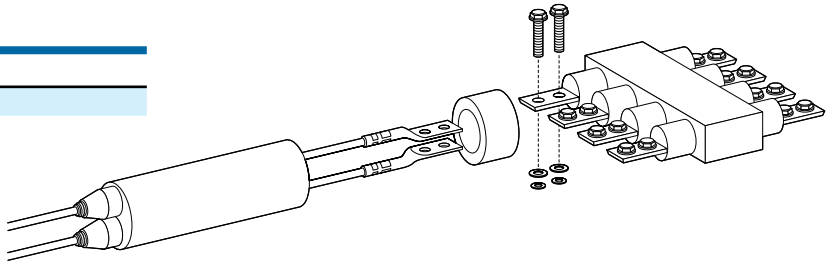
Flood-Seal® 175 Dual Adapter Kit

- Ready for use
- Rugged kit includes twin tower rocket, adapter ring and aluminum hardware

CAT. NO.	DESCRIPTION
FS 175 DPK	175 Dual Adapter Kit

Note: *Connector not included.*

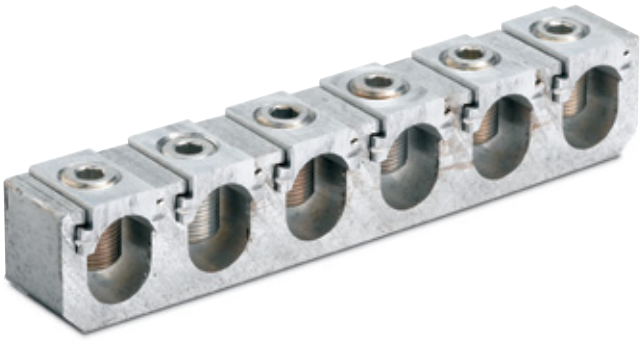


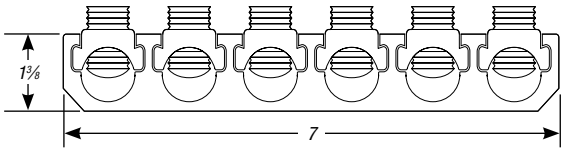


Effortlessly install or remove large, stiff cables in confined areas.

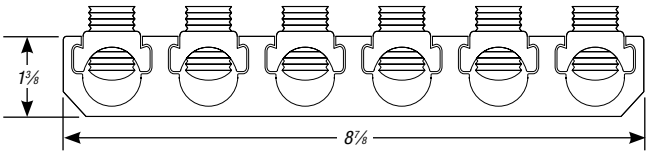
Aluminum Lay-In Pedestal Connectors

- Cables are easily placed into the keeper slot
- Minimizes the hassle and hazards of having to force cables into the closed cable ports found on conventional mechanical connectors
- Saves time and labor
- Requires only a cable stripper and Allen hex wrench — no crimping tools or dies or other special tools are needed for installation
- Dual-rated for use with aluminum or copper cable
- Ball-bottom screws ensure even force distribution in the cable/connector interface





ABCK 6350



ABCK 6600

ABCK Series

CAT. NO.	CONDUCTOR RANGE	OUTLETS
ABCK 6350	#6–350	6
ABCK 6600	#2–600	
ABCK 6600 DS*	#2–600	

** "-DS" suffix indicates double set screws.*

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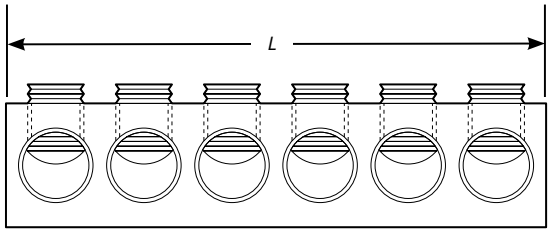
Available with up to eight outlets for aluminum or copper conductors.

Aluminum Set-Screw Bar Pedestal Connectors — Single-Line Bar

- Dual-rated to accept aluminum or copper conductors
- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Meets or exceeds ANSI C119.4 specifications



ABC 4350



Single-Line Bar

CAT. NO.	OUTLETS	LENGTH	BOOT NUMBER	CABLE RANGE
ABC 240	2	1 11/16	BB 10	
ABC 340	3	2 9/16	BB 10	
ABC 440	4	3 7/16	BB 10	
ABC 540	5	4 5/16	BB 11	#6–250
ABC 640	6	5 3/16	BB 11	
ABC 740	7	6 1/16	BB 12	
ABC 840	8	6 15/16	BB 12	
ABC 2350	2	2	BB 10	
ABC 3350	3	3	BB 10	
ABC 4350	4	4	BB 10	
ABC 5350	5	5	BB 11	#12–350
ABC 6350	6	6	BB 11	
ABC 7350	7	7	BB 12	
ABC 8350	8	8	BB 12	
ABC 2500	2	2 1/16	BB 10	
ABC 3500	3	3 1/16	BB 10	
ABC 4500	4	4 1/16	BB 11	
ABC 5500	5	5 1/16	BB 11	#6–500
ABC 6500	6	6 1/16	BB 12	
ABC 7500	7	7 1/16	BB 14	
ABC 8500	8	8 1/16	BB 14	
ABC 2750	2	2 1/4	BB 10	
ABC 3750	3	4 3/16	BB 13	
ABC 4750	4	5 9/16	BB 13	
ABC 5750	5	7	BB 12	1/0–750
ABC 6750	6	8 3/8	BB 14	
ABC 7750	7	9 13/16	BB 15	
ABC 8750	8	11 3/16	BB 15	

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For street light-outlet option, add "-SL" suffix to the catalog number.
*For insulating covers, see **page F-402**.*
For special applications, please consult your Thomas & Betts representative.



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number.

High-strength aluminum alloy maintains constant bolting pressure on conductors.

Aluminum Set-Screw Bar Pedestal Connectors — Double-Row Bar

- Dual-rated to accept aluminum or copper conductors
- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Meets or exceeds ANSI C119.4 specifications



FB 33 Boot

ABC 500-33

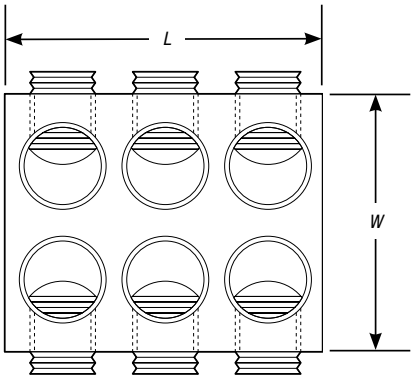
Double-Row Bar

CAT. NO.	OUTLETS	LENGTH	WIDTH	BOOT NO.	CABLE RANGE
ABC 40-22	4	1⅝	2	BB 17	#6–250
ABC 40-33	6	2⁷⁄₁₆	2	BB 17	#6–250
ABC 40-44	8	3³⁄₁₆	2	FB 33*	#6–250
ABC 350-22	4	2⅛	2½	BB 17	#12–350
ABC 350-33	6	3	2½	FB 33*	#12–350
ABC 350-44	8	3¹⁵⁄₁₆	2⅜	FB 33*	#12–350
ABC 500-22	4	2¹⁄₁₆	2¾	FB 33*	#6–500
ABC 500-33	6	3¹⁄₁₆	2¾	FB 33*	#6–500
ABC 500-44	8	4¹⁄₁₆	2¾	—**	#6–500
ABC 750-22	4	2¾	3¼	—**	1/0–750
ABC 750-33	6	4³⁄₁₆	3¼	—**	1/0–750
ABC 750-44	8	5⁹⁄₁₆	3¼	—**	1/0–750

** EPDM Flexi-Boot, see **page F-402**.*

*** For other insulating covers, please consult your Thomas & Betts representative.*

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For streetlight-outlet option, add "-SL" suffix to the catalog number.
For special applications, please consult your Thomas & Betts representative.



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Insulated and uninsulated pedestal connectors with up to 10 outlets.

Aluminum Pedestal Connectors

- Compact Zeebar® design doubles cable capacity
- ZVB Series features clear PVC encapsulation to enable safe installations and disconnects — and provide insulation
- Easy to install — all screws are on top, and a 5/16" hex wrench is all you need
- Dual-rated to accept aluminum or copper conductors
- Ball-bottom screws ensure maximum conductor contact pressure

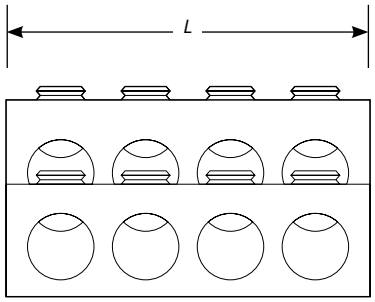


ZVB 5053

Insulated and Uninsulated Pedestal Connectors

INSULATED CAT. NO.	UNINSULATED CAT. NO.	OUTLETS	L	CABLE RANGE
ZVB 2023	**ZBC 2023**	4	2 1/4	#12–350
ZVB 3033	**ZBC 3033**	6	3 1/4	#12–350
ZVB 4043	**ZBC 4043**	8	4 1/4	#12–350
ZVB 5053	**ZBC 5053**	10	5 1/4	#12–350
ZVB 2025	**ZBC 2025**	4	2 7/16	#6–500
ZVB 3035	**ZBC 3035**	6	3 9/16	#6–500
ZVB 4045	**ZBC 4045**	8	4 11/16	#6–500
ZVB 5055	**ZBC 5055**	10	5 13/16	#6–500

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number. For a kit containing one uninsulated and two insulated connectors, add "-K" suffix to the catalog number.*

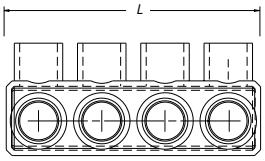


Port-separated clear plastic cover provides insulation against accidental contact during installation.

Insulated Pedestal Connector Bars — Type PSB-C

- Bars are constructed of 6061-T6 aluminum alloy for strength and conductivity
- Standard aluminum set screws with 5/16" socket hex spread compressive forces over conductor strands, reduce strand damage, increase interstrand movement, result in lower contact resistance and provide high set-screw torque retention
- Dual-rated for use with aluminum or copper conductors
- Contax® oxide inhibitor standard in all conductor ports
- Meets ANSI C119.4 specifications
- RUS Accepted





350 Series – Insulated PSB Bars Dual Rated (AL-CU)

CAT. NO.	NO. OF PORTS	CABLE RANGE	LENGTH IN.
PSB4359C	4	#12–350	4.34
PSB6359C	6		6.43
PSB8359C	8		8.53

500 Series – Insulated PSB Bars Dual Rated (AL-CU)

CAT. NO.	NO. OF PORTS	CABLE RANGE	LENGTH IN.
PSB4559C	4	#10–500	4.9
PSB6559C	6		7.28
PSB8559C	8		9.66

***Note**: For additional product options, contact your Thomas & Betts representative.*

Pedestal Connectors and Covers

See the connector through the transparent insulator.

Insulated Aluminum Pedestal Connectors

- Integral wrench outlet covers — no lost parts to worry about
- Connector and cable outlets for safer connections — the connector securely locks in cover while the cable outlets self adjust
- RUS Accepted

CAT. NO.	OUTLETS	WIRE RANGE
CLR 340	3	#12–4/0
CLR 440	4	
CLR 540	5	
CLR 640	6	
CLR 3350	3	#12–350
CLR 4350	4	
CLR 5350	5	
CLR 6350	6	



CLR 6350

Rugged insulating covers to protect pedestal connectors.

Insulating Covers for Set-Screw Bar Pedestal Connectors

- FB 33 and FB 6 L feature EPDM rubber flexi-boot and flexible locking ribs
- Boot will not crack from cold embrittlement, will not cold flow and will not soften with heat
- Locking ribs prevent accidental removal of EPDM cover



FB 6 L



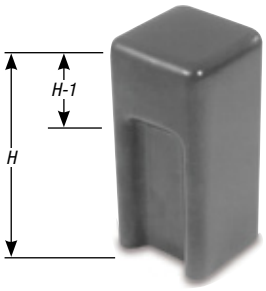
FB 33

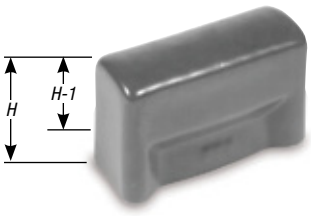
EPDM Rubber FB Series

CAT. NO.	HEIGHT	LENGTH	WIDTH
FB 33	5¼	4¾	3⅜
FB 6 L	3½	7¼	2$^{1}/_{16}$

PVC BB Series

CAT. NO.	HEIGHT	HEIGHT-1	LENGTH	WIDTH
BB 10	3$^{5}/_{16}$	1⅜	4⅛	2⅛
BB 11	2⅞	1⅜	5⅞	2⅛
BB 12	3¾	1⅞	7¾	2¼
BB 13	3¾	1⅞	5$^{15}/_{16}$	2¾
BB 14	3¾	1⅞	8⅝	2¾
BB 15	3¾	1⅞	11$^{11}/_{16}$	2¾
BB 17	6⅞	2⅛	3⅛	3$^{1}/_{16}$





Polyethylene PB Series

CAT. NO.	HEIGHT	LENGTH	WIDTH
PB 2	8	4	4$^{3}/_{16}$
PB 1 P	4	6¼	2⅞



PB 2



PB 1 P

Note: *For cover sizes not listed, please consult your Thomas & Betts representative.*
All boots have a nominal wall thickness of ⅛".
All sizes given for BB and PB series are inside dimensions.

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Stud-Mount Transformer Connectors

The EZ Mount connector is used on padmount distribution transformers that have a ⅝" or 1" secondary bushing stud — one mounting hole accepts both sizes of studs without repositioning the connector!

Aluminum Universal Quick-Disconnect Transformer Connectors



EZB 6500 SL

- Quick-disconnect connectors are easy to install or remove
- Dual-rated to accept aluminum or copper conductors
- Wide cable ranges provide connections for cables ranging from #6 to 500 kcmil and for street lights ranging from S/L #14 to #2
- Clear slide-on PVC insulating cover on EZC Series enables safe and time-saving installations and disconnects
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



EZC 6500 SL

EZC Series Insulated In-Line Bar

CAT. NO.	CABLE RANGE	OUTLETS	LENGTH	STUD SIZE
EZC 4350 SL	#12–350, S/L #14–#2	4	6¾	⅝ & 1
EZC 6350 SL		6	8¾	
EZC 8350 SL		8	10¾	
EZC 4500 SL	#6–500, S/L #14–#2	4	6¾	
EZC 6500 SL		6	8¾	
EZC 8500 SL		8	10¾	
EZC 8700 SL*	1/0–750, S/L #14–#2	8	12⅞	

** Two set-screws per outlet.*

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For additional sizes, please consult your Thomas & Betts representative.
For a single-phase kit containing one uninsulated and two insulated connectors, add "-1K" suffix to the catalog number.
For a three-phase kit containing one uninsulated and three insulated connectors, add "-3K" suffix to the catalog number.

EZB Series Uninsulated In-Line Bar

CAT. NO.	CABLE RANGE	OUTLETS	LENGTH	STUD SIZE
EZB 4350 SL	#12–350, S/L #14–#2	4	6¾	⅝ & 1
EZB 6350 SL		6	8¾	
EZB 8350 SL		8	10¾	
EZB 4500 SL	#6–500, S/L #14–#2	4	6¾	
EZB 6500 SL		6	8¾	
EZB 8500 SL		8	10¾	
EZB 8700 SL*	1/0–750, S/L #14–#2	8	12⅞	

** Two set-screws per outlet.*

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For additional sizes, please consult your Thomas & Betts representative.



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

Stud-Mount Transformer Connectors

Choose from quick-disconnect or screw-on transformer connectors with clear PVC insulating covers.

Aluminum Transformer Connectors — CSW and CSS Series

- Clear PVC insulating boot enables safe and time-saving installations and disconnects, and it features self-sealing wrench outlets and self-adjusting cable outlets
- Disconnectable — easy to install or remove
- Dual-rated to accept aluminum or copper conductors
- Wide cable ranges provide connections for cables ranging from #12 to 350 kcmil and from #6 to 500 kcmil
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



CSS 6500

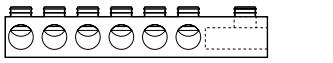


CSW 4350

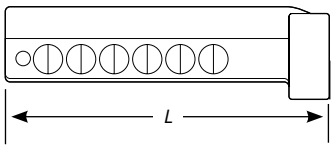
Aluminum Transformer Connectors

QUICK DISCONNECT CAT. NO.	SCREW-ON STYLE CAT. NO.	STUD SIZE	OUTLETS	INSULATOR LENGTH	CABLE RANGE
CSW 4350	CSS 4350	⅝	4	5 1⁄16	#12–350
CSW 6350	CSS 6350	⅝	6	7 1⁄16	
CSW 8350	CSS 8350	⅝	8	9 1⁄16	
CSW 4350-1	CSS 4350-1	1	4	11 1⁄16	
CSW 6350-1	CSS 6350-1	1	6	5 1⁄16	
CSW 8350-1	CSS 8350-1	1	8	7 1⁄16	
CSW 4500-58	CSS 4500-58	⅝	4	9 1⁄16	#2–500
CSW 6500-58	CSS 6500-58	⅝	6	11 1⁄16	
CSW 8500-58	CSS 8500-58	⅝	8	5 3⁄16	
CSW 4500	CSS 4500	1	4	7 3⁄16	
CSW 6500	CSS 6500	1	6	9 3⁄16	
CSW 8500	CSS 8500	1	8	11 3⁄16	

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For streetlight-outlet option, add "-SL" suffix to the catalog number.



Quick Disconnect





Screw-On Style



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

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Stud-Mount Transformer Connectors

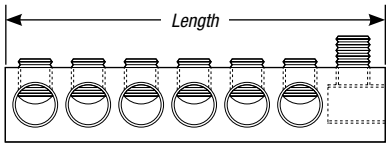
High-strength aluminum alloy maintains constant bolting pressure on conductors.

Aluminum Quick-Disconnect Transformer Connectors — ABW In-Line Bar Series

- Quick disconnectability for easy removal from transformer secondary studs
- Dual-rated to accept aluminum or copper conductors
- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



ABW 8500



ABW — In-Line Bar

CAT. NO.	OUTLETS	LENGTH	BOOT NO.	CABLE RANGE	STUD SIZE
ABW 240	2	3⅛	SB 17	#6–250	⅝
ABW 340	3	3⅞	SB 17		⅝
ABW 440	4	4 1⁄16	SB 17		⅝
ABW 540	5	5½	SB 11		⅝
ABW 640	6	6¼	SB 11		⅝
ABW 740	7	7	SB 11		⅝
ABW 840	8	7 13⁄16	SB 14		⅝
ABW 2350	2	3½	SB 17	#12–350	⅝
ABW 3350	3	4½	SB 17		⅝
ABW 4350	4	5½	SB 17		⅝
ABW 4350-1	4	6 9⁄16	SB 17		1
ABW 5350	5	6½	SB 11		⅝
ABW 6350	6	7½	SB 11		⅝
ABW 6350-1	6	8 9⁄16	SB 11		1
ABW 7350	7	8½	SB 14		⅝
ABW 8350	8	9½	SB 2160		⅝
ABW 8350-1	8	10 9⁄16	SB 2160		1

CAT. NO.	OUTLETS	LENGTH	BOOT NO.	CABLE RANGE	STUD SIZE
ABW 2500	2	4 1⁄16	SB 2147	#6–500	1
ABW 3500	3	5 1⁄16	SB 2147		1
ABW 4500	4	6 1⁄16	SB 2163-38		1
ABW 5500	5	7 1⁄16	SB 2163-7		1
ABW 6500	6	8 1⁄16	SB 2157		1
ABW 7500	7	9 1⁄16	SB 2157		1
ABW 8500	8	10 1⁄16	SB 2160		1
ABW 2750	2	5 1⁄16	SB 2147	1/0–750	1
ABW 3750	3	6 1⁄16	SB 2163-38		1
ABW 4750	4	7¾	SB 2120		1
ABW 5750	5	9⅛	SB 2157		1
ABW 6750	6	10½	SB 2160		1
ABW 7750	7	11 13⁄16	SB 2160		1
ABW 8750	8	13⅛	SB 2163-10		1

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For streetlight-outlet option, add "-SL" suffix to the catalog number.
*For insulating boots, see **page F-436**.*
For special applications and stud sizes, please consult your Thomas & Betts representative.



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

Stud-Mount Transformer Connectors

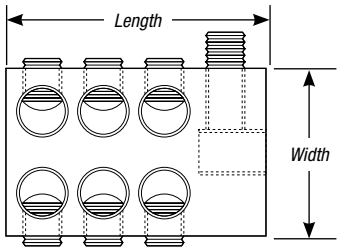
Dual-rated for aluminum or copper conductors.

Aluminum Quick-Disconnect Transformer Connectors — ABW Double-Row Bar Series

- High-strength aluminum alloy maintains constant bolting pressure on conductors
- Quick disconnectability for easy removal from transformer secondary studs
- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



ABW 350–33



ABW Series — Double-Row Bar

CAT. NO.	OUTLETS	LENGTH	WIDTH	BOOT NO.	CABLE RANGE	STUD SIZE
ABW 40-22	4	3½	2½	SB 16	#6–250	⅝
ABW 40-33	6	4¼		SB 16		
ABW 40-44	8	5⅛		SB 16		
ABW 350-22	4	4		SB 16	#12–350	
ABW 350-33	6	4⅞		SB 16		
ABW 350-44	8	5⅞		SB 2163-38		
ABW 500-22	4	4⅞	2¾	SB 2151	#6–500	1
ABW 500-33	6	5⅞		SB 2158		
ABW 500-44	8	6⅞		SB 2158		
ABW 750-22	4	4¾		SB 2158	1/0–750	
ABW 750-33	6	6⅛		SB 2158		
ABW 750-44	8	7⅛		SB 2163-7		

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For streetlight-outlet option, add "-SL" suffix to the catalog number.
*For insulating boots, see **page F-436**.*
For special applications and stud sizes, please consult your Thomas & Betts representative.



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

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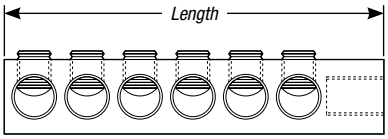
Stud-Mount Transformer Connectors

Disconnectability makes it easy to remove from transformer secondary threaded studs.

Aluminum Screw-On Transformer Connectors — ABS In-Line Bar Series

- High-strength aluminum alloy maintains constant bolting pressure on conductors
- Dual-rated to accept aluminum or copper conductors
- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted





ABS Series — Single-Line Bar

CAT. NO.	BOOT NO.	STUD SIZE	OUTLETS	LENGTH	CABLE RANGE
ABS 240	Refer to T&B Rep	5/8	2	2 7/8	
ABS 340	Refer to T&B Rep	5/8	3	3 5/8	
ABS 440	SB 17	5/8	4	4 7/16	
ABS 540	SB 17	5/8	5	5 1/4	#12–350
ABS 640	SB 11	5/8	6	6	
ABS 740	SB 11	5/8	7	6 13/16	
ABS 840	SB 14	5/8	8	7 9/16	
ABS 2350	Refer to T&B Rep	5/8	2	3 1/4	
ABS 3350	SB 17	5/8	3	4 1/4	
ABS 4350	SB 17	5/8	4	5 1/4	
ABS 4350-1	SB 17	1	4	5 1/4	
ABS 5350	SB 17	5/8	5	6 1/4	#12–350
ABS 6350	SB 11	5/8	6	7 1/4	
ABS 6350-1	SB 11	1	6	7 1/4	
ABS 7350	SB 11	5/8	7	8 1/4	
ABS 8350	SB 14	5/8	8	9 1/4	
ABS 8350-1	SB 14	1	8	9 1/4	
ABS 2500	SB 17	1	2	3 13/16	
ABS 3500	SB 17	1	3	4 13/16	
ABS 4500	SB 17	1	4	5 13/16	
ABS 5500	SB 2120	1	5	6 13/16	#6–500
ABS 6500	SB 2157	1	6	7 13/16	
ABS 7500	SB 2157	1	7	8 13/16	
ABS 8500	SB 2160	1	8	9 13/16	
ABS 2750	SB 17	1	2	4 11/16	
ABS 3750	SB 17	1	3	6	
ABS 4750	SB 2120	1	4	7 3/8	
ABS 5750	SB 2157	1	5	8 11/16	1/0–750
ABS 6750	SB 2160	1	6	10 1/16	
ABS 7750	SB 2160	1	7	11 3/8	
ABS 8750	SB 2163-10	1	8	12 3/4	

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For streetlight-outlet option, add "-SL" suffix to the catalog number.
For insulating boots, see ***page F-436****.*
For special applications and stud sizes, please consult your Thomas & Betts representative.

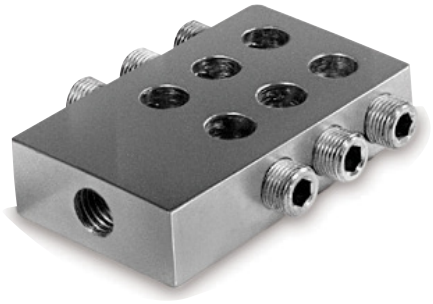


For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for all 350 cable port screws.

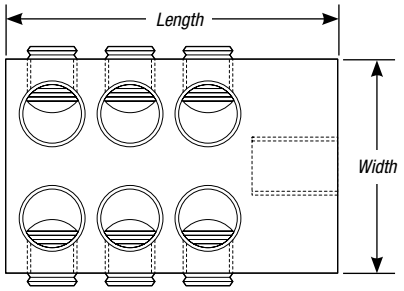
Stud-Mount Transformer Connectors

Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides.

Aluminum Screw-On Transformer Connectors — ABS Double-Row Bar Series



- High-strength aluminum alloy maintains constant bolting pressure on conductors
- Disconnectability for easy removal from transformer secondary threaded studs
- Dual-rated to accept aluminum or copper conductors
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



ABS Series — Double-Line Bar

CAT. NO.	BOOT NO.	STUD SIZE	OUTLETS	LENGTH	CABLE RANGE
ABS 40-22	SB 16	⅝	4	3 1/16	#6–250
ABS 40-33	SB 16		6	3⅞	
ABS 40-44	SB 16		8	4 11/16	
ABS 350-22	SB 16		4	3⅝	#12–350
ABS 350-33	SB 16		6	4½	
ABS 350-44	SB 16		8	5 7/16	
ABS 500-22	SB 2151	1	4	3 15/16	#6–500
ABS 500-33	SB 2151		6	4 15/16	
ABS 500-44	SB 2163-6		8	5 15/16	
ABS 750-22	SB 2151		4	4¼	1/0–750
ABS 750-33	SB 2163-6		6	5 9/16	
ABS 750-44	SB 2163-6		8	6 15/16	

Notes: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*

For streetlight-outlet option, add "-SL" suffix to the catalog number.

For insulating boots, see ***page F-436****.*

For special applications and stud sizes, please consult your Thomas & Betts representative.



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number.

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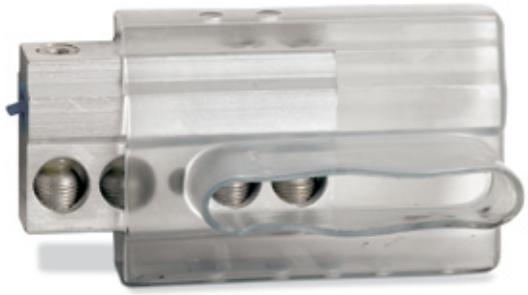
www.tnb.com

Stud-Mount Transformer Connectors

Dual-rated solutions.

Aluminum Universal Quick-Disconnect Transformer Connectors — RAU Series

- Space-saving compact size also reduces cantilever stress on bushings
- Universal connector fits both 5/8" and 1" studs.
- RUS Accepted

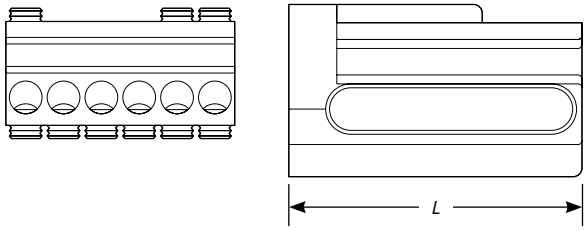


RAU 6500

RAU Series Connectors

CAT. NO.	OUTLETS	INSULATOR LENGTH	CABLE RANGE
RAU 4500	4	5½	#6–500
RAU 6500	6	6⅞	
RAU 8500	8	8⅞	

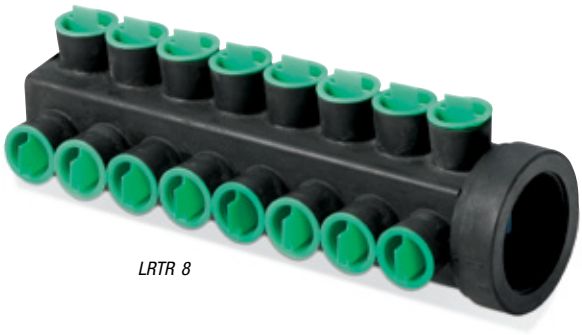
Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For streetlight-outlet option, add "-SL" suffix to the catalog number.
For see-through insulator option, add "w/cover" suffix to the catalog number.



Get left-hand or right-hand installation capability.

Aluminum Quick-Disconnect Transformer Connectors — LRTR Series

- Disconnectable — easy to install or remove and fully insulated with EPDM rubber
- Dual-rated to accept aluminum or copper conductors



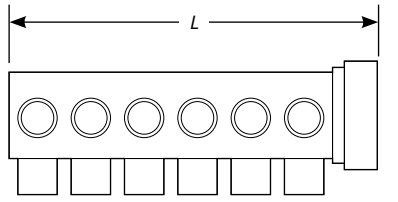
LRTR 8

LRTR Series Connectors

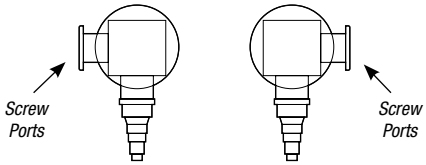
CAT. NO.	OUTLETS	L	WIRE SIZE	STUD SIZE
LRTR 4	4	7	#12–350	⅝
LRTR 6	6	9		
LRTR 8	8	11		
LRTR 4W*	4	7		
LRTR 6W*	6	9		
LRTR 8W*	8	11		

** Watertight cable and screw ports.*

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*



End View





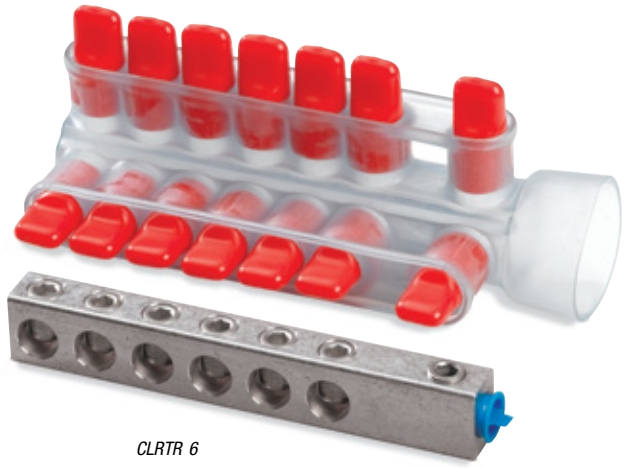
For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

Stud-Mount Transformer Connectors

See more of what you're doing.™

Aluminum Quick-Disconnect Transformer Connectors — CLRTR Series

- Clear PVC enables safe and time-saving installations and disconnects — and provides insulation
- Versatile design enables right- or left-hand installation
- Dual-rated to accept aluminum or copper conductors
- RUS Accepted



CLRTR 6

CLRTR Series Connectors

CAT. NO.	OUTLETS	STUD SIZE	CONDUCTOR RANGE
CLRTR 4	4	#12–350	⅝
CLRTR 6	6		
CLRTR 45-58	4	#6–500	
CLRTR 65-58	6		

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For streetlight-outlet option, add "-SL" suffix to the catalog number.

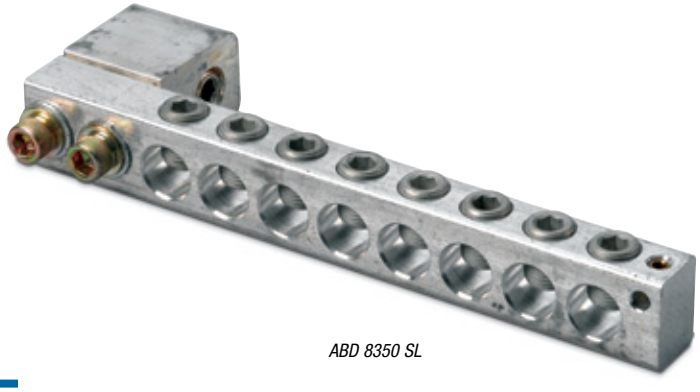


For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

Dual-rated and street light ready.

Aluminum Quick-Disconnect Transformer Connectors — ABD Series

- #14 to #4 street light outlet provides added versatility to make an additional connection
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



ABD 8350 SL

ABD Series Connectors

CAT. NO.	OUTLETS	STUD SIZE	CONDUCTOR RANGE
ABD 4350 SL	4	⅝	#12–350
ABD 6350 SL	6		
ABD 8350 SL	8		
ABD 4350-1 SL	4	1	#12–350
ABD 6350-1 SL	6		
ABD 8350-1 SL	8		

Double-row configuration.

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number.

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Stud-Mount Transformer Connectors

The adapter made for the ABD Series.

AD Series Adapter

- ⅝" or 1" stud sizes
- Compatible with ABD Series (see **previous page**)

AD Series Adapter

CAT. NO.	STUD SIZE
AD 58	⅝
AD 1	1



AD 58

Clearly the best deadfront connector.

Aluminum Quick-Disconnect Transformer Connectors — LRT Series

- Clear, see-through PVC insulator, rated for 480V, enables safe and time-saving installations and disconnects
- Insulates two, four, six or eight outlet connectors
- Versatile design enables right- or left-hand installation
- Integral wrench outlet covers mean no lost parts
- Dual-rated to accept aluminum or copper conductors
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



LRT 6350

Aluminum Quick-Disconnect Transformer Connectors

CAT. NO.	OUTLETS	INSULATOR LENGTH	WIRE RANGE
LRT 2350	2	7¼	#12–350
LRT 4350	4		
LRT 6350	6	10¼	
LRT 8350	8		

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*



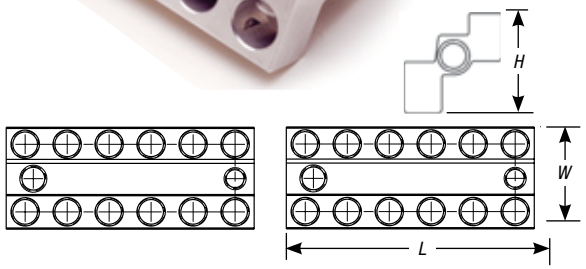
For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

Stud-Mount Transformer Connectors

Compact design doubles cable capacity and halves cantilever stress.

Transformer Connectors — TWB™ Series





- High-strength aluminum alloy maintains constant bolting pressure on conductors
- Dual-rated to accept aluminum or copper conductors
- Prefilled with oxide inhibitor to seal out moisture after installation
- Meets ANSI C119.4 specifications

Transformer Connectors, 350 Series — Bare TWB™ Bars, Dual-Rated

QUICK DISCONNECT CAT. NO.	SCREW ON CAT. NO.	PORTS	CABLE RANGE	STUD SIZE	DIMENSIONS IN. (MM)			AVAILABLE CLEAR PVC COVERS (ORDERED SEPARATELY)	
					H	W	L	LOCK ON	SLIP ON
TWB6359D58	TWB6359J58	6	#12–350	5/8"	2.6 (66)	2.6 (66)	3.1 (78)	LWC63-58	SC85-58
TWB8359D58	TWB8359J58	8					4.1 (105)	LWC83-58	SC85-58
TWB10359D58	TWB10359J58	10					5.2 (132)	LWC103-59	SC125-58
TWB12359D58	TWB12359J58	12					6.3 (159)	LWC123-59	SC125-58
TWB6359D10	TWB6359J10	6	#12–350	1"	3.0 (75)	2.8 (70)	3.1 (78)	LWC63-1	SC85-1
TWB8359D10	TWB8359J10	8					4.1 (105)	LWC83-1	SC85-1
TWB10359D10	TWB10359J10	10					5.2 (132)	LWC103-1	SC125-1
TWB12359D10	TWB12359J10	12					6.3 (159)	LWC123-1	SC125-1
TWB6359D51A	—	6	#12–350	5/8" & 1"	3.4 (86)	3.0 (77)	3.1 (78)	LWC63-1	SC85-1
TWB8359D51A	—	8					4.1 (105)	LWC83-1	SC85-1
TWB10359D51A	—	10					5.2 (132)	LWC103-1	SC125-1
TWB12359D51A	—	12					6.3 (159)	LWC123-1	SC125-1

Transformer Connectors, 500 Series — Bare TWB™ Bars, Dual-Rated

QUICK DISCONNECT CAT. NO.	SCREW ON CAT. NO.	PORTS	CABLE RANGE	STUD SIZE	DIMENSIONS IN. (MM)			AVAILABLE CLEAR PVC COVERS (ORDERED SEPARATELY)	
					H	W	L	LOCK ON	SLIP ON
TWB6559D58	TWB6559J58	6	#6–500	5/8"	2.8 (71)	2.8 (71)	3.4 (86)	LWC65-58	SC85-58
TWB8559D58	TWB8559J58	8					4.6 (117)	LWC85-58	SC85-58
TWB10559D58	TWB10559J58	10					5.8 (147)	LWC105-58	SC125-58
TWB6559D10	TWB6559J10	6	#10–500	1"	3.4 (86)	3.0 (77)	3.4 (86)	LWC65-1	SC85-1
TWB8559D10	TWB8559J10	8					4.6 (117)	LWC85-1	SC85-1
TWB10559D10	TWB10559J10	10					5.8 (147)	LWC105-1	SC125-1
TWB12559D10	TWB12559J10	12					6.9 (175)	LWC125-1	SC125-1
TWB6559D51A	—	6	#10–500	5/8" & 1"	3.1 (78)	2.8 (71)	3.4 (86)	LWC65-1	SC85-1
TWB8559D51A	—	8					4.6 (117)	LWC85-1	SC85-1
TWB10559D51A	—	10					5.8 (147)	LWC105-1	SC125-1
TWB12559D51A	—	12					6.9 (175)	LWC125-1	SC125-1

Note: *To order connectors without oxide inhibitor, remove "9" from the catalog number.*

To order a kit containing two insulated and one uninsulated connectors, add "-K21" suffix to the catalog number.

For street light option, add "S" before "D" or "J" to the catalog number. Option is for wire ranges #14 to 1/0.

To order TWB connector with a cover, add "-C" suffix to the catalog number for a lock-on version or "-CS" suffix to the catalog number for a slip-on version.

For additional product options, please consult your Thomas & Betts representative.

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Stud-Mount Transformer Connectors

The EZ Mount connector is used on padmount distribution transformers that have a ⅝" or 1" secondary bushing stud — one mounting hole accepts both sizes of studs without repositioning the connector.

Aluminum Universal Quick-Disconnect Transformer Connectors — ZVW-EZSL and Z-EZSL Series

- Tri-contact design distributes force more evenly than existing stud mounting configurations or other multi-stud designs, resulting in higher, more uniform contact force on the threads
- Design also eliminates the chance of movement
- Dual stud locking screws fully engage on either stud size, maximizing the engagement force on the stud
- Compact Zeebar® design halves cantilever stress and doubles cable capacity
- Easy to install, because 5/16" hex wrench does it all — including the street light outlet
- Truly universal — both series fit ⅝" or 1" studs
- Made from aluminum for high strength and high conductivity
- Quick-disconnect connectors are easy to install or remove
- #14 to #2 street light outlet provides added versatility to make an additional connection
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



ZVW 4023 EZSL



Z 4023 EZSL

ZVW-EZSL Series with Clear PVC Lock-On Insulating Cover

CAT. NO.	OUTLETS	CONDUCTOR RANGE	STUD SIZE
ZVW 4023 EZSL	6	#12–350	⅝" & 1"
ZVW 5033 EZSL	8		
ZVW 4025 EZSL	6	#6–500	
ZVW 5035 EZSL	8		

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number. For a kit containing one uninsulated and two insulated connectors, add "-K" suffix to the catalog number.*

Z-EZSL Series with Optional Clear PVC Drop-On Insulating Cover

CAT. NO.	OUTLETS	BOOT NO.	CONDUCTOR RANGE	STUD SIZE
Z 4023 EZSL	6	EZ 5912-3	#12–350	⅝" & 1"
Z 5033 EZSL	8	EZ 5912-7		
Z 4025 EZSL	6	EZ 5912-3	#6–500	
Z 5035 EZSL	8	EZ 5912-7		

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number. A cover can also be installed on the Z-EZSL Series. For details, please consult your Thomas & Betts representative.*



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

Stud-Mount Transformer Connectors

See-through, lock-on insulated boots make them the clear choice for secondary transformer connectors.

Aluminum Universal Quick-Disconnect Transformer Connectors — ZVW-USL, ZVW-SL and ZVW-1 SL Series

- Compact Zeebar® design halves cantilever stress and doubles cable capacity
- Easy to install with all screws on top
- A 5/16" hex wrench does it all — including the street light outlet
- ZVW-USL Series fits both 5/8" or 1" studs; series are also available each for 5/8" and 1" studs
- Dual-rated to accept copper or aluminum conductors
- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



ZVW 4045 USL



ZVW 3053-58 SL



ZVW 5033-1 SL

ZVW-USL Series

CAT. NO.	OUTLETS	L	CONDUCTOR RANGE	STUD TYPE
ZVW 3033 USL	6	5 3/8	#12–350	5/8 & 1
ZVW 4043 USL	8	6 3/8		
ZVW 3035 USL	6	5 11/16	#6–500	
ZVW 4045 USL	8	6 13/16		
ZVW 3037 USL	6	6 3/8	1/0–750	
ZVW 4047 USL	8	7 5/8		

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number. For a kit containing one uninsulated and two insulated connectors, add "-K" suffix to the catalog number.*

ZVW-SL Series

CAT. NO.	OUTLETS	L	CONDUCTOR RANGE	STUD TYPE
ZVW 2044 SL	6	3 15/16	#12–4/0	5/8
ZVW 3054 SL	8	4 3/4		
ZVW 4064 SL	10	5		
ZVW 2043-58 SL	6	4 3/8	#12–350	
ZVW 3053-58 SL	8	5 3/8		

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number. For a kit containing one uninsulated and two insulated connectors, add "-K" suffix to the catalog number.*

ZVW-1 SL Series

CAT. NO.	OUTLETS	L	CONDUCTOR RANGE	STUD TYPE
ZVW 4023-1 SL	6	4 3/4	#12–350	1
ZVW 5033-1 SL	8	5 3/4		
ZVW 4025-1 SL	6	5 1/8	#6–500	
ZVW 5035-1 SL	8	6 1/4		

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number. For a kit containing one uninsulated and two insulated connectors, add "-K" suffix to the catalog number.*



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

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Stud-Mount Transformer Connectors

Compact secondary transformer connectors with a street light outlet.

Aluminum Universal Quick-Disconnect Transformer Connectors — Z-USL, Z-SL and Z-1 SL Series

- Compact Zeebar® design halves cantilever stress and doubles cable capacity
- Easy to install with all screws are on top
- A 5/16" hex wrench does it all — including the street light outlet
- Z-USL Series fits both 5/8" or 1" studs; series are also available each for 5/8" and 1" studs
- Dual-rated to accept copper or aluminum conductors
- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Meets or exceeds ANSI C119.4 specifications
- RUS Accepted



Z 4045 USL



Z 2043-58 SL



Z 5033-1 SL

Z-USL Series

CAT. NO.	OUTLETS	L	H	CONDUCTOR RANGE	STUD TYPE
Z 3033 USL	6	5 3/8	2 7/8	#12–350	5/8 & 1
Z 4043 USL	8	6 3/8			
Z 3035 USL	6	5 11/16		#6–500	
Z 4045 USL	8	6 13/16			
Z 3037 USL	6	6 1/16	3 1/8	1/0–750	
Z 4047 USL	8	7 5/16			

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number. For insulating boot, please consult your Thomas & Betts representative.*

Z-SL Series

CAT. NO.	OUTLETS	L	H	CONDUCTOR RANGE	STUD TYPE
Z 2044 SL	6	3 15/16	1 15/16	#12–4/0	5/8
Z 3054 SL	8	4 3/4			
Z 4064 SL	10	5			
Z 2043-58 SL	6	4 1/4	2 3/8	#12–350	
Z 3053-58 SL	8	5 1/4			

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number. For insulating boot, please consult your Thomas & Betts representative.*

Z-1 SL Series

CAT. NO.	OUTLETS	L	H	CONDUCTOR RANGE	STUD TYPE
Z 4023-1 SL	6	4 3/4	2 7/8	#12–350	1
Z 5033-1 SL	8	5 3/4			
Z 4025-1 SL	6	5 1/8		#6–500	
Z 5035-1 SL	8	6 1/4			

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number. For insulating boot, please consult your Thomas & Betts representative.*



For EZ Torque® shear-head screws supplied in all outlets, add "-TS" suffix to the catalog number. Shear-head screw is available for both the stud locking screws as well as all 350 cable port screws.

Stud-Mount Transformer Connectors

Compact design halves cantilever stress and doubles cable capacity, lessening the occurrence of leaky bushings.

Aluminum Universal Quick-Disconnect Transformer Connectors — LRT-UW, LRT-UX and LRT-U Series

- LRT-UW Series features fully insulated transformer connector to protect connections
- LRT-UX Series features clear deadfront insulator for safe and time-saving installations and disconnects; locks in place by raised set screws or installation of the first conductor
- EPDM rubber cable adapters accommodate #12 solid to 250 kcmil conductors
- RUS Accepted



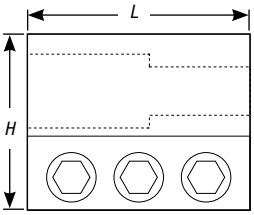
LRT 44 UW



LRT 44 UX



LRT 33 U



CAT. NO.	CABLE RANGE	OUTLETS	STUD SIZE	L	H
LRT-UW Series — Fully Insulated with Flood-Seal® Rockets					
LRT 33 UW	#12–350	6	⅝ & 1	3	2½
LRT 44 UW		8		4	
LRT-UX Series — Fully Insulated					
LRT 33 UX	#12–350	6	⅝ & 1	4	4⅜
LRT 44 UX		8			
LRT-U Series — Bare Bar					
LRT 33 U	#12–350	6	⅝ & 1	3	2½
LRT 44 U		8		4	

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For a clear PVC insulating cover, see ***below****.*

Clear insulating boot protects connections.

Clear PVC Insulating Cover for LRT Series

- Accommodates six- and eight-outlet connectors for ⅝" or 1" studs



CBB 3344

CAT. NO.	L	H
CBB 3344	4	4¼

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Stud-Mount Transformer Connectors

Compact design halves cantilever stress and doubles cable capacity.

Aluminum Quick-Disconnect Transformer Connectors — LRT-W, LRT-X and LRT Series

- LRT-W Series features fully insulated transformer connector to protect connections
- LRT-X Series features clear deadfront insulator for safe and time-saving installations and disconnects; locks in place by raised set screws or installation of the first conductor
- RUS Accepted



LRT 4458 W



LRT 4458 X



LRT 2258

CAT. NO.	CABLE RANGE	OUTLETS	STUD SIZE	L	H
LRT-W Series — Fully Insulated with Flood-Seal® Rockets					
LRT 2258 W	#12–350	4	⅝	2	2½
LRT 3358 W		6		3	
LRT 4458 W		8		4	
LRT 2210 W		4	1	2	
LRT 3310 W		6		3	
LRT 4410 W		8		4	
LRT-X Series — Fully Insulated					
LRT 2258 X	#12–350	4	⅝	2	4⅜
LRT 3358 X		6		3	
LRT 4458 X		8		4	
LRT 2210 X		4	1	2	
LRT 3310 X		6		3	
LRT 4410 X		8		4	
LRT Series — Bare Bar					
LRT 2258	#12–350	4	⅝	2	2½
LRT 3358		6		3	
LRT 4458		8		4	
LRT 2210		4	1	2	
LRT 3310		6		3	
LRT 4410		8		4	

Note: *For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For a clear PVC insulating cover, see ***below****.*

Clear insulating boot protects connections.

Clear PVC Insulating Cover for LRT Series

- Accommodates six- and eight-outlet connectors for ⅝" or 1" studs to match the transformer connector you have



CBB 3344

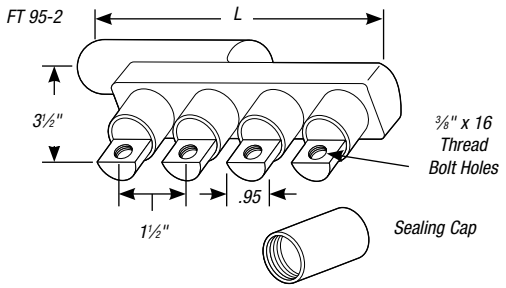
CAT. NO.	L	H
CBB 3344	4	4¼

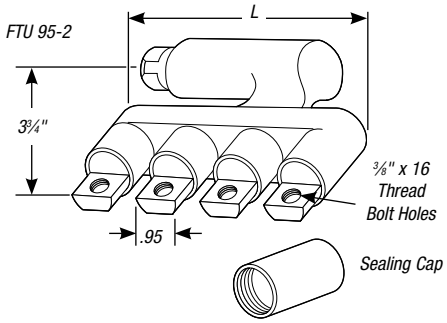
Stud-Mount Transformer Connectors

For use with aluminum or copper lugs up to 350 kcmil.

Aluminum Flood-Seal® 95 Series Screw-On Transformer Connectors

- PVC-insulated aluminum body keeps out moisture while maintaining high conductivity
- Internal/external threaded bushing adapter included with FTU 95 series enables removal of connector without disassembling individual cables
- Dual-rated for use with aluminum or copper lugs from #8 to 350 kcmil
- All Flood-Seal® connectors comply with ANSI C119.4 standards





FT 95 Series

CAT. NO.	OUTLETS	L	STUD SIZE
FT 95-2	2	4	⅝
FT 95-3	3	5½	
FT 95-4	4	7	
FT 95-5	5	8½	
FT 95-6	6	10	
FT 95-44*	8	7	
FT 95-55*	10	8½	
FT 95-66*	12	10	
FT 95-2-1	2	4	1
FT 95-3-1	3	5½	
FT 95-4-1	4	7	
FT 95-5-1	5	8½	
FT 95-6-1	6	10	
FT 95-44-1*	8	7	
FT 95-55-1*	10	8½	
FT 95-66-1*	12	10	

FTU 95 Series with Disconnectable Bushing Adapter

CAT. NO.	OUTLETS	L	STUD SIZE
FTU 95-2	2	4	⅝
FTU 95-3	3	5½	
FTU 95-4	4	7	
FTU 95-5	5	8½	
FTU 95-6	6	10	
FTU 95-44*	8	7	
FTU 95-55*	10	8½	
FTU 95-66*	12	10	
FTU 95-2-1	2	4	1
FTU 95-3-1	3	5½	
FTU 95-4-1	4	7	
FTU 95-5-1	5	8½	
FTU 95-6-1	6	10	
FTU 95-44-1*	8	7	
FTU 95-55-1*	10	8½	
FTU 95-66-1*	12	10	

** Double-row configuration.*

Note: *All Transformer Connectors include a jam nut and EPDM rubbing bushing stud cover. All outlets except one are factory-sealed with removable sealing caps. For complete assembly with CS 2011 insulating rockets, add "-AWR" suffix to the catalog number. For other accessories, see* ***page F-390****.*

CS 2011 Flood-Seal® Rockets Sold Separately



CS 2011

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Stud-Mount Transformer Connectors

For use with aluminum or copper lugs up to 500 kcmil.

Aluminum Flood-Seal® 125 Series Screw-On Transformer Connectors

- Heavy PVC-insulated aluminum body keeps out moisture while maintaining high conductivity
- Offset handle design positions cable weight close to tank wall
- Outlets equipped with ½" hex-head bolts with captive Belleville washers accept standard one-hole or two-hole NEMA aluminum or copper lugs
- Comply with ANSI C119.4 specifications
- RUS Accepted



FTU 125-5

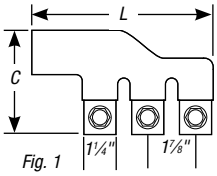


Fig. 1 *Bolt Hole ½"*

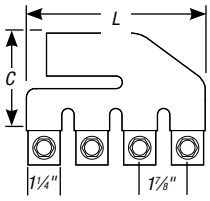


Fig. 2 *Bolt Hole ½"*

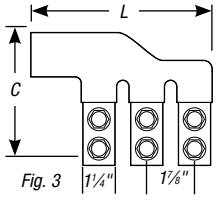


Fig. 3 *Bolt Hole ½"*

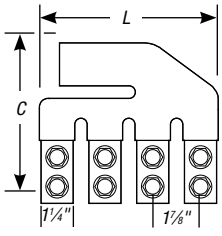


Fig. 4 *Bolt Hole ½"*

CAT. NO.	FIGURE NO.	C	L†	OUTLETS	STUD SIZE
FTU 125-2	1	3⅞	4⅞	2	⅝
FTU 125-3	1	3⅞	6⅝	3	
FTU 125-4	2	5³⁄₁₆	7⅛	4	
FTU 125-5	2	5³⁄₁₆	9	5	
FTU 125-6	2	5³⁄₁₆	10¾	6	
FTU 125-44*	2	5³⁄₁₆	7⅛	8	
FTU 1-125-2	1	3⅞	4⅞	2	1
FTU 1-125-3	1	3⅞	6⅝	3	
FTU 1-125-4	2	5³⁄₁₆	7⅛	4	
FTU 1-125-5	2	5³⁄₁₆	9	5	
FTU 1-125-6	2	5³⁄₁₆	10¾	6	
FTU 1-125-44*	2	5³⁄₁₆	7⅛	8	

CAT. NO.	FIGURE NO.	C	L†	OUTLETS	STUD SIZE
FTU 2 N	3	5⅝	4⅞	2	⅝
FTU 3 N	3	5⅞	6⅝	3	
FTU 4 N	4	6¹⁵⁄₁₆	7⅛	4	
FTU 5 N	4	6¹⁵⁄₁₆	9	5	
FTU 6 N	4	6¹⁵⁄₁₆	10¾	6	
FTU 44 N*	4	6¹⁵⁄₁₆	7⅛	8	
FTU 1-2 N	3	5⅝	4⅞	2	1
FTU 1-3 N	3	5⅝	6⅝	3	
FTU 1-4 N	4	6¹⁵⁄₁₆	7⅛	4	
FTU 1-5 N	4	6¹⁵⁄₁₆	9	5	
FTU 1-6 N	4	6¹⁵⁄₁₆	10¾	6	
FTU 1-44 N*	4	6¹⁵⁄₁₆	7⅛	8	

** Double-row configuration. † L is the same for 1-hole and 2-hole versions.*

Note: *For complete assembly with CS 2011 insulating rockets, add "-AWR" suffix to the FTU catalog number.*
For complete assembly with CSN 2011 insulating rockets, add "-AWR" suffix to the FTU-N catalog number.
For other accessories, see ***pages F-391–F-392****.*
All Transformer Connectors include threaded bushing adapter, bushing stud cover, jam nut and lug mounting hardware.

Flood-Seal® Rockets Sold Separately



CS 2011



CSN 2011

Stud Adapter Kit

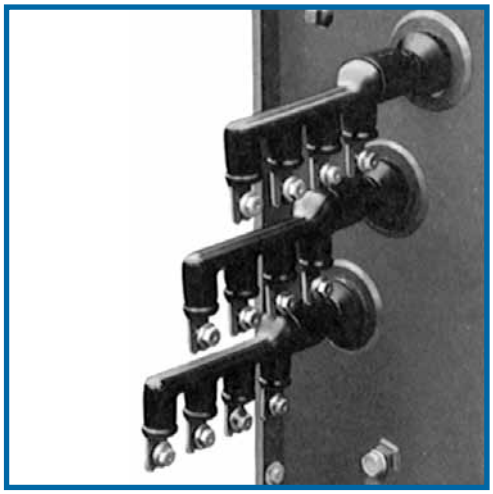
- Works with ⅝" and 1" stud sizes
- Compatible with Flood-Seal® 95 and 125 Series Screw-On Transformer Connectors

CAT. NO.	STUD SIZE
2135 K	⅝
2250-1 K	1

Note: *Includes Stud Cover and Jam Nut.*

Stud-Mount Transformer Connectors

Removable connector is designed for a padmount or submersible transformer's threaded-stud secondary bushings.

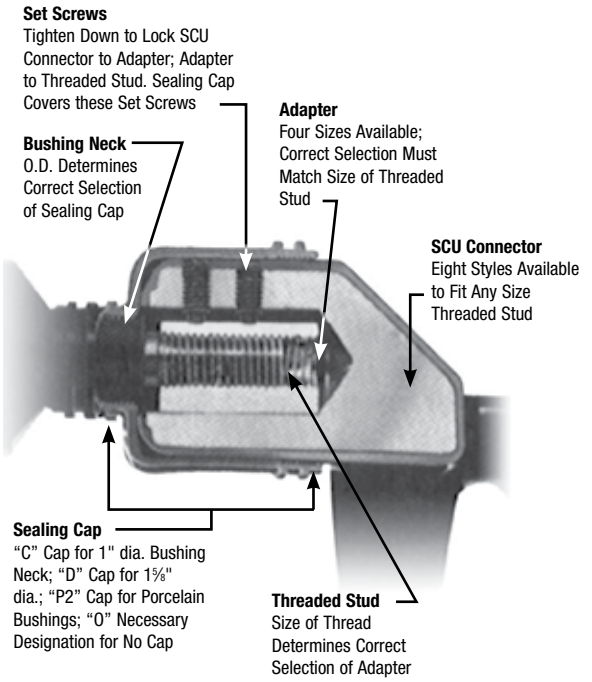


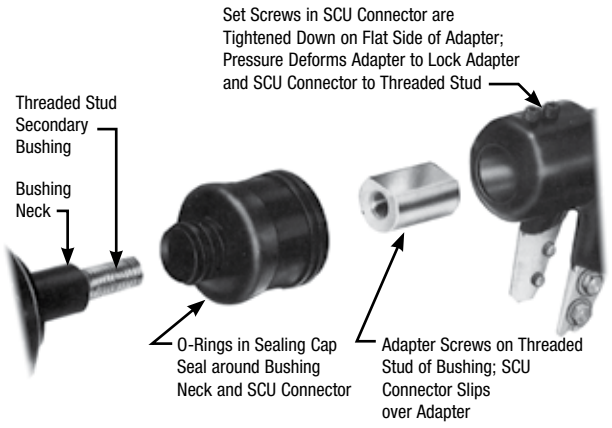
Submersible Transformer Bus

- Made of cast aluminum alloy and insulated with PVC coating to provide high strength and keep out moisture
- Fits #6 stranded through 500 kcmil aluminum conductors
- Select Squid® Sealing Sleeves (**page F-394**) for each tap make the transformer bus completely submersible and deadfront
- Connector can be detached from the transformer without disconnecting the attached conductors
- Supplied with Sems-type ⅜" plated steel bolt with captive Belleville washer; use Slotted-Tang Compression Terminal Lugs (**page F-134**)
- Indents on terminals mate with boss on Slotted-Tang Compression Terminal Lugs to prevent lugs from rotating



Type P2 Cap
For Porcelain Bushings





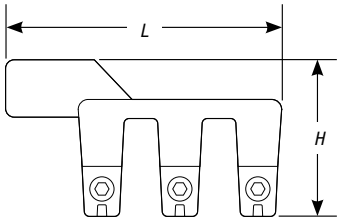
Note: *For streetlight tap option, add "-S" suffix to catalog number.*
Adapters are available that match the thread on the bushing stud.
Sealing Caps are available the match the diameter of the bushing neck.
An example of an order with a straight tap option is SCU 44-S-A 10BB-C.

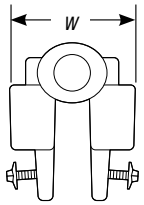
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Stud-Mount Transformer Connectors

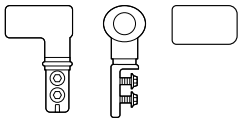
Submersible Transformer Bus

CAT. NO.	WIRE RANGE	FOR STUD THREAD	NO. OF TERMINALS	BOLTS PER TERMINAL	DIMENSIONS IN. (MM) L	H	W
SCU 11	#4–500	1–14, ⅝–11	1	2	3.6 (90)	5.7 (144)	2.3 (57)
SCU 22	#4–500		2	2	5.8 (146)	5.7 (144)	2.3 (57)
SCU 40	#6–350		4	1	9.1 (230)	4.7 (120)	2.3 (57)
SCU 44	#4–500		4	2	10 (254)	5.7 (144)	2.3 (57)
SCU 60	#6–350		6	1	7.9 (200)	4.8 (122)	3.5 (89)
SCU 66	#4–500		6	2	8.1 (204.8)	5.6 (143)	3.2 (81)
SCU 80	#6–350		8	1	10 (254)	4.8 (122)	3.5 (89)
SCU 88	#4–500		8	2	10.2 (259)	5.6 (143)	4 (102)

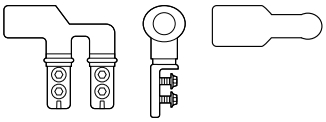




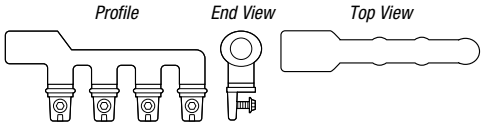
SCU 11



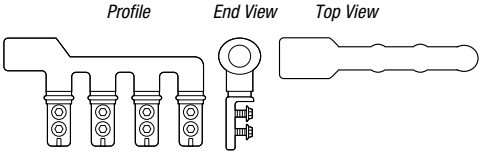
SCU 22



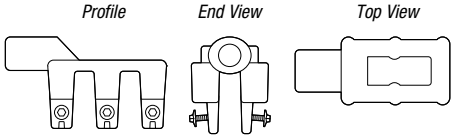
SCU 40



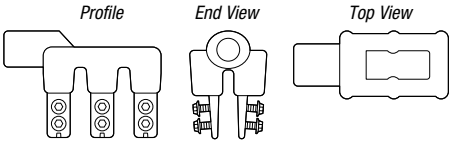
SCU 44



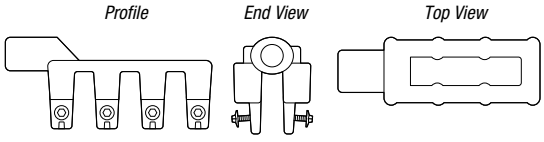
SCU 60



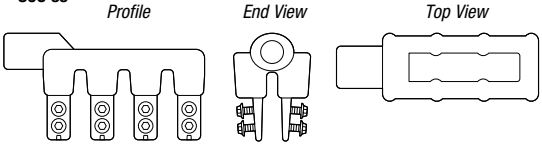
SCU 66



SCU 80



SCU 88



Adapters

CAT. NO.	FOR STUD THREAD
A 10 BB	1–14
A 58	⅝–11

Sealing Caps

CAT. NO.	FOR STUD THREAD
C	1
D	1⅛
P 2	For porcelain bushings
0	Must be designated if no sealing cap desired

Stud-Mount Transformer Connectors

Adapters for cable-to-stud connections.

Copper Screw-On Transformer Stud Adapters

- Made from pure electrolytic copper for high conductivity
- Marked with crimp area, installing dies and wire size for easy identification



2043–10

Screw-On Stud Adapters

CAT. NO.	STUD SIZE	CABLE SIZE
2043-1	⅝–11	350
2043-2	½–13	350
2043-3	⅜–16	350
2043-4	1–14	350
2043-5	¾–16	4/0
2043-6	1–8	350
2043-7	½–13	4/0
2043-8	½–13	250
2043-9	⅝–11	250
2043-10	⅝–11	500

***Note**: For variations or unlisted sizes, please consult your Thomas & Betts representative.*

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Adapters for NEMA pad-style connections.

Copper Tin-Plated Transformer Stud Adapters

- Made from pure electrolytic copper for high conductivity
- Tin plated to resist corrosion
- Dual-rated to accept standard aluminum or copper NEMA lugs



2042-1



2042-8

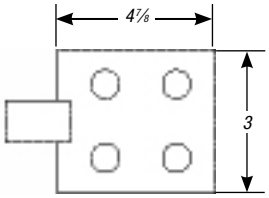


2042-4

Four-Hole Transformer Stud Adapters

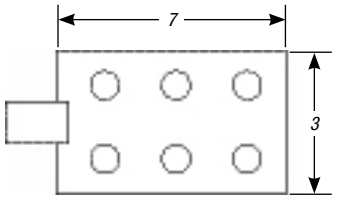
CAT. NO.	STUD SIZE
2042-1	⅝–11
2042-2	1–14
2042-3	½–13

***Note**: For variations or unlisted sizes, please consult your Thomas & Betts representative.*



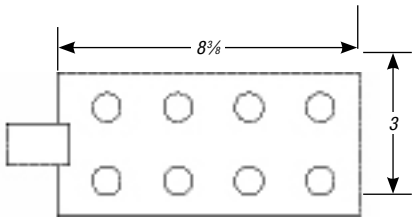
Six-Hole Transformer Stud Adapters

CAT. NO.	STUD SIZE
2042-4	⅝–11
2042-5	1–14
2042-6	1¼–12
2042-7	1½–12



Eight-Hole Transformer Stud Adapters

CAT. NO.	STUD SIZE
2042-8	⅝–11
2042-9	1–14
2042-10	1¼–12
2042-11	1½–12



Pad-Mount Transformer Connectors

The slide-out Keeper minimizes the hassle and hazards of forcing cables into closed ports.

Aluminum Lay-In Transformer Spade Connectors — ABK™ and AK™ Series

- Require only a cable stripper and Allen hex wrench — no crimping tools or dies or other special tools needed for installation
- Transformer changes require only the connector to be unbolted from the spade — no need to disconnect all the conductors, as with compression systems
- Dual-rated to use with aluminum or copper cable
- Double set screws maximize contact area and mechanical characteristics
- Ball-bottom screws ensure even force distribution in the cable/connector interface
- RUS Accepted



ABK 1750



ABK 3750



AK 600 N

ABK™ Series

CAT. NO.	OUTLETS	CABLE RANGE	LENGTH	HEIGHT	MOUNT HOLES
ABK 1600 DS	1	#2–600	1 41/64	6	2
ABK 4600 DS	4		6		4
ABK 6600 DS	6		8 29/32		8
ABK 1750	1	1/0–750	1 53/64	6 3/16	2
ABK 2750	2		3 15/16		4
ABK 3750	3		5 3/32		6
ABK 4750	4		6 47/64		8
ABK 6750	6		10		12
ABK 8750	8		13 1/2		16
ABK 11000	1	1/0–1000	1 5/8		2
ABK 11000 SSN*	1		1 5/8		2
ABK 21000	2		3 5/8		4
ABK 31000	3		5 15/16		6
ABK 41000	4		7		8
ABK 61000	6		10 3/8		16
ABK 81000	8		13 3/4		18

** Slotted pad holes.*

***Note**: For tin-plating option, add "-TN" suffix to the catalog number.*

ABK™ ML Series — Tall Pad Design

CAT. NO.	OUTLETS	CABLE RANGE	LENGTH	HEIGHT	MOUNT HOLES
ABK 1750	1	1/0–750	1 53/64	8 1/2	3
ABK 2750	2		3 15/16		6
ABK 3750	3		5 3/32		9
ABK 4750	4		6 47/64		12
ABK 6750	6		10		18
ABK 8750	8		13 1/2		24

AK™ Series

CAT. NO.	OUTLETS	CABLE RANGE
AK 600 N	1	#2–600

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Pad-Mount Transformer Connectors

Save time and labor by placing cables into the Keeper slot.

Aluminum Lay-In Transformer Spade Connectors — ABK™ 1000 and ABK™ 7024 Series

- Cables are easily placed into the keeper slot to minimize the hassle and hazards of having to force cables into the closed cable ports found on conventional mechanical connectors — you save time and labor
- ABK™ 7024 Series comes standard with street light outlet and stainless steel mounting hardware
- Require only a cable stripper and Allen hex wrench — no crimping tools or dies or other special tools are needed for installation
- Transformer changes require only the connector to be unbolted from the spade — no need to disconnect all the conductors, as with compression systems
- Dual-rated for use with aluminum or copper cable
- Ball-bottom screws ensure even force distribution in the cable/connector interface
- RUS Accepted



ABK 441000



ABK 881-7024



ABK 81-7024 L

ABK™ 1000 Series — Back-To-Back

CAT. NO.	OUTLETS	CONDUCTOR RANGE
ABK 221000	4	1/0–1000
ABK 331000	6	
ABK 441000	8	
ABK 661000	12	
ABK 881000	16	

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number. For SB Series insulating covers, see **page F-436**.*

ABK™ 7024 Series — Single Row

CAT. NO.	OUTLETS	CONDUCTOR RANGE
ABK 81-7024 R	8	1/0–1000
ABK 81-7024 L	8	

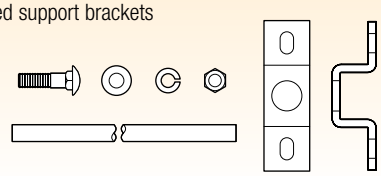
ABK™ 7024 Series — Back-To-Back

CAT. NO.	OUTLETS	CONDUCTOR RANGE
ABK 881-7024	16	1/0–1000

ABK™ 7024 Series Support Kit

The best components to make your ABK 7024 connections!

(1) 30" fiberglass support rod
(4) ½"–13 stainless steel carriage bolts
(4) ½" stainless steel flat washers
(4) ½" stainless steel lock washers
(4) ½" silicone bronze nuts
(2) tin-plated support brackets

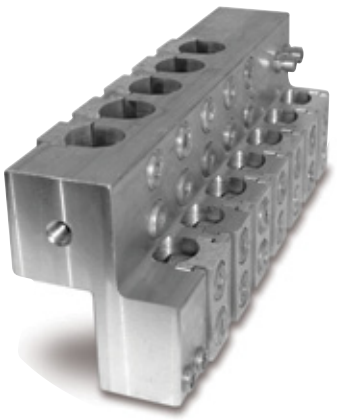


Pad-Mount Transformer Connectors

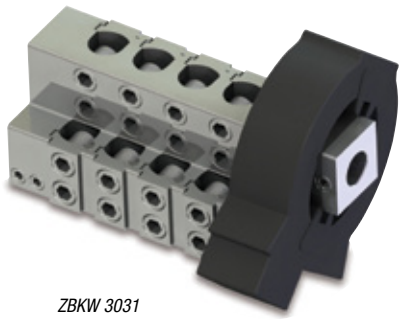
Get two times the cable capacity in the same length.

Aluminum Quick-Disconnect Lay-In Transformer Connectors — ZBKW™ Series

- Cables are easily placed into the Keeper slot to minimize the hassle and hazards of having to force cables into the closed cable ports found on conventional mechanical connectors — you save time and labor
- Compact Zeebar® design halves cantilever stress and doubles cable capacity
- EZ Torque® stud screws make mounting to the transformer stud easy and shear off at the proper torque
- Made from aluminum for high strength and high conductivity
- Dual-rated for use with aluminum or copper cable
- Quick disconnects make connector easy to install or remove
- Wide cable range provides connections for cables ranging from 1/0 to 1000 kcmil
- Two #12 to 1/0 street light outlets provide added versatility for additional connections
- RUS Accepted



ZBK 2041



ZBKW 3031

ZBKW™ 2 SLM Series

CAT. NO.	CONDUCTOR RANGE	OUTLETS	SIZE
ZBKW 2041-1-2 SLM	1/0–1000 main, (2) #12–1/0 street light	6	8.2
ZBKW 2041-1-2 SLRM		6	8.2
ZBKW 3051-1-2 SLM		8	9.9
ZBKW 3051-1-2 SLRM		8	9.9
ZBKW 4061-1-2 SLM		10	11.5
ZBKW 4061-1-2 SLRM		10	11.5
ZBKW 5071-1-2 SLM		12	13.2
ZBKW 5071-1-2 SLRM		12	13.2

Includes 1" transformer stud, two street light outlets and mounting support provision.

ZBKW™ 2 SLCTM Series

CAT. NO.	CONDUCTOR RANGE	OUTLETS	SIZE
ZBKW 3031-1-2 SLCTM	1/0–1000 main, (2) #12–1/0 streetlight	6	9.9
ZBKW 3031-1-2 SLRCTM		6	9.9
ZBKW 3041-1-2 SLCTM		8	11.5
ZBKW 3041-1-2 SLRCTM		8	11.5

Includes 1" transformer stud, two streetlight outlets, current transformer and mounting support provision.

***Note**: For 1¼" stud, change "-1" suffix to "-1.25." For 1½" stud, change "-1" suffix to "-1.5."*

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Pad-Mount Transformer Connectors

Compact Zeebar® design halves cantilever stress and doubles cable capacity.

Aluminum Lay-In Transformer Spade Connectors — ZBK™ Series

- Slide-out Keeper minimizes the hassle and hazards of having to force cables into the closed cable ports found on conventional mechanical connectors — you save time and labor
- Easy transformer change out connector can be unbolted from the spade without the need to disconnect the service conductors
- Made from aluminum for high strength and high conductivity
- Dual-rated for use with aluminum or copper cable
- Wide cable range provides connections for cables ranging from 1/0 kcmil to 750 kcmil or from 1/0 to 1000 kcmil
- RUS Accepted



ZBK 6067



ZBK 4047

ZBK™ Series

CAT. NO.	CONDUCTOR RANGE	OUTLETS	MOUNT HOLES
ZBK 1017	1/0–750	2	2
ZBK 2027		4	4
ZBK 3037		6	6
ZBK 4047		8	8
ZBK 6067		12	12
ZBK 8087		16	16
ZBK 2021	1/0–1000	4	4
ZBK 3031		6	6
ZBK 4041		8	8
ZBK 6061		12	12
ZBK 8081		16	16

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
*For SB Series insulating boots, see **page F-436**.*
For tin-plating option, add "-TN" suffix to the catalog number.

Pad-Mount Transformer Connectors

High-strength aluminum alloy maximizes electrical and mechanical performance.

Aluminum Transformer Spade Connectors — ABT™ Single Set-Screw Series

- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Dual-rated to accept copper or aluminum conductors
- Meets or exceeds ANSI C119.4 specifications



ABT 4350-48



ABT 6350

ABT™ Series — Single-Row Mounting Holes

CAT. NO.	OUTLETS	LENGTH	MOUNTING HOLES	CONDUCTOR RANGE
ABT 440-48	4	4¾	3	#6–250
ABT 640-48	6	5 15⁄16	4	
ABT 840-48	8	7 15⁄16	4	
ABT 4350-48	4	4⅝	3	#12–350
ABT 6350-48	6	6½	4	
ABT 8350-48	8	8¼	5	
ABT 4500-48	4	4 9⁄16	3	#6–500
ABT 6500-48	6	6½	4	
ABT 8500-48	8	9¼	6	

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
*For SB Series insulating covers, see **page F-436**.*
For tin-plating option, add "-TN" suffix to the catalog number.

ABT™ Series — Double-Row Mounting Holes

CAT. NO.	OUTLETS	LENGTH	MOUNTING HOLES	CONDUCTOR RANGE
ABT 440	4	4¾	6	#6–250
ABT 640	6	5 15⁄16	8	
ABT 840	8	7 15⁄16	8	
ABT 2350	2	3	4	#12–350
ABT 3350	3	3	4	
ABT 4350	4	4⅝	6	
ABT 6350	6	6½	8	
ABT 8350	8	8¼	10	
ABT 2500	2	3	4	#6–500
ABT 3500	3	3	4	
ABT 4500	4	4 9⁄16	6	
ABT 5500	5	5 23⁄32	8	
ABT 6500	6	6½	8	
ABT 8500	8	9¼	12	

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
*For SB Series insulating covers, see **page F-436**.*
For tin-plating option, add "-TN" suffix to the catalog number.

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Pad-Mount Transformer Connectors

High-strength aluminum alloy maximizes electrical and mechanical performance.

Aluminum Transformer Spade Connectors — ABT™ Double Set-Screw Series

- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Dual-rated to accept copper or aluminum conductors
- Meets or exceeds ANSI C119.4 specifications



ABT 4500 DS

ABT™ Series — Double-Set Screw

CAT. NO.	OUTLETS	LENGTH	MOUNTING HOLES	CONDUCTOR RANGE
ABT 1500 DS	1	1¼	2	#6–500
ABT 2500 DS	2	3	4	
ABT 3500 DS	3	3⅝	4	
ABT 4500 DS	4	4¾	6	
ABT 5500 DS	5	5²³⁄₃₂	8	
ABT 6500 DS	6	6½	8	
ABT 8500 DS	8	9³⁄₁₆	12	
ABT 1750	1	1½	2	1/0–750
ABT 2750	2	3	4	
ABT 3750	3	4¾	6	
ABT 4750	4	6½	8	
ABT 5750	5	6½	8	
ABT 6750	6	8¼	10	
ABT 8750	8	10¹¹⁄₁₆	12	
ABT 11000	1	1¾	2	1/0–1000
ABT 21000	2	3	4	
ABT 31000	3	4¾	6	
ABT 41000	4	6½	8	
ABT 61000	6	9¾	12	
ABT 81000	8	12¼	12	

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For tin-plating option, add "-TN" suffix to the catalog number.
For SB Series insulating covers, see ***page F-436***.

Pad-Mount Transformer Connectors

The quicker-installation alternatives to compression lugs.

Aluminum Transformer Spade Connectors — ZBT™ Series

- Compact Zeebar® design halves cantilever stress and doubles cable capacity
- High-strength aluminum alloy maximizes electrical and mechanical performance
- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Dual-rated to accept copper or aluminum conductors
- Meets or exceeds ANSI C119.4 specifications



ZBT 3033-48



ZBT 4047



ZBT 4043



ZBT 3037 DS

ZBT™ Series — Single-Row Mounting Holes

CAT. NO.	CABLE RANGE	OUTLETS	LENGTH	MOUNTING HOLES
ZBT 1013-48	#12–350	2	31/32	1
ZBT 2023-48		4	2	1
ZBT 3033-48		6	3	2
ZBT 4043-48		8	4¾	3
ZBT 5053-48		10	4¾	3
ZBT 6063-48		12	6½	4

ZBT™ Series — Double-Row Mounting Holes

CAT. NO.	CABLE RANGE	OUTLETS	LENGTH	MOUNTING HOLES
ZBT 1013	#12–350	2	31/32	2
ZBT 2023		4	2	2
ZBT 3033		6	3	4
ZBT 4043		8	4¾	6
ZBT 5053		10	4¾	6
ZBT 6063		12	6½	8
ZBT 1017	1/0–750	2	1⅝	2
ZBT 2027		4	3	4
ZBT 4047		8	6½	8
ZBT 5057		10	8¼	10
ZBT 6067		12	8¼	10
ZBT 8087		16	11	12
ZBT 1717 DS*		2	1⅝	2
ZBT 2027 DS*		4	3	4
ZBT 4047 DS*		8	6½	8
ZBT 5057 DS*		10	8¼	10
ZBT 6067 DS*		12	8¼	10
ZBT 8087 DS*		16	11	12
ZBT 1011*	1/0–1000	2	1⅝	2
ZBT 2021*		4	3 5/16	4
ZBT 3031*		6	5	6
ZBT 4041*		8	6 11/16	8
ZBT 8081*		16	13 7/16	16

*Two set-screws per outlet.

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
*For SB Series insulating covers, see **page F-436**.*
For tin-plating option, add "-TN" suffix to the catalog number.

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800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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Pad-Mount Transformer Connectors

For installations on standard NEMA spade terminals.

Aluminum Transformer Spade Connectors — ABN™ Series

- High-strength aluminum alloy maximizes electrical and mechanical performance
- Dual-rated to accept aluminum or copper conductors
- Ball-bottom screws ensure maximum conductor contact pressure and break up interstrand oxides
- Meets or exceeds ANSI C119.4 specifications



ABN 4350

ABN™ Series

CAT. NO.	CABLE RANGE	OUTLETS	L	BOOT NO.
ABN 240	#6–250	2	4¾	SB 17
ABN 340		3	5½	SB 17
ABN 440		4	6⅝16	SB 11
ABN 540		5	7⅛16	SB 11
ABN 640		6	7⅞	SB 11
ABN 740		7	8⅝	SB 14
ABN 840		8	9⅞16	SB 14
ABN 2350	#6–350	2	4¹⁵⁄16	SB 17
ABN 3350		3	5⅞	SB 11
ABN 4350		4	6¾	SB 11
ABN 5350		5	7¹¹⁄16	SB 11
ABN 6350		6	8⅜16	SB 14
ABN 7350		7	9½	SB 14
ABN 8350		8	10⅞16	2160
ABN 2500	#2–500	2	5⅝16	SB 17
ABN 3500		3	6⅝16	SB 11
ABN 4500		4	7⅝16	SB 11
ABN 5500		5	8⅝16	SB 14
ABN 6500		6	9⅝16	2160
ABN 7500		7	10⅝16	2163
ABN 8500		8	11⅝16	2163-3
ABN 2750	1/0–750	2	5¹⁵⁄16	2120
ABN 3750		3	7¼	2120
ABN 4750		4	8⅝	2120
ABN 5750		5	9¹⁵⁄16	2160
ABN 6750		6	11¼	2160
ABN 7750		7	12⅝	2163-3
ABN 8750		8	13¹⁵⁄16	2163-3

***Note**: For oxide-inhibitor option, add "-C" suffix to the catalog number.*
For streetlight-outlet option, add "-SL" suffix to the catalog number.
For tin-plating option, add "-TN" suffix to the catalog number.

Pad-Mount Transformer Connectors

For deadfront padmount transformers with 4-hole NEMA spade secondary bushings.

Aluminum Flood-Seal® 125 Series Transformer Spade Connectors

- Provide maximum contact to ensure cooler operating, more reliable joints
- Dual-rated for use with aluminum or copper cable ranging from #8 to 500 kcmil
- Outlets equipped with ½" plated steel hex-head bolts with captive Belleville washers to accept standard one-hole or two-hole NEMA aluminum or copper lugs
- All Flood-Seal® connectors comply with ANSI C119.4 specifications



FTN 125-44N



FTN 125-4N

1-Hole Outlets

CAT. NO.	OUTLETS	L
FTN 125-2	2	4
FTN 125-3	3	4⅞
FTN 125-4	4	6
FTN 125-5	5	7⅞
FTN 125-6	6	7⅞
FTN 125-44*	8	6

** Double-row configuration.*

***Note**: For complete assembly with CS 2011 insulating rockets, add "-AWR" suffix to the FTN catalog number.*
For complete assembly with CSN 2011 insulating rockets, add "-AWR" suffix to the FTN-N catalog number.

2-Hole Outlets

CAT. NO.	OUTLETS	L
FTN 125-2N	2	4
FTN 125-3N	3	4⅞
FTN 125-4N	4	6
FTN 125-5N	5	7⅞
FTN 125-6N	6	7⅞
FTN 125-44N*	8	6

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Pad-Mount Transformer Connectors

For deadfront padmount transformers with 4-hole NEMA spade secondary bushings.

Aluminum Flood-Seal® 175 Series Transformer Spade Connectors

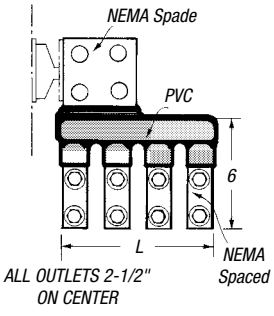
- Flood-Seal® connectors permit the use of aluminum or copper standard side-formed 2-hole lugs
- Flood-Seal® EPDM rubber insulating sleeves are available to fully insulate outlets
- All outlets are provided with ½" plated steel hex-head bolts and captive Belleville washers
- Cable range from 4/0 to 1000 kcmil aluminum or copper
- Maximum contact ensures cooler operating, more reliable connections
- All Flood-Seal® connectors meet or exceed ANSI C119.4 specifications

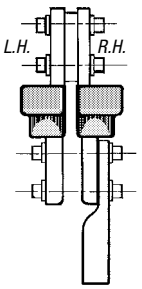


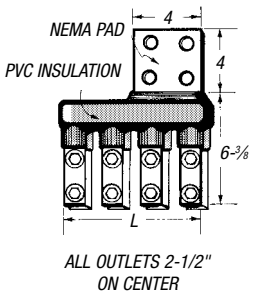
FTN 175-4R

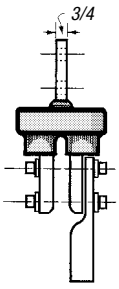


FTN 175-22









Single-Row Style

CAT. NO.	SPADE	OUTLETS	LENGTH
FTN 175-4R	Right Hand	4	9¼"
FTN 175-4L	Left Hand	4	9¼"
FTN 175-5R	Right Hand	5	11¾"
FTN 175-5L	Left Hand	5	11¾"
FTN 175-6R	Right Hand	6	14¼"
FTN 175-6L	Left Hand	6	14¼"

Double-Row Style

CAT. NO.	OUTLETS	LENGTH
FTN 175-22	4	4¼"
FTN 175-33	6	6¾"
FTN 175-44	8	9¼"
FTN 175-55	10	11¾"
FTN 175-66	12	14¼"

Pad-Mount Transformer Connectors

The options you need for a variety of connections.

NEMA Transformer Spade Adapters

- Adapters for standard and four-hole NEMA transformer pads
- Cables are disconnectable to make swaps and changes easier
- Dual-rated to accept copper or aluminum lugs

TSC 4 Series – Aluminum

CAT. NO.	BOLT HOLES	SPADE THICKNESS
TSC 4-6	6	⅜
TSC 4-8	8	
TSC 4-10	10	¾
TSC 4-12	12	

***Note**: For tin-plating option, add "-TN" suffix to the catalog number. For custom configurations, please consult your Thomas & Betts representative.*



TSC 4-6

TSC Series – Aluminum

CAT. NO.	BOLT HOLES	SPADE THICKNESS
TSC 6	6	⅜
TSC 8	8	
TSC 10	10	¾
TSC 12	12	

***Note**: For tin-plating option, add "-TN" suffix to the catalog number. For custom configurations, please consult your Thomas & Betts representative.*

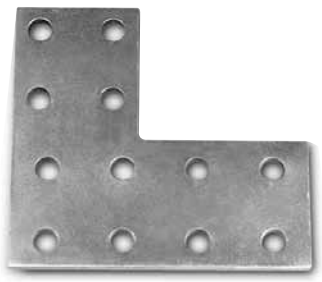


TSC 8

CTSC 4 Series – Copper

CAT. NO.	BOLT HOLES	SPADE THICKNESS
CTSC 4-6	6	¼
CTSC 4-8	8	
CTSC 4-10	10	½
CTSC 4-12	12	

***Note**: For tin-plating option, add "-TN" suffix to the catalog number. For custom configurations, please consult your Thomas & Betts representative.*

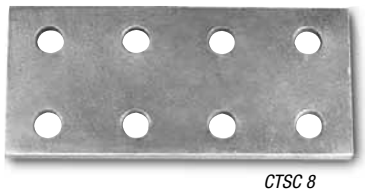


CTSC 4-12

CTSC Series – Copper

CAT. NO.	BOLT HOLES	SPADE THICKNESS
CTSC 6	6	¼
CTSC 8	8	
CTSC 10	10	½
CTSC 12	12	

***Note**: For tin-plating option, add "-TN" suffix to the catalog number. For custom configurations, please consult your Thomas & Betts representative.*



CTSC 8

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Network Protector Connectors

Convenient multiple-tap connections to power transformers and network protectors.

Flood-Seal® 175 Series Clamp-On Style Transformer and Network Protection Connectors

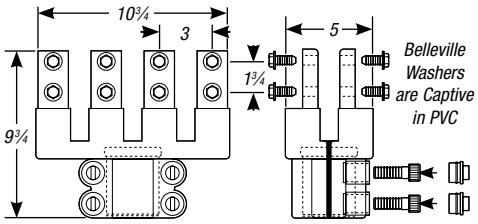
- Compact design conserves vault and manhole space — and often eliminates the need for auxiliary buses
- Clamp-style base provides 3¼" of stud contact and eliminates the need for a jam nut
- Rubber gasket ensures secure closure between connector halves
- All NEMA-drilled aluminum alloy outlets equipped with plated hex-head bolts and captive Belleville washers to accept two-hole NEMA lugs up to 1000 kcmil, vertical or horizontal



Vertical Cable Leads

CAT. NO.	OUTLETS	STUD SIZE
FTT 44–175–15	8	1½
FTT 44–175–30	8	3

Note: *For copper connectors, add "-CU" suffix to the catalog number. For complete assembly with insulating rockets, add "-AWR" suffix to the catalog number. For special applications or greater number of outlets than those listed, please consult your Thomas & Betts representative.*

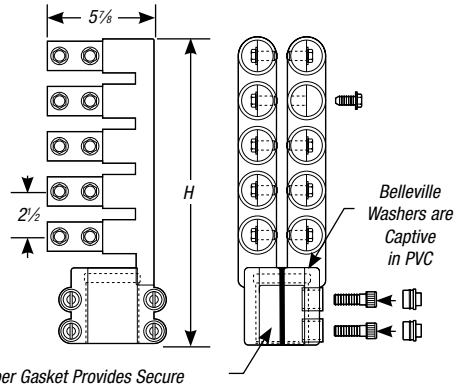


Rubber Gasket Provides Secure Closure between Connector Halves

Horizontal Cable Leads

CAT. NO.	OUTLETS	HEIGHT	STUD SIZE
FTH 22-175-15	4	9⅜	1½
FTH 33-175-15	6	11⅞	
FTH 44-175-15	8	14⅜	
FTH 55-175-15	10	16⅞	
FTH 22-175-30	4	9⅜	3
FTH 33-175-30	6	11⅞	
FTH 44-175-30	8	14⅜	
FTH 55-175-30	10	16⅞	

Note: *For copper connectors, add "-CU" suffix to the catalog number. For complete assembly with insulating rockets, add "-AWR" suffix to the catalog number. For special applications or greater number of outlets than those listed, please consult your Thomas & Betts representative.*



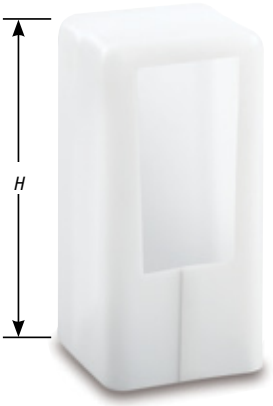
Rubber Gasket Provides Secure Closure between Connector Halves

Drop-On Insulating Boots

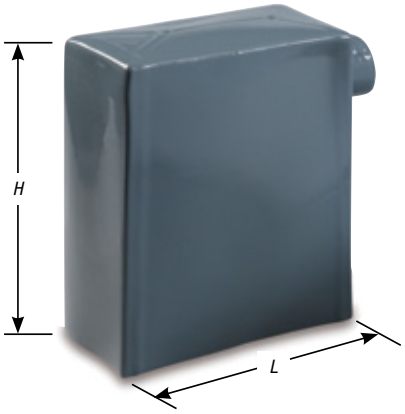
Insulating boots for harsh environments.

Insulating Boots for Transformer Spade Connectors

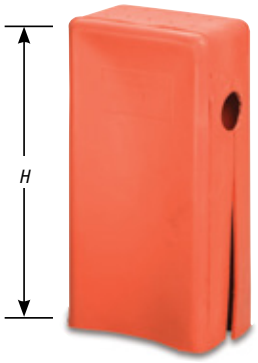
- BBV4N features EPDM rubber flexi-boot — will not crack from cold embrittlement, will not cold flow and will not soften with heat
- BBV4N features flexible locking ribs to prevent accidental removal of EPDM boot
- Polyethylene and PVC boots available
- SB Series is RUS Accepted



PB 2 T
(Polyethylene)



SB 2159
(PVC)



BBV4N
(EPDM)

CAT. NO.	LENGTH	WIDTH	HEIGHT
SB Series			
SB 2144	3¼	4½	9
SB 2147	5½	2½	6⅛
SB 2151	5½	4	12
SB 17	5 15/16	2¾	3¾
SB 2163-6	7	4⅝	8⅞
SB 2163-7	8	3	7⅞
SB 11	8⅛	2	2 1/16
SB 2120	8¾	2½	5⅛
SB 2163-12	8¾	5	8⅛
SB 2163-2	8¾	5	9
SB 2157	9¾	2¾	7¾
SB 2159	9¾	4⅝	11¾
SB 14	9 15/16	2	2 1/16
SB 2160	12	2¾	5⅞
SB 2163-3	12⅜	5 3/16	11⅞
SB 2163-10	13¾	5	7¾
SB 2163-4	14	5½	11⅞
BBV Series			
BBV4N	4⅜	2¾	10
PB Series			
PB 2 T	4	4	8
PB 1-1	6¼	2½	4

Note: *For boot sizes not listed, please consult your Thomas & Betts representative. PVC boots available in black, gray, yellow or clear.*

Thomas&Betts

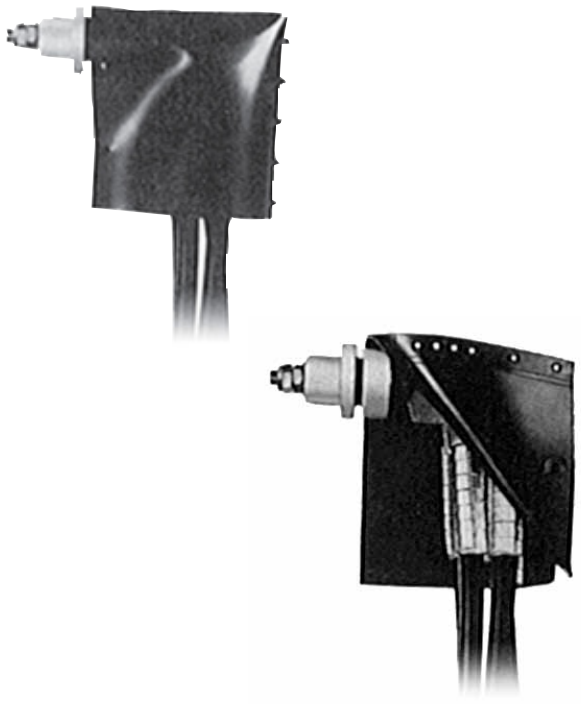
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800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

www.tnb.com

Drop-On Insulating Boots

Insulate your 600V-rated padmount transformer secondary terminals.



Multi-Purpose Insulating Covers

- Made of high-quality EPDM molded rubber to provide superior flexibility and durability, withstand higher temperatures than PVC covers and eliminate age cracking — increasing operator safety
- Multiple interlocking snap tabs ensure a snug fit around spade bushings with compression terminal lugs or stud secondary bushings with set-screw type bars
- Lengths of 9" and 15" and a 10" skirt height fit in a broad range of applications and install quickly and easily
- RUS Accepted

	LENGTH		HEIGHT	
CAT. NO.	IN.	MM	IN.	MM
MPC 9	9	229	10	254
MPC 15	15	381	10	254

Place over new or existing lines to warn others of what lies below.



Warning Tape

- Brilliant yellow or red color minimizes dig-ins on U.D. lines
- Lightweight, rugged polyethylene resists high or low pH conditions

	LENGTH		HEIGHT		
CAT. NO.	IN.	MM	IN.	MM	COLOR
YT 6	6	152	1000	305	YELLOW
YT 3	3	76			
RT 6	6	152			RED
RT 3	3	76			

Equipment Locks

Rugged, reliable protection for your padmount transformers.

Equipment Locks

- Shear-head screw provides tamper-proof security for your transformer connector equipment
- Three models available — secure your equipment with a mix of all three models for added protection



ELB



ELB 2

Figure 1

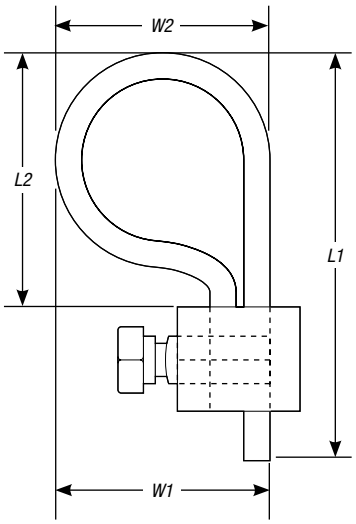


Figure 2

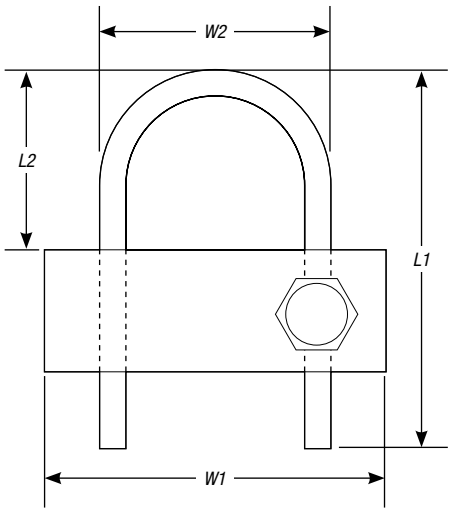
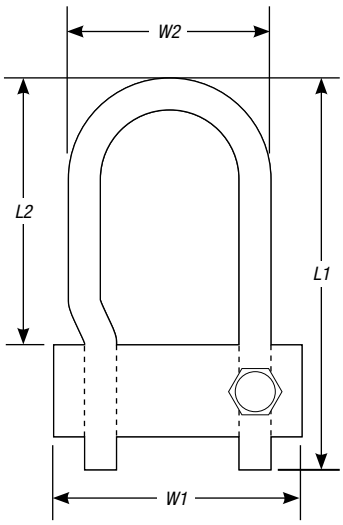


Figure 3



CAT. NO.	FIGURE NO.	DIMENSIONS (INCHES) L1	L2	W1	W2	ALUMOWELD GAUGE
ELB	1	2.13	1.25	1.06	.94	6
ELB 2	2	2.19	1.25	2.00	1.00	4
ELB 2 A	3	3.00	1.69	2.00	1.06	4

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Temporary Service Adapter System

Provide quick, temporary residential power where it's needed.

Temporary Service Adapter System

NEW!

- Ideal for providing short-duration emergency service to improve service reliability and customer satisfaction
- Restores power to customer — keeping the meter running and continuing to generate revenue — while crews conduct troubleshooting and repairs
- Load-side adapter mounts between meter and meter socket at the house in need of power
- Source-side adapter mounts between meter and meter socket at a nearby house with power
- Each meter measures the energy consumption of its respective home
- Source-side adapter also available for connection to a nearby operable transformer
- System will not permit backfeed of power to the faulted cable
- Pre-assembled connections offer ready-to-use convenience
- Supports 75A and 100A current ratings
- Handy cable reel available for easy transport



The Homac® Temporary Service Adapter System provides a fast, convenient way to restore service temporarily, so the customer has power while your crews identify and repair the problem.

The Temporary Service Adapter System consists of a load-side adapter that mounts between the meter and meter socket of the house in need of power.

The source side can be accomplished with a similar adapter that can be mounted between the meter and meter socket of a nearby house.

Alternate source-side adapter assemblies allowing for direct connection to padmount or overhead transformers are also available.

All connections are pre-assembled for quick, easy installation. Once the problem has been repaired, simply disconnect the Temporary Service Adapter System and store it for future use.

With the Homac® Temporary Service Adapter, you can both improve customer satisfaction and have the flexibility to schedule repairs during regular business hours instead of after hours.



Continued on following page.

Temporary Service Adapter System

Re-usable components enable fast, temporary restoration of service during power outages.

Temporary Service Adapter System *(continued)*



Homac® Temporary Service Adapter System Components

CAT. NO.	DESCRIPTION
Source-Side Adapters*	
MSA 4-S	Source-Side Meter Socket Adapter for #4 Wire
MSA 2-S	Source-Side Meter Socket Adapter for #2 Wire
MSA 4-S50	Source-Side Meter Socket Adapter with 50-ft. #4 Wire
MSA 2-S50	Source-Side Meter Socket Adapter with 50-ft. #2 Wire
MSA 4-S100	Source-Side Meter Socket Adapter with 100-ft. #4 Wire
MSA 2-S100	Source-Side Meter Socket Adapter with 100-ft. #2 Wire
MSA 4-T8	Source-Side Transformer Adapter with 8-ft. #4 Wire
MSA 2-T8	Source-Side Transformer Adapter with 8-ft. #2 Wire
Load-Side Adapters*	
MSA 4-L8	Load-Side Meter Socket Adapter with 8-ft. #4 Wire
MSA 2-L8	Load-Side Meter Socket Adapter with 8-ft. #2 Wire
MSA 4-L50	Load-Side Meter Socket Adapter with 50-ft. #4 Wire
MSA 2-L50	Load-Side Meter Socket Adapter with 50-ft. #2 Wire
MSA 4-L100	Load-Side Meter Socket Adapter with 100-ft. #4 Wire
MSA 2-L100	Load-Side Meter Socket Adapter with 100-ft. #2 Wire
Extension Cords	
MSA 4-E50	50-ft. #4 Extension Cord
MSA 2-E50	50-ft. #2 Extension Cord
MSA 4-E100	100-ft. #4 Extension Cord
MSA 2-E100	100-ft. #2 Extension Cord
MSA 4-E50-CR	50-ft. #4 Extension Cord on Cable Reel
MSA 2-E50-CR	50-ft. #2 Extension Cord on Cable Reel
MSA 4-E100-CR	100-ft. #4 Extension Cord on Cable Reel
MSA 2-E100-CR	100-ft. #2 Extension Cord on Cable Reel

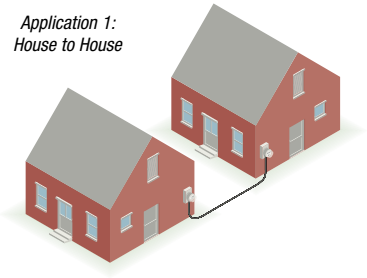
** Homac® Temporary Service Adapters feature a ringless adapter that fits most standard ringed or ringless residential meter sockets. To ensure full compatibility, please specify the manufacturer of the meter sockets to which you'll be connecting when ordering.*

Current Rating:

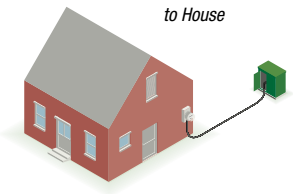
Components for #4 AWG Wire: 75A max.

Components for #2 AWG Wire: 100A max.

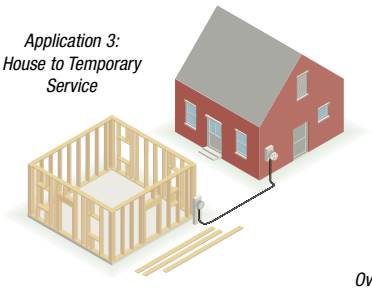
Application 1: House to House



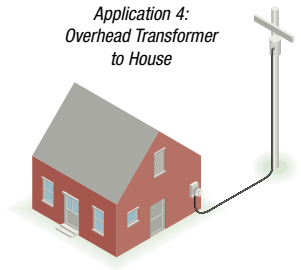
Application 2: Padmount Transformer to House



Application 3: House to Temporary Service



Application 4: Overhead Transformer to House





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Sealants and Lubricants

Seals electrical connections from oxygen and moisture.

HOM-OX Oxide Inhibitor

- Fully compatible with all solid insulating materials, including rubber, paper and impregnating oils
- Stable over a wide operating temperature range of -40° F to 300° F
- HM 52 and HM 56 are also joint compounds for making full-tension splices and aluminum cable connections, respectively



CAT. NO.	DESCRIPTION
HM 52 (1/2 PINT)	Oxide-Inhibiting Joint Compound for Full-Tension Splices Only. ½ Pint (8 fl. oz.)
HM 53 (1/2 PINT)	Oxide-Inhibiting Compound for Non-Tension Splices or Pad-to-Pad Applications. ½ Pint (8 fl. oz.)
HM 56 (1/2 PINT)	Oxide-Inhibiting Joint Compound for Overhead Compression, Partial-Tension Splices, Service Entrance and Pin Terminals. ½ Pint (8 fl. oz.)

Note: *For larger container sizes, please consult your Thomas & Betts representative.*

Stop surface oxides from interfering with current transfer between electrical components.

EC-S8C Oxide Inhibitor

- Use on aluminum-to-aluminum, aluminum-to-copper and copper-to-copper applications
- Safe for use on cables — does not affect rubber or cable insulation; does not contain grit
- Stable over a wide operating temperature range of 0° F to 460° F
- Non water-soluble, non petroleum-based polymer grease does not stain



CAT. NO.	DESCRIPTION
EC-S8C	Oxide-Inhibiting Joint Compound. ½ Pint (8 fl. oz.)

Note: *For a more effective electrical connection, all conductors need to be wire-brushed right before the application of this compound. Wire brushing is not recommended on tin-plated components.*

Thread Lubricant

- Versatile use
- Aids in installations and splices



CAT. NO.	DESCRIPTION
TL 101 (1/2 PINT)	Thread Lubricant, ½ Pint (8 fl. oz.)

Sealants and Lubricants, Wildlife Protectors

Silicone Lubricant for High-Voltage Electrical Work

- Specially formulated for high-voltage cable
- Best used in heavy-duty electrical applications



CAT. NO.	DESCRIPTION
SL5	.5 oz. Tube

Remove oxides from conductor surfaces.

Blackburn® WW Wire Bristle Brush

- Easy-grip handle with glove guard prevents rubber glove puncture
- Long-life wire elements can be rotated and are replaceable
- Handle and guard coated with durable, non-conductive plastic for safety



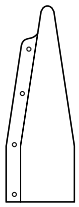
CAT. NO.	DESCRIPTION
WWB1	Complete Brush with Handle
WRB1	Wire Element Only, Pair

Protect wildlife and prevent interrupted service and lost revenue.

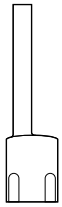
Wildlife Protectors

- Easy to install
- Reusable
- WL Series are precision-molded in virgin PVC — contaminant-free, safe for contact with wildlife





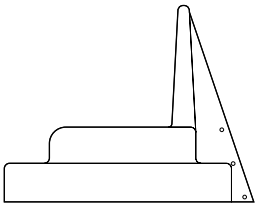
WL 3-12



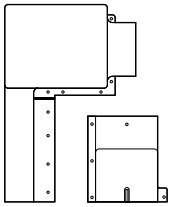
WLP 10 T



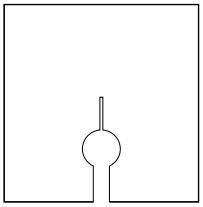
WLP 11 S



WLP-CSP



WL 6137



SQG 6137

CAT. NO.	HEIGHT (IN.)	WIDTH (IN.)	MATERIAL
WL 3-12	12	3	Gray PVC
WL 3.5-16	16	3½	
WLP 10 T	12	2 11/16	
WLP 10 T 18-1.5	21⅝	2 11/16	
WLP 11 S	11¼	3	
WLP-CSP	8¾	11⅛	
WL 6137	21	16½	
SQG 1212	14¾	14¾	High-Density Black Polyethylene

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HOMAC

Homac® Substation Connectors

In this section...



Homac® Substation Connectors

Weld Aluminum Connectors F-444–F-479
Bolted Aluminum Connectors F-480–F-520
Compression Aluminum Connectors F-521–F-522
Bolted Bronze Connectors F-523–F-557
EHV Connectors F-558–F-588
Technical Information F-589–F-594

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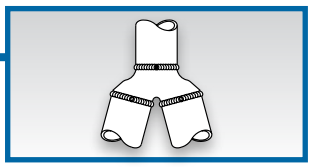
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Weld Aluminum Connectors

Quick Reference — Weld Tee Connectors

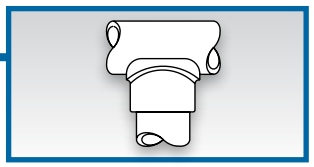
Type AWY-15-15

See page F-447



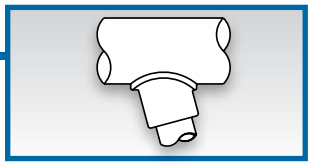
Type AWT

See page F-448



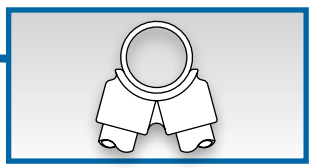
Type AWTA-15

See page F-449



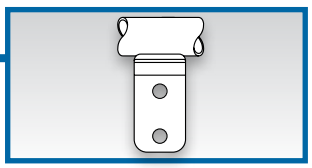
Type AWTA-2-15

See page F-450



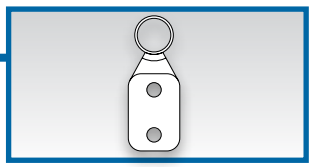
Type AWBT

See page F-451



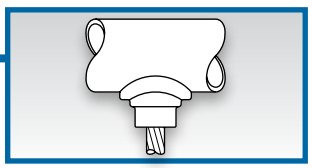
Type AWBT-90

See page F-451



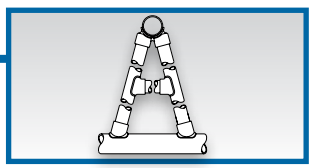
Type AWT

See page F-452



Type AFRW

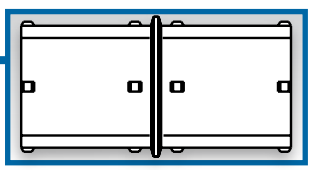
See page F-456



Quick Reference — Weld Couplers

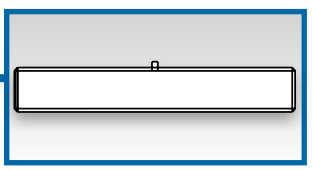
Type WALB

See page F-453



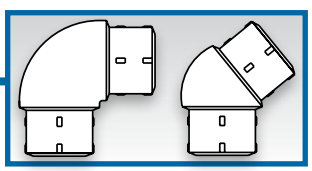
Type AWCE & AWCL

See page F-454



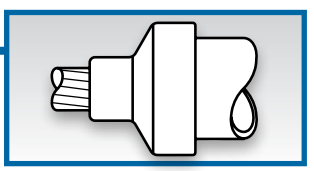
Type AWBE-90 & 45

See page F-454



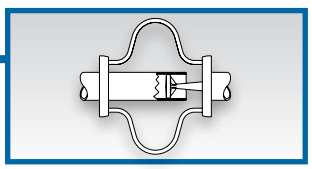
Type AWDC

See page F-456



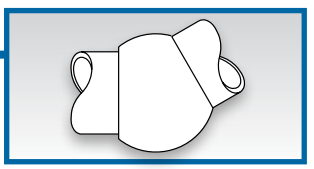
Type WAFG

See page F-455



Type WASC

See page F-455



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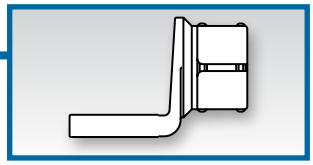
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Weld Aluminum Connectors

Quick Reference — Weld Terminals

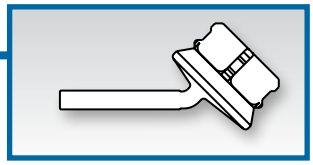
Type AWF

See page F-457



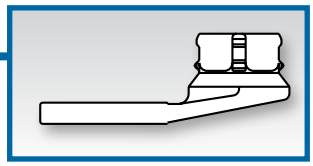
Type AWF-45

See page F-458



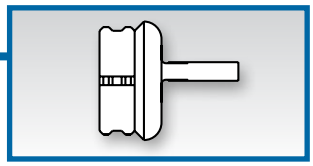
Type AWF-90

See page F-459



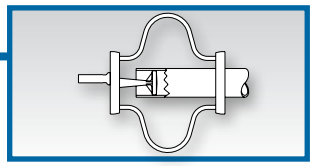
Type AWEE

See page F-460



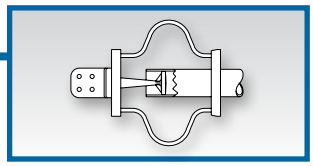
Type AWEPC

See page F-462



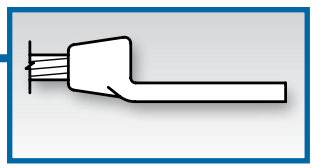
Type AWEPF

See page F-463



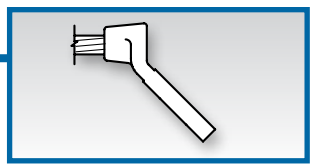
Type AWM

See pages F-463–F-465



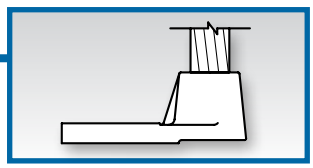
Type AWM-45

See pages F-465–F-467



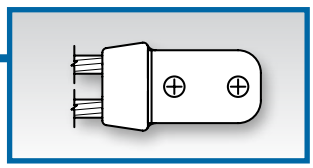
Type AWM-90

See pages F-467–F-469



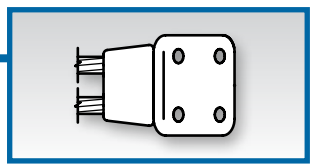
Type AWMM

See pages F-469–F-471



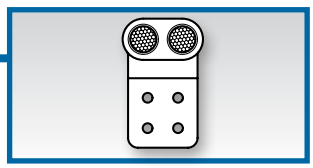
Type AWMM-45

See pages F-471–F-473



Type AWMM-90

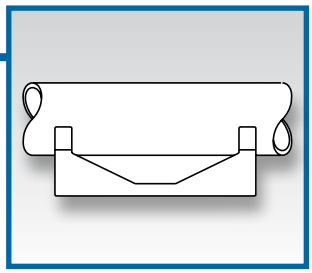
See pages F-473–F-475



Quick Reference — Weld Bus Supports

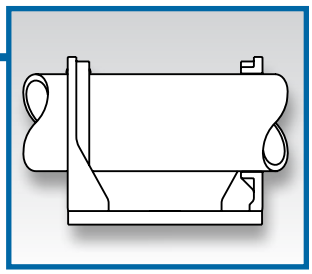
Type AWBP

See page F-476



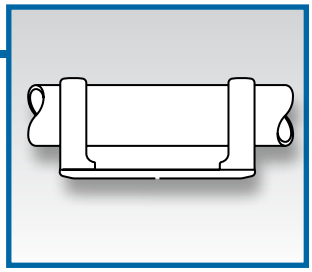
Type AWBQ

See page F-477



Type AWBS

See page F-476



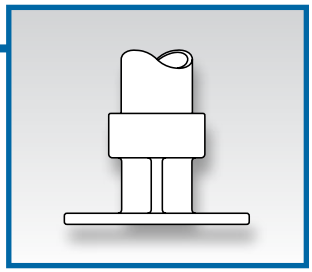
Type WAXB

See page F-477



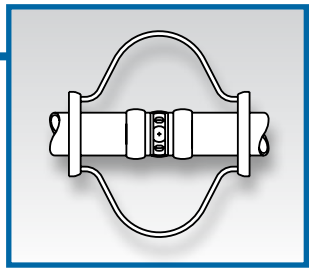
Type AWPX

See page F-478



Type AWECC

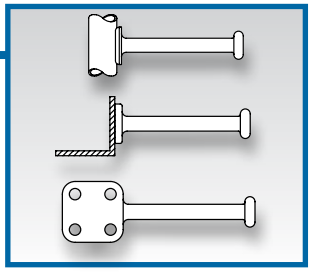
See page F-478



Quick Reference — Miscellaneous

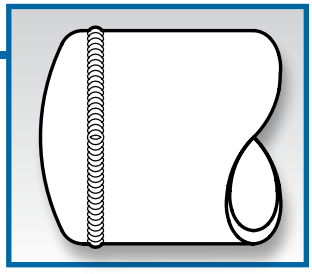
Type AWGS

See page F-479



Type AWNP

See page F-475



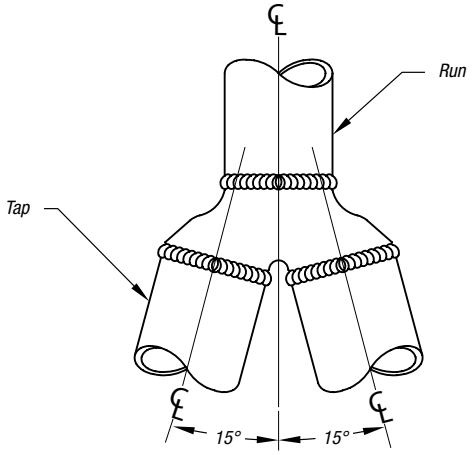
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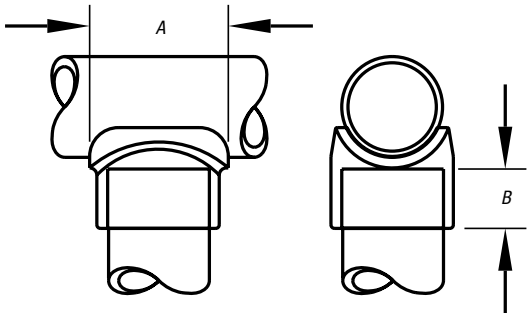
Type AWY-15-15 — Weld "Y" Connector Pipe Run to Two Pipe Taps, Each at 15° Internal Fit



CAT.NO.	RUN SPS	TAP SPS
AWY-F-F2-15	1	1
AWY-G-G2-15	1¼	1¼
AWY-H-H2-15	1½	1½
AWY-J-J2-15	2	2
AWY-K-K2-15	2½	2½
AWY-L-L2-15	3	3
AWY-M-M2-15	3½	3½
AWY-P-P2-15	4	4
AWY-R-R2-15	5	5
AWY-S-S2-15	6	6

For schedule 80 pipe, add "H" to catalog number; e.g. "AWYH-P-P2-15"
For other configurations, consult Customer Service.

Type AWT — Weld Tee Connector, Pipe to Pipe



CAT. NO.	RUN SPS	TAP SPS	A	B
AWT-E-E	¾	¾	2½	1
AWT-F-E	1	¾	2½	1
AWT-F-F		1	1 13/16	1 13/32
AWT-G-E	1¼	¾	2¾	1
AWT-G-F		1		
AWT-G-G		1¼		
AWT-H-E	1½	¾	3	1
AWT-H-F		1		2¼
AWT-H-G		1¼		1¼
AWT-H-H		1½		1
AWT-J-E	2	¾	3 1/16	1
AWT-J-F		1	2¾	1⅛
AWT-J-G		1¼	3	1
AWT-J-H		1½	3 1/16	
AWT-J-J		2		
AWT-K-E	2½	¾	3	1
AWT-K-F		1		
AWT-K-G		1¼	3½	1¼
AWT-K-H		1½	4⅜	
AWT-K-J		2		
AWT-K-K		2½		
AWT-L-E	3	¾	3	1
AWT-L-F		1		
AWT-L-G		1¼	2⅞	
AWT-L-H		1½	3½	1⅝
AWT-L-J		2	4	1
AWT-L-K		2½	4 13/16	1¼
AWT-L-L		3	4¾	2 1/16
AWT-M-E	3½	¾	3	1
AWT-M-F		1	4⅜	1½
AWT-M-G		1¼	2 11/16	1
AWT-M-H		1½	3¼	

CAT. NO.	RUN SPS	TAP SPS	A	B
AWT-M-J	3½	2	4	1¾
AWT-M-K		2½	5	2
AWT-M-L		3	4 13/16	1⅝
AWT-M-M		3½	5⅜	1½
AWT-P-E	4	¾	3	1⅛
AWT-P-F		1	3½	
AWT-P-G		1¼	2⅝	1
AWT-P-H		1½	3 3/16	
AWT-P-J		2	4½	
AWT-P-K		2½	4¾	2
AWT-P-L		3	4½	1¼
AWT-P-M		3½	5	1½
AWT-P-P		4	5 13/16	
AWT-R-E	5	¾	2	¾
AWT-R-F		1	2⅜	
AWT-R-G		1¼	2⅝	1
AWT-R-H		1½	3	
AWT-R-J		2	3¾	2
AWT-R-K		2½	4⅛	1¼
AWT-R-L		3	4⅞	
AWT-R-M		3½		3
AWT-R-P		4	6⅜	1½
AWT-R-R		5	7	
AWT-S-E	6	¾	2	¾
AWT-S-F		1	2⅜	
AWT-S-H		1¼	2⅝	1
AWT-S-H		1½	3	
AWT-S-J		2	3⅝	
AWT-S-K		2½	4⅛	1¼
AWT-S-L		3	4⅞	
AWT-S-M		3½	6 5/16	1½
AWT-S-P		4	5⅞	
AWT-S-R		5	6⅞	
AWT-S-S		6	8	

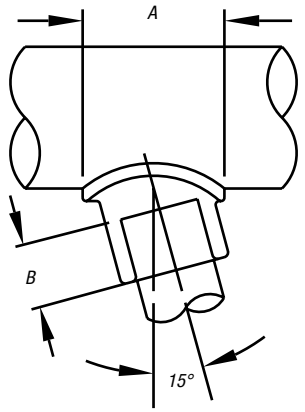
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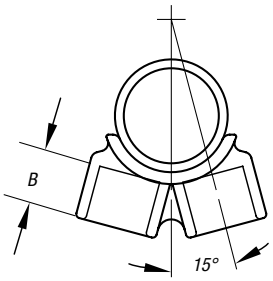
Type AWTA-15 — Weld Tee Connector, Pipe Run to Pipe Tap at 15°

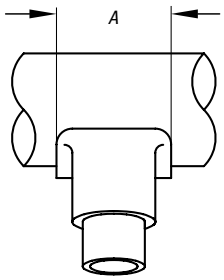


CAT. NO.	RUN SPS	TAP SPS	A	B
AWTA-E-E15	¾	¾	2	¾
AWTA-F-E15	1	¾	2	¾
AWTA-F-F15		1	2⅜	
AWTA-G-E15	1¼	¾	2	¾
AWTA-G-F15		1	2⅜	
AWTA-G-G15		1¼	2 13/16	1
AWTA-H-E15	1½	¾	2	¾
AWTA-H-F15		1	3	1
AWTA-H-G15		1¼	3⅜	1½
AWTA-H-H15		1½	3	1
AWTA-J-E15	2	¾	2	¾
AWTA-J-F15		1	3	1
AWTA-J-G15		1¼	3¼	1½
AWTA-J-H15		1½	3¾	
AWTA-J-J15		2	4	1¾
AWTA-K-E15	2½	¾	2	¾
AWTA-K-F15		1	2⅜	
AWTA-K-G15		1¼	3¼	1
AWTA-K-H15		1½	3½	1½
AWTA-K-J15		2	3⅝	1
AWTA-K-K15		2½	4¾	1¼
AWTA-L-F15	3	1	3¼	1
AWTA-L-G15		1¼	3½	1¼
AWTA-L-H15		1½		1½
AWTA-L-J15		2	4	1
AWTA-L-K15		2½	4¼	1¼
AWTA-L-L15		3	4¾	

CAT. NO.	RUN SPS	TAP SPS	A	B
AWTA-M-F15	3½	1	3½	1½
AWTA-M-G15		1¼	3	1
AWTA-M-H15		1½	3½	1½
AWTA-M-J15		2	5¼	1
AWTA-M-K15		2½	4⅛	1¼
AWTA-M-L15		3	4⅞	
AWTA-M-M15		3½	5⅜	1½
AWTA-P-F15	4	1	2⅜	¾
AWTA-P-G15		1¼	2⅝	1
AWTA-P-H15		1½	3½	1½
AWTA-P-J15		2	4½	1¾
AWTA-P-K15		2½	5	1
AWTA-P-L15		3	6	1¼
AWTA-P-M15		3½		1½
AWTA-P-P15		4	5⅞	
AWTA-R-J15	5	2	4¾	1
AWTA-R-K15		2½	5	1¼
AWTA-R-L15		3	4⅞	
AWTA-R-M15		3½	5	1½
AWTA-R-P15		4	6⅞	
AWTA-R-R15		5		
AWTA-S-L15	6	2	3⅝	1
AWTA-S-K15		2½	4½	1¼
AWTA-S-L15		3	4¾	2
AWTA-S-M15		3½	5	1½
AWTA-S-P15		4	5⅞	
AWTA-S-R15		5	6⅞	
AWTA-S-S15		6	8	

Type AWTA-2-15 — Weld Vee Connector, Pipe Run to Two Pipe Taps, Each at 15°





CAT. NO.	RUN SPS	TAP SPS	A	B
AWTA-E-E2-15	¾	¾	2½	1⅛
AWTA-F-E2-15	1	¾	2	¾
AWTA-F-F2-15		1	2¾	1
AWTA-G-E2-15	1¼	¾	2	¾
AWTA-G-F2-15		1	2⅜	
AWTA-G-G2-15		1¼	2⅜	1
AWTA-H-E2-15	1½	¾	2	1
AWTA-H-F2-15		1	3	
AWTA-H-G2-15		1¼	2⅝	
AWTA-H-H2-15		1½	3½	
AWTA-J-E2-15	2	¾	2	¾
AWTA-J-F2-15		1	2⅜	1
AWTA-J-G2-15		1¼	3¼	¾
AWTA-J-H2-15		1½	3½	1½
AWTA-J-J2-15		2	4	1
AWTA-K-E2-15	2½	¾	2	¾
AWTA-K-F2-15		1	3¼	1½
AWTA-K-G2-15		1¼		1
AWTA-K-H2-15		1½	3½	
AWTA-K-J2-15		2	4	1¾
AWTA-K-K2-15		2½	4⅛	1¼
AWTA-L-F2-15	3	1	3	1
AWTA-L-G2-15		1¼	3¼	1¼
AWTA-L-H2-15		1½	3½	1½
AWTA-L-J2-15		2	4⅞	1⅛
AWTA-L-K2-15		2½	4¼	1¼
AWTA-L-L2-15		3	4¾	

CAT. NO.	RUN SPS	TAP SPS	A	B
AWTA-M-F2-15	3½	1	3	1
AWTA-M-G2-15		1¼	3¼	½
AWTA-M-H2-15		1½	3¾	1½
AWTA-M-J2-15		2	4¼	1¼
AWTA-M-K2-15		2½	4⅛	
AWTA-M-L2-15		3	5	
AWTA-M-M2-15		3½	5¼	1½
AWTA-P-F2-15	4	1	2⅜	¾
AWTA-P-G2-15		1¼	2⅝	1
AWTA-P-H2-15		1½	4¼	1¾
AWTA-P-J2-15		2		
AWTA-P-K2-15		2½	5	1¼
AWTA-P-L2-15		3	4⅜	1½
AWTA-P-M2-15		3½	5	
AWTA-P-P2-15		4	5⅛	
AWTA-R-J2-15	5	2	4¼	1¾
AWTA-R-K2-15		2½	4¾	
AWTA-R-L2-15		3	4⅞	1¼
AWTA-R-M2-15		3½	5⅜	1½
AWTA-R-P2-15		4	6	
AWTA-R-R2-15		5	6⅞	
AWTA-S-J2-15	6	2	4½	1¾
AWTA-S-K2-15		2½	4⅛	1¼
AWTA-S-L2-15		3	4⅞	2⅝
AWTA-S-M2-15		3½	5⅜	1½
AWTA-S-P2-15		4	5⅞	
AWTA-S-R2-15		5	6⅞	
AWTA-S-S2-15		6	8	

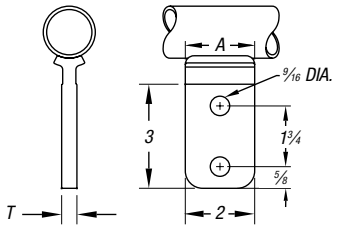
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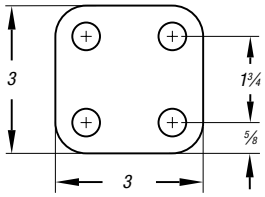
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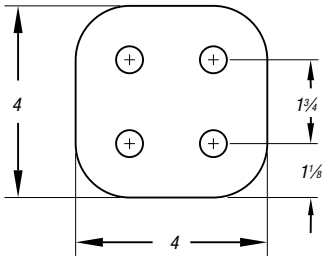
Type AWBT — Weld Tee Connector, Pipe Run to Flat Tap



2-Hole NEMA Flat



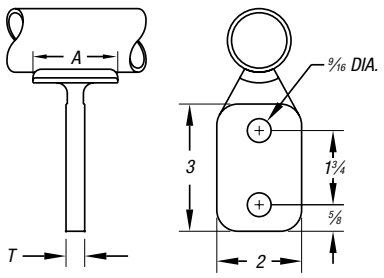
3" 4-Hole NEMA Flat



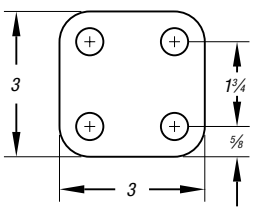
4" 4-Hole NEMA Flat

CAT. NO.	RUN SPS	AMPS	A	T
2-Hole NEMA Flat				
AWBT-E-2N	¾	600	2	7/16
AWBT-FK-2N	1–2½			
AWBT-LS-2N	3–6			
3" 4-Hole NEMA Flat				
AWBT-E-4N	¾	1200	3	9/16
AWBT-FK-4N	1–2½			
AWBT-LS-4N	3–6			
4" 4-Hole NEMA Flat				
AWBT-E-4NN	¾	2000	4	11/16
AWBT-FK-4NN	1–2½			
AWBT-LS-4NN	3–6			

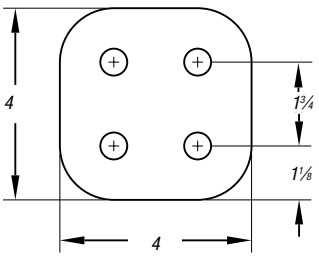
Type AWBT-90 — Weld Tee Connector, Pipe to 90° Flat



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	RUN SPS	AMPS	A	T
2-Hole NEMA Flat				
AWBT-E-2N90	¾	600	2	7/16
AWBT-FK-2N90	1–2½			
AWBT-LS-2N90	3–6			
3" 4-Hole NEMA Flat				
AWBT-E-4N90	¾	1200	3	9/16
AWBT-FK-4N90	1–2½			
AWBT-LS-4N90	3–6			
4" 4-Hole NEMA Flat				
AWBT-E-4NN90	¾	2000	4	11/16
AWBT-FK-4NN90	1–2½			
AWBT-LS-4NN90	3–6			

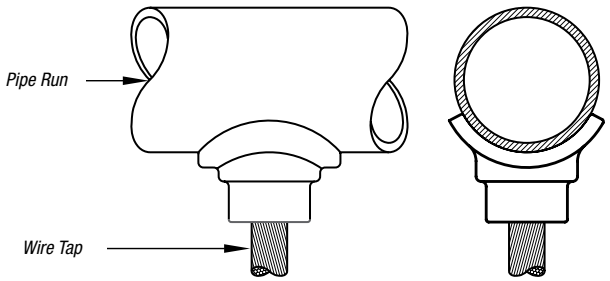
All pads are finished on both sides.

Type AWT — Weld Tee Connector, Pipe to Cable

Catalog numbers will be designated from the following information:

AWT - (pipe run) - (* wire tap)
e.g.: "AWT - R - *"

** Wire size type (AAC, ACSR) stranding must be supplied in order to designate the proper tap size*



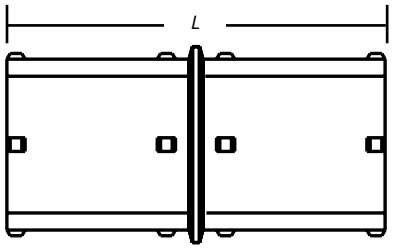
Pipe Run

PIPE SIZE SCHEDULE 40 OR 80	LETTER
1	F
1¼	G
1½	H
2	J
2½	K
3	L
3½	M
4	P
5	R
6	S

For other configurations, consult Customer Service.

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Type WALB — Internal Weld Cast Coupler, Pipe to Pipe

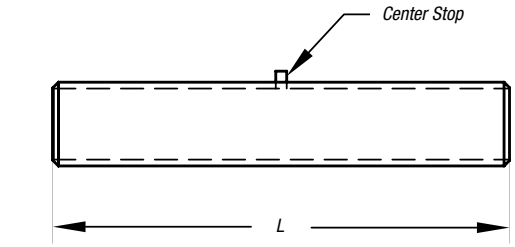


CAT. NO.	RUN SPS	TAP SPS	L
WALB-E	¾	¾	2¼
WALB-F-E	1	¾	2¼
WALB-F		1	
WALB-G-E	1¼	¾	2½
WALB-G-F		1	
WALB-G		1¼	2⅞
WALB-H-E	1½	¾	2¾
WALB-H-F		1	
WALB-H-G		¼	3
WALB-H		1½	3¼
WALB-J-E	2	¾	3¼
WALB-J-F		1	
WALB-J-G		1¼	3⁵⁄₁₆
WALB-J-H		1½	3¾
WALB-J		2	4¼
WALB-K-E	2½	¾	3¾
WALB-K-F		1	
WALB-K-G		1¼	4
WALB-K-H		1½	4¼
WALB-K-J		2	5
WALB-K		2½	5¼
WALB-L-E	3	¾	4¼
WALB-L-F		1	
WALB-L-G		1¼	4½
WALB-L-H		1½	4¾
WALB-L-J		2	5¼
WALB-L-K		2½	5¾
WALB-L		3	6¾
WALB-M-E	3½	¾	4¾
WALB-M-F		1	
WALB-M-G		1¼	5
WALB-M-H		1½	5¼

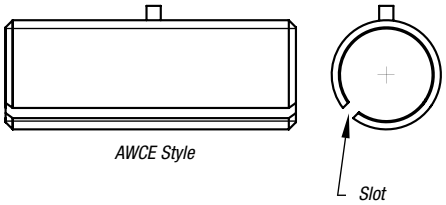
CAT. NO.	RUN SPS	TAP SPS	L
WALB-M-J	3½	2	5¾
WALB-M-K		2½	6¼
WALB-M-L		3	6¾
WALB-M		3½	7¼
WALB-P-E	4	¾	5½
WALB-P-F		1	
WALB-P-G		1¼	
WALB-P-H		1½	5¾
WALB-P-J		2	6⅜
WALB-P-K		2½	6⅞
WALB-P-L		3	7⅜
WALB-P-M		3½	7⅞
WALB-P		4	8⅜
WALB-R-E	5	¾	6⅜
WALB-R-F		1	
WALB-R-G		1¼	6⅝
WALB-R-H		1½	6⅞
WALB-R-J		2	7⅜
WALB-R-K		2½	7⅞
WALB-R-L		3	8⅜
WALB-R-M		3½	8⅞
WALB-R-P		4	9⅜
WALB-R		5	10⅜
WALB-S-E	6	¾	7⅜
WALB-S-F		1	
WALB-S-G		1¼	7⅝
WALB-S-H		1½	7⅞
WALB-S-J		2	8⅜
WALB-S-K		2½	8⅞
WALB-S-L		3	9⅜
WALB-S-M		3½	9⅞
WALB-S-P		4	10⅜
WALB-S-R		5	11⅜
WALB-S		6	12⅜

For schedule 80 pipe, add "H" to catalog number; e.g. WALBH-J-F.

Type AWCE and AWCL — Internal Weld Extruded Coupler, Pipe to Pipe



AWCL Style

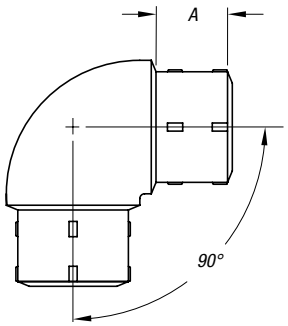


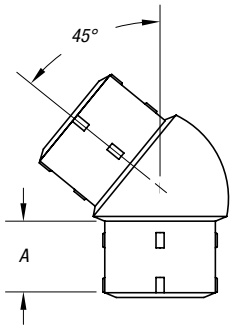
AWCE Style

CAT. NO.	CAT. NO.	SPS	L
AWCL-E	AWCE-E	¾	4½
AWCL-F	AWCE-F	1	6
AWCL-G	AWCE-G	1¼	7
AWCL-H	AWCE-H	1½	9
AWCL-J	AWCE-J	2	12
AWCL-K	AWCE-K	2½	10¼
AWCL-L	AWCE-L	3	18
AWCL-M	AWCE-M	3½	21
AWCL-P	AWCE-P	4	24
AWCL-R	AWCE-R	5	24
AWCL-S	AWCE-S	6	24
AWCL-V	AWCE-V	8	24
AWCL-V8	AWCE-V8	8 O.D.	24

For schedule 80 pipe, add "H" to catalog number; e.g. AWCLH-J.
Couplers suitable for installation at any system voltage.

Type AWBE — Weld Elbow, Pipe to Pipe



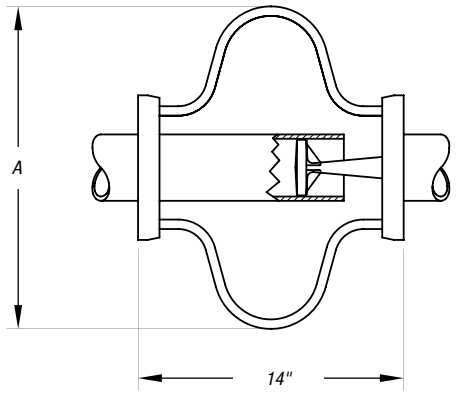


CAT. NO.			
90°	45°	SPS	A
AWBE-F-90	AWBE-F-45	1	2
AWBE-G-90	AWBE-G-45	1¼	2½
AWBE-H-90	AWBE-H-45	1½	3
AWBE-J-90	AWBE-J-45	2	3
AWBE-K-90	AWBE-K-45	2½	3
AWBE-L-90	AWBE-L-45	3	3
AWBE-M-90	AWBE-M-45	3½	4
AWBE-P-90	AWBE-P-45	4	5
AWBE-R-90	AWBE-R-45	5	5
AWBE-S-90	AWBE-S-45	6	6

For schedule 80 pipe, add "H" to catalog number; e.g. AWBEH-J-90.
For other configurations, consut Customer Service.

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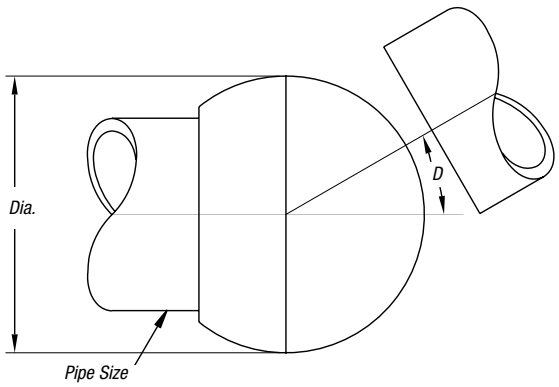
Type WAFG — Weld Expansion Coupler, Pipe to Pipe



CAT. NO.	SPS	A MAX.	AMPS
WAFG-G	1¼	11	930
WAFG-H	1½		1070
WAFG-J	2	12½	1355
WAFG-K	2½		1780
WAFG-L	3	14	2195
WAFG-M	3½		2530
WAFG-P	4	17	2800
WAFG-R	5	19	3000
WAFG-S	6		3000

For schedule 80, add "H" to catalog number. e.g. WAFGH-K.
Use chart GA-735 for installation. See technical information on ***page F-593****.*

Type WASC — Spherical Coupler, Pipe to Pipe



CAT. NO.	SPS	DIA.	D MAX.
WASC-F	1	4½	110°
WASC-G	1¼		100°
WASC-H	1½		90°
WASC-J	2	5	115°
WASC-K	2½		90°
WASC-L	3	8	105°
WASC-M	3½		100°
WASC-P	4		90°
WASC-R	5	9½	90°
WASC-S	6	11	90°

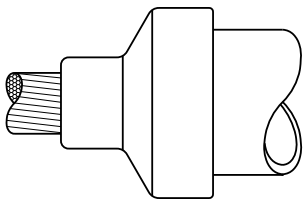
Type AWDC — Weld Coupler, Pipe to Cable

Catalog numbers will be designated from the following information:

AWDC - (PIPE) - (* WIRE)
e.g.: AWDC - R - *

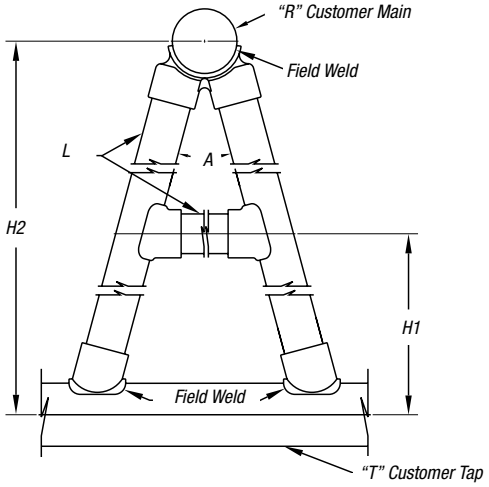
** Wire size type (AAC, ACSR)*
Stranding must be supplied in order to designate the proper coupler.

For other configurations, consult Customer Service.



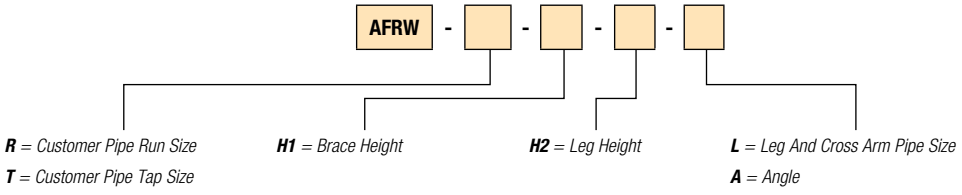
PIPE SIZE SCH. 40 OR 80	LETTER
1	F
1¼	G
1½	H
2	J
2½	K
3	L
3½	M
4	P
5	R
6	S

Type AFRW — Welded A Frames for Pipe



CATALOG NUMBERS WILL BE DESIGNATED BY THE FACTORY.
CUSTOMER TO SUPPLY THE FOLLOWING INFORMATION:

E.G.: AFRW-RL-48-108-J15



Please specify voltage if over 230kV.

Thomas&Betts

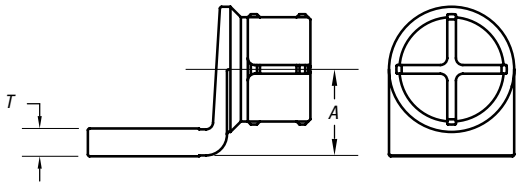
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

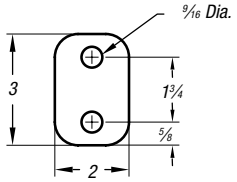
Technical Services
Tel: 888.862.3289

www.tnb.com

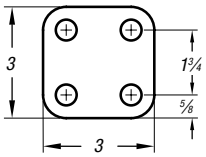
Weld Aluminum Connectors

Type AWF — Weld Terminal, Pipe to Flat

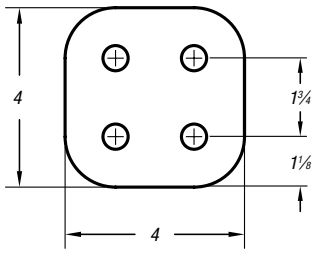




2-Hole NEMA Flat



3" 4-Hole NEMA Flat



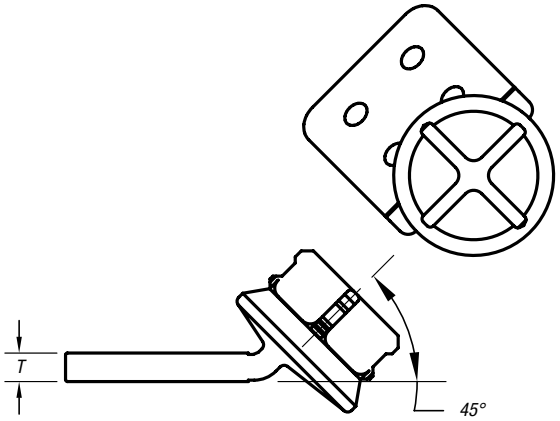
4" 4-Hole NEMA Flat

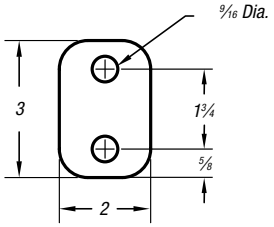
CAT. NO.	SPS	A	T	AMPS
2-Hole NEMA Flat				
AWF-E-2N	¾	⅞	7/16	600
AWF-F-2N	1	1¼		
AWF-G-2N	1¼	1 1/16	½	
AWF-H-2N	1½	1⅝		
AWF-J-2N	2	1 7/16		
AWF-K-2N	2½	1¾		
AWF-L-2N	3	2 1/16	⅝	
AWF-M-2N	3½	2¼	⅞	
AWF-P-2N	4	2¼	1	
AWF-R-2N	5	3 1/16		
AWF-S-2N	6	3⅜		
3" 4-Hole NEMA Flat				
AWF-E-4N	¾	⅞	7/16	495
AWF-F-4N	1	1¼		650
AWF-G-4N	1¼	1 1/16		810
AWF-H-4N	1½	1¼		930

CAT. NO.	SPS	A	T	AMPS
3" 4-Hole NEMA Flat				
AWF-J-4N	2	1 7/16	⅝	1155
AWF-K-4N	2½	1¾	¾	1550
AWF-L-4N	3	2	1	1895
AWF-M-4N	3½	2¼		2170
AWF-P-4N	4	2½	⅞	2000
AWF-R-4N	5	3 1/16		
AWF-S-4N	6	3⅜		
4" 4-Hole NEMA Flat				
AWF-J-4NN	2	1 7/16	⅝	1155
AWF-K-4NN	2½	1¾		1550
AWF-L-4NN	3	2		1895
AWF-M-4NN	3½	2¼	⅞	2170
AWF-P-4NN	4	3⅛	1	2460
AWF-R-4NN	5	3 1/16	1⅛	3080
AWF-S-4NN	6	3⅜	1⅛	3750

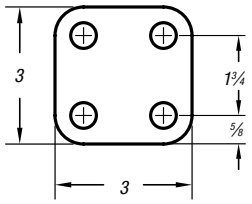
For schedule 80 pipe, add "H" to catalog number; e.g. AWFH-E-4N.
Other sizes available, consult Customer Service.
All pads are finished on both sides.

Type AWF-45 — 45° Weld Terminal, Pipe to Flat

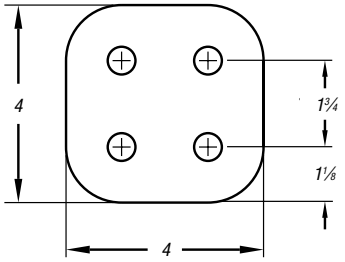




2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

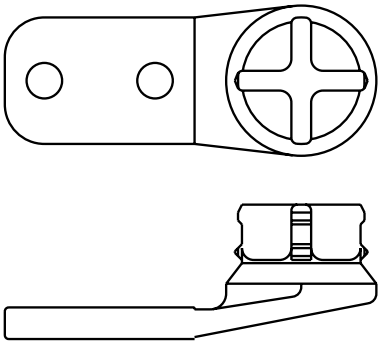
CAT. NO.	SPS	T	AMPS
2-Hole NEMA Flat			
AWF-E-2N45	¾	⅜	600
AWF-F-2N45	1		
AWF-G-2N45	1¼	½	
AWF-H-2N45	1½		
AWF-J-2N45	2		
AWF-K-2N45	2½		
AWF-L-2N45	3	⅝	
AWF-M-2N45	3½	⅞	
AWF-P-2N45	4	1	
AWF-R-2N45	5		
AWF-S-2N45	6		
3" 4-Hole NEMA Flat			
AWF-E-4N45	¾	½	495
AWF-F-4N45	1		650
AWF-G-4N45	1¼		810
AWF-H-4N45	1½		930

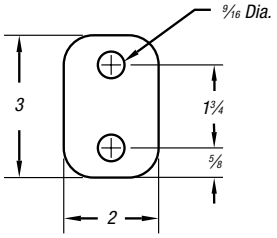
CAT. NO.	SPS	T	AMPS
3" 4-Hole NEMA Flat			
AWF-J-4N45	2	⅝	1155
AWF-K-4N45	2½	¾	1550
AWF-L-4N45	3		1895
AWF-M-4N45	3½	1	2170
AWF-P-4N45	4	⅞	2000
AWF-R-4N45	5		
AWF-S-4N45	6		
4" 4-Hole NEMA Flat			
AWF-J-4NN45	2	⅝	1155
AWF-K-4NN45	2½		1550
AWF-L-4NN45	3		1895
AWF-M-4NN45	3½	⅞	2170
AWF-P-4NN45	4	1	2460
AWF-R-4NN45	5	1⅛	3080
AWF-S-4NN45	6	1⅛	3750

For schedule 80 pipe, add "H" to catalog number; e.g. AWFH-E-4N45.
Other sizes available; consult Customer Service.
All pads are finished on both sides.

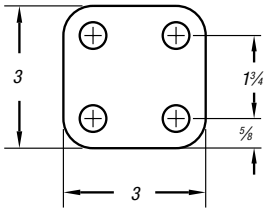
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Type AWF-90 — 90° Weld Terminal, Pipe to Flat

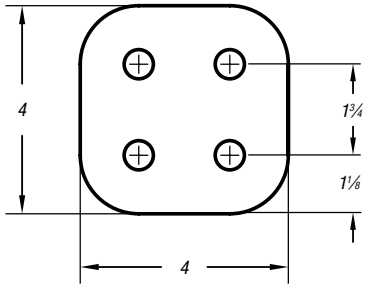




2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

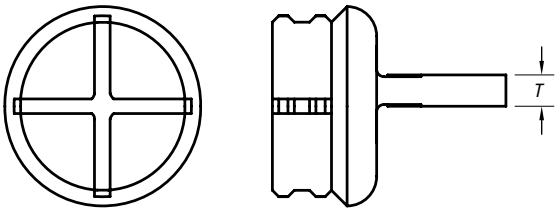
CAT. NO.	SPS	T	AMPS
2-Hole NEMA Flat			
AWF-E-2N90	¾	⅜	600
AWF-F-2N90	1		
AWF-G-2N90	1¼	½	
AWF-H-2N90	1½		
AWF-J-2N90	2		
AWF-K-2N90	2½		
AWF-L-2N90	3	⅝	
AWF-M-2N90	3½	⅞	
AWF-P-2N90	4	1	
AWF-R-2N90	5		
AWF-S-2N90	6		
3" 4-Hole NEMA Flat			
AWF-E-4N90	¾	⅜	495
AWF-F-4N90	1		650
AWF-G-4N90	1¼		810
AWF-H-4N90	1½		930

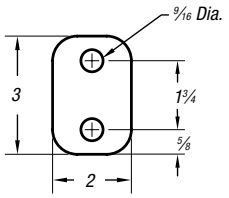
CAT. NO.	SPS	T	AMPS
3" 4-Hole NEMA Flat			
AWF-J-4N90	2	⅝	1155
AWF-K-4N90	2½	¾	1550
AWF-L-4N90	3		1895
AWF-M-4N90	3½	1	2170
AWF-P-4N90	4	⅞	2000
AWF-R-4N90	5		
AWF-S-4N90	6		
4" 4-Hole NEMA Flat			
AWF-J-4NN90	2	⅝	1155
AWF-K-4NN90	2½		1550
AWF-L-4NN90	3		1895
AWF-M-4NN90	3½	⅞	2170
AWF-P-4NN90	4	1	2460
AWF-R-4NN90	5	1⅛	3080
AWF-S-4NN90	6	1⅛	3750

For schedule 80 pipe, add "H" to catalog number; e.g. AWFH-E-4N90.
Other sizes available; consult Customer Service.
All pads are finished on both sides.

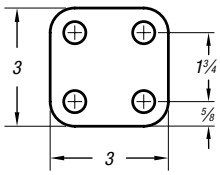
Weld Aluminum Connectors

Type AWEE — Weld Terminal, Pipe to Center-Formed Flat

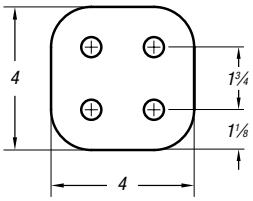




2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	SPS	T	AMPS
2-Hole NEMA Flat			
AWEE-E-2N	¾	⅜	600
AWEE-F-2N	1		
AWEE-G-2N	1¼	½	
AWEE-H-2N	1½		
AWEE-J-2N	2		
AWEE-K-2N	2½		
AWEE-L-2N	3	⅝	
AWEE-M-2N	3½	⅞	
AWEE-P-2N	4	1	
AWEE-R-2N	5		
AWEE-S-2N	6		
3" 4-Hole NEMA Flat			
AWEE-E-4N	¾	⅜	495
AWEE-F-4N	1		650
AWEE-G-4N	1¼		810
AWEE-H-4N	1½		930

CAT. NO.	SPS	T	AMPS
3" 4-Hole NEMA Flat			
AWEE-J-4N	2	⅝	1155
AWEE-K-4N	2½	¾	1550
AWEE-L-4N	3		1895
AWEE-M-4N	3½	1	2170
AWEE-P-4N	4	⅞	2000
AWEE-R-4N	5		
AWEE-S-4N	6		
4" 4-Hole NEMA Flat			
AWEE-J-4NN	2	⅝	1155
AWEE-K-4NN	2½		1550
AWEE-L-4NN	3		1895
AWEE-M-4NN	3½	⅞	2170
AWEE-P-4NN	4		2000
AWEE-R-4NN	5		2000
AWEE-S-4NN	6	1⅛	3750

For schedule 80 pipe, add "H" to catalog number; e.g. AWEEH-E-4N.
Other sizes available; consult Customer Service.
All pads are finished on both sides.

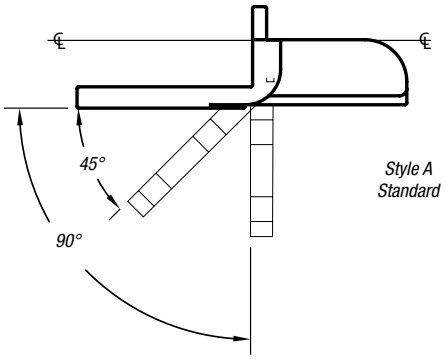
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800.816.7809
Fax: 901.252.1354

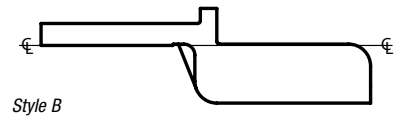
Technical Services
Tel: 888.862.3289

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Type AWO — Weld Terminal, Pipe to Flat

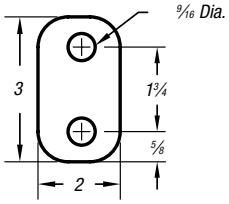


Style A
Standard

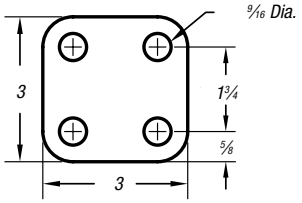


Style B
Suffix "D"

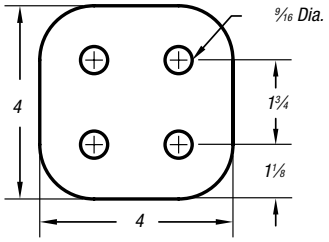
Contact surface on center line of bus



2-Hole NEMA Flat
"2N"



3" 4-Hole NEMA Flat
"4N"



4" 4-Hole NEMA Flat
"4NN"

Catalog numbers will be designated from the following information:

STYLE A

AWO - (PIPE LETTER) - (PAD SIZE)
e.g.: AWO-R-2N

AWO - (PIPE LETTER) - (PAD SIZE) (PAD ANGLE)
e.g.: AWO-R-4N90

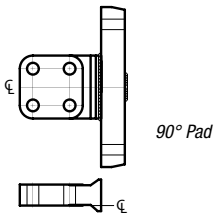
STYLE B

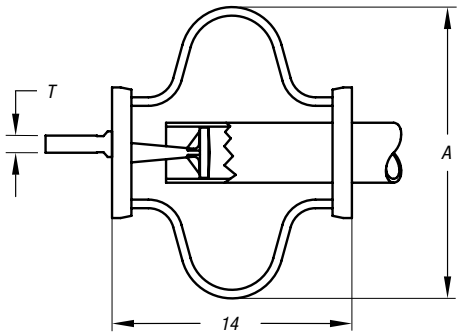
AWO - (PIPE LETTER) - (PAD SIZE) (CONTACT SURFACE)
e.g.: AWO-R-4NND

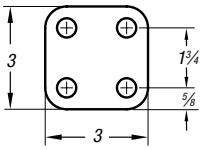
PIPE SIZE SCHEDULE 40 OR 80	PIPE LETTER
1	F
1¼	G
1½	H
2	J
2½	K
3	L
3½	M
4	P
5	R
6	S

Other sizes available; consult Customer Service.
Parts are designed for use with either schedule 40 or 80 pipe.
All pads are finished on both sides.

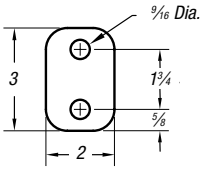
Type AWEPC — Weld Expansion Terminal, Pipe to Center-Formed Flat



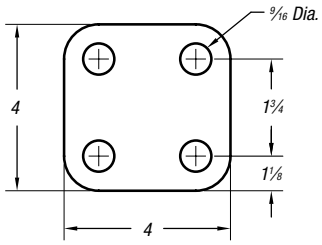




3" 4-Hole NEMA Flat



2-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	SPS	A MAX.	T	AMPS
2-Hole NEMA Flat				
AWEPC-H-2N	1½	11⅛	¾	930
AWEPC-J-2N	2	12½		1155
AWEPC-K-2N	2½			1550
AWEPC-L-2N	3	14		1895
AWEPC-M-2N	3½			2170
AWEPC-P-2N	4	17		2250
AWEPC-R-2N	5	19		2250
AWEPC-S-2N	6			
3" 4-Hole NEMA Flat				
AWEPC-H-4N	1½	11⅛	1	930
AWEPC-J-4N	2	12½		1155
AWEPC-K-4N	2½			1550
AWEPC-L-4N	3	14		1895
AWEPC-M-4N	3½			2170
AWEPC-P-4N	4	17		2460
AWEPC-R-4N	5	19		3000
AWEPC-S-4N	6			

CAT. NO.	SPS	A MAX.	AMPS
4" 4-Hole NEMA Flat			
AWEPC-H-4NN	1½	11⅛	930
AWEPC-J-4NN	2	12½	1155
AWEPC-K-4NN	2½		1550
AWEPC-L-4NN	3	14	1895
AWEPC-M-4NN	3½		2170
AWEPC-P-4NN	4	17	2460
AWEPC-R-4NN	5	19	3000
AWEPC-S-4NN	6		

Other sizes available; consult Customer Service.
For schedule 80 pipe add "H" to catalog number: e.g. AWEPCH-S-4N.
For 90° rotated pad, add suffix "-90" to catalog number e.g. AWEPC-S-4N-90.
Use chart GA-735 for installation. See technical reference ***page F-593****.*
All pads are finished on both sides.

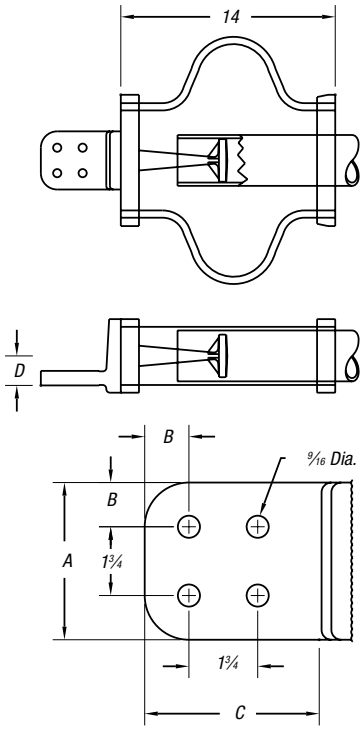
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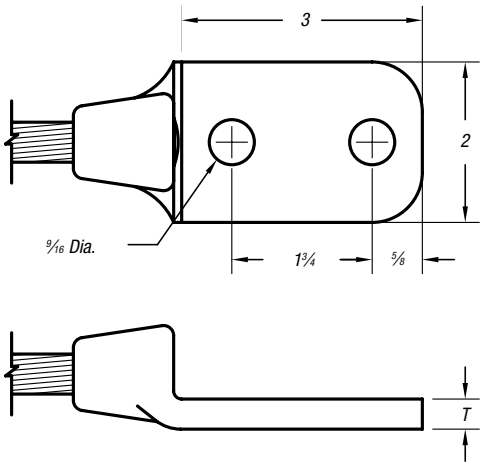
Type AWEPF — Weld Expansion Terminal, Pipe to Side-Formed Flat



CAT.NO.	SPS	A.	B	C	D	AMPS
3" 4-Hole NEMA Flat						
AWEPF-H-4N	1½	3	⅝	3	1½	930
AWEPF-J-4N	2				1¾	1155
AWEPF-K-4N	2½				2	1550
AWEPF-L-4N	3					1895
AWEPF-M-4N	3½				2⅜	2170
AWEPF-P-4N	4				2⅞	2460
AWEPF-R-4N	5				3½	3000
AWEPF-S-4N	6				3⅞	
4" 4-Hole NEMA Flat						
AWEPF-H-4NN	1½	4	1⅛	4	1½	930
AWEPF-J-4NN	2				1¾	1155
AWEPF-K-4NN	2½				2	1550
AWEPF-L-4NN	3				2½	1895
AWEPF-M-4NN	3½				2⅜	2170
AWEPF-P-4NN	4				2⅞	2460
AWEPF-R-4NN	5				3½	3000
AWEPF-S-4NN	6				3⅞	

Other sizes available; consult Customer Service.
For schedule 80 pipe add "H" to catalog number: e.g. AWEPFH-S-4NN.
Use chart GA-735 for installation; see technical reference ***page F-593****.*
All pads are finished on both sides.

Type AWM — Weld Terminal, Cable to 2-Hole NEMA Flat

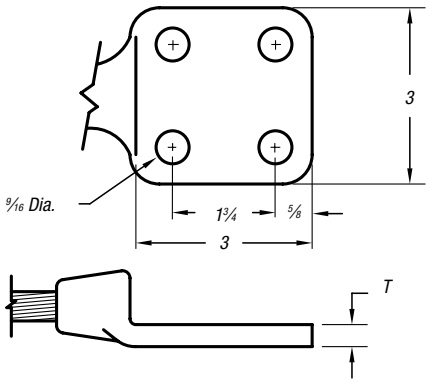


CAT.NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWM-1/0-2N	1/0	1/0	.368–.393	7/16
AWM-2/0-2N	2/0	2/0	.414–.460	
AWM-3/0-2N	3/0	3/0	.464–.502	
AWM-4/0-2N	4/0	4/0	.522–.566	
AWM-26-2N	250	266.8 (18/1)	.567–.609	
AWM-30-2N	300	266.8 (26/7)	.629–.660	
AWM-35-2N	336.4–350	300–336.4 (18/1)	.666–.700	
AWM-40-2N	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWM-47-2N	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWM-55-2N	500–550	397.5 (30/7)–477 (26/7)	.806–.858	9/16
AWM-60-2N	556.5–600	477 (26/7)–556.5 (24/7)	.856–.915	
AWM-70-2N	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWM-79-2N	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	
AWM-87-2N	874.5	715.5	1.036–1.081	
AWM-95-2N	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWM-103-2N	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWM-119-2N	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	

All pads are finished on both sides.

Weld Aluminum Connectors

Type AWM — Weld Terminal, Cable to 3" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWM-1/0-4N	1/0	1/0	.368–.393	
AWM-2/0-4N	2/0	2/0	.414–.460	
AWM-3/0-4N	3/0	3/0	.464–.502	
AWM-4/0-4N	4/0	4/0	.522–.566	
AWM-26-4N	250	266.8 (18/1)	.567–.609	9/16
AWM-30-4N	300	266.8 (26/7)	.629–.660	
AWM-35-4N	336.4–350	300–336.4 (18/1)	.666–.700	
AWM-40-4N	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWM-47-4N	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWM-55-4N	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWM-60-4N	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWM-70-4N	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWM-79-4N	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	½
AWM-87-4N	874.5	715.5	1.036–1.081	
AWM-95-4N	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWM-103-4N	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWM-119-4N	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	
AWM-130-4N	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334	
AWM-143-4N	1351.5–1431	1272–1351(45/7)	1.340–1.398	
AWM-150-4N	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	
AWM-160-4N	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWM-180-4N	1700–1800	1510.5 (54/19)–1590	1.492–1.548	11/16
AWM-200-4N	1900–2000	1780	1.571–1.630	
AWM-225-4N	2250	2167 (72/7)	1.667–1.735	
AWM-230-4N	2300	2156 (84/19)–2312	1.751–1.802	
AWM-251-4N	2500–2515	N/A	1.820–1.880	
AWM-300-4N	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

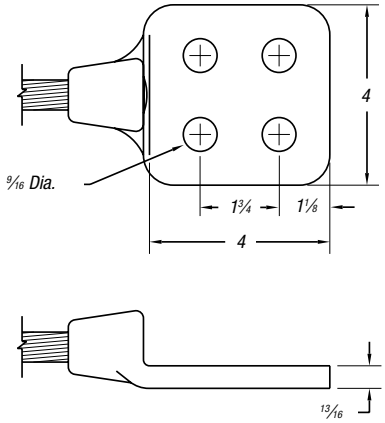
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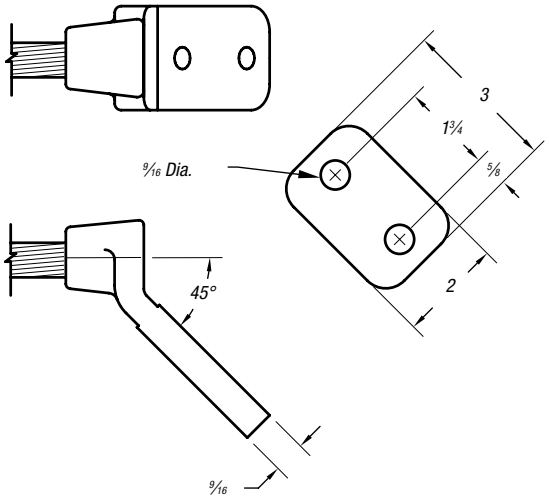
Type AWM — Weld Terminal, Cable to 4" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.
AWM-55-4NN	500–550	397.5 (30/7)–477 (26/7)	.806–.858
AWM-60-4NN	556.5–600	477 (26/7)–556 (24/7)	.856–.915
AWM-70-4NN	636–700	556.5 (26/7)–605 (26/7)	.918–.974
AWM-79-4NN	750–795	636 (24/7)–666.6 (26/7)	.977–1.030
AWM-87-4NN	874.5	715.5	1.036–1.081
AWM-95-4NN	900–954	795 (24/7) & (30/19)	1.092–1.146
AWM-103-4NN	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196
AWM-119-4NN	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259
AWM-130-4NN	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334
AWM-143-4NN	1351.5–1431	1272–1351 (45/7)	1.340–1.398
AWM-150-4NN	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412
AWM-160-4NN	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478
AWM-180-4NN	1700–1800	1510.5 (54/19)–1590	1.492–1.548
AWM-200-4NN	1900–2000	1780	1.571–1.630
AWM-225-4NN	2250	2167 (72/7)	1.667–1.735
AWM-230-4NN	2300	2156 (84/19)–2312	1.751–1.802
AWM-251-4NN	2500–2515	N/A	1.820–1.880
AWM-300-4NN	2750–3000	N/A	1.912–1.996

All pads are finished on both sides.

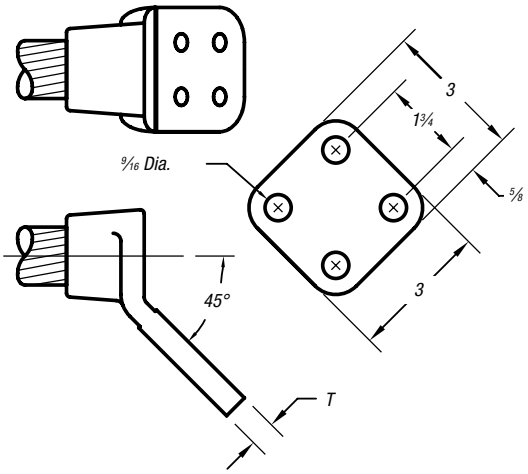
Type AWM-45 — 45° Weld Terminal, Cable to 2-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.
AWM-1/0-2N45	1/0	1/0	.368–.393
AWM-2/0-2N45	2/0	2/0	.414–.460
AWM-3/0-2N45	3/0	3/0	.464–.502
AWM-4/0-2N45	4/0	4/0	.522–.566
AWM-26-2N45	250	266.8 (18/1)	.567–.609
AWM-30-2N45	300	266.8 (26/7)	.629–.660
AWM-35-2N45	336.4–350	300–336.4 (18/1)	.666–.700
AWM-40-2N45	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743
AWM-47-2N45	450–477	397.5 (24/7) & (30/7)	.770–.806
AWM-55-2N45	500–550	397.5 (30/7)–477 (26/7)	.806–.858
AWM-60-2N45	556.5–600	477 (26/7)–556 (24/7)	.856–.915
AWM-70-2N45	636–700	556.5 (26/7)–605 (26/7)	.918–.974
AWM-79-2N45	750–795	636 (24/7)–666.6 (30/7)	.977–1.030
AWM-87-2N45	874.5	715.5	1.036–1.081
AWM-95-2N45	900–954	795 (24/7) & (30/19)	1.092–1.146
AWM-103-2N45	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196
AWM-119-2N45	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259

All pads are finished on both sides.

Type AWM-45 — 45° Weld Terminal, Cable to 3" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWM-1/0-4N45	1/0	1/0	.368–.393	
AWM-2/0-4N45	2/0	2/0	.414–.460	
AWM-3/0-4N45	3/0	3/0	.464–.502	
AWM-4/0-4N45	4/0	4/0	.522–.566	
AWM-26-4N45	250	266.8 (18/1)	.567–.609	3/8
AWM-30-4N45	300	266.8 (26/7)	.629–.660	
AWM-35-4N45	336.4–350	300–336.4 (18/1)	.666–.700	
AWM-40-4N45	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWM-47-4N45	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWM-55-4N45	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWM-60-4N45	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWM-70-4N45	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWM-79-4N45	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	5/8
AWM-87-4N45	874.5	715.5	1.036–1.081	
AWM-95-4N45	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWM-103-4N45	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWM-119-4N45	1100–1192.5	1033.5–113 (45/7)	1.203–1.259	
AWM-130-4N45	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334	
AWM-143-4N45	1351.5–1431	1272–1351.5 (45/7)	1.340–1.398	
AWM-150-4N45	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	
AWM-160-4N45	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWM-180-4N45	1700–1800	1510.5 (54/19)–1590	1.492–1.548	11/16
AWM-200-4N45	1900–2000	1780	1.571–1.630	
AWM-225-4N45	2250	2167 (72/7)	1.667–1.735	
AWM-230-4N45	2300	2156 (84/19)–2312	1.751–1.802	
AWM-251-4N45	2500–2515	N/A	1.820–1.880	
AWM-300-4N45	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

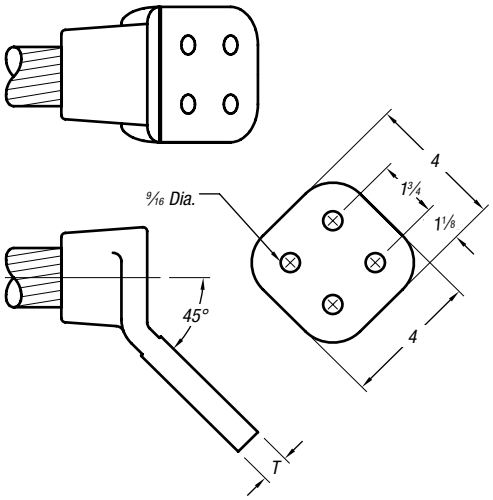
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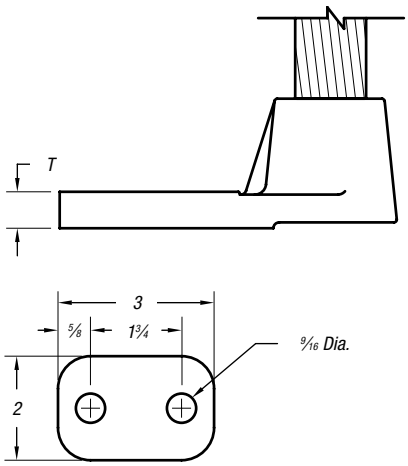
Type AWM-45 — 45° Weld Terminal, Cable to 4" 4-Hole NEMA Flat



CAT.NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWM-55-4NN45	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWM-60-4NN45	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWM-70-4NN45	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWM-79-4NN45	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	
AWM-87-4NN45	874.5	715.5	1.036–1.081	
AWM-95-4NN45	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWM-103-4NN45	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	5/8
AWM-119-4NN45	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	
AWM-130-4NN45	1200–1300	1113 (45/7)–1192 (54/19)	1.259–1.334	
AWM-143-4NN45	1351.5–1431	1272–1351.5 (45/7)	1.340–1.398	
AWM-150-4NN45	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	
AWM-160-4NN45	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWM-180-4NN45	1700–1800	1510.5 (54/19)–1590	1.492–1.548	
AWM-200-4NN45	1900–2000	1780	1.571–1.630	
AWM-225-4NN45	2250	2167 (72/7)	1.667–1.735	
AWM-230-4NN45	2300	2156 (84/19)–2312	1.751–1.802	13/16
AWM-251-4NN45	2500–2515	N/A	1.820–1.880	
AWM-300-4NN45	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

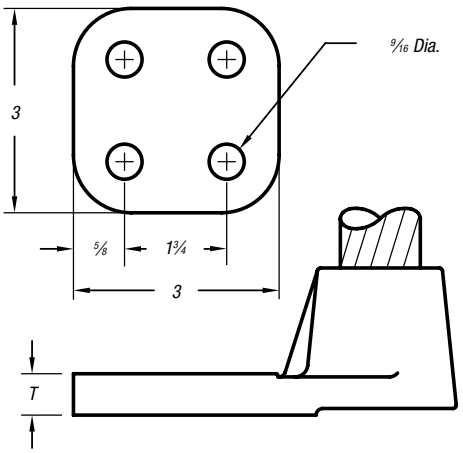
Type AWM-90 — 90° Weld Terminal, Cable to 2-Hole NEMA Flat



CAT.NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWM-1/0-2N90	1/0	1/0	.368–.393	
AWM-2/0-2N90	2/0	2/0	.414–.460	
AWM-3/0-2N90	3/0	3/0	.464–.502	
AWM-4/0-2N90	4/0	4/0	.522–.566	
AWM-26-2N90	250	266.8 (18/1)	.567–.609	½
AWM-30-2N90	300	266.8 (26/7)	.629–.660	
AWM-35-2N90	336.4–350	300–336.4 (18/1)	.666–.700	
AWM-40-2N90	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWM-47-2N90	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWM-55-2N90	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWM-60-2N90	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWM-70-2N90	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWM-79-2N90	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	5/8
AWM-87-2N90	874.5	715.5	1.036–1.081	
AWM-95-2N90	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWM-103-2N90	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWM-119-2N90	1100–1192.5	1033 .5–1113 (45/7)	1.203–1.259	

All pads are finished on both sides.

Type AWM-90 — 90° Weld Terminal, Cable to 3" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWM-1/0-4N90	1/0	1/0	.368–.393	
AWM-2/0-4N90	2/0	2/0	.414–.460	
AWM-3/0-4N90	3/0	3/0	.464–.502	
AWM-4/0-4N90	4/0	4/0	.522–.566	
AWM-26-4N90	250	266.8 (18/1)	.567–.609	9/16
AWM-30-4N90	300	266.8 (26/7)	.629–.660	
AWM-35-4N90	336.4–350	300–336.4 (18/1)	.666–.700	
AWM-40-4N90	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWM-47-4N90	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWM-55-4N90	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWM-60-4N90	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWM-70-4N90	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWM-79-4N90	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	½
AWM-87-4N90	874.5	715.5	1.036–1.081	
AWM-95-4N90	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWM-103-4N90	1000–1033.5	900 (54/7)–954 (54/7)	1.152 -1.196	
AWM-119-4N90	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	
AWM-130-4N90	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334	
AWM-143-4N90	1351.5–1431	1272–1351 (45/7)	1.340–1.398	
AWM-150-4N90	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	
AWM-160-4N90	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWM-180-4N90	1700–1800	1510.5 (54/19)–1590	1.492–1.548	11/16
AWM-200-4N90	1900–2000	1780	1.571–1.630	
AWM-225-4N90	2250	2167 (72/7)	1.667–1.735	
AWM-230-4N90	2300	2156 (84/19)–2312	1.751–1.802	
AWM-251-4N90	2300–2515	N/A	1.820–1.880	
AWM-300-4N90	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

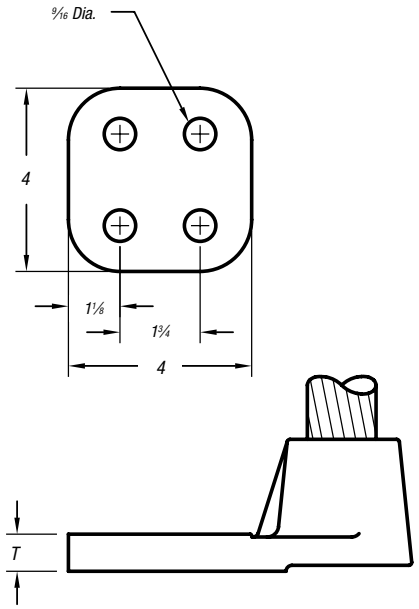
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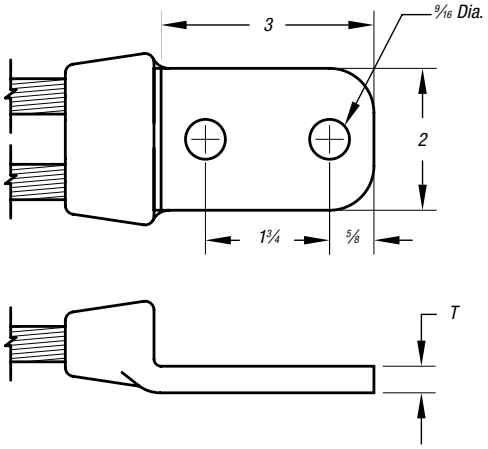
Type AWM-90 — 90° Weld Terminal, Cable to 4" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWM-55-4NN90	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWM-60-4NN90	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWM-70-4NN90	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWM-79-4NN90	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	
AWM-87-4NN90	874.5	715.5	1.036–1.081	
AWM-95-4NN90	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWM-103-4NN90	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	13/16
AWM-119-4NN90	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	
AWM-130-4NN90	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334	
AWM-143-4NN90	1351.5–1431	1272–1351 (45/7)	1.340–1.398	
AWM-150-4NN90	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	
AWM-160-4NN90	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWM-180-4NN90	1700–1800	1510.5 (54/19)–1590	1.492–1.548	
AWM-200-4NN90	1900–2000	1780	1.571–1.630	
AWM-225-4NN90	2250	2167 (72/7)	1.667–1.735	
AWM-230-4NN90	2300	2156 (84/19)–2312	1.751–1.802	3/4
AWM-251-4NN90	2500–2515	N/A	1.820–1.880	
AWM-300-4NN90	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

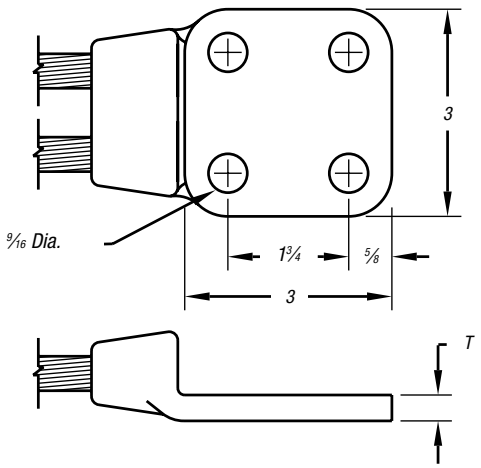
Type AWMM — Weld Terminal, Two Cables to 2-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWMM-1/0-2N	1/0	1/0	.368–.393	
AWMM-2/0-2N	2/0	2/0	.414–.460	
AWMM-3/0-2N	3/0	3/0	.464–.502	
AWMM-4/0-2N	4/0	4/0	.522–.566	
AWMM-26-2N	250	266.8 (18/1)	.567–.609	7/16
AWMM-30-2N	300	266.8 (26/7)	.629–.660	
AWMM-35-2N	336.4–350	300–336.4 (18/1)	.666–.700	
AWMM-40-2N	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWMM-47-2N	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWMM-55-2N	500–550	397.5 (30/7)–477 (26/7)	.806–.858	5/8
AWMM-60-2N	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWMM-70-2N	636–700	556.5 (26/7)–605 (26/7)	.918–.974	3/4
AWMM-79-2N	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	7/8
AWMM-87-2N	874.5	715.5	1.036–1.081	
AWMM-95-2N	900–954	795 (24/7) & (30/19)	1.092–1.146	1
AWMM-103-2N	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWMM-119-2N	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	

All pads are finished on both sides.

Type AWMM — Weld Terminal, Two Cables to 3" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWMM-1/0-4N	1/0	1/0	.368 -. 393	
AWMM-2/0-4N	2/0	2/0	.414–.460	
AWMM-3/0-4N	3/0	3/0	.464–.502	
AWMM-4/0-4N	4/0	4/0	.522–.566	
AWMM-26-4N	250	266.8 (18/1)	.567–.609	½
AWMM-30-4N	300	266.8 (26/7)	.629–.660	
AWMM-35-4N	336.4–350	300–336.4 (18/1)	.666–.700	
AWMM-40-4N	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWMM-47-4N	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWMM-55-4N	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWMM-60-4N	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWMM-70-4N	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWMM-79-4N	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	
AWMM-87-4N	874.5	715.5	1.036–1.081	⅝
AWMM-95-4N	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWMM-103-4N	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWMM-119-4N	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	
AWMM-130-4N	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334	
AWMM-143-4N	1351.5–1431	1272–1351 (45/7)	1.340–1.398	
AWMM-150-4N	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	⅞
AWMM-160-4N	1510.5–1600	1351.5 (54/19) -1510.5 (45/7)	1.415–1.478	
AWMM-180-4N	1700–1800	1510.5 (54/19)–1590	1.492–1.548	
AWMM-200-4N	1900–2000	1780	1.571–1.630	
AWMM-225-4N	2250	2167 (72/7)	1.667–1.735	
AWMM-230-4N	2300	2156 (84/19)–2312	1.751–1.802	1
AWMM-251-4N	2500–2515	N/A	1.820–1.880	
AWMM-300-4N	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

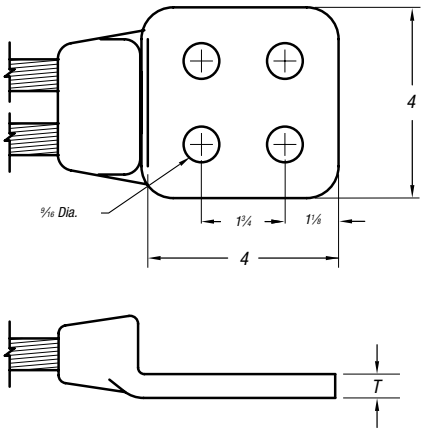
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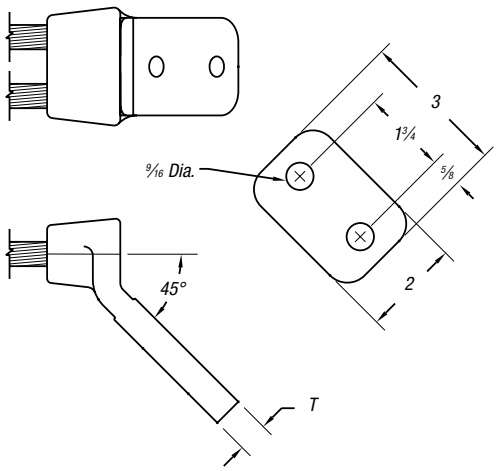
Type AWMM — Weld Terminal, Two Cables to 4" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWMM-55-4NN	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWMM-60-4NN	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWMM-70-4NN	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWMM-79-4NN	750–795	605 (24/7)–666.6 (26/7)	.977–1.030	
AWMM-87-4NN	874.5	715.5	1.03–1.081	⅝
AWMM-95-4NN	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWMM-103-4NN	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWMM-119-4NN	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	
AWMM-130-4NN	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334	
AWMM-143-4NN	1351.5–1431	1272–1351 (45/7)	1.340–1.398	
AWMM-150-4NN	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	⅞
AWMM-160-4NN	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWMM-180-4NN	1700–1800	1510.5 (54/19)–1590	1.492–1.548	
AWMM-200-4NN	1900–2000	1780	1.571–1.630	
AWMM-225-4NN	2250	2167 (72/7)	1.667–1.735	
AWMM-230-4NN	2300	2156 (84/19)–2312	1.751- 1.802	1
AWMM-251-4NN	2300–2515	N/A	1.820–1.880	
AWMM-300-4NN	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

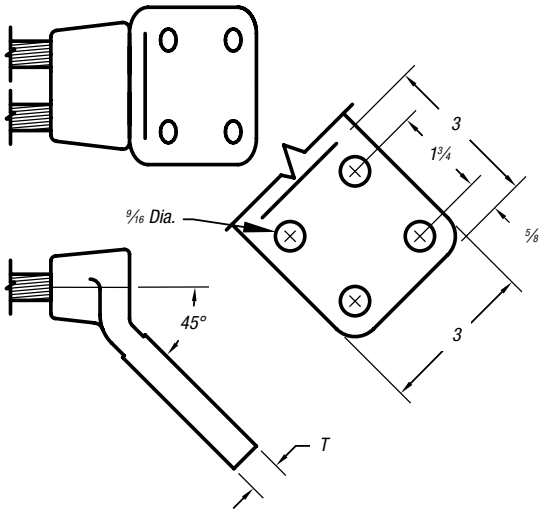
Type AWMM-45 — 45° Weld Terminal, Two Cables to 2-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWMM-1/0-2N45	1/0	1/0	.368–.393	
AWMM-2/0-2N45	2/0	2/0	.414–.460	
AWMM-3/0-2N45	3/0	3/0	.464–.502	⅜
AWMM-4/0-2N45	4/0	4/0	.522–.566	
AWMM-26-2N45	250	266.8 (18/1)	.567–.609	
AWMM-30-2N45	300	266.8 (26/7)	.629–.660	
AWMM-35-2N45	336.4–350	300–336.4 (18/1)	.666–.700	
AWMM-40-2N45	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	½
AWMM-47-2N45	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWMM-55-2N45	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWMM-60-2N45	556.5–600	477 (26/7)–556 (24/7)	.856–.915	⅝
AWMM-70-2N45	636–700	556.5 (26/7)–605 (26/7)	.918–.974	¾
AWMM-79-2N45	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	⅞
AWMM-87-2N45	874.5	715.5	1.036–1.081	
AWMM-95-2N45	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWMM-103-2N45	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	1
AWMM-119-2N45	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	

All pads are finished on both sides.

Type AWMM-45 — 45° Weld Terminal, Two Cables to 3" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWMM-1/0-4N45	1/0	1/0	.368–.393	
AWMM-2/0-4N45	2/0	2/0	.414–.460	
AWMM-3/0-4N45	3/0	3/0	.464–.502	
AWMM-4/0-4N45	4/0	4/0	.522–.566	
AWMM-26-4N45	250	266.8 (18/1)	.567–.609	½
AWMM-30-4N45	300	266.8 (26/7)	.629–.660	
AWMM-35-4N45	336.4–350	300–336.4 (18/1)	.666–.700	
AWMM-40-4N45	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWMM-47-4N45	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWMM-55-4N45	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWMM-60-4N45	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWMM-70-4N45	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWMM-79-4N45	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	5/8
AWMM-87-4N45	874.5	715.5	1.036–1.081	
AWMM-95-4N45	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWMM-103-4N45	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWMM-119-4N45	1100–1192.5	1033–1113 (45/7)	1.203–1.259	
AWMM-130-4N45	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334	
AWMM-143-4N45	1351.5–1431	1272–1351 (45/7)	1.340–1.398	
AWMM-150-4N45	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	13/16
AWMM-160-4N45	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWMM-180-4N45	1700–1800	1510.5 (54/19)–1590	1.492–1.548	
AWMM-200-4N45	1900–2000	1780 (54/19)	1.571–1.630	
AWMM-225-4N45	2250	2032–2035	1.667–1.735	
AWMM-230-4N45	2300	2156–2312	1.751–1.802	1
AWMM-251-4N45	2300–1515	N/A	1.820–1.880	
AWMM-300-4N45	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

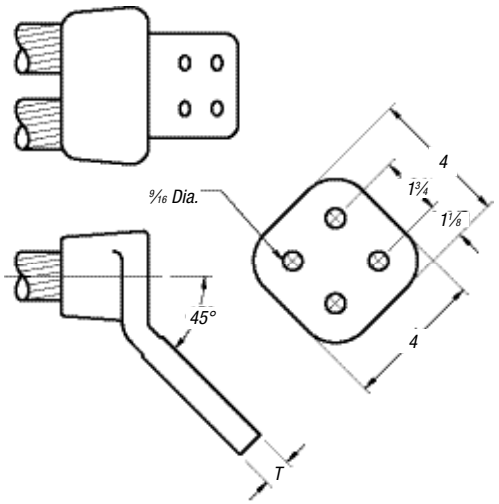
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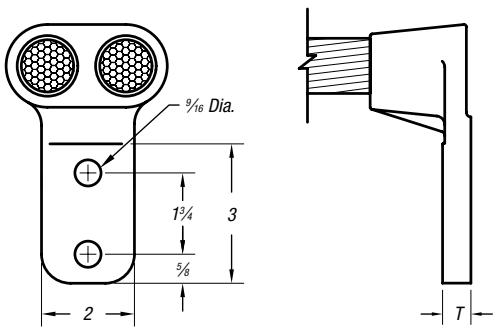
Type AWMM-45 — 45° Weld Terminal, Two Cables to 4" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWMM-55-4NN45	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWMM-60-4NN45	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWMM-70-4NN45	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWMM-79-4NN45	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	5/8
AWMM-87-4NN45	874.5	715.5	1.036–1.081	
AWMM-95-4NN45	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWMM-103-4NN45	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWMM-119-4NN45	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	
AWMM-130-4NN45	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334	
AWMM-143-4NN45	1351.5–1431	1272–1351.5 (45/7)	1.340–1.398	
AWMM-150-4NN45	1431–1500	1272 (54/19)–1351.5 (45/7)	1.415–1.478	
AWMM-160-4NN45	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWMM-180-4NN45	1700–1800	1510.5 (54/19)–1590	1.492–1.548	13/16
AMWM-200-4NN45	1900–2000	1780	1.571–1.630	
AWMM-225-4NN45	2250	2167 (72/7)	1.667–1.735	
AWMM-230-4NN45	2300	2156 (84/19)–2312	1.751–1.802	
AWMM-251-4NN45	2500–2515	N/A	1.820–1.880	
AWMM-300-4NN45	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

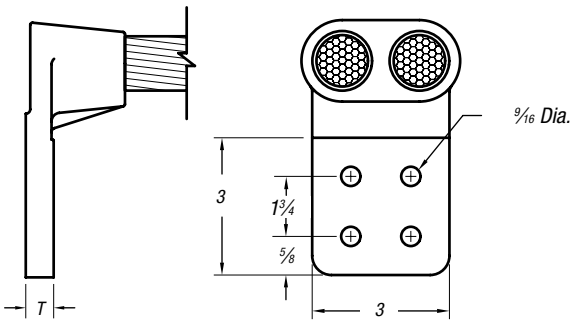
Type AWMM-90 — 90° Weld Terminal, Two Cables to 2-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWMM-1/0-2N90	1/0	1/0	.368–.393	
AWMM-2/0-2N90	2/0	2/0	.414–.460	
AWMM-3/0-2N90	3/0	3/0	.464–.502	
AWMM-4/0-2N90	4/0	4/0	.522–.566	
AWMM-26-2N90	250	266.8 (18/1)	.567–.609	7/16
AWMM-30-2N90	300	266.8 (26/7)	.629–.660	
AWMM-35-2N90	336.5–350	300–336.4 (18/1)	.666–.700	
AWMM-40-2N90	397–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWMM-47-2N90	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWMM-55-2N90	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWMM-60-2N90	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWMM-70-2N90	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWMM-79-2N90	750–795	636 (24/7) & (26/7)	.977–1.030	9/16
AWMM-87-2N90	874.5	715.5	1.036–1.081	
AWMM-95-2N90	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWMM-103-2N90	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWMM-119-2N90	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	

All pads are finished on both sides.

Type AWMM-90 — 90° Weld Terminal, Two Cables to 3" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWMM-1/0-4N90	1/0	1/0	.368–.393	
AWMM-2/0-4N90	2/0	2/0	.414–.460	
AWMM-3/0-4N90	3/0	3/0	.464–.502	
AWMM-4/0-4N90	4/0	4/0	.522–.566	
AWMM-26-4N90	250	266.8 (18/1)	.567–.609	½
AWMM-30-4N90	300	266.8 (26/7)	.629–.660	
AWMM-35-4N90	336	300–336.4 (18/1)	.666–.700	
AWMM-40-4N90	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743	
AWMM-47-4N90	450–477	397.5 (24/7) & (30/7)	.770–.806	
AWMM-55-4N90	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWMM-60-4N90	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWMM-70-4N90	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWMM-79-4N90	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	⅝
AWMM-87-4N90	874.5	715.5	1.036–1.081	
AWMM-95-4N90	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWMM-103-4N90	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWMM-119-4N90	1100–1192.5	1033–1113 (45/7)	1.203–1.259	
AWMM-130-4N90	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334	
AWMM-143-4N90	1351.5–1431	1272–1351 (45/7)	1.340–1.398	
AWMM-150-4N90	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	11/16
AWMM-160-4N90	1500.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWMM-180-4N90	1700–1800	1510.5 (54/19)–1590	1.492–1.548	
AWMM-200-4N90	1900–2000	1780	1.571–1.630	
AWMM-225-4N90	2250	2167 (72/7)	1.667–1.735	
AWMM-230-4N90	2300	2156 (84/19)–2312	1.751–1.802	¾
AWMM-251-4N90	2500–2515	N/A	1.820–1.880	
AWMM-300-4N90	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

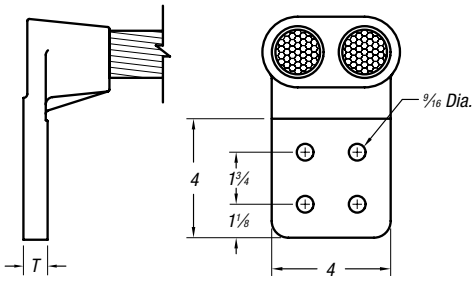
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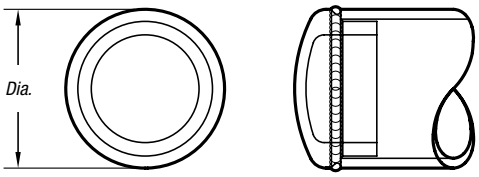
Type AWMM-90 — 90° Weld Terminal, Two Cables to 4" 4-Hole NEMA Flat



CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	T
AWMM-55-4NN90	500–550	397.5 (30/7)–477 (26/7)	.806–.858	
AWMM-60-4NN90	556.5–600	477 (26/7)–556 (24/7)	.856–.915	
AWMM-70-4NN90	636–700	556.5 (26/7)–605 (26/7)	.918–.974	
AWMM-79-4NN90	750–795	636 (24/7)–666.6 (26/7)	.977–1.030	5/8
AWMM-87-4NN90	874.5	715.5	1.036–1.081	
AWMM-95-4NN90	900–954	795 (24/7) & (30/19)	1.092–1.146	
AWMM-103-4NN90	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196	
AWMM-119-4NN90	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259	
AWMM-130-4NN90	1200–1300	1113 (45/7) -1192.5 (54/19)	1.259–1.334	
AWMM-143-4NN90	1351.5–1431	1272–1351 (45/7)	1.340–1.398	
AWMM-150-4NN90	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412	13/16
AWMM-160-4NN90	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478	
AWMM-180-4NN90	1700–1800	1510.5 (54/19)–1590	1.492–1.548	
AWMM-200-4NN90	1900–2000	1780	1.571–1.630	
AWMM-225-4NN90	2250	2167 (72/7)	1.667–1.735	
AWMM-230-4NN90	2300	2156 (84/19)–2312	1.751–1.802	¾
AWMM-251-4NN90	2500–2515	N/A	1.820–1.880	
AWMM-300-4NN90	2750–3000	N/A	1.912–1.996	

All pads are finished on both sides.

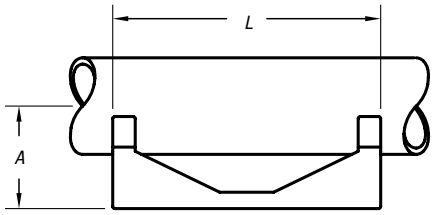
Type AWNP — Internal Corona Bell, Weld Fit

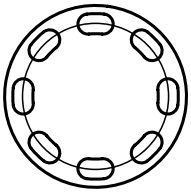


CAT. NO.	SPS	DIA.
AWNP-E	¾	1 1/16
AWNP-F	1	1 5/16
AWNP-G	1¼	1 11/16
AWNP-H	1½	1 15/16
AWNP-J	2	2⅜
AWNP-K	2½	2⅞
AWNP-L	3	3½
AWNP-M	3½	4
AWNP-P	4	4½
AWNP-R	5	5⅝
AWNP-S	6	6⅝

For schedule 80 pipe, add "H" to catalog number e.g. AWNPH-K.

Type AWBP — Weld Bus Support, Pipe to Insulator



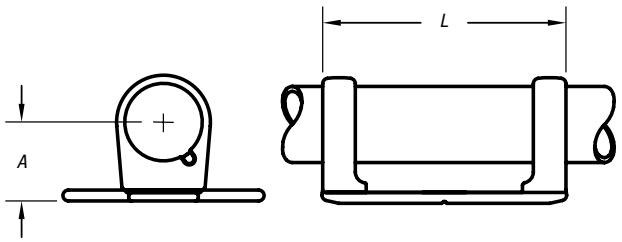


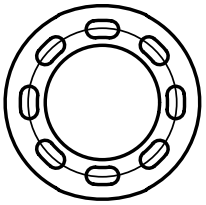
Slots: 3" BC 9/16 x 3/4
5" BC 11/16 x 7/8

CAT. NO.	SPS	A	L
3" Bolt Circle			
AWBP-E-3	¾	2	5¾
AWBP-F-3	1		7
AWBP-G-3	1¼	2¼	6½
AWBP-H-3	1½	2½	
AWBP-J-3	2	2¾	
AWBP-K-3	2½	3⅛	6
AWBP-L-3	3	3⅝	6½
AWBP-M-3	3½	4	6
AWBP-P-3	4	4½	
AWBP-R-3	5	5	6½
AWBP-S-3	6	5½	7
5" Bolt Circle			
AWBP-E-5	¾	2	8
AWBP-F-5	1	2¼	
AWBP-G-5	1¼	2⅜	
AWBP-H-5	1½	2½	8½
AWBP-J-5	2	2¾	
AWBP-K-5	2½	3⅛	8¼
AWBP-L-5	3	3⅝	9
AWBP-M-5	3½	4	8
AWBP-P-5	4	4½	8½
AWBP-R-5	5	5	
AWBP-S-5	6	5½	

Galvanized hardware for mounting to insulator is supplied.

Type AWBS — Double Ring Bus Support, Weld or Slide, Pipe to Insulator





Slots: 3" BC 9/16 x 3/4
5" BC 11/16 x 7/8

CAT. NO.	SPS	A	L
3" Bolt Circle			
AWBS-E-3	¾	2	7
AWBS-F-3	1		
AWBS-G-3	1¼	2¼	
AWBS-H-3	1½	2½	
AWBS-J-3	2	2¾	
AWBS-K-3	2½	3⅛	
AWBS-L-3	3	3⅝	
AWBS-M-3	3½	4	
AWBS-P-3	4	4½	
AWBS-R-3	5	5	
AWBS-S-3	6	5½	
5" Bolt Circle			
AWBS-E-5	¾	2¼	9¼
AWBS-F-5	1		
AWBS-G-5	1¼	2⅜	
AWBS-H-5	1½	2½	
AWBS-J-5	2	2¾	
AWBS-K-5	2½	3⅛	
AWBS-L-5	3	3⅝	
AWBS-M-5	3½	4	
AWBS-P-5	4	4½	
AWBS-R-5	5	5	
AWBS-S-5	6	5½	

Stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.

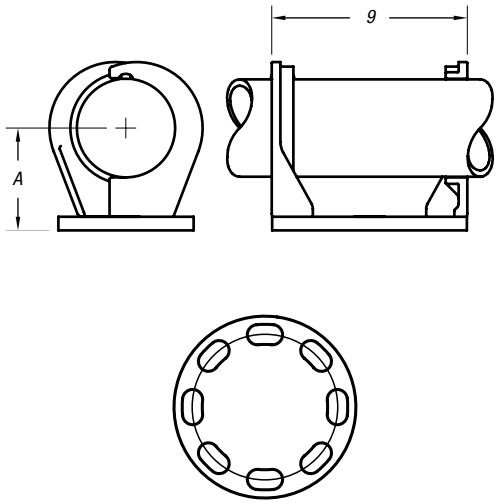
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Type AWBQ — Hook-On Bus Support, Weld or Slide, Pipe to Insulator

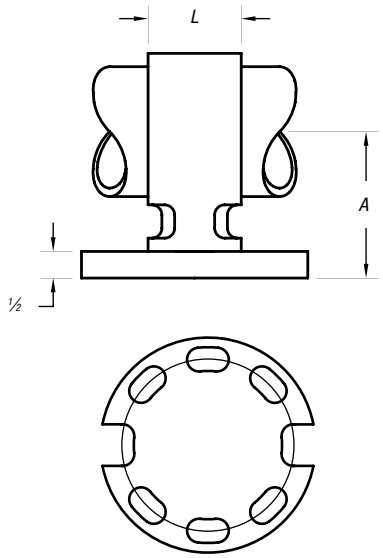


Slots: 3" BC 9/16 x 3/4
5" BC 11/16 x 7/8

CAT. NO.	SPS	A
3" Bolt Circle		
AWBQ-E-3	¾	2
AWBQ-F-3	1	
AWBQ-G-3	1¼	2¼
AWBQ-H-3	1½	2½
AWBQ-J-3	2	2¾
AWBQ-K-3	2½	3⅛
AWBQ-L-3	3	3⅝
AWBQ-M-3	3½	4
AWBQ-P-3	4	4½
AWBQ-R-3	5	5
AWBQ-S-3	6	5½
5" Bolt Circle		
AWBQ-E-5	¾	2¼
AWBQ-F-5	1	
AWBQ-G-5	1¼	2⅜
AWBQ-H-5	1½	2½
AWBQ-J-5	2	2¾
AWBQ-K-5	2½	3⅛
AWBQ-L-5	3	3⅝
AWBQ-M-5	3½	4
AWBQ-P-5	4	4½
AWBQ-R-5	5	5
AWBQ-S-5	6	5½

Stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.

Type WAXB — Weld or Slide Bus Support, Pipe to Insulator

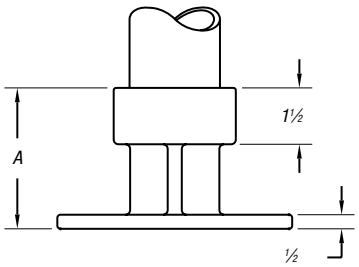


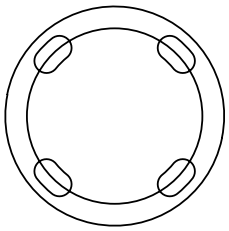
Slots: 3" BC 9/16 x 3/4
5" BC 11/16 x 7/8

CAT. NO.	SPS	A	L
3" Bolt Circle			
WAXB-E-3	¾	2	1
WAXB-F-3	1		
WAXB-G-3	1¼	2¼	1¼
WAXB-H-3	1½	2½	
WAXB-J-3	2	2¾	1¾
WAXB-K-3	2½	3⅛	
WAXB-L-3	3	3⅝	
WAXB-M-3	3½	4	2
WAXB-P-3	4	4½	
WAXB-R-3	5	5	
WAXB-S-3	6	5½	
5" Bolt Circle			
WAXB-E-5	¾	2¼	1
WAXB-F-5	1		
WAXB-G-5	1¼	2⅜	1¼
WAXB-H-5	1½	2½	
WAXB-J-5	2	2	1¾
WAXB-K-5	2½	3⅛	
WAXB-L-5	3	3⅝	
WAXB-M-5	3½	4	2
WAXB-P-5	4	4½	
WAXB-R-5	5	5	
WAXB-S-5	6	5½	

Stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.

Type AWPX — Weld Vertical Bus Support, Pipe to Insulator, Vertical Take-Off



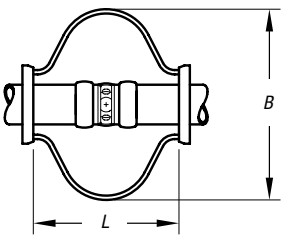


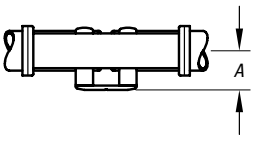
Slots: 3" BC 9⁄16 x 3⁄4
5" BC 11⁄16 x 7⁄8

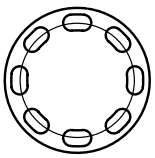
CAT. NO.	SPS	A
3" Bolt Circle		
AWPX-E-3	¾	3¼
AWPX-F-3	1	
AWPX-G-3	1¼	
AWPX-H-3	1½	
AWPX-J-3	2	3 11⁄16
AWPX-K-3	2½	3¾
AWPX-L-3	3	3 13⁄16
AWPX-M-3	3½	3 15⁄16
AWPX-P-3	4	4
AWPX-R-3	5	4⅛
AWPX-S-3	6	4¼
5" Bolt Circle		
AWPX-E-5	¾	3¼
AWPX-F-5	1	
AWPX-G-5	1¼	
AWPX-H-5	1½	
AWPX-J-5	2	3 7⁄16
AWPX-K-5	2½	3½
AWPX-L-5	3	3 9⁄16
AWPX-M-5	3½	3 11⁄16
AWPX-P-5	4	3¾
AWPX-R-5	5	3 13⁄16
AWPX-S-5	6	4

Galvanized hardware for mounting to insulator is supplied.

Type AWECC — Weld Expansion Bus Support, Pipe to Insulator







Slots: 3" BC 9⁄16 x 3⁄4
5" BC 11⁄16 x 7⁄8

CAT. NO.	SPS	A	L	B	AMPS
3" Bolt Circle					
AWECC-H-3	1½	2½	12	14	930
AWECC-J-3	2	2¾		16	1155
AWECC-K-3	2½	3⅛			1550
AWECC-L-3	3	3⅝		17	1895
AWECC-M-3	3½	4			2170
AWECC-P-3	4	4½		22	2000
AWECC-R-3	5	5		24	
AWECC-S-3	6	5½			
5" Bolt Circle					
AWECC-H-5	1½	2½	16¼	18	930
AWECC-J-5	2	2¾		19	1155
AWECC-K-5	2½	3⅛			1550
AWECC-L-5	3	3⅝		20	1895
AWECC-M-5	3½	4		21	2170
AWECC-P-5	4	4½		22	2000
AWECC-R-5	5	5		24	
AWECC-S-5	6	5½			

End caps, stainless steel anti-chatter springs, and galvanized hardware for mounting to insulator are supplied.
Other sizes available; consult Customer Service.
Use chart GA-796 for installation; see technical reference ***page F-594****.*
For schedule 80 pipe, add "H" to catalog number: e.g. AWECCH-H-5.

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Type AWGS — Ground Studs

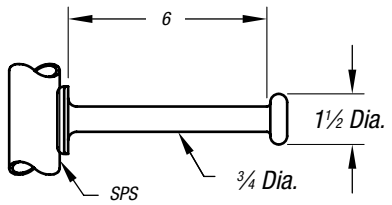


Figure 1

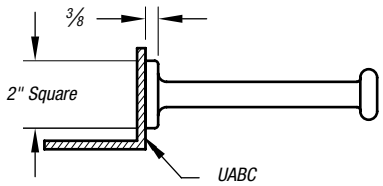


Figure 2

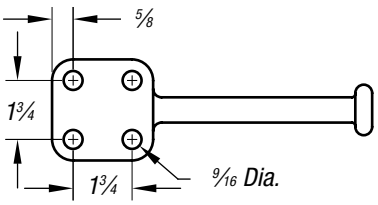


Figure 3

CAT. NO.	SPS	TYPE	FIGURE
AWGS-E	¾	N/A	1
AWGS-FK	1–2½		1
AWGS-LS	3–6		1
AWGS-FLAT	N/A	UABC/IWCB	2
AWGS-4N	N/A	4-Hole NEMA 13/16 Thick	3

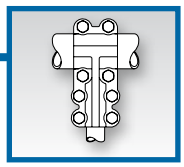
All pads are finished on both sides
For other configurations, consult Customer Service.

Bolted Aluminum Connectors

Quick Reference — Bolted Tee Connectors

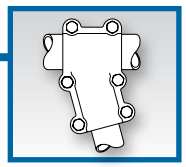
Type ABT

See page F-484



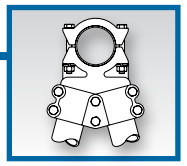
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See page F-485



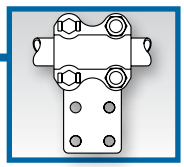
Type ABT-15-15

See page F-486



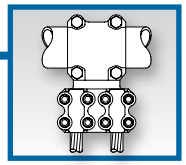
Type ABNT

See page F-487



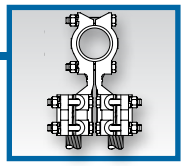
Type ABTT

See page F-488



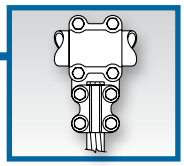
Type AB2T

See page F-488



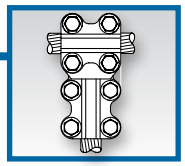
Type A6MT

See pages F-489–F-490



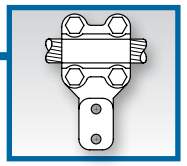
Type A6MT

See page F-490



Type A7MT

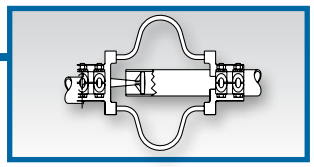
See page F-491



Quick Reference — Bolted Couplers

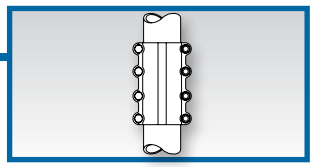
Type AFG

See page F-491



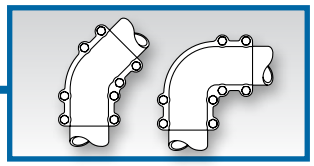
Type ABC

See page F-492



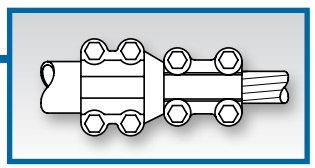
Type ABCE-45 & 90

See page F-493



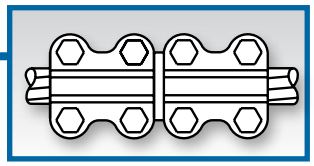
Type ABR

See pages F-493–F-494



Type ABR

See page F-496



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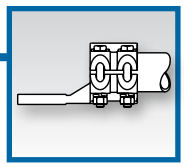
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800.816.7809
Fax: 901.252.1354

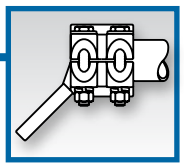
Technical Services
Tel: 888.862.3289

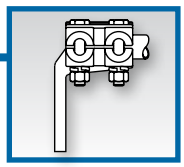
www.tnb.com

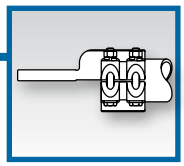
Bolted Aluminum Connectors

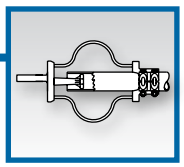
Quick Reference — Bolted Terminals

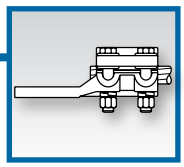
Type ABN
See page F-497


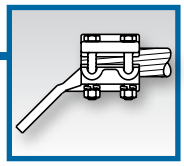
Type ABN-45
See page F-498


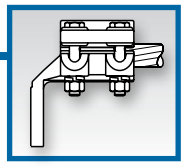
Type ABN-90
See page F-499


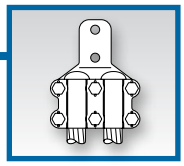
Type ABNC
See page F-500


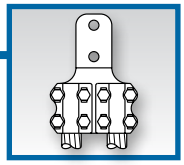
Type ABEPC
See page F-501


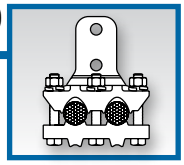
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See page F-502


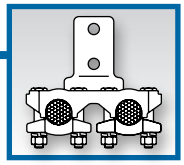
Type A7M-45
See page F-502


Type A7M
See page F-503


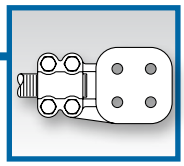
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See page F-503


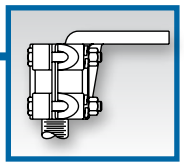
Type A7MM
See page F-504


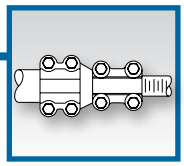
Type A7MM1-90
See pages F-504


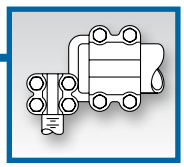
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See page F-505


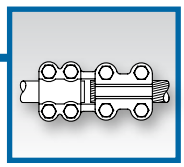
Quick Reference — Bolted Stud Connectors

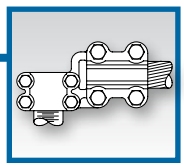
Type AVIE
See page F-506


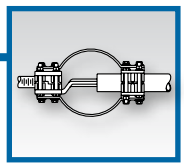
Type AVIE-90
See page F-506


Type AVIC
See page F-507


Type AVIC-90
See page F-507


Type AVID
See page F-508


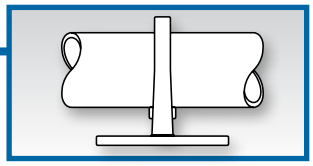
Type AVID-90
See page F-509


Type ASPKG
See page F-513


Quick Reference — Bolted Supports

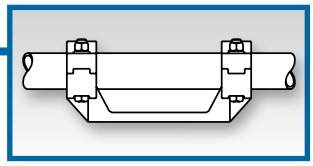
Type ATB

See page F-516



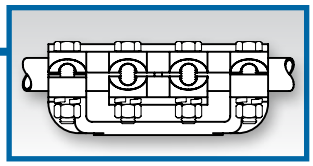
Type ASBC

See page F-516



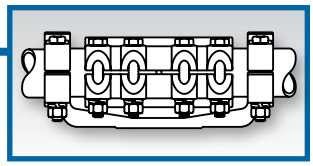
Type ASBCC

See page F-517



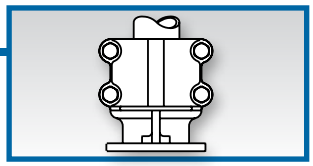
Type ASBCE

See page F-517



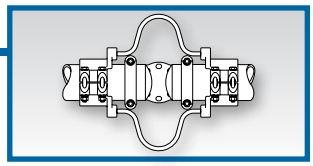
Type AVBS

See page F-518



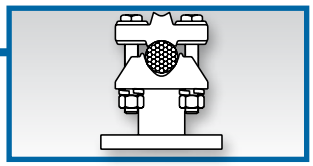
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See page F-518



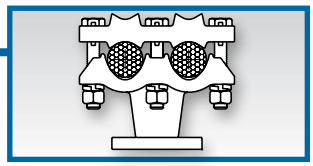
Type ASBD

See page F-519



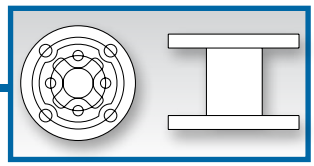
Type ASBP

See page F-519



Type SPAE & SPAC

See pages F-520



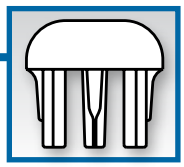
Thomas&Betts

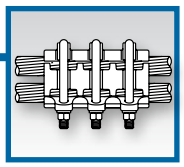
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

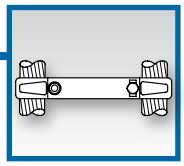
Technical Services
Tel: 888.862.3289

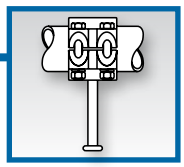
www.tnb.com

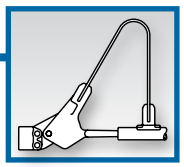
Quick Reference — Bolted Miscellaneous

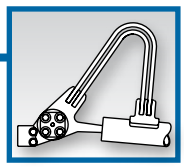
Type AKFI
See page F-483


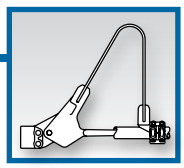
Type ABRU
See page F-495


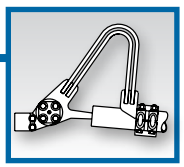
Type ACS2
See page F-495


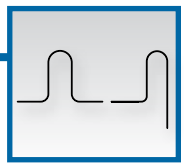
Type ABGS
See page F-496


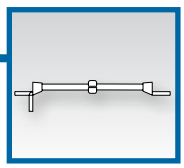
Type WVLS12
See page F-510


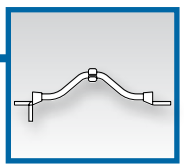
Type WVLS20
See page F-511


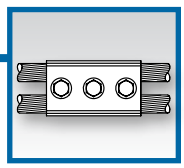
Type AVLS12
See page F-512


Type AVLS20
See page F-513


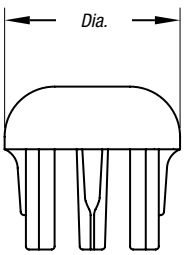
Type AVLS
See pages F-514


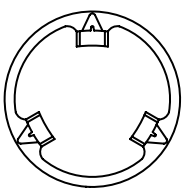
Type 7020
See page F-515


Type 7021
See page F-515


Type APP
See pages F-520


Type AKFI — Corona Bell, Drive Fit

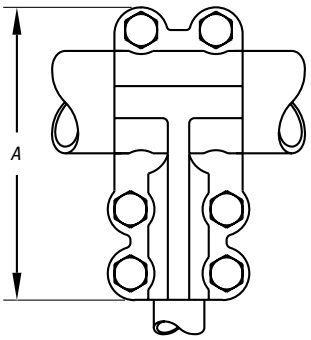


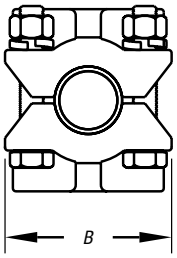


CAT.NO.	SPS	DIA.
AKFI-E	¾	1.050
AKFI-F	1	1.315
AKFI-G	1¼	1.660
AKFI-H	1½	1.900
AKFI-J	2	2.375
AKFI-K	2½	2.875
AKFI-L	3	3.500
AKFI-M	3½	4.000
AKFI-P	4	4.500
AKFI-R	5	5.563
AKFI-S	6	6.625

For schedule 80 pipe, add "H" to catalog number: e.g. AKFIH-J.

Type ABT — Bolted Tee Connector, Pipe Run to Pipe Tap





CAT. NO.	RUN SPS	TAP SPS	A	B
ABT-E-E	¾	¾	6¼	3
ABT-F-E	1	¾	5 5/16	3
ABT-F-F		1		3½
ABT-G-E	1¼	¾	6 1/16	3
ABT-G-F		1	6 3/16	3½
ABT-G-G		1¼	6¾	4⅛
ABT-H-E	1½	¾	7 1/16	3
ABT-H-F		1	6 3/16	3½
ABT-H-G		1¼	7 3/16	3⅜
ABT-H-H		1½	7¼	4⅛
ABT-J-E	2	¾	7 1/16	3
ABT-J-F		1		3½
ABT-J-G		1¼	8	3⅜
ABT-J-H		1½	7 3/16	4⅛
ABT-J-J		2	8 1/16	5⅛
ABT-K-E	2½	¾	8 5/16	3
ABT-K-F		1	8 1/32	3½
ABT-K-G		1¼	8⅛	3⅜
ABT-K-H		1½	8 5/16	4⅛
ABT-K-J		2	8 5/16	4⅝
ABT-K-K		2½	8 5/16	5⅛
ABT-L-E	3	¾	9¼	3
ABT-L-F		1	8¾	3¾
ABT-L-G		1¼	9 1/32	4
ABT-L-H		1½	8⅞	3¾
ABT-L-J		2	9¼	4½
ABT-L-K		2½		5
ABT-L-L		3	10⅛	5½
ABT-M-E	3½	¾	9¾	3
ABT-M-F		1	9¼	3 7/16
ABT-M-G		1¼	9½	3⅞
ABT-M-H		1½	9¾	4⅛

CAT. NO.	RUN SPS	TAP SPS	A	B
ABT-M-J	3½	2	9⅞	5¼
ABT-M-K		2½		5⅛
ABT-M-L		3	10½	6⅛
ABT-M-M		3½	9¾	6 7/16
ABT-P-E	4	¾	10¼	3
ABT-P-F		1		3½
ABT-P-G		1¼		4¼
ABT-P-H		1½		4⅛
ABT-P-J		2	10⅛	4½
ABT-P-K		2½	10¼	5⅛
ABT-P-L		3		5½
ABT-P-M		3½	10¾	6
ABT-P-P		4	11	6½
ABT-R-E	5	¾	11½	3
ABT-R-F		1		3½
ABT-R-G		1¼		3⅞
ABT-R-H		1½		4⅛
ABT-R-J		2	11⅛	4½
ABT-R-K		2½	11	5
ABT-R-L		3	11¼	5½
ABT-R-M		3½	12¾	6⅝
ABT-R-P		4	13	7¼
ABT-R-R		5	13½	7½
ABT-S-E	6	¾	12½	3
ABT-S-F		1		3½
ABT-S-H		1¼		3⅞
ABT-S-H		1½		4⅛
ABT-S-J		2	12¼	4½
ABT-S-K		2½	12⅛	5
ABT-S-L		3	13¼	6⅛
ABT-S-M		3½	13⅜	6
ABT-S-P		4	14⅝	7½
ABT-S-R		5	16½	8½
ABT-S-S		6	16¾	12

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

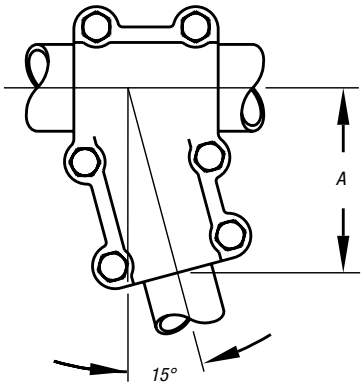
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United States
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Type ABT-15 — Bolted Tee Connector, Pipe Run to Pipe Tap at 15°

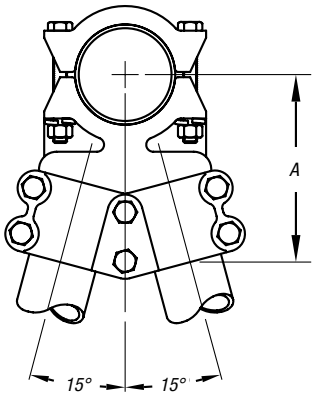


CAT. NO.	RUN SPS	TAP SPS	A
ABT-E-E-15	¾	¾	5
ABT-F-E-15	1	¾	5¼
ABT-F-F-15		1	
ABT-G-E-15	1¼	¾	5½
ABT-G-F-15		1	
ABT-G-G-15		1¼	
ABT-H-E-15	1½	¾	5¾
ABT-H-F-15		1	
ABT-H-G-15		1¼	
ABT-H-H-15		1½	
ABT-J-E-15	2	¾	6
ABT-J-F-15		1	
ABT-J-G-15		1¼	
ABT-J-H-15		1½	
ABT-J-J-15		2	
ABT-K-E-15	2½	¾	6¼
ABT-K-F-15		1	
ABT-K-G-15		1¼	
ABT-K-H-15		1½	
ABT-K-J-15		2	
ABT-K-K-15		2½	
ABT-L-E-15	3	¾	6½
ABT-L-F-15		1	
ABT-L-G-15		1¼	
ABT-L-H-15		1½	
ABT-L-J-15		2	
ABT-L-K-15		2½	7¼
ABT-L-L-15		3	

CAT. NO.	RUN SPS	TAP SPS	A
ABT-M-F-15	3½	1	7½
ABT-M-G-15		1¼	
ABT-M-H-15		1½	
ABT-M-J-15		2	8
ABT-M-K-15		2½	
ABT-M-L-15		3	
ABT-M-M-15		3½	
ABT-P-J -15	4	2	8½
ABT-P-K-15		2½	
ABT-P-L-15		3	
ABT-P-M-15		3½	9
ABT-P-P-15		4	
ABT-R-J-15	5	2	10
ABT-R-K-15		2½	
ABT-R-L-15		3	
ABT-R-M-15		3½	
ABT-R-P-15		4	10½
ABT-R-R-15		5	
ABT-S-J-15	6	2	11½
ABT-S-K-15		2½	
ABT-S-L-15		3	
ABT-S-M-15		3½	
ABT-S-P-15		4	12
ABT-S-R-15		5	
ABT-S-S-15		6	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
Other sizes available; consult Customer Service.

Type ABT-15-15 — Bolted Vee, Pipe Run to Two Pipe Taps, Each at 15°



CAT. NO.	RUN SPS	TAP SPS	A
ABT-E-E2-15	¾	¾	5
ABT-F-E2-15	1	¾	5
ABT-F-F-215		1	5¼
ABT-G-E2-15	1¼	¾	5½
ABT-G-F2-15		1	
ABT-G-G2-15		1¼	
ABT-H-E2-15	1½	¾	5¾
ABT-H-F2-15		1	
ABT-H-G2-15		1¼	
ABT-H-H2-15		1½	
ABT-J-E2-15	2	¾	6
ABT-J-F2-15		1	
ABT-J-G2-15		1¼	
ABT-J-H2-15		1½	
ABT-J-J2-15		2	
ABT-K-E2-15	2½	¾	6¼
ABT-K-F2-15		1	
ABT-K-G2-15		1¼	
ABT-K-H2-15		1½	
ABT-K-J2-15		2	
ABT-K-K2-15		2½	
ABT-L-E2-15	3	¾	6½
ABT-L-F2-15		1	
ABT-L-G2-15		1¼	
ABT-L-H2-15		1½	
ABT-L-J2-15		2	
ABT-L-K2-15		2½	7¼
ABT-L-L2-15		3	

CAT. NO.	RUN SPS	TAP SPS	A
ABT-M-F2-15	3½	1	7½
ABT-M-G2-15		1¼	
ABT-M-H2-15		1½	
ABT-M-J2-15		2	8
ABT-M-K2-15		2½	
ABT-M-L2-15		3	
ABT-M-M2-15		3½	
ABT-P-J2-15	4	2	8½
ABT-P-K2-15		2½	
ABT-P-L2-15		3	
ABT-P-M2-15		3½	9
ABT-P-P2-15		4	
ABT-R-J2-15	5	2	10
ABT-R-K2-15		2½	
ABT-R-L2-15		3	
ABT-R-M2-15		3½	
ABT-R-P2-15		4	10½
ABT-R-R2-15		5	
ABT-S-J2-15	6	2	11½
ABT-S-K2-15		2½	
ABT-S-L2-15		3	
ABT-S-M2-15		3½	
ABT-S-P2-15		4	12
ABT-S-R2-15		5	
ABT-S-S2-15		6	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. Other sizes available; consult Customer Service.

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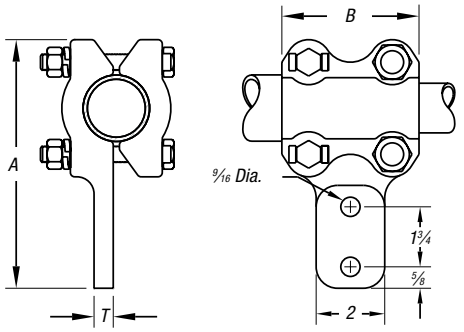
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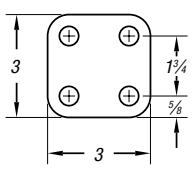
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Bolted Aluminum Connectors

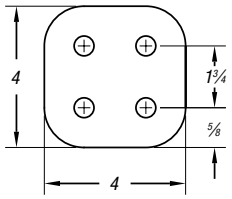
Type ABNT — Bolted Tee, Pipe to Flat



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	B	T	AMPS
2-Hole NEMA Flat					
ABNT-E-2N	¾	6 13/16	3	½	600
ABNT-F-2N	1	6¾	3⅜		
ABNT-G-2N	1¼	6 15/16	3	⅝	
ABNT-H-2N	1½	7 3/16	2 15/16		
ABNT-J-2N	2	7 11/16			
ABNT-K-2N	2½	8½	3		
ABNT-L-2N	3	9½	3¾	¾	
ABNT-M-2N	3½	10¼		⅝	
ABNT-P-2N	4	10½	4	¾	
ABNT-R-2N	5	11⅜	4¼		
ABNT-S-2N	6	12¾			
3" 4-Hole NEMA Flat					
ABNT-E-4N	¾	6⅜	3	9/16	600
ABNT-F-4N	1	6¾		½	650
ABNT-G-4N	1¼	7⅛		⅝	810
ABNT-H-4N	1½	7 3/16	2 15/16	9/16	930

CAT. NO.	SPS	A	B	T	AMPS
3" 4-Hole NEMA Flat					
ABNT-J-4N	2	7 11/16	2 15/16	⅝	1155
ABNT-K-4N	2½	8	3		1550
ABNT-L-4N	3	10⅛	3¾	11/16	1895
ABNT-M-4N	3½	10¼		⅝	2170
ABNT-P-4N	4	10 15/16	4	¾	2000
ABNT-R-4N	5	11			
ABNT-S-4N	6	12¾			
4" 4-Hole NEMA Flat					
ABNT-J-4NN	2	9	4 3/16	½	1155
ABNT-K-4NN	2½	9½	3	⅝	1550
ABNT-L-4NN	3	10½	5	13/16	1895
ABNT-M-4NN	3½	10¾	3¾	¾	2170
ABNT-P-4NN	4	11½	4		2000
ABNT-R-4NN	5	13		1	
ABNT-S-4NN	6	14	4½	¾	3000

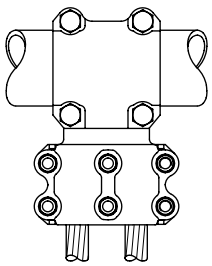
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
Other sizes available; consult Customer Service.
All pads are finished on both sides.

Type ABTT — Bolted Tee, Pipe to Two Cables

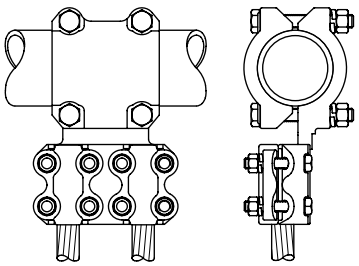
Catalog numbers will be designated from the following information:

STYLE 1: ABTT1 - (PIPE) - (* WIRE)
STYLE 2: ABTT - (PIPE) - (* WIRE)
e.g.: ABTT - R - *

** Wire size type (AAC, ACSR) Stranding must be supplied in order to designate the proper size.*



Style 1
(1) Cap



Style 2
(2) Caps

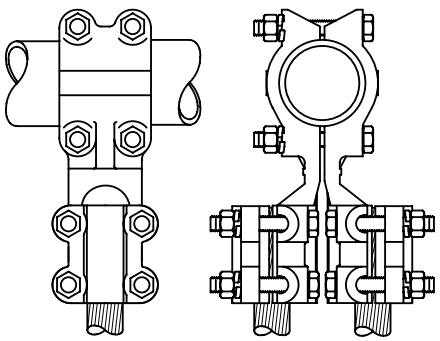
PIPE SIZE SCHEDULE 40 OR 80	LETTER
1	F
1¼	G
1½	H
2	J
2½	K
3	L
3½	M
4	P
5	R
6	S

For other configurations, consult Customer Service.

Type AB2T — Bolted Tee, Pipe to Two Cables

Catalog numbers will be designated from the following information:

AB2T - (PIPE LETTER) - (WIRE CODE)
e.g.: AB2T - R - 40



PIPE SIZE SCHEDULE 40 OR 80	LETTER
1	F
1¼	G
1½	H
2	J
2½	K
3	L
3½	M
4	P
5	R
6	S

For other configurations, consult Customer Service.

	CABLE SIZE	
WIRE CODE	AAC	ACSR
40	1/0–400	1/0–336
100	250–1000	300–795
150	556–1500	636–1272
250	1100–2500	1113–2300

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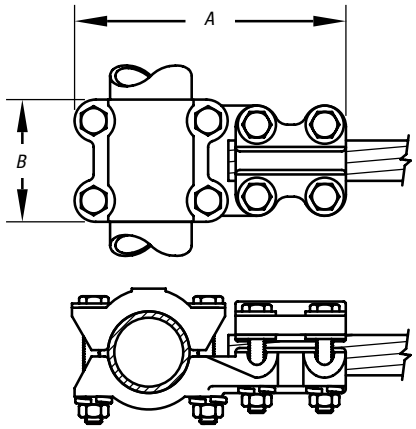
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Bolted Aluminum Connectors

Type A6MT — Bolted Tee, Pipe to Cable

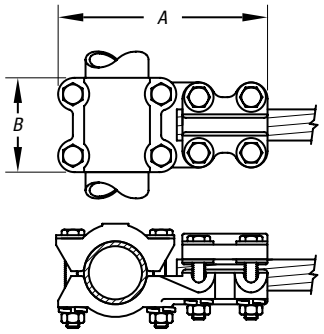


CAT. NO.	RUN SPS	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	B
A6MT-E-25	¾	#4–250	#4–4/0	.232–.575	6 3/16	3
A6MT-E-40		1/0–400	1/0–336	.368–.741		
A6MT-E-100		250–1000	300–795	.567–1.150	6 7/16	
A6MT-F-25	1	#4–250	#4–4/0	.232–.575	6¾	
A6MT-F-40		1/0–400	1/0–336	.368–.741		
A6MT-F-100		250–1000	300–795	.567–1.150	6 15/16	
A6MT-G-25	1¼	#4–250	#4–4/0	.232–.575	7⅛	2 1/16
A6MT-G-40		1/0–400	1/0–336	.368–.741	7 1/16	2 5/16
A6MT-G-100		250–1000	300–795	.567–1.150	7¼	2 1/16
A6MT-G-150		556–1500	636–1272	.856–1.412	7¾	3⅝
A6MT-H-25	1½	#4–250	#4–4/0	.232–.575	7 1/16	2 15/16
A6MT-H-40		1/0–400	1/0–336	.368–.741	7¼	
A6MT-H-100		250–1000	300–795	.567–1.150	7 9/16	
A6MT-H-150		556–1500	636–1272	.856–1.412	7⅞	
A6MT-H-250		1100–2500	1113–2300	1.209–1.823	7	4

CAT. NO.	RUN SPS	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	B
A6MT-J-25	2	#4–250	#4–4/0	.232–.575	7⅜	4
A6MT-J-40		1/0–400	1/0–336	.368–.741	7¾	2 15/16
A6MT-J-100		250–1000	300–795	.567–1.150	8⅛	
A6MT-J-150		556–1500	636–1272	.856–1.412	8 9/16	
A6MT-J-250		1100–2500	1113–2300	1.209–1.823	9	4 5/16
A6MT-K-25	2½	#4–250	#4–4/0	.232–.575	7⅞	4
A6MT-K-40		1/0–400	1/0–336	.368–.741	8⅛	2 15/16
A6MT-K-100		250–1000	300–795	.567–1.150	8 5/16	3¼
A6MT-K-150		556–1500	636–1272	.857–1.412	9 1/16	3⅜
A6MT-K-250		1100–2500	1113–2300	1.209–1.823	9½	4 5/16
A6MT-L-25	3	#4–250	#4–4/0	.232–.575	8½	3
A6MT-L-40		1/0–400	1/0–336	.368–.741	9⅜	3¾
A6MT-L-100		250–1000	300–795	.567–1.150	9 1/16	
A6MT-L-150		556–1500	636–1272	.856–1.412	10¼	
A6MT-L-250		1100–2500	1113–2300	1.209–1.823	10½	4⅜

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

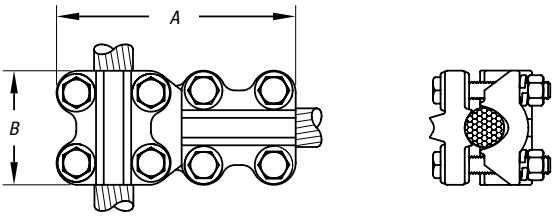
Type A6MT — Bolted Tee, Pipe to Cable



CAT. NO.	RUN SPS	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	B
A6MT-M-25	3½	#4–250	#4–4/0	.232–.575	9½	5
A6MT-M-40		1/0–400	1/0–336	.368–.741	9⅛	4¼
A6MT-M-100		250–1000	300–795	.567–1.150	9¾	
A6MT-M-150		556–1500	636–1272	.856–1.412	10¾	
A6MT-M-250		1100–2500	1113–2300	1.209–1.823	10⅞	
A6MT-P-25	4	#4–250	#4–4/0	.232–.575	9½	6
A6MT-P-40		1/0–400	1/0–336	.368–.741	10½	4¼
A6MT-P-100		250–1000	300–795	.567–1.150	10 13/16	
A6MT-P-150		556–1500	636–1272	.856–1.412	11 5/16	
A6MT-P-250		1100–2500	1113–2300	1.209–1.823	11 11/16	
A6MT-R-40	5	1/0–400	1/0–336	.368–.741	11½	
A6MT-R-100		250–1000	300–795	.567–1.150	12¼	
A6MT-R-150		556–1500	636–1272	.856–1.412	12⅝	
A6MT-R-250		1100–2500	1113–2300	1.209–1.823	13 3/16	
A6MT-S-40	6	1/0–400	1/0–336	.368–.741	12¾	
A6MT-S-100		250–1000	300–795	.567–1.150	12¼	
A6MT-S-150		556–1500	636–1272	.856–1.412		
A6MT-S-250		1100–2500	1113–2300	1.209–1.823	13⅞	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type A6MT — Bolted Tee, Cable to Cable



CAT. NO.	RUN AAC	RUN ACSR	RUN MIN.–MAX.	TAP AAC	TAP ACSR	TAP MIN.–MAX.	A	B
A6MT-25-25	#4–250	#4–4/0	.232–.575	#4–250	#4–4/0	.232–.575	6 3/16	3
A6MT-40-25	1/0–400	1/0–336	.368–.741	#4–250	#4–4/0	.232–.575	6 3/16	3
A6MT-40-40				1/0–400	1/0–336	.368–.741		
A6MT-40-100				250–1000	300–795	.567–1.150	6 7/16	
A6MT-100-25	250–1000	300–795	.567–1.150	#4–250	#4–4/0	.232–.575	6 9/16	3¼
A6MT-100-40				1/0–400	1/0–336	.368–.741		
A6MT-100-100				250–1000	300–795	.567–1.150	6 13/16	
A6MT-150-25	556–1500	636–1272	.856–1.412	#4–250	#4–4/0	.232–.575	6 15/16	3⅜
A6MT-150-40				1/0–400	1/0–336	.368–.741	7 5/16	
A6MT-150-100				250–1000	300–795	.567–1.150		
A6MT-150-150				556–1500	636–1272	.856–1.412	7 11/16	
A6MT-250-40	1100–2500	1113–2300	1.209–1.823	1/0–400	1/0–336	.368–.741	7 15/16	3⅜
A6MT-250-100				250–1000	300–795	.567–1.150		4
A6MT-250-150				556–1500	636–1272	.856–1.412	8 5/16	
A6MT-250-250				1100–2500	1113–2300	1.209–1.823	8⅞	
A6MT-300-250	800–3000	795–2500	1.030–1.996	600–2500	636–2312	1.209–1.823	8⅞	4

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

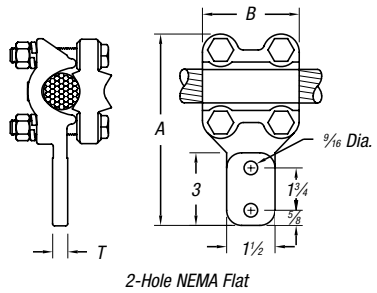
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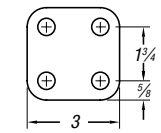
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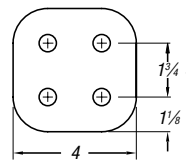
Type A7MT — Bolted Tee, Cable to Flat



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

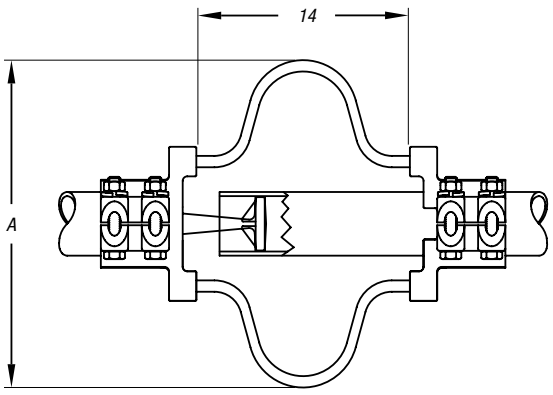


4" 4-Hole NEMA Flat

CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	B	T
2-Hole NEMA Flat						
A7MT-40-2N	1/0–400	1/0–336	.368–.741	6 3/16	3	9/16
A7MT-100-2N	250–1000	300–795	.567–1.150	6⅝	3¼	½
A7MT-150-2N	556–1500	636–1272	.856–1.412	7 1/16	3⅜	
A7MT-250-2N	1100–2500	1113–2300	1.209–1.823	10⅞	3¾	
3" 4-Hole NEMA Flat						
A7MT-40-4N	1/0–400	1/0–336	.368–.741	6 3/16	3	½
A7MT-100-4N	250–1000	300–795	.567–1.150	6⅝	3¼	
A7MT-150-4N	556–1500	636–1272	.856–1.412	6¾	3⅜	
A7MT-250-4N	1100–2500	1113–2300	1.209–1.823	7¾	3¾	⅝
4" 4-Hole NEMA Flat						
A7MT-40-4NN	1/0–400	1/0–336	.368–.741	7¼	3	½
A7MT-100-4NN	250–1000	300–795	.567–1.150	7½	3¼	
A7MT-150-4NN	556–1500	636–1272	.856–1.412	7⅞	3⅜	
A7MT-250-4NN	1100–2500	1113–2300	1.209–1.823	9¼	5¼	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

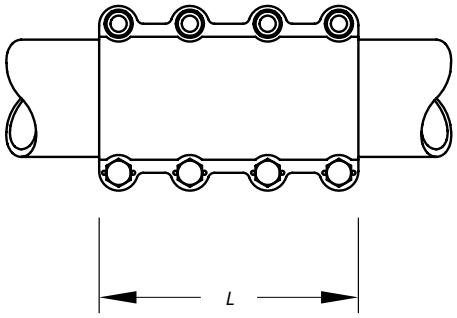
Type AFG — Bolted Expansion Coupler, Pipe to Pipe



CAT. NO.	SPS	A	AMPS
AFG-F	1	12	650
AFG-G	1¼		810
AFG-H	1½	14	930
AFG-J	2		1155
AFG-K	2½	16	1550
AFG-L	3	17	1895
AFG-M	3½		2170
AFG-P	4	18	2000
AFG-R	5	20	
AFG-S	6		

For schedule 80 pipe, add "H" to catalog number: e.g. AFGH-K.
Use chart GA-735 for installation; see technical reference ***page F-593****.*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type ABC — Bolted Coupler/Reducer, Pipe to Pipe



CAT. NO.	RUN SPS	TAP SPS	L
ABC-E	¾	¾	7¼
ABC-F-E	1	¾	7
ABC-F-F		1	6¼
ABC-G-E	1¼	¾	6⅞
ABC-G-F		1	6¾
ABC-G		1¼	7⅛
ABC-H-E	1½	¾	7⅜
ABC-H-F		1	6½
ABC-H-G		1¼	
ABC-H		1½	6¾
ABC-J-E	2	¾	7¼
ABC-J-F		1	
ABC-J-G		1¼	
ABC-J-H		1½	6½
ABC-J		2	7¼
ABC-K-E	2½	¾	7¼
ABC-K-F		1	
ABC-K-G		1¼	6⅞
ABC-K-H		1½	6½
ABC-K-J		2	7¾
ABC-K		2½	7½
ABC-L-E	3	¾	6½
ABC-L-F		1	6¾
ABC-L-G		1¼	
ABC-L-H		1½	7¾
ABC-L-J		2	8½
ABC-L-K		2½	7⅞
ABC-L		3	9

CAT. NO.	RUN SPS	TAP SPS	L
ABC-M-J	3½	2	8
ABC-M-K		2½	
ABC-M-L		3	8¾
ABC-M		3½	9¼
ABC-P-G	4	1¼	8
ABC-P-H		1½	
ABC-P-J		2	8¼
ABC-P-K		2½	8
ABC-P-L		3	9¼
ABC-P-M		3½	
ABC-P		4	10
ABC-R-H	5	1½	8
ABC-R-J		2	
ABC-R-K		2½	
ABC-R-L		3	8¾
ABC-R-M		3½	9¼
ABC-R-P		4	
ABC-R		5	13¾
ABC-S-J	6	2	8
ABC-S-K		2½	
ABC-S-L		3	8¾
ABC-S-M		3½	9¼
ABC-S-P		4	
ABC-S-R		5	13¾
ABC-S		6	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

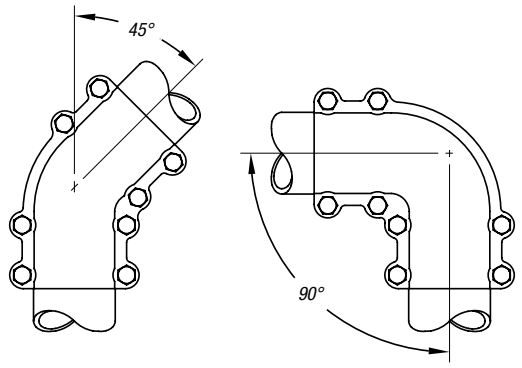
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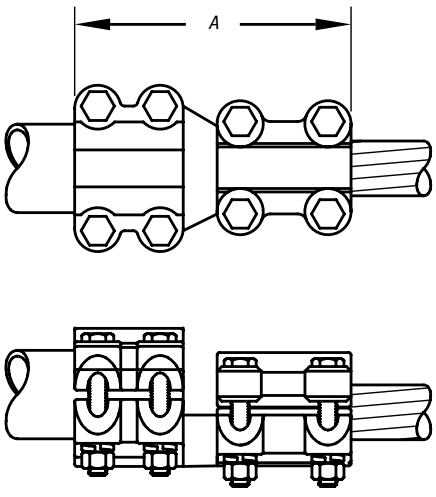
Type ABCE — Bolted Elbow, Pipe to Pipe



CAT. NO.		
45°	90°	SPS
ABCE-F-45	ABCE-F-90	1
ABCE-G-45	ABCE-G-90	1¼
ABCE-H-45	ABCE-H-90	1½
ABCE-J-45	ABCE-J-90	2
ABCE-K-45	ABCE-K-90	2½
ABCE-L-45	ABCE-L-90	3
ABCE-M-45	ABCE-M-90	3½
ABCE-P-45	ABCE-P-90	4
ABCE-R-45	ABCE-R-90	5
ABCE-S-45	ABCE-S-90	6

For other configurations, consult customer service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type ABR — Bolted Reducer, Pipe to Cable

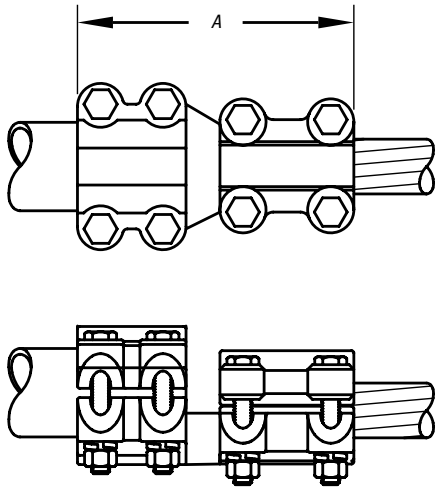


CAT. NO.	RUN SPS	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A
ABR-E-25	¾	#4–250	#4–4/0	.232–.575	6½
ABR-E-40		1/0–400	1/0–336	.368–.741	
ABR-E-100		250–1000	300–795	.567–1.150	6⅞
ABR-E-150		556–1500	636–1272	.856–1.412	
ABR-F-25	1	#4–250	#4–4/0	.232–.575	6½
ABR-F-40		1/0–400	1/0–336	.368–.741	
ABR-F-100		250–1000	300–795	.567–1.150	6¾
ABR-F-150		556–1500	636–1272	.856–1.412	7¼
ABR-G-25	1¼	#4–250	#4–4/0	.232–.575	6½
ABR-G-40		1/0–400	1/0–336	.368–.741	
ABR-G-100		250–1000	300–795	.567–1.150	7⅛
ABR-G-150		556–1500	636–1272	.856–1.412	
ABR-G-250		1100–2500	1113–2300	1.209–1.823	
ABR-H-25	1½	#4–250	#4–4/0	.232–.575	6⅞
ABR-H-40		1/0–400	1/0–336	.368–.741	
ABR-H-100		250–1000	300–795	.567–1.150	6¾
ABR-H-150		556–1500	636–1272	.856–1.412	7 5/16
ABR-H-250		1100–2500	1113–2300	1.209–1.823	7 15/16

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Continued on following page.

Type ABR — Bolted Reducer, Pipe to Cable *(continued)*



CAT. NO.	RUN SPS	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	L
ABR-J-25	2	#4–250	#4–4/0	.232–.575	7¼
ABR-J-40		1/0–400	1/0–336	.368–.741	
ABR-J-100		250–1000	300–795	.567–1.150	
ABR-J-150		556–1500	636–1272	.856–1.412	
ABR-J-250		1100–2500	1113–2300	1.209–1.823	8 7/16
ABR-K-25	2½	#4–250	#4–4/0	.232–.575	7
ABR-K-40		1/0–400	1/0–336	.368–.741	
ABR-K-100		250–1000	300–795	.567–1.150	7¼
ABR-K-150		556–1500	636–1272	.856–1.412	7⅝
ABR-K-250		1100–2500	1113–2300	1.209–1.823	7 15/16
ABR-L-25	3	#4–250	#4–4/0	.232–.575	7⅞
ABR-L-40		1/0–400	1/0–336	.368–.741	
ABR-L-100		250–1000	300–795	.567–1.150	8⅛
ABR-L-150		556–1500	636–1272	.856–1.412	8⅜
ABR-L-250		1100–2500	1113–2300	1.209–1.823	9 3/16
ABR-M-25	3½	#4–250	#4–4/0	.232–.575	8⅛
ABR-M-40		1/0–400	1/0–336	.368–.741	
ABR-M-100		250–1000	300–795	.567–1.150	8⅞
ABR-M-150		556–1500	636–1272	.856–1.412	
ABR-M-250		1100–2500	1113–2300	1.209–1.823	

CAT. NO.	RUN SPS	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	L
ABR-P-25	4	#4–250	#4–4/0	.232–.575	9¾
ABR-P-40		1/0–400	1/0–336	.368–.741	
ABR-P-100		250–1000	300–795	.567–1.150	
ABR-P-150		556–1500	636–1272	.856–1.412	10½
ABR-P-250		1100–2500	1113–2300	1.209–1.823	10¾
ABR-R-25	5	#4–250	#4–4/0	.232–.575	9⅞
ABR-R-40		1/0–400	1/0–336	.368–.741	
ABR-R-100		250–1000	300–795	.567–1.150	10⅛
ABR-R-150		556–1500	636–1272	.856–1.412	10⅜
ABR-R-250		1100–2500	1113–2300	1.209–1.823	10 7/16
ABR-S-25	6	#4–250	#4–4/0	.232–.575	9⅞
ABR-S-40		1/0–400	1/0–336	.368–.741	
ABR-S-100		250–1000	300–795	.567–1.150	10⅛
ABR-S-150		556–1500	636–1272	.856–1.412	10⅜
ABR-S-250		1100–2500	1113–2300	1.209–1.823	10 7/16

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

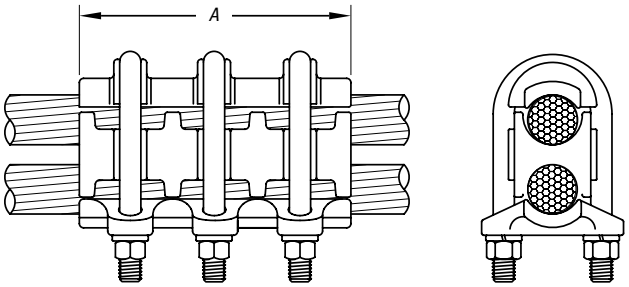
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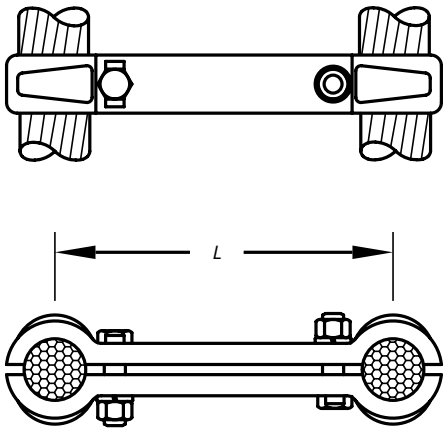
Type ABCE — Bolted Elbow, Pipe to Pipe



CAT. NO.	RUN & TAP CABLE RANGE ACSR	CABLE DIAMETER MIN.–MAX.	A	NO. OF BOLTS
ABRU2-26	1/0–266.8 (26/7)	.398–.642	3¼	2
ABRU2-39	3/0–397.5 (18/1)	.502–.743		
ABRU3-79	397.5 (18/1)–795 (30/19)	.743–1.140	5⅝	3
ABRU3-159	795 (26/7)–1590 (45/7)	1.108–1.504	8	
ABRU3-230	2156 (84/19)–2312	1.762–1.802	8	

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type ACS2 — Cable Spacer, Two Cables

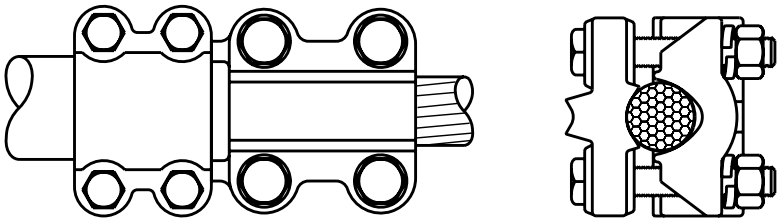


CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	L
ACS2-60-4	350–600	336.4–477	.679–.893	4
ACS2-60-8				8
ACS2-60-12				12
ACS2-90-4	795–900	636–715.5	1.019–1.094	4
ACS2-90-8	600–900	556.5–715.5	.879–1.094	8
ACS2-90-12				12
ACS2-125-4	900–1250	715.5–1113	1.081–1.293	4
ACS2-125-8				8
ACS2-125-12				12
ACS2-160-4	1250–1600	1113–1431	1.288–1.427	4
ACS2-160-8				8
ACS2-160-12				12
ACS2-200-4	1500–2000	1272–1780	1.382–1.632	4
ACS2-200-8				8
ACS2-200-12				12
ACS2-250-8	2000–2500	2156–2167	1.630–1.824	8
ACS2-250-12				12

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Bolted Aluminum Connectors

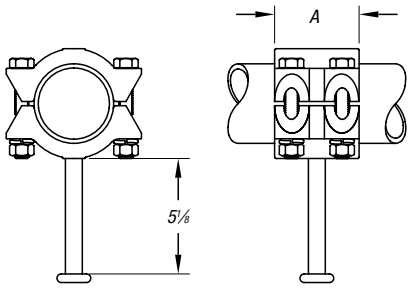
Type ABR — Bolted Coupler, Pipe to Cable



CAT. NO.	CABLE SIZE RUN SPS AAC	CABLE SIZE RUN SPS ACSR	CABLE SIZE TAP AAC	CABLE SIZE TAP ACSR	CABLE DIAMETER MIN.–MAX. RUN	CABLE DIAMETER MIN.–MAX. TAP	A	B
ABR-25-25	#4–250	#4–4/0	#4–250	#4–4/0	.232–.575	.232–.575	3	
ABR-40-25	1/0–400	1/0–336	#4–250	#4–4/0	.368–.741	.232–.575	3	
ABR-40-40			1/0–400	1/0–336		.368–.741		
ABR-100-40	250–1000	300–795	1/0–400	1/0–336	.567–1.150	.368–.741	3⅜	3
ABR-100-100			250–1000	300–795		.567–1.150		3⅜
ABR-150-40	556–1500	636–1272	1/0–400	1/0–336	.856–1.412	.232–.893	3¾	3
ABR-150-100			250–1000	300–795		.567–1.150		3⅜
ABR-250-100	1100–2500	1113–2300	250–1000	300–795	1.209–1.823	.567–1.150	4	3⅜
ABR-250-250	600–2500	556.5–2300	600–2500	556.5–2300	.893–1.823	.893–1.823	4	4

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type ABGS — Bolted Ground Stud, Pipe to Ground

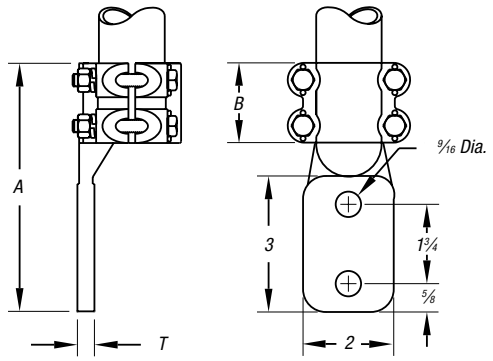


CAT. NO.	SPS	B
ABGS-E	¾	3
ABGS-F	1	
ABGS-G	1¼	
ABGS-H	1½	
ABGS-J	2	
ABGS-K	2½	3¾
ABGS-L	3	
ABGS-M	3½	4¼
ABGS-P	4	
ABGS-R	5	
ABGS-S	6	

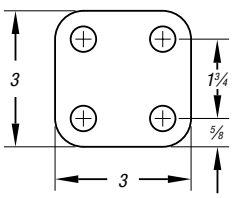
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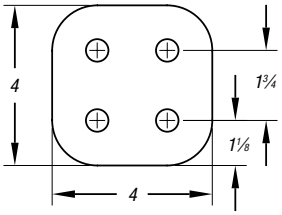
Type ABN — Bolted Terminal, Pipe to Flat



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



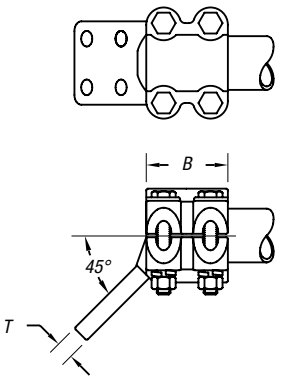
4" 4-Hole NEMA Flat

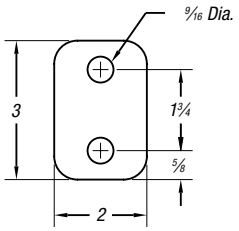
CAT. NO.	SPS	A	B	T	AMPS
2-Hole NEMA Flat					
ABN-E-2N	¾	6⅝	3	½	600
ABN-F-2N	1	6¾			
ABN-G-2N	1¼	7¾		⅝	
ABN-H-2N	1½	7¼			
ABN-J-2N	2	7 7/16			
ABN-K-2N	2½	7½			
ABN-L-2N	3	8	3¾	¾	
ABN-M-2N	3½	7¾	4¼	⅞	
ABN-P-2N	4	8			
ABN-R-2N	5	11⅜	6½	1	
ABN-S-2N	6	12		1¼	
3" 4-Hole NEMA Flat					
ABN-E-4N	¾	6½	3	½	600
ABN-F-4N	1	6¾			650
ABN-G-4N	1¼	6½			810
ABN-H-4N	1½				930
ABN-J-4N	2	7 7/16		⅝	1155
ABN-K-4N	2½	7½			1550
ABN-L-4N	3	8	3¾	¾	1895
ABN-M-4N	3½	9½	4¼	⅞	2170
ABN-P-4N	4	9⅝			2460
ABN-R-4N	5	11⅜	6½	1	3080
ABN-S-4N	6	12		1¼	3735

CAT. NO.	SPS	A	B	T	AMPS
4" 4-Hole NEMA Flat					
ABN-F-4NN	1	7⅞	3	½	1155
ABN-G-4NN	1¼	8⅛		⅝	1550
ABN-H-4NN	1½	8¼			1895
ABN-J-4NN	2	7¾			1155
ABN-K-4NN	2½	8		¾	1550
ABN-L-4NN	3	9⅜	3¾		1895
ABN-M-4NN	3½	10½	4¼	13/16	2170
ABN-P-4NN	4	10¼		⅞	2460
ABN-R-4NN	5	11⅜	6½	1	3080
ABN-S-4NN	6	12		1¼	3735

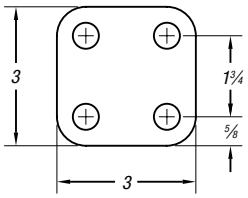
Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type ABN-45 — Bolted Terminal, Pipe to Flat at 45°

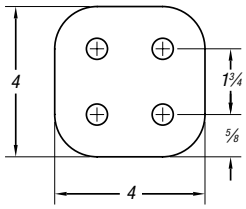




2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	SPS	B	T	AMPS
2-Hole NEMA Flat				
ABN-E-2N45	¾	3	½	600
ABN-F-2N45	1			
ABN-G-2N45	1¼		⅝	
ABN-H-2N45	1½			
ABN-J-2N45	2			
ABN-K-2N45	2½			
ABN-L-2N45	3	3¾	¾	
ABN-M-2N45	3½	4¼	⅞	
ABN-P-2N45	4			
ABN-R-2N45	5	6½	1	
ABN-S-2N45	6		1¼	
3" 4-Hole NEMA Flat				
ABN-E-4N45	¾	3	½	600
ABN-F-4N45	1			650
ABN-G-4N45	1¼			810
ABN-H-4N45	1½			930
ABN-J-4N45	2		⅝	1155
ABN-K-4N45	2½			1550
ABN-L-4N45	3	3¾	¾	1895
ABN-M-4N45	3½	4¼	⅞	2170
ABN-P-4N45	4			2460
ABN-R-4N45	5	6½	1	3080
ABN-S-4N45	6		1¼	3735

CAT. NO.	SPS	B	T	AMPS
4" 4-Hole NEMA Flat				
ABN-F-4NN45	1	3	½	1155
ABN-G-4NN45	1¼		⅝	1550
ABN-H-4NN45	1½			1895
ABN-J-4NN45	2			1155
ABN-K-4NN45	2½		¾	1550
ABN-L-4NN45	3	3¾		1895
ABN-M-4NN45	3½	4¼	13/16	2170
ABN-P-4NN45	4		⅞	2460
ABN-R-4NN45	5	6½	1	3080
ABN-S-4NN45	6		1¼	3735

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

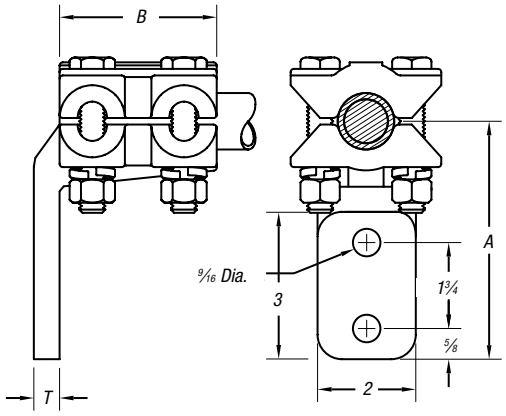
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800.816.7809
Fax: 901.252.1354

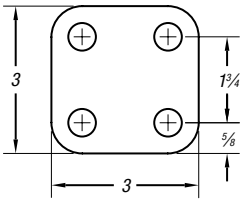
Technical Services
Tel: 888.862.3289

www.tnb.com

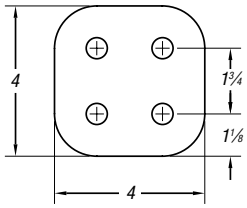
Type ABN-90 — Bolted Terminal, Pipe to Flat at 90°



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



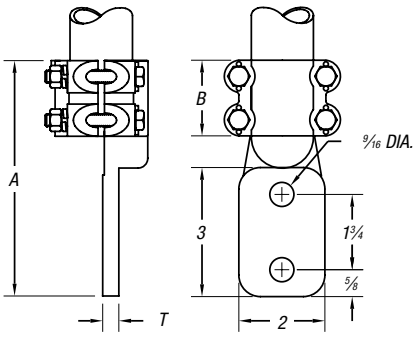
4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	B	T	AMPS
2-Hole NEMA Flat					
ABN-E-2N90	¾	4⅝	3	½	600
ABN-F-2N90	1	4¾			
ABN-G-2N90	1¼	5⅛		⅝	
ABN-H-2N90	1½	5¼			
ABN-J-2N90	2				
ABN-K-2N90	2½				
ABN-L-2N90	3	5¾	3¾	¾	
ABN-M-2N90	3½	6¼	4¼	⅞	
ABN-P-2N90	4	6¾			
ABN-P-2N90	5	7½	6½	1	
ABN-S-2N90	6	8		1¼	
3" 4-Hole NEMA Flat					
ABN-E-4N90	¾	4⅝	3	½	600
ABN-F-4N90	1	4¾			650
ABN-G-4N90	1¼	5⅛			810
ABN-H-4N90	1½	5¼			930
ABN-J-4N90	2			⅝	1155
ABN-K-4N90	2½				1550
ABN-L-4N90	3	5¾	3¾	¾	1895
ABN-M-4N90	3½	6¼	4¼		2170
ABN-P-4N90	4	6¾		⅞	2460
ABN-R-4N90	5	7½	6½	1¼	3080
ABN-S-4N90	6	8			3735

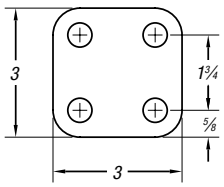
CAT. NO.	SPS	A	B	T	AMPS
4" 4-Hole NEMA Flat					
ABN-F-4NN90	1	5¾	3	½	1155
ABN-G-4NN90	1¼	6⅛		⅝	1550
ABN-H-4NN90	1½	6¼			1895
ABN-J-4NN90	2				1155
ABN-K-4NN90	2½			¾	1550
ABN-L-4NN90	3	6¾	3¾		1895
ABN-M-4NN90	3½	7¼	4¼	13/16	2170
ABN-P-4NN90	4	7¾		⅞	2460
ABN-R-4NN90	5	8½	6½	1	3080
ABN-S-4NN90	6	9		1¼	3735

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

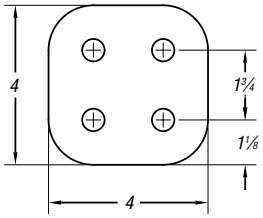
Type ABNC — Bolted Terminal, Pipe to Flat, Center Formed



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	B	T	AMPS
2-Hole NEMA Flat					
ABNC-E-2N	¾	6⅝	3	½	600
ABNC-F-2N	1	6¾			
ABNC-G-2N	1¼	7¾		⅝	
ABNC-H-2N	1½	7¼			
ABNC-J-2N	2	7 7/16			
ABNC-K-2N	2½	7½			
ABNC-L-2N	3	8	3¾	¾	
ABNC-M-2N	3½	7¾	4¼	⅞	
ABNC-P-2N	4	8			
ABNC-R-2N	5	11⅜	6½	1	
ABNC-S-2N	6	12		1¼	
3" 4-Hole NEMA Flat					
ABNC-E-4N	¾	6½	3	½	600
ABNC-F-4N	1	6¾			650
ABNC-G-4N	1¼	6½			810
ABNC-H-4N	1½				930
ABNC-J-4N	2	7 7/16		⅝	1155
ABNC-K-4N	2½	7½			1550
ABNC-L-4N	3	8	3¾	¾	1895
ABNC-M-4N	3½	9½	4¼	⅞	2170
ABNC-P-4N	4	9⅝			2460
ABNC-R-4N	5	11⅜	6½	1	3080
ABNC-S-4N	6	12		1¼	3735

CAT. NO.	SPS	A	B	T	AMPS
4" 4-Hole NEMA Flat					
ABNC-F-4NN	1	7⅝	3	½	1155
ABNC-G-4NN	1¼	8⅛		⅝	1550
ABNC-H-4NN	1½	8¼			1895
ABNC-J-4NN	2	7¾			1155
ABNC-K-4NN	2½	8		¾	1550
ABNC-L-4NN	3	9⅜	3¾		1895
ABNC-M-4NN	3½	10½	4¼	13/16	2170
ABNC-P-4NN	4	10¼		⅞	2460
ABNC-R-4NN	5	11⅜	6½	1	3080
ABNC-S-4NN	6	12		1¼	3735

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

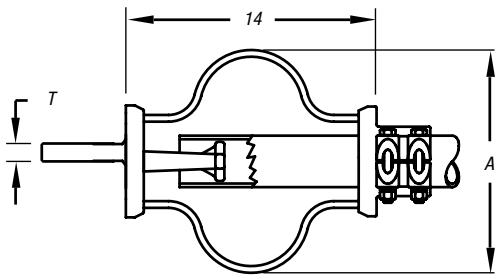
Thomas&Betts

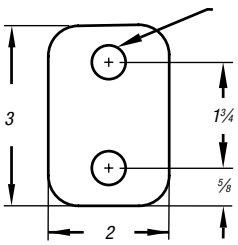
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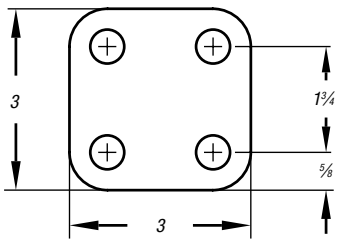
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Type ABEPC — Bolted Expansion Terminal, Pipe to Flat, Center Formed

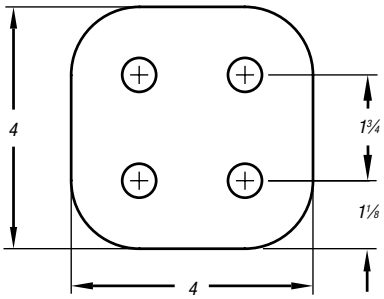




2-Hole NEMA Flat



3" 4-Hole NEMA Flat

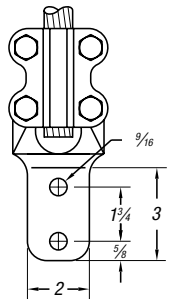


4" 4-Hole NEMA Flat

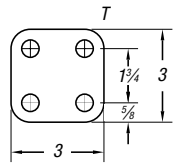
CAT. NO.	SPS	A	T	AMPS
2-Hole NEMA Flat				
ABEPC-H-2N	1½	14	¾	600
ABEPC-J-2N	2			
ABEPC-K-2N	2½	16		
ABEPC-L-2N	3	17		
ABEPC-M-2N	3½			
ABEPC-P-2N	4	18		
ABEPC-R-2N	5	20		
ABEPC-S-2N	6			
3" 4-Hole NEMA Flat				
ABEPC-H-4N	1½	14	1	930
ABEPC-J-4N	2			1155
ABEPC-K-4N	2½	16		1550
ABEPC-L-4N	3	17		1895
ABEPC-M-4N	3½			2000
ABEPC-P-4N	4	18		
ABEPC-R-4N	5	20		
ABEPC-S-4N	6			
4" 4-Hole NEMA Flat				
ABEPC-H-4NN	1½	14	1	930
ABEPC-J-4NN	2			1155
ABEPC-K-4NN	2½	16		1550
ABEPC-L-4NN	3	17		1895
ABEPC-M-4NN	3½			2000
ABEPC-P-4NN	4	18		
ABEPC-R-4NN	5	20		
ABEPC-S-4NN	6			

Other sizes available; consult Customer Service.
For sched. 80 pipe, add "H" to catalog number: e.g. ABEPCH-R-4NN.
Use chart GA-735 for installation; see technical reference ***page F-593****.*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
For 90° pad, add suffix "90" to catalog number e.g. ABEPCH-R-4NN90.
All pads are finished on both sides.

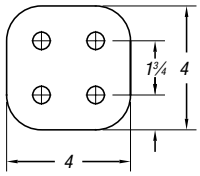
Type A7M — Bolted Terminal, Cable to Flat



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

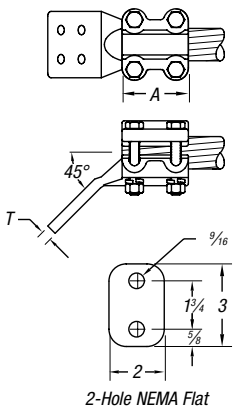


4" 4-Hole NEMA Flat

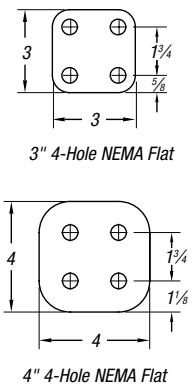
CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	B	T
2-Hole NEMA Flat						
A7M-25-2N	#4–250	#4–4/0	.232–.575	7	3	9/16
A7M-40-2N	1/0–400	1/0–336	.368–.741			
A7M-100-2N	250–1000	300–795	.567–1.150	7¼	3¼	
A7M-150-2N	556–1500	636–1272	.856–1.412	7⅝	3⅝	⅝
A7M-250-2N	1100–2500	1113–2300	1.209–1.823	8	4	¾
3" 4-Hole NEMA Flat						
A7M-25-4N	#4–250	#4–4/0	.232–.575	7	3	9/16
A7M-40-4N	1/0–400	1/0–336	.368–.741			
A7M-100-4N	250–1000	300–795	.567–1.150	7¼	3¼	
A7M-150-4N	556–1500	636–1272	.856–1.412	7⅝	3⅝	⅝
A7M-250-4N	1100–2500	1113–2300	1.209–1.823	8	4	
4" 4-Hole NEMA Flat						
A7M-40-4NN	1/0–400	1/0–336	.368–.741	7¾	3	9/16
A7M-100-4NN	250–1000	300–795	.567–1.150	8¼	3¼	⅝
A7M-150-4NN	556–1500	636–1272	.856–1.412	8⅝	3⅝	
A7M-250-4NN	1100–2500	1113–2300	1.209–1.823	9¼	4	
A7M-300-4NN	800–3000	795–2500	1.030–1.996	9⁵⁄₁₆	4¹⁄₁₆	1

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type A7M-45 — Bolted Terminal, Cable to Flat at 45°



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

4" 4-Hole NEMA Flat

CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat					
A7M-25-2N45	#4–250	#4–4/0	.232–.575	3	9/16
A7M-40-2N45	1/0–400	1/0–336	.368–.741		
A7M-100-2N45	250–1000	300–795	.567–1.150	3¼	
A7M-150-2N45	556–1500	636–1272	.856–1.412	3⅝	⅝
A7M-250-2N45	1100–2500	1113–2300	1.209–1.823	4	¾
3" 4-Hole NEMA Flat					
A7M-25-4N45	#4–250	#4–4/0	.232–.575	3	9/16
A7M-40-4N45	1/0–400	1/0–336	.368–.741		
A7M-100-4N45	250–1000	300–795	.567–1.150	3¼	
A7M-150-4N45	556–1500	636–1272	.856–1.412	3⅝	⅝
A7M-250-4N45	1100–2500	1113–2300	1.209–1.823	4	
4" 4-Hole NEMA Flat					
A7M-40-4NN45	1/0–400	1/0–336	.368–.741	3	9/16
A7M-100-4NN45	250–1000	300–795	.567–1.150	3¼	⅝
A7M-150-4NN45	556–1500	636–1272	.856–1.412	3⅝	
A7M-250-4NN45	1100–2500	1113–2300	1.209–1.823	4	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

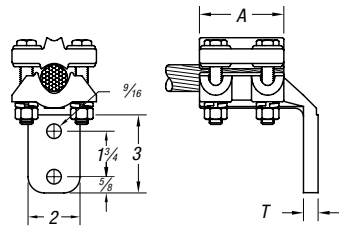
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Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

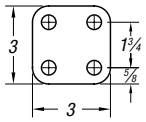
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Tel: 888.862.3289

www.tnb.com

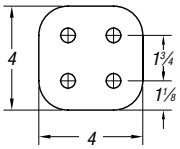
Type A7M-90 — Bolted Terminal, Cable to Flat at 90°



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

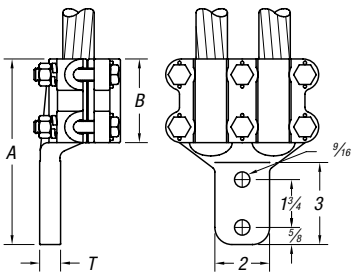


4" 4-Hole NEMA Flat

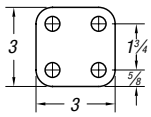
CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat					
A7M-25-2N90	#4–250	#4–4/0	.232–.575	3	9/16
A7M-40-2N90	1/0–400	1/0–336	.368–.741		
A7M-100-2N90	250–1000	300–795	.567–1.150	3¼	
A7M-150-2N90	556–1500	636–1272	.856–1.412	3⅝	⅝
A7M-250-2N90	1100–2500	1113–2300	1.209–1.823	4	¾
3" 4-Hole NEMA Flat					
A7M-25-4N90	#4–250	#4–4/0	.232–.575	3	9/16
A7M-40-4N90	1/0–400	1/0–336	.368–.741		
A7M-100-4N90	250–1000	300–795	.567–1.150	3¼	
A7M-150-4N90	556–1500	636–1272	.856–1.412	3⅝	⅝
A7M-250-4N90	1100–2500	1113–2300	1.209–1.823	4	
4" 4-Hole NEMA Flat					
A7M-40-4NN90	1/0–400	1/0–336	.368–.741	3	9/16
A7M-100-4NN90	250–1000	300–795	.567–1.150	3¼	⅝
A7M-150-4NN90	556–1500	636–1272	.856–1.412	3⅝	
A7M-250-4NN90	1100–2500	1113–2300	1.209–1.823	4	
A7M-300-4NN90	800–3000	795–2500	1.030–1.996	4⅛16	1

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

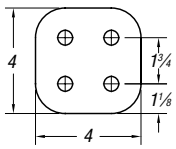
Type A7MM1 — Bolted Terminal, Two Cables to Flat, One-Cap Design



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

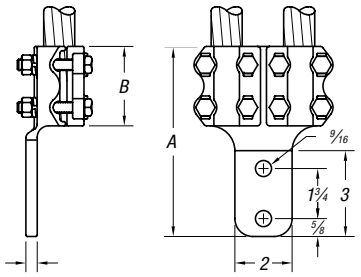


4" 4-Hole NEMA Flat

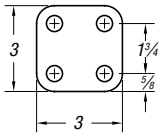
CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	B	T
2-Hole NEMA Flat						
A7MM1-25-2N	#4–250	#4–4/0	.232–.575	6⅝	3	½
A7MM1-40-2N	1/0–400	1/0–336	.368–.741			
A7MM1-100-2N	250–1000	300–795	.567–1.150	6⅞	3¼	¾
A7MM1-150-2N	600–1500	636–1272	.891–1.412	7¼	3⅝	1
A7MM1-250-2N	1100–2500	1133–2300	1.209–1.823	7⅝	4	1¼
3" 4-Hole NEMA Flat						
A7MM1-25-4N	#4–250	#4–4/0	.232–.575	6⅝	3	½
A7MM1-40-4N	1/0–400	1/0–336	.368–.741			
A7MM1-100-4N	250–1000	300–795	.567–1.150	6⅞	3¼	
A7MM1-150-4N	600–1500	636–1272	.891–1.412	7¼	3⅝	⅞
A7MM1-250-4N	1100–2500	1133–2300	1.209–1.823	7⅝	4	1
4" 4-Hole NEMA Flat						
A7MM1-40-4NN	1/0–400	1/0–336	.368–.741	7⅞	3	½
A7MM1-100-4NN	250–1000	300–795	.567–1.150	8⅛	3¼	
A7MM1-150-4NN	600–1500	636–1272	.891–1.412	8½	3⅝	⅞
A7MM1-250-4NN	1100–2500	1133–2300	1.209–1.823	8⅞	4	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
Other sizes available; consult Customer Service.
All pads are finished on both sides.

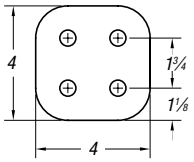
Type A7MM — Bolted Terminal, Two Cables to Flat, Two-Cap Design



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

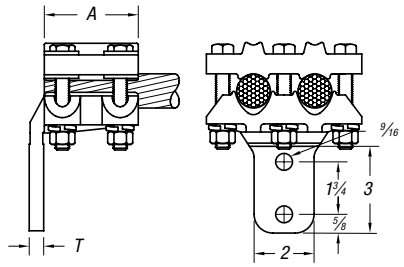


4" 4-Hole NEMA Flat

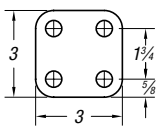
CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	B	T
2-Hole NEMA Flat						
A7MM-60-2N	350–600	336.4–477	.679–.893	7 3/16	3 3/16	½
A7MM-90-2N	600–900	556.5–715.5	.879–1.094	7¼	3½	
3" 4-Hole NEMA Flat						
A7MM-60-4N	350–600	336.4–477	.679–.893	7 3/16	3 3/16	½
A7MM-90-4N	600–900	556.5–715.5	.879–1.094	7¼	3½	
A7MM-125-4N	900–1250	715.5–1113	1.036–1.293	7½		
A7MM-160-4N	1250-1600	1113-1272	1.259–1.454	8⅛	4¼	¾
A7MM-200-4N	1500-2000	1272-1590	1.345–1.630		4½	
4" 4-Hole NEMA Flat						
A7MM-125-4NN	900–1250	715.5–1113	1.036–1.293	8⅛	3 9/16	½
A7MM-160-4NN	1250-1600	1113-1272	1.259–1.454	8⅝	4¼	9/16
A7MM-200-4NN	1500-2000	1272-1590	1.349–1.630	9⅛	4½	¾
A7MM-250-4NN	1800–2500	—	1.548–1.823	10	5¼	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
Other sizes available, consult Customer Service.
All pads are finished on both sides.

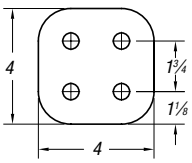
Type A7MM1-90 — Bolted Terminal, Two Cables to Flat at 90°, One-Cap Design



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat					
A7MM1-25-2N90	#4–250	#4–4/0	.232–.575	3	½
A7MM1-40-2N90	1/0–400	1/0–336	.368–.741		
A7MM1-100-2N90	250–1000	300–795	.567–1.150	3¼	¾
A7MM1-150-2N90	556–1500	636–1272	.856–1.412	3⅝	1
A7MM1-250-2N90	1100–2500	1133–2300	1.209–1.823	4	1¼
3" 4-Hole NEMA Flat					
A7MM1-25-4N90	#4–250	#4–4/0	.232–.575	3	½
A7MM1-40-4N90	1/0–400	1/0–336	.368–.741		
A7MM1-100-4N90	250–1000	300–795	.567–1.150	3¼	
A7MM1-150-4N90	556–1500	636–1272	.856–1.412	3⅝	⅞
A7MM1-250-4N90	1100–2500	1133–2300	1.209–1.823	4	1
4" 4-Hole NEMA Flat					
A7MM1-40-4NN90	1/0–400	1/0–336	.368–.741	3	½
A7MM1-100-4NN90	250–1000	300–795	.567–1.150	3¼	
A7MM1-150-4NN90	556–1500	636–1272	.856–1.412	3⅝	⅞
A7MM1-250-4NN90	1100–2500	1133–2300	1.209–1.823	4	

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

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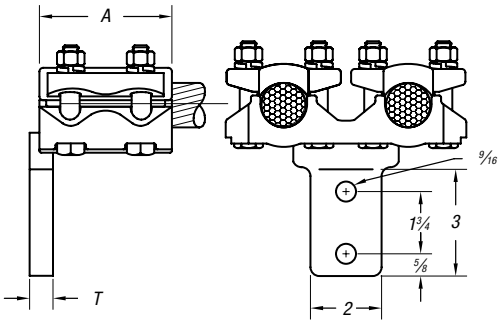
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Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

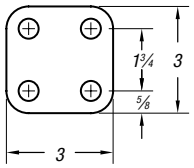
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Bolted Aluminum Connectors

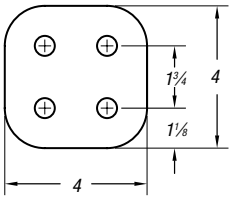
Type A7MM-90 — Bolted Terminal, Two Cables to Flat at 90°, Two-Cap Design



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

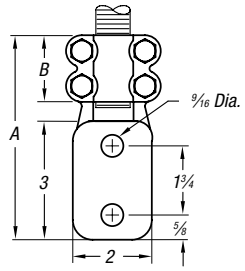


4" 4-Hole NEMA Flat

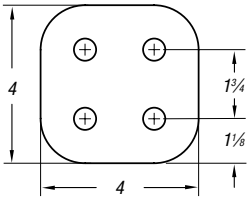
CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat					
A7MM-60-2N90	350–600	336.4–477	.679–.893	3 3⁄16	½
A7MM-90-2N90	600–900	556.5–715.5	.879–1.094	3½	
3" 4-Hole NEMA Flat					
A7MM-60-4N90	350–600	336.4–477	.679–.893	3 3⁄16	½
A7MM-90-4N90	600–900	556.5–715.5	.879–1.094	3½	
A7MM-125-4N90	900–1250	715.5–1113	1.036–1.293		
A7MM-160-4N90	1250–1600	1113–1272	1.259–1.454	4½	¾
A7MM-200-4N90	1500–2000	1272–1590	1.345–1.630		
4" 4-Hole NEMA Flat					
A7MM-125-4NN90	900–1250	715.5–1113	1.036–1.293	3 3⁄16	½
A7MM-160-4NN90	1250–1600	1113–1272	1.259–1.454	4¼	9⁄16
A7MM-200-4NN90	1500–2000	1272–1590	1.345–1.630	4½	¾
A7MM-250-4NN90	1800–2500	1113–2300	1.548–1.823	5¼	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
Other sizes available; consult Customer Service.
All pads are finished on both sides.

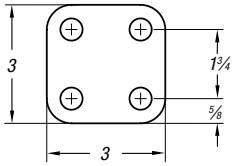
Type AVIE — Bolted Stud, Stud to Flat



2-Hole NEMA Flat



4" 4-Hole NEMA Flat

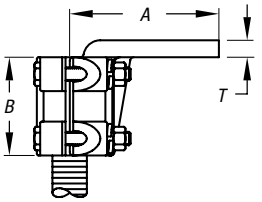


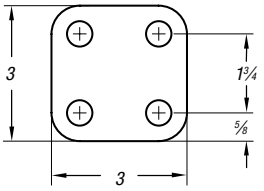
3" 4-Hole NEMA Flat

CAT. NO.	STUD SIZE	A	B	PAD TKS.
2-Hole NEMA Flat				
AVIE-6-2N	1⅛–12	6⅞	2⅜	9/16
AVIE-8-2N	1¼–12			
AVIE-10-2N	1½–12			5/8
AVIE-11B-2N	1¾–12		2½	¾
AVIE-13-2N	2–12			
3" 4-Hole NEMA Flat				
AVIE-6-4N	1⅛–12	6⅞	2⅜	9/16
AVIE-8-4N	1¼–12			
AVIE-10-4N	1½–12			5/8
AVIE-11B-4N	1¾–12		2½	¾
AVIE-13-4N	2–12			
AVIE-13A-4N	2¼–12	7¼	3	1
AVIE-13B-4N	2½–12			
AVIE-15-4N	3–12		3⅛	1¼
AVIE-15A-4N	3½–12			
AVIE-16-4N	4–12			
4" 4-Hole NEMA Flat				
AVIE-6-4NN	1⅛–12	8	2⅜	9/16
AVIE-8-4NN	1¼–12			
AVIE-10-4NN	1½–12			5/8
AVIE-11B-4NN	1¾–12		2½	¾
AVIE-13-4NN	2–12			
AVIE-13A-4NN	2¼–12	8 7/16	3	1
AVIE-13B-4NN	2½–12			
AVIE-15-4NN	3–12		3⅛	1¼
AVIE-15A-4NN	3½–12			
AVIE-16-4NN	4–12			

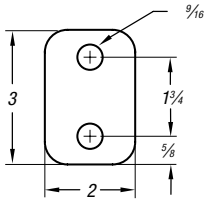
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type AVIE-90 — Bolted Stud, Stud to Flat at 90°

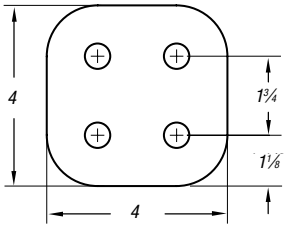




3" 4-Hole NEMA Flat



2-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	STUD SIZE	A	B	T
2-Hole NEMA Flat				
AVIE-6-2N90	1⅛–12	5¼	2⅜	9/16
AVIE-8-2N90	1¼–12			
AVIE-10-2N90	1½–12			5/8
AVIE-11B-2N90	1¾–12		2½	¾
AVIE-13-2N90	2–12			
3" 4-Hole NEMA Flat				
AVIE-6-4N90	1⅛–12	5¼	2⅜	9/16
AVIE-8-4N90	1¼–12			
AVIE-10-4N90	1½–12			5/8
AVIE-11B-4N90	1¾–12		2½	
AVIE-13-4N90	2–12			
AVIE-13A-4N90	2¼–12	5½	3	1
AVIE-13B-4N90	2½–12	5¾		
AVIE-15-4N90	3–12	6	3⅛	1¼
AVIE-15A-4N90	3½–12	6¼		
AVIE-16-4N90	4–12	6¾		
4" 4-Hole NEMA Flat				
AVIE-6-4NN90	1⅛–12	6¼	2⅜	9/16
AVIE-8-4NN90	1¼–12			
AVIE-10-4NN90	1½–12			5/8
AVIE-11B-4NN90	1¾–12		2½	¾
AVIE-13-4NN90	2–12			
AVIE-13A-4NN90	2¼–12	6½	3	1
AVIE-13B-4NN90	2½–12	6¾		
AVIE-15-4NN90	3–12	7	3⅛	1¼
AVIE-15A-4NN90	3½–12	7¼		
AVIE-16-4NN90	4–12	7¾		

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

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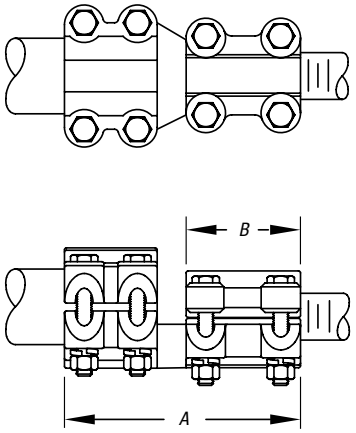
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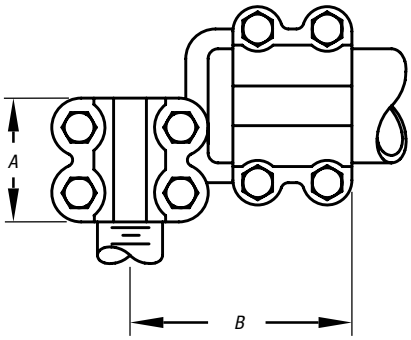
Type AVIC — Bolted Stud, Stud to Pipe, Vertical Take-Off



CAT. NO.	STUD SIZE	SPS	A	B
AVIC-6-E	1⅛–12	¾	5¾	3
AVIC-6-F		1		
AVIC-6-G		1¼		
AVIC-6-H		1½		
AVIC-6-J		2		
AVIC-8-E	1¼–12	¾		
AVIC-8-F		1		
AVIC-8-G		1¼		
AVIC-8-H		1½		
AVIC-8-J		2		
AVIC-10-E	1½–12	¾		
AVIC-10-F		1		
AVIC-10-G		1¼		
AVIC-10-H		1½		
AVIC-10-J		2		
AVIC-10-K		2½		
AVIC-10-L		3	7	3¾
AVIC-11B-E	1¾–12	¾	5¾	3
AVIC-11B-F		1		
AVIC-11B-G		1¼		
AVIC-11B-H		1½		
AVIC-11B-J		2		
AVIC-11B-K		2½		
AVIC-11B-L		3	7¼	3¾
AVIC-13-E	2–12	¾	5¾	3
AVIC-13-F		1		
AVIC-13-G		1¼		
AVIC-13-H		1½		
AVIC-13-J		2		
AVIC-13-K		2½		
AVIC-13-L		3	7 7/16	3¾

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

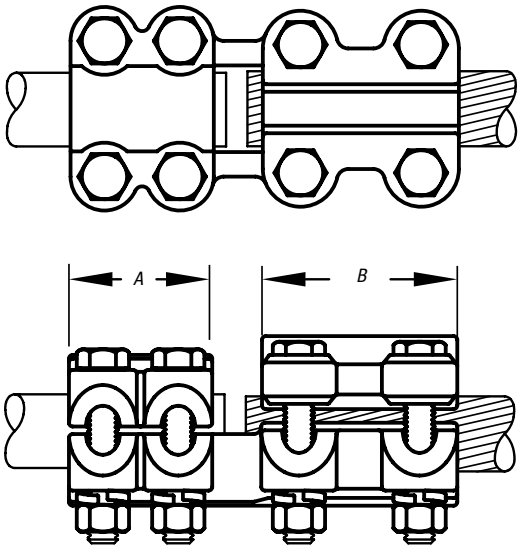
Type AVIC-90 — Bolted Stud, Stud to Pipe at 90°



CAT. NO.	STUD SIZE	SPS	A	B
AVIC-6-E90	1⅛–12	¾	2⅜	5
AVIC-6-F90		1		
AVIC-6-G90		1¼		
AVIC-6-H90		1½		
AVIC-6-J90		2		
AVIC-8-E90	1¼–12	¾		5¼
AVIC-8-F90		1		
AVIC-8-G90		1¼		
AVIC-8-H90		1½		
AVIC-8-J90		2		
AVIC-10-E90	1½–12	¾		5½
AVIC-10-F90		1		
AVIC-10-G90		1¼		
AVIC-10-H90		1½		
AVIC-10-J90		2		
AVIC-10-K90		2½		
AVIC-10-L90		3		
AVIC-11B-E90	1¾–12	¾	2½	5¾
AVIC-11B-F90		1		
AVIC-11B-G90		1¼		
AVIC-11B-H90		1½		
AVIC-11B-J90		2		
AVIC-11B-K90		2½		
AVIC-11B-L90		3		
AVIC-13-E90	2–12	¾		6
AVIC-13-F90		1		
AVIC-13-G90		1¼		
AVIC-13-H90		1½		
AVIC-13-J90		2		
AVIC-13-K90		2½		
AVIC-13-L90		3		7

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type AVID — Bolted Stud, Stud to Cable



CAT. NO.	STUD SIZE	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	B
AVID-6-25	1⅛–12	#4–250	#4–4/0	.232–.575	2⅜	3
AVID-6-40		1/0–400	1/0–336	.368–.741		
AVID-6-100		250–1000	300–795	.567–1.150		3¼
AVID-6-150		556–1500	636–1272	.856–1.412		3⅝
AVID-6-250		1100–2500	1113–2300	1.209–1.823		4
AVID-8-25	1¼–12	#4–250	#4–4/0	.232–.575		3
AVID-8-40		1/0–400	1/0–336	.368–.741		
AVID-8-100		250–1000	300–795	.567–1.150		3¼
AVID-8-150		556–1500	636–1272	.856–1.412		3⅝
AVID-8-250		1100–2500	1113–2300	1.209–1.823		4
AVID-10-25	1½–12	#4–250	#4–4/0	.232–.575		3
AVID-10-40		1/0–400	1/0–336	.368–.741		
AVID-10-100		250–1000	300–795	.567–1.150		3¼
AVID-10-150		556–1500	636–1272	.856–1.412		3⅝
AVID-10-250		1100–2500	1113–2300	1.209–1.823		4
AVID-11B-25	1¾–12	#4–250	#4–4/0	.232–.575	2½	3
AVID-11B-40		1/0–400	1/0–336	.368–.741		
AVID-11B-100		250–1000	300–795	.567–1.150		3¼
AVID-11B-150		556–1500	636–1272	.856–1.412		3⅝
AVID-11B-250		1100–2500	1113–2300	1.209–1.823		4
AVID-13-25	2–12	#4–250	#4–4/0	.232–.575		3
AVID-13-40		1/0–400	1/0–336	.368–.741		
AVID-13-100		250–1000	300–795	.567–1.150		3¼
AVID-13-150		556–1500	636–1272	.856–1.412		3⅝
AVID-13-250		1100–2500	1113–2300	1.209–1.823		4

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

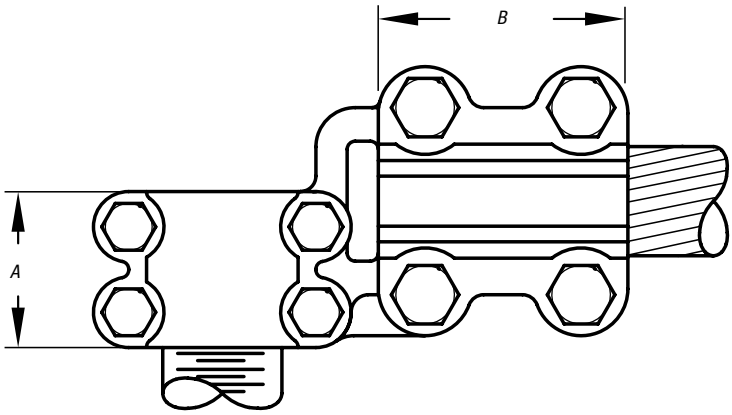
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United States
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Type AVID-90 — Bolted Stud, Stud to Cable at 90°



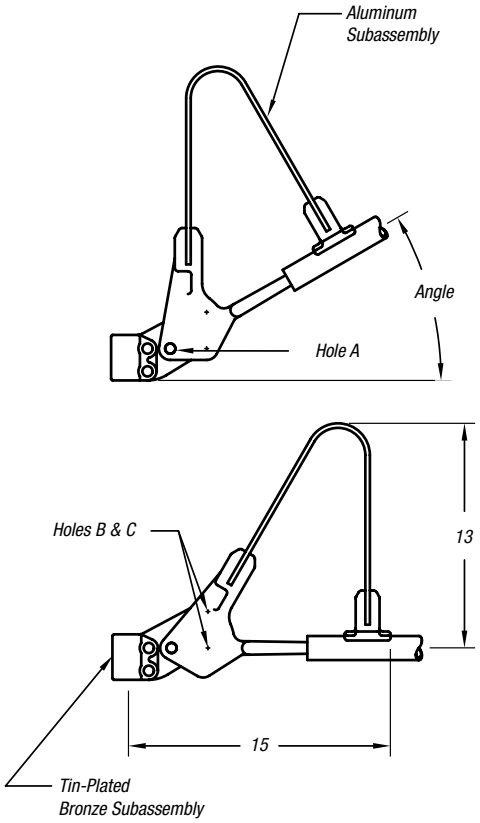
CAT. NO.	STUD SIZE	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIAMETER MIN.–MAX.	A	B
AVID-6-25-90	1⅛–12	#4–250	#4–4/0	.232–.575	2⅜	3
AVID-6-40-90		1/0–400	1/0–336	.368–.741		
AVID-6-100-90		250–1000	300–795	.567–1.150		3¼
AVID-6-150-90		556–1500	636–1272	.856–1.412		3⅝
AVID-6-250-90		1100–2500	1113–2300	1.209–1.823		4
AVID-8-25-90	1¼–12	#4–250	#4–4/0	.232–.575		3
AVID-8-40-90		1/0–400	1/0–336	.368–.741		
AVID-8-100-90		250–1000	300–795	.567–1.150		3¼
AVID-8-150-90		556–1500	636–1272	.856–1.412		3⅝
AVID-8-250-90		1100–2500	1113–2300	1.209–1.823		4
AVID-10-25-90	1½–12	#4–250	#4–4/0	.232–.575		3
AVID-10-40-90		1/0–400	1/0–336	.368–.741		
AVID-10-100-90		250–1000	300-795	.567–1.150		3¼
AVID-10-150-90		556–1500	636–1272	.856–1.412		3⅝
AVID-10-250-90		1100–2500	1113–2300	1.209–1.823		4
AVID-11B-25-90	1¾–12	#4–250	#4–4/0	.232–.575	2½	3
AVID-11B-40-90		1/0–400	1/0–336	.368–.741		
AVID-11B-100-90		250–1000	300–795	.567–1.150		3¼
AVID-11B-150-90		556–1500	636–1272	.856–1.412		3⅝
AVID-11B-250-90		1100–2500	1113–2300	1.209–1.823		4
AVID-13-25-90	2–12	#4–250	#4–4/0	.232–.575		3
AVID-13-40-90		1/0–400	1/0–336	.368–.741		
AVID-13-100-90		250–1000	300–795	.567–1.150		3¼
AVID-13-150-90		556–1500	636–1272	.856–1.412		3⅝
AVID-13-250-90		1100–2500	1113–2300	1.209–1.823		4

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type WVLS12 — Adjustable Flexible-Angle Stud Assembly, Stud to Pipe, Welded

These flexible stud connectors are designed to be vertically adjustable within the limits 30° counterclockwise and 5° clockwise. This feature will accommodate the off-vertical angle common on circuit breaker bushings. The design also does not degrade phase spacing.

These connectors consist of two subassemblies: The tin-plated bronze stud connector and the one-piece aluminum subassembly. All holes exist in the stud connector. Only hole "A" exists in the aluminum part. Using bolt "A" as a pivot point, the angle is determined and holes "B" and "C" are drilled to fit.



CAT. NO.	STUD SIZE	SPS	AMPS
WVLS12-5A-F	1–12	1	650
WVLS12-5A-G		1¼	810
WVLS12-5A-H		1½	930
WVLS12-5A-J		2	1155
WVLS12-5A-K		2½	1200
WVLS12-5A-L		3	
WVLS12-6-F	1⅛–12	1	650
WVLS12-6-G		1¼	810
WVLS12-6-H		1½	930
WVLS12-6-J		2	1155
WVLS12-6-K		2½	1200
WVLS12-6-L		3	
WVLS12-8-F	1¼–12	1	650
WVLS12-8-G		1¼	810
WVLS12-8-H		1½	930
WVLS12-8-J		2	1155
WVLS12-8-K		2½	1200
WVLS12-8-L		3	
WVLS12-10-F	1½–12	1	650
WVLS12-10-G		1¼	810
WVLS12-10-H		1½	930
WVLS12-10-J		2	1155
WVLS12-10-K		2½	1200
WVLS12-10-L		3	
WVLS12-11B-F	1¾–12	1	650
WVLS12-11B-G		1¼	810
WVLS12-11B-H		1½	930
WVLS12-11B-J		2	1155
WVLS12-11B-K		2½	1200
WVLS12-11B-L		3	
WVLS12-13-F	2–12	1	650
WVLS12-13-G		1¼	810
WVLS12-13-H		1½	930
WVLS12-13-H		2	1155
WVLS12-13-K		2½	1200
WVLS12-13-L		3	

For schedule 80 pipe, add "H" to catalog number: e.g. WVLS12VLSH12-13-L.

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Bolted Aluminum Connectors

Type WVLS20 — Adjustable Flexible-Angle Stud Assembly, Stud to Pipe, Welded

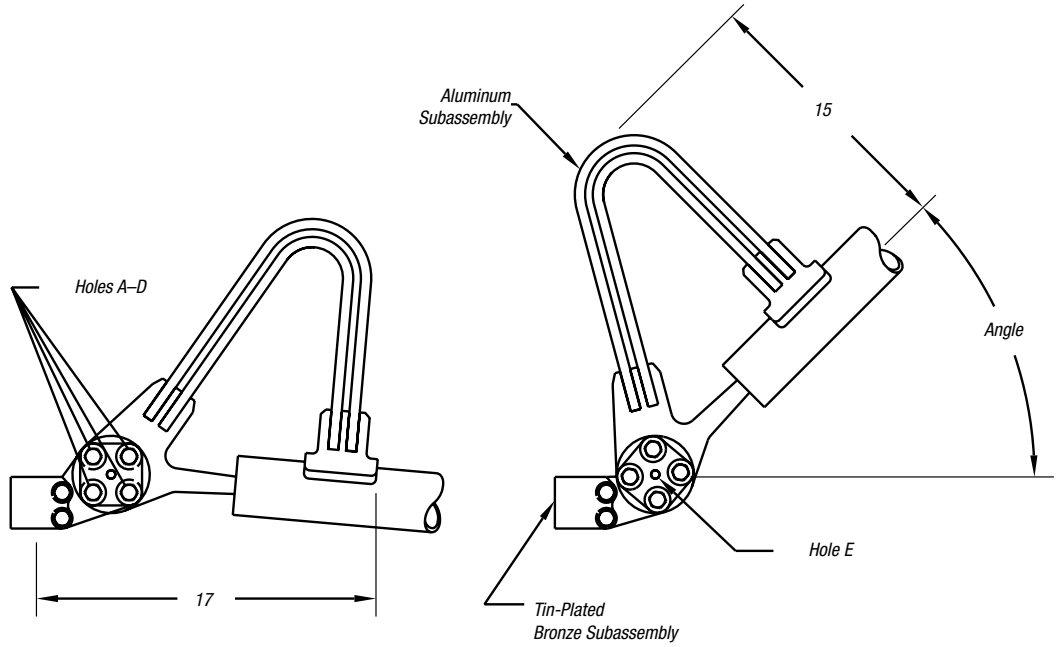
These flexible stud connectors are designed to be vertically adjustable within the limits 75° counterclockwise and 90° clockwise. This feature will accommodate the off-vertical angle common on circuit breaker bushings. The design also does not degrade phase spacing.

These connectors consist of two subassemblies: The tin-plated bronze stud connector and the one-piece aluminum subassembly. All holes exist in the stud connector. only hole "E" exists in the aluminum subassembly. Using bolt "E" as a pivot point, the angle is determined and holes "A" through "D" are drilled to fit.

Caution: These devices can degrade tank clearances.

CAT. NO.	STUD SIZE	SPS	AMPS
WVLS20-10-J	1½–12	2	1155
WVLS20-10-K		2½	1550
WVLS20-10-L		3	1895
WVLS20-11B-J	1¾–12	2	1155
WVLS20-11B-K		2½	1550
WVLS20-11B-L		3	1895
WVLS20-13-J	2–12	2	1155
WVLS20-13-K		2½	1550
WVLS20-13-L		3	1895

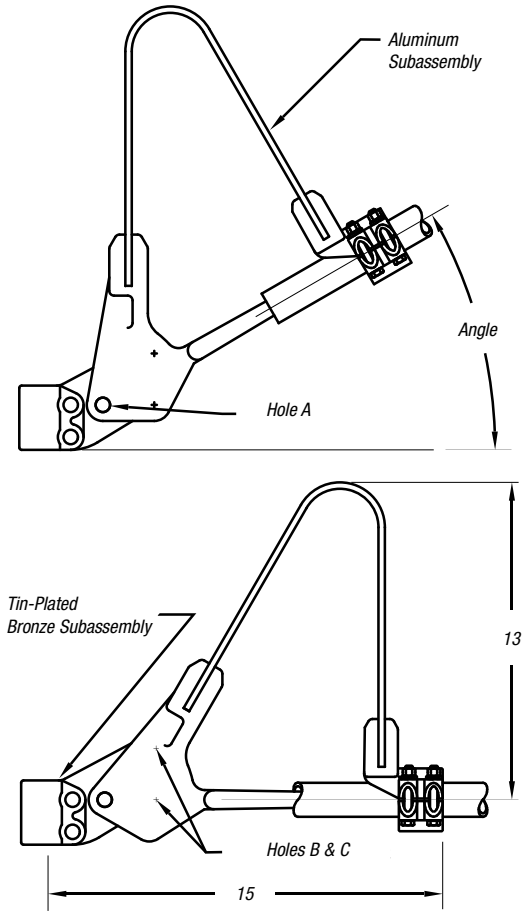
These devices can be made upside down and backwards; consult Customer Service.
For schedule 80 pipe, add "H" to catalog number: e.g. WVLSH20-13-L.



Type AVLS12 — Adjustable Flexible-Angle Stud Assembly, Stud to Pipe, Bolted

These flexible stud connectors are designed to be vertically adjustable within the limits 30° counterclockwise and 5° clockwise. This feature will accommodate the off-vertical angle common on circuit breaker bushings. The design also does not degrade phase spacing.

These connectors consist of two subassemblies: The tin-plated bronze stud connector and the aluminum subassembly. All holes exist in the stud connector. Only hole "A" exists in the aluminum part. Using bolt "A" as a pivot point, the angle is determined and holes "B" and "C" are drilled to fit.



CAT. NO.	STUD SIZE	SPS	AMPS
AVLS12-5A-F	1–12	1	650
AVLS12-5A-G		1¼	810
AVLS12-5A-H		1½	930
AVLS12-5A-J		2	1155
AVLS12-5A-K		2½	1200
AVLS12-5A-L		3	
AVLS12-6-F	1⅛–12	1	650
AVLS12-6-G		1¼	810
AVLS12-6-H		1½	930
AVLS12-6-J		2	1155
AVLS12-6-K		2½	1200
AVLS12-6-L		3	
AVLS12-8-F	1¼–12	1	650
AVLS12-8-G		1¼	810
AVLS12-8-H		1½	930
AVLS12-8-J		2	1155
AVLS12-8-K		2½	1200
AVLS12-8-L		3	
AVLS12-10-F	1½–12	1	650
AVLS12-10-G		1¼	810
AVLS12-10-H		1½	930
AVLS12-10-J		2	1155
AVLS12-10-K		2½	1200
AVLS12-10-L		3	
AVLS12-11B-F	1¾–12	1	650
AVLS12-11B-G		1¼	810
AVLS12-11B-H		1½	930
AVLS12-11B-J		2	1155
AVLS12-11B-K		2½	1200
AVLS12-11B-L		3	
AVLS12-13-F	2–12	1	650
AVLS12-13-G		1¼	810
AVLS12-13-H		1½	930
AVLS12-13-J		2	1155
AVLS12-13-K		2½	1200
AVLS12-13-L		3	

For schedule 80 pipe, add "H" to catalog number: e.g. AVLSH12-13-L.

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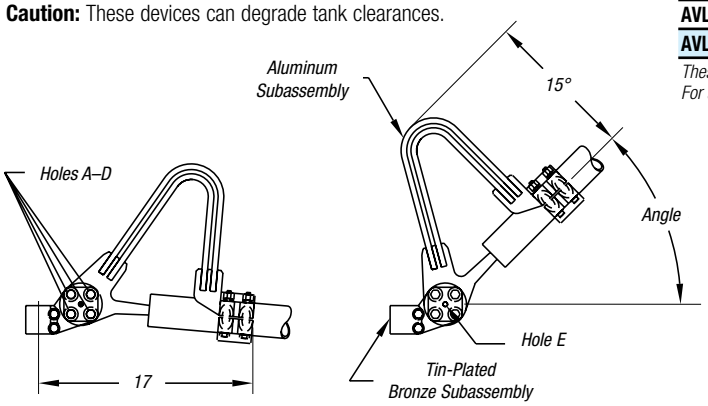
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Type AVLS20 — Adjustable Flexible-Angle Stud Assembly, Stud To Pipe, Bolted

These flexible stud connectors are designed to be vertically adjustable within the limits 75° counterclockwise and 90° clockwise. This feature will accommodate the off-vertical angle common on circuit breaker bushings. The design also does not degrade phase spacing.

These connectors consist of two subassemblies: The tin-plated bronze stud connector and the one-piece aluminum subassembly. All holes exist in the stud connector. Only hole "E" exists in the aluminum subassembly. Using bolt "E" as a pivot point, the angle is determined and holes "A" through "D" are drilled to fit.

Caution: These devices can degrade tank clearances.



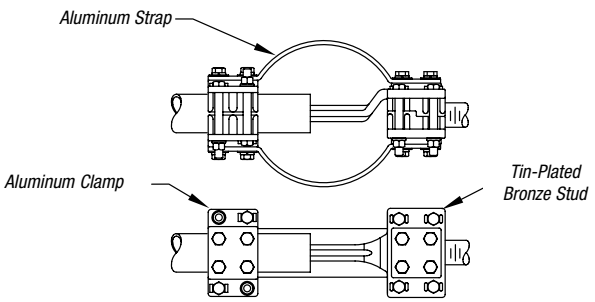
CAT. NO.	STUD SIZE	SPS	AMPS
AVLS20-10-J	1½–12	2	1155
AVLS20-10-K		2½	1590
AVLS20-10-L		3	1895
AVLS20-11B-J	1¾–12	2	1155
AVLS20-11B-K		2½	1590
AVLS20-11B-L		3	1895
AVLS20-13-J	2–12	2	1155
AVLS20-13-K		2½	1590
AVLS20-13-L		3	1895

These devices can be made upside down and backwards; consult Customer Service.
For schedule 80 pipe, add "H" to catalog number: e.g. AVLSH20-13-L.

Type ASPKG — Expansion Stud, Aluminum Pipe to Copper Stud

Catalog number will be designated from the following information:

ASPKG - (STUD LETTER) - (PIPE LETTER)
e.g.: ASPKG-8-P



STUD SIZE	STUD LETTER
1⅛–12	6
1¼–12	8
1½–12	10
1¾–12	11B
2–12	13
2½–12	13B
3–12	15

PIPE SIZE	PIPE LETTER
1¼	G
1½	H
2	J
2½	K
3	L
3½	M
4	P

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
For 90º take-off, add "90" to catalog number. e.g.: ASPKG-15-G90.
For schedule 80, pipe add "H" to catalog number: e.g. ASPKGH-8-P.
Use chart GA-735 for installation; see technical reference ***page F-593****.*

Type AVLS — Flexible Aluminum Strap

Fig. 1

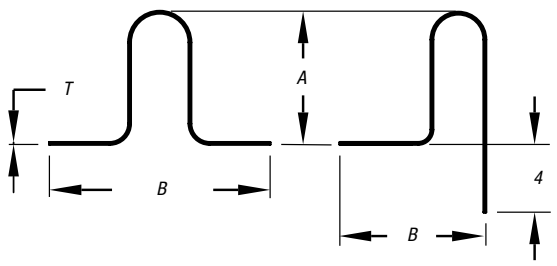
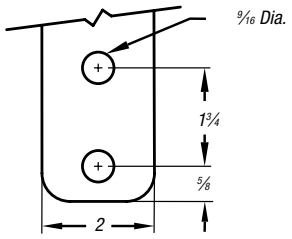
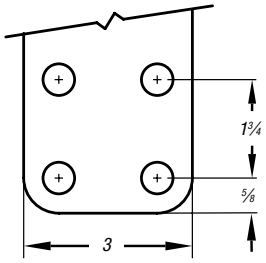


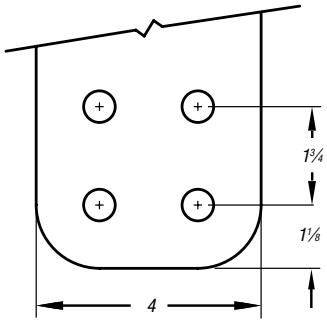
Fig. 1



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	FIG.	A	B	T	AMPS
2-Hole NEMA Flat					
AVLS1-300-2N	1	6	11¼	⅛	300
AVLS1-530-2N				¼	530
AVLS1-670-2N				⅜	670
3" 4-Hole NEMA Flat					
AVLS1-420-4N	1	8	13¼	⅛	420
AVLS1-750-4N				¼	750
AVLS1-930-4N				⅜	930
4" 4-Hole NEMA Flat					
AVLS1-530-4NN	1	8	13¼	⅛	530
AVLS1-960-4NN				¼	960
AVLS1-1170-4NN				⅜	1170
2-Hole NEMA Flat					
AVLS2-300-2N	2	6	7⅝	⅛	300
AVLS2-530-2N				¼	530
AVLS2-670-2N				⅜	670
3" 4-Hole NEMA Flat					
AVLS2-420-4N	2	8	8⅝	⅛	420
AVLS2-750-4N				¼	750
AVLS2-930-4N				⅜	930
4" 4-Hole NEMA Flat					
AVLS2-530-4NN	2	8	8⅝	⅛	530
AVLS2-960-4NN				¼	960
AVLS2-1170-4NN				⅜	1170

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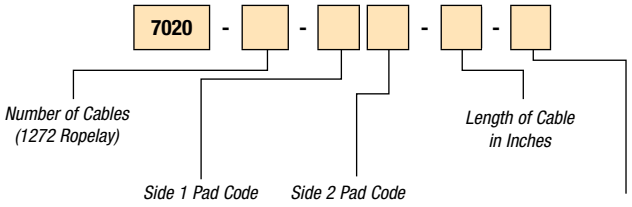
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Fax: 901.252.1354

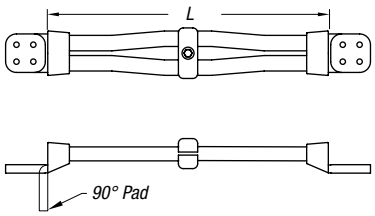
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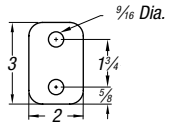
Type 7020 — Welded Cable Jumpers, Flat to Flat

CATALOG NUMBERS FORMED AS FOLLOWS:

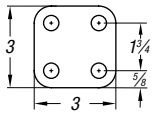




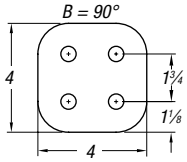
Weld Code:
W1 *= Side 1 Factory Welded*
W2 *= Both Sides Factory Welded*



2-Hole NEMA Flat
Pad Code:
A = Straight
B = 90°



3" 4-Hole NEMA Flat
Pad Code:
C = Straight
B = 90°

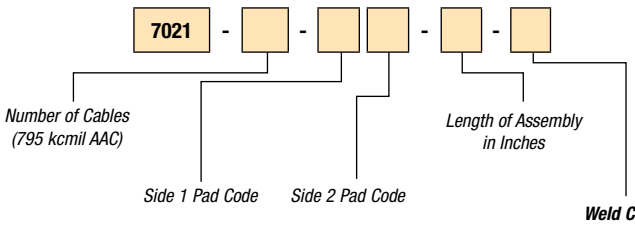


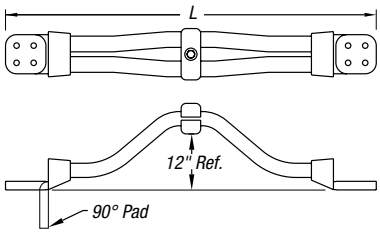
4" 4-Hole NEMA Flat
Pad Code:
E = Straight
B = 90°

1272 ropelay ampacity (30° C/40° C) = 940 amps.
Cable spacers supplied if cable lengths are 48" or longer.

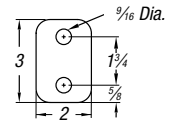
Type 7021 — Welded Cable Jumpers, Flat to Flat

CATALOG NUMBERS FORMED AS FOLLOWS:

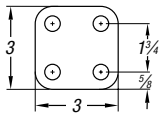




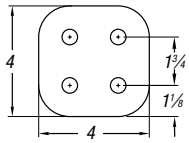
Weld Code:
W1 *= Side 1 Factory Welded*
W2 *= Both Sides Factory Welded*



2-Hole NEMA Flat
Pad Code:
A = Straight
B = 90°



3" 4-Hole NEMA Flat
Pad Code:
C = Straight
B = 90°

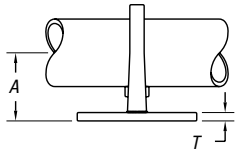


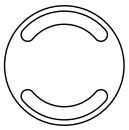
4" 4-Hole NEMA Flat
Pad Code:
E = Straight
B = 90°

795 kcmil AAC ampacity (30° C/40° C) = 885 amps.
Cable spacers supplied if cable lengths are 48" or longer.

Bolted Aluminum Connectors

Type ATB — Slide Bus Support, Pipe to Insulator



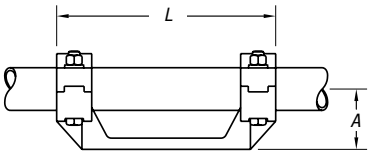


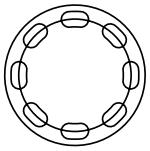
Slots: 3" BC 9/16
5" BC 11/16

CAT. NO.	SPS	A	T
3" Bolt Circle			
ATB-E-3	¾	2	7/16
ATB-F-3	1		
ATB-G-3	1¼	2¼	
ATB-H-3	1½	2½	
ATB-J-3	2	2¾	
ATB-K-3	2½	3⅛	
ATB-L-3	3	3⅝	
ATB-M-3	3½	4	½
ATB-P-3	4	4½	
ATB-R-3	5	5	
ATB-S-3	6	5½	
5" Bolt Circle			
ATB-E-5	¾	2¼	½
ATB-F-5	1		
ATB-G-5	1¼	2⅜	
ATB-H-5	1½	2½	
ATB-J-5	2	2¾	
ATB-K-5	2½	3⅛	
ATB-L-5	3	3⅝	
ATB-M-5	3½	4	
ATB-P-5	4	4½	
ATB-R-5	5	5	
ATB-S-5	6	5½	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. Galvanized hardware for mounting to insulator and stainless steel anti-chatter spring are supplied.

Type ASBC — Bolted Bus Support, Pipe to Insulator, Clamp or Slip Fit





Slots: 3" BC 9/16 x ¾
5" BC 11/16 x 7/8

CAT. NO.	SPS	A	L
3" Bolt Circle			
ASBC-E-3	¾	2	8½
ASBC-F-3	1		
ASBC-G-3	1¼	2¼	
ASBC-H-3	1½	2½	
ASBC-J-3	2	2¾	
ASBC-K-3	2½	3⅛	
ASBC-L-3	3	3⅝	8
ASBC-M-3	3½	4	7⅝
ASBC-P-3	4	4½	8
ASBC-R-3	5	5	
ASBC-S-3	6	5½	
5" Bolt Circle			
ASBC-E-5	¾	2¼	9¼
ASBC-F-5	1		
ASBC-G-5	1¼	2⅜	
ASBC-H-5	1½	2½	9½
ASBC-J-5	2	2¾	
ASBC-K-5	2½	3⅛	
ASBC-L-5	3	3⅝	10
ASBC-M-5	3½	4	
ASBC-P-5	4	4½	
ASBC-R-5	5	5	10½
ASBC-S-5	6	5½	11

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. Galvanized hardware for mounting to insulator and stainless steel anti-chatter spring are supplied.

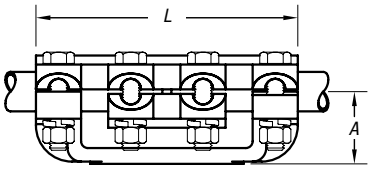
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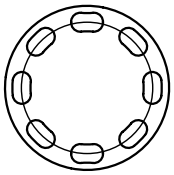
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Fax: 901.252.1354

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Tel: 888.862.3289

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Type ASBCC — Bolted Bus Support Coupler, Pipe to Insulator



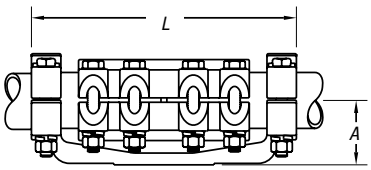


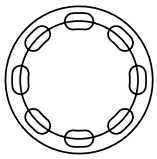
Slots: 3" BC 9⁄16 x 3⁄4
5" BC 11⁄16 x 7⁄8

CAT. NO.	SPS	A	T
3" Bolt Circle			
ASBCC-E-3	¾	2	7½
ASBCC-F-3	1		
ASBCC-G-3	1¼	2¼	
ASBCC-H-3	1½	2½	
ASBCC-J-3	2	2¾	
ASBCC-K-3	2½	3⅛	
ASBCC-L-3	3	3⅝	8
ASBCC-M-3	3½	4	
ASBCC-P-3	4	4½	
ASBCC-R-3	5	5	
ASBCC-S-3	6	5½	
5" Bolt Circle			
ASBCC-E-5	¾	2¼	9½
ASBCC-F-5	1		
ASBCC-G-5	1¼	2⅜	
ASBCC-H-5	1½	2½	
ASBCC-J-5	2	2¾	
ASBCC-K-5	2½	3⅛	
ASBCC-L-5	3	3⅝	10
ASBCC-M-5	3½	4	
ASBCC-P-5	4	4½	
ASBCC-R-5	5	5	
ASBCC-S-5	6	5½	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. Galvanized hardware for mounting to insulator and stainless steel anti-chatter spring are supplied.

Type ASBCE — Slide Bus Support Coupler, Pipe to Insulator



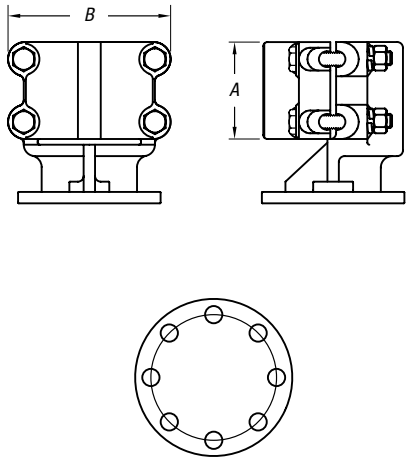


Slots: 3" BC 9⁄16 x 3⁄4
5" BC 11⁄16 x 7⁄8

CAT. NO.	SPS	A	L
3" Bolt Circle			
ASBCE-E-3	¾	2	11¼
ASBCE-F-3	1		
ASBCE-G-3	1¼	2¼	
ASBCE-H-3	1½	2½	
ASBCE-J-3	2	2¾	
ASBCE-K-3	2½	3⅛	
ASBCE-L-3	3	3⅝	12
ASBCE-M-3	3½	4	
ASBCE-P-3	4	4½	
ASBCE-R-3	5	5	13
ASBCE-S-3	6	5½	
5" Bolt Circle			
ASBCE-E-5	¾	2¼	10¼
ASBCE-F-5	1		
ASBCE-G-5	1¼	2⅜	
ASBCE-H-5	1½	2½	
ASBCE-J-5	2	2¾	13¼
ASBCE-K-5	2½	3⅛	
ASBCE-L-5	3	3⅝	14½
ASBCE-M-5	3½	4	
ASBCE-P-5	4	4½	
ASBCE-R-5	5	5	
ASBCE-S-5	6	5½	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. Galvanized hardware for mounting to insulator and stainless steel anti-chatter spring are supplied.

Type AVBS — Bolted Vertical Bus Support, Pipe to Insulator

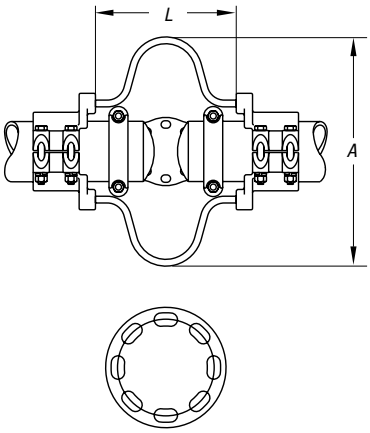


Slots: 3" BC 9/16
5" BC 11/16

CAT. NO.	SPS	A	B
3" Bolt Circle			
AVBS-E-3	¾	3	2⅞
AVBS-F-3	1		3⅜
AVBS-G-3	1¼		3¾
AVBS-H-3	1½		4
AVBS-J-3	2		4½
AVBS-K-3	2½		5
AVBS-L-3	3	3¾	6
AVBS-M-3	3½	4¼	6½
AVBS-P-3	4		7⅛
AVBS-R-3	5		8⁵⁄₁₆
AVBS-S-3	6		9⁵⁄₁₆
5" Bolt Circle			
AVBS-E-5	¾	3	2⅞
AVBS-F-5	1		3⅜
AVBS-G-5	1¼		3¾
AVBS-H-5	1½		4
AVBS-J-5	2		4½
AVBS-K-5	2½		5
AVBS-L-5	3	3¾	6
AVBS-M-5	3½	4¼	6½
AVBS-P-5	4		7⅛
AVBS-R-5	5		8⁵⁄₁₆
AVBS-S-5	6		9⁵⁄₁₆

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
Galvanized hardware for mounting to insulator is supplied.

Type APPB — Bolted Expansion Bus Support, Pipe to Insulator



Slots: 3" BC 9/16 x ¾
5" BC 11/16 x ⅞

CAT. NO.	SPS	A
3" Bolt Circle		
APPB-G-3	1¼	16
APPB-H-3	1½	
APPB-J-3	2	
APPB-K-3	2½	17
APPB-L-3	3	19
APPB-M-3	3½	
APPB-P-3	4	
APPB-R-3	5	21
APPB-S-3	6	
5" Bolt Circle		
APPB-F-5	1	16
APPB-G-5	1¼	
APPB-H-5	1½	
APPB-J-5	2	
APPB-K-5	2½	17
APPB-L-5	3	19
APPB-M-5	3½	
APPB-P-5	4	
APPB-R-5	5	21
APPB-S-5	6	

Use chart GA-796 for installation; see technical reference ***page F-594****.*
For schedule 80 pipe, add "H" to catalog number: e.g. APPBH-G-3.
Connector bus height is in accordance with NEMA standard CC 1.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
Galvanized hardware for mounting to insulator, end caps and stainless steel anti-chatter springs are supplied.

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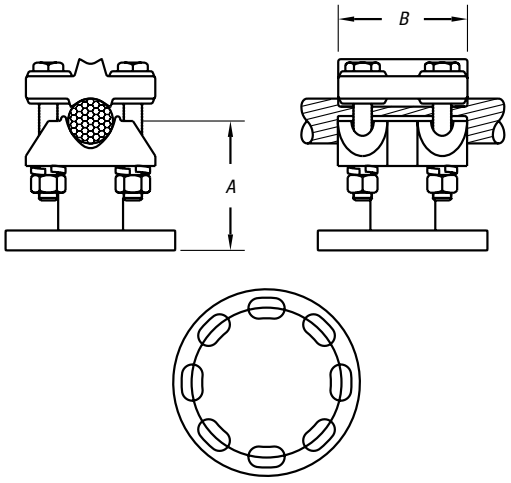
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Bolted Aluminum Connectors

Type ASBD — Bolted Bus Support, Cable to Insulator

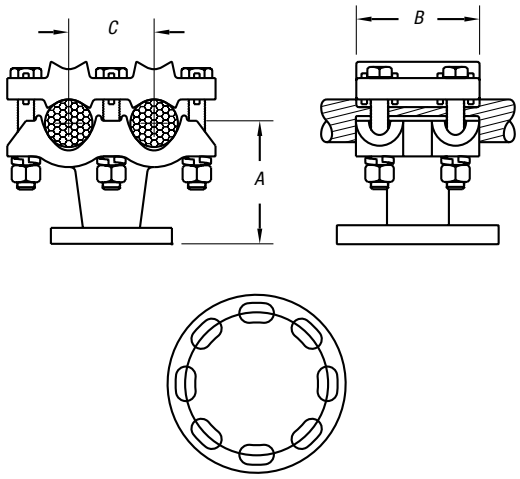


Slots: 3" BC 9/16 x 3/4
5" BC 11/16 x 7/8

CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIA. MIN.–MAX.	A	B
3" Bolt Circle					
ASBD-25-3	#4–250	#4–4/0	.232–.575	3	2 7/8
ASBD-40-3	1/0–400	1/0–336	.368–.741		
ASBD-100-3	250–1000	300–795	.567–1.150	3 1/4	3 1/4
ASBD-175-3	4/0–1750	4/0–1590	.522–1.545	3 1/2	3 1/2
ASBD-250-3	1100–2500	1133–2300	1.209–1.823		4
5" Bolt Circle					
ASBD-40-5	1/0–400	1/0–336	.368–.741	3	2 7/8
ASBD-100-5	250–1000	300–795	.567–1.150	3 1/4	3 1/4
ASBD-175-5	4/0–1750	4/0–1590	.522–1.545	3 1/2	3 1/2
ASBD-250-5	1100–2500	1133–2300	1.209–1.823		4

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. Galvanized hardware for mounting to insulator is supplied.

Type ASBP — Bolted Bus Support, Two Cables to Insulator



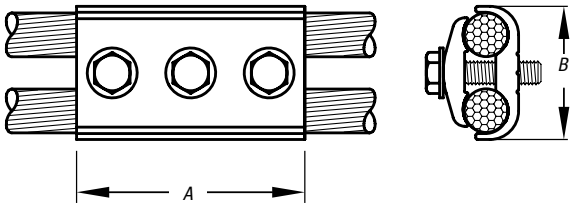
Slots: 3" BC 9/16 x 3/4
5" BC 11/16 x 7/8

CAT. NO.	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIA. MIN.–MAX.	A	B	C
3" Bolt Circle						
ASBP-25-3	#4–250	#4–4/0	.232–.575	3	3	1
ASBP-40-3	1/0–400	1/0–336	.368–.741			1 3/4
ASBP-100-3	250–1000	300–795	.567–1.150	3 5/16	3 1/4	2 1/8
ASBP-150-3	556–1500	636–1272	.856–1.412	3 3/8	3 3/8	2 1/2
ASBP-250-3	1100–2500	1133–2300	1.209–1.823	3 9/16	4	3
5" Bolt Circle						
ASBP-25-5	#4–250	#4–4/0	.232–.575	3	3	1
ASBP-40-5	1/0–400	1/0–336	.368–.741			1 3/4
ASBP-100-5	250–1000	300–795	.567–1.150	3 5/16	3 1/4	2 1/8
ASBP-150-5	556–1500	636–1272	.856–1.412	3 3/8	3 3/8	2 1/2
ASBP-250-5	1100–2500	1133–2300	1.209–1.823	3 9/16	4	3

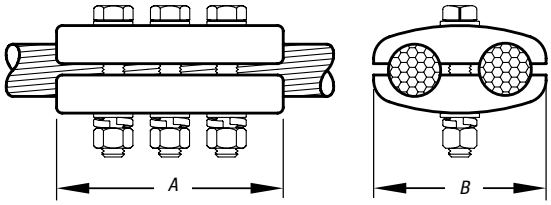
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. Galvanized hardware for mounting to insulator is supplied.

Bolted Aluminum Connectors

Type APP — Parallel Clamp, Cable to Cable



Style 1
Extrusion Base Tapped, Nut Not Required



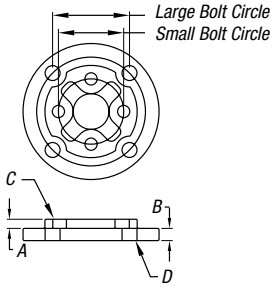
Style 2
Casting Requires Nut

CAT. NO.	STYLE	QTY. OF BOLTS	CABLE SIZE AAC	CABLE SIZE ACSR	CABLE DIA. MIN.–MAX.	A	B
APP2-100-100	1	2	1/0–556.5 or 336.4–1000	1/0–556.5 or 336.4–954	.373–.879 or .684–1.165	4	3½
APP3-100-100		3				6	
APP3-143-143	2		1000–1431	874–1272	1.150–1.379		4¼
APP3-250-250*			1113–2500	1431–2300	1.216–1.823		5

** Same size conductor to be used in both grooves.*

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type SPAE — Bolt Circle Adapter



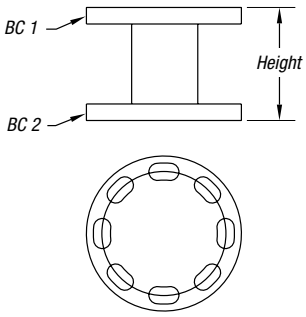
CAT. NO.	SMALL BC	LARGE BC	A	B	C	D
SPAE-35	3	5	⅜	9⁄16	9⁄16	11⁄16
SPAE-57	5	7	13⁄16	⅞	11⁄16	13⁄16

Type SPAC — Bolt Circle Height Adapter

Catalog numbers to be formed as follows:

SPAC - (BC 1 & 2) - (HEIGHT)
e.g. SPAC-33-4-1/8

Slots: 3" BC 9⁄16 x ¾
5" BC 11⁄16 x ⅞
7" BC 13⁄16 x 1



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Compression Aluminum Connectors

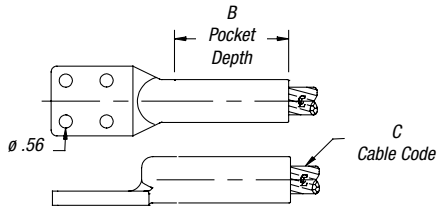
Type ACL — Compression Terminals, Cable to Flat

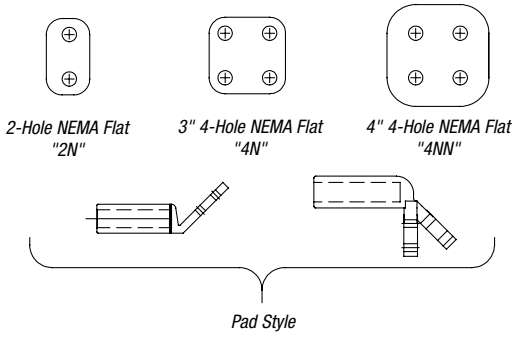
Catalog numbers to be formed as follows:

ACL-(C)-(PAD STYLE)

Examples of Catalog Numbers:

ACL-447-2N
ACL-684-4N
ACL-1299-4NN90





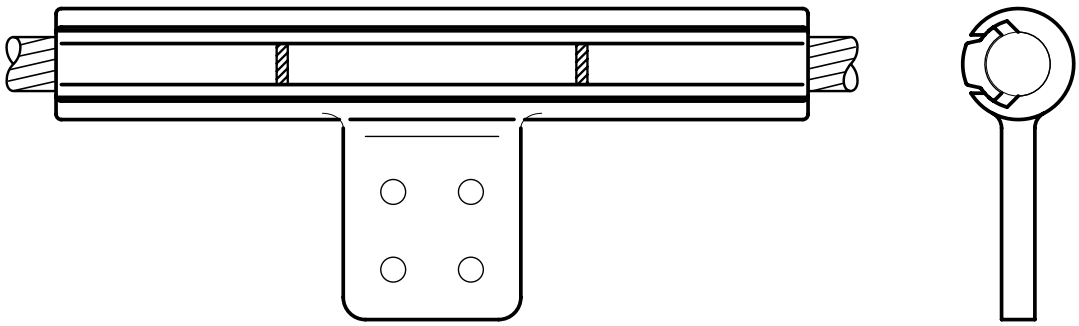
Notes:

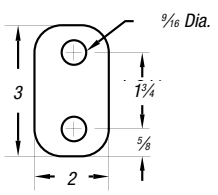
1. All dimensions are in inches, dimensions for reference only.
2. Cable pocket coated with oxide inhibitor.
3. Illustration and dimensions are generally accurate; the actual design is subject to change.
4. For other sizes not listed, please consult Customer Service.
5. Angle connector may be obtained by adding desired angle to catalog number (45° and less up direction).

C	AAC	ACSR	B	DIES
292	#2 (7)	—	2.00	73AH 243
316	—	#2 (6/1)		
372	1/0 (7), (19)	—		
398	—	1/0 (6/1)	3.00	74AH 249
418	2/0 (7), (19)	—		
447	—	2/0 (6/1)		
470	3/0 (7), (19)	—		
527	4/0 (7). (19)	3/0 (6/1)		
563	—	4/0 (6/1)		
593	266.8 (7), (19)	—	3.00	76AH 316
630	300 (7), (19)	266.8 (18/1)		
646	—	266.8 (26/7) 300 (18/1)		
677	336.4 (19), (37)	266.8 (26/7) 336.4 (18/1)	4.00	20AH 317
684	350 (19), (37)	300 (26/7) 336.4 (18/1)		
736	397.5 (19) 400 (19), (37)	336.4 (30/7), (26/7) 397.5 (18/1), (36/1)		
795	477 (19), (37)	397.5 (26/7)	4.50	

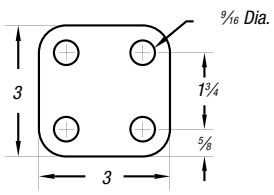
C	AAC	ACSR	B	DIES
814	500(19), (37)	477 (18/1), (36/1)	4.50	20AH 317
858	550 (61) 556.5 (19), (37)	477 (26/7)	5.00	
893	600 (61)	556.5 (18/1), (36/1)		24AH 261
930	636 (37), (61) 650 (61)	556.5 (26/7) 605 (36/1) 636 (18/1), (36/1)		
966	700 (61), (91)	605 (26/7), (54/7) 666.6 (36/1)		
990	—	636 (26/7) 715.5 (36/1)		
1000	750 (37), (61), (91)	762 (20/7) 666 (54/7)		
1036	795 (37), (61) 800 (61)	715.5 (54/7)		30AH 292
1051	—	715.5 (26/7) 795 (36/1)		
1063	—	795 (45/7)	6.00	
1108	874.5 (37), (61) 900 (61), (91)	795 (26/7), (54/7) 874.5 (36/1)		
1126	954 (37), (61)	900 (45/7)		
1171	1000 (61), (91) 1033.5 (37), (61)	900 (54/7) 954 (45/7)		
1216	1113 (61)	954 (54/7) 1033.5 (45/7)	7.00	34AH 575
1246	1192.5 (61)	1033.5 (54/7) 1113 (45/7)		
1299	1272 (61)	1113 (18/1), (54/19) 1192.5 (45/7)		38AH 478

Type AYTF — Compression Tee, Cable to Flat

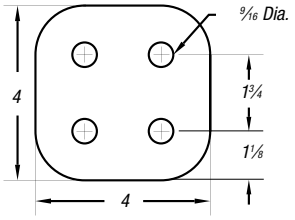




2-Hole NEMA Flat
2N

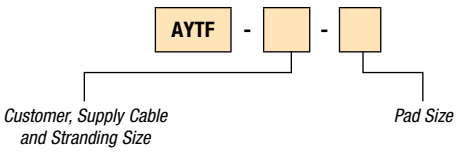


3" 4-Hole NEMA Flat
4N



4" 4-Hole NEMA Flat
4N

CATALOG NUMBERS WILL BE DESIGNATED FROM THE FOLLOWING INFORMATION:



All pads are finished on both sides.
Cable ranges and crimping dies marked on barrel.
Cable pocket coated with oxide inhibitor.
For other configurations, consult Customer Service.

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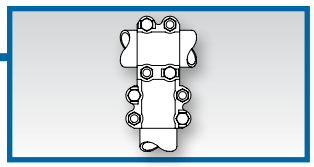
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Bolted Bronze Connectors

Quick Reference — Tee Connectors

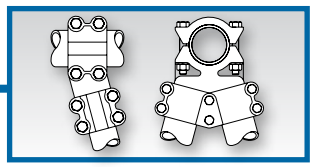
Type KTH

See page F-527



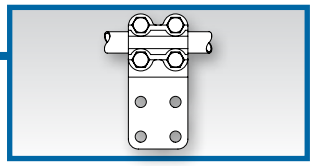
Type KTH-15 and KTH-15-15

See page F-528



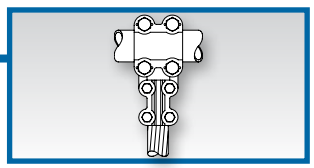
Type KBNT

See page F-528



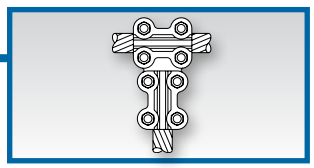
Type 6MT

See page F-529



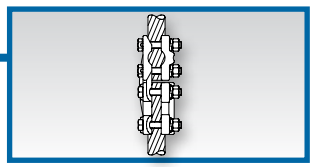
Type 6MT

See page F-530



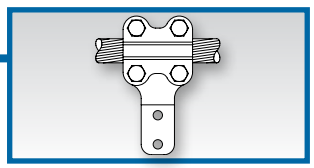
Type 6MK

See page F-530



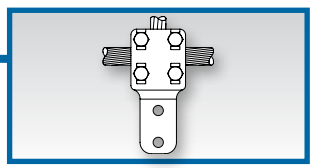
Type 7MT

See page F-531



Type 7MK

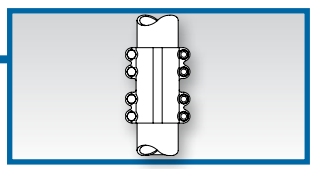
See page F-531



Quick Reference — Couplers

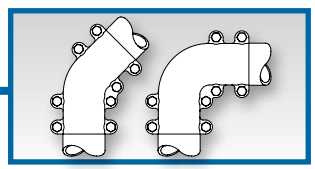
Type KC

See page F-532



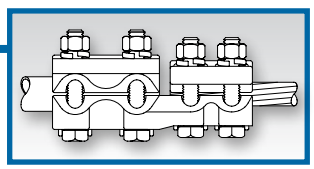
Type KE-45 and 90

See page F-532



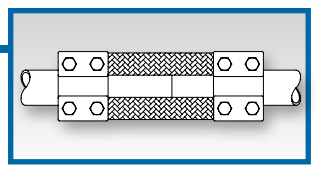
Type KR

See page F-533



Type VEX

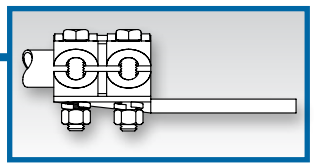
See page F-533



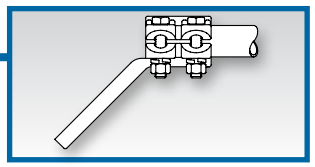
Bolted Bronze Connectors

Quick Reference — Terminals

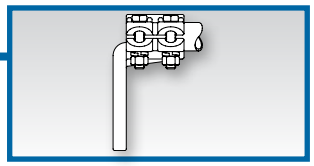
Type KL
See page F-534



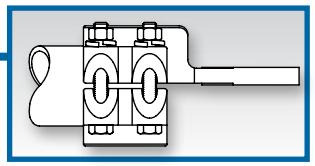
Type KL-45
See page F-534



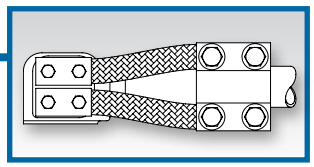
Type KL-90
See page F-535



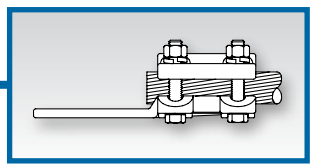
Type KLC
See page F-535



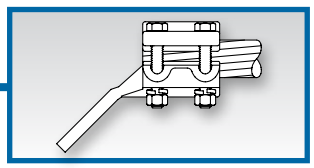
Type VEZ
See page F-536



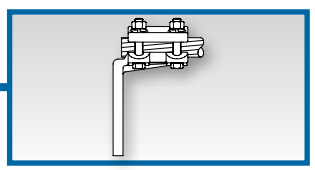
Type 7ME and 7M
See page F-536



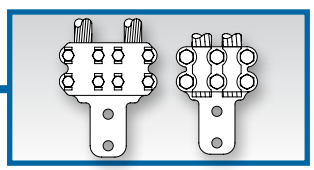
Type 7ME-45 and 7M-45
See page F-537



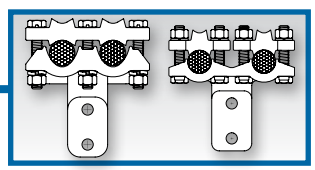
Type 7ME-90 and 7M-90
See page F-537



Type 7MM and 7MM1
See page F-538

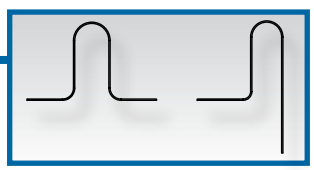


Type 7MM-90 and 7MM1-90
See page F-539

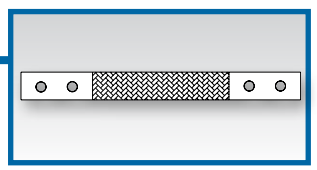


Quick Reference — Flexible

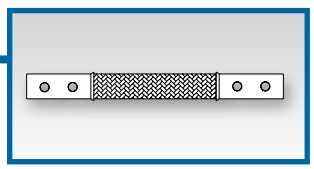
Type VLS
See page F-540



Type VGG
See page F-541



Type FB
See page F-541



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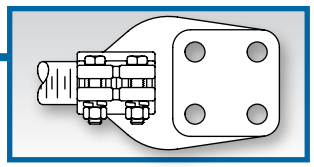
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Bolted Bronze Connectors

Quick Reference — Stud Connectors

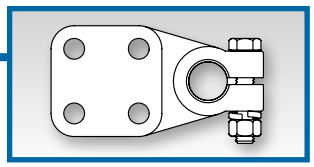
Type KSLC

See page F-542



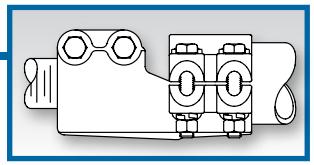
Type KSLF

See page F-543



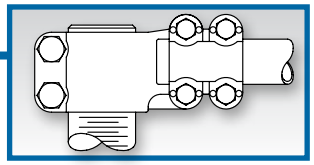
Type VIC

See page F-544



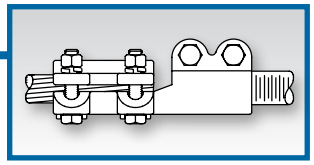
Type VIC-90

See page F-544



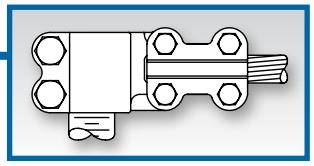
Type VID

See page F-545



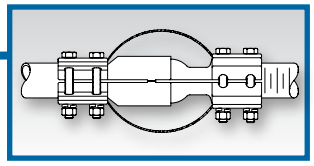
Type VID-90

See page F-546



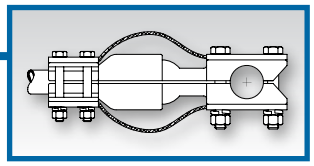
Type VIF

See page F-547



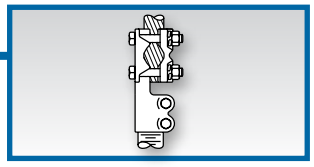
Type VIF-90

See page F-547



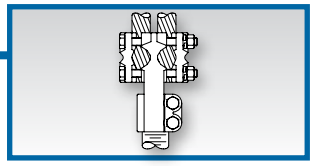
Type 5M

See page F-548



Type 5M-2

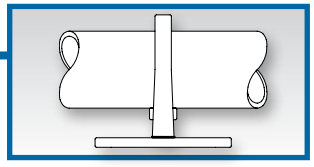
See page F-549



Quick Reference — Supports

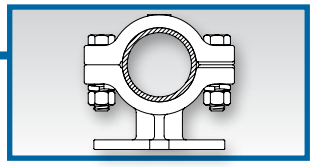
Type KTB

See page F-550



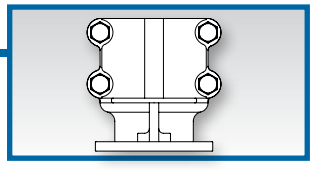
Type KSBE

See page F-550



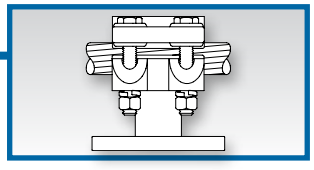
Type KVBS

See page F-551



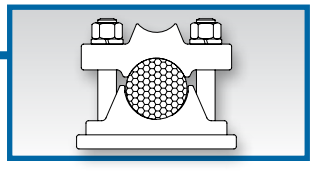
Type KSBD

See page F-551



Type 8M

See page F-552

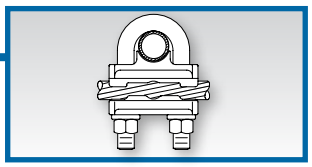


Bolted Bronze Connectors

Quick Reference — Ground Connectors

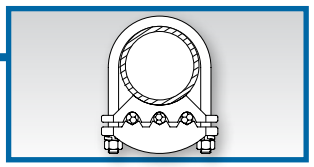
Type 2755

See page F-553



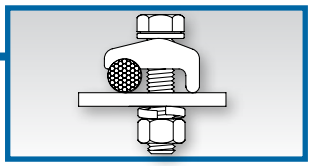
Type 2752

See page F-554



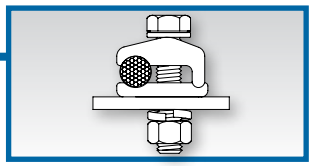
Type 2709T-1

See page F-555



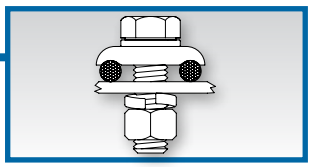
Type 2709-1

See page F-555



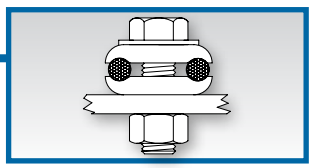
Type 2709T-2

See page F-555



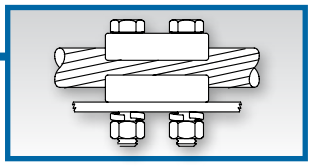
Type 2709-2

See page F-556



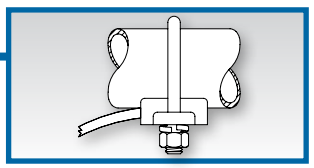
Type 2710-2

See page F-556



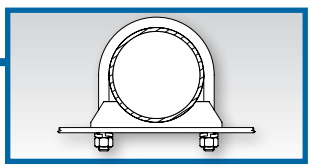
Type NTB

See page F-557



Type VGH

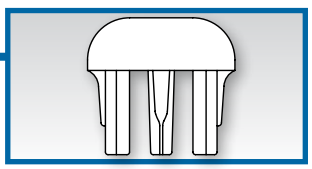
See page F-557



Quick Reference — Miscellaneous

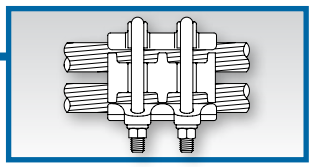
Type KFI

See page F-527



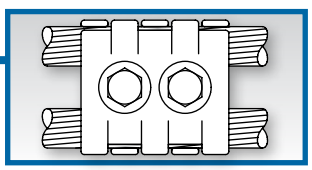
Type VWU

See page F-533



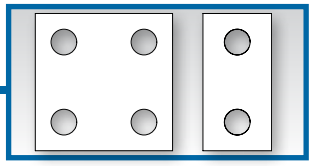
Type PT

See page F-552



Transition Plates

See page F-557



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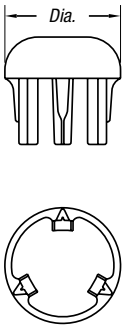
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Bolted Bronze Connectors

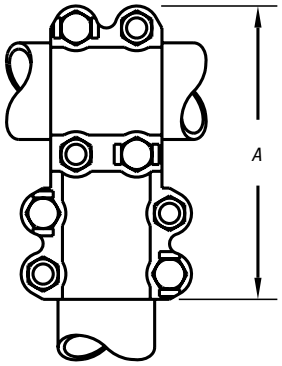
Type KFI — Corona Bell, Drive Fit

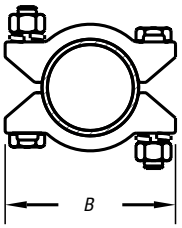


CAT. NO.	SPS	DIA.
KFI-C	½	.840
KFI-E	¾	1.050
KFI-F	1	1.315
KFI-G	1¼	1.660
KFI-H	1½	1.900
KFI-J	2	2.375
KFI-K	2½	2.875
KFI-L	3	3.500
KFI-M	3½	4.000
KFI-P	4	4.500

For schedule 80 pipe, add "H" to catalog number: e.g. KFIH-J.

Type KTH — Tee Connector, Pipe Run to Pipe Tap





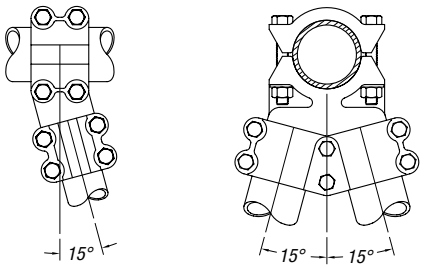
CAT. NO.	SPS RUN	SPS TAP	A	B
KTH-E-C	¾	½	4¼	2 3/16
KTH-E-E		¾	5 11/16	3⅜
KTH-F-E	1	¾	7⅜	3 3/16
KTH-F-F		1	4 9/16	2 13/16
KTH-G-E	1¼	¾	5 3/16	2 9/16
KTH-G-F		1	5⅞	2 13/16
KTH-G-G		1¼	5 13/16	2 7/16
KTH-H-E	1½	¾	5 1/16	2 9/16
KTH-H-F		1	6⅛	3⅛
KTH-H-G		1¼	6½	3 9/16
KTH-H-H		1½	6 9/16	3¾
KTH-J-E	2	¾	5 11/16	2 9/16
KTH-J-F		1	7 1/16	3
KTH-J-G		1¼	6 7/16	3 9/16
KTH-J-H		1½	6⅞	4
KTH-J-J		2	7¼	4¼
KTH-K-G	2½	1¼	7 7/16	3 9/16
KTH-K-H		1½		3¾
KTH-K-J		2	8 9/16	4½
KTH-K-K		2½	8	4¾
KTH-L-H	3	1½	8 5/16	3¾
KTH-L-J		2	8 3/16	4¼
KTH-L-K		2½	8	
KTH-L-L		3		
KTH-M-H	3½	1½	8¼	3
KTH-M-J		2	8¾	3⅜
KTH-M-K		2½	10⅝	5¼
KTH-M-L		3	10⅞	5⅛
KTH-M-M		3½	11½	6⅝
KTH-P-J	4	2	10 13/16	4¾
KTH-P-K		2½		
KTH-P-L		3	11¼	5½
KTH-P-M		3½		
KTH-P-P		4		

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type KTH-15 and KTH-15-15 — Tee Connector, Pipe Run to Pipe Tap at 15°

Catalog numbers will be designated from the following information:

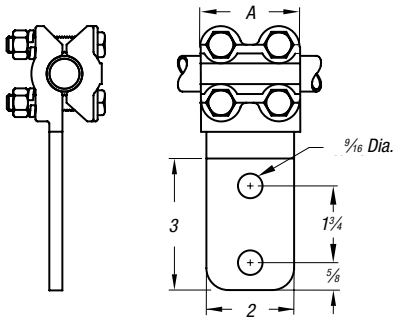
KTH- (PIPE RUN) - (PIPE TAP)
e.g.: "KTH-J-J15" (ONE LEG AT 15°)
"KTH-J-J2-15" (TWO LEGS AT 15°)



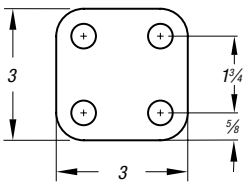
PIPE SIZE SCH. 40 OR 80	LETTER
1	F
1¼	G
1½	H
2	J
2½	K
3	L
3½	M
4	P
5	R
6	S

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
For other configurations, consult Customer Service.

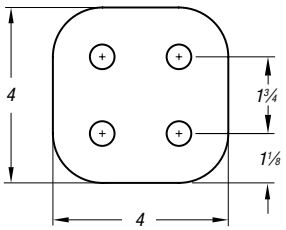
Type KBNT — Tee Connector, Pipe to Flat



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



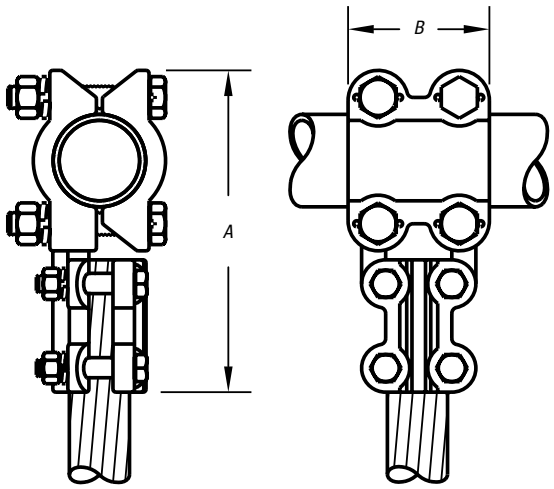
4" 4-Hole NEMA Flat

CAT. NO.	SPS	A
2-Hole NEMA Flat		
KBNT-C-2N	½	2⅜
KBNT-E-2N	¾	2 3/16
KBNT-F-2N	1	2
KBNT-G-2N	1¼	4
KBNT-H-2N	1½	3
KBNT-J-2N	2	
3" 4-Hole NEMA Flat		
KBNT-C-4N	½	2 3/16
KBNT-E-4N	¾	2¼
KBNT-F-4N	1	2 1/16
KBNT-G-4N	1¼	2 5/16
KBNT-H-4N	1½	3 3/16
KBNT-J-4N	2	2¾
KBNT-K-4N	2½	3
KBNT-L-4N	3	5
KBNT-M-4N	3½	3¾
4" 4-Hole NEMA Flat		
KBNT-C-4NN	½	2⅜
KBNT-E-4NN	¾	3
KBNT-F-4NN	1	2⅜
KBNT-G-4NN	1¼	
KBNT-H-4NN	1½	2¾
KBNT-J-4NN	2	
KBNT-K-4NN	2½	3
KBNT-L-4NN	3	3¾
KBNT-M-4NN	3½	4¼
KBNT-P-4NN	4	4

All pads are finished on both sides.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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Fax: 901.252.1354
Technical Services
Tel: 888.862.3289
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Type 6MT — Tee Connector, Pipe to Cable



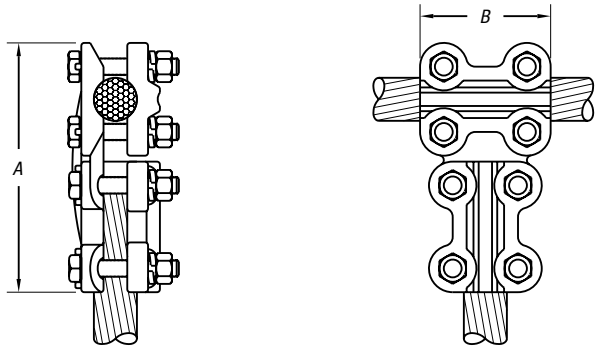
CAT. NO.	RUN SPS	TAP CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B
6MT-C-60E3*	½	#4–600	.232–.893	5¼	2¾
6MT-E-60E3*	¾	#4–600	.232–.893	5½	2$^{3}/_{16}$
6MT-E-60				5¾	3
6MT-E-100		4/0–1000	.528–1.152		
6MT-F-60E3*	1	#4–600	.232–.893	5¾	
6MT-F-100		4/0–1000	.528–1.152		
6MT-G-60	1¼	#4–600	.232–.893	6$^{7}/_{16}$	
6MT-G-100		4/0–1000	.528–1.152	6¾	
6MT-G-150		600–1500	.893–1.412		
6MT-H-60	1½	#4–600	.232–.893	6¾	
6MT-H-100		4/0–1000	.528–1.152	7	
6MT-H-150		600–1500	.893–1.412		
6MT-J-60	2	#4–600	.232–.893	8	
6MT-J-100		4/0–1000	.528–1.152		
6MT-J-150		600–1500	.893–1.432		
6MT-J-200		1500–2000	1.412–1.632		
6MT-K-60	2½	#4–600	.232–.893	7$^{9}/_{16}$	2$^{3}/_{16}$
6MT-K-100		4/0–1000	.528–1.152		
6MT-K-150		600–1500	.893–1.432		
6MT-K-200		1500–2000	1.412–1.632		
6MT-L-60	3	#4–600	.232–.893	9	3⅜
6MT-L-100		4/0–1000	.528–1.152	10	3¾
6MT-L-150		600–1500	.893–1.432		
6MT-L-200		1500–2000	1.412–1.632		
6MT-M-60	3½	#4–600	.232–.893	9$^{9}/_{16}$	3
6MT-M-100		4/0–1000	.528–1.152		
6MT-M-150		600–1500	.893–1.432		
6MT-M-200		1500–2000	1.412–1.632		
6MT-P-100	4	4/0–1000	.528–1.152	10¼	3½
6MT-P-150		600–1500	.893–1.432	10½	3¾
6MT-P-200		1500–2000	1.412–1.632	10¾	4

** ⅜" clamping hardware.*

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Bolted Bronze Connectors

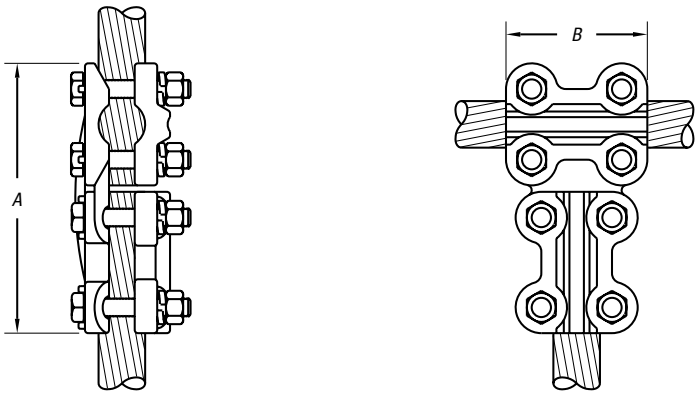
Type 6MT — Tee Connector, Cable to Cable



CAT. NO.	CABLE SIZE RUN	CABLE SIZE TAP	CABLE DIAMETER RUN MIN.–MAX.	CABLE DIAMETER TAP MIN.–MAX.	A	B
6MT-4/0-4/0E3	#8–4/0	#8–4/0	.129–.526	.129–.526	5¼	2¾
6MT-50-50	1/0–500	1/0–500	.368–.811	.368–.811		
6MT-60-60E3	#4–600	#4–600	.232–.893	.232–.893		
6MT-100-50	4/0–1000	1/0–500	.526–1.152	.368–.811	5⅞	2⅝
6MT-100-100	4/0–1000	4/0–1000	.526–1.152	.526–1.152		
6MT-125-60	900–1250	#4–600	1.094–1.289	.232–.893	5¾	3
6MT-200-60	1500–2000	#4–600	1.413–1.631	.232–.893	7	3½

Connectors supplied with ½" clamping hardware except for the E3, which are ⅜" size.

Type 6MK — Universal Tee/Coupler, Cable or Pipe to Cable or Pipe



CAT. NO.	CABLE SIZE RUN	CABLE SIZE TAP	CABLE DIAMETER RUN MIN.–MAX.	CABLE DIAMETER TAP MIN.–MAX.	PIPE RUN	PIPE TAP	A	B
6MK-80-80E3	#12–800	#12–800	.092–1.030	.092–1.030	½–¾	½–¾	5¾	2¾
6MK-200-200	500–2000	500–2000	.811–1.631	.811–1.631	¾–1¼	¾–1¼	7⅜	4

This Type 6MK universal connector can be used as a tee or coupler.
It will accommodate a wide range of cable just by turning the cap.
It will also accommodate pipe.

Connectors supplied with ½" clamping hardware except for the E3, which are ⅜" size.

Thomas&Betts

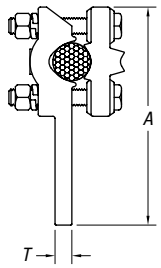
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Fax: 901.252.1354

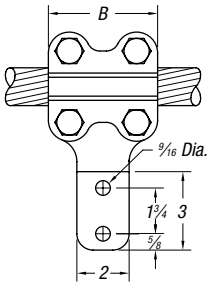
Technical Services
Tel: 888.862.3289

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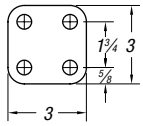
Bolted Bronze Connectors

Type 7MT — Tee Connector, Cable to Flat





2-Hole NEMA Flat

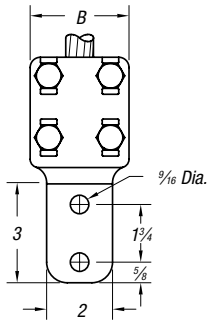


3" 4-Hole NEMA Flat

CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B	T
2-Hole NEMA Flat					
7MT-60-2N	#4–600	.232–.893	5½	2¾	⅜
7MT-100-2N	750–1000	.998–1.152	7⅛	3	
7MT-150-2N	600–1500	.893–1.412	7	3⅝	½
3" 4-Hole NEMA Flat					
7MT-60-4N	#4–600	.232–.893	5½	2¾	⅜
7MT-100-4N	750–1000	.998–1.152	6 9/16	2⅞	7/16
7MT-150-4N	600–1500	.893–1.412	6¾	3⅜	½

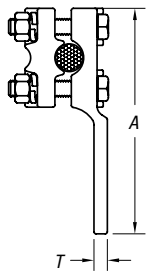
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type 7MK — Universal Tee/Terminal, Cable to Flat

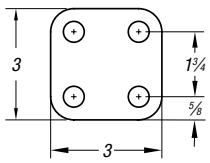


2-Hole NEMA Flat

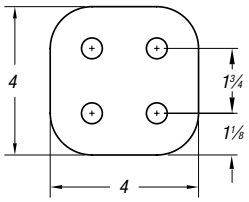
This illustration represents a terminal type configuration.



This illustration represents a tee type configuration.



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

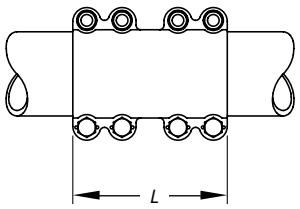
CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	SPS	A	B	T
2-Hole NEMA Flat						
7MK-80-2N	#2–800	.292–1.031	⅜–¾	5⅞	3	⅜
7MK-200-2N	4/0–2000	.522–1.632	⅜–1¼		3⅜	
3" 4-Hole NEMA Flat						
7MK-80-4N	#2–800	.292–1.031	⅜–¾	6⅞	3	⅜
7MK-200-4N	4/0–2000	.522–1.632	⅜–1¼	7	3⅜	9/16
4" 4-Hole NEMA Flat						
7MK-80-4NN	#2–800	.292–1.031	⅜–¾	8	4	9/16
7MK-200-4NN	4/0–2000	.522–1.632	⅜–1¼			

This Type 7MK universal connector can be used as a tee or terminal. It will accommodate a wide range of cable just by turning the cap.

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Bolted Bronze Connectors

Type KC — Coupler/Reducer, Pipe to Pipe

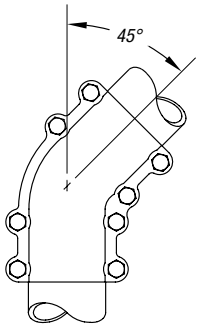


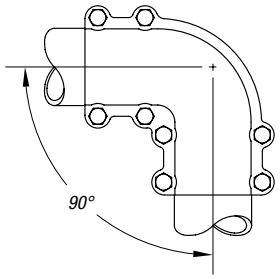
CAT. NO.	RUN SPS	TAP SPS	L
KC-C	½	½	3⅜
KC-E	¾	¾	4⅞
KC-F-E	1	¾	4⅞
KC-F		1	5⅛
KC-G-E	1¼	¾	5¾
KC-G-F		1	
KC-G		1¼	
KC-H-E	1½	¾	7⅜
KC-H-F		1	5
KC-H-G		1¼	6⅝
KC-H		1½	
KC-J-E	2	¾	6
KC-J-F		1	
KC-J-G		1¼	7¼
KC-J-H		1½	6
KC-J		2	
KC-K-E	2½	¾	5⅜
KC-K-F		1	5½
KC-K-G		1¼	
KC-K-H		1½	6
KC-K-J		2	7¾
KC-K		2½	

CAT. NO.	RUN SPS	TAP SPS	L
KC-L-E	3	¾	7
KC-L-F		1	
KC-L-G		1¼	7¾
KC-L-H		1½	
KC-L-J		2	8½
KC-L-K		2½	7¾
KC-L		3	6⅝
KC-M-F	3½	1	6½
KC-M-G		1¼	
KC-M-H		1½	
KC-M-J		2	
KC-M-K		2½	
KC-M-L		3	7¼
KC-M		3½	
KC-P-G	4	1¼	8
KC-P-H		1½	
KC-P-J		2	8¼
KC-P-K		2½	8
KC-P-L		3	9¼
KC-P-M		3½	
KC-P		4	10

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type KE — Elbow, Pipe to Pipe





CAT. NO.		
45°	90°	RUN & TAP SPS
KE-C-45	KE-C-90	½
KE-E-45	KE-E-90	¾
KE-F-45	KE-F-90	1
KE-G-45	KE-G-90	1¼
KE-H-45	KE-H-90	1½
KE-J-45	KE-J-90	2
KE-K-45	KE-K-90	2½
KE-L-45	KE-L-90	3
KE-M-45	KE-M-90	3½
KE-P-45	KE-P-90	4

For other configurations, consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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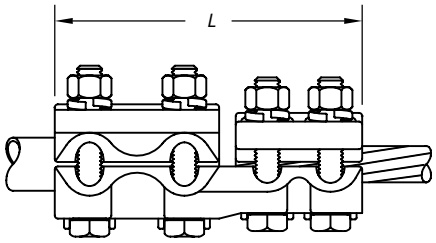
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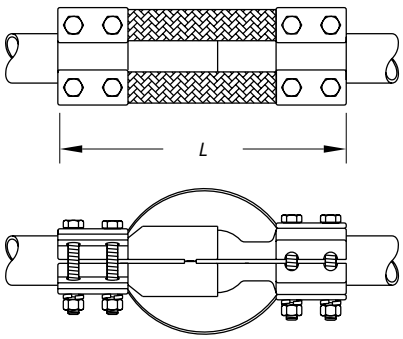
Type KR — Coupler, Pipe to Cable



CAT. NO.	RUN SPS	CABLE SIZE	CABLE MIN.–MAX.	L
KR-E-60	¾	#4–600	.232–.893	5½
KR-F-60	1	#4–600	.232–.893	5¾
KR-F-80		250–800	.574–1.030	6¾
KR-G-60	1¼	#4–600	.232–.893	6⅜
KR-G-100		4/0–1000	.522–1.152	4⅞
KR-H-60	1½	#4–600	.232–.893	6⅜
KR-H-100		4/0–1000	.522–1.152	5¾
KR-H-125		900–1250	1.094–1.290	6⅜
KR-J-60	2	#4–600	.232–.893	6⅜
KR-J-100		4/0–1000	.522–1.152	6⅝
KR-J-125		900–1250	1.094–1.290	
KR-K-60	2½	#4–600	.232–.893	
KR-K-100		4/0–1000	.522–1.152	
KR-K-125		900–1250	1.094–1.290	
KR-L-60	3	#4–600	.232–.893	
KR-L-100		4/0–1000	.522–1.152	
KR-L-125		900–1250	1.094–1.290	

Other sizes available, consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

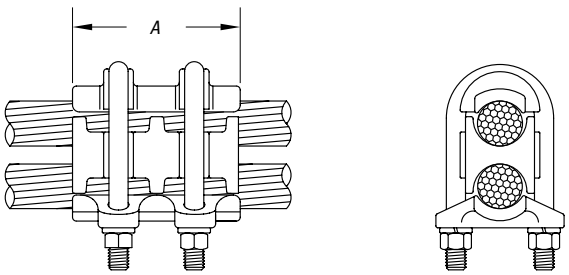
Type VEX — Braid Expansion Coupler, Pipe to Pipe



CAT. NO.	SPS	L
VEX-E	¾	10½
VEX-F	1	
VEX-G	1¼	12
VEX-H	1½	
VEX-J	2	
VEX-K	2½	12½
VEX-L	3	
VEX-M	3½	13
VEX-P	4	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type VWU — U-Bolt Parallel Clamp, Cable to Cable

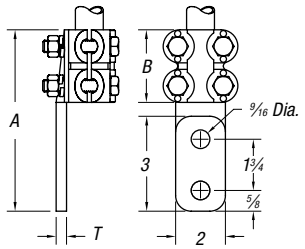


CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A
VWU2-2/0-2	#2–2/0	.258–.419	2½
VWU2-4/0-1	#1–4/0	.332–.528	2¾
VWU2-30-1/0	1/0–300	.373–.630	3¼
VWU2-50-4/0	4/0–500	.528–.813	
VWU2-75-30	300–750	.630–.998	3¾
VWU2-100-50	500–1000	.813–1.152	4

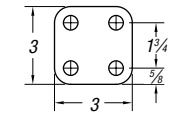
Other sizes available, consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Bolted Bronze Connectors

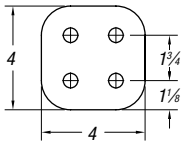
Type KL — Terminal, Pipe to Flat



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



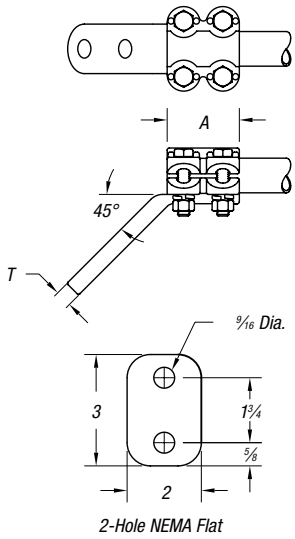
4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	B	T
2-Hole NEMA Flat				
KL-C3-2N*	½	6	2 3/16	¼
KL-E3-2N*	¾			½
KL-E-2N				
KL-F3-2N*	1			
KL-F-2N		7	3	
KL-G-2N	1¼			
KL-H-2N	1½			⅝
KL-J-2N	2			
KL-K-2N	2½			
KL-L-2N	3		4	
3" 4-Hole NEMA Flat				
KL-C3-4N*	½	6	2 3/16	⅜
KL-E3-4N*	¾			½
KL-E-4N				
KL-F3-4N*	1			
KL-F-4N		7	3	
KL-G-4N	1¼			⅝
KL-H-4N	1½			
KL-J-4N	2			
KL-K-4N	2½			
KL-L-4N	3			
KL-M-4N	3½	8	4⅛	⅞
KL-P-4N	4	10	5	1⅛
4" 4-Hole NEMA Flat				
KL-H-4NN	1½	6¾	3	⅝
KL-J-4NN	2			
KL-K-4NN	2½	7½		½
KL-L-4NN	3		3 7/16	
KL-M-4NN	3½	8	4¼	¾
KL-P-4NN	4	10	4½	1⅛

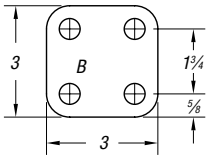
** ⅜" clamping hardware.*

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. All pads are finished on both sides.

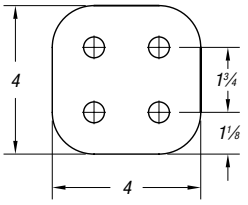
Type KL-45 — Terminal, Pipe to Flat at 45°



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	T
2-Hole NEMA Flat			
KL-C3-2N45*	½	2½	¼
KL-E3-2N45*	¾	2 3/16	½
KL-E-2N45			
KL-F3-2N45*	1		
KL-F-2N45		3	
KL-G-2N45	1¼		
KL-H-2N45	1½		⅝
KL-J-2N45	2		
3" 4-Hole NEMA Flat			
KL-C3-4N45*	½	2½	½
KL-E3-4N45*	¾	2 3/16	
KL-E-4N45			
KL-F3-4N45*	1	3	
KL-F-4N45			
KL-G-4N45	1¼		⅝
KL-H-4N45	1½		¾
KL-J-4N45	2		
KL-K-4N45	2½		
KL-L-4N45	3	3¾	
4" 4-Hole NEMA Flat			
KL-J-4NN45	2	3	¾
KL-K-4NN45	2½		
KL-L-4NN45	3	3¾	
KL-M-4NN45	3½	4⅛	1
KL-P-4NN45	4	4¾	1⅛

** ⅜" clamping hardware.*

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. All pads are finished on both sides.

Thomas&Betts

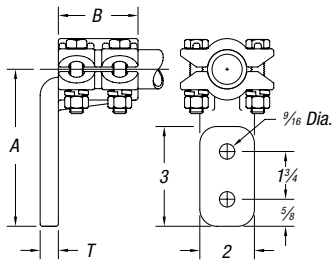
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Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

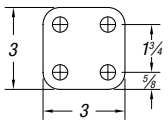
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Bolted Bronze Connectors

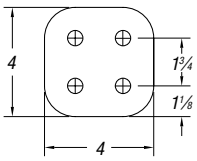
Type KL-90 — Terminal, Pipe to Flat at 90°



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



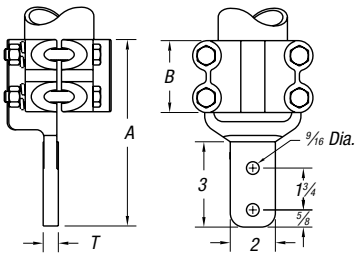
4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	B	T
2-Hole NEMA Flat				
KL-C3-2N90*	½	4⅜	2³⁄₁₆	½
KL-E3-2N90*	¾			
KL-E-2N90			3¼	
KL-F3-2N90*	1	4¾	2³⁄₁₆	
KL-F-2N90		4⅝	3	
KL-G-2N90	1¼	4¾		⅝
KL-H-2N90	1½	5		9⁄16
KL-J-2N90	2	6¼	4	
3" 4-Hole NEMA Flat				
KL-C3-4N90*	½	4³⁄₁₆	2⅝	⅜
KL-E3-4N90*	¾	4½	2³⁄₁₆	½
KL-E-4N90				
KL-F3-4N90*	1	4¹³⁄₁₆		
KL-F-4N90		4⅝	3	⅜
KL-G-4N90	1¼	5	2⅝	
KL-H-4N90	1½	4½	2¹¹⁄₁₆	
KL-J-4N90	2	5⅞	3	½
KL-K-4N90	2½			
KL-L-4N90	3	6⅛	3¾	⅝
KL-M-4N90	3½	5¼		
KL-L-4N90	4		4	¾
4" 4-Hole NEMA Flat				
KL-G-4NN90	1¼	5	2⅝	⅜
KL-H-4NN90	1½	4½	2¹¹⁄₁₆	
KL-J-4NN90	2	5⅞	3	½
KL-K-4NN90	2½	6½		⅝
KL-L-4NN90	3		5	⅞
KL-M-4NN90	3½			
KL-P-4NN90	4	7¼	3¾	1

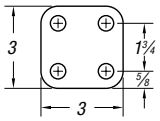
** ⅜" clamping hardware.*

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

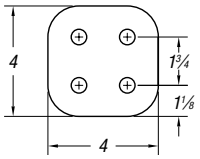
Type KLC — Bolted Terminal, Pipe to Center-Formed Flat



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

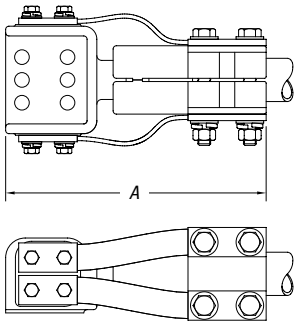


4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	B	T
2-Hole NEMA Flat				
KLC-E-2N	¾	6⅝	3	½
KLC-F-2N	1	6¾		
KLC-G-2N	1¼	7¾		⅝
KLC-H-2N	1½	7¼		
KLC-J-2N	2	7⁷⁄₁₆		
KLC-K-2N	2½	7½		
KLC-L-2N	3	8	3¾	¾
3" 4-Hole NEMA Flat				
KLC-E-4N	¾	6½	3	½
KLC-F-4N	1	6¾		
KLC-G-4N	1¼	6½		
KLC-H-4N	1½			
KLC-J-4N	2	7⁷⁄₁₆		⅝
KLC-K-4N	2½	7½		
KLC-L-4N	3	8	3¾	¾
KLC-M-4N	3½	9½	4¼	⅞
KLC-P-4N	4	9⅝		
4" 4-Hole NEMA Flat				
KLC-E-4NN	¾	6½	3	½
KLC-F-4NN	1	7⅝		
KLC-G-4NN	1¼	8⅛		⅝
KLC-H-4NN	1½	8¼		
KLC-J-4NN	2	7¾		
KLC-K-4NN	2½	8		¾
KLC-L-4NN	3	9⅜	3¾	
KLC-M-4NN	3½	10½	4¼	13⁄16
KLC-P-4NN	4	10¼		⅞

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

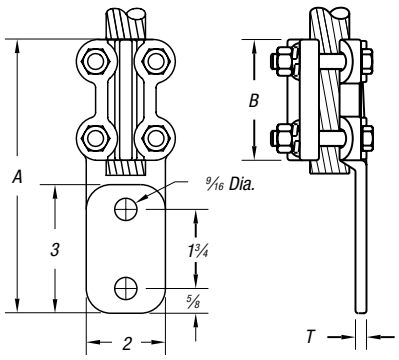
Type VEZ — Flexible Terminal, Pipe to Flat



CAT. NO.	SPS	A
2-Hole or 3" 4-Hole NEMA Flat		
VEZ-E-2/4N	¾	10½
VEZ-F-2/4N	1	
VEZ-G-2/4N	1¼	11
VEZ-H-2/4N	1½	
VEZ-J-2/4N	2	
VEZ-K-2/4N	2½	11½
VEZ-L-2/4N	3	

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

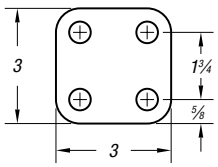
Type 7ME and 7M — Terminal, Cable to Flat



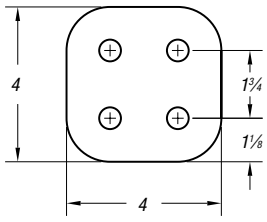
2-Hole NEMA Flat

⅜" Clamping Hardware

CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B	T
2-Hole NEMA Flat					
7ME-4/0-2N	#8–4/0	.146–.528	6	2¾	¼
7ME-60-2N	#4–600	.232–.893			
7ME-80-2N	2/0–800	.419–1.031	6⅛	2⅝	½
3" 4-Hole NEMA Flat					
7ME-60-4N	#4–600	.232–.893	6	2¾	¼
7ME-80-4N	2/0–800	.419–1.031	6⅛	2⅝	½



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

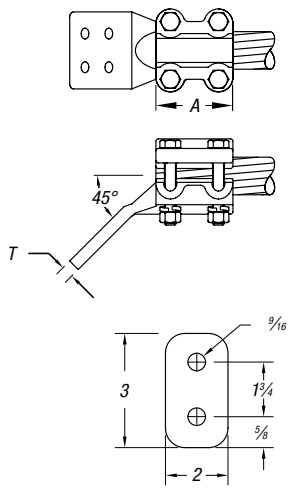
½" Clamping Hardware

CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B	T
2-Hole NEMA Flat					
7M-60-2N	#4–600	.232–.893	6½	3	½
7M-80-2N	2/0–800	.494–1.031	5⅞	2 3/16	
7M-125-2N	4/0–1250	.528–1.289	6¾	3	⅝
7M-200-2N	500–2000	.813–1.630			
3" 4-Hole NEMA Flat					
7M-60-4N	#4–600	.232–.893	5¾	2½	⅜
7M-80-4N	2/0–800	.419–1.031	5⅞	2 3/16	½
7M-125-4N	4/0–1250	.528–1.289	6¾	3	⅝
7M-200-4N	500–2000	.813–1.630			
4" 4-Hole NEMA Flat					
7M-80-4NN	2/0–800	.419–1.031	6¾	2 3/16	⅜
7M-125-4NN	4/0–1250	.528–1.289	7¼	3	⅝
7M-200-4NN	500–2000	.813–1.630			

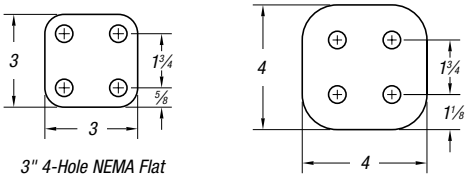
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

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Type 7ME-45 and 7M-45 — Terminal, Cable to Flat at 45°



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

4" 4-Hole NEMA Flat

⅜" Clamping Hardware

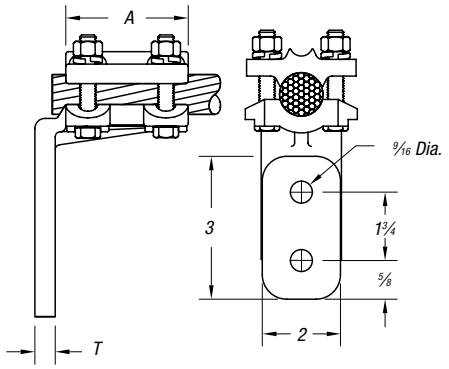
CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat				
7ME-60-2N45	#4–600	.232–.893	2¾	½
3" 4-Hole NEMA Flat				
7ME-60-4N45	#4–600	.232–.893	3	½

½" Clamping Hardware

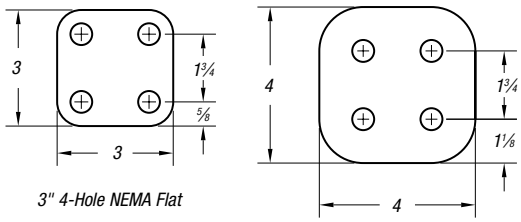
CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat				
7M-60-2N45	#4–600	.232–.893	3	½
7M-100-2N45	4/0–1000	.528–1.152		
3" 4-Hole NEMA Flat				
7M-60-4N45	#4–600	.232–.893	3	½
7M-100-4N45	4/0–1000	.528–1.152		
4" 4-Hole NEMA Flat				
7M-100-4NN45	4/0–1000	.528–1.152	3	½
7M-200-4NN45	500–2000	.813–1.630		⅝

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. All pads are finished on both sides.

Type 7ME-90 and 7M-90 — Terminal, Cable to Flat at 90°



2-Hole NEMA Flat



3" 4-Hole NEMA Flat

4" 4-Hole NEMA Flat

⅜" Clamping Hardware

CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat				
7ME-60-2N90	#4–600	.232–.893	2¾	½
7ME-80-2N90	2/0–800	.419–1.031	2⅝	
3" 4-Hole NEMA Flat				
7ME-60-4N90	#4–600	.232–.893	2¾	½
7ME-80-4N90	2/0–800	.419–1.031	2⅝	

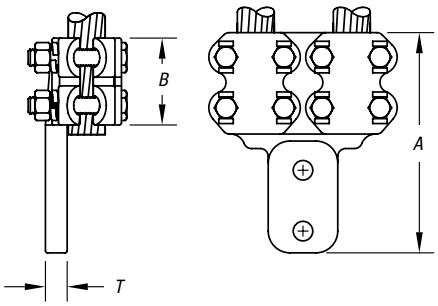
½" Clamping Hardware

CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat				
7M-60-2N90	#4–600	.232–.893	3	½
7M-80-2N90	2/0–800	.419–1.031	2 3/16	
7M-100-2N90	4/0–1000	.528–1.152	3	⅝
3" 4-Hole NEMA Flat				
7M-60-4N90	#4–600	.232–.893	3	½
7M-80-4N90	2/0–800	.419–1.031	2 3/16	
7M-100-4N90	4/0–1000	.528–1.152	3	⅜
4" 4-Hole NEMA Flat				
7M-100-4NN90	4/0–1000	.528–1.152	3	⅝
7M-200-4NN90	500–2000	.813–1.630		

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1. All pads are finished on both sides.

Bolted Bronze Connectors

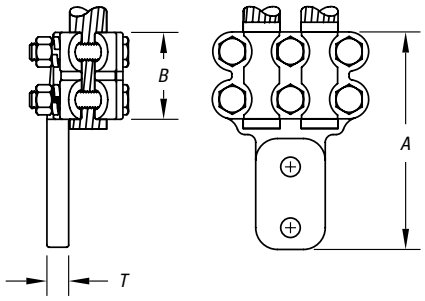
Type 7MM and 7MM1 — Terminal, Two Cables to Flat



Two-Cap Design

Two-Cap Design

CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B	T
2-Hole NEMA Flat					
7MM-100-2N	4/0–1000	.528–1.152	7⅛	3⅜	½
3" 4-Hole NEMA Flat					
7MM-100-4N	4/0–1000	.528–1.152	7⅛	3⅜	½
7MM-200-4N	500–2000	.813–1.630	8⅝	4½	
4" 4-Hole NEMA Flat					
7MM-100-4NN	4/0–1000	.528–1.152	7⅝	3⅜	7/16
7MM-200-4NN	500–2000	.813–1.630	8¾	4½	½

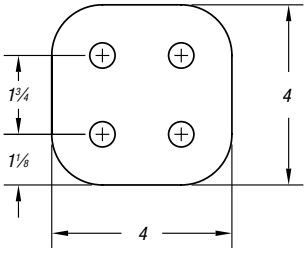


One-Cap Design

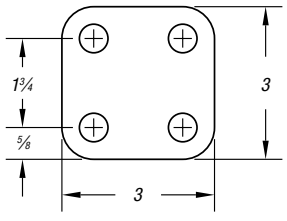
One-Cap Design

CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B	T
2-Hole NEMA Flat					
7MM1-60-2N	#4–600	.232–.893	6¼	2¾	½
7MM1-80-2N	2/0–800	.419–1.031			
3" 4-Hole NEMA Flat					
7MM1-60-4N	#4–600	.232–.893	6¼	2¾	¾
7MM1-80-4N	2/0–800	.419–1.031	6⅝	2⅝	½
7MM1-100-4N	4/0–1000	.528–1.152			
4" 4-Hole NEMA Flat					
7MM1-60-4NN	#4–600	.232–.893	7¼	2¾	½
7MM1-80-4NN	2/0–800	.419–1.031	7⅛	2⅝	
7MM1-100-4NN	4/0–1000	.528–1.152			

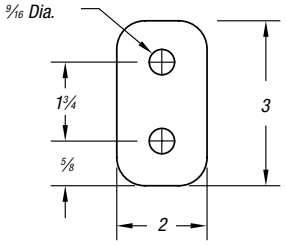
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.



4" 4-Hole NEMA Flat



3" 4-Hole NEMA Flat



2-Hole NEMA Flat

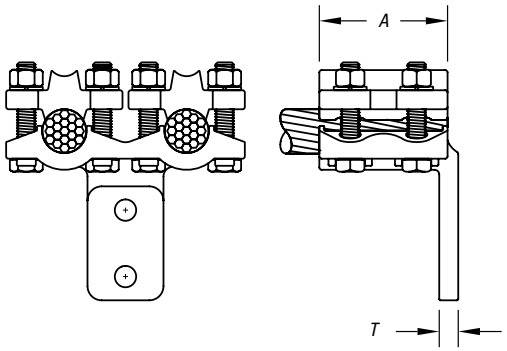
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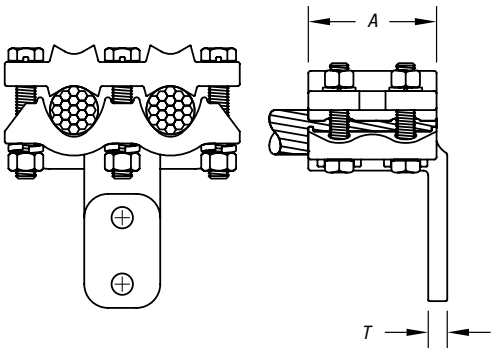
Type 7MM-90 and 7MM1-90 — Terminal, Two Cables to Flat at 90°



Two-Cap Design

Two-Cap Design

CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat				
7MM-100-2N90	4/0–1000	.528–1.152	3⅜	½
3" 4-Hole NEMA Flat				
7MM-60-2N90	#2–600	.232–.893	3	½
7MM-100-4N90	4/0–1000	.528–1.152	3⅜	
7MM-200-4N90	500–2000	.813–1.630	4½	
4" 4-Hole NEMA Flat				
7MM-100-4NN90	4/0–1000	.528–1.152	3⅜	7⁄16
7MM-200-4NN90	500–2000	.813–1.630	4½	½

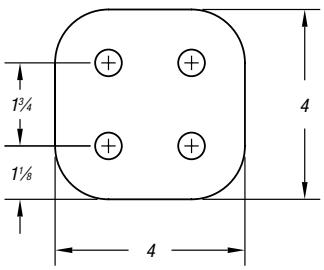


One-Cap Design

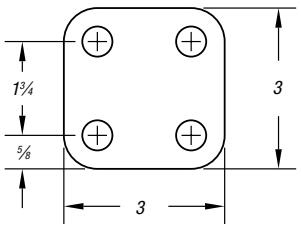
One-Cap Design

CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	T
2-Hole NEMA Flat				
7MM1-60-2N90	#4–600	.232–.893	2¾	½
7MM1-80-2N90	2/0–800	.419–1.031		
3" 4-Hole NEMA Flat				
7MM1-60-4N90	#4–600	.232–.893	2¾	¾
7MM1-80-4N90	2/0–800	.419–1.031	2⅝	½
7MM1-100-4N90	4/0–1000	.528–1.152		
4" 4-Hole NEMA Flat				
7MM1-60-4NN90	#4–600	.232–.893	2¾	½
7MM1-80-4NN90	2/0–800	.419–1.031	2⅝	
7MM1-100-4NN90	4/0–1000	.528–1.152		

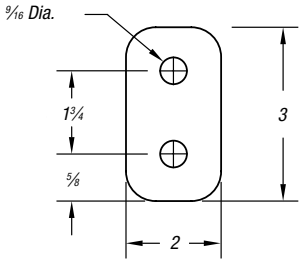
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.



4" 4-Hole NEMA Flat



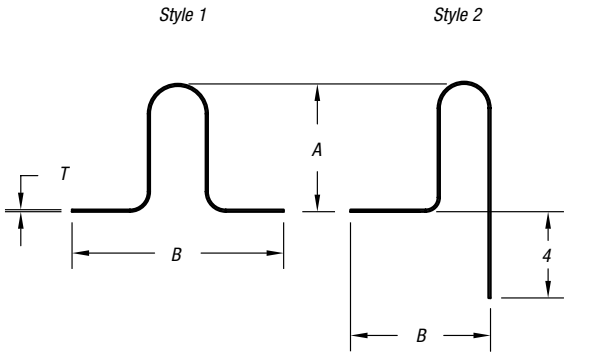
3" 4-Hole NEMA Flat

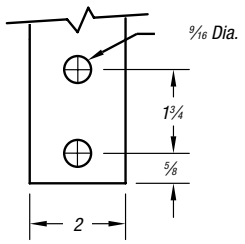


2-Hole NEMA Flat

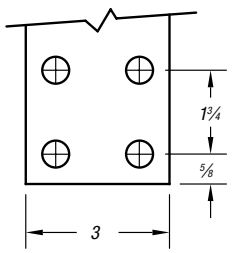
Bolted Bronze Connectors

Type VLS — Flexible Copper Straps

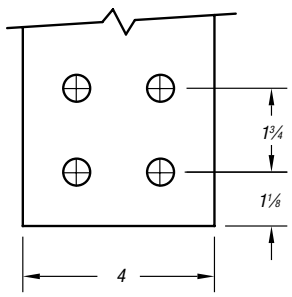




2-Hole NEMA Flat



3" 4-Hole NEMA Flat

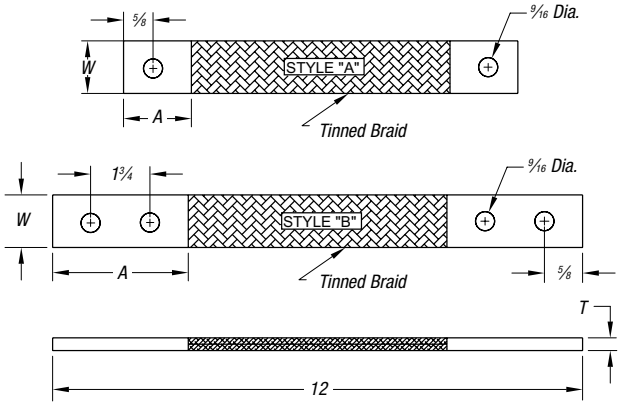


4" 4-Hole NEMA Flat

CAT. NO.	STYLE	A	B	T	AMPS
2-Hole NEMA Flat					
VLS1-440-2N	1	6	11¼	⅛	440
VLS1-640-2N				¼	640
VLS1-860-2N				⅜	860
3" 4-Hole NEMA Flat					
VLS1-690-4N	1	8	13¼	⅛	690
VLS1-970-4N		8⅛		¼	970
VLS1-1200-4N		8		⅜	1200
4" 4-Hole NEMA Flat					
VLS1-900-4NN	1	8	13¼	⅛	900
VLS1-1200-4NN				¼	1200
VLS1-1440-4NN				⅜	1440
2-Hole NEMA Flat					
VLS2-440-2N	2	6	7⅝	⅛	440
VLS2-640-2N				¼	640
VLS2-860-2N				⅜	860
3" 4-Hole NEMA Flat					
VLS2-690-4N	2	8	8⅝	⅛	690
VLS2-970-4N				¼	970
VLS2-1200-4N				⅜	1200
4" 4-Hole NEMA Flat					
VLS2-900-4NN	2	8	8⅝	⅛	900
VLS2-1200-4NN				¼	1200
VLS2-1440-4NN				⅜	1440

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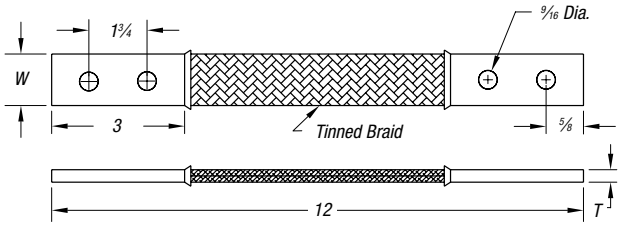
Type VGG — Flexible Braided Jumpers, Flat to Flat



CAT. NO.	AMPS OUTDOOR	AMPS INDOOR	A	STYLE	BRAID LAYERS	W	T
GA-397-L	210	160	1¼	A	1	1¼	¼
GA-398-U	365	280			2		
GA-399-T	440	340			3		
GB-8819-E	700	530			2	2	7/16
GA-397-I	210	160	3	B	1	1¼	¼
GA-398-G	365	280			2		
GA-399-B	440	340			3		
GB-8819-C	700	530			2	2	7/16

For other sizes and configurations, consult Customer Service.

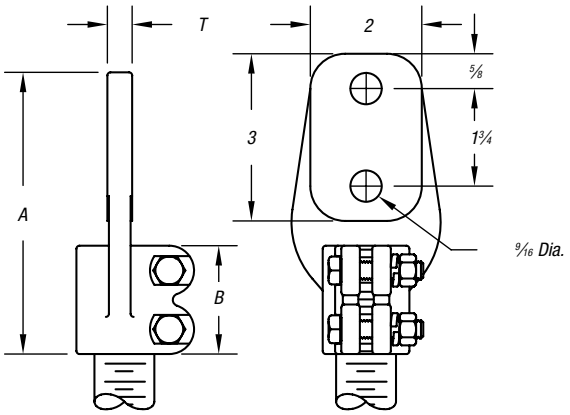
Type FB — Flexible Braided Jumpers, Ferrules Formed with Cuff, Flat to Flat



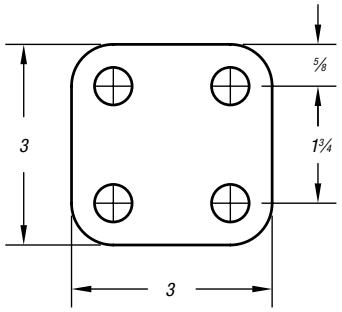
CAT. NO.	AMPS INDOOR	W	T	BRAID LAYERS
FB11-2N	210	1	⅛	1
FB12-2N	340	1⅛	3/16	2
FB13-2N	470	1¼	¼	3
FB14-2N	600		⅜	4
FB21-2N	330		¼	1
FB22-2N	500	1½	5/16	2
FB23-2N	700	1⅝	½	3
FB24-2N	850			4
FB31-2N	395	1½	⅛	1
FB32-2N	540		⅜	2
FB33-2N	820		½	3
FB34-2N	940		¾	4
FB41-2N	430		¼	1
FB42-2N	700		½	2
FB43-2N	960		¾	3
FB44-2N	1200	1⅝	⅞	4

For other sizes and configurations, consult Customer Service.

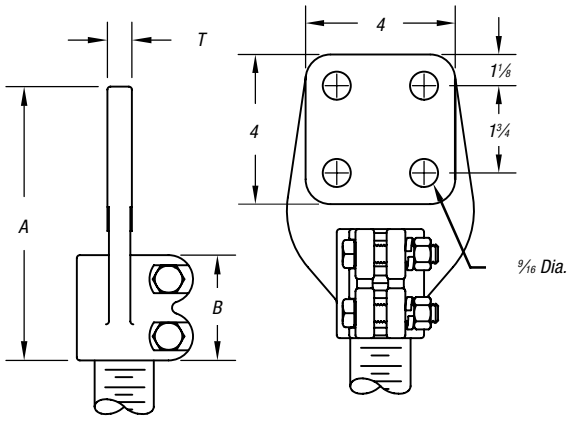
Type KSLC — Stud Connector, Stud to Flat



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



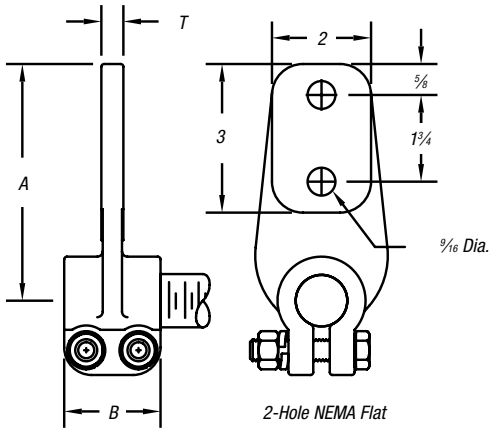
4" 4-Hole NEMA Flat

CAT. NO.	STUD SIZE	A	B	T	AMPS
2-Hole NEMA Flat					
KSLC-3-2N	3/4–16	5 3/4	1 1/2	3/8	600
KSLC-5-2N	1–14	5 1/4			
KSLC-6-2N	1 1/8–12	6 1/8	2 3/16		
KSLC-8-2N	1 1/4–12				
KSLC-10-2N	1 1/2–12	7 3/8	2 5/8	9/16	
KSLC-11B-2N	1 3/4–12	6 3/4	2 1/2	5/8	
KSLC-13-2N	2–12	7 1/4			
KSLC-13A-2N	2 1/4–12	7 3/8	2 5/8		
3" 4-Hole NEMA Flat					
KSLC-3-4N	3/4–16	5 3/8	1 1/2	3/8	600
KSLC-5-4N	1–14	5 1/4			1200
KSLC-6-4N	1 1/8–12	6 1/8	2 3/16		
KSLC-8-4N	1 1/4–12			9/16	
KSLC-10-4N	1 1/2–12	7 3/8	2 1/4		
KSLC-11B-4N	1 3/4–12	6 3/4	2 1/2		
KSLC-13-4N	2–12	7 1/4		5/8	1800
KSLC-13A-4N	2 1/4–12	7 3/8			
KSLC-15-4N	3–12	10 1/4	3 1/4	1	2400
KSLC-15A-4N	3 1/2–12	8 1/4			
4" 4-Hole NEMA Flat					
KSLC-5-4NN	1–14	6 1/2	2 1/4	1/2	1600
KSLC-6-4NN	1 1/8–12	6 11/16	2		
KSLC-8-4NN	1 1/4–12				
KSLC-10-4NN	1 1/2–12	8	2 1/4	5/8	
KSLC-11B-4NN	1 3/4–12	8 1/4	2 1/2	1/2	2400
KSLC-13-4NN	2–12			5/8	
KSLC-13-4NN-3KA	2–12	7 5/8	2 3/8	1	3000
KSLC-13A-4NN	2 1/4–12	8 1/8	3 1/8	3/4	2400
KSLC-13A-4NN-3KA		7 5/8	2 3/8	1	3000
KSLC-13B-4NN	2 1/2–12	8 1/8	3 1/8	3/4	2400
KSLC-13B-4NN-3KA		8 3/4	3 1/4	1	3000
KSLC-15-4NN	3–12	9 1/8	4	3/4	2400
KSLC-15-4NN-3KA		8 11/16	3 1/4	1	3000
KSLC-15-4NN-4KA		9 3/4	4	1 1/4	4000
KSLC-15A-4NN	3 1/2–12	9 9/16	4 1/8	3/4	2400
KSLC-15A-4NN-4KA		8 3/4	3 1/4	1 1/4	4000
KSLC-16-4NN	4–12	9 1/2	4 1/8	1	3000
KSLC-16-4NN-4KA		9 3/4	4	1 1/4	4000
KSLC-17-4NN	4–10	9 1/2	4 1/8	1	3000
KSLC-17-4NN-4KA				1 1/4	4000

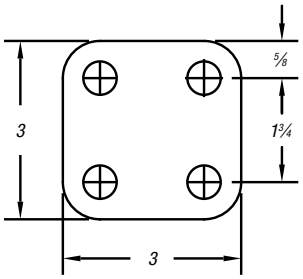
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

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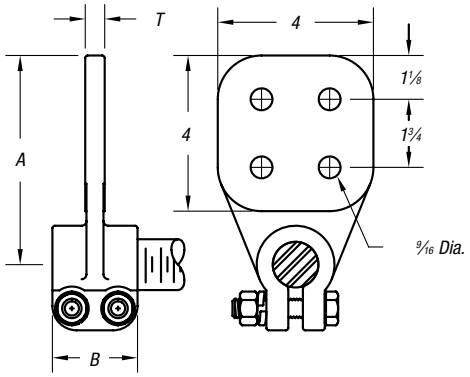
Type KSLF — Stud Connector, Stud to Flat at 90°



2-Hole NEMA Flat



3" 4-Hole NEMA Flat



4" 4-Hole NEMA Flat

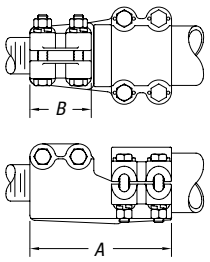
CAT. NO.	STUD SIZE	A	B	T
2-Hole NEMA Flat				
KSLF-3-2N	¾–16	4 3/16	2 3/16	5/8
KSLF-5-2N	1–14	4⅛	2	7/16
KSLF-6-2N	1⅛–12	4¼	2¼	½
KSLF-8-2N	1¼–12			
KSLF-10-2N	1½–12	4½		9/16
KSLF-11B-2N	1¾–12			
KSLF-13-2N	2–12	4¼		
KSLF-13A-2N	2¼–12	5⅝	2½	5/8
3" 4-Hole NEMA Flat				
KSLF-3-4N	¾–16	4 3/16	2 3/16	5/8
KSLF-5-4N	1–14	4¼	2¼	½
KSLF-6-4N	1⅛–12			
KSLF-8-4N	1¼–12			
KSLF-10-4N	1½–12	4½		
KSLF-11B-4N	1¾–12			
KSLF-13-4N	2–12	4⅝	2½	5/8
KSLF-13A-4N	2¼–12			
KSLF-15-4N	3–12	6¼	3¼	1
KSLF-15A-4N	3½–12			
4" 4-Hole NEMA Flat				
KSLF-5-4NN	1–14	4⅛	2	½
KSLF-6-4NN	1⅛–12	5½	2¼	
KSLF-8-4NN	1¼–12			
KSLF-10-4NN	1½–12			9/16
KSLF-11B-4NN	1¾–12			½
KSLF-13-4NN	2–12	5⅝		5/8
KSLF-13-4NN-3KA		6 11/16	2½	1
KSLF-13A-4NN	2¼–12	5⅝		¾
KSLF-13A-4NN-3KA		6 11/16	3¼	1
KSLF-13B-4NN	2½–12	6½		¾
KSLF-13B-4NN-3KA		6 11/16		1
KSLF-15-4NN	3–12			¾
KSLF-15-4NN-3KA				1
KSLF-15-4NN-4KA				1¼
KSLF-15A-4NN	3½–12			¾
KSLF-15A-4NN-4KA				1¼
KSLF-16-4NN	4–12	7⅝	4	1
KSLF-16-4NN-4KA				1¼
KSLF-17-4NN	4–10			1
KSLF-17-4NN-4KA				1¼

3KA = 3000 amp rating
4KA = 4000 amp rating

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Bolted Bronze Connectors

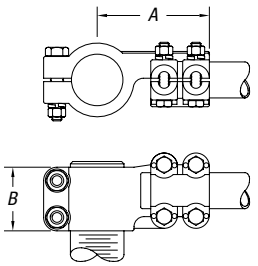
Type VIC — Stud Connector, Stud to Pipe



CAT. NO.	STUD SIZE	SPS	A	B
VIC-6-C	1⅛–12	½	5	2¼
VIC-6-E		¾		
VIC-6-F		1		
VIC-6-G		1¼	5½	
VIC-6-H		1½		
VIC-6-J		2	5⅜	
VIC-8-C	1¼–12	½	5¼	
VIC-8-E		¾		
VIC-8-F		1	4⅞	
VIC-8-G		1¼	5½	
VIC-8-H		1½		
VIC-8-J		2	6	
VIC-8-K		2½	5¾	
VIC-10-C	1½–12	½	5½	
VIC-10-E		¾	5	
VIC-10-F		1	5¼	
VIC-10-G		1¼	5½	
VIC-10-H		1½		2½
VIC-10-J		2	6	
VIC-10-K		2½	6⅛	
VIC-10-L		3	6⅞	
VIC-11B-C	1¾–12	½	5	
VIC-11B-E		¾		
VIC-11B-F		1	5¼	
VIC-11B-G		1¼		
VIC-11B-H		1½	5½	
VIC-11B-J		2	6½	
VIC-11B-K		2½	5½	
VIC-11B-L		3	7⅞	
VIC-11B-M		3½		
VIC-13-C	2–12	½	5	
VIC-13-E		¾		
VIC-13-F		1	5¼	
VIC-13-G		1¼	6	
VIC-13-H		1½	6¼	
VIC-13-J		2		
VIC-13-K		2½		
VIC-13-L		3	7¾	
VIC-13-M		3½		

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type VIC-90 — Stud Connector, Stud to Pipe at 90°

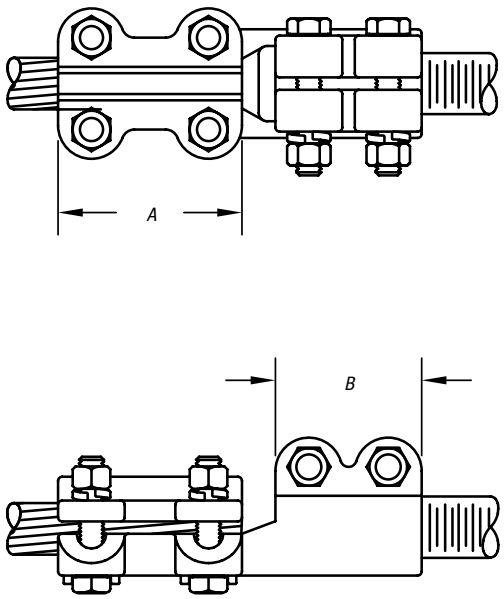


CAT. NO.	STUD SIZE	SPS	A	B
VIC-6-C90	1⅛–12	½	3½	2¼
VIC-6-E90		¾	3¾	
VIC-6-F90		1		
VIC-6-G90		1¼	4½	
VIC-6-H90		1½	4⅜	
VIC-6-J90		2		
VIC-8-C90	1¼–12	½	3½	
VIC-8-E90		¾		
VIC-8-F90		1		
VIC-8-G90		1¼	4¼	
VIC-8-H90		1½	4⅜	
VIC-8-J90		2		
VIC-8-K90		2½		
VIC-10-C90	1½–12	½	3¾	
VIC-10-E90		¾		
VIC-10-F90		1	4	
VIC-10-G90		1¼	4¼	
VIC-10-H90		1½	4¾	
VIC-10-J90		2		2½
VIC-10-K90		2½	4⅝	
VIC-10-L90		3		
VIC-11B-C90	1¾–12	½	4¼	
VIC-11B-E90		¾		
VIC-11B-F90		1		
VIC-11B-G90		1¼	4½	
VIC-11B-H90		1½		
VIC-11B-J90		2	4¾	
VIC-11B-K90		2½	4⅞	
VIC-11B-L90		3		
VIC-11B-M90		3½		
VIC-13-C90	2–12	½	4¼	
VIC-13-E90		¾		
VIC-13-F90		1		
VIC-13-G90		1¼	4⅞	
VIC-13-H90		1½		
VIC-13-J90		2	5	
VIC-13-K90		2½		
VIC-13-L90		3		
VIC-13-M90		3½		

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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Type VID — Stud Connector, Stud to Cable

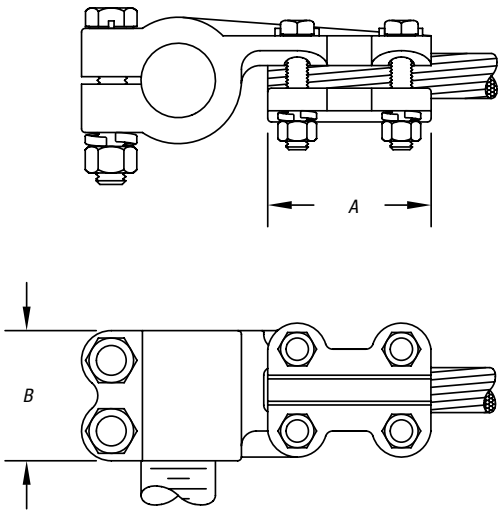


CAT. NO.	STUD SIZE	CABLE SIZE	CABLE DIA. MIN.–MAX.	B	T
VID-6-4/0	1⅛–12	#8–4/0	.146–.528	2¾	2¾₁₆
VID-6-60		#4–600	.232–.893		
VID-6-100		4/0–1000	.528–1.152	3	
VID-6-125		900–1250	1.094–1.289		
VID-8-4/0	1¼–12	#8–4/0	.146–.528	2¾	
VID-8-60		#4–600	.232–.893		
VID-8-100		4/0–1000	.528–1.152	3	
VID-8-125		900–1250	1.094–1.289		
VID-10-4/0	1½–12	#8–4/0	.146–.528	2⅝	
VID-10-60		#4–600	.232–.893	2¾	2¼
VID-10-100		4/0–1000	.528–1.152	3	2
VID-10-125		900–1250	1.094–1.289		2¼
VID-11B-4/0	1¾–12	#8–4/0	.146–.528	2⅝	2⅝
VID-11B-60		#4–600	.232–.893	3	
VID-11B-100		4/0–1000	.528–1.152		2
VID-11B-125		900–1250	1.094–1.289		
VID-13-4/0	2–12	#8–4/0	.146–.528	2⅝	2⅛
VID-13-60		#4–600	.232–.893	2¾	
VID-13-100		4/0–1 000	.528–1.152	3	2⅝
VID-13-125		900–1250	1.094–1.289		

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Bolted Bronze Connectors

Type VID-90 — Stud Connector, Stud to Cable at 90°



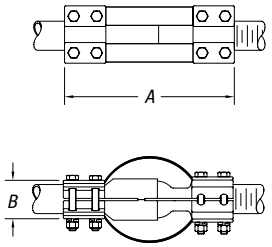
CAT. NO.	STUD SIZE	CABLE SIZE	CABLE DIA. MIN.–MAX.	A	B
VID-6-4/0-90	1⅛–12	#8–4/0	.146–.528	2⅝	2⅜
VID-6-60-90		#4–600	.232–.893	2¾	
VID-6-80-90		500–800	.813–1.031	3	
VID-6-125-90		900–1250	1.094–1.289	3⅜	
VID-8-4/0-90	1¼–12	#8–4/0	.146–.528	2¾	
VID-8-60-90		#4–600	.232–.893		
VID-8-80-90		500–800	.813–1.031	3	
VID-8-125-90		900–1250	1.094–1.289		
VID-10-4/0-90	1½–12	#8–4/0	.146–.528	2¾	
VID-10-60-90		#4–600	.232–.893		
VID-10-80-90		500–800	.813–1.031	2⅝	
VID-10-125-90		900–1250	1.094–1.289	3	
VID-11B-4/0-90	1¾–12	#8–4/0	.146–.528	2⅝	2½
VID-11B-60-90		#4–600	.232–.893	2¾	
VID-11B-80-90		500–800	.813–1.031	2⅞16	
VID-11B-125-90		900–1250	1.094–1.289	3	
VID-13-4/0-90	2–12	#8–4/0	.146–.528	2⅝	
VID-13-60-90		#4–600	.232–.893	2¾	
VID-13-80-90		500–800	.813–1.031	3	
VID-13-125-90		900–1250	1.094–1.289		

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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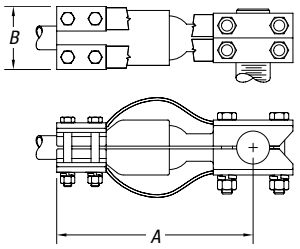
Type VIF — Flexible Stud Connector, Stud to Pipe



CAT. NO.	STUD SIZE	SPS	A	B
VIF-6-C	1⅛–12	½	9½	1¾
VIF-6-E		¾		
VIF-6-F		1		1⅞
VIF-6-G		1¼	10	2⅝
VIF-6-H		1½		2⅞
VIF-6-J		2		3¼
VIF-8-C	1¼–12	½	9½	1¾
VIF-8-E		¾		
VIF-8-F		1		1⅞
VIF-8-G		1¼	10	2⅝
VIF-8-H		1½		2⅞
VIF-8-J		2		3¼
VIF-8-K		2½	11	3⅝
VIF-10-C	1½–12	½	9½	1¾
VIF-10-E		¾		
VIF-10-F		1		1⅞
VIF-10-G		1¼	10	2⅝
VIF-10-H		1½		2⅞
VIF-10-J		2		3¼
VIF-10-K		2½	11	3⅝
VIF-10-L		3		4½
VIF-11B-C	1¾–12	½	10	1¾
VIF-11B-E		¾		
VIF-11B-F		1		1⅞
VIF-11B-G		1¼	10½	2⅝
VIF-11B-H		1½		2⅞
VIF-11B-J		2		3¼
VIF-11B-K		2½	11½	3⅝
VIF-11B-L		3		4½
VIF-11B-M		3½	12	5¼
VIF-13-C	2–12	½	11	1¾
VIF-13-E		¾		
VIF-13-F		1		1⅞
VIF-13-G		1¼	12	2⅝
VIF-13-H		1½		2⅞
VIF-13-J		2		3¼
VIF-13-K		2½	12½	3⅝
VIF-13-L		3	13	4½
VIF-13-M		3½	13½	5¼

Other sizes available; consult Customer Service.
For copper laminate shunts instead of braid, consult customer service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type VIF-90 — Flexible Stud Connector, Stud to Pipe at 90°

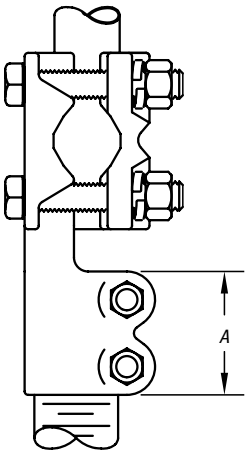


CAT. NO.	STUD SIZE	SPS	A	B
VIF-6-C90	1⅛–12	½	9⁵⁄₁₆	2⅞
VIF-6-E90		¾		
VIF-6-F90		1		3
VIF-6-G90		1¼	11½	3⁹⁄₁₆
VIF-6-H90		1½		3¾
VIF-6-J90		2		4¼
VIF-8-C90	1¼–12	½	8¹¹⁄₁₆	2⅞
VIF-8-E90		¾		
VIF-8-F90		1	9¹¹⁄₁₆	3
VIF-8-G90		1¼		3⁹⁄₁₆
VIF-8-H90		1½		3¾
VIF-8-J90		2		4¼
VIF-8-K90		2½		
VIF-10-C90	1½–12	½	9³⁄₁₆	2⅞
VIF-10-E90		¾		
VIF-10-F90		1	8¹¹⁄₁₆	3
VIF-10-G90		1¼	10³⁄₁₆	3⁹⁄₁₆
VIF-10-H90		1½		3¾
VIF-10-J90		2		4¼
VIF-10-K90		2½	10¹¹⁄₁₆	
VIF-10-L90		3		5⅜
VIF-11B-C90	1¾–12	½	9⁵⁄₁₆	2⅞
VIF-11B-E90		¾		
VIF-11B-F90		1	10	3
VIF-11B-G90		1¼	11	4¼
VIF-11B-H90		1½		3¾
VIF-11B-J90		2		4¼
VIF-11B-K90		2½		
VIF-11B-L90		3		5⅜
VIF-11B-M90		3½		5⅞
VIF-13-C90	2–12	½	9⁵⁄₁₆	2⅞
VIF-13-E90		¾		
VIF-13-F90		1	10	3
VIF-13-G90		1¼	11	4¼
VIF-13-H90		1½		3¾
VIF-13-J90		2		4¼
VIF-13-K90		2½		
VIF-13-L90		3		5⅜
VIF-13-M90		3½		5⅞

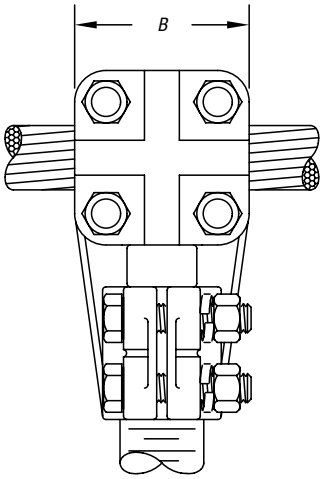
Other sizes available; consult Customer Service.
For copper laminate shunts instead of braid, consult customer service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Bolted Bronze Connectors

Type 5M — Stud Connector, Stud to Cable, Pipe or Flat



This illustration represents a horizontal configuration.



This illustration represents a vertical configuration.

CAT. NO.	STUD SIZE	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	SPS	A	B
5M663-5	1–14	#6–500	.162–.813	⅜–½	2¼	2¼
5M863-5		#2–1000	.258–1.152	⅜–¾		3
5M663-6	1⅛–12	#6–500	.162–.813	⅜–½		2⅝
5M863-6		#2–1000	.258–1.152	⅜–¾		3
5M963-6		4/0–2000	.528–1.630	⅜–1¼		3¾
5M663-8	1¼–12	#6–500	.162–.813	⅜–½		2⅝
5M863-8		#2–1000	.258–1.152	⅜–¾		3
5M963-8		4/0–2000	.528–1.630	⅜–1¼		3¾
5M663-10	1½–12	#6–500	.162–.813	⅜–½	2⅝	2⅝
5M863-10		#2–1000	.258–1.152	⅜–¾		3
5M963-10		4/0–2000	.528–1.630	⅜–1¼		3¾
5M863-11B	1¾–12	#2–1000	.258–1.152	⅜–¾		3
5M963-11B		4/0–2000	.528–1.630	⅜–1¼	2½	3¾
5M863-13	2–12	#2–1000	.258–1.152	⅜–¾		3
5M963-13		4/0–2000	.528–1.630	⅜–1¼		3¾

This Type 5M universal connector can be used for horizontal or vertical take-off to a flat. It will accommodate a wide range of cable just by turning the cap.

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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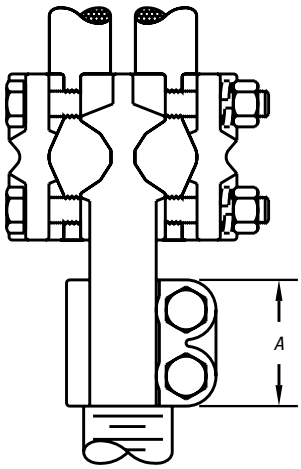
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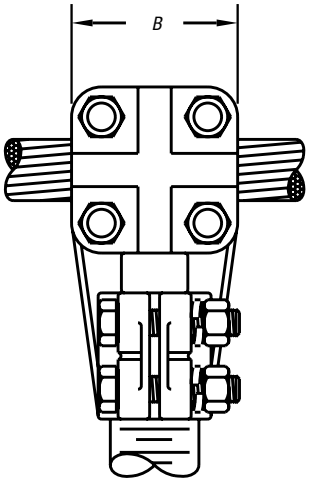
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Bolted Bronze Connectors

Type 5M-2 — Stud Connector, Stud to Cable or Pipe



This illustration represents a horizontal configuration.



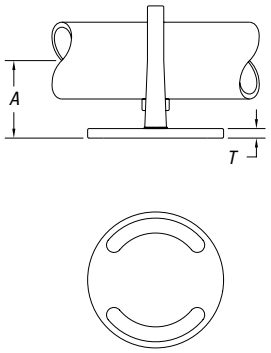
This illustration represents a vertical configuration.

CAT. NO.	STUD SIZE	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	SPS	A	B
5M663-2-5	1–14	#6–500	.162–.813	⅜–½	2¼	2¼
5M863-2-5		#2–1000	.258–1.152	⅜–¾		3
5M663-2-6	1⅛–12	#6–500	.162–.813	⅜–½		2⅝
5M863-2-6		#2–1000	.258–1.152	⅜–¾		3
5M963-2-6		4/0–2000	.528–1.630	⅜–1¼		3¾
5M663-2-8	1¼–12	#6–500	.162–.813	⅜–½		2⅝
5M863-2-8		#2–1000	.258–1.152	⅜–¾		3⅛
5M963-2-8		4/0–2000	.528–1.630	⅜–1¼		3¾
5M663-2-10	1½–12	#6–500	.162–.813	⅜–½	2⅜	2⅝
5M863-2-10		#2–1000	.258–1.152	⅜–¾		3⅛
5M963-2-10		4/0–2000	.528–1.630	⅜–1¼		3¾
5M863-2-11B	1¾–12	#2–1000	.258–1.152	⅜–¾		3
5M963-2-11B		4/0–2000	.528–1.630	⅜–1¼		3¾
5M863-2-13	2–12	#2–1000	.258–1.152	⅜–¾	2½	3
5M963-2-13		4/0–2000	.528–1.630	⅜–1¼		3¾
5M963-2-15	3–12				4	3½

This Type 5M-2 universal connector can be used for horizontal or vertical take-off to a flat. It will accommodate a wide range of cable just by turning the cap.

Other sizes available; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type KTB — Slide Bus Support, Pipe to Insulator



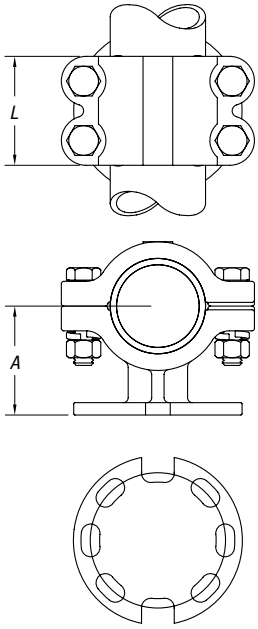
Slots: 3" BC 9/16
5" BC 9/16

CAT. NO.	SPS	A	T
3" Bolt Circle			
KTB-E-3	¾	2	½
KTB-F-3	1		
KTB-G-3	1¼	2¼	
KTB-H-3	1½	2½	
KTB-J-3	2	2¾	
KTB-K-3	2½	3⅛	
KTB-L-3	3	3⅝	
KTB-M-3	3½	4	⅝
KTB-P-3	4	4½	
5" Bolt Circle			
KTB-E-5	¾	2¼	½
KTB-F-5	1		
KTB-G-5	1¼	2⅜	
KTB-H-5	1½	2½	
KTB-J-5	2	2¾	
KTB-K-5	2½	3⅛	
KTB-L-5	3	3⅝	⅝
KTB-M-5	3½	4	
KTB-P-5	4	4½	

Stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type KSBE — Bus Support, Clamp or Slip Fit, Pipe to Insulator



Slots: 3" BC 9/16 x ¾
5" BC 11/16 x ⅞

CAT. NO.	SPS	A	L
3" Bolt Circle			
KSBE-C-3	½	1¾	2¼
KSBE-E-3	¾	2	
KSBE-F-3	1		
KSBE-G-3	1¼	2¼	2¾
KSBE-H-3	1½	2½	
KSBE-J-3	2	2¾	
KSBE-K-3	2½	3⅛	3
KSBE-L-3	3	3⅝	3½
KSBE-M-3	3½	4	4
KSBE-P-3	4	4½	
5" Bolt Circle			
KSBE-C-5	½	2⅛	3
KSBE-E-5	¾	2¼	2⅜
KSBE-F-5	1		
KSBE-G-5	1¼	2⅜	3¼
KSBE-H-5	1½	2½	2¾
KSBE-J-5	2	2¾	3
KSBE-K-5	2½	3⅛	
KSBE-L-5	3	3⅝	3½
KSBE-M-5	3½	4	3¾
KSBE-P-5	4	4½	

Stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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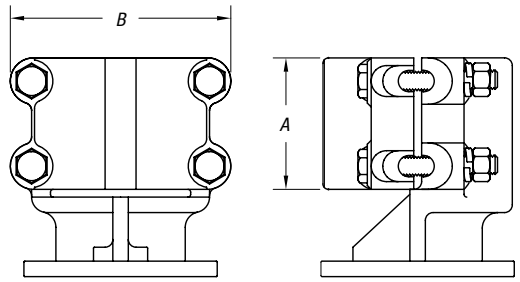
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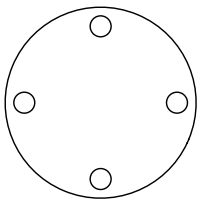
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Bolted Bronze Connectors

Type KVBS — Vertical Bus Support, Pipe to Insulator



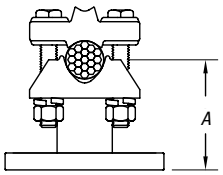


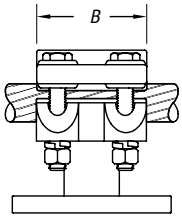
Holes: 3" BC 9/16
5" BC 11/16

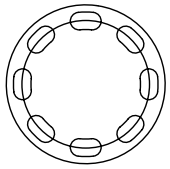
CAT. NO.	SPS	A	T
3" Bolt Circle			
KVBS-E-3	3/4	2 1/4	2 13/16
KVBS-F-3	1		
KVBS-G-3	1 1/4	3	3 9/16
KVBS-H-3	1 1/2		3 3/4
KVBS-J-3	2		4 1/4
KVBS-K-3	2 1/2	4	4 3/4
KVBS-L-3	3		5 1/4
KVBS-M-3	3 1/2		5 3/4
KVBS-P-3	4		6 1/4
5" Bolt Circle			
KVBS-E-5	3/4	2 1/4	2 13/16
KVBS-F-5	1		
KVBS-G-5	1 1/4	3	3 9/16
KVBS-H-5	1 1/2		3 3/4
KVBS-J-5	2		4 1/4
KVBS-K-5	2 1/2		4 3/4
KVBS-L-5	3	4	5 1/4
KVBS-M-5	3 1/2		5 3/4
KVBS-P-5	4		6 1/4

Galvanized hardware for mounting to insulator is supplied.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type KSBD — Bolted Bus Support, Cable to Insulator





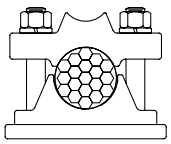


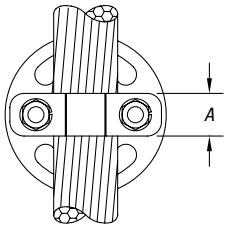
Slots: 3" BC 9/16 x 3/4
5" BC 11/16 x 7/8

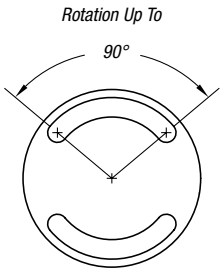
CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B
3" Bolt Circle				
KSBD-60-3	#4–600	.232–.893	2 1/2	2 3/4
KSBD-100-3	4/0–1000	.528–1.152	3	3
KSBD-175-3	250–1750	.575–1.526	2 3/4	3 1/2
5" Bolt Circle				
KSBD-60-5	#4–600	.232–.893	2 1/2	2 7/8
KSBD-100-5	4/0–1000	.528–1.152	3	3
KSBD-175-5	250–1750	.575–1.526	3 1/8	3 5/8

Galvanized hardware for mounting to insulator is supplied.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type 8M — Bus Support, Cable or Pipe to Insulator





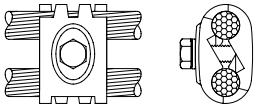


Slots: 3" BC 9⁄16
5" BC 11⁄16

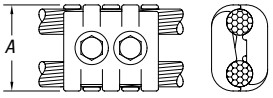
CAT. NO.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	SPS	A
3" Bolt Circle				
8M-25-3	#6–250	.162–.574	¼	1
8M-50-3	1/0–500	.368–.813		1½
8M-100-3	4/0–1000	.460–1.152	¾	
8M-200-3	500–2000	.811–1.630	1¼	1¼
8M-300-3	1000–3000	1.152–1.998	2	1½
5" Bolt Circle				
8M-25-5	#6–250	.162–.574	¼	1
8M-50-5	1/0–500	.368–.813		1½
8M-100-5	4/0–1000	.460–1.152	¾	
8M-200-5	500–2000	.811–1.630	1¼	1¼
8M-300-5	1000–3000	1.152–1.998	2	1½

Galvanized hardware for mounting to insulator is supplied.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

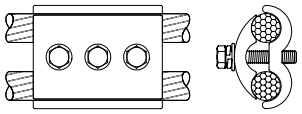
Type PT — Parallel Clamps, Cable to Cable



Type PT



Type PT2



Type PT3

CAT. NO.	RUN CABLE SIZE	RUN CABLE DIAMETER MIN.–MAX.	TAP CABLE SIZE	TAP CABLE DIAMETER MIN.–MAX.	A
PT-2/0-8	#8–2/0	.146–.419	#8–2/0	.146–.419	2
PT-1048	1/0–4/0	.368–.464	#8–#1	.146–.328	
PT2-4/0-4	#4–4/0	.232–.528	#4–4/0	.232–.528	
PT2-30-30*	#2–300	.292–.630	#2–300	.292–.630	2½
PT2-50-1	250–500	.575–.813	#1–4/0	.328–.522	2¼
PT2-50-50			250–500	.575–.813	2 11⁄16
PT3-50-50*					4½
PT3-100-100	4/0–1000	.528–1.152	4/0–1000	.528–1.152	

** Supplied with nuts and washers for assembly.*

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

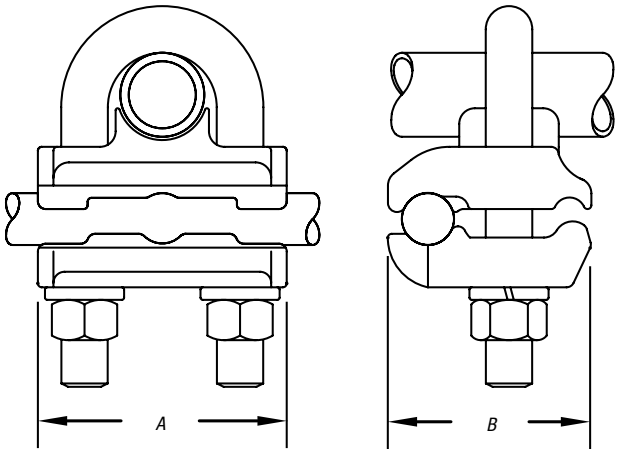
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Type 2755 — Ground Connector, One Cable, Parallel or Perpendicular, to Pipe or Rod

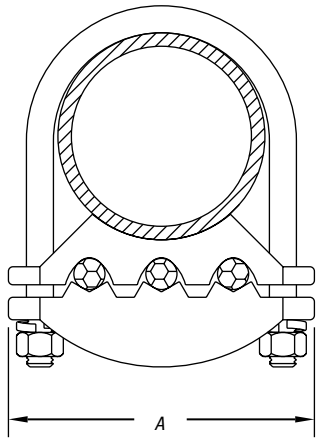


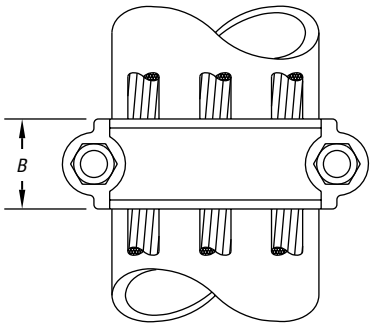
CAT. NO.	SPS	ROD DIA.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B
2755-B-4	¼–⅜	½–⅝	#8–#4	.129–.204	2⅛	1½
2755-B-2/0			#4–2/0	.204–.419		
2755-B-25			2/0–250	.419–.575		
2755-B-50			300–500	.630–.813		2
2755-E-4	½–¾	⅞–1	#8–#4	.129–.204	2½	1½
2755-E-2/0			#4–2/0	.204–.419		
2755-E-25			2/0–250	.419–.575		
2755-E-50			300–500	.630–.813		2
2755-F-4	1	1–1¼	#8–#4	.129–.204	2¾	1½
2755-F-2/0			#4–2/0	.204–.419		
2755-F-25			2/0–250	.419–.575		
2755-F-50			300–500	.630–.813		2
2755-G-4	1¼	—	#8–#4	.129–.204	3	1½
2755-G-2/0			#4–2/0	.204–.419		
2755-G-25			2/0–250	.419–.575		
2755-G-50			300–500	.630–.813		2
2755-G-75			550–750	.855–.998		
2755-H-4	1½	—	#8–#4	.129–.204	3⅜	1½
2755-H-2/0			#4–2/0	.204–.419		
2755-H-25			2/0–250	.419–.575		
2755-H-50			300–500	.630–.813		2
2755-H-75			550–750	.855–.998		
2755-J-4	2	—	#8–#4	.129–.204	3¾	1½
2755-J-2/0			#4–2/0	.204–.419		
2755-J-25			2/0–250	.419–.575		
2755-J-50			300–500	.630–.813		2
2755-J-75			550–750	.855–.998		

CAT. NO.	SPS	ROD DIA.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B
2755-K-4	2½	—	#8–#4	.129–.204	4¼	1½
2755-K-2/0			#4–2/0	.204–.419		
2755-K-25			2/0–250	.419–.575		
2755-K-50			300–500	.630–.813		2
2755-K-75			550–750	.855–.998		
2755-L-4	3	—	#8–#4	.129–.204	4⅞	1½
2755-L-2/0			#4–2/0	.204–.419		
2755-L-25			2/0–250	.419–.575		
2755-L-50			300–500	.630–.813		2
2755-L-75			550–750	.855–.998		
2755-M-4	3½	—	#8–#4	.129–.204	5⅜	1½
2755-M-2/0			#4–2/0	.204–.419		
2755-M-25			2/0–250	.419–.575		
2755-M-50			300–500	.630–.813		2
2755-M-75			550–750	.855–.998		
2755-P-4	4	—	#8–#4	.129–.204	5⅞	1½
2755-P-2/0			#4–2/0	.204–.419		
2755-P-25			2/0–250	.419–.575		
2755-P-50			300–500	.630–.813		2
2755-P-75			550–750	.855–.998		
2755-R-4	5	—	#8–#4	.129–.204	7	1½
2755-R-2/0			#4–2/0	.204–.419		
2755-R-25			2/0–250	.419–.575		
2755-R-50			300–500	.630–.813		2
2755-R-75			550–750	.855–.998		
2755-S-4	6	—	#8–#4	.129–.204	8	1½
2755-S-2/0			#4–2/0	.204–.419		
2755-S-25			2/0–250	.419–.575		
2755-S-50			300–500	.630–.813		2
2755-S-75			550–750	.855–.998		

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type 2752 — Ground Connector, Two or Three Cables, Parallel, to Pipe or Rod





CAT. NO.	SPS	ROD DIA.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B
2752-3-B-4	¼–⅜	½–⅝	#8–#4	.129–.204	2½	1¼
2752-3-B-2/0			#4–2/0	.204–.419	3	
2752-3-B-25			2/0–250	.419–.575	3¼	
2752-3-B-50			300–500	.630–.813	3¾	
2752-3-E-4	½–¾	⅞–1	#8–#4	.129–.204	2⅞	
2752-3-E-2/0			#4–2/0	.204–.419	3⅜	
2752-3-E-25			2/0–250	.419–.575	3½	
2752-3-E-50			300–500	.630–.813	4	
2752-3-F-4	1	1–1¼	#8–#4	.129–.204	3⅛	
2752-3-F-2/0			#4–2/0	.204–.419	3½	
2752-3-F-25			2/0–250	.419–.575	3⅞	
2752-3-F-50			300–500	.630–.813	4⅛	
2752-3-G-4	1¼	—	#8–#4	.129–.204	3	
2752-3-G-2/0			#4–2/0	.204–.419	3⅜	
2752-3-G-25			2/0–250	.419–.575	4⅛	
2752-3-G-50			300–500	.630–.813	5	1½
2752-3-G-75			550–750	.855–.998	5¼	
2752-3-H-4	1½	—	#8–#4	.129–.204	3⅜	
2752-3-H-2/0			#4–2/0	.204–.419		
2752-3-H-25			2/0–250	.419–.575	4½	
2752-3-H-50			300–500	.630–.813	5⅛	
2752-3-H-75			550–750	.855–.998	5½	
2752-3-J-4	2	—	#8–#4	.129–.204	3¾	1¼
2752-3-J-2/0			#4–2/0	.204–.419		
2752-3-J-25			2/0–250	.419–.575		
2752-3-J-50			300–500	.630–.813	5⅝	1½
2752-3-J-75			550–750	.855–.998	6	

CAT. NO.	SPS	ROD DIA.	CABLE SIZE	CABLE DIAMETER MIN.–MAX.	A	B
2752-3-K-4	2½	—	#8–#4	.129–.204	4¼	1¼
2752-3-K-2/0			#4–2/0	.204–.419		
2752-3-K-25			2/0–250	.419–.575		
2752-3-K-50			300–500	.630–.813	6⅛	1½
2752-3-K-75			550–750	.855–.998	6½	
2752-3-L-4	3	—	#8–#4	.129–.204	4⅞	1¼
2752-3-L-2/0			#4–2/0	.204–.419		
2752-3-L-25			2/0–250	.419–.575		
2752-3-L-50			300–500	.630–.813	5¼	1½
2752-3-L-75			550–750	.855–.998	7⅛	
2752-3-M-4	3½	—	#8–#4	.129–.204	5⅜	1¼
2752-3-M-2/0			#4–2/0	.204–.419		
2752-3-M-25			2/0–250	.419–.575		
2752-3-M-50			300–500	.630–.813	5¾	1½
2752-3-M-75			550–750	.855–.998		
2752-3-P-4	4	—	#8–#4	.129–.204	5⅞	1¼
2752-3-P-2/0			#4–2/0	.204–.419		
2752-3-P-25			2/0–250	.419–.575		
2752-3-P-50			300–500	.630–.813	6¼	1½
2752-3-P-75			550–750	.855–.998		
2752-3-R-4	5	—	#8–#4	.129–.204	7	1¼
2752-3-R-2/0			#4–2/0	.204–.419		
2752-3-R-25			2/0–250	.419–.575		
2752-3-R-50			300–500	.630–.813	7⅜	1½
2752-3-R-75			550–750	.855–.998		
2752-3-S-4	6	—	#8–#4	.129–.204	8	1¼
2752-3-S-2/0			#4–2/0	.204–.419		
2752-3-S-25			2/0–250	.419–.575		
2752-3-S-50			300–500	.630–.813	8⅜	1½
2752-3-S-75			550–750	.855–.998		

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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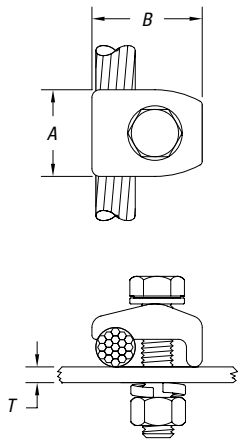
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Bolted Bronze Connectors

Type 2709T-1 — Ground Connector, Cable to Flat

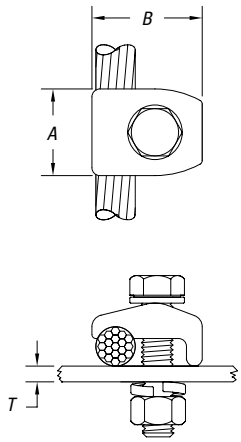


CAT. NO.	CABLE RANGE	CABLE DIAMETER	ROD	A	B
2709T-1-4	#8–#4	.129–.232	3/16	1½	1 7/16
2709T-1-2/0	#4–2/0	.204–.419	⅜		1½
2709T-1-25	2/0–250	.419–.575	½	1⅜	1¾
2709T-1-30	#4–300	.204–.630	⅝		
2709T-1-50	300–500	.630–.813	¾	1½	1⅜
2709T-1-75	550–750	.855–.998	15/16		2⅝
2709T-1-100	800–1000	1.031–1.152	1	1⅝	2⅞

¼" hardware provided for "T".
Specify other "T" if required. e.g. 2709T-1-75-T 1/2

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type 2709-1 — Ground Connector, Cable to Flat

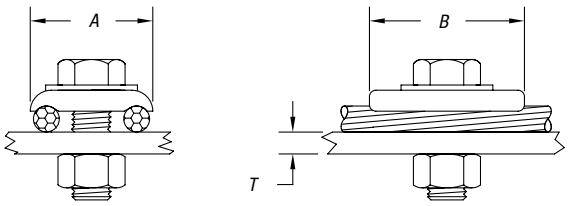


CAT. NO.	CABLE RANGE	CABLE DIAMETER	ROD	A	B
2709-1-4	#8–#4	.129–.232	3/16	1½	1 9/16
2709-1-2/0	#4–2/0	.204–.419	⅜		
2709-1-25	2/0–250	.419–.575	½	1	1⅝
2709-1-30	#4–300	.204–.630	⅝		
2709-1-50	300–500	.630–.813	¾	1½	2¼
2709-1-75	550–750	.855–.998	15/16		2¾
2709-1-100	800–1000	1.031–1.152	1	1⅝	3

¼" hardware provided for "T".
Specify other "T" if required. e.g. 2709-1-4-T 1/2

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type 2709T-2 — Ground Connector, Two Cables to Flat



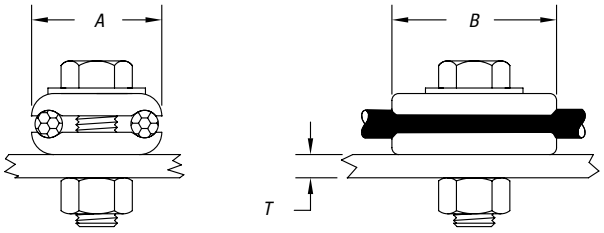
CAT. NO.	CABLE RANGE	CABLE DIAMETER	ROD	A	B
2709T-2-4	#8–#4	.129–.232	3/16	1⅛	1½
2709T-2-2/0	#4–2/0	.204–.419	⅜	1½	
2709T-2-25	2/0–250	.419–.575	½	2	
2709T-2-30	#4–300	.204–.630	⅝	2½	2
2709T-2-50	300–500	.630–.813	¾		
2709T-2-75	550–750	.855–.998	15/16	2¾	
2709T-2-100	800–1000	1.031–1.152	1	3⅛	

¼" hardware provided for "T".
Specify other "T" if required. e.g. 2709-2-4-T 1/2

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Bolted Bronze Connectors

Type 2709-2 — Ground Connector, Two Cables to Flat

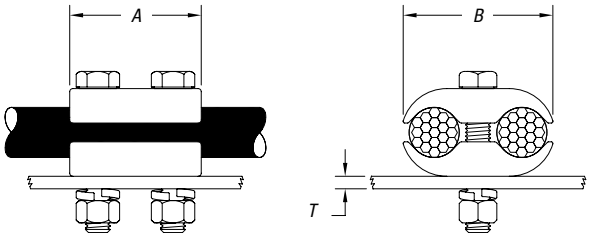


CAT. NO.	CABLE RANGE	CABLE DIAMETER	ROD	A	B
2709-2-4	#8–#4	.129–.232	3/16	1 1/8	1 1/2
2709-2-2/0	#4–2/0	.204–.419	3/8	1 1/2	
2709-2-25	2/0–250	.419–.575	1/2	2	
2709-2-30	2/0–300	.419–.630	5/8	2 1/2	2
2709-2-50	300–500	.630–.813	3/4		
2709-2-75	550–750	.855–.998	15/16	2 3/4	
2709-2-100	800–1000	1.031–1.152	1	3 1/8	

1/4" hardware provided for "T".
Specify other "T" if required. e.g. 2709-2-30-T 1/2

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type 2710-2 — Ground Connector, Two Cables to Flat



CAT. NO.	CABLE RANGE	CABLE DIAMETER	ROD	A	B
2710-2-4	#8–#4	.129–.232	3/16	2 1/4	1 11/16
2710-2-2/0	#4–2/0	.204–.419	3/8		
2710-2-25	2/0–250	.419–.575	1/2	2 5/8	2 1/8
2710-2-30	2/0–300	.419–.630	5/8	2 3/4	2 3/8
2710-2-50	300–500	.630–.813	3/4	2 11/16	2 1/2
2710-2-75	550–750	.855–.998	15/16	2 5/8	3
2710-2-100	800–1000	1.031–1.152	1	3 1/4	3 11/16

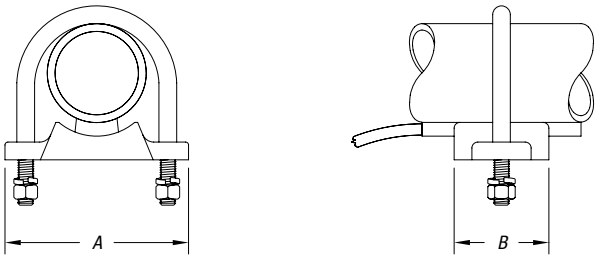
1/4" hardware provided for "T".
Specify other "T" if required. e.g. 2710-2-30-T 1/2

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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Bolted Bronze Connectors

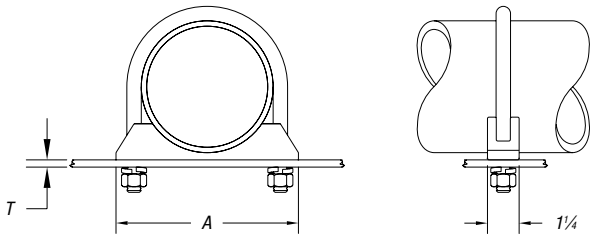
Type NTB — Ground Clamp, Braid to Pipe or Rod



CAT. NO.	SPS	ROD	A	B
NTB-C	½	¾	2⅜	1⅜
NTB-E	¾	1		
NTB-F	1	1¼	2⅝	
NTB-G	1¼	1½	3	
NTB-H	1½	—		
NTB-J	2	—	4¼	1¾
NTB-K	2½	—	4½	
NTB-L	3	—	5⅛	2¼
NTB-M	3½	—	5¾	
NTB-P	4	—	6⅛	2½
NTB-R	5	—	7½	1½
NTB-S	6	—	8⅜	1¾

Other sizes are available; consult customer service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type VGH — Ground Connector, Pipe to Flat

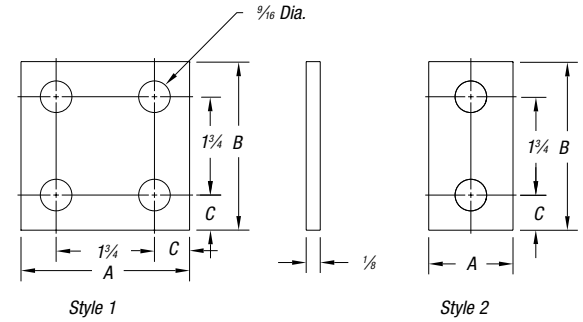


CAT. NO.	SPS	A
VGH-C	½	2⅛
VGH-E	¾	2⅜
VGH-F	1	2⅞
VGH-G	1¼	3
VGH-H	1½	3½
VGH-J	2	4¼
VGH-K	2½	4¹¹⁄₁₆
VGH-L	3	5⅜
VGH-M	3½	5⅞
VGH-P	4	6³⁄₁₆
VGH-R	5	7¼
VGH-S	6	8½

¼" hardware provided for "T".
Specify other "T" if required. e.g. VGH-R-T 1/2

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Transition Plates



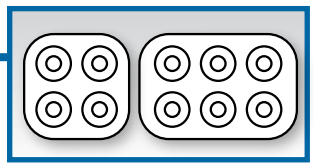
CAT. NO.	STYLE	A	B	C
GB-9557-1.5	2	1½	3	⅝
GB-9557-2		2		
GB-9557-3	1	3		
GB-9557-4		4	4	1⅛

Material: Copper
Finish: Tin-Plated

Quick Reference

Pad Shields

See page F-562



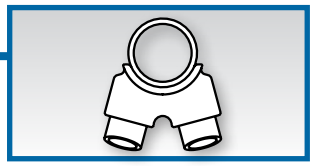
Type WAA-CF

See page F-562



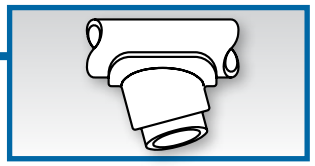
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See page F-562



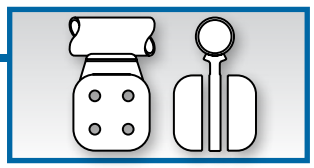
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See page F-563



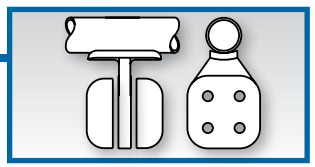
Type WAY-CF

See page F-563



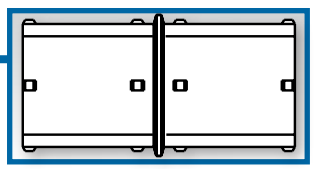
Type WAY-90-CF

See page F-563



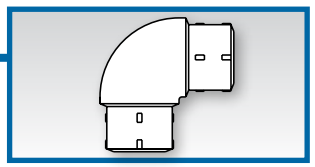
Type WALB-CF

See page F-564



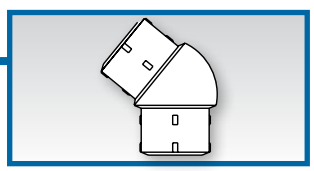
Type WAKA-90-CF

See page F-564



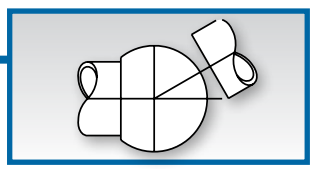
Type WAKA-45-CF

See page F-564



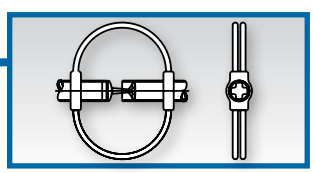
Type WASC-CF

See page F-565



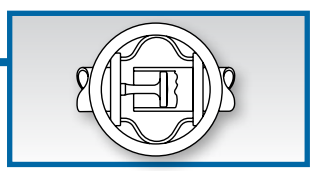
Type WAFG-CF

See page F-565



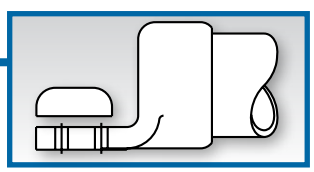
Type WAFG-CR-CF

See page F-565



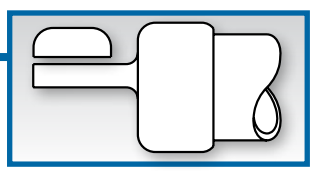
Type WAP-CF

See page F-566



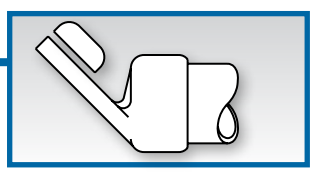
Type WAP-CT-CF

See page F-566



Type WAP-45-CF

See page F-567



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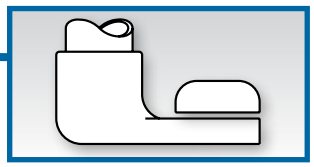
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EHV Connectors

Quick Reference

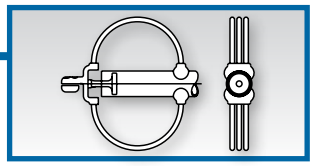
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See page F-567



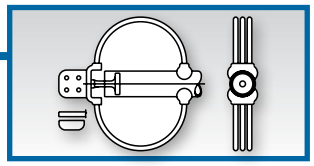
Type WAFF-CF

See page F-568



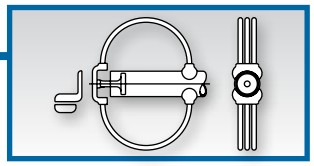
Type WAFF-B-CF

See page F-568



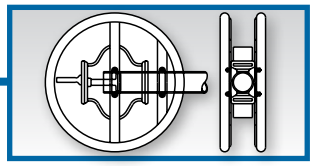
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See page F-569



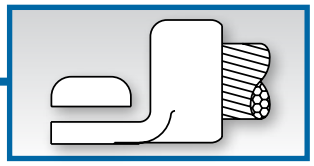
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See page F-569



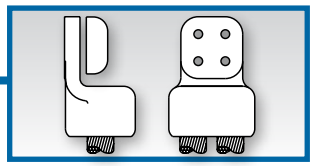
Type WAGL, -45, -90, -CF

See page F-570



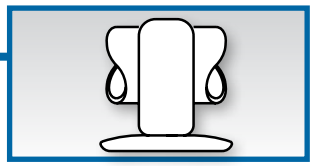
Type WAGL-2, -45, -90, -CF

See page F-571



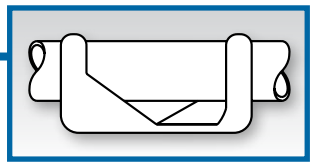
Type WAXB-CF

See page F-572



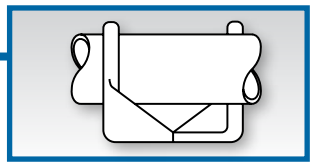
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See page F-572



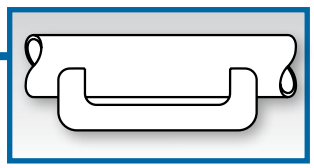
Type WAXC-CF

See page F-572



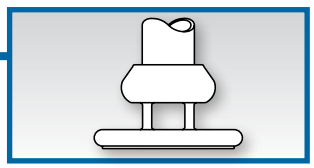
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See page F-573



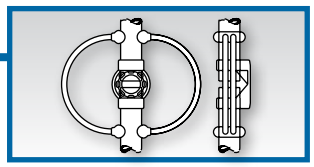
Type WAXY-CF

See page F-573



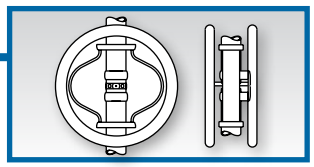
Type WAFS-CF

See page F-573



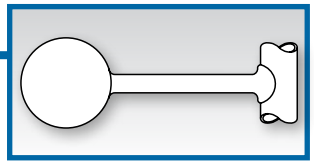
Type WAFS-CR-CF

See page F-574



Type WP-CF

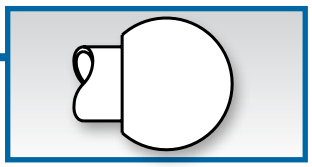
See page F-574



Quick Reference

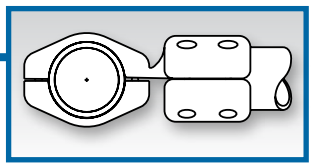
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See page F-574



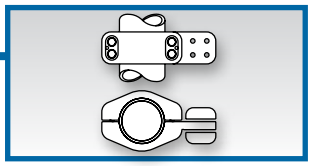
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See page F-575



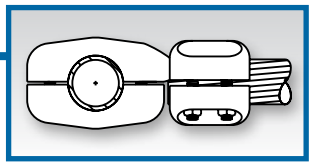
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See page F-575



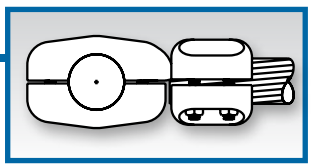
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See page F-576



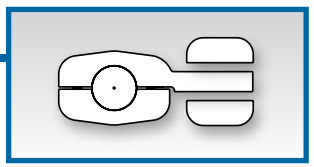
Type AVC-CF

See page F-577



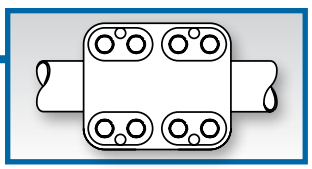
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See page F-578



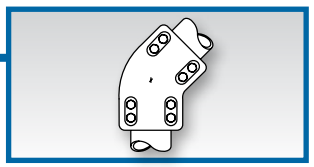
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See page F-578



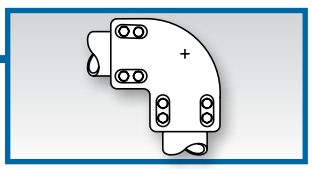
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See page F-579



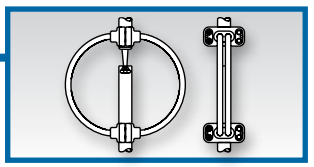
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See page F-579



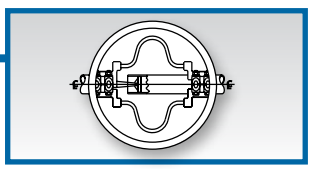
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See page F-579



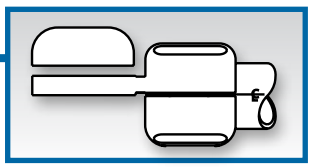
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See page F-580



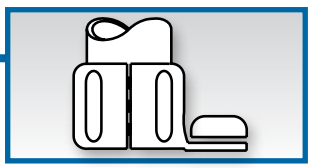
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See page F-580



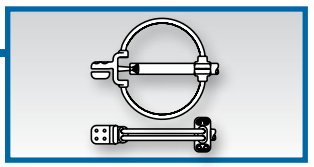
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See page F-581



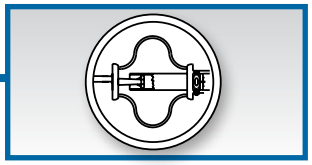
Type AFF-CT-CF

See page F-581



Type AFF-CT-CR-CF

See page F-581



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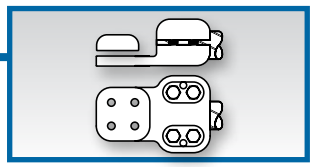
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Quick Reference

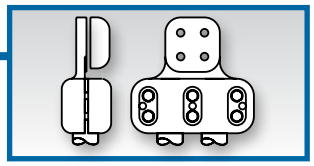
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See page F-582



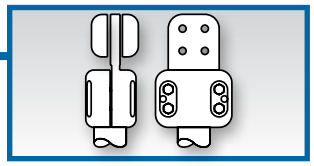
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See page F-582



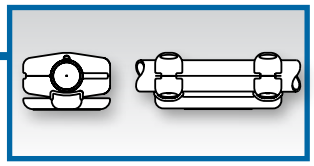
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See page F-583



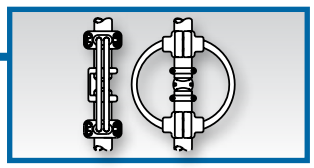
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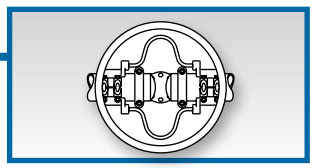
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See page F-584



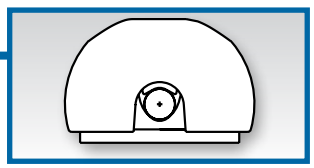
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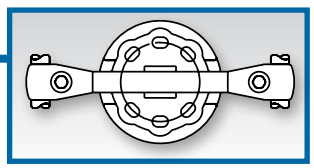
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See page F-585



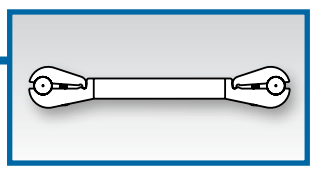
Type AVXA-2-CF

See page F-585



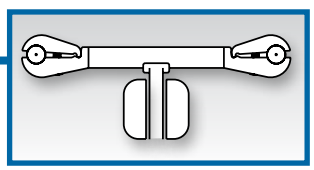
Type AS-CF

See page F-586



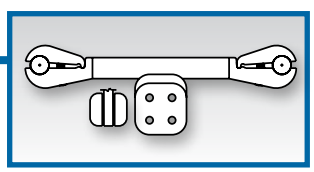
Type ASLA-CF

See page F-586



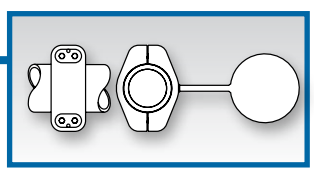
Type ASLA-90-CF

See page F-587



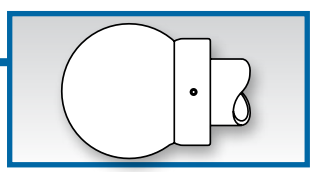
Type AP-CF

See page F-586



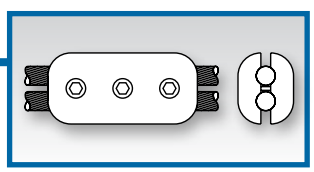
Type AVM-CF

See page F-588



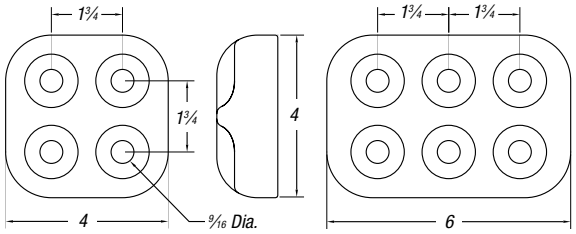
Type AVW-CF

See page F-588



EHV Connectors

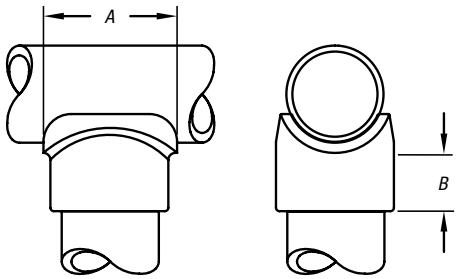
Pad Shield



CAT. NO.	SIZE
EH-1188 / VAPP-4NN	4 x 4
EH-1186 / VAPP-6NW	4 x 6

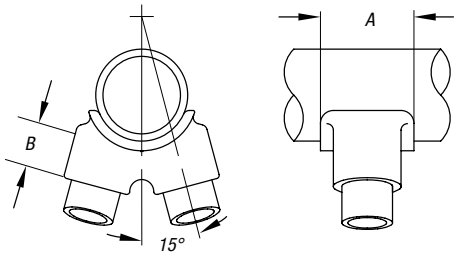
Pad surface is finished.

Type WAA-CF — Weld Tee Connector, Pipe to Pipe



CAT. NO.	RUN SPS	TAP SPS	A	B
EH-3188	2	2	2½	1
EH-3189	2½	2	3⅝	1
EH-3190		2½	4⅛	1¼
EH-3191	3	2	3⅝	1
EH-3192		2½	4⅛	1¼
EH-3193		3	4⅞	
EH-3194	3½	2	3⅝	1
EH-3195		2½	4⅛	1¼
EH-3196		3	4⅞	
EH-3197		3½	5⅜	1½
EH-3198	4	2	3⅝	1
EH-3199		2½	4⅛	1¼
EH-3200		3	4⅞	
EH-3201		3½	5⅜	1½
EH-3202		4	5⅞	
EH-3203	5	2	3⅝	1
EH-3204		2½	4⅛	1¼
EH-3205		3	4⅞	
EH-3206		3½	5⅜	1½
EH-3207		4	5⅞	
EH-3208		5	6⅞	
EH-3209	6	2	3⅝	1
EH-3210		2½	4⅛	1¼
EH-3211		3	4⅞	
EH-3212		3½	5⅜	1½
EH-3213		4	5⅞	
EH-3214		5	6⅞	
EH-3215		6	8	

Type WAA-15-CF — Weld Vee Connector, Pipe Run to Two Pipe Taps, Each at 15°



CAT. NO.	RUN SPS	TAP SPS	A	B
EH-3250	2	2	3⅝	1
EH-3251	2½	2	3⅝	1
EH-3252		2½	4⅛	1¼
EH-3253	3	2	3⅝	1
EH-3254		2½	4⅛	1¼
EH-3255		3	4⅞	
EH-3256	3½	2	3⅝	1
EH-3257		2½	4⅛	1¼
EH-3258		3	4⅞	
EH-3259		3½	5⅜	1½
EH-3260	4	2	3⅝	1
EH-3261		2½	4⅛	1¼
EH-3262		3	4⅞	
EH-3263		3½	5⅜	1½
EH-3264		4	5⅞	
EH-3265	5	2	3⅝	1
EH-3266		2½	4⅛	1¼
EH-3267		3	4⅞	
EH-3268		3½	5⅜	1½
EH-3269		4	5⅞	
EH-3270		5	6⅞	
EH-3271	6	2	3⅝	1
EH-3272		2½	4⅛	1¼
EH-3273		3	4⅞	
EH-3274		3½	5⅜	1½
EH-3275		4	5⅞	
EH-3276		5	6⅞	
EH-3277		6	8	

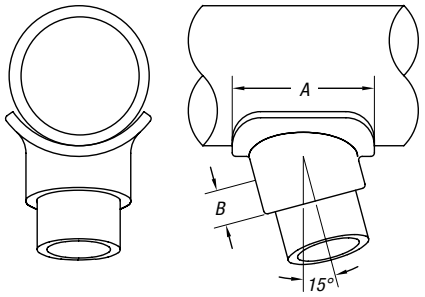
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Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

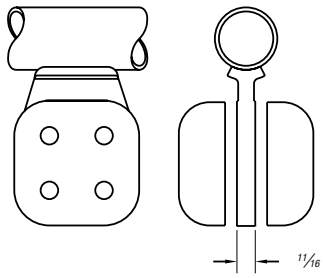
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Type WAV-15-CF — Weld Tee Connector, Pipe Run to Pipe Tap at 15°

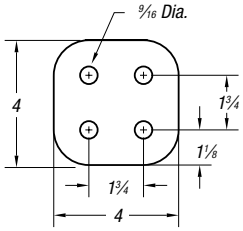


CAT. NO.	RUN SPS	TAP SPS	A	B
EH-3280	2	2	3⅝	1
EH-3281	2½	2	3⅝	1
EH-3282		2½	4⅛	1¼
EH-3283	3	2	3⅝	1
EH-3284		2½	4⅛	1¼
EH-3285		3	4⅞	
EH-3286	3½	2	3⅝	1
EH-3287		2½	4⅛	1¼
EH-3288		3	4⅞	
EH-3289		3½	5⅜	1½
EH-3290	4	2	3⅝	1
EH-3291		2½	4⅛	1¼
EH-3292		3	4⅞	
EH-3293		3½	5⅜	1½
EH-3294		4	5⅞	
EH-3295	5	2	3⅝	1
EH-3296		2½	4⅛	1¼
EH-3297		3	4⅞	
EH-3298		3½	5⅜	1½
EH-3299		4	5⅞	
EH-3300		5	6⅞	
EH-3301	6	2	3⅝	1
EH-3302		2½	4⅛	1¼
EH-3303		3	4⅞	
EH-3304		3½	5⅜	1½
EH-3305		4	5⅞	
EH-3306		5	6⅞	
EH-3307		6	8	

Type WAY-CF — Weld Tee Connector, Pipe Run To Flat Tap



*Normally used with a pad shield (Sold Separately — See **Page F-562**)*

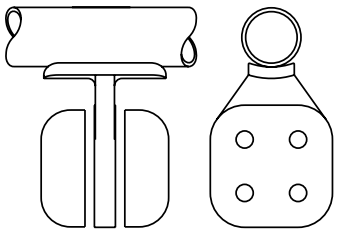


4" 4-Hole NEMA Flat

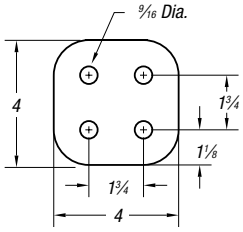
CAT. NO.	SPS
EH-3886	1–2½
EH-3887	3–6

All pads are finished on both sides.

Type WAY-90-CF — Weld Tee Connector, Pipe Run To Flat Tap



*Normally used with a pad shield (Sold Separately — See **Page F-562**)*

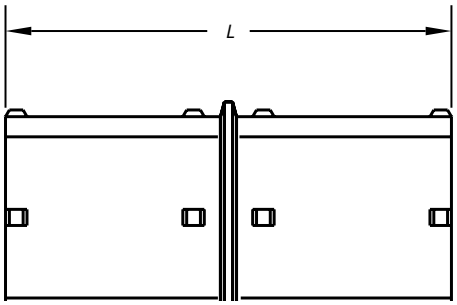


4" 4-Hole NEMA Flat

CAT. NO.	SPS
EH-3896	1–2½
EH-3897	3–6

All pads are finished on both sides.

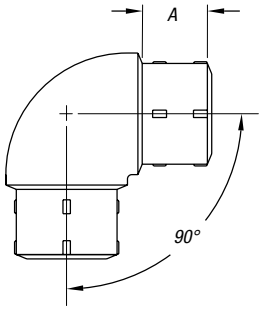
Type WALB-CF — Weld Coupler, Pipe To Pipe

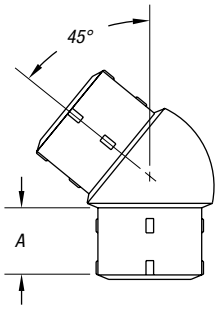


CAT. NO.	RUN SPS	TAP SPS	L
EH-3150	2	2	4½
EH-3151	2½	2	5
EH-3152		2½	5½
EH-3153	3	2	5¼
EH-3154		2½	5¾
EH-3155		3	6¼
EH-3156	3½	2	5¾
EH-3157		2½	6¼
EH-3158		3	6¾
EH-3159		3½	7¼
EH-3160	4	2	6⅜
EH-3161		2½	6⅞
EH-3162		3	7⅜
EH-3163		3½	7⅞
EH-3164		4	8⅜
EH-3165	5	2	7⅜
EH-3166		2½	7⅞
EH-3167		3	8⅜
EH-3168		3½	8⅞
EH-3169		4	9⅜
EH-3170		5	10⅜
EH-3171	6	2	8⅜
EH-3172		2½	8⅞
EH-3173		3	9⅜
EH-3174		3½	9⅞
EH-3175		4	10⅜
EH-3176		5	11⅜
EH-3177		6	12⅜

For schedule 80 pipe, add "-EH" to catalog number; e.g. EH-3177-EH.

Type WAKA-90-CF and WAKA-45-CF — Weld Elbow, Pipe to Pipe





CAT. NO.			
90°	45°	SPS	A
EH-3380	EH-3370	2	3
EH-3381	EH-3371	2½	
EH-3382	EH-3372	3	
EH-3383	EH-3373	3½	4
EH-3384	EH-3374	4	5
EH-3385	EH-3375	5	
EH-3386	EH-3376	6	6

For schedule 80 pipe, add "-EH" to catalog number; e.g. EH-3380-EH.
For other configurations, consult Customer Service.

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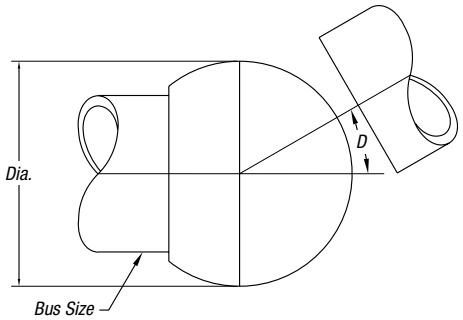
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EHV Connectors

Type WASC-CF — Weld Spherical Coupler, Pipe To Pipe

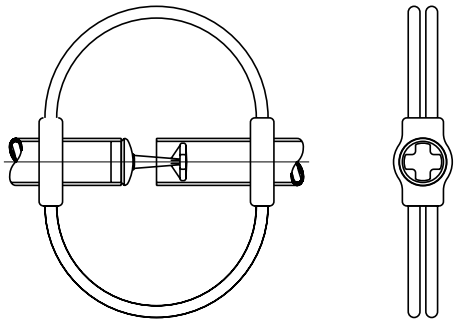


This connector is especially useful where site grading precludes a flat yard or where property lines require the turning of odd horizontal angles. Also suitable for sub-EHV voltages. Installed at 500kV.

CAT. NO.	SPS BUS SIZE	DIA.	D MAX*
EH-900-2	2	8	134°
EH-900-2.5	2½		127°
EH-900-3	3		117°
EH-900-3.5	3½		109°
EH-900-4	4		100°
EH-900-5	5		81°
EH-900-6	6		57°

** Indicates maximum angle that can be turned when conductors of same size are coupled. The angle exists in the plane defined by centerlines of the conductors. Angles indicated allow for a minimum of 1½ inches of welding space. One pipe inserts into connector and is keyed in position by connector. Second pipe is brought into position and welded to external surface of ball. This connector can also be used as a reducer. Order large bus size and weld smaller bus to external surface of sphere. Consult Customer Service for more information.*

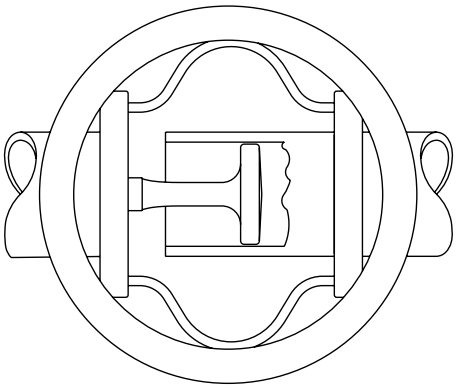
Type WAFG-CF — Weld Expansion Coupler, Pipe To Pipe (345kV Nominal System Voltage)



CAT. NO.	SPS	NO. OF CONDUCTORS*
EH-3401	2	4
EH-3402	2½	
EH-3403	3	
EH-3404	3½	
EH-3405	4	
EH-3406	5	6
EH-3407	6	

** Conductors are aluminum 795 AAC*
*Use chart GA-735 on technical reference **page F-593** for installation.*
For schedule 80 pipe, add "EH" to catalog number; e.g. EH-3407-EH.

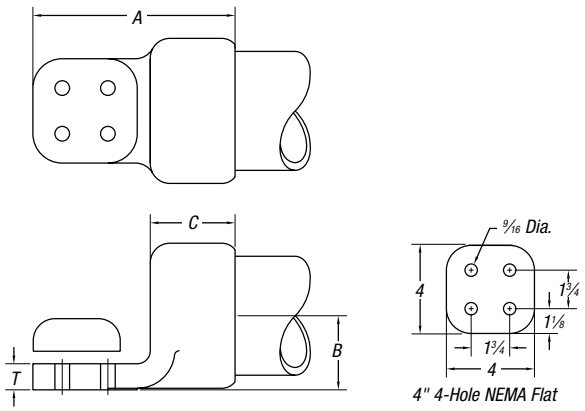
Type WAFG-CR-CF — Weld Expansion Coupler, Pipe To Pipe (500kV Nominal System Voltage)



CAT. NO.	SPS
EH-3600	2
EH-3601	2½
EH-3602	3
EH-3603	3½
EH-3604	4
EH-3605	5
EH-3606	6

*Use chart GA-735 on technical reference **page F-593** for installation.*
For schedule 80 pipe, add "EH" to catalog number; e.g. EH-3600-EH.

Type WAP-CF — Weld Terminal, Pipe to Flat



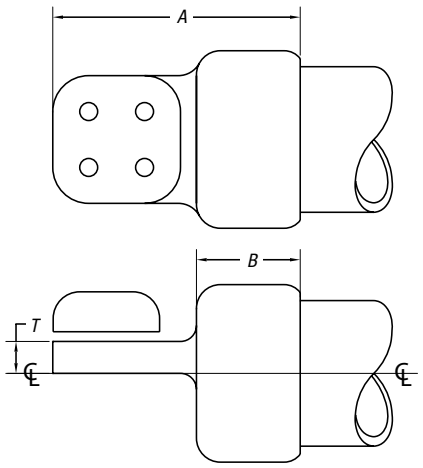
4" 4-Hole NEMA Flat

*Normally used with a pad shield (sold separately — see **page F-562**)*

CAT. NO.	SPS	A	B	C	T
EH-3001	2	6½	1¼	1¾	⅝
EH-3002	2½	6¾	1½	2	
EH-3003	3	7¼	1¾	2½	¾
EH-3004	3½	7½	2	2¾	
EH-3005	4	7¾	2¼	3	1
EH-3006	5	8¼	2¾	3½	
EH-3007	6	9¼	3½	4	

All pads are finished on both sides.

Type WAP-CT-CF — Weld Terminal, Pipe to Flat



4" 4-Hole NEMA Flat

*Normally used with a pad shield (sold separately — see **page F-562**)*

CAT. NO.	SPS	A	B	T
EH-3011	2	6½	1¼	⅝
EH-3012	2½	6¾	1½	
EH-3013	3	7¼	1¾	¾
EH-3014	3½	7½	2	
EH-3015	4	7¾	2¼	1
EH-3016	5	8¼	2¾	
EH-3017	6	9¼	3½	

All pads are finished on both sides.

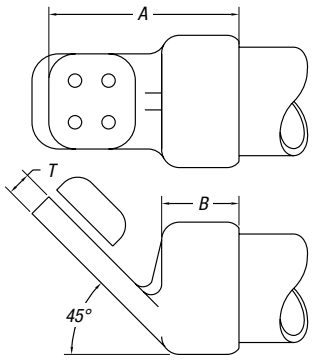
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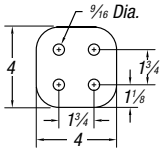
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Fax: 901.252.1354

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Type WAP-45-CF — 45° Weld Terminal, Pipe to Flat





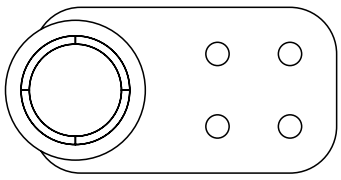
4" 4-Hole NEMA Flat

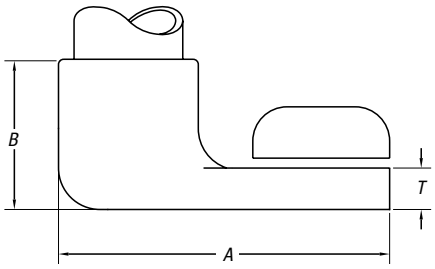
*Normally used with a pad shield (sold separately — see **page F-562**)*

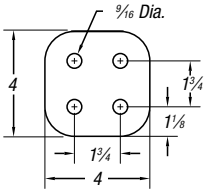
CAT. NO.	SPS	A	B	T
EH-3021	2	6½	1¼	⅝
EH-3022	2½	6¾	1½	
EH-3023	3	7¼	1¾	¾
EH-3024	3½	7½	2	
EH-3025	4	7¾	2¼	1
EH-3026	5	8¼	2¾	
EH-3027	6	9¼	3½	

All pads are finished on both sides.

Type WAP-90-CF — 90° Weld Terminal, Pipe to Flat







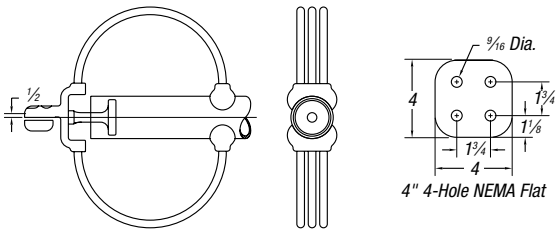
4" 4-Hole NEMA Flat

*Normally used with a pad shield (sold separately — see **page F-562**)*

CAT. NO.	SPS	A	B	T
EH-3429	2	7⅞	1¼	⅝
EH-3430	2½	8	1½	
EH-3431	3	8¾	1¾	¾
EH-3432	3½	9¼	2	
EH-3433	4	9¾	2¼	1
EH-3434	5	10¾	2¾	
EH-3435	6	11⅞	3½	

All pads are finished on both sides.

Type WAFF-CF — Weld Expansion Terminal, Pipe to Flat (345kV Nominal System Voltage)

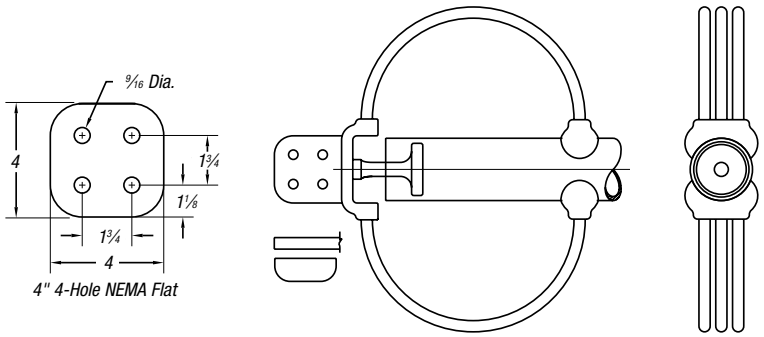


*Normally used with a pad shield (sold separately — see **page F-562**)*

CAT. NO.	SPS	NO. OF CONDUCTORS*
EH-3181	2	4
EH-3182	2½	
EH-3183	3	
EH-3184	3½	
EH-3185	4	
EH-3186	5	6
EH-3187	6	

** Conductors are aluminum 795 AAC.*
*Use chart GA-735 on general reference **page F-593** for installation.*
For schedule 80 pipe, add "EH" to catalog number; e.g. EH-3181-EH.
All pads are finished on both sides.

Type WAFF-B-CF — Weld Expansion Terminal, Pipe to Flat (345kV Nominal System Voltage)



*Normally used with a pad shield (sold separately — see **page F-562**)*

CAT. NO.	SPS	NO. OF CONDUCTORS*
EH-3491	2	4
EH-3492	2½	
EH-3493	3	
EH-3494	3½	
EH-3495	4	
EH-3496	5	6
EH-3497	6	

** Conductors are aluminum 795 AAC.*
*Use chart GA-735 on technical reference **page F-593** for installation.*
For schedule 80 pipe, add "EH" to catalog number; e.g. EH-3491-EH.
All pads are finished on both sides.

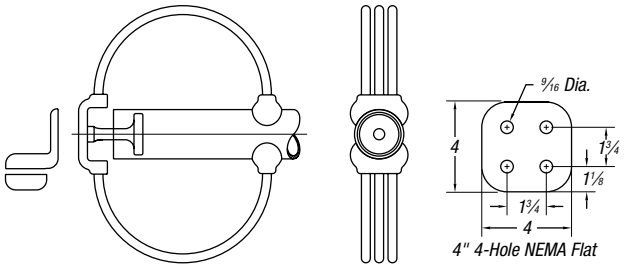
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Type WAFF-A-CF — Weld Expansion Terminal with Field-Adjustable Pad, Pipe to Flat (345kV Nominal System Voltage)

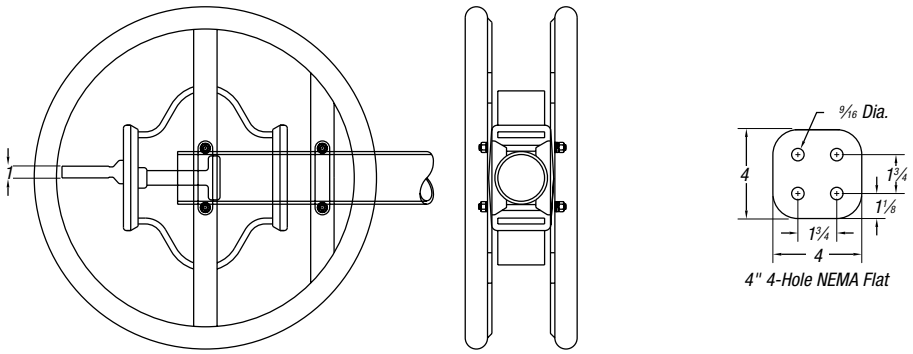


*Normally used with a pad shield (sold separately — see **page F-562**)*

CAT. NO.	SPS	NUMBER OF CONDUCTORS*
EH-3454	2	4
EH-3455	2½	
EH-3456	3	
EH-3457	3½	
EH-3458	4	
EH-3459	5	6
EH-3460	6	

** Conductors are aluminum 795 AAC.*
Maximum allowable adjustment, centerline conductor to surface of switch, ±4".
*Use chart GA-735 on technical reference **page F-593** for installation.*
For schedule 80 pipe, add "EH" to catalog number; e.g. EH-3454-EH.
All pads are finished on both sides.

Type WAFF-CT-CR-CF — Weld Expansion Coupler, Pipe to Pipe (500kV Nominal System Voltage)

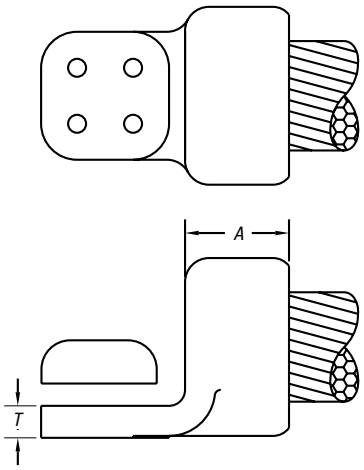


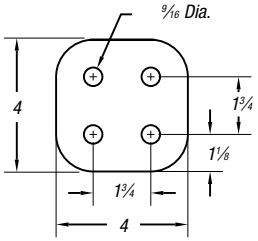
*Normally used with a pad shield (sold separately — see **page F-562**)*

CAT. NO.	SPS
EH-3531	2
EH-3532	2½
EH-3533	3
EH-3534	3½
EH-3535	4
EH-3536	5
EH-3537	6

*Use chart GA-735 on technical reference **page F-593** for installation.*
For schedule 80 pipe, add "EH" to catalog number; e.g. EH-3537-EH.
All pads are finished on both sides.

Type WAGL, -45, -90, -CF — Weld Terminal, Cable to Flat, Straight, 45°, 90°





4" 4-Hole NEMA Flat

CAT. NO.			CABLE RANGE		
STRAIGHT	45°	90°	AAC	A	T
EH-3607	EH-3625	EH-3642	700–715	2	½
EH-3608	EH-3626	EH-3643	750		
EH-3609	EH-3627	EH-3644	795–800		
EH-3610	EH-3628	EH-3645	874		
EH-3611	EH-3629	EH-3646	954		
EH-3612	EH-3630	EH-3647	1000–1033		
EH-3613	EH-3631	EH-3648	1113		
EH-3614	EH-3632	EH-3649	1192		⅝
EH-3615	EH-3633	EH-3650	1272		
EH-3616	EH-3634	EH-3651	1590		
EH-3617	EH-3635	EH-3652	2300	2½	¾
EH-3618	EH-3636	EH-3653	2500		
EH-3619	EH-3637	EH-3654	3000		
EH-3620	EH-3638	EH-3655	3500	3	1
EH-3621	EH-3639	EH-3656	4000		

*Normally used with a pad shield (sold separately — see **page F-562**).*
All pads are finished on both sides.

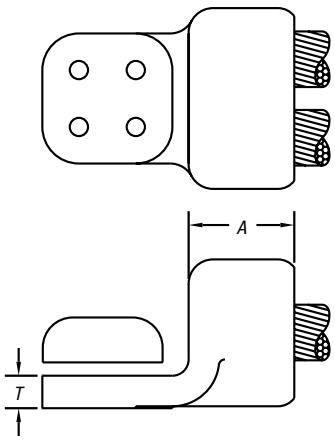
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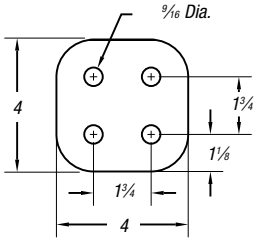
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Type WAGL-2, -45, -90, -CF — Weld Terminal, Two Cables to Flat, Straight, 45°, 90°



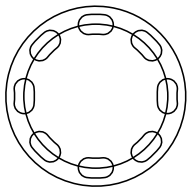


4" 4-Hole NEMA Flat

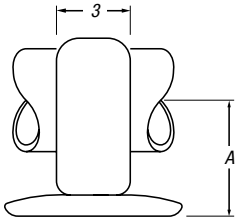
CAT. NO.			CABLE RANGE		
STRAIGHT	45°	90°	AAC	A	T
EH-3659	EH-3676	EH-3692	700–715	2	⅝
EH-3660	EH-3677	EH-3693	750		
EH-3661	EH-3678	EH-3694	795–800		
EH-3662	EH-3679	EH-3695	874		
EH-3663	EH-3680	EH-3696	954		
EH-3664	EH-3681	EH-3697	1000–1033		
EH-3665	EH-3682	EH-3698	1113		
EH-3666	EH-3683	EH-3699	1192		¾
EH-3667	EH-3684	EH-3700	1272		
EH-3668	EH-3685	EH-3701	1590		
EH-3669	EH-3686	EH-3702	2300	2½	1
EH-3670	EH-3687	EH-3703	2500		
EH-3671	EH-3688	EH-3704	3000		
EH-3672	EH-3689	EH-3705	3500	3	
EH-3673	EH-3690	EH-3706	4000		

*Normally used with a pad shield (sold separately — see **page F-562**).*
All pads are finished on both sides.

Type WAXB-CF — Weld or Slide Bus Support, Pipe to Insulator



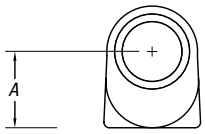
Slots: 5" BC 11/16 x 7/8

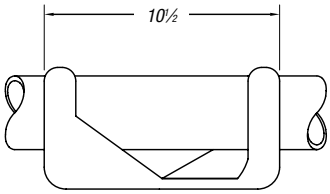


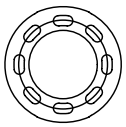
CAT. NO.	SPS	A
5" Bolt Circle		
EH-3070	2	2¾
EH-3071	2½	3⅛
EH-3072	3	3⅜
EH-3073	3½	4
EH-3074	4	4½
EH-3075	5	5
EH-3076	6	5½

Stainless steel anti-chatter spring and galvanized hardware for mounting to insulator are supplied.

Type WAXP-CF — Weld or Slide Bus Support, Pipe to Insulator





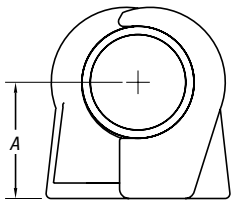


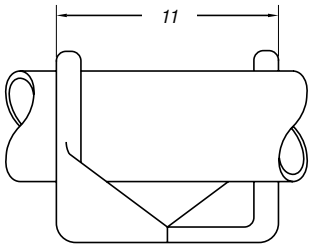
Slots: 5" BC 11/16 x 7/8

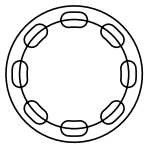
CAT. NO.	SPS	A
5" Bolt Circle		
EH-3709	2	2¾
EH-3710	2½	3⅛
EH-3711	3	3⅜
EH-3712	3½	4
EH-3713	4	4½
EH-3714	5	5
EH-3715	6	5½

Stainless steel anti-chatter spring and galvanized hardware for mounting to insulator are supplied.

Type WAXC-CF — Weld or Slide Bus Support, Hook-On Style, Pipe to Insulator







Slots: 5" BC 11/16 x 7/8

CAT. NO.	SPS	A
5" Bolt Circle		
EH-3440	2	2¾
EH-3441	2½	3⅛
EH-3442	3	3⅜
EH-3443	3½	4
EH-3444	4	4½
EH-3445	5	5
EH-3446	6	5½

Stainless steel anti-chatter spring and galvanized hardware for mounting to insulator are supplied.

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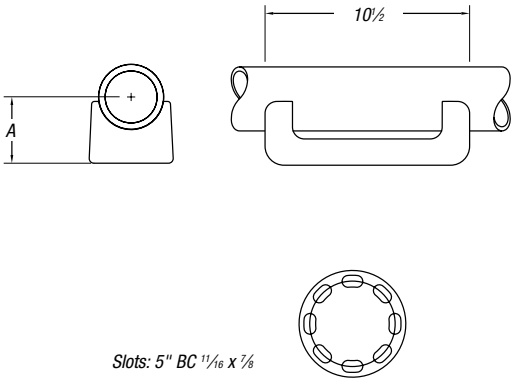
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EHV Connectors

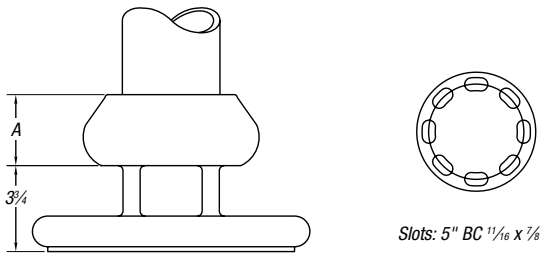
Type WAST-CF — Weld Slide Bus Support, Pipe to Insulator



CAT. NO.	SPS	A
5" Bolt Circle		
EH-3410	2	2¾
EH-3411	2½	3⅛
EH-3412	3	3⅝
EH-3413	3½	4
EH-3414	4	4½
EH-3415	5	5
EH-3416	6	5½

Stainless steel anti-chatter spring and galvanized hardware for mounting to insulator are supplied.

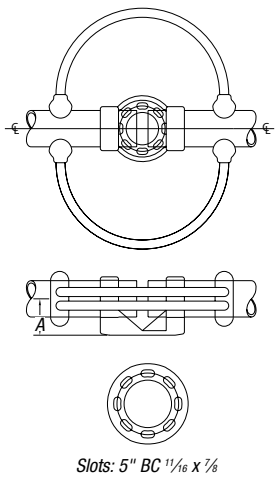
Type WAXY-CF — Weld Vertical Bus Support, Pipe to Insulator



CAT. NO.	SPS	A
5" Bolt Circle		
EH-3100	2	1¾
EH-3101	2½	2
EH-3102	3	2½
EH-3103	3½	
EH-3104	4	
EH-3105	5	3
EH-3106	6	

Galvanized hardware for mounting to insulator is supplied.

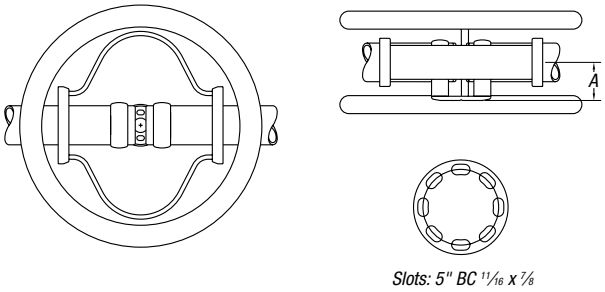
Type WAFS-CF — Weld Expansion Bus Support, Pipe to Insulator (345kV Nominal System Voltage)



CAT. NO.	SPS	A	NUMBER OF CONDUCTORS*
5" Bolt Circle			
EH-3140	2	2¾	4
EH-3141	2½	3⅛	
EH-3142	3	3⅝	
EH-3143	3½	4	
EH-3144	4	4½	
EH-3145	5	5	6
EH-3146	6	5½	

End caps, stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.
** Conductors are aluminum 795 AAC*
Use chart GA-796 on technical reference ***page F-594*** *for installation.*

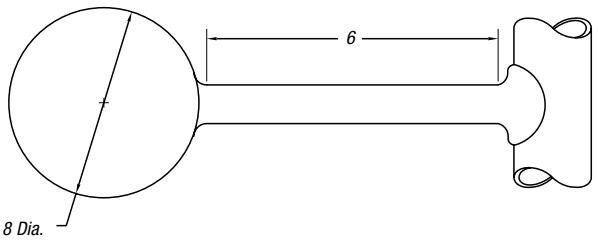
Type WAFS-CR-CF — Weld Expansion Bus Support, Pipe to Insulator (500kV Nominal System Voltage)



CAT. NO.	SPS	A
5" Bolt Circle		
EH-3515	2	2¾
EH-3516	2½	3⅛
EH-3517	3	3⅝
EH-3518	3½	4
EH-3519	4	4½
EH-3520	5	5
EH-3521	6	5½

End caps, stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.
Use chart GA-796 on technical reference ***page F-594*** *for installation.*

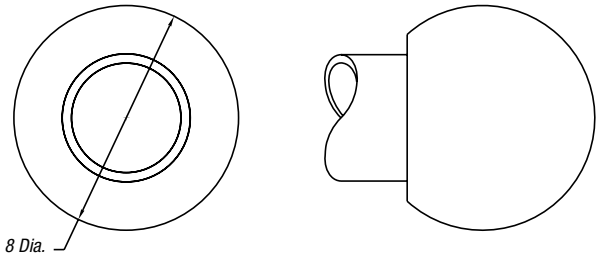
Type WP-CF — Weld Ground Stud



CAT. NO.	SPS
EH-3061	2
EH-3062	2½
EH-3063	3
EH-3064	3½
EH-3065	4
EH-3066	5
EH-3067	6

For other ball diameter sizes, consult Customer Service.

Type WVM-CF — Weld Corona Bell, Recommended for 345kV and 500kV

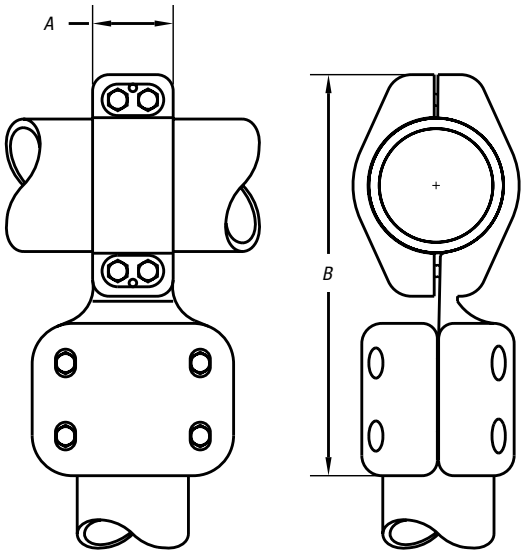


CAT. NO.	SPS
EH-900-2	2
EH-900-2.5	2½
EH-900-3	3
EH-900-3.5	3½
EH-900-4	4
EH-900-5	5
EH-900-6	6

For other ball diameter sizes, consult Customer Service.

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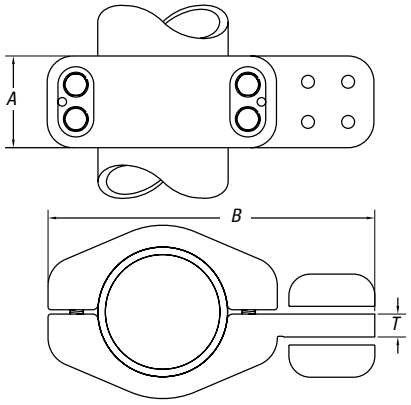
Type AVA-CF — Bolted Tee Connector, Pipe Run to Pipe Tap

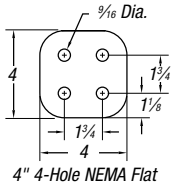


CAT. NO.	RUN SPS	TAP SPS	A	B
EH-1061	2	2	3½	9¾
EH-1062	2½	2	3½	10¼
EH-1063		2½		
EH-1064	3	2	4	11⅜
EH-1065		2½		
EH-1066		3		11⅞
EH-1067	3½	2	4	11¾
EH-1068		2½		
EH-1069		3		12¼
EH-1070		3½		
EH-1071	4	2	4	12⅜
EH-1072		2½		
EH-1073		3		12⅞
EH-1074		3½		
EH-1075		4		
EH-1076	5	2	4	13½
EH-1077		2½		
EH-1078		3		14
EH-1079		3½		
EH-1080		4		
EH-1081		5	5½	15½
EH-1082	6	2	4	14½
EH-1083		2½		
EH-1084		3		15
EH-1085		3½		
EH-1086		4		
EH-1087		5	5½	16½
EH-1088		6		

Available in various angles; consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type AVAA-CF — Bolted Tee Connector, Pipe Run to Flat Tap



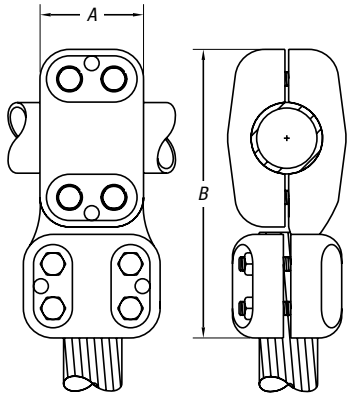


4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	B	T
EH-1190	2	3½	10½	⅝
EH-1191	2½		11	
EH-1192	3	4	12⅛	¾
EH-1193	3½		12½	
EH-1194	4		13⅜	
EH-1195	5		14¼	1
EH-1196	6		15¼	

*Normally used with a pad shield (sold separately — see **page F-562**).*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type AVB-CF — Bolted Tee Connector, Pipe Run to Cable Tap



CAT. NO.	RUN SPS	CABLE TAP AAC	CABLE TAP ACSR	A	B
EH-1484-A	2	715–800	715	3½	10
EH-1484-B		874–954	795–900		
EH-1485-A		1000–1272	954–1113		
EH-1485-B		1351–1510	1272		
EH-1486-A		1590	1431		10½
EH-1486-B		2000	1590–1780		
EH-1486-C		2300	2167		
EH-1486-D		2500	—		
EH-1487-A	2½	715–800	715	3½	10½
EH-1487-B		874–954	795–900		
EH-1488-A		1000–1272	954–1113		
EH-1488-B		1351–1510	1272		
EH-1489-A		1590	1431		11
EH-1489-B		2000	1590–1780		
EH-1489-C		2300	2167		
EH-1489-D		2500	—		
EH-1490-A	3	715–800	715	4	11⅜
EH-1490-B		874–954	795–900		
EH-1491-A		1000–1272	954–1113		
EH-1491-B		1351–1510	1272		
EH-1492-A		1590	1431		11⅞
EH-1492-B		2000	1590–1780		
EH-1492-C		2300	2167		
EH-1492-D		2500	—		
EH-1493-A	3½	715–800	715	4	12
EH-1493-B		874–954	795–900		
EH-1494-A		1000–1272	954–1113		
EH-1494-B		1351–1510	1272		
EH-1495-A		1590	1431		12½
EH-1495-B		2000	1590–1780		
EH-1495-C		2300	2167		
EH-1495-D		2500	—		
EH-1496-A		3000	—		
EH-1496-B		3500	—		
EH-1496-C		4000	—		

CAT. NO.	RUN SPS	CABLE TAP AAC	CABLE TAP ACSR	A	B
EH-1497-A	4	715–800	715	4	12⅝
EH-1497-B		874–954	795–900		
EH-1498-A		1000–1272	954–1113		
EH-1498-B		1351–1510	1272		
EH-1499-A		1590	1431		13⅛
EH-1499-B		2000	1590–1780		
EH-1499-C		2300	2167		
EH-1499-D		2500	—		
EH-1500-A		3000	—		
EH-1500-B		3500	—		
EH-1500-C		4000	—		
EH-1501-A	5	715–800	715	4	13¾
EH-1501-B		874–954	795–900		
EH-1502-A		1000–1272	954–1113		
EH-1502-B		1351–1510	1272		
EH-1503-A		1590	1431		14¼
EH-1503-B		2000	1590–1780		
EH-1503-C		2300	2167		
EH-1503-D		2500	—		
EH-1504-A		3000	—		
EH-1504-B		3500	—		
EH-1504-C		4000	—		
EH-1506-A	6	715–800	715	4	14¾
EH-1506-B		874–954	795–900		
EH-1507-A		1000–1272	954–1113		
EH-1507-B		1351–1510	1272		
EH-1508-A		1590	1431		15¼
EH-1508-B		2000	1590–1780		
EH-1508-C		2300	2167		
EH-1508-D		2500	—		
EH-1509-A		3000	—		
EH-1509-B		3500	—		
EH-1509-C		4000	—		

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

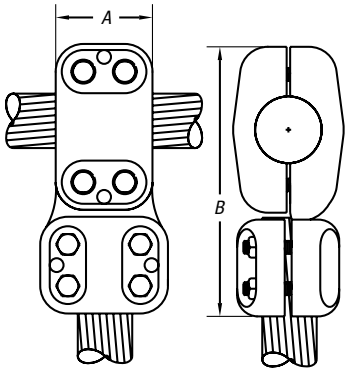
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Type AVC-CF — Bolted Tee Connector, Cable Run to Cable Tap

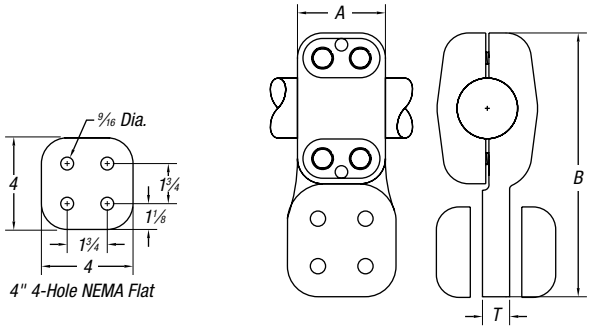


CAT. NO.	RUN AAC	RUN ACSR	CABLE TAP AAC	CABLE TAP ACSR	A	B
EH-1515-A-A	715–800	715	715–800	715	3½	8¼
EH-1515-A-B			874–954	795–900		
EH-1515-B-A	874–954	795–900	715–800	715	3½	8¼
EH-1515-B-B			874–954	795–900		
EH-1516-A-A	1000–1272	954–1113	715–800	715	3½	8¾
EH-1516-A-B			874–954	795–900		
EH-1517-A-A			1000–1272	954–1113		
EH-1517-A-B			1351–1510	1272		
EH-1516-B-A	1351–1510	1272	715–800	715	3½	8¾
EH-1516-B-B			874–954	795–900		
EH-1517-B-A			1000–1272	954–1113		
EH-1517-B-B			1351–1510	1272		
EH-1518-A-A	1590	1431	715–800	715	4	8¾
EH-1518-A-B			874–954	795–900		
EH-1519-A-A			1000–1272	954–1113		
EH-1519-A-B			1351–1510	1272		
EH-1520-A-A			1590	1431		9½
EH-1520-A-B			2000	1590–1780		
EH-1520-A-C			2300	2167		
EH-1520-A-D			2500	—		
EH-1518-B-A	2000	1590–1780	715–800	715	4	8¾
EH-1518-B-B			874–954	795–900		
EH-1519-B-A			1000–1272	954–1113		
EH-1519-B-B			1351–1510	1272		
EH-1520-B-A			1590	1431		9½
EH-1520-B-B			2000	1590–1780		
EH-1520-B-C			2300	2167		
EH-1520-B-D			2500	—		
EH-1518-C-A	2300	2167	715–800	715	4	8¾
EH-1518-C-B			874–954	795–900		
EH-1519-C-A			1000–1272	954–1113		
EH-1519-C-B			1351–1510	1272		
EH-1520-C-A			1590	1431		9¼
EH-1520-C-B			2000	1590–1780		
EH-1520-C-C			2300	2167		
EH-1520-C-D			2500	—		9⅛

CAT. NO.	RUN AAC	RUN ACSR	CABLE TAP AAC	CABLE TAP ACSR	A	B
EH-1518-D-A	2500	—	715–800	715	4	8¾
EH-1518-D-B			874–954	795–900		
EH-1519-D-A			1000–1272	954–1113		
EH-1519-D-B			1351–1510	1272		
EH-1520-D-A			1590	1431		9¼
EH-1520-D-B			2000	1590–1780		
EH-1520-D-C			2300	2167		
EH-1520-D-D			2500	—		
EH-1521-A-A	3000	—	715–800	715	4	9¾
EH-1521-A-B			874–954	795–900		
EH-1522-A-A			1000–1272	954–1113		
EH-1522-A-B			1351–1510	1272		
EH-1523-A-A			1590	1431		10¼
EH-1523-A-B			2000	1590–1780		
EH-1523-A-C			2300	2167		
EH-1523-A-D			2500	—		
EH-1524-A-A			3000	—		
EH-1524-A-B			3500	—		
EH-1524-A-C			4000	—		
EH-1521-B-A	3500	—	715–800	715	4	9¾
EH-1521-B-B			874–954	795–900		
EH-1522-B-A			1000–1272	954–1113		
EH-1522-B-B			1351–1510	1272		
EH-1523-B-A			1590	1431		10¼
EH-1523-B-B			2000	1590–1780		
EH-1523-B-C			2300	2167		
EH-1523-B-D			2500	—		
EH-1524-B-A			3000	—		
EH-1524-B-B			3500	—		
EH-1524-B-C			4000	—		
EH-1521-C-A	4000	—	715–800	715	4	9¾
EH-1521-C-B			874–954	795–900		
EH-1522-C-A			1000–1272	954–1113		
EH-1522-C-C			1351–1510	1272		
EH-1523-C-A			1590	1431		10¼
EH-1523-C-B			2000	1590–1780		
EH-1523-C-C			2300	2167		
EH-1523-C-D			2500	—		
EH-1524-C-A			3000	—		
EH-1524-C-B			3500	—		
EH-1524-C-C			4000	—		

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

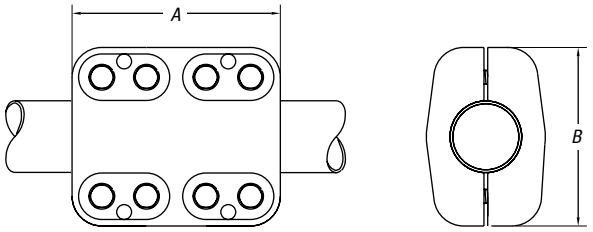
Type AVD-CF — Bolted Tee Connector, Pipe Run to Flat Tap



CAT. NO.	CABLE TAP AAC	CABLE TAP ACSR	A	B	T
EH-1320-A	715–800	715	3½	8¼	½
EH-1320-B	874–954	795–900			
EH-1321-A	1000–1272	954–1113		8¾	⅝
EH-1321-B	1351–1510	1272			
EH-1322-A	1590	1431	4	9¼	¾
EH-1322-B	2000	1780			
EH-1322-C	2300	2167			
EH-1322-D	2500	—			
EH-1323-A	3000	—		10	
EH-1323-B	3500	—			
EH-1323-C	4000	—			

*Normally used with a pad shield (sold separately — see **page F-562**).*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type AVLA-CF — Bolted Coupler, Pipe to Pipe



CAT. NO.	SPS	A	B
EH-1010	2	7½	6¼
EH-1012	2½		6¾
EH-1015	3	8½	7⅞
EH-1019	3½		8¼
EH-1024	4		8⅞
EH-1030	5	11½	10
EH-1037	6		11

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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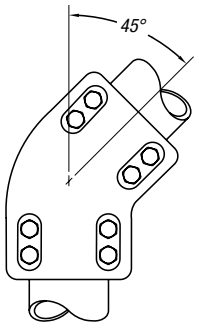
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EHV Connectors

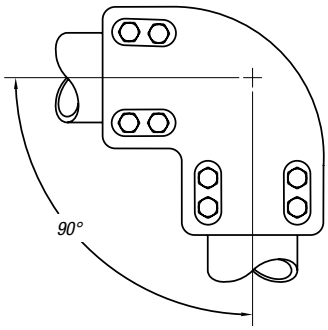
Type AVKA-45-CF — 45° Bolted Elbow, Pipe to Pipe



CAT. NO.	SPS
EH-1539	2
EH-1540	2½
EH-1541	3
EH-1542	3½
EH-1543	4
EH-1544	5
EH-1545	6

For other configurations, consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

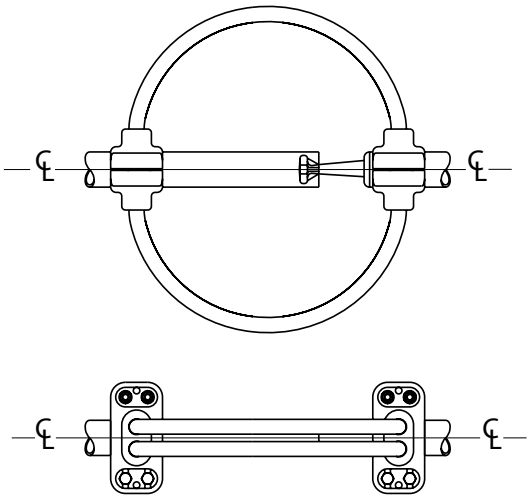
Type AVKA-90-CF — 90° Bolted Elbow, Pipe to Pipe



CAT. NO.	SPS
EH-1562	2
EH-1563	2½
EH-1564	3
EH-1565	3½
EH-1566	4
EH-1567	5
EH-1568	6

For other configurations, consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

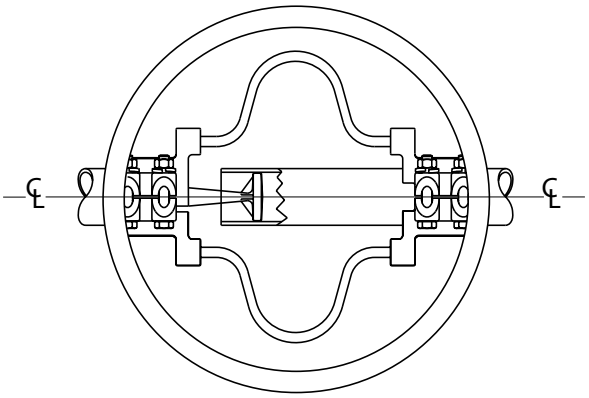
Type AFG-CF — Bolted Expansion Coupler, Pipe to Pipe (345kV Nominal System Voltage)



CAT. NO.	SPS	NUMBER OF CONDUCTORS*
EH-1551	2	4
EH-1552	2½	
EH-1553	3	
EH-1554	3½	
EH-1555	4	
EH-1556	5	6
EH-1557	6	

For schedule 80 pipe, add "EH" to catalog number: e.g. EH-1551-EH.
** Conductors are aluminum 795 AAC.*
Use chart GA-735 on technical reference ***page F-593*** *for installation.*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

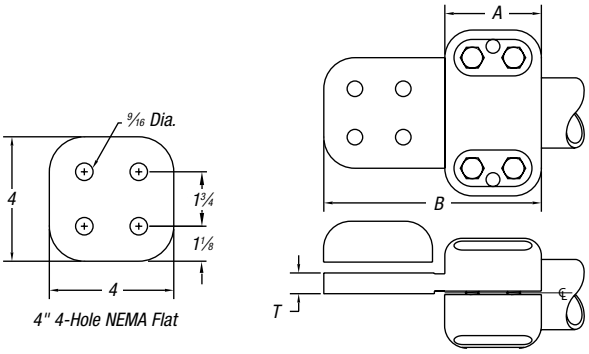
Type AFG-CR-CF — Bolted Expansion Coupler, Pipe to Pipe (500kV Nominal System Voltage)



CAT. NO.	SPS
EH-1672	2
EH-1673	2½
EH-1674	3
EH-1675	3½
EH-1676	4
EH-1677	5
EH-1678	6

For schedule 80 pipe, add "EH" to catalog number: e.g. EH-1672-EH.
*Use chart GA-735 on technical reference **page F-593** for installation.*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type AVP-CT-CF — Bolted Terminal, Pipe to Flat



4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	B	T
EH-1000	2	3½	8	⅝
EH-1001	2½			
EH-1002	3	4	8½	¾
EH-1003	3½			
EH-1004	4			
EH-1005	5	5½	10	1
EH-1006	6			

*Normally used with a pad shield (sold separately — see **page F-562**).*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

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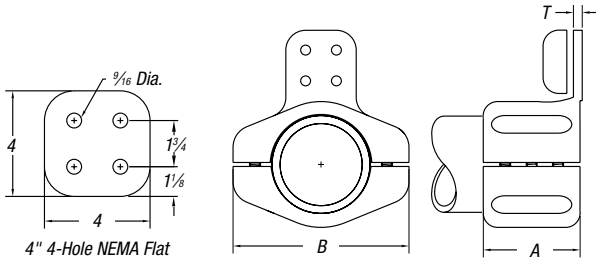
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Type AVP-90-CF — 90° Bolted Terminal, Pipe to Flat

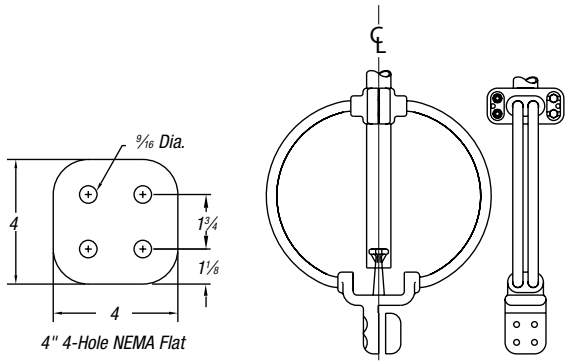


4" 4-Hole NEMA Flat

CAT. NO.	SPS	A	B	T
EH-1572	2	3½	8	⅝
EH-1573	2½			
EH-1574	3	4	8½	¾
EH-1575	3½			
EH-1576	4			
EH-1577	5	5½	10	1
EH-1578	6			

*Normally used with a pad shield (sold separately — see **page F-562**).*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type AFF-CT-CF — Bolted Expansion Terminal, Pipe to Flat (345kV Nominal System Voltage)

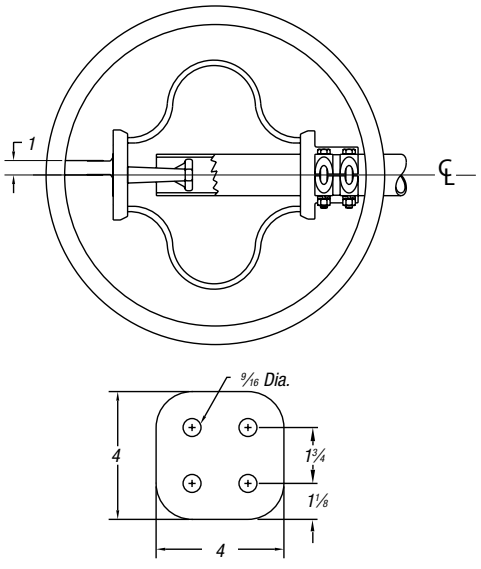


4" 4-Hole NEMA Flat

CAT. NO.	SPS	NUMBER OF CONDUCTORS*
EH-1631	2	4
EH-1632	2½	
EH-1633	3	
EH-1634	3½	
EH-1635	4	
EH-1636	5	6
EH-1637	6	

** Conductors are aluminum 795 AAC.*
*Normally used with a pad shield (sold separately — see **page F-562**).*
For schedule 80 pipe, add "EH" to catalog number: e.g. EH-1631-EH.
*Use chart GA-735 on technical reference **page F-593** for installation.*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type AFF-CT-CR-CF — Bolted Expansion Terminal, Pipe to Flat (500kV Nominal System Voltage)

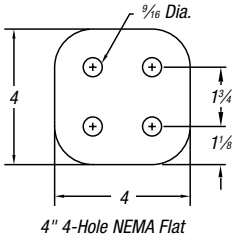


4" 4-Hole NEMA Flat

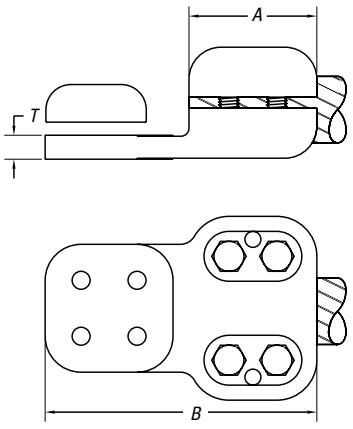
CAT. NO.	SPS
EH-1708	2
EH-1709	2½
EH-1710	3
EH-1711	3½
EH-1712	4
EH-1713	5
EH-1714	6

For schedule 80 pipe, add "EH" to catalog number: E.G. EH-1708-EH.
*Use chart GA-735 on technical reference **page F-593** for installation.*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type AGL-CF — Bolted Terminal, Cable to Flat



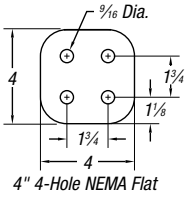
4" 4-Hole NEMA Flat



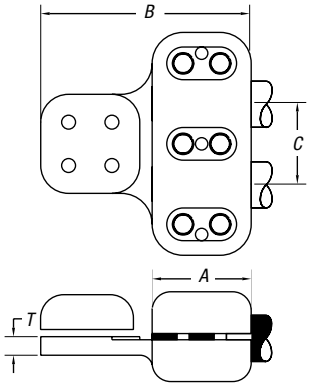
CAT. NO.	CABLE AAC	CABLE ACSR	A	B	T
EH-1290-A	715–800	715	4	8½	½
EH-1290-B	874–954	795–900			
EH-1291-A	1000–1272	954–1113			⅝
EH-1291-B	1351–1510	1272			
EH-1292-A	1590	1431	4½	9	¾
EH-1292-B	2000	1590–1780			
EH-1292-C	2300	2167			
EH-1292-D	2500	—			
EH-1293-A	3000	—			⅞
EH-1293-B	3500	—			
EH-1293-C	4000	—			

*Normally used with a pad shield (sold separately — see **page F-562**).*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type AGL-2-CF — Bolted Terminal, Two Cables to Flat



4" 4-Hole NEMA Flat



CAT. NO.	CABLE AAC	CABLE ACSR	A	B	C	T
EH-1531-A	715–800	715	4	8½	2¼	¾
EH-1531-B	874–954	795–900				
EH-1532-A	1000–1272	954–1113			3¼	
EH-1532-B	1351–1510	1272				
EH-1533-A	1590	1431	4½	9		⅞
EH-1533-B	2000	1590–1780				
EH-1533-C	2300	2167				
EH-1533-D	2500	—				
EH-1534-A	3000	—				1
EH-1534-B	3500	—				
EH-1534-C	4000	—				

*Normally used with a pad shield (sold separately — see **page F-562**).*
All pads are finished on both sides.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

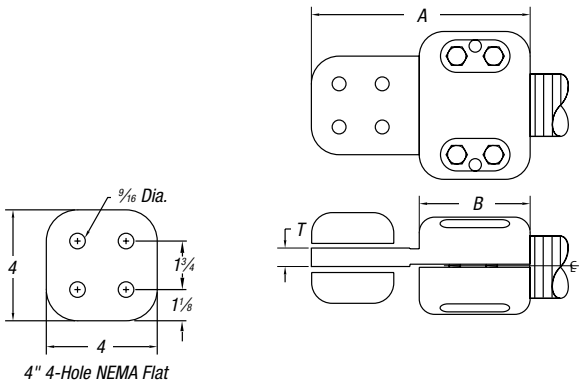
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Type AVIE-CF — Bolted Stud Connector, Stud to Flat

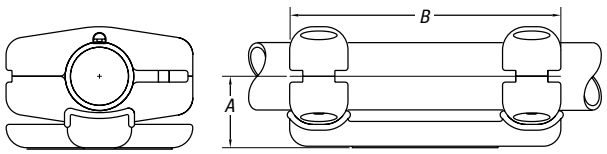


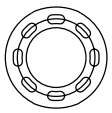
4" 4-Hole NEMA Flat

CAT. NO.	STUD	A	B	T
EH-1234	1⅛–12	8	2¾	⅝
EH-1235	1¼–12			
EH-1236	1½–12			
EH-1240	1¾–12			⅞
EH-1237	2–12			
EH-1238	2½–12	8½	3	1
EH-1239	3–12			

*Normally used with a pad shield (sold separately — see **page F-562**).*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type AVXE-CF — Bolted Bus Support, Clamp or Slip Fit, Pipe to Insulator



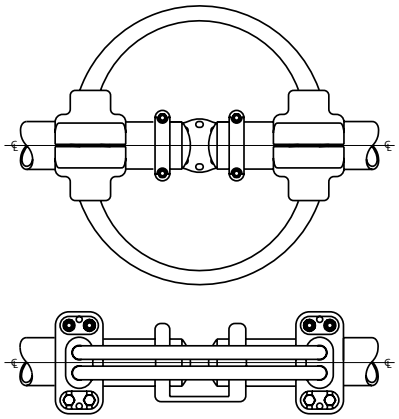


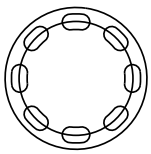
Slots: 5" BC 11/16 x ⅞

CAT. NO.	SPS	A	B
5" Bolt Circle			
EH-1170	2	2¾	11
EH-1171	2½	3⅛	11½
EH-1172	3	3⅝	
EH-1173	3½	4	
EH-1174	4	4½	
EH-1175	5	5	
EH-1176	6	5½	

Stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type AFS-CF — Bolted Expansion Bus Support, Pipe to Insulator (345kV Nominal System Voltage)



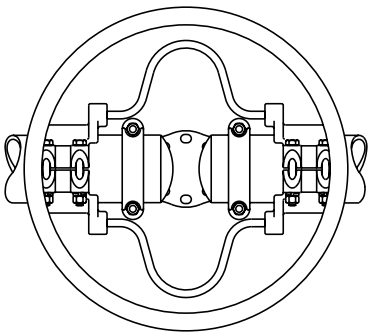


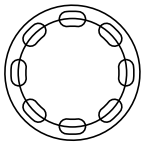
Slots: 5" BC 11/16 x 7/8

CAT. NO.	SPS	NO. OF CONDUCTORS*
5" Bolt Circle		
EH-1248	2	4
EH-1249	2½	4
EH-1250	3	4
EH-1251	3½	4
EH-1252	4	4
EH-1253	5	6
EH-1254	6	6

** Conductors are aluminum 795 AAC*
End caps, stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.
For schedule 80 pipe, add "EH" to catalog number: e.g. EH-1248-EH.
*Use chart GA-796 on technical reference **page F-594** for installation.*
Connector bus height is in accordance with NEMA standard CC 1.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type AFS-CR-CF — Bolted Expansion Bus Support, Pipe to Insulator (500kV Nominal System Voltage)





Slots: 5" BC 11/16 x 7/8

CAT. NO.	SPS
5" Bolt Circle	
EH-1716	2
EH-1717	2½
EH-1718	3
EH-1719	3½
EH-1720	4
EH-1721	5
EH-1722	6

End caps, stainless steel anti-chatter springs and galvanized hardware for mounting to insulator are supplied.
For schedule 80 pipe, add "EH" to catalog number: e.g. EH-1716-EH.
*Use chart GA-796 on technical reference **page F-594** for installation.*
Connector bus height is in accordance with NEMA standard CC 1.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

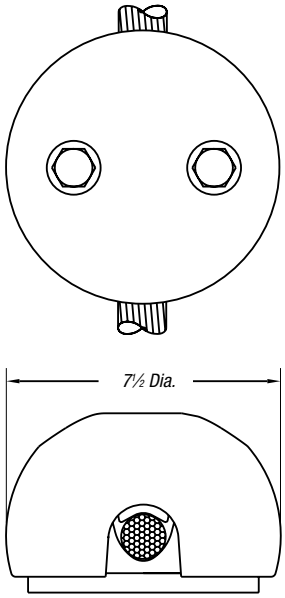
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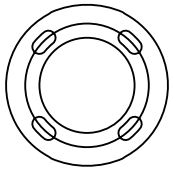
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Type AVXA-CF — Bolted Bus Support, Cable to Insulator

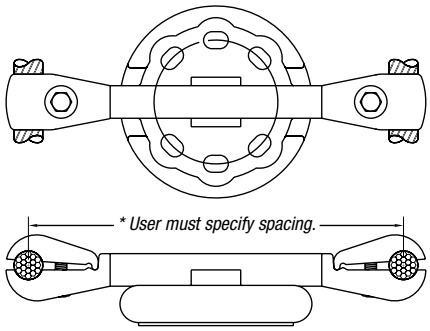


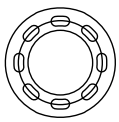


	CABLE DIAMETER		CABLE RANGE	
CAT. NO.	MIN.	MAX.	AAC	ACSR
5" Bolt Circle				
EH-1263	.974	1.258	715–1258	636–1033
EH-1263-1	1.259	1.454	1272–1590	1113–1510
EH-1264	1.459	1.630	1600–2000	1510–1780
EH-1264-1	1.729	1.823	2250–2500	—

Consult Customer Service for other available sizes.
Galvanized hardware for mounting to insulator is supplied.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type AVXA-2-CF — Bolted Bus Support, Two Cables to Insulator

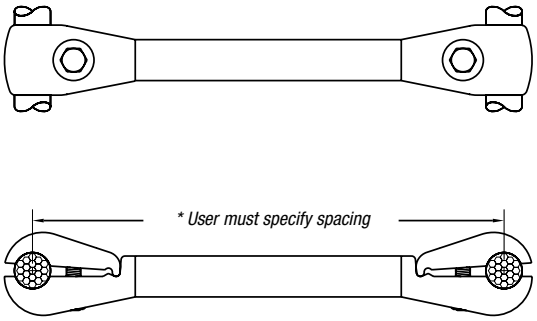




CAT. NO.	SPS	A	B
5" Bolt Circle			
EH-1400	550–800	556–715	12
EH-1401	874–1000	795–900	
EH-1403	1000–1113	900–954	
EH-1405	1192–1590	1032–1272	
EH-1406	1510–1590	1351–1590	15
EH-1413	2000	1780	
EH-1407	2300	2167	15½
EH-1409	2500	—	16
EH-1411	3500	—	16½
EH-1412	4000	—	17

Galvanized hardware for mounting to insulator is supplied.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

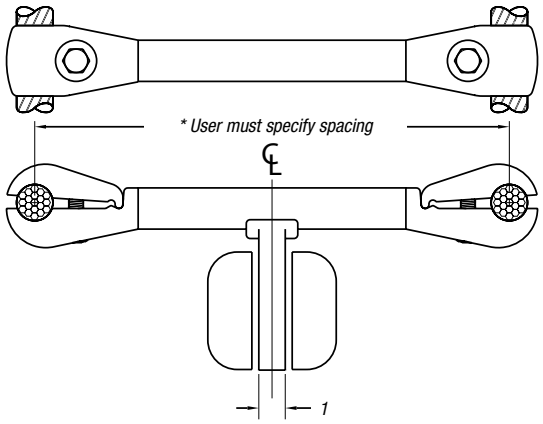
Type AS-CF — Bolted Cable Spacer

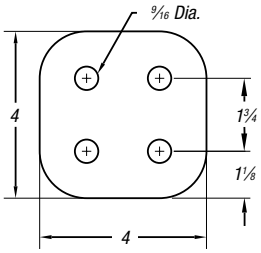


CAT. NO.	CABLE AAC	CABLE ACSR	MIN. SPACING*
EH-1380	550–800	556–715	7
EH-1381	874–1000	795–900	
EH-1383	1000–1113	900–954	
EH-1385	1192–1590	1032–1272	
EH-1386	1510–1590	1351–1590	
EH-1393	2000	1780	8
EH-1387	2300	2167	
EH-1389	2500	—	9
EH-1391	3500	—	9½
EH-1392	4000	—	10

Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type ASLA-CF — Bolted Cable Spacer Tee Connector





4" 4-Hole NEMA Flat

CAT. NO.	CABLE AAC	CABLE ACSR	MIN. SPACING*
EH-1679	550–800	556–715	9
EH-1680	874–1000	795–900	
EH-1681	1000–1113	900–954	
EH-1682	1192–1590	1032–1272	
EH-1683	1510–1590	1351–1590	
EH-1688	2000	1780	10¼
EH-1684	2300	2167	
EH-1685	2500	—	
EH-1686	3500	—	11¾
EH-1687	4000	—	12¼

*Normally used with a pad shield (sold separately — see **page F-562**).*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

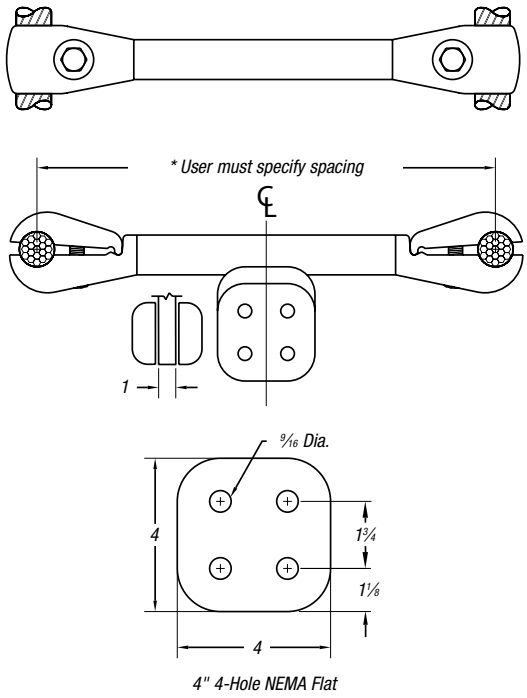
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Type ASLA-90-CF — Bolted Cable Spacer Tee Connector

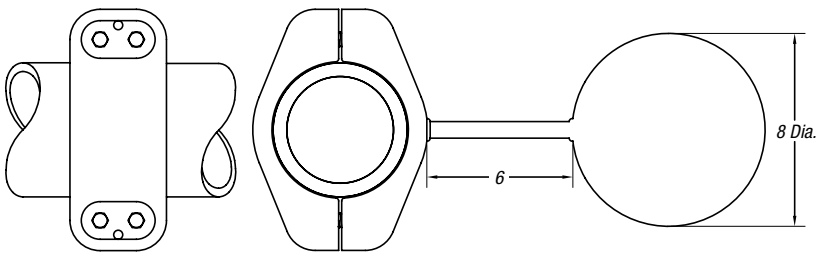


4" 4-Hole NEMA Flat

CAT. NO.	CABLE AAC	CABLE ACSR	MIN. SPACING*
EH-1690	550–800	556–715	10
EH-1691	874–1000	795–900	
EH-1692	1000–1113	900–954	
EH-1693	1192–1590	1032–1272	
EH-1694	1510–1590	1351–1590	
EH-1699	2000	1780	11¼
EH-1695	2300	2167	
EH-1696	2500	—	12¼
EH-1697	3500	—	12¾
EH-1698	4000	—	13¼

*Normally used with a pad shield (sold separately — see **page F-562**).*
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.
All pads are finished on both sides.

Type AP-CF — Bolted Ground Stud

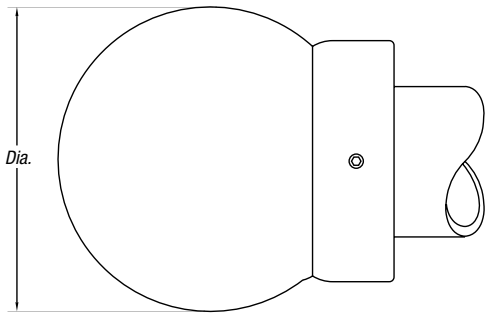


CAT. NO.	SPS
EH-1161	2
EH-1162	2½
EH-1163	3
EH-1164	3½
EH-1165	4
EH-1166	5
EH-1167	6

For other ball diameter sizes, consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

EHV Connectors

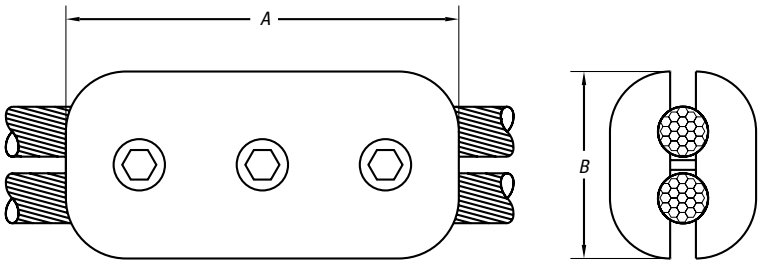
Type AVM-CF — Bolted Corona Bell



CAT. NO.	SPS	DIA
EH-3865	2	5
EH-3866	2½	
EH-3867	3	8
EH-3868	3½	
EH-3869	4	
EH-3870	5	
EH-3871	6	

For other ball diameter sizes, consult Customer Service.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

Type AVW-CF — Parallel Clamp, Cable to Cable



CAT. NO.	CABLE RUN & TAP		A	B
	AAC	ACSR		
EH-1776	556–800	477–666	6½	3¾
EH-1777	874–954	715–854		3⅞
EH-1778	1000–1272	954–1113	7	4
EH-1779	1351–1510	1192–1351	7¼	4½
EH-1780	1590–1590	1431–2167		5

Both run and tap must be of the same size for this parallel clamp to function correctly.
Connectors supplied with clamping hardware in accordance with NEMA standard CC 1.

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Technical Information

Recommended Torque

SIZE	TORQUE INCH POUNDS
Silicon Bronze and Stainless Steel	
⅜-16	240
½-13	480
⅝-11	660
Aluminum (Lubricated)	
⅜-16	144
½-13	300
⅝-11	480

Cast Alloys

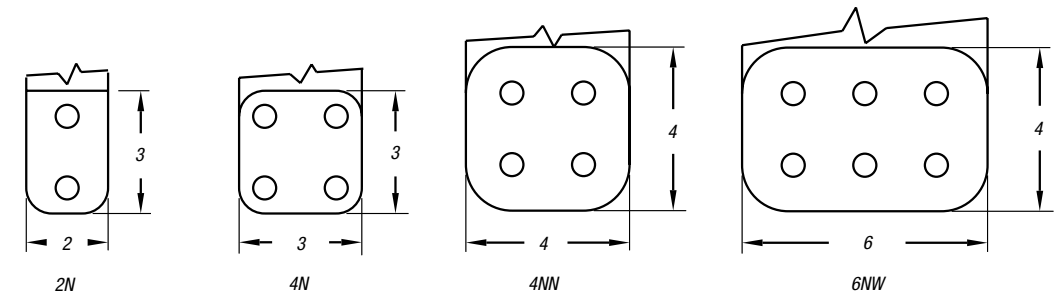
ALLOY	DESIGNATION		USED FOR
Aluminum	Aluminum Association	A100	Compression
		356-T6	All Others
Bronze	Copper Development Association NEMA CC1 85-5-5-5	833	Bronze
		836	Bronze
		844	Bronze

Wrought Alloys (Other than Hardware)

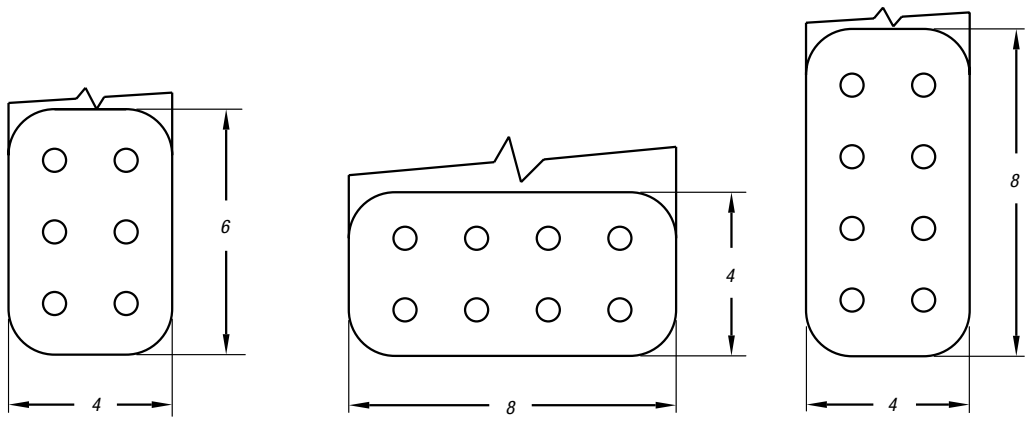
ALLOY	DESIGNATION		USED FOR
Aluminum	Aluminum Association	1100-0	Aluminum Straps
		6063-T6	Pipe
Copper	Copper Development Association	110	Copper Straps
Braid	Tinned, Flat, Braided Copper Cable		Braids
St. Stl.	17-7 PH, Precipitation Hardenable		Anti-Static Springs

Pad Designations

All holes in these pads are 9⁄16" diameter on 1¾" centers.

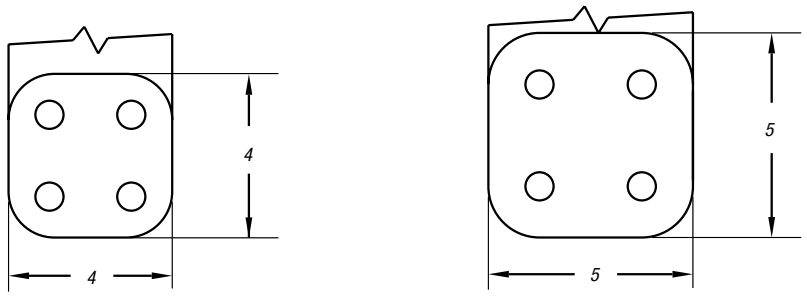


2N *4N* *4NN* *6NW*



6NL *8NW* *8NL*

All holes in these pads are 11⁄16" diameter.



4NN2 (2" Centers) *5NN (2½" Centers)*

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Technical Information

Bolted Aluminum Cable Ranges

CODE	CABLE SIZE		CABLE DIA. MIN.–MAX.
	AAC	ACSR	
25	#4–250	#4–4/0	.232–.575
40	1/0–400	1/0–336	.368–.741
100	250–1000	300–795	.567–1.150
150	556–1500	636–1272	.856–1.412
250	1100–2500	1113–2300	1.209–1.823

Copper Cable Ranges

CODE	CABLE SIZE	CABLE DIA. MIN.–MAX.
60	#4–600	.232–.893
100	4/0–1000	.528–1.152
150	600–1500	.893–1.412
200	500–2000	.813–1.632

Cable sizes are kcmil.

Weld Cable Ranges

CODE	CABLE SIZE		CABLE DIA. MIN.–MAX.
	AAC	ACSR	
1/0	1/0	1/0	.368–.393
2/0	2/0	2/0	.414–.460
3/0	3/0	3/0	.464–.502
4/0	4/0	4/0	.522–.566
26	250	266.8 (18/1)	.567–.609
30	300	266.8 (26/7)	.629–.660
35	336.4–350	300 (18/1)–336.4 (18/1)	.666–.700
40	397.5–400	336.4 (26/7)–397.5 (18/1)	.721–.743
47	450–477	397.5 (24/7) & (30/7)	.770–.806
55	500–550	397.5 (30/7)–477 (26/7)	.806–.858
60	556.5–600	477 (26/7)–556 (24/7)	.856–.915
70	636–700	556.5 (26/7)–605 (26/7)	.918–.974
79	750–795	636 (24/7)–666.6 (26/7)	.977–1.030
87	874.5	715.5	1.036–1.081
95	900–954	795 (24/7) & (30/19)	1.092–1.146
103	1000–1033.5	900 (54/7)–954 (54/7)	1.152–1.196
119	1100–1192.5	1033.5–1113 (45/7)	1.203–1.259
130	1200–1300	1113 (45/7)–1192.5 (54/19)	1.259–1.334
143	1351.5–1431	1272–1351 (45/7)	1.340–1.398
150	1431–1500	1272 (54/19)–1351.5 (45/7)	1.364–1.412
160	1510.5–1600	1351.5 (54/19)–1510.5 (45/7)	1.415–1.478
180	1700–1800	1510.5 (54/19)–1590	1.492–1.548
200	1900–2000	1780 (72/7) & (84/19)	1.571–1.630
225	2250	2167 (72/7)	1.667–1.735
230	2300	2156 (84/19)–2312	1.751–1.802
251	2500–2515	N/A	1.820–1.880
300	2750–3000	N/A	1.912–1.996

Cable sizes are kcmil.

Pipe Chart

PIPE		DIAMETER		AMPS NEMA CC-1 OUTDOOR
CODE	SIZE	OD	ID	
Schedule 40 Aluminum Pipe, SPS				
E	¾	1.050	.824	495
F	1	1.315	1.049	650
G	1¼	1.660	1.380	810
H	1½	1.900	1.610	930
J	2	2.375	2.067	1155
K	2½	2.875	2.469	1550
L	3	3.500	3.068	1895
M	3½	4.000	3.548	2170
P	4	4.500	4.026	2460
R	5	5.563	5.047	3080
S	6	6.625	6.065	3735
Schedule 80 Aluminum Pipe, EHPS				
E	¾	1.050	.742	565
F	1	1.315	.957	740
G	1¼	1.660	1.278	930
H	1½	1.900	1.500	1070
J	2	2.375	1.939	1355
K	2½	2.875	2.323	1780
L	3	3.500	2.900	2195
M	3½	4.000	3.364	2530
P	4	4.500	3.826	2880
R	5	5.563	4.813	3635
S	6	6.625	5.761	4490

PIPE		DIAMETER		AMPS NEMA CC-1 OUTDOOR
CODE	SIZE	OD	ID	
Schedule 40 Copper Pipe, SPS				
C	½	.840	.625	510
E	¾	1.050	.822	710
F	1	1.315	1.062	850
G	1¼	1.660	1.368	1120
H	1½	1.900	1.600	1280
J	2	2.375	2.062	1550
K	2½	2.875	2.500	2000
L	3	3.500	3.062	2250
M	3½	4.000	3.500	3050
P	4	4.500	4.000	3400
Schedule 80 Copper Pipe, EHPS				
C	½	.840	.542	580
E	¾	1.050	.736	780
F	1	1.315	.951	1010
G	1¼	1.660	1.272	1250
H	1½	1.900	1.494	1450
J	2	2.375	1.933	1850
K	2½	2.875	2.315	2400
L	3	3.500	2.892	2950
M	3½	4.000	3.358	3400
P	4	4.500	3.818	3800

Standard Suffixes

The following suffixes are to be used for variations to standard catalog numbers. Consult Customer Service for additional configurations.

EH — Substitute with galvanized hardware
e.g.: 2709-1-30-EH

R — Tin plate
e.g.: 2709-1-30R

S — Silver plate
e.g.: 2709-1-30S

TGP — Tube guide pin, replaces cast guide pin on expansion couplers and terminals
e.g.: AWEPC-H-4NN-TGP

PNW — Pad not welded, expansion terminals
e.g.: AWEPC-H-4NN-PNW

SS — Substitute with stainless steel hardware
e.g.: ABT-R-H-SS

B — Blank pad, no holes
e.g.: ABNT-J-4NB

SSB — Substitute with stainless steel bolt, lock washer and silicon bronze nut
e.g.: ABN-P-4N-SSB

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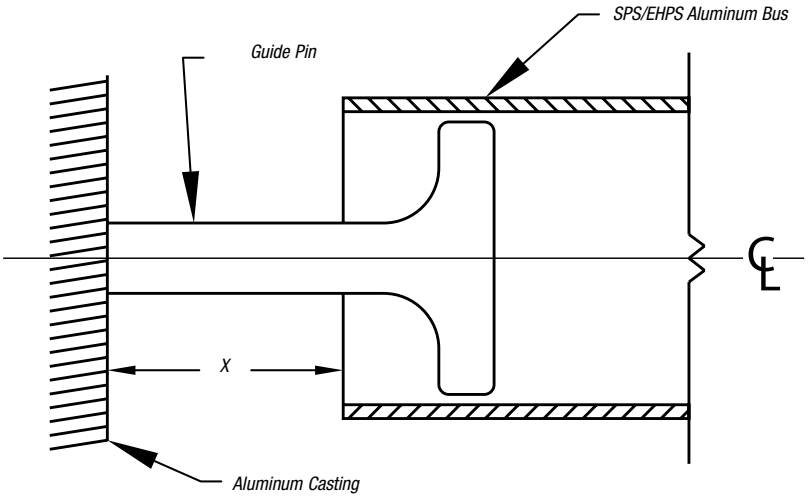
Technical Information

GA-735 — Graph for Installing Expansion Terminals and Couplers

Determine bus temperature at time of installation.
Read across chart to find proper "X" dimension.
If bus run is longer than shown, consult Technical Services.

	<100 FT. UP TO 3½ SPS/EHPS ALUMINUM BUS	<140 FT. 4-6 SPS/EHPS ALUMINUM BUS
BUS TEMP. °F	"X" INCHES	"X" INCHES
110	1⅞	2¾
90	2⅛	3⅛
70	2½	3⅝
50	2⅝	3 15/16
30	2⅞	4 7/16
10	3⅛	4⅞
-10	3⅓	5¼
-30	3⅝	5⅝
-50	3⅞	6

Do not use this chart to install expansion bus supports.
See chart GA-796 on the following page for these devices.

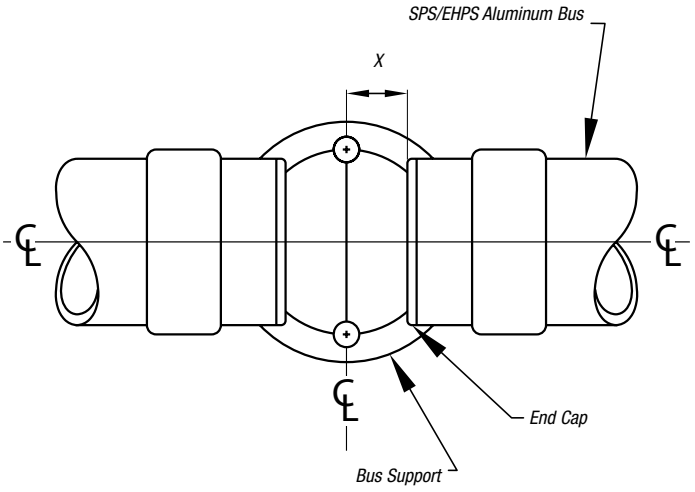


GA-796 — Graph for Installing Expansion Bus Supports

Determine bus temperature at time of installation.
Read across chart to find proper "X" dimension.
If bus run is longer than shown, consult Technical Services.

BUS TEMP. °F	<70 FT. BUS 3" BOLT CIRCLE ALUMINUM BUS "X" INCHES	<100 FT. BUS 5" BOLT CIRCLE ALUMINUM BUS "X" INCHES	<125 FT. BUS 7" BOLT CIRCLE ALUMINUM BUS "X" INCHES
110	1 1/8	1 5/8	3
90	1 7/16	1 15/16	3 7/16
70	1 9/16	2 1/3	3 5/8
50	1 7/8	2 5/8	3 7/8
30	2	2 7/8	4
10	2 1/4	3 1/8	4 1/3
-10	2 1/2	3 1/2	4 5/8
-30	2 11/16	3 7/8	4 7/8
-50	2 15/16	4	5

Use this chart for determining proper "X" dimension when installing expansion supports. Each "X" is dependent on bus length per side. Use for HV or EHV, bolted or welded. Do not use for expansion terminals or couplers.



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Sta-Kon®

Sta-Kon® Wire Termination & Insulation

In this section...



Sta-Kon® Wire Termination & Insulation

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Overview

Experience the Sta-Kon® advantage!



Thomas & Betts developed the first tool-applied solderless terminals and connectors more than 70 years ago in response to industry awareness of the need for better performance of electrical systems.

Key Features and Benefits

- Metal insulation grip sleeve is included on all-nylon terminal for strain relief
- Long barrel selectively annealed
- UL® Listed E9809 unless otherwise specified

Deep Internal Serrations

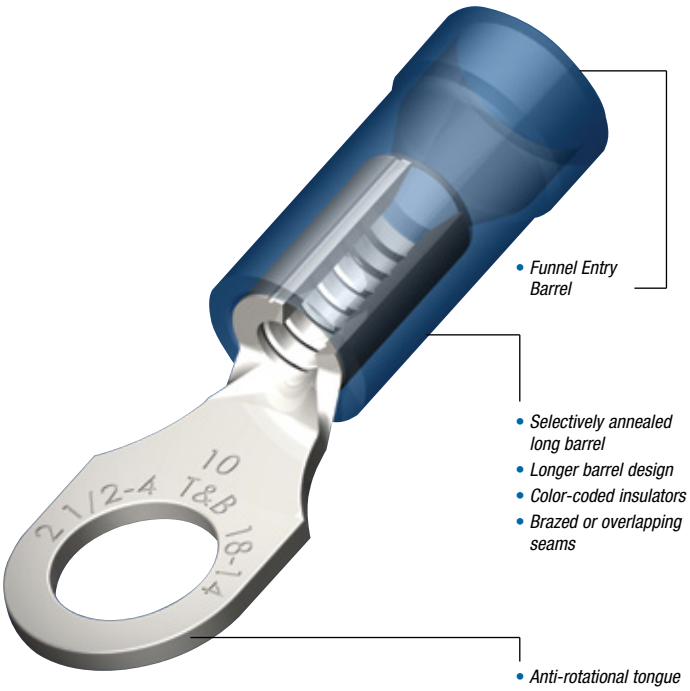
After the insertion of a wire into the terminal's barrel, a deep, serrated interior ensures a large area of contact that lowers the resistance of a connection. With the mechanical force of the tool, the wire strands cold flow into the serrated interior. This guarantees electrical resistance lower than the wire to which it is applied. This feature also prevents pullout from vibration and mechanical strain. Deep internal serrations can be compared to the effective holding power of a well-treaded tire on a wet highway.

Funneled Terminal Barrel Entry

This feature makes wire insertion faster and easier. A funneled barrel eliminates wire strand "hang up" upon insertion into the terminal's barrel. The loss of even a couple of wire strands can have negative results on electrical efficiency and resistance to mechanical strain.

Sta-Kon® Long Barrel Design

If lowering electrical resistance, preventing wire pullout, eliminating a "missed" crimp and having an insulator that stays on the barrel during installation are your goals, then you must design a terminal with a long barrel. This also provides the insulator with additional surface area, holding tight to the barrel. Most competitive barrel lengths range from 20–50% shorter than Sta-Kon® terminals. The results are usually a stream of electrical failure, rework and added expense. Many competitive insulators come off during crimping due to a limited barrel length.



***Note**: Listed for solid wire up to #10 AWG, terminals only.*

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Overview

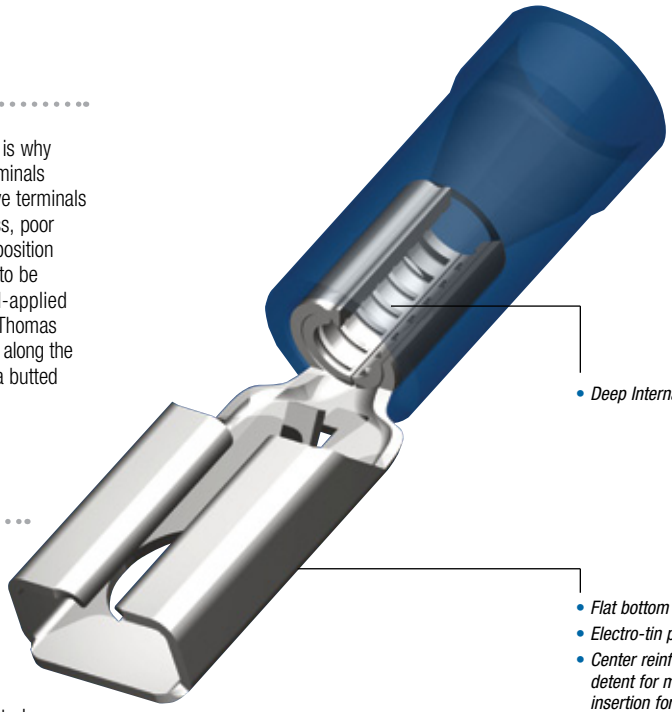
Superior terminals for superior connections!

Brazed or Overlapped Seam

A long barrel design is of little value unless it is one solid piece. That is why Thomas & Betts brazes the seam on our vinyl-insulated Sta-Kon® terminals and overlaps the seam on nylon-insulated terminals. Many competitive terminals have butted seams. This means increased chances for wirestrand loss, poor resistance, wire pullout, and electrical failure. If the installer doesn't position the tool exactly on the correct spot on the barrel, there's likely going to be an improper termination. The butted seam can also fold due to tool-applied pressure piercing the terminals insulation from the inside out. With Thomas & Betts' brazed or overlapped seam, the installer can crimp anywhere along the barrel's surface. This provides up to 2.5 times the tensile strength of a butted seam terminal, guaranteeing proper electrical flow, void free.

Selective Annealing

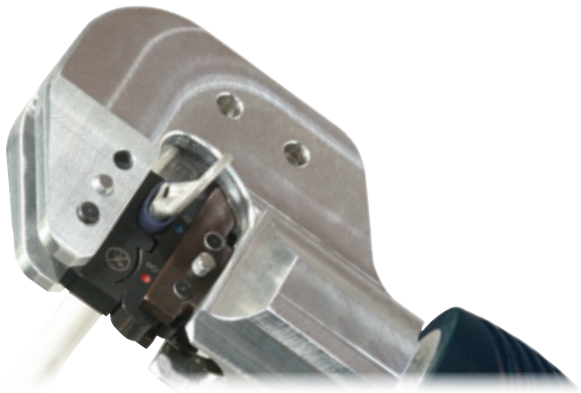
Because of the mechanical strength of copper, an installer can experience fatigue associated with repeated installations. For this reason, Thomas & Betts puts its terminals through one more step called selective annealing. This process leaves the barrel soft enough to crimp and form around the wire. However, we "cold form" the tongue during the manufacturing process so it remains strong. This is done so the tongue can withstand repeated bends and bolt tightening strain common in most electrical installations. Many competitors attempt to accomplish similar goals by removing valuable material or using a softer copper, which has lower conductivity. This increases electrical resistance as well as the odds for shorting and downtime.



- *Deep Internal Serrations*
- *Flat bottom box*
- *Electro-tin plating*
- *Center reinforced spring detent for minimum insertion force*
- *Compound Spring Rails provide positive contact after repeated insertions*



Strands enter as a homogeneous group and compact tightly under compression due to fully brazed seam



Anti-Rotational Tongues

This is a unique feature to the Thomas & Betts ring tongue terminal. This design prevents terminal shorting by keeping the terminal secure in the terminal block. The installer can place a greater number of terminals closer together without worry.

Proper Identification

We identify all terminals with Thomas & Betts initials, T & B. We also indicate wire and stud sizes. These markings are clearly visible on the surface of the tongue, taking any guesswork out of replacing or reordering additional parts. Our superior bright plating also assists in visibility.

All Sta-Kon® Terminals are Deburred and Degreased

To ensure a Sta-Kon® terminal is properly plated and insulated, all our parts are put through a process that cleans and smooths the terminal of any manufacturing by-products — mainly grease, oils and sharp edges. Many competitive products do not put their product through such rigorous finishing.

Ring Terminals

Sta-Kon® Rings, Forks and Locking Forks

- Complete line of installing tools engineered to match tool with terminal
- First to gain military approval for pressure connections… many styles available for military applications
- Sta-Kon® products exceed test specification requirements of military, UL and CSA
- Include extra metal sleeve to grip insulation
- Vinyl insulated and bare Sta-Kon® terminals feature brazed seam wire barrels that can be crimped at any place on the barrel circumference
- Can be installed with crimping tools having a single indentor or double indentor (recommended for solid wire)
- Serrated barrel increases grip on wire
- Wire range identification on the tongue of each terminal
- Can be installed with crimping tools having a single indentor or double indentor (recommended for solid wire)
- Constructed of electrolytic copper for high conductivity
- Wire range identification on the tongue of each terminal

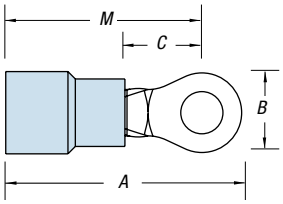


Listing

Sta-Kon® Rings, Forks and Locking Forks are tested and listed to UL® 486A/B, two-way splices to UL 486C, disconnects to UL 310 and all applicable products to CSA 22.2.

Nylon-Insulated Ring Terminals





CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RZ22-2**	100	26–22	.083	#2		.57	.14	.13	.49	
RZ22-4**	100	26–22	.083	#4		.65	.21	.20	.54	
RZ22-6**	100	26–22	.083	#6	ERG4006	.65	.21	.20	.54	.02
RZ22-8**	100	26–22	.083	#8		.75	.25	.23	.62	
RZ22-10**	100	26–22	.083	#10		.75	.25	.23	.62	
RAX23*	1,000	26–24	.125	#2		.66	.14	.14	.59	
RAX43*	1,000	26–24	.125	#4		.74	.20	.19	.64	
RAX63*	1,000	26–24	.125	#6	WT145A	.84	.25	.22	.72	.02
RAX83*	1,000	26–24	.125	#8		.84	.25	.22	.72	
RAX103*	1,000	26–24	.125	#10		.84	.25	.24	.72	
RA18-4	100	22–16	.136	#4		.72	.23	.14	.59	
RA323	1,000	22–16	.136	#4	ERG4001	.72	.23	.14	.59	.03
RA333	1,000	22–16	.136	#6		.72	.23	.14	.59	
RA18-6	100	22–16	.136	#6		.86	.26	.25	.71	

CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RA853	1,000	22–16	.136	#6		.86	.26	.25	.71	
RA18-8	100	22–16	.136	#8		.89	.26	.25	.71	
RA833	1,000	22–16	.136	#8		.86	.26	.25	.71	
RA863	1,000	22–16	.136	#8		.89	.26	.25	.71	
RA18-10	100	22–16	.136	#10	WT145A	.89	.31	.25	.71	.03
RA873	1,000	22–16	.136	#10		.89	.31	.25	.71	
RA18-14	100	22–16	.136	¼"		1.10	.46	.31	.84	
RA713	1,000	22–16	.136	¼"		1.10	.46	.31	.84	
RA18-516	100	22–16	.136	5⁄16"		1.10	.46	.31	.84	
RA723	1,000	22–16	.136	5⁄16"		1.10	.46	.31	.84	
RA18-38	100	22–16	.136	⅜"		1.20	.53	.35	.87	
RA733	1,000	22–16	.136	⅜"	ERG4001	1.20	.53	.35	.87	.03
RA18-12	100	22–16	.136	½"		1.30	.72	.50	.92	
RA753	1,000	22–16	.136	½"		1.30	.72	.50	.92	

** Not listed by UL or CSA* *** CSA Listed only*

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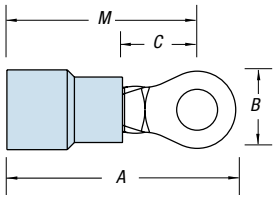
Technical Services
Tel: 888.862.3289

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Ring Terminals

Nylon-Insulated Ring Terminals *(continued)*



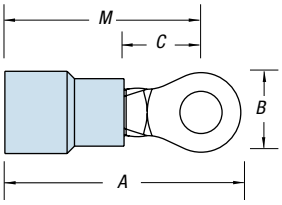


CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RB14-4	100	18–14	.162	#4		.72	.26	.14	.59	
RB1323	1,000	18–14	.162	#4		.72	.26	.14	.59	
RB14-6	100	18–14	.162	#6		.89	.31	.25	.71	
RB853	1,000	18–14	.162	#6		.89	.31	.25	.71	
RB1333	1,000	18–14	.162	#6		.74	.26	.14	.59	
RB14-8	100	18–14	.162	#8		.89	.31	.25	.71	
RB863	1,000	18–14	.162	#8		.89	.31	.25	.71	
RB14-10	100	18–14	.162	#10		.89	.31	.25	.71	
RB873	1,000	18–14	.162	#10	ERG4001	.89	.31	.25	.71	.03
RB14-14	100	18–14	.162	¼"		1.08	.47	.31	.81	
RB713	1,000	18–14	.162	¼"		1.08	.47	.31	.81	
RB14-516	100	18–14	.162	5⁄16"		1.08	.47	.31	.84	
RB723	1,000	18–14	.162	5⁄16"		1.08	.47	.31	.84	
RB14-38	100	18–14	.162	⅜"		1.17	.53	.35	.87	
RB733	1,000	18–14	.162	⅜"		1.17	.53	.35	.87	
RB14-12	100	18–14	.162	½"		1.25	.72	.50	.90	
RB753	1,000	18–14	.162	½"		1.25	.72	.50	.90	

CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RC10-6	50	12–10	.210	#6		1.00	.37	.27	.81	
RC333	500	12–10	.210	#6		1.00	.37	.27	.81	
RC10-8	50	12–10	.210	#8		1.00	.37	.27	.81	
RC863	500	12–10	.210	#8		1.00	.37	.27	.81	
RC10-10	50	12–10	.210	#10		1.00	.37	.27	.81	
RC363	500	12–10	.210	#10		1.00	.37	.27	.81	
RC10-14	50	12–10	.210	¼"	ERG4001	1.12	.53	.32	.86	.04
RC713	500	12–10	.210	¼"		1.12	.53	.32	.86	
RC10-516	50	12–10	.210	5⁄16"		1.21	.53	.31	.94	
RC703	500	12–10	.210	5⁄16"		1.21	.53	.31	.94	
RC10-38	50	12–10	.210	⅜"		1.27	.59	.35	.98	
RC733	500	12–10	.210	⅜"		1.27	.59	.35	.98	
RC10-12	50	12–10	.210	½"		1.37	.72	.52	1.02	
RC753	500	12–10	.210	½"		1.37	.72	.52	1.02	

Nylon-Insulated Ring Terminals — Expanded Entry





CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RB14-4X	100	18–14	.190	#4		.80	.26	.14	.67	
RB14-6X	100	18–14	.190	#6		.95	.31	.25	.79	
RB854	1,000	18–14	.190	#6		.95	.31	.25	.79	
RB14-8X	100	18–14	.190	#8		.95	.31	.25	.79	
RB864	1,000	18–14	.190	#8		.95	.31	.25	.79	
RB14-10X	100	18–14	.190	#10		.95	.31	.25	.79	.03
RB874	1,000	18–14	.190	#10	ER4001	.95	.31	.25	.79	
RB14-14X	100	18–14	.190	¼"		1.16	.47	.31	.92	
RB714	1,000	18–14	.190	¼"		1.16	.47	.31	.92	
RB14-516X	100	18–14	.190	5⁄16"		1.16	.47	.31	.92	
RB724	1,000	18–14	.190	5⁄16"		1.16	.47	.31	.92	
RB14-38X	100	18–14	.190	⅜"		1.25	.53	.42	.95	
RB734	1,000	18–14	.190	⅜"		1.25	.53	.42	.95	

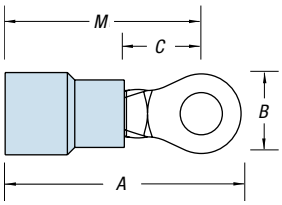
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CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RC10-6X	50	12–10	.250	#6		1.10	.37	.27	.91	
RC334	500	12–10	.250	#6		1.10	.37	.27	.91	
RC10-8X	50	12–10	.250	#8		1.10	.37	.27	.91	
RC864	500	12–10	.250	#8		1.10	.37	.27	.91	
RC10-10X	50	12–10	.250	#10		1.10	.37	.27	.91	
RC364	500	12–10	.250	#10		1.10	.37	.27	.91	
RC10-14X	50	12–10	.250	¼"	ERG4001	1.22	.53	.32	.96	.04
RC714	500	12–10	.250	¼"		1.22	.53	.32	.96	
RC10-516X	50	12–10	.250	5⁄16"		1.32	.53	.31	1.05	
RC704	500	12–10	.250	5⁄16"		1.32	.53	.31	1.05	
RC10-38X	50	12–10	.250	⅜"		1.38	.59	.48	1.09	
RC734	500	12–10	.250	⅜"		1.38	.59	.48	1.09	
RC10-12X	50	12–10	.250	½"		1.48	.72	.52	1.13	

Ring Terminals

Nylon-Insulated Large Ring Terminals





CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
Flex Class 41/24										
RD167	200	8	.340	#8	ERG4007	1.48	.42	.28	1.29	.04
RD8-10	25	8	.340	#10		1.48	.42	.28	1.29	
RD367	200	8	.340	#10		1.48	.42	.28	1.29	
RD8-14	25	8	.340	¼"		1.54	.46	.36	1.32	
RD717	200	8	.340	¼"		1.54	.46	.36	1.32	
RD8-516	25	8	.340	5⁄16"		1.63	.57	.36	1.35	
RD727	200	8	.340	5⁄16"		1.63	.57	.36	1.35	
RD8-38	25	8	.340	⅜"		1.63	.57	.36	1.35	
RD737	200	8	.340	⅜"		1.63	.57	.36	1.35	
RD8-12*	25	8	.310	½"	TBM6S	1.79	.82	.55	1.39	
RD757*	200	8	.310	½"		1.79	.82	.55	1.39	
RD10161	200	8AN	.270	#8	ERG4007	1.40	.41	.24	1.20	
RD10361	200	8AN	.270	#10		1.40	.41	.24	1.20	
RD10711	200	8AN	.270	¼"		1.45	.45	.27	1.22	
RD10721	200	8AN	.270	5⁄16"		1.53	.56	.34	1.25	
RD10731	200	8AN	.270	⅜"		1.53	.56	.34	1.25	
Flex Class 63/24										
RE6-10	20	6	.420	#10	ERG4007	1.65	.49	.28	1.40	.04
RE267	200	6	.420	#10		1.65	.49	.28	1.40	
RE6-14	20	6	.420	¼"		1.65	.49	.28	1.40	
RE717	200	6	.420	¼"		1.65	.49	.28	1.40	
RE6-516	20	6	.420	5⁄16"		1.76	.61	.34	1.47	
RE727	200	6	.420	5⁄16"		1.76	.61	.34	1.47	
RE6-38	20	6	.420	⅜"		1.76	.61	.34	1.47	
RE737	200	6	.420	⅜"		1.76	.61	.34	1.47	
RE6-12*	20	6	.395	½"	TBM6S	1.83	.82	.55	1.43	
RE757*	200	6	.395	½"		1.83	.82	.55	1.43	
RE10261	200	6AN	.315	#10	ERG4007	1.55	.49	.24	1.31	
RE10711	200	6AN	.315	¼"		1.55	.49	.27	1.31	
RE10721	200	6AN	.315	5⁄16"		1.70	.60	.34	1.40	
RE10731	200	6AN	.315	⅜"		1.70	.60	.34	1.40	
Flex Class 105/24										
RF4-10	15	4	.510	#10	TBM6S	1.76	.56	.36	1.49	.04
RF267	100	4	.510	#10		1.76	.56	.36	1.49	
RF4-14	15	4	.510	¼"		1.76	.56	.36	1.49	
RF717	100	4	.510	¼"		1.76	.56	.36	1.49	
RF4-516	15	4	.510	5⁄16"		1.84	.62	.35	1.53	
RF727	100	4	.510	5⁄16"		1.84	.62	.35	1.53	
RF4-38	15	4	.510	⅜"		1.84	.62	.35	1.53	
RF737	100	4	.510	⅜"		1.84	.62	.35	1.53	
RF757*	100	4	.500	½"		1.90	.82	.55	1.49	
RF10261	100	4AN	.380	#10		1.78	.55	.30	1.51	
RF10711	100	4AN	.380	¼"		1.78	.55	.30	1.51	
RF10721	100	4AN	.380	5⁄16"		1.80	.62	.34	1.49	
RF10731	100	4AN	.380	⅜"		1.80	.82	.34	1.49	

CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RG2-10	10	2	.588	#10	TBM6S	2.15	.69	.40	1.83	.05
RG267	50	2	.588	#10		2.15	.69	.40	1.83	
RG2-14	10	2	.588	¼"		2.15	.69	.40	1.83	
RG717	50	2	.588	¼"		2.15	.69	.40	1.83	
RG2-516	10	2	.588	5⁄16"		2.15	.69	.40	1.83	
RG727	50	2	.588	5⁄16"		2.15	.69	.40	1.83	
RG2-38	10	2	.588	⅜"		2.15	.69	.40	1.83	
RG737	50	2	.588	⅜"		2.15	.69	.40	1.83	
RG2-12	10	2	.588	½"		2.35	.80	.49	1.93	
RG757	50	2	.588	½"		2.35	.80	.49	1.93	
RG9711	50	2AN	453	¼"		2.07	.69	.40	1.74	
RG9731	50	2AN	.453	⅜"		2.07	.69	.40	1.74	
RG9751	50	2AN	.453	½"		2.26	.80	.49	1.84	
RH717	50	1/0	.629	¼"		2.14	.77	.43	1.81	
RH727	50	1/0	.629	5⁄16"		2.14	.77	.43	1.81	
RH737	50	1/0	.629	⅜"		2.14	.77	.43	1.81	
RH757	50	1/0	.629	½"		2.34	.77	.54	1.90	
RH9711	50	1AN	.500	¼"		2.14	.77	.44	1.81	
RH9731	50	1AN	.500	⅜"		2.14	.77	.44	1.81	
RH9751	50	1AN	.500	½"		2.34	.77	.54	1.90	
RJ717	100	2/0	.675	¼"		2.34	.83	.46	1.96	
RJ727	100	2/0	.675	5⁄16"		2.34	.83	.46	1.96	
RJ737	100	2/0	.675	⅜"		2.34	.83	.46	1.96	
RJ757	100	2/0	.675	½"		2.48	.89	.54	2.03	
RJ9711	50	1/0AN	.550	¼"		2.35	.83	.46	1.97	.06
RJ9731	50	1/0AN	.550	⅜"		2.35	.83	.46	1.97	
RJ9751	50	1/0AN	.550	½"		2.49	.89	.55	2.04	
RK717	25	3/0	.765	¼"		2.60	.93	.54	2.21	
RK727	25	3/0	.765	5⁄16"		2.60	.93	.54	2.21	
RK737	25	3/0	.765	⅜"		2.60	.93	.54	2.21	
RK9731	100	2/0AN	.610	⅜"		2.52	.93	.55	2.14	
RK9751	100	2/0AN	.610	½"		2.60	.93	.55	2.15	
RL737	25	4/0	.785	⅜"		2.83	1.04	.57	2.35	.07
RL757	25	4/0	.785	½"		2.83	1.04	.57	2.35	
RL9731	25	3/0AN	.680	⅜"		2.83	1.04	.57	2.36	
RL9751	25	3/0AN	.680	½"		2.83	1.04	.57	2.36	
RM737	20	250kcmil	.868	⅜"		3.00	1.13	.65	2.51	
RM747	20	250kcmil	.868	7⁄16"		3.00	1.13	.65	2.51	
RM757	20	250kcmil	.868	½"		3.00	1.13	.65	2.51	
RM9731	20	4/0AN	.750	⅜"		3.00	1.13	.66	2.51	
RM9751	20	4/0AN	.750	½"		3.00	1.13	.66	2.51	

**Brazed Seam*

AN=Aircraft Wire

Thomas&Betts

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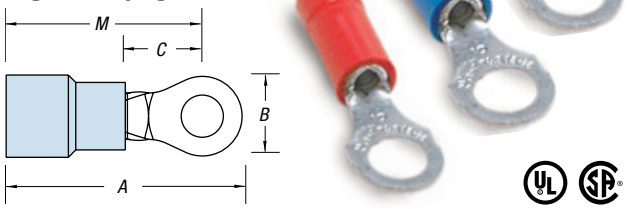
Technical Services
Tel: 888.862.3289

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Ring Terminals

Extra-length PVC sleeve offers extra protection.

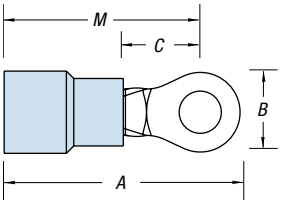
Vinyl-Insulated Ring Terminals



CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
18RA-4	100	22–16	.150	#4		.97	.31	.27	.81	
RA77	1,000	22–16	.150	#4		.97	.31	.27	.81	
18RA-6	100	22–16	.150	#6		.94	.25	.27	.81	
RA857	1,000	22–16	.150	#6		.94	.25	.27	.81	
18RA-8	100	22–16	.150	#8		.97	.31	.27	.81	
RA867	1,000	22–16	.150	#8		.97	.31	.27	.81	
18RA-10	100	22–16	.150	#10		.97	.31	.27	.81	
RA877	1,000	22–16	.150	#10		.97	.31	.27	.81	
18RA-14	100	22–16	.150	¼"		1.13	.50	.37	.88	
RA717	1,000	22–16	.150	¼"		1.13	.50	.37	.88	
18RA-516	100	22–16	.150	5/16"		1.13	.50	.37	.88	
RA727	1,000	22–16	.150	5/16"		1.13	.50	.37	.88	
18RA-38	100	22–16	.150	⅜"		1.24	.54	.37	.91	
RA737	1,000	22–16	.150	⅜"		1.24	.54	.37	.91	.03
14RB-4	100	18–14	.170	#4		.94	.25	.27	.81	
RB1327	1,000	18–14	.170	#4		.94	.25	.27	.81	
14RB-6	100	18–14	.170	#6		.97	.31	.27	.81	
RB857	1,000	18–14	.170	#6		.97	.31	.27	.81	
14RB-8	100	18–14	.170	#8		.97	.31	.27	.81	
RB867	1,000	18–14	.170	#8		.97	.31	.27	.81	
14RB-10	100	18–14	.170	#10	ERG4001	.97	.31	.27	.81	
RB877	1,000	18–14	.170	#10		.97	.31	.27	.81	
14RB-14	100	18–14	.170	¼"		1.14	.50	.38	.89	
RB717	1,000	18–14	.170	¼"		1.14	.50	.38	.89	
14RB-516	100	18–14	.170	5/16"		1.15	.50	.38	.89	
RB727	1,000	18–14	.170	5/16"		1.15	.50	.38	.89	
14RB-38	100	18–14	.170	⅜"		1.16	.54	.38	.91	
RB737	1,000	18–14	.170	⅜"		1.16	.54	.38	.91	
10RC-6	50	12–10	.210	#6		1.06	.31	.27	.90	
RC337	500	12–10	.210	#6		1.06	.31	.27	.90	
10RC-8	50	12–10	.210	#8		1.06	.31	.27	.90	
RC777	500	12–10	.210	#8		1.06	.31	.27	.90	
10RC-10	50	12–10	.210	#10		1.06	.31	.27	.90	
RC367	500	12–10	.210	#10		1.06	.31	.27	.90	
10RC-14	50	12–10	.210	¼"		1.16	.50	.27	.90	.04
RC717	500	12–10	.210	¼"		1.16	.50	.27	.90	
10RC-516	50	12–10	.210	5/16"		1.17	.50	.37	.92	
RC707	500	12–10	.210	5/16"		1.17	.50	.37	.92	
10RC-38	50	12–10	.210	⅜"		1.29	.59	.44	.99	
RC737	500	12–10	.210	⅜"		1.29	.59	.44	.99	

A wider wire entry for heavy-wall insulation.

Vinyl-Insulated Ring Terminals — Expanded Insulation

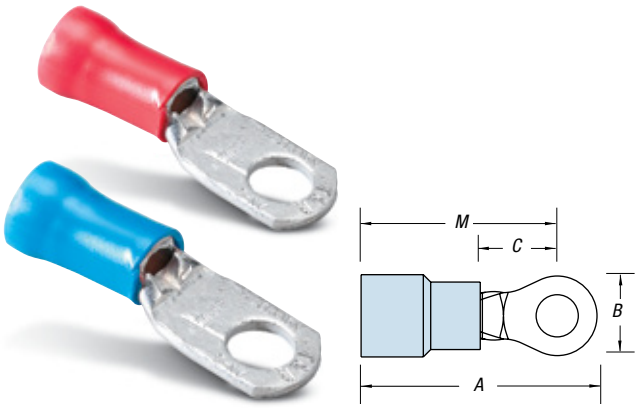




CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
18RA-4X	100	22–16	.170	#4		.97	.31	.27	.81	
18RA-6X	100	22–16	.170	#6		.97	.31	.27	.81	
18RA-8X	100	22–16	.170	#8		.97	.31	.27	.81	
18RA-38X	100	22–16	.170	⅜"		1.15	.54	.35	.90	
RA857-170	1,000	22–16	.170	#6		.97	.31	.27	.81	
RA867-170	1,000	22–16	.170	#8		.97	.31	.27	.81	
18RA-10X	1,000	22–16	.170	#10		.97	.31	.27	.81	
RA877-170	1,000	22–16	.170	#10		.97	.31	.27	.81	
18RA-14X	100	22–16	.170	¼"		1.13	.50	.37	.88	
RA727-170	1,000	22–16	.170	5/16"		1.13	.50	.37	.88	
14RB-4X	100	18–14	.200	#4		.94	.25	.27	.81	
14RB-6X	100	18–14	.200	#6		.97	.31	.27	.81	.03
RB857-200	1,000	18–14	.200	#6		.97	.31	.27	.81	
14RB-8X	100	18–14	.200	#8		.97	.31	.27	.81	
RB867-200	1,000	18–14	.200	#8		.97	.31	.27	.81	
14RB-10X	100	18–14	.200	#10		.97	.31	.27	.81	
RB877-200	1,000	18–14	.200	#10	ERG4001	.97	.31	.27	.81	
14RB-14X	100	18–14	.200	¼"		1.14	.50	.38	.89	
RB717-200	1,000	18–14	.200	¼"		1.14	.50	.38	.89	
14RB-516X	100	18–14	.200	5/16"		1.15	.50	.38	.89	
14RB-38X	100	18–14	.200	⅜"		1.16	.54	.35	.91	
10RC-6X	50	12–10	.250	#6		1.06	.31	.27	.90	
RC337-250	500	12–10	.250	#6		1.06	.31	.27	.90	
10RC-8X	50	12–10	.250	#8		1.06	.31	.27	.90	
RC777-250	500	12–10	.250	#8		1.06	.31	.27	.90	
10RC-10X	50	12–10	.250	#10		1.06	.31	.27	.90	
RC367-250	500	12–10	.250	#10		1.06	.31	.27	.90	.04
10RC-14X	50	12–10	.250	¼"		1.16	.50	.27	.90	
RC717-250	500	12–10	.250	¼"		1.16	.50	.27	.90	
10RC-516X	50	12–10	.250	5/16"		1.17	.50	.37	.92	
10RC-38X	50	12–10	.250	⅜"		1.29	.59	.44	.99	
RC737-250	500	12–10	.250	⅜"		1.29	.59	.44	.99	

For multiple wire combinations per UL File E9609, see page G-8.

Vinyl-Insulated Large Ring Terminals



CAT. NO.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RDV167	8	.340	#8		1.48	.42	.28	1.17	
RDV367	8	.340	#10		1.48	.42	.28	1.17	
RDV717	8	.340	¼"	ERG4007	1.54	.46	.36	1.20	
RDV727	8	.340	5/16"		1.63	.57	.36	1.23	
RDV737	8	.340	⅜"		1.63	.57	.36	1.23	
RDV757*	8	.310	½"	TBM6S	1.79	.82	.55	1.27	.04
REV267	6	.420	#10		1.65	.45	.28	1.23	
REV717	6	.420	¼"	ERG4007	1.65	.49	.28	1.23	
REV727	6	.420	5/16"		1.76	.61	.34	1.30	
REV737	6	.420	⅜"		1.76	.61	.34	1.30	
REV757*	6	.395	½"	TBM6S	1.83	.82	.55	1.26	

*Brazed Seam

Multiple Wire Combinations Listing per UL File E9609

TYPE (INSULATION)	WIRE RANGE (AWG) EACH SIDE
RA (Vinyl) Rings & Forks	(1) #22 (1) #22 with (1) #20
RB (Vinyl) Rings & Forks	(1) #16 with (1) #20 (2) #18 (1) #18 with (1) #20 (3) #20 (2) #20 (2) #20 with (2) #22 (1) #20 with (3) #22 (3) #22
RC (Vinyl) Rings & Forks	(1) #12 with (1) #16 (1) #14 with (1) or (2) #16 (1) #14 with (1) or (2) #18 (2) #14 (3) #16 (2) #16 (1) #16 with (3) #18 (1) #16 with (2) #18 (1) #16 with (4) #18 (1) #16 with (3) #18
RCC (Vinyl)	(1) #12 with (1) #16 (1) #14 with (1) or (2) #16 (1) #14 with (1) or (2) #18 (2) #14 (3) #16 (2) #16 (1) #16 with (3) #18 (1) #16 with (2) #18 (4) #18
RAA (Vinyl)	(2) #22 (1) #22 with (1) #20
RBB (Vinyl)	(1) #16 with (1) #20 (2) #18 (1) #18 with (1) #20 (3) #20 (2) #20 (2) #20 with (2) #22 (1) #20 with (3) #22 (3) #22

Recommended Hand Tools are WT145C and WT2000.

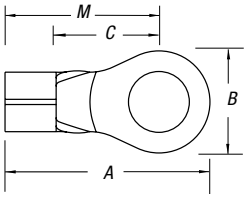
- No UL testing on disconnects for multiple wires
- No UL testing on nylon terminals for multiple wires
- No UL testing on non-insulated terminals for multiple wires

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Non-Insulated Ring Terminals





CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
A18-4	100	22–16	#4		.75	.31	.27	.59	
A18-6	100	22–16	#6		.72	.25	.27	.59	
A85	1,000	22–16	#6		.72	.25	.27	.59	
A18-8	100	22–16	#8		.75	.31	.27	.59	
A86	1,000	22–16	#8		.75	.31	.27	.59	
A18-10	100	22–16	#10		.75	.31	.27	.59	
A87	1,000	22–16	#10		.75	.31	.27	.59	
A18-14	100	22–16	¼"	ERG4002	.92	.50	.37	.67	
A71	1,000	22–16	¼"		.92	.50	.37	.67	
A18-516	100	22–16	5⁄16"		.92	.50	.37	.67	
A72	1,000	22–16	5⁄16"		.92	.50	.37	.67	
A18-38	100	22–16	⅜"		.99	.54	.35	.67	.03
A73	1,000	22–16	⅜"		.99	.54	.35	.67	
A18-12	100	22–16	½"		1.06	.72	.38	.70	
A75	1,000	22–16	½"		1.06	.72	.38	.70	
B14-4	100	18–14	#4		.72	.25	.27	.59	
B132	1,000	18–14	#4		.72	.25	.27	.59	
B14-6	100	18–14	#6		.72	.25	.27	.59	
B133	1,000	18–14	#6	ERG4002	.72	.25	.27	.59	
B14-8	100	18–14	#8	ERG4005	.75	.31	.27	.59	
B86	1,000	18–14	#8		.75	.31	.27	.59	
B14-10	100	18–14	#10		.75	.31	.27	.59	
B87	1,000	18–14	#10		.75	.31	.27	.59	
B14-14	100	18–14	¼"		.93	.50	.38	.68	

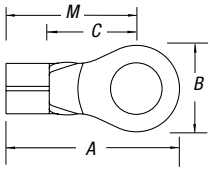
Brazed Seam

CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
B71	1,000	18–14	¼"		.93	.50	.38	.68	
B14-516	100	18–14	5⁄16"		.93	.50	.38	.68	
B72	1,000	18–14	5⁄16"		.93	.50	.38	.68	
B14-38	100	18–14	⅜"		.96	.54	.35	.68	
B73	1,000	18–14	⅜"		.96	.54	.35	.68	.03
B14-12	100	18–14	½"		1.06	.72	.38	.70	
B75-TB	1,000	18–14	½"		1.06	.72	.38	.70	
B85	1,000	18–14	#6		.75	.31	.27	.59	
B134	1,000	18–14	#8		.72	.25	.27	.59	
C10-6-SK	50	12–10	#6		.82	.31	.27	.66	
C33	500	12–10	#6		.82	.31	.27	.66	
C10-8-SK	50	12–10	#8		.82	.31	.27	.66	
C77	500	12–10	#8	ERG4002	.82	.31	.27	.66	
C10-10	50	12–10	#10	ERG4005	.85	.38	.27	.66	
C26	500	12–10	#10		.85	.38	.27	.66	
C36	500	12–10	#10		.82	.31	.27	.66	
C10-14	50	12–10	¼"		.91	.50	.27	.66	.04
C71	500	12–10	¼"		.91	.50	.27	.66	
C10-516	50	12–10	5⁄16"		.98	.50	.38	.73	
C70	500	12–10	5⁄16"		.98	.50	.38	.73	
C72	500	12–10	5⁄16"		1.10	.59	.45	.80	
C10-38	50	12–10	⅜"		1.10	.59	.45	.80	
C73	500	12–10	⅜"		1.10	.59	.45	.80	
C10-12	50	12–10	½"		1.21	.72	.38	.84	
C75	500	12–10	½"		1.21	.72	.38	.84	

Ring Terminals

Non-Insulated Large Ring Terminals — Brazed Seam





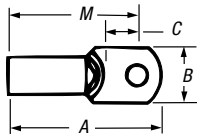
CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
D8-10	25	8	#10	TBM6S	1.09	.42	.34	.90	.06
D36	200	8	#10		1.09	.42	.34	.90	
D26	200	8	#10		1.13	.48	.36	.90	
D8-14-SK	25	8	¼"		1.13	.48	.36	.90	
D71	200	8	¼"		1.13	.48	.36	.90	
D8-516	25	8	5⁄16"		1.32	.59	.49	1.03	
D72	200	8	5⁄16"		1.32	.59	.49	1.03	
D8-38	25	8	⅜"		1.32	.59	.49	1.03	
D73	200	8	⅜"		1.32	.59	.49	1.03	
D8-12	25	8	½"		1.49	.82	.55	1.09	
D75	200	8	½"		1.49	.82	.55	1.09	
E6-10	20	6	#10		1.13	.48	.36	.90	
E26	200	6	#10		1.13	.48	.36	.90	
E6-14	20	6	¼"		1.13	.48	.36	.90	
E71	200	6	¼"		1.13	.48	.36	.90	
E6-516	20	6	5⁄16"		1.32	.60	.49	1.03	

CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
E72	200	6	5⁄16"	TBM6S	1.32	.60	.49	1.03	.06
E6-38	20	6	⅜"		1.32	.60	.49	1.03	
E73	200	6	⅜"		1.32	.60	.49	1.03	
E6-12	20	6	½"		1.49	.82	.55	1.08	
E75	200	6	½"		1.49	.82	.55	1.08	
F4-10	20	4	#10		1.16	.48	.36	.93	.07
F26	200	4	#10		1.16	.48	.36	.93	
F4-14	20	4	¼"		1.16	.48	.36	.93	
F71-TB	200	4	¼"		1.16	.48	.36	.93	
F4-516	20	4	5⁄16"		1.35	.60	.49	1.06	
F72	200	4	5⁄16"		1.35	.60	.49	1.06	
F4-38	20	4	⅜"		1.35	.60	.49	1.06	
F73	200	4	⅜"		1.35	.60	.49	1.06	
F4-12	20	4	½"		1.52	.82	.55	1.11	
F75	200	4	½"		1.52	.82	.55	1.11	

Select the configuration you need!

Non-Insulated Large Ring Terminals — Tubular





CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
D10161	200	8/8AN	#8	ERG 4005	1.15	.41	.28	.95	.04
D10361	200	8/8AN	#10		1.15	.41	.28	.95	
D10711	200	8/8AN	¼"	ERG 4008	1.20	.45	.36	.97	
D10721	200	8/8AN	5⁄16"		1.28	.56	.36	1.00	
D10731	200	8/8AN	⅜"		1.28	.56	.36	1.00	
D975*	200	8/8AN	½"	TBM6S	1.46	.83	.49	1.06	
E10261	200	6/6AN	#10	ERG 4005	1.26	.49	.24	1.02	
E10711	200	6/6AN	¼"		1.26	.49	.27	.99	
E10721	200	6/6AN	5⁄16"	ERG 4008	1.38	.60	.34	1.04	
E10731	200	6/6AN	⅜"		1.38	.60	.34	1.04	
F10261	100	4/4AN	#10	ERG 4008	1.37	.55	.30	1.07	
F10711	100	4/4AN	¼"		1.37	.55	.30	1.07	
F10721	100	4/4AN	5⁄16"		1.42	.62	.34	1.08	
F10731	100	4/4AN	⅜"		1.42	.62	.34	1.08	
F975*	200	4/4AN	½"	TBM6S	1.49	.83	.45	1.10	
G926	100	2/2AN	#10	ERG 4008 TMB6S	1.59	.69	.40	1.26	
G2-14	10	2/2AN	¼"		1.59	.69	.40	1.26	
G971	100	2/2AN	5⁄16"		1.59	.69	.40	1.26	
G2-516	10	2/2AN	5⁄16"		1.59	.69	.40	1.26	
G972	100	2/2AN	5⁄16"		1.59	.69	.40	1.26	
G2-38	10	2/2AN	⅜"		1.59	.69	.40	1.26	
G973	100	2/2AN	⅜"		1.59	.69	.40	1.26	
G2-12	10	2/2AN	½"		1.79	.80	.49	1.36	
G975	100	2/2AN	½"		1.79	.80	.49	1.36	

*Brazed Seam **AN** – Aircraft Wire

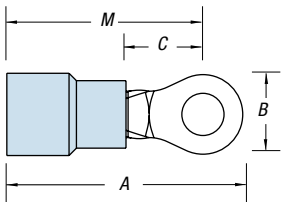
CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
H10-14	10	1AN–1/0	¼"	ERG 4008 TBM6S	1.65	.77	.43	1.32	.05
H971	100	1AN–1/0	¼"		1.65	.77	.43	1.32	
H972	100	1AN–1/0	5⁄16"		1.65	.77	.43	1.32	
H973	100	1AN–1/0	⅜"		1.65	.77	.43	1.32	
H975	100	1AN–1/0	½"		1.85	.77	.54	1.41	
J971	50	1/0AN–2/0	¼"	TBM6S	1.94	.84	.48	1.53	.06
J972	50	1/0AN–2/0	5⁄16"		1.94	.84	.48	1.53	
J20-38	10	1/0AN–2/0	⅜"		1.84	.83	.46	1.46	
J973	50	1/0AN–2/0	⅜"		1.99	.84	.53	1.58	
J974	50	1/0AN–2/0	7⁄16"		1.99	.89	.51	1.56	
J975	50	1/0AN–2/0	½"		1.99	.89	.51	1.56	
J976	50	1/0AN–2/0	⅝"		1.99	.89	.51	1.56	
K971	50	2/0AN–3/0	¼"		2.08	.93	.54	1.69	
K972	50	2/0AN–3/0	5⁄16"		2.08	.93	.54	1.69	
K30-38	5	2/0AN–3/0	⅜"		2.08	.93	.54	1.69	
K973	50	2/0AN–3/0	⅜"		2.08	.93	.54	1.69	
K974	50	2/0AN–3/0	7⁄16"		2.08	.93	.54	1.70	
K975	50	2/0AN–3/0	½"		2.08	.93	.54	1.70	
L971	50	3/0AN–4/0	¼"		2.25	1.04	.57	1.77	.07
L972	50	3/0AN–4/0	5⁄16"		2.25	1.04	.57	1.77	
L40-38	5	3/0AN–4/0	⅜"		2.25	1.04	.57	1.77	
L973	50	3/0AN–4/0	⅜"		2.25	1.04	.57	1.77	
L974	50	3/0AN–4/0	7⁄16"		2.25	1.04	.57	1.77	
L975	50	3/0AN–4/0	½"		2.25	1.04	.57	1.77	
M972	50	4/0AN–250kcmil	5⁄16"		2.28	1.12	.62	1.90	
M250-38	5	4/0AN–250kcmil	⅜"		2.40	1.12	.65	1.91	
M973	50	4/0AN–250kcmil	⅜"		2.40	1.12	.65	1.91	
M974	50	4/0AN–250kcmil	7⁄16"		2.40	1.12	.65	1.91	
M975	50	4/0AN–250kcmil	½"		2.40	1.12	.65	1.91	

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Ring Terminals

Insulated Heavy-Duty Ring Terminals

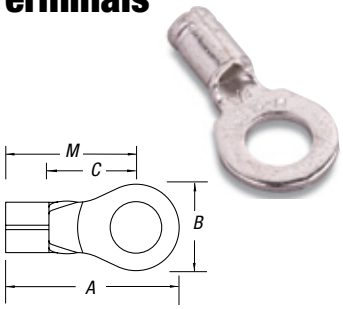




CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
Nylon										
RBC14-6	50	16–14 Heavy-duty	.210	#6	WT2130A	.98	.25	.29	.85	.05
RBC14-8	50	16–14 Heavy-duty	.210	#8		1.04	.39	.29	.85	
RBC863	500		.210	#8		1.04	.39	.29	.85	
RBC14-10	50	16–14 Heavy-duty	.210	#10		1.04	.39	.29	.85	
RBC14-14	50	16–14 Heavy-duty	.210	¼"		1.10	.51	.29	.85	
RBC713	500		.210	¼"		1.10	.51	.29	.85	
RBC14-516	50	16–14 Heavy-duty	.210	5⁄16"		1.21	.54	.38	.94	
RBC14-38	50	16–14 Heavy-duty	.210	⅜"		1.26	.63	.38	.94	
RBC14-12	50	16–14 Heavy-duty	.210	½"		1.49	.76	.54	1.11	
RBC753	500		.210	½"		1.49	.76	.54	1.11	
Vinyl										
14RBC-6	50	16–14 Heavy-duty	.210	#6	WT2130A	1.06	.25	.29	.93	.05
RBC857	500		.210	#6		1.06	.25	.29	.93	
14RBC-8	50	16–14 Heavy-duty	.210	#8		1.13	.39	.29	.93	
RBC867	500		.210	#8		1.13	.39	.29	.93	
14RBC-10	50	16–14 Heavy-duty	.210	#10		1.13	.39	.29	.93	
RBC877	500		.210	#10		1.13	.39	.29	.93	
14RBC-14	50	16–14 Heavy-duty	.210	¼"		1.19	.51	.29	.93	
RBC717	500		.210	¼"		1.19	.51	.29	.93	
14RBC-516	50	16–14 Heavy-duty	.210	5⁄16"		1.29	.54	.38	1.03	
RBC727	500		.210	5⁄16"		1.29	.54	.38	1.03	
14RBC-38	50	16–14 Heavy-duty	.210	⅜"		1.34	.63	.38	1.03	
RBC797	500		.210	⅜"		1.34	.63	.38	1.03	
14RBC-12	50	16–14 Heavy-duty	.210	½"		1.57	.76	.54	1.19	
RB757	500		.210	½"		1.57	.76	.54	1.19	

The heavy-duty terminal solution!

Non-Insulated Heavy-Duty Ring Terminals

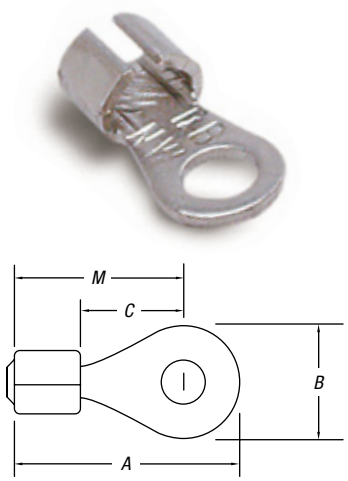


CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
BC14-6	50	16–14 Heavy-duty	#6	ER4002 ERG4005	.81	.25	.29	.68	.05
BC85	500		#6		.81	.25	.29	.68	
BC14-8	50	16–14 Heavy-duty	#8		.87	.39	.29	.68	
BC86	500		#8		.87	.39	.29	.68	
BC14-10	50	16–14 Heavy-duty	#10		.87	.39	.29	.68	
BC87	500		#10		.87	.39	.29	.68	
BC14-14	50	16–14 Heavy-duty	¼"		.93	.51	.29	.68	
BC71	500		¼"		.93	.51	.29	.68	
BC14-516	50	16–14 Heavy-duty	5⁄16"		1.04	.54	.38	.77	
BC72	500		5⁄16"		1.04	.54	.38	.77	
BC14-38	50	16–14 Heavy-duty	⅜"		1.09	.63	.38	.77	
BC79	500		⅜"		1.09	.63	.38	.77	
BC14-12	50	16–14 Heavy-duty	½"		1.32	.76	.54	.94	
BC75	500		½"		1.32	.76	.54	.94	

Ring Terminals

Terminals for nichrome wire NW Series.

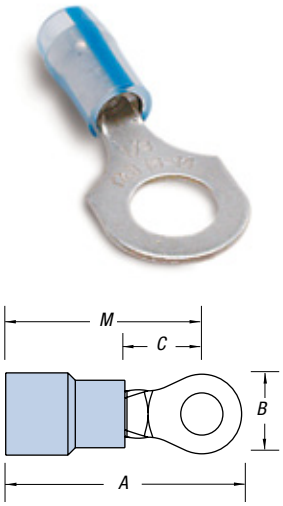
High-Temperature Non-Insulated Rings — 1200° F Max.



CAT. NO.	PKG. QTY.	WIRE RANGE	WT./LBS. PER 1,000	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
NW18-10	100	20–18	2.5	#10		.63	.31	.28	.38	.032
NW52	1,000	20–18	2.5	#8		.63	.31	.28	.38	
NW81	1,000	16–14	2.5	#6		.66	.31	.28	.51	.040
NW14-8	100	16–14	2.5	#8		.66	.31	.28	.51	
NW14-10	100	16–14	2.5	#10		.66	.31	.28	.51	
NW83	1,000	16–14	2.5	#10	WT1377	.66	.31	.28	.51	
NW14-12	100	16–14	2.5	#12*		.66	.31	.28	.51	
NW84	1,000	16–14	2.5	#12*		.66	.31	.28	.51	
NW10-8	50	12–10	3	#8		.66	.31	.28	.51	
NW10-10	50	12–10	3	#10		.66	.31	.28	.51	
NW10-12	50	12–10	3	#12*		.66	.31	.28	.51	

** #12 stud is smaller than ¼" stud.*

Tefzel® Insulated Rings — Insulation Grip



CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RAT853	1,000	22–18	.140	#6		.81	.25	.25	.69	.03
RAT863	1,000	22–18	.140	#8		.84	.31	.25	.69	
RAT873	1,000	22–18	.140	#10		.84	.31	.25	.69	
RAT713	1,000	22–18	.140	¼"		1.07	.46	.31	.84	
RBT853	1,000	16–14	.170	#6		.84	.31	.25	.69	
RBT863	1,000	16–14	.170	#8		.84	.31	.25	.69	
RBT873	1,000	16–14	.170	#10		.84	.31	.25	.69	
RBT713	1,000	16–14	.170	¼"	WT145C	1.08	.46	.31	.81	
RCT333	500	12–10	.210	#6		1.00	.37	.27	.81	.04
RCT863	500	12–10	.210	#8		1.00	.37	.27	.81	
RCT363	500	12–10	.210	#10		1.00	.37	.27	.81	
RCT713	500	12–10	.210	¼"		1.11	.52	.32	.85	
RCT703	500	12–10	.210	5/16"		1.23	.52	.31	.96	
RCT733	500	12–10	.210	⅜"		1.29	.58	.35	1.00	

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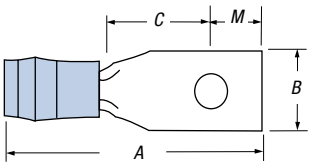
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Ring Terminals

Nylon-Insulated Rectangular Rings





CAT. NO.	PKG. QTY.	BOLT HOLE	WIRE RANGE	REC. TOOL	DIMENSIONS A	B	C	M	BU-SHIPS TONGUE SHAPE	STOCK THICK.
RA486	1,000	#4	22–18		.796	.237	.237	.143	L86P-1	
RA485	1,000	#4	22–18		1.015	.237	.404	.195	L85P-1	
RA483	1,000	#5	22–18		.859	.277	.277	.143	L83P-1	
RA484	1,000	#6	22–18		1.015	.237	.404	.195	L84P-1	
RA481	1,000	#6	22–18		1.109	.302	.465	.227	L81P-1	
RA482	1,000	#8	22–18		1.109	.302	.465	.227	L82P-1	
RA480*	1,000	#8	22–18		1.359	.390	.621	.310	L80P-1	
RB486	1,000	#4	16–14		.796	.237	.237	.143	L86P-2	.03
RB485	1,000	#4	16–14		1.015	.237	.404	.195	L85P-2	
RB483	1,000	#5	16–14		.859	.277	.277	.143	L83P-2	
RB484	1,000	#6	16–14	ERG4001	1.015	.237	.404	.195	L84P-2	
RB481	1,000	#6	16–14		1.109	.302	.465	.227	L81P-2	
RB482	1,000	#8	16–14		1.109	.302	.465	.227	L82P-2	
RB480*	1,000	#8	16–14		1.359	.390	.621	.310	L80P-2	
RC486	500	#4	12–10		.984	.237	.237	.143	L86P-3	
RC485	500	#4	12–10		1.187	.237	.404	.195	L85P-3	
RC483	500	#5	12–10		1.046	.277	.277	.143	L83P-3	
RC484	500	#6	12–10		1.203	.237	.404	.195	L84P-3	.04
RC481	500	#6	12–10		1.281	.302	.465	.227	L81P-3	
RC482	500	#8	12–10		1.281	.302	.465	.227	L82P-3	
RC480*	500	#8	12–10		1.531	.390	.621	.310	L80P-3	

* *Not available on tape.*

Note: *RA, RB, RC486 for use with BU-Ships terminal board types 26TB. RA, RB, RC485 for use with 25TB and 27TB. RA, RB, RC483 for use with 8TB. RA, RB, RC484 for use with 10TB and 11TB. RA, RB, RC481 for use with 6TB, 7TB and 9TB. RA, RB, RC482 for use with 15TB. RA, RB, RC480 for use with 3TB, 4TB, 5TB, 16TB, 17TB and 18TB.*

Note:

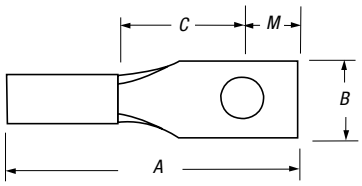
22–18 ga. = 1–2 Navy

16–14 ga. = 2½–4 Navy

12–10 ga. = 6–9 Navy

Non-Insulated Rectangular Rings





CAT. NO.	PKG. QTY.	BOLT HOLE	WIRE RANGE	REC. TOOL	DIMENSIONS A	B	C	M	BU-SHIPS TONGUE SHAPE	STOCK THICK.
A486	1,000	#4	22–18		.65	.237	.237	.143	L86	
A485	1,000	#4	22–18		.87	.237	.404	.195	L85	
A483	1,000	#5	22–18		.70	.277	.277	.143	L83	
A484	1,000	#6	22–18	ERG4002	.87	.237	.404	.195	L84	
A481	1,000	#6	22–18		.96	.302	.465	.227	L81	
A482	1,000	#8	22–18		.96	.302	.465	.227	L82	
A480*	1,000	#8	22–18		1.21	.390	.621	.310	L80	
B486	1,000	#4	16–14		.65	.237	.237	.143	L86	.03
B485	1,000	#4	16–14		.87	.237	.404	.195	L85	
B483	1,000	#5	16–14		.70	.277	.277	.143	L83	
B484	1,000	#6	16–14		.87	.237	.404	.195	L84	
B481	1,000	#6	16–14		.96	.302	.465	.227	L81	
B482	1,000	#8	16–14		.96	.302	.465	.227	L82	
B480*	1,000	#8	16–14	ERG4002	1.21	.390	.621	.310	L80	
C486	500	#4	12–10	ERG4005	.73	.237	.237	.143	L86	
C485	500	#4	12–10		.90	.237	.404	.195	L85	
C483	500	#5	12–10		.76	.277	.277	.143	L83	
C484	500	#6	12–10		.94	.237	.404	.195	L84	.04
C481	500	#6	12–10		1.03	.302	.465	.227	L81	
C482	500	#8	12–10		1.03	.302	.465	.227	L82	
C480*	500	#8	12–10		1.27	.390	.621	.310	L80	

* *Not available on tape.*

Note: *A, B, C486 for use with BU-Ships terminal board types 26TB. A, B. C485 for use with 25TB, 27TB. A, B, C483 for use with 8TB. A, B, C484 for use with 10TB and 11TB. A, B, C481 for use with 6TB, 7TB and 9TB. A, B, C482 for use with 15TB. A, B, C480 for use with 3TB, 5TB, 16TB, 17TB and 18TB.*

Note:

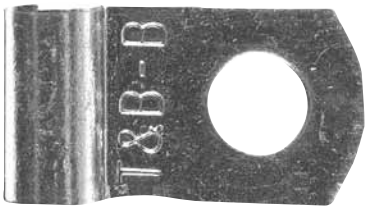
22–18 ga. = 1–2 Navy

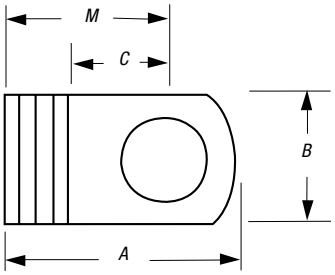
16–14 ga. = 2½–4 Navy

12–10 ga. = 6–9 Navy

Flag Terminals

Non-Insulated Flags





CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS				STOCK THICK.
					A	B	C	M	
AB14-6A	100	22–14	#6		.55	.31	.22	.39	
AB51	1,000	22–14	#6		.55	.31	.22	.39	
AB14-8A	100	22–14	#8		.55	.31	.22	.39	.03
AB52	1,000	22–14	#8		.55	.31	.22	.39	
AB14-10A	100	22–14	#10		.55	.31	.22	.39	
AB53	1,000	22–14	#10	ERG4004	.55	.31	.22	.39	
C51	500	12–10	#6		.66	.31	.25	.48	
C10-8A	50	12–10	#8		.66	.31	.25	.48	
C52	500	12–10	#8		.66	.31	.25	.48	.04
C10-10A	50	12–10	#10		.66	.31	.25	.48	
C53	500	12–10	#10		.66	.31	.25	.48	
D236	200	8	#10		.83	.50	.25	.59	
D226	200	8	#10		.90	.50	.29	.64	
D271	200	8	¼"		.92	.50	.33	.68	.06
E226	200	6	#10		.93	.50	.29	.69	
E271	200	6	¼"		.99	.50	.33	.73	
E272	200	6	5⁄16"		1.05	.50	.41	.81	
F226	200	4	#10	WT129	1.07	.56	.33	.80	
F271	200	4	¼"		1.10	.63	.33	.80	.07
F272	200	4	5⁄16"		1.18	.63	.41	.88	
F273	200	4	⅜"		1.20	.63	.43	.90	
G671	100	2	¼"		1.20	.63	.33	.89	
G672	100	2	5⁄16"		1.28	.63	.41	.97	.08
G673	100	2	⅜"		1.32	.63	.46	1.02	
H672	50	1/0	5⁄16"		1.31	.63	.41	1.01	
H673	50	1/0	⅜"		1.36	.63	.46	1.06	
J672	50	2/0	5⁄16"		1.46	.75	.41	1.10	.10
J673	50	2/0	⅜"		1.51	.75	.46	1.15	
J675	50	2/0	½"	13642M	1.67	.75	.55	1.24	
K672	50	3/0	5⁄16"		1.59	.81	.41	1.19	
K673	50	3/0	⅜"		1.64	.81	.46	1.24	.11
K675	50	3/0	½"		1.76	.81	.55	1.34	
M673	50	250kcmil	⅜"		1.89	1.0	.46	1.43	.13
M675	50	250kcmil	½"		1.99	1.0	.55	1.52	

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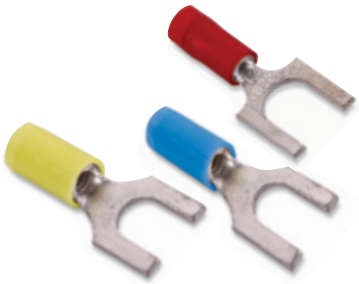
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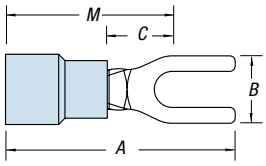
Fork Terminals

- Fork terminals enable easy installation because the mounting screw does not have to be completely removed
- Brazed-seam barrel is serrated for high pull-out value. Terminal is high-conductivity electrolytic copper, electro-tin plated. Insulation is color coded
- Vinyl-insulated fork terminals have extra-long PVC insulation sleeve for protection and stress relief at wire's flex point
- Suffix "X" indicates an expanded insulation support, meaning a wider wire entry to accommodate heavy wall insulation



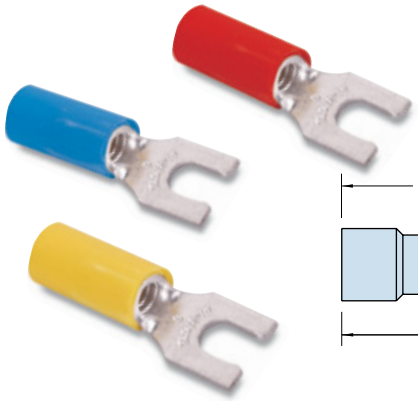
Nylon-Insulated Forks

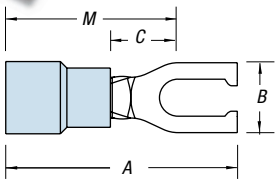




CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RA18-6F	100	22–16	.136	#6		.83	.25	.25	.71	
RA1103	1,000	22–16	.136	#6		.83	.25	.25	.71	
RA18-8F	100	22–16	.136	#8		.86	.31	.25	.71	
RA1123	1,000	22–16	.136	#8		.86	.31	.25	.71	.02
RA18-10F	100	22–16	.136	#10		.86	.31	.25	.71	
RA1153	1,000	22–16	.136	#10		.86	.31	.25	.71	
RA18-14F	100	22–16	.136	¼"		.95	.44	.31	.70	
RA1163	1,000	22–16	.136	¼"		.95	.44	.31	.70	
RB14-6F	100	18–14	.162	#6		.87	.31	.25	.71	
RB1113	1,000	18–14	.162	#6		.87	.31	.25	.71	
RB14-8F	100	18–14	.162	#8		.87	.31	.25	.71	
RB1123	1,000	18–14	.162	#8		.87	.31	.25	.71	
RB14-10F	100	18–14	.162	#10		.87	.38	.25	.71	
RB1153	1,000	18–14	.162	#10		.87	.38	.25	.71	.03
RB14-14F	100	18–14	.162	¼"	ERG4001	.95	.44	.28	.74	
RB1163	1,000	18–14	.162	¼"		.95	.44	.28	.74	
RB1103	1,000	18–14	.162	#6		.74	.28	.16	.60	
RB1124	1,000	18–14	.190	#8		.95	.31	.25	.79	
RB1154	1,000	18–14	.190	#10		.95	.31	.25	.79	
RC10-6F	50	12–10	.210	#6		.97	.31	.27	.81	
RC1113	500	12–10	.210	#6		.97	.31	.27	.81	
RC10-8F	50	12–10	.210	#8		1.00	.37	.27	.81	
RC1123	500	12–10	.210	#8		1.00	.37	.27	.81	
RC10-10F	50	12–10	.210	#10		1.00	.37	.27	.81	.04
RC1153	500	12–10	.210	#10		1.00	.37	.27	.81	
RC10-14F	50	12–10	.210	¼"		1.12	.50	.27	.86	
RC1163	500	12–10	.210	¼"		1.12	.50	.27	.86	
RC1124	1,000	12–10	.250	#8		1.10	.37	.27	.91	
RC1154	1,000	12–10	.250	#10		1.10	.37	.27	.91	

Nylon-Insulated Locking Forks

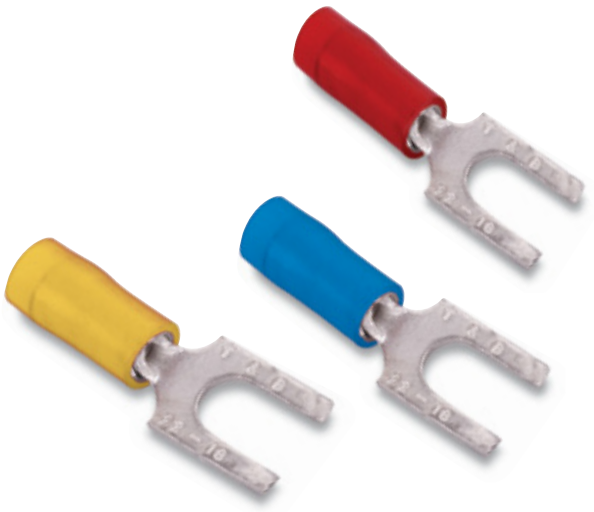


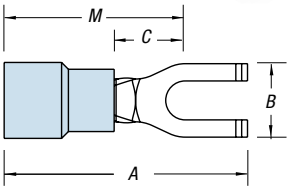


CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RA18-6FL	100	22–16	.136	#6		.86	.25	.25	.71	
RA2213	1,000	22–16	.136	#6		.86	.25	.25	.71	
RA18-8FL	100	22–16	.136	#8		.86	.29	.25	.71	.02
RA2243	1,000	22–16	.136	#8		.86	.29	.25	.71	
RA18-10FL	100	22–16	.136	#10		.86	.29	.25	.71	
RA2253	1,000	22–16	.136	#10		.86	.29	.25	.71	
RB14-6FL	100	18–14	.162	#6		.87	.25	.25	.71	
RB2213	1,000	18–14	.162	#6		.87	.25	.25	.71	
RB2214	1,000	18–14	.190	#6		.95	.25	.25	.79	
RB14-8FL	100	18–14	.162	#8		.87	.29	.25	.71	.03
RB2233	1,000	18–14	.162	#8		.87	.29	.25	.71	
RB14-10FL	100	18–14	.162	#10	ERG4001	.87	.29	.25	.71	
RB2253	1,000	18–14	.162	#10		.87	.29	.25	.71	
RB2254	1,000	18–14	.190	#10		.95	.29	.25	.71	
RC10-6FL	50	12–10	.210	#6		.97	.31	.27	.81	
RC2203	500	12–10	.210	#6		.97	.31	.27	.81	
RC2204	1,000	12–10	.250	#6		1.07	.31	.27	.91	
RC10-8FL	50	12–10	.210	#8		1.00	.37	.27	.81	
RC2213	500	12–10	.210	#8		1.00	.37	.27	.81	.04
RC10-10FL	50	12–10	.210	#10		1.00	.37	.27	.81	
RC2223	500	12–10	.210	#10		1.00	.37	.27	.81	
RC2224	1,000	12–10	.250	#10		1.10	.37	.27	.91	
RC10-14FL	50	12–10	.210	¼"		1.12	.50	.32	.86	
RC2233	500	12–10	.210	¼"		1.12	.50	.32	.86	

Fork Terminals

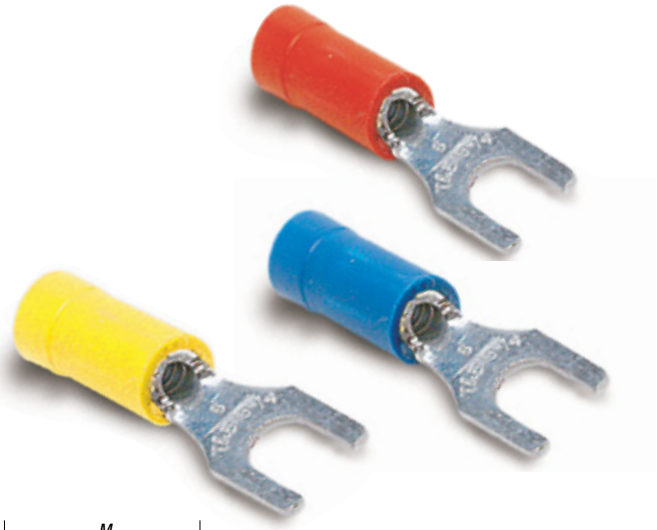
Nylon-Insulated Forks — Flanged Tongue

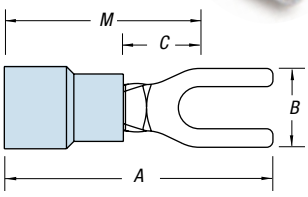




CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RA18-6FS	100	22–16	.136	#6		.75	.28	.16	.62	
RA1203	1,000	22–16	.136	#6		.75	.28	.16	.62	
RA18-8FS	100	22–16	.136	#8		.89	.31	.23	.65	.02
RA1223	1,000	22–16	.136	#8		.89	.31	.23	.65	
RA18-10FS	100	22–16	.136	#10		.93	.38	.26	.68	
RA1253	1,000	22–16	.136	#10		.93	.38	.26	.68	
RB14-6FS	100	18–14	.162	#6		.74	.28	.16	.60	
RB1203	1,000	18–14	.162	#6		.74	.28	.16	.60	
RB14-8FS	100	18–14	.162	#8		.89	.31	.23	.66	
RB1223	1,000	18–14	.162	#8		.89	.31	.23	.66	.03
RB14-10FS	100	18–14	.162	#10	ERG4001	.94	.38	.27	.69	
RB1253	1,000	18–14	.162	#10		.94	.38	.27	.69	
RB1204	1,000	18–14	.190	#6		.79	.28	.16	.67	
RB1224	1,000	18–14	.190	#8		.94	.31	.23	.71	
RC10-8FS	50	12–10	.210	#8		.97	.34	.23	.73	
RC1223	500	12–10	.210	#8		.97	.34	.23	.73	
RC10-10FS	50	12–10	.210	#10		1.00	.38	.26	.74	.04
RC1253	500	12–10	.210	#10		1.00	.38	.26	.74	
RC1224	1,000	12–10	.250	#8		1.08	.34	.23	.80	
RC1254	1,000	12–10	.250	#10		1.12	.38	.26	.86	

Vinyl-Insulated Forks





CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
18RA-6F	100	22–16	.150	#6		.94	.25	.27	.81	
RA1167	1,000	22–16	.150	#6		.94	.25	.27	.81	
18RA-8F	100	22–16	.150	#8		.97	.31	.27	.81	.02
RA1147	1,000	22–16	.150	#8		.97	.31	.27	.81	
18RA-10F	100	22–16	.150	#10		.97	.31	.27	.81	
RA1157	1,000	22–16	.150	#10		.97	.31	.27	.81	
14RB-6F	100	18–14	.170	#6		.97	.31	.27	.81	
RB647	1,000	18–14	.170	#6		.97	.31	.27	.81	
14RB-6FS	100	18–14	.170	#6		.89	.30	.25	.75	
14RB-8F	100	18–14	.170	#8		.97	.31	.27	.81	
RB657	1,000	18–14	.170	#8		.97	.31	.27	.81	.03
14RB-10F	100	18–14	.170	#10	ERG4001	.97	.31	.27	.81	
RB1157	1,000	18–14	.170	#10		.97	.31	.27	.81	
14RB-14F	100	18–14	.170	¼"		1.11	.44	.38	.89	
RB1717	1,000	18–14	.170	¼"		1.11	.44	.38	.89	
10RC-6F	50	12–10	.210	#6		1.09	.31	.27	.90	
RC1337	500	12–10	.210	#6		1.09	.31	.27	.90	
10RC-8F	50	12–10	.210	#8		1.09	.38	.27	.90	
RC1147	500	12–10	.210	#8		1.09	.38	.27	.90	.04
10RC-10F	50	12–10	.210	#10		1.09	.38	.27	.90	
RC1157	500	12–10	.210	#10		1.09	.38	.27	.90	
10RC-14F	50	12–10	.210	¼"		1.15	.50	.37	.90	
RC1167	500	12–10	.210	¼"		1.15	.50	.37	.90	

*For multiple wire combinations per UL File E9609, see **page G-8**.*

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Vinyl-Insulation Forks — Expanded Insulation



CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
18RA-6FX	100	22–16	.170	#6	ERG4001	.94	.25	.27	.81	.02
RA1167-170	1,000	22–16	.170	#6		.94	.25	.27	.81	
18RA-8FX	100	22–16	.170	#8		.97	.31	.27	.81	
RA1147-170	1,000	22–16	.170	#8		.97	.31	.27	.81	
18RA-10FX	100	22–16	.170	#10		.97	.31	.27	.81	
RA1157-170	1,000	22–16	.170	#10		.97	.31	.27	.81	
14RB-6FX	100	18–14	.200	#6		.97	.31	.27	.81	.03
RB647-200	1,000	18–14	.200	#6		.97	.31	.27	.81	
14RB-8FX	100	18–14	.200	#8		.97	.31	.27	.81	
RB657-200	1,000	18–14	.200	#8		.97	.31	.27	.81	
14RB-10FX	100	18–14	.200	#10		.97	.31	.27	.81	
RB1157-200	1,000	18–14	.200	#10		.97	.31	.27	.81	
10RC-8FX	50	12–10	.250	#8		1.11	.38	.27	.90	.04
RC1147-250	500	12–10	.250	#8		1.11	.38	.27	.90	
10RC-10FX	50	12–10	.250	#10		1.11	.38	.27	.90	
RC1157-250	500	12–10	.250	#10		1.11	.38	.27	.90	
10RC-14FX	50	12–10	.250	¼"		1.17	.50	.37	.90	

For multiple wire combinations per UL File E9609, see ***page G-8****.*

Vinyl-Insulated Locking Forks



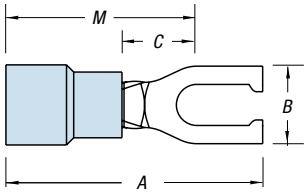
CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
18RA-6FL	100	22–16	.150	#6	ERG4001	.97	.25	.25	.81	.02
RA2217	1,000	22–16	.150	#6		.97	.25	.25	.81	
RA2227	1,000	22–16	.155	#6		.97	.29	—	.81	
18RA-8FL	100	22–16	.150	#8		.97	.29	.25	.81	
RA2247	1,000	22–16	.150	#8		.97	.29	.25	.81	
18RA-10FL	100	22–16	.150	#10		.97	.29	.25	.81	
RA2257	1,000	22–16	.150	#10		.97	.29	.25	.81	
14RB-6FL	100	18–14	.170	#6		.97	.25	.27	.81	.03
RB2207	1,000	18–14	.170	#6		.97	.25	.27	.81	
RB2217	1,000	18–14	.170	#6		.97	.29	.27	.81	
14RB-8FL	100	18–14	.170	#8		.97	.29	.27	.81	
RB2237	1,000	18–14	.170	#8		.97	.29	.27	.81	
14RB-10FL	100	18–14	.170	#10		.97	.29	.27	.81	
RB2257	1,000	18–14	.170	#10		.97	.29	.27	.81	
10RC-6FL	50	12–10	.220	#6		1.09	.31	.27	.90	.04
RC2207	500	12–10	.220	#6		1.09	.31	.27	.90	
10RC-8FL	50	12–10	.220	#8		1.09	.37	.27	.90	
RC2217	500	12–10	.220	#8		1.09	.37	.27	.90	
10RC-10FL	50	12–10	.220	#10		1.09	.37	.27	.90	
RC2227	500	12–10	.220	#10		1.09	.37	.27	.90	
10RC-14FL	50	12–10	.220	¼"		1.09	.49	.27	.90	
RC2237	500	12–10	.220	¼"		1.09	.49	.27	.90	

For multiple wire combinations per UL File E9609, see ***page G-8****.*

Fork Terminals

Vinyl-Insulated Locking Forks — Expanded Insulation



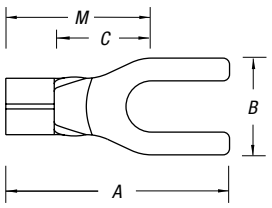


CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
18RA-6FLX	100	22–16	.170	#6	ERG4001	.97	.25	.25	.81	.02
RA2217-170	1,000	22–16	.170	#6		.97	.25	.25	.81	
18RA-8FLX	100	22–16	.170	#8		.97	.29	.25	.81	
18RA-10FLX	100	22–16	.170	#10		.97	.29	.25	.81	
RA2257-170	1,000	22–16	.170	#10		.97	.29	.25	.81	
14RB-6FLX	100	18–14	.200	#6		.97	.31	.27	.81	.03
RB2207-200	1,000	18–14	.200	#6		.97	.31	.27	.81	
RB2217-200	1,000	18–14	.200	#6		.97	.29	.27	.81	
14RB-8FLX	100	18–14	.200	#8		.97	.31	.27	.81	
RB2237-200	1,000	18–14	.200	#8		.97	.31	.27	.81	
14RB-10FLX	100	18–14	.200	#10		.97	.31	.27	.81	
RB2257-200	1,000	18–14	.200	#10		.97	.31	.27	.81	
10RC-6FLX	50	12–10	.250	#6		1.07	.31	.27	.91	.04
RC2207-250	500	12–10	.250	#6		1.07	.31	.27	.91	
10RC-8FLX	50	12–10	.250	#8		1.10	.37	.27	.91	
10RC-10FLX	50	12–10	.250	#10		1.10	.37	.27	.91	
RC2227-250	500	12–10	.250	#10		1.10	.37	.27	.91	
10RC-14FLX	50	12–10	.250	¼"		1.22	.50	.32	.96	

For multiple wire combinations per UL File E9609, see ***page G-8****.*

Non-Insulated Forks





CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
A18-6F	100	22–16	#6	ERG4002	.72	.25	.27	.59	.02
A116	1,000	22–16	#6		.72	.25	.27	.59	
A18-8F	100	22–16	#8		.75	.31	.27	.59	
A114	1,000	22–16	#8		.75	.31	.27	.59	
A18-10F	100	22–16	#10		.75	.31	.27	.59	
A115-TB	1,000	22–16	#10		.75	.31	.27	.59	
B14-6F	100	18–14	#6	ERG4002 ERG4005	.75	.31	.27	.59	.03
B64	1,000	18–14	#6		.75	.31	.27	.59	
B19	1,000	18–14	#6		.66	.25	.13	.50	
B14-8F	100	18–14	#8		.75	.31	.27	.59	
B65-TB	1,000	18–14	#8		.75	.31	.27	.59	
B14-10F	100	18–14	#10		.75	.31	.27	.59	
B115	1,000	18–14	#10		.75	.31	.27	.59	
B14-14F	100	18–14	¼"		.90	.44	.38	.68	
C10-6F	50	12–10	#6		.77	.31	.27	.63	.04
C133	500	12–10	#6		.77	.31	.27	.63	
C10-8F	50	12–10	#8		.82	.38	.27	.63	
C114	500	12–10	#8		.82	.38	.27	.63	
C10-10F	50	12–10	#10		.82	.38	.27	.63	
C115	500	12–10	#10		.82	.38	.27	.63	
C10-14F	50	12–10	¼"		.98	.50	.37	.73	
C116-TB	500	12–10	¼"		.98	.50	.37	.73	

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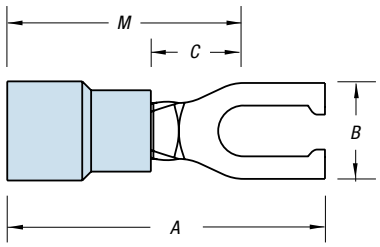
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Fork Terminals and Pin Terminals

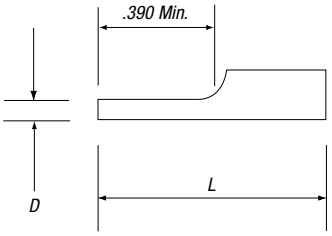
Non-Insulated Locking Fork Terminals





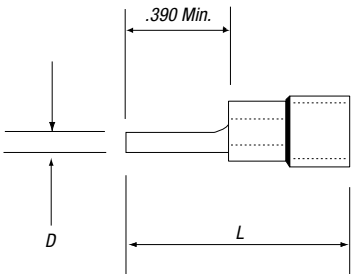
CAT. NO.	PKG. QTY.	WIRE RANGE	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
A18-6FL	100	22–16	#6	ERG4002	.75	.25	.27	.59	.02
A221	1,000	22–16	#6		.75	.25	.27	.59	
A18-8FL	100	22–16	#8		.75	.29	.27	.59	
A224	1,000	22–16	#8		.75	.29	.27	.59	
A18-10FL	100	22–16	#10		.75	.29	.27	.59	
A225	1,000	22–16	#10		.75	.29	.27	.59	
B14-6FL	100	18–14	#6	ERG4002 ERG4005	.75	.25	.27	.59	.03
B220	1,000	18–14	#6		.75	.25	.27	.59	
B14-8FL	100	18–14	#8		.75	.29	.27	.59	
B223	1,000	18–14	#8		.75	.29	.27	.59	
B14-10FL	100	18–14	#10		.75	.29	.27	.59	
B225	1,000	18–14	#10		.75	.29	.27	.59	
C10-6FL	50	12–10	#6		.85	.31	.27	.66	.04
C220-TB	500	12–10	#6		.85	.31	.27	.66	
C10-8FL	50	12–10	#8		.85	.37	.27	.66	
C221	500	12–10	#8		.85	.37	.27	.66	
C10-10FL	50	12–10	#10		.85	.37	.27	.66	
C222	500	12–10	#10		.85	.37	.27	.66	
C10-14FL	50	12–10	¼"		.85	.49	.27	.66	

Pin Terminals



Non-Insulated Pin Terminal





Insulated Pin Terminal

CAT. NO.	PKG. QTY.	WIRE RANGE	D (DIA.)	L	REC. TOOLS	STOCK THICK.
Non-Insulated						
A47PT	1,000	22–18	.075	.63	ERG4002	.02
B47PT	1,000	16–14	.075	.63		.03
C55PT	500	12–10	.106	.76		.04
Vinyl						
18RA-47PT	100	22–18	.075	.85	ERG4001	.02
RA47PT	1,000	22–18	.075	.85		
14RB-47PT	100	16–14	.075	.87		.03
RB47PT	1,000	16–14	.075	.87		
10RC-55PT	50	12–10	.106	1.04		.04
RC55PT	500	12–10	.106	1.04		
Nylon						
RA18-47PT	100	22–18	.075	.85	ERG4001	.02
RA147PT	1,000	22–18	.075	.85		
RB14-47PT	100	16–14	.075	.87		.03
RB147PT	1,000	16–14	.075	.87		
RC10-55PT	50	12–10	.106	1.04		.04
RC155PT	500	12–10	.106	1.04		

Splice Connectors



Butt Splices

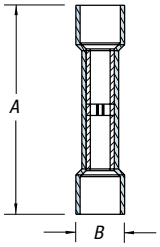
- Wires are butted together and crimped at each end of the splice
- Available either non-insulated or insulated with nylon or PVC
- Nylon insulated splices meet or exceed the requirements of MIL-T-7928
- Color coded according to wire size

Parallel Splices

- Wires are laid side by side in the connector, and the connection is made in one crimp
- Offer advantages in simplicity of installation and small size
- One crimp completes the splice

Vinyl-Insulated Butt Splices — Expanded Insulation



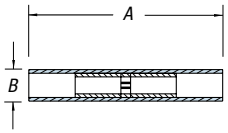


CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	REC. TOOL	DIMENSIONS A	DIMENSIONS B
2RA18X	100	22–18	.170	ERG4001	1.13	.25
RAA217-170	1,000	22–18	.170		1.13	.25
RAA217	1,000	22–18	.150		1.13	.23
2RB14X	100	16–14	.200		1.13	.26
RBB217-200	1,000	16–14	.200		1.13	.26
RBB217	1,000	16–14	.170		1.13	.24
2RC10X	50	12–10	.250		1.31	.31
RCC217-250	500	12–10	.250		1.31	.31
RCC217	1,000	12–10	.210		1.31	.28

***Note**: RCC217 is not expanded.*

Nylon-Insulated Butt Splices

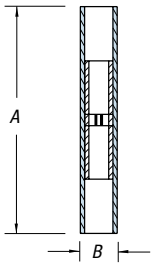




CAT. NO.	PKG. QTY.	MAX. INS. DIA.	WIRE RANGE	REC. TOOL	DIMENSIONS A	DIMENSIONS B
2RA18	100	.115	22–18	ERG4001	1.19	.18
RAA21	1,000	.115	22–18		1.19	.18
2RB14	100	.148	16–14		1.19	.21
RBB21	1,000	.148	16–14		1.19	.21
2RC10	50	.210	12–10		1.26	.28
RCC21	500	.210	12–10		1.26	.28
2RD8	25	.340	8	ERG4007 TBM6S	1.69	.36
RDD27	200	.340	8		1.69	.36
2RE6	20	.420	6		1.85	.45
REE28	200	.420	6		1.85	.45
2RF4	15	.510	4	TBM6S	1.85	.52

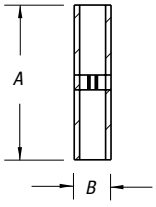
Nylon-Insulated Aircraft Splices





CAT. NO.	PKG. QTY.	WIRE RANGE	REC. TOOL	DIMENSIONS A	DIMENSIONS B
2RZZ	50	26–22	ERG4006	1.22	.15
RZZ23	500	26–22		1.22	.15
2RAA	50	22–18	ERG4001	1.52	.25
RAA23	500	22–18		1.52	.25
2RBB	50	16–14		1.52	.28
RBB23	500	16–14		1.52	.28
2RCC	25	12–10		1.54	.35
RCC23	250	12–10		1.54	.35

Tefzel® Insulated Butt Splices





CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS. DIA.	REC. TOOL	DIMENSIONS A	DIMENSIONS B
RAAT21	1,000	22–18	1.22	WT145C	1.22	.115
RBBT21	1,000	16–14	1.22		1.22	.148
RCCT21	1,000	12–10	1.22		1.22	.210

Tefzel® is a registered trademark of DuPont.

Thomas&Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

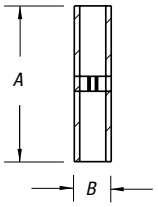
Technical Services
Tel: 888.862.3289

www.tnb.com

Splice Connectors

Non-Insulated Butt Splices

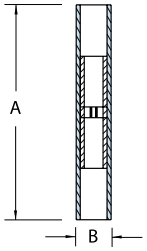




CAT. NO.	PKG. QTY.	WIRE RANGE	REC. TOOL	DIMENSIONS A	DIMENSIONS B
2A-18	100	22–18	ERG4002	.62	.12
AA2	1,000	22–18		.62	.12
2B-14	100	16–14	ERG4002 ERG4005	.62	.16
BB2	1,000	16–14		.62	.16
2C-10	50	12–10		.72	.22
CC2	500	12–10		.72	.22
2D-8	25	9–8–7	ERG4005 TBM6S	1.03	.28
DD102	200	9–8–7		1.03	.28
2E-6	20	6–5		1.12	.37
EE2	200	6–5		1.12	.37
2F-4	15	4–3	TBM6S	1.25	.44
FF2	200	4–3		1.25	.44
2G21	5	2–1		1.72	.55
GG2	25	2–1		1.72	.55

Nylon-Insulated Parallel Splices

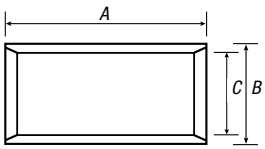




CAT. NO.	PKG. QTY.	WIRE RANGE	REC. TOOL	DIMENSIONS A	DIMENSIONS B
2A20	100	22–20	ERG4001	.84	.20
RAA24	1,000	22–20		.84	.20
2B-16	100	18–16		.84	.23
RBB25	1,000	18–16		.84	.23
2C-12	50	14–12		.90	.28
RCC26	500	14–12		.90	.28

Sta-Kon® Parallel Splices





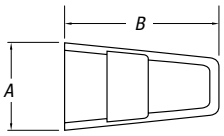
CAT. NO.	WIRE RANGE	CIR. MIL RANGE	REC. TOOL	LENGTH (A)	O.D. (B)	I.D. (C)	PKG. QTY.
A18-PS-M	22–16 AWG	509–3,260	ERG4002	.314	.129	.086	1,000
B14-PS-M	16–14 AWG	2,050–5,180	ERG4002	.315	.155	.113	1,000
C10-PS-D	12–10 AWG	5,180–13,100	ERG4005	.380	.220	.170	500
D8-PS-D	8 AWG	13,100–20,800	ERG4005	.375	.260	.180	500
E6-PS-D	6 AWG	20,800–33,100	WT115A	.500	.365	.266	500
F4-PS-W	4 AWG	33,100–52,600	WT115A	.531	.410	.302	250
G2-PS-W	2 AWG	52,600–83,700		.640	.521	.396	250
H1/0-PS-C	1/0 AWG	83,700–119,500	TBM8-750M-1	.750	.571	.446	100
J2/0-PS-C	2/0 AWG	119,500–150,500		.750	.632	.507	100
K3/0-PS-L	3/0 AWG	150,500–190,000		.750	.701	.564	50
L4/0-PS-L	4/0 AWG	190,000–231,100		.770	.766	.629	50
M250-PS-Q	250 kcmil	231,100–300,000		1.063	.926	.749	25
N300-PS-X	300 kcmil	300,000–380,000		1.125	1.100	.882	10
P400-PS-X	400 kcmil	380,000–478,000		1.250	1.200	.956	10
R500-PS-V	500 kcmil	478,000–600,000		1.438	1.330	1.060	5

The total combined cross sectional area of all wires must be within the CMA range. *Rated at 150° C.*

Wire Joints

Crimp-On Wire Joints, One-Piece Nylon Self-Insulated





CAT. NO.	PKG. QTY.	WIRE RANGE MIN.	WIRE RANGE MAX.	REC. TOOL	DIMENSIONS A	DIMENSIONS B
RB44	100	2#18	2#16	WT2000	.31	.78
RB4-TB	1,000	2#18	2#16		.31	.78
RC55	50	4#18	2#12	WT2130A	.43	.95
RC6	500	4#18	2#12		.43	3
RP12	100	3#14	4#12		.53	1.00
RP7	1,000	3#14	4#12		.53	1.00

RB4-TB/RB44

ALLOWABLE WIRE COMBINATIONS #22	#20	#18	#16	#14	#12	#10
		2–3				
		1–2	2			
3						
	3					
3		1				
2	3					
1–2		2				
2			1			
	3	1				
1	2					
	2		1			
	1	2				

RC6/RC55

ALLOWABLE WIRE COMBINATIONS #22	#20	#18	#16	#14	#12	#10
		1–4			1	
			1–3		1	
				1–2	1	
					2	
		3–5		1		
			2–4	1		
				3		
		1–4		2		
			1–3	2		
		1–3		3		
			1	3		
			2–5			
		4–6				

RP7/RP12

ALLOWABLE WIRE COMBINATIONS #22	#20	#18	#16	#14	#12	#10
						2
					1	1
				1		1
					2–4	
				2–4	1	
				1–3	2	
				1	3	
				3–6		
				1	2–3	
				2	1–2	
				3	1–2	
				4	1	

PT Series Crimp-On Wire Joints

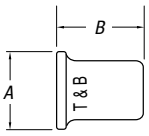
Two-Piece Nylon Insulator

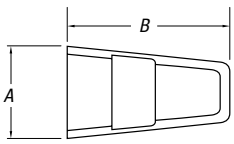


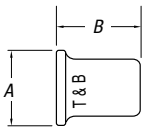




One-Piece Non-Insulated



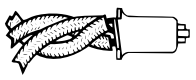




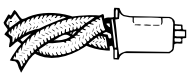
CAT. NO.	PKG. QTY.	WIRE RANGE MIN.	WIRE RANGE MAX.	REC. TOOL	DIMENSIONS A	DIMENSIONS B
PT66M	100	2#18	3#12 combination	WT161M	.50	.93
PT6M	100	—	Insulator only		.50	.93
PT60M	100	2#14	3#12 connector only		.31	.37
PT70	200	2#14	3#12		.29	.34
PT70M	200	3#18	4#12		.31	.37
PT80	50	2#16	4#10		.35	.62

90° C rated.

Installation Procedure for "PT" Connectors



Twist wires, insert through serrated barrel of wire joint. (PT60M, PT70, PT70M, PT80.)



Crimp and trim off excess wire with WT161M hand tool.



Screw PT6 insulator firmly onto PT160M barrel.

Thomas&Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

www.tnb.com

High-Temperature Wire Joints

- Rated for temperatures up to 150° C (302° F), 600V maximum
- Molded, one-piece nylon construction for electrical insulation, UL94-V2
- Brazed copper sleeve prevents separation of connection during crimping
- Internal serrations enable cold flow for increased conductivity and pull-out strength



CAT. NO.	PKG. QTY.	WIRE RANGE		REC. TOOL	DIMENSIONS	
		MIN.	MAX.		A	B
RB4-HT	1,000	2#18	2#16	WT2000	.36"	.82"
RB44-HT	100	2#18	2#16	WT2000	.36"	.82"
RC6-HT	500	3#16	3#14	ERG4001, WT2130A	.48"	.95"
RC551-HT	100	3#16	3#14	ERG4001, WT2130A	.48"	.95"
RP7-HT	500	3#14	3#12	ERG4007, WT2130A	.53"	1.00"
RP12-HT	100	3#14	3#12	ERG4007, WT2130A	.53"	1.00"

Wire Joints UL Listed Combinations

CAT. NO.	SOLID OR STRANDED AWG
RB4, RB44, RB4-10M	(2) or (3) #18 (2) #16 (1) #16 and (1) or (2) #18 (3) #22 (3) #20 (3) #22 and (1) #18 (2) #22 and (3) #20 (1) or (2) #22 and (2) #18 (2) #22 and (1) #16 (3) #20 and (1) #18 (2) #20 and (1) #22 (2) #20 and (1) #16 (1) #20 and (2) #18
RC6, RC6-5M, RC55	(1) #14 with (2), (3) or (4) #16 (1) #14 with (3), (4) or (5) #18 (2) #14 with (1), (2), (3) or (4) #18 (2) #14 with (1), (2) or (3) #16 (3) #14 (4) to (7) #18 (3) #14 with (1) or (2) #18 (3) #14 with (1) #16 (1) #12 with (1), (2), (3) or (4) #18 (1) #12 with (1), (2) or (3) #16 (1) #12 with (1) or (2) #14 (5) #16

CAT. NO.	SOLID OR STRANDED AWG
RP7, RP-12	(2) to (4) #12 AWG (3) to (6) #14 AWG (3) #12 and (1) #14 (2) #12 and (1) #14 (2) #12 and (2) #14 (2) #12 and (3) #14 (1) #12 and (2) #14 (1) #12 and (3) #14 (1) #12 and (4) #14 (2) #10 (1) #10 and (1) #12 (1) #10 and (1) #14 (1) #8 Str. and (1) #16 (1) #10 and (1) #16 (1) #12 and (1) #16

Heat-Shrinkable Terminals, Splices, Disconnects

The heat-shrinkable advantage!

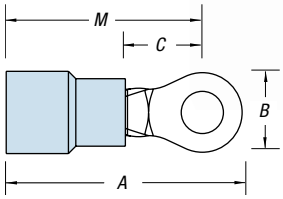
- These ring terminals, butt splices and disconnects are self-insulated with heat-shrinkable polyolefin and internally coated sealant
- Upon completed installation, a fully sealed connection is achieved to protect the joint against the degrading effects of galvanic action, corrosion and environmental exposure

Note: *Not approved for outdoor use.*



Heat-Shrinkable Ring Terminals

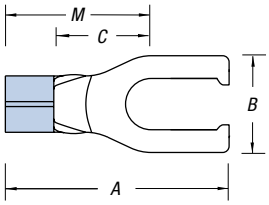




CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RAS18-6X	100	22–18	.170	#6	ERG4255	1.23	.25	.27	1.10	.03
RAS18-8X	100	22–18	.170	#8		1.26	.31	.27	1.10	
RAS18-10X	100	22–18	.170	#10		1.26	.31	.27	1.10	
RBS14-6X	100	16–14	.200	#6		1.23	.25	.27	1.10	
RBS14-8X	100	16–14	.200	#8		1.23	.25	.27	1.10	
RBS14-10X	100	16–14	.200	#10		1.26	.31	.27	1.10	
RCS10-6X	50	12–10	.250	#6		1.34	.31	.27	1.15	.04
RCS10-8X	50	12–10	.250	#8		1.34	.37	.27	1.15	
RCS10-10X	50	12–10	.250	#10		1.34	.37	.27	1.15	
RCS10-14X	50	12–10	.250	¼"		1.34	.49	.32	1.15	

Heat-Shrinkable Locking Fork Terminals





CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	BOLT HOLE	REC. TOOL	DIMENSIONS A	B	C	M	STOCK THICK.
RAS18-6FLX	100	22–18	.170	#6	ERG4255	1.350	.25	—	—	.03
RAS18-8FLX	100	22–18	.170	#8		1.350	.29	—	—	
RAS18-10FLX	100	22–18	.170	#10		1.350	.29	—	—	
RBS14-6FLX	100	16–14	.200	#6		1.350	.25	—	—	
RBS14-8FLX	100	16–14	.200	#8		1.350	.29	—	—	
RBS14-10FLX	100	16–14	.200	#10		1.350	.29	—	—	
RCS10-6FLX	50	12–10	.250	#6		1.350	.31	—	—	.04
RCS10-8FLX	50	12–10	.250	#8		1.350	.37	—	—	
RCS10-10FLX	50	12–10	.250	#10		1.350	.37	—	—	
RCS10-14FLX	50	12–10	.250	¼"		1.350	.49	—	—	

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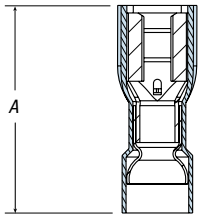
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Tel: 888.862.3289

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Heat-Shrinkable Terminals, Splices, Disconnects

Heat-Shrinkable Fully Insulated Female Disconnects

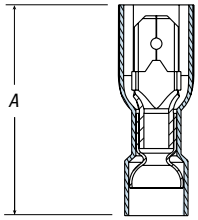
CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	TAB SIZE	REC. TOOL	A
RAS18-250AX	25	22–18	.170	.250 x .032	ERG4255	1.82
RBS14-250AX	25	16–14	.200	.250 x .032		1.77
RCS10-250AX	25	12–10	.250	.250 x .032		1.80





Heat-Shrinkable Fully Insulated Male Tabs

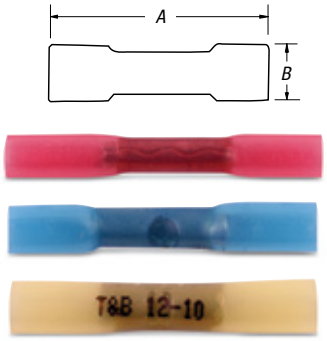
CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	TAB SIZE	REC. TOOL	A
18RAS-251TX	25	22–18	.170	.250 x .032	ERG4255	1.80
14RBS-251TX	25	16–14	.200	.250 x .032		1.75
10RCS-251TX	25	12–10	.250	.250 x .032		1.80





Heat-Shrinkable Butt Splices

CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	REC. TOOL	DIMENSIONS A	DIMENSIONS B
2RAS18X	50	22–18	.170	ERG4255	1.50	.25
RAAS22X	500	22–18	.170		1.50	.25
2RBS14X	50	16–14	.200		1.50	.26
RBBS22X	500	16–14	.200		1.50	.26
2RCS10X	25	12–10	.250		1.60	.31
RCCS22X	250	12–10	.250		1.60	.31



Everything you need to make fully sealed connections in one handy kit.

Heat-Shrink Terminal Kit with Tools

- Tools: (1) butane torch; (1) wire stripper; (1) ratchet crimp tool
- Butt Splices: (20) #22–#18 AWG; (20) #16–#14 AWG; (15) #12–#10 AWG
- Ring Terminals: (20) #16–#14 AWG #10 stud; (2) #16–#14 AWG #8 stud; (15) #12–#10 AWG ¼" stud



CAT. NO.	DESCRIPTION	STD. PKG. QTY.
STAPOUCH-HS	Heat-Shrink Terminal Kit with Tools	1

Disconnects



- Internal barrel serrations and long barrel provide for maximum tensile strength
- Complete line of installing tools, engineered to match tool with terminal
- Funnel-entry insulators enable easier inserting of wire into barrel
- Color coded for easy installation

250 Series — Female Disconnects

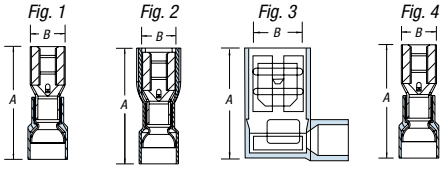
- Female disconnect terminals and matching male tabs accommodate a range of #22–#10 AWG, and are available in non-insulated, partially insulated and fully insulated styles, in both nylon and vinyl
- Unique construction of the female disconnect offers long-term dependability
- Brazed-seam serrated barrel provides maximum tensile strength

187 Series — Female Disconnects

- Quick, reliable method of connection to terminal blocks and boards without the use of tools
- Female disconnect terminals and matching male tabs accommodate a range of #22–#10 AWG, and are available in non-insulated, partially insulated and fully insulated styles, in both nylon and vinyl
- Unique construction of the female disconnect offers long-term dependability

250 Series — Female Disconnects

Fig. 1 *Fig. 2* *Fig. 3* *Fig. 4*



1 ***Nylon self-insulated***



2 ***Vinyl self-insulated***



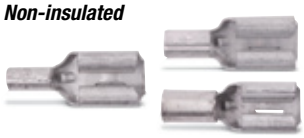
3 ***Nylon fully insulated***



4 ***Nylon open top insulated 90° flag***



5 ***Non-insulated***



6 ***Non-insulated/insulation grip***



	CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	TAB SIZE	FIG.	REC. TOOL	DIMENSIONS A	DIMENSIONS B
1	RA18-250F	100	22–18	.136	.250 x .032	1		.91	.29
	RA250	1,000	22–18	.136	.250 x .032	1		.91	.29
	RB14-250F	100	16–14	.162	.250 x .032	1		.91	.29
	RB250	1,000	16–14	.162	.250 x .032	1		.91	.29
	RC10-250F	50	12–10	.215	.250 x .032	1		1.04	.29
	RC250	500	12–10	.215	.250 x .032	1		1.04	.29
	18RA-250F	100	22–18	.150	.250 x .032	1		.96	.29
	RA257	1,000	22–18	.150	.250 x .032	1		.96	.29
	RA257-170	1,000	22–18	.170	.250 x .032	1		.96	.29
	14RB-250F	100	16–14	.170	.250 x .032	1		.96	.29
2	RB257	1,000	16–14	.170	.250 x .032	1		.96	.29
	RB257-200	1,000	16–14	.200	.250 x .032	1		.96	.29
	10RC-250F	50	12–10	.250	.250 x .032	1	ERG4001	1.03	.29
	RC257	500	12–10	.250	.250 x .032	1		1.03	.29
	18RA-2577	100	22–18	.165	.250 x .032	2		1.01	.38
	RA2573	1,000	22–18	.165	.250 x .032	2		1.01	.38
	14RB-2577	100	16–14	.185	.250 x .032	2		1.01	.38
3	RB2573	1,000	16–14	.185	.250 x .032	2		1.01	.38
	10RC-2577	50	12–10	.225	.250 x .032	2		1.04	.38
	RC2573	500	12–10	.225	.250 x .032	2		1.04	.38
	RA18-250A	50	22–18	.170	.250 x .032	3		.80	.71
	RA2577F	500	22–18	.170	.250 x .032	3		.80	.71
4	RB14-250A	50	16–14	.190	.250 x .032	3		.80	.72
	RB2577F	500	16–14	.190	.250 x .032	3		.80	.72
	RC10-250A	50	12–10	.245	.250 x .032	3		.80	.88
	RC2577F	500	12–10	.245	.250 x .032	3		.80	.88
	A18-250	100	22–18	—	.250 x .032	1		.73	.31
	A250	1,000	22–18	—	.250 x .032	1		.73	.31
5	B14-250	100	16–14	—	.250 x .032	1	ERG4002	.73	.31
	B250	1,000	16–14	—	.250 x .032	1		.73	.31
	C10-250F	50	12–10	—	.250 x .032	1		.73	.31
	C250	500	12–10	—	.250 x .032	1		.73	.31
6	B14-250F	100	16–14	—	.250 x .032	4	WT110M	.87	.31
	B250G	1,000	16–14	—	.250 x .032	4		.87	.31

(Continued on facing page)

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Disconnects and Male Tabs

250 Series — Female Disconnects (continued)

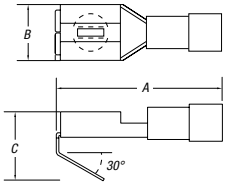
7 *Non-insulated 90° flag*



	CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	TAB SIZE	FIG.	REC. TOOL	DIMENSIONS A	DIMENSIONS B
	A18-250A	50	22–18	—	.250 x .032	3	ERG4002	.58	.61
	A252G	500	22–18	—	.250 x .032	3		.58	.61
7	B14-250A	50	16–14	—	.250 x .032	3		.58	.62
7	B252G	500	16–14	—	.250 x .032	3	ERG4002	.58	.62
	C10-250A	50	12–10	—	.250 x .032	3	ERG4005	.64	.63
	C252G	500	12–10	—	.250 x .032	3		.64	.63

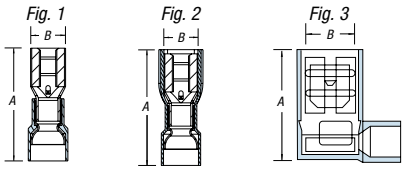
250 Series — Nylon Piggy Back Disconnects





CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	TAB SIZE	REC. TOOL	DIMENSIONS A	DIMENSIONS B	DIMENSIONS C
RA18-250FP	100	22–18	.136	.250 x .032		.87	.30	.43
RA250P	1,000	22–18	.136	.250 x .032	WT112M	.87	.30	.43
RB14-250FP	100	16–14	.163	.250 x .032	ERG4001	.87	.30	.43
RB250P	1,000	16–14	.163	.250 x .032		.87	.30	.43

187 Series — Female Disconnects



1 *Nylon self-insulated*



2 *Vinyl self-insulated*



3 *Nylon fully insulated*



4 *Non-insulated*



5 *Nylon fully insulated 90° flag*



	CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	TAB SIZE	FIG.	REC. TOOL	DIMENSIONS A	DIMENSIONS B
	RAD18-183	100	22–18	.136	.187 x .032	1		.83	.23
	RAD1833	1,000	22–18	.136	.187 x .032	1		.83	.23
	RAD18-182	100	22–18	.136	.187 x .020	1		.83	.23
1	RAD1823	1,000	22–18	.136	.187 x .020	1		.83	.23
	RBD14-183	100	16–14	.163	.187 x .032	1		.83	.23
	RBD1833	1,000	16–14	.163	.187 x .032	1		.83	.23
	RBD14-182	100	16–14	.163	.187 x .020	1		.83	.23
	RBD1823	1,000	16–14	.163	.187 x .020	1		.83	.23
	18RAD-183	100	22–18	.150	.187 x .032	1		.85	.23
	RAD1837	1,000	22–18	.150	.187 x .032	1		.85	.23
	18RAD-182	100	22–18	.150	.187 x .020	1		.85	.23
2	RAD1827	1,000	22–18	.150	.187 x .020	1	ERG4001	.85	.23
	14RBD-183	100	16–14	.170	.187 x .032	1		.85	.23
	RBD1837	1,000	16–14	.170	.187 x .032	1		.85	.23
	14RBD-182	100	16–14	.170	.187 x .020	1		.85	.23
	RBD1827	1,000	16–14	.170	.187 x .020	1		.85	.23
	18RAD-18377	100	22–18	.150	.187 x .032	2		.89	.30
	RAD18377	1,000	22–18	.150	.187 x .032	2		.89	.30
	18RAD-18277	100	22–18	.150	.187 x .020	2		.89	.30
3	RAD18277	1,000	22–18	.150	.187 x .020	2		.89	.30
	14RBD-18377	100	16–14	.170	.187 x .032	2		.89	.30
	RBD18377	1,000	16–14	.170	.187 x .032	2		.89	.30
	14RBD-18277	100	16–14	.170	.187 x .020	2		.89	.30
	RBD18277	1,000	16–14	.170	.187 x .020	2		.89	.30
	AD18-183	100	22–18	—	.187 x .032	1		.64	.23
	AD183	1,000	22–18	—	.187 x .032	1		.64	.23
	AD18-182	100	22–18	—	.187 x .020	1		.64	.23
4	AD182	1,000	22–18	—	.187 x .020	1	ERG4002	.64	.23
	BD14-183	100	16–14	—	.187 x .032	1		.64	.23
	BD183	1,000	16–14	—	.187 x .032	1		.64	.23
	BD14-182	100	16–14	—	.187 x .020	1		.64	.23
	RAD18-187A	50	22–18	.150	.187 x .032	3		.74	.59
	RAD1877F	500	22–18	.150	.187 x .032	3		.74	.59
	RAD18-188A	50	22–18	.150	.187 x .020	3		.74	.59
5	RAD1887F	500	22–18	.150	.187 x .020	3	ERG4001	.74	.59
	RBD14-187A	50	16–14	.170	.187 x .032	3		.74	.61
	RBD1877F	500	16–14	.170	.187 x .032	3		.74	.61
	RBD14-188A	50	16–14	.170	.187 x .020	3		.74	.61
	RBD1887F	500	16–14	.170	.187 x .020	3		.74	.61

UL Listed E66716

Disconnects and Male Tabs

Select the tabs you need!

250 Series — Male Tabs

1 *Vinyl self-insulated*



2 *Nylon fully insulated*

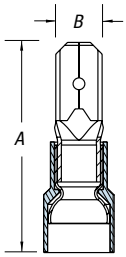


3 *Non-insulated/insulated grip*



4 *Non-insulated*

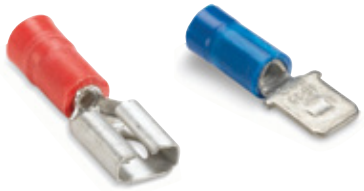


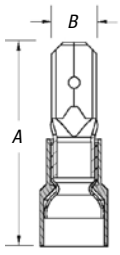


	CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	TAB SIZE	REC. TOOL	DIMENSIONS A	DIMENSIONS B
	18RA-250T	100	22–18	.150	.250 x .032		.95	—
	RA2517	1,000	22–18	.150	.250 x .032		.95	—
1	14RB-250T	100	16–14	.170	.250 x .032		.95	—
	RB2517	1,000	16–14	.170	.250 x .032		.95	—
	10RC-250T	50	12–10	.250	.250 x .032		1.08	—
	RC2517	500	12–10	.250	.250 x .032	ERG4001	1.08	—
	18RA-251T	50	22–18	.150	.250 x .032		1.13	.45
	RA25177	500	22–18	.150	.250 x .032		1.13	.45
2	14RB-251T	50	16–14	.170	.250 x .032		1.13	.45
	RB25177	500	16–14	.170	.250 x .032		1.13	.45
	10RC-251T	25	12–10	.210	.250 x .032		1.17	.45
	RC25177	500	12–10	.210	.250 x .032		1.17	.45
3	A18-250T	100	22–18	—	.250 x .032	WT110M	.87	—
	B14-250T	100	20–14	—	.250 x .032		.87	—
	A18-251T	100	22–18	—	.250 x .032		.68	—
	A251	1,000	22–18	—	.250 x .032		.68	—
4	B14-251T	100	16–14	—	.250 x .032	ERG4002	.68	—
	B251	1,000	16–14	—	.250 x .032		.68	—
	C10-251T	50	12–10	—	.250 x .032		.68	—

187 Series — Male Tabs

5 *Vinyl insulated*





	CAT. NO.	PKG. QTY.	TAB SIZE	WIRE RANGE	MAX. INS.	REC. TOOL	DIA. A	DIA. B
5	18RAD-187	100	.187 x .032	22–18	.150		.87	—
	18RAD-188	100	.187 x .020	22–18	.150	ERG4001	.87	—
	14RBD-187	100	.187 x .032	16–14	.170		.87	—
	14RBD-188	100	.187 x .020	16–14	.170		.87	—

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Disconnects and Male Tabs

Insulated coupler requires no tool!

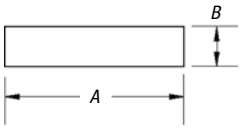
250 Series — Adapters and Coupler†

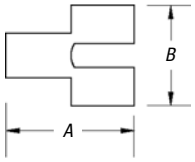
6 *Non-insulated*



7 *Insulated coupler*







	CAT. NO.	PKG. QTY.	TAB SIZE	DIA. A	DIA. B
	F250TA	50	.250 x .032	.82	.56
6	FTA250	1,000	.250 x .032	.82	.56
	RB14-250	50	.250 x .032	2.35	.51
7	RBB250	500	.250 x .032	2.35	.51

† *Not UL Listed*
*Cat. No. F250TA — **Material:** brass **Finish:** tin plated*
*Cat. No. RB14-250 — **Material:** brass **Finish:** none **Insulation:** vinyl*

Available in variety of wire ranges!

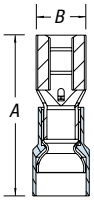
110 Series — Disconnects*

8 *Nylon-insulated*



9 *Non-insulated*





	CAT. NO.	PKG. QTY.	TAB SIZE	WIRE RANGE	MAX. INS.	REC. TOOL	DIA. A	DIA. B
	RA18-110F	100	.110 x .032	22–18	.110	ERG4006	.75	.15
	RA10-SK	1,000	.110 x .032	22–18	.110		.75	.15
	RA18-111F	100	.110 x .020	22–18	.110		.75	.15
8	RA11	1,000	.110 x .020	22–18	.110		.75	.15
	RB14-110F	100	.110 x .032	16–14	.135		.75	.15
	RB10-SK	1,000	.110 x .032	16–14	.135		.75	.15
	RB14-111F	100	.110 x .020	16–14	.135		.75	.15
	RB11-TB	1,000	.110 x .020	16–14	.135		.75	.15
	A18-110F	100	.110 x .032	22–18	—	WT111M WT112M WT2000	.59	.15
	A10-TB	1,000	.110 x .032	22–18	—		.59	.15
	A18-111F	100	.110 x .020	22–18	—		.59	.15
9	A11	1,000	.110 x .020	22–18	—		.59	.15
	B14-110F	100	.110 x .032	16–14	—		.59	.15
	B10-TB	1,000	.110 x .032	16–14	—		.59	.15
	B14-111F	100	.110 x .020	16–14	—		.59	.15
	B11-TB	1,000	.110 x .020	16–14	—		.59	.15

** Not UL Listed or CSA approved.*

Choose from nylon-insulated or non-insulated!

Wristlock Disconnects†

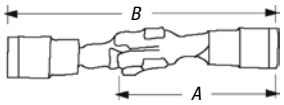
10 *Nylon-Insulated wristlock disconnects*



11 *Non-Insulated wristlock disconnects*



Picture shows wristlock disconnect assembled as two pieces. Parts are sold by the piece not by assemblies.



	CAT. NO.	PKG. QTY.	WIRE RANGE	MAX. INS.	REC. TOOL	DIA. A	DIA. B
	RA18D	50	22–18	.136	WT2000	.99	1.70
10	RA23	1,000	22–18	.136		.99	1.70
	RB14D	50	16–14	.162		.99	1.70
	RB23	1,000	16–14	.162		.99	1.70
11	B14-D	50	16–14	.187	WT110M	.97	1.66
	B23	1,000	16–14	.187		.97	1.66

† *Not UL Listed*

Luminaire Disconnects

Disconnect ballasts under load for safe servicing — in compliance with NEC® requirements.

Push-In Luminaire Disconnect

Each year, electricians sustain injuries while attempting to change ballasts without tripping the breaker because they're trying to avoid disconnecting other lighting and equipment from power. That's why recent changes to NEC® and UL standards require a means of disconnecting power to non-residential fluorescent lighting ballasts.

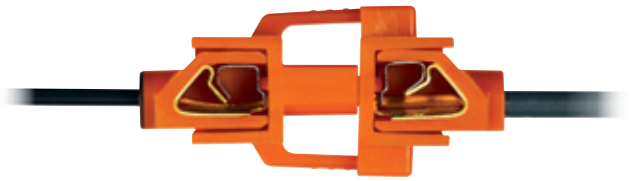
In 2006, Thomas & Betts developed the first UL Listed product to meet this need. Now, in response to customer demand, the new Sta-Kon® Push-In Luminaire Disconnect provides all the same safety benefits as the original, but installs even faster and easier.

- Enables electricians changing ballasts to easily disconnect incoming power for safe servicing without having to trip the main power breaker
- Installs easily — just strip de-energized wires and insert
- Disconnect halves snap together and separate easily — but won't accidentally disconnect
- Foolproof design eliminates the potential for incorrect installation and reverse polarity
- Fits through ½" knockouts for easy retrofit
- Ballast hot-lead wire entry is color-coded black for easy visibility
- Finger-safe on both sides
- For use in all non-residential fluorescent lighting applications and in ordinary location HID lighting applications — both up to 600V, 4A maximum
- Complies with NEC®, CEC, UL and CSA requirements
- Sold in mated pairs (male/line and female/load sides)



Specifications

- Housing: Polycarbonate
- Temperature Rating: 105° C (221° F) max.
- Electrical Rating: 600V, 4A max.
- Flammability Rating: UL94V-2
- Contacts: Copper alloy
- Wire Range: #18–#12 AWG solid copper
  #14–#12 AWG stranded copper
  (19 strands or fewer)
- Standards: Complies with 2008 NEC® 410.130(G), CEC 30-308(4) and UL 2459
- Certifications: UL Listed, CSA Certified



This cutaway shows how the Sta-Kon® Luminaire Disconnect grips and holds the pushed-in wires securely after installation.

Sta-Kon® Push-In Luminaire Disconnect

CAT. NO.	DESCRIPTION	STD. PKG. QTY.
LD2P-Q	2-Wire Push-In Luminaire Disconnect, Distributor Pack	25
LD2P-D	2-Wire Push-In Luminaire Disconnect, Bulk Packaging	500

***Note**: If you prefer lead wires instead of a push-in design and/or need a 3-wire disconnect for switching or dimming applications, order the original Sta-Kon® Luminaire Disconnect, 2-wire Cat. No. LD2 (Cat. No. LD2-D for bulk packaging) or 3-wire Cat. No. LD3 (Cat. No. LD3-D for bulk packaging). See following page.*

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

Thomas&Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

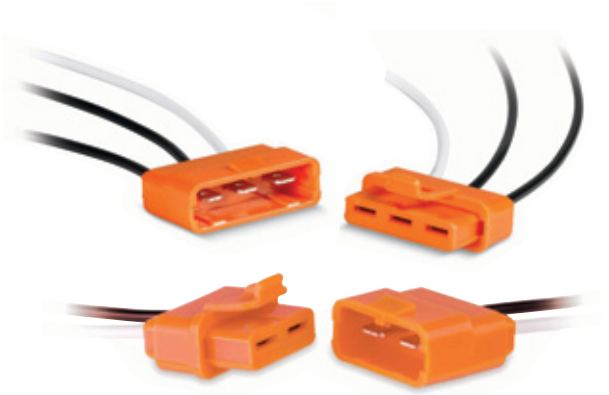
Technical Services
Tel: 888.862.3289

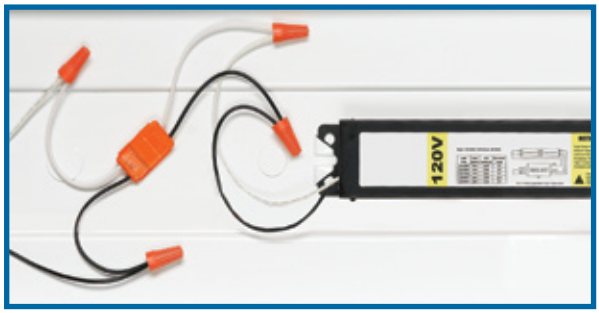
www.tnb.com

Luminaire Disconnects

Meets 2011 NEC® requirements for fluorescent fixtures and ballasts!

Luminaire Disconnects





- Oversized electrical contacts improve conductivity and reduce temperature rise
- Integral wire leads ease installation — even with multiple wire sizes — and support connection to copper or aluminum wiring
- Foolproof design ensures mating halves of disconnect are installed correctly, preventing reverse polarization
- Finger-safe line side protects installer and enables safe servicing without disconnecting power
- Line and load indications clearly identified on each half
- Rounded, compact design fits in tight spaces
- Bright orange for instant identification as a safety device

Specifications

- Housing: Polycarbonate
- Contacts: Tin-plated brass
- Integral Leads: Insulated #18 AWG solid copper
- Temp. Rating: 105° C
- Flammability: UL94V-2 (V-0 available on request)
- Electrical Rating: 4A, 600V
- Standards: UL Listed E07134, CSA Certified, NEC® Section 410.130(G) 2011 edition compliant

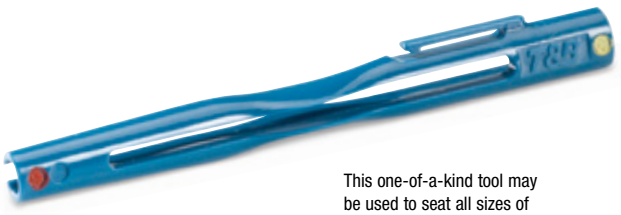
NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

CAT. NO.	DESCRIPTION	PKG. QTY.
Bulk Packaging for OEMs		
LD2-D	2-Pole Luminaire Disconnect	500
LD3-D	3-Pole Luminaire Disconnect	500
Kits for Servicing Electricians (includes two male/line half and two female/load half of the luminaire disconnect, polybagged with installation instructions)		
LD2	2-Pole Luminaire Disconnect Kit	20
LD3	3-Pole Luminaire Disconnect Kit	20

Faster, easier and safer than manual seating of disconnects!

Disconnect Installation Tool

- Perfect for wire-harness assemblers and panel builders
- Dual-ended with slots to fit red and blue (male and female) or yellow disconnects
- Color-coded dots for easy matching of disconnect with correct tool end
- Lightweight and only 5⅛" long — fits in a shirt pocket like a pen



This one-of-a-kind tool may be used to seat all sizes of Thomas & Betts disconnects.

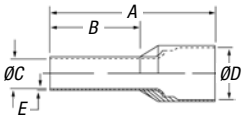
CAT. NO.	DESCRIPTION	PKG. QTY.
DT22-10	Sta-Kon® Disconnect Installation Tool	1

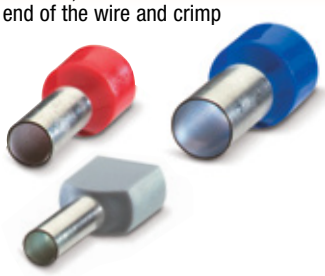
Ferrules

Insulated Ferrules

Features

- Ferrules ensure reliable electrical connections when terminating conductors in screw clamp terminal blocks
- Fraying and breaking of wire strands is prevented and the possibility of an unreliable connection is minimized
- Insulated ferrules prevent conductor breakage due to bending, wire stress or vibration, while facilitating wire insertions into the terminal block clamp
- Ferrules are the preferred alternative to twisting wire stands or tinning the wire end before terminating into a terminal block
- Ferrules are thin-walled copper tubes, which are mechanically crimped onto the ends of stranded wires
- They are easy to use — simply strip the wire, slide the ferrule onto the end of the wire and crimp
- Meets emerging global standards, requiring wire-to-metric style terminal block installations to be terminated with a "pin" style terminal
- Vinyl insulated, nylon insulated, and non-insulated styles
- All styles offered in #22 AWG to #10 AWG and compatible with existing Sta-Kon® tooling





How to Apply a Ferrule

- Strip the insulation from the end of the wire and insert into the insulated end of the ferrule
- Using the designated crimping tool, place the metal shaft into the tool's appropriate slot. Compress the tool to make a crescent-shape depression along the length of the ferrule
- Insert the crimped ferrule into the terminal block
- Tighten the ferrule and wire into the terminal block

Materials

- High-conductivity copper
- Tin plating

CAT. NO.	CONDUCTOR SECTION AWG	CONDUCTOR SECTION MM²	COLOR	DIMENSIONS INCHES/MM A	B	ØC	ØD	E	INSTALLATION TOOLING	PKG. QTY.
F4004	26	.14	Gray	.413/10.5	.236/6.0	.031/.80	.079/2.0	.010/.25	T3, ERG4	500
F4005	26	.14		.492/12.5	.315/8.0	.031/.80	.079/2.0	.010/.25	T3, ERG4	500
F4006	24	.25	Yellow	.413/10.5	.236/6.0	.031/.80	.079/2.0	.010/.25	T3, ERG4	500
F4007	24	.25		.492/12.5	.315/8.0	.031/.80	.079/2.0	.010/.25	T3, ERG4	500
F4008	22	.34	Purple	.413/10.5	.236/6.0	.031/.80	.079/2.0	.010/.25	T3, ERG4	500
F4009	22	.34		.492/12.5	.315/8.0	.031/.80	.079/2.0	.010/.25	T3, ERG4	500
F2020	20	.50	White	.453/11.5	.236/6.0	.043/1.1	.098/2.5	.006/.15	T1, T3 & ERG4	500
F2021	20	.50		.531/13.5	.315/8.0	.043/1.1	.098/2.5	.006/.15	T1, T3 & ERG4	500
F2022	20	.50		.610/15.5	.394/10.0	.043/1.1	.098/2.5	.006/.15	T1, T3 & ERG4	500
F2023	18	.75	Gray	.472/12.0	.236/6.0	.051/1.3	.110/2.8	.006/.15	T1, T3 & ERG4	500
F2024	18	.75		.551/14.0	.315/8.0	.051/1.3	.110/2.8	.006/.15	T1, T3 & ERG4	500
F2025	18	.75		.630/16.0	.394/10.0	.051/1.3	.110/2.8	.006/.15	T1, T3 & ERG4	500
F2026	18	.75		.709/18.0	.472/12.0	.051/1.3	.110/2.8	.006/.15	T1, T3 & ERG4	500
F2027	18	1.00	Red	.492/12.5	.236/6.0	.059/1.5	.118/3.0	.006/.15	T1, T3 & ERG4	500
F2028	18	1.00		.571/14.5	.315/8.0	.059/1.5	.118/3.0	.006/.15	T1, T3 & ERG4	500
F2029	18	1.00		.650/16.5	.394/10.0	.059/1.5	.118/3.0	.006/.15	T1, T3 & ERG4	500
F2030	18	1.00		.728/18.5	.472/12.0	.059/1.5	.118/3.0	.006/.15	T1, T3 & ERG4	500
F2031	16	1.50	Black	.571/14.5	.315/8.0	.071/1.8	.134/3.4	.006/.15	T1, T3 & ERG4	500
F2032	16	1.50		.650/16.5	.394/10.0	.071/1.8	.134/3.4	.006/.15	T1, T3 & ERG4	500
F2033	16	1.50		.728/18.5	.472/12.0	.071/1.8	.134/3.4	.006/.15	T1, T3 & ERG4	500
F2034	16	1.50		.965/24.5	.708/18.0	.071/1.8	.134/3.4	.006/.15	T1, T3 & ERG4	500
F2035	14	2.50	Blue	.591/15.0	.315/8.0	.091/2.3	.165/4.2	.006/.15	T1, T3 & ERG4	500
F2036	14	2.50		.748/19.0	.472/12.0	.091/2.3	.165/4.2	.006/.15	T1, T3 & ERG4	500
F2037	14	2.50		.984/25.0	.708/18.0	.091/2.3	.165/4.2	.006/.15	T1, T3 & ERG4	500
F2038	12	4.00	Gray	.889/17.5	.394/10.0	.114/2.9	.189/4.8	.008/.20	T3 & ERG4	500
F2039	12	4.00		.787/20.0	.472/12.0	.114/2.9	.189/4.8	.008/.20	T3 & ERG4	500
F2040	12	4.00		1.024/26.0	.708/18.0	.114/2.9	.189/4.8	.008/.20	T3 & ERG4	100
F2041	10	6.00	Yellow	.787/20.0	.472/12.0	.142/3.6	.244/6.2	.008/.20	T3 & ERG4	100
F2042	10	6.00		.984/25.0	.708/18.0	.142/3.6	.244/6.2	.008/.20	T3 & ERG4	100
F2043	8	10.00	Red	.827/21.0	.472/12.0	.181/4.6	.295/7.5	.008/.20	T3 & ERG4	100
F2044	8	10.00		1.063/27.0	.708/18.0	.181/4.6	.295/7.5	.008/.20	T3 & ERG4	100
F2045	6	16.00	Blue	.906/23.0	.472/12.0	.236/6.0	.346/8.8	.008/.20	ERG4	100
F2046	6	16.00		1.142/29.0	.708/18.0	.236/6.0	.346/8.8	.008/.20	ERG4	50
F2047	4	25.00	Yellow	1.142/29.0	.630/18.0	.295/7.5	.433/11.0	.008/.20	ERG4	50
F2048	4	25.00		1.220/31.0	.708/18.0	.295/7.5	.433/11.0	.008/.20	ERG4	50
F2049	4	25.00		1.378/35.0	.866/22.0	.295/7.5	.433/11.0	.008/.20	ERG4	50
F2050	2	35.00	Red	1.181/30.0	.630/16.0	.335/8.5	.492/12.5	.008/.20	ERG4	50
F2051	2	35.00		1.260/32.0	.708/18.0	.335/8.5	.492/12.5	.008/.20	ERG4	50
F2052	2	35.00		1.535/39.0	.984/25.0	.335/8.5	.492/12.5	.008/.20	ERG4	50
F2053	1/0	50.00	Blue	1.417/36.0	.787/20.0	.413/10.5	.591/15.0	.014/.35	ERG4	50
F2054	1/0	50.00		1.614/41.0	.984/25.0	.413/10.5	.591/15.0	.014/.35	ERG4	50

Ferrule dimensions conform to DIN 46228, Part 4.

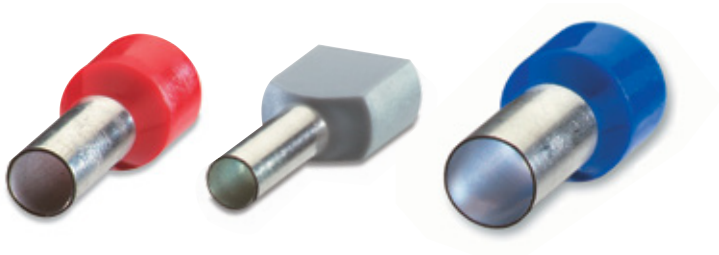
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Fax: 901.252.1354

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Tel: 888.862.3289

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Strip Lengths on Insulated Ferrules



CAT. NO.	PIN LENGTH (IN.)	MIN. STRIP LENGTH (IN.)	MAX. STRIP LENGTH (IN.)
F2020	.236	.3147	.354
F2021	.315	.3937	.433
F2022	.394	.4727	.512
F2023	.236	.3147	.354
F2024	.315	.3937	.433
F2025	.394	.4727	.512
F2026	.472	.5507	.59
F2027	.236	.3147	.354
F2028	.315	.3937	.433
F2029	.394	.4727	.512
F2030	.472	.5507	.59
F2031	.315	.3937	.433
F2032	.394	.4727	.512
F2033	.472	.5507	.59
F2034	.708	.7867	.826
F2035	.315	.3937	.433
F2036	.472	.5507	.59
F2037	.708	.7867	.826
F2038	.394	.4727	.512
F2039	.472	.5507	.59
F2040	.708	.7867	.826
F2041	.472	.5507	.59
F2042	.708	.7867	.826
F2043	.472	.5507	.59
F2044	.708	.7867	.826
F2045	.472	.5507	.59
F2046	.708	.7867	.826
F2047	.63	.7087	.748
F2048	.708	.7867	.826
F2049	.866	.9447	.984
F2050	.53	.6087	.648
F2051	.708	.7867	.826
F2052	.984	1.0627	1.102
F2053	.787	.8657	.905
F2054	.984	1.0627	1.102

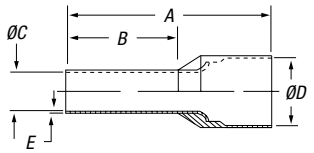
CAT. NO.	PIN LENGTH (IN.)	MIN. STRIP LENGTH (IN.)	MAX. STRIP LENGTH (IN.)
F4000	.315	.3937	.433
F4001	.315	.3937	.433
F4002	.315	.3937	.433
F4003	.315	.3937	.433
F4004	.236	.3147	.354
F4005	.315	.3937	.433
F4006	.236	.3147	.354
F4007	.315	.3937	.433
F4008	.236	.3147	.354
F4009	.315	.3937	.433
F4020	.315	.3937	.433
F4021	.315	.3937	.433
F4022	.315	.3937	.433
F4023	.315	.3937	.433
F4024	.315	.3937	.433
F4027	.315	.3937	.433
F4028	.315	.3937	.433

Note: *The thicker the insulation, the longer the strip length should be.*

Ferrules

Insulated Twin Ferrules



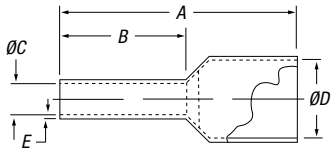


CAT. NO.	CONDUCTOR SECTION AWG	CONDUCTOR SECTION MM	COLORS	DIMENSIONS INCHES/MM A	B	ØC	ØD	E	INSTALLATION TOOLING	PKG. QTY.
F8000	2x 20	2x 0.50	White	.591/15.0	.315/8.0	.059/1.5	.177/4.5	.010/.25	T3	500
F8001	2x 18	2x 0.75	Gray	.591/15.0	.315/8.0	.071/1.8	.201/5.1	.010/.25	T3	500
F8002	2x 18	2x 0.75		.669/17.0	.394/10.0	.071/1.8	.201/5.1	.006/.15	T3	500
F8003	2x 17	2x 1.00	Red	.591/15.0	.315/8.0	.081/2.05	.201/5.1	.006/.15	T3	500
F8005	2x 17	2x 1.00		.669/17.0	.394/10.0	.081/2.05	.201/5.1	.006/.15	T3	500
F8006	2x 16	2x 1.50	Black	.630/16.0	.315/8.0	.091/2.3	.252/6.4	.006/.15	T3	500
F8007	2x 16	2x 1.50		.787/20.0	.472/12.0	.091/2.3	.252/6.4	.006/.15	T3	500
F8008	2x 14	2x 2.50	Blue	.728/18.5	.394/10.0	.114/2.9	.295/7.5	.006/.15	T3	500
F8009	2x 14	2x 2.50		.846/21.5	.512/13.0	.114/2.9	.295/7.5	.006/.15	T3	500
F8010	2x 12	2x 4.00	Gray	.906/23.0	.472/12.0	.150/3.8	.339/8.6	.006/.15	ERG4/6MM DIE	100
F8011	2x 10	2x 6.00	Yellow	.984/25.0	.551/14.0	.193/4.9	.378/9.6	.008/.20	ERG4/10MM DIE	100

Ferrule dimensions conform to DIN 46228, Part 4.

Insulated Ferrules (Old DIN and French Standards)





CAT. NO.	STYLE	CONDUCTOR SECTION AWG	CONDUCTOR SECTION MM	COLORS	DIMENSIONS INCHES/MM A	B	ØC	ØD	E	INSTALLATION TOOLING	PKG. QTY.
F4000	OLD DIN	20	0.50	Orange	.571/14.5	.315/8.0	.043/1.1	.102/2.6	.006/.15	T1, T3 & ERG4	500
F4001	OLD DIN	18	0.75	White	.571/14.5	.315/8.0	.051/1.3	.110/2.8	.006/.15	T1, T3 & ERG4	500
F4002	OLD DIN	18–17	1.00	Yellow	.571/14.5	.315/8.0	.059/1.5	.118/3.0	.006/.15	T1, T3 & ERG4	500
F4003	OLD DIN	16	1.50	Red	.571/14.5	.315/8.0	.071/1.8	.134/3.4	.006/.15	T1, T3 & ERG4	500
F4020	OLD DIN	14	2.50	Blue	.571/14.5	.315/8.0	.091/2.3	.165/4.2	.006/.15	T1, T3 & ERG4	500
F4021	FRENCH	20	0.50	White	.571/14.5	.315/8.0	.043/1.1	.102/2.6	.006/.15	T1, T3 & ERG4	500
F4023	FRENCH	18	0.75	Lt. Blue	.571/14.5	.315/8.0	.051/1.3	.110/2.8	.006/.15	T1, T3 & ERG4	500
F4024	FRENCH	18–17	1.00	Red	.571/14.5	.315/8.0	.059/1.5	.118/3.0	.006/.15	T1, T3 & ERG4	500
F4027	FRENCH	16	1.50	Black	.571/14.5	.315/8.0	.071/1.8	.134/3.4	.006/.15	T1, T3 & ERG4	500
F4028	FRENCH	14	2.50	Gray	.571/14.5	.315/8.0	.091/2.3	.165/4.2	.006/.15	T1, T3 & ERG4	500

Ferrule dimensions conform to DIN 46228, Part 4.

The crimping tools you need!

Tooling for Sta-Kon® Insulated Ferrules

CAT. NO.	DESCRIPTION	PKG. QTY.
T1	Sta-Kon® Crimp Tool for wire ferrules #20–#14 AWG — insulated handle.	1
T3	Sta-Kon® Crimp Tool for wire ferrules #26–#10 AWG — insulated handle.	1
ERG4	Comfort Crimp® Sta-Kon® Crimp Tool with Shure-Stake® mechanism, for installing wire ferrules #26–1/0 AWG. Four interchangeable die sets included. Insulated handle. Packaged in sturdy plastic carrying case.	1


T1


ERG4


T3

Thomas&Betts

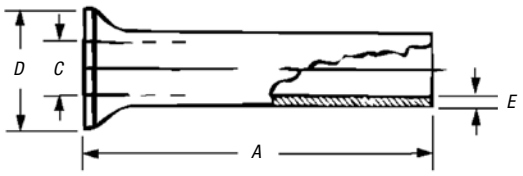
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Ferrules

Non-Insulated Ferrules





CAT. NO.	CONDUCTOR SECTION AWG	CONDUCTOR SECTION MM	DIMENSIONS INCHES/MM A	C	D	E	INSTALLATION TOOLING	PKG. QTY.
F9000	24	.25	.196/5	.030/.75	.067/1.7	.006/.15	T1, ERG4 T3	1,000
F9001	22	.5	.236/6	.039/1.0	.083/2.1	.006/.15	T1, T3, ERG4	1,000
F9002	22	.5	.394/10	.039/1.0	.083/2.1	.006/.15	T1, T3, ERG4	1,000
F9003	18	.75	.236/6	.047/1.2	.091/2.3	.006/.15	T1, T3, ERG4	1,000
F9004	18	.75	.394/10	.047/1.2	.091/2.3	.006/.15	T1, T3, ERG4	1,000
F9005	18	1	.236/6	.055/1.4	.098/2.5	.006/.15	T1, T3, ERG4	1,000
F9006	18	1	.394/10	.055/1.4	.098/2.5	.006/.15	T1, T3, ERG4	1,000
F9007	16	1.5	.276/7	.067/1.7	.110/2.8	.006/.15	T1, T3, ERG4	1,000
F9008	16	1.5	.394/10	.067/1.7	.110/2.8	.006/.15	T1, T3, ERG4	1,000
F9009	16	1.5	.473/12	.067/1.7	.110/2.8	.006/.15	T1, T3, ERG4	1,000
F9010	16	1.5	.709/18	.067/1.7	.110/2.8	.006/.15	T1, T3, ERG4	1,000
F9011	14	2.5	.276/7	.087/2.2	.139/3.4	.006/.15	T1, T3, ERG4	1,000
F9012	14	2.5	.394/10	.087/2.2	.139/3.4	.006/.15	T1, T3, ERG4	1,000
F9013	14	2.5	.472/12	.087/2.2	.139/3.4	.006/.15	T1, T3, ERG4	1,000
F9014	14	2.5	.709/18	.087/2.2	.139/3.4	.006/.15	T1, T3, ERG4	1,000
F9015	12	4	.354/9	.110/2.8	.158/4	.008/.2	T3, ERG4	1,000
F9016	12	4	.472/12	.110/2.8	.158/4	.008/.2	T3, ERG4	1,000
F9017	12	4	.591/15	.110/2.8	.158/4	.008/.2	T3, ERG4	1,000
F9018	12	4	.709/18	.110/2.8	.158/4	.008/.2	T3, ERG4	1,000
F9019	10	6	.472/12	.138/3.5	.185/4.7	.008/.2	T3, ERG4	1,000
F9020	10	6	.591/15	.138/3.5	.185/4.7	.008/.2	T3, ERG4	1,000
F9021	10	6	.709/18	.138/3.5	.185/4.7	.008/.2	T3, ERG4	1,000
F9022	8	10	.472/12	.177/4.5	.228/5.8	.008/.2	ERG4	500
F9023	8	10	.591/15	.177/4.5	.228/5.8	.008/.2	ERG4	500
F9024	8	10	.709/18	.177/4.5	.228/5.8	.008/.2	ERG4	500
F9025	6	16	.472/12	.228/5.8	.295/7.5	.008/.2	ERG4	250
F9026	6	16	.591/15	.228/5.8	.295/7.5	.008/.2	ERG4	250
F9027	6	16	.709/18	.228/5.8	.295/7.5	.008/.2	ERG4	250
F9028	6	16	.984/25	.228/5.8	.295/7.5	.008/.2	ERG4	250
F9029	6	16	1.26/32	.228/5.8	.295/7.5	.008/.2	ERG4	250
F9030	4	25	.591/15	.287/7.3	.374/9.5	.010/.25	ERG4	100
F9031	4	25	.709/18	.287/7.3	.374/9.5	.010/.25	ERG4	100
F9032	4	25	.984/25	.287/7.3	.374/9.5	.010/.25	ERG4	100
F9033	4	25	1.26/32	.287/7.3	.374/9.5	.010/.25	ERG4	100
F9034	2	35	.709/18	.327/8.3	.433/11	.010/.25	ERG4	100
F9035	2	35	.984/25	.327/8.3	.433/11	.010/.25	ERG4	100
F9036	2	35	1.26/32	.327/8.3	.433/11	.010/.25	ERG4	100
F9037	1/0	50	.709/18	.406/10.3	.512/13	.012/.3	TB5095, ERG4	100
F9038	1/0	50	.984/25	.406/10.3	.512/13	.012/.3	TB5095, ERG4	100
F9039	1/0	50	1.18/30	.406/10.3	.512/13	.012/.3	TB5095, ERG4	100

Wire Termination Tools and Installation Kits

Convenient 20-count packaging!

Sta-Kon® Mini-Pack Terminals



- Wire ranges from #22 AWG to #10 AWG
- Vinyl insulated ring and forked-tongued terminals, female disconnects, butt-type splice connectors

Note: *"CP" designates mini-pack quantities. Refer to other catalog pages for description and dimensional information.*

CAT. NO.	UNIT QTY.	PKG. QTY.	WIRE RANGE	BOLT HOLE
18RA-6FCP	20	100	22–18	#6
18RA-8CP	20	100	22–18	#8
18RA-10CP	20	100	22–18	#10
14RB-6CP	20	100	16–14	#6
14RB-8CP	20	100	16–14	#8
14RB-10CP	20	100	16–14	#10
10RC-10CP	20	100	12–10	#10
10RC-14CP	20	100	12–10	¼
18RA-8FCP	20	100	22–18	#8
18RA-10FCP	20	100	22–18	#10
14RB-6FCP	20	100	16–14	#6
14RB-8FCP	20	100	16–14	#8
14RB-10FCP	20	100	16–14	#10
10RC-8FCP	20	100	12–10	#8
10RC-10FCP	20	100	12–10	10
2RA18XCP	20	100	22–18	—
2RB14XCP	20	100	16–14	—
2RC10XCP	20	100	12–10	—
18RA-250FCP	20	100	22–18	—
14RB-250FCP	20	100	16–14	—
10RC-250FCP	20	100	12–10	—

Perfect for residential or light commercial installations!

Sta-Kit® Installing Kit



- Assortment of popular Sta-Kon® vinyl terminals
- Kit includes a WT112M crimping tool
- Includes cable ties and wire marker book

CAT. NO.	DESCRIPTION	PKG. QTY.
STAKIT	Assortment of Sta-Kon® vinyl terminals, splices and disconnects. Includes crimp tool, cable ties and wire book marker	1

Lightweight, durable, nylon construction!

Sta-Org® Terminal and Splice Organizer Kit



- Ideal for contractors, OEMs or any other user of terminals and splices
- Slips in a tool box or sits on your bench — only 6.6"L x 3" dia.
- Bench-mountable (hardware included)

Kit Contents

- (1) blue nylon organizer/carrier
- (6) see-through nylon canisters with lids
- (20) #12–#10 AWG vinyl ring terminals (Cat. No. 10RC-10)
- (25) #18–#14 AWG vinyl ring terminals (Cat. No. 14RB-10)
- (15) #12–#10 AWG vinyl butt splices (Cat. No. 2RC-10X)
- (25) #18–#14 AWG vinyl butt splices (Cat. No. 2RB-14X)
- (20) #12–#10 AWG vinyl fork terminals (Cat. No. 10RC-10F)
- (25) #18–#14 AWG vinyl fork terminals (Cat. No. 14RB-10F)

CAT. NO.	DESCRIPTION	PKG. QTY.
STA-ORG	Sta-Kon® Sta-Org® Terminal and Splice Organizer Kit	1

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Wire Termination Tools and Installation Kits

Recommended Tools

The Shure-Stake® mechanism on mechanical ratchet tools and power tools prevents the dies from releasing the terminal until the proper compression has been completed. With this method, an operator achieves a reliable crimp every time. Thomas & Betts tooling techniques correctly match tools, wire size, and terminal to produce optimum mechanical and electrical performance.



Plier type if installations are fewer than 20 per day



WT112M

Ratchet type if installations are more than 20 per day



ERG4001

Power type if installations are more than 200 per day

12050



Used for installation of various Sta-Kon® terminal series.

Plier-Type Tools



WT110M



WT111M



WT112M



WT161M



WT2000

CAT. NO.	DESCRIPTION	PKG. QTY.
WT110M	A, B, C non-insulated terminal and splices and A, B non-insulated terminals with insulation grip	1
WT111M	A, B, C, PT non-insulated terminal and splices; includes cutters	1
WT112M	A, B, C non-insulated and RA, RB, RC insulated nylon and vinyl terminal and splices; includes cutters	1
WT161M	A, B, C, PT non-insulated terminal and splices; includes plier grip and cutters	1
WT2000	A, B, C, AB, PT, RA, RB, RC insulated and non-insulated terminal and splices; includes wire cutters, bolt cutters and wire stripper	1

Wire Termination Tools and Installation Kits

Redesigned family of termination tools sets a new standard for manual crimping tools!

Comfort Crimp® Compression Tools

The most comfortable crimp available from a manual compression tool!

Sta-Kon® Comfort Crimp® Compression Tools previously set the standard for manual crimp tools. Now, Thomas & Betts engineers have made a great line of tools even better with the newly redesigned Sta-Kon® Comfort Crimp® Compression Tools. We kept all the performance features that made the tools industry leaders such as the Shure-Stake® mechanism and interchangeable dies with color-coded die nests, and focused on creating the best possible user experience in terms of comfort and reduction of strain.

Ergonomic handles position the user's hands correctly to minimize the risk of strain, and soft, over-molded grips cushion fingers and palm for user comfort. A new Crimp-Assist™ foot stabilizes the tool when the user needs to place it on a work surface for leverage to crimp larger connectors. Best of all, the redesigned Comfort Crimp® tools require 25% less handle force to complete the crimp cycle than the previous generation — and up to 75% less handle force than competing tools!

Requiring the lowest handle force of any tool in its class, the new Comfort Crimp® family provides maximum comfort to installers, without sacrificing the durability or performance associated with Thomas & Betts tools.



- Perfect for OEM, MRO and field use
- UL Listed for use with Sta-Kon® connectors
- Shure-Stake® mechanism ensures a complete crimp cycle before release for a proper crimp every time
- Color-coded die nests for easy matching with Sta-Kon® insulated terminals
- Creates integrity dots for quick verification of proper crimp
- Advanced manufacturing methods for improved durability and tool life
- Lanyard hole in handle for easy tethering to workstation
- Calibration service available through T&B Tool Services


ERG4002


ERG4004


ERG4005


ERG4007


ERG4008

CAT. NO.	FOR USE WITH STA-KON® SERIES	PKG. QTY.
ERG4001	RA, RB, RC nylon & vinyl terminals, splices & disconnects	1
ERG4002	A, B, C non-insulated terminals, splices, disconnects	1
ERG4004	A, B and C flag terminals	1
ERG4005	B, C, D, E non-insulated terminals, splices, (D & E tubular only)	1
ERG4006	RA, RB .110 disconnects and RZ Terminals	1
ERG4007	RD & RE insulated terminals (tubular only)	1
ERG4008	Non-insulated terminals #8–1/0 AWG (tubular only)	1

Note: *Contact Tool Services for gauging.*

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Wire Termination Tools and Installation Kits

WT1377 Ratchet Hand Tool

Correct compression every time — the Shure-Stake® mechanism principle prevents opening of the handles until full staking action is completed. Installs self-insulated and non-insulated Sta-Kon® terminal series in the #26–#10 AWG wire range.



CAT. NO.	FOR USE WITH STA-KON® SERIES	PKG. QTY.
WT1377	NW ring terminals	1

WT2130A Ratchet Hand Tool



CAT. NO.	FOR USE WITH STA-KON® SERIES	PKG. QTY.
WT2130A	RC, RBC and RD insulated terminals, RC6, RP7 wire joints	1

ERG4006 Hand Tool



CAT. NO.	FOR USE WITH STA-KON® SERIES	PKG. QTY.
ERG4006	RZ terminals/splices RA, RB .110 insulated disconnects	1

WT3185 Ratchet Hand Tool



CAT. NO.	FOR USE WITH STA-KON® SERIES	PKG. QTY.
WT3185	For #8 AWG to 250 kcmil non-insulated Sta-Kon® Terminals	1

Note: *For gauging information, contact Tool Services.*

ERG4255 Ratchet Hand Tool



CAT. NO.	FOR USE WITH STA-KON® SERIES	PKG. QTY.
ERG4255	RA, RB, RC heat-shrinkable nylon-insulated terminals, butt splices, and disconnects	1

WT129 Flag Terminal Type Hand Tool



CAT. NO.	FOR USE WITH STA-KON® SERIES	PKG. QTY.
WT129	D, E, F & G non-insulated flag terminals	1

Wire Termination Tools and Installation Kits

Single operation to cut and strip at the same time!

SWS01/DWS02 Wire Stripping/Cutting Tools

- Automatic adjustment to the diameter of the wire, with neither setting nor selection
- Sharply cuts and strips insulator without damaging the conductors
- DWS02 is a double-side stripper



SWS01



DWS02

CAT. NO.	DESCRIPTION	PKG. QTY.
SWS01	Single-Side Stripper	1
DWS02	Double-Side Stripper	1

Integral wire cutter lets user cut and strip with the same tool!

Sta-Kon® ERG1-WS Wire Stripping/Cutting Tool

- Interchangeable cassettes enable the user to strip a wide range of insulations without having to change tools
- Tool automatically strips wire to preset length



"V" Blade Cassette

CAT. NO.	DESCRIPTION	PKG. QTY.
ERG1-WS	Ergonomic Wire Stripping Tool	1
VBC-1	Replacement "V" Blade Cassette	1

ERG1-WS Wire Stripping/Cutting Tool is shipped with one Straight Blade Cassette (SBC-1). "V" Blade Cassettes sold separately.

WT115A Toggle-Type Hand Tool



CAT. NO.	FOR USE WITH STA-KON® SERIES	PKG. QTY.
WT115A	D, E, F & G Non-Insulated Terminals	1

TBM6 & TBM6S Toggle-Type Hand Tools



TBM6

Installing Dies for Non-Insulated Code and Aircraft Sta-Kon® Terminals

CAT. NO.		
NEST STATIONARY DIE	INDENTOR MOVABLE DIE	TERM SIZE
11803		D, E (Tubular)
11805		E (Brazed), F (Tubular)
11806	11802	F (Brazed), G
11807		H
11808		J
11809		K
11810		L
11811		M

Installing Dies for Nylon-Insulated Sta-Kon® Terminals TBM6 & TM6S Tools

DIE SET CAT. NO.	TERM. SIZE
11821	RD (Tubular)
11822	RD (Brazed Seam) RE (Tubular)
11823	RF
11824	RG
11825	RH
11826	RJ
11827	RK
11828	RL
11829	RM

CAT. NO.	FOR USE WITH STA-KON® SERIES	PKG. QTY.
TBM6	D through M, RD through RM	1
TBM6S	D through M, RD through RM with Shure-Stake®	1

Dies not included.

Note: *This tool can also be used to crimp Blackburn® Lugs and Splices.*
*See **page F-85** for dies.*

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Wire Termination Tools and Installation Kits

Safe, fast, high-volume crimping machine!

Shure-Stake® Auto-Feed Tool

- Shure-Stake® mechanism
- Fully guarded foot pedal
- Clear plastic safety guard over die area
- Dies color coded to terminals
- #26–#10 AWG wire range
- Installs insulated and non-insulated terminals and disconnects



Installing Dies for 12050

DIE CAT. NO.	STA-KON® TERMINAL TYPE	AWG WIRE SIZE	PKG. QTY.
12051	RA — Nylon	22–18	1
12054*	RA — Vinyl	22–18	1
12061	RA Disconnect	22–18	1
12052	RB — Nylon	16–14	1
12055*	RB — Vinyl	16–14	1
12062	RB Disconnect	16–14	1
12056	RC — Nylon and Vinyl Insulated	12–10	1
12057	A — Non-Insulated	22–18	1
12058	B — Non-Insulated	16–14	1
12059	C — Non-Insulated	12–10	1
12060	C Disconnect, Non-Insul.	12–10	1

** Can also be used on nylon.*

CAT. NO.	DESCRIPTION	PKG. QTY.
12050	Compact, pneumatically operated unit for crimping tape-mounted Sta-Kon® terminals; equipped with a Shure-Stake® mechanism, which ensures a full compression each time	1

Space Requirement: 30" W x 20" H x 20" D

Weight: 55 lbs.

Air Pressure: 90–125 psi input air supply

Wire Termination Tools and Installation Kits

1½ tons of grip that weighs less than three pounds!

Battery-Powered Crimping Tool — BAT22-6

T&B's newest battery-powered tool is fast and portable for making high-volume and difficult-to-reach terminal installations in a snap. The Sta-Kon® BAT22-6 delivers 1.5 tons of crimping force with an easy, pushbutton trigger. The lightweight, ergonomic design minimizes the risk of repetitive motion injuries that can occur with traditional hand crimping tools. And at less than three pounds, one-hand operation is easy while still packing enough power to crimp up to #6 AWG terminals in seconds.

- Interchangeable dies can be quickly changed to crimp non-insulated and insulated terminals up to #6 AWG
- Dies are the same as our hand tools — crimps will be exactly the same between Sta-Kon® hand tools such as our ERG4001 and the BAT22-6
- 360° rotating head gives the user the added flexibility when crimping hard-to-reach connections
- Short cycle time equates to crimping times of less than two seconds
- Quick, lightweight, and maneuverable
- NiCd battery operation provides long-lasting battery life to complete up to 150 crimps on a single charge
- Extra battery and charger are included with the tool, ensuring round-the-clock operation
- Battery charger provides full battery life in under an hour
- Linear crimping motion gives a symmetric, high-quality crimp every time





Easy to rotate with your wrist — delivers fast and effective crimping power.



Uses the exact dies of the Comfort Crimp line of ergonomic tools for Sta-Kon® and Dragon Tooth® terminals.

Included Accessories

- Sturdy, plastic carrying case for portability
- Two 9.6V NiCd batteries and battery charger
- Sturdy tray for convenient storage of crimp dies

CAT. NO.	DESCRIPTION	PKG. QTY.
BAT22-6	Battery Crimping Tool, 1.5 Ton with 120-VAC Charger	1
Crimp Dies*		
DIE2001	Insulated #22–#10 AWG Sta-Kon® Terminals	1
DIE2002	Non-Insulated #22–#10 AWG Sta-Kon® Terminals	1
DIE2005	Non-Insulated #16–#14/#12–#10/#8–#6 Sta-Kon® Terminals (Tubular Only)	1
DIE2007	Insulated #8–#6 AWG Sta-Kon® Terminals (Tubular Only)	1

**Dies sold separately.*

Note: *Battery-powered tools BPI42300CR, BPLT6BSCR and BPLT62BSCR can also be used to crimp non-insulated Sta-Kon® terminals. See* ***pages F-86–F-88****.*

Portable heavy-duty air tool.

PAIR22-6 Heavy-Duty Portable Air Crimp Tool





- 1.25 tons output force at 100 psi
- Crimps #22–#6 AWG terminals
- Installs Sta-Kon® terminals as well as ferrules and Dragon Tooth® connectors
- Interchangeable dies
- Open yoke enables easy access to insert and remove terminals for crimping

CAT. NO.	DESCRIPTION	PKG. QTY.
PAIR22-6	Open yoke, hand actuated	1
Crimp Dies*		
DIE2001	Insulated #22–#10 AWG Sta-Kon® Terminals	1
DIE2002	Non-Insulated #22–#10 AWG Sta-Kon® Terminals	1
DIE2005	Non-Insulated #16–#10/#8–#6 Sta-Kon® Terminals (Tubular Only)	1
DIE2007	Insulated #8–#6 AWG Sta-Kon® Terminals (Tubular Only)	1

** Dies sold separately.*

Note: *The dies for the BAIR22-6, PAIR22-6 and BAT22-6 are interchangeable.*

Note: *Battery-powered tools BPI42300CR, BPLT6BSCR and BPLT62BSCR can also be used to crimp non-insulated Sta-Kon® terminals. See* ***pages F-86–F-88****.*

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Crimps #22–#6 AWG terminals!

BAIR22-6 Bench-Mounted Air Tool



- 1.8 tons output force at 100 psi
- Bench-mounted heavy-duty air tool
- Short cycle time
- Shure-Stake® mechanism
- Foot actuated
- Accepts T&B standard hand tool dies
- Installs Sta-Kon® and Spec-Kon® terminals as well as ferrules and Dragon Tooth® connectors

CAT. NO.	DESCRIPTION	PKG. QTY.
BAIR22-6	Heavy-duty, high-speed production tool installs a wide range of Sta-Kon® terminals, from #26–#6 gauge; uses the DIE2000 series dies for both non-insulated and insulated terminals; supplied complete with foot pedal, air hose/air lubricator	1
Crimp Dies*		
DIE2001	Insulated #22–#10 AWG Sta-Kon® Terminals	1
DIE2002	Non-Insulated #22–#10 AWG Sta-Kon® Terminals	1
DIE2005	Non-Insulated #16–#10/#8–#6 Sta-Kon® Terminals (Tubular Only)	1
DIE2007	Insulated #8–#6 AWG Sta-Kon® Terminals (Tubular Only)	1

** Dies sold separately.*

***Note**: The dies for the BAIR22-6, PAIR22-6 and BAT22-6 are interchangeable.*

***Note:** Battery-powered tools BPI42300CR, BPLT6BSCR and BPLT62BSCR can also be used to crimp non-insulated Sta-Kon® terminals. See **pages F-86–F-88**.*

Crimps #8 AWG–250 kcmil!

Air-Operated Bench-Mounted Tool

Convenience and Economy

The tool accepts a full range of interchangeable dies, the same as used in the TBM6 or TBM6S tools. To install the dies, simply pull the spring-loaded pin and remove the indentor die. Then, flex the retaining spring and remove the die nest.

Shure-Stake® Mechanism Means Quality Connections

The Shure-Stake® mechanism senses inlet air pressure, and if insufficient, is designed to prevent the tool from cycling. Thus you avoid "undercrimping." An 85–90-psi air pressure source is required.

Safety Features Increase Productivity, Reduce Downtime

Safety features include a guard over the die area, an air shutdown switch activated by a slight push with the finger and a foot pedal that's enclosed to prevent accidental tool operation. In addition, the tool may be bench-mounted for stability and control. For convenience when crimping large size terminals on heavy wire, the head assembly may overhang the workbench.



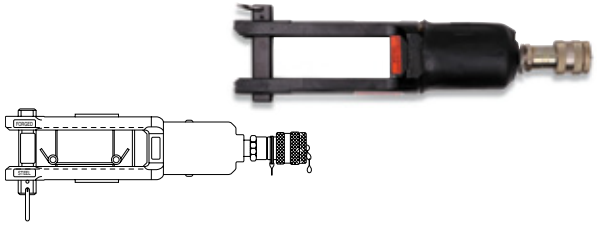
CAT. NO.	DESCRIPTION	PKG. QTY.
25000	This compact heavy-duty air tool installs nylon insulated Sta-Kon® terminals on wire sizes from #8 AWG to 250 kcmil; non-insulated styles are also installed just as quickly and dependably; heavy-duty air tool installs non-insulated and insulated Sta-Kon® terminals from #8 AWG to 250 kcmil	1

***Note**: This tool uses the same dies as the TBM6 and TBM6S hand tools on **page F-85**.*

Wire Termination Tools and Installation Kits

Installs insulated and non-insulated Sta-Kon® Terminals!

12-Ton Hydraulic Head



CAT. NO.	DESCRIPTION	PKG. QTY.
13400	12-ton crimping tool supplied with adapter TBM12D-AR is used for installing both insulated and non-insulated Sta-Kon® terminals #8 AWG to 250 kcmil (dies ordered separately)	1

Military listed and 12 tons of crimping power!

12-Ton Crimping Tool
(Military Spec. MS25441-1)



13642M

CAT. NO.	DESCRIPTION	PKG. QTY.
13642M	Hydraulic-operated 12-ton tool installs #8 AWG through 250 kcmil Sta-Kon® terminals (dies ordered separately)	1

Hex Dies for Non-Insulated Sta-Kon® Terminals to Fit 13642M and 13400

DIE CAT. NO. FOR TUBULAR TERM	DIE CAT. NO. FOR BRAZED SEAM	STA-KON® SIZE	WIRE SIZE	HEX DIE CODE
11732	—	D	8	21
—	11733	D	8	24
11733	—	E	6	24
—	11734	E	6	29
11734	—	F	4	29
—	11735	F	4	33
11736	—	G	2–1	37
11737	—	H	1/0	42
11738	—	J	2/0	45
11739	—	K	3/0	50
11740	—	L	4/0	54
11771	—	M	250 kcmil	62

Indent Style Dies for Sta-Kon® Brazed Seam Non-Insulated Terminals to Fit 13642M and 13400

NEST CAT. NO.	INDENT. CAT. NO.	STA-KON® SIZE	WIRE SIZE	PKG. QTY.
13643	13650	D	8	1
13644		E	6	1
13645		F	4	1

Indent Style Dies for Sta-Kon® Tubular Non-Insulated Terminals to Fit 13642M and 13400

NEST CAT. NO.	INDENT. CAT. NO.	STA-KON® SIZE	WIRE SIZE	PKG. QTY.
13654	13650	G	2–1	1
13655		H	1/0	1
13656		J	2/0	1
13657		K	3/0	1
13658		L	4/0	1
13659		M	250 kcmil	1

Installing Dies for Insulated Sta-Kon® Terminals to Fit 13642M (Military Listed)

DIE CAT. NO.	STA-KON® SIZE	WIRE SIZE	PKG. QTY.
21707M	RD	8	1
21708M	RE	6	1
21709M	RF	4	1
21710M	RG	2–1	1
21711M	RH	1/0	1
21712M	RJ	2/0	1
21713M	RK	3/0	1
21714M	RL	4/0	1
21715M	RM	250 kcmil	1

Hex Dies for Non-Insulated Sta-Kon® Terminals to Fit 13642M (Military Listed)

DIE CAT. NO.	STA-KON® SIZE	WIRE SIZE	PKG. QTY.
11781M	D	8	1
11782M	E	6AN	1
11783M	F	4AN	1
11784M	G	2AN	1
11785M	H	1AN	1
11786M	J	1/0AN	1
11787M	K	2/0AN	1
11788M	L	3/0AN	1
11789M	M	4/0AN	1

Indent Style Dies for Flag Type Sta-Kon® Terminals — Use with 13642M and 13400

NEST CAT. NO.	INDENT. CAT. NO.	STA-KON® SIZE	WIRE SIZE	PKG. QTY.
21733	21731	D	8	1
21734		E	6	1
21735		F	4	1
21736	21732	G	2	1
21737		H	1	1
21738		J	1/0	1
21739**		K	2/0	1
21740**		L	3/0	1
21741**		M	4/0	1

*** Cat. Nos. 21739, 21740 and 21741 dies must be left in 13642 head with 21732 indentor when gauging.*

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Wire Termination Tools and Installation Kits

13600 Electric Hydraulic Pump



- Designed for use with single-acting cylinders and tools rated for 10,000-psi operation
- Supplied with metal carrying case
- 13620 hand switch and 13619 hydraulic hose, both sold separately, required for operation

Specifications

- Motor: ½ hp, 115V 50–60 Hz, 10 amps
- Pumping Capacity:
  170 cu. in./min. at 100 psi
  32 cu. in./min. at 1,000 psi
  25 cu. in./min. at 5,000 psi
  18 cu. in./min. at 10,000 psi
- Reservoir Volume: 104 cu. in. (.45 gal.)
- Basic Pump Dimension: 6" x 8" x 16"
- Weight: 25 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
13600	Electric Hydraulic Pump — hand or foot switch and non-metallic hose (sold separately) required for operation	1

13610A Electric Hydraulic Pump with Shure-Stake® Control



- Shure-Stake® control mechanism requires 9,800-psi pump pressure before recyling to prevent under-crimping
- Designed for use with single-acting cylinders and tools rated for 10,000-psi operation
- Supplied with metal carrying case

Specifications

- Motor Rating: ½ hp, 115V, 50–60 Hz, 12.5 amps
- Pumping Capacity:
  170 cu. in./min. at 100 psi
  32 cu. in./min. at 1,000 psi
  25 cu. in./min. at 5,000 psi
  18 cu. in./min. at 10,000 psi
- Reservoir Volume: 104 cu. in. (.45 gal.)
- Basic Pump Dimension: 8½" x 10½" x 16"
- Weight: 35 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
13610A	Electric Hydraulic Pump with Shure-Stake® control — hand or foot switch and non-metallic hose (sold separately) required for operation	1

13810 Heavy-Duty Electric Hydraulic Pump with Shure-Stake® Control



- Designed for perfect crimps every time in heavy-duty OEM applications
- Heavy-duty OEM two-stage pump with high flow rate
- Shure-Stake® control mechanism requires 9,800-psi pump pressure before recyling to prevent under-crimping
- Requires hand or foot control (sold separately)

Specifications

- Motor Rating: 1½ hp, 115V, 60 Hz, 23 amps
- Pumping Capacity:
  235 cu.in./min. at 200 psi
  6 cu.in./min. at 8,000 psi
- Reservoir Volume: 462 cu.in./2 gal.
- Dimensions (L x W x H): 10¾" x 15" x 20¾"
- Weight: 60 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
13810	Heavy-duty electric hydraulic pump with Shure-Stake® control — hand or foot switch and non-metallic hose (sold separately) required for operation	1

Accessories for the pumps on this page

CAT. NO.	DESCRIPTION	PKG. QTY.
You may also need…for 13600		
13620	Hand Switch	1
13589A	Foot Switch	1
13619	10-ft. Non-Metallic Hose	1
13618	20-ft. Non-Metallic Hose	1
13600S	"Sled" type stand for 13600 pump	1
You may also need…for 13610A & 13810		
13611	Hand Switch	1
13612	Foot Switch	1
13619	10-ft. Non-Metallic Hose	1
13618	20-ft. Non-Metallic Hose	1

Wire Termination Technical Information

Platings/Finish

Electroplated-Tin is standard finish. All others require minimum order quantities and are generally not stocked. Alternative platings are as follows: Gold, Silver, Tin-Alloys, Nickel or plain finish. See table **(below)** for specification information.

FINISH	SUFFIX	SPEC.	TEMP. RATING
Gold Plate	**GP**	MIL-G-45204 Type II, Grade B, C, D, Class 0	260˚ C
Nickel Plate	**NP**	QQ-N-290 Class 2, Grade G	260˚ C
Plain Finish	**PF**	None	150˚ C
Silver Plate	**SP**	MIL-T-16366 Type I or II, 400° F, 204° C	150˚ C

Listing

Sta-Kon® Rings, Forks and Locking Forks are tested and listed to UL 486A, two-way splices to UL 486C, disconnects to UL 310 and all applicable products to CSA 22.2.

Sta-Kon® Technical Data

TERMINALS & SPLICES INSULATION RATING	UL® 94 FLAMMABILITY	VOLTAGE	TEMPERATURE
Nylon	V-2	600V*	105° C
Vinyl	V-0	600V*	105° C
Tefzel®	V-0	600V*	150° C
Disconnects		300V	105° C
Non-Insulated	—	600V	150º C

**1000V fixture or sign*

Minimum pull-out test — UL 486A and UL 486C

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The proper installation procedure for the quality-assured connection!

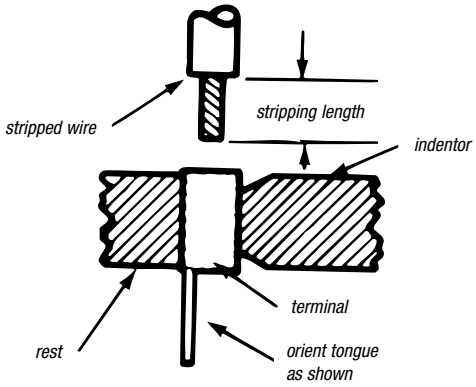
The proper installation of terminals, splices and connectors is very important to the efficient performance of an electrical system. The properly installed connector will enable good conductivity through the termination. Certain basic requirements must be met to make a good termination.

- Strip the insulation carefully to avoid nicking or cutting conductor strands
- Strip the insulation to the proper length so the conductors can be inserted fully into the connector barrel; the wire/cable should be visible in the inspection hole of the lug; the proper strip length can be found on **page G-51.**

A poor termination results in a high-resistance connection.
A poor connector installation may cause damage or failure of an entire system.

Installation Procedure

1. Strip the insulation carefully to avoid nicking or cutting conductor strands.
2. Strip the insulation to the proper length so the conductors can be inserted fully into the connector barrel; the wire/cable should be visible in the inspection hole of the lug; the proper strip length can be found on **page G-51**.
3. Train the wires to eliminate fanning of strands.
4. Open handles fully.
5. Insert terminal in proper die nest and locate it as shown above. When crimping a butt splice, position in proper die nest with window facing indentor.
6. Close handles slightly to secure terminal. Do not deform terminal.
7. Insert properly stripped wire into terminal.
8. Complete crimp by closing handles.





ERG4001

Shure-Stake® tools are matched to terminals.

Wire Termination Technical Information

Critical information for determining the products you need!

TERMINAL TYPE	TERMINAL SERIES	PLIERS					ERGONOMIC RATCHET HAND TOOLS						RATCHET HAND TOOLS	
		WT110M	WT111M	WT112M	WT161M	WT2000	ERG4001	ERG4002	ERG4004	ERG4005	ERG4006	ERG4255	WT1377	WT145A
Nylon Terminals	RZ										•			
	RA, RAX			•		•	•							•
	RB			•		•	•							•
	RBC, RC			•		•	•							•
Nylon Butt Splices	RA			•		•	•							
	RB			•		•	•							
	RC			•		•	•							
Nylon Parallel Splices	RAA					•								
	RBB					•								
	RCC					•								
All Nylon Disconnects (except .110 size)	RA			•		•	•							
	RB			•		•	•							
	RC			•		•	•							
Heat-Shrinkable Terminals, Splices, Disconnects	RAS											•		
	RBS											•		
	RCS											•		
Vinyl Terminals and Splices	RA, RAA			•		•	•							
	RB, RBB			•		•	•							
	RC, RCC, RBC			•		•	•							
Bare Terminals and Splices	A, AA	•	•	•	•	•		•						
	B, BB	•	•	•	•	•		•		•				
	C, CC	•	•	•	•	•		•		•				
Wire Joints	RB			•		•	•							
	RC			•		•								
	RP			•		•								
	PT		•		•									
Hi-Temp Terminals and Splices	NW-Rings												•	
	NW-Splices												•	
Insulation Grip	A	•												
	B	•												
.110 Disconnects	A, B	•	•	•										
	RA, RB										•			
Flag Terminals	AB								•					
	C								•					
Tefzel® Terminals and Splices	RAT, RAAT			•		•								
	RBT, RBBT			•		•								
	RCT, RCCT			•		•								
Vinyl Disconnects	RA			•		•	•							
	RB			•		•	•							
	RC			•		•	•							
Bare Disconnects	A	•	•	•	•	•		•						
	B	•	•	•	•	•		•		•				
	C	•	•	•	•	•		•		•				

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Wire Termination Technical Information

TERMINAL TYPE	TERMINAL SERIES	RATCHET HAND TOOLS (CONT.)		BAT22-6 BAIR22-6 PAIR22-6				12050 MYLAR TAPE AUTO TOOL								
		WT145C	WT2130A	DIE2001	DIE2002	DIE2005	DIE2009	12051	12052	12054	12055	12056	12057	12058	12059	12060
Nylon Terminals	RZ															
	RA, RAX	•		•				•		•						
	RB	•		•					•		•					
	RBC, RC	•	•	•								•				
Nylon Butt Splices	RA	•		•												
	RB	•		•												
	RC	•	•	•												
Nylon Parallel Splice	RAA															
	RBB															
	RCC															
All Nylon Disconnects (except .110 size)	RA	•		•				•		•						
	RB	•		•					•		•					
	RC	•	•	•								•				
Heat Shrinkable Terminals, Splices, Disconnects	RAS															
	RBS															
	RCS															
Vinyl Terminals and Splices	RA, RAA	•		•						•						
	RB, RBB	•		•							•					
	RC, RCC, RBC	•	•	•								•				
Bare Terminals and Splices	A, AA				•								•			
	B, BB				•	•								•		
	C, CC				•	•									•	
Wire Joints	RB			•			•									
	RC		•				•									
	RP		•				•									
	PT															
Hi-Temp Terminals and Splices	NW-Rings															
	NW-Splices															
Insulation Grip	A															
	B															
.110 Disconnects	A, B															
	RA, RB															
Flag Terminals	AB															
	C															
Tefzel® Terminals and Splices	RAT, RAAT	•														
	RBT, RBBT	•														
	RCT, RCCT	•														
Vinyl Disconnects	RA	•		•						•						
	RB	•		•							•					
	RC	•	•	•								•				
Bare Disconnects	A				•								•			
	B				•	•								•		
	C				•	•										•

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Wire Termination Technical Information

Select the die numbers you need!

	TERMINAL		HAND TOOL WITH DIES	25000 AIR TOOL TBM6 TOGGLE HAND TOOL TBM6S TOGGLE HAND TOOL DIE CAT. NOS.		BPI42300CR, BPLT6BSCR AND BPLT62BSCR CRIMP TOOLS		13642M (MS25441-1) AND 13400 HYDRAULIC TOOL		
DESCRIPTION	SERIES	TYPE		NEST (STATIONARY)	INDENTOR (MOVABLE)	HEX DIES	DIE CODE	HEX DIES	NEST	INDENTOR
Non-Insulated Terminals and Splices	D	Tubular	ERG4005	11803	11802	—	—	11781M*	13651	13650**
	D	Tubular	ERG4008	11803	11802	—	—	11781M*	13651	13650**
	D	Tubular	WT3185/WT115A	11803	11802	TBM6221	21	11732	13651	13650**
	D	Brazed	WT3185/WT115A	11803	11802	TBM6224	24	11733	13643	13650**
	E	Tubular	ERG4005	11803	11802	—	—	11782M	13652	13650**
	E	Tubular	ERG4008	11803	11802	—	—	11782M	13652	13650**
	E	Tubular	WT3185/WT115A	11803	11802	TBM6224	24	11733*	13652	13650**
	E	Brazed	WT3185/WT115A	11804	11802	TBM6229	29	11734	13644	13650**
	F	Tubular	ERG4008	11805	11802	—	—	11783	13653	13650**
	F	Tubular	WT3185/WT115A	11805	11802	TBM6229	29	11734*	13653	13650**
	F	Brazed	WT3185/WT115A	11806	11802	TBM6233	33	11735	13645	13650**
	G	Tubular	ERG4008	11806	11802	—	—	11784M*	13654	13650**
	G	Tubular	WT3185/WT115A	11806	11802	TBM6237	37	11736	13654	13650**
	H	Tubular	ERG4008	11807	11802	—	—	11785M*	13655	13650**
	H	Tubular	WT3185	11807	11802	—	—	11785M*	13655	13650**
	H	Tubular	WT3185	11807	11802	TBM6242	42	11737	13655	13650**
	J	Tubular	WT3185	11808	11802	—	—	11786M*	13656	13650**
	J	Tubular	WT3185	11808	11802	TBM6245	45	11738	13656	13650**
	K	Tubular	—	11809	11802	—	—	11787M*	13657	13650**
	K	Tubular	—	11809	11802	TBM6250	50	11739	13657	13650**
	L	Tubular	—	11810	11802	—	50	11788M*	13658	13650**
	L	Tubular	—	11810	11802	TBM6254	54	11740	13658	13650**
	M	Tubular	—	11811	11802	—	54	11789M*	13659	13650**
	M	Tubular	—	11811	11802	TBM6262	62	11771	13659	13650**
Tefzel®† Nylon Insulated Terminals and Splices	RD	Tubular	ERG4007	11821 (Set)				21707M* (Set)		
	RD	Brazed & Tubular	—	11822 (Set)				21708M* (Set)		
	RE	Tubular	ERG4007	11822 (Set)				21708M* (Set)		
	RE	Brazed	—	11823 (Set)				21709M* (Set)		
	RF	Tubular	—	11823 (Set)				21709M* (Set)		
	RF	Brazed	—	11824 (Set)				21710M* (Set)		
	RG	Tubular	—	11824 (Set)				21710M* (Set)		
	RH	Tubular	—	11825 (Set)				21711M* (Set)		
	RJ	Tubular	—	11826 (Set)				21712M* (Set)		
	RK	Tubular	—	11827 (Set)				21713M* (Set)		
	RL	Tubular	—	11828 (Set)				21714M* (Set)		
	RM	Tubular	—	11829 (Set)				21715M* (Set)		
Non-Insulated Flag Terminals	D	—	WT129	—	—			—	21733	21731
	E	—	WT129	—	—			—	21734	21731
	F	—	WT129	—	—			—	21735	21731
	G	—	WT129	—	—			—	21736	21732
	H	—	—	—	—			—	21737	21732
	J	—	—	—	—			—	21738	21732
	K	—	—	—	—			—	21739	21732
	L	—	—	—	—			—	21740	21732
	M	—	—	—	—			—	21741	21732

** Indicates military listed die.*

*** To order the military version, suffix the indentor catalog number with an "M" (13650M). Nest catalog number does not change.*

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Stud Size and Clearance Hole Chart

STUD SIZE	2	4	6	8	10	1/4	5/16	3/8	7/16	1/2	5/8	3/4
Min. hole diam. — in.	.92	.116	.143	.169	.196	.262	.323	.388	.453	.516	.650	.775
Min. hole diam. — mm	2.337	2.946	3.632	4.292	4.978	6.655	8.204	9.855	11.506	13.106	16.510	19.685

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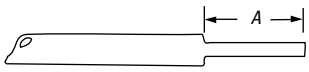
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Wire Termination Technical Information

Wire Strip Length Chart



WIRE STRIP LENGTH	TERMINAL SERIES	RECOMMEND WIRE STRIP LENGTH "A" STANDARD TERMINALS
Non-Insulated	A	1/4
	B	1/4
	C, BC	5/16
Vinyl Insulated — Add 1/16" for Funnel Entry Type	RA	1/4
	RB	1/4
	RC, RBC	11/32
Nylon Insulated and Tefzel® Insulated	RA	7/32
	RB	7/32
	RC, RBC	5/16
Nylon Insulated and Tefzel® Insulated when using Aircraft and Code Wire	RD	17/32
	RE	17/32
	RF	9/16
	RG	11/16
	RH	11/16
	RJ	3/4
	RK	7/8
	RL	7/8
	RM	1
Non-Insulated, when using Aircraft Code Wire	D	15/32
	E	15/32
	F	1/2
	G	41/64
	H	43/64
	J	47/64
	K	55/64
	L	55/64
	M	59/64

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AWG OR AN	NAVY SHIPBOARD†	INDIVIDUAL STRANDS NO.	INDIVIDUAL STRANDS DIA. IN.	WHOLE CONDUCTOR CIR. MIL. AREA	WHOLE CONDUCTOR DIA. IN.	WHOLE CONDUCTOR DIA. MM
22 Wire Size						
22	3/5 (1)	1	.025	642	.025	.635
22	3/5 (7)	7	.010	703	.030	.762
AN-22*		7	**	704	.032	.813
	1/2 (21)	21	.005	525	.028	.711
20 Wire Size						
20	1 (1)	1	.032	1,022	.032	.813
20		7	.012	1,024	.036	.914
20		10	.010	1,005	.040	1.016
20		19	.007	1,022	.037	.940
20		26	.006	1,034	.039	.991
AN-20*		7	**	1,119	.040	1.016
	1 (7)	7	.013	1,119	.038	.965
	1 (10)	10	.010	1,005	.038	.965
	1 (26)	26	.006	1,034	.042	1.067
18 Wire Size						
18	1 1/2 (1)	1	.040	1,624	.040	1.016
18	1 1/2 (7)	7	.016	1,624	.049	1.245
18	1 1/2 (16)	16	.010	1,608	.049	1.245
18		19	.009	1,624	.046	1.168
18	1 1/2 (41)	41	.006	1,630	.049	1.245
AN-18*	2 (7)	7	.016	1,779	.048	1.219
16 Wire Size						
16	2 1/2 (1)	1	.051	2,583	.051	1.295
16		7	.019	2,583	.058	1.473
16		19	.012	2,601	.058	1.473
16		26	.010	2,613	.059	1.499
16		65	.006	2,580	.058	1.473
AN-16*	2 1/2 (19)	19	.011	2,407	.061	1.549
	2 1/2 (26)	26	.010	2,613	.061	1.549
14 Wire Size						
14		1	.064	4,107	.064	1.626
14		7	.024	4,107	.073	1.854
14		19	.015	4,107	.074	1.880
14		37	.011	4,107	.074	1.880
14		14	.009	4,157	.083	2.108
14		104	.006	4,128	.074	1.880
AN-14*		19	**	3,830	.076	1.930
	3 (7)	7	.020	2,828	.060	1.524
	3 (19)	19	.013	3,036	.063	1.600
	4 (1)	1	.064	4,107	.064	1.626
	4 (7)	7	.025	4,497	.076	1.930
	4 (19)	19	.014	3,828	.072	1.829
	4 (41)	41	.010	4,121	.077	1.956
12 Wire Size						
12		1	.081	6,530	.081	2.057
12		7	.031	6,530	.092	2.337
12		19	.019	6,530	.093	2.362
12		37	.013	6,530	.093	2.362
12		49	.012	6,593	.104	2.642
12		65	.010	6,533	.093	2.362
12		104	.008	6,574	.094	2.388
12		165	.006	6,559	.095	2.413
AN-12*	6 (19)	19	.018	6,088	.096	2.438
	6 (7)	7	.031	6,512	.092	2.337
	6 (65)	65	.010	6,533	.097	2.964
10 Wire Size						
10		1	.102	10,380	.102	2.591
10		7	.039	10,380	.116	2.946
10		19	.023	10.380	.117	2.972
10		37	.017	10,443	.117	2.972
10		49	.015	10,445	.131	2.327
10		104	.010	10,452	.116	2.946
AN-10*		37	**	10,380	.117	2.972
	9 (7)	7	.036	9,016	.108	2.743
	9 (37)	37	.016	9,402	.109	2.769
	9 (90)	90	.010	9,045	.120	3.048

** MIL-W-5086.* *** Strand diameter not specified.* *† MIL-E-16366 A.*

Wire Termination Technical Information

AWG OR AN	NAVY SHIPBOARD†	INDIVIDUAL STRANDS NO.	INDIVIDUAL STRANDS DIA. IN.	WHOLE CONDUCTOR CIR. MIL. AREA	WHOLE CONDUCTOR DIA. IN.	WHOLE CONDUCTOR DIA. MM
9 Wire Size						
9		7	.043	13,090	.130	3.302
	14 (7)	7	.045	14,340	.136	3.454
8 Wire Size						
8		7	.049	16,510	.146	3.712
8		19	.030	16,510	.148	3.763
8		37	.021	16,510	.148	3.763
7 Wire Size						
7		1	.144	20,820	.144	3.662
	14 (7)	7	.045	14,340	.136	3.454
	14 (140)	140	.010	14,070	.145	3.787
6 Wire Size						
6		7	.061	25,250	.184	4.672
6		19	.037	26,250	.186	4.722
6		37	.027	26,250	.186	4.722
6		49	.023	26,146	.208	5.283
6		661	.006	26,274	.259	6.579
5 Wire Size						
5		1	.181	33,100	.181	4.595
	20 (49)	7x7	.020	19,800	.180	4.570
	23 (7)	7	.057	22,800	.171	4.345
	23 (228)	19x12	.010	22,190	.190	4.830
	26 (49)	7x7	.023	26,250	.210	5.330
4 Wire Size						
4		7	.077	41,740	.232	5.891
4		19	.047	41,740	.235	5.967
4		37	.034	41,740	.235	5.967
3 Wire Size						
3		1	.229	52,630	.229	5.819
	30 (304)	19x16	.010	30,550	.220	5.590
	33 (336)	7x48	.010	33,370	.235	5.967
	40 (19)	19	.045	38,910	.226	5.742
	42 (49)	7x7	.029	41,740	.260	6.600
	42 (209)	19x11	.014	42,110	.260	6.600
	50 (19)	19	.051	49,080	254	6.452
2 Wire Size						
2		7	.097	66,370	.292	7.421
2		19	.059	66,370	.296	7.522
2		37	.042	66,370	.297	7.548
2		49	.037	66,356	.331	8.405
2		133	.022	66,140	.335	8.507
AN-2*		663	**	66,832	.345	8.767
	53 (532)	19x28	.010	53,470	.304	7.772
	60 (37)	37	.040	60,090	.282	7.161
	60 (304)	19x16	.014	61,260	.310	7.870
	66 (133)	19x7	.022	66,370	.330	8.380
	75 (37)	37	.045	75,780	.317	8.048
1 Wire Size						
1		7	.109	83,690	.328	8.333
1		19	.066	83,690	.332	8.431
1		37	.048	83,690	.333	8.456
1		61	.037	83,690	.333	8.456
1		133	.025	83,690	.377	9.578
1		259	.018	83,916	.378	9.603
AN-1*		812	**	81,807	.384	9.752
	83 (418)	19x22	.014	84,230	.380	9.650
	84 (2,107)	2107	**	83,690	.410	10.41

** MIL-W-5086.*
*** Strand diameter not specified.*
†MIL-E-16366 A

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Wire Termination Technical Information

AWG OR AN	NAVY SHIPBOARD†	INDIVIDUAL STRANDS NO.	INDIVIDUAL STRANDS DIA. IN.	WHOLE CONDUCTOR CIR. MIL. AREA	WHOLE CONDUCTOR DIA. IN.	WHOLE CONDUCTOR DIA. MM
1/0 Wire Size						
1/0		7	.123	105,500	.368	9.343
1/0		19	.075	105,500	.373	9.476
1/0		37	.053	105,500	.374	9.502
1/0		61	.042	105,500	.374	9.502
1/0		133	.028	105,761	.423	10.721
1/0		259	.020	105,672	.424	10.772
AN-0*		1,033	**	104,118	.432	10.971
	100 (61)	61	.040	99,060	.363	9.216
	105 (259)	37x7	**	105,500	.410	10.410
2/0 Wire Size						
	105 (2,646)	2,646	**	105,500	.460	11.680
2/0		7	.138	133,100	.414	10.512
2/0		19	.084	133,100	.419	10.639
2/0		37	.060	133,100	.420	10.670
2/0		61	.047	133,100	.420	10.670
2/0		133	.032	132,800	.474	12.042
2/0		259	.023	133,462	.477	12.118
AN-00*		1,327	**	133,665	.490	12.450
	125 (61)	61	.045	124,900	.407	10.338
	133 (259)	37x7	**	133,100	.460	11.680
	133 (684)	19x36	.014	137,800	.480	12.190
	133 (3,325)	3,325	**	133,100	.520	13.210
	150 (61)	61	.051	157,600	.457	11.608
3/0 Wire Size						
3/0		7	.155	167,800	.464	11.782
3/0		19	.094	167,800	.470	11.940
3/0		37	.067	167,800	.471	11.965
3/0		61	.052	167,800	.472	11.991
3/0		133	.036	167,607	.533	13.536
3/0		259	.026	167,402	.536	13.612
3/0		4,227	.006	168,023	.610	15.490
	150 (760)	19x40	.014	153,100	.510	12.950
	168 (427)	61x7	**	167,800	.520	13.210
4/0 Wire Size						
4/0		7	.174	211,600	.522	13.261
4/0		19	.106	211,600	.528	13.413
4/0		37	.076	211,600	.529	13.439
4/0		61	.059	211,600	.530	13.460
4/0		133	.040	211,736	.599	15.219
4/0		259	.029	211,845	.601	15.265
AN-000*		1,661	**	167,332	.548	13.923
	200 (61)	61	.057	198,700	.514	13.652
	200 (988)	19x52	.014	199,100	.580	14.730
250 kcmil Wire Size						
250,000		19	.115	250,000	.574	14.582
250,000		37	2	250,000	.575	14.607
250,000		61	.064	250,000	.576	14.632
250,000		91	.052	250,000	.576	14.632
AN-0000*		2,104	**	211,954	.615	15.617
	220 (259)	37x7	.029	220,700	.610	15.490
	250 (61)	61	.064	250,000	.577	14.658

** MIL-W-5086.*
*** Strand diameter not specified.*
†MIL-E-16366 A.

Wire Termination Technical Information

MIL-T-7928 MS-25036	CAT. NO. T&B CLASS 1 & 2
-101	RA333
-102	RA853
-103	RA873
-104	RA723
-105	RA733
-106	RB1333
-107	RB853
-108	RB873
-109	RB723
-110	RB733
-111	RC333
-112	RC363
-113	RC703
-114	RC733
-115	RD10361
-116	RD10711
-117	RD10721
-118	RD10731
-119	RE10261
-120	RE10711
-121	RE10721
-122	RE10731
-123	RF10711
-124	RF10721
-125	RF10731
-126	RG9711
-127	RG9731
-128	RG9751
-129	RH9711
-130	RH9731
-131	RH9751
-132	RJ9711
-133	RJ9731
-135	RK9721
-136	RK9731
-137	RK9751
-138	RL9731
-139	RL9751
-140	RM9731
-141	RM9751
-142	—
-143	—
-144	—
-145	—
-146	—
-147	—
-148	RA323
-149	RA863
-150	RA713
-151	RA753
-152	RB1323
-153	RB863
-154	RB713
-155	RB753
-156	RC863
-157	RC713
-158	RC753

MIL-T-7928 MS-20659	CAT. NO. T&B CLASS 1 & 2
-101	A85G
-102	A87G
-103	B85G
-104	B87G
-105	C26
-106	C70
-107	D10361
-108	D10721
-109	E10711
-110	E10731
-111	F10711
-112	F10731
-113	G971
-114	G973
-115	H971
-116	H973
-117	J971
-118	J973
-119	K972
-120	K973
-121	L973
-122	L975
-123	M973
-124	M975
-128	C73
-129	D10731
-130	E10261
-131	E10721
-132	F10721
-133	G975
-134	H975
-135	J975
-136	K975
-140	D10161
-141	D10711
-144	F10261
-146	G926
-147	G972
-148	G974
-149	H972
-151	J972
-152	J974
-153	K971
-154	K974
-155	L972
-156	L974
-157	M972
-158	M974
-165	C33
-166	C75

MIL-T-22909 MS-90485	CAT. NO. T&B
-8	11781M
-6	11782M
-4	11783M
-2	11784M
-1	11785M
-01	11786M
-02	11787M
-03	11788M
-04	11789M

MIL-T-7928 MS-17143	CAT. NO. T&B
-1	RA480
-2	RB480
-3	RC480
-4	RA481
-5	RB481
-6	RC481
-7	RA482
-8	RB482
-9	RC482
-10	RA483
-11	RB483
-12	RC483
-13	RA484
-14	RB484
-15	RC484
-16	RA485
-17	RB485
-19	RA486
-20	RB486

MIL-T-7928 MS-21004	CAT. NO. T&B
-1	A486
-2	A483
-3	A482
-4	A481
-5	A485
-6	A484
-7	A480
-8	B486
-9	B483
-10	B482
-11	B481
-12	B485
-13	B484
-14	B480
-15	C486
-16	C483
-17	C482
-18	C481
-19	C485
-20	C484
-21	C480

MIL-T-22909 -MS-23002	CAT. NO. T&B
-8	21707M
-6	21708M
-4	21709M
-2	21710M
-1	21711M
-01	21712M
-02	21713M
-03	21714M
-04	21715M

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Wire Termination Technical Information

***Note**: All catalog numbers do not appear in this cross reference. This means it may not be available in one of the package options.*

CAT. NO. T&B DISTRIBUTOR PACKAGE	CAT. NO. T&B BULK PACKAGE
10RC-10	RC367
10RC-10F	RC1157
10RC-10FL	RC2227
10RC-10FLX	RC2227-250
10RC-10FX	RC1157-250
10RC-10X	RC367-250
10RC-14	RC717
10RC-14F	RC1167
10RC-14FL	RC2237
10RC-14X	RC717-250
10RC-250F	RC257
10RC-250T	RC2517
10RC-251T	RC25177
10RC-2577	RC2573
10RC-38	RC737
10RC-38X	RC737-250
10RC-516	RC707
10RC-55PT	RC55PT
10RC-6	RC337
10RC-6F	RC1337
10RC-6FL	RC2207
10RC-6FLX	RC2207-250
10RC-6X	RC337-250
10RC-8	RC777
10RC-8F	RC1147
10RC-8FL	RC2217
10RC-8FLX	RC2217-250
10RC-8X	RC777-250
14RB-10	RB877
14RB-10F	RB1157
14RB-10FL	RB2257
14RB-10FLX	RB2257-200
14RB-10FX	RB1157-200
14RB-10X	RB877-200
14RB-14	RB717
14RB-14F	RB1717
14RB-14X	RB717-200
14RB-250F	RB257
14RB-250T	RB2517
14RB-251T	RB25177
14RB-2577	RB2573
14RB-38	RB737
14RB-4	RB1327
14RB-47PT	RB47PT
14RB-516	RB727
14RB-6	RB857
14RB-6F	RB647
14RB-6FL	RB2207
14RB-6FLX	RB2207-200
14RB-6FX	RB647-200
14RB-6X	RB857-200
14RB-8	RB867
14RB-8F	RB657
14RB-8FL	RB2237
14RB-8FLX	RB2237-200
14RB-8FX	RB657-200
14RB-8X	RB867-200
14RBC-10	RBC877
14RBC-12	RBC757
14RBC-14	RBC717
14RBC-38	RBC797
14RBC-516	RBC727
14RBC-6	RBC857
14RBD-182	RBD1827
14RBD-18277	RBD18277
14RBD-183	RBD1837
14RBD-18377	RBD18377
18RA-10	RA877
18RA-10F	RA1157
18RA-10FL	RA2257
18RA-10FLX	RA2257-170
18RA-10X	RA877-170
18RA-14	RA717
18RA-250F	RA257
18RA-250T	RA2517
18RA-251T	RA25177
18RA-2577	RA2573
18RA-38	RA737
18RA-4	RA77
18RA-47PT	RA47PT
18RA-516	RA727
18RA-516X	RA727-170
18RA-6	RA857
18RA-6F	RA1167
18RA-6FL	RA2217
18RA-6FLX	RA2217-170
18RA-6FX	RA1167-170
18RA-6X	RA857-170
18RA-8	RA867
18RA-8F	RA1147
18RA-8FL	RA2247
18RA-8FX	RA1147-170
18RA-8X	RA867-170
18RAD-182	RAD1827
18RAD-18277	RAD18277
18RAD-183	RAD1837
18RAD-18377	RAD18377
2A-18	AA2
2A-18	AA2
2A20	RAA24
2A22-20	A1A
2B-14	BB2
2B-16	RBB25
2B18-16	B1B
2C-10	CC2-TB
2C-12	RCC26
2C14-12	C1C
2D10-9	D1D
2D-8	DD102
2E-6	EE2
2E8-7	E1E
2F-4	FF2
2F6-5	F1F
2G21	GG2
2G4-2	G1G
2RA18	RAA21
2RA18X	RAA217-170
2RAA	RAA23
2RAS18X	RAAS22X
2RB14	RBB21
2RB14X	RBB217-200
2RBB	RBB23
2RBS14X	RBBS22X
2RC10	RCC21
2RC10X	RCC217-250
2RCC	RCC23
2RCS10X	RCCS22X
2RD8	RDD27
2RE6	REE28
2RZZ	RZZ23
A18-10	A87
A18-10F	A115-TB
A18-10FL	A225
A18-110F	A10-TB
A18-111F	A11
A18-12	A75
A18-14	A71
A18-250	A250-TB
18RA-6FLX	RA2217-170
18RA-6FX	RA1167-170
18RA-6X	RA857-170
18RA-8	RA867
18RA-8F	RA1147
18RA-8FL	RA2247
18RA-8FX	RA1147-170
18RA-8X	RA867-170
18RAD-182	RAD1827
18RAD-18277	RAD18277
18RAD-183	RAD1837
18RAD-18377	RAD18377
2A-18	AA2
2A-18	AA2
2A20	RAA24
2A22-20	A1A
2B-14	BB2
2B-16	RBB25
2B18-16	B1B
2C-10	CC2-TB
2C-12	RCC26
A18-250A	A252G
A18-251T	A251
A18-38	A73
A18-516	A72
A18-6	A85
A18-6F	A116
A18-6FL	A221
A18-8	A86
A18-8F	A114
A18-8FL	A224
AB14-10A	AB53
AB14-6A	AB51
AB14-8A	AB52
AD18-182	AD182
AD18-183	AD183
B14-10	B87
B14-10F	B115
B14-10FL	B225
B14-10G	B87G
B14-110F	B10TB
B14-111F	B11-TB
B14-12	B75TB
B14-14	B71
B14-250	B250
B14-250A	B252G
B14-250F	B250G
B14-250T	B251G
B14-251T	B251
B14-38	B73
B14-4	B132
B14-516	B72
B14-6	B133
B14-6F	B64
B14-6FL	B220
B14-8	B86
B14-8F	B65TB
B14-8FL	B223
B14-D	B23
BC14-10	BC87
BC14-12	BC75
BC14-14	BC71
BC14-38	BC79
BC14-516	BC72
BC14-6	BC85
BC14-8	BC86
BD14-183	BD183
C10-10	C26
C10-10A	C53
C10-10F	C115
C10-10FL	C222-TB
C10-12	C75
C10-14	C71
BC14-10	BC87
BC14-14	BC71
BC14-38	BC79
BC14-516	BC72
BC14-6	BC85
BC14-8	BC86
BD14-183	BD183
C10-10	C26
C10-10A	C53
C10-10F	C115
C10-10FL	C222-TB
C10-12	C75
C10-14	C71
C10-14F	C116-TB
C10-250A	C252G
C10-250F	C250
C10-38	C73
C10-516	C70
C10-6F	C133
C10-6FL	C220-TB
C10-6-SK	C33
C10-8A	C52-TB
C10-8F	C114
C10-8FL	C221
C10-8-SK	C77
D8-10	D36
D8-12	D75
D8-14-SK	D71
D8-38	D73
D8-516	D72
E6-10	E26
E6-12	E75
E6-14	E71
E6-12	E75
E6-14	E71
E6-38	E73
E6-516	E72
F250TA	FTA250
F4-10	F26
F4-12	F75
F4-14	F71-TB
F4-38	F73
F4-516	F72
G2-12	G975
G2-14	G971
G2-38	G973
G2-516	G972
H10-14	H971
J20-38	J973

Wire Termination Technical Information

CAT. NO. T&B DISTRIBUTOR PACKAGE	CAT. NO. T&B BULK PACKAGE
K30-38	K973
L40-38	L973
M250-38	M973
NW14-10	NW83
NW14-12	NW84
NW22-10	NW23
RA18-10	RA873
RA18-10F	RA1153
RA18-10FL	RA2253
RA18-10FS	RA1253
RA18-110F	RA10SK
RA18-111F	RA11
RA18-12	RA753
RA18-14	RA713
RA18-14F	RA1163
RA18-250A	RA2577F
RA18-250F	RA250TB
RA18-250FP	RA250P
RA18-38	RA733
RA18-4	RA323
RA18-47PT	RA147PT
RA18-516	RA723
RA18-6	RA853
RA18-6F	RA1103
RA18-6FL	RA2213
RA18-6FS	RA1203
RA18-8	RA863
RA18-8F	RA1123
RA18-8FL	RA2243
RA18-8FS	RA1223
RA18D	RA23
RAD18-182	RAD1823
RAD18-183	RAD1833
RAD18-188A	RAD1887F
RB4-HT	RB44-HT
RB14-10	RB873
RB14-10F	RB1153
RB14-10FL	RB2253
RB14-10FS	RB1253
RB14-10X	RB874
RB14-110F	RB10-SK
RB14-111F	RB11-TB
RB14-12	RB753
RB14-14	RB713
RB14-14F	RB1163
RB14-14X	RB714
RB14-250	RBB250
RB14-250A	RB2577F
RB14-250F	RB250
RB14-250FP	RB250P
RB14-38	RB733
RB14-38X	RB734
RB14-4	RB1323
RB14-47PT	RB147PT
RB14-516	RB723
RB14-516X	RB724
RB14-6	RB853
RB14-6F	RB1113

CAT. NO. T&B DISTRIBUTOR PACKAGE	CAT. NO. T&B BULK PACKAGE
RB14-6F	RB1113
RB14-6FL	RB2213
RB14-6FS	RB1203
RB14-6X	RB854
RB14-8	RB863
RB14-8F	RB1123
RB14-8FL	RB2233
RB14-8FS	RB1223
RB14-8X	RB864
RB14D	RB23
RB44	RB4-TB
RBC14-12	RBC753
RBC14-14	RBC713
RBC14-8	RBC863
RBD14-182	RBD1823
RBD14-183	RBD1833
RC6-T	RC551-HT
RC10-10	RC363
RC10-10F	RC1153
RC10-10FL	RC2223
RC10-10FS	RC1253
RC10-10X	RC364
RC10-12	RC753
RC10-14	RC713
RC10-14F	RC1163
RC10-14FL	RC2233
RC10-14X	RC714
RC10-250A	RC2577F
RC10-250F	RC250
RC10-38	RC733
RC10-38X	RC734
RC10-516	RC703
RC10-516X	RC704
RC10-55PT	RC155PT
RC10-6	RC333
RC10-6F	RC1113
RC10-6FL	RC2203
RC10-6X	RC334
RC10-8	RC863
RC10-8F	RC1123
RC10-8FL	RC2213
RC10-8FS	RC1223
RC10-8X	RC864
RC55	RC6
RD8-10	RD367
RD8-12	RD757
RD8-14	RD717
RD8-38	RD737
RD8-516	RD727
RE6-10	RE267
RE6-12	RE757
RE6-14	RE717
RE6-38	RE737
RE6-516	RE727
RF4-10	RF267
RF4-14	RF717
RF4-38	RF737
RF4-516	RF727
RG2-10	RG267
RG2-12	RG757
RG2-14	RG717
RG2-38	RG737
RG2-516	RG727
RP7-T	RP12-HT
RP12	RP7

CAT. NO. T&B BULK PACKAGE	CAT. NO. T&B DISTRIBUTOR PACKAGE
A10-TB	A18-110F
A11	A18-111F
A114	A18-8F
A115-TB	A18-10F
A116	A18-6F
A1A	2A22-20
A221	A18-6FL
A224	A18-8FL
A225	A18-10FL
A250-TB	A18-250
A251	A18-251T
A252G	A18-250A
A71	A18-14
A72	A18-516
A73	A18-38
A75	A18-12
A85	A18-6
A86	A18-8
A87	A18-10
AA2	2A-18
AB51	AB14-6A
AB52	AB14-8A
AB53	AB14-10A
AD182	AD18-182
AD183	AD18-183
B10TB	B14-110F
B115	B14-10F
B11-TB	B14-111F
B132	B14-4
B133	B14-6
B1B	2B18-16
B220	B14-6FL
B223	B14-8FL
B225	B14-10FL
B23	B14-D
B250	B14-250
B250G	B14-250F
B251	B14-251T
B251G	B14-250T
B252G	B14-250A
B64	B14-6F
B65TB	B14-8F
B71	B14-14
B72	B14-516
B73	B14-38
B75TB	B14-12
B86	B14-8
B87	B14-10
B87	B14-10
B87G	B14-10G
BB2	2B-14
BC71	BC14-14
BC72	BC14-516
BC75	BC14-12
BC79	BC14-38
BC85	BC14-6
BC86	BC14-8
BC87	BC14-10
BD183	BD14-183
C114	C10-8F
C115	C10-10F
C116-TB	C10-14F
C133	C10-6F
C1C	2C14-12
C220-TB	C10-6FL

CAT. NO. T&B BULK PACKAGE	CAT. NO. T&B DISTRIBUTOR PACKAGE
C221	C10-8FL
C222-TB	C10-10FL
C250	C10-250F
C252G	C10-250A
C26	C10-10
C33	C10-6-SK
C52-TB	C10-8A
C53	C10-10A
C70	C10-516
C71	C10-14
C73	C10-38
C75	C10-12
C77	C10-8-SK
CC2-TB	2C-10
D1D	2D10-9
D36	D8-10
D71	D8-14-SK
D72	D8-516
D73	D8-38
D75	D8-12
DD102	2D-8
E1E	2E8-7
E26	E6-10
E71	E6-14
E72	E6-516
E73	E6-38
E75	E6-12
EE2	2E-6
F1F	2F6-5
F26	F4-10
F71-TB	F4-14
F72	F4-516
F73	F4-38
F75	F4-12
FF2	2F-4
FTA250	F250TA
G1G	2G4-2
G971	G2-14
G972	G2-516
G973	G2-38
G975	G2-12
GG2	2G21
H971	H10-14
J973	J20-38
K973	K30-38
L973	L40-38
M973	M250-38
NW23	NW22-10
NW83	NW14-10
NW84	NW14-12
RA1153	RA18-10F
RA1157	18RA-10F
RA1163	RA18-14F
RA1167	18RA-6F
RA1167-170	18RA-6FX
RA1203	RA18-6FS
RA1223	RA18-8FS
RA1253	RA18-10FS
RA147PT	RA18-47PT
RA2213	RA18-6FL
RA2217	18RA-6FL
RA2217-170	18RA-6FLX
RA2243	RA18-8FL
RA2247	18RA-8FL
RA2253	RA18-10FL

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Wire Termination Technical Information

CAT. NO. T&B BULK PACKAGE	CAT. NO. T&B DISTRIBUTOR PACKAGE
RA2257	18RA-10FL
RA2257-170	18RA-10FLX
RA23	RA18D
RA250P	RA18-250FP
RA250TB	RA18-250F
RA2517	18RA-250T
RA25177	18RA-251T
RA257	18RA-250F
RA2573	18RA-2577
RA2577F	RA18-250A
RA323	RA18-4
RA47PT	18RA-47PT
RA713	RA18-14
RA717	18RA-14
RA723	RA18-516
RA727	18RA-516
RA727-170	18RA-516X
RA733	RA18-38
RA737	18RA-38
RA753	RA18-12
RA77	18RA-4
RA853	RA18-6
RA857	18RA-6
RA857-170	18RA-6X
RA863	RA18-8
RA867	18RA-8
RA867-170	18RA-8X
RA873	RA18-10
RA877	18RA-10
RA877-170	18RA-10X
RAA21	2RA18
RAA217-170	2RA18X
RAA23	2RAA
RAA24	2A20
RAAS22X	2RAS18X
RAD1823	RAD18-182
RAD1827	18RAD-182
RAD18277	18RAD-18277
RAD1833	RAD18-183
RAD1837	18RAD-183
RA10SK	RA18-110F
RA10SK	RA18-110F
RA11	RA18-111F
RA1103	RA18-6F
RA1123	RA18-8F
RA1147	18RA-8F
RA1147-170	18RA-8FX
RAD18377	18RAD-18377
RAD1887F	RAD18-188A
RB10-SK	RB14-110F
RB1113	RB14-6F
RB1123	RB14-8F
RB1153	RB14-10F
RB1157	14RB-10F
RB1153	RB14-10F
RB1157	14RB-10F
RB1157-200	14RB-10FX
RB1163	RB14-14F
RB11-TB	RB14-111F
RB1203	RB14-6FS
RB1223	RB14-8FS
RB1253	RB14-10FS
RB1323	RB14-4
RB1327	14RB-4
RB147PT	RB14-47PT

CAT. NO. T&B BULK PACKAGE	CAT. NO. T&B DISTRIBUTOR PACKAGE
RB1717	14RB-14F
RB2207	14RB-6FL
RB2207-200	14RB-6FLX
RB2213	RB14-6FL
RB2233	RB14-8FL
RB2237	14RB-8FL
RB2237-200	14RB-8FLX
RB2253	RB14-10FL
RB2257	14RB-10FL
RB2257-200	14RB-10FLX
RB23	RB14D
RB250	RB14-250F
RB250P	RB14-250FP
RB2517	14RB-250T
RB25177	14RB-251T
RB257	14RB-250F
RB2573	14RB-2577
RB2577F	RB14-250A
RB47PT	14RB-47PT
RB4-TB	RB44
RB647	14RB-6F
RB647-200	14RB-6FX
RB657	14RB-8F
RB657-200	14RB-8FX
RB713	RB14-14
RB714	RB14-14X
RB717	14RB-14
RB717-200	14RB-14X
RB723	RB14-516
RB724	RB14-516X
RB727	14RB-516
RB733	RB14-38
RB734	RB14-38X
RB737	14RB-38
RB753	RB14-12
RB853	RB14-6
RB854	RB14-6X
RB857	14RB-6
RB857-200	14RB-6X
RB863	RB14-8
RB864	RB14-8X
RB867	14RB-8
RB867-200	14RB-8X
RB873	RB14-10
RB874	RB14-10X
RB877	14RB-10
RB877-200	14RB-10X
RBB21	2RB14
RBB217-200	2RB14X
RBB23	2RBB
RBB25	2B-16
RBB250	RB14-250
RBBS22X	2RBS14X
RBC713	RBC14-14
RBC717	14RBC-14
RBC727	14RBC-516
RBC757	14RBC-12
RBC797	14RBC-38
RBC857	14RBC-6
RBC863	RBC14-8
RBC877	14RBC-10
RBD1823	RBD14-182
RBD1827	14RBD-182
RBD18277	14RBD-18277
RBD1833	RBD14-183

CAT. NO. T&B BULK PACKAGE	CAT. NO. T&B DISTRIBUTOR PACKAGE
RBD1837	14RBD-183
RBD18377	14RBD-18377
RC1113	RC10-6F
RC1123	RC10-8F
RC1147	10RC-8F
RC1153	RC10-10F
RC1157	10RC-10F
RC1157-250	10RC-10FX
RC1163	RC10-14F
RC1167	10RC-14F
RC1223	RC10-8FS
RC1253	RC10-10FS
RC1337	10RC-6F
RC155PT	RC10-55PT
RC2203	RC10-6FL
RC2207	10RC-6FL
RC2207-250	10RC-6FLX
RC2213	RC10-8FL
RC2217	10RC-8FL
RC2217-250	10RC-8FLX
RC2223	RC10-10FL
RC2227	10RC-10FL
RC2227-250	10RC-10FLX
RC2233	RC10-14FL
RC2237	10RC-14FL
RC250	RC10-250F
RC2517	10RC-250T
RC25177	10RC-251T
RC257	10RC-250F
RC2573	10RC-2577
RC2577F	RC10-250A
RC333	RC10-6
RC334	RC10-6X
RC337	10RC-6
RC337-250	10RC-6X
RC363	RC10-10
RC364	RC10-10X
RC367	10RC-10
RC367-250	10RC-10X
RC55PT	10RC-55PT
RC6	RC55
RC703	RC10-516
RC704	RC10-516X
RC707	10RC-516
RC713	RC10-14
RC714	RC10-14X
RC717	10RC-14
RC717-250	10RC-14X
RC733	RC10-38
RC734	RC10-38X
RC737	10RC-38
RC737-250	10RC-38X
RC753	RC10-12
RC777	10RC-8
RC777-250	10RC-8X
RC863	RC10-8
RC864	RC10-8X
RCC21	2RC10
RCC217-250	2RC10X
RCC23	2RCC
RCC26	2C-12
RCCS22X	2RCS10X
RD367	RD8-10
RD717	RD8-14
RD727	RD8-516

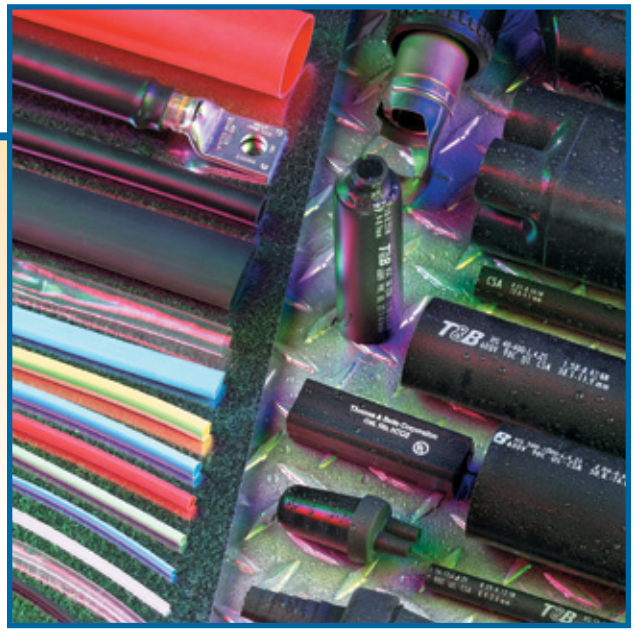
CAT. NO. T&B BULK PACKAGE	CAT. NO. T&B DISTRIBUTOR PACKAGE
RD737	RD8-38
RD757	RD8-12
RDD27	2RD8
RE267	RE6-10
RE717	RE6-14
RE727	RE6-516
RE737	RE6-38
RCC23	2RCC
RCC26	2C-12
RCCS22X	2RCS10X
RD367	RD8-10
RD717	RD8-14
RD727	RD8-516
RD737	RD8-38
RD757	RD8-12
RDD27	2RD8
RE267	RE6-10
RE717	RE6-14
RE727	RE6-516
RE737	RE6-38
RE757	RE6-12
REE28	2RE6
RF267	RF4-10
RF717	RF4-14
RF727	RF4-516
RF737	RF4-38
RG267	RG2-10
RG717	RG2-14
RG727	RG2-516
RG737	RG2-38
RG757	RG2-12
RP7	RP12

Shrink-Kon® Heat-Shrinkable Tubing

Protect against moisture, corrosion and abrasion!

T&B has you covered when it comes to insulation!

- Easy to use
- Heat shrinkable
- Products for heavy, medium and thin walls
- Covers available for H-type taps and splices





Shrink-Kon® Heavy-Wall Heat-Shrinkable Insulators

When it comes to moisture-proofing connections and terminations, T&B's heat-shrinkable tubing, boots and end caps have proven themselves over years of service to the industry. Made of thermally stabilized cross-linked polyolefin, these heat-shrinkable insulators can be used over lead, steel, aluminum, copper, standard plastic and elastomeric insulating materials.

T&B heat-shrinkable insulators are designed to be easy to use. They provide an appropriate level of insulation and abrasion protection.

Where applicable, T&B heat-shrink insulators are UL Listed. Also, all standard-size insulators have an internally applied adhesive sealant.

T&B Heat-Shrinkable Insulators Offer:

- Heavy-duty protection
- A full range of sizes from #14 to 2500 kcmil
- Field-proven reliability
- Internal sealant provides protection against moisture

Featured Products Include:

- High Shrink Ratio HSHR series with 6:1 shrink ratio designed for applications with extreme differences between cable, connector and back shell sizes
- Flame Retardant HSFR series provides maximum flame retardancy

Shrink-Kon® Heavy-Wall Heat-Shrinkable End Cap and Boots

Redesigned for superior durability and performance!

Seals and insulates cable ends at a 600V rating. Installs fast, while providing insulation resistance to moisture, corrosion and abrasion. The extra thickness at the tip of the end cap prevents sharp ends of the cable from puncturing the seal.

Seals and insulates multiconductor cables and conduit with the same cost savings and superior properties of T&B's heat-shrinkable tubing. These boots replace time-consuming tapes, epoxies, encapsulations and dips. The boots are internally coated with sealant.





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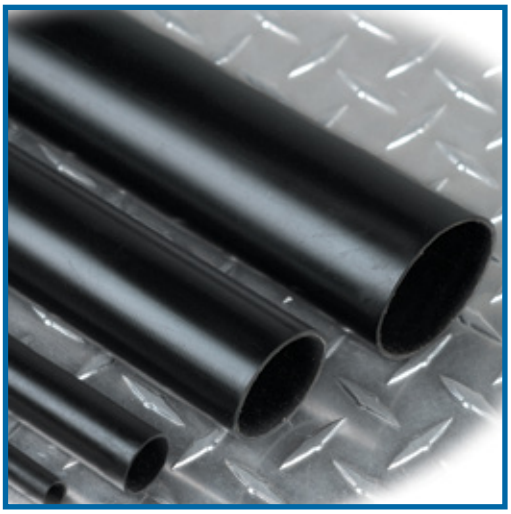
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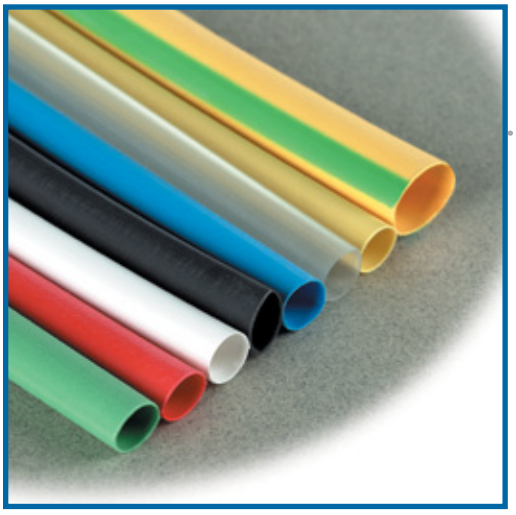
Shrink-Kon® Heat-Shrinkable Tubing

Shrink-Kon® Medium Wall Tubing



More flexible than heavy-wall products, with excellent resistance to impact and abrasion.

- Seals and protects cable splices and terminations
- Thermoplastic adhesive liner guarantees complete environmental protection and insulation



Shrink-Kon® Thin Wall Tubing

Manufactured from stabilized Polyolefin, these insulators are used to insulate bare Sta-Kon® and Blackburn® connectors and splices. They also provide a degree of strain relief and may be used to harness wires. Available in cut pieces or reels.

Featured Products Include:

- Standard non-lined 2:1 thin wall tubing
- 3:1 adhesive-lined thin wall CPO-A series provides excellent flexibility with environmental sealing capability
- Extra-clear heat shrink for use on power connections and data connections

Covers

These new insulating covers provide hard-shell insulated protection for "H" type compression taps and splices, and, because there is no taping required, you get uniform quality and appearance each time. The exclusive locking design provides the range-taking capability. Only six H-tap insulating catalog numbers accommodate the range of #6 AWG – 1000 kcmil in the main and #12 AWG – 500 kcmil in the branch.

- Hard-shell outer covers guard against impact, inner seal keeps out dust
- Installs quickly and easily without special tools — simply snap together
- Eliminates time-consuming taping
- Provides high-quality, neat, uniform installations
- Range-taking design reduces inventory



Shrink-Kon® Heat-Shrinkable Tubing

HS Series

3:1 Shrink Ratio



- Made of thermally stabilized cross-linked polyolefin, enabling a recovered wall thickness greater than the cable jacket replaced
- Withstands severe mechanical requirements of U.R.D., submersible, and direct-burial installations
- Tubing, featuring an internally applied sealant, offers protection against moisture, and may be used over lead, steel, aluminum, copper, standard plastic and elastomeric insulating materials
- Shrink temperature of 120° C
- High impact, abrasion, corrosion and chemical resistance
- Rated for 600V, 90° C continuous use. Maximum rating 1kV at 90° C
- Thermoplastic adhesive liner provides complete environmental protection and insulation
- Meets: UL® 486D, CSA C22.2 No. 198.2, ANSI C119.1, Western Underground Guide Numbers 2.4, 2.5, ICEA and NEMA insulation thickness requirements
- Continuous operating temperature: -55° C to 110° C

HS Series Specifications

PROPERTY	TEST METHOD	TYPICAL PERFORMANCES
Physical		
• Tensile Strength	ASTM D412, ISO 37	2100 psi (14.5MPa)
• Elongation	ASTM D412, ISO 37	600%
• Elongation after Heat Aging (168 hrs. at 150° C)	ASTM D2671	500%
• Heat Shock (4 hrs. at 225° C)	ASTM D2671	No cracking or flowing
• Longitudinal Change	ASTM D2671	+1%, -10%
• Low Temperature Flexibility (4 hrs. at -55° C)	ASTM D2671	No cracking
• Specific Gravity	ASTM D792	1.1
• Hardness (Shore D)	ASTM D2240	50D
Electrical		
• Dielectric Strength	ASTM D149	500V/Mil (20kV/mm)
• Dielectric Voltage Withstand	UL 486D	No Breakdown, (2500V, 60 Hz, 1 Min.)
• Volume Resistivity	ASTM D257	1016 ohm-cm

PROPERTY	TEST METHOD	TYPICAL PERFORMANCES
Chemical		
• Fluid Resistance	MIL-DTL-23053	Good to Excellent
• Fungus Resistance	ASTM G21	No Growth
• Copper Corrosion	ASTM D2671	No Corrosion
• Water Absorption	ASTM D570	0.1%
Adhesive		
• Adhesive Lap Sheer (1 in./min. at 23° C)	ASTM D1002	125 psi (.875 MPa)
• Adhesive Softening Point	ASTM E28	92° C ±5° C
• Adhesive Peel Strength (300mm/min. at 23° C)	ASTM D1000	
— to steel, aluminum, P.E.		35 pli
— PVC		20 pli
• Water Penetration	STM 706	No penetration after 236 hrs. of continuous immersion

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Shrink-Kon® Heat-Shrinkable Tubing

HS Series Heavy-Wall Heat-Shrinkable Tubing — Black

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX. RECOVERED I.D. (IN.)	NOM. RECOVERED WALL (IN.)	STD. LENGTH (IN.)	FITS ANY LISTED OR CERTIFIED AL OR CU SPLICE WITH DIM NO LARGER THAN O.D. (IN.)	FITS ANY LISTED OR CERTIFIED AL OR CU SPLICE WITH DIM NO LARGER THAN LENGTH (IN.)	STD. CABLE RANGE	PKG. QTY.
HS16-12	.35	.12	.07	3	.27	1.00	#16 to #12 AWG	25
HS16-12L	.35	.12	.07	6	.27	1.00	#16 to #12 AWG	25
HS16-12-4	.35	.12	.07	48	.27	1.00	#16 to #12 AWG	5
HS12-6	.51	.16	.09	3	.38	1.75	#12 to #6 AWG	25
HS12-6L	.51	.16	.09	6	.38	1.75	#12 to #6 AWG	25
HS12-6-4	.51	.16	.09	48	.38	1.75	#12 to #6 AWG	5
HS6-1	.75	.24	.09	4	.63	2.50	#6 to #1 AWG	25
HS6-1L	.75	.24	.09	8	.63	2.50	#6 to #1 AWG	25
HS6-1-4	.75	.24	.09	48	.63	2.50	#6 to #1 AWG	5
HS4-30	1.10	.35	.12	5	.75	3.25	#4 to 3/0 AWG	20
HS4-30L	1.10	.35	.12	9	.75	3.25	#4 to 3/0 AWG	10
HS4-30-4	1.10	.35	.12	48	.75	3.25	#4 to 3/0 AWG	5
HS40-400	1.50	.47	.16	8	—	—	4/0 AWG to 400 kcmil	10
HS40-400L	1.50	.47	.16	12	—	—	4/0 AWG to 400 kcmil	10
HS40-400-4	1.50	.47	.16	48	—	—	4/0 AWG to 400 kcmil	5
HS500-1000	2.00	.63	.16	9	—	—	500–1000 kcmil	5
HS500-1000L	2.00	.63	.16	15	—	—	500–1000 kcmil	2
HS500-1000-4	2.00	.63	.16	48	—	—	500–1000 kcmil	2
HS12-30*	3.54	1.18	.16	12	—	—	800–1250 kcmil	2
HS30-30*	3.54	1.18	.16	30	—	—	800–1250 kcmil	2
HS30-4*	3.54	1.18	.16	48	—	—	800–1250 kcmil	1
HS12-40*	4.72	1.57	.17	12	—	—	1500–2500 kcmil	1
HS30-40*	4.72	1.57	.17	30	—	—	1500–2500 kcmil	1
HS40-4-TB*	4.72	1.57	.17	48	—	—	1500–2500 kcmil	1

Order multiple is std. pkg.
All lengths have factory-applied sealant.
UL File No. E9809, UL 486D.
** Not UL Listed.*







HS Series Heavy-Wall Heat-Shrinkable Tubing — Red

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX. RECOVERED I.D. (IN.)	LENGTH (IN.)	FOR 2-WAY CONNECTOR CABLE SIZES	STD. PKG. QTY.
HS12-6LR	.51	.16	6	#8–#6 AWG	25
HS6-1LR	.75	.24	8	#6–#2 AWG	25
HS4-30LR	1.10	.35	9	#1–3/0 AWG	10

Order multiple is std. pkg.
All lengths have factory-applied sealant.
UL File No. E9809, UL 486D



Heavy-Wall Tubing (25' rolls) — Black

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX. RECOVERED I.D. (IN.)	NOMINAL RECOVERED WALL (IN.)	CODE CABLE SIZE	STD. PKG. (ROLLS)
HS16-12-25	.35	.12	.07	#14–#10 AWG	1
HS12-6-25	.51	.16	.09	#8–#6 AWG	1
HS6-1-25	.75	.24	.09	#6–#2 AWG	1
HS4-30-25	1.10	.35	.12	#1–3/0 AWG	1
HS40-400-25	1.50	.47	.16	2/0 AWG–350 kcmil	1
HS500-1000-25	2.00	.63	.16	250–500 kcmil	1

*Order by reel, not by feet. 25' reels **not** supplied with factory-applied sealant.*
Not UL Listed.



Shrink-Kon® Heat-Shrinkable Tubing

HSHR Series — High Shrink Ratio

- Accommodates a wide variety of connector shapes and configurations
- Thermoplastic adhesive liner for complete environmental protection and insulation
- Continuous operating temperature: -55° C to 110° C
- Shrink temperature: 120° C
- Flame retardant: UL94 – V0





HSHR Series Heavy-Wall Heat-Shrinkable Tubing

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX RECOVERED I.D. (IN.)	NOMINAL RECOVERED WALLED (IN.)	CODE CABLE SIZE	STANDARD LENGTH (IN.)	STD. PKG. QTY.
HSHR750-4	.75	.13	.10	#22–#46 AWG	48	25
HSHR1300-4	1.30	.22	.12	#8 AWG–700 kcmil	48	25
HSHR1750-4	1.75	.29	.13	#4 AWG–1000 kcmil	48	25
HSHR2000-4	2.00	.33	.13	#2 AWG–1250 kcmil	48	25
HSHR2750-4	2.75	.46	.14	1/0 AWG–1500 kcmil	48	15
HSHR3500-4	3.50	.58	.15	3/0 AWG–1750 kcmil	48	10
HSHR4700-4	4.70	.78	.15	300–2000 kcmil	48	5

Order multiple is std. pkg.
Standard color: black.

HSHR Series Specifications

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Physical		
• Tensile Strength	ASTM D412, ISO 37	2100 psi (14.5MPa)
• Elongation	ASTM D412, ISO 37	600%
• Elongation after Heat Aging (168 hrs. at 175° C)	ASTM D2671	500%
• Heat Shock (4 hrs. at 225° C)	ASTM D2671	No cracking or flowing
• Longitudinal Change	ASTM D2671	+1%, -10%
• Low-Temperature Flexibility (4 hrs. at -55° C)	ASTM D2671	No cracking
• Specific Gravity	ASTM D792	1.10
• Hardness (Shore D)	ASTM D2240	50D
Electrical		
• Dielectric Strength	ASTM D149, IEC 243	500V/Mil (20kV/mm)
• Dielectric Voltage Withstand	UL 486D	No Breakdown
• Volume Resistivity	ASTM D257	1016 ohm-cm

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Chemical		
• Fluid Resistance	MIL-DTL-23053/15	Good to Excellent
• Fungus Resistance	ASTM G21	No Growth
• Copper Corrosion	ASTM D2671	No Corrosion
• Water Absorption	ASTM D570	0.1%
Adhesive		
• Adhesive Lap Sheer (1 in./min. at 23° C)	ASTM D1002	125 psi (.875 MPa)
• Adhesive Softening Point	ASTM E28	92° C/-5° C
• Adhesive Peel Strength (300mm/min. at 23° C)	ASTM D1000	
— to steel, aluminum, P.E.		35 pli
— PVC		20 pli
• Adhesive Blocking (30° C)	ASTM D1146	No Blocking
• Water Penetration	STM 706	No penetration after 236 hrs. of continuous immersion

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Shrink-Kon® Heat-Shrinkable Tubing

HSFR Series — Flame-Retardant Heavy Wall

- Insulates and protects electrical splices and terminations
- High impact and abrasion resistance
- Thermoplastic adhesive liner
- Rated for 600V, 90° C continuous use. Continuous operating temperature: -55° C to 110° C
- Shrink temperature of 120° C
- Meets: UL® 486D, CSA 22.2 No. 198.2, ANSI C119.1, Western Underground Guide Nos. 2.4, 2.5, MIL-DTL-23053/15, IEEE 383 Vertical Flame Test, ANSI C37.20.2, ICEA S-19-8 and NEMA insulation thickness requirements





HSHR Series Heavy-Wall Heat-Shrinkable Tubing

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX RECOVERED I.D. (IN.)	NOMINAL RECOVERED WALLED (IN.)	CODE CABLE SIZE	STANDARD LENGTH (IN.)	STD. PKG. QTY.
HSFR16-12-4	.35	.12	.07	#14–#10 AWG	48	25
HSFR12-6-4	.51	.16	.09	#8–#6 AWG	48	25
HSFR6-1-4	.75	.24	.09	#6–#2 AWG	48	25
HSFR4-30-4	1.10	.35	.12	#1–3/0 AWG	48	25
HSFR40-400-4	1.50	.47	.16	2/0 AWG–350 kcmil	48	25
HSFR500-1000-4	2.00	.63	.16	250–500 kcmil	48	25

Custom lengths available, subject to factory quotations.
Minimum quantities may apply.

HSFR Series Specifications

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Physical		
• Tensile Strength	ASTM D412, ISO 37	2100 psi (14.5MPa)
• Elongation	ASTM D412, ISO 37	600%
• Longitudinal Change	ASTM D2671	+1%, -10%
• Specific Gravity	ASTM D792	1.2
• Elongation after Heat Aging (168 hrs. at 175° C)	ASTM D2671, ISO 37	500%
• Heat Shock (4 hrs. at 225° C)	ASTM D2671	No cracking or flowing
• Low Temperature Flexibility (4 hrs. at -55° C)	ASTM D2671	No cracking or splitting
• Hardness (Shore D)	ASTM D2240	50D
• Oxygen Index	ASTM D2863	27.00
• Flamibility	ASTM D2671	Flame Retardant
Electrical		
• Dielectric Strength	ASTM D149	500 V/Mil (20kV/mm)
• Dielectric Voltage Withstand (2500V, 60 Hz, 1 Min.)	UL 486D	No Breakdown 24kV — 1 min., 15kV — 4 hrs.
• Volume Resistivity	ASTM D257	1016 ohm-cm

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Chemical		
• Fluid Resistance	MIL-DTL-23053/5	Good to Excellent
• Copper Corrosion	ASTM D2671	No Corrosion
• Fungus Resistance	ASTM G21	No Growth
• Water Absorption	ASTM D570	0.2%
Adhesive		
• Adhesive Lap Shear (1 in./min. at 23° C)	ASTM D1002	125 psi (.875 MPa)
• Adhesive Softening Point	ASTM E28	92° C ±5° C
• Adhesive Peel Strength (300mm/min. at 23° C)	ASTM D1000	
— to steel, aluminum, P.E.		35 pli
— PVC		20 pli
• Adhesive Blocking (30° C)	ASTM D1146	No Blocking
• Adhesive Water Absorption	ASTM D570	Less than 0.3%
• Water Penetration	STM 706	No penetration after 286 hrs. of continuous immersion

Shrink-Kon® Heat-Shrinkable Tubing

HSC Series End Caps



- Provides effective method for sealing cable ends, pipe conduit, etc.
- Extra thickness at the tip of the end cap prevents sharp ends of the cable from puncturing the seal
- Flame retardant
- Rated from 600/1000V, 90° continuous use
- Shrink temperature of 120° C
- Resistant to common fluids and solvents
- Adhesive liner provides complete environmental protection and insulation
- Heat indicating lines. Continuous operating temperature: -55° C to 110° C

HSC Series Heat-Shrinkable End Caps

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX RECOVERED I.D. (IN.)	RECOVERED WALLED (IN.)	CODE CABLE SIZE	STANDARD LENGTH (IN.)	STD. PKG. QTY.
HSC8-4	.51	.16	.09	#8–#6 AWG	2.50	10
HSC2-20	.75	.24	.09	#6–#2 AWG	2.50	10
HSC30-250	1.10	.35	.12	#1–3/0 AWG	3.00	5
HSC300-600	1.50	.47	.16	2/0 AWG–350 kcmil	3.50	5
HSC700-1000	2.00	.63	.16	250–500 kcmil	3.50	5
HSC750	2.70	.87	.16	600–1000 kcmil	4.00	10
HSC300*	3.50	1.18	.16	800–1250 kcmil	4.50	5
HSC500*	4.70	1.57	.17	1500–2500 kcmil	5.50	5

Order multiple is std. pkg.

**Not UL Listed or CSA Certified.*

HSC Series Specifications

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Physical		
• Tensile Strength	ASTM D412, ISO 37	2100 psi (14.5MPa)
• Elongation	ASTM D412, ISO 37	550%
• Elongation after Heat Aging (168 hrs. at 150° C)	ASTM D2671	500%
• Heat Shock (4 hrs. at 225° C)	ASTM D2671	No cracking or flowing
• Longitudinal Change on Recovery	ASTM D2671	+1%, -10% on Recovery
• Low-Temperature Flexibility (4 hrs. at -55° C)	ASTM D2671	No cracking
• Specific Gravity	ASTM D792	1.10
• Hardness (Shore D)	ASTM D2240	50D
Electrical		
• Dielectric Strength	ASTM D149	500V/Mil (20kV/mm)
• Dielectric Voltage Withstand	UL 486D	No Breakdown (2500V, 60 Hz, 1 Min.)
• Volume Resistivity	ASTM D257	1016 ohm-cm

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Chemical		
• Fluid Resistance	MIL-DTL-23053	Good to Excellent
• Fungus Resistance	ASTM G21	No Growth
• Copper Corrosion	ASTM D2671	No Corrosion
• Water Absorption	ASTM D570	.1%
Seal Integrity		
• Adhesive Lap Shear (1 in./min. at 23° C)	ASTM D1002	130 psi (.91 MPa)
• Adhesive Softening Point	ASTM E28	92° C ±-5° C
• Adhesive Peel Strength (300mm/min. at 23° C)	ASTM D1000 (mod.)	
— to steel, aluminum, P.E.		35 pli
— PVC		20 pli
• Adhesive Blocking (30° C)	ASTM D1146	No Blocking
• Water Penetration	STM 706	No penetration after 236 hrs. of continuous immersion
• Room Temperature	168 hrs./40 psi	No leaks
• Temp. Cycling (-40° C to 60° C)	50 cycles/15 psi	No leaks
• Burst Pressure		100 psi (0.70 MPa)

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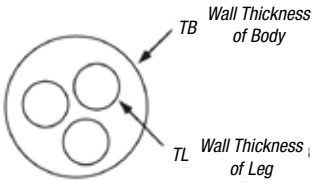
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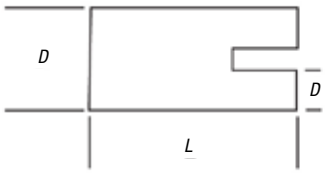
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Shrink-Kon® Heat-Shrinkable Tubing

HSB Series — Heat-Shrinkable Breakout Boots









- Boots for 2-, 3- and 4-way cable breakouts
- Thermoplastic adhesive liner provides complete environmental protection and insulation
- Meets ESI 09-11
- Strain relief and mechanical protection
- Continuous operating temperature: -55° C to 100° C
- Shrink temperature of 135° C

HSB Series Heat-Shrinkable Breakout Boots

		D		d		L	TB	TL		
CAT. NO.	NO. LEGS	MIN. EXPANDED I.D. (IN.)	MAX RECOVERED I.D. (IN.)	EXPANDED DIA. (MAX.) (IN.)	RECOVERED DIA. (MAX.) (IN.)	RECOVERED LENGTH (NOM.) (IN.)	WALL THICKNESS OF BODY (NOM.) (IN.)	WALL THICKNESS OF LEG (NOM.) (IN.)	APPLICATION LEGS 600V CONDUCTOR AWG/KCMIL	STD. PKG. QTY.
HSB200-75-2	2	1.97	.83	.90	.20	4.69	.13	.13	#3–300	10
HSB120-50-3	3	1.50	.65	.50	.16	4.47	.11	.11	#8–3/0	10
HSB170-82-3	3	2.20	1.20	.89	.35	7.09	.12	.12	#1–600	10
HSB240-112-3	3	2.83	1.46	1.38	.69	7.01	.16	.12	300–1000	10
HSB125-50-4	4	1.38	.59	.47	.12	3.74	.10	.08	#12–2/0	10
HSB175-82-4	4	2.36	1.18	.90	.25	7.95	.16	.13	#4–600	10
HSB265-120-4	4	3.10	1.50	1.40	.49	9.45	.13	.13	3/0–1000	10
HSB350-138-3	3	3.54	1.38	1.34	.55	7.87	.12	.08	4/0–1000	5
HSB430-157-3	3	4.33	1.57	1.38	.69	7.01	.16	.12	300–1000	5
HSB490-200-3	3	4.92	2.00	2.32	1.00	11.14	.15	.15	750–1000	5
HSB520-135-4	4	5.25	1.35	3.00	.55	10.02	.13	.16	4/0–1000	5

Order multiple is std. pkg.

Heat-Shrinkable Breakout Boots Specifications

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Physical		
• Tensile Strength	ASTM D412, IEC 540	2120 psi (14.6 MPa)
• Ultimate Elongation	ASTM D412, IEC 540	600%
• Elongation after Heat Aging (168 hrs. at 175° C)	ASTM D412, IEC 540	520%
• Heat Shock (4 hrs. at 225° C)	ASTM D2671	No dripping, cracking, flowing
• Low-Temperature Flexibility (-55° C)	ASTM D2671	No cracking
• Flammability	ASTM D630	Self ext. within 1.97"

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Electrical		
• Dielectric Strength	ASTM D2671	280V/Mil (11kV/mm)
Chemical		
• Water Absorption	ASTM D570	.03%

Shrink-Kon® Heat-Shrinkable Tubing

HSMW Series — Medium-Wall Tubing

- More flexible than heavy-wall products
- Seals and protects cable splices and terminations
- High resistance to impact and abrasion
- Shrink temperature of 120° C
- Continuous operating temperature: -55° C to 110° C
- Thermoplastic adhesive liner guarantees complete environmental protection and insulation





HSMW Series Medium-Wall Heat-Shrinkable Tubing

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX RECOVERED I.D. (IN.)	NOMINAL RECOVERED WALLED (IN.)	CODE CABLE SIZE	STANDARD LENGTH (IN.)	STD. PKG. QTY.
HSMW400-48	.40	.15	.080	#4–#14 AWG	48	25
HSMW750-48	.75	.22	.080	4/0–#8 AWG	48	25
HSMW1100-48	1.10	.40	.095	400 kcmil–#1 AWG	48	25
HSMW1300-48	1.30	.40	.095	600 kcmil–#1 AWG	48	25
HSMW1500-48	1.50	.50	.095	750 kcmil–3/0 AWG	48	25
HSMW1700-48	1.70	.50	.100	1000 kcmil–2/0 AWG	48	25
HSMW2050-48	2.05	.75	.100	250 –600 kcmil	48	25
HSMW2750-48	2.75	1.00	.100	500–1000 kcmil	48	15
HSMW3500-48	3.50	1.18	.100	750–1250 kcmil	48	10
HSMW4700-48	4.70	1.57	.110	1500–2500 kcmil	48	5
HSMW6700-48	6.70	2.30	.120	—	48	5
HSMW9000-48	9.00	3.00	.130	—	48	5

Order multiple is std. pkg.

HSMW Series Specifications

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Physical		
• Tensile Strength	ASTM D412, ISO 37	2100 psi (14.5MPa)
• Elongation	ASTM D412, ISO 37	550%
• Longitudinal Change	ASTM D2671	+1%, -10%
• Specific Gravity	ASTM D792, ISO/R1183	1.1
• Elongation after Heat Aging (168 hrs. at 150° C)	ASTM D2671, ISO 37	500%
• Heat Shock (4 hrs. at 225° C)	ASTM D2671	No Cracking or Flowing
• Low-Temperature Flexibility (4 hrs. at -55° C)	ASTM D2671	No Cracking
• Hardness (Shore D)	ASTM D2240	50D
Electrical		
• Dielectric Strength	ASTM D149, IEC 243	500V/Mil (20kV/mm)
• Dielectric Voltage Withstand (2500V, 60 Hz, 1 Min.)	UL 486D	No Breakdown
• Volume Resistivity	ASTM D257	10^{16} ohm-cm

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Chemical		
• Fluid Resistance	MIL-DTL-23053/5, ISO 1817, ISO 37	Good to Excellent
• Copper Corrosion	ASTM D2671	No Corrosion
• Fungus Resistance	ASTM G21	No Growth
• Water Absorption	ASTM D570	.1%
Adhesive		
• Adhesive Lap Sheer (1 in./min. at 23° C)	ASTM D1002 (mod)	125 psi (.875 MPa)
• Adhesive Softening Point	ASTM E28	92° C/-5° C
• Adhesive Peel Strength (300mm/min. at 23° C)	ASTM D1000	
— to steel, aluminum, P.E.		35 pli
— PVC		20 pli
• Adhesive Blocking (30° C)	ASTM D1146	No Blocking
• Water Penetration	STM 706	No penetration after 286 hrs. of continuous immersion

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Shrink-Kon® Heat-Shrinkable Tubing

CPO Series — Thin-Wall Tubing, Non-Lined

- Flame-retardant, cross-linked polyolefin
- Continuous operating temperature: -55° C to 135° C
- Shrink temperature of 120° C
- Meets UL 224, 125° C; CSA C22.2 No. 198.1, 125° C; MIL-DTL-23053/5 Class 1&2; AMS 3636 & 3637; DEF STAN 59-97, Issue 3, Type 2a



CPO Series Thin-Wall Heat-Shrinkable Tubing

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX RECOVERED I.D. (IN.)	NOM. RECOVERED WALLED (IN.)	CODE CABLE SIZE
CP063-_-_	.06	.03	.02	—
CP093-_-_	.09	.05	.02	—
CP0125-_-_	.13	.06	.02	#24–#30 AWG
CP0187-_-_	.19	.09	.02	#14–#22 AWG
CP0250-_-_	.25	.13	.03	#10–#16 AWG
CP0375-_-_	.38	.19	.03	#6–#12 AWG
CP0500-_-_	.50	.25	.03	#1–#6 AWG
CP0750-_-_	.75	.38	.03	4/0–#2 AWG
CP01000-_-_	1.00	.50	.04	350 kcmil–2/0 AWG

See catalog construction to complete.

*UL Recognized File Number E137759 and CSA Certified. (**Note**: Clear material not UL Recognized.)*

When ordering standard package, order by package not feet.

Larger diameters available upon special request; consult Technical Services.

Order multiple for 4' sticks is 25 sticks.
Order multiple for reels is 1 reel.

Catalog Number Construction

SERIES		COLOR		LENGTH FT.		FINAL ORDER NO.
CP063	+	0	+	C	=	CP063-0-C

Available Colors

0 = Black
C = Clear
2 = Red
4 = Yellow
5 = Green
6 = Blue
8 = Gray**
9 = White
S = Green & Yellow Striped*

Available Packaging

A = 4'
25 = 25' reel
C = 100' reel
B = Bulk reel

** Contact customer service for bulk reel quantity.*
*** Minimum order required.*

Thin-Wall Heat-Shrinkable Tubing Kit



CAT. NO.	DESCRIPTION	STD. PKG.
HS-KIT	Assortment of six different sizes (from 3⁄16" to 1") of black thin-wall heat-shrinkable tubing pre-cut to 6" lengths. Exceptional value; also includes handy plastic storage case.	1
CHS-KIT	Assortment of six different sizes (from 3⁄16" to 1") of multi-colored thin-wall heat-shrinkable tubing pre-cut to 6" lengths. Exceptional value; also includes handy plastic storage case.	1

Order multiple is std. pkg.

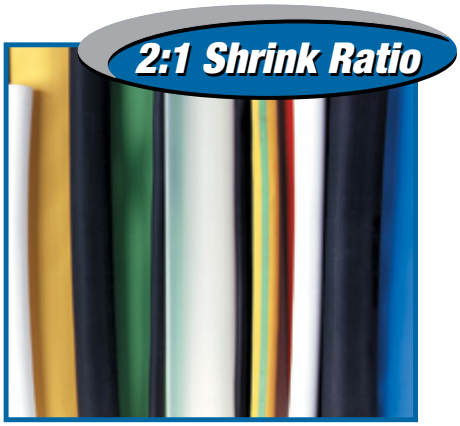
Thin-Wall Heat-Shrinkable Tubing — 6" Lengths

CAT. NO.	MINIMUM EXPANDED I.D. (IN.)	MAXIMUM REDUCED I.D. (IN.)	NOM. RECOVERED WALL THICKNESS (IN.)	STD. PKG. QTY.
CP063-0-6	.06	.03	.02	20
CP093-0-6	.09	.05	.02	20
CP0125-0-6	.13	.06	.02	20
CP0187-0-6	.19	.09	.02	20
CP0250-0-6	.25	.13	.03	20
CP0375-0-6	.38	.19	.03	20
CP0500-0-6	.50	.25	.03	10
CP0750-0-6	.75	.38	.03	10
CP01000-0-6	1.00	.50	.04	5

Order multiple is std. pkg.
Catalog numbers listed are Black color; other colors available upon request.

Shrink-Kon® Heat-Shrinkable Tubing

Custom order lengths for those special jobs!



Custom-Cut Length of Bulk Packaging — Thin-Wall Tubing

To best meet your requirements for thin-wall heat-shrinkable tubing, Thomas & Betts welcomes the opportunity to cut bulk reels of tubing. Minimum order requirement is one standard bulk reel, and multiples thereof. See table for bulk reel length by size. Tubing cannot be cut smaller than ½".

When ordering custom-cut lengths of tubing, order by piece, not by length. To determine the minimum number of pieces to order, simply figure how many pieces of a specific length of tubing are required to make use of a complete bulk reel. See examples to convert bulk reels to cut pieces.

SERIES	BULK REEL LENGTH (FT.)	SERIES	BULK REEL LENGTH (FT.)
CPO63 = 1/16"	1,000	**CPO375 = 3/8"**	500
CPO93 = 3/32"	1,000	**CPO500 = 1/2"**	400
CPO125 = 1/8"	1,000	**CPO750 = 3/4"**	300
CPO187 = 3/16"	1,000	**CPO1000 = 1"**	300
CPO250 = 1/4"	1,000		

Minimum order quantity for cut pieces.

Example 1

If a bulk length of tubing is 1,000' and the desired length of each individual piece is 6", the minimum order requirement is 2,000 pieces.

Given (length of reel).....1,000'

Convert to inches by multiplying by 12.....12 x 1,000

Length of reel in inches.....= 12,000

Divide by desired length.....12,000 ÷ 6

Total number of 6" pieces in a 1,000' reel (Minimum Order).....= 2,000

Example 2

If a bulk reel of tubing is 400' and the desired length of each individual piece is 2", the minimum order requirement is 2,400 pieces.

Given (length of reel).....400'

Convert to inches by multiplying by 12.....12 x 400

Length of reel in inches.....= 4,800

Divide by desired length.....4,800 ÷ 2

Total number of 2" pieces in a 400' reel (Minimum Order).....= 2,400

Contact tech services for pricing and availability on cut pieces.

	CUT PIECE CATALOG NO. CONSTRUCTION		
THINWALL SERIES	MINIMUM EXPANDED I.D. (IN.)	COLOR	LENGTH (IN.)
CPO =	**63** = .063	**0** = Black	XXXX — 4 digits specify length of cut in inches
	93 = .093	**C** = Clear	
	125 = .125	**2** = Red	
	187 = .187	**4** = Yellow	
	250 = .250	**5** = Green	
	375 = .375	**6** = Blue	
		8 = Gray	
	500 = .500	**9** = White	
	750 = .750	**S** = Green & Yellow Striped*	
	1,000 = 1.000		

Example: CPO + 125 + 2 + 1.500 = CPO125-2-1.500
CPO Thinwall Shrink, size 125 (.125"), red color, 1.5" long

**Contact customer service for bulk reel quantity.*

Thin-Wall Tubing Specifications

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Physical		
• Tensile Strength	ASTM D2671, ISO 37	2,200 psi (15.0 MPa)
• Elongation	ASTM D2671, ISO 37	400%
• Longitudinal Change	ASTM D2671	+1%, -10%
• 2% Secan Modulus	ASTM D2671	16,000 psi (110 MPa)
• Specific Gravity	ASTM D792, ISO/R1183	1.3" (colors) .95" (clear)
• Restricted Shrinkage	ASTM D2671	No Cracking
• Elongation after Heat Aging (168 hrs. at 175° C)	ASTM D2671	350%
• Heat Shock (4 hrs. at 250° C)	ASTM D2671	No Cracking or Flowing
• Low-Temperature Flexibility (4 hrs. at -55° C	ASTM D2671	No Cracking or Splitting
• Flammability	ASTM D2671	Flame Retardant (except Clear)
Electrical		
• Dielectric Strength	ASTM D2671, IEC 243	600V/Mil (24kV/mm)
• Volume Resistivity	ASTM D2671	1016 O HM-CM
Chemical		
• Fluid Resistance	MIL-DTL-23053/5, ISO 1817, ISO 37	Good to Excellent
• Copper Corrosion	ASTM D2671	No Corrosion
• Water Absorption	ASTM D570	.2%
• Fungus Resistance	ASTM G21	No Growth

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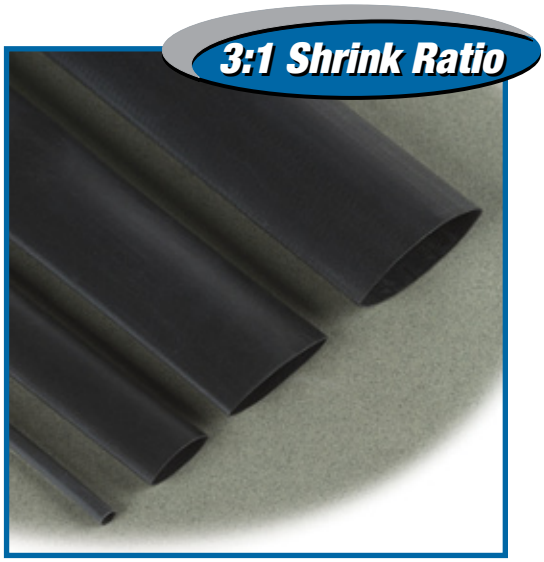
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Shrink-Kon® Heat-Shrinkable Tubing

CPO-A Series — Thin-Wall, Adhesive Lined



- Adhesive lined for moisture-proof environmental seal
- High 3:1 shrink ratio for covering irregularly shaped objects
- Continuous operating temperature: -55° C to 110° C
- Shrink temperature 120° C

CPO-A Series Thin-Wall Heat-Shrinkable Tubing

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX RECOVERED I.D. (IN.)	NOMINAL RECOVERED WALLED (IN.)	CODE CABLE SIZE	STANDARD LENGTH (IN.)	STD. PKG. QTY.
CPO-A-125-48	.13	.02	.04	#24–#30 AWG	48	25
CPO-A-187-48	.18	.06	.05	#14–#22 AWG	48	25
CPO-A-250-48	.25	.08	.05	#10–#22 AWG	48	25
CPO-A-375-48	.38	.14	.05	#6–#16 AWG	48	25
CPO-A-500-48	.50	.19	.07	#2–#12 AWG	48	25
CPO-A-750-48	.75	.31	.07	3/0–#4 AWG	48	25

***Note**: Non-standard colors, sizes and lengths available subject to factory quotation.*
Standard color: Black

CPO-A Series Specifications

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Physical		
• Tensile Strength	ASTM D2671, ISO 37	2200 psi (15.0 MPa)
• Elongation	ASTM D2671, ISO 37	400%
• Heat Shock (4 hrs. at 250° C)	ASTM D2671	No Cracking or Flowing
• Longitudinal Change	ASTM D2671	±5%
• Low-Temperature Flexibility (4 hrs. at -55° C)	ASTM D2671	No Cracking
• Specific Gravity	ASTM D792, ISO R1183	1.1
• 2% Secant Modulus	ASTM 2671	1600 psi (110 MPa)
• Heat-Resistant Properties (168 hrs. at 175° C)	MIL-DTL-23053/4	240%
• Flammability	ASTM D2671	Moderately Flame Retardant

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Electrical		
• Dielectric Strength	ASTM D2671, IEC 243	600V/Mil (24kV/mm)
• Volume Resistivity	ASTM D2671	1016 ohm-cm
Chemical		
• Fluid Resistance	MIL-DTL-23053/4, ISO 1817, ISO 37	Good to Excellent
• Fungus Resistance	ASTM G21	No Growth
• Copper Corrosion	ASTM D2671	No Corrosion
• Water Absorption	ASTM D570	.2%

Shrink-Kon® Heat-Shrinkable Tubing

CHS Series — Clear Thin-Wall PVC Heat Shrink

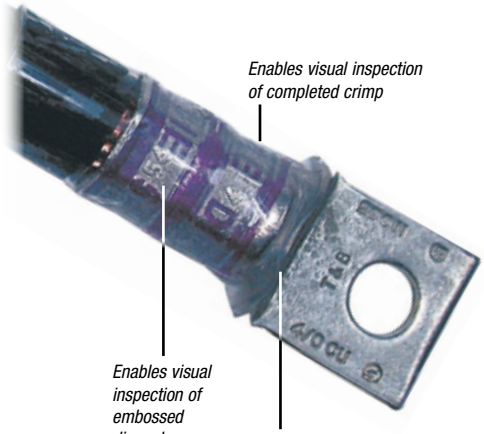


- Clear shrink enables user to inspect die and crimp details after installation
- Flexible PVC tubing is suitable for industrial and electronic applications
- UL standard UL224, VW-1 rated
- CSA standard C22.2 no. 198.1 oft
- Flame retardant
- Low shrink temperature of 110° C
- Dielectric strength — 600V/MIL

CHS Series Thin-Wall Heat-Shrinkable Tubing

CAT. NO.	MIN. EXPANDED I.D. (IN.)	MAX RECOVERED I.D. (IN.)	NOMINAL RECOVERED WALLED (IN.)	CODE CABLE SIZE	STANDARD LENGTH (IN.)	STD. PKG. QTY.
CHS18	.13	.06	.02	#22–#18 AWG	50	1
CHS18B	.13	.06	.02	#22–#18 AWG	250	1
CHS14	.25	.13	.03	#16–#10 AWG	50	1
CHS14B	.25	.13	.03	#16–#10 AWG	250	1
CHS38	.38	.19	.03	#8–#6 AWG	50	1
CHS38B	.38	.19	.03	#8–#6 AWG	250	1
CHS12	.50	.25	.03	#4–#2 AWG	50	1
CHS12B	.50	.25	.03	#4–#2 AWG	250	1
CHS34	.75	.38	.04	#1–3/0 AWG	50	1
CHS34B	.75	.38	.04	#1–3/0 AWG	250	1
CHS100	1.00	.50	.04	4/0 AWG–300 kcmil	25	1
CHS100B	1.00	.50	.04	4/0 AWG –300 kcmil	100	1
CHS112	1.50	.75	.04	350–700 kcmil	25	1
CHS112B	1.50	.75	.04	350–700 kcmil	100	1
CHS200	2.00	1.00	.05	750–1000 kcmil	25	1
CHS200B	2.00	1.00	.05	750–1000 kcmil	100	1

Standard package is in reels.
Order by reel; not by feet.



CHS Series Specifications

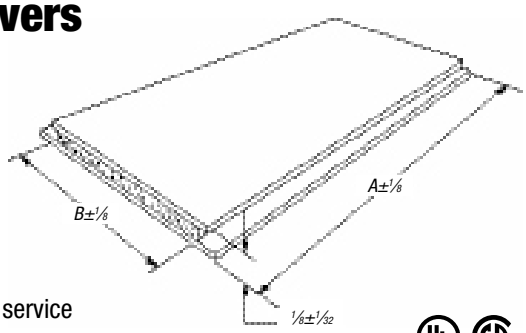
PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Physical		
• Tensile Strength	ASTM D2671, ISO 37	3300 psi (23.0 MPa)
• Elongation	ASTM D2671, ISO 37	300%
• Longitudinal Change	ASTM D2671	±10%
• 2% Secant Modulus	ASTM D2671	16,000 psi (110 MPa)
• Specific Gravity	ASTM D792, ISO R1183	1.31
• Elongation after Heat Aging (168 hrs. at 136° C)	ASTM D2671, ISO 37	250%
• Heat Shock (4 hrs. at 250° C)	ASTM D2671	No Cracking or Flowing
• Low-Temperature Flexibility (1 hr. at 10° C)	ASTM D2671	No Cracking or Splitting
• Flammability	ASTM D2671	Self Extinguishing

PROPERTY	TEST METHOD	TYPICAL PERFORMANCE
Electrical		
• Dielectric Strength	ASTM D2671, IEC 243	600V/Mil (24kV/mm)
• Volume Resistivity	ASTM D2671	1016 ohm-cm
Chemical		
• Fluid Resistance	MIL-DTL-23053, ISO 1817, ISO 37	Good to Excellent
• Copper Corrosion	ASTM D2671	No Corrosion
• Water Absorption	ASTM D570	.3%
• Fungus Resistance	ASTM G21	No Growth

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Adhesive Insulating Covers

- Seals against moisture
- Voltage rating up to 600
- Workable from 14° F to 120° F
- Maximum operating temperature of 176° F
- No installing tools required
- Also available in 10' rolls; consult customer service





UL Listed for use with T&B Covers.

For "H" Taps, "C" Taps, two-way connectors, mechanical taps and Color-Keyed® lugs and joints.

Material: 6 mil electrical vinyl backing, butyl rubber mastic adhesive thickness ⅛" approx. Polyethylene release sheet.

UL Listed — File No. E9809.

Not for submersion in liquid.

Specifications

Electrical

- Dielectric Constant: 3.2 ASTM-D150 (60 Hz)
- Power Factor: 007 ASTM-D150 (60 Hz)
- Dielectric Strength: 340 Volts/mil ASTM-D1373

Chemical

- Water Absorption: .06% ASTM-570
- Ozone Resistance — Excellent: 03% ASTM-D1373
- Corrosion None Visable: per ASTM-D 69

CAT. NO.	A	B	STD. PKG.
AC 5 X 3	5"	3"	10
AC 5 X 7	5"	7"	10
AC 85 X 75	8.5"	7.5"	5
AC 85 X 105	8.5"	10.5"	5

Order multiple is std. pkg.

ADHESIVE INSULATOR CAT. NOS.	COMPRESSION LUG CAT. NOS.										COMPRESSION TWO-WAY CONNECTOR CAT. NOS.			"H" TAP CAT. NOS.	"C" TAP CAT. NOS.	COMPRESSOON CABLE JOINTS CAT. NOS.
AC 5 X 3 SIZE KEY #2	60096	60113	60130	60150	54132	54145	54160	54207	54906	54860	60500		54806	63105	54710	54610
	60097	60114	60132	60151	54134	54108	54162	54208	54942	54862	60501		54807	—	54715	54615
	60099	60116	60134	60230	54105	54147	54163	54255	54947	54864	60507		54806	—	54720	54620
	60101	60117	60135	60236	54135	54148	54111	54209	54909	54866	60512		54504	—	54725	54625
	60102	60118	60136	60238	54136	54150	54165	54210	54910	—	60516		54505	—	54730	54630
	60103	60120	60138	60242	54138	54152	54167	54260	54965	—	60905		54506	—	54735	54635
	60104	60122	60140	60244	54106	54153	54168	54211	54970	—	60910		54507	—	54740	—
	60106	60123	60141	60248	54139	54109	54112	54265	54850	—	60915		54506	—	54745	—
	60107	60124	60142	60250	54140	54155	54170	54212	54852	—	60920		54509	—	54750	—
	60108	60126	60144	54104	54107	54157	54204	54270	54854	—	60925		54510	—	—	—
	60109	60128	60147	54130	54142	54158	54205	54930	54856	—	54804		54511	—	—	—
	60112	60129	60148	54131	54143	54110	54206	54905	54858	—	54805		—	—	—	—
AC 5 X 7 SIZE KEY #4	—	60152	60169	60267	54173	54115	54129	54222	54920	—	60522	60945	54516	63110	54755	54640
	—	60153	60171	60268	54174	54183	54213	54291	54923	—	60530	60950	54518	63115	54760	54645
	—	60154	60172	60269	54113	54116	54275	54223	54928	—	60538	60955	54809	63120	54765	54650
	—	60156	60174	60271	58161	54185	54214	54295	54868	—	60542	60960	54810	63125	54770	—
	—	60157	60176	60273	58162	54118	54280	54224	54870	—	60548	60965	54811	—	54775	—
	—	60159	60178	60274	58163	54187	54215	54226	54872	—	60554	60970	54812	—	54780	—
	—	60160	60180	60275	58165	54120	54282	54228	54874	—	60560	54509	54813	—	—	—
	—	60162	60254	60276	58166	54122	54216	54913	54876	—	60565	54510	54814	—	—	—
	—	60163	60256	60277	54178	54123	54218	54914	54878	—	60568	54511	54815	—	—	—
	—	60165	60260	60278	54179	54124	54286	54915	54880	—	60571	54512	54816	—	—	—
	—	60166	60262	60280	54114	54126	54220	54916	54882	—	60930	54513	54817	—	—	—
	—	60168	60265	54172	54181	54128	54289	54918	—	—	60935	54514	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	60940	54515	—	—	—	—
AC 85 X 75 SIZE KEY #6	—	—	—	—	60184	—	—	—	—	—	60574		54522	63130	—	—
	—	—	—	—	60284	—	—	—	—	—	60576		54523	63135	—	—
	—	—	—	—	—	—	—	—	—	—	60578		54524	63140	—	—
	—	—	—	—	—	—	—	—	—	—	60580		54526	63145	—	—
	—	—	—	—	—	—	—	—	—	—	60584		54528	63150	—	—
	—	—	—	—	—	—	—	—	—	—	60975		54820	—	—	—
	—	—	—	—	—	—	—	—	—	—	60980		54823	—	—	—
	—	—	—	—	—	—	—	—	—	—	60985		54828	—	—	—
	—	—	—	—	—	—	—	—	—	—	54520		—	—	—	—
AC 85 X 105 SIZE KEY #8	—	—	—	—	—	—	—	—	—	—	—		—	63155	—	—
	—	—	—	—	—	—	—	—	—	—	—		—	63160	—	—
	—	—	—	—	—	—	—	—	—	—	—		—	63165	—	—

Shrink-Kon® Splice Insulators and Insulating Covers

Quick and easy insulation — no heat or adhesive required!

Self-Fusing Insulation Tape

- Just two layers form a moisture-proof, abrasion-resistant, dielectric seal
- Easy-release, non-static-sensitive liner peels right off
- Creates an immediate, permanent bond even when wet
- Suitable for high- and low-voltage applications
- Resistant to UV, moisture and saltwater
- Easily removable — just slice with a knife and pull off — leaves no residue
- Smooth filler putty compound available for use under tape when insulating bolted or dimensionally inconsistent splices and terminations



TBFT421-36



Typical Applications

- Repair deteriorated insulation on cables and conductors
- Insulate and seal underwater, underground and above-ground bonding installations
- Insulate harnessing, bundling, cabling and wiring in aircraft, automotive, marine and other industrial machinery/equipment

Specifications

- Material: Modified silicone rubber compound
- Tensile Strength: 1200 psi
- Dielectric Strength: 20 mil: 600 vpm; 40 mil: 400 vpm
- Abrasion Resistance: 110 lbs./in.
- Water Absorption: < .5%
- Temperature Rating: 80° C max.
- Voltage Rating: 600V max.



TBFP9-2

CAT. NO.	WIDTH (IN.)	LENGTH (FT.)	THICKNESS (MILS)	COLOR	STD. PKG. QTY.
Self-Fusing Insulation Tape					
TBFT421-36	1	36	40	Red	10
TBFT201-36	1	36	20	Black	10
Smooth Filler Putty Compound					
TBFP9-2	1	2.08	—	White	1

Standard package is rolls. Order by rolls; not by feet.

HSTS25 — Tape Sealant



- Available in a 25-ft. roll
- Used in conjunction with T&B Heat-Shrinkable Insulators for better moisture sealing

Specifications

Physical

- Description: Butyl Rubber Polymer
- Application Temperature: 40° F to 100° F
- Service Temperature: -40° F to 180° F
- Environmental Resistance: Resists ozone and all normal aging processes

Electric

- Dielectric Strength: 250V/mil minimum
- Volume Resistivity: 1014 ohms/cm

Chemical

- Chemical Resistance: Resists acids, bases and alcohols; Passes Fed. Spec. SS-S-00210, section 3.6

Installation Guidelines

1. The cable jacket and conductors should be relatively clean and free of greases, oils and other foreign substances.
2. It is best to overlap each wrap of tape by ¼ to ½ of the width for the best seal.
3. When using heat-shrinkable products, most applications require only one or two layers of tape prior to sliding tubing in place.
4. Shrink the tubing, cap, boot, etc., following the installation procedure for the applicable heat-shrinkable part.

To seal the junction or crotch of an application requiring two or more cables, conductors, etc. without a common jacket.

1. Apply the overlapped one or two layers around each cable, conductor, etc., at the same distance from the connector, or ball up the sealant and press into crotch or junction of the joint.
2. Apply two overlapping wraps over the bundle.
3. Slide the expanded heat-shrinkable part over the joint and shrink.

CAT. NO.	DESCRIPTION	WIDTH (IN.)	THICKNESS (IN.)	LENGTH (FT.)	STD. PKG. QTY.
HSTS25	Tape Sealant	1	.06	25	1

Standard package is reels. Order by reel; not by feet.

Thomas&Betts

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Technical Services
Tel: 888.862.3289

www.tnb.com

Shrink-Kon® Insulators and Insulating Covers

Quick and dependable way to insulate and waterproof motor lead connections up to 5kV.

Medium-Voltage Motor Stub Splice Insulator

- Installs in seconds
- Flame retardant
- Flexible boot and impact-resistant cap
- Long lasting and reusable
- Waterproof and abrasion resistant
- One size fits all hookups — reduces inventory
- Enables easy inspection of connection



This first-generation multi-splice insulator is designed to give you a quick, dependable means of protecting medium-voltage motor stub splice connections up to 5kV. You can install it in seconds simply by pushing the cover and boot together. Once installed, it completely waterproofs the connection and provides excellent protection against abrasion or mechanical abuse.

One size reduces inventory

The insulator accommodates wire sizes #2 AWG–350 kcmil having outer diameters of .375" to .840". This range-taking feature should accommodate all of your medium-voltage motor hookups.

Inspectable and reusable

The insulator consists of just two parts: an elastomer boot and thermoplastic cap. The boot has two tapered cable entry legs that fit snugly around the cable to form a watertight seal. The legs are designed to be trimmed during installation to fit the required cable size tightly. The cap simply pushes into a groove in the boot — and pulls out easily when you want to inspect the connection. Removal of the cap does not disturb the seal around the cables, nor does it interrupt the bolted splice connection.

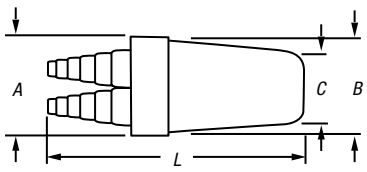
Quality engineered

The boot is made of flexible, abrasion-resistant elastomer, and the cap is made of high impact-resistant thermoplastic — high-performance materials you can depend on. Use the insulator for pigtail applications in motor junction boxes, manholes or wherever a waterproof, impact-resistant insulator is required.



Specifications

- 5kV Wire Range: #8–2/0 AWG
- Rating: 90° C Applications
- UL Listed to: 600V
- CSA Certified to: 600V
- T&B Recommended to: 5000V @ 90° C
- Material: Cap — NORYL, UL 94V-1
  Boot — EPDM Elastomer, UL94V-2 Lubricant — Silicone Grease



Wide Range Splice

CAT. NO.	WIRE RANGE	INSULATION O.D. RANGE (IN.)	BOLT MAX. LENGTH (IN.)	LENGTH L (IN.)	DIA. A (IN.)	DIA. B (IN.)	DIA. C (IN.)	STD. PKG. QTY.
MSCV20	#2 AWG–350 kcmil	.38–.84	1.25	6.5	3	2 21/32	2	5

Order in multiples of std. pkg.

www.tnb.com

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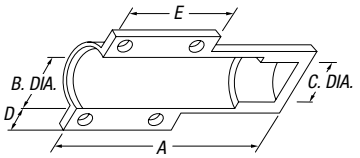
Thomas&Betts

Motor Stub Splice Insulators

- Re-enterable motor stub insulator
- Easy installation
- No special tools required

This innovative product has been designed to insulate motor stub splices quickly, easily, and dependably. It consists of a boot-type insulator with integral Ty-Rap® cable ties. To install, simply position the insulator over the bolted splice and tighten the cable ties. That's all there is to it. It produces uniform, high-quality installations every time… in about 30 seconds. The completed installation is immediately ready for inspection and use. If required, the insulator can be easily removed. Simply snip the cable ties and slide the insulator off the splice. It leaves no sticky residue.





CAT. NO.	WIRE RANGE	LENGTH (IN.)	BOLT MAX. A (IN.)	B DIA. (IN.)	C DIA. (IN.)	D (IN.)	E (IN.)	STD. PKG. QTY.
MSC14*	#14–#10 AWG	3.38	1.5	.56	.50	.38	.35	15
MSC8	#12–#8 AWG	3.38	2.39	.73	.67	.38	1.20	10
MSC2	#12–#2 AWG	.75	3.25	.95	.88	.38	1.5	10
MSC20	#2–2/0 AWG	1.5	4.25	1.39	1.05	.43	1.70	4
MSC250	3/0 AWG–300 kcmil	1.5	7.56	1.88	1.80	.45	1.90	2
MSC500	350–500 kcmil	1.75	8.88	2.56	2.48	.45	2.10	5

Order in multiples of std. pkg.
**One Ty-Rap® cable tie only*

Specifications

- UL File E9809. UL and CSA Certified (94V-1 Flammability Class)
- Rated for 600V and 90° C application

Material

- Body: Modified Neoprene Elastomer
  Straps: Nylon

Insulator Connectors

INSULATOR CAT. NO.	WIRE RANGE	LUGS: 2-HOLE COLOR-KEYED® LUGS (AL-CU WIRE)	LUGS: 1-HOLE COLOR-KEYED® LUGS (AL-CU WIRE)	LUGS: 2-HOLE CAST COPPER LUGS (CU WIRE)	LUGS: 1-HOLE CAST COPPER LUGS (CU WIRE)	LUGS: 2-HOLE COLOR-KEYED® LUGS (CU WIRE)	LUGS: 1-HOLE COLOR-KEYED® LUGS (AL-CU WIRE)	TERMINALS		BOLT MAXIMUM LENGTH (IN.)
MSC14	#14–#10 AWG	—	—	—	—	—	—	14RB4–14RB10 RB14-4–RB14-10	10RC6–10R1C0 RC10-6–RC10-10	⅜
MSC8	#12–#8 AWG	—	60096 60097 60101 60102	—	53104	—	54104	—	—	⅜
MSC2	#12–#2 AWG	—	60099 60103–60118	53204 53205 53206	54105 54106	54204 54205 54206	54105 54106	—	—	¾
MSC20	#2–2/0 AWG	60230 60236	60118–60138	53207 53208	53107 53108	54207 54208	54107 54108	—	—	1
MSC250	3/0 AWG–300 kcmil	20238–60256	60140–60157	53209–53113	53109–53113	53209– 54214	54109– 54114	—	—	1½
MSC500	350–500 kcmil	60260–60273	60165–60172	53115– 53118	53115 53118	54215– 54218	54115– 54118	—	—	1¾

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Shrink-Kon® Installation Tools

Electric Heat Gun

- UL® Listed
- 600° F to 950° F heat range
- 120VAC 60 Hz



c UL us

CAT. NO.	DESCRIPTION	PKG. QTY.
WT1400	Dual-Temp. heat gun. 600° F/950° F, 1,300W, 120VAC, 60 Hz	1

Order multiple is std. pkg.

Separate fuel- and air-flow controls enable precise adjustment of flame and temperature up to 2,500° F!

Portable Heat-Shrink Torch

- 2,500° F output capacity satisfies virtually any heat-shrink, brazing or soldering requirement
- Dual fuel- and air-flow controls enable separate adjustment of temperature and flame precision
- Brass and steel construction provides durability





Specifications

- Dimensions (without base): 3.9"L x 1.4"W x 5.4"H
- Weight (when filled): 9.88 oz.
- Fuel Tank Capacity: 2.03 fl. oz.
- Operating Time (per full fuel tank): Up to 220 minutes
- Operates on standard butane refills

Portable Heat-Shrink Torch

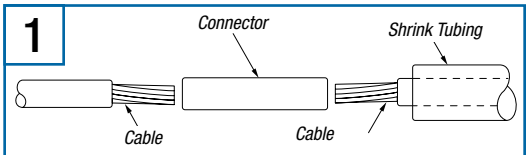
CAT. NO.	DESCRIPTION	STD. PKG. QTY.
WT-PTORCH	Portable Heat-Shrink Torch	1

Order multiple is std. pkg.

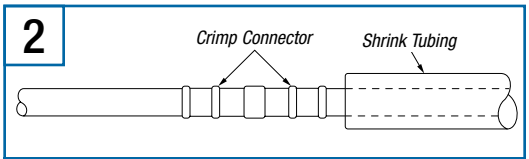
Shrink-Kon® Installation Tools

Installation

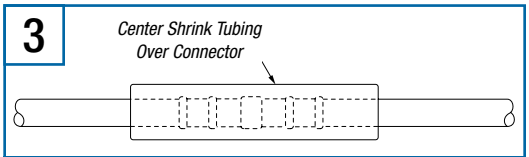
1. Remove any oil, grease, water, dirt, etc., by wiping the cable ends and connector. Remove all sharp edges and burrs from connector.
2. Center tubing over splice connector.
3. Use the light blue outer portion of the flame when using the SIT-1 torch. Do not hold the torch still in one position or concentrate the hot inner flame of the torch on the tubing; this may cause scorching.
4. Begin heating tubing in the center. Recover the central portion of the tubing first by heating around the circumference of the splice. (Keep heat source moving constantly around the circumference of the insulator to ensure uniform shrinkage of the insulator.)
5. Continue heating around the tubing and out toward one end. Move torch around the tubing until one end is completely recovered.
6. Repeat the above procedure on the opposite end of the splice, again working from the center outward and around the tubing.
7. Installation is complete when the tubing conforms to splice and sealant flow is apparent at both ends.



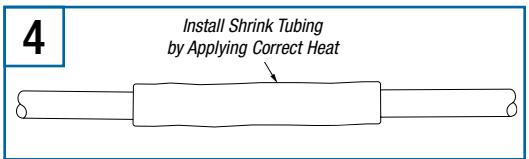
Connector and Heat-Shrinkable Tubing prior to installation.



Crimp connector installed.



Heat-Shrinkable Tubing in position.



Heat-Shrinkable Tubing after heat application.

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Shrink-Kon® Installation Tools

Typical Specifications

Insulating and sealing of all 600V, in-line cable splices from #16 AWG through 1000 kcmil shall be done in accordance with the instructions provided with the Shrink-Kon® heat-shrinkable insulators, catalog series HS.

The connector insulator must be made of thermally stabilized, homogeneous polyolefin having internally applied sealant. It must have Underwriter's Laboratories Listing (UL® 486, 90° C, 600V) and be approved for the use. It must be usable without additional covering or adhesive both indoors and outdoors, in overhead, direct-burial or submersed applications at rated voltage. It must not be adversely affected by moisture, ozone, oils, fuels, mild acids and alkalies or ultraviolet light. It must be compatible with all commonly used cable jacket materials, including rubber, plastic, lead, steel, aluminum and copper.

Factory-Applied Sealant

A standard sealant is coated on the entire inside surface of most precut sizes. Tubing is also available without sealant — consult factory. The sealant is rated for continuous 90° C operation on non-pressurized cable systems and aids in sealing out moisture and corrosion.

Cost and Reliability of Heat-Shrinkable Tubing Compared to Tape

The cost differential in the installation of T&B heat-shrinkable tubing over taping can result in up to a 34% savings in labor and overhead. For example, on a 2/0 AWG aluminum splice, heat-shrinkable tubing can be installed in three minutes, versus 10 minutes of taping. In addition to the direct cost reduction, there are the advantages of assured uniformity of wall thickness and moisture sealing.

Cross Reference

T&B	PANDUIT	3M	RAYCHEM	SUMITOMO	ALPHA	COLEFLEX	INSULTAB
CPO	HSTT	FP 301 (1 & 2)	RNF 100 (1 & 2)	A2 & B2	FIT 221	ST221 / STS221 STU221 / STSU221	HS 101
CPO-A	HSTTA & HSTTVA	EPS300	TAT 125 ATUM 3:1	W3B2	FIT321	ST303	HS101 MW 3:1
HSMW	—	—	MWTM (U) BSTS-M / SST-M				CTV
HS	—	—	WSCM / SST	—	FIT 700	—	—
HS FR	HST	HDT	BSTS FR / SSTFR WCSF / FCSM	—	—	—	CTVH
HSC	HSEC	ICEC	S3C/ESC SSC-FR / ESC-FR	—	—	TYT	—
CPO-HF	—	—	—	NH	—	—	—
HSM-HF	—	—	XFFR	—	—	—	—
CHS	HSTTPN	—	—	—	—	—	—

These competitor names are the property of the respective competitor.

Shield-Kon® Shield Termination System

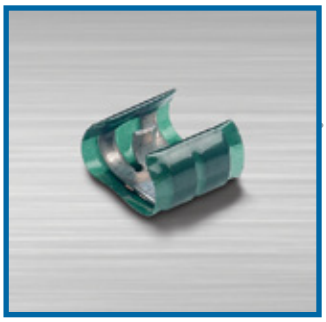
Shield-Kon® — Save time and money over traditional connection methods!



Wherever shielded cables and wires are fitted, there is the problem of finding a permanent, repeatable, safe and quick connection of the braided shield.

Conventional connection methods use soldering, which is more time-consuming and more expensive, and can often result in damage to the dielectric or to the internal shield conductor caused by heat. Moreover, the use of lead-based soldering methods can be in conflict with the latest safety regulations.

The Shield-Kon® solution from Thomas & Betts involves a crimp technique for shield termination on shielded cables. The reliability of Shield-Kon® terminals has led to a specification for the aeronautical and space technology industry and for military applications (MIL-F-21608).



One-Piece Shield-Kon® Connector



Two-Piece Shield-Kon® Connector

Thomas & Betts offers two solutions:

- The one-piece Shield-Kon® connector wraps around the shield and has a specific pocket for the ground wire
- The two-piece Shield-Kon® connector consists of two sleeves that are compressed between the shielded braid and the drain wire

The essential advantages are clearly visible:

- Saves time and reduces assembly costs
- Safe monitoring
- Simple operation
- Low-profile and compact connectors
- Tried and tested technology
- Quality grounded connections



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Shield-Kon® Shield Termination System

Terminate shielded cable in seconds without heat or power!

This solderless, wraparound connector terminates shielded cable in seconds... with uniform precision. It's particularly well suited for production work in aircraft, aerospace and electronic industries where size and weight are important.

Once crimped, it provides a compact, lightweight, low-resistance, high-strength connection, which meets and exceeds the performance requirements of MIL-F-21608.

The connector works equally well on braided, wrapped or foil shields and has the added advantage of being able to be used as a mid-span termination.

Only four sizes, which can be easily identified by the color of their insulation, are needed to cover a range of shielding diameters from .05" to .3".

- Compact, low-profile connector
- One piece wraparound design
- Tough polyester insulation (Mylar® type)
- Inventory savings: only four sizes
- Transparent insulation, easily inspected
- MIL-specified, industry-approved technology
- No heat or power required to install
- No damage to inner conductor
- Less installation time required
- Uniform, precise connection every time
- Low installed cost
- Mid-span termination possible, eliminating the need to demount a cable already installed

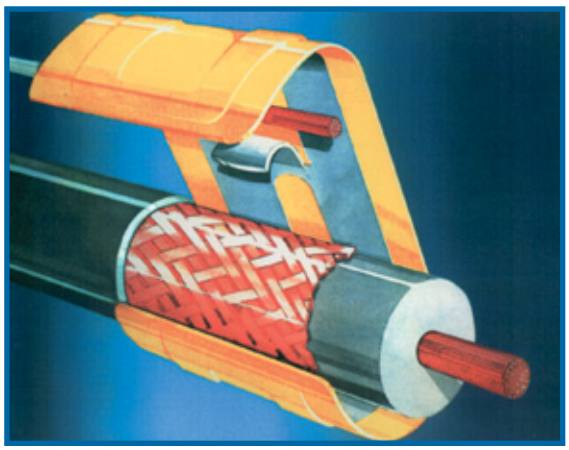


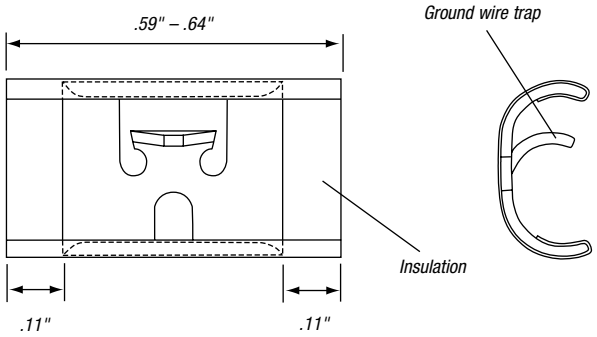
The one-piece Shield-Kon® connectors meet the MIL-F-21608 standards for the following environmental specifications:

Specifications

- Voltage Drop: 9 mV max. at 1A after environmental exposure
- Insulation Dielectric Strength: 500 VRMS at 60 Hz for 1 minute
- Corrosion Resistance: 48 hours in 5% salt fog
- Pullout Strength: 15 lbs. min. for #22 AWG, and 19 lbs. min. for #20 AWG
- Vibration: .03" double amplitude between 10 and 55 Hz for 6 hours on each of two axis
- Material: Copper, conform to CDA No. 110
- Plating: Tin, electro-plated (thickness 3 to 8 µm), in accordance with MIL-T-10727A
- Insulation: Polyester film (Mylar® type), color coded for size identification
- Temperature: -85° F to +257° F (-65° C to +125° C)

In addition, hypot tests have shown that the cable manufacturers' specified working voltage rating is maintained after the installation of Shield-Kon® RSK connectors. It is, however, still advisable to evaluate the suitability of these connectors and verify their performance for the particular application.





Shield-Kon® Shield Termination System

Maintains voltage and is easy to install!

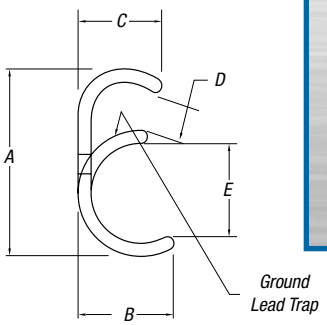
Shield-Kon® RSK Connectors



How to use connector die and tool selection chart:

1. Use a calibrated measuring tool lightly over shield for most accurate measurement. Rotate shielded wire to pick up high spots on cable. Use "Shield Diameter" column to match the measured dimension.
2. Select connector and die for ERG740 tool.

Note: 1. Do not solder-dip ends of ground leads.
2. For ground wire combinations not covered in table, consult Technical Service.



One-Piece Shield-Kon® Connectors & Die Selection Table

CONNECTOR & COLOR CAT. NO.	SHIELD DIAMETER	METAL DIES FOR ERG740	GROUND WIRE RANGE	APPLICATION TOOL CAT. NO.
RSK101 Red 	1.27–1.78mm (.050–.070 in.)	D-101A	(1) or (2) #24 AWG Str. or (1) #22 AWG Str.	Hand Tool ERG740
	1.80–2.26mm (.071–.089 in.)	D-101B		
RSK201 Blue 	2.29–2.54mm (.090–.100 in.)	D-201C	(1) or (2) #22 AWG Str. or (1) #20 AWG Str.	
	2.56–3.00mm (.101–.118 in.)	D-201D		
	3.022–3.33mm (.119–.131 in.)	D-201E		
	3.35-3.63mm (.132–.143 in.)	D-201F		
RSK301 Yellow 	3.66–4.11mm (.144–.162 in.)	D-301G	(1) or (2) #22 AWG Str. or (1) or (2) #20 AWG Str.	
	4.14–4.70mm (.163–.185 in.)	D-301H		
	4.72–5.10mm (.186–.201 in.)	D-301J		
RSK401 Green 	5.13–5.84mm (.202–.230 in.)	D-401K	(1) or (2) #20 AWG Str. or (1) #18 AWG Str.	
	5.87–6.35mm (.231–.250 in.)	D-401L		
	6.37–6.98mm (.251–.275 in.)	D-401M		
	7.01–7.62mm (.276–.300 in.)	D-401N		

CAT. NO.	COLOR	DIMENSIONS (IN.) A	B	C	D	E	THICKNESS	STD. PKG.
RSK-101	Red	.31	.16	.18	.06	.15	.02	1,000
RSK-201	Blue	.38	.22	.18	.06	.18	.02	1,000
RSK-301	Yellow	.47	.28	.24	.07	.22	.03	1,000
RSK-401	Green	.69	.43	.37	.08	.37	.03	500

Order multiple is std. pkg.

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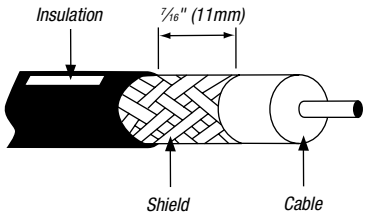
Shield-Kon® Shield Termination System

Installation that's as easy as 1-2-3!

Installation Methods

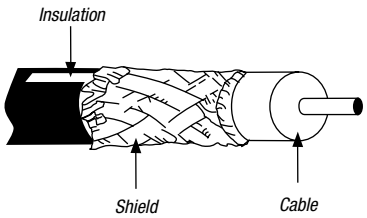
Standard Method

Use the standard method when the shielded cable or the inner conductors are embedded in a dielectric.



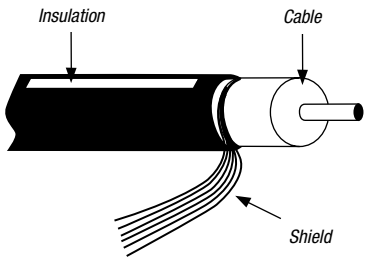
Fold-Back Method 1

If there is no common dielectric for several interior cables but the gaps are filled by textile threads or something similar, care should be taken to ensure that the insulating thickness of the individual cables is not less than .38mm for PVC, and not less than .25mm for Teflon. If this insulation thickness falls below this value, Fold-Back Method 1 should be used.



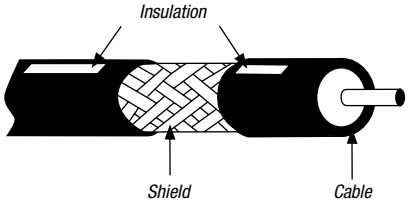
Fold-Back Method 2

Fold-Back Method 2 should be used if the cable shield is applied spirally or if a foil shield is being used.



Mid-Span Method

Enables installation anywhere along the cable.

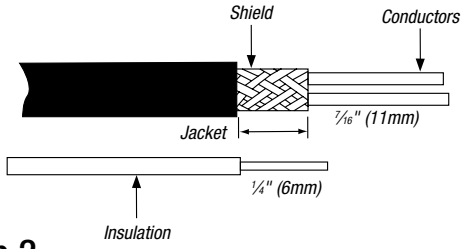


Installation Procedure

Step 1

Prepare shielded wire and ground wire insulation as shown.

If two ground wires are required in a Shield-Kon® connection, twist both conductors before insertion into the connector.

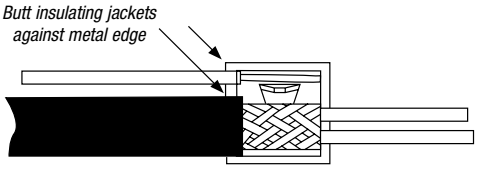


Step 2

Select the appropriate connector according to the size of the shielded cable (see **page G-80**). Place the ground wire around the trap hook and the shielded wire into the bottom of the connector.

When inserting the shielded cable and grounding wire, care must be taken to ensure that their insulation is overlapped by the connector's Polyester insulation film.

100% insulation is possible after crimping when the stripped length of outer jacket (visible shielding) is 7/16" (11mm) maximum.

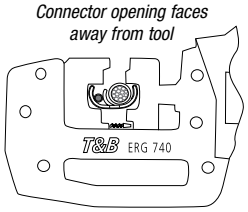


For a complete listing of One-Piece Connectors, see page G-80.

Step 3

Select the appropriate die set for the crimp tool, according to the size of the shielded cable (see **page G-80**) and mount the dies on the tool. Insert the connector (with the shielded cable and the ground wire) between the dies of the tool.

Squeeze the tool handles firmly to crimp the connector around the shielding and the ground wire.



For a complete listing of One-Piece Connector Dies, see page G-80.

Shield-Kon® Shield Termination System

Comfort and versatility!

Shield-Kon® Ergonomic Hand Tool for One-Piece Connectors

- Robust construction: metallic frame, partially covered with plastic
- Use with metal dies for low-, medium- or high-volume applications
- All dies are easily interchangeable (to be ordered separately)
- Parallel action crimp
- ShureStake® mechanism: once pressing has commenced, the tool can be re-opened only after successful completion of the crimping cycle



CAT. NO.	DESCRIPTION	STD. PKG.
ERG740	Ergonomic Hand Tool	1

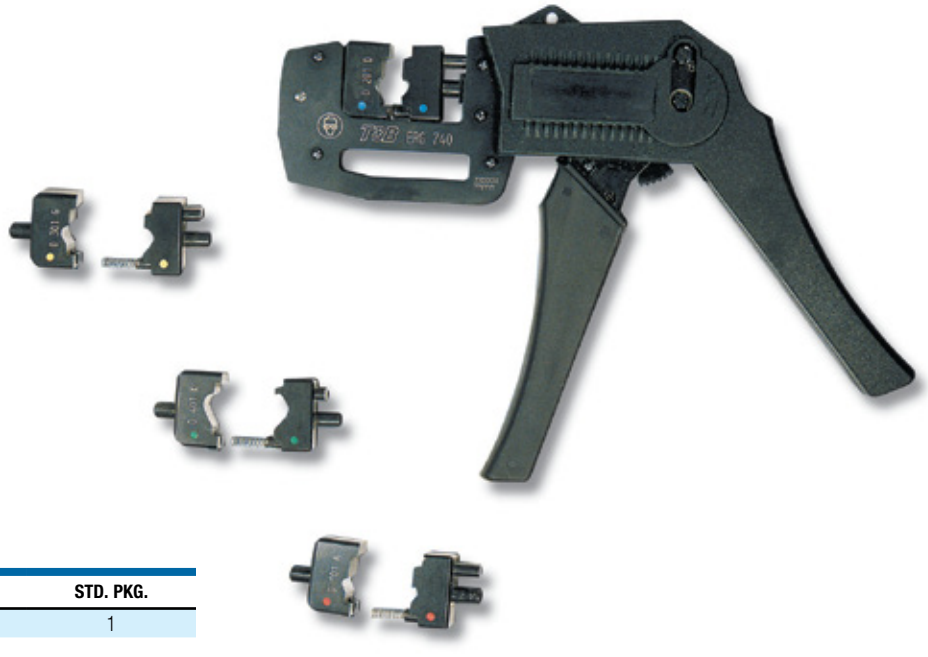
Specifications

- Dimensions of Tool: 8.27"L x 6.10"W x .98"H
- Weight of Tool: 1.04 lbs.

Everything you need in a handy kit!

Ergonomic Hand Tool Kit

Same as ERG740, but supplied in a plastic case with one tool, one benchmount stand for easier use in mass production, one RSK-LEHRE gauge for instant selection of the die and four metal dies: D-101A, D-201C, D-301J, D-401M.



Specifications

- Dimensions of Plastic Case: 9.65"L x 8.27"W x 2.17"H
- Weight of Plastic Case & Contents: 2.65 lbs.

CAT. NO.	DESCRIPTION	STD. PKG.
ERG740-01	Ergonomic Hand Tool Kit	1

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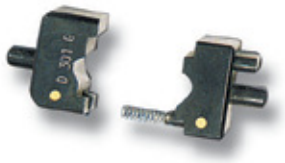
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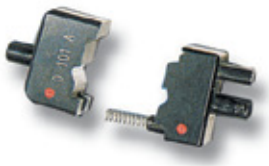
Shield-Kon® Shield Termination System

Metal Dies for ERG740

- For mass production and medium to high volumes
- Made of hardened steel — does not wear
- Only for the ERG740 hand tool
- The Product Ref. is engraved on the upper part and on the lower part of the die set
- Marked with a dot having the same color as the corresponding connector
- Weight — approximately 2.6 oz.





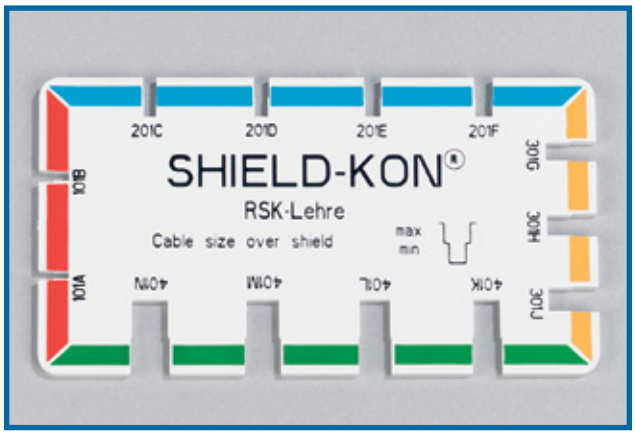


DIE CAT. NO.	DIE COLOR	SHIELD DIAMETER (IN.)	FOR CONNECTOR	STD. PKG.
D-101A	Red	.050–.070	RSK 101 Red	1
D-101B		.071–.089	RSK 101 Red	1
D-201C	Blue	.090–.100	RSK 202 Blue	1
D-201D		.101–.118	RSK 202 Blue	1
D-201E		.119–.131	RSK 202 Blue	1
D-201F		.132–.143	RSK 202 Blue	1
D-301G	Yellow	.144–.162	RSK 301 Yellow	1
D-301H		.163–.185	RSK 301 Yellow	1
D-301J		.186–.201	RSK 301 Yellow	1
D-401K	Green	.202–.230	RSK 401 Green	1
D-401L		.231–.250	RSK 401 Green	1
D-401M		.251–.275	RSK 401 Green	1
D-401N		.276–.300	RSK 401 Green	1

Order multiple is std. pkg.

Select the connectors you need quickly!

RSK-LEHRE Gauge



The choice of the appropriate connector and die set mainly depends on the size of the shielded cable. The selection can be done very quickly with the RSK-LEHRE gauge.

1. Remove the outer jacket from the shielded cable, making the shielding visible.
2. Insert this stripped end of the cable into the slots located around the gauge. The correct slot will be found when the cable can slide only in the upper part of the slot. If the cable can slide completely to the bottom of the slot, you should try with the smaller adjacent slot.
3. Once the appropriate slot is found, the corresponding RSK connector is defined by the color of the strip around the slot, whereas the corresponding plastic die set is given by the number marked below the slot (for the metal die set, add prefix “D” to this number).
4. The table on **page G-80** summarizes the different combinations of connector/die set, as well as the size of ground wire that can be used.

CAT. NO.	DESCRIPTION	STD. PKG.
RSK-LEHRE	Connector & Die Gauge	1

Shield-Kon® Shield Termination System

Unique shield termination system gets the job done right!

The Shield-Kon® two-piece shield termination system from Thomas & Betts consists of two sleeves: an inner sleeve with a smaller diameter, and an outer sleeve that has a larger diameter but is shorter and less hard than the inner sleeve. All inner and outer sleeves are color coded according to their size.

The conductors of the cable are inserted through the inner sleeve, whereas the shield (braided or foiled) and the ground wire are inserted between the two sleeves. The crimp operation is done by compressing the outer sleeve with a tool, while the inner sleeve provides mechanical protection for the inner conductors.

This unique shield termination system can be used with cables having a diameter of dielectric *(after removing the outer insulation and the shield)* between .043" and 2.87".

In the **"Hexagonal Range"** *(diameters of dielectric between .043" and .38")*, the outer sleeve is crimped with a hand tool and the result is a hexagonal-shaped crimp. This range is used to crimp shielded and coaxial cables.

The **"Circular Range"** for Multiple or Overall shielded cables refers to larger diameters of dielectric *(between .39" and 2.87")* and owes its name to the circular shape of the crimp.



Circular Range



Hexagonal Range

Two-piece connector — the Hexagonal Range

The Thomas & Betts hexagonal compression (for diameters of dielectric up to .37") is a reliable method for grounding, terminating and insulating shielded and coaxial cable.

It has literally millions of installations in communications, aerospace, electronic, telephone, radio and TV applications.

Thomas&Betts

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Technical Services
Tel: 888.862.3289

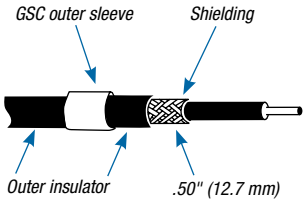
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Shield-Kon® Shield Termination System

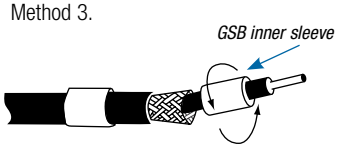
Quick and neat terminations made easy!

Three installation methods are possible in the hexagonal range for a quick, neat and accurately completed termination... at a greatly reduced production cost.

Method 1: Standard



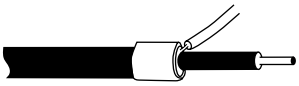
1. After stripping the shield (.50" in length), slip the outer sleeve over the outer insulation. If this is too big, slip the outer sleeve on, after technique described in Method 3.



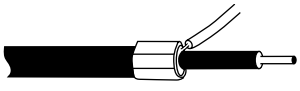
2. Widen the braided shield by gently rotating the inner conductor, then slip the inner sleeve under the braided shield.



3. Position the inner sleeve so that about .06" protrudes beyond the end of the braided shield.



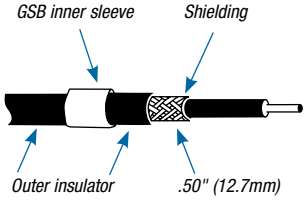
4. Slip the ground wire (#22–#20 AWG) under the outer sleeve (from the front or behind) and slip the outer sleeve over the braided shield.



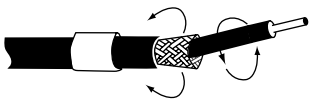
5. Position the outer sleeve and ensure that the ends of all wires in the braided shield and ground wire are covered.

   Crimp both sleeves with the correct tool and die. Finished.

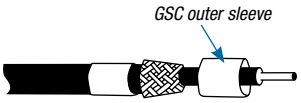
Method 2: Fold Back



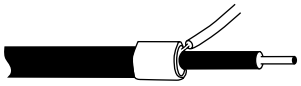
1. After stripping the shield (.50" in length), slip the inner sleeve over the outer insulation.



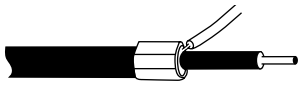
2. Widen the braided shield by gently rotating the inner conductor.



3. Fold back the braided shield over the inner sleeve and slip the outer sleeve over the braided shield.



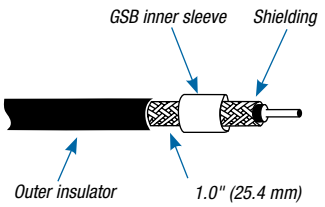
4. Slip the drain wire (#22–#20 AWG) under the outer sleeve (from the front or behind) and slip the outer sleeve over the braided shield.



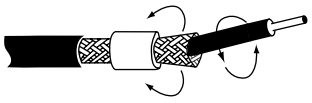
5. Position the outer sleeve and ensure that the ends of all wires in the braided shield and ground wire are covered.

   Crimp both sleeves with the correct tool and die. Finished.

Method 3: Large Insulation



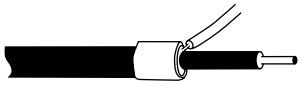
1. After stripping the shield (1.0" in length), slip the inner sleeve over the braided shield.



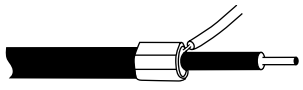
2. Widen the braided shield by gently rotating the inner conductor.



3. Fold back the braided shield over the inner sleeve and slip the outer sleeve over the braided shield.



4. Slip the ground wire (#22–#20 AWG) under the outer sleeve (from the front or behind) and slip the outer sleeve over the braided shield.



5. Position the outer sleeve and ensure that the ends of all wires in the braided shield and ground wire are covered.

   Crimp both sleeves with the correct tool and die. Finished.

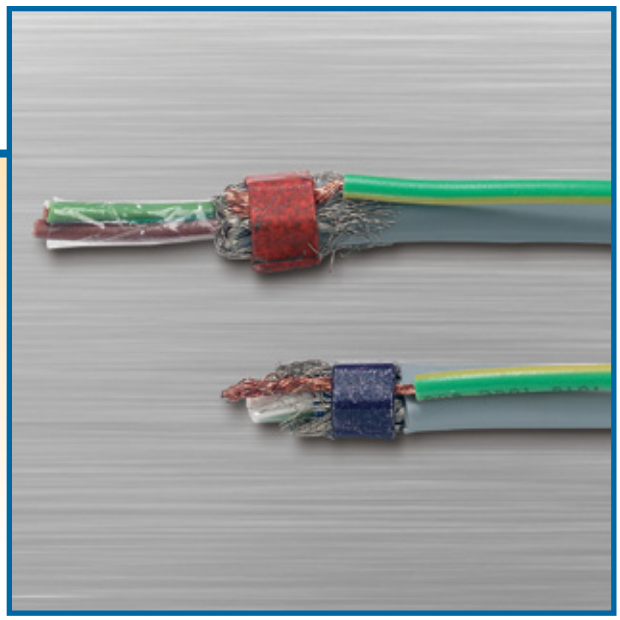
Shield-Kon® Shield Termination System

Select connectors and dies in three easy steps!

The choice of the appropriate combination of inner sleeve, outer sleeve and crimp tool/die will depend on the diameter of the dielectric.

However, a direct correlation with the diameter of the dielectric is not possible, because several different inner sleeves can be combined with the same outer sleeve *(according to the type of shield)*.

With the directions shown **below**, a measuring instrument *(caliper)* is all that is required to make the right selection in three steps:



1. Selection of the inner sleeve (GSB)

- Strip the outer insulator and remove the shield
- Measure the maximum value of the diameter of the dielectric (diameter without shield) by gently rotating the cable. When doing so, it should be possible to turn the cable easily between the jaws of the caliper
- Add .01" to the measured value. The sum will give the Inner Diameter (I.D.) of the GSB inner sleeve
- In the table on **page G-87**, select the GSB inner sleeve having this I.D. or the nearest larger I.D.

2. Selection of the outer sleeve (GSC)

Normal method:

- Slide the selected inner sleeve underneath the shield of the cable
- Measure the maximum diameter with the shield over the inner sleeve
- Add .03" to the measured value. The sum will give the Inner Diameter (I.D.) of the GSC sleeve
- In the table on **page G-87**, select the GSC outer sleeve having this I.D. or the nearest larger I.D.

Quick method:

In most cases, a quicker method can be used to define the correct GSC outer sleeve:

- Once the appropriate GSB inner sleeve is found, the table on **page G-87** will give the Outer Diameter (O.D.) of this GSB sleeve
- Add .06" to this O.D. and the sum will give the Inner Diameter (I.D.) of the GSC sleeve
- In the table on **page G-87**, select the GSC sleeve having this I.D. or the nearest larger I.D.

3. Selection of the die

Dies for GSB/GSC Shield-Kon® can be found on **page G-87**.
Tools for GSB/GSC Shield-Kon® can be found on **page G-88**. See GSC outer sleeve table.

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Shield-Kon® Shield Termination System

Stay grounded with easy-to-install connectors!

Connector Inner and Outer Sleeves



Non-Insulated Inner Sleeve — GSB

- Hard bronze inner sleeve is installed under braid
- Length 5⁄16"
- Tin plated per MIL-T-10727A

CAT. NO.	COLOR CODE	I.D. (IN.)	O.D. (IN.)	MILITARY SPEC. NO.	STD. PKG.
Inner Sleeves					
GSB046	Gray	.046	.075	21981-046	1,000
GSB058	Yellow	.058	.083	21981-058	1,000
GSB063	Red	.063	.088	21981-063	1,000
GSB071	Green	.071	.096	21981-071	1,000
GSB080	Blue	.080	.103	21981-080	1,000
GSB090	Orange	.090	.113	21981-090	1,000
GSB096	Purple	.096	.119	21981-096	1,000
GSB101	Yellow	.101	.124	21981-101	1,000
GSB109	Red	.109	.131	21981-109	1,000
GSB115	Gray	.115	.146	21981-115	1,000
GSB124	Green	.124	.145	21981-124	1,000
GSB128	Gray	.128	.152	21981-128	1,000
GSB134	Orange	.134	.156	21981-134	1,000
GSB149	Blue	.149	.179	21981-149	1,000
GSB156	Red	.156	.193	21981-156	1,000
GSB165	Gray	.165	.194	21981-165	1,000
GSB175	Green	.175	.215	21981-175	1,000
GSB187	Yellow	.187	.227	21981-187	1,000
GSB194	Blue	.194	.226	21981-194	1,000
GSB205	Orange	.205	.245	21981-205	1,000
GSB219	Gray	.219	.250	21981-219	1,000
GSB225	Yellow	.225	.256	21981-225	1,000
GSB232	Red	.232	.263	21981-232	1,000
GSB250	Green	.250	.281	21981-250	1,000
GSB261	Blue	.261	.297	21981-261	1,000
GSB266	Gray	.266	.297	21981-266	1,000
GSB275	Orange	.275	.306	21981-275	1,000
GSB281	Yellow	.281	.331	21981-281	1,000
GSB287	Gray	.287	.327	21981-287	1,000
GSB297	Red	.297	.335	21981-297	1,000
GSB312	Purple	.312	.362	21981-312	1,000
GSB348	Orange	.348	.400	21981-348	1,000
GSB375	Blue	.375	.406	21981-375	1,000

Order multiple is standard package.



Non-Insulated Outer Sleeve — GSC

- Soft bronze outer sleeve slips over the braid and ground wire
- Length ¼"
- Tin plated per MIL-T-10727A

CAT. NO.	COLOR CODE	I.D.	O.D.	TOOLS: DIE NOS. FOR WT440/WT540*	TOOLS: DIE NOS. FOR 11901A	MILITARY SPEC. NO.	STD. PKG.
Outer Sleeves							
GSC101	Gray	.101	.124	4419	11989	21980-101	1,000
GSC128	Blue	.128	.152	4400	11970	21980-128	1,000
GSC149	Purple	.149	.179	4401	11971	21980-149	1,000
GSC156	Yellow	.156	.193	4402	11972	21980-156	1,000
GSC175	Blue	.175	.215	4403	11973	21980-175	1,000
GSC187	Orange	.187	.227	4406	11976	21980-187	1,000
GSC194	Red	.194	.226	4406	11976	21980-194	1,000
GSC199	Gray	.199	.235	4406	11976	21980-199	1,000
GSC205	Yellow	.205	.245	4408	11978	21980-205	1,000
GSC219	Green	.219	.250	4408	11978	21980-219	1,000
GSC225	Purple	.225	.256	4409	11979	21980-225	1,000
GSC232	Orange	.232	.263	4410	11980	21980-232	1,000
GSC261	Yellow	.261	.297	4411	11981	21980-261	1,000
GSC275	Gray	.275	.306	4412	11982	21980-275	1,000
GSC281	Purple	.281	.331	4414	11984	21980-281	1,000
GSC287	Blue	.287	.327	4414	11984	21980-287	1,000
GSC297	Green	.297	.335	4414	11984	21980-297	1,000
GSC312	Yellow	.312	.362	4415	11985	21980-312	1,000
GSC327	Gray	.327	.372	4416	11986	21980-327	1,000
GSC348	Orange	.348	.393	4417	11987	21980-348	1,000
GSC359	Purple	.359	.399	5450	—	21980-359	1,000
GSC375	Yellow	.375	.406	5451	—	21980-375	1,000
GSC405	Red	.405	.453	5452	11988	21980-405	1,000
GSC415	Blue	.415	.463	5452	11988	21980-415	1,000
GSC425	Gray	.425	.475	5454	—	—	1,000
GSC460	Gray	.460	.510	5456	—	21980-460	1,000
GSC500	Green	.500	.550	5457	—	21980-500	1,000

**Dies 4419 to 4417 are for WT440. Dies 5450 to 5457 are for WT540.*

Order multiple is standard package.

WT440 and WT540 Ratchet Hand Tools



- Parallel-action hand tools
- MIL specified
- Frame, with the option of interchangeable steel dies
- A versatile tool, one frame with a selection of dies covers the whole range of shield diameters in the Hexagonal Range
- ShureStake® mechanism: once pressing has started, the tool can be re-opened only after successful completion of the crimping cycle
- Packaging: wood box containing one frame (dies to be ordered separately; see Specifications for Die Nos.)

Specifications

WT440
- Length: 8"
- Weight: 1.0 lbs.
- Dies: Series 4400

WT540
- Length: 10.4"
- Weight: 1.19 lbs.
- Dies: Series 5450

CAT. NO.	DESCRIPTION	STD PKG.
WT440	Ratchet Hand Tool	1
WT540	Ratchet Hand Tool	1

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Shield-Kon® Shield Termination System

Terminate multiple-conductor shielded cable quickly and easily!

The design advantages are:

- Positive selection of inner and outer sleeves and installing die by a complete color-coded system
- A more reliable grounding termination because only one ground wire connection is made — conventional daisychain jumper method is eliminated
- Smaller, more compact bundle is easy to inspect
- Only one ground wire is required; however, additional ground wires may be used if needed
- Smooth insulator protects conductor insulation
- With one stroke of the tool, the interlace die will produce a 360° compression, uniformly securing all individual shields around the connector

The Shield-Kon® Connector System for multiple-conductor shielded cable is based on the principle of cold swaging. It utilizes a two-piece compression connector color coded to match the proper die. The connector consists of a hard brass collector inner ring with a tough, smooth insulator and a soft copper compression outer ring. Each set of rings and matching installing die will connect a minimum of five shielding braids with one ground wire. The maximum number of braids is limited only by the space between the inner and outer rings.

Multi-Shielded Cable Connector Installation Procedure

Step 1

After overall insulation is removed to expose shielded cables, each conductor must be freed from the shielding braid. The Thomas & Betts lead extractor tool simplifies this operation by pushing the inner conductor through an opening in the shielding braid. The braid is then folded back until all conductors are freed.



Step 2

Flattened shielding braids are evenly distributed around the periphery of the inner collector ring.



Step 3

Position outer compression ring over the flattened shielding braid, locating it over the center of the inner collector ring. Braid may be trimmed even with the edge of the outer compression ring before or after compression. Ground wire or wires may be inserted between the outer compression ring and the shield prior to compression.



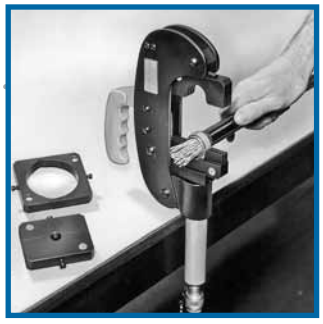
Step 4

Selection of compression dies is determined by color coding on rings. The dies are color coded to match the rings. The appropriate dies are easily inserted or removed by depressing die-locking button shown.



Step 5

The prepared cable is placed in the installing die and compressed. Tool operates on hydraulic power output, developing 9800 ±200 psi operating pressure.



Step 6

Completed installation of the “single fold–fold forward” method typifies the reliability, compactness and neatness that is obtained with all Thomas & Betts recommended installation methods.

Shield-Kon® Shield Termination System

Connectors come full circle with circular connectors!

Two-Piece Connectors for Multiple Conductor Shielded Cable



Connector and Die Selection in the Circular Range

The choice of the appropriate combination of inner ring, outer ring and crimp tool/die depends on the overall diameter of the inner conductors (underneath the shield).

In the case of the Circular range, there is a direct correlation between the diameter of the inner conductors and the inner and outer rings. With the directions (shown **below**), a measuring instrument (caliper) is all that is required to make the right selection.

Selection of the GSB Inner Ring

- Measure the maximum value of the overall diameter of the inner conductors (underneath the flattened shield) by gently rotating the cable. When doing so, it should be possible to turn the cable easily between the jaws of the caliper.
- Add .060" to the measured value. The sum will give the Inner Diameter (I.D.) of the GSB inner ring.
- In the table, select the GSB inner ring having this I.D. or the nearest larger I.D.

Selection of the GSC Outer Ring and of the Die

Once the appropriate GSB inner ring is found, the table (**below**) immediately gives the corresponding GSC outer ring and the appropriate die for the 13640 Hydraulic Head.

Specifications

Inner Sleeve

- Material: Copper alloy ASTM B135
- Finish: Electro tin-plated (per MIL-T-10727A)

Outer Sleeve

- Material: Copper ASTM B188
- Finish: Electro tin-plated (per MIL-T-10727A)

CAT. NO.	COLOR CODE	I.D. (IN.)	O.D. (IN.)	STD. PKG.
Inner Sleeves				
GSB430	Red	.430	.500	50
GSB550	Blue	.550	.620	50
GSB670	Gray	.670	.750	50
GSB810	Brown	.810	.880	50
GSB920	Green	.920	1.000	50
GSB1040	Pink	1.040	1.120	50
GSB1353	Yellow	1.353	1.423	50
GSB1425	Red	1.425	1.545	50

Order multiple is std. pkg.

CAT. NO.	COLOR CODE	I.D. (IN.)	O.D. (IN.)	DIES NOS. FOR 1340	STD. PKG.
Outer Ring					
GSC590	Red	.590	.670	GS590	50
GSC710	Blue	.710	.790	GS710	50
GSC840	Gray	.840	.920	GS840	50
GSC1010	Brown	1.010	1.090	GS1010	50
GSC1130	Green	1.130	1.210	GS1130	50
GSC1250	Pink	1.250	1.330	GS1250	50
GSC1440	Purple	1.440	1.520	GS1440	50
GSC1563	Yellow	1.563	1.643	GS1563	50
GSC1670	Red	1.670	1.750	GS1670	5

Order multiple is std. pkg.

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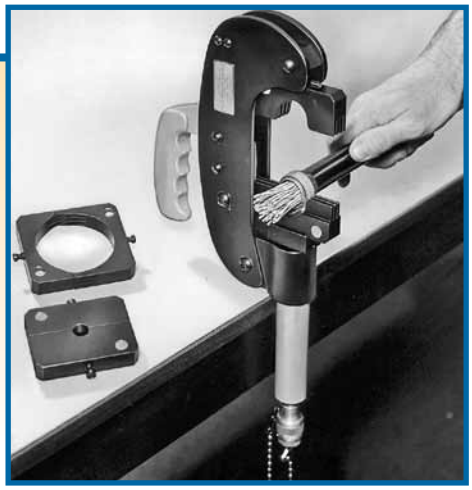
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Tel: 888.862.3289

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Hydraulic Head Installing Tool

- 3.5-ton nominal pressure (output)
- For two-piece Shield-Kon® terminals in the circular range
- Coupling for quick assembly
- Requires a 9,800-psi (approx. 690 bar) operating service pressure
- Quick interchangeable steel dies (to be ordered separately)
- Interlace die with 360° compression — provides uniform pressure around circumference of connector



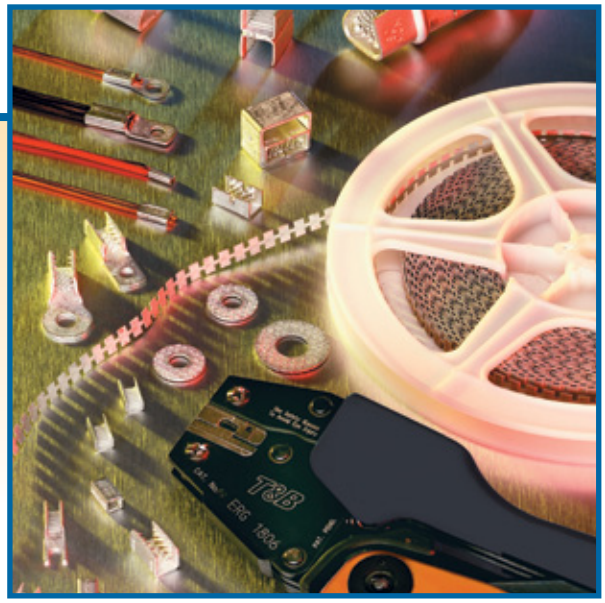
All the two-piece Shield-Kon® in the circular range need to be crimped with the 13640 hydraulic head equipped with the appropriate die.

CAT. NO.	DESCRIPTION	STD. PKG.
13640	Installing Head (order dies separately)	1
13606	Hand-Foot Pump	1
13600	Electric Hydraulic Pump	1
13620	Hand Switch	1
13589A	Foot Switch	1
13619	10-ft. Non-Metallic Hydraulic Hose	1
13760	Air-Operated Hydraulic Pump	1

Order multiple is std. pkg.

Dragon Tooth® Magnet Wire Termination System

Splice, tap and terminate magnet wire quickly and easily!



The tough, high-temperature insulation on magnet wire used by electrical motor and transformer manufacturers creates problems in splicing and terminating. The durability of magnet wire insulation has made dip-soldering or brazing extremely difficult without stripping the insulation.

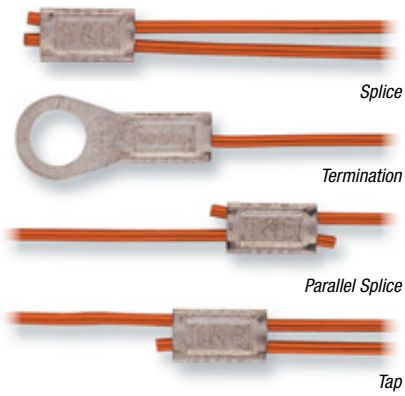
Another splicing and terminating challenge involves the use of aluminum for magnet applications. A manufacturer connecting aluminum magnet wire to copper is faced with the problem of the different coefficients of thermal expansion of the two metals, galvanic corrosion, cold flow, and the rapid formation of oxide film on the wire surface.

T&B offers a solution for a highly reliable connection method for magnet wire. It eliminates welding, no longer requires removal of insulation and it can be installed in seconds. No special operator skills are needed. The connector and matching tooling do the entire job. To meet the essential requirements of magnet wire connections, T&B offers the insulation piercing Dragon Tooth® compression connector.



Transformer manufacturers depend on Dragon Tooth® connectors for reliable magnet wire applications.

Typical Applications



Splice

Termination

Parallel Splice

Tap

Dragon Tooth® Magnet Wire Connectors

Dragon Tooth® connectors and installing tools are designed to splice, tap and terminate magnet wire from #32 AWG to 460,000 CMA copper and from #18 AWG to 460,000 CMA aluminum conductors in motor and transformer applications. Dragon Tooth® Magnet Wire Connectors penetrate the insulation and oxide layers to make electrical contact on magnet wiring. The result is permanent, low-resistance electrical connections, capable of maintaining contact integrity throughout the life of the connection.

- Designed to penetrate magnet wire insulation during application, eliminating the need for stripping, brazing, welding or other methods of joining magnet wire
- Can be installed in seconds
- Requires minimal training for installation
- Made of copper alloy, tin plated, with teeth on the inner surface
- Splices and taps have an open side enabling easy access to wire and making internal coil tapping possible
- For aluminum to copper, aluminum to aluminum or copper to copper magnet wire connections
- Supplied with bolt holes to accommodate #6 through ½" studs and includes male and female .250" x .032" disconnects
- Rings and fork terminals accommodate wire sizes #24 to #12 AWG in a variety of combinations, including combining magnet wire with stripped wire lead. For solid or stranded wire #20 to 4/0 AWG
- Larger connectors accommodate circular mil range from 50,000 to 460,000 CMA
- Connector and matching tooling do the entire job

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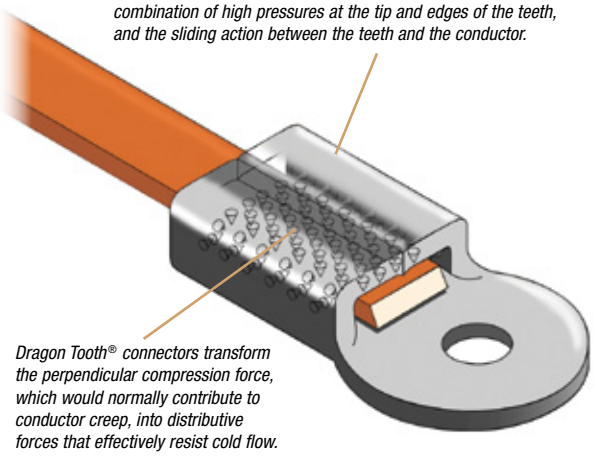
Dragon Tooth® Magnet Wire Termination System

Dragon Tooth® connectors transform the perpendicular compression force, which would normally contribute to conductor creep, into distributive forces that effectively resist cold flow, as indicated by the illustration **below**.

These connectors are made of copper alloy, tin plated, with a number of teeth on the inner surface. When compressed onto an insulated magnet wire, the sharp, hardened teeth penetrate both the insulation and oxide and bite into the conductor. An electrically sound, low-resistance connection is established as a result of the combination of high pressures at the edges of the teeth, and the sliding action between the teeth and the conductor. The open barrel design permits midspan splicing and tapping.



These connectors are made of copper alloy, tin plated, with a number of teeth on the inner surface. When the connector is compressed onto an insulated magnet wire, the sharp, hardened teeth penetrate the insulation and the oxide and bite into the conductor. An electrically sound, low-resistance connection is established as a result of the combination of high pressures at the tip and edges of the teeth, and the sliding action between the teeth and the conductor.



Dragon Tooth® connectors transform the perpendicular compression force, which would normally contribute to conductor creep, into distributive forces that effectively resist cold flow.

How to Select a Connector

1. Determine total circular mil area (CMA). All wires to be installed in a connector barrel including stripped, stranded wire. For example, two #6 AWG = 52,480 CMA.
2. Refer to Circular Mil column of chart and find the connector series corresponding to the total CMA. For example, 204XXX.
3. Next, refer to either Round Wire column or Rectangular Wire column, depending on the type you are using, and check for any limitations, (such as max. wire width/height). If there are limitations, you may have to make a selection from the next larger size.
4. Select the tool and die appropriate for the application.

For wire sizes and combinations other than shown, contact Thomas & Betts Technical Services at 888-862-3289.

Formula for Calculating Circular Mil Area (CMA)

For square or rectangular wire:

Thickness x Width x 1.273 x 10^6 = CMA

For round wire:

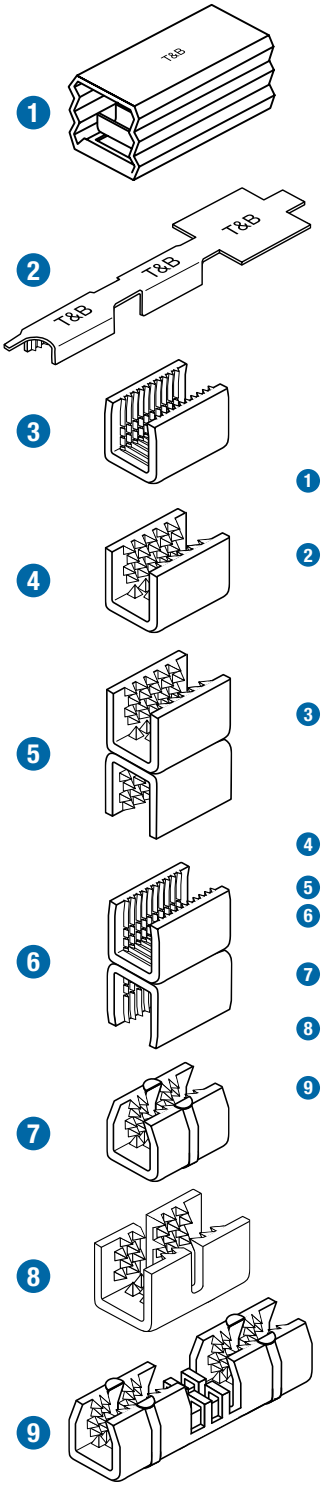
$Diameter^2$ x 10^6 = CMA

*(or see chart on **p. E-88**)*



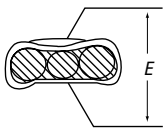
Dragon Tooth® Magnet Wire Termination System

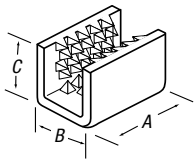
Splices for copper and aluminum magnet wire!



Splices

- Penetrate all standard copper and aluminum magnet wire insulations
- Perfect for heavy Formvar, poly-thermaleze, polyester and polyurethane insulations







For special insulations, consult Technical Services.

	CAT. NO.	DIMENSIONS (IN.) A	B	C	D*	CIRCULAR MIL AREA	ROUND WIRE RANGE (AWG) MIN. MAX.	RECTANGULAR WIRE RANGE (IN.) THICKNESS	WIDTH	PKG. QTY.
1	214420	.43	.25	.22	.135	—	21 (4)–13 (2)	—	—	1000
	220004	.17	.11	.08	.03	468–1,724	32–24**	—	—	8400†
2	220001	.34	.17	.14	.09	1,277–4,205	26–17**	.02–.04	.02–.09	3000†
	220002–TB	.34	.25	.18	.09	2,985–6,687	24–14**	.02–.05	.02–.10	3000†
	220006	.47	.25	.19	.09	5,162–12,330	16–12	.05–.08	.05–.16	2500†
	22L004	.15	.11	.09	.03	128–2,028	32–24**	–	–	1000
	22L001	.32	.16	.16	.10	808–5,162	26–17**	.02–.04	.02–.10	1000
	22L002	.32	.25	.19	.10	2,048–9,110	24–15**	.02–.05	.02–.11	1000
3	22L006	.44	.25	.22	.13	2,580–12,330	16–12	.05–.08	.05–.16	1000
	22L008	.70	.50	.35	.13	12,960–30,550	18–14	.04–.06	.06–.38	100
	22L009	.70	.55	.46	.20	36,120–86,000	16–5	.08–.18	.08–.38	100
	22L010	.70	.78	.71	.22	69,750–173,090 (f)	—	.10–.23 (CU) .10–.18 (AL)	.30–.63	50
4	210214S	.63	.38	.37	.17	4,110–20,760	14(a)–10	.08–.09	.08–.18	250
	204210S	.69	.53	.53	.25	10,380–52,480	12(b)–4(e)	.10–.16	.10 –.26	100
5	204210SH	.69	.53	1.05	.48	20,760–104,960	12(c)–2(d)	.10–.16	.10 –.26	100
6	22L009H	.70	.55	.93	.37	72,000–132,000	16–5	.08–.18	.08–.38	100
	220015	1.50	.88	.77	(e)	50,000–115,000	10–6	.100–.175	.300–.625	50
7	220019	1.50	.88	.85	(e)	110,000–175,000	6–2	.175–.250	.300–.625	25
	220023	1.75	.88	.93	(e)	165,000–230,000	2–1/0	.250–.325	.300–.625	25
8	314118S	.63	.38	.30	.14	3,260–12,330	15–13	.05–.06	.05–.18	250
	220016	3.13	.88	.77	(e)	50,000–115,000	10–6	.100–.175	.300–.625	25
9	220020	3.13	.88	.85	(e)	110,000–175,000	6–2	.175–.250	.300–.625	25
	220024	3.63	.88	.93	(e)	165,000–230,000	2–1/0	.250–.325	.300–.625	25

** Reference dimension. See installing die illustration for gauging.*

*** Not recommended for aluminum magnet wire finer than 21 gauge. (a) Four wires max. (b) Six wires max. (c) Six wires max. each barrel. (d) Conductors heavier than #6 AWG require special dies. Contact Thomas & Betts for assistance. (e) Crimping dies may not bottom. Connector height will depend on number and size of wires in barrel. Pump must deliver 9800 psi minimum. (f) Copper CMA, aluminum CMA=52,136–124,561.*

† On a reel.

***Note**: Wire sizes and combinations shown have been tested to and meet or exceed Thomas & Betts specifications. Connectors may be suitable for other wire sizes or combinations. Thomas & Betts sells these connectors with the understanding that the user will perform necessary tests to determine their suitability for the intended purpose.*

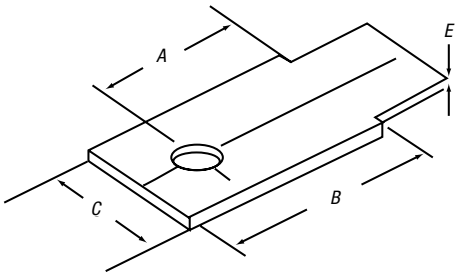
Thomas&Betts

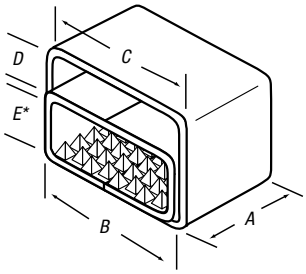
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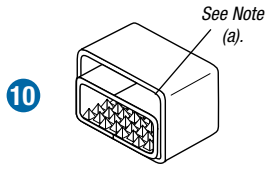
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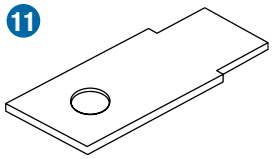
Splices *(continued)*











	CAT. NO.	STUD SIZE	DIMENSIONS (IN.) A	B	C	D	E	CIRCULAR MIL AREA	ROUND WIRE RANGE (AWG)	RECTANGULAR WIRE RANGE (IN.) THICKNESS	WIDTH	PKG. QTY.
10	**210214MT**	—	.63	.63	.75	.25	.19*	20,000–105,000	5–13	Lower Half .08–.15 Upper Half .25 max	.08–.49 .75 max.	250
11	**210MT14**	¼	1.00	1.44	.81	—	.08		5–13	For Conn		25
	210MT38	⅜	1.00	1.44	.81	—	.08		5–13	210214MT		25
10	**204210MT**	—	.92	.94	1.03	.25	.25*	90,000–215,000	3–10	Lower Half .10–.25 Upper Half .25 max	.10–.92 1.03 max.	100
11	**204MT14**	¼	1.00	1.44	.91	—	.10		3–10	For Conn		25
	204MT38	⅜	1.00	1.44	.91	—	.10		3–10	204210MT		25

(a) This space may be used for terminal tongue insert, stripped stranded copper wire, stripped copper magnet wire or left empty.

** Between teeth.*

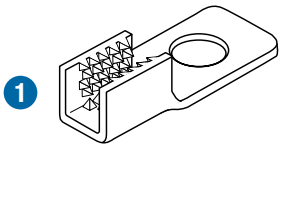
***Note**: Wire sizes and combinations shown have been tested to and meet or exceed Thomas & Betts specifications. Connectors may be suitable for other wire sizes or combinations. Thomas & Betts sells these connectors with the understanding that the user will perform necessary tests to determine their suitability for the intended purpose.*

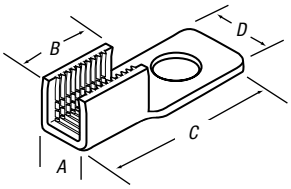


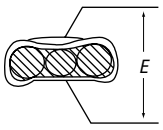
Dragon Tooth® Magnet Wire Termination System

Secure connections easily!

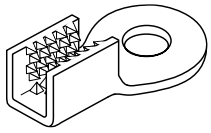
Ring Terminals

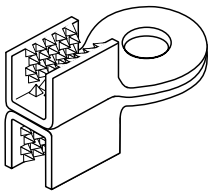


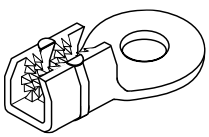


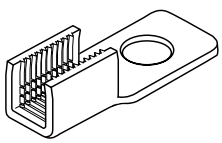


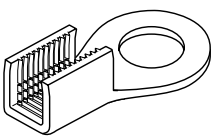












	CAT. NO.	STUD SIZE	DIMENSIONS (IN.) A	B	C	D	E*	CIRCULAR MIL AREA	ROUND WIRE RANGE (AWG)	RECTANGULAR WIRE RANGE (IN.) THICKNESS	WIDTH	PKG. QTY.
1	**314125**	10	.38	.56	1.22	.41	.14	3,260–12,330	15–13	.05–.06	.05–.18	250
	314123	¼"	.38	.56	1.41	.41	.14	3,260–12,330	15–13	.05–.06	.05–.18	250
1	**210219**	8	.38	.56	1.22	.41	.17	4,110–20,760	14(a)–10	.08–.09	.08–.18	250
	210217	10	.38	.56	1.22	.41	.17	4,110–20,760	14(a)–10	.08–.09	.08–.18	250
	210216	¼"	.38	.56	1.41	.41	.17	4,110–20,760	14(a)–10	.08–.09	.08–.18	250
1	**204217**	10	.53	.61	1.58	.50	.25	10,380–52,480	12(b)–4(c)	.10–.16	.10–.26	100
	204212	¼"	.53	.61	1.58	.50	.25	10,380–52,480	12(b)–4(c)	.10–.16	.10–.26	100
	210214–1	¼"	.38	.56	1.41	.69	.17	4,110–20,760	14(a)–10	.08–.09	.08–.18	250
2	**210214–2**	5/16"	.38	.56	1.41	.69	.17	4,110–20,760	14(a)–10	.08–.09	.08–.18	250
	210214–3	⅜"	.38	.56	1.41	.69	.17	4,110–20,760	14(a)–10	.08–.09	.08–.18	250
	204210–1	¼"	.53	.61	1.58	.81	.25	10,380–52,480	12(b)–4(c)	.10–.16	.10–.26	100
2	**204210–2**	5/16"	.53	.61	1.58	.81	.25	10,380–52,480	12(b)–4(c)	.10–.16	.10–.26	100
	204210–3	⅜"	.53	.61	1.58	.81	.25	10,380–52,480	12(b)–4(c)	.10–.16	.10–.26	100
	204210–5	½"	.53	.61	1.58	.81	.25	10,380–52,480	12(b)–4(c)	.10–.16	.10–.26	100
3	**204210–1H**	¼"	.53	.61	1.58	.81	.47	20,760–104,960	12(b)–4(c)	.10–.16	.10–.26	100
	204210–3H	⅜"	.53	.61	1.58	.81	.47	20,760–104,960	12(b)–4(c)	.10–.16	.10–.26	100
	220017	⅜"	.88	1.50	2.76	1.06	(d)	50,000–115,000	.100–.175	—	.300–.625	25
	220018	½"	.88	1.50	2.76	1.06	(d)	50,000–115,000	.100–.175	—	.300–.625	25
4	**220021**	⅜"	.88	1.50	2.76	1.06	(d)	110,000–175,000	—	.175–.250	.300–.625	25
	220022	½"	.88	1.50	2.76	1.06	(d)	110,000–175,000	—	.175–.250	.300–.625	25
	220025	⅜"	.88	1.50	2.76	1.06	(d)	110,000–230,000	—	.175–.325	.300–.625	25
	220026	½"	.88	1.50	2.76	1.06	(d)	110,000–230,000	—	.175–.325	.300–.625	25
	22R061**	6	.16	.32	.78	.30	.10	404–4100	15–24	.02–.05	.02–.10	1000
5	**22R081****	8	.16	.32	.78	.30	.10	404–4100	15–24	.02–.05	.02–.10	1000
	22R101**	10	.16	.32	.78	.30	.10	404–4100	15–24	.02–.05	.02–.10	1000
	22R086	8	.25	.45	.91	.30	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000
5	**22R106**	10	.25	.45	.91	.30	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000
6	**22R146**	¼"	.25	.45	.95	.42	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000

** Reference dimension. See installing die illustration for gauging. (a) Four wires max. (b) Six wires max. (c) Conductors heavier than #6 AWG require special dies. Contact Thomas & Betts for assistance. (d) Crimping dies may not bottom. Connector height will depend on number and size of wires in barrel. Pump must deliver 9800 psi minimum.*

***Note**: Wire sizes and combinations shown have been tested to and meet or exceed Thomas & Betts specifications. Connectors may be suitable for other wire sizes or combinations. Thomas & Betts sells these connectors with the understanding that the user will perform necessary tests to determine their suitability for the intended purpose.*

*** #22–#24 AWG and equivalent rectangular CMA, copper only.*

Thomas&Betts

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800.816.7809
Fax: 901.252.1354

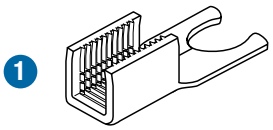
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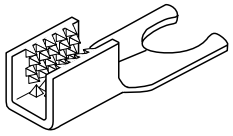
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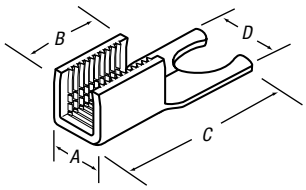
Dragon Tooth® Magnet Wire Termination System

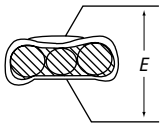
Connectors for every application!

Fork Terminals











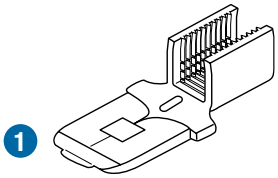
	CAT. NO.	STUD SIZE	DIMENSIONS (IN.) A	B	C	D	E*	CIRCULAR MIL AREA	ROUND WIRE RANGE (AWG)	RECTANGULAR WIRE RANGE (IN.) THICKNESS	WIDTH	PKG. QTY.
	22F061**	6	.16	.32	.78	.30	.10	404–4100	15–24	.02–.05	.02–.10	1000
1	**22F081****	8	.16	.32	.78	.30	.10	404–4100	15–24	.02–.05	.02–.10	1000
	22F101**	10	.16	.32	.78	.30	.10	404–4100	15–24	.02–.05	.02–.10	1000
	22F066	6	.25	.45	.91	.30	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000
1	**22F086**	8	.25	.45	.91	.30	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000
	22F106	10	.25	.45	.91	.30	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000
	210219F	6	.25	.45	.91	.30	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000
2	**210217F**	8	.25	.45	.91	.30	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000
	210216F	10	.25	.45	.91	.30	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000

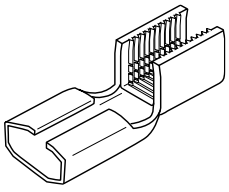
** Reference dimension. See installing die illustration for gauging.*

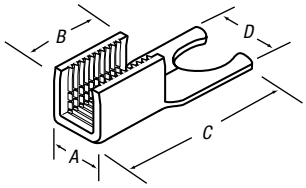
*** #22–#24 AWG and equivalent rectangular CMA, copper only.*

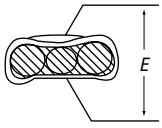
Durable and convenient!

Disconnects











	CAT. NO.	TAB SIZE	DIMENSIONS (IN.) A	B	C	D	E*	CIRCULAR MIL AREA	ROUND WIRE RANGE (AWG)	RECTANGULAR WIRE RANGE (IN.) THICKNESS	WIDTH	PKG. QTY.
1	**22LM01****	.250 x .032	.16	.32	.76	.25	.10	404–4100	15–24	.02–.05	.02–.10	1000
	22LM06	.250 x .032	.25	.45	.91	.25	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000
2	**22LF01****	.250 x .032	.16	.32	.79	.25	.10	404–4100	15–24	.02–.05	.02–.10	1000
	22LF06	.250 x .032	.25	.45	.91	.25	.13	2,580–12,330	12–16	.05–.08	.05–.16	1000

** Reference dimension. See installing die illustration for gauging.*

***Note**: Wire sizes and combinations shown have been tested to and meet or exceed Thomas & Betts specifications. Connectors may be suitable for other wire sizes or combinations. Thomas & Betts sells these connectors with the understanding that the user will perform necessary tests to determine their suitability for the intended purpose.*

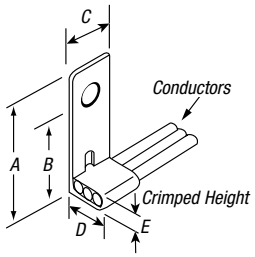
*** #22–#24 AWG and equivalent rectangular CMA, copper only.*

Dragon Tooth® Magnet Wire Termination System

Quick and easy connections!

Taps





CAT. NO.	STUD SIZE (IN.)	DIMENSIONS (IN.) A	B	C	D	E*	CIRCULAR MIL AREA	RECTANGULAR WIRE RANGE (IN.) THICKNESS	WIDTH	PKG. QTY.
204T14	¼	1.62	1.22	.70	.50	.22	10,310–52,480	.090–.114	.090–.320	100
204T38	⅜	1.62	1.22	.70	.50	.22	10,310–52,480	.090–.114	.090–.320	100

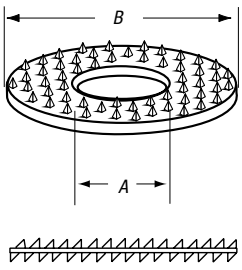
** Reference dimension. See installing die illustration for gauging.*

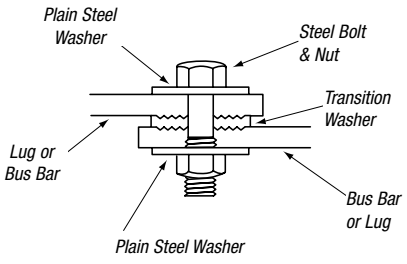
Copper to aluminum connections!

Washers

- Teeth on the transition washers penetrate aluminum and copper oxides
- Enables copper to aluminum connections to be made in a bolted joint without the use of inhibiting compounds
- Accommodates the difference in thermal expansion between copper and aluminum, and enhances the efficiency of bolted grounding connections







CAT. NO.	BOLT SIZE (IN.)	DIMENSIONS (IN.) A	B	RECOMMENDED INSTALLING TORQUE IN.-LBS.	PKG. QTY.
FPW14	¼	.27	.68	50–80	250
FPW516	5/16	.34	1.00	125–160	250
FPW38	⅜	.43	1.00	160–240	250
FPW12	½	.56	1.25	390–540	250
FPW58	⅝	.68	1.40	540–730	250

***Note**: Wire sizes and combinations shown have been tested to and meet or exceed Thomas & Betts specifications. Connectors may be suitable for other wire sizes or combinations. Thomas & Betts sells these connectors with the understanding that the user will perform necessary tests to determine their suitability for the intended purpose.*

Additional Magnet Wire Ordering Information

1. For wire sizes and combinations other than shown, consult factory.
2. Maximum of two layers of conductors in each connector.
3. Consult factory for gauging other than shown.
4. When terminating wires with an AWG size difference of four or more, samples should be tested in completed connections before using.

Conversion of AWG to Circular Mils

WIRE SIZE AWG	NOM. DIAMETER IN.	MM	CIRCULAR MILS
4/0	.4600	11.68	211,600
3/0	.4096	11.40	167,800
2/0	.3648	9.266	133,100
1/0	.3249	8.52	105,600
1	.2893	7.348	83,690
2	.2576	6.543	66,360
3	.2294	5.827	52,620
4	.2043	5.189	41,740
5	.1819	4.620	33,090
6	.1620	4.115	26,240
7	.1443	3.665	20,820
8	.1285	3.264	16,510
9	.1144	2.906	13,090
10	.1019	2.588	10,380
11	.0907	2.30	8230
12	.0808	2.05	6530
13	.0720	1.83	5180
14	.0641	1.63	4110
15	.0571	1.45	3260
16	.0508	1.29	2580
17	.0453	1.15	2050
18	.0403	1.02	1620
19	.0359	0.912	1290
20	.032	.813	1020
21	.0285	.724	812
22	.0253	.643	640
23	.0226	.574	511
24	.0201	.511	404

Decimal Equivalents

WIRE SIZE AWG	NOM. DIAMETER IN.	MM	CIRCULAR MILS
1/64	.0156	3/16	.1875
1/32	.0312	13/64	.2031
3/64	.0469	7/32	.2188
1/16	.0625	15/64	.2344
5/64	.0784	1/4	.25
3/32	.0938	—	—
7/64	.1094	17/64	.2656
1/8	.125	9/32	.2812
9/64	.1406	19/64	.2969
5/32	.1562	5/16	.3125
11/64	.1719	211/64	.3281
11/32	.3438	33/64	.5156
23/64	.3594	17/32	.5312
3/8	.375	35/64	.5469
25/64	.3906	9/16	.5625
13/32	.4062	37/64	.5781
27/64	.4219	19/32	.5938
7/16	.4375	39/64	.6094
29/64	.4531	5/8	.625
15.32	.4688	41/64	.6406
31/64	.4844	21/32	.6562
1/2	.5	43/64	.6719

***Note**: Multiply inches x 25.4 to get millimeters. Example: .5" x 25.4 = 12.7 mm.*

STUD SIZE	#6	#8	#10	¼"	5/16"	⅜"	½"
Hole Dia.	.143	.169	.196	.260	.323	.386	.516

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Dragon Tooth® Magnet Wire Termination System

Crimp with comfort!

Ergonomic Manual Installation Tools

- Fixed die tool
- Incorporates the ergonomically designed Comfort Crimp® tool handles, which distribute the force more evenly across the hand
- Shure-Stake® mechanism ensures a complete crimp cycle before the tool releases
- Rubberized thermoplastic handles combine maximum friction with a soft, comfortable feel that reduces muscle tension
- Two-piece movable die nest provides easy connector removal (ERG811 has a fixed die nest)



CAT. NO.	TOOL GAUGING	CONNECTOR	PKG. QTY.
ERG1801	.069 max.	22F, L, R-1 Series	1
ERG1802	.076 max.	22L002	1
ERG1804	.034 max.	22L004	1
ERG1806	.095 max.	22F, L, R-6 Series	1
ERG811	.103 max.	214420	1

Contact Customer Services for availability and most recent additions to the ergonomic tool series.

Thomas & Betts Tool Warranty

You can choose Thomas & Betts tools with confidence, because we stand behind them with our warranty. The chart below shows the standard length of warranty for different types of tools. See below for additional warranty details.

90 Days
- Batteries
- Individual Dies
- Duct Tools

1 Year
- Pneumatic Tools
- Cable Cutters & Strippers
- Ty-Rap® Tools

2 Years
- Mechanical Hand Tools with Ratchet or Shure-Stake® Mechanism
- Hydraulic Pumps
- Battery-Operated Tools
- Manual Hydraulic Tools

Lifetime
- Mechanical Hand Tools without Ratchet or Shure-Stake® Mechanism

Limited Warranty for Tools

Thomas & Betts sells tools with the understanding that the user will perform all necessary tests to determine the suitability of each tool for the user's intended application. Thomas & Betts warrants that its tools will be free from defects in materials and workmanship for the period of time specified above. Upon prompt notification of any warranted defect, Thomas & Betts will, at its option, repair or replace the defective product or refund the purchase price. Proof of purchase is required. Misuse or unauthorized modification of the product voids all warranties.

Limitations and Exclusions

The warranty above is the sole warranty concerning this product, and is in lieu of all other warranties expressed or implied, including but not limited to any implied warranty of merchantability or fitness for a particular purpose, which are specifically disclaimed. Liability for breach of the above warranty is limited to cost of repair or replacement of the product, and under no circumstances will Thomas & Betts be liable for any indirect, special, incidental or consequential damages.

Direct all warranty inquiries to Thomas & Betts Tool Services: ***1-800-284-TOOL (8665)****.*

Replacement batteries and chargers can be purchased from T&B Tool Services

Call Toll-Free 1-800-284-TOOL (8665)

For more information about Thomas & Betts Tool Services:

E-Mail us at toolservice@tnb.com

Dragon Tooth® Magnet Wire Termination System

1½ tons of grip that weighs less than three pounds!





Battery-Powered Crimping Tool — BAT22-6

T&B's newest battery-powered tool is fast and portable for making high-volume and difficult-to-reach terminal installations in a snap. The BAT22-6 delivers 1.5 tons of crimping force with an easy, pushbutton trigger. The lightweight, ergonomic design minimizes the risk of repetitive motion injuries that can occur with traditional hand crimping tools. And at less than three pounds, one-hand operation is easy while still packing enough power to crimp up to #6 AWG terminals in seconds.

- Interchangeable dies can be quickly changed to crimp non-insulated and insulated terminals up to #6 AWG
- Dies are the same as our hand tools — crimps will be exactly the same between Dragon Tooth® hand tools such as our ERG1804 and the BAT22-6
- 360° rotating head gives the user the added flexibility when crimping hard-to-reach connections
- Short cycle time equates to crimping times of less than two seconds
- Quick, lightweight, and maneuverable
- NiCd battery operation provides long-lasting battery life to complete up to 150 crimps on a single charge
- Extra battery and charger are included with the tool, ensuring round-the-clock operation
- Battery charger provides full battery life in under an hour
- Linear crimping motion gives a symmetric, high-quality crimp every time



Uses the exact dies of the Comfort Crimp® line of ergonomic tools for Sta-Kon® and Dragon Tooth® Connectors.

Included Accessories

- Sturdy, plastic carrying case for portability
- Two 9.6V NiCd batteries and battery charger
- Sturdy tray for convenient storage of crimp dies

Specifications

- Crimping Force: 2,900 lbs. max.
- Wire Crimping Range: Up to #6 AWG
- Crimp Cycle Time: 2 seconds
- Power Supply: 9.6V NiCd battery
- Recharging Time: 1 hour
- Crimps per Charge: 150
- Dimensions: 25.4" (645mm) Length 3.1" (79mm) Width 2.1" (53mm) Height
- Tool Weight (With Battery): 2¾ lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
BAT22-6	Battery Crimping Tool 1.5 Ton with 120VAC Charger	1
Crimp Dies*		
DIE1801	22 F, L, R-1 Series	1
DIE1802	22L002	1
DIE1804	22L004	1
DIE1806	22 F,L,R-6 Series	1

Tool purchase includes crimping tool, two 9V batteries, charger and case.

** Dies sold separately.*

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Dragon Tooth® Magnet Wire Termination System

Perfect for high-speed installation!

BAIR22-6 — Heavy-Duty Bench-Top Air Crimp Tool

- Bench mounted for stability and operator control
- Compact size, all-metallic construction
- Delivers 1.8 tons of crimping force at 100 psi
- Heavy-duty and installs wide range of Dragon Tooth® connectors



BAIR22-6

Specifications

- Height: 12"
- Base: 8" Square
- Operating Pressure: 85–100 psi
- Weight: 17 lbs.

CAT. NO.	DESCRIPTION
BAIR22-6	Equipped with Shure-Stake® Mechanism, Ensuring Full Crimp Cycle Before Release

Pneumatic power!

PAIR22-6 — Heavy-Duty Portable Air Crimp Tool

- Installs Dragon Tooth® terminals
- Hand actuated
- Delivers 1.25 tons of crimping force at 100 psi
- Three interchangeable dies can crimp the 22xxx1, 22xxx2, 22xxx4 and 22xxx6 series terminals



PAIR 22-6

Specifications

- Overall Length: 14"
- Operating Pressure: 90–100 psi
- Diameter: 2¼"
- Weight: 2.5 lbs.

CAT. NO.	DESCRIPTION
PAIR22-6	Open "C" Yoke; Hand Actuated

Installing Dies for BAIR22-6 and PAIR22-6

CAT. NO.	DESCRIPTION	PKG. QTY.
Crimp Dies		
DIE1801	22 F, L, R-1 Series	1
DIE1802	22L002	1
DIE1804	22L004	1
DIE1806	22 F,L,R-6 Series	1

Dragon Tooth® Magnet Wire Termination System

Rugged and portable!

6-Ton Hydraulic Head

- Lightweight design—weighs less than 7 lbs. including dies
- Includes steel carrying case
- Tool carrying case included
- Dies are ordered as a set (two pieces)



Specifications

- Output Force: 6 tons nominal
- Operating Pressure: 10,000 psi nominal
- Tool Weight: 6½ lbs. (without dies)
- Tool Dimensions: 13½" long, 3½" wide

CAT. NO.	DESCRIPTION
TBM6H	The TBM6H Remote Hydraulic Crimping Head is a lightweight but powerful compression tool. The TBM6H operates from any 10,000-psi hydraulic pump.

*See die chart on **page G-104** for complete listing of dies and connectors used with TBM6H.*

Military listed and 12 tons of crimping power!

12-Ton Crimping Tool

(Military Spec. MS25441-1)



13642M

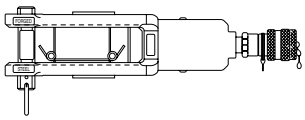
CAT. NO.	DESCRIPTION	PKG. QTY.
13642M	Hydraulic-operated 12-ton tool installs #8 AWG through 250 kcmil Sta-Kon® terminals (dies ordered separately)	1

*See die chart on **page G-104** for complete listing of dies and connectors used with 13642M.*

Powerful and reliable!

12-Ton Hydraulic Head

- 12 tons output (nominal)
- 10,000 psi max. hydraulic operating pressure
- Weighs 15 lbs.





Specifications

- Output: 12 tons (nominal)
- Hydraulic Operating Pressure: 10,000 psi (max.)
- Length (with coupling): 14½"
- Width: 3¼"
- Weight (without dies): 15 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY.
13400	12-ton crimping tool supplied with adapter TBM12D-AR is used for installing both insulated and non-insulated Sta-Kon® terminals #8 AWG to 250 kcmil (dies ordered separately)	1

*See die chart on **page G-104** for complete listing of dies and connectors used with 13400.*

Lightweight design!

14-Ton Hydraulic Head

- 14 tons output (nominal)
- 10,000-psi max. hydraulic operating pressure
- Weighs 10 lbs.



Specifications

- Output: 14 tons (nominal)
- Hydraulic Operating Pressure: 10,000 psi (max.)
- Length (with Coupling): 11½"
- Width: 2½"
- Height: 4¼"
- Weight (without Dies): 10 lbs.

CAT. NO.	DESCRIPTION	PKG. QTY
13100A	Remote 14-Ton Hydraulic Head (Dies Ordered Separately)	1

*See die chart on **page G-104** for complete listing of dies and connectors used with 13100A.*

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Dragon Tooth® Magnet Wire Termination System

Crimp larger connectors easily!

15-Ton Hydraulic Head



- Longer, slimmer profile enables easier access into tight spaces
- Wider jaw opening eases crimping of larger connectors
- Head made of forged steel and insulated with rubber boot
- Steel carrying case is included
- Longer, slimmer profile enables easier access into tight spaces

Specifications

- Output Force: 15 tons nominal
- Operating Pressure: 10,000 psi nominal
- Tool Weight: 16½ lbs. (without dies)
- Installs: #8 AWG–1500 kcmil copper; #10 AWG–1000 kcmil Aluminum

CAT. NO.	DESCRIPTION	PKG. QTY
TBM15I	Insulated 15-Ton Hydraulic Tool; Carrying Case Included	1

*See die chart on **page G-104** for complete listing of dies and connectors used with TBM15I.*

Electric Hydraulic Pumps

- Up to 10,000-psi output pressure
- Durable construction
- Hand or foot actuated



13810



13610A

CAT. NO.	DESCRIPTION
13810	Heavy-duty electric hydraulic pump with Shure-Stake® control — hand or foot switch and non-metallic hose (sold separately) required for operation
You may also need…	
13611	Hand Switch
13612	Foot Switch
13613	High Pressure, Steel Reinforced Hydraulic Hose; 6 ft.
13614	High Pressure, Steel Reinforced Hydraulic Hose; 10 ft.
13619	High Pressure, Plastic Hydraulic Hose; 10 ft.
13600	Electric Hydraulic Pump — hand or foot switch and non-metallic hose (sold separately) required for operation
You may also need…	
13620	Hand Switch
13589A	Foot Switch
13619	10-ft. Non-Metallic Hose
13618	20-ft. Non-Metallic Hose

A remote control switch is required. Order Cat. No. 13620 for hand operation or Cat. No. 13589A for foot operation.

All pumps are supplied with a metal carrying case.

13610A	Shure-Stake® electric hydraulic pump has same features as 13600, but includes the Shure-Stake® control mechanism; hand or foot switch and non-metallic hose (sold separately) required for operation
You may also need…	
13611	Hand Switch
13612	Foot Switch
13797	In-line hydraulic pressure inspection gauge with male and female pioneer-type coupler.

A remote control switch is required to operate this unit. Use either a 13611 (hand) or 13612 (foot) switch.

Dragon Tooth® Magnet Wire Termination System

An easy-to-use reference guide for tools and connectors!

	MANUAL	BAT 22-6 BAIR 22-6 PAIR 22-6	TBM6H	13100A	13400 13642M	TBM15I
Connector			***Dies***			
204210MT	–	–	–	–	13682	–
204210S	–	–	–	13671B	13671A	13671B with 15500TB
204210SH	–	–	–	13673B	13673	13673B with 15500TB
204210-1	–	–	–	13671B	13671A	13671B with 15500TB
204210-1H	–	–	–	13673B	13673	13673B with 15500TB
204210-2	–	–	–	13671B	13671A	13671B with 15500TB
204210-3	–	–	–	13671B	13671A	13671B with 15500TB
204210-3H	–	–	–	13673B	13673	13673B with 15500TB
204210-5	–	–	–	13671B	13671A	13671B with 15500TB
204212	–	–	–	13671B	13671	13671B with 15500TB
204217	–	–	–	13671B	13671A	13671B with 15500TB
204MT14	–	–	–	–	–	–
204MT38	–	–	–	–	–	–
204T14	–	–	–	13689B	–	13689B with 15500TB
204T38	–	–	–	13689B	–	13689B with 15500TB
210214MT	–	–	–	13681B	13681	13681B with 15500TB
210214S	–	–	–	13670B	13670A	13670B with 15500TB
210214-2	–	–	–	13670B	13670A	13670B with 15500TB
210214-3	–	–	–	13670B	13670A	13670B with 15500TB
210216, 210216F	–	–	–	13670B	13670A	13670B with 15500TB
210217, 210217F	–	–	–	13670B	13670A	13670B with 15500TB
210219, 210219F	–	–	–	13670B	13670A	13670B with 15500TB
210MT14	–	–	–	–	–	–
210MT38	–	–	–	–	–	–
214420	ERG811/WT811	DIE 811	–	–	–	–
220001	–	–	–	–	–	–
220002-TB	–	–	–	–	–	–
220004	–	–	–	–	–	–
220005	–	–	–	–	–	–
220006	–	–	–	–	–	–
220015	–	–	–	13713B	–	13713
220016	–	–	–	13713B	–	13713
220017	–	–	–	13713B	–	13713
220018	–	–	–	13713B	–	13713
220019	–	–	–	13713B	–	13713
220020	–	–	–	13713B	–	13713
220021	–	–	–	13713B	–	13713
220022	–	–	–	13713B	–	13713
220023	–	–	–	13713B	–	13713
220024	–	–	–	13713B	–	13713
220025	–	–	–	13713B	–	13713
220026	–	–	–	13713B	–	13713
22F061	ERG1801	DIE1801	–	–	–	–
22F066	ERG1806	DIE1806	–	–	–	–
22F081	ERG1801	DIE1801	–	–	–	–
22F086	ERG1806	DIE1806	–	–	–	–
22F101	ERG1801	DIE1801	–	–	–	–
22F106	ERG1806	DIE1806	–	–	–	–
22L001	ERG1801	DIE1801	–	–	–	–
22L002	ERG1802	DIE1802	–	–	–	–
22L004	ERG1804	DIE1804	–	–	–	–
22L006	ERG1806	DIE1806	–	–	–	–
22L008	–	–	6TON-MW-08	13683B	13683	13683B with 15500TB
22L009	–	–	6TON-MW-09	13684B	13684	13684B with 15500TB
22L009H	–	–	–	13686B	13686	13686B with 15500TB
22L010	–		–	13690B		
22LF01	ERG1801	DIE1801	–	–	–	–
22LF06	ERG1806	DIE1806	–	–	–	–
22LM01	ERG1801	DIE1801	–	–	–	–
22LM06	ERG1806	DIE1806	–	–	–	–
22R061	ERG1801	DIE1801	–	–	–	–
22R106	ERG1806	DIE1806	–	–	–	–
22R146	ERG1806	DIE1806	–	–	–	–
314118S	–	–	–	13685B	13685	13685B with 15500TB
314123	–	–	–	13685B	13685	13685B with 15500TB
314125	–	–	–	13685B	13685	13685B with 15500TB

Note: *Dies that fit 13100A also work in TBM15I with use of adapter 15500TB.*

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Pos-E-Kon®

Pos-E-Kon® Wire Pin & Sleeve Connectors



In this section...



Pos-E-Kon® Wire Pin & Sleeve Connectors

Overview G-106–G-115
A Series 16 Amps 600VAC G-116–G-117
B Series 16 Amps 600VAC G-118–G-121
C Series 35 Amps 600VAC G-122–G-123
D Series 10 Amps 600VAC G-124–G-127
DD Series 10 Amps 600VAC G-128–G-131
K Series 80 + 16 Amps 600VAC G-132–G-133
V Series 16 Amps 600VAC G-134–G-137
T Series 16 Amps 600VAC G-138–G-139
Technical Information G-140–G-158

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Overview

The FAQs about Pos-E-Kon® Interconnects: The Most Frequently Asked Questions and Answers — for Pos-E-Kon Customers



International Standards, Worldwide Use

Why?

Rectangular Circuit Interconnections

- Best use of space for multiple contacts in heavy-duty housings
- Easy to assemble with many different insert options
- Best fit for easy access in panels, machinery and enclosures
- Sealed connector with quick disconnect handles
- Wide variety of circuit possibilities from standard items
- Solid or stranded wire in fixed or portable use

Who?

- Machine tool OEMs
- Material handling equipment OEMs
- Robotics systems OEMs and installations
- Packaging machinery OEMs and facilities
- Control panels and PLC systems
- Molding, assembly or line machinery OEMs and facilities
- Construction, mining and welding apparatus
- Carnival applications

What?

- Servo controls
- Sensing and feedback loops
- Conveyor and process controls
- Low power, DC or logic systems
- Combination power, system and other circuits
- Modular controls including fiber-optic connections

Where?

Worldwide agency approvals and applications

- DIN VDE 0627/86, 0110/02.79, and 0110-1/04.97
- IEC 60.664-1, DIN/IEC 512
- UL Recognized (E215386) and CSA Certified
- Protection classes IP44 through IP65 per IEC 529
- Component use in CE marked equipment OK per IEC Council Directive July 1999, 73/23/EEC
- Available from Thomas & Betts – POS-E-KON authorized distributors
- T&B sales representatives and agents worldwide

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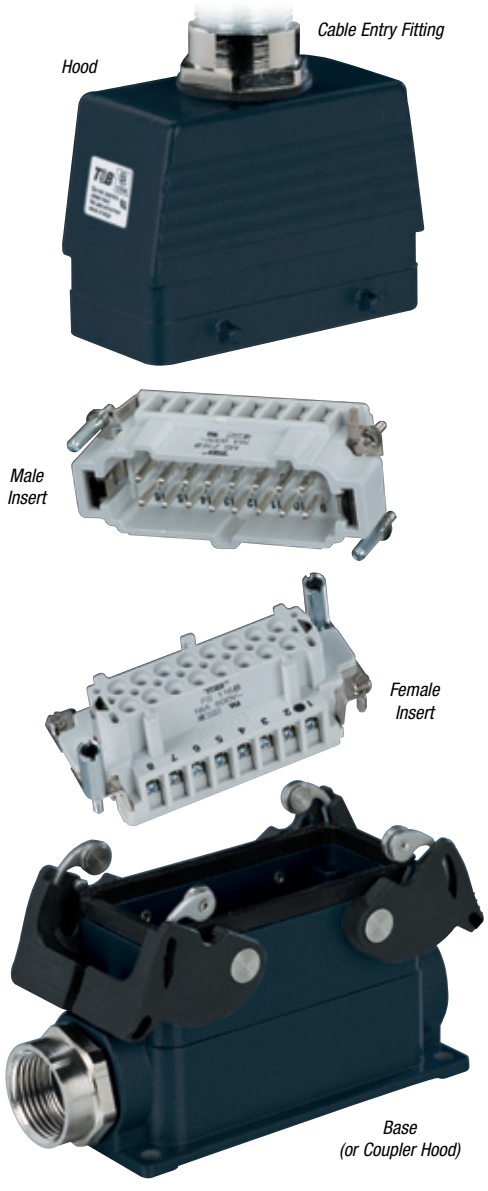
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Overview

The Basic System: Build an Application

Step 1 – Maximum voltage and amperage requirements (300V or 600V classes, 10–80 amps).
Step 2 – Number of contacts or circuits needed.
Step 3 – Choose wire terminations style; screw terminal or crimp contacts. Select series from charts.
Step 4 – Base (or coupler) and hood construction/mating selection per series (single or double levers).



Cable Entry with Fitting

As Easy As 1. 2. 3. 4.

1. Hood:

- Separable housing for inserts
- Top or side conduit/wire entry
- Standard locking posts, dual or single
- Locks to Panel Base, Box Base or inline Coupler Hood

2. Base Housing (or Coupler Hood):

- Surface wall-mount box base (shown)
- Panel Base for through-panel access
- Coupler Hood mating for portable use
- Single or dual “lever” locking

3. Male Insert

- Male contact carrier body
- Screw terminal contacts (pins with wire protection saddles) or crimp terminated pins

4. Female Insert

- Female contact carrier
- Screw terminal contacts (sleeves with wire protection saddles) or crimp terminated sleeves

DIN Standard Configurations

- Most inserts and housings are interface compatible with other DIN standard lines. Verify physical application before selecting cross reference.
- Pos-E-Kon® construction includes standard NPT conduit adapters for hoods and bases, with many options available. DIN standard Hoods and Bases may have “Euro Style” PG fittings (or none) included unless specially ordered.

Overview

Pos-E-Kon Insert Selector Chart

S – Screw Terminals

C – Crimp Contacts

F – Fiber Optic (POF)

A – Terminal Block Wiring Adapter

Select the # of contacts — all inserts have separate ground contacts

AMPS	VOLTS	SERIES	3	4	6	7	8	10	12	15	16	20	24	25	26	32	40	42	48	50-216
10	50	D					C, F													
10	600	A	S	S																
16	600	A						S, C			S, C					S, C				
16	600	B			S, C, A			S, C, A			S, C, A		S, C, A			S, C			S, C	
35	600	C			S				S											
10	600	D				C, F				C, F				C, F			C, F, A			C, F, A (64)
10	600	DD											C, F					C, F		C, F
80/16	600	K		S			S	4 or 8 Power (80A alone or with 8 or 16 Control (16A) Combination Inserts												
16-T	600	T			S			S			S		S		High Temp (200° C)					
316-V	600	V	S, C		S, C			S, C			S, C	S, C			S, C	S, C	Includes 2 Pilot Contacts			

Screw Terminal/Insert Types (Integral Contacts)

Screw termination is used for ease of assembly plus ease of maintenance. No tooling beyond a screwdriver and wire strippers is required.

10–16A A, B, V, T	35A C	10–80A K
		

Crimp Terminal/Insert Types (Crimp Contacts)

Crimp terminals offer solid, thermally cool vibration-resistant terminations for OEM equipment and critical applications. Better for smaller AWG sizes also. Crimp tools are noted in each section.

10A D & DD	16A A & B
	

16A A & B	10A D & DD	POF D
		
		

All crimp types represented require contacts ordered separately.

Each section contains hand crimp tool selection notes.

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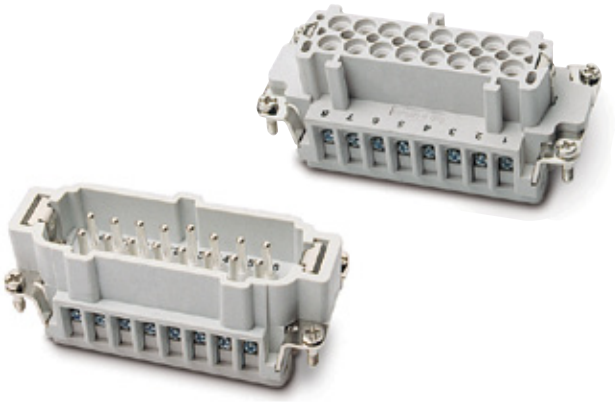
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Overview

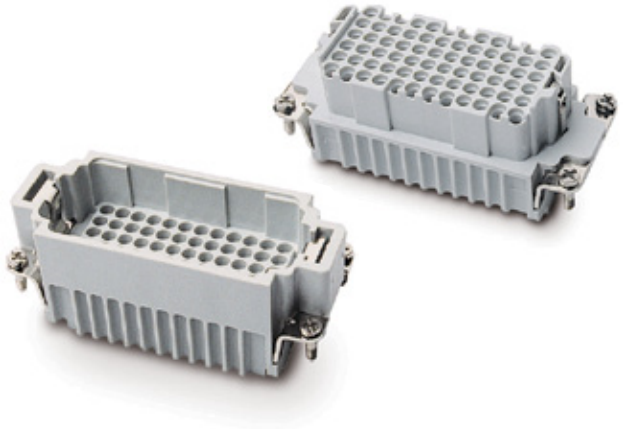
Screw Terminal Inserts

- Integral screw terminal contacts provide for easy terminal wiring and fast assembly
- Standard wire protection saddles prevent cutting of strands during assembly



Crimp Terminal Inserts

- Provides reliable connections for long-term configurations
- Contact sizes accommodate wiring from 12–20 AWG



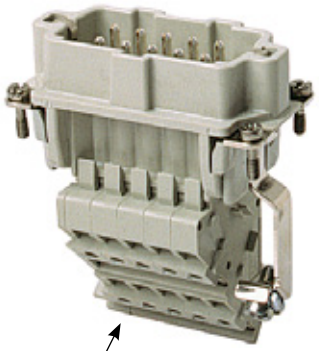
- Made of durable glass fiber-filled thermoplastic
- Contact numbers clearly marked for easy identification
- Easily installed (male or female) in either hoods or bases using captive mounting screws

WAR, Right Ground Strap
WAL, Left Ground Strap

Terminal Block Wiring Adapters

- Allows for measuring of circuit while in operation
- Provide easy connections in panel mounting configurations
- Labels available for easy identification of circuits
- Can be mounted on DIN rails by using snap-on mounting feet
- Used in switch cabinets, panel enclosures or mounted in panel base housings — see B and D series

Insert Strip Blank – WAM1B
Insert Strip Nos. 1–64 – WAM1N64
Insert Strip Letters A–Z – WAM1AZ



WAM1 Marker Tab Clips
Snap-in formed label holder tabs allow terminal identification for B Series.



DIN Mounting Foot FE807TB

Overview

Hood and Base Housings

- **Rugged cast aluminum hoods and bases:** Maximum performance in many operating conditions
- **Various hood heights available:** Easier assembly and wiring with low, high and standard profiles
- **Corrosion-resistant finishes:** Optional special materials extend life in corrosive conditions
- Locking possibilities include **single locking** system and **double locking** system
- **Complete selection:** Flexible product designs (see Hood/Base Cross Reference below)
- **Dust covers and more:** See Adapters (**page G-113**) and Covers (**page G-112**) or Bases with Covers available in most series (Accessories, **page G-154**)
- **Custom configurations:** Multiple conduit entry/sizes and other configurations available to spec

Cross Reference — Inserts

AMPS	VOLTS	SERIES	A4	A10	A16	AA32	B6	B10	B16	B24	B32	B48
Series Application			*Standard Hood/Base Housing*									
10A	50	D	D8									
10A	600	A	A3, A4									
16A	600	A		A10	A16	A32						
16A	600	B					B6	B10	B16	B24	B32	B48
35A	600	C							C6		C12	
10A	600	D	D7	D15	D25	D50			D40	D64	D80	D128
10A	600	DD					DD24	DD42	DD72	DD108	DD144	DD216
80/16A	600	K								K4/8		K8/16
Series Application			*Special Series Hood/Base Housing*									
16A-T*	600	T					T6	T10	T16	T24		
16A-V**	600	V						V3	V6	V10		V32

** Special high-temperature series in copper-free aluminum with special green epoxy powder coat, Viton® seals.†*

*** Special isolation design allows additional control circuit capability.*

† Viton® is a trademark of DuPont Performance Elastomers.



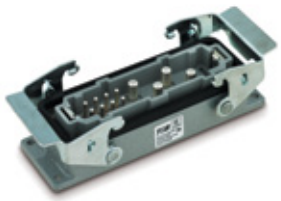
Box Base



Top Cable Entry



Box Base Housing with single lever and spring cover. Metal spring covers available for B series, where noted.



Panel Base



Side Cable Entry

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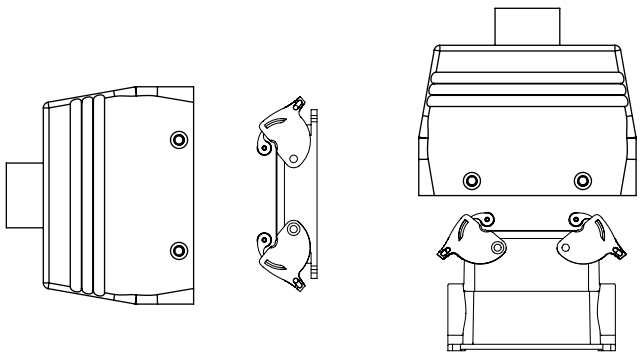
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Overview

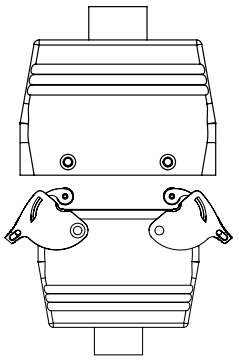
1. Select size (# of contacts) from each series' section left-hand page chart (selected inserts), then look at corresponding right-hand page columns.
2. Vertical columns note single or double locking systems available (double locking usually preferable).
3. Select base housings for mounting and/or function: conduit/cable entry, thru-panel access, inline coupler or reversed locking as shown. (Note profile height options.)
4. Select side or top entry hoods as shown. (Note profile height options.)
5. Review conduit and cable entry options (standard NPT adapter sizes for each series).

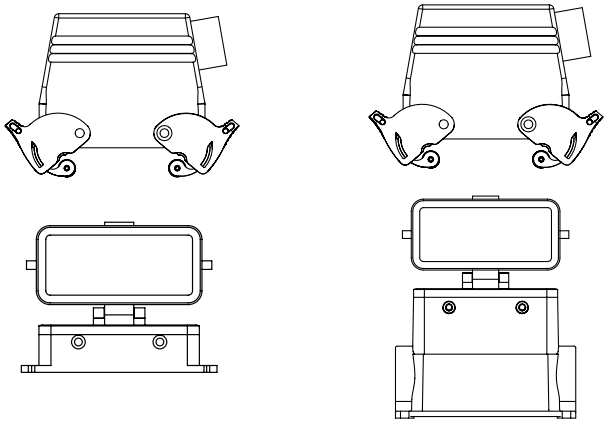
***Note**: M Series (layout) groups interior options, followed by base selection options.*



Each Right-Hand Page Shows:

- Standard Bases
- Base to Hood
- Standard Hoods
- Hood to Coupler
- Portable Service
- Coupler Hoods





- Reverse Locking
- Lever Hoods
- Hood to Base
- Post Bases

Overview

Sub-Miniature (DB) Adapter Plates

- Connect test and diagnostic equipment to control circuits
- Panel base, box housing base or any hood installation (ribbon cable — entry hoods available)
- Industry standard sizes
- Dust covers for protection recommended
- 9, 15, 25, 37 and 50 series



B24 Insert Mounting Adapter Plates

- Allows housing standardization for multiple applications
- B24 footprint fit to single B6, B10, B16 inserts
- Rugged thermoplastic
- Fits standard B24 Hoods and Bases

B24 Insert Mounting Adapter Plates

- Allows custom connections for drill-and-install work
- Blank plate for expansion
- All standard Hood/Base sizes supported



Dust Covers & Hinged Covers

(thermoplastic) (thermoplastic or metal)

- Separate covers or fixed-mount hinged types
- Metal fixed-mount hinged covers for B series bases available in select sizes
- Separate or fixed covers protect contacts when not in use or while unmated





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Overview

Wire and Cable Entry Options

Portable Service Cord

- Sheathed industrial multi-conductor cables usage
- Options cover many installation needs
- Special constructions available for retrofit or original specification
- Hoods and Bases may be specified (in bulk volumes)
- Euro standard gland seal also available



Cable Compression Seal Fitting



Euro Gland Seal

Standard NPT Conduit Adapters

- Euro PG to NPT thread adapters (PG male to NPT female)
- Standard on all Pos-E-Kon Hoods and Bases
- Available separately for MRO
- Sizes from (PG11 to ½") through (PG48 to 1½") NPT



Cord Grip Fittings

- Both NPT and PG thread styles
- Thermoplastic sealing glands in NPT, PG and ISO threads — for retrofit or original specification
- More options than shown are available (shown in gray; black also available)



Pos-E-Kon® Advantages

- Feature: Ergonomic thermoplastic levers for "B" series double-lever housings B10–B24
- Benefits: Non-slip comfortable grip for easier locking and unlocking
- Feature: Laser-etched labeling for all metal housings and hot-stamped labeling on contact carrier inserts
- Benefits: Permanent marking with all data combined in external marking vs. internal label



Overview

Easy-to-use catalog number construction pioneered by Thomas & Betts

Hoods

TH – Top Entry Hood with NPT fitting

SH – Side Entry Hood with NPT fitting





Double posts (front/back) for Double-Lever locking (single-side posts/lever also).

Wiring Entry options

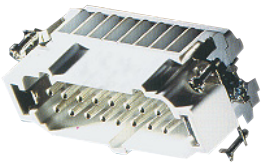
- Cord or Conduit Adapter fittings
- Ribbon cable and Euro cable entry
- Housings without fittings
- Custom assemblies

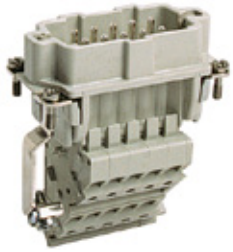


Male and Female Terminal Block Wiring Adapters

MS or **FSxxxWAR/WAL**

(right/left ground) options for Panel Base installations







Male and Female Inserts

– same installation to any hood or base orientation

MS – **M**ale **S**crew Terminal Insert (shown)

FS – **F**emale **S**crew Terminal Insert (shown)

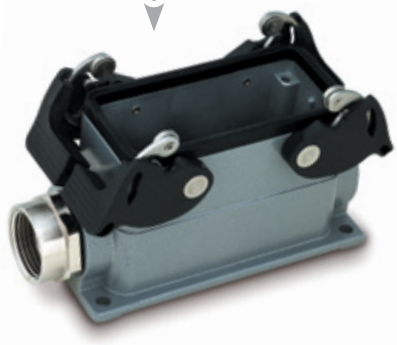
– OR –

MC – **M**ale **C**rimp Insert

FC – **F**emale **C**rimp Insert

>use **MP** – **M**ale and **FP** – **F**emale **P**ins







PB – **P**anel **B**ase Housing Panel face or bulkhead mounting with rear wiring access

BB – **B**ox **B**ase Housing Surface Mount with NPT conduit entry (1 or 2) fittings (standard)

CH – **C**oupler **H**ood Inline Portable Connection

Locking

- Single lever/Single posts or Double lever/Double posts locking
- "Reversed Locking" (levers on hoods) available

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Overview

Series Locator

	SERIES	FEATURES	CONTACTS + G	PAGE
	**A Series** 10A: 3, 4 16A: All others	Small, Compact Size Screw Terminal	3, 4, 10, 16, 32	**G-116**
	**B Series** 16A	Standard Size Screw Terminal	6, 10, 16, 24, 32, 48	**G-118**
	**C Series** 35A	High-Current Screw Terminal	6 or 12	**G-122**
	**D Series** 10A	High-Density Crimp Contacts or Fiber Optic Contacts	7, 8, 15, 25, 40, 50, 64, 80, 128	**G-124**
	**DD Series** 10A	Very High-Density Crimp Contacts	24, 42, 72, 108, 144, 216	**G-128**
	**K Series** 16A/80A	Combo, High-Current/Std. Current Screw Terminals	16A: 8 + 4 80A: 16 + 8	**G-132**
	**V Series** 16A	Control Circuit Contacts and B Style Screw Terminals	3, 6, 20, 26, 32	**G-134**
	**T Series** 16A	B Style @ High-Temp 200° C Screw Terminals	6, 10, 16, 24	**G-138**
	Reference & Accessories	Specs, Dimensions, Components and Fiber Optics		**G-140**

A Series 16 Amps 600VAC

3 or 4 Contacts + Ground: 10A
10, 16 & 32 Contacts + Ground: 16A



Use small blade screwdriver to push wire entry tab in for easy contact removal.

Install to Matching Series Hood/Base

3 OR 4 (600V)	10	16	32
			



Crimp Tool

CAT. NO.
WT611TB

Screw Terminal Inserts

	SCREW TERMINAL INSERTS	3 OR 4 + G	10 + G	16 + G	32 + G
	**Male – Pins** 20–14 AWG (.5–2.5 mm²)	**MS203A** or **MS204A** (16 AWG max.)	**MS210A**	**MS216A**	**MS216A+ MS232A**
	**Female – Sleeves** 20–14 AWG (.5–2.5 mm²)	**FS103A** or **FS104A** (16 AWG max.)	**FS110A**	**FS116A**	**FS116A+ FS132A**

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A Series 16 Amps 600VAC

Bases — Standard Mount

SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	# of Contacts + Ground Connection: 3 or 4 (600V) — LEVER LOCKING TYPE: SINGLE	10 — SINGLE	16 — SINGLE	32 — DOUBLE	
		Panel Base (No Cover)		PB303A(P)†	PB310A	PB316A	PB132A	BASE
		Panel Base w/Cover		PB403A	PB410A	PB416A		BASE
		Angled, (No Cover)		PB503A(P)†				BASE
		Box Base (No Cover)	1" x ⅜" 1" x ½" 1" x ¾" 1" x 1" 2" x ½" 2" x ¾" 2" x 1"	BB403APMV†	BB410AMV BB510AMV	BB416AMV BB516AMV	BB032AMV BB832A BB132AMV BB132A100	BASE
		Box Base w/Cover	1" x ½" 2" x ½"		BB610AMV BB710AMV	BB616AMV BB716AMV		BASE

Hoods — Standard Mount **Plastic body — "A" 3-16 Series standard Hoods include gaskets; Bases and Special Hoods do not.*

		Side Entry	1" x ⅜" 1" x ½" 1" x ¾" 1" x 1"	SH603APMV†	SH610AMV** SH710AMV**	SH616AMV** SH716AMV**	SH032AMV SH132AMV	HOODS
		Top Entry	1" x ⅜" 1" x ½" 1" x ¾" 1" x 1"	TH803APMV†	TH810AMV** TH910AMV**	TH816AMV** TH916AMV**	TH232AMV TH332AMV	HOODS

Coupler Hoods — Inline *For inline, portable or special service connections. Coupler Hoods mate to Standard Hoods ONLY.*

		Top Entry	1" x ⅜" 1" x ½"	CH803APMV†	CH810AMV	CH816AMV		COUPLER

Lever Hoods — Reverse Locking *Lever Hoods mate to Post Bases ONLY.*

		Side Entry w/Lever(s)	1" x ¾" 1" x 1"				LH032AMV LH132AMV	HOODS
		Top Entry w/Lever(s)	1" x ¾" 1" x 1"				LH232AMV LH332AMV	HOODS

Bases — with Access Cover *Post Bases accept Lever Hoods ONLY.*

		Panel Base+ Posts w/Cover					PB232A	BASES
		Box Base+ Posts w/Cover	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"				BB232AMV BB232A100MV BB332A BB332A100	BASES

Base to Hood

Hood to Coupler

Hood to Base

*** Low "L" profile may be available. Contact your Thomas & Betts sales representative.*

† Indicates glass-filled thermoplastic construction, light gray color (add suffix).

** Indicates glass-filled thermoplastic construction, black color (add suffix); quantity purchase may be required.*

B Series 16 Amps 600VAC

6, 10 & 16 Contacts + Ground

Install to Matching Series Hood/Base

6	10	16
		

Accessories

Wiring Adapter Insert for use with Panel Bases; allows single access direction panel-build wiring and easy terminal ID for service and testing.

CAT. NO.	DESCRIPTION
WAM-1	Label Insert Clip
WAM1B	Strip Blank
WAM1N64	Strip Nos. 1–64
WAM1AZ	Strip Letters A–Z



Use small blade screwdriver to push wire entry tab in for easy contact removal.



Crimp Tool

CAT. NO.
WT611TB

Screw Terminal Inserts

	SCREW TERMINAL INSERTS	6 + G	10 + G	16 + G
	**MALE – PINS** 20–14 AWG (.5–2.5 mm²)	MS206B	MS210B	MS216B
	FEMALE – SLEEVES 20–14 AWG (.5–2.5 mm²)	FS106B	FS110B	FS116B

Screw Terminal Wiring Adapter Blocks

	SCREW TERMINAL WIRING ADAPTER BLOCKS	6 + G	10 + G	16 + G
	**FEMALE INSERT, GROUND L.** 20–14 AWG (.5–2.5 mm²)	FS106WAL	FS110WAL	FS116WAL

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B Series 16 Amps 600VAC

Bases — Standard Mount

SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	# of Contacts + Ground Connection: 6 — LEVER LOCKING TYPE: SINGLE	10 — SINGLE	10 — DOUBLE	16 — SINGLE	16 — DOUBLE
		Panel Base (No Cover)		PB306**	PB310	PB110E	PB316**	PB116E
		Panel Base w/Cover		PB406**	PB410**		PB416**	
		Box Base (No Cover)	1" x ½"	BB406MV	BB410MV	BB010EMV		
			1" x ¾"	BB406MVH075	BB410MVH075	BB010MVEH075	BB416MV*	BB016EMV*
			1" x 1"	BB406H100MV	BB410MVH100	BB010EH100MV	BB416H100MV	BB016EH100MV
			2" x ½"	BB506MV	BB510MV	BB110EMV		
			2" x ¾"	BB506H075MV	BB510H075MV	BB110EH075MV	BB516MV*	BB116EMV*
			2" x 1"	BB506H100	BB510H100	BB110EH100MV	BB516H100MV	BB116EH100MV
		Box Base w/Cover	1" x ½"	BB606MV**	BB610MV**			
			1" x ¾"	BB606H075MV**	BB610H075MV**		BB616MV* **	
			1" x 1"	BB606H100**	BB610H100MV**		BB616MVH100**	
			2" x ½"	BB706MV**	BB710MV**			
			2" x ¾"	BB706H075**	BB710H075MV**		BB716MV* **	
			2" x 1"	BB706H100**	BB710H100MV**		BB716H100MV**	

BASE

Hoods — Standard Mount *Plastic body — "B" 3-16 Series Standard Hoods include gaskets; Bases and Special Hoods do not.*

		Side Entry	1" x ½"	SH606MV	SH610MV	SH010MV		
			1" x ¾"	SH606H075MV	SH610H075MV	SH010H075MV	SH616MV†	SH016MV†
			1" x 1"	SH606H100MV	SH610H100MV	SH010H100MV	SH716HMV†	SH116HMV
		Top Entry	1" x ½"	TH806MV	TH810MV	TH210MV		
			1" x ¾"	TH806H075MV	TH810H075MV	TH210H075MV	TH816MV†	TH216MV†
			1" x 1"	TH806H100MV	TH810H100MV	TH210H100MV	TH816H100MV	TH316HMV

HOODS

Base to Hood

Hood to Coupler

Coupler Hoods — Inline *For inline, portable or special service connections. Coupler Hoods mate to Standard Hoods ONLY.*

		Top Entry	1" x ½"	CH806HMV	CH810EMV	CH610E		
			1" x ¾"	CH806H075MV	CH810H075MV	CH610EH075MV	CH816HMV	CH616EHMV
			1" x 1"	CH806H100MV	CH810H100MV	CH610EH100MV	CH916HMV	CH716EHMV

COUPLER

Lever Hoods — Reverse Locking *Lever Hoods mate to Post Bases ONLY.*

		Side Entry w/Lever(s)	1" x ½"			LH010EMV		
			1" x ¾"			LH010EH075MV		LH016EMV*
			1" x ¾"			LH010EH100MV		LH116EHMV
		Top Entry w/Lever(s)	1" x ½"			LH210EMV		
			1" x ¾"			LH210EH075MV		LH216E*
			1" x 1"			LH210EH100MV		LH316EHMV

HOODS

Hood to Base

Bases — with Access Cover *Post Bases accept Lever Hoods ONLY.*

		Panel Base+ Posts w/Cover				PB210**		PB216**
		Box Base+ Posts w/Cover	1" x ½"			BB210MV**		
			1" x ¾"			BB210H075MV**		BB216MV* **
			1" x 1"			BB210H100MV**		BB216H100MV**
			2" x ½"			BB310MV**		
			2" x ¾"			BB310H075MV**		BB316MV**
			2" x 1"			BB310H100MV**		BB316H100MV**

BASES

** High "H" profile may be available. Contact your Thomas & Betts sales representative.*
*** Metal "M" cover may be available. Contact your Thomas & Betts sales representative.*
† High "H" and Low "L" profile may be available. Contact your Thomas & Betts sales representative.

B Series 16 Amps 600VAC

24, 32 & 48 Contacts + Ground

Install to Matching Series Hood/Base

24	32	48
		

Accessories

Wiring Adapter Insert for use with Panel Bases; allows single access direction panel-build wiring and easy terminal ID for service and testing.

CAT. NO.	DESCRIPTION
WAM-1	Label Insert Clip
WAM1B	Strip Blank
WAM1N64	Strip Nos. 1–64
WAM1AZ	Strip Letters A–Z



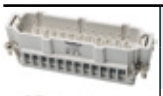
Use small blade screwdriver to push wire entry tab in for easy contact removal.



Crimp Tool

CAT. NO.
WT611TB

Screw Terminal Inserts

	SCREW TERMINAL INSERTS	24 + G	32 + G	48 + G
	MALE – PINS 20–14 AWG (.5–6 mm²)	MS224B	MS216B (1–16) + MS232B (17–32)	MS224B (1–24) + MS248B (25–48)
	FEMALE – SLEEVES 20–14 AWG (.5–6 mm²)	FS124B	FS116B (1–16) + FS132B (17–32)	FS124B (1–24) + FS148B (25–48)

Screw Terminal Wiring Adapter Blocks

	SCREW TERMINAL INSERTS	24 + G
	FEMALE INSERT, GROUND L. 20–14 AWG (.5–2.5 mm²)	FS124WAL

Crimp Terminal Inserts

	CRIMP TERMINAL INSERTS	24 + G	32 + G	48 + G
	MALE INSERT (Order contacts below)	MC424B	(1–16) MC416B (17–32) MC432B	(1–24) MC424B (25–48) MC448B
	FEMALE INSERT (Order contacts below)	FC324B	(1–16) FC316B (17–32) FC332B	(1–24) FC324B (25–48) FC348B

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B Series 16 Amps 600VAC

Bases — Standard Mount

SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	# of Contacts + Ground Connection: 24 — LEVER LOCKING TYPE: SINGLE	24 — DOUBLE	32 — DOUBLE	48 — SINGLE
		Panel Base (No Cover)		PB324	PB124E	PB132	PB348
		Panel Base w/Cover		PB424†			PB448
		Box Base (No Cover)	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"	BB424MV* BB424H100MV BB524MV* BB524H100MV	BB024EMV* BB024EH100MV BB124EMV* BB124EH100MV	BB032MV BB132MV	BB448MV BB548MV
		Box Base w/Cover	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"	BB624MV*† BB624H100MV† BB724MV*† BB724H100MV†			BB648MV BB748MV

BASES — Base to Hood

Hoods — Standard Mount

Plastic body — "A" 3-16 Series Standard Hoods include gaskets; Bases and Special Hoods do not.

		Side Entry	1" x ¾" 1" x 1" 1" x 1¼"	SH624MV** SH724MV**	SH024MV** SH124MV**	SH032MV SH132MV SH132125MV	SH648MV SH748MV
		Top Entry	1" x ¾" 1" x 1" 1" x 1¼" Ribbon Cbl	TH824MV** TH924MV**	TH224MV** TH324MV** TH424RCMV	TH232MV TH332MV TH332125MV	TH848MV TH948MV

HOODS — Hood to Coupler

Coupler Hoods — Inline

For inline, portable or special service connections. Coupler Hoods mate to Standard Hoods ONLY.

		Top Entry	1" x ¾" 1" x 1" Ribbon Cbl	CH824MV CH924MV	CH624EMV CH724EMV CH724ERCMV	CH632MV CH732MV

COUPLER

Lever Hoods — Reverse Locking

Lever Hoods mate to Post Bases ONLY.

		Side Entry w/Lever(s)	1" x ¾" 1" x 1"		LH024EMV LH124EMV	
		Top Entry w/Lever(s)	1" x ¾" 1" x 1"		LH224E LH324EMV	

HOODS — Hood to Base

Bases — with Access Cover

Post Bases accept Lever Hoods ONLY.

		Panel Base w/Posts + Cover			PB224†	
		Box Base w/Posts + Cover	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"		BB224MV*† BB224H100MV BB324MV*† BB324H100MV	

BASES

** High "H" profile may be available. Contact your Thomas & Betts sales representative.*

*** Low "L" profile may be available. Contact your Thomas & Betts sales representative.*

† Metal "M" cover may be available. Contact your Thomas & Betts sales representative.

C Series 35 Amps 600VAC

6 or 12 Contacts + Ground

Install to Matching Series Hood/Base

6	12
	

Screw Terminal Contact Carrier Inserts

SCREW TERMINAL CONTACT CARRIER INSERTS		6 + G	12 + G
	**MALE – PINS** 20–10 AWG (.5–6 mm²)	**MS206C**	**MS206C (1–6) + MS212C (7–12)**
	**FEMALE – SLEEVES** 20–10 AWG (.5–6 mm²)	**FS106C**	**FS106C (1–6) + FS112C (7–12)**

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C Series 35 Amps 600VAC

Bases — Standard Mount

Hoods — Standard Mount

Coupler Hoods — Inline *For inline, portable or special service connections. Coupler Hoods mate to Standard Hoods ONLY.*

Lever Hoods — Reverse Locking *Lever Hoods mate to Post Bases ONLY.*

Bases — with Access Cover *Post Bases accept Lever Hoods ONLY.*

SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	# of Contacts + Ground Connection: 6 — LEVER LOCKING TYPE: SINGLE	6 — DOUBLE	12 — DOUBLE	
		Panel Base (No Cover)		PB316	PB116E	PB132	BASES
		Panel Base w/Cover		PB416			
		Box Base (No Cover)	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"	BB416MV* BB416H100MV BB516MV* BB516H100MV	BB016EMV* BB016EH100MV BB116EMV* BB116EH100MV	BB032MV BB132MV	
		Box Base w/Cover	1" x ½" 1" x 1" 2" x ½" 2" x 1"	BB616MV*† BB616H100MV† BB716MV*† BB716H100MV†			
		Side Entry	1" x ¾" 1" x 1" 1" x 1¼"	SH616MV‡ SH716HMV	SH016MV‡ SH116HMV	SH032MV SH132MV SH132125MV	HOODS
		Top Entry	1" x ¾" 1" x 1" 1" x 1¼"	TH816MV‡ TH816H100MV	TH216MV‡ TH316HMV	TH232MV TH332MV TH332125MV	
		Top Entry	1" x ¾" 1" x 1"	CH816HMV CH916HMV	CH616EHMV CH716EHMV	CH632MV CH732MV	COUPLER
		Side Entry w/Lever(s)	1" x ¾" 1" x 1"		LH016EMV* LH116EHMV		HOODS
		Top Entry w/Lever(s)	1" x ¾" 1" x 1"		LH216E* LH316EHMV		
		Panel Base w/Posts + Cover			PB216†		BASES
		Box Base w/Posts + Cover	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"		BB216MV*† BB216H100MV† BB316MV*† BB316H100MV†		

Base to Hood

Hood to Coupler

Hood to Base

** High "H" profile may be available. Contact your Thomas & Betts sales representative.*

*** Low "L" profile may be available. Contact your Thomas & Betts sales representative.*

† Metal "M" cover may be available. Contact your Thomas & Betts sales representative.

‡ High "H" and Low "L" profile may be available. Contact your Thomas & Betts sales representative.

D Series 10 Amps 600VAC

7 or 8, 15, 25 & 40 Contacts + Ground

Install to Matching Series Hood/Base

7 OR 8	15	25	40
			

Accessories

Wiring Adapter Insert for use with Panel Bases; allows single access direction panel-build wiring and easy terminal ID for service and testing.

CAT. NO.	DESCRIPTION
WAM-1	Label Insert Clip
WAM1B	Strip Blank
WAM1N64	Strip Nos. 1–64
WAM1AZ	Strip Letters A–Z



Crimp Tool

CAT. NO.
WT80



Extraction Tool

CAT. NO.
RT614

Crimp Terminal Inserts

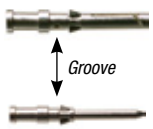
	CRIMP TERMINAL INSERTS	7 OR 8 + G	15 + G	25 + G	40 + G
	MALE INSERT (Order contacts below)	MC407D or MC408D	MC415D	MC425D	MC440D
	FEMALE INSERT (Order contacts below)	FC307D or FC308D	FC315D	FC325D	FC340D

Contacts Sold Separately

Screw Terminal Wiring Adapter Blocks

	SCREW TERMINAL WIRING ADAPTER BLOCKS	—	—	—	40 + G
	MALE INSERT, GROUND L. 26–16 AWG (.2–1.5mm²)	—	—	—	MS440WAL
	FEMALE INSERT, GROUND L. 26–16 AWG (.2–1.5mm²)	—	—	—	FS340WAL

Contacts Selection Chart

CRIMP CONTACTS	WIRE AWG (MM²)	IDENTIFICATION
	22+ AWG (.14–.37 mm²)	1
	20 AWG (.5 mm²)	2
	18 AWG (.75–1 mm²)	3
	16 AWG (1.5 mm²)	4
	14 AWG (2.5 mm²)	5

For All Crimp Terminal "D" Inserts:

FEMALE	MALE
FP22SD	MP22SD
FP20SD	MP20SD
FP18SD	MP18SD
FP16SD	MP16SD
FP14SD	MP14SD

See page G-158 for POF installation and tools info.

For Optic Contacts

CRIMP CONTACTS	WIRE AWG (MM²)	IDENTIFICATION
	18 AWG (.75–1 mm²)	3

FEMALE	MALE
FP18SD	MP18SD

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D Series 10 Amps 600VAC

Bases — Standard Mount

SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	# of Contacts + Ground Connection: 7 or 8 — LEVER LOCKING TYPE: SINGLE	15 — SINGLE	25 — DOUBLE	40 — SINGLE	40 — DOUBLE
		Panel Base (No Cover)		PB303A(P)**	PB310A		PB316	PB116E
		Panel Base w/Cover		PB403A	PB410A	PB316A	PB416	
		Angled (No Cover)		PB503A(P)**	PB416A			
		Box Base (No Cover)	1" x 3/8" 1" x 1/2" 2" x 1/2" 1" x 3/4" 1" x 1" 2" x 3/4" 2" x 1"	BB403APMV**	BB410AMV BB510AMV	BB416AMV BB516AMV	BB416MV* BB416H100MV BB516MV* BB516H100MV	BB016EMV* BB016EH100MV BB116EMV* BB116EH100MV
		Box Base w/Cover	1" x 1/2" 1" x 3/4" 1" x 1" 2" x 1/2" 2" x 3/4" 2" x 1"		BB610AMV BB710AMV	BB616AMV BB716AMV	BB616MV*† BB616H100MV† BB716MV*† BB716H100MV†	

BASES — Base to Hood

Hoods — Standard Mount *Plastic body — "A" 3-16 Series Standard Hoods include gaskets; Bases and Special Hoods do not.*

	Side Entry	1" x 3/8" 1" x 1/2" 1" x 3/4" 1" x 1"	SH603APMV**	SH610AMV SH710AMV	SH616AMV SH716AMV	SH616MV‡ SH716HMV‡	SH016MV‡ SH116HMV
	Top Entry	1" x 3/8" 1" x 1/2" 1" x 3/4" 1" x 1"	TH803APMV**	TH810AMV TH910AMV	TH816AMV TH916AMV	TH816MV‡ TH816H100MV	TH216MV‡ TH316HMV

HOODS — Hood to Coupler

Coupler Hoods — Inline *For inline, portable or special service connections. Coupler Hoods mate to Standard Hoods ONLY.*

	Top Entry	1" x 3/8" 1" x 1/2" 1" x 3/4" 1" x 1	CH803APMV**	CH810AMV	CH816AMV	CH816HMV CH916HMV	CH616EHMV CH716EHMV

COUPLER

Lever Hoods — Reverse Locking *Lever Hoods mate to Post Bases ONLY.*

	Side Entry w/Lever(s)	1" x 3/4" 1" x 1"					LH016EMV* LH116EHMV
	Top Entry w/Lever(s)	1" x 3/4" 1" x 1"					LH216E* LH316EHMV

HOODS — Bases to Hood

Bases — with Access Cover *Post Bases accept Lever Hoods ONLY.*

	Panel Base+ Posts w/Cover						PB216†
	Box Base+ Posts w/Cover	1" x 3/4" 1" x 1" 2" x 3/4" 2" x 1"					BB216MV*† BB216H100MV† BB316MV*† BB316H100MV†

BASES

** High "H" profile may be available. Contact your Thomas & Betts sales representative.*

*** Indicates glass-filled thermoplastic construction.*

† Metal "M" cover may be available. Contact your Thomas & Betts sales representative.

‡ High "H" and Low "L" profile may be available. Contact your Thomas & Betts sales representative.

D Series 10 Amps 600VAC

50, 64, 80 & 128 Contacts + Ground

Install to Matching Series Hood/Base

50	64	80	128
			

Accessories

Wiring Adapter Insert for use with Panel Bases; allows single access direction panel-build wiring and easy terminal ID for service and testing.

CAT. NO.	DESCRIPTION
MP22SD	Label Insert Clip
MP20SD	Strip Blank
MP18SD	Strip Nos. 1–64
MP16SD	Strip Letters A–Z



Crimp Tool

CAT. NO.
WT80



Extraction Tool

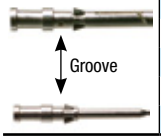
CAT. NO.
RT614

Crimp Terminal Inserts

	CRIMP TERMINAL INSERTS	50 + G	64 + G	80 + G	128 + G
	**MALE INSERT** (Order contacts below)	**MC425D** (2x)	**MC464D**	**MC440D** (2x)	**MC464D** (2x)
	FEMALE INSERT (Order contacts below)	**FC325D** (2x)	**FC364D**	**FC340D** (2x)	**FC364D** (2x)

Contacts Sold Separately

Contacts Selection Chart

CRIMP CONTACTS	WIRE AWG (MM^2)	IDENTIFICATION
	22+ AWG (.14–.37 mm^2)	1
	20 AWG (.5 mm^2)	2
	18 AWG (.75–1 mm^2)	3
	16 AWG (1.5 mm^2)	4
	14 AWG (2.5 mm^2)	5

For All Crimp Terminal "D" Inserts:

FEMALE	MALE
FP22SD	MP22SD
FP20SD	MP20SD
FP18SD	MP18SD
FP16SD	MP16SD
FP14SD	MP14SD

For Optic Contacts

CRIMP CONTACTS	WIRE AWG (MM^2)	IDENTIFICATION
	18 AWG (.75–1 mm^2)	3

FEMALE	MALE
FP18SD	MP18SD

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D Series 10 Amps 600VAC

Bases — Standard Mount

SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	# of Contacts + Ground Connection: 50 — LEVER LOCKING TYPE: DOUBLE	64 — SINGLE	64 — DOUBLE	16 — DOUBLE	32 — SINGLE
		Panel Base (No Cover)		PB132A	PB324	PB124E	PB132	PB348
		Panel Base w/Cover			PB424			
		Box Base (No Cover)	1" x ¾"	BB032AMV	BB424MV*	BB024EMV*		
			1" x 1"	BB832AMV	BB424H100MV	BB024EH100MV	BB032MV	BB448MV
			2" x ¾"	BB132AMV	BB524MV*	BB124EMV*		
			2" x 1"	BB132A100	BB524H100MV	BB124EH100MV	BB132MV	BB548MV
		Box Base w/Cover	1" x ¾"		BB642*†			
			1" x 1"		BB642H100†			BB648MV
			2" x ¾"		BB724MV*†			
			2" x 1"		BB724H100MV†			BB748MV

BASE — Base to Hood

Hoods — Standard Mount *Plastic body — "A" 3-16 Series Standard Hoods include gaskets; Bases and Special Hoods do not.*

		Side Entry	1" X ¾"	SH032AMV	SH624MV**	SH024MV**	SH032MV	
			1" X 1"	SH132AMV	SH724MV**	SH124MV**	SH132MV	SH648MV
			1" X 1¼"					SH748MV
		Top Entry	1" x ¾"	TH232AMV	TH824MV**	TH224MV**	TH232MV	
			1" x 1"	TH332AMV	TH924MV	TH324MV	TH332MV	TH848MV
			1" X 1¼"					TH948
			Ribbon CBL		TH624RC	TH424RC		

HOODS — Hood to Coupler

Coupler Hoods — Inline *For inline, portable or special service connections. Coupler Hoods mate to Standard Hoods ONLY.*

		Top Entry	1" x ¾"		CH824MV	CH624EMV	CH632MV	
			1" x 1"		CH924MV	CH724EMV	CH732MV	
			Ribbon CBL			CH724ERCMV		

COUPLER

Lever Hoods — Reverse Locking *Lever Hoods mate to Post Bases ONLY.*

		Side Entry w/Lever(s)	1" x ¾"	LH032AMV		LH024EMV		
			1" x 1"	LH132AMV		LH124EMV		
		Top Entry w/ Lever(s)	1" x ¾"	LH232AMV		LH224E		
			1" x 1"	LH332AMV		LH324EMV		

HOODS — Hood to Base

Bases — with Access Cover *Post Bases accept Lever Hoods ONLY.*

		Panel Posts w/Cover		PB232A		PB224†		
		Box Posts w/Cover	1" x ¾"	BB232AMV		BB224MV*†		
			1" x 1"	BB232A100MV		BB224H100MV		
			2" x ¾"	BB332A		BB324MV*†		
			2" x 1"	BB332A100		BB324H100MV		

BASES

** High "H" profile may be available. Contact your Thomas & Betts sales representative.*

*** Low "L" profile may be available. Contact your Thomas & Betts sales representative.*

† Metal "M" cover may be available. Contact your Thomas & Betts sales representative.

DD Series 10 Amps 600VAC

24, 42 & 72 Contacts + Ground

Install to Matching Series Hood/Base

24	42	72
		



Crimp Tool

CAT. NO.
WT80



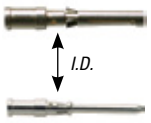
Extraction Tool

CAT. NO.
RT614

Crimp Terminal Inserts

	SCREW TERMINAL INSERTS	24 + G	42 + G	72 + G
	Male Insert (Order contacts below)	MC224DD	MC242DD	MC272DD
	Female Insert (Order contacts below)	FC124DD	FC142DD	FC172DD

Contacts Selection Chart

CRIMP CONTACTS	WIRE AWG (MM^2)	IDENTIFICATION
	22+ AWG (.14–.37 mm^2)	1
	20 AWG (.5 mm^2)	2
	18 AWG (.75–1 mm^2)	3
	16 AWG (1.5 mm^2)	4
	14 AWG (2.5 mm^2)	5

For All Crimp Terminal "DD" Inserts

FEMALE	MALE
FP22SD	MP22SD
FP20SD	MP20SD
FP18SD	MP18SD
FP16SD	MP16SD
FP14SD	MP14SD

See page G-158 for POF installation and tools info.

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DD Series 10 Amps 600VAC

Bases — Standard Mount

SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	# of Contacts + Ground Connection: 24 — LEVER LOCKING TYPE: SINGLE	42 — SINGLE	42 — DOUBLE	72 — SINGLE	72 — DOUBLE
		Panel Base (No Cover)		PB306**	PB310**	PB110E	PB316	PB116E
		Panel Base w/Cover		PB406**	PB410**		PB416	
		Box Base (No Cover)	1" x ½"	BB406MV	BB410MV	BB010EMV		
			1" x ¾"	BB406MVH075	BB410H075MV	BB010EH075MV	BB416MV*	BB016EMV*
			1" x 1"	BB406H100MV	BB410H100MV	BB010EH100MV	BB416H100MV	BB016EH100MV
			2" x ½"	BB506MV	BB510MV	BB110EMV		
			2" x ¾"	BB506H075MV	BB510H075MV	BB110EH075MV	BB516MV*	BB116EMV*
			2" x 1"	BB506H100	BB510H100	BB110EH100MV	BB516H100MV	BB116EH100MV
		Box Base	1" x ½"	BB606MV**	BB610MV**			
			1" x ¾"	BB606H075MV**	BB610H075MV**		BB616MV* **	
			1" x 1"	BB606H100**	BB610H100MV**		BB616H100MV**	
			2" x ½"	BB706MV**	BB710MV**			
			2" x ¾"	BB706H075**	BB710H075MV**		BB716MV* **	
			2" x 1"	BB706H100**	BB710H100MV**		BB716H100MV**	

BASE — Base to Hood

Hoods — Standard Mount

		NPT ENTRY	SINGLE	SINGLE	DOUBLE	SINGLE	DOUBLE
	Side Entry	1" x ½"	SH606MV	SH610MV	SH010MV		
		1" x ¾"	SH606H075MV	SH610H075MV	SH010H075MV	SH616MV†	SH016MV†
		1" x 1"	SH606H100MV	SH610H100MV	SH010H100MV	SH716HMV†	SH116HMV
	Top Entry	1" x ½"	TH806MV	TH810MV	TH210MV		
		1" x ¾"	TH806H075MV	TH810H075MV	TH210H075MV	TH816MV†	TH216MV†
		1" x 1"	TH806H100MV	TH810H100MV	TH210H100MV	TH816H100MV	TH316HMV

HOODS — Hood to Coupler

Coupler Hoods — Inline *For inline, portable or special service connections. Coupler Hoods mate to Standard Hoods ONLY.*

		NPT ENTRY	SINGLE	SINGLE	DOUBLE	SINGLE	DOUBLE
	Top Entry w/ Leveler(s)	1" x ½"	CH806	CH810	CH610E		
		1" x ¾"	CH806H075MV	CH810H075MV	CH610EH075MV	CH816HMV	CH616EHMV
		1" x 1"	CH806H100MV	CH810H100MV	CH610EH100MV	CH916HMV	CH716EHMV

COUPLER — Hood to Coupler

Lever Hoods — Reversed Locking *Lever Hoods mate to Post Bases ONLY.*

		NPT ENTRY	SINGLE	SINGLE	DOUBLE	SINGLE	DOUBLE
	Side Entry w/Lever(s)	1 x ½"			LH010EMV		
		1" x ¾"			LH010EH075MV		LH016EMV*
		1" x 1"			LH010EH100MV		LH116EHMV
	Top Entry w/Lever(s)	1" x ½"			LH210EMV		
		1" x ¾"			LH210EH075MV		LH216E*
		1" x 1"			LH210EH100MV		LH316EHMV

HOODS — Hood to Base

Bases — with Access Cover *Post Bases accept Lever Hoods ONLY.*

		NPT ENTRY	SINGLE	SINGLE	DOUBLE	SINGLE	DOUBLE
	Panel + Posts w/Cover				PB210**		PB216**
	Box + Posts w/Cover	1" x ½"			BB210MV**		
		1" x ¾"			BB210H075MV**		BB216MV* **
		1" x 1"			BB210H100MV**		BB216H100MV**
		2" x ½"			BB310MV**		
		2" x ¾"			BB310H075MV**		BB316MV* **
		2" x 1"			BB310H100MV**		BB316H100MV**

BASES — Hood to Base

** High "H" profile may be available. Contact your Thomas & Betts sales representative.*

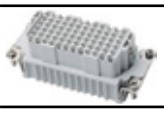
*** Metal "M" cover may be available. Contact your Thomas & Betts sales representative.*

† High "H" and Low "L" profile may be available. Contact your Thomas & Betts sales representative.

DD Series 10 Amps 600VAC

108, 144 & 216 Contacts + Ground

Install to Matching Series Hood/Base

108	144	216
		



Crimp Tool

CAT. NO.
WT80



Extraction Tool

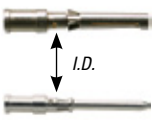
CAT. NO.
RT614

Crimp Terminal Inserts

	CRIMP TERMINAL INSERTS	108 + G	144 + G	216 + G
	**Male Insert** (Order contacts below)	MC208DD	MC272DD+ MC244DD	MC208DD+ MC216DD
	**Female Insert** (Order contacts below)	FC108DD	FC172DD+ FC144DD	FC108DD+ FC116DD

Contacts Selection

For all Crimp Terminal "DD" Inserts

CRIMP CONTACTS	WIRE GAUGE AWG (MM^2)	IDENTIFICATION	FEMALE	MALE
	22+ AWG (.14–.37 mm^2)	1	FP22SD	MP22SD
	20 AWG (.5 mm^2)	2	FP20SD	MP20SD
	18 AWG (.75–1 mm^2)	3	FP18SD	MP18SD
	16 AWG (1.5 mm^2)	4	FP16SD	MP16SD
	14 AWG (2.5 mm^2)	5	FP14SD	MP14SD

See page G-158 for POF installation and tools info.

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DD Series 10 Amps 600VAC

Bases — Standard Mount

SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	# of Contacts + Ground Connection: 108 LEVER LOCKING TYPE SINGLE	108 DOUBLE	144 DOUBLE	216 SINGLE
		Panel Base (No Cover)		PB324	PB124E	PB132	PB348
		Panel Base w/Cover		PB424†			PB448
		Box Base (No Cover)	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"	BB424MV* BB424H100MV BB524MV* BB524H100MV	BB024EMV* BB024EH100MV BB124EMV* BB124EH100MV	BB032MV BB132MV	BB448MV BB548MV
		Box Base w/Cover	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"	BB624MV*† BB624H100MV† BB724MV*† BB724H100MV†			BB648MV BB748MV

BASE

Hoods — Standard Mount

		Side Entry	1" x ¾" 1" x 1" 1" x 1¼"	SH624MV** SH724MV**	SH024MV** SH124MV**	SH032MV SH132MV SH132125MV	SH648MV SH748MV
		Top Entry	1" x ¾" 1" x 1" 1" x 1¼"	TH824MV** TH924MV**	TH224MV** TH324MV**	TH232MV TH332MV TH332125MV	TH848MV TH948MV

HOODS

Base to Hood

Hood to Coupler

Coupler Hoods — Inline *For inline, portable or special service connections. Coupler Hoods mate to Standard Hoods ONLY.*

		Top Entry	1" x ¾" 1" x 1"	CH824MV CH924MV	CH624EMV CH724EMV	CH632MV CH732MV	

COUPLER

Lever Hoods — Reverse Locking *Lever Hoods mate to Post Bases ONLY.*

		Side Entry w/Lever(s)	1" x ¾" 1" x 1"		LH024EMV LH124EMV		
		Top Entry w/Lever(s)	1" x ¾" 1" x 1"		LH224E LH324EMV		

HOODS

Hood to Base

Bases — with Access Cover *Post Bases accept Lever Hoods ONLY.*

		Panel Base w/Posts + Cover			PB224†		
		Box Base w/Posts + Cover	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"		BB224MV*† BB224H100MV BB324MV*† BB324H100MV		

BASES

** High "H" profile may be available. Contact your Thomas & Betts sales representative.*

*** Low "L" profile may be available. Contact your Thomas & Betts sales representative.*

† Metal "M" cover may be available. Contact your Thomas & Betts sales representative.

K Series 80 + 16 Amps 600VAC

4 @ 80A + 8 @ 16A
8 @ 80A + 16 @ 16A
Contacts + Ground

Install to Matching Series Hood/Base

4 @ 80A + 8 @ 16A + G	8 @ 80A + 16 @ 16A + G
	

Screw Terminal Contact Carrier Inserts

	SCREW TERMINAL CONTACT CARRIER INSERTS	4 @ 80A+ 8 @ 16A+G	8 @ 80A+ 16 @ 16A+G
	MALE – PINS	MS212K	MS212K (x2)
	FEMALE – SLEEVES	FS112K	FS112K (x2)

Wiring Note: *To #6 AWG (16mm²) 80A contacts and to #14 AWG (2.5mm²) 16A contacts.*

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K Series 80 + 16 Amps 600VAC

Bases — Standard Mount

of Contacts + Ground Connection

				K-12	K-24	
				4 @ 80A + 8 @ 16A + G	8 @ 80A + 16 @ 16A + G	
SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	LEVER LOCKING TYPE: SINGLE	LEVER LOCKING TYPE: DOUBLE	LEVER LOCKING TYPE: SINGLE
		Panel Base (No Cover)		PB324	PB124E	PB348
		Panel Base w/Cover		PB424		
		Box Base (No Cover)	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"	BB424MV* BB424H100MV BB524MV* BB524H100MV	BB024EMV BB024EH100MV BB124EMV* BB124EH100MV	 BB448MV BB548MV
		Box Base w/Cover	1" x ¾" 1" x 1" 2" x ¾" 2" x 1"	BB624MV† BB624H100MV† BB724MV†* BB724H100MV†		BB648MV BB748MV

BASES

Hoods — Standard Mount

Plastic body — "A" 3-16 Series Standard Hoods include gaskets; Bases and Special Hoods do not.

		Side Entry	1" x ¾" 1" x 1" 1" x 1¼"	SH624MV** SH724MV**	SH024MV** SH124MV**	 SH648MV SH748MV
		Top Entry	1" x ¾" 1" x 1" 1" x 1¼"	TH824MV** TH924MV	TH224MV** TH324MV	 TH848MV TH948MV

HOODS

Base to Hood

Coupler Hoods — Inline

For inline, portable or special service connections. Coupler Hoods mate to Standard Hoods ONLY.

		Top Entry	1" x ¾" 1" x 1"	CH824MV CH924MV	CH624EMV CH724EMV	

COUPLER

Lever Hoods — Reverse Locking

Lever Hoods mate to Post Bases ONLY.

		Side Entry w/Lever(s)	1" x ¾" 1" x 1"		LH032AMV LH132AMV	
		Top Entry w/Lever(s)	1" x ¾" 1" x 1"		LH232AMV LH332AMV	

HOODS

Hood to Base

Bases — with Access Cover

Post Bases accept Lever Hoods ONLY.

		Panel Base w/Posts + Cover			PB224†	
		Box Base w/Posts + Cover	1" x ¾" 2" x ¾"		BB224MV†* BB324MV†*	

BASES

* *High "H" profile may be available. Contact your Thomas & Betts sales representative.*

** *Low "L" profile may be available. Contact your Thomas & Betts sales representative.*

† *Metal "M" cover may be available. Contact your Thomas & Betts sales representative.*

V Series 16 Amps 600VAC

3 & 6 Contacts + Control Contacts & Ground



Use small blade screwdriver to push wire entry tab in for easy contact removal.

Install to Matching Series Hood/Base

3 + G + 2 CONTROL	6 + G + 2 CONTROL
	



Crimp Tool

CAT. NO.
WT611TB

Screw Terminal Inserts

	SCREW TERMINAL INSERTS	3 + G + 2 CONTROL	6 + G + 2 CONTROL
	**MALE – PINS** 20–14 AWG (.5–2.5 mm²)	MS203V	MS206V
	**FEMALE – SLEEVES** 20–14 AWG (.5–2.5 mm²)	FS103V	FS106V

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V Series 16 Amps 600VAC

Hoods — Standard Mount

				# of Contacts + Ground Connection			
				3 + G + 2 Control		6 + G + 2 Control	
				LEVER LOCKING TYPE			
SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	SINGLE	DOUBLE	SINGLE	DOUBLE
		Side Entry	1" x ½" 1" x ¾"	SH603V —	SH003V —	— SH606VMV	— SH006V
		Top Entry	1" x ½" 1" x ¾"	TH803VMV —	TH203V —	— TH806VMV	— TH206V

HOODS

** Metal "M" cover may be available. Contact your Thomas & Betts sales representative.*

V Series 16 Amps 600VAC

20, 26 & 32 Contacts + 2 Control Contacts & Ground



Use small blade screwdriver to push wire entry tab in for easy contact removal.

20 + G + 2 CONTROL	26 + G + 2 CONTROL	32 + G + 2 CONTROL
		



Crimp Tool

CAT. NO.
WT611TB

Screw Terminal Inserts

	SCREW TERMINAL INSERTS	20 + G +2 CONTROL	26 + G +2 CONTROL	32 + G +2 CONTROL
	**MALE – PINS** 20–14 AWG (.5–2.5 mm²)	MS210V	MS210V + MS216V	2x MS216V
	**FEMALE – SLEEVES** 20–14 AWG (.5–2.5 mm²)	FS110V	FS110V + FS116V	2x FS116V

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V Series 16 Amps 600VAC

Bases — Standard Mount

SINGLE LEVER	HOUSING	NPT ENTRY	# of Contacts + Ground Connection: V20: (20 + G) or (26 + G) or (32 + G) + 2 Control — LEVER LOCKING TYPE: SINGLE
	Panel Base (No Cover)		**PB348**
	Panel Base w/Cover		**PB448**
	Box Base (No Cover)	1" x ¾" 1" x 1" 2" x ¾"	**BB448MV**
		2" x 1"	**BB548MV**
	Box Base (No Cover)	1" x ¾" 1" x 1" 2" x ¾"	**BB648MV**
		2" x 1"	**BB748MV**

BASES

Hoods — Standard Mount **Plastic body — "A" 3–16 Series standard Hoods include Gaskets: Bases and Special Hoods do not.*

	Side Entry	1" x ¾" 1" x 1" 1" x 1¼"	**SH648MV** **SH748MV**
	Top Entry	1" x ¾" 1" x 1" 1" x 1¼"	**TH848MV** **TH948MV**

HOODS

Base to Hood

† *Metal "M" cover may be available. Contact your Thomas & Betts sales representative.*

T Series 16 Amps 600VAC

6, 10, 16 & 24 Contacts + Ground

- High-temp 200° C rated inserts
- Silicone Viton® seals for molded-edge gaskets*
- Corrosion-resistant copper-free aluminum housings with special finish
- UL94V-0 ergonomic thermoplastic handles
- Electrostatic epoxy powder-coated finish

**Viton® is a trademark of DuPont Performance Elastomers.*

6	10	16	24
			

Screw Terminal Inserts

	SCREW TERMINAL INSERTS*	6 + G	10 + G	16 + G	24 + G
	**MALE – PINS** 20–14 AWG (.5–2.5 mm²)	MS206T	MS210T	MS216T	MS224T
	**FEMALE – SLEEVES** 20–14 AWG (.5–2.5 mm²)	FS106T	FS110T	FS116T	FS124T

** Inserts may be dark brown or gray in color.*

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T Series 16 Amps 600VAC

Bases — Standard Mount

SINGLE LEVER	DOUBLE LEVER	HOUSING	NPT ENTRY	6 LEVER LOCKING TYPE SINGLE	10 LEVER LOCKING TYPE DOUBLE	16 LEVER LOCKING TYPE DOUBLE	24 LEVER LOCKING TYPE DOUBLE
		Panel Base		PB306T	PB110T	PB116T	PB124T
		Box Base (No Cover)	1" x ½"	BB406TMV	BB010TMV		
			1" x ¾"			BB016TMV	BB024TMV
			2" x ½"	BB506TMV	BB110TMV		
			2" x ¾"			BB116TMV	BB124TMV

Hoods — Standard Mount

		Side Entry	1" x ½"	SH606T	SH010TMV		
			1" x ¾"			SH016TMV	SH024TMV
			1" x 1"				SH124TMV
		Top Entry	1" x ½"	TH806T	TH210T		
			1" x ¾"			TH216T	TH224T
			1" x 1"				TH324TMV

Coupler Hoods — Inline *For Inline, Portable or Special Service Connections. Coupler Hoods mate to Standard Hoods ONLY.*

		Top Entry	1" x ½"	CH806T	CH610T		
			1" x ¾"			CH616TMV	CH624T
			1" x 1"			CH716T	CH724T

***Note**: Hoods and Bases are black colored to denote special T Series.*

BASE — Base to Hood

HOODS — Hood to Coupler

COUPLER

Technical Information

A Series

Specifications

DIN VDE 0627/86
DIN VDE 0110/02.79
DIN VDE 0110-1/04.97
IEC 60-664-1, DIN/IEC 512

DIN VDE 0627/86
DIN VDE 0110/02.79
DIN VDE 0110-1/04.97
IEC 60-664-1, DIN/IEC 512

Approvals

MEIE, EZU, SEV

Inserts

Contacts (+ Ground)	3, 4, 10, 16, 32 (2 x 16)
Working Current	A3, A4 @ 10A max. A10–A32 @ 16A max.
Rated Voltage	600VAC
Test Voltage	4kV eff.
Pollution Degree	3
Material	Glass-filled thermoplastic
Temperature Range	-40° C/-40° F to +125° C /+257° F
Flammability	UL94 V-0

Contacts

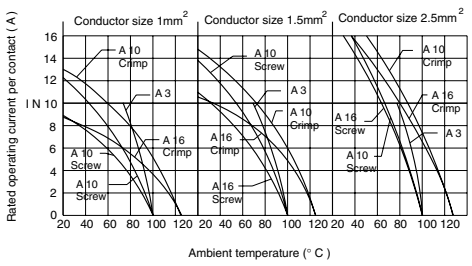
Material	Solid drilled copper alloy
Surface	Hard silver plated Hard gold plated available
Contact Resistance	≤ 1 milliohm
Screw Terminals	Wire AWG
+ with Wire Protection	20–14 AWG (.5–2.5mm)
Crimp Terminals	20–12 AWG (.5–2.5mm)

Housings

Materials	Die-cast aluminum alloy
EPDM Seal Gaskets	Epoxy powder-coat finish
Locking Mechanisms	@ A3, 4, 10, 16
Temperature Range	-40° C/-40° F to +125° C /+257° F
Internal Protection	A3,4: IP44 A10, 16, 32: IP65 per DIN VDE 0470, IEC 529

Thermal Capacity

per DIN/IEC 512



B Series

Specifications

DIN VDE 0627/86
DDIN VDE 0110/02.79
DIN VDE 0110-1/04.97
IEC 60-664-1, DIN/IEC 512

Approvals

MEIE, EZU, SEV

Inserts

Contacts (+ Ground)	6, 10, 16, 24, 32 (2 x 16), 48 (2 x 24)
Working Current	16A max.
Rated Voltage	600VAC
Test Voltage	3kV eff.
Pollution Degree	3
Material	Glass-filled thermoplastic
Temperature Range	-40° C/-40° F to +125° C /+257° F
Flammability	UL94 V-0

Contacts

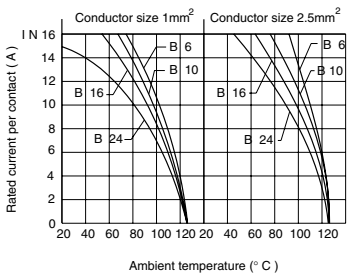
Material	Solid drilled copper alloy
Surface	Hard silver plated Hard gold plated available
Contact Resistance	≤ 1 milliohm
Screw Terminals	Wire AWG
+ with Wire Protection	20–14 AWG (.5–2.5mm)
Crimp Terminals	20–12 AWG (.5–2.5mm)

Housings

Materials	Die-cast aluminum alloy
EPDM Seal Gaskets	Epoxy powder-coat finish
Temperature Range	-40° C/-40° F to +125° C /+257° F
Internal Protection	IP65 locked positions per DIN VDE 0470, IEC 529

Thermal Capacity

per DIN/IEC 512



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Technical Information

C Series

Specifications

DIN VDE 0627/86	DIN VDE 0627/86
DIN VDE 0110/02.79	DIN VDE 0110/02.79
DIN VDE 0110-1/04.97	DIN VDE 0110-1/04.97
IEC 60-664-1, DIN/IEC 512	IEC 60-664-1, DIN/IEC 512

Approvals

MEIE, EZU, SEV

Inserts

Contacts (+ Ground)	6, 12 (2 x 6)
Working Current	35A
Rated Voltage	600VAC
Test Voltage	3kV eff.
Pollution Degree	3
Material	Glass-filled thermoplastic
Temperature Range	-40° C/-40° F to +125° C /+257° F
Flammability	UL94 V-0

Contacts

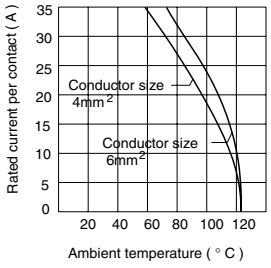
Material	Solid drilled copper alloy
Surface	Hard silver plated
	Hard gold plated available
Contact Resistance	≤ .5 milliohm
Screw Terminals	Wire AWG
+ with Wire Protection	20–10 AWG (.5–6.0mm)
+ w/o Wire Protection	n/a

Housings

Materials	Die-cast aluminum alloy
EPDM Seal Gaskets	Epoxy powder-coat finish
Temperature Range	-40° C/-40° F to +125° C /+257° F
Internal Protection	IP65 locked positions
	per DIN VDE 0470, IEC 529

Thermal Capacity

per DIN/IEC 512



D Series

Specifications

DIN VDE 0627/86	DIN 43652
DDIN VDE 0110/02.79	
DIN VDE 0110-1/04.97	
IEC 60-664-1, DIN/IEC 512	

Approvals

MEIE, EZU, SEV

Inserts

Contacts (+ Ground)	7, 8, 15, 25, 40, 50 (2 x 25)
	64, 80 (2 x 40), 128 (2 x 64)
Working Current	10A
Rated Voltage	600VAC
Test Voltage	4kV eff.
Pollution Degree	3
Material	Glass-filled thermoplastic
Temperature Range	-40° C/-40° F to +125° C /+257° F
Flammability	UL94 V-0

Contacts

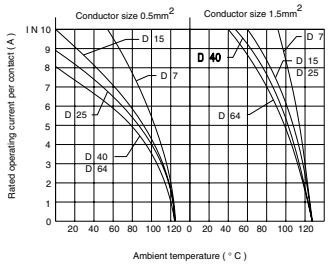
Material	Solid drilled copper alloy
Surface	Hard silver plated
	Hard gold plated available
Contact Resistance	≤ 3 milliohm
Crimp Terminals	Wire AWG
	26–14 AWG (.142–2.5mm)
> Glass Fiber Optic Cable	POF {0} 1mm

Housings

Materials	Die-cast aluminum alloy
EPDM Seal Gaskets	Epoxy powder-coat finish
Temperature Range	-40° C/-40° F to +125° C /+257° F
Internal Protection	IP65 locked positions
	per DIN VDE 0470, IEC 529

Thermal Capacity

per DIN/IEC 512



Technical Information

DD Series

Specifications

DIN VDE 0627/86
DIN VDE 0110/02.79
DIN VDE 0110-1/04.97
IEC 60-664-1, DIN/IEC 512

Approvals

MEIE, EZU, SEV

Inserts

Contacts (+ Ground)	24, 42, 72, 108, 144 (2 x 72)
Working Current	216 (2 x 108)
	10A
Rated Voltage	600VAC
Test Voltage	2kV eff.
Pollution Degree	3
Material	Glass-filled thermoplastic
Temperature Range	-40° C/-40° F to +125° C /+257° F
Flammability	UL94 V-0

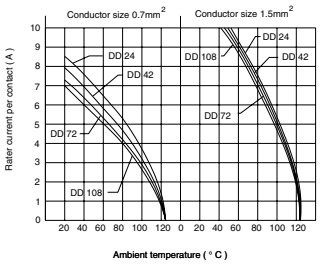
Contacts

Material	Solid drilled copper alloy
Surface	Hard silver plated
	Hard gold plated available
Contact Resistance	≤ 3 milliohm
Crimp Terminals	Wire AWG
	26–14 AWG (.14–2.5mm)
> Glass Fiber Optic Cable	POF {0} 1mm

Housings

Materials	Die-cast aluminum alloy
EPDM Seal Gaskets	Epoxy powder-coat finish
Temperature Range	-40° C/-40° F to +125° C /+257° F
Internal Protection	IP65 locked positions
	per DIN VDE 0470, IEC 529

Thermal Capacity



K Series

Specifications

DIN VDE 0627/86
DDIN VDE 0110/4
VDE 0100/5.73-42a
IEC 60-664-1, DIN/IEC 512
VDE 0113/1.73-10.1.3

Approvals

MEIE, EZU, SEV

Inserts

Contacts (+ Ground)	8 (16A) + 4 (80A)
	16 (16A) + 8 (80A)
Working Current	16A and 80A dual
Rated Voltage	600VAC
Test Voltage	2kV eff.
Pollution Degree	3
Material	Glass-filled thermoplastic
Temperature Range	-40° C/-40° F to +125° C /+257° F
Flammability	UL94 V-0

Contacts

Material	Solid drilled copper alloy
Surface	Hard silver plated
	Hard gold plated available
Contact Resistance	≤ 1 milliohm
Screw Terminals	Wire AWG
+ with Wire Protection (16A)	20–14 AWG (.5–2.5mm)
(80A Contacts)	18–4 AWG (1.5–16.0mm)

Housings

Materials	Die-cast aluminum alloy
EPDM Seal Gaskets	Epoxy powder-coat finish
Temperature Range	-40° C/-40° F to +125° C /+257° F
Internal Protection	IP65 locked positions
	per DIN VDE 0470, IEC 529

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V Series

Specifications

DIN VDE 0627/86
DIN VDE 0110/02.79
DIN VDE 0110-1/04.97
IEC 60-664-1, DIN/IEC 512

Approvals

MEIE, EZU, SEV

Inserts

Contacts (+ Ground)	3, 6, 10, 16, 20 (2 x 10) 26 (10+16), 32 (2 x 16)
Working Current	16A max.
Rated Voltage	600VAC; switch contacts 400VAC
Test Voltage	3kV eff.
Pollution Degree	3
Material	Glass-filled thermoplastic
Temperature Range	-40° C/-40° F to +125° C /+257° F
Flammability	UL94 V-0

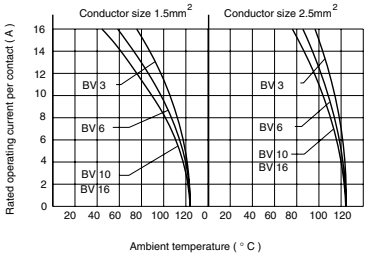
Contacts

Material	Solid drilled copper alloy
Surface	Hard silver plated Hard gold plated available
Contact Resistance	≤ 1 milliohm
Screw Terminals	Wire AWG
+ with Wire Protection	20–14 AWG (.5–2.5mm)
Crimp Terminals	20–12 AWG (.5–2.5mm)

Housings

Materials	Die-cast aluminum alloy
EPDM Seal Gaskets	Epoxy powder-coat finish
Temperature Range	-40° C/-40° F to +125° C /+257° F
Internal Protection	IP65 locked positions per DIN VDE 0470, IEC 529

Thermal Capacity



T Series

Specifications

DIN VDE 0627/86
DDIN VDE 0110/02.79
DIN VDE 0110-1/04.97
IEC 60-664-1, DIN/IEC 512

Approvals

MEIE, EZU, SEV

Inserts

Contacts (+ Ground)	6, 10, 16, 24
Working Current	16A max.
Rated Voltage	600VAC; switch contacts 400VAC
Test Voltage	3kV eff.
Pollution Degree	3
Material	Hi-temp thermoplastic
Temperature Range	-40° C/-40° F to +200° C /+392° F
Flammability	UL94 V-0

Contacts

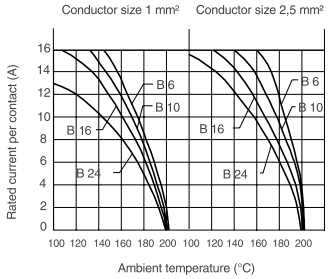
Material	Solid drilled copper alloy
Surface	Hard silver plated Hard gold plated available
Contact Resistance	≤ 1 milliohm
Screw Terminals	Wire AWG
+ with Wire Protection	20–14 AWG (.5–2.5mm)

Housings

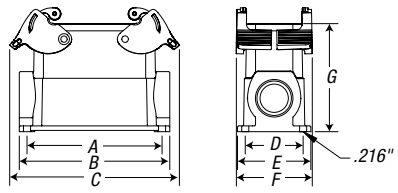
Materials	Copper-free die-cast aluminum alloy
Viton® Seal Gaskets	Green epoxy powder coating
Temperature Range	-40° C/-40° F to +200° C /+392° F
Internal Protection	IP65 locked positions per DIN VDE 0470, IEC 529

Thermal Capacity

per DIN/IEC 512



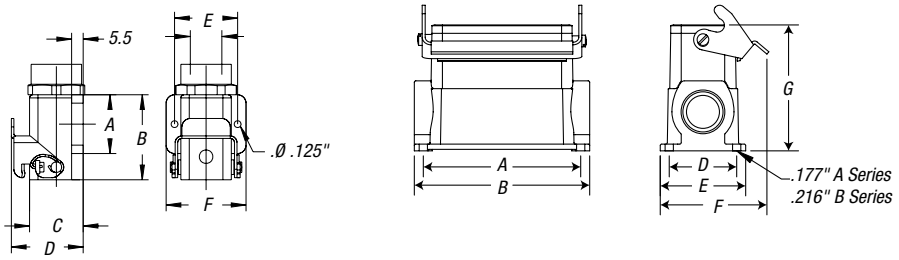
Mounting Dimensions for Double Lever Box Bases



HOUSING SERIES					DIMENSIONS ARE IN INCHES/(MILLIMETERS)						
A, B, T, K	C, V	D	DD	CAT. NO.	A	B	C	D	E	F	G
A32	D50			**BB_32A__**	3.70/(94)	4.17/(106)	5.04/(128)	1.81/(46)	2.20/(56)	2.76/(70)	3.40/(86.5)
B10, T10	V3		DD42	**BB_10E**	3.23/(82)	3.66/(93)	4.33/(110)	1.57/(40)	2.05/(52)	2.28/(58)	2.05/(52)
				BB_10EH__	3.23/(82)	3.66/(93)	4.33/(110)	1.77/(45)	2.24/(57)	2.28/(58)	2.92/(74)
B16, T16	C6, V6	D40	DD72	**BB_16E**	4.13/(105)	4.61/(117)	5.16/(131)	1.77/(45)	2.24/(57)	2.28/(58)	2.68/(68)
				BB_16EH__	4.13/(105)	4.61/(117)	5.16/(131)	1.77/(45)	2.24/(57)	2.28/(58)	3.31/(84)
B24, T24, K12	V10, V16	D64	DD108	**BB_24E**	5.20/(132)	5.67/(144)	6.18/(157)	1.77/(45)	2.24/(57)	2.28/(58)	2.68/(68)
				BB_24EH__	5.20/(132)	5.67/(144)	6.18/(157)	1.77/(45)	2.24/(57)	2.28/(58)	3.31/(84)
B32	C12	D80	DD144	**BB_32E**	4.41/(112)	4.88/(112)	5.28/(134)	2.64/(67)	3.20/(81.5)	3.62/(92)	2.83/(72)

Mounting Dimensions for Single Lever Box Bases

Right Angle Housing
A3/A4
D7/D8
Only



HOUSING SERIES					DIMENSIONS ARE IN INCHES/(MILLIMETERS)						
A, B, T, K	C, V	D	DD	CAT. NO.	A	B	C	D	E	F	G
A3, A4		D7, D8		**BB403A(P)***	1.10/(28)	1.59/(40.5)	1.00/(25.5)	1.42/(36)	1.18/(30)	1.50/(38)	—
A10		D15		**BB_10A**	1.89/(48)	—	3.66/(93)	1.57/(40)	1.97/(50)	2.32/(59)	2.05/(52)
A16		D25		**BB_16A**	2.52/(64)	—	4.29/(109)	1.57/(40)	1.97/(50)	2.32/(59)	2.24/(57)
B6, T6			DD24	**BB_06**	2.76/(70)	3.31/(84)	—	1.57/(40)	2.05/(52)	2.72/(69)	2.05/(52)
				BB_06H075	2.76/(70)	3.31/(84)	—	1.77/(45)	2.24/(57)	2.72/(69)	2.92/(74)
				BB_06H100	2.76/(70)	3.31/(84)	—	1.77/(45)	2.24/(57)	2.72/(69)	2.92/(74)
B10, T10	V3		DD42	**BB_10**	3.23/(82)	3.66/(93)	—	1.57/(40)	2.05/(52)	2.80/(71)	2.05/(52)
				BB_10H075	3.23/(82)	3.66/(93)	—	1.77/(45)	2.24/(57)	2.80/(71)	2.92/(74)
				BB_10H100	3.23/(82)	3.66/(93)	—	1.77/(45)	2.24/(57)	2.80/(71)	2.92/(74)
B16, T16	C6, V6	D40	DD72	**BB_16**	4.13/(105)	4.61/(117)	—	1.77/(45)	2.24/(57)	2.91/(74)	2.68/(68)
				BB_16H___	4.13/(105)	4.61/(117)	—	1.77/(45)	2.24/(57)	2.91/(74)	3.31/(84)
B24, T24, K12	V10, V16	D64	DD108	**BB_24**	5.20/(132)	5.67/(144)	—	1.77/(45)	2.24/(57)	2.91/(74)	2.68/(68)
				BB_24H___	5.20/(132)	5.67/(144)	—	1.77/(45)	2.24/(57)	2.91/(74)	3.31/(84)
B48, K24, V32	V20, V26	D128	DD216	**BB_48**	4.37/(111)	5.71/(145)	—	4.17/(106)	4.72/(120)	6.18/(157)	3.94/(100)

** Suffix: A — aluminum, P — plastic.*

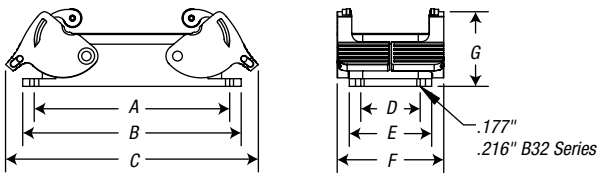
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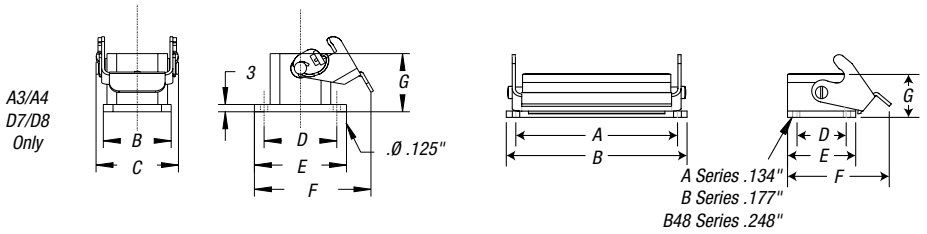
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Mounting Dimensions for Double Lever Panel Bases



HOUSING SERIES					DIMENSIONS ARE IN INCHES/(MILLIMETERS)						
A, B, T, K	C, V	D	DD	CAT. NO.	A	B	C	D	E	F	G
A32	D50			**PB132A**	3.62/(92)	4.02/(102)	5.04/(128)	1.65/(28)	2.24/(57)	2.76/(70)	1.10/(28)
B10, T10	V3		DD42	**PB110E**	3.27/(83)	3.66/(93)	4.33/(110)	1.26/(32)	1.69/(43)	2.28/(58)	1.06/(27)
B16, T16	C6, V6	D40	DD72	**PB116E**	4.05/(103)	4.49/(114)	5.16/(131)	1.26/(32)	1.69/(43)	2.28/(58)	1.06/(27)
B24, T24, K12	V10, V16	D64	DD108	**PB124E**	5.12/(130)	5.51/(140)	6.19/(157)	1.26/(32)	1.69/(43)	2.28/(58)	1.06/(27)
B32	C12	D80	DD144	**PB132E**	4.33/(110)	4.88/(124)	5.28/(134)	2.56/(65)	3.11/(79)	3.62/(92)	1.18/(30)

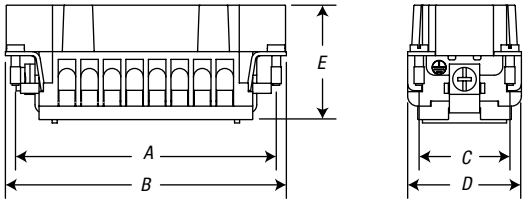
Mounting Dimensions for Single Lever Panel Bases



HOUSING SERIES					DIMENSIONS ARE IN INCHES/(MILLIMETERS)						
A, B, T, K	C, V	D	DD	CAT. NO.	A	B	C	D	E	F	G
A3, A4		D7, D8		**PB303A (P)***	—	1.10/(28)	1.34/(34)	1.18/(30)	1.50/(38)	1.67/(42.5)	.95/(24)
				PB403A (P)*	—	1.10/(28)	1.38/(35)	1.18/(30)	1.58/(40)	1.85/(47)	.95/(24)
				PB503A (P)	1.10/(28)	1.59/(40.5)	1.00/(25.5)	1.42/(36)	1.18/(30)	1.50/(38)	—
A10		D15		**PB310A**	2.76/(70)	3.19/(81)	—	.68/(17.5)	1.20/(30.5)	1.93/(49)	1.02/(26)
				PB410A	2.76/(70)	3.19/(81)	—	.68/(17.5)	1.20/(30.5)	2.95/(75)	1.02/(26)
A16		D25		**PB316A**	3.39/(86)	3.78/(96)	—	.68/(17.5)	1.20/(30.5)	1.93/(49)	1.02/(26)
				PB416A	3.39/(86)	3.78/(96)	—	.68/(17.5)	1.20/(30.5)	2.95/(75)	1.02/(26)
B6, T6			DD24	**PB306**	2.76/(70)	3.15/(80)	—	1.26/(32)	1.69/(43)	2.56/(65)	1.06/(27)
				PB406	2.76/(70)	3.15/(80)	—	1.26/(32)	1.69/(43)	3.54/(90)	1.06/(27)
B10, T10	V3		DD42	**PB310**	3.27/(83)	3.66/(93)	—	1.26/(32)	1.69/(43)	2.64/(67)	1.06/(27)
				PB410	3.27/(83)	3.66/(93)	—	1.26/(32)	1.69/(43)	3.62/(92)	1.06/(27)
B16, T16	C6, V6	D40	DD72	**PB316**	4.06/(103)	4.49/(114)	—	1.26/(32)	1.69/(43)	2.64/(67)	1.06/(27)
				PB416	4.06/(103)	4.49/(114)	—	1.26/(32)	1.69/(43)	3.62/(92)	1.06/(27)
B24, T24, K12	V10, V16	D64	DD108	**PB324**	5.12/(130)	5.51/(140)	—	1.26/(32)	1.69/(43)	2.64/(67)	1.06/(27)
				PB424	5.12/(130)	5.51/(140)	—	1.26/(32)	1.69/(43)	3.62/(92)	1.06/(27)
B48, K24, V32	V20, V26	D128	DD216	**PB348**	5.83/(148)	6.50/(165)	—	2.76/(70)	3.54/(90)	6.18/(157)	1.61/(41)
				PB448	5.83/(148)	6.50/(165)	—	2.76/(70)	3.54/(90)	6.81/(173)	1.61/(41)

** Suffix: A — aluminum, P — plastic.*

Mounting Dimensions for Screw and Crimp Terminal Inserts



HOUSING SERIES					DIMENSIONS ARE IN INCHES/(MILLIMETERS)				
A, B, T, K	C, V	D	DD	MATING	A	B	C	D	E
A3, A4				BOTH	—	.83/(21)	—	.83/(21)	.98/(25)
		D7, D8		FEMALE	—	.83/(21)	—	.83/(21)	1.25/(31.8)
				MALE	—	.83/(21)	—	.83/(21)	1.19/(30.2)
A10		D15		FEMALE	1.95/(49.5)	2.22/(56.5)	.63/(16)	1.34/(34)	1.14/(29)
				MALE	1.95/(49.5)	2.22/(56.5)	.63/(16)	1.34/(34)	1.26/(32)
A16		D25		FEMALE	2.60/(66)	2.87/(73)	.63/(16)	1.34/(34)	1.14/(29)
				MALE	2.60/(66)	2.87/(73)	.63/(16)	1.34/(34)	1.26/(32)
A32		D50		FEMALE	2.60/(66)	2.87/(73)	.63/(16) x 2	1.34/(34)	1.14/(29)
				MALE	2.60/(66)	2.87/(73)	.63/(16) x 2	1.34/(34)	1.26/(32)
B6, T6			DD24	FEMALE	1.73/(44)	2.01/(51)	1.063/(27)	1.34/(34)	1.46/(37)
				MALE	1.73/(44)	2.01/(51)	1.063/(27)	1.34/(34)	1.38/(35)
B10, T10	V3		DD42	FEMALE	2.24/(57)	2.52/(64)	1.063/(27)	1.34/(34)	1.46/(37)
				MALE	2.24/(57)	2.52/(64)	1.063/(27)	1.34/(34)	1.38/(35)
B16, T16	C6, V6	D40	DD72	FEMALE	3.05/(77.5)	3.33/(84.5)	1.063/(27)	1.34/(34)	1.48/(37.5)
				MALE	3.05/(77.5)	3.33/(84.5)	1.063/(27)	1.34/(34)	1.40/(35.5)
B24, T24, K12	V10, V16	D64	DD108	FEMALE	4.09/(104)	4.37/(111)	1.063/(27)	1.34/(34)	1.48/(37.5)
				MALE	4.09/(104)	4.37/(111)	1.063/(27)	1.34/(34)	1.40/(35.5)
B32	C12	D80	DD144	FEMALE	3.05/(77.5)	3.33/(84.5)	1.063/(27) x 2	1.34/(34)	1.48/(37.5)
				MALE	3.05/(77.5)	3.33/(84.5)	1.063/(27) x 2	1.34/(34)	1.40/(35.5)
B48, K24	V20, V26, V32	D128	DD216	FEMALE	4.09/(104)	4.37/(111)	1.063/(27) x 2	1.34/(34)	1.48/(37.5)
				MALE	4.09/(104)	4.37/(111)	1.063/(27) x 2	1.34/(34)	1.40/(35.5)

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Insert Screw Torque Specifications

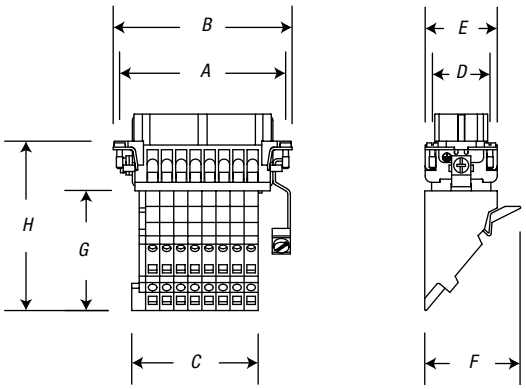
Insert Mounting Screws accept a Pozi-drive screwdriver head.
Common cross-point or bladed screwdrivers will also work.
Specs refer to Pozi-drive or bladed common torque only.

SERIES	SCREW LOCATION	UNIT OF MEASURE SCREWDRIVER	POZI-DRIVE POINT SCREWDRIVER	STD. STRAIGHT-BLADE
A3 A4	Wire Termination Screw	Newton meters	.4	.9
		Inch ounces	57	127
	Insert Grounding Screw	Newton meters	.6	.8
		Inch ounces	85	113
D7 D8	Grounding Screw	Newton meters	.4	.4
		Inch ounces	57	57
A10 A16 A32	Wire Termination Screw	Newton meters	.4	.9
		Inch ounces	57	127
	Insert Fastening Screw	Newton meters	.7	1.1
		Inch ounces	99	156
	Insert Grounding Screw	Newton meters	.7	1.3
		Inch ounces	99	184
D15 D25 D50	Insert Fastening Screw	Newton meters	.7	1.1
		Inch ounces	99	156
	Insert Grounding Screw	Newton meters	.7	1.3
		Inch ounces	99	184
B T V	Wire Termination Screw	Newton meters	.4	.6
		Inch ounces	57	85
	Insert Fastening Screw	Newton meters	.7	1.1
		Inch ounces	99	156
	Insert Grounding Screw	Newton meters	1.2	1.9
		Inch ounces	170	269
C	Wire Termination Screw	Newton meters	.7	1.3
		Inch ounces	99	184
	Insert Fastening Screw	Newton meters	.7	1.1
		Inch ounces	99	156
	Insert Grounding Screw	Newton meters	2.3	2.3
		Inch ounces	326	326
K	Wire Termination Screw	Newton meters	.5/1.4*	—
		Inch ounces	71/198*	—
	Insert Fastening Screw	Newton meters	.7	—
		Inch ounces	99	—
	Insert Grounding Screw	Newton meters	2.3	—
		Inch ounces	326	—

** 16A/80A contacts.*

***Note**: Inch ounces/16.0 = Pound/Inches.*

Mounting Dimensions for Wiring Adapters



INSERT SERIES	CAT. NO.	DIMENSIONS ARE IN INCHES/(MILLIMETERS) A	B	C	D	E	F	G	H
B6	**FS106WAL FS106WAR MS206WAL MS206WAR**	1.73/(44)	2.01/(51)	1.03/(26.3)	1.06/(27)	1.34/(34)	1.77/(45)	2.28/(58)	3.54/(90)
B10	**FS110WAL FS110WAR MS210WAL MS210WAR**	2.13/(54)	2.52/(64)	1.55/(39.5)	1.06/(27)	1.34/(34)	1.77/(45)	2.28/(58)	3.54/(90)
B16	**FS116WAL FS116WAR MS216WAL MS216WAR**	3.05/(77.5)	3.32/(84.5)	2.33/(59.3)	1.06/(27)	1.34/(34)	1.77/(45)	2.28/(58)	3.54/(90)
B24	**FS124WAL FS124WAR MS224WAL MS224WAR**	4.09/(104)	4.37/(111)	3.36/(85.7)	1.06/(27)	1.34/(34)	1.77/(45)	2.28/(58)	3.54/(90)
D40	**FS340WAL MS440WAL**	3.05/(77.5)	3.27/(83)	2.21/(56)	1.06/(27)	1.34/(34)	3.19/(81)	4.53/(115)	5.12/(130)
D64	**FS364WAL MS464WAL**	4.09/(104)	4.33/(110)	3.39/(86.3)	1.06/(27)	1.34/(34)	3.19/(81)	4.53/(115)	5.12/(130)

-WAL — ground left, -WAR — ground right.

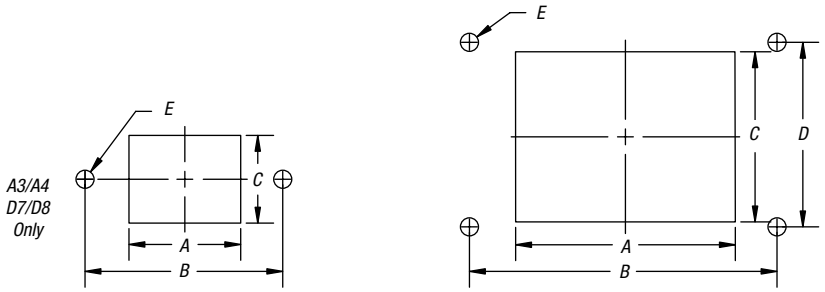
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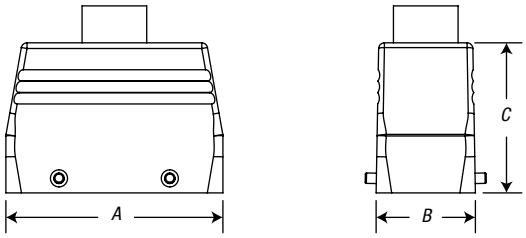
Panel Cut Out Dimensions for Panel Bases



HOUSING SERIES				DIMENSIONS ARE IN INCHES/(MILLIMETERS)				
A, B, T, K	C, V	D	DD	A	B	C	D	E
A3, A4		D7, D8		.83/(21)	1.18/(30)	.83/(21)	—	.125/(3.2)
A10		D15		1.71/(43.5)	2.76/(70)	.95/(24)	.68/(17.5)	.134/(3.4)
A16		D25		2.36/(60)	3.39/(86)	.95/(24)	.68/(17.5)	.134/(3.4)
A32		D50		2.36/(60)	3.62/(92)	1.89/(48)	1.65/(28)	.177/(4.5)
B6, T6			DD24	1.42/(36)	2.76/(70)	1.38/(35)	1.26/(32)	.177/(4.5)
B10, T10	V3		DD42	1.93/(49)	3.27/(83)	1.38/(35)	1.26/(32)	.177/(4.5)
B16, T16	C6, V6	D40	DD72	2.84/(72)	4.06/(103)	1.38/(35)	1.26/(32)	.177/(4.5)
B24, T24, K12	V10, V16	D64	DD108	3.86/(98)	5.12/(130)	1.38/(35)	1.26/(32)	.177/(4.5)
B32	C12	D80	DD144	2.84/(72)	4.33/(110)	2.80/(71)	2.56/(65)	.216/(5.5)
B48, K24	V20, V26, V32	D128	DD216	3.86/(98)	5.83/(148)	2.80/(71)	2.76/(70)	.248/(6.3)

** Dimensions reflect dual inserts mounting.*

Mounting Dimensions for Double Post Hoods



	HOUSING SERIES				DIMENSIONS ARE IN INCHES/(MILLIMETERS)		
CAT. NO.	A, B, T, K	C, V	D	DD	A	B	C
SH_32A	A32	—	D50	—	3.23/(82)	2.21/(56)	2.99/(76)
TH_32A	—	—	—	—	3.23/(82)	2.21/(56)	2.99 /(76)
SH_10	—	—	—	—	2.87/(73)	1.69/(43)	2.05/(52)
M3SH_10H___	B10, T10	V3	—	DD42	2.87/(73)	1.69/(43)	2.05/(52)
TH_10	—	—	—	—	2.87/(73)	1.69/(43)	2.05/(52)
TH_10H___	—	—	—	—	2.87/(73)	1.69/(43)	2.05/(52)
SH_16	—	—	—	—	3.70/(94)	1.69/(43)	2.56/(65)
SH_16H	—	—	—	—	3.70/(94)	1.69/(43)	2.99/(76)
M5SH_16L	B16, T16	C6, V6	D40	DD72	3.70/(94)	1.69/(43)	2.36/(60)
TH_16	—	—	—	—	3.70/(94)	1.69/(43)	2.56/(65)
TH_16H	—	—	—	—	3.70/(94)	1.69/(43)	2.99/(76)
TH_16L	—	—	—	—	3.70/(94)	1.69/(43)	2.36/(60)
SH_24	—	—	—	—	4.72/(120)	1.69/(43)	2.36/(60)
SH_24H	—	—	—	—	4.72/(120)	1.69/(43)	2.99/(76)
M7TH_24	B24, T24, K12	V10, V16	D64	DD108	4.72/(120)	1.69/(43)	2.21/(56)
TH_24H	—	—	—	—	4.72/(120)	1.69/(43)	2.99/(76)
TH424RC	—	—	—	—	4.72/(120)	1.69/(43)	2.99/(76)
SH_32	B32	C12	D80	DD144	3.70/(94)	3.11/(79)	3.15/(80)
TH_32	—	—	—	—	3.70/(94)	3.11/(79)	3.15/(80)

Suffix: A — Aluminum, AP — Plastic, H — High Profile, L — Low Profile, RC — Ribbon Cable (top)

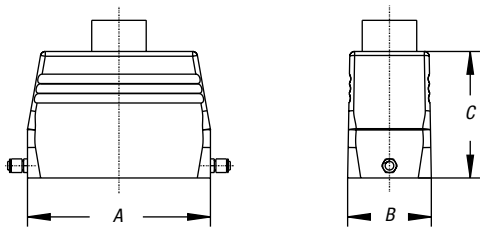
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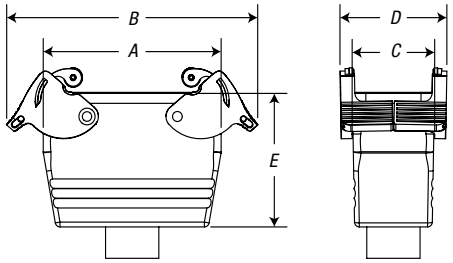
Mounting Dimensions for Single Post Hoods



CAT. NO.	HOUSING SERIES A, B, T, K	C, V	D	DD	DIMENSIONS ARE IN INCHES/(MILLIMETERS) A	B	C
SH603A(P)V	A3, A4	—	D7, D8	—	1.04/(26.5)	1.04/(26.5)	1.89/(48)
TH803A(P)V	—	—	—	—	1.04/(26.5)	1.04/(36.5)	1.89/(48)
SH_10A	—	—	—	—	2.48/(63)	1.42/(36)	2.60/(66)
SH_10AL	A10	—	D15	—	2.48/(63)	1.16/(29.5)	2.09/(53)
TH_10A	—	—	—	—	2.48/(63)	1.42/(36)	2.60/(66)
TH_10AL	—	—	—	—	2.48/(63)	1.16/(29.5)	2.09/(53)
SH_16A	—	—	—	—	3.13/(79.5)	1.42/(36)	2.84/(72)
SH_16AL	A16	—	D25	—	3.13/(79.5)	1.16/(29.5)	2.28/(58)
TH_16A	—	—	—	—	3.13/(79.5)	1.42/(36)	2.84/(72)
TH_16AL	—	—	—	—	3.13/(79.5)	1.16/(29.5)	2.28/(58)
SH_606	—	—	—	—	2.36/(60)	1.69/(43)	1.69/(43)
M2SH_606HXXX	B6, T6	—	—	DD24	2.36/(60)	1.69/(43)	2.84/(72)
TH_806	—	—	—	—	2.36/(60)	1.69/(43)	1.69/(43)
TH_806HXXX	—	—	—	—	2.36/(60)	1.69/(43)	2.84/(72)
SH_610	—	—	—	—	2.87/(73)	1.69/(43)	2.05/(52)
M3SH_610HXXX	B10, T10	V3	—	DD42	2.87/(73)	1.69/(43)	2.84/(72)
TH_810	—	—	—	—	2.87/(73)	1.69/(43)	2.05/(52)
TH_810HXXX	—	—	—	—	2.87/(73)	1.69/(43)	2.84/(72)
SH_616	—	—	—	—	3.70/(94)	1.69/(43)	2.56/(65)
SH_616H	—	—	—	—	3.70/(94)	1.69/(43)	2.99/(76)
SH_616L	—	—	—	—	3.70/(94)	1.69/(43)	2.36/(60)
M5TH_816	B16, T16	C6, V6	D40	DD72	3.70/(94)	1.69/(43)	2.56/(65)
TH_816H	—	—	—	—	3.70/(94)	1.69/(43)	2.99/(76)
TH_816L	—	—	—	—	3.70/(94)	1.69/(43)	2.36/(60)
TH816RC	—	—	—	—	3.70/(94)	1.69/(43)	2.99/(76)
SH_624	—	—	—	—	4.72/(120)	1.69/(43)	2.99/(76)
M7SH_624L	B24, T24	V10, V16	D64	DD108	4.72/(120)	1.69/(43)	2.36/(60)
TH_824	—	—	—	—	4.72/(120)	1.69/(43)	2.99/(76)
TH824L	K12	—	—	—	4.72/(120)	1.69/(43)	2.36/(60)
TH624RC	—	—	—	—	4.72/(120)	1.69/(43)	2.99/(76)
SH_48	B48, K24	V20, V26	D128	DD216	5.16/(131.5)	3.50/(89)	3.78/(96)
TH_48	—	V32	—	—	5.16/(131.5)	3.50/(89)	3.78/(96)

Suffix: AP — Plastic, H — High Profile, L — Low Profile, RC — Ribbon Cable (top entry only)

Mounting Dimensions for Double Lever Coupler Hoods

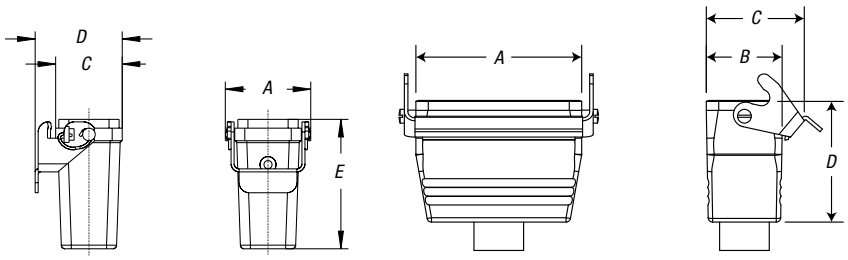


CAT. NO.	HOUSING SERIES A, B, T, K	C, V	D	DD	DIMENSIONS ARE IN INCHES/(MILLIMETERS) A	B	C	D	E
CH610E	B10, T10	V3		DD42	2.87/(73)	4.33/(110)	1.69/(43)	2.28/(58)	2.02/(51.5)
CH610EHXXX					2.87/(73)	4.33/(110)	1.69/(43)	2.28/(58)	2.87/(73)
CH_16E	B16, T16	C6, V6	D40	DD72	3.70/(94)	5.16/(131)	1.69/(43)	2.28/(58)	2.72/(69)
CH_16EH					3.70/(94)	5.16/(131)	1.69/(43)	2.28/(58)	3.15/(80)
CH616ERC					3.70/(94)	5.16/(131)	1.69/(43)	2.28/(58)	3.15/(80)
CH_24E	B24, T24	C6, V6	D40	DD72	4.72/(120)	6.18/(157)	1.69/(43)	2.28/(58)	3.15/(80)
CH624ERC	K12				4.72/(120)	6.18/(157)	1.69/(43)	2.28/(58)	3.15/(80)
CH_32E	B32	C12	D80	DD144	3.70/(94)	5.28/(134)	3.11/(79)	3.62/(92)	3.23/(82)

H — High Profile, RC — Ribbon Cable (top entry).

Mounting Dimensions for Single Lever Coupler Hoods

A3/A4 D7/D8 Only



CAT. NO.	HOUSING SERIES A, B, T, K	C, V	D	DD	DIMENSIONS ARE IN INCHES/(MILLIMETERS) A	B	C	D	E
CH803A(P)*	A3, A4		D7, D8		1.34/(34)	—	1.04/(26.5)	1.43/(36.5)	2.02/(51.5)
CH810A	A10		D15		2.48/(63)	—	1.16/(29.5)	1.92 (49)	1.89/(48)
CH816A	A16	C6, V6	D25		3.13/(79.5)	—	1.16/(29.5)	1.92 (49)	2.09/(53)
CH806	B6, T6			DD24	2.36/(60)	—	1.69/(43)	2.56/(65)	2.02/(51.5)
CH806HXXX					2.36/(60)	—	1.69/(43)	2.56/(65)	2.87/(73)
CH810	B10, T10	V3		DD24	2.87/(73)	—	1.69/(43)	2.64/(67)	2.02/(51.5)
CH810HXXX					2.87/(73)	—	1.69/(43)	2.64/(67)	2.87/(73)
CH_16	B16, T16	C6, V6	D40	DD72	3.70/(94)	—	1.69/(43)	2.64/(67)	2.72/(69)
CH_16H					3.70/(94)	—	1.69/(43)	2.64/(67)	3.15/(80)
CH616RC					3.70/(94)	—	1.69/(43)	2.64/(67)	3.15/(80)
CH_24	B24, T24	V10, V16	D64	DD108	4.72/(120)	—	1.69/(43)	2.64/(67)	3.15/(80)
CH824RC					4.72/(120)	—	1.69/(43)	2.64/(67)	3.15/(80)

**Suffix: A — Aluminum, AP — Plastic, H — High Profile, L — Low Profile, RC — Ribbon Cable (top entry only).*

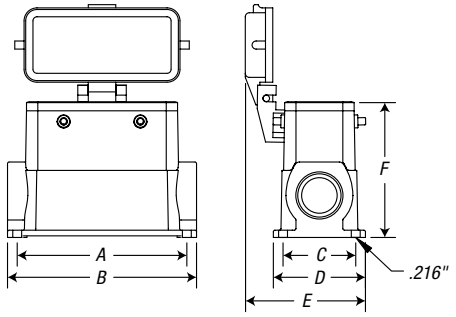
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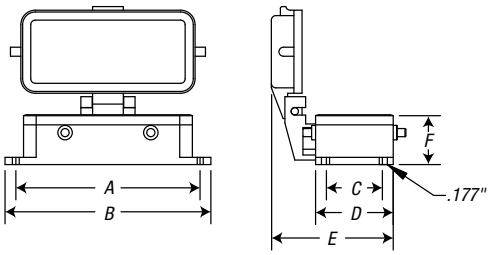
Mounting Dimensions for Double Post Box Bases (Reverse Locking)



CAT. NO.	HOUSING SERIES A, B, T, K	C, V	D	DD	DIMENSIONS ARE IN INCHES/(MILLIMETERS) A	B	C	D	E	F
BB_32A	A32		D50		3.70/(94)	4.17/(106)	1.81/(46)	2.32/(59)	3.11/(79)	3.20/(81.5)
BB_32A100					3.70/(94)	4.17/(106)	1.81/(46)	2.32/(59)	3.11/(79)	3.20/(81.5)
BB_10	B10, T10	V3		DD42	3.23/(82)	3.66/(93)	1.56/(40)	2.05/(52)	2.87/(73)	2.05/(52)
BB_10H___					3.23/(82)	3.66/(93)	1.77/(45)	2.24/(57)	2.97/(75.5)	2.91/(74)
BB_16	B16, T16	C6, V6	D40	DD72	4.13/(105)	4.61/(117)	1.77/(45)	2.24/(57)	2.97/(75.5)	2.68/(68)
BB_24					5.20/(132)	5.67/(144)	1.77/(45)	2.24/(57)	2.97/(75.5)	2.68/(68)
BB_24	B24, T24, K12	C6, V6	D40	DD72	5.20/(132)	5.67/(144)	1.77/(45)	2.24/(57)	2.97/(75.5)	2.68/(68)
BB_24H___					5.20/(132)	5.67/(144)	1.77/(45)	2.24/(57)	2.97/(75.5)	3.31/(84)

H — High Profile.

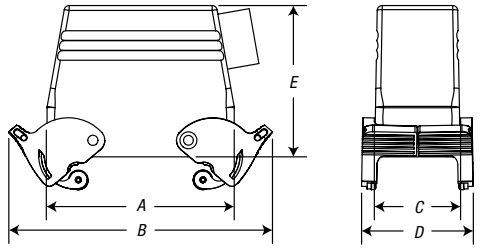
Mounting Dimensions for Double Post Panel Bases (Reverse Locking)



CAT. NO.	HOUSING SERIES A, B, T, K	C, V	D	DD	DIMENSIONS ARE IN INCHES/(MILLIMETERS) A	B	C	D	E	F
PB232A	A32		D50		3.62/(92)	4.02/(102)	1.65/(42)	2.24/(57)	3.15/(80)	1.10/(28)
PB210	B10, T10	V3		DD42	3.27/(83)	3.66/(93)	1.26/(32)	1.69/(43)	2.68/(68.5)	1.06/(27)
PB216	B16, T16	C6, V6	D40	DD72	4.06/(103)	4.49/(114)	1.26/(32)	1.69/(43)	2.68/(68.5)	1.06/(27)
PB224	B24, T24, K12	C6, V6	D40	DD72	5.12/(130)	5.51/(140)	1.26/(32)	1.69/(43)	2.68/(68.5)	1.06/(27)

Technical Information

Mounting Dimensions for Double Lever Hoods (Reverse Locking)



HOUSING SERIES					DIMENSIONS ARE IN INCHES/(MILLIMETERS)				
A, B, T, K	C, V	D	DD	CAT. NO.	A	B	C	D	E
A32		D50		**LH_32A**	3.23/(82)	5.04/(128)	2.21/(56)	2.76/(70)	2.99/(76)
B10, T10	V3		DD42	**LH_10E**	2.87/(73)	4.33/(110)	1.69/(43)	2.28/(58)	1.89/(48)
				LH_10EH___	2.87/(73)	4.33/(110)	1.69/(43)	2.28/(58)	2.84/(72)
B16, T16	C6, V6	D40	DD72	**LH_16E**	3.70/(94)	5.16/(131)	1.69/(43)	2.28/(58)	2.56/(65)
				LH_16EH	3.70/(94)	5.16/(131)	1.69/(43)	2.28/(58)	2.99/(76)
B24, T24, K12	V10, V16	D64	DD108	**LH_24E**	4.72/(120)	6.18/(157)	1.69/(43)	2.28/(58)	2.99/(76)

H — High Profile

Dust Covers for Housings



HOUSING SERIES				FOR SINGLE-LEVER HOUSINGS	FOR DOUBLE-LEVER HOUSINGS	FOR SINGLE-POST HOUSINGS	FOR DOUBLE-POST HOUSINGS
A, B, T, K	C, V	D	DD				
A3, A4		D7, D8		**DCL103A-1**			
A10		D15		**DCL110A-1**		**DCS110A-1**	
A16		D25		**DCL116A-1**		**DCS116A-1**	
A32		D50			**DCL232A-1/DCL432A-1***		**DCS232A-1**
B6, T6**			DD24	**DCL106B-1**			
B10, T10**	V3		DD42	**DCL110B-1**	**DCL210B-1/DCL410B-1***		
B16, T16**	C6, V6	D40	DD72	**DCL116B-1**	**DCL216B-1/DCL416B-1***		
B24, T24**, K12	V10, V16	D64	DD108	**DCL124B-1**	**DCL224B-1/DCL424B-1***		

** Comes with gasket for hoods with levers and without gaskets.*

*** Dust covers tested only to 125° C (if applied to 200° C Series T).*

Gaskets

CAT. NO.		HOUSING SERIES			
PANEL BASE, FLAT	MOLDED EDGE CONTOUR*	A, B, T, K	C, V	D	DD
A04XFGP	**A04XMEC**	A3, A4		D7, D8	
A10XFGP	**A10XMEC**	A10		D15	
A16XFGP	**A16XMEC**	A16		D25	
A32XFGP	**A32XMEC**	A32		D50	
B6XFGP	**B6XMEC**	B6, T6**			DD24
B10XFGP	**B10XMEC**	B10, T10**	V3		DD42
B16XFGP	**B16XMEC**	B16, T16**	V6, C6	D40	DD72
B24XFGP	**B24XMEC**	B24, T24**, K12	V10, V16	D64	DD108
B32XFGP	**B32XMEC**	B32	C12	D80	DD144
B48XFGP	**B48XMEC**	B48, K24	V20, V26, V32	D128	DD216

** Install with silicone sealant/adhesive for industrial use.*

*** For T Series 200° C applications, specify catalog number except use "T" prefix instead of "B" for gaskets. EX: use "T16XFGP" for panel base gaskets.*

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Technical Information

Coding Pins, Guide Pins and Sleeves can be used in all series housings, with all inserts.

Coding Pin

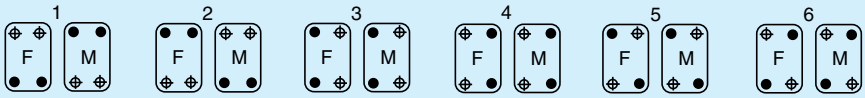


PC600

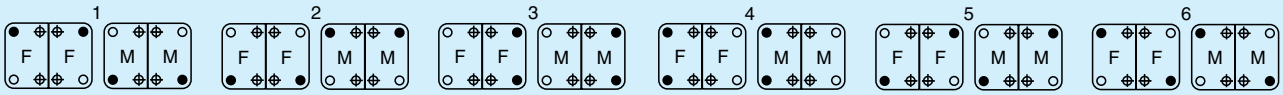
Coding Pins:

Used for rejection in multiple "same size or series" insert/hood installations.
Patterns show examples of rejection coding pins installed.

Coding possibilities for single insert series



Coding possibilities for double insert series



Guide Pin



MG601

Guide Sleeve

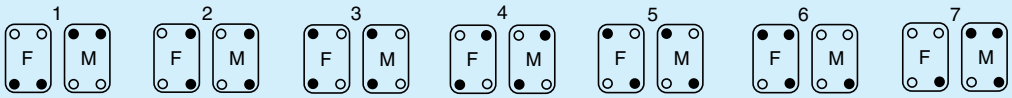


FG602

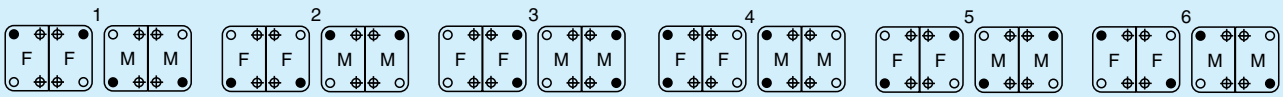
Guide Pins and Sleeves:

Perform same function as coding pins and/or aid high-density insert mating as well.

Coding possibilities for single insert series



Coding possibilities for double insert series



● – Male Guide Pins or Coding Pins

○ – Female Guide Sleeves

⌽ – Mounting Screw

Technical Information

Metric PG-to-NPT Thread Adapters

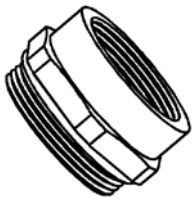
CAT. NO.	NPT THREAD (MATING)	THREAD (AT HOUSING)
PG11-38	⅜"	PG11
PG16-50	½"	PG16
PG21-75	¾"	PG21
PG29-100	1"	PG29
PG36-125	1¼"	PG29
PG36-125	1¼"	PG36
PG36-150	1½"	PG36
PG42-200	2"	PG42



Supplied standard with all hoods and bases.
Special sizes/hood combinations available.

Metric ISO-to-NPT Thread Adapters

CAT. NO.	NPT THREAD (MATING)	THREAD (AT HOUSING)
M20-50	½"	M20
M20-75	¾"	M20
M32-100	1"	M32



Metric Cord Grip Connectors

CAT. NO.	CABLE O.D. (IN.) MIN.	CABLE O.D. (IN.) MAX.	THREAD (AT HOUSING)
CG11-38	.200"	.470"	PG11
CG11-38P*	.325"	.340"	PG11
CG135-50	.285"	.545"	PG13.5
CG16-50	.285"	.625"	PG16
CG21-75	.395"	.790"	PG21
CG29-100	.780"	.060"	PG291

** Plastic*



Standard European style — can be specified/supplied with hoods and bases.

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Technical Information

Conduit Entry Blind Plug

CAT. NO.	THREAD (AT HOUSING)
CXP722	PG13.5
CXP723	PG16
CXP724	PG21
CXP725	PG29



Non-Metallic Cord Grip Fittings

NPT THREADS CAT. NO.	CORD RANGE IN.	CORD RANGE MM	THREAD SIZE
CC-NPT38-G	.197"–.394"	5–10mm	⅜"
CC-NPT12-G	.394"–.551"	10–14mm	½"
CC-NPT34-G	.512"–.709"	13–18mm	¾"
CC-NPT1-G	.709"–.984"	18–25mm	1"

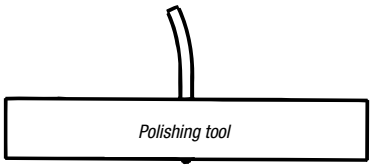


PG THREADS CAT. NO.	CORD RANGE IN.	CORD RANGE MM	THREAD SIZE
CC-PG11-G	.197"–.394"	5–10mm	11
CC-PG135-G	.336"–.473"	6–12mm	13.5
CC-PG16-G	394"–.551"	10–14mm	16
CC-PG21-G	.512"–.709"	13-18mm	21
CC-PG29-G	.709"–.984"	18–25mm	29
CC-PG36-G	.867"–.1.26"	22–32mm	36

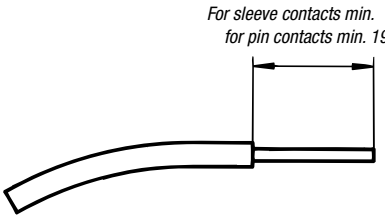


Instructions for Connection with Fiber Optic (POF Cable)

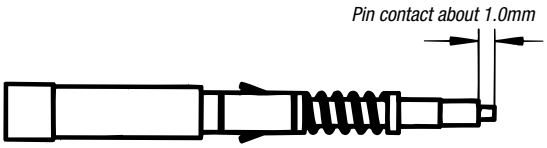
1. Before crimping the POF* cable, 1.0mm to the glass fiber cable contact, the end of the fiber has to be polished. Stick end of POF cable into polishing tool and grind on a plane surface (e.g. glass plate). Wipe off any residues after polishing. The best optical damping values are achieved with wet-polishing-procedure.

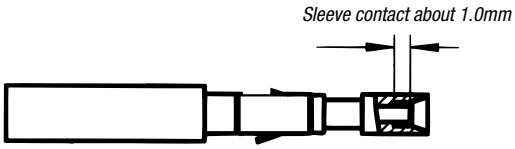


2. Strip 1.0mm POF cable on min. 14mm for D sleeve contacts and min. 19mm for D pin contacts.



3. Insert stripped POF cable in sleeve or pin contact until stop. The optical fiber should then stick about 1mm out of the contact.

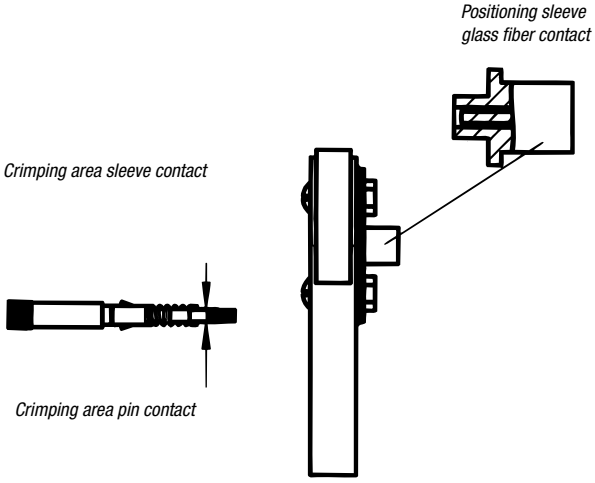




4. Optical fiber crimping:
   Adjust the positioning sleeve into the corresponding inlet of the crimping tool with the stop screw at 1.45mm (if necessary check with gauge pin, diameter 1.45mm, with closed crimping tool).

   Insert the glass fiber cable contact together with the POF cable through the crimp opening of the crimping tool into the positioning sleeve.

   By pressure on the contact, the fiber inside the contact will be locked into the right position for the fiber crimping. Continue pressure until the release mechanism is heard.

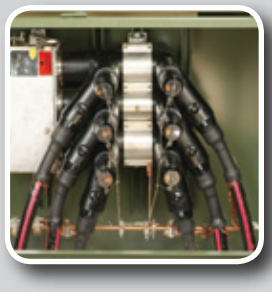


** POF = Polymer Optical Fiber*

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Elastimold® Underground Cable Accessories



In this section...

Elastimold® Underground Cable Accessories

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Overview

Elastimold Separable Connectors, Cable Joints, Cable Terminators and other cable accessory products have been designed and tested per applicable portions of IEEE, ANSI and other industry standards including:

- IEEE 386™ Standard for Separable Connectors
- IEEE 404™ Standard for Cable Joints and Splices
- IEEE 48™ Standard for Cable Terminations
- IEEE 592™ Standard for Exposed Semiconducting Shields
- ANSI C119.4 Standard for Copper and Aluminum Conductor Connectors
- AEIC CS8 Standards for XLP and EPR Insulated Cables
- ICEA S-94-649-2004 and S-97-682-2000 Standard for Cables Rated 5,000 – 46,000 Volts

Cable Joints And Terminations Ratings

Refer to the pages listed below for rating information:

- PCJ™ Cable Joints, **page H-27**
- Cable Terminations, **page H-36**

Separable Connector Ratings

The following chart shows voltage and current ratings which apply to all Separable Connectors including 200-Amp Loadbreak, 200-Amp Deadbreak and 600 Series Deadbreak products. The next chart shows switching and fault close ratings which only apply to 200-Amp Load-Break Connectors.

Voltage and Current Ratings

	15kV CLASS RATINGS	25kV CLASS RATINGS	35kV CLASS RATINGS
Operating Voltage Maximum line-to-ground (See Application Info Note 1)	8.3kV	15.2kV	21.1kV
BIL Impulse withstand 1.2 x 50 microsecond wave	95kV	125kV	150kV
Withstand Voltage			
AC One Minute	34kV	40kV	50kV
DC Fifteen Minute	53kV	78kV	103kV
Corona Extinction Level @ 3pC Sensitivity	11kV	19kV	26kV
200-Amp Products Continuous Current: Symmetrical Momentary Current:	200 Amp 10kA sym, 10 cycle duration*		
600 Series Products Continuous Current Symmetrical Momentary Current:	600 and 900 Amp 25kA sym, 10 cycle duration*		

** Designed for 90° C maximum continuous operating temperature.*

Switching and Fault Close Ratings

	LOADMAKE/LOADBREAK SWITCHING	FAULT CLOSE
15kV CLASS RATINGS	• 1ø and 3ø circuits 8.3kV line to ground, 14.4kV max. across open contacts • 10 loadmake/break operations at 200 Amps max. with 70 to 80% lagging power factor	1 fault close operation at 8.3kV or 14.4kV; 10,000 amps RMS sym; 10 cycles (.17 sec.) 1.3 max. asym factor applies to new or used mating parts (up to maximum designated switching operations)
25kV CLASS RATINGS	• 1ø and 3ø circuits 15.2kV line to ground, 26.3kV max. across open contacts • 10 loadmake/break operations at 200 Amps max. with 70 to 80% lagging power factor	1 fault close operation at 15.2kV or 26.3kV; 10,000 amps RMS sym; 10 cycles (.17 sec.) 1.3 max. asym factor applies to new or used mating parts (up to maximum designated switching operations.)
35kV CLASS RATINGS	• 1ø and 3ø circuits 21.1kV line to ground, 36.6kV max. across open contacts. • 10 loadmake/break operations at 200 Amps max. with 70 to 80% lagging power factor.	1 fault close operation at 21.1kV or 36.6kV; 10,000 amps RMS sym; 10 cycles (.17 sec.) 1.3 max. asym factor applies to new or used mating parts (up to maximum designated switching operations)

Application Information:

1. Load-Break connectors are designed and rated for use on grounded WYE systems. For application on ungrounded WYE or delta systems, the next higher voltage class product is recommended. Examples: 5kV ungrounded: use 15kV class products; 15kV ungrounded: use 25kV class products; 25kV ungrounded: use 35kV class products.
2. Products are designed and constructed for all applications including padmount, subsurface, vault, indoor, outdoor, direct sunlight, direct buried and continuously submerged in water.
3. Products are designed and rated for ambient temperatures of -40° C to +65° C. It is recommended that loadbreak connectors be hotstick operated at -20° C to +65° C ambient temperature range and at altitudes not exceeding 6000 feet.

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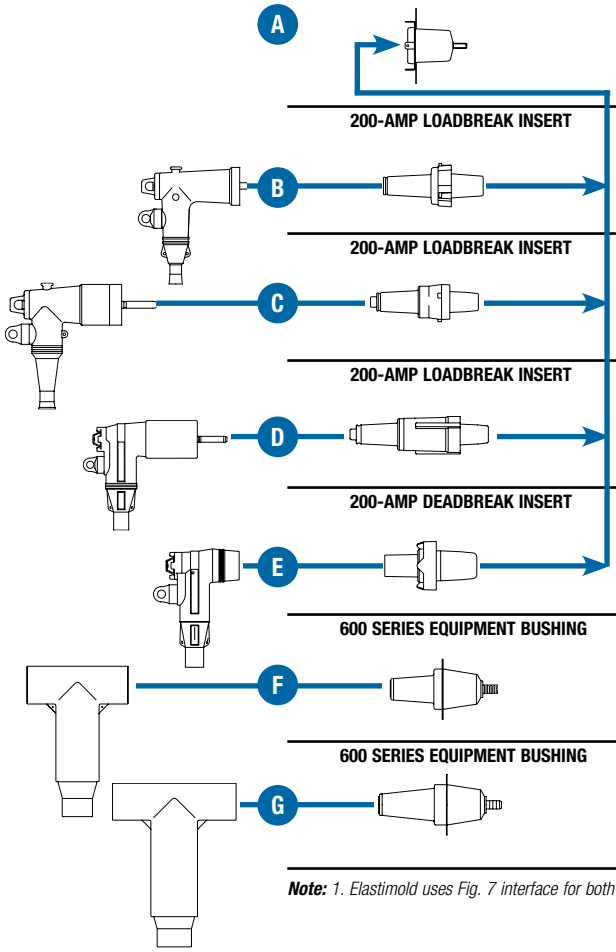
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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Standard Interfaces for Separable Connectors, Components and Equipment Bushings

IEEE Standard 386 defines the specific interface dimensions that 200 Amp and 600 Series elbows, inserts, junctions, equipment bushings and any mating components must conform to ensure interchangeability. The table below provides information concerning the types of interfaces supplied by Elastimold for various applications and is useful to ensure proper matching of components.



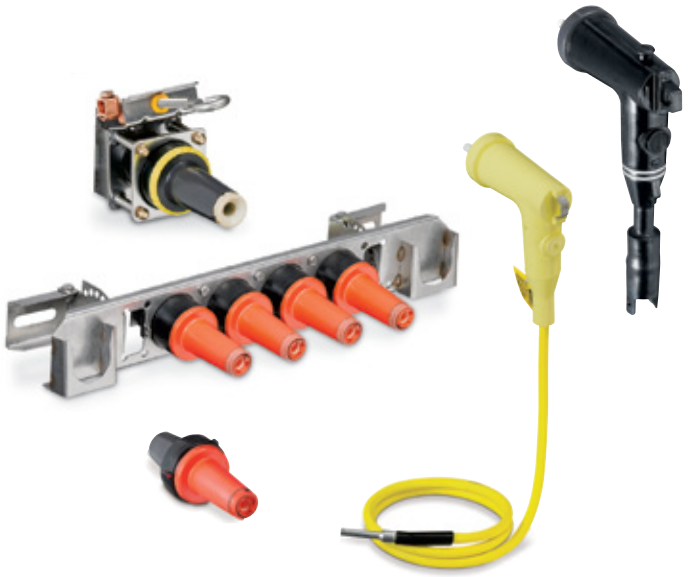
BUSHING INTERFACE	VOLTAGE CLASS	INTERFACE DESCRIPTION	STANDARD NO. FIGURE NO.
200-AMP DEEPWELL EQUIPMENT BUSHING	15kV, 25kV and 35kV	200-Amp Bushing Well Interface 8.3kV, 15.2kV and, 21.1kV	A IEEE 386-2001 Fig. 3
200-AMP LOADBREAK INSERT	15kV	200-Amp Loadbreak 8.3kV and 8.3kV/14.4kV	B IEEE 386-2001 Fig. 5
200-AMP LOADBREAK INSERT	25kV	200-Amp Loadbreak 15.2kV and 15.2kV/26.3kV	C IEEE 386-2001 Fig. 7, Note 1
200-AMP LOADBREAK INSERT	35kV	200-Amp Loadbreak Interface No. 2 21.1kV and 21.1kV/36.3kV	D IEEE 386-2001 Fig. 7, Note 1
200-AMP DEADBREAK INSERT	15kV and 25kV	200-Amp Deadbreak 8.3kV and 15.2kV	E IEEE 386-2001 Fig. 4
600 SERIES EQUIPMENT BUSHING	15kV and 25kV	600-Amp Deadbreak Interface No.1 8.3kV and 15.2kV	F IEEE 386-2001 Fig.11
600 SERIES EQUIPMENT BUSHING	35kV	600-Amp Deadbreak Interface No.1 21.1kV	G IEEE 386-2001 Fig.13

Note: *1. Elastimold uses Fig. 7 interface for both 25 and 35kV applications.*

200-Amp Loadbreak Connectors and Accessories

200-Amp Loadbreak Connectors and Accessories provide a convenient method to connect/disconnect cable and equipment on power distribution systems. Loadbreak elbows include provisions for energized operation using standard hotstick tools, allowing loadmake/break operation and a visible disconnect. Components can be isolated with insulated caps, plugs and parking bushings.

Optional accessories allow system grounding, testing, bypass, surge protection and current limiting fusing. Additional connecting points and taps can be provided by use of junctions or feed-thrus.



Ratings Overview

See **page H-2** for complete information, including switching and fault close ratings.

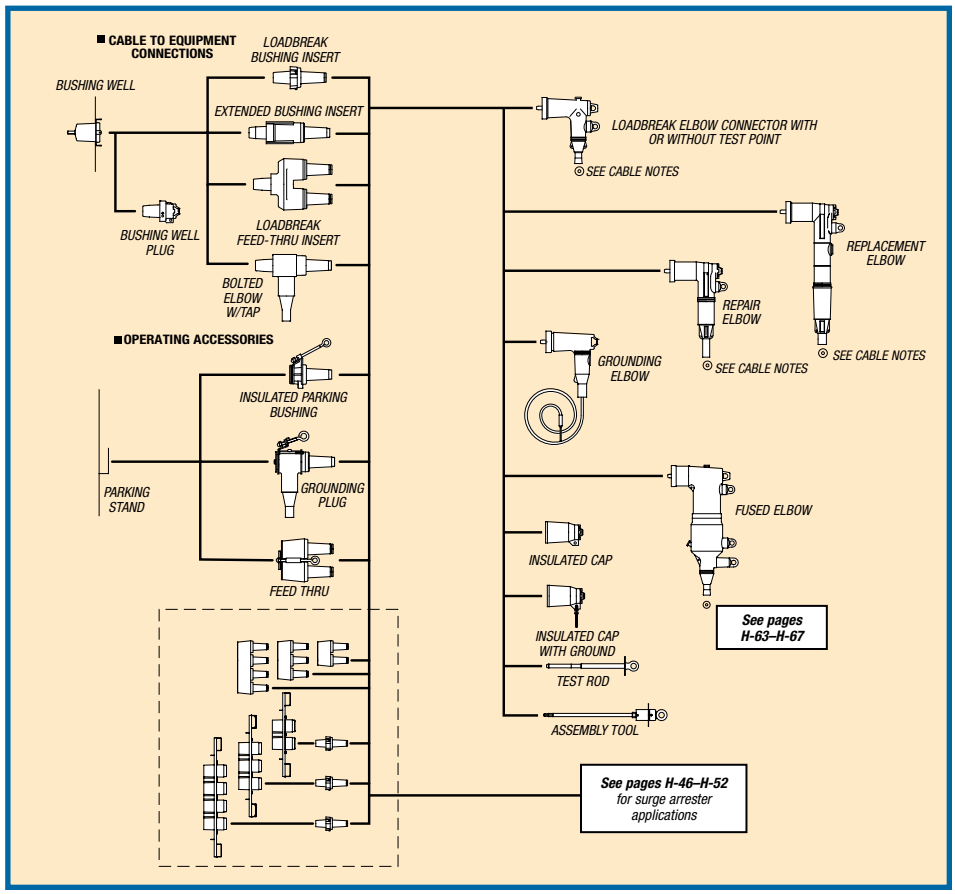
Current Ratings
200A Continuous
10kA sym. 10 Cycles

Voltage Ratings
15kV Class
8.3kV Phase-to-Ground
14.4kV Phase-to-Phase
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

25kV Class
15.2kV Phase-to-Ground
26.3kV Phase-to-Phase
125kV BIL
40kV AC Withstand
78kV DC Withstand
19kV Corona Extinction

35kV Class
21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

200-Amp Loadbreak Separable Connector Components



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200-Amp Loadbreak Elbows

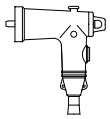
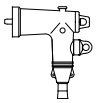
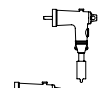
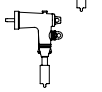
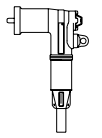
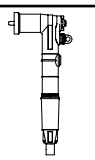
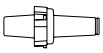
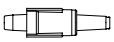
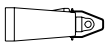
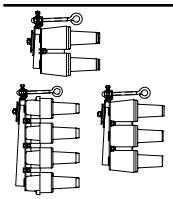
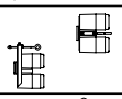
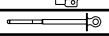
ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Elbow Connector	15kV 25kV 35kV	**165LR-W5X** Use Tables W1 and X1 **275LR-W5X** Use Tables W16 and X1 **375LR-W5X** Use Tables W3 and X2	N2, 3, 4, 5 N2, 3, 4, 5 N2, 3, 5
	Elbow Connector w/ Test Point	15kV 25kV 35kV	**166LR-W5X** Use Tables W1 and X1 **276LR-W5X** Use Tables W16 and X1 **376LR-W5X** Use Tables W3 and X2	N2, 3, 4, 5, 23 N2, 3, 4, 5, 23 N2, 3, 5, 23
	Jacket Seal Elbow Connector	15kV 25kV	**165LRJS-W5X** Use Tables W1 and X1 **275LRJS-W5X** Use Tables W16 and X1	N2, 19 N2, 19
	Jacket Seal Elbow Connector w/ Test Point	15kV 25kV	**166LRJS-W5X** Use Tables W1 and X1 **276LRJS-W5X** Use Tables W16 and X1	N2, 19, 23 N2, 19, 23
	Repair Elbow Connector	15kV 25kV	**167ELR-W5X** Use Tables W5 and X1 **273ELR-W5X** Use Tables W5 and X1	N5, 10, 18 N5, 10, 18
	Repair Elbow Connector w/ Test Point	15kV 25kV	**168ELR-W5X** Use Tables W5 and X1 **274ELR-W5X** Use Tables W5 and X1	N5, 10, 18, 23 N5, 10, 18, 23
	Replacement Elbow	15kV 25kV	**167RLR-W5X** Use Tables W4 and X1 **273RLR-W5X** Use Tables W2 and X1	N5, 11, 13 N5, 11, 13
	Replacement Elbow w/ Test Point	15kV 25kV	**168RLR-W5X** Use Tables W4 and X1 **274RLR-W5X** Use Tables W2 and X1	N5, 11, 13, 23 N5, 11, 13, 23
	Direct Test Elbow Connector	15kV 25kV	**167DLR-W5X** Use Tables W4 and X1 **273DLR-W5X** Use Tables W2 and X1	N2, 5, 21 N2, 5, 21
	Direct Test Repair Elbow Connector	15kV 25kV	**167DELR-W5X** Use Tables W5 and X1 **273DELR-W5X** Use Tables W5 and X1	N5, 10, 18, 21 N5, 10, 18, 21
	Direct Test Repair Elbow Connector w/Test Point	15kV 25kV	**168DELR-W5X** Use Tables W5 and X1 **274DELR-W5X** Use Tables W5 and X1	N5, 10, 18, 21, 23 N5, 10, 18, 21, 23
	Fused Elbow (Full Range Current Limiting)	15kV 25kV	**168FLR H-W0X** **274FLR H-W0X** ***See pages H-63–H-67***	N23 N23
	Bolted Elbow w/ Tap	15kV	**167LRT-W5X** Use Tables W4 and X1	N17
	Bushing Insert	15kV 25kV 35kV 35kV	**1601A4** **2701A4** **3701A4** **3701A3**	N4, 8 N4, 8 N6, 20 N8, 20
	Extended Bushing Insert	15kV 25kV	**1601EA4** **2701EA4**	N8 N8
	Feed-Thru Insert	15kV 25kV 35kV	**1602A3R** **2702A1** **3702A1**	N16 N16 N6, 16
	Insulated Cap	15kV	**160DR**	N9
	Insulated Cap w/ Ground	15kV 15kV 25kV 35kV	**160DRG** **167DRG** **273DRG** **375DRG**	N9 N7, 9 N7, 9 N7, 9
	Insulated Cap w/ Ground and Test Point	15kV 25kV 35kV	**168DRG** **274DRG** **376DRG**	N7 N7 N7

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Grounding Plug (1/0 AWG x 6' Ground Lead)	15kV 25kV	**161GP** **272GP**	
	Grounding Elbow (1/0 AWG x 6' Ground Lead)	15kV 25/35kV	**160GLR** **370GLR**	N12
	Feed-Thru	15kV 25kV 35kV 35kV	**164FT** **274FT** **371FT** **373FT**	N6
	Feed-Thru Vertical	15kV 25kV 35kV	**164FTV** **274FTV** **373FTV**	
	Adjustable Bracket 2-Point Feed-Thru	15kV 25kV 35kV	**164FT2-AB** **274FT2-AB** **373FT2-AB**	N22 N22 N22
	Adjustable Bracket 3-Point Feed-Thru	15kV 25kV 35kV	**164FT3-AB** **274FT3-AB** **373FT3-AB**	N22 N22 N22
	Adjustable Bracket 4-Point Feed-Thru	15kV 25kV 35kV	**164FT4-AB** **274FT4-AB** **373FT4-AB**	N22 N22 N22
	Feed-Thru Well	15/25kV	**K1601WFT**	
	Feed-Thru Well Vertical	15/25kV	**K1601WFTV**	
	Insulated Parking Brushing	15kV 25kV 35kV	**161SOP** **272SOP** **372SOP**	N20
	Insulated Parking Brushing	15kV 25kV	**164SOP** **274SOP**	N22 N22
	Test Rod	All	**370TR**	
	Bushing Well	15/25kV 35kV	**276BWP** **M276BWP**	
	Assembly Tool	All	**200AT**	N8

N1. Copper lug for use on COPPER CONDUCTOR ONLY.

N2. W5X indicates that the catalog number includes 02500X long bi-metal compression lug as standard. For an all-copper lug, replace W5X with W2X in Table X1 to specify the all-copper 02702X lug.

N3. Also available as housing only. Specify: 165BLR-W; 275BLR-W; 375BLR-W; 166BLR-W; 276BLR-W; 376BLR-W.

N4. Also available as elbow/insert combination. Specify: 165A4-WX; 275A4-WX; 166A4-WX; 276A4-WX.

N5. Also available with 200ECS jacket seal included. Add - "S" suffix to catalog number.

N6. Rated for single-phase applications only.

N7. Equipped with insulated cuff.

N8. Includes internal torquing feature using 200AT Assembly Tool.

N9. Also available without probe. Specify "A" suffix - Example: 273DRGA.

N10. Repair elbow has extended length contact and elbow housing resulting in a net gain of 3¼" in length.

N11. Replacement elbow has extended-length contact and elbow housing resulting in a net gain of 8⅛" in length.

N12. Rated for 25kV thru 35kV applications.

N13. Includes long bi-metal contact 00400X.

N14. 160CA Cable Size Adapter can only be used with elbow part numbers 165LR/166LR C size only.

N16. Fully rotatable for 360° positioning. Includes bail assembly to secure feed-thru insert to bushing well.

N17. Includes 02800X bi-metal contact.

N18. Includes 02509X long bi-metal contact.

N19. Includes built-in jacket seal. Also available as housing only — specify: 165BLRJS-W, 166BLRJS-W, 275BLRJS-W or 276LRJS-W. Also available as elbow/insert combination — specify: 165JSA4-W5X, 166JSA4-W5X, 275JSA4-W5X or 276JSA4-W5X.

N20. Includes a black vent ring.

N21. Direct Test Connectors, along with a 200TC-X series meter adapter, a properly rated voltage meter and Hot-line Stick provide a means for direct conductor voltage testing.

N22. With stainless steel bracket.

N23. Test Point Cap catalog number 156-7

Refer to the **W** and **X** tables on **page H-45** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page H-37**.

200-Amp Loadbreak Connectors and Accessories *(continued)*

Ratings Overview

See **page H-2** for complete information, including switching and fault close ratings.

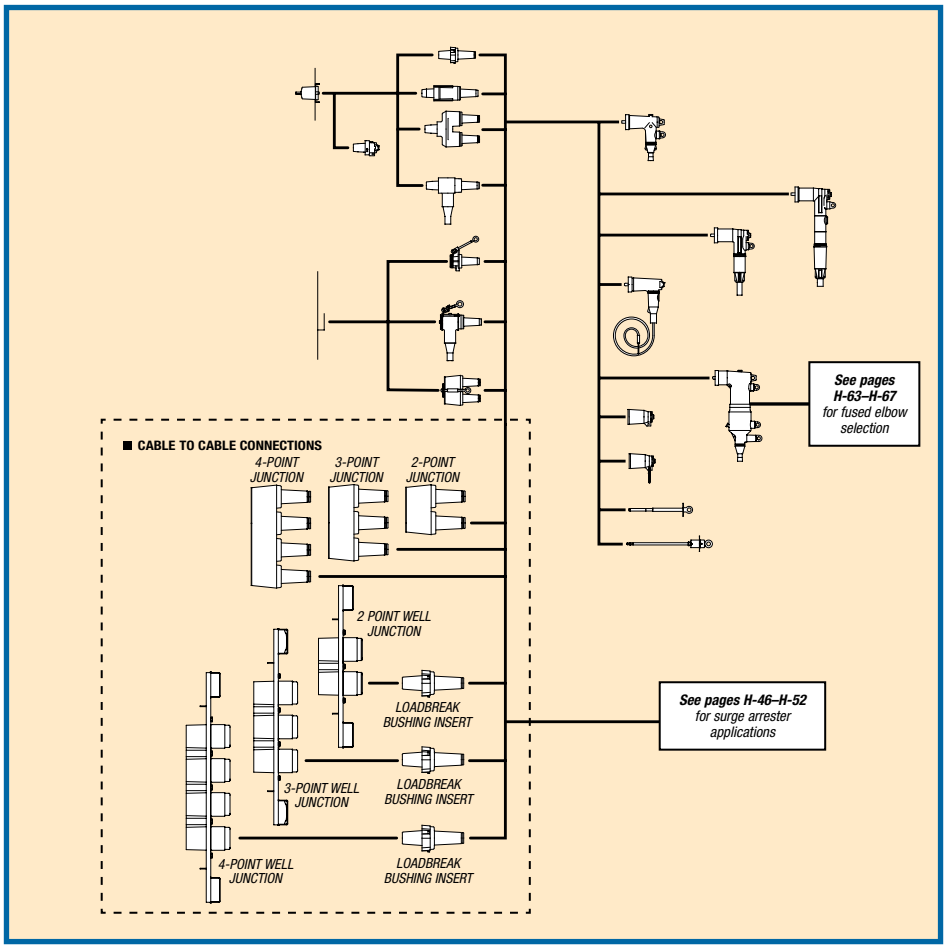
Current Ratings
200A Continuous
10kA sym. 10 Cycles

Voltage Ratings
15kV Class
8.3kV Phase-to-Ground
14.4kV Phase-to-Phase
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

25kV Class
15.2kV Phase-to-Ground
26.3kV Phase-to-Phase
125kV BIL
40kV AC Withstand
78kV DC Withstand
19kV Corona Extinction

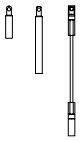
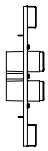
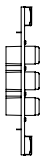
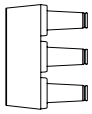
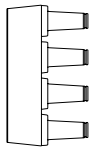
35kV Class
21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

200-Amp Loadbreak Separable Connector Components



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200-Amp Loadbreak Elbows

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Contacts:		Use Table X1	
	LR Long Bi-Metal	All	**02500X**	
	ELR Bi-Metal	15/25kV	**02509X**	N1
	LR Copper	All	**02702X**	N2
	LRT Contact	15kV	**02800X**	
	RLR Contact	15/25kV	**00400X**	N3
	Elbow Probe	15kV	**166LRF**	
		25kV	**274LRF**	
		35kV	**375LRF**	
	Elbow Cable Entrance Insulating Plug	All	**10EP-W** Use Table W6	
	Cable Size Adapter	15kV	**160CA-W** Use Table W6 EB-FA Only	N4
	Direct Voltage Test Meter Adapter for:	All		
	HD Electric Meters		**200TC-1**	N14
	Ross Meters		**200TC-2**	N14
	Chance Meters		**200TC-4**	N14
	2-Way Well Junction w/ S.S. Bracket	15/25kV	**K1601WJ2**	N6
	2-Way Well Junction w/ "U" Straps	15/25kV	**K1601WJ2-5**	N5, 6, 11
	3-Way Well Junction w/ S.S. Bracket	15/25kV	**K1601WJ3**	N6
	3-Way Well Junction w/ "U" Straps	15/25kV	**K1601WJ3-5**	N5, 6, 12
	4-Way Well Junction w/ S.S. Bracket	15/25kV	**K1601WJ4**	N6
	4-Way Well Junction w/ "U" Straps	15/25kV	**K1601WJ4-5**	N5, 6, 13
	2-Point Junction with/Stainless Steel Bracket	15kV	**164J2**	N7
		25kV	**274J2**	N7
		35kV	**373J2**	N7
	2-Point Junction w/"U" Straps	15kV	**164J2-5**	N5, 8
		25kV	**274J2-5**	N5, 11
		35kV	**373J2-5**	N5, 11
	3-Point Junction with Stainless Steel Bracket	15kV	**164J3**	N7
		25kV	**274J3**	N7
		35kV	**373J3**	N7
	3-Point Junction w/"U" Straps	15kV	**164J3-5**	N5, 9
		25kV	**274J3-5**	N5, 12
		35kV	**373J3-5**	N5, 12
	4-Point Junction with Stainless Steel Bracket	15kV	**164J4**	N7
		25kV	**274J4**	N7
		35kV	**373J4**	N7
	4-Point Junction w/"U" Straps	15kV	**164J4-5**	N5, 10
		25kV	**274J4-5**	N5, 13
		35kV	**373J4-5**	N5, 13

N1. Repair elbow has extended-length contact and elbow housing resulting in a net gain of 3¼" in length.

N2. Copper lug for use on COPPER CONDUCTOR ONLY.

N3. Replacement elbow has extended-length contact and elbow housing resulting in a net gain of 8⅞" in length.

N4. 160CA Cable Size Adapter can only be used with elbow catalog numbers 165LR/166LR C size only.

N5. Also available as rubber only, without straps. Specify suffix "-4" in place of "-5" in the catalog number.

N6. Supplied with replaceable stud. Replacement stud available separately. Specify 1000-150.

N7. Hardware packages, consisting of brackets and straps only, may be ordered separately by specifying "-6" in the catalog number. Example 164J4-6.

N8. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 1601US-J2.

N9. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 1601US-J3.

N10. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 1601US-J4.

N11. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 271-68.

N12. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 271-61.

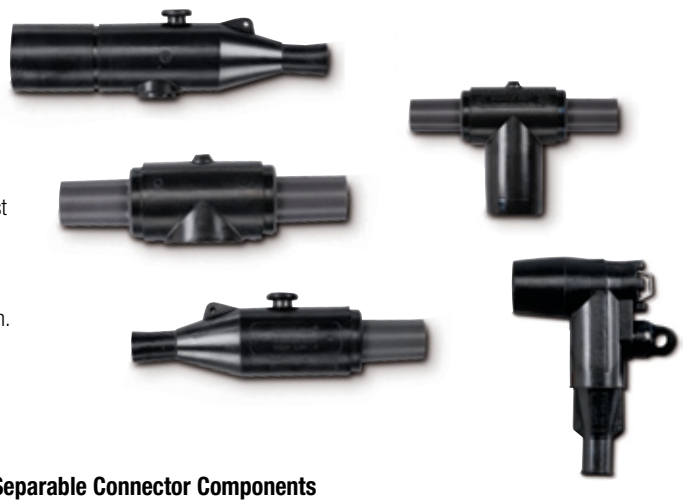
N13. Hardware package, consists of "U" straps and back plate only, may be ordered separately by specifying 271-70.

N14. For use with Direct Test Connectors.

Refer to the **W** and **X** tables on **page H-45** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page H-37**.

200-Amp Deadbreak Elbows

200-Amp Deadbreak Connectors and Accessories



200-Amp Deadbreak Connectors and Accessories provide a quick-disconnect feature for cable and equipment connections on power distribution systems.

All deadbreak connectors must be de-energized before operating and must be mechanically secured with bails when connected. Components can be isolated with insulated caps, plugs and parking bushings.

All deadbreak elbows are equipped with test points as standard. Optional accessories allow system grounding, bypass and lightning surge protection. Additional connecting points and taps can be provided by use of junctions or feed-thrus.

Ratings Overview

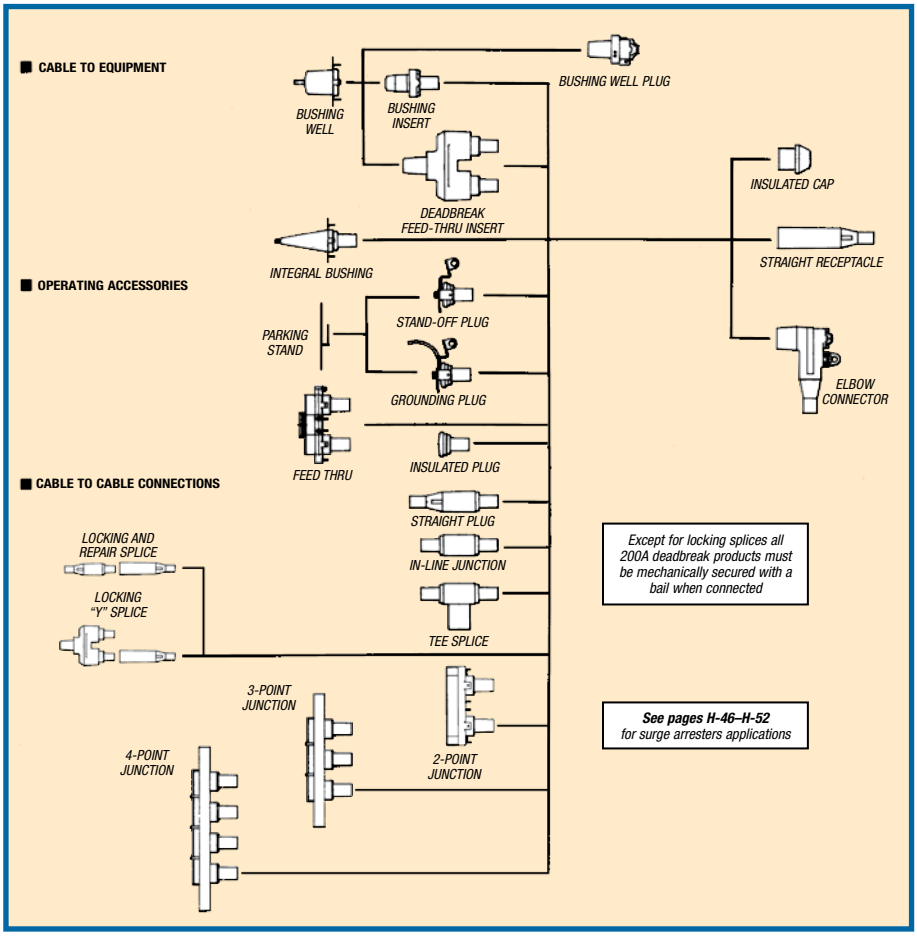
See **page H-2** for complete information.

Current Ratings
200A Continuous
10kA sym. 10 Cycles

Voltage Ratings
15kV Class
8.3kV Phase-to-Ground
14.4kV Phase-to-Phase
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

25kV Class
15.2kV Phase-to-Ground
26.3kV Phase-to-Phase
125kV BIL
40kV AC Withstand
78kV DC Withstand
19kV Corona Extinction

200-Amp Deadbreak Separable Connector Components



Thomas&Betts

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Technical Services
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200-Amp Deadbreak Elbows

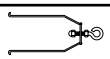
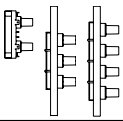
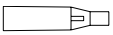
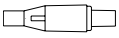
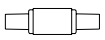
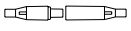
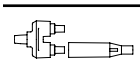
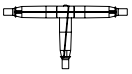
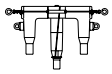
ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Elbow Connector w/ Test Point	15/25kV	**156LR-W5X** Use Tables W4 and X1	N1, 2
	Direct Test Elbow Connector	15/25kV	**156DLR-W5X** Use Tables W4 and X1	N1, 2, 22
	Bail Assembly for 156LR Elbow	15/25kV	**150BA**	
	Bushing Insert	15/25kV	**K1501A1**	N3
	Feed-Thru Insert	15/25kV	**K1502A1**	N3, 4
	Insulated Plug	15/25kV	**K150DP**	N3
	Insulated Cap	15/25kV	**K150DR**	N3
	Insulated Parking Bushing	15/25kV	**K151SOP**	N3
	Grounding Plug	15/25kV	**151GP**	N3
	Feed-Thru	15/25kV	**K1501FT**	N3, 6
	2-Point Junction	15/25kV	**K1501J2-U**	N3, 6
	3-Point Junction	15/25kV	**K1501J3-U**	N3, 6
	4-Point Junction	15/25kV	**K1501J4-U**	N3, 6
	Elbow Probe	15/25kV	**156LRF**	
	Straight Receptacle	15/25kV	**K151SR-W0X** Use Tables W1 and X1	N3, 12, 13, 17, 18
	Straight Plug	15/25kV	**K151SP-W0X** Use Tables W1 and X1	N3, 12, 13, 19
	Tee Splice	15/25kV	**K150T**	N3
	In-Line Junction	15/25kV	**K150S**	N3
	Locking Splice/ Repair Splice	15/25kV	**K151LS-W0X** Use Tables W1 and X1	N8, 9, 13, 15, 16, 17, 20, 23
	Locking "Y" Splice	15/25kV	**K151LY-W0X** Use Tables W1 and X1	N8, 9, 13, 15, 17, 21
	Bail	15/25kV	**150TB1**	N5
	Bail	15/25kV	**150TB2**	N5
	Bail	15/25kV	**150TB3**	N5

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Bail	15/25kV	**150TB4**	N5
	Bail	15/25kV	**150TB5**	N5
	Bail	15/25kV	**150TB6**	N5
	Contacts: Long Bi-Metal Copper	15/25kV 15/25kV	**02500X** **02702X**	N7
	Elbow Cable Entrance Insulating Plug	15/25kV	**10EP-W** Use Table W6	N10
	Cable Entrance Insulating Plug	15/25kV	**152EA-W** Use Table W6	N11
	Cable Size Adapter	15/25KV	**160CA-W** Use Table W6 EB-FA Only	N14

N1. Includes bail assembly.

N2. W5X indicates that the catalog number includes a 02500X bi-metal compression lug, which is rated for either aluminum or copper conductor, as standard. For an all-copper lug, replace W5X with W2X. Use Table X1 to specify the all-copper 02702X lug.

N3. Bails are required but not included. Order separately. Consult factory for bails not listed for a specific application.

N4. Fully rotatable for 360° positioning. Includes bail assembly to secure feed-thru insert to bushing well. Elbows bail assemblies are required but not included with the feed-thru insert.

N5. Refer to factory for application details.

N6. Center-to-center spacing equals 4 inches.

N7. Copper lug for copper cable only.

N8. To order cable legs for different cable sizes, list each leg size "W" and "X". Example: K151LY-A1240-A1240-B1220. See Tables W1 and X1 for sizes.

N9. To order locking contacts for K151LS and K151LY, order 01401X (Al) or 01402X (Cu) for plug contact. Order 01301X (Al) or 01302X (Cu) for receptacle. See Table X1 for sizes.

N10. For use with 156LR elbows.

N11. For use with K151SR, K151SP, K151LS, K151LY receptacles, plugs and splices.

N12. Also available as housing only. Specify K151BSP-W or K151BSR-W.

N13. Also available in EB-FA sizes per Table W6 by using 160CA cable adapter with C size plugs and receptacles.

N14. 160CA cable adapter can only be used with C size plugs and receptacles.

N15. Bails are not required for locking splices.

N16. When used as a repair splice, the assembled length allows 4" for cable replacement/repair.

N17. Straight receptacles are also available with test point. Specify K152SR-W0X catalog number.

N18. W0X indicates that the catalog number includes a 01500X universal aluminum compression lug, which is rated for either aluminum or copper, as standard. For an all-copper lug, replace W0X with W2X in Table X1 to specify the all-copper 01502X lug.

N19. W0X indicates that the catalog number includes a 01600X universal aluminum compression lug, which is rated for either aluminum or copper, as standard. For an all-copper lug, replace W0X with W2X in Table X1 to specify the all-copper 01602X lug.

N20. W0X indicates that the catalog number includes a 01400X universal aluminum compression lug, which is rated for either aluminum or copper, as standard. For an all-copper lug, replace W0X with W2X in Table X1 to specify the all-copper 01402X lug.

N21. W0X indicates that the catalog number includes a 01300X universal aluminum compression lug, which is rated for either aluminum or copper, as standard. For an all-copper lug, replace W0X with W2X in Table X1 to specify the all-copper 01302X lug.

N22. Direct Test Connectors, along with a 200TC-X series meter adapter, a properly rated voltage meter and Hot-line Stick provides a means for direct conductor voltage testing. See **page H-7** for meter adapters.

N23. Gains approximately 4" of repair length.

Refer to the **W** and **X** tables on **page H-45** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page H-37**.

600-Amp Elbow Connectors

600 Series Deadbreak Components



600 Series deadbreak elbows, straight receptacles, junctions, vault stretchers and accessories are used to connect equipment and cable on primary feeder and network circuits. Designs accommodate large conductors and feature bolted connections and deadfront modular construction for maximum reliability, performance and versatility.

De-energized connectors can be quickly and easily connected and disconnected using standard hand tools and equipment in accordance with accepted operating practices. Optional accessories allow visible external separation, bypass, isolation, dead-ending, grounding and testing as well as adding taps, surge arresters and circuit protection.

Hotstick-operable and separable joint systems are shown on **pages H-14–H-17** and **H-23–H-24**.

Ratings Overview

See **page H-2** for complete information.

Current Ratings

(Prefixes: 650, K650, K651, K655, K656, 750, 755, 756 & 03700)

600 Amp Continuous
25kA sym.,10 cycles

(Prefixes 675, K671, K675, K676, 775, 776 & 03702)

900 Amp Continuous
25kA sym.,10 cycles

Note: *900-amp ratings require copper cable and copper current-carrying components.*

Voltage Ratings

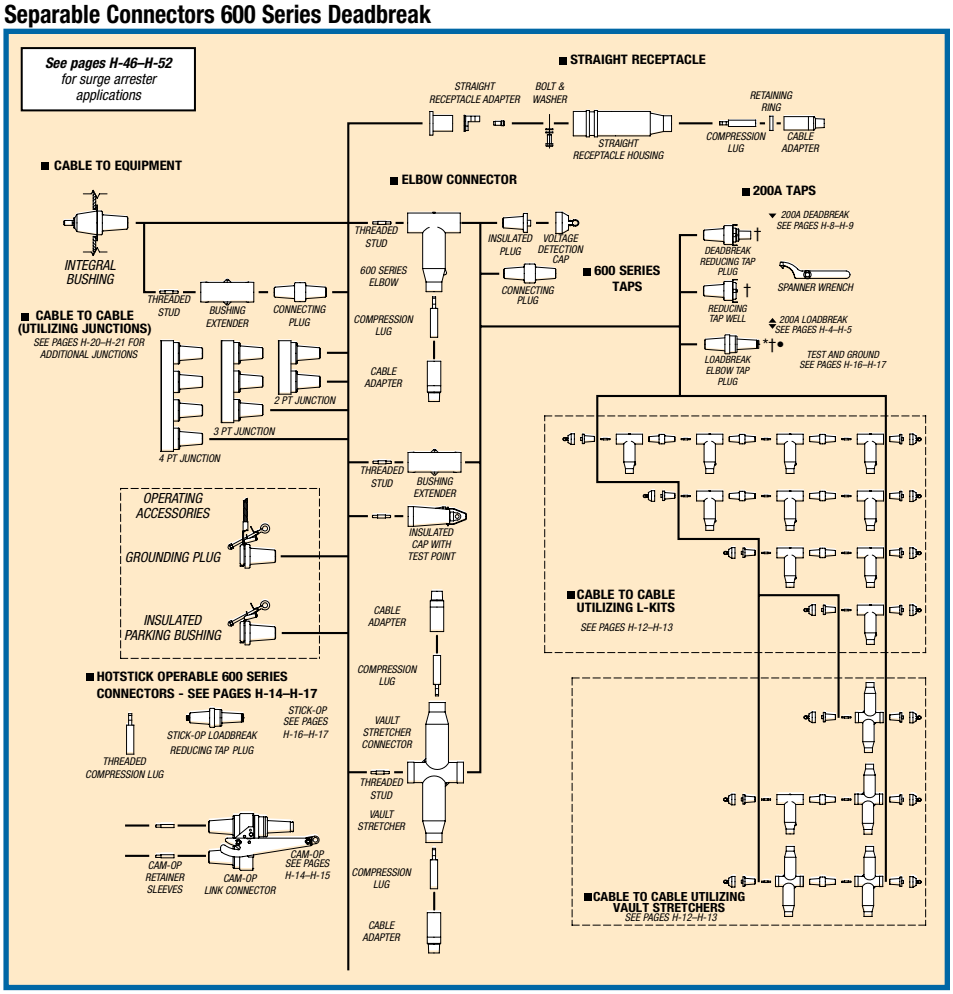
15/25kV Class (5kV thru 28kV)
16.2kV Phase-to-Ground
28kV Phase-to Phase
140kV BIL
45kV AC Withstand
84kV DC Withstand
21.5kV Corona Extinction

35kV Class
21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

Note: *Elastimold has increased the IEEE Standard Production and Design Test levels for 25kV Class products to include 27kV and 28kV systems.*

** Tested at 8.3/14.9kV*
† Tested at 15.2/26.3kV
• Tested at 21.1/36.6kV

Separable Connectors 600 Series Deadbreak



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600-Amp Elbow Connectors

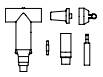
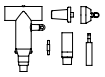
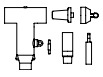
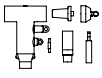
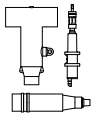
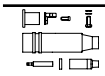
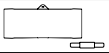
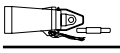
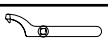
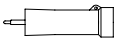
ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	600 Series Elbow (w/ Insul. Plug, Cap, Stud, Lug and Cable Adapter)	15/25kV 35kV	**K655LR-W0X** Use Tables W7 and X6 **755LR-W0X** Use Tables W9 and X6	N1, 2 N1, 2
	600 Series Direct Test Elbow (w/ Insul. Plug, Cap, Stud Lug and Cable Adapter)	15/25kV 35kV	**K655DLR-W0X** Use Tables W7 and X6 **755DLR-W0X** Use Tables W9 and X6	N1, 2, 12 N1, 2, 12
	600 Series Elbow w/ Test Point (w/ Insul. Plug, Cap, Stud, Lug and Cable Adapter)	15/25kV 35kV	**K656LR-W0X** Use Tables W7 and X6 **756LR-W0X** Use Tables W9 and X6	N1, 2 N1, 2
	600 Series Direct Test Elbow w/Test Point (w/ Insul. Plug, Cap, Stud, Lug and Cable Adapter)	15/25kV 35kV	**K656DLR-W0X** Use Tables W7 and X6 **756DLR-W0X** Use Tables W9 and X6	N1, 2, 12 N1, 2, 12
	600 Series Elbow w/ Test Point Housing only (w/ Stud)	15/25kV 35kV	**K655BLR** **755BLR**	N1, 3 N1, 3
	600 Series Elbow w/ Test Point Housing only (w/ Stud)	15/25kV 35kV	**K656BLR** **756BLR**	N1, 3 N1, 3
	600 Series Replacement Elbow Housing only w/o Test Point	15/25kV	**K655BRLR**	N14
	600 Series Replacement Elbow Housing only w/ Test Point	15/25kV	**K656BRLR**	N14
	600 Series Straight Receptacle (w/ Cable Adapter, Lug & Retaining Ring)	15/25kV	**K655SR-W0X** Use Tables W7 and X6	N1, 2, 11
	600 Series Direct Test Straight Receptacle Elbow	15/25kV	**K655DSR-W0X** Use Tables W7 and X6	N1, 2, 11, 12
	600 Series Straight Receptacle Housing (Lug & Cable Adapter not included)	15/25kV	**K655BSR**	N1,11
	Straight Receptacle Adapter	15/25kV	**K650SRA**	N1, 4
	600 Series Vault Stretcher (Housing only w/ Stud)	15/25kV 35kV	**K655BVS** **755BVS**	N1, 9 N1, 9
	Cable Size Adapter	15/25kV 35kV	**655CA-W** Use Table W7 **755CA-W** Use Table W9	
	Compression Lug	All All	**03700X** Use Table X6 **03702X** Use Table X6	N5 N6
	600 Series Elbow & Vault Stretcher Size Sensitive Kit (Cable Adapter & Lug)	15/25kV 35kV	**655CK-W0X** Use Tables W7 and X6 **755CK-W0X** Use Tables W9 and X6	N2 N2
	Adapter Retaining Ring	ALL	**650ARR-X** Use Table X6	
	600 Series Straight Receptacle Size Sensitive Kit (Cable Adapter, Retaining Ring & Lug)	15/25kV	**655CK-W0X-ARR** Use Tables W7 and X6	N2
	Bushing Extender (w/ Stud)	15/25kV 35kV	**K655BE** **755BE**	N1, 3 N1, 3
	Insulated Cap w/ Test Point (w/ Stud)	15/25kV	**K656DR**	N3, 7
	Insulated Cap w/ Test Point (w/ Stud)	15/25kV	**K656DRG**	N3, 7

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Insulating Plug (w/Cap)	15/25kV 35kV	**650BIP** **750BIP**	N1, 7, 8 N1, 7, 8
	Grounding Plug (Ground Lead 2/0 AWG x 30")	15/25kV 35kV	**650GP** **750GP**	N1, 7, 8 N1, 7, 8
	Insulated Parking Bushing	15/25kV 35kV	**K650SOP** **750SOP**	N7, 8 N7, 8
	Connecting Plug	15/25kV 35kV	**K651CP** **750CP**	N1, 7, 8, 10 N1, 7, 8, 10
	Deadbreak Reducing Tap Plug	15/25kV	**K650RTP**	N1, 7, 8, 9
	Reducing Tap Well	15/25kV	**K650RTW**	N1, 7, 8, 9
	Loadbreak Elbow Tap Plug	15kV 25kV 35kV	**650ETP** **K650ETP** **750ETP**	N1, 7, 8, 10 N1, 7, 8, 10 N1, 7, 8, 10
	Vault Stretcher Threaded Stud	15/25kV 35kV	**650VSA** **750VSA**	N1 N1
	600 Series Elbow Threaded Stud	15/25kV 35kV	**650SA** **750SA**	N1 N1
	Assembly Tool (Window-OP)	All	**600ATM**	
	Spanner Wrench	All	**600SW**	N9
	Direct Voltage Test Meter Adapter for: *HD Electric Meters*	All	**200TC-1**	N12
	Ross Meters		**200TC-2**	N12
	Chance Meters		**200TC-4**	N12

N1. For 900-amp ratings, substitute 675 for 650 and 655; 676 for 656; K671 for K651; K675 for K650 and K655; K676 for K656; 775 for 750 and 755; 776 for 756 and 2X for 0X in the catalog number. The 900-amp rating requires copper current-carrying connector components and copper conductor cable.

N2. Add suffix symbol from **page H-41** to include cable shield grounding kit and/or cable jacket sealing kit.

N3. Available without the stud by adding "N" to the catalog number.

N4. Straight Receptacle Adapter is used to connect Straight Receptacles K655YBSR and K655YSR-W0X (**page H-24**) to equipment bushings.

N5. Aluminum lug for use on aluminum or copper conductors. DO NOT substitute threaded 03600X lug.

N6. Copper lug for use on COPPER CONDUCTOR ONLY. Do not substitute threaded 03602X lug.

N7. Available with the stud factory-assembled by adding "SP" to the catalog number. 675ETP, K675ETP and 775ETP are available as -SP only. The stud is not field removable.

N8. Available with a loose stud by adding suffix "S" to the catalog number.

N9. 600SW spanner wrench is recommended for installation of deadbreak reducing tap plugs and reducing tap wells.

N10. Use 600ATM Assembly Tool.

N11. 600 Series Elbows and Straight Receptacles with IEEE Std. 386 capacitive test points are available by substituting 656 for 655; K656 for K655; K676 for K675; 756 for 755; 676 for 675; K676 for K675 and 776 for 775 in the catalog number.

N12. Direct Test Connectors, along with a 200TC-X series meter adapter, a properly rated voltage meter and Hot-line Stick; provides a means for direct conductor voltage testing.

N13. With stainless steel bracket.

N14. Replacement Elbow includes an I-Adapter, and Straight Receptacle, resulting in a net gain of 20".

Refer to the **W** and **X** tables on **page H-45** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page H-37**.

600-Amp Elbow Connectors

600 Series Deadbreak Components *(continued)*

600 Series deadbreak elbows, straight receptacles, junctions, vault stretchers and accessories are used to connect equipment and cable on primary feeder and network circuits. Designs accommodate large conductors and feature bolted connections and deadfront modular construction for maximum reliability, performance and versatility.

De-energized connectors can be quickly and easily connected and disconnected using standard hand tools and equipment in accordance with accepted operating practices. Optional accessories allow visible external separation, bypass, isolation, dead-ending, grounding and testing as well as adding taps, surge arresters and circuit protection.

Hotstick operable and separable joint systems are shown on **pages H-14–H-17** and **H-23–H-24**.



Ratings Overview

See **page H–2** for complete information.

Current Ratings

(Prefixes: 650, K650, K651, K655, K656, 750, 755, 756 & 03700)
600 Amp Continuous
25kA sym., 10 cycles

(Prefixes 675, K675, K671, K676, 775, 776 & 03702)
900-amp Continuous
25kA sym., 10 cycles

Note: *900-amp ratings require copper cable and copper current-carrying components.*

Voltage Ratings

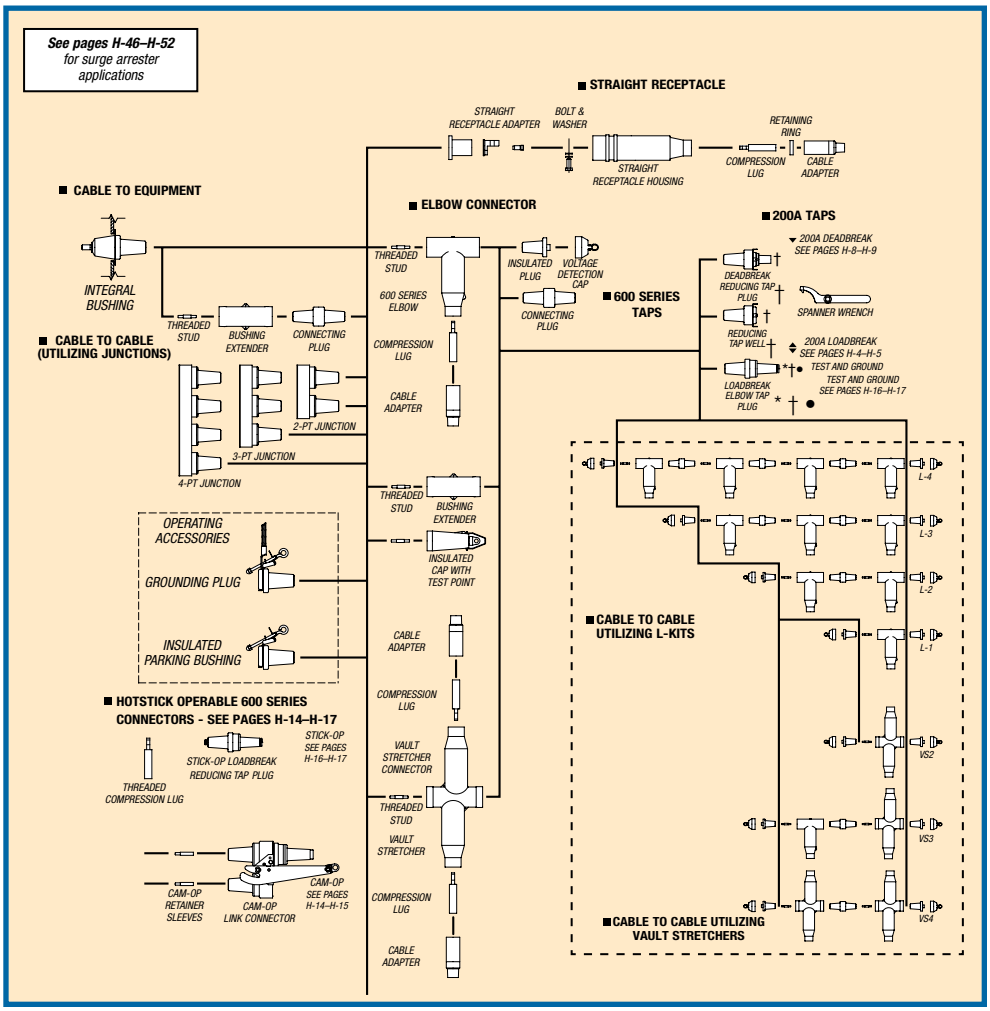
15/25kV Class (5kV thru 28kV)
16.2kV Phase-to-Ground
28kV Phase-to-Phase
140kV BIL
45kV AC Withstand
84kV DC Withstand
21.5kV Corona Extinction

35kV Class
21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

Note: *Elastimold has increased the IEEE Standard Production and Design Test levels for 25kV Class products to include 27kV and 28kV systems.*

** Tested @ 8.3/14.9kV*
† Tested @ 15.2/26.3kV
• Tested @ 21.1/36.6kV

Separable Connectors 600 Series Deadbreak



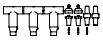
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600-Amp Elbow Connectors

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	2-Point Junction	15/25kV 35kV	**K650J2** **750J2**	N1, 7, 8 N1, 7, 8
	3-Point Junction	15/25kV 35kV	**K650J3** **750J3**	N1, 7, 8 N1, 7, 8
	4-Point Junction	15/25kV 35kV	**K650J4** **750J4**	N1, 7, 8 N1, 7, 8
	1-Way L-Kit	15/25kV 35kV	**K655L1** **755L1**	N1, 2, 3 N1, 2, 3
	2-Way L-Kit	15/25kV 35kV	**K655L2** **755L2**	N1,2 ,3, 4, 5, 6 N1, 2, 3, 4, 5, 6
	2-Way VS-Kit	15/25kV 35kV	**K655VSL2** **755VSL2**	N1, 2, 3 N1, 2, 3
	3-Way L-Kit	15/25kV 35kV	**K655L3** **755L3**	N1, 2, 3, 4 N1, 2, 3, 4
	3-Way VS Kit	15/25kV 35kV	**K655VSL3** **755VSL3**	N1, 2, 3, 5, 6 N1, 2, 3, 5, 6
	4-Way L-Kit	15/25kV 35kV	**K655L4** **755L4**	N1, 2, 3, 4 N1, 2, 3, 4
	4-Way VS-Kit	15/25kV 35kV	**K655VSL4** **755VSL4**	N1, 2, 3, 5, 6 N1, 2, 3, 5, 6
	Assembly Tool	ALL	**600ATM**	—

N1. For 900-amp ratings, substitute 675 for 650 and 655; 676 for 656; K675 for K650 and K655; K676 for K656; 775 for 750 and 755; 776 for 756 and 2X for 0X in the catalog number. The 900-amp rating requires copper current-carrying connector components and copper conductor cable.

N2. L-Kits and VS-Kits do not include cable adapters or compression lugs. These items must be ordered separately.

N3. 600 Series Elbows and Straight Receptacles with IEEE Std. 386 capacitive test points are available by substituting 656 for 655; K656 for K655; K676 for K675; 756 for 755; 676 for 675; K676 for K675 and 776 for 775 in the catalog number.

N4. 600ATM is recommended for installing K651CP and 750CP.

N5. Can be used as a repair joint. (Gains 3½" of repair length.)

N6. Can be used as a reducing joint for different size cables.

N7. Rubber junction with stainless steel mounting plate and back plate.
Add "-U" for rubber junction with stainless steel mounting plate, back plate and adjustable mounting bracket.
Add "-4" for rubber junction only.
Add "-5" for rubber junction, stainless steel U-straps and back plate.

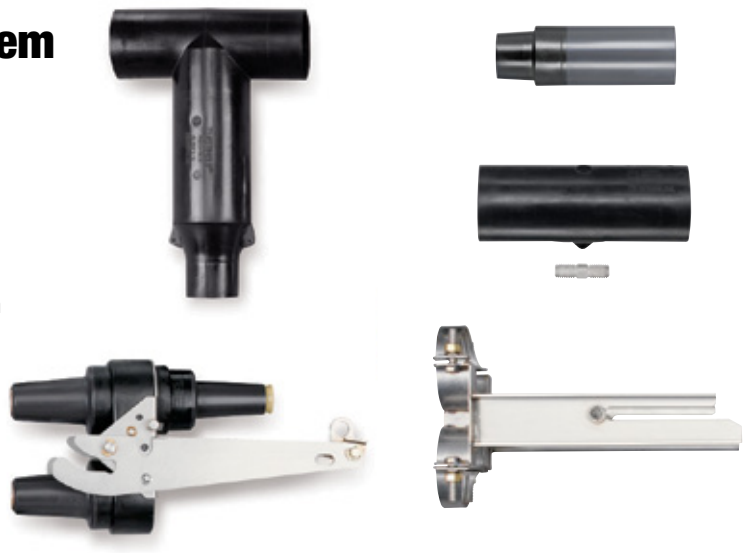
N8. Two - six-position multi-point junctions shown on **pages H-25–H-26.**

600-Amp Elbow Connectors

600 Series Cam-Op™ Deadbreak Connector System

Elastimold's 600 Series Cam-Op™ deadbreak connector system incorporates provisions for hotstick operation of de-energized primary feeder or network circuits. Configurations allow external visible break, testing, grounding and isolation. Retrofit kits allow upgrading existing equipment.

The Cam-Op system utilizes pin and socket connectors and can be retrofitted to existing equipment. The Cam-Op connector is easily installed or removed by hotstick operation of the cam action disconnect lever.



Ratings Overview

See **page H-2** for complete information.

Current Ratings

600 & 900 Amp Continuous

25kA sym., 10 cycles

Note: *900-amp ratings require copper cable and copper current-carrying components.*

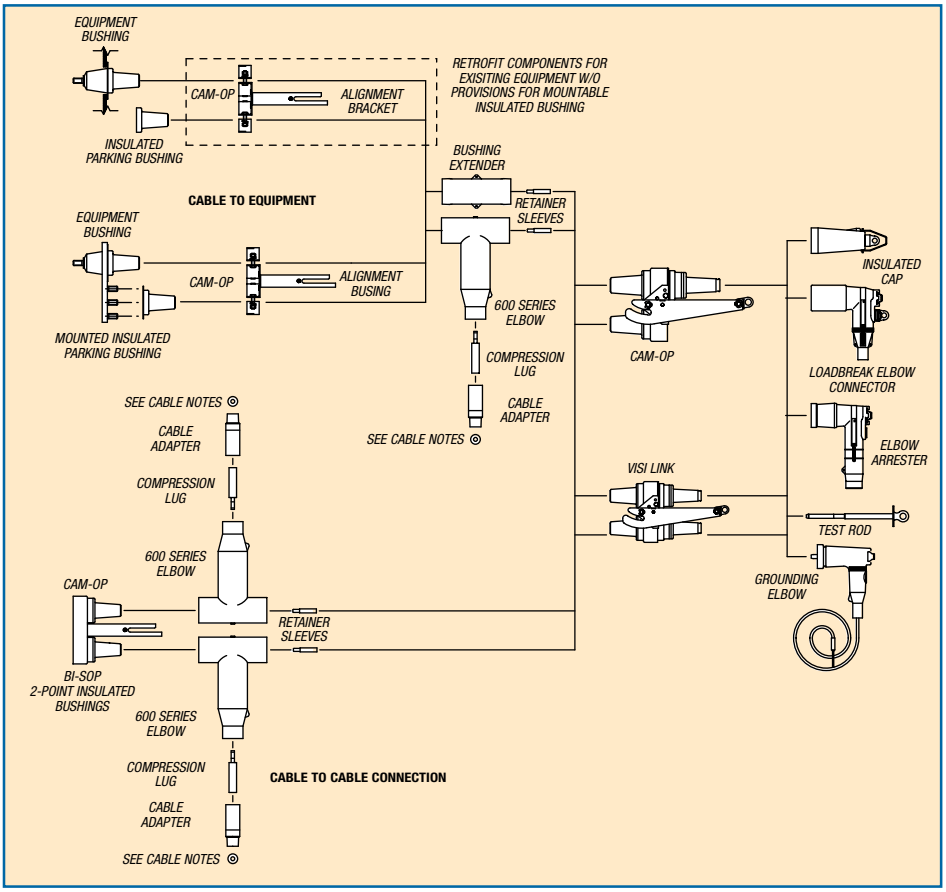
Continuous Voltage Ratings

15kV Class
8.3kV Phase-to-Ground
14.4kV Phase-to-Phase
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

25kV Class
15.2kV Phase-to-Ground
26.3kV Phase-to-Phase
125kV BIL
40kV AC Withstand
78kV DC Withstand
19kV Corona Extinction

35kV Class
21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

Cam-Op™ System — 600 Series Deadbreak



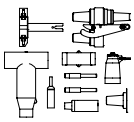
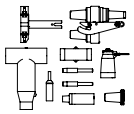
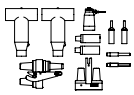
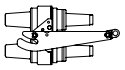
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600-Amp Elbow Connectors

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Cam-Op Connector Kit	15kV 25kV 35kV	**655LINK-C-LR-WOX-B-DRG** Use Tables W7 and X6 **K655LINK-C-LR-WOX-B-DRG** Use Tables W7 and X6 **755LINK-C-LR-WOX-B-DRG** Use Tables W9 and X6	N1, 2, 8, 10, 11, 12 N1, 2, 8, 10, 11, 12 N1, 2, 8, 10, 11, 12
	Mountable Insulated Bushing	25kV 35kV	**K650LBM-3** **750LBM-3**	N2 N2
	Retrofit Cam-Op Connector Kit	15kV 25kV 35kV	**655LINK-C-LR-WOX-A-DRG** Use Tables W7 and X6 **K655LINK-C-LR-WOX-A-DRG** Use Tables W7 and X6 **755LINK-C-LR-WOX-A-DRG** Use Tables W9 and X6	N4, 8, 10, 11, 12 N4, 8, 10, 11, 12 N4, 8, 10, 11, 12
	Insulating Plug	25kV 35kV	**K650LB** **750LB**	N3 N3
	Cam-Op Alignment Bracket	15kV 25kV 35kV	**650CAB** **K650CAB** **750CAB**	—
	Compression Lug	All	**03700X** Use Table X6 **03702X** Use Table X6	N5 N6
	Cam-Op Size Sensitive Kit (Cable Adapter & Lug)		**655CK-WOX** Use Tables W7 and X6 **755CK-WOX** Use Tables W9 and X6	N10 N10
	Cam-Op Retaining Sleeve	All	**650RSC**	N8
	Cam-Op Cable Joint Kit	15kV 25kV 35kV	**655BI-LINK-C-LR-WOX-DRG** Use Tables W7 and X6 **K655BI-LINK-C-LR-WOX-DRG** Use Tables W7 and X6 **755BI-LINK-C-LR-WOX-DRG** Use Tables W9 and X6	N7, 8, 10, 11, 12 N7, 8, 10, 11, 12 N7, 8, 10, 11, 12
	Cam-Op Loadbreak Reducing Tap Plugs (Visi-Break)	15kV 25kV 35kV	**650LK-C-VB** **K650LK-C-VB** **750LK-C-VB**	—
	Cam-Op Link	15kV 25kV 35kV	**650LK-C** **K650LK-C** **750LK-C**	—
	Grounding Elbow (1/0 AWG x 6' Ground Lead)	15kV 25kV 35kV	**160GLR** **370GLR** **370GLR**	 N 13 N 13
	Test Rod	All	**370TR**	—

N1. Cam-Op connector kit includes: (1) Cam-Op link; (1) elbow housing; (1) cable adapter; (1) 0370 style lug; (1) bushing extender; (2) retainer sleeves; (1) insulated cap; (1) mountable insulated bushing and (1) alignment bracket.

N2. Mountable insulated bushing included with Cam-Op connector kit. Requires three threaded studs on equipment faceplate for installation.

N3. Use with the Retrofit Cam-Op connector kit.

N4. Retrofit Cam-Op connector kit includes: (1) link; (1) elbow housing; (1) cable adapter; (1) 0370 style lug; (1) bushing extender; (2) retainer sleeves; (1) insulated cap; (1) insulating plug; and (1) alignment bracket.

N5. Aluminum lug for use on aluminum or copper conductors. DO NOT substitute threaded 03600X lug.

N6. Copper lug for use on COPPER CONDUCTOR ONLY. DO NOT substitute 03602X threaded lug.

N7. Cam-Op Cable Joint Kit includes: (1) Cam-Op link; (1) Cam-Op BI-SOP; (2) elbow housings; (2) cable adapters; (2) 0370 style lugs; (2) retainer sleeves; (1) insulated cap.

N8. 600ATM is recommended for installing Cam-Op retaining sleeves.

N9. For 900-amp ratings, substitute 675 for 650 and 655; 676 for 656; K675 for K650 and K655; K676 for K656; 775 for 750 and 755; 776 for 756 and 2X for 0X in the catalog number. The 900-amp rating requires copper current-carrying connector components and copper conductor cable.

N10. Add suffix symbol from **page H-38** to include cable shield grounding kit and/or cable jacket sealing kit.

N11. To add elbows or arresters instead of insulating caps, replace the "DRG" with "LR-WX" for elbows (with test point) or "ESA" for elbow arresters.

N12. 600 Series Elbows with IEEE 386 capacitive test points are available by substituting 656 for 655; K656 for K655; K676 for K675; 756 for 755; 676 for 675; K676 for K675 and 776 for 775 in the catalog number.

N13. Rated for both 25kV and 35kV applications.

Refer to the **W** and **X** tables on **page H-45** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page H-37.**

600-Amp Elbow Connectors

600 Series Test and Ground and Stick-Op™ — Deadbreak Connector Systems

Elastimold's 600 Series Test and Ground and Stick-Op™ deadbreak connector systems incorporate provisions for hotstick operation of de-energized primary feeder or network circuits.

The Test and Ground and Stick-Op connectors allow direct testing and grounding with no required cable movement.

Test and Ground is ideal for equipment applications which include viewing windows to provide an internal visible break that does not require hotstick removal of the elbows.

Stick-Op provides an external visible break by hotstick removal of the elbow.

Test and Ground and Stick-Op connectors are bolted and installed using torque-controlled tools.



Ratings Overview

See **page H-2** for complete information.

Current Ratings

600 & 900-amp Continuous

25kA sym., 10 cycles

Note: *900-amp ratings require copper cable and copper current-carrying components.*

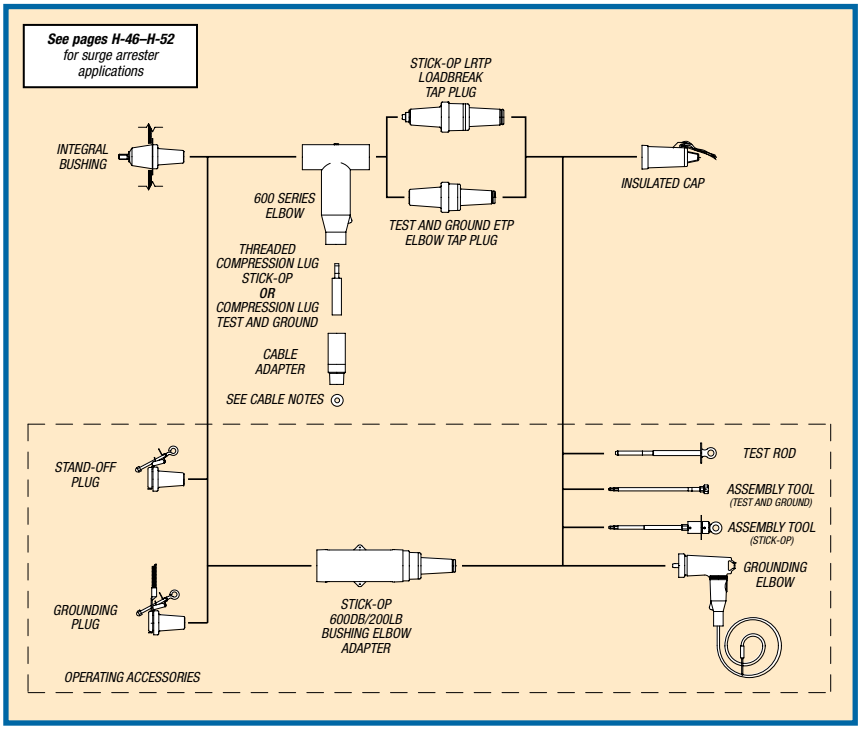
Continuous Voltage Ratings

15kV Class
8.3kV Phase-to-Ground
14.4kV Phase-to-Phase
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

25kV Class
15.2kV Phase-to-Ground
26.3kV Phase-to-Phase
125kV BIL
40kV AC Withstand
78kV DC Withstand
19kV Corona Extinction

35kV Class
21.1kV Phase-to-Ground
36.6kV Phase-to-Phase
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction

Stick-Op™ & Test and Ground System — 600 Series Deadbreak



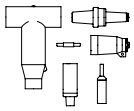
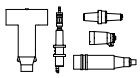
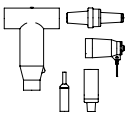
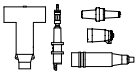
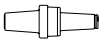
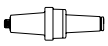
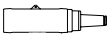
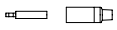
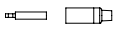
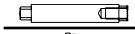
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600-Amp Elbow Connectors

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Test and Ground Connector Kit	15kV 25kV 35kV	**655ETP-W0X-DRG** Use Tables W7 and X6 **K655ETP-W0X-DRG** Use Tables W7 and X6 **755ETP-W0X-DRG** Use Tables W9 and X6	N1, 4, 5, 6, 11, 13
	Test and Ground Replacement Connector Kit	15kV 25kV	**655RETP** **K655RETP**	N4, 5, 6, 11, 13, 14
	Stick-Op Connector Kit	15kV 25kV 35kV	**655LRTP-W0X-DRG** Use Tables W7 and X6 **K655LRTP-W0X-DRG** Use Tables W7 and X6 **755LRTP-W0X-DRG** Use Tables W9 and X6	N2, 3, 4, 5, 8, 11
	Stick-Op Replacement Connector Kit	15kV 25kV	**655RLRTP** **K655RLRTP**	N3, 4, 5, 8, 11, 14
	Test and Ground Loadbreak Elbow Tap Plug	15kV 25kV 35kV	**650ETP** **K650ETP** **750ETP**	N4, 13 N4, 13 N4, 13
	Stick-Op Loadbreak Reducing Tap Plug	15kV 25kV 35kV	**650LRTPA3** **K650LRTPA2** **750LRTPA2**	N3, 4
	Stick-Op Bushing Adapter	15kV 25kV 35kV	**655BEA3** **K655BEA2** **755BEA2**	N3, 4
	Compression Lug Test and Ground	All All	**03700X** Use Tables X6 **03702X** Use Tables X6	N6 N7
	Threaded Compression Lug Stick-Op	All All	**03600X** Use Tables X6 **03602X** Use Tables X6	N8, 15 N9
	Test and Ground Size Sensitive Kit (Cable Adapter & Lug)	15/25kV 35kV	**655CK-W0X** Use Tables W7 and X6 **755CK-W0X** Use Tables W9 and X6	N5 N5
	Stick-Op Size Sensitive Kit (Cable Adapter & Threaded Lug)	15/25kV 35kV	**655TCK-W0X** Use Tables W7 and X6 **755TCK-W0X** Use Tables W9 and X6	N5 N5
	Extraction Tool	All	**650ET**	N10
	Grounding Elbow (1/0 AWG x 6' Ground Lead)	15kV 25kV 35kV	**160GLR** **370GLR** **370GLR**	 N12 N12
	Test Rod	All	**370TR**	—
	Assembly Tool (Stick-Op)	All	**600AT**	N3
	Assembly Tool (Test and Ground)	All	**600ATM**	N13

N1. Test and Ground Kit includes: insulated cap; Test and Ground reducing tap plug; 600 Series elbow housing; cable adapter; and 0370 style compression lug.

N2. Stick-Op Kit includes insulated cap; Stick-Op Loadbreak reducing tap plug; 600 Series Elbow Housing; cable adapter; and threaded 0360 style compression lug.

N3. 600AT assembly tool required for operation and/or installation of Stick-Op.

N4. For 900-amp ratings, substitute 675 for 650 and 655; 676 for 656; K675 for K650 and K655; K676 for K656; 775 for 750 and 755; 776 for 756 and 2X for 0X in the catalog number. The 900-amp rating requires copper current-carrying connector components and copper conductor cable.

N5. Add suffix symbol from **page H-38** to include cable shield grounding kit and/or cable jacket sealing kit.

N6. Aluminum lug for use on aluminum or copper conductors. DO NOT substitute threaded 03600X lug.

N7. Copper lug for use on COPPER CONDUCTOR ONLY. DO NOT substitute 03602X threaded lug.

N8. Threaded aluminum lug (Stick-Op only) for use on copper or aluminum conductors. DO NOT substitute unthreaded 03700X lugs. DO NOT use with 675, 676, K675, K676, 775 or 776 catalog numbers.

N9. Threaded copper lug (Stick-Op only) for use on copper conductors only. DO NOT substitute unthreaded 03702X lugs.

N10. Required to disassemble Stick-Op loadbreak reducing tap plug from the threaded compression lug and 600 Series elbow after the shear-pin is broken during assembly.

N11. 600 Series Elbows with IEEE 386 capacitive test points are available by substituting 656 for 655; K656 for K655; K676 for K675; 756 for 755; 676 for 675; K676 for K675 and 776 for 775 in the catalog number.

N12. Rated for both 25kV and 35kV applications.

N13. 600ATM assembly tool required for Test and Ground assembly. 50–60 ft./lbs. torque wrench required but not included.

N14. Replacement Elbow includes: insulated cap; reducing tap plug; 600 series elbow housing; I-Adapter; straight receptacle, resulting in a net gain of 20" in length vs. a standard elbow kit. Compression lugs and cable adapters are ordered separately.

N15. Retrofit sleeve to convert 03600X Series lug to a 03700X Series lug (catalog number 650-353).

Refer to the **W** and **X** tables on **page H-45** for sizing to cable insulation diameter and conductor size.For cable shield adapters and jacket seals, see **page H-37**.

ComboT Integral Separable Connectors

ComboT provides the shortest elbow stack height and the most reliable assembly in the industry.

ComboT Integral Separable Connectors





ComboT CETP installed.



ComboT CCP installed.

The Shortest Stack Height in the Industry — Works In Smaller Cabinets and Installs in Tighter Spaces



- **Shortest Stack Height** — Each combination elbow/connecting plug reduces stack height 2.67"
- **Eliminates Blind Assembly** — Simple connection system, reduces the chance of cross threading and is easier to line up and install
- **Fewer Interfaces and Reduced Inventory** — Combination elbow/reducing taps, connecting and bushing well plugs
- **Installs with Your Standard Assembly Tools** — Unique conductive component and uses standard 600 or 900 Series stud
- **Ensures Proper Installation Torque** — Internal hex broach
- **IEEE 386 Color-Coded PBT Interfaces** — Red for 15kV reducing tap and blue for 25kV reducing tap; provide better visibility and seating indication, plus reduces sticking
- **25kV Reducing Tap with Vents** — Prevents partial-vacuum flashover









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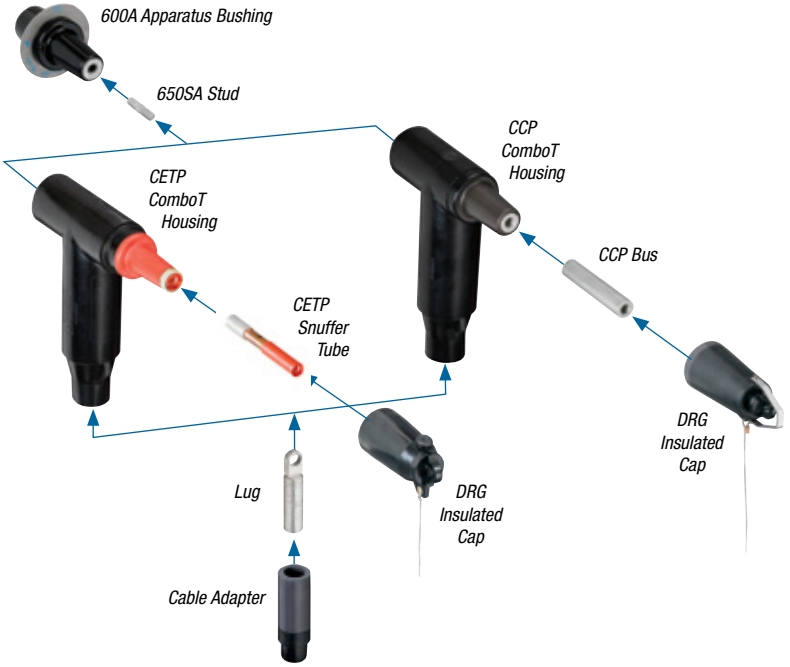
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ComboT Integral Separable Connectors

Ratings

Simple Design, Simple Assembly

The 15kV CETP and 15/25kV CCP simple design makes assembly quick and easy, utilizing a standard ⅝"–11 stud that is threaded into the equipment bushing. The hollow bore of the ComboT allows visual validation that the compression lug is positioned properly before the snuffer/bus is inserted and tightened. If preferred, the stud may be first threaded into the snuffer/bus. Again, the hollow bore of the ComboT allows visual validation that the compression lug is correctly positioned before proceeding. This is all accomplished with the same parts in a ComboT kit. There is no need to choose "Male Fastener" or "Female Fastener" when ordering.



RATINGS	DEADBREAK WITH LOADBREAK REDUCING TAP							
BASE CATALOG SERIES SERIES	655/656CETP SERIES 600A DEADBREAK		675/676CETP SERIES 900A DEADBREAK		K655/K656CETP SERIES 600A DEADBREAK		K675/K676CETP SERIES 900A DEADBREAK	
Voltage Class	15kV		15kV		25kV		25kV	
Max. Phase-to-Ground Operating Voltage	8.3kV		8.3kV		15.2kV		15.2kV	
Max. Phase-to-Phase Operating Voltage	14.4kV		14.4kV		26.3kV		26.3kV	
BIL — Impulse Withstand (1.2 x 50 microsecond wave)	95kV		95kV		125kV		125kV	
AC — One-Minute Withstand Voltage	34kV		34kV		40kV		40kV	
DC — Fifteen-Minute Withstand Voltage	53kV		53kV		78kV		78kV	
Corona Extinction Level @ 3.0 pC Sensitivity	11kV		11kV		19kV		19kV	
INTERFACE/CONNECTION	**600A DB**	**200A LB**	**900A DB**	**200A LB**	**600A DB**	**200A LB**	**900A DB**	**200A LB**
Continuous Current	600A	200A	900A	200A	600A	200A	900A	200A
Loadmake/Loadbreak Switching Current	N/A	200A	N/A	200A	N/A	200A	N/A	200A
Symmetrical Momentary Current — 10 Cycle	25kA	10kA	25kA	10kA	25kA	10kA	25kA	10kA
Symmetrical One-Time Fault Close Current — 10 Cycle	N/A	10kA	N/A	10kA	N/A	10kA	N/A	10kA
Symmetrical Momentary Current — 3 Second	10kA	3.5kA	10kA	3.5kA	10kA	3.5kA	10kA	3.5kA

RATINGS	DEADBREAK WITH CONNECTING PLUG		DEADBREAK WITH BUSHING WELL	
BASE CATALOG SERIES SERIES	K655K656 CCP SERIES 600A DEADBREAK	K675K676 CCP SERIES 900A DEADBREAK	K655K656 CBW SERIES 600A DEADBREAK	K675K676 CBW SERIES 900A DEADBREAK
Voltage Class	15/25/28kV	15/25/28kV	15/25/28kV	15/25/28kV
Max. Phase-to-Ground Operating Voltage	16.2kV	16.2kV	16.2kV	16.2kV
Max. Phase-to-Phase Operating Voltage	28.0kV	28.0kV	28.0kV	28.0kV
BIL — Impluse Withstand (1.2 x 50 microsecond wave)	140kV	140kV	140kV	140kV
AC — One-Minute Withstand Voltage	45kV	45kV	45kV	45kV
DC — Fifteen-Minute Withstand Voltage	84kV	84kV	84kV	84kV
Corona Extinction Level @ 3.0 pC Sensitivity	21.5kV	21.5kV	21.5kV	21.5kV
Continuous Current	600A	900A	600A	900A
Symmetrical Momentary Current — 10 Cycle	25kA	25kA	25kA	25kA
Symmetrical Momentary Current — 3 Second	10kA	10kA	10kA	10kA

ComboT Integral Separable Connectors

	KV CLASS	TEST POINT	CONTINUOUS CURRENT, AMPERES	CONNECTOR: UNIVERSAL ALUM, COPPER OR BI-METAL	BASIC COMBOT ELBOW WITH BUS AND STUD CAT. NO.	NOTES	KIT NOT TO SCALE
ComboT Elbow/ Reducing Tap Plug	15	No	600	U-AL	**655BCETP**	–	 (No Test Point; Aluminum Shown)
			900	CU	**675BCETP**	1	
			900	BM	**675BCETP**	1	
		Yes	600	U-AL	**656BCETP**	–	
			900	CU	**676BCETP**	1	
			900	BM	**676BCETP**	1	
ComboT Elbow/ Connecting Plug	15/25	No	600	U-AL	**K655BCCP**	–	 (No Test Point; Aluminum Shown)
			900	CU	**K675BCCP**	1	
			900	BM	**K675BCCP**	1	
		Yes	600	U-AL	**K656BCCP**	–	
			900	CU	**K676BCCP**	1	
			900	BM	**K676BCCP**	1	

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ComboT Integral Separable Connectors

COMBOT ELBOW WITH BUS, STUD, CABLE ADAPTER AND LUG KIT			COMBOT ELBOW WITH BUS, STUD, CABLE ADAPTER, LUG AND INSULATED CAP KIT		
CAT. NO.	NOTES	KIT NOT TO SCALE	CAT. NO.	NOTES	KIT NOT TO SCALE
655CETPW0X	2	 (No Test Point; Aluminum Shown)	655CETPW0XDRG	2	 (No Test Point; Aluminum Shown)
675CETPW2X	1, 2		675CETPW2XDRG	1, 2	
675CETPW5X	1, 2		675CETPW5XDRG	1, 2	
656CETPW0X	2		656CETPW0XDRG	2	
676CETPW2X	1, 2		676CETPW2XDRG	1, 2	
676CETPW5X	1, 2		676CETPW5XDRG	1	
K655CCPW0X	2	 (No Test Point; Aluminum Shown)	K655CCPW0XDRG	2	 (No Test Point; Aluminum Shown)
K675CCPW2X	1, 2		K675CCPW2XDRG	1, 2	
K675CCPW5X	1, 2		K675CCPW5XDRG	1, 2	
K656CCPW0X	2		K656CCPW0XDRG	2	
K676CCPW2X	1, 2		K676CCPW2XDRG	1, 2	
K676CCPW5X	1, 2		K676CCPW5XDRG	1, 2	

Notes: *1. 900 Amperes continuous is based on an all-copper system: bushing, stud, tongue of the lug, contact of the plug and a cable of equal rating.*
2. W and X vary with medium-voltage cable being used, with W based on the insulation diameter and X on the conductor size and construction.
See ***page H-22*** *for specifics.*

ComboT Integral Separable Connectors

Ordering Information

The following diagram shows how to construct a catalog number for a ComboT.

Indicates field that must be filled in to complete order.

				W		X		

Voltage Indicator

15kV CETP Only	(Blank)
25kV CETP Only	K
15/25kV	K

Insulating Cap

None	(Blank)
with Insulated Cap	DRG
with Bushing Well Plug	BWP

Continuous Current

600 Amp (Base Aluminum)	65
900 Amp (Copper)	67

Grounding and/or Sealing Kit

None	(Blank)
Shrink-Fit Jacket Seal Kit	S
Shrink-Fit Jacket Seal Kit with Copper Braid & Constant Force Spring	SG3

Capacitive Test Point Indicator

No Test Point	5
Includes Test Point	6

Connector Type

Universal Aluminum	0
Copper	2
Copper/Aluminum Bi-Metal	5

Connector Sizing

TABLE X

AWG OR KCMIL		MM²	X
STRANDED/ COMPRESSED	SOLID/ COMPACT	COMPACT ONLY	CODE
—	2	25	210
2	1	35	220
1	1/0	50	230
1/0	2/0	—	240
2/0	3/0	70	250
3/0	4/0	95	260
4/0	250	125	270
250	300	—	280
300	350	150	290
350	400	185	300
400	450	240	310
450	500	—	320
500	600	300	330
650	750	400	360
750	900	—	380
900	1000	500	400
1000	—	—	410
—	1250	630	420
1250	—	—	440

Kit Type

Basic ComboT Elbow Reducing Tap Plug with Stud	BCETP
ComboT Elbow Reducing Tap Plug with Stud, Cable Adapter, Lug and Insulated Cap Kit	CETP
Basic ComboT Connecting Plug with Stud	BCCP
ComboT Connecting Plug with Stud, Cable Adapter and Lug Kit	CCP
Basic ComboT Bushing Well with Stud	BCBW
ComboT Bushing Well with Stud, Cable Adapter and Lug Kit	CBW

Cable Adapter Sizing

TABLE W
CABLE INSULATION DIA. RANGE

INCHES		MM		SYMBOL FOR W
MIN.	MAX.	MIN.	MAX.	
.640	.820	16.3	20.8	F
.760	.950	19.3	24.1	G
.850	1.050	21.6	26.7	H
.980	1.180	24.9	30.0	J
1.090	1.310	27.7	33.3	K
1.180	1.465	30.0	37.2	L
1.280	1.430	32.5	36.3	LM
1.370	1.630	34.8	41.4	M
1.515	1.780	38.5	45.2	N
1.725	1.935	43.8	49.1	P

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600 Series Separable Cable Joints

600 Series Separable Cable Joints are available in 2-, 3- and 4-way versions and include a capacitive test point as standard. Units are interchangeable, featuring bolted connections. Designs are compact and ideally suited for small vaults and manholes.

De-energized joints can be quickly and easily connected and disconnected using standard hand tools and equipment in accordance with accepted operating practices. Bus bars can be changed to add or remove cables from the joint.

Optional accessories include insulating and grounding caps and plugs which allow visible external separation, bypass, isolation, dead-ending, grounding and testing.



Ratings Overview

See **page H-2** for complete information.

Current Ratings

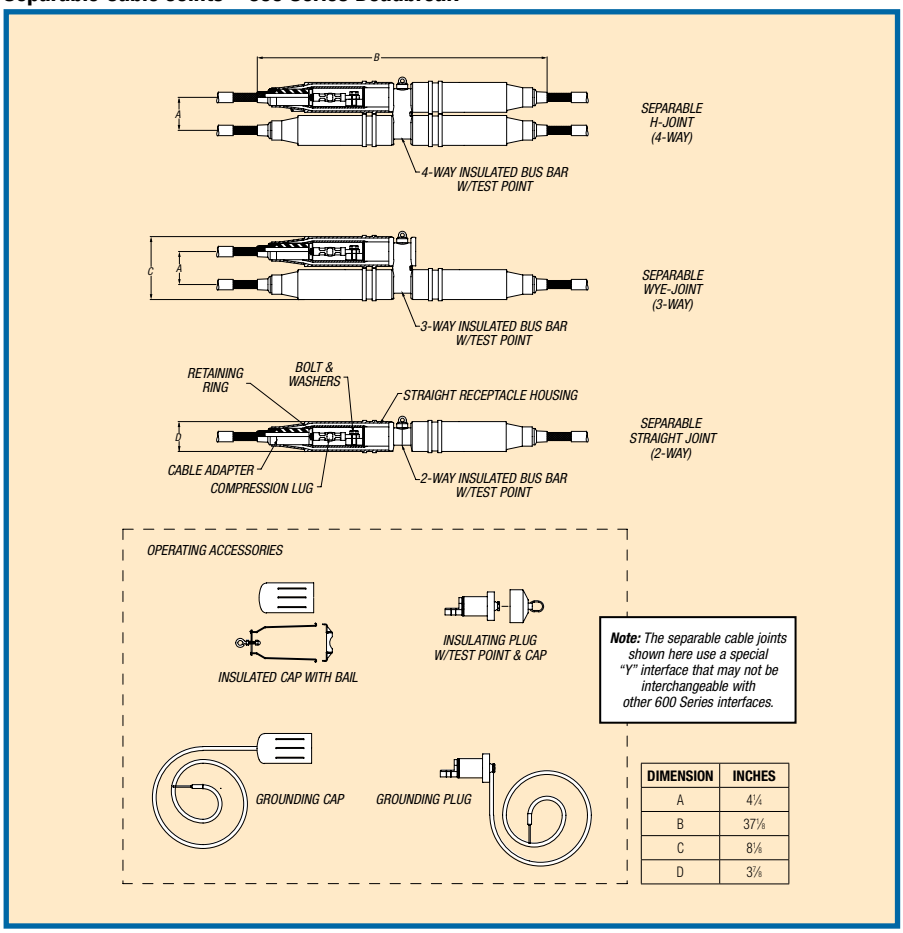
(Prefixes: 650, K650, K655, K656 & 03700)
600 Amp Continuous
25kA sym., 10 cycles

Voltage Ratings

15/25kV Class (5kV thru 28kV)
16.2kV Phase-to-Ground
28kV Phase-to-Phase
140kV BIL
45kV AC Withstand
84kV DC Withstand
21.5kV Corona Extinction

Note: *Elastimold has increased the IEEE Standard Production and Design Test levels for 25kV Class products to include 27kV and 28kV systems.*

Separable Cable Joints – 600 Series Deadbreak



600-Amp Separable Cable Joints

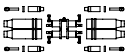
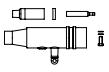
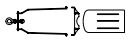
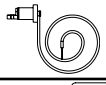
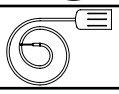
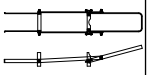
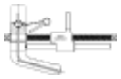
ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Separable Straight Joint Pkg. (2-Way) w/ Test Point	15/25kV	**K656I-W0X** Use Tables W7 and X6	N1, 8
	Basic Housing Pkg. Straight Joint w/ Test Point	15/25kV	**K656I-HP**	N2
	Separable Wye Joint Pkg. (3-Way) w/ Test Point	15/25kV	**K656CY-W0X** Use Tables W7 and X6	N1, 8
	Basic Housing Pkg. Wye Joint w/ Test point	15/25kV	**K656CY-HP**	N2
	Separable "H" Joint Pkg. (4-Way) w/ Test Point	15/25kV	**K656CH-W0X** Use Tables W7 and X6	N1, 8
	Basic Housing Pkg. "H" Joint w/ Test Point	15/25kV	**K656CH-HP**	N2
	2-Way Insulated Bus Bar w/Test Point	15/25kV	**K656I-BUS**	N3
	3-Way Insulated Bus Bar w/Test Point	15/25kV	**K656CY-BUS**	N3
	4-Way Insulated Bus Bar w/Test Point	15/25kV	**K656CH-BUS**	N3
	Straight Receptacle	15/25kV	**K655YSR-W0X** Use Tables W7 and X6	N4, 8
	Direct Test Straight Receptacle Elbow	15/25kV	**K655YDSR-W0X** Use Tables W7 and X6	N4, 8, 11
	Direct Test Straight Receptacle Elbow w/ Test Point	15/25kV	**K656YDSR-W0X** Use Tables W7 and X6	N4, 8, 11
	Straight Receptacle Housing Only	15/25kV	**K655YBSR**	N5, 10
	Insulated Cap w/ Bail	15/25kV	**K655YDR**	
	Bail Only	15/25kV	**650BA**	
	Cable Adapter	15/25kV	**655CA-W** Use Table W7	
	Adapter Retaining Ring	15/25kV	**650ARR-X**	
	Compression Lug	15/25kV 15/25kV	**03700X** **03702X** Use Table X6	N7 N9

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	600 Series Straight Receptacle Size Sensitive Kit (Cable Adapter, Retaining Ring & Lug)	15/25kV	**655CK-W0X-ARR** Use Tables W7 and X6	N8
	Insulating Plug w/ Test Point & Cap	15/25kV	**K650YBIP**	
	Grounding Plug (4/0 AWG x 6' Ground Lead)	15/25kV	**650YGP**	
	Grounding Cap (4/0 AWG x 6' Ground Lead)	15/25kV	**650GYDR**	
	Stainless Steel Bolt & Washers	15/25kV	**650BAW**	
	Assembly/ Disassembly Tool	All	**600YADT-1**	N6
	Assembly/ Disassembly Tool	All	**600RRT**	N6

N1. Complete Joint Packages consisting of: insulated bus bar, straight receptacle housings, retaining rings, cable size adapters, lugs, bolts and washers.

N2. Housing Packages consisting of the following non-size sensitive components of the joint: insulated bus bar, straight receptacle housings, bolts and washers.

N3. Insulated bus bar only.

N4. Straight Receptacle consisting of: straight receptacle housing, retaining ring, cable adapter, lug, bolt and washers.

N5. Straight receptacle housing consisting of: straight receptacle housing, bolt and washers.

N6. Recommended for ease of assembly/disassembly of receptacles to Bus. 600YADT-1 is lever drive and 600RRT is screw drive.

N7. Aluminum lug for use on aluminum or copper conductors. DO NOT substitute threaded 03600X lug.

N8. Add suffix symbol from **page H-38** to include cable shield grounding kit and/or cable jacket sealing kit.

N9. Copper lug for use with COPPER CONDUCTOR ONLY. DO NOT substitute threaded 03602X lug.

N10. Available without the bolt and washers by adding "N" to the part number.

N11. Direct Test Connectors, along with a 200TC-X series meter adapter, a properly rated voltage meter and Hot-line Stick, provides a means for direct conductor voltage testing. See **page H-11** for meter adapters.

Refer to the **W** and **X** tables on **page H-45** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page H-37.**

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Molded Multi-Point Junctions

Elastimold multi-point junctions are available in 2-, 3-, 4-, 5- or 6-point configurations with 15, 25/28 or 35kV ratings. Units feature modular design flexibility, allowing selection of any combination of 200-amp deepwell or 600-amp bushing interfaces located on standard 4" or optional 6½" centers. The 6½" center spacing is especially well suited for Distributed Switchgear applications, including fused elbow, MVI fault interrupter, MVS switch, etc.

Designs incorporate lightweight, damage-resistant, EPDM molded rubber construction and corrosion-resistant 304 stainless steel mounting brackets. Junctions are maintenance free, fully shielded, deadfront and submersible. Units are ideally suited for subsurface, padmount, indoor and outdoor vault applications.

Elastimold multi-point junctions provide a convenient method for connecting, looping and tapping of 200- and 600-amp elbows and other accessories at a common location where utilization of space, cable training,flexibility and operability are important.



J6-622226-25



J6-662266-25-SV

Ratings Overview

See **page H-2** for complete information

Current Ratings

600 Amp Continuous
25kA sym., 10 cycles

or with 200-amp Bushing Well versions

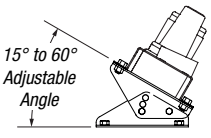
200 Amp Continuous
10kA sym., 10 cycles

Voltage Ratings

15kV Class
8.3kV Phase-to-Ground
95kV BIL
34kV AC Withstand
53kV DC Withstand
11kV Corona Extinction

25/28kV Class
16.2kV Phase-to-Ground
140kV BIL
45kV AC Withstand
84kV DC Withstand
21.5kV Corona Extinction

35kV Class
21.1kV Phase-to-Ground
150kV BIL
50kV AC Withstand
103kV DC Withstand
26kV Corona Extinction



Optional Tilt Mounting Adapter

Dimensional Information

Figure 1: Multi–Point Junctions with 4" Interface Spacings.

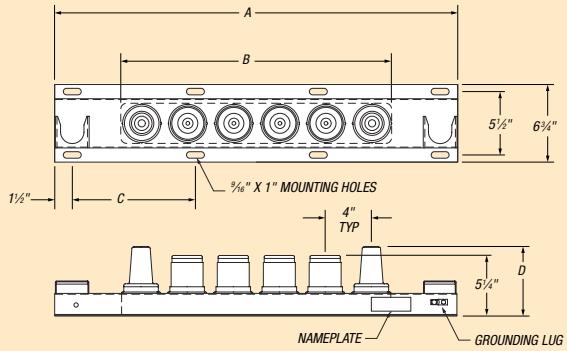
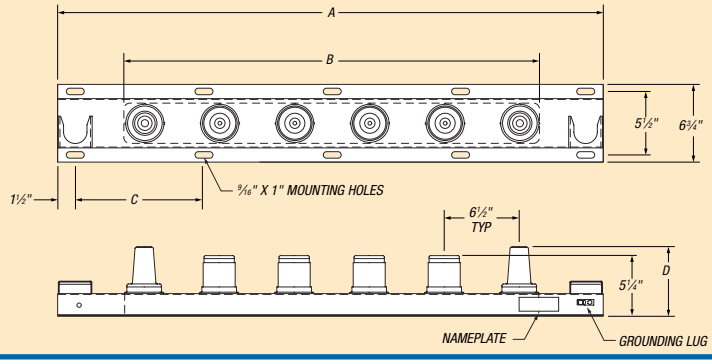


Figure 2: Multi–Point Junctions with 6½" Interface Spacings.



TYPE OF JUNCTION	FIGURE 1 A	FIGURE 1 B	FIGURE 1 C	FIGURE 1 NUMBER OF MOUNTING HOLES	FIGURE 2 A	FIGURE 2 B	FIGURE 2 C	FIGURE 2 NUMBER OF MOUNTING HOLES
J2	15"	7½"	6"	6	19½"	10"	8¼"	6
J3	19"	11½"	8"	6	26"	16½"	11½"	6
J4	24"	15½"	10"	6	32½"	23"	9¼"	8
J5	27"	19½"	12"	6	39"	29½"	12"	8
J6	31"	23½"	9⅜"	8	45½"	36"	8¼"	10

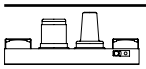
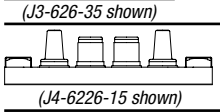
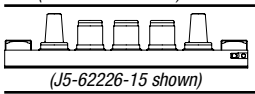
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Multi-Point Junctions

Elastimold multi-point junctions feature modular design flexibility that permits the specifier to determine the positions of the bushing interfaces and bushing well positions.

Base Catalog Numbers

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO. 4" SPACING	CAT. NO. 6½" SPACING	NOTES
 *(J2-26-15 shown)*	2-Point Junction	15kV	J2 - __ __ - 15	J2 - __ __ - 15-SV	N1, 2
		25/28kV	J2 - __ __ - 25	J2 - __ __ - 25-SV	
		35kV	J2 - __ __ - 35	J2 - __ __ - 35-SV	
 *(J3-626-35 shown)*	3-Point Junction	15kV	J3 - __ __ __ - 15	J3 - __ __ __ - 15-SV	N1, 2
		25/28kV	J3 - __ __ __ - 25	J3 - __ __ __ - 25-SV	
		35kV	J3 - __ __ __ - 35	J3 - __ __ __ - 35-SV	
 *(J4-6226-15 shown)*	4-Point Junction	15kV	J4 - __ __ __ __ - 15	J4 - __ __ __ __ - 15-SV	N1, 2
		25/28kV	J4 - __ __ __ __ - 25	J4 - __ __ __ __ - 25-SV	
		35kV	J4 - __ __ __ __ - 35	J4 - __ __ __ __ - 35-SV	
 *(J5-62226-15 shown)*	5-Point Junction	15kV	J5 - __ __ __ __ __ - 15	J5 - __ __ __ __ __ - 15-SV	N1, 2
		25/28kV	J5 - __ __ __ __ __ - 25	J5 - __ __ __ __ __ - 25-SV	
		35kV	J5 - __ __ __ __ __ - 35	J5 - __ __ __ __ __ - 35-SV	
 *(J6-622226-15 shown)*	6-Point Junction	15kV	J6 - __ __ __ __ __ __ - 15	J6 - __ __ __ __ __ __ - 15-SV	N1, 2
		25/28kV	J6 - __ __ __ __ __ __ - 25	J6 - __ __ __ __ __ __ - 25-SV	
		35kV	J6 - __ __ __ __ __ __ - 35	J6 - __ __ __ __ __ __ - 35-SV	
 *(J5-66666-35C shown)*	5-Point Junction	25/28kV	J5 - 66666 - 25C	N/A	N2, 3
		35kV	J5 - 66666 - 35C		
 *(J6-666666-35C shown)*	6-Point Junction	25/28kV	J6 - 666666 - 25C	N/A	N2, 3
		35kV	J6 - 666666 - 35C		

Ordering Information

To specify and order Elastimold Multi-Point Junctions:

1. Use Table 1 to construct a catalog number describing the required junction.

Table 1. Catalog Number Construction

J - [ ] [ ] [ ] [ ] [ ] [ ] - [ ] [ ] - [ ] [ ] - [ ] [ ] [ ]

Multi-Point Junction

Number of Points	
2	2 Points
3	3 Points
4	4 Points
5	5 Points
6	6 Points

Interface Identification * and Positioning	
2	200-Amp Deepwell Interface
6	600-Amp Bushing Interface
B	Blank Position

Voltage Class	
15	15kV
25	25/28kV
35	35kV

Interface Spacing	
Blank	Standard spacing – 4" centers
SV	Optional 6½" centers

Options	
Blank	No tilt mounting
TMA	Tilt Mounting Adapter. Bolts to the bottom of the standard mounting bracket to provide 15, 30, 45 or 60 degree adjustable angle mounting. (Two Tilt Mounting Adapters are required for each installation.)
L	Left parking stand
R	Right parking stand
N	No parking stand

When there is a 200-Amp Interface on one side of the junction and a 600 Series interface on the other side, always start with the 200-amp side.

Ordering Example A

To order a 4-point, 15kV junction with 4" spacings and 600 Series interfaces on the outside ways and 200-amp wells on the inside ways, specify Catalog Number J4-6226-15.

Ordering Example B

To order a 6-point, 25/28kV junction with 6½" spacings and 600 Series interfaces on the ways 1, 3, 4, 6 and 200-amp wells on the ways 2 and 5, specify Catalog Number J6-626626-25-SV.

N1. The 6½" wide spacing is necessary if the junction is to be used to connect with a single-phase MVS Molded Vacuum Switch or MVI Molded Vacuum Interrupter.

N2. Also available with a shorter bracket by reducing the number of parking stands; see R, L, N in Options.

N3. Copper conductor for 900-amp rating.

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PCJ™ Power Cable Joints

PCJ™ Power Cable Joints utilize permanently crimped connectors. PCJ housings are fully insulated, shielded and sealed for direct-burial, vault, submersible and other severe service applications. Units have been designed and tested per IEEE Standard 404 to ensure system matched performance and ratings equal to the cable to which the splice will be installed.

PCJ™ Power Cable Joints are available in two styles:

Style 1 uses a single-piece housing that is sized to accommodate a specific range of cable. Style 1 units are ideally suited for straight splicing of the same or similar cable.

Style 2 designs incorporate a universal housing with separate cable adapters to allow transition splices of different types and sizes of cable.

Style 1



Style 2



Electrical Ratings Summary

The follow ratings summary is based on **IEEE 404** and applies to all Elastimold PCJ Power Cable Joints.

Voltage

A. 15kV Class (8.7kV Phase-to-Ground)
B. 25kV Class (14.4kV Phase-to-Ground)
C. 35kV Class (20.2kV Phase-to-Ground)

- **Impulse Withstand:** A = 110kV, B = 150kV, C = 200kV BIL, 1.2 x 50 microsecond wave
- **Corona Extinction Voltage:** A = 13kV, B = 22kV, C = 30kV minimum, 3pC sensitivity
- **DC Withstand:** During installation, A = 56kV, B = 80kV, C = 100kV
- **DC Withstand:** After installation and in service for the first 5 years, A = 18kV, B = 25kV, C = 31kV for XLPE Insulated Cables and A = 45kV, B = 64kV, C = 80kV for EPR Insulated Cables (reference AEIC CS6 and CS8, Section L.2)

Current

- Continuous rating equal to the rating of the cable
- Short-Time rating equal to the rating of the cable up to 35kA

Shield Design

- Meets IEEE 592 for Exposed Semiconducting Shields on Premolded High Voltage Cable Joints and Separable Insulated Connectors

Production tests include 100% tests of the premolded joints to ensure:

- **Corona Extinction Voltage:** A = 13kV, B = 22kV, C = 30kV minimum, 3pC sensitivity
- **AC Withstand:** A = 35kV, B = 52kV, C = 69kV, 60 Hz, 1 minute

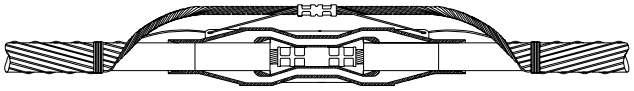
Design tests on production joints demonstrate compliance with IEEE 404 including:

- **Corona Extinction Voltage:** A = 13.0kV, B = 22.0kV, C = 30.0kV minimum, 3pC sensitivity
- **AC Withstand:** A = 35kV, B = 52kV, C = 69kV, 60 Hz 1 minute
- **DC Withstand:** A = 75kV, B = 105kV, C = 140kV negative polarity, 15 minutes
- **Impulse Withstand (BIL):** A = 110kV, B = 150kV, C = 200kV, 10 positive and 10 negative, 1.2 x 50 microsecond wave, at conductor temperatures of 20° and 130° C, nominal
- **Short-Time Current:** Magnitude equal to cable up to 35kA
- **Cyclic Aging:** 30 days at A = 26kV, B = 43kV, C = 61kV AC continuous, load current for 8 hours per day, providing 130° C conductor temperature; joints then subjected to A = 31kV, B = 50kV, C = 71kV for 5 hours followed by A = 39kV, B = 65kV, C = 91kV for 5 min
- **Load Cycle:** Connectors meet requirements of ANSI C119.4, Class A and Class 3 ratings

Permanent Distribution Cable Joints

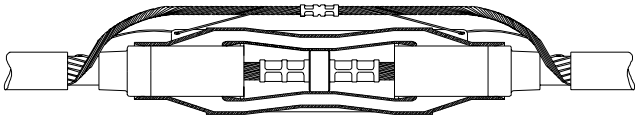
PCJ Style 1

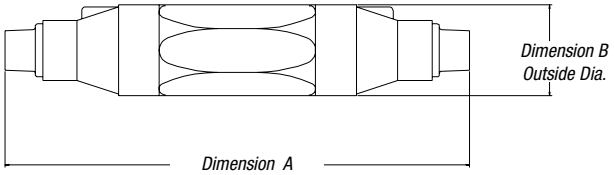
with single-piece housing



PCJ Style 2

with universal housing and separate cable adapters that can be varied with the cable application





Ordering Information

	P	C	J		W	1	X

Power

Voltage Class

15	15kV
25	25kV
35	35kV

Cable

Joint

Style

1	Style 1
2	Style 2

Insulation Diameter

W Sizing information and selection
Use Table W8 for 15 PCJ
Use Table W9 for 25 PCJ
Use Table W10 for 35 PCJ

Conductor

1	Aluminum
2	Copper

Conductor Size Code

X Sizing information and selection N3
Use Table X7 for 15 PCJ
Use Table X7 for 25 PCJ
Use Table X7 for 35 PCJ

Dimensional Data

STYLE 1 CAT. NO.	A INCHES	B INCHES
15PCJ1FX	10¼	1¾
15PCJ1GX	10¼	1¾
25PCJ1GX	14⅜	2 7/16
15/25/35PCJ1HX	14⅜	2 7/16
15/25/35PCJ1JX	14⅜	2 7/16
15/25/35PCJ1KX	14⅜	2 25/32
15/25/35PCJ1LX	14⅜	2 25/32
15/25PCJ1LMX	14⅜	2 25/32
15/25/35PCJ1MX	14⅜	2 25/32
15/25/35PCJ1NX	15¾	3 3/16
15/25/35PCJ1PX	15¾	3 3/16
15/25/35PCJ1QX	15¾	3 3/16

STYLE 2 CAT. NO.	A INCHES	B INCHES
15PCJ2FX	16⅜	2 25/32
15/25PCJ2GX	16⅜	2 25/32
15/25/35PCJ2HX	16⅜	2 25/32
15/25/35PCJ2JX	16⅜	2 25/32
15/25/35PCJ2KX	21	3¾
15/25/35PCJ2LX	21	3¾
15/25/35PCJ2MX	21	3¾
15/25/35PCJ2NX	21	3¾
15/25/35PCJ2PX	21	3¾
15/25/35PCJ2QX	21	3¾

DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
Power Cable Joint Style 1	15kV	**15PCJ1W1X**	N1
	15kV	**15PCJ1W2X**	N2
	25kV	**25PCJ1W1X**	N1
	25kV	**25PCJ1W2X**	N2
	35kV	**35PCJ1W1X**	N1
	35kV	**35PCJ1W2X**	N2
Power Cable Joint Style 2	15kV	**15PCJ2W1X**	N1
	15kV	**15PCJ2W2X**	N2
	25kV	**25PCJ2W1X**	N1
	25kV	**25PCJ2W2X**	N2
	35kV	**35PCJ2W1X**	N1
	35kV	**35PCJ2W2X**	N2

N1. Kit includes aluminum compression connector suitable for splicing aluminum conductor to aluminum conductor or aluminum conductor to copper conductor. An all-copper connector is required for copper-to-copper connections.

N2. Kit includes copper compression connector suitable for splicing copper conductors to copper conductor only. DO NOT use copper connectors on aluminum conductors.

N3. When constructing a catalog number for a transition (two different-size cables) joint, list the larger connector first and the smaller connector second.

Refer to the **W** and **X** tables on **page H-45** for sizing to cable insulation diameter and conductor size. For cable shield adapters and jacket seals, see **page H-37**.

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Distribution Shrink-Fit Terminations

Elastimold® Ranger2® Terminations

- Silicone polymer housing provides superior memory and weathering characteristics
- Shrink-fit housing uses common installation procedures and cable preparation dimensions, and field-removable center core allows for easy installation
- Three different shed designs for superior weathering:
  - Four sheds for 15kV outdoor model
  - Six sheds for 25/28kV outdoor model
  - Eight sheds for 35kV outdoor model
- Three sizes cover entire cable range from #2 AWG to 1250 kcmil
- Units accommodate popular XLP and EPR cable types and various shield constructions
- Integral Hi-K Voltage stress-control tube provides uniform voltage grading over the length of the termination and eliminates damaging voltage stress concentrations at the cable insulation shield edge
- Thick wall construction securely maintains critical interface pressure for consistent long-term reliability and performance
- Pull-down tabs for easy installation of built-in jacket seal — accomodate CN, JCN, Tape, Wire or LC shielded cable construction
- Lightweight, compact design installs in restricted spaces and permits application where free hanging is desired
- Dark gray molded silicone insulator utilizes specially formulated silicone materials with improved UV stability, track, erosion and weather resistance for enhanced performance under the worst environmental conditions
- Optional connectors with copper stem and one-hole or two-hole spade
- Optional cable and support bracket with three sizes ranging from .80"–2.40" O.D.

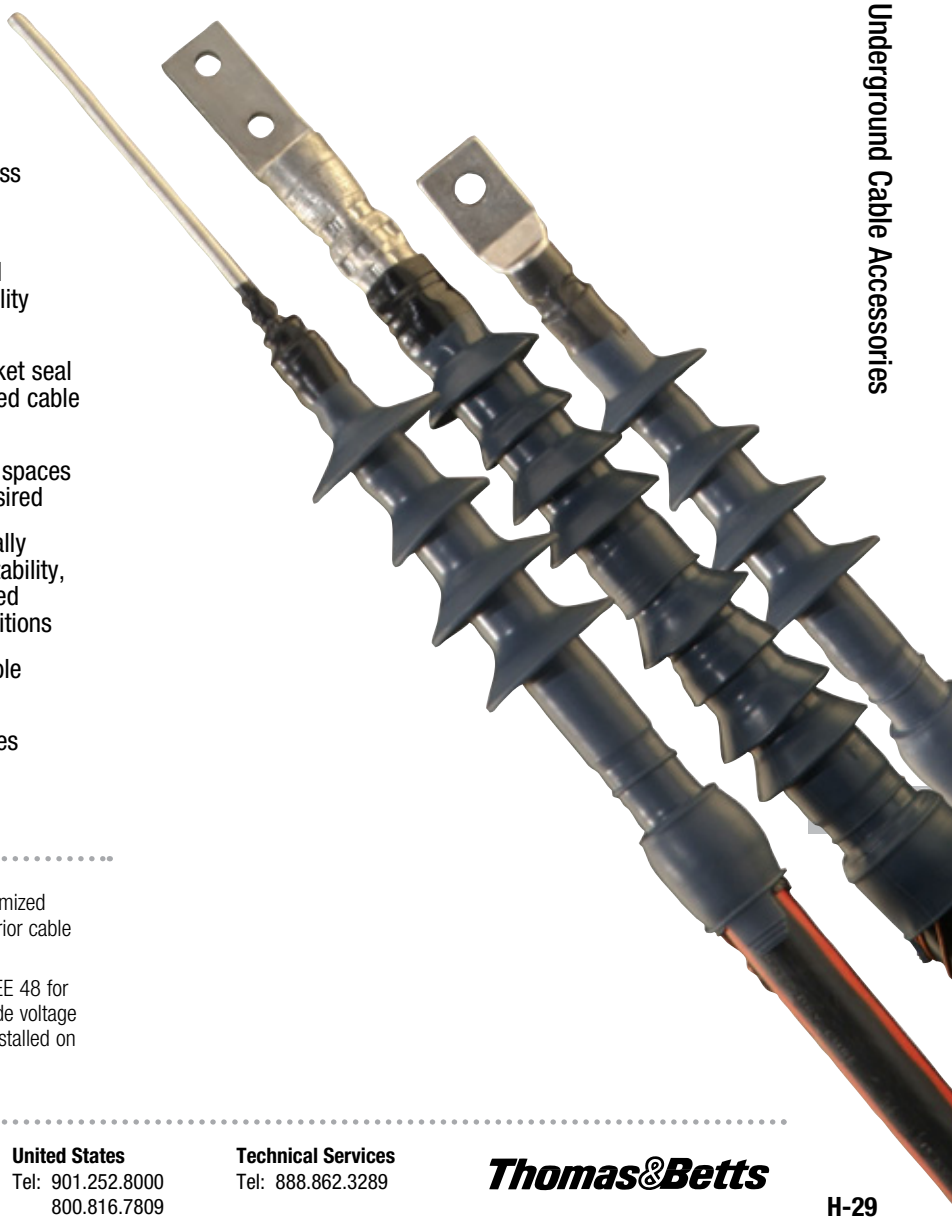
Silicone Polymer Housings

The R2T and R2IT terminations are manufactured using an optimized weather-resistant silicone formulation. The housing offers superior cable sealing and voltage withstand characteristics.

Elastimold® terminations meet or exceed all requirements of IEEE 48 for Class 1 outdoor or Class 2 indoor terminations. Unit tests include voltage withstand wet and dry, before and after load cycling on units installed on maximum conductor sized cable.

Kit Contents

Every R2T and R2IT comes complete with housing and stress tube preassembled on the core, ready for installation. Easy-to-read installation instructions will take you from cable preparation through installation. All kits include a tube of silicone grease, two plastic gloves and two strips of self-fusing silicone tape. Outdoor kits also include mastic for sealing. Metallic Tape (M) kits include a grounding adapter for Tape Shield, Wire Shield and UniShield cables. LC Shield (L) kitsinclude a high-ampacity grounding adapter for Longitudinally Corrugated Shield, Tape Shield and Wire over Tape Shield cables.



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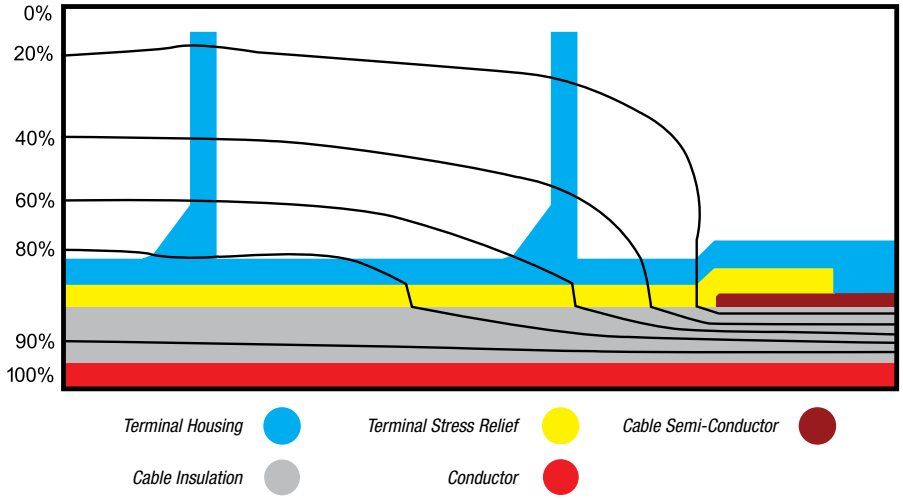
Distribution Shrink-Fit Terminations

Stress Relief

The R2T and R2IT terminations provide electric stress control for the cable by means of a flexible tube with a high-permittivity dielectric constant.

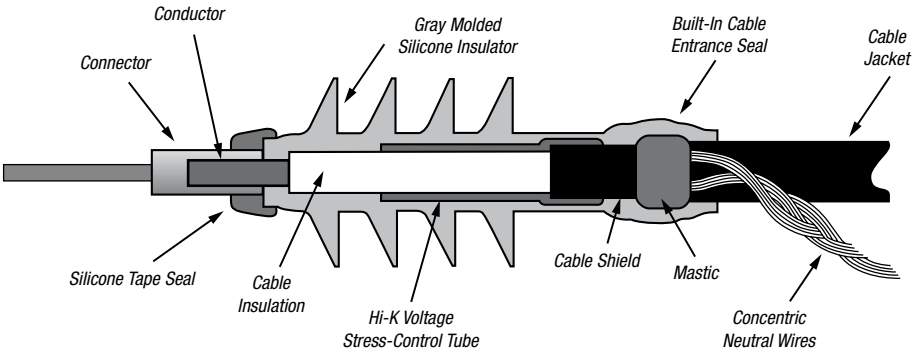
The stress-relief tube is preassembled on the core under the polymer housing. As the core is removed, the stress-relief tube and housing shrink onto the cable at the same time, in exactly the right position. No secondary operations are required during installation. The electrical fields are refracted through the high-dielectric constant tube and housing as shown.

Voltage Stress



Installation

Standard cable preparation techniques are used for all R2T Elastimold® Ranger2® Outdoor Terminations and R2IT Elastimold® Ranger2® Indoor Terminations. The Elastimold® shrink-fit terminations are assembled on a removable core. After the termination is placed onto the prepared cable, the core is removed by pulling on the end. The housing then collapses onto the prepared cable. Memory of the material provides the interface solid dielectric and sealing properties required to meet the electrical ratings and prevent the ingress of moisture.



Certified

Elastimold® Ranger2® Terminations have been designed and tested per applicable portions of ANSI, IEEE, AEIC, ICEA and other industry standards.

IEEE 48

Standard for indoor and outdoor cable terminations.

ANSI C119.4

Standard for cable connectors for aluminum and copper conductors.

AEIC CS8-06 & ANSI/ICEA S-94-649-2004 & S-97-682-2000

Standards for XLP and EPR insulated cables.

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Distribution Shrink-Fit Terminations

Ratings

	R2IT15 INDOOR	R2T15 OUTDOOR	R2T28 OUTDOOR	R2T35 OUTDOOR
Sizes Available*	1, 2, 4	1, 2, 4	2, 4	2, 4
Voltage Rating (kV)	15	15	25/28	35
Max. Design Voltage to Ground (kV)	9.5	9.5	16	22
Corona Extinction Voltage (kV) (≤3 p.c.) (Partial Discharge)	13	13	22	30
Insulation Withstand Voltage:				
Lightning Impulse (BIL Dry 110 Withstand) (kV Crest)	110	110	150	200
10 Sec. Wet (60 Hz) (kV)	—	45	60	80
1 Minute Dry (60 Hz) (kV)	50	50	65	90
5 Hour Dry (60 Hz) (kV)	35	35	55	75
DC Withstand 15 Min. Dry (kV)	75	75	105	140

Application Information

IEEE 48 Classification	Outdoor = Class 1A, Indoor = Class 2
Ambient Temperature Range	-30° C to 65° C
Power System Frequency	48 to 62 Hz
Altitude Range	3,300 feet max.
Mounting	Free hanging or optional bracket

Dimensions

	R2IT15 INDOOR	R2T15 OUTDOOR	R2T28 OUTDOOR	R2T35 OUTDOOR
Sizes Available*	1, 2, 4	1, 2, 4	2, 4	2, 4
Voltage Rating (kV)	15	15	25/28	35
Number of Sheds	0	4	6	8
Minimum Strike Distance in. (mm)	8.4 (213)	11.6 (295)	14.5 (368)	16.8 (427)
Creepage Distance in. (mm)	8.4 (213)	15.0 (381)	22.8 (579)	30.0 (762)

** See **page H-32** for cable insulation diameter ranges.*

Distribution Shrink-Fit Terminations

Ranger2® Terminations

The R2T and R2IT termination design couples shrink-fit technology and Elastimold's pull-down jacket seal feature to provide a termination line that covers the widest range of applications with the fewest number of models. Three sizes cover .64" (16mm) to 2.10" (53mm) insulation diameter cables (#2 AWG through 1250 kcmil).

The R2T housings are designed for maximum performance in all field conditions with superior creepage and strike distances for long-term service. Insulating silicone sleeves are also available when more creepage is required or when wildlife protection is needed to insulate the connectors. Contact your Thomas & Betts Sales Representative for further information.

Ranger2® Terminations Base Catalog Numbers

	KV CLASS	TYPE	CABLE RANGE (INSULATION DIAMETER)		CAT. NO.		
			INCHES	MM	CONCENTRIC NEUTRAL & JACKETED CONCENTRIC NEUTRAL CABLE	TAPE SHIELD, WIRE SHIELD & UNISHIELD CABLE	LC SHIELD, WIRE OVER TAPE SHIELD & TAPE SHIELD CABLE
	15	Indoor	.64 to 1.12	16.3 to 28.4	R2IT15J1	R2IT15M1	R2IT15L1
			.84 to 1.38	21.3 to 35.1	R2IT15J2	R2IT15M2	R2IT15L2
			1.30 to 2.10	33.0 to 53.3	R2IT15J4	R2IT15M4	R2IT15L4
	15	Outdoor	.64 to 1.12	16.3 to 28.4	R2T15J1	R2T15M1	R2T15L1
			.84 to 1.38	21.3 to 35.1	R2T15J2	R2T15M2	R2T15L2
			1.30 to 2.10	33.0 to 53.3	R2T15J4	R2T15M4	R2T15L4
	25/28	Outdoor	.84 to 1.38	20.3 to 35.1	R2T28J2	R2T28M2	R2T28L2
			1.30 to 2.10	33.0 to 53.3	R2T28J4	R2T28M4	R2T28L4
	35	Outdoor	.84 to 1.38	20.03 to 35.1	R2T35J2	R2T35M2	R2T35L2
			1.30 to 2.10	33.0 to 53.3	R2T35J4	R2T35M4	R2T35L4

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Distribution Shrink-Fit Terminations

Ranger2® Termination Connector Options

	TYPE	MATERIAL	CONDUCTOR	CONDUCTOR SIZE	CONNECTOR PREFIX*
	Stem Compression Connector	Aluminum	Aluminum or Copper	#2 through 4/0 (34–107mm²)	T0
		Aluminum	Aluminum Only	#2 through 4/0 (34–107mm²)	T1
	One-Hole Spade Connector	Tinned Aluminum	Aluminum or Copper	#2 through 500 kcmil (34–253mm²)	H0
	Two-Hole Spade Connector	Tinned Aluminum	Aluminum or Copper	#2 through 1250 kcmil (34–633mm²)	N0
		Tinned Copper	Copper	#2 through 1250 kcmil (34–633mm²)	N2

** See **page H-34** for Conductor Code.*

Optional Cable Support Brackets

Ranger2® Terminations are compact, lightweight and frequently allow use of free-hanging mounting methods. Optional cable support brackets are available if required.

	TYPE	CABLE RANGE (OVERALL O.D.)	PLATED MILD STEEL		STAINLESS STEEL	
			CAT. NO.	SUFFIX NUMBER	CAT. NO.	SUFFIX NUMBER
	Single Clamp	.80"–1.25" (20–32mm)	**JB-1**	B1	**JB-5**	B5
	Single Clamp	1.10"–1.50" (28–38mm)	**JB-2**	B2	**JB-6**	B6
	Double Clamp	1.45"–1.95" (37–50mm)	**JB-3**	B3	**JB-7**	B7
	Double Clamp	1.80"–2.40" (45–61mm)	**JB-4**	B4	**JB-8**	B8

Add-on Grounding Kits

Convert a jacketed concentric neutral "J" kit to an "M" or "L" shield kit.

	CAT. NO.	TYPE	SIZE	USE WITH SERIES
	**GMA**	Tape Shield/Wire Shield/UniShield	A	R2IT15J1, R2IT15J2, R2T15J1, R2T15J2, R2T28J2, R2T35J2
	GMB	Tape Shield/Wire Shield/UniShield	B	R2IT15J4, R2T15J4, R2T28J4, R2T35J4
	**GLA**	LC Shield/Wire over Tape Shield	A	R2IT15J1, R2IT15J2, R2T15J1, R2T15J2, R2T28J2, R2T35J2
	GLB	LC Shield/Wire over Tape Shield	B	R2IT15J4, R2T15J4, R2T28J4, R2T35J4

Distribution Shrink-Fit Terminations

Ordering Information for Ranger2® Terminations

Ranger2® Terminations may be ordered in components or as complete kits by following the steps outlined and using the model below to develop the catalog number for your application. Contact your local Thomas & Betts Sales Representative for special requirements.

The following diagram shows how to construct a catalog number for a Ranger2® Termination.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

Connector Option

Cable Support Bracket Option

Step 1. Select the Termination Housing:	Step 2. Select the Connector:	Step 3. Select the Cable Support Bracket:
A Select Outdoor or Indoor (15kV only) housing style	**E** Select desired connector	**G** Select cable support bracket based on the overall O.D. of the cable
B Select applicable voltage class	**F** Select connector code based on conductor size and conductor type	
C Select neutral/shield type		
D Select the size based on the cable insulation diameter*		

Housing Only — *Add a Connector* — *Add a Cable Support Bracket*

[ ] [ ] [ ] [ ] - [ ] [ ] - [ ]

Type	
R2T	Outdoor
R2IT*	Indoor

kV Code	
15	15kV
28	25/28kV
35	35kV

Cable Mounting Bracket Material		
PMS	**SS**	**Size**
B1	**B5**	.80"–1.25" (20–32mm)
B2	**B6**	1.10"–1.50" (28–38mm)
B3	**B7**	1.45"–1.95" (37–50mm)
B4	**B8**	1.80"–2.40" (45–61mm)

Cable Type	
J	Concentric Neutral/Jacketed Concentric Neutral
M	Tape Shield/Wire Shield/ UniShield
L	LC Shield Tape Shield/ Wire Over Tape Shield

Insulation Range	
1	.64"–1.12" (16mm–28mm) (15kV only)
2	.84"–1.38" (21mm–35mm) (15kV, 25kV, 35kV)
4	1.30"–2.10" (33mm–53mm) (15kV, 25kV, 35kV)

Connector Type	
T0	Universal Aluminum Barrel for AL or CU Conductor w/ Copper Wire Lead #2–4/0
T1	Aluminum Barrel for AL Conductor Only w/Copper Wire Lead #2–4/0
H0	Aluminum 1-Hole Spade #2–500 kcmil
N0	Aluminum 2-Hole Spade #2–1250 kcmil
N2	Copper 2-Hole Spade #2–1250 kcmil

Conductor Code	Standard or Compressed	Compact or Solid
210	—	#2
220	#2	#1
230	#1	1/0
240	1/0	2/0
250	2/0	3/0
260	3/0	4/0
270	4/0	250
280	250	300
290	300	350
300	350	400
310	400	500
330	500	600
360	650	750
380	750	900
400	900	1000
410	1000	—
420	—	1250
440	1250	—

Connector Only

** To help in selecting the proper terminator, ICEA and AEIC standard dimensions for XLP and EPR cables are on* ***page H-42.***

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Typical Installation of Elastimold Shrink-Fit Terminations (R2T — Outdoor and R2IT — Indoor)



1. Train the cable into position and cut to length. Using standard practices, cut back the cable jacket, metallic shield, semi-conductive shield and cable insulation, exposing the conductor.

2. Finish preparing the metallic shield. For concentric neutral or jacketed concentric neutral cables, bend back the neutral wires and seal with mastic strips and vinyl tape. *For metallic tape, drain wire, UniShield or LC Shield cables: install the ground braid using the constant force spring and seal with mastic strips and vinyl tape.*

3. Clean the exposed conductor, install and crimp the connector.

4. Use mastic and vinyl tape to fill any gap or step between the connector and the cable insulation. Clean the cable.



5. Apply a liberal bead of silicone lubricant to the semi-con shield step.



6. Pull the loose end of the core cord until the core is even with the end of the termination housing.



7. Position the terminator onto the cable.



8. Shrink into place by unwinding the removable core.





9. Apply silicone lubricant to skirt and mastic area.



10. Fold down the skirt over the mastic to seal the cable entrance.





11. Seal the top of the terminator at the connector area with silicone tape.



12. Attach the neutral wires or optional ground braid to the system ground per local code. Install the optional cable support bracket if required.

Pre-Molded Terminations

Cable Terminations

Elastimold Cable Terminations are available in a single-piece design. Terminators allow connection and transition from shielded, underground cable to bare overhead conductors and live-front equipment. Units are designed and rated per IEEE 48 for riser pole, padmount, indoor and outdoor applications. PCT1 and PCT2 terminators provide sufficient creep, strike and weather sealing for class 1 outdoor service. PCT1 and PCT2 also include an integral cable jacket seal.



Electrical Ratings Summary

The following ratings summary is based on IEEE Std. 48 and applies to all the terminations on page 24 thru 27. Elastimold terminations are designed for use on three-phase systems, either 3-wire or 4-wire and the single-phase laterals of these systems.

Voltage Ratings

15kV Class
9.5kV Phase-to-Ground
110kV BIL 1.2 x 50 microsecond wave
AC Withstand:
50kV 1 min. – dry
35kV 6 hr. – dry
45kV 10 sec. – wet
13kV Corona Extinction

25kV Class
16kV Phase-to-Ground
150kV BIL 1.2 x 50 microsecond wave
AC Withstand:
65kV 1 min. – dry
55kV 6 hr. – dry
60kV 10 sec. – wet
21.5kV Corona Extinction

Terminations

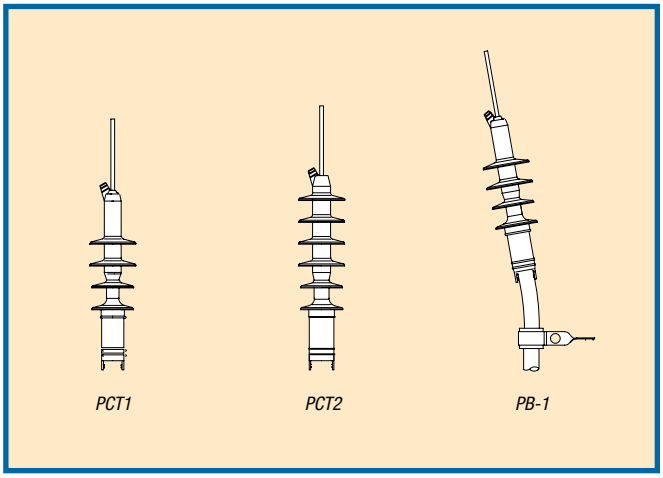
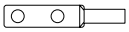


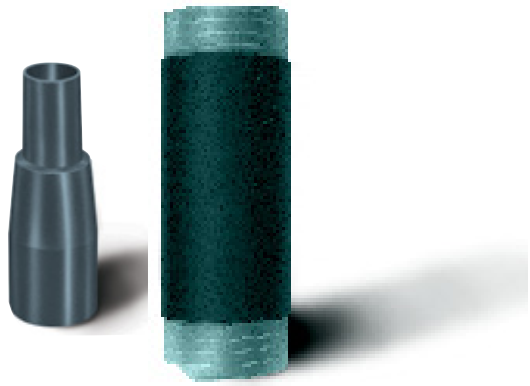
ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	NOTES
	Single-Piece Terminator (Class 1)	15kV 25kV	**PCT1-1X-4** Use Table X9 **PCT2-1X-4** Use Table X9	N2, 3, 4, 5 N2, 3, 4, 6
	Housing only	15kV 25kV	**PCT1-4** **PCT2-4**	N5 N6
	Rod Contact for PCT	15/25kV	**00700X** Use Table X9	N1, 3, 4
	Two-Hole Spade for PCT	All	**01000X** Use Table X9	N1
	One-Hole Spade for PCT	All	**01100X** Use Table X9	N1
	PCT Positioning Bracket	All	**PB-1**	N1, 7

N1. Use with PCT1 or PCT2 Terminators.
N2. Includes rod contact as standard. Specify suffix "-3" in place of "-4" for two-hole spade lug. Specify suffix "-5" in place of "-4" for one-hole spade lug.
N3. Use 1X for an aluminum rod contact for aluminum conductors only.
N4. Substitute 0X for 1X for a universal aluminum rod contact for aluminum or copper conductors.
N5. Use for insulation dia. range from .640" thru 1.070".
N6. Use for insulation dia. range from .830" thru 1.180".
N7. Fits overall cable O.D. from .750" to 1.625".

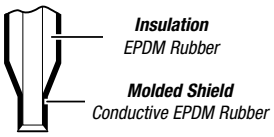
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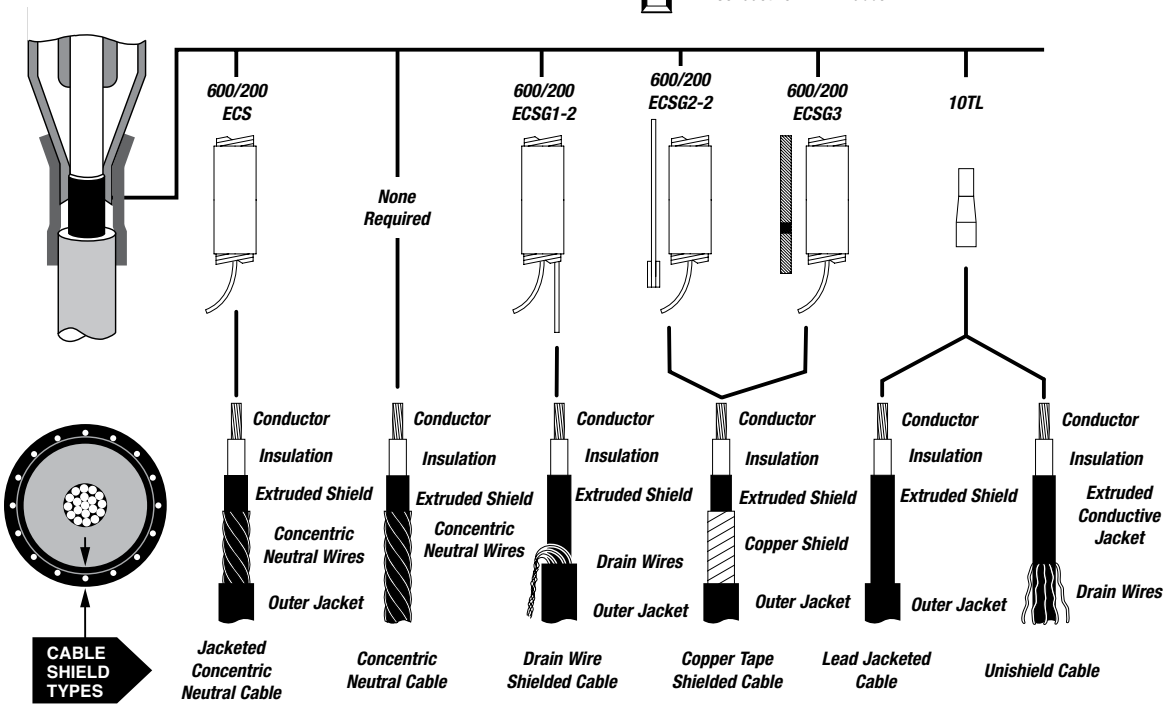
Cable Shield Adapters and Jacket Seals

Elastimold elbows, cable joints and terminators have been designed for use on XLP, EPR or similar solid dielectric insulated power cables. These cables are available with a variety of optional shielding and jacket constructions. In order to properly mate and install the cable to an Elastimold product, the use of a shield adapter, grounding kit or jacket seal may be required. The diagram below provides information concerning the application and selection of various shield adapters, grounding kits and jacket seals for the most popular cable types. Consult the factory for recommendations concerning other cable constructions.



Cable Entrance Detail

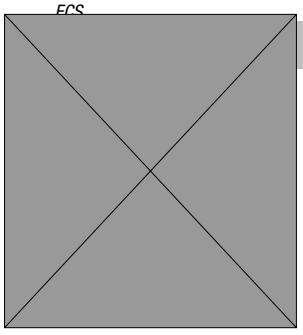




10TL



ECS



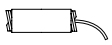
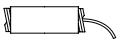
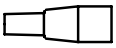
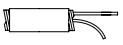
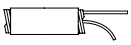
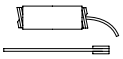
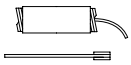
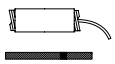
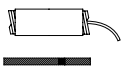
Cable Shield Adapters

CABLE INSULATION DIA.	10TL INCHES
Min.	.495
Max.	1.875

Jacket Seals

JACKET O.D.	200ECS INCHES	600ECS INCHES
Min.	.80	1.28
Max.	1.50	2.30

Cable Shield Adapters and Jacket Seals *(continued)*

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	CAT. NO.	SUFFIX	NOTES
	Cold-Shrinkable Jacket Seal	**200ECS**	-S	N1, 3
	Cold-Shrinkable Jacket Seal	**600ECS**	-S	N1, 4
	Shield Adapter	**10TL-W**	-TL	N1, 2
	Cold-Shrinkable Seal w/ Copper Rod & Crimp Connector	**200ECSG1-2**	-SG1	N1, 3, 5, 6
	Cold-Shrinkable Seal w/ Copper Rod & Crimp Connector	**600ECSG1-2**	-SG1	N1, 4, 5, 6
	Cold-Shrinkable Seal w/ Copper Rod & Constant Force Spring	**200ECSG2-2**	-SG2	N1, 3, 5, 6
	Cold-Shrinkable Seal w/ Copper Rod & Constant Force Spring	**600ECSG2-2**	-SG2	N1, 4, 5, 6
	Cold-Shrinkable Seal w/ Copper Braid & Constant Force Spring	**200ECSG3**	-SG3	N1, 3, 5, 7
	Cold-Shrinkable Seal w/ Copper Braid & Constant Force Spring	**600ECSG3**	-SG3	N1, 4, 5, 7

N1. To order the kits as separate items, use the catalog numbers shown in the table. Example: To order a cold-shrinkable tube as a separate item, use catalog number 200ECS.

To order the kits as components of other items, add the suffix to the end of the catalog number. Example: To order a cold-shrinkable jacket seal as a component of an elbow kit, use catalog number 166LR-A5200-S.

N2. Only use this suffix with catalog numbers that designate a "W" housing size. Sizing the main component will also size the suffix adapter.

N3. Size range .80" to 1.50" jacket diameters. Maximum installed diameter is approximately 2".

N4. Size range 1.28" to 2.30" jacket diameters. Maximum installed diameter is approx. 2.75".

N5. Voltage rating equal to Elastimold product being used.

N6. Copper rod size is No. 6 for sizes FA thru HA and No. 2 for sizes HAB thru JB.

N7. Braid is equivalent to No. 6 copper rod for sizes FA thru HA and No. 2 copper rod for sizes HAB thru JB.

10TL Insulation Sizing

INSULATION INCHES		
MIN.	MAX.	SYMBOL FOR W
.495	.585	EB
.525	.635	EF
.575	.585	FA
.625	.735	FAB
.675	.785	FB
.725	.835	FG
.775	.885	GA
.825	.935	GAB
.875	.985	GB
.930	1.040	GH
.980	1.115	HA
1.040	1.175	HAB
1.095	1.240	HB
1.160	1.305	HJ
1.220	1.375	JA
1.285	1.395	JAB
1.355	1.520	JB
1.485	1.595	KA
1.530	1.640	KAB
1.575	1.685	KB
1.755	1.875	PB

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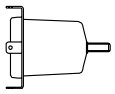
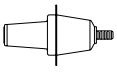
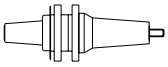
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Equipment Bushings

The Thomas & Betts Elastimold brand offers a complete line of 200-amp deepwell and 600 Series apparatus bushings for use on transformers, switchgear and other equipment applications. The bushings incorporate IEEE 386 standard interfaces (shown on **page H-3**) and are constructed of molded epoxy with stainless steel flanges for mounting by welding or gasketed clamp. Bushings are available for use on air, oil or SF6 insulated equipment. Units are rated for submersible, padmount, indoor, outdoor and other applications. Options include hold-down bail tabs and replaceable studs for 200-amp deepwell bushings.

ILLUSTRATION (NOT TO SCALE)	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	BUSHING SHANK LENGTH	NOTES
	Short Shank Well with Bail Tabs and Non-Replaceable Well Stud	15/25kV 35kV	**K1601PC-S1** **L1601PC-S1**	2¾"	N3, 7, 12
	Short Shank Well with Bail Tabs and with Replaceable Well Stud	15/25kV 35kV	**K1601PC-S1-R** **L1601PC-S1-R**	2¾"	N1, 3, 7, 12
	Short Shank Well without Bail Tabs and Non-Replaceable Well Stud	15/25kV 35kV	**K1601PC-S2** **L1601PC-S2**	2¾"	N3, 7, 12
	Short Shank Well without Bail Tabs and with Replaceable Well Stud	15/25kV 35kV	**K1601PC-S2-R** **L1601PC-S2-R**	2¾"	N1, 3, 7, 12
	Long Shank Well with Bail Tabs and Non-Replaceable Well Stud	15/25kV 35kV	**K1601PC-T1** **L1601PC-T1**	9¼"	N3, 7, 12
	Long Shank Well with Bail Tabs and with Replaceable Well Stud	15/25kV 35kV	**K1601PC-T1-R** **L1601PC-T1-R**	9¼"	N1, 3, 7, 12
	Long Shank Well without Bail Tabs and Non-Replaceable Well Stud	15/25kV 35kV	**K1601PC-T2** **L1601PC-T2**	9¼"	N3, 7, 12
	Long Shank Well without Bail Tabs and with Replaceable Well Stud	15/25kV 35kV	**K1601PC-T2-R** **L1601PC-T2-R**	9¼"	N1, 3, 7, 12
	200A Deadbreak Bushing 200A Deadbreak Bushing 200A Deadbreak Bushing	15/25kV 15/25kV 15/25kV	**K180S4** **K180T4** **K180C4**	2⁹⁄₁₆" 7¹¹⁄₃₂" 9¼"	N3, 8, 11
	600A Short Shank Bushing without/Stud 600A Short Shank Bushing without/Stud 600A Cu Short Shank Bushing without/Stud	15/25kV 35kV 15/25kV	**K650S1** **750S1** **K675S1**	2¹⁵⁄₁₆"	N2, 5, 9, 12, 13 N2, 5, 10, 12, 14 N3, 5, 9, 12, 13
	600A Long Shank Bushing without/Stud 600A Cu Long Shank Bushing without/Stud 600A Long Shank Bushing without/Stud 600A 12" Long Shank Bushing without/Stud	15/25kV 15/25kV 35kV 35kV	**K650T1** **K675T1** **750T1** **750L12**	8⁹⁄₁₆" 8⁹⁄₁₆" 8⁹⁄₁₆" 12"	N2, 5, 9, 12, 13 N3, 5, 9, 12, 13 N2, 5, 10, 12, 14 N2, 5, 10, 12, 14
	600A In-Air Long Shank Bushing without/Stud 600A Cu In-Air Long Shank Bush. with/Stud Boot & Collars for K600T1 to Use in Air	15/25kV 15/25kV 15/25kV	**K650TBC** **K675TBC** **600BC**	8⁹⁄₁₆"	N2, 4, 9, 6, 12 N3, 5, 9, 6, 12 N6

N1. Replacement stud available separately. Specify 1601RS.

N2. Equipped with standard aluminum conductor rod.

N3. Equipped with copper conductor rod.

N4. Includes ⅝-11 threaded stud at elbow end.

N5. Includes ⅝-11 threaded hole at elbow end.

N6. Provides increased creep and strike.

N7. Includes 1601PPC1 shipping cap.

N8. Includes 180PPC shipping cap.

N9. Includes 650PPC shipping cap.

N10. Includes 750PPC1 shipping cap.

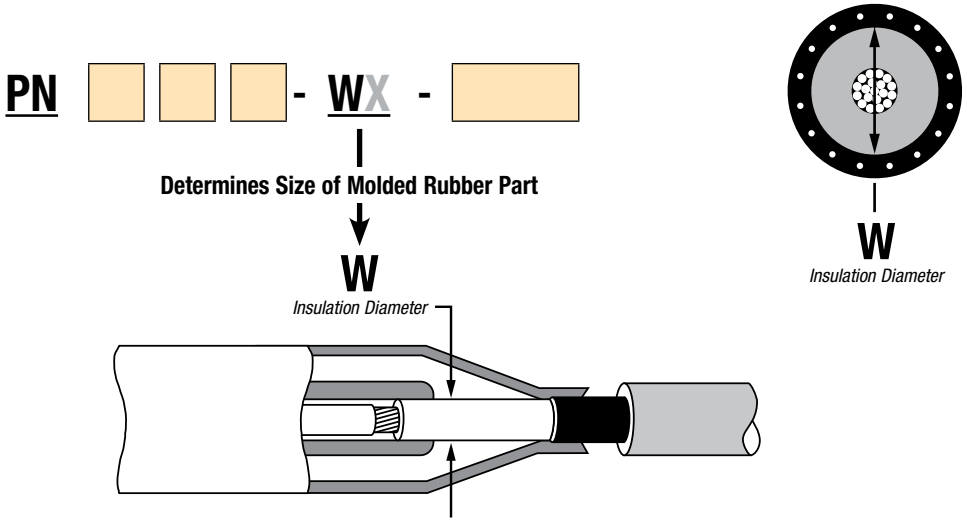
N11. Parking stands for 200A deadbreak applications are available as separate items. Specify 151PS.

N12. Parking stands for 200A loadbreak and 600A deadbreak applications are available as separate items. Specify 160PS.

N13. Aluminum stud available separately. Specify 650SA.

N14. Aluminum stud available separately. Specify 750SA.

How to Specify Size-Sensitive Products



Insulation Diameter Selection Guide

Elastimold elbows, cable joints and terminations are designed for application on XLP, EPR and other solid-dielectric insulated power cables. These components are constructed of molded elastomer and rely on an interference fit with the cable insulation diameter in order to maintain proper dielectric strength, creep path integrity and a water seal. Elastimold components are available in a wide range of sizes in order to accommodate a variety of cable insulation diameters.

Selection of size-sensitive components requires determining the cable insulation diameter. This can be done in several ways:

A. Refer to the cable manufacturer's spec sheet for dimensions.

B. Measure the cable.

C. If the cable conforms to AEIC or ICEA standards and is:

1. 15kV, 175-mil wall thickness, use the table on **page H-42**.
2. 15kV, 220-mil wall thickness, use the table on **page H-43**.
3. 25kV, 260-mil wall thickness, use the table on **page H-43**.
4. 35kV, 345-mil wall thickness, use the table on **page H-44**.

After the cable insulation diameter minimum and maximum have been determined:

1. Locate the W table indicated in the catalog number selection chart.
2. Complete the ordering information by selecting and inserting the symbol (given in the W table) into the catalog number.

Ordering Examples

AEIC

To complete the information required to order a K655LR-W0X elbow for use on standard AEIC 1000 kcmil compressed stranding aluminum 25kV cable with .260-inch-thick insulation wall:

A. Determine that the insulation diameter (for AEIC cable in the table on **pages H-42–H-44**) is 1.645 – 1.770 inches.

B. For this elbow, the catalog number selection chart on **page H-11** indicates to use Table W7 for elbow sizing and Table X6 for connector sizing.

C. From Table W7, the symbol for W is **N**.

D. From Table X6, the symbol for X is **410**.

E. The completed catalog number therefore is K655LR-**N0410**.

ICEA

To complete the information required to order a K655LR-W0X elbow for use on standard ICEA 1000 kcmil compressed stranding aluminum 25kV cable with .260-inch-thick insulation wall:

A. Determine that the insulation diameter (for ICEA cable in the table on **pages H-42–H-44**) is 1.645 – 1.740 inches.

B. For this elbow, the catalog number selection chart on **page H-11** indicates to use Table W7 for elbow sizing and Table X6 for connector sizing.

C. From Table W7, the symbol for W is **N**.

D. From Table X6, the symbol for X is **410**.

E. The completed catalog number therefore is K655LR-**N0410**.

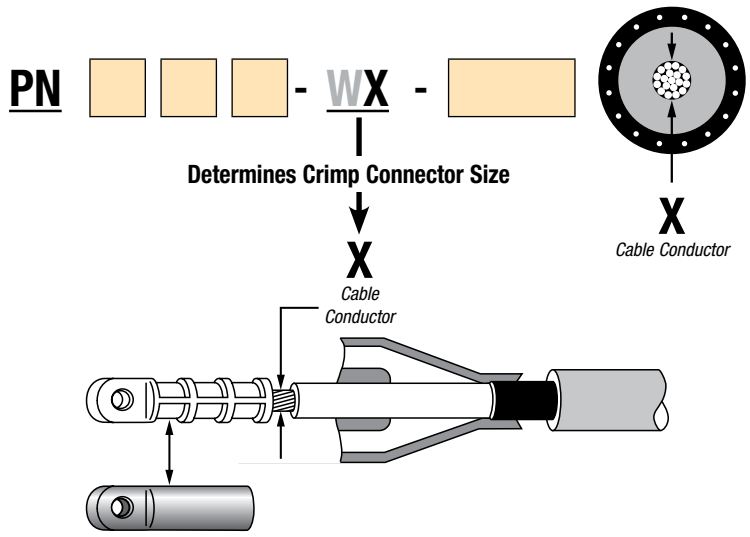
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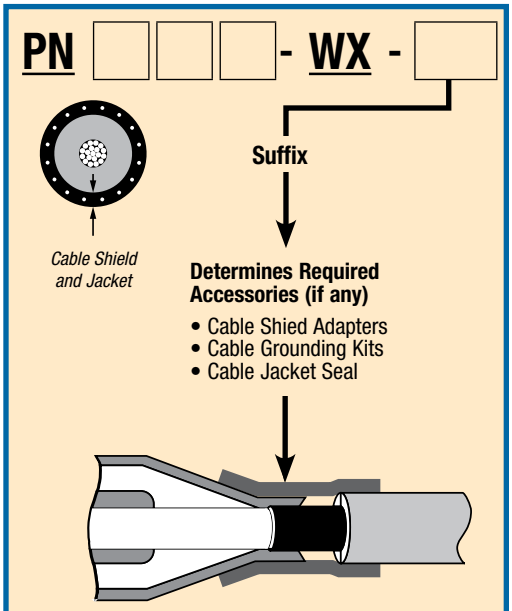
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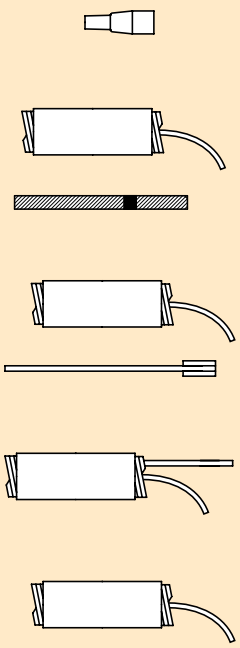
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Medium-Voltage Cable Accessories Technical Information





Reference pages H-37–H-38 for application, selection and ordering information.



Connector Selection Guide

Elastimold elbows, cable joints and terminations are furnished with crimp-style cable connectors. As standard, these connectors are constructed with a tin-plated aluminum barrel filled with an oxide inhibitor. Most aluminum barrel connectors are universal and are designed for use on either aluminum or copper conductor cable.

When specified, all copper crimp-style connectors can be furnished. These connectors are only for use on copper conductor cable and are not for use with aluminum conductor cables. Bi-metallic connectors are constructed with a copper top and an aluminum barrel. Bi-metal connectors can be used on either aluminum or copper conductor cable and are furnished as standard with 200-Amp Loadbreak Elbows and 200-Amp Deadbreak Elbows. PCT and R2T terminators are furnished with rod connectors.

Aluminum connectors used in PCJ Cable Joints are rated as follows:

- Aluminum conductor to aluminum conductor, cable rated
- Aluminum conductor to copper conductor, cable rated equal to the aluminum cable

Copper connectors used in PCJ Cable Joints are rated as follows:

- Copper conductor to copper conductor, cable rated

Selection and ordering the proper crimp connector requires determining information relative to the cable conductor as follows:

A. Conductor size in AWG or kcmil

B. Conductor type (stranded, compressed, compact or solid)

C. Conductor material (aluminum or copper)

After the cable conductor information has been determined:

1. Locate the X table indicated in the catalog number selection chart.
2. Complete the ordering information by selecting and inserting the symbol (given in the X table) into the catalog number.

See the Ordering Example on **page H-40** for further information.

AEIC and ICEA Cable Insulation Diameter

15kV 100% — 175 mil Insulation (.175")
15kV 133% — 220 mil Insulation (.220")
25kV 100% — 260 mil Insulation (.260")
35kV 100% — 345 mil Insulation (.345")

AEIC CS8-06

Specification for Extruded Dielectric,
Shielded Power Cable Rated 5–46kV

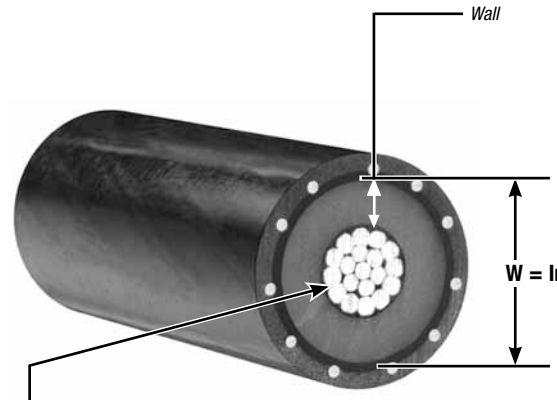
AEIC-Calculated Diameters — Solid and Compressed Stranding from Tables C-4 & C-6 and Compact Stranding from Tables C-5 & C-7

ANSI/ICEA S-94-649-2004 & S-97-682-2000

Standard for Concentric Neutral Cables &
Utility Shielded Power Cables Rated 5–46kV

ICEA — Concentric Stranding from Table C-3, Compressed Stranding from Table C-4, Compact Stranding from Table C-5

ICEA Abbreviated — For additional cables, please refer to the standard.



15kV Cable (100% Level, 175 mil)

ALUMINUM & COPPER CONDUCTOR SIZE	INDUSTRY STANDARD	SOLID CONDUCTOR DIAMETER IN INCHES OVER INSULATION		STRANDED CONDUCTOR DIAMETER IN INCHES OVER INSULATION		COMPRESSED CONDUCTOR DIAMETER IN INCHES OVER INSULATION		COMPACT CONDUCTOR DIAMETER IN INCHES OVER INSULATION	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
#2	AEIC	.610	.700	—	—	.635	.725	.620	.710
	ICEA	.610	.695	.645	.730	.635	.720	.620	.705
#1	AEIC	.645	.730	—	—	.675	.765	.655	.740
	ICEA	.645	.725	.685	.770	.675	.760	.655	.735
1/0	AEIC	.680	.770	—	—	.715	.805	.690	.775
	ICEA	.680	.760	.725	.810	.715	.800	.690	.775
2/0	AEIC	—	—	—	—	.760	.850	.730	.815
	ICEA	—	—	.775	.855	.760	.845	.730	.815
3/0	AEIC	—	—	—	—	.810	.900	.775	.865
	ICEA	—	—	.825	.905	.810	.895	.775	.860
4/0	AEIC	—	—	—	—	.865	.955	.830	.915
	ICEA	—	—	.880	.965	.865	.950	.830	.910
250	AEIC	—	—	—	—	—	—	—	—
	ICEA	—	—	.935	1.020	.920	1.005	.880	.965
350	AEIC	—	—	—	—	1.025	1.115	.980	1.065
	ICEA	—	—	1.045	1.130	1.025	1.110	.980	1.065
500	AEIC	—	—	—	—	1.150	1.245	1.100	1.185
	ICEA	—	—	1.175	1.260	1.150	1.235	1.100	1.185
750	AEIC	—	—	—	—	1.340	1.440	1.280	1.370
	ICEA	—	—	1.370	1.455	1.340	1.425	1.280	1.365
1000	AEIC	—	—	—	—	1.485	1.590	1.430	1.520
	ICEA	—	—	1.520	1.610	1.485	1.575	1.430	1.515

ICEA Note: *Diameters specified in the above table are different than specified by AEIC CS8-00. Consult accessory manufacturer for proper selection of accessories. Diameters to be measured in accordance with 9.6.*

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Medium-Voltage Cable Accessories Technical Information

15kV Cable (133% Level, 220 mil)

ALUMINUM & COPPER CONDUCTOR SIZE	INDUSTRY STANDARD	SOLID CONDUCTOR DIAMETER IN INCHES OVER INSULATION		STRANDED CONDUCTOR DIAMETER IN INCHES OVER INSULATION		COMPRESSED CONDUCTOR DIAMETER IN INCHES OVER INSULATION		COMPACT CONDUCTOR DIAMETER IN INCHES OVER INSULATION	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
#2	AEIC	.700	.790	—	—	.725	.815	.710	.800
	ICEA	.700	.790	.735	.825	.725	.815	.710	.800
#1	AEIC	.735	.820	—	—	.765	.855	.745	.830
	ICEA	.735	.820	.775	.865	.765	.855	.745	.830
1/0	AEIC	.770	.860	—	—	.805	.895	.780	.865
	ICEA	.770	.855	.815	.905	.805	.895	.780	.865
2/0	AEIC	—	—	—	—	.850	.940	.820	.905
	ICEA	—	—	.865	.950	.850	.935	.820	.905
3/0	AEIC	—	—	—	—	.900	.990	.865	.955
	ICEA	—	—	.915	1.000	.900	.985	.865	.955
4/0	AEIC	—	—	—	—	.955	1.045	.920	1.005
	ICEA	—	—	.970	1.060	.955	1.045	.920	1.005
250	AEIC	—	—	—	—	—	—	—	—
	ICEA	—	—	1.025	1.115	1.010	1.100	.970	1.060
350	AEIC	—	—	—	—	1.115	1.205	1.070	1.155
	ICEA	—	—	1.135	1.220	1.115	1.200	1.070	1.155
500	AEIC	—	—	—	—	1.240	1.335	1.190	1.275
	ICEA	—	—	1.265	1.355	1.240	1.330	1.190	1.275
750	AEIC	—	—	—	—	1.430	1.530	1.370	1.460
	ICEA	—	—	1.460	1.550	1.430	1.520	1.370	1.460
1000	AEIC	—	—	—	—	1.575	1.680	1.520	1.610
	ICEA	—	—	1.610	1.705	1.575	1.670	1.520	1.610

25kV Cable (100% Level, 260 mil)

ALUMINUM & COPPER CONDUCTOR SIZE	INDUSTRY STANDARD	SOLID CONDUCTOR DIAMETER IN INCHES OVER INSULATION		STRANDED CONDUCTOR DIAMETER IN INCHES OVER INSULATION		COMPRESSED CONDUCTOR DIAMETER IN INCHES OVER INSULATION		COMPACT CONDUCTOR DIAMETER IN INCHES OVER INSULATION	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
#1	AEIC	.805	.900	—	—	.835	.935	.815	.910
	ICEA	.805	.895	.845	.935	.835	.925	.815	.905
1/0	AEIC	.840	.940	—	—	.875	.975	.850	.945
	ICEA	.840	.930	.885	.980	.875	.965	.850	.940
2/0	AEIC	—	—	—	—	.920	1.020	.890	.985
	ICEA	—	—	.935	1.025	.920	1.010	.890	.980
3/0	AEIC	—	—	—	—	.970	1.070	.935	1.035
	ICEA	—	—	.985	1.075	.970	1.060	.935	1.030
4/0	AEIC	—	—	—	—	1.025	1.125	.990	1.085
	ICEA	—	—	1.040	1.135	1.025	1.115	.990	1.080
250	AEIC	—	—	—	—	—	—	—	—
	ICEA	—	—	1.095	1.190	1.080	1.175	1.040	1.135
350	AEIC	—	—	—	—	1.185	1.295	1.140	1.245
	ICEA	—	—	1.205	1.295	1.185	1.275	1.140	1.230
500	AEIC	—	—	—	—	1.310	1.425	1.260	1.365
	ICEA	—	—	1.335	1.430	1.310	1.405	1.260	1.350
750	AEIC	—	—	—	—	1.500	1.620	1.440	1.550
	ICEA	—	—	1.530	1.625	1.500	1.595	1.440	1.535
1000	AEIC	—	—	—	—	1.645	1.770	1.590	1.700
	ICEA	—	—	1.680	1.775	1.645	1.740	1.590	1.685

ICEA Note: *Diameters specified in the above tables are different than specified by AEIC CS8-00. Consult accessory manufacturer for proper selection of accessories. Diameters to be measured in accordance with 9.6.*

AEIC and ICEA Cable Insulation Diameter *(continued)*

35kV Cable (100% Level, 345 mil)

ALUMINUM & COPPER CONDUCTOR SIZE	INDUSTRY STANDARD	SOLID CONDUCTOR DIAMETER IN INCHES OVER INSULATION		STRANDED CONDUCTOR DIAMETER IN INCHES OVER INSULATION		COMPRESSED CONDUCTOR DIAMETER IN INCHES OVER INSULATION		COMPACT CONDUCTOR DIAMETER IN INCHES OVER INSULATION	
		MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
1/0	AEIC	1.010	1.110	—	—	1.045	1.145	1.020	1.115
	ICEA	1.010	1.110	1.055	1.155	1.045	1.145	1.020	1.120
2/0	AEIC	—	—	—	—	1.090	1.190	1.060	1.155
	ICEA	—	—	1.105	1.200	1.090	1.190	1.060	1.160
3/0	AEIC	—	—	—	—	1.140	1.240	1.105	1.205
	ICEA	—	—	1.155	1.255	1.140	1.240	1.105	1.205
4/0	AEIC	—	—	—	—	1.195	1.295	1.160	1.255
	ICEA	—	—	1.210	1.310	1.195	1.295	1.160	1.260
250	AEIC	—	—	—	—	—	—	—	—
	ICEA	—	—	1.265	1.370	1.250	1.350	1.210	1.315
350	AEIC	—	—	—	—	1.355	1.470	1.310	1.420
	ICEA	—	—	1.375	1.475	1.355	1.455	1.310	1.410
500	AEIC	—	—	—	—	1.480	1.600	1.430	1.540
	ICEA	—	—	1.505	1.605	1.480	1.580	1.430	1.530
750	AEIC	—	—	—	—	1.670	1.795	1.610	1.725
	ICEA	—	—	1.700	1.800	1.670	1.770	1.610	1.710
1000	AEIC	—	—	—	—	1.815	1.945	1.760	1.875
	ICEA	—	—	1.850	1.955	1.815	1.920	1.760	1.865

ICEA Note: *Diameters specified in the above table are different than specified by AEIC CS8-00. Consult accessory manufacturer for proper selection of accessories. Diameters to be measured in accordance with 9.6.*

Conductor Diameters for Copper and Aluminum (Class B) Stranded, Compressed, Compact and Solid Cables



CONDUCTOR SIZE AWG OR KCMIL	NO. OF STRANDS AND THEIR NOM. STRAND DIA. (IN.)	CROSS-SECTIONAL AREA SQUARE INCHES	CROSS-SECTIONAL AREA MM² CONVERSION	STRANDED CONDUCTORS (INCHES)	COMPRESSED CONDUCTORS (INCHES)	COMPACT CONDUCTORS (INCHES)	SOLID CONDUCTORS (INCHES)
14	7 x .0242	.0032	2.08	.073	—	—	.064
12	7 x .0305	.0051	3.31	.092	—	—	.081
10	7 x .0385	.0082	5.26	.116	—	—	.102
8	7 x .0486	.0130	8.37	.146	—	—	.129
6	7 x .0612	.0206	13.30	.184	—	—	.162
4	7 x .0772	.0328	21.15	.232	—	—	.204
2	7 x .0974	.0521	33.62	.292	.283	.268	.258
1	19 x .0664	.0657	42.41	.332	.322	.299	.289
1/0	19 x .0745	.0829	53.49	.373	.362	.336	.325
2/0	19 x .0837	.1054	67.43	.418	.405	.376	—
3/0	19 x .0940	.1318	85.01	.470	.456	.423	—
4/0	19 x .1055	.1662	107.2	.528	.512	.475	—
250	37 x .0822	.1964	127	.575	.558	.520	—
350	37 x .0973	.2749	177	.681	.661	.616	—
500	37 x .1162	.3924	253	.813	.789	.736	—
600	61 x .0992	.4712	304	.893	.866	.813	—
700	61 x .1071	.5498	355	.964	.935	.877	—
750	61 x .1109	.5890	380	.998	.968	.908	—
800	61 x .1145	.6283	405	1.031	1.000	.938	—
900	61 x .1215	.7069	456	1.094	1.061	.999	—
1000	61 x .1280	.7854	507	1.152	1.117	1.060	—
1100	91 x .1099	.8639	557	1.209	1.173	—	—
1200	91 x .1148	.9425	608	1.263	1.225	—	—
1250	91 x .1172	.9818	633	1.289	1.250	—	—
1300	91 x .1195	1.021	659	1.315	1.276	—	—
1400	91 x .1240	1.100	709	1.364	1.323	—	—
1500	91 x .1284	1.178	760	1.412	1.370	—	—
1600	127 x .1122	1.257	811	1.459	1.415	—	—
1700	127 x .1157	1.335	861	1.504	1.459	—	—
1750	127 x .1174	1.374	887	1.526	1.480	—	—
1800	127 x .1191	1.414	912	1.548	1.502	—	—
1900	127 x .1223	1.492	963	1.590	1.542	—	—
2000	127 x .1225	1.571	1010	1.632	1.583	—	—

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Medium-Voltage Cable Accessories Technical Information

Table W

APPLICABLE CAT. NOS.	CABLE INSULATION DIAMETER IN INCHES MIN.	MAX.	SYMBOL FOR W
Table W1			
151SP/SR	.575	.740	A
151LS/LY	.635	.905	B
165/166LR	.805	1.060	C
165/166LRJS	.890	1.220	D
Table W2			
	.760	.950	G
273RLR	.850	1.050	H
274RLR	.980	1.180	J
	1.090	1.310	K
Table W3			
	.850	1.050	H
375LR	.980	1.180	J
376LR	1.090	1.310	K
	1.235	1.465	L
Table W4			
	.640	.820	F
156LR	.760	.950	G
167/168RLR	.850	1.050	H
167LRT	.980	1.180	J
	1.090	1.310	K
Table W5			
	.665	.895	6689
167/168ELR	.740	.950	7495
273/274ELR	.880	1.100	88110
	1.090	1.310	K
Table W6			
	.495	.585	EB
	.525	.635	EF
	.575	.685	FA
10EP	.625	.735	FAB
152EA	.675	.785	FB
160CA*	.725	.835	FG
(*EB-FA ONLY)	.775	.885	GA
	.825	.935	GAB
	.875	.985	GB
Table W7			
K656I/CY/CH	.640	.820	F
K655/656LR	.760	.950	G
K655/656SR	.850	1.050	H
655/656LINK	.980	1.180	J
K655/656LINK	1.090	1.310	K
655/656ETP	1.180	1.465	L
K655/656ETP	1.280	1.430	LM
655/656RTP	1.370	1.630	M
K655/656LRTP	1.515	1.780	N
655/656BI-LINK	1.725	1.935	P
K655/656BI-LINK			
655CA/CK/TCK			

Table W

APPLICABLE CAT. NOS.	CABLE INSULATION DIAMETER IN INCHES MIN.	MAX.	SYMBOL FOR W
Table W8			
	.640	.820	F
	.760	.950	G
	.850	1.050	H
	.980	1.180	J
	1.090	1.310	K
15PCJ-1	1.180	1.465	L
15PCJ-2	1.280	1.430	LM
	1.370	1.630	M
	1.515	1.780	N
	1.725	1.935	P
	1.900	2.120	Q
Table W9			
	.760	.950	G
	.850	1.050	H
25PCJ-1	.980	1.180	J
25PCJ-2	1.090	1.310	K
755/756LR	1.180	1.465	L
755/756LINK	1.280	1.430	LM
755/756ETP	1.370	1.630	M
755/756LRTP	1.515	1.780	N
755/756BI-LINK	1.725	1.935	P
755CA/CK/TCK	1.900	2.120	Q
Table W10			
	.850	1.050	H
	.980	1.180	J
	1.090	1.310	K
35PCJ-1	1.180	1.465	L
35PCJ-2	1.370	1.630	M
	1.515	1.780	N
	1.725	1.935	P
	1.900	2.120	Q
Table W16			
	.635	.905	B
275/276LR	.800	1.060	CC
275/276LRJS	.940	1.170	DD
	1.090	1.310	E

Table X

APPLICABLE CAT. NOS.	CONDUCTOR SIZE AWG OR KCMIL	SYMBOL FOR X STRAND./ COMPR.	COMPT./ SOLID.
Table X1			
167/168ELR	#2	220	210
273/274ELR	#1	230	220
156LR, 165/166LR	1/0	240	230
275/276LR,167LRT	2/0	250	240
167/168RLR	3/0	260	250
273/274RLR	4/0	270	260
00400, 02500	250	—	270
02509, 02702			
02800, K151SP/SR			
Table X2			
	1/0	240	230
375/376LR	2/0	250	240
	3/0	260	250
	4/0	270	260
Table X6			
655/656LRTP	#2	220	210
K655/656LRTP	#1	230	220
755/756LRTP	1/0	240	230
K656I/Y/H	2/0	250	240
K655/656LR	3/0	260	250
755/756LR	4/0	270	260
K655/656SR	250	280	270
655/656LINK	350	300	290
K655/656LINK	500	330	320
755/756LINK	750	380	360
655/656ETP	1000	410	400
K655/656ETP	1250	440	420
755/756ETP			
655/656BI-LINK			
K655/656BI-LINK			
755BI-LINK			
655CK, 755CK			
655TCK, 03600			
03602, 03700,			
03702			
Table X7			
	#2	220	210
	#1	230	220
	1/0	240	230
15PCJ1	2/0	250	240
25PCJ1	3/0	260	250
35PCJ1	4/0	270	260
15PCJ2	250	280	270
25PCJ2	350	300	290
35PCJ2	500	330	310
	750	380	360
	1000	410	400
	1250	440	420
Table X9			
	#2	220	210
PCT1	#1	230	220
PCT2	1/0	240	230
01000	2/0	250	240
01010	3/0	260	250
	4/0	270	260

Shielded Surge Arresters

Fully shielded, fully submersible for convenient energized connection with 200A loadbreak or deadbreak components up to 35kV.



Metal Oxide Varistor (MOV) Surge Arresters

- IEEE 386 interfaces provide convenient energized connection with other 200A loadbreak or deadbreak components
- EPDM molded rubber construction — fully shielded and fully submersible for a variety of applications
- Compact size enables installation in your existing cabinetry, saving you money
- Three styles of arresters available fit your application and are easy to install
- Direct connection on PSA and BSA versions eliminates the need for additional accessories, saving even more money
- #4 AWG ground lead tethered to the jacket withstands 10,000 amps for 10 cycles without fusing
- Ground lead also controls end plug when ejected, preventing uncontrolled trajectory, and maintains the housing shield ground connection after failure

Voltage surges that exceed the BIL rating of the distribution system components will cause damage to the installed equipment. To protect against these surges, overhead surge arresters are widely used. Their application is understood since overhead lines and equipment are directly affected by voltage surges (e.g. lightning). However, the use of overhead arresters alone will not guarantee proper protection of the insulation in the underground portion of an electrical distribution system. The let-through surge from the riser pole arresters into the underground systems could be enough to cause damage to the aging equipment insulation.

Elastimold® MOV Surge Arresters provide high-voltage lightning and switching surge protection of transformers, cable, equipment and other components typically located on underground power distribution systems. Proper placement, voltage selection and coordination with riser pole arresters minimize damaging surge voltages by improving protective margins.

Typical applications include installing an arrester at the end of a radial system or at both ends of an open point on a loop system. Additional arresters can be added at strategic locations upstream from the end point for optimum protection.

Metal Oxide Varistor (MOV) Surge Arresters are available in three styles: Elbow (ESA™), Parking Stand (PSA™) and Bushing (BSA™). The PSA and BSA arresters permit direct connection, eliminating the need for additional accessories. ESA Elbow Arresters are also available with a 200A deadbreak interface for mating with other deadbreak accessories.

The following page highlights the different installation options using Bushing and Parking Stand Arresters where Elbow Arresters are normally used. Using BSAs and PSAs will contribute to saving space inside transformers and improving operability.

Ratings

High Current, Short Duration	All MOV Arresters withstand two discharges of 40kA crest
Low Current, Long Duration	All MOV Arresters withstand 20 surges of 75A/2,000 microseconds duration
Duty Cycle Test	All MOV Arresters withstand 22 operations of 5kA crest at 8 x 20 microseconds duration while energized at rated voltage for the initial 20 operations and at maximum continuous operating voltage (MCOV) for the final two operations

Following each of the preceding tests, MOV Arresters demonstrate thermal recovery at MCOV.

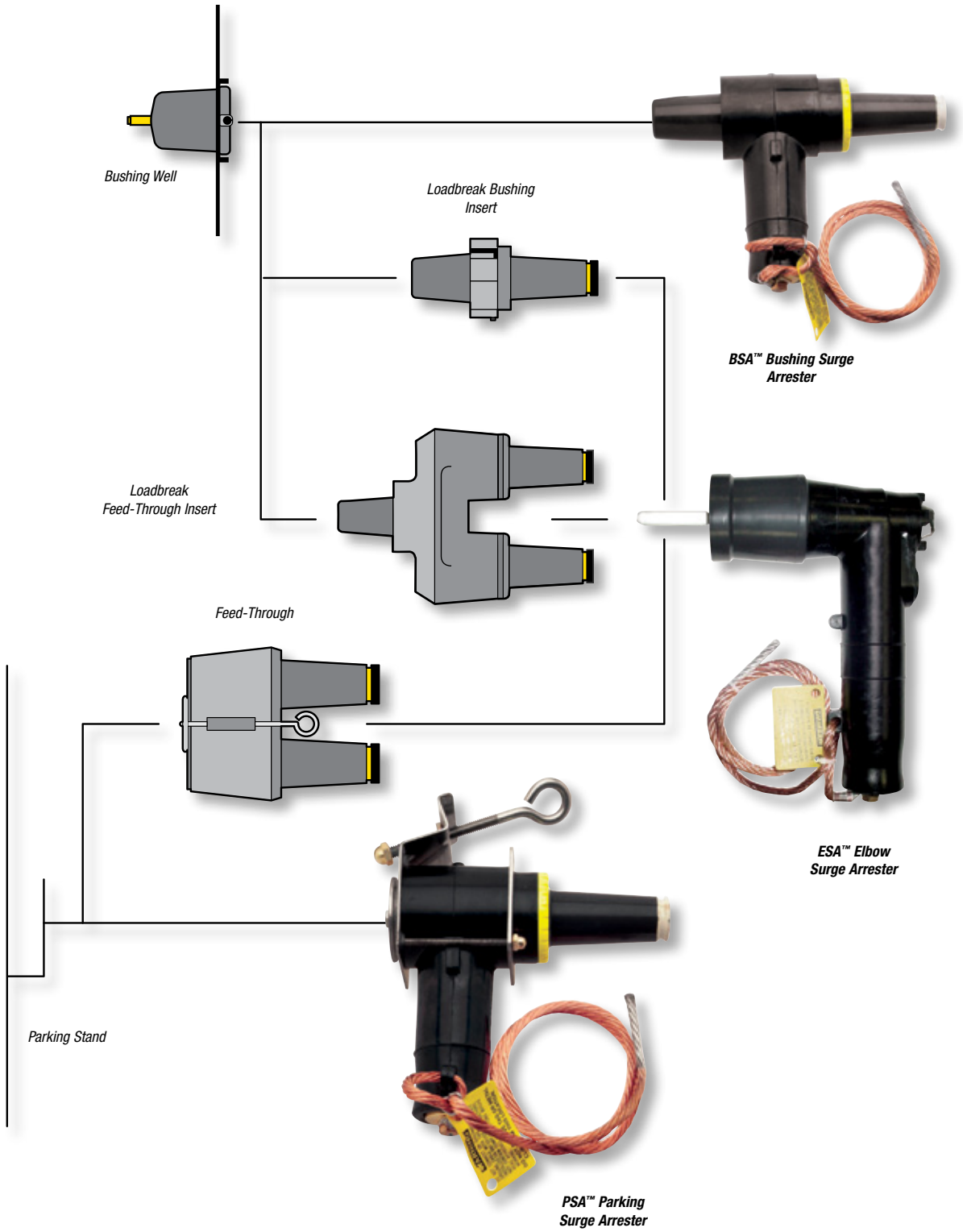
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Installation Options



Shielded Surge Arresters

Loop-Feed Circuit (Type 2 Transformer)

Two Elbow Arresters and a Feed-Through

This is one approach using elbow arresters only. (One of the elbow arresters could be mounted on the H1A bushing if operating procedures permit.)



Elbow Arrester and Parking Stand Arrester

This approach can reduce overcrowding (by eliminating the feed-through device). This is desirable in a mini-pad transformer.



Bushing Arrester and Parking Stand Arrester*

This approach is best for increasing operability and reducing transformer overcrowding.

The bushing arrester enables the source cable to be positioned on H1A, which conforms with some operating practices.

A bushing arrester mounted on H1A can be directed downward without interference. Potential interference between an elbow arrester on H1B and a cable parked on P is eliminated.

The bushing arrester requires significantly less space than an elbow arrester used with a feed-through insert.

Operability is enhanced because the open point can be closed by moving the parked cable to H1B without removing an arrester.

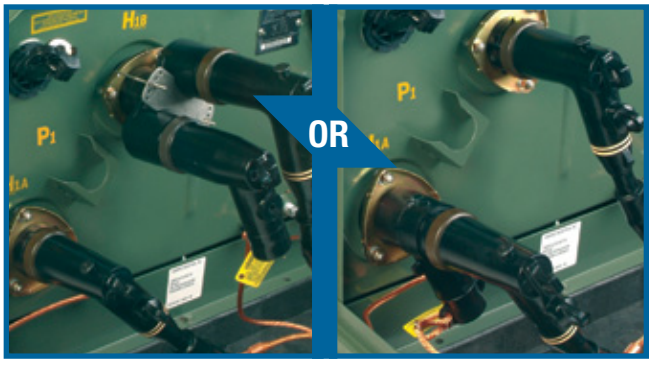
** Transformers must be specified with bushing wells.*



Additional Margin of Protection

An additional margin of protection may be gained by adding an arrester at the next transformer upstream on each side of the open point. This application is dependent on the system voltage and condition of the cable.

If an additional arrester is added in the circuit, it can be an elbow arrester in combination with a feed-through insert or it can be a bushing arrester. Use of a bushing arrester will reduce transformer faceplate overcrowding.



Other Configurations

Other configurations are possible, such as specifying a bushing arrester on every transformer. This enables the open point to be quickly and easily moved to any point in the circuit while maintaining the surge protection (without moving all of the portable surge arresters).

The externally mounted bushing arrester provides the surge protection benefits without the negative factors of an under-oil arrester.

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Shielded Surge Arresters

Radial-Feed Circuit (End Point)

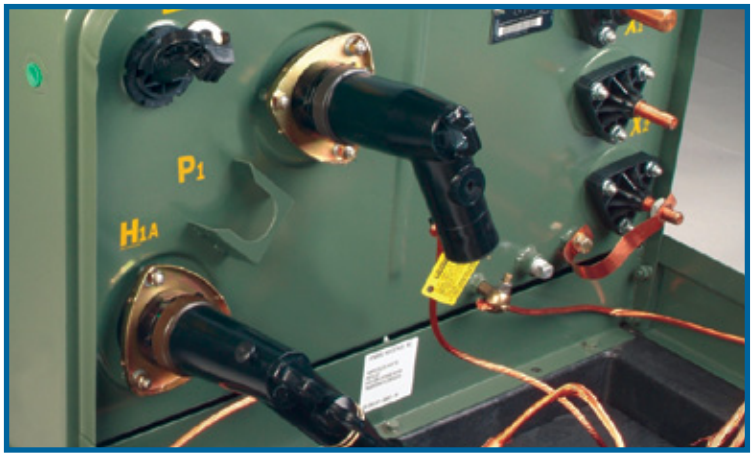
Single-Bushing Transformer

To add surge protection to a single-bushing transformer, utilize a bushing arrester or an elbow arrester with a feed-through insert.



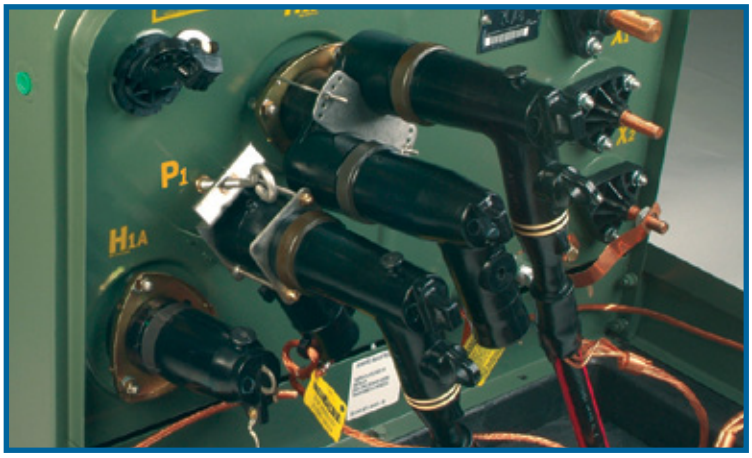
Two-Bushing Transformer

To add surge protection to a two-bushing transformer at the end point of a radial-feed circuit, add an elbow arrester to the unoccupied bushing or utilize a bushing arrester.



Conversion of a Radial-Feed Transformer to a Loop-Feed, Open-Point Transformer

To convert a single-bushing transformer to a loop-feed, open-point transformer, add a parking stand arrester and an elbow arrester in combination with a feed-through insert.



Shielded Surge Arresters

Protective Characteristics

VOLTAGE CLASS	MCOV (KV RMS)	DUTY CYCLE RATING (KV RMS)	MAXIMUM DISCHARGE VOLTAGE (KV CREST) 8 X 20 MICROSECOND CURRENT WAVE				
			1.5KA	3KA	5KA	10KA	20KA
15kV	2.55	3	8.06	8.48	8.74	9.36	10.4
	5.1	6	16.12	16.95	17.47	18.72	20.8
	8.4	10	28.21	29.66	30.57	32.76	36.4
	10.2	12	32.24	33.9	34.94	37.44	41.6
	12.7	15	40.3	42.38	43.68	46.8	52
	15.3	18	48.36	50.85	52.41	56.16	62.4
25kV	8.4	10	28.21	29.66	30.57	32.76	36.4
	10.2	12	32.24	33.9	34.94	37.44	41.6
	12.7	15	40.3	42.38	43.68	46.8	52
	15.3	18	48.36	50.85	52.41	56.16	62.4
	17	21	56.42	59.32	61.14	65.52	72.8
38kV	19.5	24	64.48	67.8	69.88	74.88	83.2
	22	27	72.54	76.28	78.62	84.24	93.6
	24.4	30	80.6	84.75	87.35	93.6	104
	29	36	96.72	101.7	104.82	112.32	124.8

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Shielded Surge Arresters

To specify and order an MOV Surge Arrester:

1) Determine the appropriate Maximum Continuous Operating Voltage (MCOV) for your system voltage using the Arrester Application Table below.

2) Specify the appropriate Elastimold® catalog number from the Selection Chart.

Arrester Application Table

	SYSTEMS LINE-TO-LINE VOLTAGE KVRMS		MCOV* KV RMS	
	NOMINAL	MAXIMUM	SOLIDLY GROUNDED NEUTRAL CIRCUITS	3-WIRE UNGROUNDED CIRCUITS
15kV Class	2.40	2.54	2.55	2.55
	4.16	4.40	2.55	5.10
	4.80	5.08	5.10	5.10
	6.90	7.26	5.10	8.40
	8.32	8.80	5.10	8.40
	12.47	13.20	8.40	15.30
	13.20	13.97	8.40	15.30
	13.80	14.50	8.40**	15.30
	13.80	14.50	10.20	15.30
25kV Class	6.90	7.26	5.10	8.40
	8.32	8.80	5.10	8.40
	12.47	13.20	8.40	15.30
	13.20	13.97	8.40	15.30
	13.80	14.50	8.40**	15.30
	13.80	14.50	10.20	15.30
	20.78	22.00	12.70	—
	20.78	22.00	15.30**	—
	23.00	24.34	15.30	—
	24.94	26.40	15.30	—
	24.94	26.40	17.00**	—
	28.00	29.80	17.00	—

** MCOV = Maximum Continuous Operating Voltage.*

*** Preferred arrester MCOV for this system voltage.*

Selection Chart

PICTURE	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	MCOV KV RMS
	BSA Bushing Surge Arrester (includes assembly tool) See Notes 1–4	15kV	**167BSA-3**	2.55
		15kV	**167BSA-6**	5.10
		15kV	**167BSA-10**	8.40
		15kV	**167BSA-12**	10.20
		15kV	**167BSA-15**	12.70
		15kV	**167BSA-18**	15.30
		25kV	**273BSA-10**	8.40
		25kV	**273BSA-12**	10.20
		25kV	**273BSA-15**	12.70
		25kV	**273BSA-18**	15.30
		25kV	**273BSA-21**	17.00
	ESA Elbow Surge Arrester See Notes 1, 2, 5	15kV	**167ESA-3**	2.55
		15kV	**167ESA-6**	5.10
		15kV	**167ESA-10**	8.40
		15kV	**167ESA-12**	10.20
		15kV	**167ESA-15**	12.70
		15kV	**167ESA-18**	15.30
		25kV	**273ESA-10**	8.40
		25kV	**273ESA-12**	10.20
		25kV	**273ESA-15**	12.70
		25kV	**273ESA-18**	15.30
	PSA Parking Stand Arrester See Notes 1–3	25kV	**273ESA-21**	17.00
		15kV	**167PSA-3**	2.55
		15kV	**167PSA-6**	5.10
		15kV	**167PSA-10**	8.40
		15kV	**167PSA-12**	10.20
		15kV	**167PSA-15**	12.70
		15kV	**167PSA-18**	15.30
		25kV	**273PSA-10**	8.40
		25kV	**273PSA-12**	10.20
		25kV	**273PSA-15**	12.70
		25kV	**273PSA-18**	15.30
		25kV	**273PSA-21**	17.00

Note: *1. Elastimold® PSA and BSA Arresters are equipped with a fully rated 200A switching and fault-close loadbreak bushing.*

2. Elastimold® Arresters use high-strength, silver epoxy-bonded MOV blocks and shunted spring connections for the best circuit connection.

3. A 36" #4 AWG ground lead is provided with each unit.

4. BSA installed by turning internal hex bolt (accessed through the 200A bushing interface) with a 5/16" hex wrench and bent-wire torque wrench supplied with each unit.

5. For 15kV and 25kV class deadbreak system Elbow Arresters, use catalog number 156ESA with the appropriate duty cycle rating.

Shielded Surge Arresters

MOV Surge Arresters

To specify and order an MOV Surge Arrester:

1) Determine the appropriate Maximum Continuous Operating Voltage (MCOV) for your system voltage using the Arrester Application Table below.

2) Specify the appropriate Elastimold® catalog number from the Selection Chart.

Arrester Application Table

35KV CLASS	SYSTEM LINE-TO-LINE VOLTAGE KV RMS		MCOV* KV RMS	
	NOMINAL	MAXIMUM	SOLIDLY GROUNDED NEUTRAL CIRCUITS	3-WIRE UNGROUNDED CIRCUITS
	23.00	24.34	—	22.00
	34.50	36.51	22.00**	—
	34.50	36.51	24.40	29.00

** MCOV = Maximum Continuous Operating Voltage.*

*** Preferred arrester MCOV for this system voltage.*

Selection Chart

PICTURE	DESCRIPTION	VOLTAGE CLASS	CAT. NO.	MCOV KV RMS
	BSA Bushing Surge Arrester See Notes 1–4	35kV	**375BSA-24**	19.50
		35kV	**375BSA-27**	22.00
		35kV	**375BSA-30**	24.40
	ESA Elbow Surge Arrester See Notes 2–3	35kV	**375ESA-24**	19.50
		35kV	**375ESA-27**	22.00
		35kV	**375ESA-30**	24.40
		35kV	**375ESA-36**	29.00
	PSA Parking Stand Arrester See Notes 1–3	35kV	**375PSA-24**	19.50
		35kV	**375PSA-27**	22.00
		35kV	**375PSA-30**	24.40

Note: *1. Elastimold® PSA and BSA Arresters are equipped with a fully rated 200A switching and fault-close loadbreak bushing.*

2. Elastimold® Arresters use high-strength, silver epoxy-bonded MOV blocks and shunted spring connections for the best circuit connection.

3. A 36" #4 AWG ground lead is provided with each unit.

4. BSA installed by turning internal hex bolt (accessed through the 200A bushing interface) with a 5/16" hex wrench and bent-wire torque wrench supplied with each unit.

5. For 15kV and 25kV class deadbreak system Elbow Arresters, use catalog number 156ESA with the appropriate duty cycle rating.

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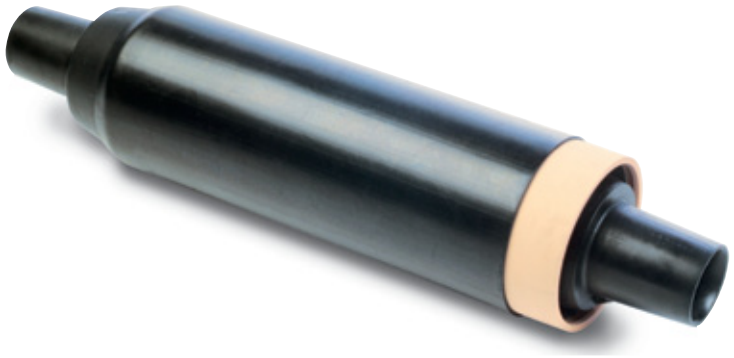
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Transmission Cable Joints

Factory molded and tested to ensure the highest quality.

Elastimold® TCJ™ Transmission Cable Joints for 46kV through 138kV Class Systems



- Each cable joint is produced exactly per design, producing a quality not possible with field molding equipment or tape
- Electrically tested in the factory to ensure consistent quality
- Molding is done in the factory, reducing on-site time — no penciling of cable insulation required
- Easy-to-learn installation procedure
- Field molds, wrapping machines or pre-stretch not required, and a low-cost assembly tool is available
- Extended shelf life enables instant availability of spares
- Joints may be installed either as a standard shield break or as a non-shield break
- Designed with optimized pre-molded stress control and heat transfer capabilities

TCJ™ Transmission Cable Joints for 46kV through 138kV class systems are designed by Thomas & Betts, the world's leading producer of Elastimold® pre-molded cable accessories.

All TCJ™ Transmission Cable Joints are factory molded and factory tested, providing maximum reliability. Factory molding ensures a level of insulation and shielding system integrity not achievable with field-fabricated insulation systems. Use TCJ™ Transmission Cable Joints in combination with various options for conductor connectors, shielding and environmental sealing, depending on the characteristics of the cable and your installation.

TCJ™ Transmission Cable Joints are designed for use on solid dielectric cables with insulation diameters from 36.5mm to 65.5mm (1.43" to 2.58") for Style 1 (through 69kV) and 57.2mm to 91.96mm (2.25" to 3.62") for Style 4 (through 138kV). When assembled, they provide permanent, fully shielded, fully submersible cable joints for direct-burial or vault applications. A shield break option is provided for cross bonding purposes on Style 4.

Easy-to-learn installation procedures eliminate the need for labor-intensive field molds, tape-wrapping machinery or field expansion. Field assembly is greatly simplified, because all electrical stress-management elements have been provided during the factory-molding process rather than being fabricated in the field.

A TCJ™ Transmission Cable Joint is available for your application. Contact your local Thomas & Betts representative for a specific proposal based on your requirements.

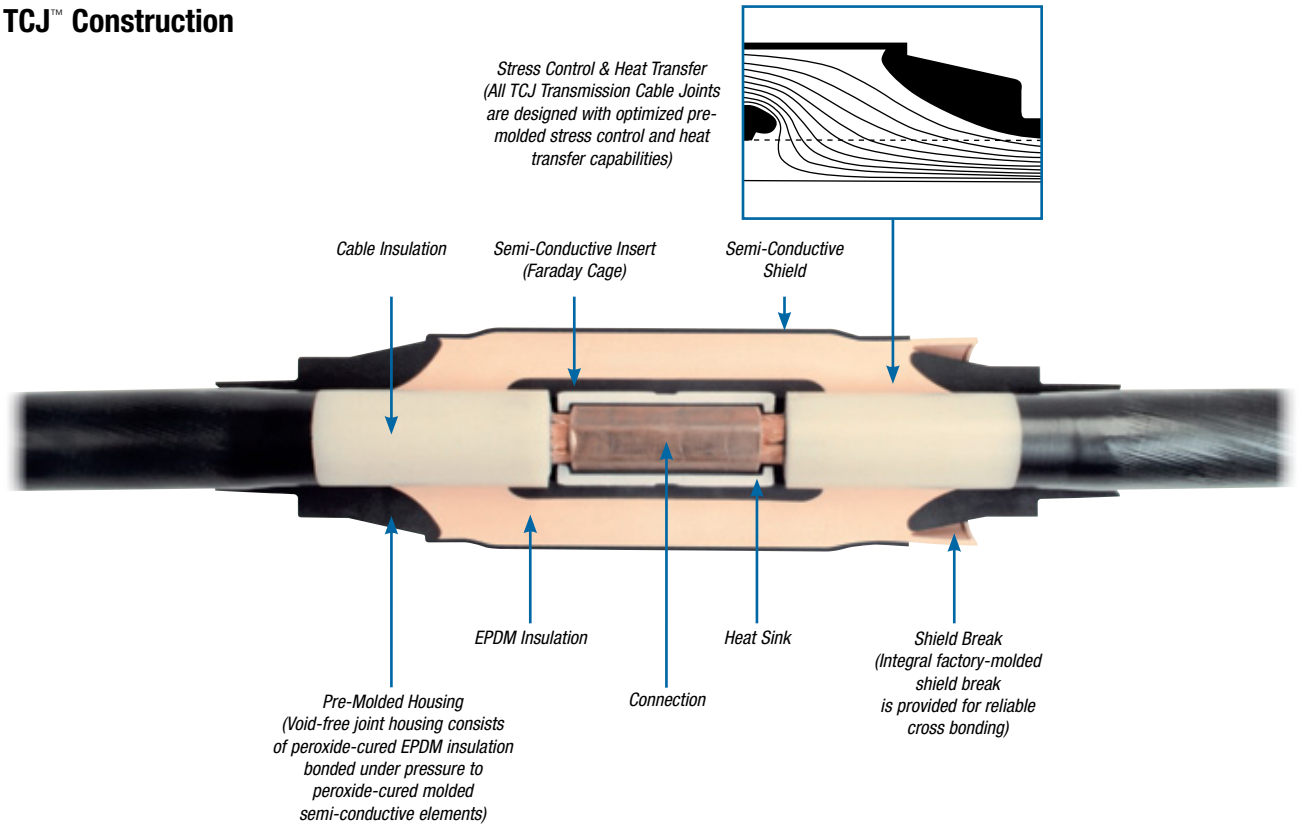
Transmission Cable Joints

Dimensional Information

BASE CAT. NO.	VOLTAGE CLASS NOMINAL	MAXIMUM SYSTEM VOLTAGE*	STYLE	SIZE	INCHES				MILLIMETERS			
					INSULATION DIAMETER RANGE		JOINT HOUSING		INSULATION DIAMETER RANGE		JOINT HOUSING	
					MIN.	MAX.	DIAMETER	LENGTH	MIN.	MAX.	DIAMETER	LENGTH
69TCJS1	69kV	72.5kV	1	M	1.435	1.675	4.16	20.35	36.5	45.6	105.7	516.9
				N	1.585	1.840	4.16	20.35	40.4	46.7	105.7	516.9
				P	1.790	2.090	4.75	22.48	45.5	53.1	120.7	571.0
				Q	1.995	2.300	4.75	22.48	50.7	58.4	120.7	571.0
				R	2.200	2.580	4.75	22.48	55.9	65.5	120.7	571.0
69TCJS3	69kV	72.5kV	3	2	1.967	2.260	5.62	30.00	50.0	57.4	142.7	762.0
69TCJS4	69kV	72.5kV	4	3	2.252	2.607	7.22	32.00	57.2	66.2	183.4	812.8
				4	2.565	2.948	7.22	32.00	65.2	74.9	183.4	812.8
				5	2.900	3.290	7.22	32.00	73.7	83.6	183.4	812.8
				6	3.249	3.620	7.82	32.00	82.5	92.0	198.6	812.8
138TCJS3	138kV	145kV	3	2	1.967	2.260	5.62	30.00	50.0	57.4	142.7	762.0
138TCJS4	138kV	145kV	4	3	2.252	2.607	7.22	32.00	57.2	66.2	183.4	812.8
				4	2.565	2.948	7.22	32.00	65.2	74.9	183.4	812.8
				5	2.900	3.290	7.22	32.00	73.7	83.6	183.4	812.8
				6	3.249	3.620	7.82	32.00	82.5	92.0	198.6	812.8

** Maximum System Voltage conforms with AEIC/IEC industry standards.*

TCJ™ Construction



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Transmission Cable Joints

Ratings for Transmission Cable Joints

Nominal System Voltage (kV)	69	138
Maximum System Voltage: (kV)	72.5	145
BIL: 1.2 x 50µs; 10 Pos., 10 Neg., Impulses (kV)	350	650
DC Withstand: 15 min. (kV)	240	315
Minimum Corona Extinction Voltage (kV) (3pC Sensitivity)	60	120
AC Withstand: 15 min. (kV)	90	190
Current	Continuous Rating Equal to Cable	
Thermal – A. Max. Continuous Conduct. Temp.	90° C	
B. Splice Compression Connectors per ANSI C119.4	Class A/Class 2	
Semi-Conductive Shield	Meets Shield Test of IEEE 592	

TYPE Tests for Transmission Cable Joints — per IEC 60840/IEEE 404

Tan delta @ 90° C Conductor	< .5%	< .5%
130° C Heating Cycle Voltage Test (kV)	72	152
BIL: 1.2 x 50µs; 25° C & 90° C 10 Pos., 10 Neg., Impulses (kV)	350	650
AC Withstand: 6 hours (kV)	100	200

Production Tests for Transmission Cable Joints (each unit)

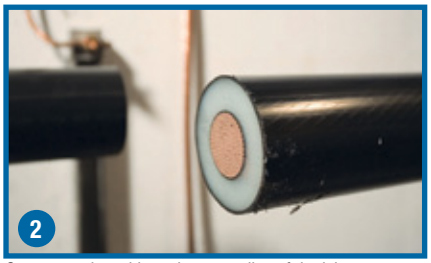
Minimum Corona Extinction Voltage (kV) (3pC Sensitivity)	60	120
AC Withstand: (kV)	160/15 min.	240/30 min.

Transmission Cable Joints

Typical Installation of Transmission Cable Joints



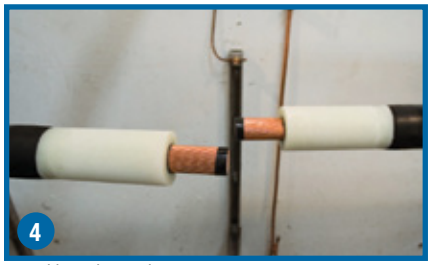
Overlap cables, straighten and strip back jacket.



Square cut the cable at the center line of the joint.



Remove the semi-conductive shield…



…and bare the conductor.



Sand semi-conductive shield to provide a smooth transition to the cable insulation.



Store the cover-up sleeve on each cable.

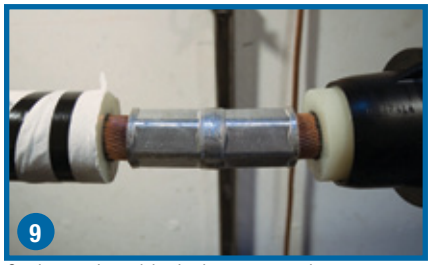


Pull TCJ joint housing into the storage position on the cable.





Join the conductor using a compression, welded or other type of connector.



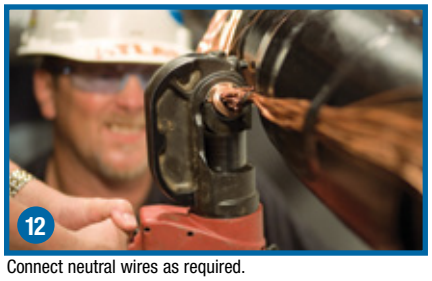
Conductors shown joined using a compression connector.



Reposition the assembly tool and pull the TCJ joint housing into the final position on the cable.



Seal joint ends with mastic wrap.



Connect neutral wires as required.



Position and shrink cover-ups.



Finished joint.

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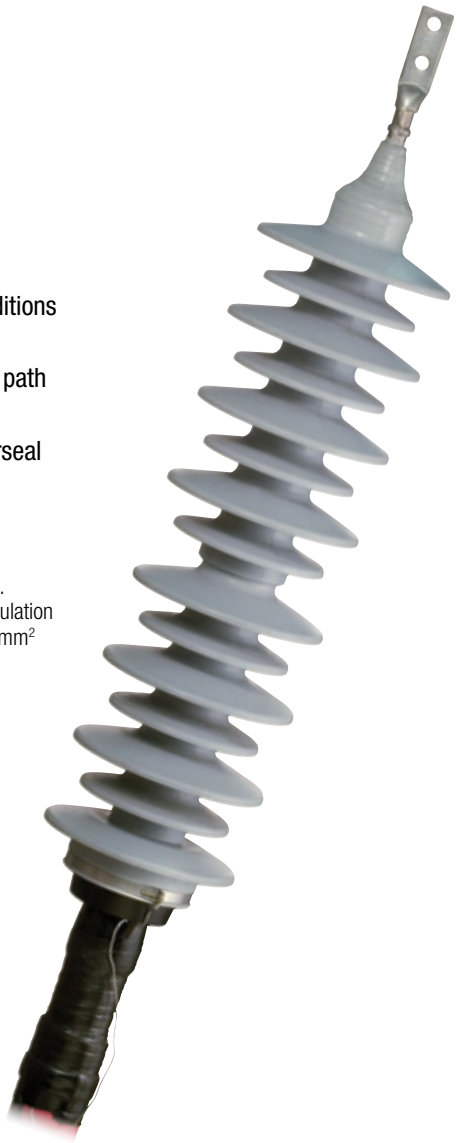
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Transmission Cable Terminations

Class 1 termination for cable systems rated through 69kV.

Elastimold® 69TCT Terminator



- Molded EPDM elastomer housing is durable under severe environmental conditions and does not require a surface oil/grease to maintain non-tracking properties
- State-of-the-art shed design employs unequal diameters to interrupt the drip path from shed to shed
- Housing slides over cable insulation to provide required creep path and waterseal
- Computer-designed molded stress relief ensures proper stress relief for the terminated cable

The 69TCT Terminator provides a Class 1 termination for cable systems rated through 69kV class. It conforms to IEC 840 and IEEE 48. This terminator is designed for solid dielectric cables with insulation diameters from 36.8mm to 62.2mm (1.45" x 2.45") and accommodates conductor sizes from 90mm^2 to 1700mm^2 (4/0 to 3500 kcmil). Various aerial lugs are available for the conductor connection.

The durable elastomer construction eliminates glaze damage failures associated with porcelain. A state-of-the-art shed design ensures a non-continuous drip path and the non-tracking polymer requires no surface oil or grease.

Installation

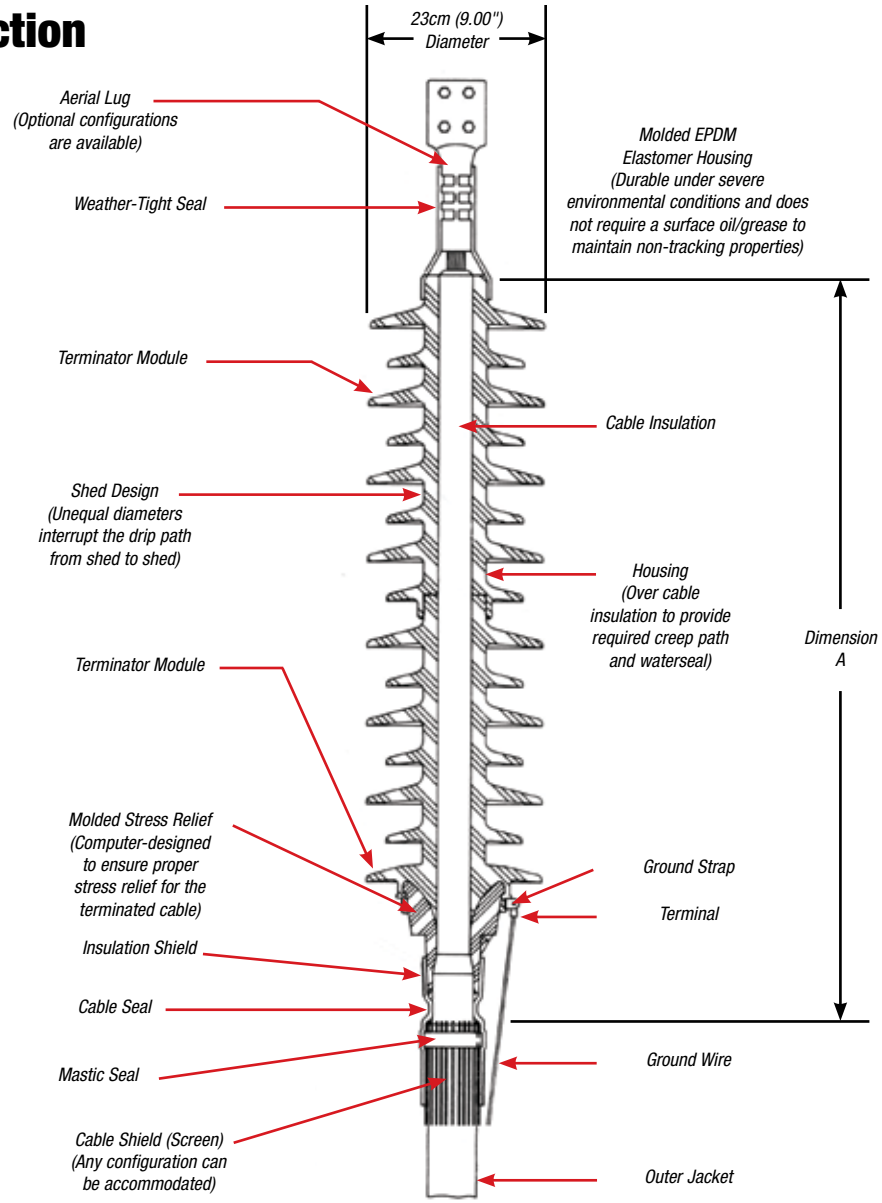
The 69TCT Terminator is lightweight and easy to handle. It can be assembled horizontally on the ground and then raised to the installation position without a crane. Installation can be accomplished without special training using the Elastimold® TCJ-ATK-U Universal Assembly Tool. The 69TCT can utilize standard cable support systems.

Electrical Data

Nominal Voltage	69kV
Maximum Working Voltage	72.5kV
Partial Discharge	<3pC @ 60kV
BIL (@ 1.2 x 50 microsecond wave) 10 positive, 10 negative	350kV
AC withstand 60 Hz 1 Minute Dry	175kV

Transmission Cable Terminations

TCT Construction



Dimensional Information

BASE CAT. NO.	VOLTAGE CLASS NOMINAL	MAXIMUM SYSTEM VOLTAGE*	MODULES	SIZE	INCHES					MILLIMETERS				
					INSULATION RANGE MIN.	INSULATION RANGE MAX.	TERMINATION HEIGHT (A)	STRIKE DISTANCE	CREEP DISTANCE	INSULATION RANGE MIN.	INSULATION RANGE MAX.	TERMINATION HEIGHT (A)	STRIKE DISTANCE	CREEP DISTANCE
69TCT	69kV	72.5kV	2	0	1.450	1.700	36.81	32.00	92.25	36.8	43.2	935.0	812.8	2343.2
				1	1.650	1.900				41.9	48.3			
				2	1.850	2.150				47.0	54.6			
				3	2.100	2.450				53.3	62.2			
69TCT	69kV	72.5kV	3	0	1.450	1.700	53.19	48.38	139.63	36.8	43.2	1351.0	1228.7	3546.5
				1	1.650	1.900				41.9	48.3			
				2	1.850	2.150				47.0	54.6			
				3	2.100	2.450				53.3	62.2			

** Maximum System Voltage conforms with AEIC/IEC industry standards.*

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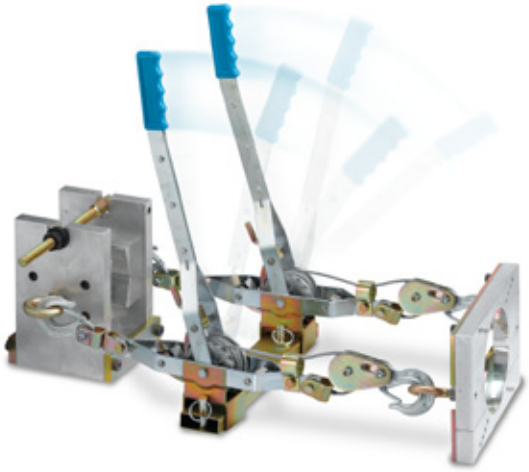
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Transmission Cable Accessories Installation Tools

Aids in sliding the joint or termination onto the cable.

Termination and Joint Installation Tool — TCJ-ATK-U

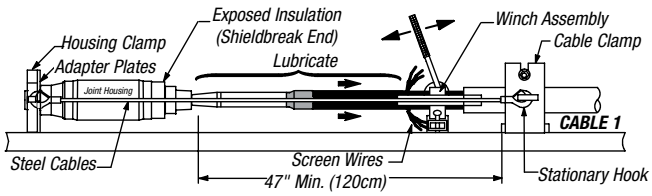






TCJ™ Installation

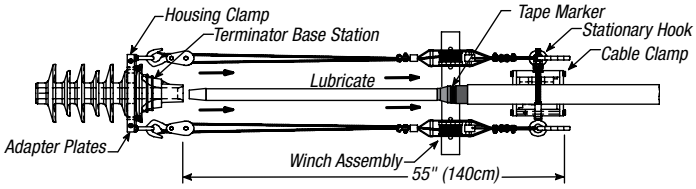
When installing a TCJ™ Transmission Cable Joint, secure the cable clamp to the cable, position the housing clamp on the joint housing and then pull and park the joint on the cable by rotating the winch handles. Connect the conductors of the two cables and reverse the TCJ-ATK-U to slide the joint housing to the center of the splice.



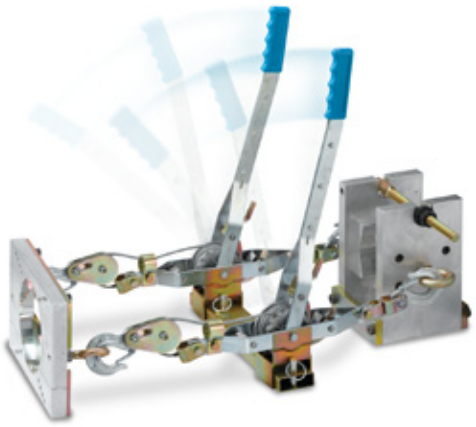
Typical Transmission Cable Joint (TCJ) installation using the TCJ-ATK-U.

TCT Installation

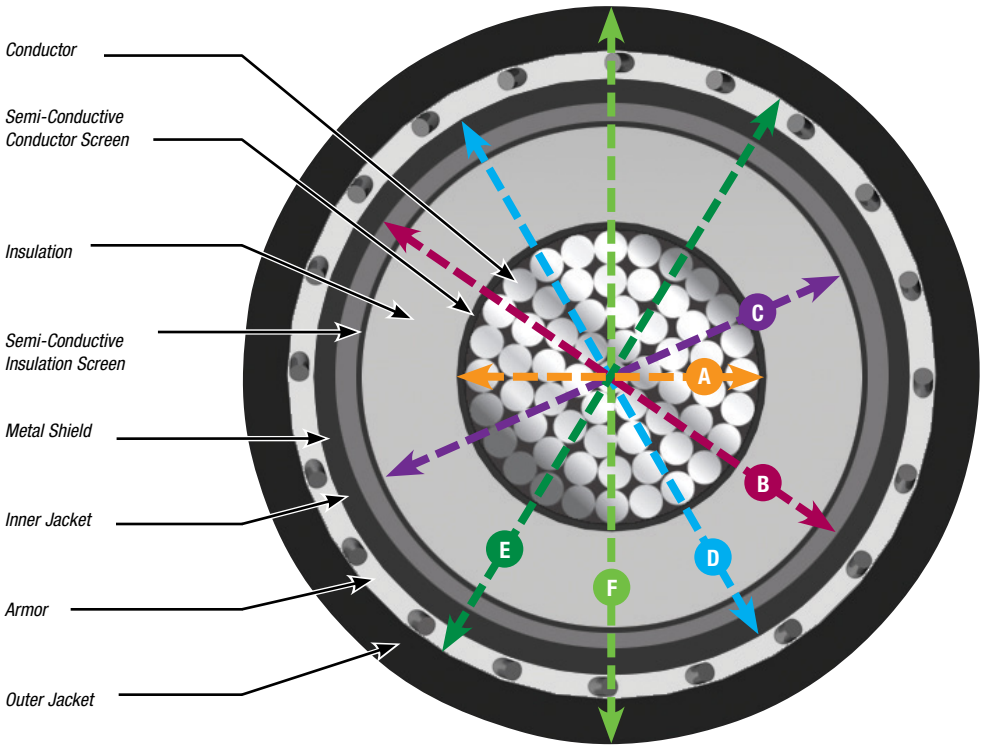
When installing a TCT Transmission Cable Termination, secure the cable clamp to the cable, position the housing clamp on the termination housing and pull the termination into the cable by rotating the winch handles.



Typical Transmission Cable Termination (TCT) installation using the TCJ-ATK-U.



Cable Construction



Diameter Dimensions

- A — Conductor
- B — Metal Shield
- C — Insulation
- D — Inner Jacket
- E — Armor
- F — Outer Jacket

Provide cable cut sheet or provide dimensional data below.

Cable Data Requirements for Cable Joint and Cable Termination Selection

ITEM NAME	MATERIAL	SIZE (MM² OR KCMIL)	OUTSIDE DIAMETER (MM OR INCHES)
Conductor	❑ Aluminum ❑ Copper		A
Metal Shield			B

ITEM NAME	MATERIAL	NORMAL THICKNESS (MM OR INCHES)	NOMINAL OUTSIDE DIAMETER (MM OR INCHES)
Insulation	❑ XLPE ❑ EPR		C
Inner Jacket			D
Armor*			E
Outer Jacket*			F

** If applicable*

Nominal System Voltage _____ kV Non-Shieldbreak Joint Qty. _____ Termination Qty. _____

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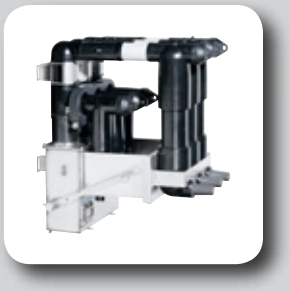
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Elastimold® & Hi-Tech® Fuse Products

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Overview

Capable of interrupting in elevated ambient temperature, Elastimold® fuses are built tough to take the heat!

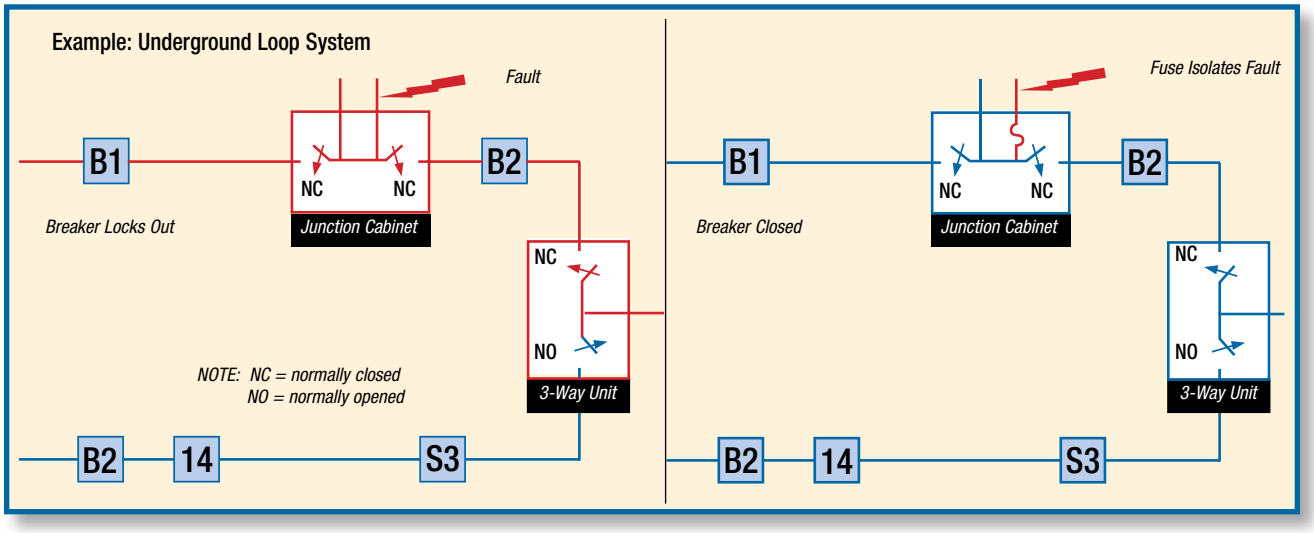
Elastimold® Fused Products cover a wide range of applications and ratings. Fused Elbows (FLR), Molded Current-Limiting Fuses (MCLF) and Molded Canister Fuses (MCAN) provide full-range protection through 50kA using Hi-Tech® full-range fuses. The fuses in these products can easily be replaced with minimal downtime. Fused load-break elbows provide low-cost, convenient protection for radial taps, junctions, transformers and other equipment. They combine the advantages of full-range current-limiting fusing with the convenience of 15/25kV, 200A hotstick-operable, loadbreak elbow switching. MCLF and MCAN are suitable for single-phase tap/load protection and can be used in vault, subsurface or padmount installations.

Elastimold® Fused Products provide the benefits of current-limiting protection, with fault clearing occurring in less than one-half cycle,thereby limiting the let-through fault current and dramatically reducing stresses on equipment. They also provide both overload and fault current protection for distribution equipment in a single fuse body. As full-range fuses, they are capable of interrupting any continuous current between the minimum current that can cause melting of the elements and its rated maximum interrupting current (50,000A). All fuses are capable of interrupting in elevated ambient temperatures. Hi-Tech® fuse design features include:

- A patented damage sensor that significantly reduces the risk of fuse failure should the fuse be subjected to an element-damaging current surge (e.g. lightning).
- Hermetically sealed construction ensures that no gases escape from the fuse during current interruption.
- All fuses are helium mass spectrometer leak tested to ensure sealing system integrity.
- Rugged machined-brass end caps used for greater ferrule strength, resulting in less distortion and a more secure fuse attachment.

Elastimold® FLR, MCLF and MCAN fused products constitute some of the fastest and easiest ways to improve system reliability.

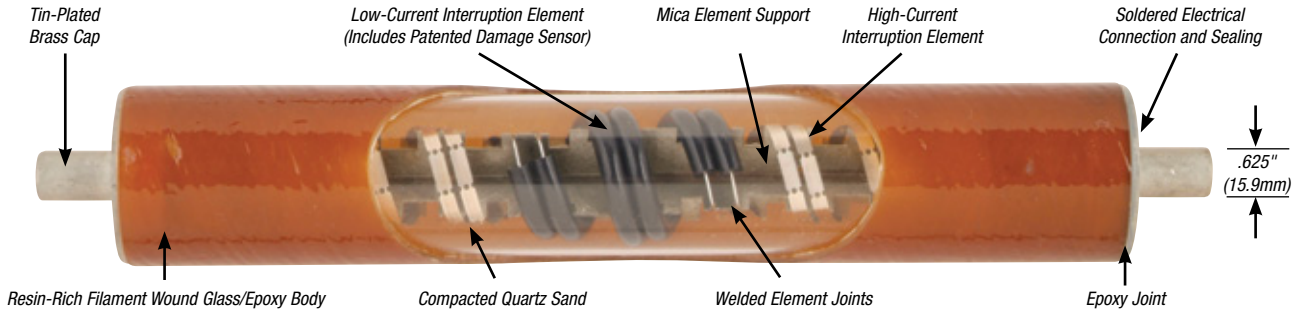
Improve Loop System Reliability by Adding Protection to a Tap.



Loop system without tap protection: A fault on the tap will lock out the substation breaker and create an outage for all customers to the open point.

Loop system with tap protection: A fault on the tap will be isolated by the fuses. This reduces the number of customers affected by the outage, thus improving the System Average Interruption Frequency Index (SAIFI).

Full-Range Current-Limiting Fuse



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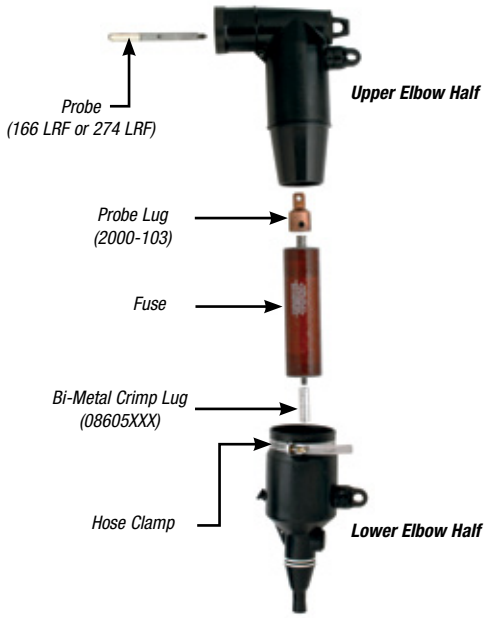
Elastimold® Fused Loadbreak Elbows (FLE)

The fastest, most cost-effective way to improve a distribution system's reliability.

Elastimold® Fused Elbows

- Combined full-range current-limiting fusing 15/25kV hotstick-operable, loadbreak elbow switching quickly improves the distribution system's reliability without the expense of adding a separate piece of switchgear or replacing existing sectionalizing cabinets
- Current-limiting fuses improve the fault close rating of the elbow (10kA) to that of the fuse, thereby reducing the risk of component damage or personnel injury
- EPDM molded rubber deadfront construction enables elbows to be fully sealed and submersible, and they insulate, shield and eliminate exposed live parts
- Two-piece housing enables easy fuse replacement





Replace existing 200A tap elbows with Elastimold® Fused Elbows to protect light-duty underground distribution systems, including sub-loops, radial taps, junctions, transformers and other equipment.

Elastimold® Fused Elbows provide full-range current-limiting fusing with 50kA interrupting capability. They are rated for 5kV ungrounded to 28kV grounded Wye. Plus they provide 15/25kV hotstick-operable, loadbreak elbow switching.

Ratings

System Voltage Class (kV)	15	25*	25/28*
Nominal Fuse Voltage (kV)	8.3	15.5	17.2
Rated Maximum Fuse Voltage (kV)	8.8/10	15.5	17.2
Frequency (Hz)	50/60	50/60	50/60
BIL Impulse Withstand (kV)	95	125	140
One-Minute AC Withstand (kV)	34	40	45
Fifteen-Minute DC Withstand (kV)	53	78	78
Corona Extinction (kV)	11	19	21.5
Symmetrical Interrupting Capability (Amp)	50,000	50,000	50,000
Current Rating (Amp)	3–80	6–20	3–45

Application Information

Construction: Submersible, non-venting, deadfront, corrosion resistant

Ambient Temperature Range: -30° C to 65° C

** The 15.5kV L-G rated fuse requires 75% grounded load to be applied on a 25kV system. The 17.2kV L-G rated fuse requires at least 75% grounded load to be applied on a 28kV system.*

Note: *Fuses are only suitable for the system voltage class shown if the recovery voltage across the fuse will not exceed its rated maximum voltage. For three-phase applications, this generally requires that protected transformers be gndY–gndY and have at least 50% grounded load. Fuse replacement requires the elbow to be de-energized.*

Certified Tests

Elastimold® Fused Elbows have been designed and tested per applicable portions of IEEE, ANSI and other industry standards, including:

ANSI C37.40 Standard for Current-Limiting Fuse Service Conditions

ANSI C37.41 Standard for Current-Limiting Fuse Design & Testing

ANSI C37.47 Standard for Current-Limiting Fuse Ratings & Specifications

IEEE 386 Standard for Separable Connectors

Elastimold® Fused Loadbreak Elbows (FLE)

Electrical Characteristics of Elastimold® EFX-E Elbow Fuses

SYSTEM VOLTAGE CLASS (kV)	NOMINAL FUSE VOLTAGE RATING (kV)	CURRENT RATING (AMPS)	FUSE CAT. NO.	RATED MAXIMUM VOLTAGE (kV)	MAXIMUM CONTINUOUS CURRENT (2) (6) (7)			PEAK ARC VOLTAGE (kV) (5)	MINIMUM MELT I^2T (AMP^2-SEC)	MAXIMUM TOTAL I^2T (AMP^2-SEC) (3) (4)
					25° C	40° C	65° C			
15	8.3	3	EFX083003-E	10.0	4.3	4.2	3.9	30	100	350
		6	EFX083006-E		9.5	9.0	8.5	32	620	2,700
		8	EFX083008-E		11.5	11.0	10.5	28	800	4,000
		10	EFX083010-E		14.0	13.5	13.0	28	800	4,000
		12	EFX083012-E		19.0	18.5	17.5	26	920	8,000
		18	EFX083018-E		21.0	20	19.0	26	1,310	9,500
		20	EFX083020-E		26.0	25	24.0	26	1,620	11,000
		25	EFX083025-E		34.0	33.0	31.0	26	3,660	22,000
		30	EFX083030-E		37.5	36.5	34.5	26	5,250	30,000
		40	EFX083040-E		43.0	42.0	40.0	26	8,700	50,000
		45	EFX083045-E		49.0	47.0	45.0	26	12,800	70,000
		65	EFX083065-E	8.8	70.0	68.0	64.5	23	34,000	200,000
		80	EFX083080-E		80.0	77.5	73.5	22	51,200	280,000
25	15.5	6	EFX155006-E	15.5	8.5	8.0	7.7	52	620	3,000
		8	EFX155008-E		10.5	10.0	9.5	40	800	4,300
		10	EFX155010-E		13.0	12.5	12.0	40	800	4,300
		12	EFX155012-E		16.0	15.5	15.0	38	920	8,000
		18	EFX155018-E		20.0	19.5	18.5	38	1,620	13,000
		20	EFX155020-E		23.5	22.5	21.5	38	2,200	16,500
25/28	17.2	3	EFX172003-E (1)	17.2	4.3	4.2	3.9	51	100	510
		6	EFX172006-E		9.5	9.0	8.5	54	620	3,250
		8	EFX172008-E		11.5	11.0	10.5	46	800	4,600
		10	EFX172010-E		14.0	13.5	13.0	46	800	4,600
		12	EFX172012-E		18.0	17.5	16.5	43	920	8,500
		18	EFX172018-E		20.0	19.5	18.5	45	1,310	10,000
		20	EFX172020-E		24.0	23.0	22.0	45	1,620	12,500
		25	EFX172025-E		31.5	30.5	29.0	45	3,660	27,500
		30	EFX172030-E		35.5	34.5	32.5	45	5,250	37,500
		40	EFX172040-E		41.0	40.0	38.0	45	8,700	62,500
		45	EFX172045-E		46.0	45.0	42.5	45	12,800	87,500

Notes:

1. Designs have a 50,000A RMS Symmetrical Rating (except 3A, 17.2kV — which was tested at 44kA maximum).

2. Fuses have a Rated Maximum Application Temperature (RMAT) of 65° C. RMAT is the maximum temperature of the air, in contact with the elbow housing, at which fuses have been shown to be suitable for use.

3. Tabulated Maximum Total I^2t values are for currents of 50,000A at the nominal voltage of the fuse. Values for 8.3kV fuses at 10kV are approximately 30% higher. Values for 17.2kV fuses at 15.5kV are approximately 20% lower.

4. Maximum total I^2t values are reduced for currents below 50,000A. For example, at 10,000A, maximum total I^2t values are approximately 15% less than the published values.

5. Peak arc voltages listed are for 50,000A currents at the rated maximum voltage listed. Reduced currents and voltages will reduce the peak arc voltage. Consult the factory for further information.

6. Maximum continuous currents at ambient temperatures other than those listed may be determined by derating the fuses by .2% per degree C over 25° C. For example: At 40° C the derating would be 15 x .2 = 3%, making the maximum continuous current of a 17.2kV, 25A fuse 31.5 x .97 = 30.5A.

7. Time-current characteristic curves are published at 25° C. Reduction in the long time melting current of the fuses (approximately one hour and longer) due to higher ambient temperatures is the same as described above for "Maximum Continuous Currents."

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Elastimold® Fused Loadbreak Elbows (FLE)

Recommended Elastimold® EFX-E Elbow Fuse at 40° C Ambient Temperature (Single-Phase Transformer)

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)															
	8.3kV										15.5kV (17.2kV)					
1-PHASE TRANSFORMER kVA	TRANSFORMER 1-PHASE VOLTAGE RATING (kV) PHASE-TO-GROUND															
	2.4		4.16		4.8		7.2		7.62		12		14.4		16	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
10	—	6	—	6[a]	—	3	—	3	—	3	—	6[a]	—	6[a]	—	(3[a])
15	—	10	—	6	—	6[a]	—	3	—	3	—	6[a]	—	6[a]	—	(3[a])
25	12	20	—	8	—	8	—	6	—	6	—	6[a]	—	6[a]	—	(3)
37.5	20	25	—	12	—	12	—	8	—	6	—	6	—	6[a]	—	(6[a])
50	25	40	18	20	12	20	10	12	—	10	—	6	—	6	—	(6[a])
75	45	65	20	30	20	25	12	20	12	18	—	10	—	8	—	(8)
100	65	80	30	45	25	40	18	25	18	25	12	18	10	12	—	(10)
167	—	—	65	80	45	65	25	45	25	45	18	(25)	18	20	(12)	(20)
250	—	—	80	—	80	—	45	65	45	65	(25)	(45)	20	(30)	(20)	(30)
333	—	—	—	—	—	—	65	—	80	—	(40)	—	(30)	(45)	(25)	(45)
500	—	—	—	—	—	—	—	—	—	—	—	—	(45)	—	(45)	—

Recommended Elastimold® EFX-E Elbow Fuse at 40° C Ambient Temperature (3-Phase Transformer)

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																	
	8.3kV														15.5kV (17.2kV)			
3-PHASE gndY-gndY TRANSFORMER kVA	TRANSFORMER 3-PHASE VOLTAGE RATING (kV), PHASE TO PHASE																	
	2.4		4.16		4.8		7.2–7.96		8.32		12.47		13.2–14.4		20.8		22.9–24.9	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
15	—	6	—	3	—	3	—	3[a]	—	3[a]	—	6[a]	—	6[a]	—	6[a]	—	(3[a])
22.5	—	8	—	6[a]	—	6[a]	—	3	—	3	—	6[a]	—	6[a]	—	6[a]	—	(3[a])
30	10	12	—	6	—	6	—	6[a]	—	3	—	6[a]	—	6[a]	—	6[a]	—	(3[a])
45	12	20	—	10	—	8	—	6	—	6[a]	—	6[a]	—	6[a]	—	6[a]	—	(3[a])
75	20	30	12	20	—	12	—	8	—	8	—	6	—	6	—	6[a]	—	(3)
100	30	45	18	25	18	20	—	12	—	10	—	8	—	8	—	6[a]	—	(6[a])
112.5	40	65	20	25	18	25	—	12	—	12	—	8	—	8	—	6	—	(6[a])
150	45	80	25	40	20	30	18	20	12	20	10	12	10	12	—	6	—	(6)
200	65	80	40	65	30	45	20	25	18	25	12	18	12	18	8	10	—	(8)
225	80	—	45	65	40	65	20	30	20	25	12	20	12	18	8	10	—	(10)
300	—	—	65	80	45	80	30	45	25	40	18	25	18	25	12	18	—	(12)
500	—	—	—	—	80	—	65	80	45	80	30	45	30	45	18	(25)	(18)	(25)
750	—	—	—	—	—	—	80	—	80	—	45	65	45	—	(25)	(45)	(25)	(40)
1,000	—	—	—	—	—	—	—	—	—	—	80	—	—	—	(40)	—	(40)	—

Notes:

1. Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating.

2. Ratings in parenthesis are 17.2kV fuses.

3. 8.3kV, 3–45A fuses and 15.5kV, 6–20A fuses are used in the small (size 1) elbow housing; 8.3kV, 65–80A fuses and 17.2kV, 3–45A fuses are used in the large (size 3) elbow fuse housing.

4. Recommended fuses meet inrush criteria of 12 times transformer full-load current for .1 second and 25 times transformer full-load current for .01 second. Fuses also meet cold-load pickup criteria of 6 times transformer full-load current for 1 second and 3 times transformer full-load current for 10 seconds.

a. Fuse allows greater than 300% of transformer rating.

Elastimold® Fused Loadbreak Elbows (FLE)

Elastimold® Fuse Housings

The following diagram shows how to construct a catalog number for Fuse Housings.

Indicates field that must be filled in to complete order.

[ ] [ ] FLR [ ] - [ ] 5 [ ]

Nominal Fuse Voltage Rating	Code
8.3kV	**168**
15.5kV	**274**
17.2kV	**274**

Housing	Code
Small*	**1**
Large**	**3**

Fuse Test Port	Code
Two Direct Test Ports	**A**
Two Capacitive Test Points	**Blank**

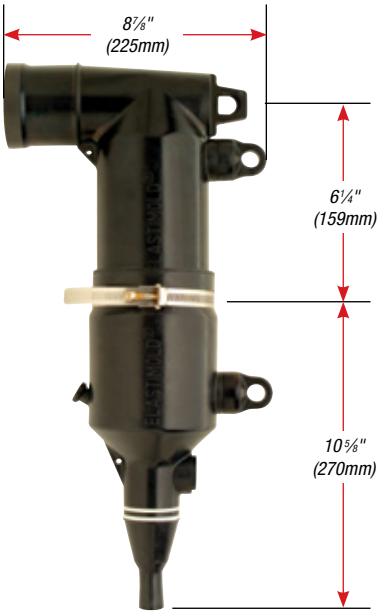
Cable Insulation Diameter		Code
.575"–.740"	15–19mm	**A**
.635"–.905"	16–23mm	**B**
.805"–1.060"	20–27mm	**C**
.890"–1.220"	25–31mm	**D**

Conductor Size		
Size (AWG)		
Stranded/ Compressed	Solid/ Compact	Connector Code
6	—	**180**
—	4	**190**
4	—	**200**
—	2	**210**
2	1	**220**
1	1/0	**230**
1/0	2/0	**240**
2/0	3/0	**250**
3/0	4/0	**260**
4/0	—	**270**

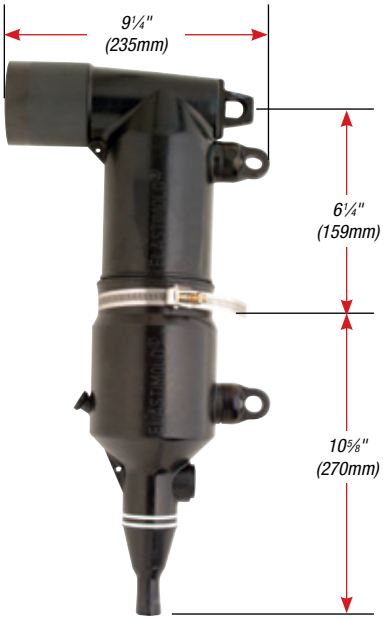
* *Small Housing is used with 8.3kV (3–45A) and 15.5kV (6–20A) rated fuses.*

** *Large Housing is used with 8.3kV (65A and 80A) and 17.2kV (3–45A) rated fuses.*

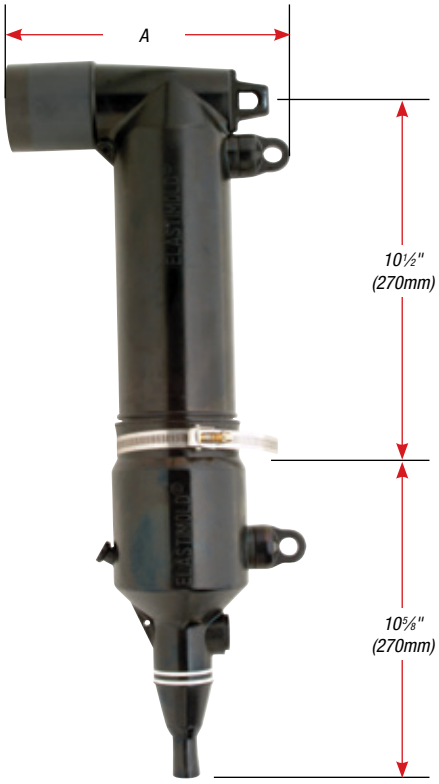
168FLR1



274FLR1



168FLR3 *A = 8⅞" (225mm)*
274FLR3 *A = 9¼" (235mm)*



Notes:

1. *All dimensions rounded up to the nearest eighth inch.*
2. *Also available with direct test port.*
3. *Dimensions with Direct Test Port units are 10¼" (260mm) or 10⅝" (270mm).*
4. *168FLR3 uses a large housing with a 15kV, 200A elbow interface.*

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Elastimold® Full-Range Current-Limiting Fuses

The following diagram shows how to construct a catalog number for Full-Range Current-Limiting Fuses.

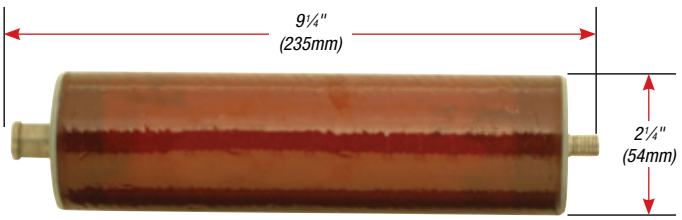
Indicates field that must be filled in to complete order.

EFX [ ] [ ] - E

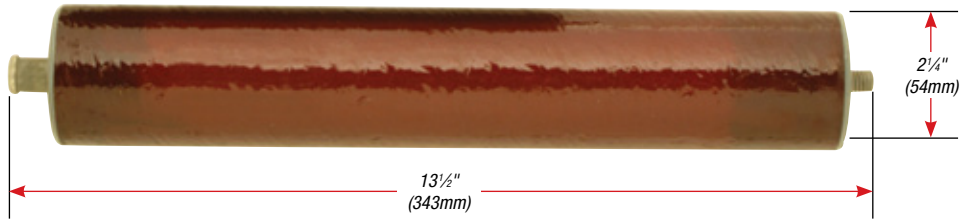
Voltage Rating	Code
8.3kV	**083**
15.5kV	**155**
17.2kV	**172**

Amperage Rating		Code
3A	8.3/17.2kV	**003**
6A	8.3/15.5/17.2kV	**006**
8A	8.3/15.5/17.2kV	**008**
10A	8.3/15.5/17.2kV	**010**
12A	8.3/15.5/17.2kV	**012**
18A	8.3/15.5/17.2kV	**018**
20A	8.3/15.5/17.2kV	**020**
25A	8.3/17.2kV	**025**
30A	8.3/17.2kV	**030**
40A	8.3/17.2kV	**040**
45A	8.3/17.2kV	**045**
65A	8.3kV	**065**
80A	8.3kV	**080**

8.3kV (3–45A)/15.5kV (6–20A) Fuse



8.3kV (65–80A)/17.2kV (3–45A) Fuse



Note: *All dimensions rounded up to the nearest eighth inch.*

Elastimold® Molded Current-Limiting Fuses (MCLF)

You're covered. These fuses provide full-range protection through 50kA interrupting current.

Molded Current-Limiting Fuses

Molded Current-Limiting Fuses feature modular construction with a center replaceable fuse section and interchangeable end fittings for elbow connection or direct attachment to equipment-mounted bushings. The various end fittings enable fuses to be applied throughout the system, including switchgear, junctions, transformers, cable runs and taps.



- EPDM molded rubber deadfront construction insulates, shields and eliminates exposed live parts
- Lightweight fuses are fully sealed and submersible
- Specially designed fuse elements with built-in low- and high-current interrupting capability provide full-range fault current protection through 50kA
- Current-limiting protection limits the system available fault current and dramatically reduces stresses on equipment
- Internal fuse shield prevents corona and deterioration of the fuse element
- Modular construction with a center replaceable fuse section and interchangeable end fittings enables elbow connection or direct attachment to equipment-mounted bushings on junctions, transformers, cable runs and taps
- Compact — suitable for padmount, subsurface or vault installations
- 304 stainless steel brackets and hold-down straps available accommodate a wide variety of mounting arrangements

Elastimold® Molded Current-Limiting Fuses are available in:

- 80A through 180A ratings for applications on 5kV systems
- 6A through 115A ratings for applications on 15kV grounded Wye systems
- 6A through 100A ratings for applications on 25kV grounded Wye systems
- 6A through 50A ratings for applications on 35kV grounded Wye systems

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Elastimold® Molded Current-Limiting Fuses (MCLF)

Ratings

System Voltage Class (kV)	5	15	25/28*	35
Rated Maximum Fuse Voltage (kV)	5.5	8.3/10**	15.5/17.2**	23
Frequency (Hz)	50/60	50/60	50/60	50/60
BIL Impulse Withstand (kV)	60	95	125/140	150
One-Minute AC Withstand (kV)	34	34	40–45	50
Fifteen-Minute DC Withstand (kV)	53	53	78	103
Corona Extinction (kV)	11	11	19/21.5	26
Symmetrical Interrupting Capability (Amp)	50,000	50,000	50,000	50,000
Current Rating (Amp)	80–180	10–115	10–100	10–50

Application Information

Construction: Submersible, non-venting, deadfront, corrosion resistant

Ambient Temperature Range:

-30° C to 65° C for 6–50A fuses;

-30° C to 40° C for >50A fuses.

** 15.5kV L-G rated fuses require 75% grounded load to be applied on a 25kV system.*

*** 17.2kV L-G rated fuses require at least 75% grounded load to be applied on a 28kV system.*

Note: *Fuse replacement requires the MCLF to be de-energized.*
Fuses are only suitable for the system voltage class shown if the recovery voltage across the fuse will not exceed its rated maximum voltage. For three-phase applications, this generally requires that protected transformers be gndY-gndY and have at least 50% grounded load.

Certified Tests

Elastimold® Molded Current-Limiting Fuses have been designed and tested per applicable portions of IEEE, ANSI, NEMA and other industry standards, including:

ANSI C37.40 Standard for Current-Limiting Fuse Service Conditions

ANSI C37.41 Standard for Current-Limiting Fuse Design & Testing

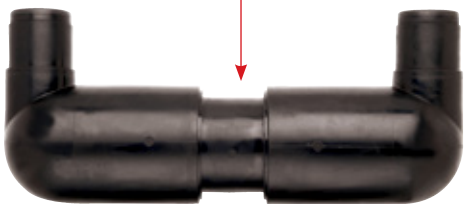
ANSI C37.47 Standard for Current-Limiting Fuse Ratings & Specifications

ANSI/IEEE 386 Standard for Separable Connectors and Bushing Interfaces



Interchangeable Molded Rubber End Fittings

Replaceable Molded Rubber Current-Limiting Fuse



Assembled Fuse Unit



Assembled Fuse Unit with Optional Wall-Mounting Bracket

Elastimold® Molded Current-Limiting Fuses (MCLF)

Electrical Characteristics of Encapsulated Fuses Used in MCLF (1)

NOMINAL FUSE VOLTAGE RATING (kV)	CURRENT RATING (AMPS)	FUSE CAT. NO.	RATED MAXIMUM VOLTAGE (kV)	MAXIMUM CONTINUOUS CURRENT (2) (6)		PEAK ARC VOLTAGE (kV) (5)	MINIMUM MELT I^2T (AMP^2-SEC)	MAXIMUM TOTAL I^2T (AMP^2-SEC) (3) (4)
				25° C	40° C			
5.5	80	**M05CLF080**	5.5	86	84	15	22,100	110,000
	100	**M05CLF100**		108	105	15	56,700	280,000
	125	**M05CLF125**		137	133	15	109,200	530,000
	150	**M05CLF150**		159	154	15	176,000	860,000
	180	**M05CLF180**		185	180	15	259,000	1,270,000
8.3	10	**M15CLF010**	10.0	14	13	28	800	4,000
	20	**M15CLF020**		23	22	26	1,620	11,000
	30	**M15CLF030**		35	33	26	5,250	30,000
	40	**M15CLF040**		43	41	26	8,700	50,000
	50	**M15CLF050**		51	47	26	12,800	70,000
	65	**M15CLF065**	8.3	73	71	25	25,200	100,000
	80	**M15CLF080**		87	84	25	47,000	185,000
	100	**M15CLF100**		106	103	25	78,300	330,000
	115	**M15CLF115**		120	116	25	115,150	480,000
15.5	10	**M25CLF010**	17.2	14	13	46	800	3,700
	20	**M25CLF020**		23	22	45	1,620	10,000
	30	**M25CLF030**		35	33	45	5,250	30,000
	40	**M25CLF040**		43	41	45	8,700	50,000
	50	**M25CLF050**		47	45	45	12,800	70,000
	65	**M25CLF065**	15.5	68	66	40	25,200	110,000
	80	**M25CLF080**		88	84	40	54,400	255,000
	100	**M25CLF100**		100	100	40	80,000	380,000
23.0	10	**M35CLF010**	23.0	14	13	61	800	4,800
	20	**M35CLF020**		23	22	60	1,620	13,000
	30	**M35CLF030**		35	33	60	5,250	38,000
	40	**M35CLF040**		41	40	60	8,700	61,000
	50	**M35CLF050**		47	46	60	12,800	82,000

Notes:

1. Designs have a 50,000A all U/CERMSs Symmetrical Rating.

2. 10–50A fuses have a Rated Maximum Application Temperature of 65° C, and 65–180A fuses have a Rated Maximum Application Temperature of 40° C. (RMAT is the maximum temperature of the air in contact with the MCLF housing at which the fuses have been shown suitable for use.)

3. Tabulated Maximum Total I^2t values are for currents of 50,000A at the nominal voltage of the fuse. Fuses that have a Rated Maximum Voltage higher than their Nominal Voltage Rating will have a higher I^2t let-through when applied at voltages up to these higher values. For example, Maximum Total I^2t values are increased by approximately 30% when 8.3kV fuses are applied at 10kV and approximately 25% when 15.5kV fuses are used at 17.2kV.

4. Maximum total I^2t values are reduced for currents below 50,000A. For example, at 10,000A, I^2t values are approximately 15% less than the published values.

5. Peak arc voltages quoted are for 50,000A currents at the rated maximum voltage listed. Reduced currents and voltages will reduce the peak arc voltage. Consult the factory for further information.

6. Maximum continuous currents at higher ambient temperatures may be determined by derating the fuses by .2% per degree C over 25° C. For example: At 40° C, the derating would be 15 x .2 = 3%, making the maximum continuous current of a 20A fuse 23.0 x .97 = 22A.

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Elastimold® Molded Current-Limiting Fuses (MCLF)

Recommended MCLF at 40° C Ambient Temperature (Single-Phase Transformer)

RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																		
FUSE VOLTAGE	(5.5kV) 8.3kV										15.5kV						23kV	
1-PHASE TRANSFORMER kVA	TRANSFORMER 1-PHASE VOLTAGE RATING (kV) PHASE-TO-GROUND																	
	2.4		4.16		4.8		7.2		7.62		12		14.4		16		19.9	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
10	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]
15	—	10	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]
25	—	20	—	10	—	10	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]
37.5	20	30	—	20	—	20	—	10	—	10	—	10[a]	—	10[a]	—	10[a]	—	10[a]
50	30	40	20	30	—	20	—	10	—	10	—	10[a]	—	10[a]	—	10[a]	—	10[a]
75	50	65	30	40	20	30	—	20	—	20	—	10	—	10	—	10	—	10[a]
100	65	(80)	40	50	30	50	20	30	20	30	—	20	—	10	—	10	—	10
167	(100)	(150)	65	(80)	50	65	30	50	30	50	20	30	20	30	—	20	—	20
250	(150)	—	(100)	(125)	(80)	(100)	50	65	50	65	30	50	30	40	20	30	20	30
333	(180)	—	(125)	(180)	(100)	(150)	65	100	65	100	50	65	30	50	30	50	20	40
500	—	—	(180)	—	(150)	—	115	—	115	—	65	100	65	80	50	—	40	—
750	—	—	—	—	—	—	—	—	—	—	100	—	80	100	—	—	—	—
1,000	—	—	—	—	—	—	—	—	—	—	—	—	100	—	—	—	—	—

Recommended MCLF at 40° C Ambient Temperature (3-Phase Transformer)

RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																		
FUSE VOLTAGE	(5.5kV) 8.3kV														15.5kV		23kV	
3-PHASE gndY-gndY TRANSFORMER kVA	TRANSFORMER 3-PHASE VOLTAGE RATING (kV), PHASE TO PHASE																	
	2.4		4.16		4.8		7.2–7.96		8.32		12.47		13.2–14.4		20.8		22.9–24.9		34.5	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
15	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]
22.5	—	10	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]
30	—	10	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]
45	—	20	—	10	—	10	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]
75	30	40	—	20	—	20	—	10	—	10	—	10[a]	—	10[a]	—	10[a]	—	10[a]	—	10[a]
100	40	50	20	30	20	30	—	20	—	10	—	10	—	10	—	10[a]	—	10[a]	—	10[a]
112.5	40	65	20	30	20	30	—	20	—	20	—	10	—	10	—	10[a]	—	10[a]	—	10[a]
150	50	(80)	30	50	30	40	20	30	—	20	—	10	—	10	—	10[a]	—	10[a]	—	10[a]
200	65	(100)	40	65	40	50	20	30	20	30	—	20	—	20	—	10	—	10	—	10[a]
225	(80)	(125)	50	65	40	65	30	40	30	50	—	20	—	20	—	10	—	10	—	10[a]
300	(100)	(150)	65	(100)	65	(80)	40	50	30	50	20	30	20	30	—	20	10	20	—	10
500	(180)	—	(100)	(150)	(100)	(125)	65	(80)	50	80	30	50	30	50	20	30	20	30	—	20
750	—	—	(180)	—	(125)	(180)	(80)	(125)	80	115	50	80	50	65	30	50	30	40	20	30
1,000	—	—	—	—	(180)	—	(125)	(180)	115	—	65	100	65	100	50	65	40	65	30	40
1,500	—	—	—	—	—	—	(180)	—	—	—	100	—	100	—	65	100	65	80	40	—
2,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	100	—	80	—	50	—

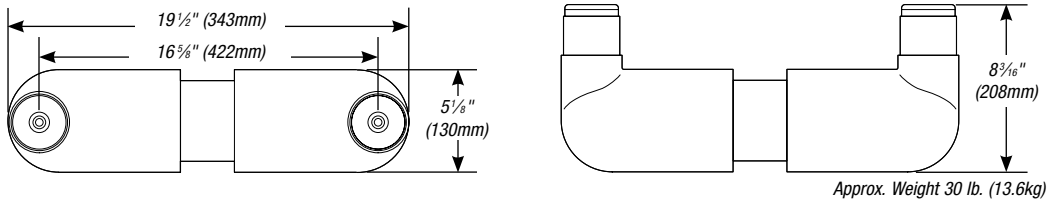
Notes:

1. *Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating.*
2. *Ratings in parentheses are 5.5kV fuses.*
3. *Recommended fuses meet inrush criteria of 12 times transformer full-load current for .1 second and 25 times transformer full-load current for .01 second. Fuses also meet cold-load pickup criteria of 6 times transformer full-load current for 1 second and 3 times transformer full-load current for 10 seconds.*

a. *Fuse allows greater than 300% of transformer rating.*

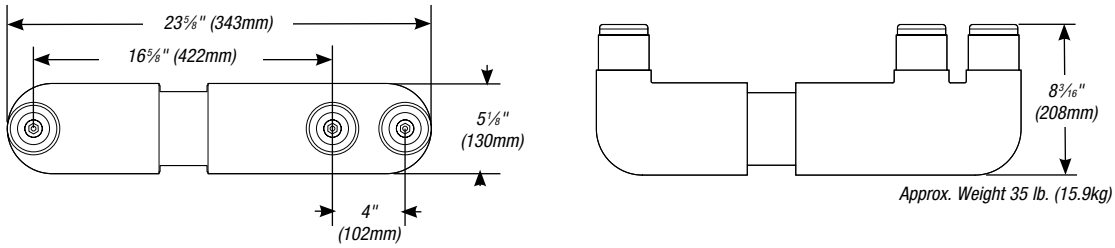
Elastimold® Molded Current-Limiting Fuses (MCLF)

Model 22



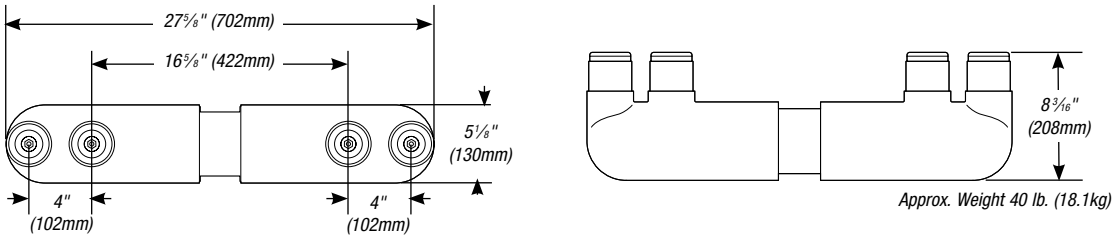
Approx. Weight 30 lb. (13.6kg)

Model 222



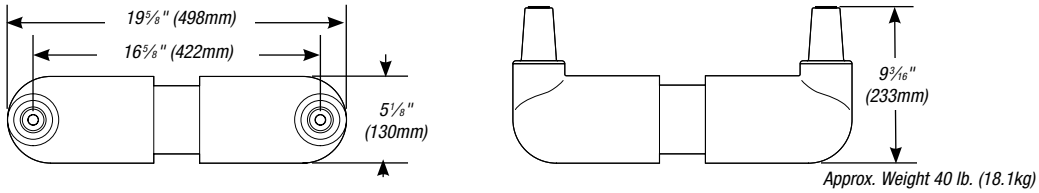
Approx. Weight 35 lb. (15.9kg)

Model 2222



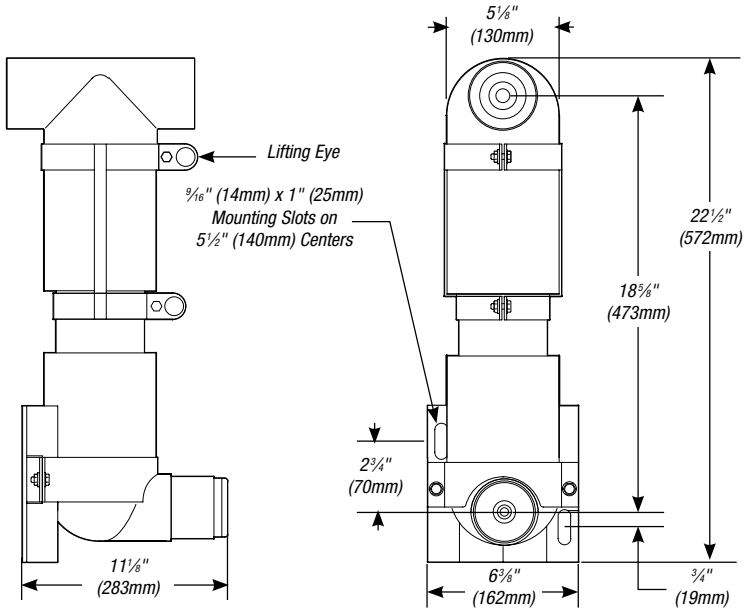
Approx. Weight 40 lb. (18.1kg)

Model 66



Approx. Weight 40 lb. (18.1kg)

Model 6E2



Approx. Weight 30 lb. (13.6kg)

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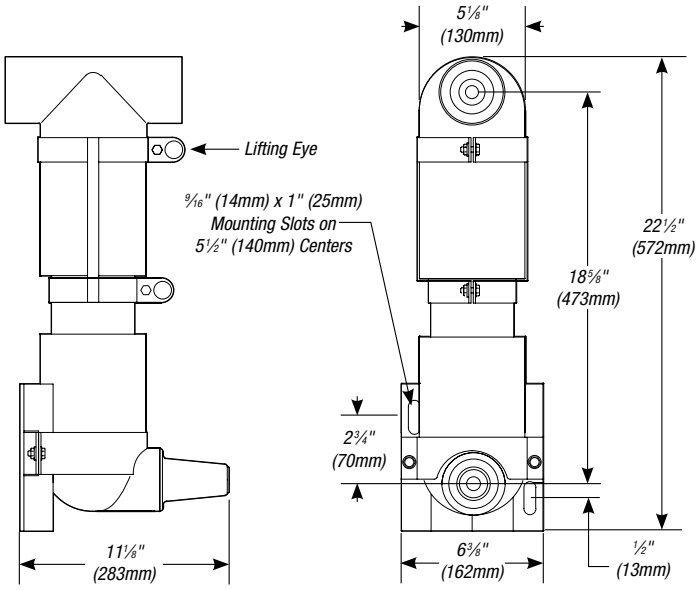
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Elastimold® Molded Current-Limiting Fuses (MCLF)

Model 6E6



Note: *Other models are available such as 26.*

Approx. Weight 30 lb. (13.6kg)

Elastimold® Molded Current-Limiting Fuses

The following diagram shows how to construct a catalog number for a Molded Current-Limiting Fuse:

Indicates field that must be filled in to complete order.

M ☐ **CLF** ☐ **-** ☐ ☐

Voltage Class	kV Code
5.0kV	**5**
15.0kV	**15**
25.0kV	**25**
35.0kV	**35**

*See **page H-70** for additional options.*

Mounting Brackets	Bracket Code
Wall Mounting Bracket with Parking Stands and Bolted Style Hold Down Straps (HDS)	**WMB**
Wall Mounting Bracket with Parking Stands and Quick Release Style Hold Down Straps (QRS)	**WMBQ**

*See **page H-74** for additional options.*

Amperes				
Voltage Class				Amperage Code
5kV	15kV	25kV	35kV	
—	10	10	10	**10**
—	20	20	20	**20**
—	30	30	30	**30**
—	40	40	40	**40**
—	50	50	50	**50**
—	65	65	—	**65**
80	80	80	—	**80**
100	100	100	—	**100**
—	115	—	—	**115**
125	—	—	—	**125**
150	—	—	—	**150**
185	—	—	—	**185**

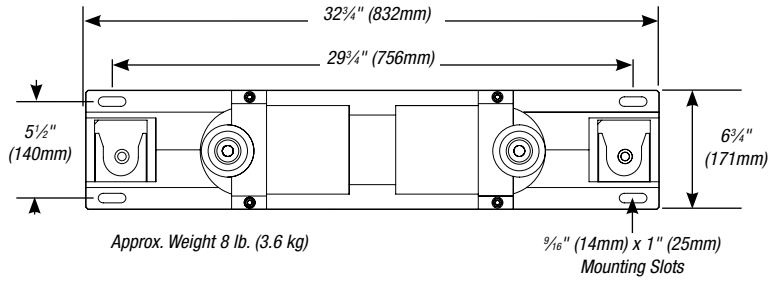
*See **page H-70** for additional options.*

Bushings	Bushing Code
200A Bushing Wells both ends	**22**
200A Bushing Well on one end and two 200A Bushing Wells on the other end	**222**
Two 200A Bushing Wells on both ends	**2222**
600A Bushings on both ends	**66**
600A Elbow Connector on one end and a 200A Bushing Well on the other end	**6E2**
600A Elbow Connector on one end and a 600A Bushing on the other end	**6E6**

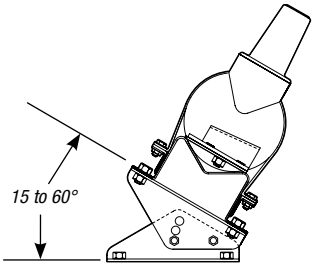
See outline drawings preceding this chart for additional details.

Elastimold® Molded Current-Limiting Fuses (MCLF)

Mounting Options



Optional WMB Mounting Bracket with Adjustable Parking Stands for Vertical Mounting and Fuse Hold-Down Strips



Optional — TMA Universal Tilt Mounting

Optional Fuse Mountings

CAT. NO.	DESCRIPTION
HDS	Bolted-Style Hold-Down Strap (Qty: 1 required per end fitting)
QRS	Quick-Release Style Hold-Down Strap (Qty: 1 required per end fitting)
WMB	Wall-Mounting Bracket with Parking Stands and Bolted-Style Hold-Down Straps
WMBQ	Wall-Mounting Bracket with Parking Stands and Quick-Release Style Hold-Down Straps
SMB	Support Mounting Bracket for use with Models 6E2 or 6E6 end-fitting arrangements; includes Bolted-Style Hold-Down Strap
TMA-EM	Tilt Mounting Adapter; bolts to bottom of Wall-Mounting Bracket WMB or WMBQ to enable up to 60° angle

***Note**: The option number may be added as a suffix to the MCLF catalog number.*

Optimal End Fittings

CAT. NO.	DESCRIPTION	SYSTEM VOLTAGE CLASS	IEEE 386-1995 INTERFACE REFERENCE
EF2	200A Bushing Well End Fitting	5, 15, 25	Figure 3
EF22	Double 200A Bushing Well End Fitting	5, 15, 25	Figure 3
EF6	600A Bushing End Fitting	5, 15, 25	Figures 11 and 13
EF6E	600A Elbow Connector End Fitting	5, 15, 25	Figure 11

***Note**: EF6E is equipped with a standard through-hole spade lug (Type 03700). Use this table only if end fittings are to be ordered and shipped separately from the fuse. See **pages H-72–H-73** for assembled units.*



Other Options

CAT. NO.	DESCRIPTION
MCLF-ADT	Hex Wrench for set screw removal and replacement when disassembling end fittings. Supplied as standard with replacement fuses.

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Elastimold® Molded Canister Fuses (MCAN)

Completely sealed and insulated for padmount, subsurface or vault applications through 28kV gndY–gndY.



MCAN Molded Canister Fuse

- EPDM molded rubber deadfront construction insulates, shields and eliminates live parts
- Fuses are fully sealed and submersible
- Modular construction enables elbow connection or direct attachment to equipment-mounted bushings
- Neon voltage indicators (V2) attached to elbow test points to provide quick and convenient blown-fuse indication
- Various end fittings and bushings make for flexible installation on switchgear, junctions, transformers, cable runs and taps
- Replaceable fuse enables easy fuse replacement without full removal from installation
- Current-limiting protection limits the system available fault current and dramatically reduces stresses on equipment
- 304 stainless steel mounting brackets and wall-mounted parking stands available to accommodate a wide variety of mounting arrangements

The MCAN Molded Canister Fuse is a compact, lightweight EPDM molded rubber fuse enclosure package. MCAN fuse canisters are maintenance-free, completely sealed and submersible. Designs are deadfront, using molded rubber to insulate, shield and eliminate exposed live parts. Units are ideally suited for padmount, subsurface or vault applications, for systems through 28kV gndY–gndY. The MCAN Molded Canister Fuse will accommodate and has been thoroughly tested with Hi-Tech® Trans-Guard® FX fuses. Contact Thomas & Betts before using fuses from other manufacturers.

Fuse Canister Ratings

System Voltage Class (kV)	15	25/28
Maximum Line-to-Ground Voltage (kV)	8.8/10.0	15.5/17.2
BIL Impulse Withstand (kV)	95	125/140
One-Minute AC Withstand (kV)	34	40–45
Fifteen-Minute DC Withstand (kV)	53	78
Corona Extinction (kV)	11	19–21.5
Maximum Continuous Current (Amps)	200*	200*
Momentary Current (kA)	10*	10*

Fuse Ratings

Nominal Voltage Rating (kV)	8.3	15.5	23.0
Rated Maximum Voltage (kV)	8.8/10.0	15.5/17.2**	23.0
Frequency (Hz)	50–60	50–60	50–60
Current Rating (Amps)	3–80	3–65	6–50
Rated Maximum Interrupting Current (Sym. Amps)	50,000	50,000	50,000

Application Information

Construction: Submersible, corrosion resistant, fully shielded

Ambient Temperature Range: -30° C to 65° C

** Without fuse.*

*** The 15.5kV L-G rated fuses require at least 75% grounded load to be applied on a 25kV system.*

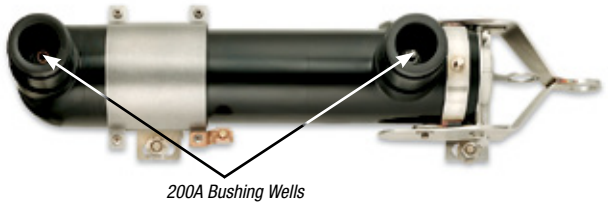
***Note**: Fuse replacement requires the MCAN to be de-energized.*

Certified Tests

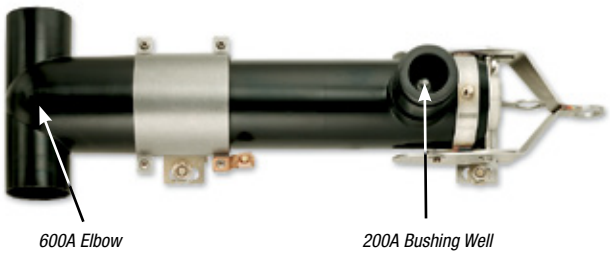
Elastimold® Molded Canister Fuses have been designed and tested per applicable portions of IEEE, ANSI, NEMA and other industry standards, including:

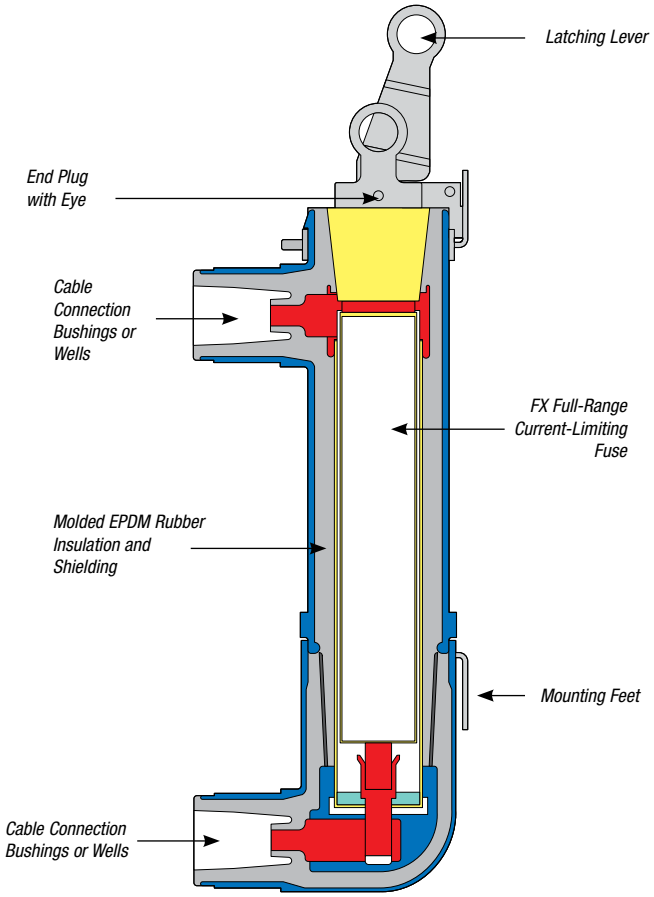
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ANSI C37.47 Standard for Current-Limiting Fuse Ratings & Specifications
ANSI/IEEE 386 Standard for Separable Connectors & Bushing Interfaces

Elastimold® Molded Canister Fuses (MCAN)

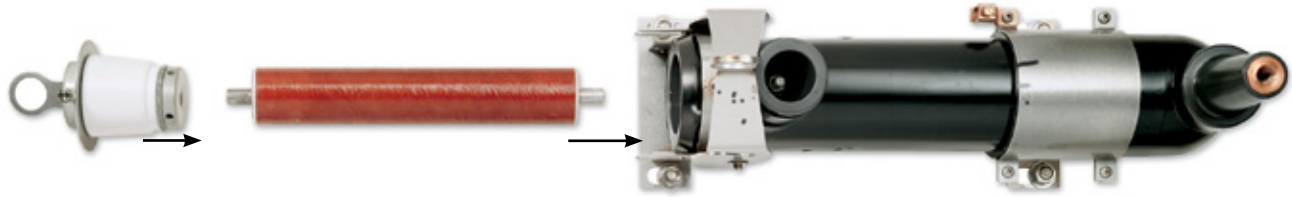


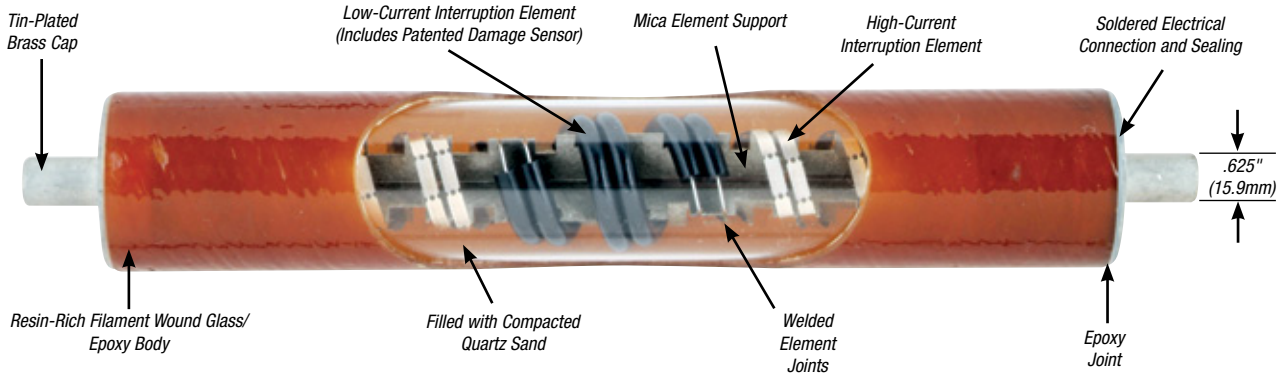






FX Current-Limiting Fuse





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Elastimold® Molded Canister Fuses (MCAN)

Recommended FX: in MCAN at 40° C Ambient Temperature

RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																
FUSE VOLTAGE	8.3KV										15.5KV					
1-PHASE TRANSFORMER KVA	TRANSFORMER 1-PHASE VOLTAGE RATING (KV), PHASE TO GROUND															
	2.4		4.16		4.8		7.2		7.62		12		14.4		16	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
10	—	6	—	6[a]	—	3	—	3[a]	—	3[a]	—	3[a]	—	3[a]	—	3[a]
15	—	10	—	6	—	6[a]	—	3	—	3	—	3[a]	—	3[a]	—	3[a]
25	12	20	8	10	—	8	—	6	—	6	—	3	—	3	—	3
37.5	20	30	12	18	—	12	—	8	—	8	—	6[a]	—	6[a]	—	6[a]
50	25	50	18	25	12	20	10	12	—	10	—	6	—	6	—	6[a]
75	50	65	25	40	20	30	12	20	12	20	—	10	—	8	—	8
100	65	80	30	50	25	50	18	25	18	25	—	12	10	12	—	10
167	—	—	65	80	65	80	30	50	30	50	18	25	18	25	12	20
250	—	—	—	—	80	—	65	80	50	65	25	50	25	40	20	30
333	—	—	—	—	—	—	80	—	65	—	50	65	30	65	25	50
500	—	—	—	—	—	—	—	—	—	—	65	—	65	—	50	—

Recommended FX: in MCAN at 40° C Ambient Temperature

RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																
FUSE VOLTAGE	8.3KV														15.5KV	
3-PHASE GNDY-GNDY TRANSFORMER KVA	TRANSFORMER 3-PHASE VOLTAGE RATING (KV), PHASE TO PHASE															
	2.4		4.16		4.8		7.2–7.96		8.32		12.47		13.2–14.4		20.8		22.9–24.9	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
15	—	6	—	3	—	3	—	3[a]	—	3[a]	—	3[a]	—	3[a]	—	6[a]	—	3[a]
22.5	—	8	—	6[a]	—	6[a]	—	3	—	3	—	3[a]	—	3[a]	—	6[a]	—	3[a]
30	10	12	—	6	—	6	—	6[a]	—	3	—	3[a]	—	3	—	6[a]	—	3[a]
45	12	20	—	10	—	8	—	6	—	6[a]	—	3	—	3	—	6[a]	—	3[a]
75	25	40	12	20	12	18	—	8	—	8	—	6	—	6	—	6[a]	—	3
100	30	50	18	25	18	25	—	12	—	10	—	8	—	8	—	6[a]	—	6[a]
112.5	40	65	20	30	18	25	—	18	—	12	—	8	—	8	—	6[a]	—	6[a]
150	65	80	25	50	25	40	12	25	12	18	—	10	—	10	—	6	—	6
200	80	—	40	65	30	50	18	30	18	25	12	18	—	12	—	8	—	8
225	—	—	50	65	40	65	20	40	20	30	12	20	12	20	—	10	—	8
300	—	—	65	80	65	80	25	50	25	50	18	25	18	25	—	12	—	12
500	—	—	—	—	—	—	30	80	65	80	30	50	30	50	18	25	18	25
750	—	—	—	—	—	—	65	—	80	—	65	80	50	—	25	50	25	50
1,000	—	—	—	—	—	—	—	—	—	—	80	—	—	—	40	65	40	—
1,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	65	—	—	—

Notes: *1. Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating.*
2. 8.3kV, 3–50A fuses are used in mounting code 4 canisters; 8.3kV 65–80A fuses and 15.5kV 3–50A fuses are used in mounting code 5 canisters; 15.5kV 65A fuse and 23kV 3–50A fuses are used in mounting code 6 canisters.
3. Recommended fuses meet inrush criteria of 12 times transformer full-load current for .1 second and 25 times transformer full-load current for .01 second. Fuses also meet cold-load pickup criteria of six times transformer full-load current for 1 second and three times transformer full-load current for 10 seconds.
a. Fuse allows greater than 300% of transformer rating.

Elastimold® Molded Canister Fuses (MCAN)

Electrical Characteristics of Hi-Tech® FX Fuses inside MCAN Canisters

NOMINAL FUSE VOLTAGE RATING (kV)	CURRENT RATING (AMPS)	FUSE CAT. NO.	RATED MAXIMUM VOLTAGE (kV)	MAXIMUM CONTINUOUS CURRENT (2) (6)			PEAK ARC VOLTAGE (kV) (5)	MINIMUM MELT I^2T (AMP^2-SEC)	MAXIMUM TOTAL I^2T (AMP^2-SEC) (3) (4)
				25° C	40° C	65° C			
8.3	3	HTFX230003	10	4.3	4.2	3.9	30	100	350
	6	HTFX230006		9.5	9	8.5	32	620	2,700
	8	HTFX230008		11.5	11	10.5	28	800	4,000
	10	HTFX230010		13.5	13	12.5	28	800	4,000
	12	HTFX230012		17.5	17	16	26	920	8,000
	18	HTFX230018		19.5	19	18	26	1,310	9,500
	20	HTFX230020		24	23	21.5	26	1,620	11,000
	25	HTFX230025		29.5	28.5	27	26	3,660	22,000
	30	HTFX230030		34	33	31	26	5,250	30,000
	40	HTFX230040		40	39	36.5	26	8,700	50,000
	50	HTFX230050		45.5	44	42	26	12,800	70,000
	65	HTFX230065	8.8	70	68	64.5	23	34,000	200,000
	80	HTFX230080		80	77.5	73.5	22	51,200	280,000
15.5	3	HTFX240003 (1)	17.2	4.3	4.2	3.9	51	100	510
	6	HTFX240006		9.5	9	8.5	54	620	2,600
	8	HTFX240008		11.5	11	10.5	46	800	3,700
	10	HTFX240010		13.5	13	12.5	46	800	3,700
	12	HTFX240012		17.5	17	16	43	920	6,500
	18	HTFX240018		19.5	19	18	45	1,310	8,000
	20	HTFX240020		24	23	21.5	45	1,620	10,000
	25	HTFX240025		29.5	28.5	27	45	3,660	22,000
	30	HTFX240030		34	33	31	45	5,250	30,000
	40	HTFX240040		40	39	36.5	45	8,700	50,000
	50	HTFX240050		44.5	43	40	45	12,800	70,000
	65	HTFX240065	15.5	57.6	56	54.5	39	28,300	164,000
23	6	HTFX250006	23	9.5	9	8.5	67	620	3,100
	8	HTFX250008		11.5	11	10.5	61	800	4,800
	10	HTFX250010		13.5	13	12.5	61	800	4,800
	12	HTFX250012		17.5	17	16	60	920	8,300
	18	HTFX250018		19.5	19	18	60	1,310	11,200
	20	HTFX250020		24	23	21.5	60	1,620	13,000
	25	HTFX250025		29.5	28.5	27	60	3,660	28,000
	30	HTFX250030		34	33	31	60	5,250	38,000
	40	HTFX250040		38.5	37	35	60	8,700	61,000
	50	HTFX250050		44.5	43	40	60	12,800	82,000

Notes: *1. Designs have a 50,000A RMS Symmetrical Rating (except for 3A, 15.5kV which was tested at 44kA maximum).*

2. Fuses have a Rated Maximum Application Temperature of 65° C. (RMAT is the maximum temperature of the air in contact with the MCAN housing, at which fuses have been shown to be suitable for use.)

3. Tabulated Maximum Total I^2t values are for currents of 50,000A at the nominal voltage of the fuse. Fuses that have a Rated Maximum Voltage higher than their Nominal Voltage Rating will have a higher I^2t let-through when applied at voltages up to these higher values. For example, Maximum Total I^2t values are increased by approximately 30% when 8.3kV fuses are applied at 10kV and approximately 25% when 15.5kV fuses are used at 17.2kV.

4. Maximum total I^2t values are reduced for currents below 50,000A. For example, at 10,000A, maximum total I^2t values are approximately 15% less than the published values.

5. Peak arc voltages quoted are for 50,000A currents at the rated maximum voltage listed. Reduced currents and voltages will reduce the peak arc voltage. Consult the factory for further information.

6. Maximum continuous currents at higher ambient temperatures may be determined by de-rating the fuses by .2% per degree C over 25° C. For example: At 65° C, the de-rating would be 40 x .2 = 8%, making the maximum continuous current of a 30A fuse 34 x .92 = 31A.

7. Reduction in the long time melting current of the fuses (approximately one hour and longer) due to higher ambient temperatures is the same as described above in Note #6. See time-current characteristics for melting characteristics in this time region.

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FX Fuses and MCAN Fuse Canisters



To specify and order an FX fuse and an MCAN fuse canister:

1. Select the Fuse Catalog Number from the Electrical Characteristics of the Hi-Tech® FX Fuses Inside MCAN Canisters chart on **page H-78**, based on the amperage and "Rated Maximum Voltage (kV)" column.
2. Based on selected fuse, select canister from the "Canister Catalog Number" column of the Elastimold® FX Fuses with MCAN table on **page H-80**. See weights and dimensions table on **page H-81** for additional MCAN Fuse Canister information. (Make sure that the Canister Mounting Code and Diameter Code correspond to the Fuse selected.)
3. Select options and accessories (if required) from **page H-82**.

Example:

To order a 15.5kV, 50A fuse, a fuse canister for this fuse with a 200A bushing well and no options or accessories, specify:

Catalog No. HTFX240050 and MCAN-5B25-22.

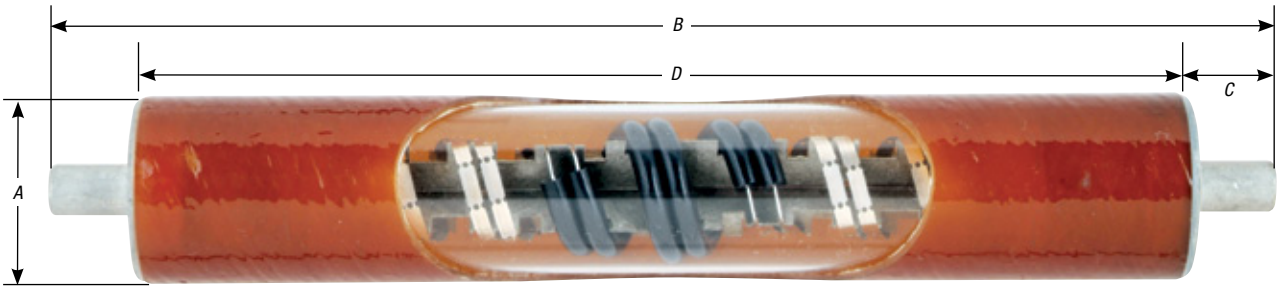
MCAN Fuse Coding System

MOUNTING CODE	MAXIMUM FUSE OVERALL LENGTH	DIAMETER CODE	MAXIMUM FUSE OVERALL DIAMETER
4	10.00" (254mm)	B	2.25" (57mm)
5	14.31" (363mm)	B	2.25" (57mm)
6	17.12" (435mm)	B	2.25" (57mm)

***Note**: Lower Mounting Codes (shorter) fuses may be applied in canisters of higher Mounting Codes by using an adapter. See Mounting Code Adapters on **page H-82**.*

Elastimold® Molded Canister Fuses (MCAN)

Hi-Tech® FX Fuses with MCAN



NOMINAL FUSE VOLTAGE RATING (kV)	CURRENT RATING (AMPS)	FUSE CAT. NO.	RATED MAXIMUM VOLTAGE (kV)	MOUNTING CODE	DIAMETER CODE	(A) OVERALL DIAMETER IN. (MM)	(B) OVERALL LENGTH IN. (MM)	(C) CONTACT LENGTH IN. (MM)	(D) BODY LENGTH IN. (MM)	CANISTER CAT. NO.	FUSE WEIGHT LB. (KG)
8.3	3	HTFX230003	10.0	4	B	2.25 (57)	10.0 (254)	1.02 (26)	7.96 (202)	MCAN-4B15-22 MCAN-4B15-66 MCAN-4B15-6E2 MCAN-4B15-6E6	3.00 (1.3)
	6	HTFX230006									
	8	HTFX230008									
	10	HTFX230010									
	12	HTFX230012									
	18	HTFX230018									
	20	HTFX230020									
	25	HTFX230025									
	30	HTFX230030									
	40	HTFX230040									
	50	HTFX230050									
	65	HTFX230065	8.8	5	B	2.25 (57)	14.31 (363)	1.02 (26)	12.27 (312)	MCAN-5B15-22 MCAN-5B15-66 MCAN-5B15-6E2 MCAN-5B15-6E6	4.25 (1.9)
	80	HTFX230080									
15.5	3	HTFX240003	17.2	5	B	2.25 (57)	14.31 (363)	1.02 (26)	12.27 (312)	MCAN-5B25-22 MCAN-5B25-66 MCAN-5B25-6E2 MCAN-5B25-6E6	4.25 (1.9)
	6	HTFX240006									
	8	HTFX240008									
	10	HTFX240010									
	12	HTFX240012									
	18	HTFX240018									
	20	HTFX240020									
	25	HTFX240025									
	30	HTFX240030									
	40	HTFX240040									
	50	HTFX240050									
	65	HTFX240065	15.5	6	B	2.25 (57)	17.12 (435)	1.02 (26)	15.09 (383)	MCAN-6B25-22	4.75 (2.2)
23.0	6	HTFX250006	23.0	6	B	2.25 (57)	17.12 (435)	1.02 (26)	15.09 (383)	MCAN-6B25-22	4.75 (2.2)
	8	HTFX250008									
	10	HTFX250010									
	12	HTFX250012									
	18	HTFX250018									
	20	HTFX250020									
	25	HTFX250025									
	30	HTFX250030									
	40	HTFX250040									
	50	HTFX250050									

***Note**: For 5kV systems, use the 8.3kV rated fuses.*

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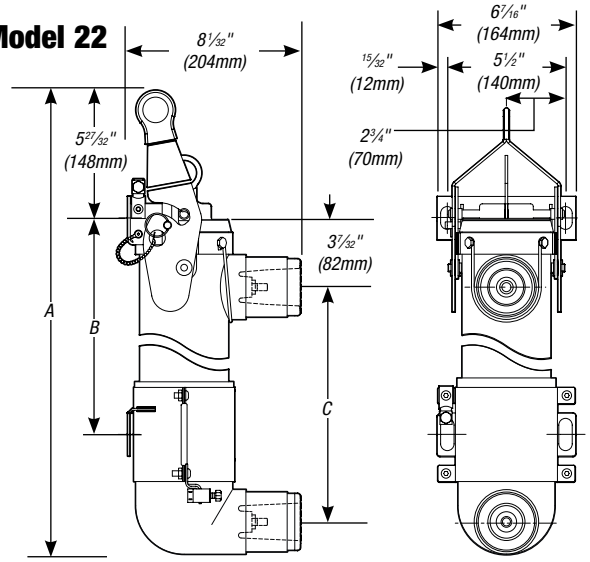
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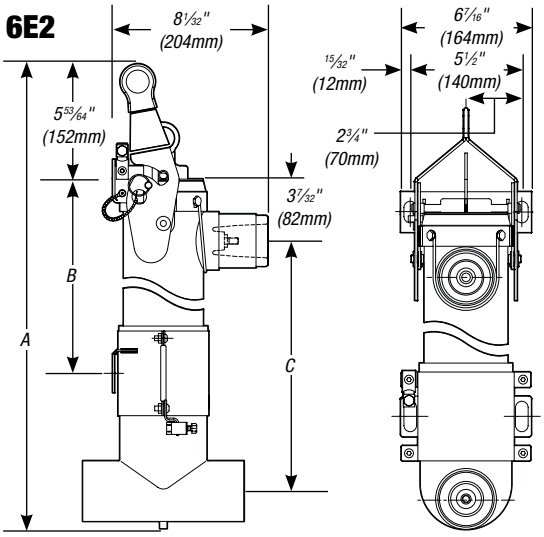
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Elastimold® Molded Canister Fuses (MCAN)

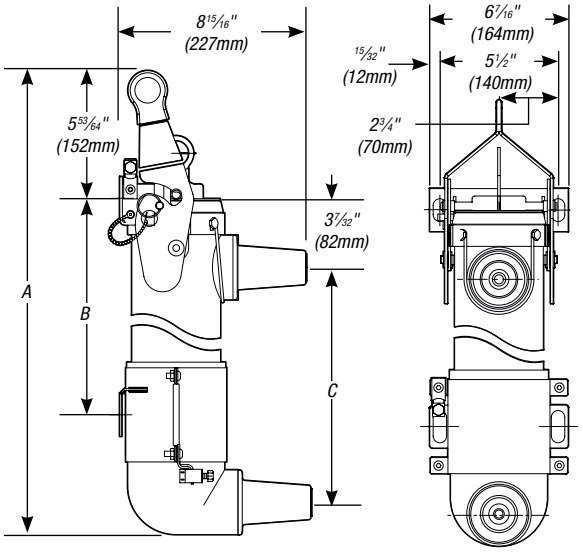
Model 22



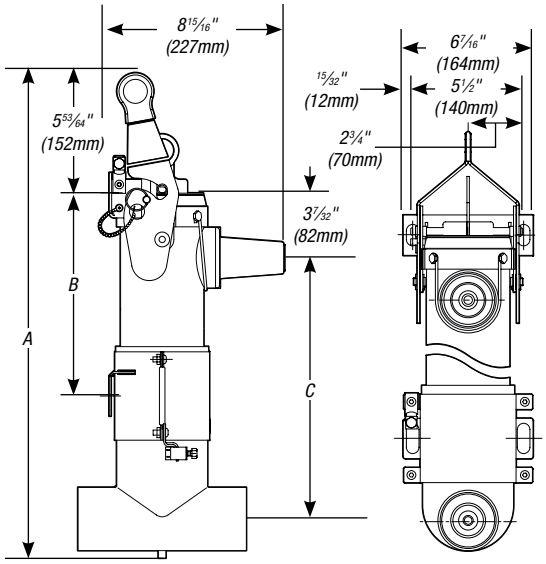
Model 6E2



Model 66



Model 6E6



Weights and Dimensions

CAT. NO.	A IN. (MM)	B IN. (MM)	C IN. (MM)	APPROX. WEIGHT LB. (KG)	END BUSHING	MAIN BUSHING
MCAN-4B15-22	21.49 (546)	10.06 (256)	10.91 (277)	19 (8.6)	200A Bushing Well	200A Bushing Well
MCAN-5B25-22	25.80 (655)	14.37 (365)	15.22 (387)	21 (9.5)	200A Bushing Well	200A Bushing Well
MCAN-5B15-22	25.80 (655)	14.37 (365)	15.22 (387)	21 (9.5)	200A Bushing Well	200A Bushing Well
MCAN-4B15-66	21.49 (546)	10.06 (256)	10.91 (277)	21 (9.5)	600A Bushing	600A Bushing
MCAN-5B25-66	25.80 (655)	14.37 (365)	15.22 (387)	23 (10.4)	600A Bushing	600A Bushing
MCAN-5B15-66	25.80 (655)	14.37 (365)	15.22 (387)	23 (10.4)	600A Bushing	600A Bushing
MCAN-4B15-6E2	23.90 (607)	10.06 (256)	12.91 (328)	20 (9)	600A Elbow Connector	200A Bushing Well
MCAN-5B25-6E2	28.21 (717)	14.37 (365)	17.22 (437)	22 (10)	600A Elbow Connector	200A Bushing Well
MCAN-5B15-6E2	28.21 (717)	14.37 (365)	17.22 (437)	22 (10)	600A Elbow Connector	200A Bushing Well
MCAN-4B15-6E6	23.90 (607)	10.06 (256)	12.91 (328)	20 (9)	600A Elbow Connector	600A Bushing
MCAN-5B25-6E6	28.21 (717)	14.37 (365)	17.22 (437)	22 (10)	600A Elbow Connector	600A Bushing
MCAN-5B15-6E6	28.21 (717)	14.37 (365)	17.22 (437)	22 (10)	600A Elbow Connector	600A Bushing

Elastimold® Molded Canister Fuses (MCAN)

MCAN Molded Canister Fuse Options and Accessories

Voltage Indicators

Neon voltage indicators provide quick and convenient indication of an energized circuit when they are mounted to the test-point provision on MCAN elbow connectors. The voltage indicator illuminates with a flashing neon light when the elbow connector is energized. If the fuse blows, the neon lights on the load-side elbows stop flashing.



CAT. NO.	DESCRIPTION
V2	Capacitive Test Point, Voltage Indicator

Mounting Code Adapters

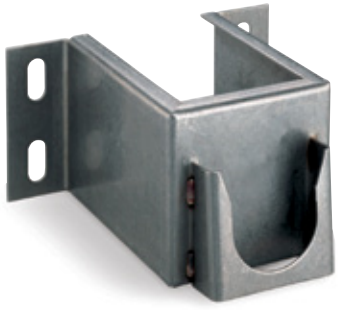
A mounting code adapter is used to extend the fuse end cap ferrule so that a shorter fuse may be installed in a higher-number coded canister. For example, a 4B size fuse can be used in a 5B canister when an MCAN 4-5 adapter is used.



CAT. NO.	DESCRIPTION
MCAN 4-5	Code 4B Size Fuse to a Code 5B Canister
MCAN 4-6	Code 4B Size Fuse to a Code 6B Canister
MCAN 5-6	Code 5B Size Fuse to a Code 6B Canister

Parking Stands

Parking stands can be mounted adjacent to an MCAN Fuse Canister, enabling attachment of additional accessories to ground, isolate and test the elbow cable connectors.



CAT NO.	DESCRIPTION
160WMPS	Wall-Mount Parking Stand

SUFFIX NO.	DESCRIPTION
-PS	Parking Stand between Bushings

Switchgear Assemblies

Elastimold® multi-point junctions can be utilized to create custom switchgear lineups consisting of MVS switches, MVI fault interrupters, MCLF current-limiting fuses, MCAN fuse canisters, fused elbows, elbow arresters and other molded products. The junction enables easy assembly and interconnection of components into fully shielded, submersible, compact arrangements.



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Hi-Tech® OS Series Back-Up Current-Limiting Fuses

Trans-Guard® OS Shorty Fuse

- Highest current ratings available in a single fuse body minimizes the costs and physical space associated with paralleling two fuses to achieve the desired current rating
- Smaller physical size allows for easier installation
- Rigorous testing to meet ANSI/IEEE standards
- Durable design features machined brass end caps, filament-wound high-temperature epoxy tubular bodies, sand filler and a hermetic sealing system
- High fault current interrupting capability — 50,000 amperes symmetrical for most ratings
- Broad range of fuse ratings—30 amps–400 amps
- Elevated rated maximum voltage — 10kV,17.2kV, 25.5kV and 38kV for many designs



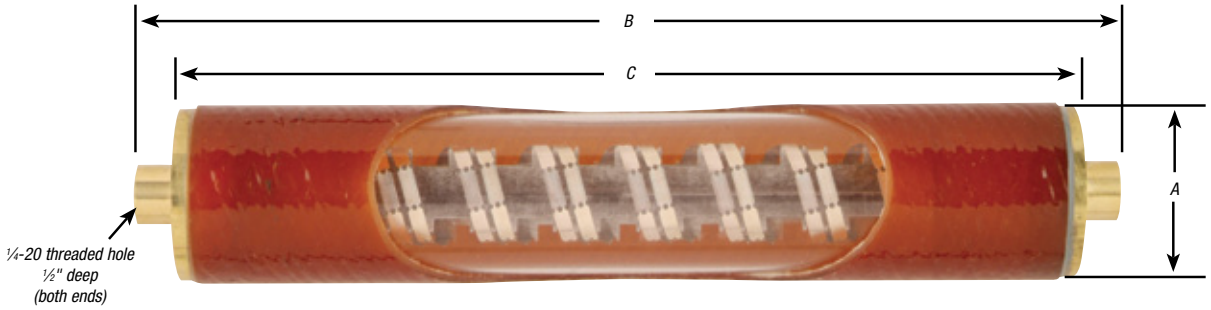
The Trans-Guard® OS Shorty is a back-up type current-limiting fuse designed for application within distribution transformers. Its ability to significantly reduce fault energy and its very high interrupting capability (50,000 amperes symmetrical) provide state-of-the-art protection against today's ever-increasing available fault currents.

OS Shorty fuses are compact in size and allows for easier installation in smaller distribution transformers.

As a back-up type current-limiting fuse (refer to ANSI C37.40 for fuse definitions), the Trans-Guard® OS Shorty must always be applied in series with a properly sized low-current protective device. This device is typically an under-oil expulsion fuse (i.e. Bay-O-Net fault or load sensing link, terminal board weak link, etc.). The expulsion fuse and the current-limiting fuse are each selected to provide fault protection over a certain range of currents. The expulsion fuse is chosen to clear the low-magnitude currents such as those caused by faults that occur external to the transformer, high-impedance faults within the transformer, and in the case of load sensing links, transformer overloads. Such currents are generally below the minimum interrupting current rating of the current-limiting fuse. The back-up type current-limiting fuse is selected so as to clear all other currents.

In addition to interrupting the fault currents resulting from low-impedance faults within the transformer, the back-up current-limiting fuse serves the very important function of limiting the amount of energy that is let through to the source of the fault to a value below the withstand capability of the transformer tank. By doing this, the current-limiting fuse minimizes the likelihood of disruptive equipment failures (i.e. transformer tank ruptures, accessories being damaged or broken loose from their mountings, etc.). No other protective device is available to similarly reduce the risk of disruptive transformer failures.

Hi-Tech® OS Series Back-Up Current-Limiting Fuses



Dimensional Information

NOMINAL FUSE VOLTAGE RATING (KV)	CURRENT RATING (AMPS)	FUSE CAT. NO.	OVERALL DIAMETER (A)	OVERALL LENGTH (B)	BODY LENGTH (C)	FUSE WEIGHT
8.3	40	**HTSS232040**	2.18–2.22" (55.4–56.4mm)	7.09–7.21" (180.0–183.1mm)	6.05–6.13" (153.7–155.7mm)	2.25 lb. 1.02kg
	50	**HTSS232050**		7.68–7.80" (195.1–198.1mm)	6.64–6.72" (168.7–170.7mm)	2.5 lb. 1.13kg
	65	**HTSS232065**				
	80	**HTSS232080**				
	100	**HTSS232100**				
	125	**HTSS232125**		10.89–11.01" (276.6–279.7mm)	9.85–9.93" (250.2–252.2mm)	3.25 lb. 1.45kg
	150	**HTSS232150**				
	165	**HTSS232165**				
	200	**HTSS232200**				
17.2	30	**HTSS240030**	2.18–2.22" (55.4–56.4mm)	9.17–9.29" (232.9–236.0mm)	8.13–8.21" (206.5–208.5mm)	2.75 lb. 1.25kg
	40	**HTSS240040**				
	50	**HTSS240050**				
	65	**HTSS242065**		12.01–12.13" (305.1–308.1mm)	10.97–11.05" (278.6–280.7mm)	3.75 lb. 1.70kg
	80	**HTSS242080**				
	100	**HTSS242100**				
	125	**HTSS242125**		16.49–16.61" (418.8–421.9mm)	15.45–15.53" (392.4–394.4mm)	4.75 lb. 2.15kg
	150	**HTSS242150**				
15.5	165	**HTSS242165**				
23.0	30	**HTSS252030**	2.18–2.22" (55.4–56.4mm)	12.68–12.80" (322.1–325.1mm)	11.64–11.72" (295.7–297.7mm)	3.75 lb. 1.70kg
	40	**HTSS252040**				
	50	**HTSS252050**				
	65	**HTSS252065**		16.29–16.41" (413.8–416.8mm)	15.25–15.33" (387.4–389.4mm)	4.75 lb. 2.15kg
	80	**HTSS252080**				
	100	**HTSS252100**				
38.0	65	**HTSS372065**	3.25–3.32" (82.5–84.3mm)	19.29–19.41" (490.0–493.0mm)	18.29–18.37" (464.6–466.6mm)	12.0 lb. 5.44kg
	80	**HTSS372080**				
	100	**HTSS372100**				
	125	**HTSS372125**				
	165	**HTSS372165**		21.94–22.06" (557.3–560.3mm)	20.94–21.02" (531.9–533.9mm)	13.5 lb. 6.12kg

Note: *Other hardware is available — consult the factory.*

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Hi-Tech® OS Series Back-Up Current-Limiting Fuses

Electrical Characteristics (Single Fuses)

NOMINAL FUSE VOLTAGE RATING (KV)	CURRENT RATING (AMPS)	FUSE CAT. NO.	RATED MAXIMUM VOLTAGE (KV)	PEAK ARC VOLTAGE (KV) (4)	MINIMUM I/C (AMPS)	MINIMUM MELT I^2T (AMP^2-SEC)	MAXIMUM TOTAL I^2T (AMP^2-SEC) (2) (3)
8.3	40	**HTSS232040**	8.3	26	415	3,140	10,000
	50	**HTSS232050**	10.0	25	300	2,500	14,000
	65	**HTSS232065**			350	3,700	18,000
	80	**HTSS232080**			430	6,300	31,000
	100	**HTSS232100**			570	12,800	66,000
	125	**HTSS232125**	8.3	26	850	39,000	120,000
	150	**HTSS232150**		24.5	900	23,000	110,000
	165	**HTSS232165**		24	1,020	39,500	175,000
	200	**HTSS232200**			1,120	54,500	225,000
17.2	30	**HTSS240030**	17.2	49	240	1,260	6,800
	40	**HTSS240040**			330	2,680	12,000
	50	**HTSS240050**			440	4,440	17,000
	65	**HTSS242065**			360	3,700	22,000
	80	**HTSS242080**			440	6,300	36,000
	100	**HTSS242100**			580	12,800	76,000
	125(1)	**HTSS242125**			540	14,800	66,000
	150(1)	**HTSS242150**			700	34,800	137,000
15.5	165(1)	**HTSS242165**	15.5	48	780	51,200	195,000
23.0	30	**HTSS252030**	25.5	71	300	920	4,250
	40	**HTSS252040**			390	1,580	9,750
	50	**HTSS252050**			570	3,200	20,000
	65	**HTSS252065**		70	360	3,700	17,000
	80	**HTSS252080**			440	6,300	28,000
	100	**HTSS252100**			575	12,800	70,000
38.0	65	**HTSS372065**	38.0	104	450	2,600	12,100
	80	**HTSS372080**			570	5,600	23,500
	100	**HTSS372100**			720	9,500	36,100
	125	**HTSS372125**			950	19,300	68,000
	165	**HTSS372165**		102	1,200	43,500	155,000

Notes:

(1) These fuses have only been tested at a rated maximum interrupting current of 44,000A RMS symmetrical. All other fuses have a rated maximum interrupting current of 50,000A RMS symmetrical.

(2) Tabulated maximum total I^2t values are at the nominal voltage of the fuse. Values for 17.2kV fuses at 15.5kV are reduced by approximately 12%, while values for 8.3kV and 23kV fuses at 10kV and 25.5kV are increased by approximately 30% and13% respectively.

(3) Maximum total I^2t values are reduced for currents below 50,000A. For example, at 10,000A, maximum total I^2t values are approximately 15% less than the published values.

(4) Peak arc voltages quoted are for 50,000A currents at the rated maximum voltage listed. Reduced voltages and currents will reduce the peak arc voltage. Consult the factory for information.

Hi-Tech® OS Series Back-Up Current-Limiting Fuses

Electrical Characteristics (Fuses Tested for Use in Parallel)

NOMINAL FUSE VOLTAGE RATING (KV)	CURRENT RATING (AMPS) (2)	FUSE CAT. NO. (ORDER TWO FUSES)	RATED MAXIMUM VOLTAGE (KV)	PEAK ARC VOLTAGE (KV) (5)	MINIMUM L/C (AMPS)	MINIMUM MELT I^2T (AMP^2-SEC)	MAXIMUM TOTAL I^2T (AMP^2-SEC) (3) (4)
8.3	130	**HTSS232065**	8.3	25	420	14,800	65,000
	160	**HTSS232080**			500	25,200	114,000
	200	**HTSS232100**			630	51,200	240,000
	300	**HTSS232150**		24.5	1,900	92,000	425,000
	330	**HTSS232165**		24	2,150	158,000	675,000
	400	**HTSS232200**		23.5	2,380	218,000	850,000
17.2	130	**HTSS242065**	17.2	47	420	14,800	92,000
	160	**HTSS242080**			500	25,200	162,000
	200	**HTSS242100**			630	51,200	310,000
	250(1)	**HTSS242125**		49	1,130	59,200	265,000
15.5	300(1)	**HTSS242150**	15.5	49	1,500	139,200	515,000
	330	**HTSS242165**		46	1,670	204,800	733,000
23.0	130	**HTSS252065**	25.5	69	360	14,800	68,000
	160	**HTSS252080**			450	25,200	115,000
	200	**HTSS252100**	23.0		560	51,200	280,000

Notes:

(1) These fuses have only been tested at a rated maximum interrupting current of 44,000A RMS symmetrical due to test station limitations. All other fuses have a rated maximum interrupting current of 50,000A RMS symmetrical.

(2) Current ratings shown above are achieved by using a parallel combination of two fuses (order two fuses). To facilitate equal sharing of the interrupting duty, the two fuses should be resistance matched (±2%) and be mounted such that current paths to and from each fuses are symmetrical.

(3) Tabulated maximum total I^2t values are at the nominal voltage of the fuse. Values for 17.2kV fuses at 15.5kV are reduced by approximately 12%, while values for 23kV fuses at 25.5kV are increased by approximately 13%.

(4) Maximum total I^2t values are reduced for currents below 50,000A. For example, at 10,000A, maximum total I^2t values are approximately 15% less than the published values.

(5) Peak arc voltages quoted are for 50,000A currents at the rated maximum voltage listed. Reduced voltages and currents will reduce the peak arc voltage. Consult the factory for information.

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Hi-Tech® OS Series Back-Up Current-Limiting Fuses

Fuse Selection

For a detailed explanation on selecting the appropriate backup current limiting fuse for a given application, please refer to Hi-Tech Fuses Application Bulletin FS-10.

For a quicker method of selecting the proper Trans-Guard® OS Shorty Fuse for applications involving coordination with Bay-O-Net expulsion fuses and transformers having impedances equal to or higher than those listed below, refer to the fuse coordination chart **below** and on **pages H-88–H-90**. These charts include columns that specify OS Shorty Fuses for each application. More comprehensive charts listing fusing alternatives for transformers having any impedance can be found at **www.tnb.com/utility**.

Assumed Transformer Impedances Used for Fuses Coordination

TRANSFORMER SIZE (kVA)	1 IMPEDANCES (%)	3 IMPEDANCES (%)
5	1.90	—
10	1.90	—
15	1.90	—
25	1.90	—
37.5	1.90	—
45	—	1.60
50	1.90	—
75	1.90	1.60
100	2.00	—
112.5	—	1.80
150	—	2.00
167	2.60	—
225	—	3.00
250	4.00	—
300	—	3.50
333	5.00	—
500	5.00	4.00
750 and up	5.75	5.75

Hi-Tech® OS Series Back-Up Current-Limiting Fuses

Single-Phase Transformer Coordination for Expulsion & Trans-Guard® OS Shorty Fuses

FUSE VOLTAGE	TRANS-GUARD® OS SHORTY FUSE VOLTAGE RATING (KV)													
	8.3kV						15.5/17.2kV						23kV	
	TRANSFORMER VOLTAGE RATING (KV) PHASE-TO-GROUND													
	2.4		4.16–4.8		7.2–7.96		12–12.47		13.2–14.4		16		19.9	
	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY
kVA	***Dual Sensing Bay-O-Net (4000358___) [a,c] and OS Shorty Fuse Coordinations***													
5	C03	40	C03	40	C03	40	C03	30	C03	30	C03	30	C03	30
10	C05	40	C05	40	C03	40	C03	30	C03	30	C03	30	C03	30
15	C08	65	C05	40	C03	40	C03	30	C03	30	C03	30	C03	30
25	C10	100	C08	65	C05	40	C03	30	C03	30	C03	30	C03	30
37.5	C12	150	C10	100	C08	50	C05	30	C05	30	C03	30	C03	30
50	C12	165	C10	125	C08	65	C05	30	C05	30	C05	30	C05	30
75	C14	300*	C12	150	C10	100	C08	65	C08	50	C08	50	C05	30
100	C14	330*	C12	165	C10	125	C08	80	C08	65	C08	65	C05	40
167	—	—	C14	300*	C12	150	C10	100	C10	100	C10	100	C08	65
250	—	—	C18	330*	C14	200	C12	125	C12	125	C10	100	C10	80
333	—	—	C18	330*	C14	200	C12	125	C12	125	C12	125	C10	80
500	—	—	—	—	C18	330*	C14	165	C14	165	C12	125	C12	130*
kVA	***Current Sensing Bay-O-Net (4000353___) [a,b] and OS Shorty Fuse Coordinations***													
5	C04	40	C04	40	C04	40	C04	30	C04	30	C04	30	C04	30
10	C06	40	C04	40	C04	40	C04	30	C04	30	C04	30	C04	30
15	C08	40	C06	40	C04	40	C04	30	C04	30	C04	30	C04	30
25	C10	80	C08	40	C06	40	C04	30	C04	30	C04	30	C04	30
37.5	C10	100	C08	65	C06	40	C06	30	C06	30	C04	30	C04	30
50	C12	125	C10	100	C08	40	C06	30	C06	30	C06	30	C04	30
75	C14	165	C12	125	C10	80	C08	40	C08	40	C06	30	C06	30
100	C14	200	C12	150	C10	100	C08	50	C08	40	C08	40	C06	30
167	C17	300*	C14	165	C12	125	C10	80	C10	80	C10	65	C08	40
250	—	—	C16	200	C14	150	C12	100	C12	100	C10	65	C10	65
333	—	—	C17	300*	C16	200	C14	150	C12	100	C12	100	C12	80
500	—	—	—	—	C17	300*	C14	150	C14	150	C14	150	C12	100
kVA	***Dual Element Bay-O-Net (4038108___) [a,c] and OS Shorty Fuse Coordinations***													
5	C03	40	C03	40	C03	40	C03	30	C03	30	C03	30	C03	30
10	C05	40	C04	40	C03	40	C03	30	C03	30	C03	30	C03	30
15	C07	50	C05	40	C03	40	C03	30	C03	30	C03	30	C03	30
25	C09	100	C06	40	C04	40	C03	30	C03	30	C03	30	C03	30
37.5	C11	125	C09	80	C06	40	C05	30	C04	30	C03	30	C03	30
50	C12	125	C09	100	C07	50	C06	40	C05	30	C04	30	C03	30
75	—	—	C12	125	C09	100	C07	50	C06	40	C06	40	C05	30
100	—	—	C12	125	C09	100	C09	80	C07	65	C07	50	C06	40
167	—	—	—	—	C12	125	C11	100	C09	80	C07	65	C07	50
250	—	—	—	—	—	—	C12	100	C11	100	C09	80	—	—
333	—	—	—	—	—	—	C12	100	C12	100	C12	100	—	—

Notes: *Bay-O-Net fuse selection is based on Cooper Power Systems recommendations.*
Bay-O-Net fuses are selected to meet inrush criteria of 12 times transformer full load current for .1 second.
Backup OS Shorty fuses are selected to melt only on internal transformer faults, where transformer impedance is equal to or greater than the value given in chart on ***page H-87****. If the impedance is higher, a smaller fuse can often be used.*

** Indicate parallel fuse applications.*

a. Or equivalent Bay-O-Net link.

b. Current Sensing Bay-O-Net fuses are selected to melt with three to four times transformer full load current at 300 seconds.

c. Dual Sensing and Dual Element Bay-O-Net fuses are selected to limit transformer load to approximately 160% for seven hours and 200% for two hours with the transformer initially carrying 75% of load at an ambient temperature of 35° C.

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Hi-Tech® OS Series Back-Up Current-Limiting Fuses

3-Phase Transformer Coordination for Expulsion and Trans-Guard® OS Shorty Fuses

kVA	TRANS-GUARD® OS SHORTY FUSE VOLTAGE RATING (kV)																			
	8.3kV						15.5/17.2kV								23kV					
	TRANSFORMER VOLTAGE RATING (kV) PHASE-TO-PHASE																			
	2.4		4.16–4.8		7.2–7.96		12–12.47		13.2–14.4		20.8[d]		24.9[d]		23.0		27.6[d]		34.5[d]	
	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY
Dual Sensing Bay-O-Net (4000358___) [a,c] and OS Shorty Fuse Coordinations																				
45	C10	125	C08	65	C05	40	C03	30	C03	30	C03	30	C03	30	C03	30	C03	30	C03	30
75	C12	165	C10	125	C08	65	C05	30	C05	30	C03	30	C03	30	C03	30	C03	30	C03	30
112.5	C14	300*	C12	150	C08	80	C08	50	C08	50	C05	30	C05	30	C05	30	C05	30	C03	30
150	C14	300*	C12	165	C10	125	C08	65	C08	65	C05	30	C05	30	C05	30	C05	30	C05	30
225	C18	400*	C14	300*	C12	150	C10	100	C10	80	C08	50	C08	50	C08	65	C08	65	C05	30
300	C18	400*	C14	300*	C12	150	C10	100	C10	100	C08	50	C08	50	C08	65	C08	65	C05	30
500	—	—	C18	400*	C14	200	C12	125	C12	125	C10	80	C10	80	C10	80	C10	80	C08	65
750	—	—	C18	400*	C18	330*	C14	150	C14	150	C12	125	C12	125	C12[e]	130*	C10	80	C10	80
1000	—	—	—	—	C18	330*	C14	165	C14	165	C12	125	C12	125	C12[e]	130*	C12	130*	C10	80
1500	—	—	—	—	—	—	C18[d]	300*	C18[d]	300*	C14	165	C14	150	C14[e]	200*	C14	200*	C12	130*
2000	—	—	—	—	—	—	—	—	—	—	—	—	C14	165	—	—	C14	200*	C14	200*
Current Sensing Bay-O-Net (4000353___) [a,b] and OS Shorty Fuse Coordinations																				
45	C10	100	C08	40	C06	40	C04	30	C04	30	C04	30	C04	30	C04	30	C04	30	C04	30
75	C12	125	C10	100	C06	40	C06	30	C06	30	C04	30	C04	30	C04	30	C04	30	C04	30
112.5	C12	165	C10	100	C08	65	C06	40	C06	30	C06	30	C04	30	C04	30	C04	30	C04	30
150	C14	165	C12	125	C10	100	C08	40	C08	40	C06	30	C06	30	C06	30	C06	30	C04	30
225	C16	200	C14	150	C10	100	C10	65	C10	65	C08	40	C08	30	C08	30	C06	30	C06	30
300	C17	300*	C14	150	C12	125	C10	80	C10	65	C08	40	C08	30	C08	30	C08	30	C06	30
500	—	—	C17	300*	C14	150	C12	125	C12	100	C10	65	C10	65	C10	65	C10	65	C08	30
750	—	—	C17	300*	C16	200	C14	150	C14	150	C12	80	C12	80	C12	80	C10	65	C10	65
1000	—	—	—	—	C17	300*	C14	150	C14	150	C12	100	C12	100	C12	100	C12	80	C12	80
1500	—	—	—	—	—	—	C16	250*	C16	250*	C14	150	C14	150	C14[e]	160*	C14	160*	C12	100
2000	—	—	—	—	—	—	—	—	C17[e]	300*	C16	250*	C16	250*	C16[e]	200*	C14	160*	C14	160*
2500	—	—	—	—	—	—	—	—	—	—	C17[e]	300*	C16	250*	—	—	—	—	—	—
Dual Element Bay-O-Net (4038108___) [a,c] and OS Shorty Fuse Coordinations																				
45	C09	100	C07	65	C04	40	C03	30	C03	30	C03	30	C03	30	C03	30	C03	30	C03	30
75	C12	125	C09	100	C06	40	C04	30	C04	30	C03	30	C03	30	C03	30	C03	30	C03	30
112.5	—	—	C11	125	C07	65	C06	40	C06	40	C05	30	C04	30	C04	30	C03	30	C03	30
150	—	—	C12	125	C09	100	C07	50	C07	50	C06	40	C05	30	C05	30	C04	30	C03	30
225	—	—	—	—	C11	100	C09	65	C09	65	C07	50	C06	30	C06	40	C06	40	C05	30
300	—	—	—	—	C12	125	C09	80	C09	80	C09	65	C07	50	C07	50	C07	50	C06	40
500	—	—	—	—	—	—	C12	100	C12	100	C11	80	C09	65	—	—	—	—	C07	50
750	—	—	—	—	—	—	—	—	—	—	C12	100	C11	80	—	—	—	—	—	—
1000	—	—	—	—	—	—	—	—	—	—	—	—	C12	100	—	—	—	—	—	—

Notes: *Bay-O-Net fuse selection is based on Cooper Power Systems recommendations.*
Bay-O-Net fuses are selected to meet inrush criteria of 12 times transformer full load current for .1 second.
Backup OS Shorty fuses are selected to melt only on internal transformer faults, where transformer impedance is equal to, or greater than, the value given on ***page H-87.*** *If the impedance is higher, a smaller fuse can often be used.*

** Indicates parallel fuse applications.*

a. Or equivalent bayonet link.

b. Current Sensing Bay-O-Net fuses are selected to melt with three to four times transformer full load current at 300 seconds.

c. Dual Sensing and Dual Element Bay-O-Net fuses are selected to limit transformer load to approximately 160% for seven hours and 200% for two hours with the transformer initially carrying 75% of load at ambient temperature of 35° C.

d. Applications are limited to gnd Y-gnd Y connected transformers with no more than 50% delta connected secondary load. Phase-to-ground rated fuses are frequently recommended for gnd Y-gnd Y connected transformers.

e. Bay-O-Net assembly may be subjected to damage during fault clearing at currents above the Bay-O-Net's Maximum I/C.

Hi-Tech® OS Series Back-Up Current-Limiting Fuses

Single-Phase Transformer Coordination for Cooper High Ampere Overload Bay-O-Net (4038361_CB) & Trans-Guard® OS Shorty Fuses

Fuse Voltage	TRANS-GUARD® OS SHORTY FUSE VOLTAGE RATING (kV)									
	8.3kV						15.5/17.2kV			
kVA	TRANSFORMER VOLTAGE (kV) PHASE-TO-GROUND									
	2.4		4.16–4.8		7.2–7.96		12–12.47		13.2–14.4	
	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY
75	C03	165	—	—	—	—	—	—	—	—
100	C03	200	—	—	—	—	—	—	—	—
167	C04	300*	C03	165	—	—	—	—	—	—
250	C05	300*	C04	165	—	—	—	—	—	—
333	—	—	C05	300*	C03	150	—	—	—	—
500	—	—	C05	300*	C04	165	C03	125	C03	125
833	—	—	—	—	C05	300*	C04	165	C04	150

3-Phase Transformer Coordination for Cooper High Ampere Overload Bay-O-Net (4038361_CB) & Trans-Guard® OS Shorty Fuses

Fuse Voltage	TRANS-GUARD® OS SHORTY FUSE VOLTAGE RATING (kV)													
	8.3kV						15.5/17.2kV							
kVA	TRANSFORMER VOLTAGE RATING (kV) PHASE-TO-PHASE													
	2.4		4.16–4.8		7.2–7.62		12–12.47		13.2–14.4		20.8[a]		24.9[a]	
	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY
112.5	C03	165	—	—	—	—	—	—	—	—	—	—	—	—
150	C03	165	—	—	—	—	—	—	—	—	—	—	—	—
225	C04	200	—	—	—	—	—	—	—	—	—	—	—	—
300	C04	300*	C03	150	—	—	—	—	—	—	—	—	—	—
500	C05	300*	C04	200	C03	150	—	—	—	—	—	—	—	—
750	—	—	C05	300*	C04	150	C03	125	—	—	—	—	—	—
1000	—	—	—	—	C05	200	C04	150	C03	125	—	—	—	—
1500	—	—	—	—	C05	300*	C04	165	C04	165	C03	125	C03	125
2000	—	—	—	—	—	—	C05	250*	C05	250*	C04	150	C04	150
2500	—	—	—	—	—	—	C05[b]	300*	C05[b]	300*	C04	165	C04	150

Notes: *Bay-O-Net fuse selection is based on Cooper Power Systems recommendations. Bay-O-Net fuses are selected to meet inrush criteria of 12 times transformer full load current for 0.1 second. Backup OS Shorty fuses are selected to melt only on internal transformer faults, where transformer impedance is equal to, or greater than, the value given on* ***page H-87.*** *If the impedance is higher, a smaller fuse can often be used.*

** Indicates parallel fuse applications.*

High Ampere Overload Bay-O-Net fuses are selected to limit transformer load to approximately 160% for seven hours and 200% for two hours with the transformer initially carrying 75% of load at ambient temperature of 35° C.

a Applications are limited to gnd Y-gnd Y connected transformers with no more than 50% delta connected secondary load. Phase-to-ground rated fuses are frequently recommended for gnd Y-gnd Y connected transformers.

b Bay-O-Net assembly may be subjected to damage during fault clearing at currents above the Bay-O-Net's maximum I/C.

ABB 34.5kV Protective Links (345B995G___) & 38kV Trans-Guard® OS Shorty Fuses

kVA	ASSUMED IMPEDANCE	TRANSFORMER VOLTAGE (kV) L-L					
		26.4		27.6		34.5	
	Z%	LINK	SHORTY	LINK	SHORTY	LINK	SHORTY
75	1.6	2	65	2	65	2	65
112.5	1.8	3	65	3	65	2	65
150	2.0	3A	65	3A	65	3	65
225	3.0	4	65	4	65	3A	65
300	3.5	5A	65	5	65	4	65
500	4.0	6	65	6	65	5A	65
750	5.75	7	65	7	65	7	65
1000	5.75	8	80	8	80	7	65
1100	5.75	8	100	8	80	7A	80
1250	5.75	9	125	9	125	7A	80
1500	5.75	9	125	9	125	8	100
1750	5.75	9	125	9	125	9	125
1850	5.75	10	165	9	125	9	125
2000	5.75	10	165	10	165	9	125
2250	5.75	10	165	10	165	9	125
2500–2850	5.75	10	165	10	165	10	165
3000	5.75	—	—	10	165	10	165
3250–3800	5.75	—	—	—	—	10	165

Note: *Backup fuses are selected to melt only on internal transformer faults, where transformer impedance is equal to, or greater than, the value given. For transformers having lower impedances, consult the factory.*

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Hi-Tech® EXT Series Back-Up Current-Limiting Fuses

Minimize energy let-through — maximize equipment protection.

Trans-Guard® EXT Current-Limiting Backup Fuse

In addition to interrupting higher fault currents, the Trans-Guard® EXT Current-Limiting Backup Fuse serves the very important function of limiting the amount of energy let-through to the source of the fault to a value below the withstand capability of the equipment being protected.

New and improved design offers you:

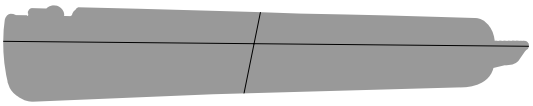
- Smaller size and lighter weight for easier handling
- Lowest energy let-through in the industry
- The most complete range of ratings available
- Lowest total I^2t let-throughs in the industry provide maximum protection for equipment by minimizing energy let-through during a fault
- Higher melt I^2t's on smaller fuse ratings make fuses less susceptible to damage from current surges
- High fault interrupting capability — as high as 50kA symmetrical
- Shorter, lighter weight design makes fuses easy to handle and install
- Integral pre-assembled hardware reduces installation time and likelihood of joint deterioration

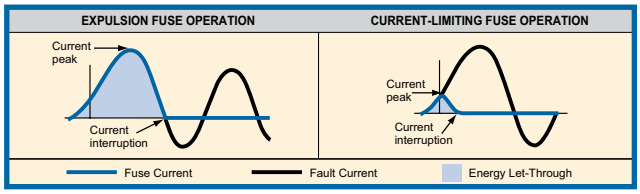
Application

Designed to enhance protection on overhead distribution systems, the Trans-Guard® EXT Current-Limiting Backup Fuse both significantly reduces energy let-through during a fault and offers very high interrupting capability to provide state-of-the-art protection against today's ever-increasing available fault currents.



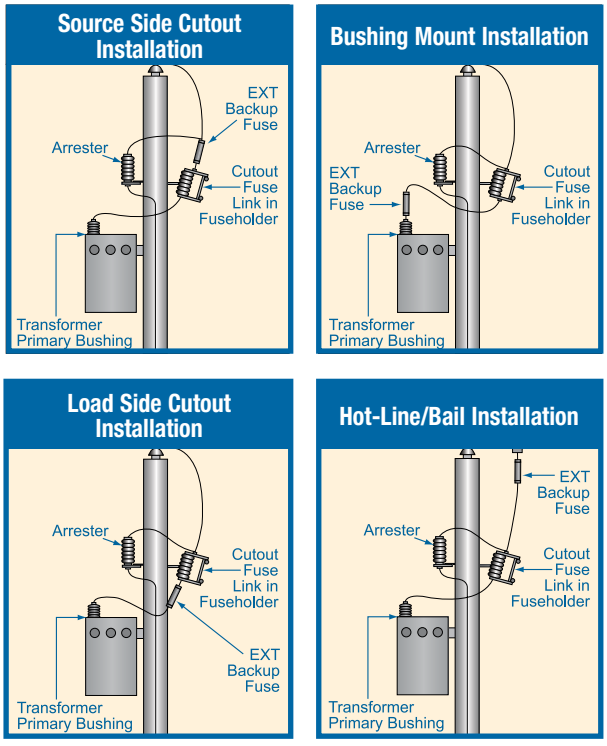
Note: *The Trans-Guard® EXT Current-Limiting Backup Fuse interrupts high-level currents and must be applied in series with another device capable of interrupting low- to mid-level currents. This is most commonly a cutout expulsion fuse. When properly coordinated, the Trans-Guard® EXT Current-Limiting Backup Fuse always allows sufficient let-through current to cause the cutout fuse to melt and drop open, making it easy to visually pinpoint where the fault occurred.*





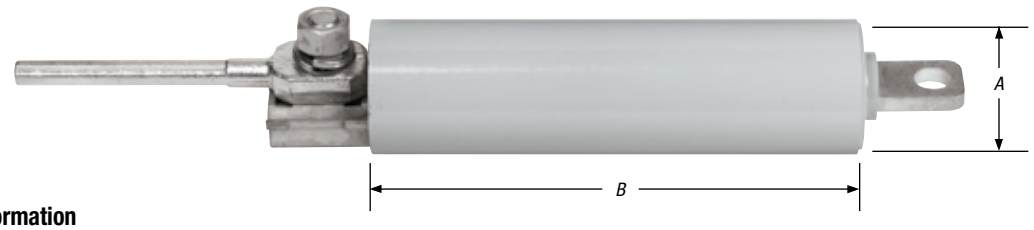
- Durable design features machined brass endcaps and filament-wound epoxy, centerless ground tubular bodies coated with oven-baked acrylic paint
- Broadest range of ratings available — up to 100K at 8.3kV and 15.5kV; up to 80K at 23kV
- Current-limiting action improves power quality by reducing voltage dip time during a fault and reduces flame discharge and noise associated with the operation of the series-connected cutout fuse
- Wide variety of mounting and connection options for greater flexibility in installation
- 100% leak tested to ensure hermetic sealing
- Reduced energy let-through provides arc flash reduction

Type of Installations



Hi-Tech® EXT Series Back-Up Current-Limiting Fuses

Trans-Guard® EXT Current-Limiting Backup Fuse for 12K–40K Ratings

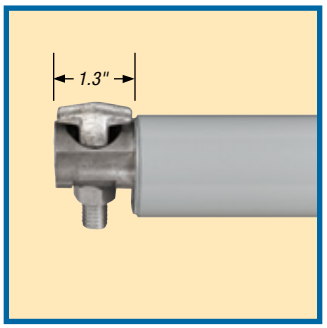


Ordering Information

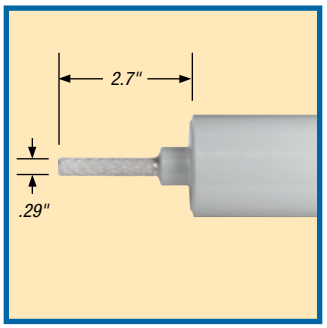
BASE CAT. NO.*	NOMINAL VOLTAGE RATING (kV)	CURRENT RATING	DIMENSION "A" (INCHES)	DIMENSION "B" (INCHES)	WEIGHT (LBS.)
HTDE23 (X) 012	8.3	12K	1.5	5.2	1.0
HTDE23 (X) 025		25K	1.5	7.1	1.1
HTDE23 (X) 040		40K	2.2	6.3	2.2
HTDE24 (X) 012	15.5	12K	1.5	8.6	1.3
HTDE24 (X) 025		25K	1.5	11.9	1.8
HTDE24 (X) 040		40K	2.2	10.4	3.3
HTDE25 (X) 012	23.0	12K	1.5	10.5	1.6
HTDE25 (X) 025		25K	2.2	13.4	4.0
HTDE25 (X) 040		40K	2.2	13.4	4.0

** When ordering, replace the (X) in the Base Catalog Number with the appropriate Hardware Code from the chart **below**.*

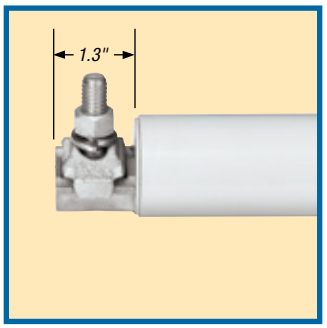
Hardware for 12K–40K Ratings



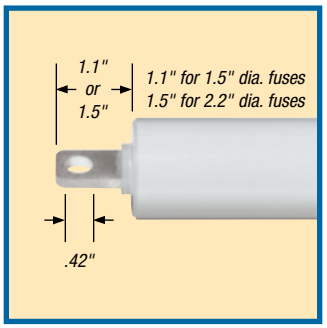
Eyebolt
(Accepts #8 – 2/0)



Knurled Stud



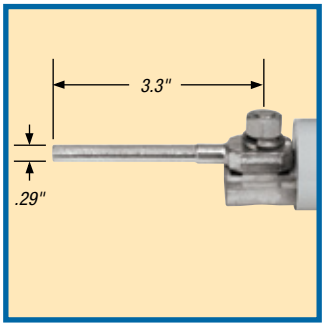
Parallel-Groove
(Accepts #6 – 2/0)



Spade

Hardware Code

HARDWARE CODE (X)	1ST END HARDWARE	2ND END HARDWARE
1	Spade	Knurled Stud
5	Parallel-Groove	Knurled Stud
6	Parallel-Groove	Spade
8	Eyebolt	Knurled Stud
9	Universal Adapter	Spade
C	Universal Adapter	Knurled Stud
F	Eyebolt	Eyebolt
G	Parallel-Groove	Eyebolt
H	Eyebolt	Spade
J	Eyebolt	Universal Adapter
W	Parallel-Groove	Parallel-Groove
Z	Parallel-Groove	Universal Adapter



Universal Adapter
Rotatable through 180°

Thomas&Betts

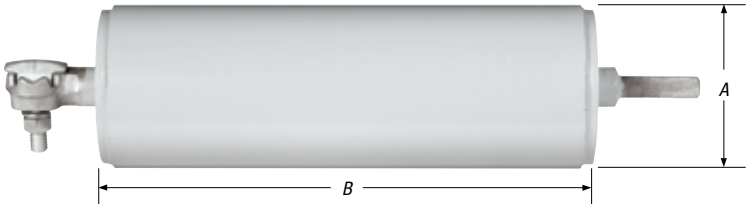
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Hi-Tech® EXT Series Back-Up Current-Limiting Fuses

Trans-Guard® EXT Current-Limiting Backup Fuse for 65K–80K Ratings



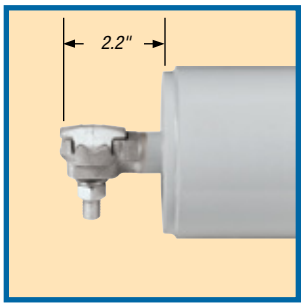
Ordering Information

BASE CAT. NO.	NOMINAL VOLTAGE RATING (kV)	CURRENT RATING	DIMENSIONS (IN.) "A"	DIMENSIONS (IN.) "B"	WEIGHT (LBS.)
HTDE33 (X) 065*	8.3	65K	3.3	9.9	7.5
HTDE33 (X) 080*		80K			
HTDE34 (X) 065*	15.5	65K	3.3	15.5	10.5
HTDE34 (X) 080*		80K			
HTDE35 (X) 065*	23.0	65K	3.3	18.3	12.5
HTDE35 (X) 080*		80K			

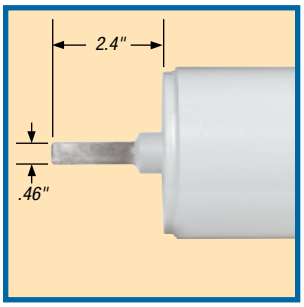
** When ordering, replace the (X) in the Base Catalog Number with the appropriate Hardware Code from the chart below.*

Hardware Code

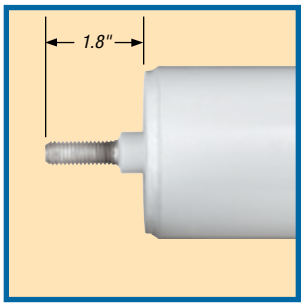
HARDWARE CODE (X)	1ST END HARDWARE	2ND END HARDWARE
A	Threaded Stud	Threaded Stud
E	Eyebolt	Knurled Stud
F	Eyebolt	Eyebolt
U	Eyebolt	Universal Adapter



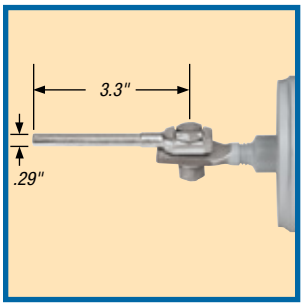
Eyebolt
(Accepts #8 – 2/0)



Knurled Stud

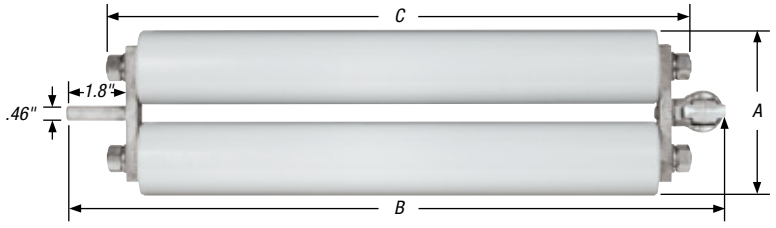


Threaded Stud
(½"–13 threads)



Universal Adapter
Rotatable through 180°

Trans-Guard® EXT Current-Limiting Backup Fuse for 100K Ratings



Eyebolt
(Accepts #8 – 2/0)

BASE CAT. NO.	NOMINAL VOLTAGE RATING (kV)	CURRENT RATING	DIMENSIONS (IN.) "A"	DIMENSIONS (IN.) "B"	DIMENSIONS (IN.) "C"	WEIGHT (LBS)
HTDE23E100	8.3	100K	4.9	14.0	11.9	7.5
HTDE24E100	15.5	100K	4.9	19.4	17.5	10.5

Hi-Tech® EXT Series Back-Up Current-Limiting Fuses

Voltage Selection — Refer to first table below. Each Trans-Guard® EXT Current-Limiting Backup Fuse is suitable for use in both single-phase and three-phase applications where the system voltage does not exceed the Maximum System Voltage listed. For single-phase applications on delta systems, one fuse is needed in each line.

Current-Rating Selection — Refer to second table below. Each Trans-Guard® EXT Current-Limiting Backup Fuse will coordinate with any link having a rating no greater than that listed. For types of links not listed in this table, please contact Thomas & Betts for assistance.

Hardware Selection — Many different hardware options are available. Some options vary depending on the size of the Trans-Guard® EXT Current-Limiting Backup Fuse required.

Electrical Characteristics of Trans-Guard® EXT Current-Limiting Backup Fuse

NOMINAL VOLTAGE RATING (kV)	CURRENT RATING	RATED MAXIMUM INTERRUPTING CURRENT (kA)	RATED MAXIMUM VOLTAGE (kV)	MAXIMUM SYSTEM VOLTAGE (kV)	PEAK ARC VOLTAGE (kV)	MINIMUM MELT I2T (A2SEC)	MAXIMUM TOTAL I2T (A2SEC)
8.3	12K	50	8.3	14.4	26	2,700	8,000
	25K				26	11,000	29,000
	40K				25	26,000	72,000
	65K				22	67,000	230,000
	80K				22	156,000	580,000
	100K				24	218,000	850,000
15.5	12K	44	17.2	27.6	47	2,700	9,000
	25K				49	11,000	34,000
	40K				47	26,000	85,000
	65K	50	15.5	24.9	44	67,000	230,000
	80K				44	156,000	580,000
	100K				46	204,000	730,000
23.0	12K	31	23.0	34.5	62	2,700	10,000
	25K				60	11,000	37,000
	40K				62	26,000	88,000
	65K	50			65	67,000	220,000
	80K				63	123,000	360,000

Trans-Guard® EXT Current-Limiting Backup Fuse/Expulsion Fuse Link Coordination

TRANS-GUARD EXT FUSE RATING	COORDINATES WITH LINKS UP THROUGH								
	TYPE K	TYPE T	TYPE N	TYPE S	TYPE H	TYPE D	TYPE X	TYPE QA	TYPE KS
12K	12	8	20	5	8	3	2.5	15	3
25K	25	15	30	7	8	20	10	30	7
40K	40	20	50	15	8	20	15	50	15
65K	65	30	60	25	8	20	15	75	15
80K	80	50	85	40	8	20	15	100	15
100K	100	65	85	50	8	20	15	125	15

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Trans-Guard® FX Full-Range Current-Limiting Fuse

- Patented damage sensor significantly reduces the risk of fuse failure should the fuse be subjected to an element-damaging current surge
- Hermetically sealed construction ensures that no gases escape from the fuse during current interruption
- All Trans-Guard® FX fuses are helium mass spectrometer leak tested to ensure sealing system integrity
- Rugged machined brass end caps used for greater ferrule strength, resulting in less distortion and more secure fuse attachment in dry-well canisters
- Tested in accordance with the most recent ANSI/ IEEE standards including short circuit testing at the manufacturer's specified rated maximum application temperature (RMAT)
- Optional blown fuse indicator features a unique design that does not affect the fuse's arcing performance

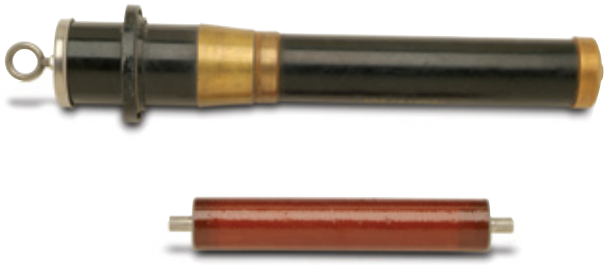


Figure 1

This fuse provides both overload and fault current protection for distribution equipment in a single fuse body. As a full-range fuse, it is capable of interrupting any continuous current between the minimum current that can cause melting of its elements and its rated maximum interrupting current (50,000 amps).The fuses are capable of interrupting in elevated ambient temperatures up to their rated maximum application temperature (RMAT).

The Trans-Guard® FX fuse is hermetically sealed and thus discharges no gases during fuse operation. An additional design distinction is its patented damage sensor that significantly reduces the potential for fuse failure in the event of element-damaging current surges.



Figure 2

Applications:

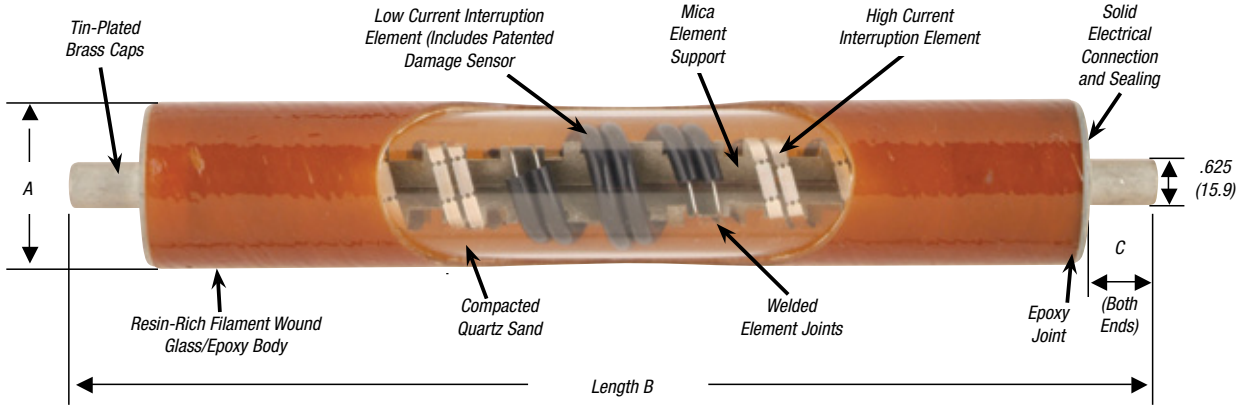
Trans-Guard® FX fuses are available in a broad range of ratings. For ease of application, all designs are compatible with the industry-recognized standard mounting codes. Common applications include the Trans-Guard® FX:

- Installed in drywell canisters for distribution transformer protection (see Figure 1)
- Clip mounted in live-front switchgear (see Figure 2)
- Externally mounted on overhead distribution systems, Type 4 (several outdoor versions available — contact factory for more information)
- Installed in Elastimold MCAN rubber molded canister for deadfront/submersible applications (see **page H-79**)
- Installed directly in oil, Type 8 (contact factory for more information)



Hi-Tech® FX Series Full-Range Current-Limiting Fuses

Construction



Dimensional Information for Trans-Guard® FX Fuses

NOMINAL FUSE VOLTAGE RATING (kV)	CURRENT RATING (AMPS)	DIMENSIONS INCHES (MM) A	B	C	STANDARD MOUNTING CODE
5.5	3–75	2.25–2.18" (57.0–55.3mm)	10.00–9.90" (254.0–251.5mm)	1.02–1.00" (25.9–25.4mm)	4
	80–200	3.32–3.25" (84.4–82.5mm)	17.51–17.35" (444.8–440.7mm)	1.21–1.17" (30.7–29.7mm)	6
8.3	3–50	2.25–2.18" (57.0–55.3mm)	10.00–9.90" (254.0–251.5mm)	1.02–1.00" (25.9–25.4mm)	4
	65–80	2.25–2.18" (57.0–55.3mm)	14.31–14.21" (363.5–360.9mm)	1.02–1.00" (25.9–25.4mm)	5
	65–125	3.32–3.25" (84.4–82.5mm)	14.70–14.54" (373.4–369.3mm)	1.21–1.17" (30.7–29.7mm)	5
15.5	3–50	2.25–2.18" (57.0–55.3mm)	14.31–14.21" (363.5–360.9mm)	1.02–1.00" (25.9–25.4mm)	5
	65	2.25–2.18" (57.0–55.3mm)	17.12–17.02" (434.8–432.3mm)	1.02–1.00" (25.9–25.4mm)	6
	65–100	3.32–3.25" (84.4–82.5mm)	17.51–17.35" (444.8–440.7mm)	1.21–1.17" (30.7–29.7mm)	6
23.0	6–50	2.25–2.18" (57.0–55.3mm)	17.12–17.02" (434.8–432.3mm)	1.02–1.00" (25.9–25.4mm)	6

Blown Fuse Indicator — Type 1



Before Operation



After Operation

Thomas&Betts

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Hi-Tech® FX Series Full-Range Current-Limiting Fuses

Electrical Characteristics Of Trans-Guard® FX Fuses (Single Fuses)

NOMINAL FUSE VOLTAGE RATING (kV)	FUSE DIAMETER (IN.)	CURRENT RATING (AMPS)	FUSE CAT. NO.	RATED MAXIMUM VOLTAGE (kV)	MAXIMUM CONTINUOUS CURRENT (IN AIR) (6) (7)			PEAK ARC VOLTAGE (5) (kV)	MINIMUM MELT I^2T (AMP^2-SEC)	MAXIMUM MELT I^2T (3) (4) (AMP^2-SEC)	RMAT (8) (°C)
					25° C	40° C	55° C				
5.5	2.2	3	HTFX220003	5.5	5.0	4.9	4.7	30	100	238	140
		6	HTFX220006		11.0	10.5	10.0	25	620	1,764	
		8	HTFX220008		13.5	13.0	12.5	23	800.0	2,560	
		10	HTFX220010		16.0	15.5	15.0	23	800.0	2,560	
		12	HTFX220012		20.5	19.5	19.0	21	920.0	4,814	
		18	HTFX220018		23.5	22.5	22.0	18	1,310	5,815	
		20	HTFX220020		27.5	26.5	25.5	18	1,620	6,779	
		25	HTFX220025		37.0	35.5	34.5	18	3,660	13,747	
		30	HTFX220030		41.0	39.5	38.5	18	5,250	18,863	
		40	HTFX220040		50.0	48.5	47.0	18	8,700	31,415	
		50	HTFX220050		57.0	55.0	53.5	18	12,800	44,260	
		65	HTFX220065		69.5	67.5	64.0	17	20,500	95,000	
		75	HTFX220075		78.5	76.0	72.0	17	30,200	129,000	
5.5	3.3	80	HTFX320080	5.5	99	96	94	15	22,100	110,000	71
		100	HTFX320100		126	122	118	15	56,700	280,000	
		125	HTFX320125		142	138	134	15	78,300	380,000	
		150	HTFX320150		184	178	173	15	176,000	860,000	
		200	HTFX320200		208	202	196	15	259,000	1,270,000	
8.3	2.2	3	HTFX230003	10.0	5.0	4.9	4.7	30	100	350	140
		6	HTFX230006		11.0	10.5	10.0	32	620	2,700	
		8	HTFX230008		13.5	13.0	12.5	28	800	4,000	
		10	HTFX230010		16.0	15.5	15.0	28	800	4,000	
		12	HTFX230012		20.5	19.5	19.0	26	920	8,000	
		18	HTFX230018		23.5	22.5	22.0	26	1,310	9,500	
		20	HTFX230020		27.5	26.5	25.5	26	1,620	11,000	
		25	HTFX230025		37.0	35.5	34.5	26	3,660	22,000	
		30	HTFX230030		41.0	39.5	38.5	26	5,250	30,000	
		40	HTFX230040		50.0	48.5	47.0	26	8,700	50,000	
		50	HTFX230050		57.0	55.0	53.5	26	12,800	70,000	
		65	HTFX230065	8.8	87.0	84.0	81.5	23	34,000	200,000	
		80	HTFX230080		100.0	98.0	95.0	22	51,200	280,000	
	3.3	65	HTFX330065	8.3	81.0	79.0	77.0	25	25,200	100,000	71
		80	HTFX330080		95.0	92.0	89.0	25	47,200	185,000	
		100	HTFX330100		120.0	117.0	113.0	25	78,300	330,000	
		125	HTFX330125		135.0	131.0	127.0	25	115,150	480,000	
15.5	2.2	3	HTFX240003 (1)	17.2	5.0	4.9	4.7	51	100	510	140
		6	HTFX240006		11.0	10.5	10.0	54	620	2,600	
		8	HTFX240008		13.5	13.0	12.5	46	800	3,700	
		10	HTFX240010		16.0	15.5	15.0	46	800	3,700	
		12	HTFX240012		20.5	19.5	19.0	43	920	6,500	
		18	HTFX240018		23.5	22.5	22.0	45	1,310	8,000	
		20	HTFX240020		27.5	26.5	25.5	45	1,620	10,000	
		25	HTFX240025		37.0	35.5	34.5	45	3,660	22,000	
		30	HTFX240030		41.0	39.5	38.5	45	5,250	30,000	
		40	HTFX240040		50.0	48.5	47.0	45	8,700	50,000	
		50	HTFX240050		53.0	51.5	50.0	45	12,800	70,000	
		65	HTFX240065	15.5	72.0	70.0	68.0	39	28,300	164,000	71
	3.3	65	HTFX340065		78.0	75.0	73.0	40	25,200	110,000	
		80	HTFX340080		88.0	85.0	82.0	40	39,400	185,000	
		100	HTFX340100		114.0	110.0	107.0	40	80,000	380,000	

Hi-Tech® FX Series Full-Range Current-Limiting Fuses

Electrical Characteristics of Trans-Guard® FX Fuses (Single Fuses) *(continued)*

NOMINAL FUSE VOLTAGE RATING (kV)	FUSE DIAMETER (IN.)	CURRENT RATING (AMPS)	FUSE CAT. NO.	RATED MAXIMUM VOLTAGE (kV)	MAXIMUM CONTINUOUS CURRENT (IN AIR) (6)			PEAK ARC VOLTAGE (5) (kV)	MINIMUM MELT I^2T (AMP^2-SEC)	MAXIMUM MELT I^2T (3) (4) (AMP^2-SEC)	RMAT (8) (°C)
					25° C	40° C	55° C				
23.0	2.2	6	HTFX250006	23.0	11.0	10.5	10.0	67	620	3,100	140
		8	HTFX250008		13.5	13.0	12.5	61	800	4,800	
		10	HTFX250010		16.0	15.5	15.0	61	800	4,800	
		12	HTFX250012		20.5	19.5	19.0	60	920	8,300	
		18	HTFX250018		23.5	22.5	22.0	60	1,310	11,200	
		20	HTFX250020		27.5	26.5	25.5	60	1,620	13,000	
		25	HTFX250025		37.0	35.5	34.5	60	3,660	28,000	
		30	HTFX250030		41.0	39.5	38.5	60	5,250	38,000	
		40	HTFX250040		48.0	46.5	45.0	60	8,700	61,000	
		50	HTFX250050		55.0	53.0	51.5	60	12,800	82,000	

Electrical Characteristics of Trans-Guard® FX Fuses (Parallel Fuses)

NOMINAL FUSE VOLTAGE RATING (kV)	FUSE DIAMETER (IN.)	CURRENT RATING (AMPS)	FUSE CAT. NO.	RATED MAXIMUM VOLTAGE (kV)	MAXIMUM CONTINUOUS CURRENT (IN AIR) (6)			PEAK ARC VOLTAGE (5) (kV)	MINIMUM MELT I^2T (AMP^2-SEC)	MAXIMUM MELT I^2T (3) (4) (AMP^2-SEC)	RMAT (8) (°C)
					25° C	40° C	55° C				
8.3	2.2	60	HTFX230030	10.0	80.0	77.0	75.0	26	21,000	120,000	140
		80	HTFX230040		98.0	95.0	92.0	26	34,000	180,000	
		100	HTFX230050	8.3	111.0	108.0	105.0	24	51,200	250,000	
		130	HTFX230065	8.8	170.0	165.0	160.0	22	136,000	670,000	
		160	HTFX230080		198.0	191.0	186.0	21	204,800	890,000	40
	3.3	130	HTFX330065	8.3	158.0	154.0	151.0	24	100,800	400,000	71
		160	HTFX330080		186.0	180.0	175.0	24	189,000	740,000	
		200	HTFX330100		235.0	229.0	221.0	24	313,000	1,300,000	
		250	HTFX330125		265.0	256.0	249.0	24	460,500	1,800,000	
15.5	2.2	60	HTFX240030	17.2	80.0	77.0	75.0	45	21,000	110,000	140
		80	HTFX240040		98.0	95.0	92.0	45	34,800	170,000	
		100	HTFX240050		104.0	101.0	98.0	45	51,200	310,000	
	3.3	130	HTFX340065	15.5	152.0	147.0	143.0	39	100,800	440,000	71
		160	HTFX340080		172.0	167.0	160.0	39	157,500	740,000	
		200	HTFX340100		222.0	214.0	208.0	39	320,000	1,520,000	

Notes for charts on pages H-97–H-98:

1. *Designs have a 50,000 Amps RMS. Symmetrical Rating (except 3A 17.2kV, which was tested at 44kA maximum).*
2. *Current ratings shown in chart above are achieved by using a parallel combination of two fuses (order two fuses). To facilitate equal sharing of the interrupting duty, the two fuses should be resistance matched (± 2%) and be mounted such that the current paths to and from each fuse are symmetrical.*
3. *Tabulated Maximum Total I^2t values are for currents of 50,000 amperes at the nominal voltage of the fuse (except for fuses having a rated maximum voltage of 8.8kV, in which case the maximum total I^2t values are at 8.8kV). Fuses that have a rated maximum voltage higher than their nominal voltage rating will have a higher I^2t let-through when applied at voltages up to these higher values. For example, maximum total I^2t values are increased by approximately 30% when 8.3kV fuses are applied at 10kV and approximately 25% when 15.5kV fuses are used at 17.2kV.*
4. *Maximum total I^2t values are reduced for currents below 50,000A. For example, at 10,000A, maximum total I^2t values are approximately 15% less than the published values.*
5. *Peak arc voltages quoted are for 50,000A currents at the rated maximum voltage listed. Reduced currents and voltages will reduce the peak arc voltage. Consult the factory for further information.*
6. *Maximum continuous currents at higher ambient temperatures, and in confining enclosures:*
   - *These may be determined by derating the fuses by .2% per degree C over 25° C (for example, at 85° C the derating would be 60 x .2 = 12%, making the maximum continuous current of a 30A fuse 41 x .88 = 36.1A).*
   - *When fuses are applied in a confining enclosure, such as a drywell canister, additional derating of a fuse's maximum continuous current is necessary. Specifically, the maximum continuous current for fuses used in a dry-well canister, with the canister completely submerged in oil, will be reduced by an additional 2% (3% for fuses having a rated maximum voltage of 8.8kV). When calculating the derating for temperature, as described above, the temperature of the oil surrounding the canister should be used. For other types of enclosures, please consult the factory.*
7. *Reduction in the long time melting current of the fuses (approximately one hour and longer) due to higher ambient temperatures and use in enclosures is the same as described above for "Maximum Continuous Current". See time-current characteristics for melting characteristics in this time region.*
8. *The 2.2"-dia. 80A and 160A (paralleled 80A) fuses have an RMAT of 140° C at a reduced rated maximum voltage of 5.5kV.*

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Hi-Tech® FX Series Full-Range Current-Limiting Fuses

Recommended Trans-Guard® FX Mounted in a Standard Drywell Canister in Oil (at a max. oil temp. of 100° C)

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																	
	5.5kV						8.3kV				15.5kV						23kV	
1-PHASE TRANSFORMER kVA	TRANSFORMER 1-PHASE VOLTAGE RATING (kV) PHASE-TO-GROUND																	
	2.4		4.16		4.8		7.2		7.62		12		14.4		16		19.9	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
10	6[b]	8		6[a]		3		3[a]		3[a]		3[a]		3[a]		3[a]		6[a]
15	8	12		6		6		3		3		3[a]		3[a]		3[a]		6[a]
25	18	20	8	12	8[b]	10		6		6		3		3		3		6[a]
37.5	20	30	12	18	12[b]	18	8	10		8		6		6[a]		6[a]		6[a]
50	30	40	18	20	18	20	10	12	10	12		6		6		6		6[a]
75	50	75	25	40	20	30	12	20	12	20	8	12	8	10		8		6
100	65	80*	30	50	25	40	20	25	20	25	12[b]	18	10	12	10[b]	12		8
167	100*		65	80*	50	65	30	50	30	50	20	25	18	25	18	20	12	18
250			80*		80*		50	60*	50	60*	25	40	20	40	20	30	18	25
333					100*		60*	100*	60*	100*	40	60*	30	50	25	40	20	30
500											60*	80*	50	80*	40	60*	40	50
750											80*		80*		60*	100*		
1000															100*			

Recommended 8.3kV Trans-Guard® FX Mounted in 15.5kV Drywell Canister in Oil (at a max. oil temp. of 100° C)

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)									
	8.3kV									
1-PHASE TRANSFORMER kVA	TRANSFORMER 1-PHASE VOLTAGE RATING (kV) PHASE-TO-GROUND									
	2.4		4.16		4.8		7.2		7.62	
	A	B	A	B	A	B	A	B	A	B
75		80								
100	65	80								
167	X[†]	160*	65	80		80				
250	160*		80	130*	80	130*		65		65
333			130*	160*	X[†]	160*	65	X[†]	65	X[†]
500			160*		160*			130*		130*

[†]*X=Use an 8.3kV Drywell Canister. See top chart for fuse recommendations.*

Notes:

Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating.

Fuses recommended in bottom chart must be mounted in a 15.5kV mounting code 5 drywell canister.

Recommended fuses meet inrush criteria of 12 times transformer full load current for .1 second and 25 times transformer full load current for .01 second. Fuses also meet cold load pickup criteria of six times transformer full load current for 1 second and three times transformer full load current for 10 seconds.

** Indicates parallel fuse applications.*

a Fuse allows greater than 300% of transformer rating.

b Fuse allows greater than 200% of transformer rating.

Hi-Tech® FX Series Full-Range Current-Limiting Fuses

Recommended Trans-Guard® FX Mounted in a Standard Drywell Canister in Oil (at a max. oil temp. of 100° C)

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																			
	5.5kV						8.3kV				15.5kV				23kV					
3-PHASE TRANSFORMER kVA	TRANSFORMER 3-PHASE VOLTAGE RATING (kV) PHASE-TO-PHASE																			
	2.4		4.16		4.8		7.2–7.96		8.32		12.47		13.2–14.4		20.8		22.9–24.9[c]		34.5[c]	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
15		6		3		3		3[a]		3[a]		3[a]		3[a]		6[a]		6[a]		6[a]
22.5	8	10		6		6[a]		3		3		3[a]		3[a]		6[a]		6[a]		6[a]
30	10	18		6		6		6[a]		3		3[a]		3[a]		6[a]		6[a]		6[a]
45	18	20	8	12	8[b]	10		6		6		3		3		6[a]		6[a]		6[a]
75	25	40	18	20	12	18	8	12	8[b]	10		6		6		6[a]		6[a]		6[a]
100	40	50	20	25	18	20	12[b]	18	10	12		8	6	8		6[a]		6[a]		6[a]
112.5	40	65	20	30	20	25	12	18	12[b]	18	8[b]	10		8		6		6[a]		6[a]
150	50	80*	25	40	25	40	18	20	18	20	10	18	10[b]	12		6		6		6[a]
200	75	100*	40	65	30	50	20	30	20	25	12	20	12[b]	18	8	10		8		6
225	80*		40	75	40	65	25	40	20	30	18	20	12	20	8	12	8	10		6
300			65	80*	50	80*	30	50	30	40	20	25	20	25	12	18	12[b]	18		8
500			100*		80*		60*	80*	50	80*	30	50	30	40	20	25	18	25	12	18
750							80*		80*		50	80*	50	60*	25	40	25	40	18	25
1000											60*	100*	60*	80*	40		40		20	30
1500													100*				50		40	
2000																			50	

Recommended 8.3kV Trans-Guard® FX Mounted in 15.5kV Drywell Canister in Oil (at a max. oil temp. of 100° C)

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)									
	8.3kV									
3-PHASE TRANSFORMER kVA	TRANSFORMER 3-PHASE VOLTAGE RATING (kV) PHASE-TO-PHASE									
	2.4		4.16		4.8		7.2–7.96		8.32	
	A	B	A	B	A	B	A	B	A	B
112.5		65								
150		80								
200	80	X[†]		65						
225	80	130*		65		65				
300	130[b]*	160*	65	80		80				
500	160*		X[†]	160*	80	130*	65	80[c]		80[c]
750			160*		130*		80[c]	130*	80[c]	130*
1000					160*		130*	160[c]*	130[b]*	160[c]*
1500							160[c]*		130*	

[†]X=Use an 8.3kV Drywell Canister. See top chart for fuse recommendations.

Notes:

Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating.

Fuses recommended in bottom chart must be mounted in a 15.5kV mounting code 5 drywell canister.

Recommended fuses meet inrush criteria of 12 times transformer full load current for .1 second and 25 times transformer full load current for .01 second. Fuses also meet cold load pickup criteria of 6 times transformer full load current for 1 second and 3 times transformer full load current for 10 seconds.

** Indicates parallel fuse applications.*

a Fuse allows greater than 300% of transformer rating.

b Fuse allows greater than 200% of transformer rating.

c Recommendations limited to gndY-gndY transformers with no more than 50% delta connected secondary load. Phase-to-ground rated fuses are frequently recommended for gndY-gndY three phase transformers. In some cases, the fuses recommended in bottom chart may be suitable for use with transformers that are not gndY-gndY (contact the factory further information).

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Hi-Tech® FX Series Full-Range Current-Limiting Fuses

Recommended Trans-Guard® FX Mounted in Air at 40° C Ambient Temperature

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																	
	5.5kV						8.3kV				15.5kV				23kV			
3-PHASE TRANSFORMER kVA	TRANSFORMER 3-PHASE VOLTAGE RATING (kV) PHASE-TO-PHASE																	
	2.4		4.16		4.8		7.2–7.96		8.32		12.47		13.2–14.4		20.8		22.9–24.9[c]		34.5[c]	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
15		6		3		3		3[a]		3[a]		3[a]		3[a]		6[a]		6[a]		6[a]
22.5		8		6[a]		6[a]		3[a]		3[a]		3[a]		3[a]		6[a]		6[a]		6[a]
30	10[b]	12		6		6		6[a]		3		3[a]		3[a]		6[a]		6[a]		6[a]
45	12	18		8		8		6[a]		6[a]		3		3		6[a]		6[a]		6[a]
75	20	40	12	18	12[b]	18		8		8		6		6[a]		6[a]		6[a]		6[a]
100	25	40	18	20	18	20		12	10[b]	12		8		6		6[a]		6[a]		6[a]
112.5	30	50	20	25	18	20	12[b]	18		12		8		8		6[a]		6[a]		6[a]
150	40	65	25	30	20	25	18	20	12	18	10[b]	12	8[b]	10		6		6		6[a]
200	65	80	30	50	25	40	20	25	18	20	12[b]	18	12[b]	18		8		8		6[a]
225	80	100	40	65	40	50	25	30	20	30	12	18	12[b]	18	8	10		8		6
300	80	125	50	80	40	75	25	40	25	30	18	20	18	20		12	10	12		8
500	150		80	125	80	100	50	(65)	40	(65)	25	40	25	40	18	25	18	25	12[b]	18
750			125	200	125	150	(65)	100	(65)	(80)	40	(65)	40	(65)	25	40	20	40	18	25
1000			200		150		100	(130)*	(80)	(130)*	(65)	100	(65)	80	30	50	30	50	20	25
1500							(160)*	200*	(130)*	200[c]*	100	130*	80	130*	50		50		25	50
2000							200*		200[c]*	250[c]*	130*	200*	100	160*					40	
2500											160*	200*	130*	200*					50	
3000											200*		200*							

Notes:

Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating.

Recommended fuses meet inrush criteria of 12 times transformer full load current for .1 second and 25 times transformer full load current for .01 second. Fuses also meet cold load pickup criteria of 6 times transformer full load current for 1 second and 3 times transformer full load current for 10 seconds.

** Indicates parallel fuse applications.*

Ratings in parenthesis are 2.2"-dia. fuses (catalog numbers HTFX230065, HTFX230080 and HTFX240065).

a Fuse allows greater than 300% of transformer rating.

b Fuse allows greater than 200% of transformer rating.

c Recommendations limited to gndY-gndY transformers with no more than 50% delta connected secondary load. Phase-to-ground rated fuses are frequently recommended for gndY-gndY three phase transformers.

Fuse Ordering Information

To order the proper fuse for a particular application, first determine the correct fuse voltage and current rating using either the appropriate application table (**pages H-99–H-101**) or the published performance data (**pages H-97–H-98**, the applicable TCCs and Peak Let-Through Characteristics). Then refer to the chart below to determine the appropriate catalog number.

Fuse Catalog Numbers

CURRENT RATING (AMPS)	FUSE DIAMETER (IN.)	CAT. NO.			
		5.5kV	8.3kV	15.5kV	23.0kV
3	2.2	HTFX220003	HTFX230003	HTFX240003	—
6		HTFX220006	HTFX230006	HTFX240006	HTFX250006
8		HTFX220008	HTFX230008	HTFX240008	HTFX250008
10		HTFX220010	HTFX230010	HTFX240010	HTFX250010
12		HTFX220012	HTFX230012	HTFX240012	HTFX250012
18		HTFX220018	HTFX230018	HTFX240018	HTFX250018
20		HTFX220020	HTFX230020	HTFX240020	HTFX250020
25		HTFX220025	HTFX230025	HTFX240025	HTFX250025
30		HTFX220030	HTFX230030	HTFX240030	HTFX250030
40		HTFX220040	HTFX230040	HTFX240040	HTFX250040
50		HTFX220050	HTFX230050	HTFX240050	HTFX250050
60*		—	HTFX230030	HTFX240030	—
65		HTFX220065	HTFX230065	HTFX240065	—
75		HTFX220075	HTFX230075	—	—
80*		—	HTFX230080	—	—
80*		—	HTFX230040	HTFX240040	—
100*		—	HTFX230050	HTFX240050	—
130*		—	HTFX230065	—	—
160*		—	HTFX230080	—	—
65	3.3	—	HTFX330065	HTFX340065	—
80		HTFX320080	HTFX330080	HTFX340080	—
100		HTFX320100	HTFX330100	HTFX340100	—
125		HTFX320125	HTFX330125	—	—
130*		—	HTFX330065	HTFX340065	—
150		HTFX320150	—	—	—
160*		—	HTFX330080	HTFX340080	—
200		HTFX320200	—	—	—
200*		—	HTFX330100	HTFX340100	—
250*		—	HTFX330125	—	—

Notes: *To order a fuse having a blown fuse indicator, replace the 7th character ("0") in the catalog number with a "1" (Example: HTFX241040). Please note that indicator fuses are not suitable for use in drywell canister applications. Also, an indicator option is not available on 3A fuses.*

** Current ratings shown are achieved by using a parallel combination of two fuses (order two fuses). Contact factory for ordering information concerning outdoor and under-oil fuse versions.*

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Hi-Tech® SX Series Full-Range Current-Limiting Fuses

Provides both overload and fault current protection for distribution equipment in a single fuse body.

Trans-Guard® SX Full-Range Current-Limiting Fuse



As a full-range fuse, this fuse is capable of interrupting any continuous current between the minimum current that can cause melting of its elements and its rated maximum interrupting current (50,000 amps). The fuses are capable of interrupting in elevated ambient temperatures up to their rated maximum application temperature, which is 140° C and 71° C for the 2.2-inch and 3.3-inch diameter designs, respectively.

The Trans-Guard® SX fuse is hermetically sealed and thus discharges no gases during fuse operation. An additional design distinction is its patented damage sensor that significantly reduces the potential for fuse failure in the event of element-damaging current surges.

- Patented damage sensor significantly reduces the risk of fuse failure should the fuse be subjected to an element damaging current surge
- Hermetically sealed construction ensures that no gases escape from the fuse during current interruption.
- All Trans-Guard® SX fuses are helium mass spectrometer leak tested to ensure sealing system integrity
- Rugged machined brass end caps provide greater ferrule strength, resulting in less distortion and more secure fuse attachment in wet-well fuse holders
- Tested in accordance with the most recent ANSI/IEEE standards

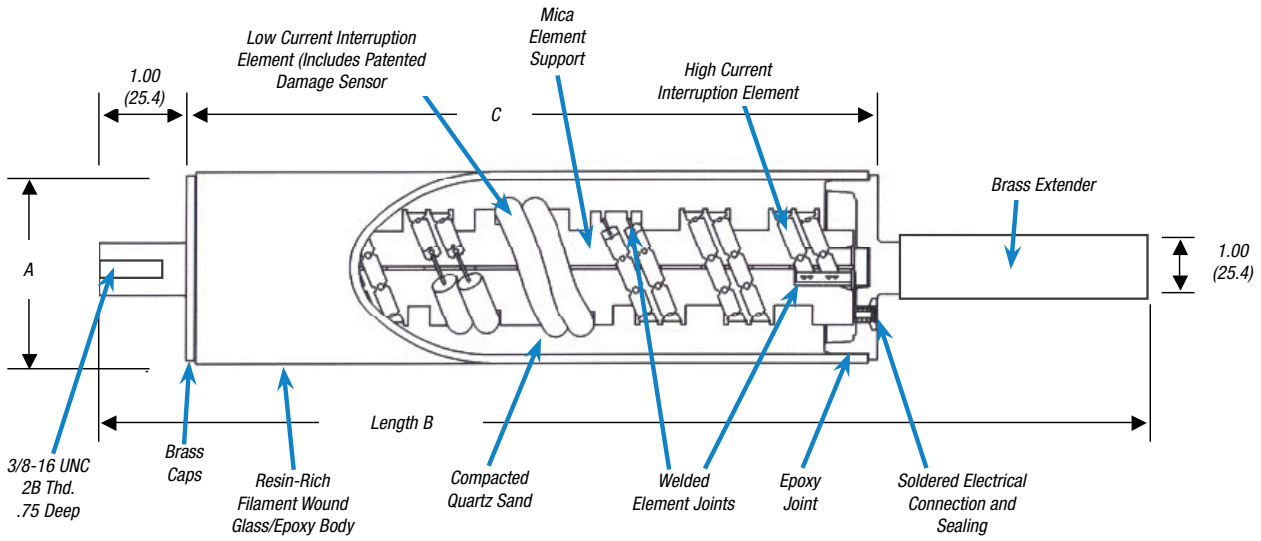
Application:

Trans-Guard® SX fuses are specifically designed to be installed in wet-well fuse holders for oil-filled padmounted switchgear and transformer applications (only 2.2-inch diameter designs are suitable for wet-well fuses holders mounted directly in transformers).

CAUTION: Trans-Guard® SX fuses are NOT designed for any type of live switching operation.

Hi-Tech® SX Series Full-Range Current-Limiting Fuses

Construction



Dimensional Information

WET WELL HOLDER (kV)	NOMINAL FUSE VOLTAGE RATING (kV)	CURRENT RATING (AMPS)	DIMENSIONS INCHES (MM) A	B	C
8.3	5.5	100–250	3.29" (83.6mm)	19.06" (484.1mm)	14.66" (372.4mm)
	8.3	5–75	2.22" (56.3mm)	19.06" (484.1mm)	7.93" (201.4mm)
		90–160	3.29" (83.6mm)	19.06" (484.1mm)	11.85" (300.1mm)
	15.5*	5–75	2.22" (56.3mm)	19.06" (484.1mm)	12.24" (310.9mm)
		90–150	3.29" (83.6mm)	19.06" (484.1mm)	14.66" (372.4mm)
15.5	15.5	5–75	2.22" (56.3mm)	21.12" (536.4mm)	12.24" (310.9mm)
		90–150	3.29" (83.6mm)	21.12" (536.4mm)	14.66" (372.4mm)
23.0	23.0	10–65	2.22" (56.3mm)	21.12" (536.4mm)	15.05" (382.3mm)

** To order a 15.5kV fuse that will fit in an 8.3kV wet-well fuseholder, replace the 7th character ("0") in the catalog number with a "2" (example: HTSX242050). See* ***page H-105****.*

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Hi-Tech® SX Series Full-Range Current-Limiting Fuses

Electrical Characteristics of Trans-Guard® SX Fuses

NOMINAL FUSE VOLTAGE RATING (kV)	CURRENT RATING (AMPS) (2)	FUSE CAT. NO.	RATED MAXIMUM VOLTAGE (kV)	MAXIMUM CONTINUOUS CURRENT (IN OIL @ 60° C) (5)	PEAK ARC VOLTAGE (6) (kV)	MINIMUM MELT I^2T (AMP^2-SEC)	MAXIMUM MELT I^2T (3) (4) (AMP^2-SEC)
5.5	100	**HTSX320100**	5.5	114.0	15	22,100	110,000
	150	**HTSX320150**		147.0		56,700	280,000
	175	**HTSX320175**		172.0		78,300	380,000
	225	**HTSX320225**		230.0		176,000	860,000
	250	**HTSX320250**		253.0		259,000	1,270,000
8.3	5	**HTSX230005**	10.0	5.0	30	100	350
	10	**HTSX230010**		11.5	32	620	2,700
	12	**HTSX230012**		14.0	28	800	4,000
	15	**HTSX230015**		17.0	28	800	4,000
	20	**HTSX230020**		22.5	26	920	8,000
	25	**HTSX230025**		25.0	26	1,310	9,500
	30	**HTSX230030**		30.0	26	1,620	11,000
	40	**HTSX230040**		43.0	26	3,660	22,000
	50	**HTSX230050**		53.0	26	5,250	30,000
	65	**HTSX230065**		65.0	26	8,700	50,000
	75	**HTSX230075**		75.0	26	12,800	70,000
	90	**HTSX330090**	8.3	92.0	25	25,200	100,000
	100	**HTSX330100**		105.0		47,500	185,000
	150	**HTSX330150**		150.0		78,300	330,000
	160	**HTSX330160**		163.0		115,150	480,000
15.5	5	**HTSX240005**	17.2	5.0	51	100	510
	10	**HTSX240010**		11.5	54	620	2,600
	12	**HTSX240012**		14.0	46	800	3,700
	15	**HTSX240015**		17.0	46	800	3,700
	20	**HTSX240020**		22.5	43	920	6,500
	25	**HTSX240025**		25.0	45	1,310	8,000
	30	**HTSX240030**		30.0	45	1,620	10,000
	40	**HTSX240040**		43.0	45	3,660	22,000
	50	**HTSX240050**		53.0	45	5,250	30,000
	65	**HTSX240065**		65.0	45	8,700	50,000
	75	**HTSX240075**		75.0	45	12,800	70,000
	90	**HTSX340090**	15.5	98.0	40	25,200	110,000
	100	**HTSX340100**		117.0		39,400	185,000
	150	**HTSX340150**		150.0		80,000	380,000
23.0	10	**HTSX250010**	23.0	11.5	67	620	3,100
	12	**HTSX250012**		14.0	61	800	4,800
	15	**HTSX250015**		17.0	61	800	4,800
	20	**HTSX250020**		22.5	60	920	8,300
	25	**HTSX250025**		25.0	60	1,310	11,200
	30	**HTSX250030**		30.0	60	1,620	13,000
	40	**HTSX250040**		42.0	60	3,660	28,000
	50	**HTSX250050**		51.0	60	5,250	38,000
	65	**HTSX250065**		65.0	60	8,700	61,000

Notes:

1. Designs have a 50,000 amps RMS. Symmetrical Rating (except 5A 17.2kV which was tested at 44kA maximum).

2. Fuses rated 75A and below are 2.25" in diameter. Higher ratings are 3.3" in diameter.

3. Tabulated Maximum Total I^2t values are for currents of 50,000 amperes at the nominal voltage of the fuse. Fuses which have a Rated Maximum Voltage higher than their Nominal Voltage Rating will have a higher I^2t let-through when applied at voltages up to these higher values. For example, Maximum Total I^2t values are increased by approximately 30% when 8.3kV fuses are applied at 10kV and approximately 25% when 15.5kV fuses are used at 17.2kV.

4. Maximum total I^2t values are reduced for currents below 50,000A. For example, at 10,000A, I^2t values are approximately 15% less than the published values.

5. Maximum continuous currents at different ambient temperatures: These may be determined by derating the fuses by .2% per degree C over 60° C (for example at 80° C the derating would be 20 x .2 = 4%, making the maximum continuous current of a 20 A fuse 22.5 x .96 = 21.6A) or rerating the fuses by .2% per degree C under 60° C (for example, at 40° C the rerating would be 20 x .2 = 4%, making the maximum continuous current of a 20 A fuse 22.5 / .96 = 23.4A). The long time melting current of the fuses (approximately one hour and longer) due to different ambient temperatures is the same as described above for "Maximum Continuous Currents". See time current characteristics for melting characteristics in this time region.

6. Peak arc voltages quoted are for 50,000A currents at the rated maximum voltage listed. Reduced currents and voltages will reduce the peak arc voltage. Consult the factory for further information.

Hi-Tech® SX Series Full-Range Current-Limiting Fuses

Recommended Trans-Guard® SX for Switchgear (mounted in a wet-well fuseholder with a max. oil temp. of 60° C)

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																	
	(5.5KV) 8.3kV										15.5kV						23kV	
	TRANSFORMER 1-PHASE VOLTAGE RATING (kV) PHASE-TO-GROUND																	
1-PHASE TRANSFORMER kVA	2.4		4.16		4.8		7.2		7.62		12		14.4		16		19.9	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
10		10		10[a]		5		5[a]		5[a]		5[a]		5[a]		5[a]		10[a]
15		12		10[a]		10[a]		5		5		5[a]		5[a]		5[a]		10[a]
25	20[b]	25		12		12		10[a]		10[a]		5		5[a]		5[a]		10[a]
37.5	30[b]	40		20		20[a]		12		12[a]		10[a]		10[a]		10[a]		10[a]
50	40[b]	50	25[b]	30	20[b]	25		15		15		10		10[a]		10[a]		10[a]
75	50	65	30	40	30[b]	40	20[b]	25		20		15		12		12[a]		10[a]
100	65	(100)	40	50	40[b]	50	25	30	25	30		20		15		15		12
167	(150)[b]	(175)	65	(100)	50	75	40	50	40[b]	50	25	30	25[b]	30	20[b]	25		20
250	(150)	(225)	(100)	(150)	75	(100)	50	75	50	65	40[b]	50	30	40	30[b]	40	25[b]	30
333	(225)		(150)	(175)	(150)[b]	(175)	75	90	65	90	50	65	40	50	40[b]	50	30	40
500	(250)[c]		(175)	(250)	(150)	(225)	100	150	100	150	65	90	50	75	50	65	40	50
833			(250)[c]		(250)		160		160		100	150	90	100	75		65	
1000					(250)[c]				160[c]		150		100	150				
1500											150[c]		150					

Note: *Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating. See additional notes on* ***page H-107****.*

Recommended Trans-Guard® SX for Switchgear: Protecting Delta Connected Transformers (mounted in a wet-well fuseholder with a max. oil temp. of 60° C)

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)															
	(5.5KV) 8.3kV										15.5kV				23kV	
	TRANSFORMER 3-PHASE VOLTAGE RATING (kV) PHASE-TO-PHASE															
3-PHASE TRANSFORMER kVA	2.4		4.16		4.8		7.2–7.96		8.32		12.47		13.2–14.4		20.8	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
15		10[a]		5		5		5[a]		5[a]		5[a]		5[a]		10[a]
22.5		12		10[a]		10[a]		5		5[a]		5[a]		5[a]		10[a]
30		15		10		10[a]		10[a]		5		5[a]		5[a]		10[a]
45	20[b]	25		15		12		10		10[a]		5		5		10[a]
75	30	40	20[b]	25		20		12		12		10[a]		10[a]		10[a]
100	40	50	25	30	25[b]	30		20		15		12a		10[a]		10[a]
112.5	40	65	30[b]	40	25	30		20		20[a]		12		12[a]		10[a]
150	65	75	40[b]	50	30	40	25[b]	30	20[b]	25		15		15		10
200	75	(100)	50	65	40	50	30	40	25	30		20		20		12
225	75	(100)	50	75	40	65	30	40	30[b]	40	20[b]	25		20		15
300	(150)[b]	(175)	65	(100)	65	75	40	50	40[b]	50	25	30	25	30		20
500	(175)	(250)	(150)[b]	(175)	(100)	(150)	65	90	50	75	40	50	40[b]	50	25	30
750	(250)		(150)	(225)	(150)	(225)	90	150	75	100[d]	50	75	50	65	40[b]	50
1000			(225)		(175)	(250)	150	160	100[d]	150[d]	75	90	65	90	50	65
1500			(250)[c]		(250)		160		150[d]		100	150	100	150	65	
2000											150		150			
2500											150[c]		150			
3000													150[c]			

Note: *Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating. See additional notes on* ***page H-107****.*

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Hi-Tech® SX Series Full-Range Current-Limiting Fuses

Recommended Trans-Guard® SX for Switchgear: Protecting GndY-GndY* Connected Transformers with Less than 50% Delta Connected Secondary Load (mounted in a wet-well fuseholder with a max. oil temp. of 60° C)

FUSE VOLTAGE	RECOMMENDED FUSE CURRENT RATINGS (AMPERES)																			
	(5.5KV) 8.3kV														15.5kV				23kV	
	TRANSFORMER 3-PHASE VOLTAGE RATING (kV) PHASE-TO-PHASE																			
3-PHASE TRANSFORMER kVA	2.4		4.16		4.8		7.2–7.96		8.32		12.47		13.2–14.4		20.8		22.9–24.9		34.5	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
15		10[a]		5		5		5a		5[a]		5[a]		5[a]		5[a]		5[a]		10[a]
22.5		12		10[a]		10[a]		5		5[a]		5[a]		5[a]		5[a]		5[a]		10[a]
30		15		10		10[a]		10[a]		5		5[a]		5[a]		5[a]		5[a]		10[a]
45	20[b]	25		15		12		10		10[a]		5		5		5[a]		5[a]		10[a]
75	30	40	20[b]	25		20		12		12		10[a]		10[a]		5		5		10[a]
100	40	50	25	30	25[b]	30		20		15		12[a]		10[a]		10[a]		10[a]		10[a]
112.5	40	65	30[b]	40	25	30		20		20[a]		12		12[a]		10[a]		10[a]		10[a]
150	65	75	40[b]	50	30	40	25[b]	30	20[b]	25		15		15		10		10[a]		10[a]
200	75	(100)	50	65	40	50	30	40	25	30		20		20		12		12		10[a]
225	75	(100)	50	75	40	65	30	40	30[b]	40	20[b]	25		20		15		12		10[a]
300	(150)[b]	(175)	65	(100)	65	75	40	50	40[b]	50	25	30	25	30		20		20[a]		12
500	(175)	(250)	(150)[b]	(175)	(100)	(150)	65	(100)	50	75	40	50	40[b]	50	25	30	25[b]	30		20
750	(250)		(150)	(225)	(150)	(225)	(100)	(150)	75	(100)	50	75	50	65	40[b]	50	40[b]	50	25[b]	30
1000			(225)		(175)	(250)	(150)	(175)	(150)[b]	(175)	75	90	65	90[d]	50	65	40	50	30	40
1500			(250)c		(250)		(175)	(250)	(150)	(225)	100	150	100[d]	150[d]	65	90	65	75	40	50
2000							(225)		(225)		150		150[d]		75	100	75	90	50	
2500							(250)[c]		(250)		160		150[d]		100	150	90	150	65	
3000											160[c]				150		100	150		

** Phase-to-Ground rated fuses are commonly used for GndY/GndY connected transformers having no more than 50% Delta connected secondary load.*

Notes:

1. *Column A = 140–200% of transformer rating and Column B = 200–300% of transformer rating.*
2. *Recommended fuses meet inrush criteria of 12 times transformer full load current for .1 second and 25 times transformer full load current for .01 second. Fuses also meet cold load pickup criteria of 6 times transformer full load current for 1 second and 3 times transformer full load current for 10 seconds.*
3. *Ratings in parentheses are 5.5kV rated fuses.*

a Fuse allows more than 300% of transformer rating.

b Fuse allows more than 200% of transformer rating.

c Fuse allows at least 125% of transformer rating.

d 15.5kV fuse must be used for voltages over 8.32kV for delta configurations or 13.8kV GndY/8.32kV.

Hi-Tech® SX Series Full-Range Current-Limiting Fuses

Trans-Guard® SX Fuse Ordering Information

To order the proper fuse for a particular application, first determine the correct fuse voltage and current rating using the published performance data (**page H-105**). Then refer to the chart below to determine the appropriate catalog number. Alternatively, fuse selection can be determined using the accompanying charts on **pages H-106–H-107**.

Ordering Information for Trans-Guard® SX Fuses

CONTINUOUS CURRENT RATING (AMPS)	CAT. NO.			
	5.5kV	8.3kV	15.5kV	23.0kV
5	—	HTSX230005	HTSX240005	—
10	—	HTSX230010	HTSX240010	HTSX250010
12	—	HTSX230012	HTSX240012	HTSX250012
15	—	HTSX230015	HTSX240015	HTSX250015
20	—	HTSX230020	HTSX240020	HTSX250020
25	—	HTSX230025	HTSX240025	HTSX250025
30	—	HTSX230030	HTSX240030	HTSX250030
40	—	HTSX230040	HTSX240040	HTSX250040
50	—	HTSX230050	HTSX240050	HTSX250050
65	—	HTSX230065	HTSX240065	HTSX250065
75	—	HTSX230075	HTSX240075	—
90	—	HTSX330090	HTSX340090	—
100	HTSX320100	HTSX330100	HTSX340100	—
150	HTSX320150	HTSX330150	HTSX340150	—
160	—	HTSX330160	—	—
175	HTSX320175	—	—	—
225	HTSX320225	—	—	—
250	HTSX320250	—	—	—

Note: *To order a 15.5kV fuse that will fit in an 8.3kV wet-well fuseholder, replace the 7th character ("0") in the catalog number with a "2" (example: HTSX242050).*

Important Notice When Using Trans-Guard® SX Fuses

When replacing the obsolete AB Chance SL fuse with a Hi-Tech® Fuses Trans-Guard® SX fuse, it is important to recognize that the SX fuse designs should not be used on distribution systems where the primary line-to-line voltage exceeds the rated maximum voltage of the fuse as shown in the chart to the right:

This should be considered when choosing a proper replacement for the AB Chance SL fuse as they were, in some cases, used on systems having line-to-line voltages greater than that of the current-limiting fuse component of the assembly.

Again, when choosing the appropriate Hi-Tech SX fuse to replace the AB Chance SL fuse, care must be taken to ensure that the rated maximum voltage of the SX fuse exceeds the system line-to-line voltage. The only exception to this requirement is when all the transformers that are downstream from the switches where the SX fuses are to be installed are GndY-GndY connected with less than 50% delta connected secondary load. In that case, a fuse having a rated maximum voltage exceeding the system line-to-neutral voltage may be used.

Trans-Guard® SX

NOMINAL FUSE VOLTAGE RATING (kV)	CURRENT RATING (AMPS)	RATED MAXIMUM VOLTAGE (kV)
5.5	100–250	5.5kV
8.3	5–75	10.0kV
	90–160	8.3kV
15.5	5–75	17.2kV
	90–150	15.5kV
23.0	10–65	23.0kV

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Hi-Tech® EX Series Full-Range Current-Limiting Fuses

The Trans-Guard® EX full-range current-limiting capacitor fuse provides both low and high current fault protection in a single, compact fuse body.

Trans-Guard® EX Full-Range Current-Limiting Capacitor Fuses

- Lowest total I^2t let-throughs in the industry provide maximum protection for banks by minimizing energy let-through during a fault
- Higher melt I^2t's make fuses less susceptible to damaging current surges
- Hermetically sealed design produces no expulsion products or noise during operation and has no flying parts, making it easy to mount the fuse in confined areas
- Blown fuse indicator makes it easy to see when a fuse has operated, helping to locate failed capacitor banks
- Patented damage sensor significantly reduces the potential for fuse failure in the event an element damaging current surge occurs
- Rigorous testing to meet ANSI/IEEE standards, including 100% physical inspection, resistance measurement and helium mass spectrometer leak testing
- High fault current interrupting capability — 50,000 amperes symmetrical



Blown Fuse Indicator

As a full-range fuse, the Trans-Guard® EX is capable of interrupting any current that causes melting up to its rated maximum interrupting current of 50kA. Its ability to significantly limit energy let-through during a fault greatly reduces the likelihood of disruptive equipment failures. The blown fuse indicator makes it easy to see when a fuse has operated, helping to locate failed capacitor banks.

The Indoor versions of the Trans-Guard® EX current-limiting capacitor fuses are used in metal-enclosed capacitor banks, harmonic filter banks and padmounted capacitor banks. Outdoor versions are coated with an oven-baked UV acrylic paint and are used in open rack-mounted systems. All Trans-Guard® EX fuses provide protection against disruptive equipment failures, such as a case rupture, when a dielectric or non-dielectric fault occurs within the capacitor. Fuses are sized to withstand transient inrush currents associated with back-to-back capacitor bank switching.

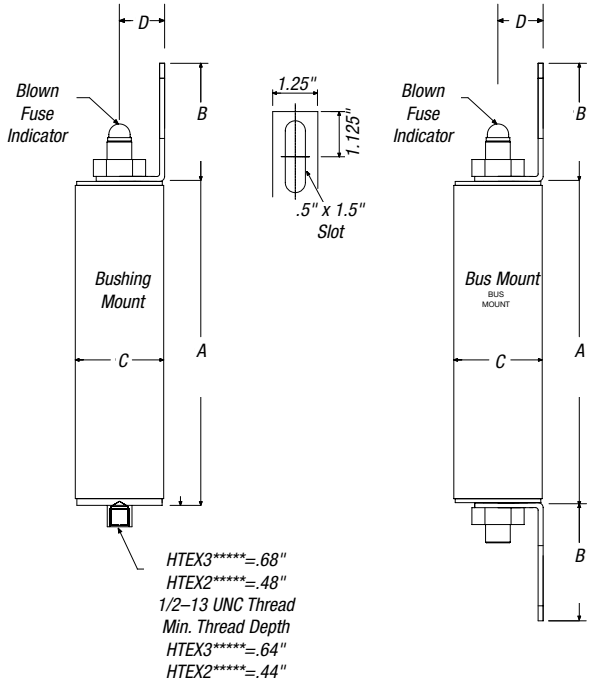
The Trans-Guard® EX fuse is hermetically sealed so no external expulsion gases are produced during interruption and it has no moving parts. This makes it ideal for bus-mounting or bushing-mounting, and both indoor and outdoor versions are available. An additional design distinction is its patented damage sensor which significantly reduces the potential for fuse failure in the event of element-damaging current surges.



Before Operation



After Operation



Dimensional Information

RATED MAXIMUM VOLTAGE (kV)	CURRENT RATING (AMPS)	INCHES (MM)			
		FUSE LENGTH "A"	TAG LENGTH "B"	FUSE DIAMETER "C"	TAG OFFSET "D"
5.5	6–75	8.0 (203)	2.9 (74)	2.2 (56)	1.125 (29)
	80–200	14.7 (373)	2.5 (64)	3.3 (84)	1.75 (44)
8.3	6–50	8.0 (203)	2.9 (74)	2.2 (56)	1.125 (29)
	65–125	11.9 (302)	2.5 (64)	3.3 (84)	1.75 (44)
15.5	6–50	12.3 (312)	2.9 (74)	2.2 (56)	1.125 (29)
	65–100	14.7 (373)	2.5 (64)	3.3 (84)	1.75 (44)
23.0	6–50	15.1 (384)	2.9 (74)	2.2 (56)	1.125 (29)

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Hi-Tech® EX Series Full-Range Current-Limiting Fuses

Fuse Ordering and Electrical Characteristic Information

RATED MAXIMUM VOLTAGE (kV)	CURRENT RATING (AMPS)	INDOOR CAT. NO.		OUTDOOR CAT. NO.		MINIMUM MELT I^2T (A^2 SEC)	MAXIMUM TOTAL I^2T (A^2 SEC)
		BUS MOUNT	BUSHING MOUNT	BUS MOUNT	BUSHING MOUNT		
5.5	6	HTEX22T006	HTEX22D006	HTEX22U006	HTEX22C006	620	2,700
	8	HTEX22T008	HTEX22D008	HTEX22U008	HTEX22C008	800	4,000
	10	HTEX22T010	HTEX22D010	HTEX22U010	HTEX22C010	800	4,000
	12	HTEX22T012	HTEX22D012	HTEX22U012	HTEX22C012	920	8,000
	18	HTEX22T018	HTEX22D018	HTEX22U018	HTEX22C018	1,310	9,500
	20	HTEX22T020	HTEX22D020	HTEX22U020	HTEX22C020	1,620	11,000
	25	HTEX22T025	HTEX22D025	HTEX22U025	HTEX22C025	3,660	22,000
	30	HTEX22T030	HTEX22D030	HTEX22U030	HTEX22C030	5,250	30,000
	40	HTEX22T040	HTEX22D040	HTEX22U040	HTEX22C040	8,700	50,000
	50	HTEX22T050	HTEX22D050	HTEX22U050	HTEX22C050	12,800	70,000
	65	HTEX22T065	HTEX22D065	HTEX22U065	HTEX22C065	20,500	95,000
	75	HTEX22T075	HTEX22D075	HTEX22U075	HTEX22C075	30,200	129,000
	80	HTEX32T080	HTEX32D080	HTEX32U080	HTEX32C080	22,100	110,000
	100	HTEX32T100	HTEX32D100	HTEX32U100	HTEX32C100	56,700	280,000
	125	HTEX32T125	HTEX32D125	HTEX32U125	HTEX32C125	78,300	380,000
	150	HTEX32T150	HTEX32D150	HTEX32U150	HTEX32C150	176,000	860,000
	200	HTEX32T200	HTEX32D200	HTEX32U200	HTEX32C200	259,000	1,270,000
8.3	6	HTEX23T006	HTEX23D006	HTEX23U006	HTEX23C006	620	2,700
	8	HTEX23T008	HTEX23D008	HTEX23U008	HTEX23C008	800	4,000
	10	HTEX23T010	HTEX23D010	HTEX23U010	HTEX23C010	800	4,000
	12	HTEX23T012	HTEX23D012	HTEX23U012	HTEX23C012	920	8,000
	18	HTEX23T018	HTEX23D018	HTEX23U018	HTEX23C018	1,310	9,500
	20	HTEX23T020	HTEX23D020	HTEX23U020	HTEX23C020	1,620	11,000
	25	HTEX23T025	HTEX23D025	HTEX23U025	HTEX23C025	3,660	22,000
	30	HTEX23T030	HTEX23D030	HTEX23U030	HTEX23C030	5,250	30,000
	40	HTEX23T040	HTEX23D040	HTEX23U040	HTEX23C040	8,700	50,000
	50	HTEX23T050	HTEX23D050	HTEX23U050	HTEX23C050	12,800	70,000
	65	HTEX33T065	HTEX33D065	HTEX33U065	HTEX33C065	25,200	100,000
	80	HTEX33T080	HTEX33D080	HTEX33U080	HTEX33C080	47,200	185,000
	100	HTEX33T100	HTEX33D100	HTEX33U100	HTEX33C100	78,300	330,000
	125	HTEX33T125	HTEX33D125	HTEX33U125	HTEX33C125	115,150	480,000
15.5	6	HTEX24T006	HTEX24D006	HTEX24U006	HTEX24C006	620	2,600
	8	HTEX24T008	HTEX24D008	HTEX24U008	HTEX24C008	800	3,700
	10	HTEX24T010	HTEX24D010	HTEX24U010	HTEX24C010	800	3,700
	12	HTEX24T012	HTEX24D012	HTEX24U012	HTEX24C012	920	6,500
	18	HTEX24T018	HTEX24D018	HTEX24U018	HTEX24C018	1,310	8,000
	20	HTEX24T020	HTEX24D020	HTEX24U020	HTEX24C020	1,620	10,000
	25	HTEX24T025	HTEX24D025	HTEX24U025	HTEX24C025	3,660	22,000
	30	HTEX24T030	HTEX24D030	HTEX24U030	HTEX24C030	5,250	30,000
	40	HTEX24T040	HTEX24D040	HTEX24U040	HTEX24C040	8,700	50,000
	50	HTEX24T050	HTEX24D050	HTEX24U050	HTEX24C050	12,800	70,000
	65	HTEX34T065	HTEX34D065	HTEX34U065	HTEX34C065	25,200	110,000
	80	HTEX34T080	HTEX34D080	HTEX34U080	HTEX34C080	39,400	185,000
	100	HTEX34T100	HTEX34D100	HTEX34U100	HTEX34C100	80,000	380,000
23	6	HTEX25T006	HTEX25D006	HTEX25U006	HTEX25C006	620	3,100
	8	HTEX25T008	HTEX25D008	HTEX25U008	HTEX25C008	800	4,800
	10	HTEX25T010	HTEX25D010	HTEX25U010	HTEX25C010	800	4,800
	12	HTEX25T012	HTEX25D012	HTEX25U012	HTEX25C012	920	8,300
	18	HTEX25T018	HTEX25D018	HTEX25U018	HTEX25C018	1,310	11,200
	20	HTEX25T020	HTEX25D020	HTEX25U020	HTEX25C020	1,620	13,000
	25	HTEX25T025	HTEX25D025	HTEX25U025	HTEX25C025	3,660	28,000
	30	HTEX25T030	HTEX25D030	HTEX25U030	HTEX25C030	5,250	38,000
	40	HTEX25T040	HTEX25D040	HTEX25U040	HTEX25C040	8,700	61,000
	50	HTEX25T050	HTEX25D050	HTEX25U050	HTEX25C050	12,800	82,000

Hi-Tech® EX Series Full-Range Current-Limiting Fuses

Fuse Selection

The fuse current rating should be greater than 1.5 x capacitor rated current.This 50% protective margin accounts for normal overvoltages, harmonics and capacitor tolerances.

Example: The rated current for a single-phase 150kVAR 4.16kV capacitor is 150kVAR/4.16kV = 36A. Multiplying by the protective margin factor gives 36A x 1.5 = 54A. A 65A fuse should therefore be used.

To select the proper fuse for a single-phase capacitor application, please refer to the table below.

SINGLE-PHASE CAPACITOR FUSE RECOMMENDATIONS

FUSE VOLTAGE RATING (kV)	CAPACITOR VOLTAGE RATING (V)	50 kVAR	100 kVAR	150 kVAR	200 kVAR	300 kVAR	400 kVAR	500 kVAR
		FUSE CURRENT RATING						
5.5	2.4–2.77	30	65	100	125	200*	—	—
	4.16	18	40	65	75	125	150*	200*
	4.8	18	40	50	65	100	125	200*
8.3	6.64	12	25	40	50	80	100	125
	7.2	12	25	40	50	65	100	125
	7.62–7.96	10	20	30	40	65	80	100
	8.32	10	18	30	40	65	80	100
15.5	9.96	8	18	25	30	50	65	80
	12.47–14.4	6	12	18	25	40	50	65
23.0	19.9–21.6	6	8	12	18	25	30	40

Note: *All fuses meet "safe zone" tank rupture curves for type EX or equivalent capacitors unless denoted *.*

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Elastimold® Molded Reclosers, Switches & Switchgear

In this section...



Elastimold® Molded Reclosers, Switches & Switchgear

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Wind Turbine Power Protection H-137–H-140
Molded Vacuum Reclosers H-141–H-150

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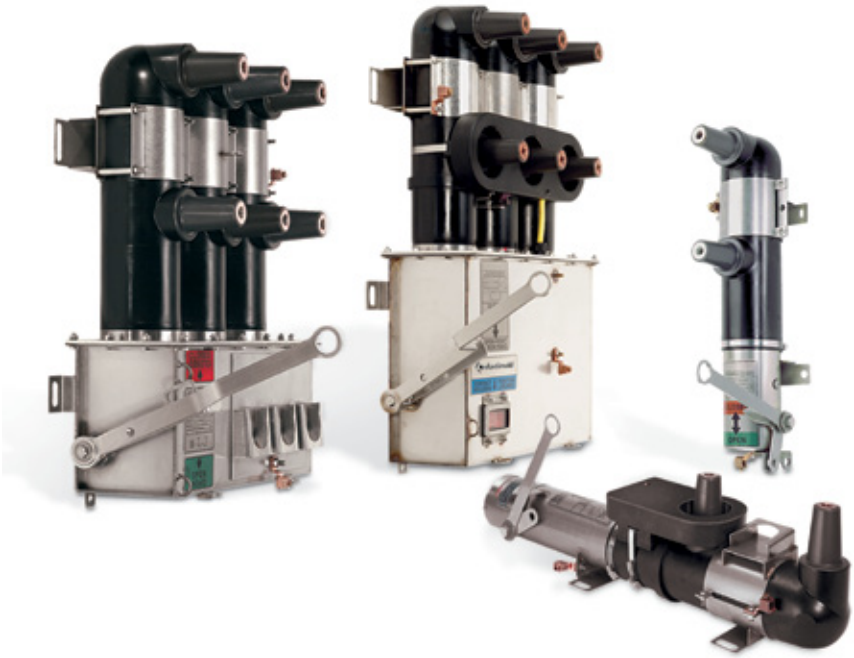
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Overview

Use Switchgear Building Blocks to create standard configurations and custom designs that improve your distribution system's reliability.

- All switchgear components are fully sealed and submersible — EPDM molded rubber construction with stainless steel hardware and mechanism boxes
- Vacuum-switching and vacuum interrupting components are maintenance free and require no gas or oil
- Deadfront construction insulates, shields and eliminates exposed live parts
- Small footprint enables components to fit in tight padmount, subsurface, vault or riser pole installations
- Non-position sensitive — can be installed almost anywhere and in any position (e.g. hanging from ceilings, wall mounted, mounted at an angle, riser pole mounted)
- Modular construction allows for any combination of fused, switched and interrupter ways on one piece of switchgear up to 35kV
- Electronic controls for protection and automatic source transfer applications
- Self-powered controls and customized protection curves enable flexibility of settings and operation in different locations throughout the distribution system
- Motor operators for remote/local open/close operation of three-phase switched or interrupter ways enable remote configuration of loops, sectionalizing of feeders and automatic or manual source transfer with a wide variety of RTUs and communication devices

Whether it is a standard or a custom application, Thomas & Betts has the right combination of components and expertise to fit your needs. The modularity and flexibility of Elastimold® Switchgear enable the user to combine the different individual components into products that improve the reliability and performance of distribution systems.



Two basic components form the basis of Elastimold® Switchgear:

- Single-Phase and Three-Phase Molded Vacuum Switches (MVS)
- Single-Phase and Three-Phase Molded Vacuum Interrupters (MVI)

These components — combined with electronic controls, motor operators and SCADA-ready controls — enable you to improve your distribution system's reliability.

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Overview

Configure Switchgear Building Blocks to solve challenges in your distribution system.

Elastimold® Switchgear products are classified in three different categories according to the function they perform:

- Switching and Sectionalizing Equipment
- Automatic Source Transfer Equipment
- Overcurrent Protection Equipment

Switchgear products can be used in padmount, subsurface/wet or dry vaults and riser pole installations. The switching or manual sectionalizing of loads can be accomplished with the use of Molded Vacuum Switch (MVS) modules. The simplest manual sectionalizer is a single MVS switch, which can be installed in a vault, on a pole or inside a padmount enclosure. One of the most popular applications of this sectionalizer is as a replacement for existing oil fuse cutouts. Two-, three- and four-way units are also available in vault and padmount styles. Switches also aid in the manual reconfiguration of distribution loops by installing them at the open point in the circuit.

Overcurrent protection is accomplished using Molded Canister Fuse (MCAN) or Molded Vacuum Interrupter (MVI) modules. These can be used in combination with MVS modules. The simplest product is a single MVI unit, which can be installed in a vault, on a pole or inside a padmount enclosure. A common application for this configuration is as a replacement for existing oil fuse cutouts. Two-, three- and four-way units are also available in any combination of MVI, MCAN and MVS modules, and in vault and padmount styles. Fuses and interrupters are applied in underground loops to aid in the sectionalizing of the main feeder, and by providing protection to the loads along the loop. For more information on canister fuses, see **pages H-75–H–82.**



Padmount



Subsurface

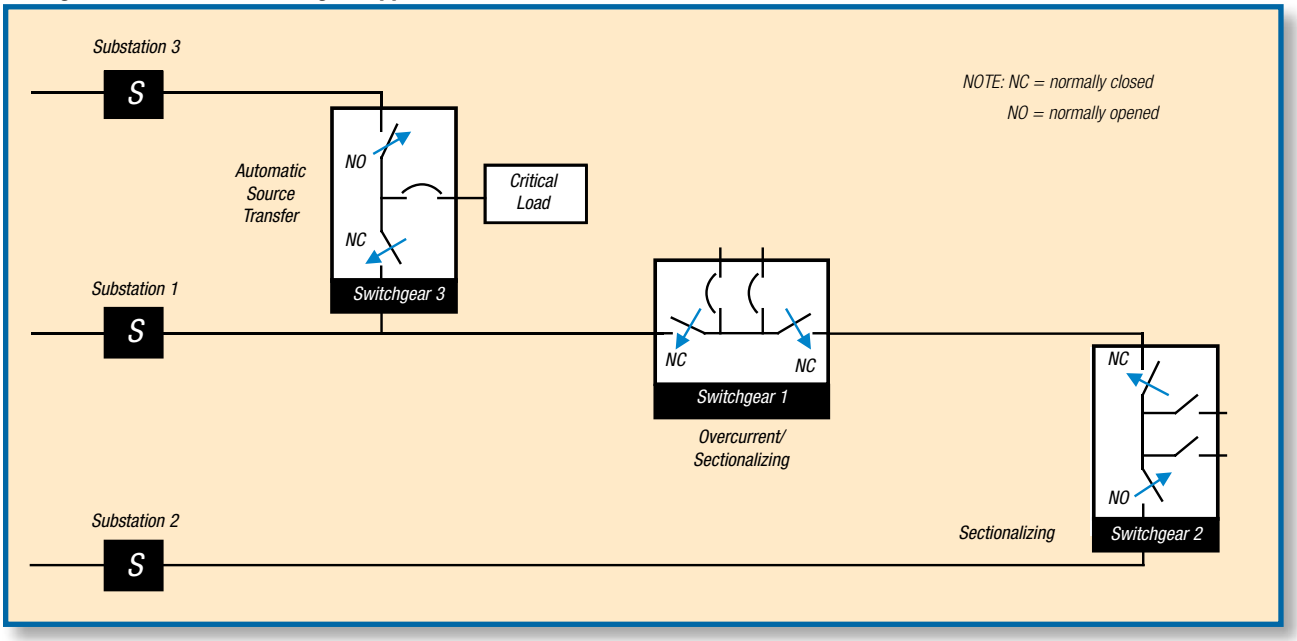


Riser Pole



Vault

Underground Distribution Switchgear Applications



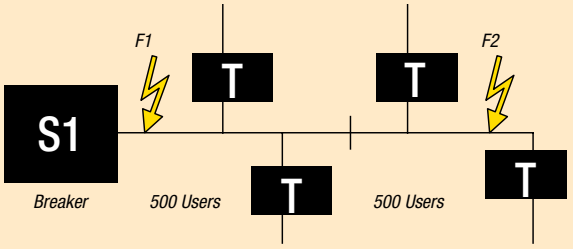
Overview

Load switching is required when:

- A load needs to be isolated to perform maintenance
- A load needs to be isolated to repair a fault
- A loop needs to be reconfigured to feed a certain load from a different substation and isolate the faulted portion of the loop

In any case, the use of a manual sectionalizer contributes to reduce the length of time that unfaulted or unaffected portions of the system are exposed to an outage. This results in improved reliability of the system as the duration of outages is reduced (i.e. the SAIDI and CAIDI reliability indices). Switching products can be applied as replacements for existing oil fuse cutouts or as manual sectionalizers for loops or radial feeders. Depending on the application, these sectionalizers may be installed in a vault or inside a padmount enclosure. Pole installations are also available.

Without Manual Sectionalizing

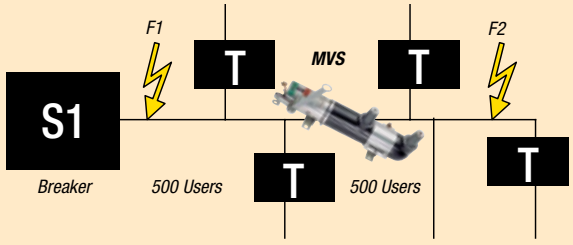


No Manual Sectionalizing Unit
Permanent Faults F1 and F2
Interruption Duration: F1 = 1 hr.; F2 = 2 hr.
Evaluation Period = 1 yr.

SAIDI = [(1 hr.) x (1000) + (2 hr.) x (1000)]/1000 = 3 hr./yr.
SAIFI = [1000 + 1000]/1000 = 2 interruptions/yr.

In this example, a radial feeder is exposed to two failures in one year. Without any manual sectionalizing, all customers are subject to both failures and are out of power until failures are restored. Assuming that the duration of outage one (F1) is 1 hour, and outage 2 (F2) is 2 hours, the calculation of SAIDI shows 3 hours of interruption duration per year.

With MVS Manual Sectionalizing — Improved Reliability!



MVS Manual Sectionalizing Unit = Shorter restoration time for 500 customers
Permanent Faults F1 and F2
Interruption Duration: F1 = 1 hr.; F2 = 2 hr. for 500 users; F2 = 1 hr. for 500 users
Evaluation Period = 1 yr.

SAIDI = [(1 hr.) x (1000) + (1 hr.) x (500) + (2 hr.) x (500)]/1000 = 2.5 hr./yr.
SAIFI = [1000 + 1000]/1000 = 2 interruptions/yr.

With the use of an MVS at the midpoint of the feeder, the restoration time is reduced. Once the fault is located, the MVS is open to isolate the faulted portion of the feeder. At this point, the other half of the feeder can be energized, reducing the outage duration or SAIDI from 3 hours to 2.5 hours per year (16.6%).

Similar application of MVS switches in loop configurations contribute to significantly reduce the outage duration. In these cases, single- or multi-way switch configurations can be applied.

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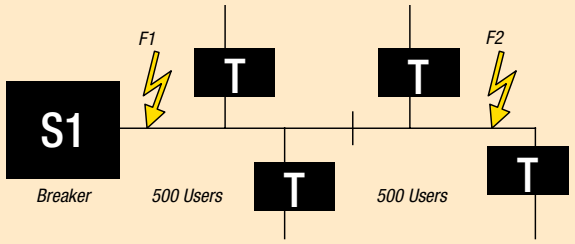
Overview

Fault-interrupting devices are used on:

- Feeders to sectionalize, so that if there is a fault, only a small section of the load is affected
- Radial taps deriving from a main feeder or loop, so that a fault on a tap is isolated from the main circuit
- Network transformers to isolate the devices in case of overcurrent, excessive pressure/temperature, etc.

While a switching device contributes to decrease the duration of outages, fault interrupters contribute to decrease the duration AND frequency of outages (i.e. SAIDI, CAIDI, SAIFI, CAIFI reliability indices).

Without Manual or Automatic Sectionalizing

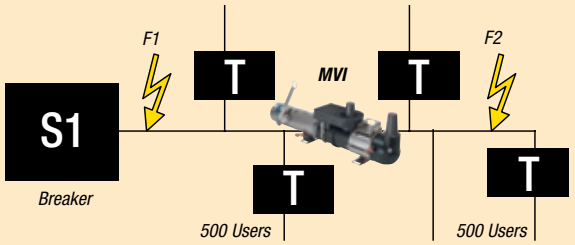


No Automatic Sectionalizing Unit
Permanent Faults F1 and F2
Interruption Duration: F1 = 1 hr.; F2 = 2 hr.
Evaluation Period = 1 yr.

SAIDI = [(1 hr.) x (1000) + (2 hr.) x (1000)]/1000 = 3 hr./yr.
SAIFI = [1000 + 1000]/1000 = 2 interruptions/yr.

In this example, a radial feeder is exposed to two failures in one year. Without any automatic sectionalizing (overcurrent protection), all customers are subject to both failures and are out of power until failures are restored. Assuming that the duration of outage one (F1) is 1 hour, and outage two (F2) is 2 hours, the calculation of SAIDI shows 3 hours of interruption duration per year. The calculation of the frequency of interruptions (SAIFI) shows two interruptions per year.

With MVI Automatic Sectionalizing — Improved Reliability!



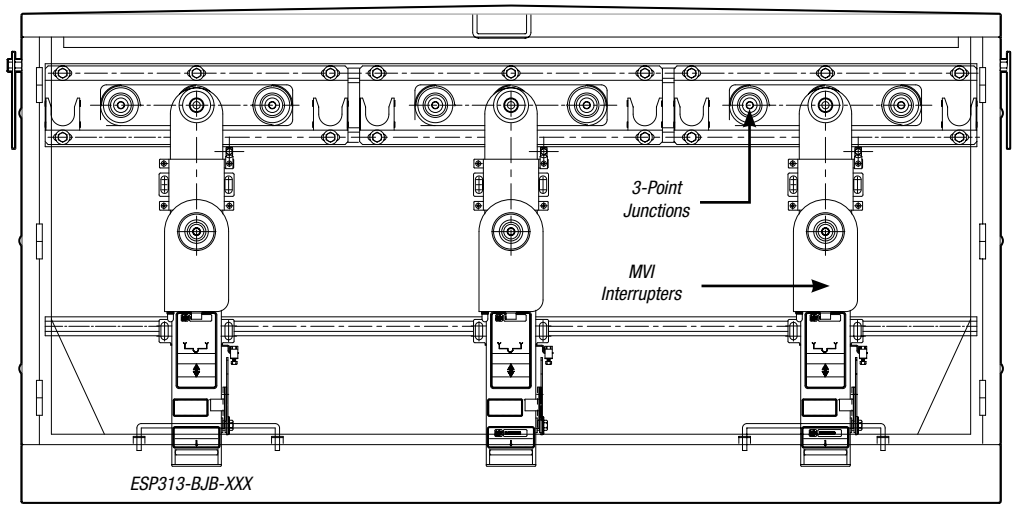
MVI Automatic Sectionalizing Unit = Eliminate one interruption for 500 users
Permanent Faults F1 and F2
Interruption Duration: F1 = 1 hr.; F2 = 2 hr. for 500 users
Evaluation Period = 1 yr.

SAIDI = [(1 hr.) x (1000) + (2 hr.) x (500)]/1000 = 2 hr./yr.
SAIFI = [1000 + 500]/1000 = 1.5 interruptions/yr.

With the use of an MVI overcurrent fault-interrupting device at the midpoint of the feeder, failure F2 only affects half of the load. Proper protection coordination between the MVI and the substation breaker enables the MVI to clear the fault before any customers between the MVI and the breaker are affected. Frequency and duration of interruption are significantly reduced. SAIDI is reduced from 3 to 2 hours of interruption per year (33%), and SAIFI is reduced from 2 to 1.5 interruptions per year (25%).

Automatic Sectionalizing Switchgear

Similar improvements can be accomplished with the use of MVIs in loop systems. A typical example of the use of radial protection off the main feeder to improve reliability is the use of single-phase MVIs in sectionalizing cabinets. These cabinets can be installed with no tap protection at the beginning of a construction project, and MVIs can be added as the loads come online.



Overview

Products that adapt to ever-changing system load conditions.

Distribution Automation Solutions

Tighter reliability, efficiency and loading requirements of the power system result in the need to keep costs at a minimum. Bringing more automation and intelligence to the power grid network to address numerous power utility concerns — ranging from reducing operational expenses to meeting new regulatory requirements — has prompted migration toward the next generation of distribution and substation automation.

Elastimold® Distribution Automation products provide automation solutions for real-time monitoring of critical feeders, reducing outage duration and supporting the shifting of loads between sources to alleviate overload conditions. These products offer a complete solution package, including Elastimold® Switchgear and Schweitzer Engineering Laboratories (SEL) controls such as the SEL451-5, for interoperability and rapid automation implementation. Elastimold® Distribution Automation Solutions include:

- Automatic Source Transfer (Preferred/Alternate)
- Loop Automation (Fault Detection, Isolation and Restoration — FDIR)

Automatic Source Transfer Systems

The main application of source transfer packages is to transfer a load from one power source to another. In some cases, when the load is not critical, this is done manually with a switching device. In the case of critical loads for hospitals, financial institutions, manufacturing facilities and other loads involving computerized equipment, a fast transfer is required between the main (preferred) source and backup (alternate) source. It is important that the automatic source transfer not affect load operation because any interruption of the business process translates into costly production loss and setup time. The preferred and backup sources are normally utility feeders, but in some instances may be a generator.

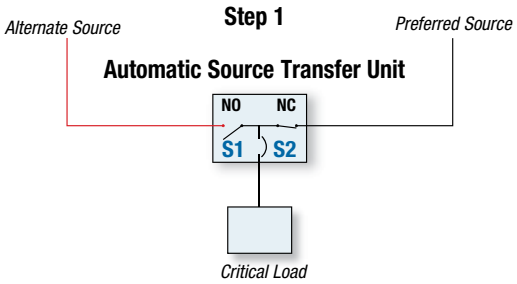
Elastimold® Switchgear offers automatic transfer (AT) packages with motor operators and voltage sensors capable of performing a full transfer in less than two seconds. For even faster transfer requirements, the fast transfer option using a magnetic actuator mechanism enables switching in 6½ cycles, or approximately 110 milliseconds. In either case, the system monitors voltage on the preferred source and initiates a transfer when voltage drops below the acceptable level for the customer. At this point, the preferred source is disconnected and the alternate source is connected.

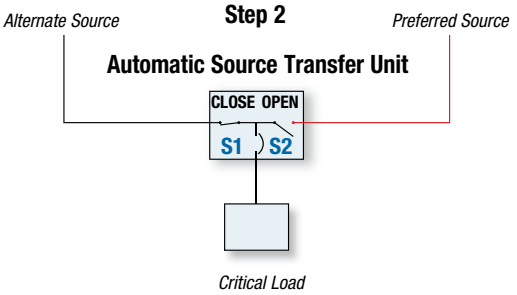


Elastimold® ATS Control



SEL451-5 Control Package





Under normal operating conditions, the critical load is connected to the Preferred Source through S2. If power from the Preferred Source is lost due to an upline fault, the Automatic Source Transfer unit detects the loss of voltage on S2. It automatically opens S2 and closes S1 to energize the critical load from the Alternate Source. With fast transfer, switching can be accomplished in 6½ cycles — or about 110 milliseconds.

Loop Automation Systems

In the case of underground loops, the switching devices along the loop can be used to reconfigure the loop to perform automatic fault detection, isolation and service restoration (FDIR). Thus, regardless of fault location, the switches will isolate the faulted portion of the loop and restore service to the remaining customers.

Elastimold® Switchgear Combined with SEL Controls Provides the Scheme of the Future

The opportunity to drop in a complete automation package enables utility companies to create highly reliable commercial and industrial parks in locations subject to frequent and possibly extended outages. The FDIR scheme allows restoration in only a few seconds, minimizing traditional restoration issues and associated loss of productivity and revenue, and provides the following key benefits:

- Automatic detection of open point of the loop
- Automatic reconfiguration of the loop to restore power to the load
- Ability to enable or disable the automatic network restoration scheme from any unit
- Infinite expandability — no limit to the number of units that can be installed
- No need for overcurrent protection coordination upon reconfiguration
- SCADA system interface: fiber optic, Ethernet and radio

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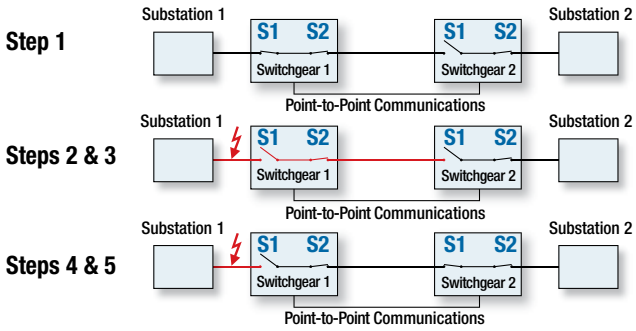
Overview

Operational scenario examples — Set-up and system normal state

- Loop automation scheme with two or more Elastimold® multi-way switchgear units
- Loop is fed from two different sources
- One piece of switchgear serves as the normally open point in the loop
- Each multi-way switchgear is automated with the SEL451-5
- Source switches have overcurrent fault-protection capabilities
- Each multi-way switchgear senses:
  - – Current on all phases and on all ways
  - – Voltage on both sides of the gear on the main loop

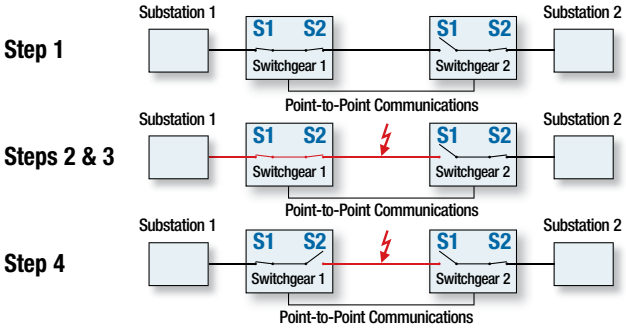
Operation Scenario 1
Loss of voltage on one source due to an upstream fault

1. Normal state
2. SWG1-1 opens on loss of source voltage after time delay
3. Search for closest downline open switch
4. SWG2-1 closes to restore load
5. FDIR scheme disables itself



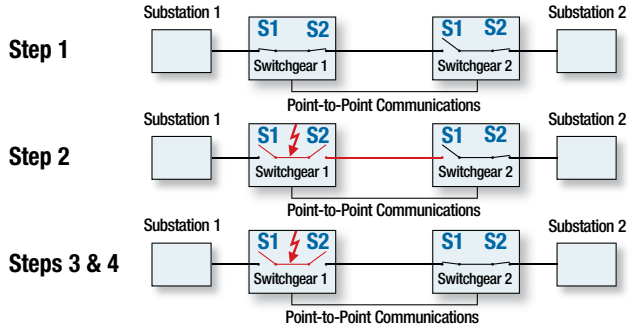
Operation Scenario 2
Fault located between two automated switchgear units

1. Normal state
2. SWG1-2 times to trip; SWG1-1 tripping is momentarily blocked
3. Search for next downline switch
4. If switch is open, FDIR scheme disables itself, OR — if switch is closed, switch opens to isolate fault, searches for next downline open switch to restore load and FDIR scheme disables itself



Operation Scenario 3
Bus fault within the switchgear

1. Normal state
2. SWG1-1 and SWG1-2 open
3. Close SWG2-1 to restore load between SWG1 and SWG2
4. FDIR scheme disables itself





Padmount



Subsurface



Vault

Overview

Network Transformer Protection

The reliability of conventional radial or looped underground distribution circuits is measured in terms of the number and/or frequency of interruptions. These measurements cannot be directly applied to a network system. A typical network system has built-in redundancy. During most events, the continuity of power supplied to the end user is not affected by fault conditions on the high side of the network transformers. So, from the point of view of customer interruptions, network systems are reliable.

However, transformer failures have been known to result in catastrophic fires, explosions and even loss of lives. The failure or overload of multiple transformers within a network may ultimately result in the interruption of service to the end user.

Loss of Redundancy

Loss of redundancy is a method that highlights the increased vulnerability of the system every time a network transformer is lost. Loss of redundancy indices are calculated as follows:

$$\text{Duration of Loss of Redundancy (hours/year)} = \frac{\text{S (No. Hours a Transformer is Disconnected x No. of Transformers in the Circuit)}}{\text{No. of Transformers in the Circuit}}$$

$$\text{Frequency of Loss of Redundancy (times/year)} = \frac{\text{Total No. of Transformer De-Energizations}}{\text{No. of Transformers in the Circuit}}$$

The number of transformers in the circuit is the number of transformers energized by the same feeder.

The loss of redundancy indices are calculated in the following example.

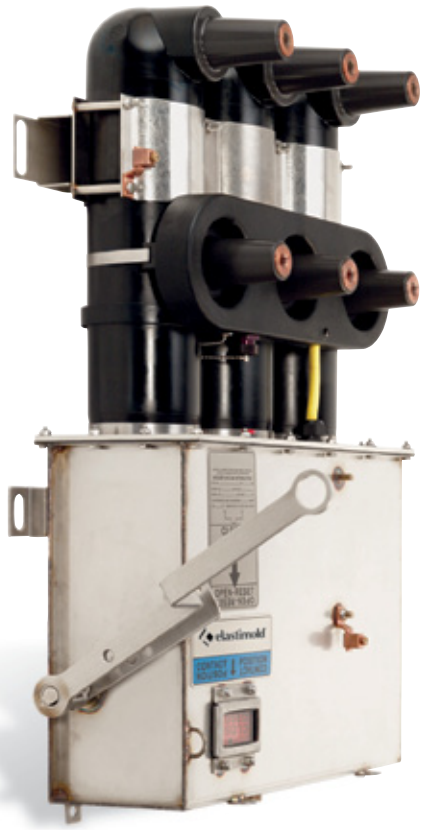
Example 1: No High-Side Transformer Protection

Consider one substation breaker and one exclusive feeder out to the network. Five transformers are energized by the same feeder. Assume one permanent fault on one transformer in one year. Also assume the faulted transformer is de-energized for six hours:

$$\text{Duration of Loss of Redundancy (hours/year)} = \frac{(6 \times 5)}{5} = 6 \text{ hours/year}$$

$$\text{Frequency of Loss of Redundancy (times/year)} = \frac{5}{5} = 1 \text{ time/year}$$

Because there is only one breaker for five transformers, a failure in one transformer translates to the interruption of power to five transformers for six hours.



Loss of redundancy can occur as a consequence of:

- Transformer fire
- Transformer overheating
- Transformer pressure build-up
- Overcurrent condition

While the substation breaker may detect most overcurrent faults, faults caused by excessive pressure/heat or fires cannot be detected by the breaker. One method that automatically isolates a network transformer from the primary side, regardless of the type of failure, is the installation of an MVI fault interrupter on the high side of the transformer. This MVI can isolate based on overcurrent conditions, but also can be wired to isolate the transformer in case of fire, excessive pressure/heat, emergency signal, etc.

Benefits of such a setup to the network system and the end users include:

- Minimization of fire damage
- Reduction or elimination of transformer damage due to pressure or temperature build-up
- Longer transformer life

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Overview

The following example calculates the loss of redundancy to the same system used in Example 1, but adding protection to the primary side of the transformers.

Example 2: High-Side Transformer Protection

There is one substation breaker and one exclusive feeder out to the network. Five transformers are energized by the same feeder. Each transformer is equipped with a fault interrupter installed on the high side. Assume one permanent fault on one transformer in one year. Assume the transformer is de-energized for six hours:

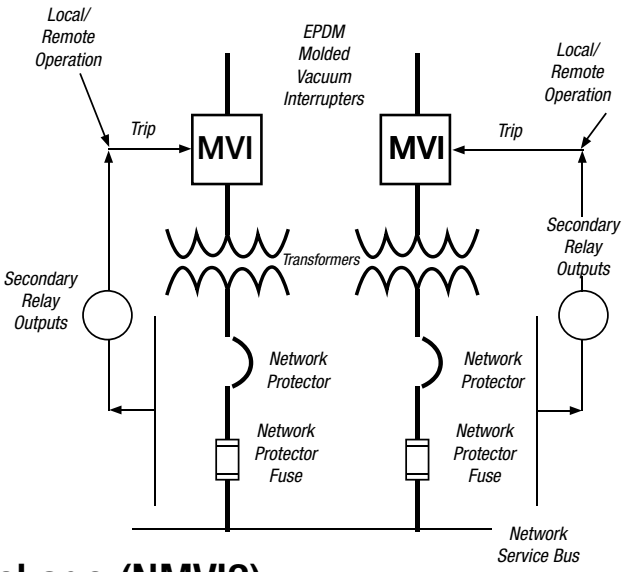
$$\text{Duration of Loss of Redundancy (hours/year)} = \frac{(6 \times 1)}{5} = 1.2 \text{ hour/year}$$

$$\text{Frequency of Loss of Redundancy (times/year)} = \frac{1}{5} = 0.2 \text{ time/year}$$

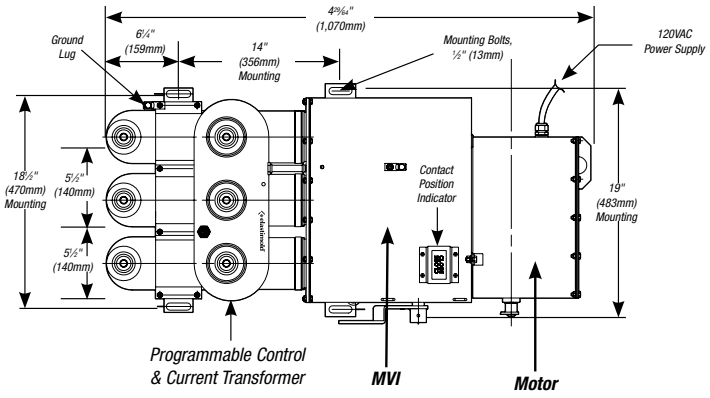
A failure in one transformer translates to the interruption of power to only one transformer for six hours.

Once an MVI is installed, remote operation from the entrance of the vault or via SCADA is possible with the addition of a motor operator and control. Installation of panic/emergency push buttons at the entrance of the vault is also possible; pressing this emergency switch will instantaneously trip open one or all of the interrupters in a vault and isolate the transformers.

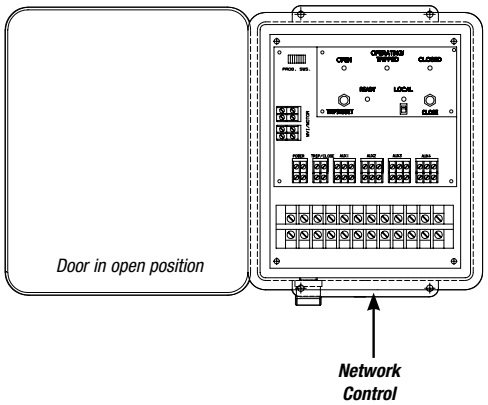
Transformer Network with Protection on the High Side of the Transformer



Elastimold® Switchgear Network Package (NMVI3)





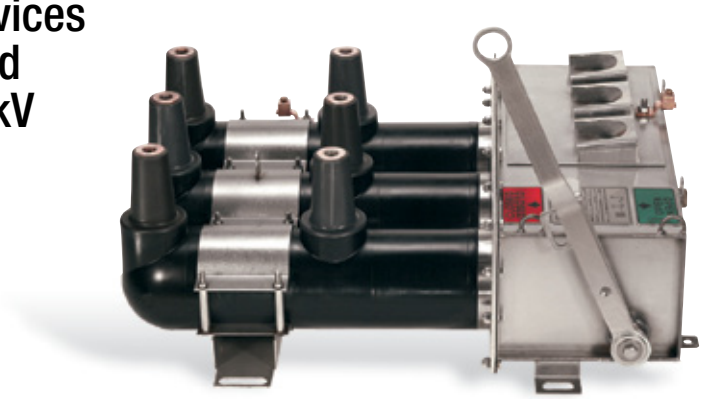


Elastimold® Switchgear Solutions

- Solid dielectric
- Vacuum interruption
- No maintenance — no oil or gas
- Fully automated from the factory or fully field upgradeable for automation
- Ability to add new units to existing automated loops

Molded Vacuum Switches and Interrupters

Spring-energy, load-switching devices that make, carry and interrupt load currents through 600A on 5 to 38kV distribution systems.

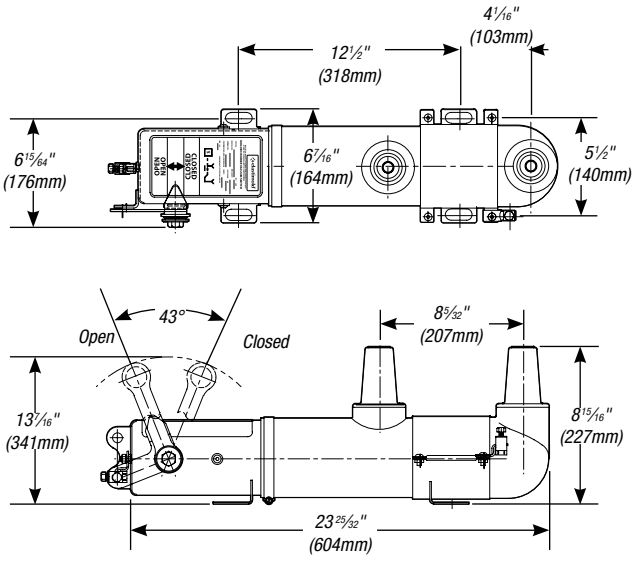


MVS Molded Vacuum Switches

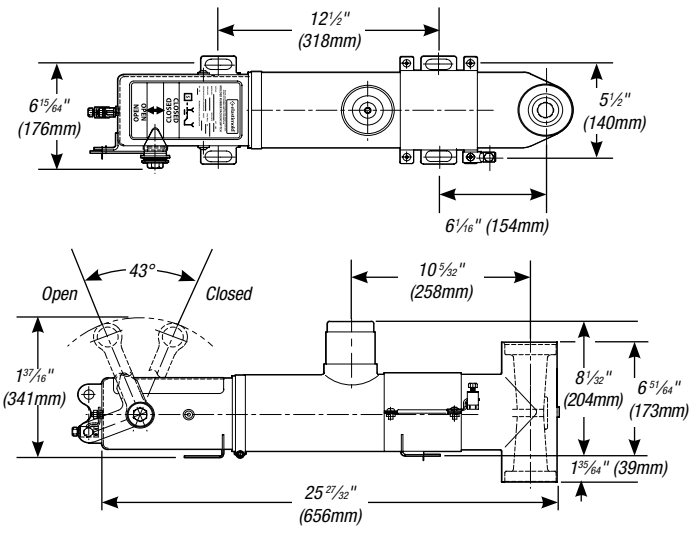
- EPDM molded rubber insulation — MVSs are fully sealed and submersible
- Vacuum switching and vacuum interruption components are maintenance-free and require no gas or oil
- Small footprint enables MVSs to fit in tight padmount, subsurface, vault or riser pole installations

MVS Molded Vacuum Switches include molded-in elbow connection interfaces and spring-energy mechanisms. Available in both single- and three-phase models, units are manually operated with a hotstick. Motor operator, SCADA and auto-transfer control options are available.

Single-Phase Switches Approximate Weight: 30 lbs.



(4) Mounting Holes, 5/8" Dia. x 7/8" (16 x 22mm)



(4) Mounting Holes, 5/8" Dia. x 7/8" (16 x 22mm)

Available with 600A one-piece bushings or 200A wells on either/both terminals.

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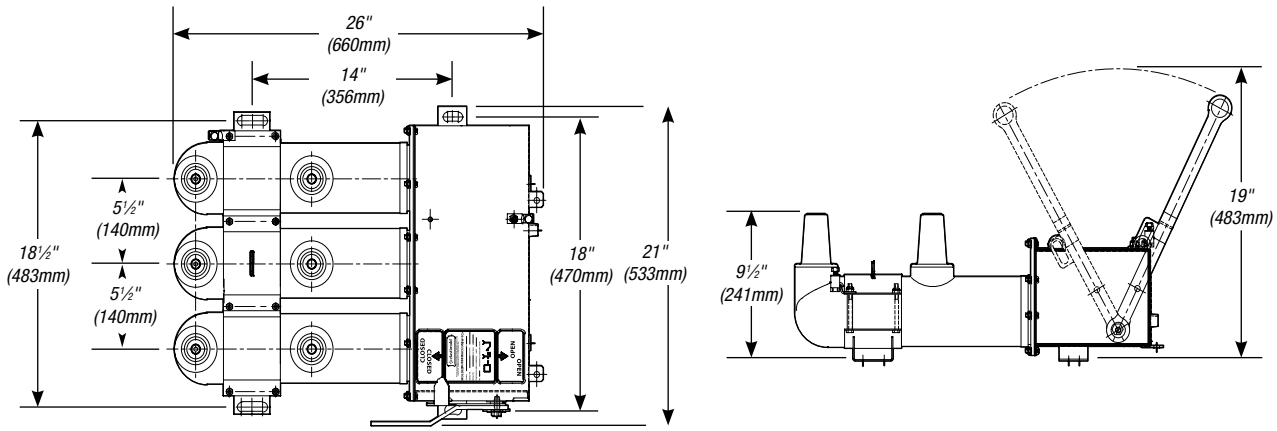
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Molded Vacuum Switches and Interrupters

Three-Phase Switches Approximate Weight: 135 lbs.



Available with 600A one-piece bushings or 200A wells on either/both terminals.

Ratings

Maximum Design Voltage (kV)	15.5	27	38
Frequency (Hz)	50/60	50/60	50/60
BIL Impulse (kV)	95	125	150
One-Minute AC Withstand (kV)	35	60	70
Fifteen-Minute DC Withstand (kV)	53	78	103
Load Interrupting & Loop Switching (Amp)	600	600	600
Transformer Magnetizing Interrupting (Amp)	21	21	21
Capacitor or Cable Charging Interrupting (Amp)	10	15	20
Asymmetrical Momentary and 3-Operation Fault Close (Amp)	20,000	20,000	20,000
Symmetrical One-Second Rating (Amp)	12,500	12,500	12,500
Continuous Current (Amp)	600	600	600
Eight-Hour Overload Current (Amp)	900	900	900

Application Information

Construction: Submersible, corrosion resistant, fully shielded

Ambient Temperature Range: -40° C to 65° C

Certified Tests

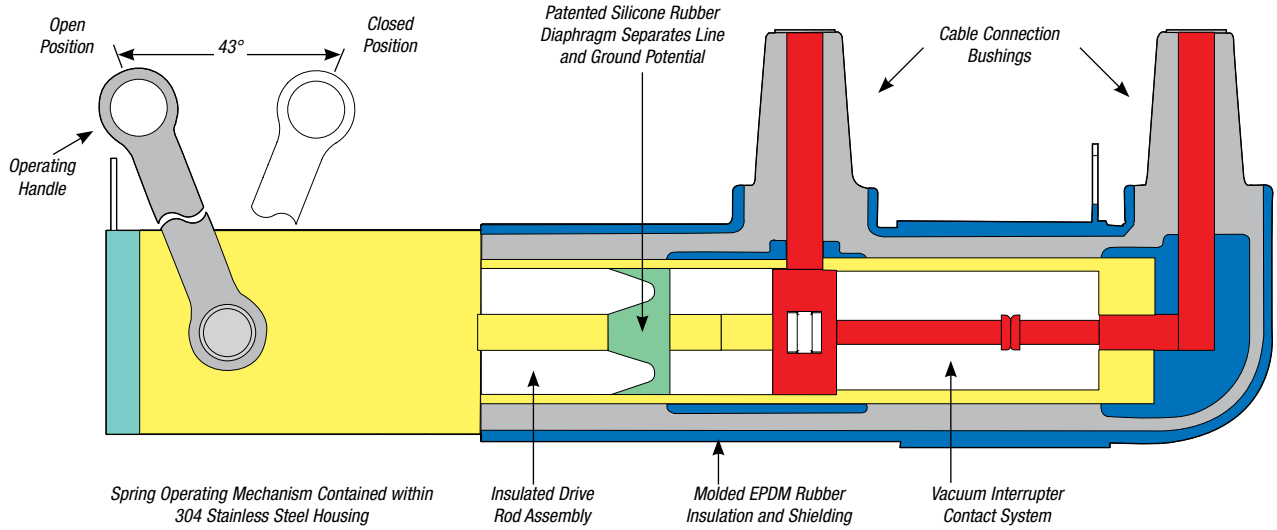
MVS loadbreak switches have been designed and tested per applicable portions of IEEE, ANSI, NEMA and other industry standards, including:

IEEE C37.74 Standard for Subsurface, Vault and Padmounted Load-Interrupting Switches

IEEE 386 Standard for Separable Connectors and Bushing Interfaces

IEC 265 International Standards for Load-Interrupting Switches

ANSI C57.12.28 Standard for Padmount Enclosures



Molded Vacuum Switches and Interrupters

Make, carry and automatically interrupt currents through 25,000A symmetrical on 5 to 38kV distribution systems.

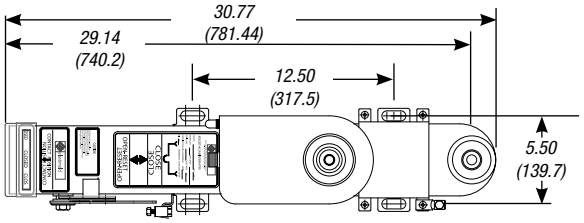


MVI Molded Vacuum Fault Interrupters

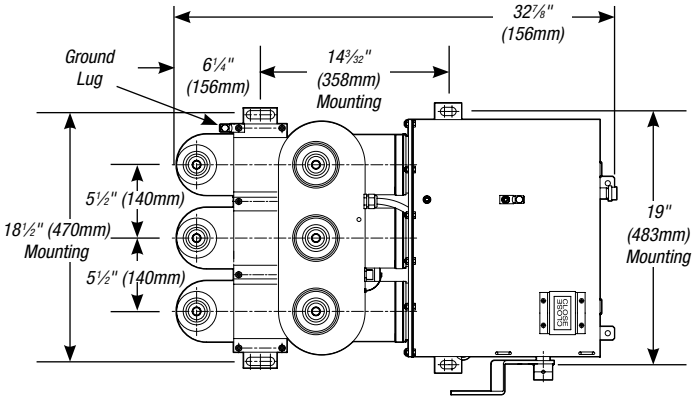
- Vacuum interrupters, programmable, electronic, self-powered controls and EPDM rubber insulation provide compact, lightweight and submersible overcurrent protection
- Field programmable with a wide range of time-current characteristic (TCC) curves land trip settings
- TCC curves provide predictable tripping for ease of coordination with upstream and/or downstream protective devices
- Control monitors the circuit condition — when the programmed parameters are exceeded, a signal is sent to the tripping mechanism
- Available motor operators and controls enable radial feeders or loops to be reconfigured, either manually or via SCADA

MVI Molded Vacuum Fault Interrupters include molded-in elbow connection interfaces and trip-free mechanisms. They are available in single- and three-phase models. Units are self-powered and include current-sensing and electronic control.

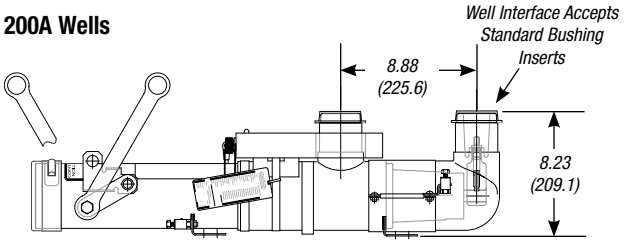
Front View Single-Phase



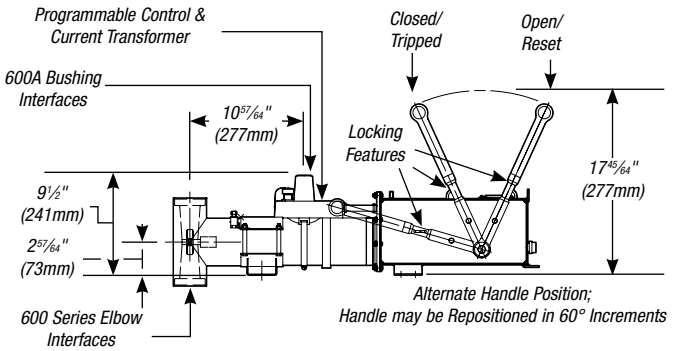
Front View Three-Phase



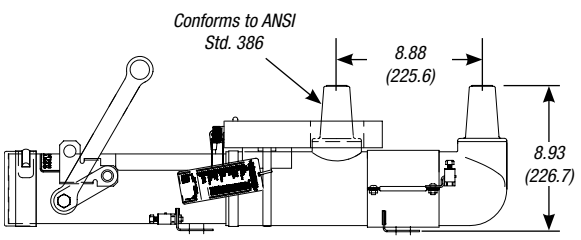
200A Wells



600A T Elbow Interface



600A Bushings



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Molded Vacuum Switches and Interrupters

Ratings

Voltage Class (kV)	15.5	15.5	15.5	27	35	35
Maximum Design Voltage (kV)	17	17	15.5	29	38	38
Frequency (Hz)	50/60	50/60	50/60	50/60	50/60	50/60
BIL Impulse Withstand (kV)	95	95	95	125	150	150
One-Minute AC Withstand (kV)	35	35	35	40	50	50
Five-Minute DC Withstand (kV)	53	53	53	78	103	103
Continuous Current (Amp)	630	630	630	630	630	630
Load Interrupting & Loop Switching (Amp)	630	630	630	630	630	630
Capacitor or Cable Charging Interrupting (Amp)	10	10	10	25	40	40
Symmetrical/Asymmetrical Interrupting Capability (kA)	12.5/20	16/25.6	20/32	12.5/20	12.5/20	25/40
Current Sensor Ratio	1,000:1	1,000:1	1,000:1	1,000:1	1,000:1	1,000:1

Application Information

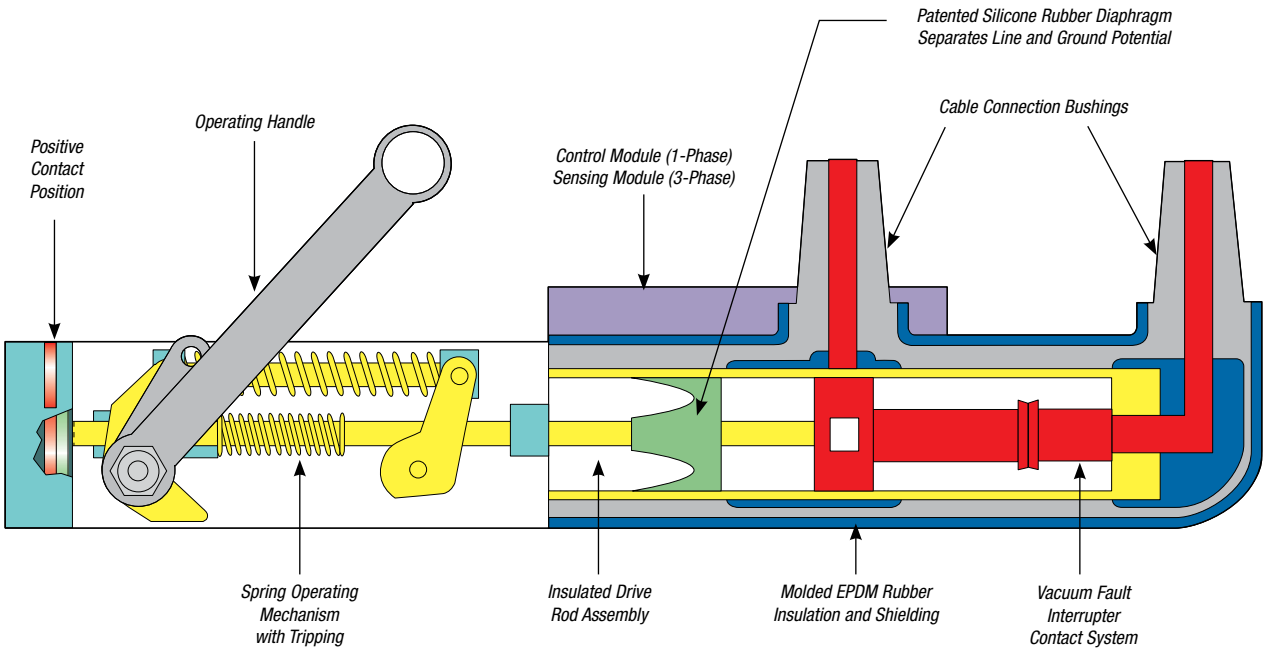
Meets ANSI C37.60 requirements

Ambient Temperature Range: -40° C to 65° C

Certified Tests

MVI Molded Vacuum Fault Interrupters have been designed and tested per applicable portions of IEEE, ANSI, NEMA and other industry standards, including:

ANSI C37.60 Standard for Fault Interrupters
IEEE 386 Standard for Separable Connectors and Bushing Interfaces
ANSI C57.12.28 Standard for Padmounted Enclosures



Molded Vacuum Switches and Interrupters

Choose from five electronic control options to interrupt faults.

MVI Molded Vacuum Interrupter Controls

- Self-powered electronic control packages — no batteries or external power are required
- Controls send a signal to the vacuum interrupters to trip open and interrupt the fault when an overcurrent condition is detected
- Field-selectable fuse or relay curves and trip settings — one device for many protection schemes

Molded Vacuum Interrupters are provided with self-powered electronic control packages requiring no batteries or external power. Depending on the application, six electronic control options are available for the MVI — see below and on following page.

Internal Control



This control is integral to the unit (no separate control box). It is accessible via a computer connection to view or modify settings. This control is used on ganged three-phase or single-phase MVI interrupters. Phase and ground trip, as well as inrush restraint, are available. The E-Set software enables the user to connect to the internal control, either in the shop or in the field, to program or change settings. An MVI-STP-USB programming connector is required to connect between the PC and the MVI. With a computer connected to the MVI control, the user can view real-time currents, the number of overcurrent protection operations, current magnitude of the last trip and the phase/ground fault targets. This is the standard control option.

***Note**: E-Set can be downloaded from www.elastimoldswitchgear.com.*

External Control with Single-/Three-Phase Trip Selection (Style 10)



This control is mounted externally to the mechanism and provides the ability to select TCCs by setting DIP switches on the front panel. Each phase can be assigned a different minimum trip setting by means of manual rotary switches. This control is used on one, two or three single-phase MVI mechanisms.

External Control with Single-Phase Trip Only (Style 5)



This control is mounted externally to the mechanism and provides the ability to select phase minimum trip by means of a manual rotary switch. It also has an RS-232 port for connection to a PC to view the last trip data. This control is used on single-phase MVI mechanisms.

External Control with Phase and Ground Trip (Style 20)



This control is mounted externally to the mechanism and provides the ability to select phase minimum trip (one for all three phases), time delay for phase tripping, ground trip as a percent of phase minimum trip and ground trip delay by means of manual rotary switches. This control may be used on ganged three-phase or three single-phase MVI mechanisms.

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Molded Vacuum Switches and Interrupters

External Control with Three-Phase Trip Only (Style 30)

This control is mounted externally to the mechanism and provides the ability to select phase minimum trip (one for all three phases) by means of a manual rotary switch. It also has an RS-232 port for connection to a PC to view the last trip data. This control is used on ganged three-phase or three single-phase MVI mechanisms.



External Control with Selectable Single-/Three-Phase Trip Function (Style 80)



This control is mounted externally to the mechanism of the interrupter and provides the ability to select between a single-phase trip and a three-phase trip. The 80 and 380 Control can be used with one three-phase interrupter or with three single-phase interrupters. For three-phase applications, the ground trip function can be blocked from the front panel. Manual trip and reset target buttons are also located on the front panel. This control uses the E-Set software, which enables programming via a computer using the MVI-STP-USB adapter. E-Set features custom TCC curves and provides access to the last fault event information, as well as real-time current per phase.

Curves

CURVE NO.	CURVE REFERENCE NO.	CURVE TYPE
Relay Curves (minimum trip 30–600A)		
01	MVI-TCC-01	E Slow
02	MVI-TCC-02	E Standard
03	MVI-TCC-03	Oil Fuse Cutout
04	MVI-TCC-04	K
05	MVI-TCC-05	Kearney QA
06	MVI-TCC-06	Cooper EF
07	MVI-TCC-07	Cooper NX-C
08	MVI-TCC-08	CO-11-1
09	MVI-TCC-09	CO-11-2
10	MVI-TCC-10	T
11	MVI-TCC-11	CO-9-1
12	MVI-TCC-12	CO-9-2
13	MVI-TCC-13	Cooper 280ARX
14	MVI-TCC-14	F
16	MVI-TCC-16	Kearney KS
17	MVI-TCC-17	GE Relay
18–23	MVI-TCC-18–23	CO-8-1–CO-8-6
24–27	MVI-TCC-24–27	CO-9-3–CO-9-6
28–31	MVI-TCC-28–31	CO-11-3–CO-11-6
Fuse Curves (minimum trip 10–200A)		
54	MVI-TCC-54	E Slow
55	MVI-TCC-55	E Standard
56	MVI-TCC-56	Oil Fuse Cutout
57	MVI-TCC-57	K
58	MVI-TCC-58	Kearney QA
59	MVI-TCC-59	Cooper NX-C
60	MVI-TCC-60	T

Molded Vacuum Switches and Interrupters

Elastimold® Molded Vacuum Switches and Interrupters

The following diagram shows how to construct a catalog number for Molded Vacuum Switches and Interrupters. Catalog numbers are shown below and on the following page.

EXAMPLE: The catalog number for a Molded Vacuum Interrupter on a three-phase, 27kV system, with 600A terminal and parking stands between bushings is **MVI3-21-27-66-PS.**

☐ *Indicates field that must be filled in to complete order.*

☐ M V ☐ ☐ - 2 1 - ☐ - ☐ ☐ ☐ - SUFFIX

Device
- **S** Switch
- **I** Interrupter

Switch Type
- **R** Riser Pole
- **N** Network
- **W** Wind Farm*
- **Blank** Subsurface

Phases
- **1** Single-Phase
- **3** Three-Phase

Voltage Class
- **15** 15.0kV
- **27** 27.0kV
- **38** 38.0kV

End Interface
- **2** 200A Bushing Well
- **6** 600A Bushing

Interface
- **E** 600A T Body
- **R** End Interface Rotated 180°
- **AB** Air Bushings (for Riser Pole)

Main Interface
- **2** 200A Bushing Well
- **6** 600A Bushing

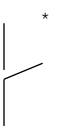
** Only for 38kV, 600A Interrupter*

Controls and Accessories

CAT. NO. SUFFIX	DESCRIPTION
20	External 20 Control with Phase and Ground Trip (to be used on ganged three-phase MVI mechanism)
30	External 30 Control with Three-Phase Trip Only (to be used on ganged three-phase MVI mechanism)
80	External 80 Control with Selectable Single-/Three-Phase Trip Function (to be used on ganged three-phase MVI mechanism)
110	External 10 Control with Single Trip Selection (to be used on one single-phase MVI mechanism)
310	External 10 Control with Single-/Three-Phase Trip Selection (to be used on three single-phase MVI mechanisms)
320	External 20 Control with Phase and Ground Trip (to be used on three single-phase MVI mechanisms)
330	External 30 Control with Three-Phase Trip Only (to be used on three single-phase MVI mechanisms)
380	External 80 Control with Selectable Single-/Three-Phase Trip Function (to be used on three single-phase mechanisms)
M0120A	120VAC Motor Operator and Controller for MVS3 or MVI3 Units
M012D	12–24VDC Motor Operator and Controller for MVS3 or MVI3 Units
PS	Parking Stand for MVS or MVI (between bushings for single- or three-phase units)
MPS	Parking Stand for MVS3, MVI3 or RMVI3 on Mechanism Cover
PS6	Double Parking Stand for MVS3, MVI3 or RMVI3 (between bushings and on mechanism cover)
BT	Bail Tab Plate Installed for Three-Phase Units Only
P	Customer Settings to Be Programmed at the Factory

Note: *Leave suffix blank for internal (self-contained) control.*

Elastimold® MVS Molded Vacuum Switches

CAT. NO.	DESCRIPTION	WIDTH IN. (MM)	HEIGHT IN. MM)	DEPTH IN. (MM)	WEIGHT LB. (KG)	DIAGRAM
Single-Phase Vacuum Switches						
MVS1-21-15-XX	15kV 2-Way 1-Phase Switch	6 (152)	24 (610)	14 (356)	30 (14)	
MVS1-21-15-6EX	15kV 2-Way 1-Phase Switch — Elbow Interface	6 (152)	24 (610)	15 (381)	30 (14)	
MVS1-21-27-XX	25kV 2-Way 1-Phase Switch	6 (152)	24 (610)	14 (356)	30 (14)	
MVS1-21-27-6EX	25kV 2-Way 1-Phase Switch — Elbow Interface	6 (152)	24 (610)	15 (381)	30 (14)	
MVS1-21-38-XX	35kV 2-Way 1-Phase Switch	6 (152)	24 (610)	14 (356)	30 (14)	
Three-Phase Vacuum Switches						
MVS3-21-15-XX	15kV 2-Way 3-Phase Switch	21 (533)	26 (660)	19 (483)	135 (61)	
MVS3-21-27-XX	25kV 2-Way 3-Phase Switch	21 (533)	26 (660)	19 (483)	135 (61)	
MVS3-21-38-XX	38kV 2-Way 3-Phase Switch	21 (533)	26 (660)	19 (483)	135 (61)	

** Height includes handle. ** 3-Phase Vacuum Switches are motor-ready.*

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Molded Vacuum Switches and Interrupters

Elastimold® MVI Molded Vacuum Interrupters***

CAT. NO.	DESCRIPTION	WIDTH IN. (MM)	HEIGHT IN. (MM)	DEPTH IN. (MM)	WEIGHT LB. (KG)	DIAGRAM
Riser Pole (Three-Phase Installations Only)						
RMVI3-21-15-6ABX-YY	15kV 2-Way 3-Phase Interrupter with Air Bushings on Top Terminals	30 (762)	45 (1,143)	25 (635)	150 (68)	
RMVI3-21-27-6ABX-YY	25kV 2-Way 3-Phase Interrupter with Air Bushings on Top Terminals	30 (762)	45 (1,143)	25 (635)	150 (68)	
RMVI3-21-38-6ABX-YY	38kV 2-Way 3-Phase Interrupter with Air Bushings on Top Terminals	30 (762)	45 (1,143)	25 (635)	150 (68)	
RMVI1-21-15-6ABX-3YY	15kV 2-Way 3-Phase Interrupter with Air Bushings on Top Terminals, 1-Phase Trip Selectable	30 (762)	45 (1,143)	25 (635)	150 (68)	
RMVI1-21-27-6ABX-3YY	27kV 2-Way 3-Phase Interrupter with Air Bushings on Top Terminals, 1-Phase Trip Selectable	30 (762)	45 (1,143)	25 (635)	150 (68)	
RMVI1-21-38-6ABX-3YY	38kV 2-Way 3-Phase Interrupter with Air Bushings on Top Terminals, 1-Phase Trip Selectable	30 (762)	45 (1,143)	25 (635)	150 (68)	
Subsurface Single-Phase Vacuum Switches						
MVI1-21-15-XX	15kV 2-Way 1-Phase Interrupter	6 (152)	31 (787)	9 (229)	45 (20)	
MVI1-21-15-6EX	15kV 2-Way 1-Phase Interrupter, Elbow Interface	6 (152)	31 (787)	11 (279)	45 (20)	
MVI1-21-27-XX	27kV 2-Way 1-Phase Interrupter	6 (152)	31 (787)	9 (229)	45 (20)	
MVI1-21-27-6EX	27kV 2-Way 1-Phase Interrupter, Elbow Interface	6 (152)	31 (787)	11 (279)	45 (20)	
MVI1-21-38-XX	38kV 2-Way 1-Phase Interrupter	6 (152)	31 (787)	9 (229)	45 (20)	
MVI1-21-38-6EX	38kV 2-Way 1-Phase Interrupter, Elbow Interface	6 (152)	31 (787)	11 (279)	45 (20)	
Subsurface Three-Phase Vacuum Switches						
MVI1-21-15-XX-3YY	15kV 2-Way 3-Phase Interrupter, 1-Phase Trip Selectable Ext. Control	20 (508)	31 (787)	9 (229)	145 (66)	
MVI1-21-27-XX-3YY	27kV 2-Way 3-Phase Interrupter, 1-Phase Trip Selectable Ext. Control	20 (508)	31 (787)	9 (229)	145 (66)	
MVI1-21-38-XX-3YY	38kV 2-Way 3-Phase Interrupter, 1-Phase Trip Selectable Ext. Control	20 (508)	31 (787)	9 (229)	145 (66)	
MVI3-21-15-XX-YY	15kV 2-Way 3-Phase Interrupter	20 (508)	33 (838)	10 (254)	145 (66)	
MVI3-21-27-XX-YY	27kV 2-Way 3-Phase Interrupter	20 (508)	33 (838)	10 (254)	145 (66)	
MVI3-21-38-XX-YY	38kV 2-Way 3-Phase Interrupter	20 (508)	33 (838)	10 (254)	145 (66)	

**** Air bushings on top terminal.*

Accessories (order separately)

CAT. NO.	DESCRIPTION
MVI-STP-USB	Adapter for Connection between MVI Units with Internal Control and a Computer for Programming/Viewing Settings
MV1PMB	Pole-Mounting Bracket for 1-Phase Units Only
MV3PMB	Pole-Mounting Bracket for 3-Phase Units Only
MV3HPMB	Horizontal Pole-Mounting Bracket for 3-Phase Units Only
MV13PMB	Pole-Mounting Bracket for Three 1-Phase Units Only
35AL-11	Connector Bare Wire Type ¾"–16 Rod for Riser Pole Units; Qty. of 1 Needed per Phase
35AL-12	Connector 2-Hole Spade Type ¾"–16 Rod for Riser Pole Units; Qty. of 1 Needed per Phase

Notes: *Weights and dimensions are approximate.*

X = 6 for 600A or 2 for 200A or 6E for 600A T interface.

Y = 10, 20, 30, 80 for different electronic controls.

Leave blank for internal (self-contained) control.

Accessories should be added as suffix to the main catalog number unless otherwise noted.

Other configurations are available. Please consult your local representative on configurations not shown here.

The 3-Phase Vacuum Interrupters are motor-ready.

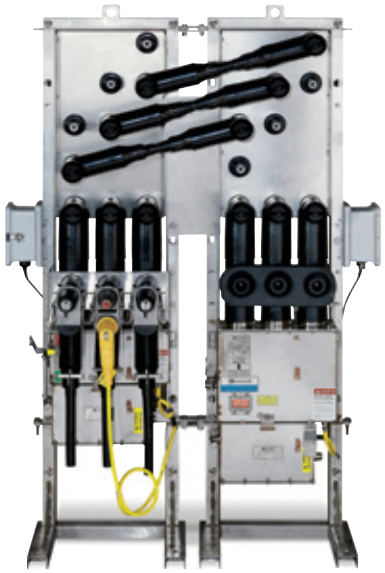
Multi-Way Switchgear and Transfer Packages

Multi-Way Unit Construction

Multi-way vault and padmount units are built using MVS and MVI modules as required by the application. These are mounted onto the ES multi-way common bus system and assembled on a free-standing, floor-mounted frame. At this stage, the product is ready to be used in vault installations.

For padmount installations, a double-sided, drop-over, painted, mild steel enclosure is provided. Munsell Green 7GY 3.29/1.5 is the standard enclosure color. Other colors are available upon request. Painted stainless steel or fiberglass enclosures are available as options.

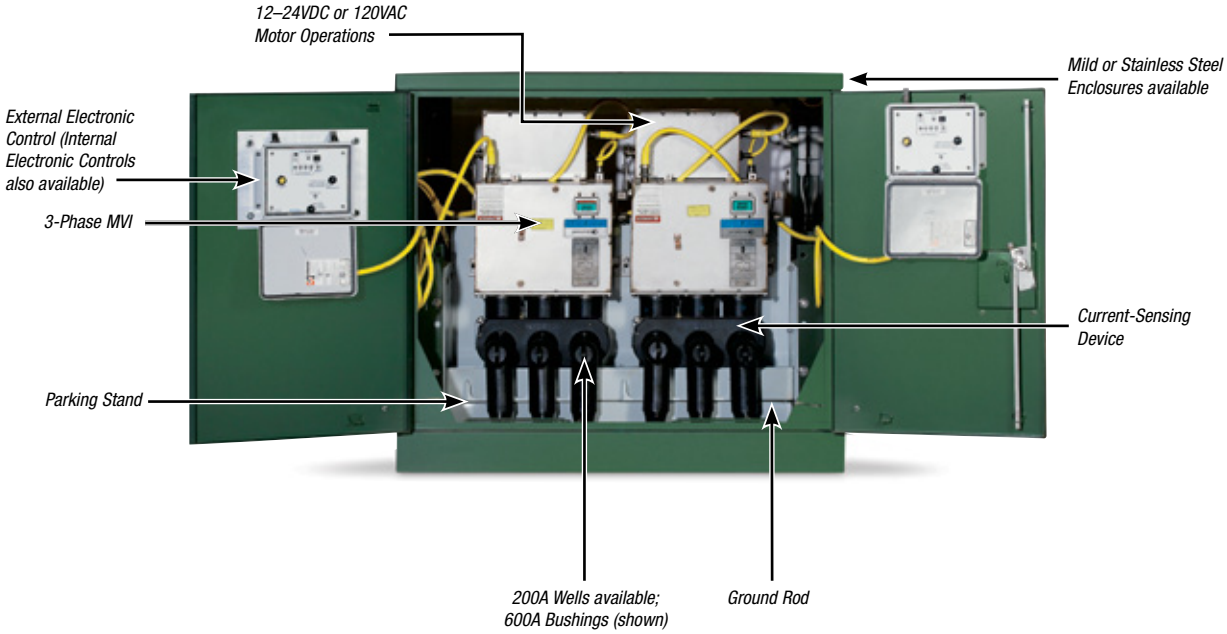
Subsurface-Style Unit



Vault-Style Unit



Padmount Unit (Load Side)



Thomas&Betts

United States
Tel: 901.252.8000
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Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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Elastimold® Multi-Way Switchgear or Transfer Package

The following diagram shows how to construct a catalog number for Multi-Way Switchgear or Transfer Packages. Catalog numbers are shown on **pages H-132–H-135** for the most common configurations.

EXAMPLE: The catalog number for an auto-transfer package for padmount installation on a 3-phase, 27kV system, with two MVI protected taps, 600A terminals and standard mild steel enclosure is **ATD324-AAPP-6666.**

Indicates field that must be filled in to complete order.

□ □ □ □ □ - □ - □ □ □

Switch Type	
AF	Auto Transfer-Actuator
AT	Auto Transfer-Motor
ES	Multi-Way Switch

Type	
V	Vault
S	Subsurface
D	Double-Side Padmount
P	Single-Side Padmount

Phases	
1	1-Phase
3	3-Phase

Voltage Class	
1	15.0kV
2	27.0kV
3	38.0kV

Number of Ways	
2	2-Way
3	3-Way
4	4-Way

Components by Way	
A	3-Phase Switch Motor Operator or Magnetic Actuator Auto Transfer
B	Solid Tap/Direct Bus Connection (600A or 200A)
C	3-Phase MVI Fault Interrupter, 20 Control
D	3-Phase MVI Fault Interrupter, 30 Control
J	1-Phase Fault Interrupter
K	1-Phase Fault Interrupter, 10 Control
L	1-Phase Fault Interrupter, 80 Control
M	1-Phase Fault Interrupter, 20 Control
N	1-Phase Fault Interrupter, 30 Control
O	3-Phase MVI Fault Interrupter, 80 Control
P	3-Phase MVI Fault Interrupter
Q	3-Phase MVS Switch with UAD Control
R	3-Phase MVI Fault Interrupter Motor Operator, 12–24VDC
S	1-Phase MVS Switch
T	3-Phase MVS Switch
U	3-Phase MVS with 12–24VDC Motor
V	3-Phase MVS with 120VAC Motor
W	3-Phase MVI Fault Interrupter Motor Operator, 120VAC

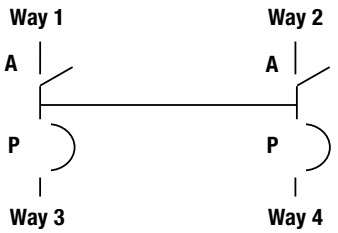
Interface by Way	
2	200A Bushing Well
6	600A Bushing

Cabinet Depth Padmount	
Blank	54"

Enclosure Material	
Blank	Mild Steel
S	Stainless Steel

Example: ATD324-AAPP-6666

- Custom padmount enclosure dimensions are available.
- Parking stands are standard on padmount units.
- Consult your local representative on multi-way configurations that include 38kV MVIs.
- 3-Phase MVS and MVI are motor-ready.
- Auto-transfer ways 1 and 2 are always “A.”



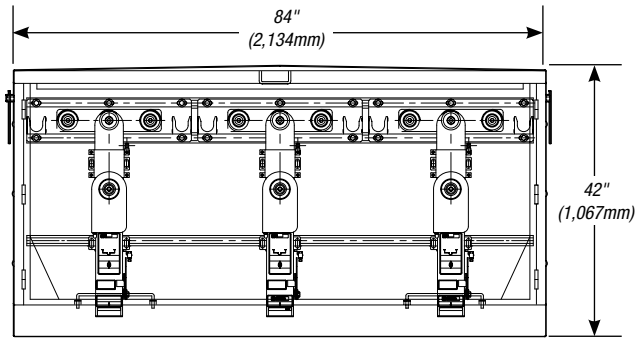
Multi-Way Switchgear and Transfer Packages

Elastimold® Switching and Sectionalizing Switchgear

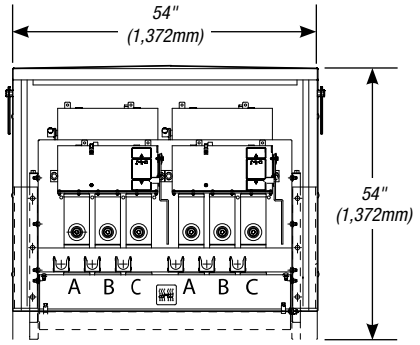
CAT. NO.	DESCRIPTION	WIDTH IN. (MM)	HEIGHT IN. (MM)	DEPTH IN. (MM)	WEIGHT LB. (KG)	DIAGRAM
Vault						
ESV313-TTT-XXX	15kV 3-Way 3-Phase Switch	48 (1,219)	36 (914)	22 (559)	750 (340)	
ESV323-TTT-XXX	27kV 3-Way 3-Phase Switch	48 (1,219)	36 (914)	22 (559)	750 (340)	
ESV333-TTT-XXX	38kV 3-Way 3-Phase Switch	48 (1,219)	36 (914)	22 (559)	750 (340)	
ESV314-TTTT-XXXX	15kV 4-Way 3-Phase Switch	48 (1,219)	36 (914)	22 (559)	880 (399)	
ESV324-TTTT-XXXX	27kV 4-Way 3-Phase Switch	48 (1,219)	36 (914)	22 (559)	880 (399)	
ESV334-TTTT-XXXX	38kV 4-Way 3-Phase Switch	48 (1,219)	36 (914)	22 (559)	880 (399)	
Padmount						
PMVS1-21-15-XX	15kV 2-Way 3-Phase Switch	36 (914)	30 (762)	30 (762)	310 (141)	
PMVS1-21-27-XX	27kV 2-Way 3-Phase Switch	36 (914)	30 (762)	30 (762)	310 (141)	
PMVS1-21-38-XX	38kV 2-Way 3-Phase Switch	36 (914)	30 (762)	30 (762)	310 (141)	
ESD312-T-XX	15kV 2-Way 3-Phase Switch	36 (914)	48 (1,219)	42 (1,067)	680 (308)	
ESD322-T-XX	27kV 2-Way 3-Phase Switch	36 (914)	48 (1,219)	42 (1,067)	680 (308)	
ESD332-T-XX	38kV 2-Way 3-Phase Switch	36 (914)	48 (1,219)	42 (1,067)	680 (308)	
ESD313-TTT-XXX	15kV 3-Way 3-Phase Switch	54 (1,317)	48 (1,219)	54 (1,317)	1,250 (567)	
ESD323-TTT-XXX	27kV 3-Way 3-Phase Switch	54 (1,317)	48 (1,219)	54 (1,317)	1,250 (567)	
ESD333-TTT-XXX	38kV 3-Way 3-Phase Switch	54 (1,317)	48 (1,219)	54 (1,317)	1,250 (567)	
ESD314-TTTT-XXXX	15kV 4-Way 3-Phase Switch	54 (1,317)	48 (1,219)	54 (1,317)	1,380 (626)	
ESD324-TTTT-XXXX	27kV 4-Way 3-Phase Switch	54 (1,317)	48 (1,219)	54 (1,317)	1,380 (626)	
ESD334-TTTT-XXXX	38kV 4-Way 3-Phase Switch	54 (1,317)	48 (1,219)	54 (1,317)	1,380 (626)	

***Note**: X = 6 for 600A or 2 for 200A.*
Other configurations are available. Consult your local representative for configurations not shown here.

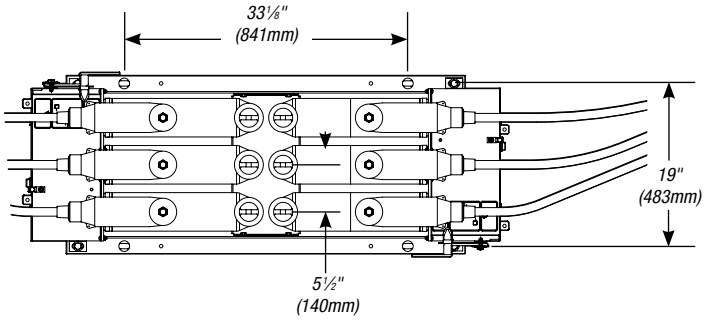
Single-Side Padmount ESP313-BJB-626



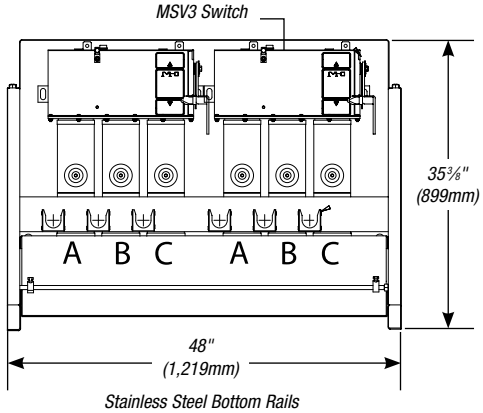
Double-Side Padmount ESD3X4-IIPP-6622-S



Subsurface ESS3X2-TT-66



Vault ESV3X4-TTTT-2222



Stainless Steel Bottom Rails

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Multi-Way Switchgear and Transfer Packages

Elastimold® Overcurrent Protection Switchgear

CAT. NO.	DESCRIPTION	WIDTH IN. (MM)	HEIGHT IN. (MM)	DEPTH IN. (MM)	WEIGHT LB. (KG)	DIAGRAM
Vault						
ESV313-TPP-XXX	15kV 3-Way 3-Phase (1) Source Switch, (2) Vacuum Interrupter Taps	40 (1,016)	48 (1,219)	22 (559)	660 (299)	
ESV323-TPP-XXX	27kV 3-Way 3-Phase (1) Source Switch, (2) Vacuum Interrupter Taps	40 (1,016)	48 (1,219)	22 (559)	660 (299)	
ESV313-TTP-XXX	15kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	40 (1,016)	48 (1,219)	22 (559)	660 (299)	
ESV323-TTP-XXX	27kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	40 (1,016)	48 (1,219)	22 (559)	660 (299)	
ESV314-TPPP-XXXX	15kV 4-Way 3-Phase (1) Source Switch, (3) Vacuum Interrupter Taps	40 (1,016)	48 (1,219)	22 (559)	880 (399)	
ESV324-TPPP-XXXX	27kV 4-Way 3-Phase (1) Source Switch, (3) Vacuum Interrupter Taps	40 (1,016)	48 (1,219)	22 (559)	880 (399)	
ESV314-TTPP-XXXX	15kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	40 (1,016)	48 (1,219)	22 (559)	880 (399)	
ESV324-TTPP-XXXX	27kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	40 (1,016)	48 (1,219)	22 (559)	880 (399)	
ESV314-TTTP-XXXX	15kV 4-Way 3-Phase (3) Source Switches, (1) Vacuum Interrupter Tap	40 (1,016)	48 (1,219)	22 (559)	880 (399)	
ESV324-TTTP-XXXX	27kV 4-Way 3-Phase (3) Source Switches, (1) Vacuum Interrupter Tap	40 (1,016)	48 (1,219)	22 (559)	880 (399)	
Padmount						
PMVI1-21-15-XX	15kV 2-Way 1-Phase Interrupter	36 (914)	30 (762)	30 (762)	310 (141)	
PMVI1-21-27-XX	27kV 2-Way 1-Phase Interrupter	36 (914)	30 (762)	30 (762)	310 (141)	
PMVI1-21-38-XX	38kV 2-Way 1-Phase Interrupter	36 (914)	30 (762)	30 (762)	310 (141)	
PMVI1-21-15-XX-3YY	15kV 2-Way 3-Phase Interrupter 1-Phase Trip Selectable Ext. Control	48 (1,219)	42 (1,067)	30 (762)	680 (308)	
PMVI1-21-27-XX-3YY	27kV 2-Way 3-Phase Interrupter 1-Phase Trip Selectable Ext. Control	48 (1,219)	42 (1,067)	30 (762)	680 (308)	
PMVI1-21-38-XX-3YY	38kV 2-Way 3-Phase Interrupter 1-Phase Trip Selectable Ext. Control	48 (1,219)	42 (1,067)	30 (762)	680 (308)	
ESD312-P-XX	15kV 2-Way 3-Phase (1) Vacuum Interrupter Tap	36 (914)	48 (1,219)	42 (1,067)	680 (308)	
ESD322-P-XX	27kV 2-Way 3-Phase (1) Vacuum Interrupter Tap	36 (914)	48 (1,219)	42 (1,067)	680 (308)	
ESD332-P-XX	38kV 2-Way 3-Phase (1) Vacuum Interrupter Tap	36 (914)	48 (1,219)	42 (1,067)	680 (308)	
ESD313-TPP-XXX	15kV 3-Way 3-Phase (1) Source Switch, (2) Vacuum Interrupter Taps	54 (1,372)	48 (1,219)	54 (1,372)	1,160 (526)	
ESD323-TPP-XXX	27kV 3-Way 3-Phase (1) Source Switch, (2) Vacuum Interrupter Taps	54 (1,372)	48 (1,219)	54 (1,372)	1,160 (526)	
ESD333-TPP-XXX	38kV 3-Way 3-Phase (1) Source Switch, (2) Vacuum Interrupter Taps	72 (1,829)	54 (1,372)	72 (1,829)	1,500 (680)	
ESD313-TTP-XXX	15kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	54 (1,372)	48 (1,219)	54 (1,372)	1,160 (526)	
ESD323-TTP-XXX	27kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	54 (1,372)	48 (1,219)	54 (1,372)	1,160 (526)	
ESD333-TTP-XXX	38kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	72 (1,829)	54 (1,372)	72 (1,829)	1,500 (680)	
ESD314-TPPP-XXXX	15kV 4-Way 3-Phase (1) Source Switch, (3) Vacuum Interrupter Taps	54 (1,372)	48 (1,219)	54 (1,372)	1,380 (626)	
ESD324-TPPP-XXXX	27kV 4-Way 3-Phase (1) Source Switch, (3) Vacuum Interrupter Taps	54 (1,372)	48 (1,219)	54 (1,372)	1,380 (626)	
ESD334-TPPP-XXXX	38kV 4-Way 3-Phase (1) Source Switch, (3) Vacuum Interrupter Taps	72 (1,829)	54 (1,372)	72 (1,829)	1,500 (680)	
ESD314-TTPP-XXXX	15kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	54 (1,372)	48 (1,219)	54 (1,372)	1,380 (626)	
ESD324-TTPP-XXXX	27kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	54 (1,372)	48 (1,219)	54 (1,372)	1,380 (626)	
ESD334-TTPP-XXXX	38kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	72 (1,829)	54 (1,372)	72 (1,829)	1,500 (680)	
ESD314-TTTP-XXXX	15kV 4-Way 3-Phase (3) Source Switches, (1) Vacuum Interrupter Tap	54 (1,372)	48 (1,219)	54 (1,372)	1,380 (626)	
ESD324-TTTP-XXXX	27kV 4-Way 3-Phase (3) Source Switches, (1) Vacuum Interrupter Tap	54 (1,372)	48 (1,219)	54 (1,372)	1,380 (626)	
ESD334-TTTP-XXXX	38kV 4-Way 3-Phase (3) Source Switches, (1) Vacuum Interrupter Tap	72 (1,829)	54 (1,372)	72 (1,829)	1,500 (680)	

Note: *X = 6 for 600A or 2 for 200A.*
YY = 10, 20, 30, 80 for different electronic controls.

Consult your local representative on 38kV multi-way configurations.

Multi-Way Switchgear and Transfer Packages

Elastimold® Automatic Source Transfer Packages

CAT. NO.	DESCRIPTION	WIDTH IN. (MM)	HEIGHT IN. (MM)	DEPTH IN. (MM)	WEIGHT LB. (KG)	DIAGRAM
Subsurface (Two MVS3 interconnected with multi-point junctions. For wall/floor mounting.)						
ATS312-AA-XX	15kV 2-Way 3-Phase (2) Source Switches, Customer Connected Tap	21 (533)	19 (483)	26 (660)	60 (27)	*
ATS322-AA-XX	25kV 2-Way 3-Phase (2) Source Switches, Customer Connected Tap	21 (533)	19 (483)	26 (660)	60 (27)	
ATS313-AAB-XXX	15kV 3-Way 3-Phase (2) Source Switches, (1) Solid Tap	22 (559)	79 (2,007)	21 (533)	300 (136)	
ATS323-AAB-XXX	25kV 3-Way 3-Phase (2) Source Switches, (1) Solid Tap	22 (559)	79 (2,007)	21 (533)	300 (136)	
ATS314-AABB-XXXX	15kV 4-Way 3-Phase (2) Source Switches, (2) Solid Taps	22 (559)	79 (2,007)	21 (533)	300 (136)	
ATS324-AABB-XXXX	25kV 4-Way 3-Phase (2) Source Switches, (2) Solid Taps	22 (559)	79 (2,007)	21 (533)	300 (136)	
ATS313-AAP-XXX	15kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	22 (559)	79 (2,007)	21 (533)	450 (204)	**
ATS323-AAP-XXX	25kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	22 (559)	79 (2,007)	21 (533)	450 (204)	
ATS314-AAPP-XXXX	15kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	22 (559)	79 (2,007)	21 (533)	600 (272)	**
ATS324-AAPP-XXXX	25kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	22 (559)	79 (2,007)	21 (533)	600 (272)	
Vault (All ways mounted onto a common bus and supported by a free-standing frame. For floor mounting.)						
ATV313-AAB-XXX	15kV 3-Way 3-Phase (2) Source Switches, (1) Solid Tap	48 (1,219)	36 (914)	22 (559)	620 (281)	
ATV323-AAB-XXX	25kV 3-Way 3-Phase (2) Source Switches, (1) Solid Tap	48 (1,219)	36 (914)	22 (559)	620 (281)	
ATV313-AAP-XXX	15kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	48 (1,219)	36 (914)	22 (559)	750 (340)	
ATV323-AAP-XXX	25kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	48 (1,219)	36 (914)	22 (559)	750 (340)	
ATV314-AAPP-XXXX	15kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	48 (1,219)	36 (914)	22 (559)	880 (399)	
ATV324-AAPP-XXXX	25kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	48 (1,219)	36 (914)	22 (559)	880 (399)	
Padmount						
ATD313-AAP-XXX	15kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	54 (1,317)	48 (1,219)	54 (1,317)	1,160 (526)	
ATD323-AAP-XXX	25kV 3-Way 3-Phase (2) Source Switches, (1) Vacuum Interrupter Tap	54 (1,317)	48 (1,219)	54 (1,317)	1,160 (526)	
ATD314-AAPP-XXXX	15kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	54 (1,317)	48 (1,219)	54 (1,317)	1,380 (626)	
ATD324-AAPP-XXXX	25kV 4-Way 3-Phase (2) Source Switches, (2) Vacuum Interrupter Taps	54 (1,317)	48 (1,219)	54 (1,317)	1,380 (626)	

** Dimensions for one switch.*

*** Dimensions for two MVS3 interconnected with Multi-Point Junctions. MVIs are mounted elsewhere in the vault.*

Note: *X = 6 for 600A or 2 for 200A.*
Other configurations are available. Please consult your local representative on configurations not shown here.

Thomas&Betts

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Technical Services
Tel: 888.862.3289

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Multi-Way Switchgear and Transfer Packages



Cam-Op System



Modular Design



Motor Controller

Elastimold® Subsurface Modular Packages

CAT. NO.	DESCRIPTION
Load-Break Subsurface/Vault Modules	
ESS312-T-6X-MOD	15kV 2-Way Subsurface Module with (1) 3-Ph. MVS Switch
ESS322-T-6X-MOD	25kV 2-Way Subsurface Module with (1) 3-Ph. MVS Switch
ESS332-T-6X-MOD	35kV 2-Way Subsurface Module with (1) 3-Ph. MVS Switch
ESS312-U-6X-MOD	15kV 2-Way Subsurface Module with (1) 3-Ph. MVS Switch & 12–24VDC Motor
ESS322-U-6X-MOD	25kV 2-Way Subsurface Module with (1) 3-Ph. MVS Switch & 12–24VDC Motor
ESS332-U-6X-MOD	35kV 2-Way Subsurface Module with (1) 3-Ph. MVS Switch & 12–24VDC Motor
ESS312-V-6X-MOD	15kV 2-Way Subsurface Module with (1) 3-Ph. MVS Switch & 120VAC Motor
ESS322-V-6X-MOD	25kV 2-Way Subsurface Module with (1) 3-Ph. MVS Switch & 120VAC Motor
ESS332-V-6X-MOD	35kV 2-Way Subsurface Module with (1) 3-Ph. MVS Switch & 120VAC Motor
Interrupter Subsurface/Vault Modules	
ESS312-P-6X-MOD	15kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & Internal Control
ESS322-P-6X-MOD	25kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & Internal Control
ESS332-P-6X-MOD	35kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & Internal Control
ESS312-C-6X-MOD	15kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 20 Control
ESS322-C-6X-MOD	25kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 20 Control
ESS332-C-6X-MOD	35kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 20 Control
ESS312-D-6X-MOD	15kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 30 Control
ESS322-D-6X-MOD	25kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 30 Control
ESS332-D-6X-MOD	35kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 30 Control
ESS312-O-6X-MOD*	15kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 80 Control
ESS322-O-6X-MOD*	25kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 80 Control
ESS332-O-6X-MOD*	35kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 80 Control
ESS312-R-6X-MOD	15kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 12–24VDC Motor
ESS322-R-6X-MOD	25kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 12–24VDC Motor
ESS332-R-6X-MOD	35kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 12–24VDC Motor
ESS312-W-6X-MOD	15kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 120VAC Motor
ESS322-W-6X-MOD	25kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 120VAC Motor
ESS332-W-6X-MOD	35kV 2-Way Subsurface Module with (1) 3-Ph. MVI Interrupter & 120VAC Motor
ESS312-J-6X-MOD	15kV 2-Way Subsurface Module with (3) 1-Ph. MVI Interrupter & Internal Control
ESS322-J-6X-MOD	25kV 2-Way Subsurface Module with (3) 1-Ph. MVI Interrupter & Internal Control
ESS332-J-6X-MOD	35kV 2-Way Subsurface Module with (3) 1-Ph. MVI Interrupter & Internal Control
ESS312-L-6X-MOD	15kV 2-Way Subsurface Module with (3) 1-Ph. MVI Interrupter & 80 Control
ESS322-L-6X-MOD	25kV 2-Way Subsurface Module with (3) 1-Ph. MVI Interrupter & 80 Control
ESS332-L-6X-MOD	35kV 2-Way Subsurface Module with (3) 1-Ph. MVI Interrupter & 80 Control

** If SCADA ready is required add "SA" at end of catalog number.*

Multi-Way Switchgear and Transfer Packages

Accessories

CAT. NO.	DESCRIPTION
ESS-CONN-MOD-KIT (15kV & 27kV)	Solid Bus and Connector Plate Kit (3 jumper cables, 4 connector plates, stabilizer plate & hardware)
ESS-CONN-MOD-KIT-38 (38kV)	Jumper Cable and Connector Plate Kit (3 jumper cables, 4 connector plates, stabilizer plate & hardware)
MVI3-CONN-TRANF-KIT (15kV & 27kV)	Jumper Cable and Connector Plate Kit (3 jumper cables)
MVI3-CONN-TRANF-KIT-38 (38kV)	Jumper Cable and Connector Plate Kit (3 jumper cables)
AT-27-KIT-CS1431	Auto-Transfer Upgrade Kit (1 Elastimold SCADA-ready controller, 2 AT 12DC motors, 6 voltage sensors, 2 fault-blocking CTs, 2 MVS3 motor linkages, 4 40-ft. 12-pin cables w/threaded couplers, 4 40-ft.6-pin cables w/threadcd couplers, 1 40-ft. 4-pin power cord)
20 (when used with R & W)	20 Control with Phase and Ground Trip (to be used on ganged three-phase MVI3 mechanism)
30 (when used with R & W)	30 Control with Three-Phase Trip Only (to be used on ganged three-phase MVI3 mechanism)
80 (when used with R & W)	80 Control with Selectable Three-Phase Trip Function (to be use on ganged three-phase MVI3 mechanism)
80SA or 80SD (when used with R & W)	SCADA 80 Control with Selectable Three-Phase Trip Function (to be use on ganged three-phase MVI3 mechanism)
10, 20, 30 & 80 Control	When Ordered Separate
MVI3-80SA & MVI3-80SD Controls	SCADA-Type Controls (when ordered separate)
9COND-MP-20	Output SCADA Cable (to be used with the SCADA 80 Control)
9COND-FP-20	Input SCADA Cable (to be used with the SCADA 80 Control)
4COND-FP-20	Power Supply Cable (to be used with the SCADA 80 Control)
MVI-STP-USB	Adapter to Connect MVI to Laptop (for units with internal control only)
M0120A (when ordered with the gear)	120VAC Motor Operator & Controller for Three-Phase Units
M012D (when ordered with the gear)	12–24VDC Motor Operator & Controller for Three-Phase Units
M012D-KIT (when ordered separately)	12–24VDC Motor Operator & Controller for Three-Phase MVI Units
M03120A-KIT (when ordered separately)	120VAC Motor Operator & Controller for Three-Phase MVI Units
M03120ACS1468	120VAC Motor w/Motors Controller, 40-ft. 12-Pin Control Cable, 3-ft. Control Power Cable and Both MVI and MVS Linkages
CAM	Cam-Op (to be installed on MVS or MVI 15/27kV)
655LINK-C-LR-SWG (when sold separately)	5kV Switchgear Cam-Op Kit contains: (3) K655BLR (1) Cam Bracket (3) 650LK-C Links (3) Pin Contacts (3) K655EBE (3) 160DRG (3) 650LB Hardware
K655LINK-C-LR-SWG (when sold separately)	27kV Switchgear Cam-Op Kit contains: (3) K655BLR (1) Cam Bracket (3) K650LK-C Links (3) Pin Contacts (3) K655EBE (3) 273DRG (3) 650LB Mounting Hardware
PS (MVS1 or MVI1)	Parking Stand for MVS3 and MVS1 (installed between bushings)
PS (MVS3 or MVI3)	Parking Stand for MVS3 and MVS3 (installed between bushings)
PS6	Double Parking Stand for MVS3, MVI3 or RMVI3 (between bushings and on mechanism cover)
MPS	Parking Stand for MVS3 or MVI3 on Mechanism Cover

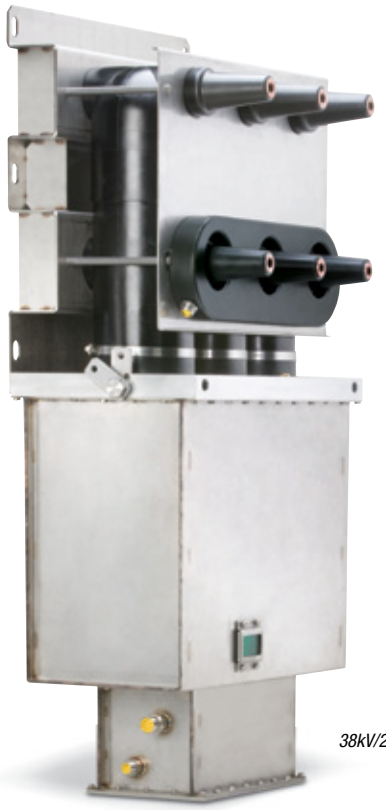
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Wind Turbine Tower Protection

Maximize wind tower protection.

Elastimold® MVI switchgear

- EPDM molded rubber construction with stainless steel hardware and mechanism boxes
- All switchgear components are fully sealed and submersible
- Combines vacuum interruption and current-limiting fault protection
- High fault current interrupting capability up to 25kA symmetrical for MVI and 50kA symmetrical for MCLVI
- Deadfront construction insulates, shields and eliminates exposed live parts
- Compact and lightweight small footprint enables components to fit in tight padmount, subsurface, vault, riser-pole or tower installations
- Can be installed almost anywhere and in any position — hanging from ceiling, wall mounted, mounted at an angle or riser-pole mounted
- Variety of electronic controls for optimum overcurrent protection
- Entirely solid-dielectric, deadfront design requires no maintenance and is 100% environmentally friendly
- No greenhouse gases are used, and no byproducts are produced during interruption
- Units can be operated manually or via SCADA

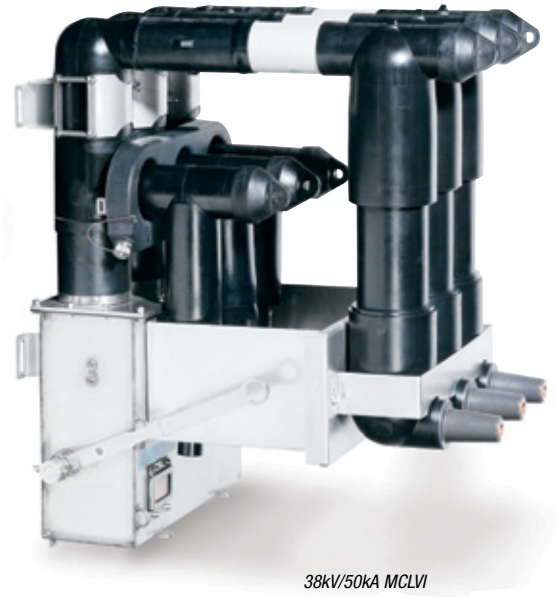


38kV/25kA MVI

38kV/25kA Molded Vacuum Interrupter (MVI)

The 38kV/25kA MVI incorporates Elastimold's proven combination of EPDM molded insulation with a vacuum interrupter. This latest addition to our solid-dielectric family of switchgear features a 25kA symmetrical fault interrupting vacuum bottle and a magnetic actuator mechanism.

The MVI will work with a broad line of control options, ranging from our Elastimold 80MAX Control to a variety of Schweitzer Engineering Laboratories controls. The small, lightweight unit is maintenance-free and environmentally friendly, containing no gas or oil, and is ideal for subsurface, vault, tower, padmount or riser-pole applications.



38kV/50kA MCLVI

38kV/50kA Molded Current-Limiting Vacuum Interrupter (MCLVI)

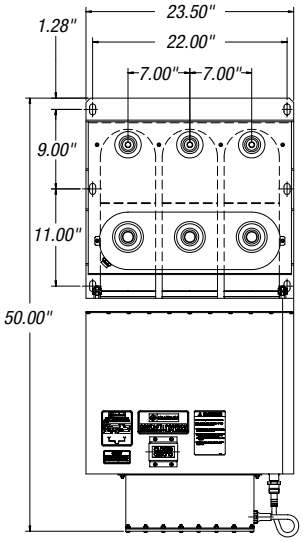
The 38kV/50kA MCLVI incorporates Elastimold's proven combination of EPDM molded insulation with a current-limiting fuse and a fault interrupting vacuum bottle. This addition to our solid-dielectric family of switchgear uses a vacuum interrupter to clear low-magnitude faults in series with a Hi-Tech® current-limiting fuse to clear higher-magnitude faults, substantially reducing energy let-through. The unit also includes our current sensors and self-powered protective control. If a single current-limiting fuse clears a fault, the MCLVI will sense an imbalance and trip to prevent single phasing. This small, lightweight unit is maintenance-free and environmentally friendly, containing no gas or oil, and is available for subsurface, vault, tower, padmount or riser-pole applications. Choose a stacked (shown), linear or back-to-back arrangement. When used for transformer protection, the fuses can be coordinated with the vacuum interrupter so that the fuses will only operate in the event of a transformer failure.

Wind Turbine Tower Protection

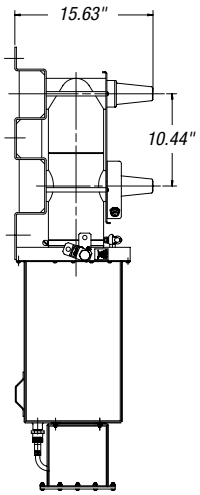
Dimensional Information

38kV/25kA MVI

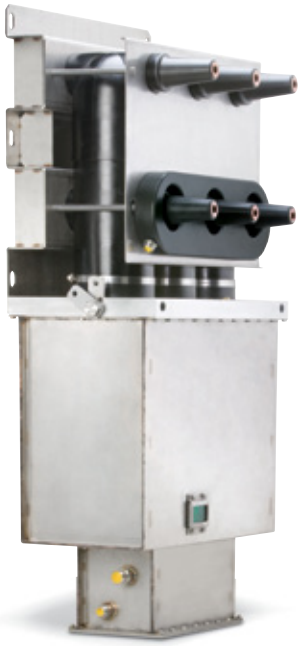
- Weight: 300 lbs.



Front View

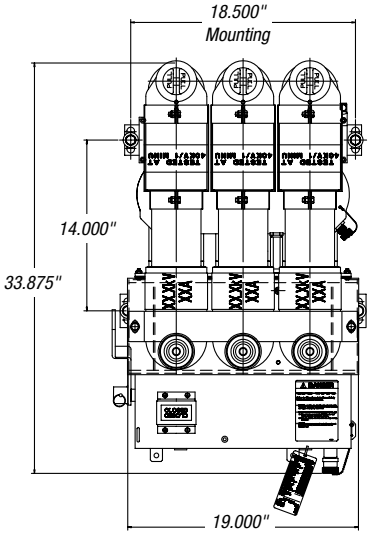


Side View

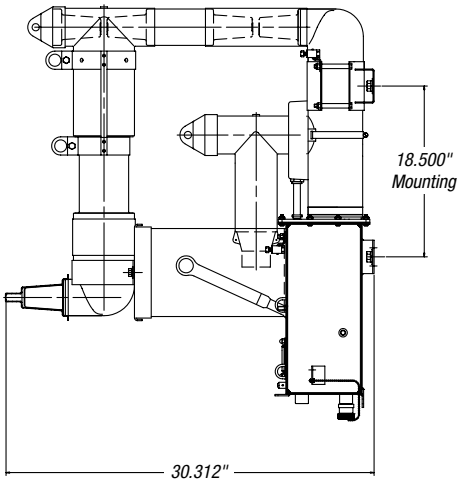


38kV/50kA MCLVI

- Weight: 280 lbs.



Front View



Side View



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Molded Vacuum Interrupter Controls

80MAX External Control with Three-Phase Trip

The 80MAX Control mounts externally to the interrupter mechanism and provides the ability to select an overcurrent trip level and ground. This control uses the E-Set software, which enables programming via a computer using the MVI-STP-USB adapter. E-Set features custom TCC curves and provides access to last fault event information, as well as real-time current per phase.

The E-Set II software is accessible via a computer connection to view or modify settings. Phase and ground trip, as well as inrush restraint, are available. The E-Set software enables the user to connect to the 80MAX Control, either in the shop or in the field, to program or change settings. An MVI-STP-USB programming connector is required to connect between the PC and the MVI. With a computer connected to the MVI control, the user can view real-time currents, the number of overcurrent protection operations, current magnitude of the last trip and the phase/ground fault targets. This is the standard control option.

Note: *E-Set software can be downloaded from www.elastimoldswitchgear.com.*



Curves (25kA Interrupter only)

CURVE NO.	CURVE REFERENCE NO.	CURVE TYPE
Relay Curves (minimum trip 30–600A)		
01	MVI-TCC-01	E Slow
02	MVI-TCC-02	E Standard
03	MVI-TCC-03	Oil Fuse Cutout
04	MVI-TCC-04	K
05	MVI-TCC-05	Kearney QA
06	MVI-TCC-06	Cooper EF
07	MVI-TCC-07	Cooper NX-C
08	MVI-TCC-08	CO-11-1
09	MVI-TCC-09	CO-11-2
10	MVI-TCC-10	T
11	MVI-TCC-11	CO-9-1
12	MVI-TCC-12	CO-9-2
13	MVI-TCC-13	Cooper 280ARX
14	MVI-TCC-14	F
16	MVI-TCC-16	Kearney KS
17	MVI-TCC-17	GE Relay
18–23	MVI-TCC-18–23	CO-8-1–CO-8-6
24–27	MVI-TCC-24–27	CO-9-3–CO-9-6
28–31	MVI-TCC-28–31	CO-11-3–CO-11-6
Fuse Curves (minimum trip 10–200A)		
54	MVI-TCC-54	E Slow
55	MVI-TCC-55	E Standard
56	MVI-TCC-56	Oil Fuse Cutout
57	MVI-TCC-57	K
58	MVI-TCC-58	Kearney QA
59	MVI-TCC-59	Cooper NX-C
60	MVI-TCC-60	T

Consult factory for 50kA Interrupter Curves.





Besides the Elastimold interrupter controls, the SEL-351R relay from Schweitzer Engineering Laboratories can also be used with Elastimold MVI and MCLVI molded vacuum interrupters.

Wind Turbine Tower Protection

Reliable, compact and environmentally friendly protection for wind turbine towers.

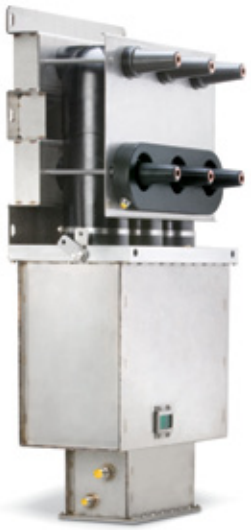
Certified Tests

MVI Molded Vacuum Fault Interrupters have been designed and tested per applicable portion of IEEE, ANSI, NEMA and other industry standards, including:

- ANSI C37.60 Standard for Fault Interrupters
- ANSI C37.41 Standard for Current Limiting Fuse Design and Testing
- IEEE 386 Standard for Separable Connectors and Bushing Interfaces



38kV/50kA MCLVI



38kV/25kA MVI

Electrical Characteristics of 38kV MVI and MCLVI

	MVI	MCLVI
Voltage Class (kV)	35	35
Maximum Design Voltage (kV)	38	38
Frequency (Hz)	50/60	50/60
BIL Impulse Withstand (kV)	150	150
One-Minute AC Withstand (kV)	70	70
Five-Minute DC Withstand (kV)	103	103
Continuous Current (Amp)	630	55*
Load Interrupting & Loop Switching Current (Amp)	630	630
Capacitor or Cable Charging Interrupting (Amp)	40	40
Symmetrical/Asymmetrical Interrupting Capability (kA)	25/40	50/NA
Current Sensor Ratio	1000:1	1000:1
Ambient Temperature Range	-40° C–65° C	-40° C–65° C

** Continuous current equates to over 165% of the rated current for a 2MW tower at 34.5kV.*

MVI and MCLVI Series

CAT. NO.	DESCRIPTION
WMVI3-21-38-66	3-Phase, 38kV Molded Vacuum Interrupter, 600A Bushings
MCLVI3-21-38-22	3-Phase, 38kV Current-Limiting Molded Vacuum Interrupter, 200A Bushing Wells
MCLVI3-21-38-66	3-Phase, 38kV Current-Limiting Molded Vacuum Interrupter, 600A Bushings
M38CLF1	Replacement Fuse

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Molded Vacuum Reclosers

The recloser you want, all in one package.

Single- and Three-Phase Molded Vacuum Reclosers, 15–38kV

The need for automated reclosers has never been greater, but many of today's reclosers come with penalties. They weigh too much, and that makes them difficult to install. They aren't easy to upgrade, so you have to guess about what features to include in case you need them several years from now. What's more, if the recloser you stock doesn't come with superior technical support, service and built-in quality, you may find it worse than no recloser at all.

Elastimold® Molded Vaccum Reclosers address all of these problems, and more.

Elastimold® Molded Vaccum Reclosers are 33% lighter than typical units today, so they're easier and less expensive to install. Modular design means Smart Grid sensors can be added quickly and simply. Our reclosers are compatible with SEL® Controls, the best in the business. Elastimold® customer support, technical expertise and collaborative working relationships with customers mean that you will have the information you need, exactly when you need it.

SEL is a registered trademark of Schweitzer Engineering Laboratories, Inc.



Smart, light and flexible.

Elastimold® reclosers are world-class, by design. They respond to every hardware requirement that utilities want, and then some.

- **Smart** — Our reclosers are Smart Grid ready with three integral load-side voltage sensors and provision to add source-side voltage sensors, if desired. They were designed to be fully compatible with the industry's No. 1 name in controls, Schweitzer Engineering Laboratories.
- **Light** — The three-phase Elastimold® reclosers weigh 33% less than existing typical units. The simplicity of the mechanism design, and the compactness of the encapsulated components, contribute to making Elastimold® reclosers easier to move and install.
- **Flexible** — Elastimold® reclosers are modular, so field upgrades and retrofits are easy and fast. The single-phase reclosers have a pole rotation mounting bracket for easier installation.
- **Made with Your Needs in Mind** — We designed our reclosers only after extensive talks with electric utilities. Their features, from easier-to-see open/close indicators to the many robust extra features that we consider "standard," are there because of you.

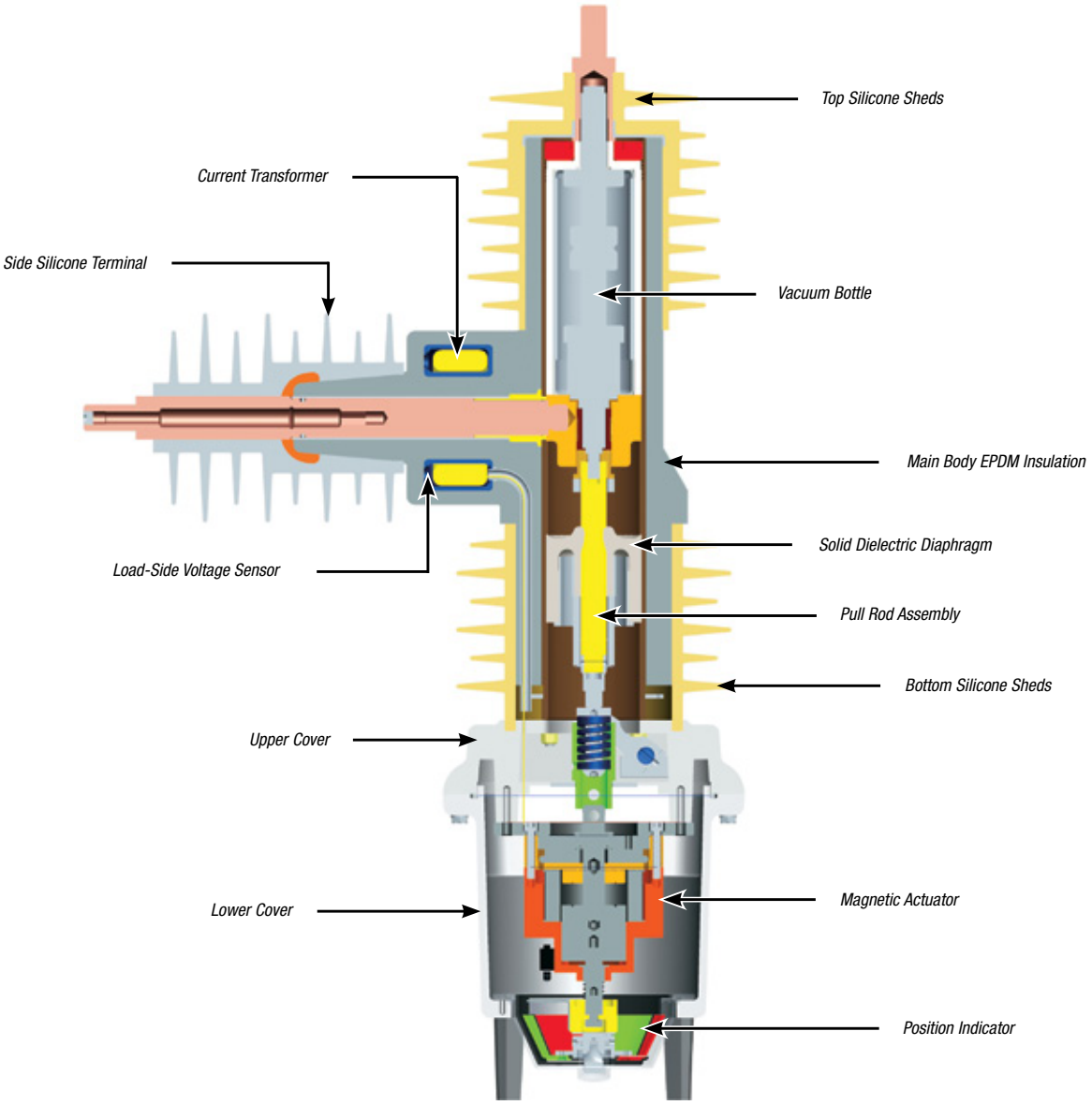
Molded Vacuum Reclosers

Recloser construction.

The Elastimold® Molded Vacuum Recloser (MVR) operates electrically by energizing a magnetic actuator system with a completely sealed housing. Each pole contains a vacuum interrupter sealed in solid dielectric insulation for mechanical and high dielectric strength.

An open-closed position indicator provides a 360° view. An external manual trip assembly is located on the side; when in the down position, it maintains the recloser in a lockout position until it is manually restored. All electrical control connections are made through a sealed single-environment control cable connector on the side.

The combination of the molded vacuum recloser with microprocessor controls accurately detects a wide range of line disturbances and provides reliable, high-speed isolation for adverse conditions.



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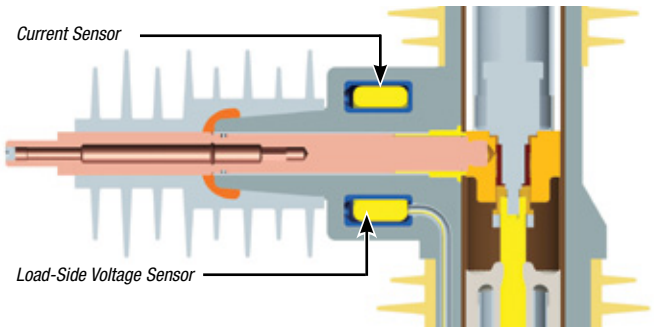
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Molded Vacuum Reclosers

Smart

Smart Grid ready.

Integral CT and load-side voltage sensors; with provisions to add Elastimold® source-side voltage sensors.



Typical Control Settings

A range of controls is available for Elastimold® reclosers. A typical control includes:

- Overcurrent protection — fast and delay curves
- Sensitive earth fault
- Complete metering
- Recloser wear monitor
- Fault locator
- Flexible control logic and integration
- Supervisory control and data acquisition ready — multiple communications protocols
- Load profile

Compatible with SEL® recloser controls

— SEL-351R

— SEL-351RS Kestrel®

— SEL-351R Falcon™

— SEL-651R

Notes:

Use with the SEL-351R and SEL-351R Falcon™ requires connection via MVR power module. The power module is connected to the recloser via a 6-ft., 32-pin cable.

Voltage sensors require SEL-651R x 2 control with six 8VAC low-energy analog (LEA) inputs.



SEL is a registered trademark of Schweitzer Engineering Laboratories, Inc.

Molded Vacuum Reclosers

Light

Lightweight

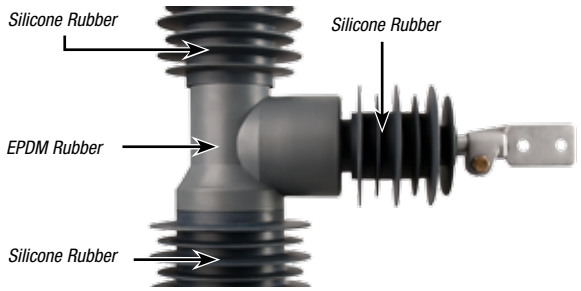
Internal diaphragm and silicone rubber sheds reduce weight

Weight

	15kV		27kV		38kV	
	OTHERS STANDARD	ELASTIMOLD® STANDARD	OTHERS STANDARD	ELASTIMOLD® STANDARD	OTHERS STANDARD	ELASTIMOLD® STANDARD
SINGLE-PHASE	100 lb. 45 kg	57 lb. 25.8 kg	100 lb. 45 kg	57 lb. 25.8 kg	130 lb. 60 kg	58 lb. 26.3 kg
THREE-PHASE	333 lb. 150 kg	208 lb. 94.3 kg	333 lb. 150 kg	208 lb. 94.3 kg	430 lb. 195 kg	211 lb. 95.7 kg

Proven solid dielectric insulation

Molded EPDM main body with overlapping silicone rubber sheds for improved dielectric weatherability and UV performance



Simplified mechanism

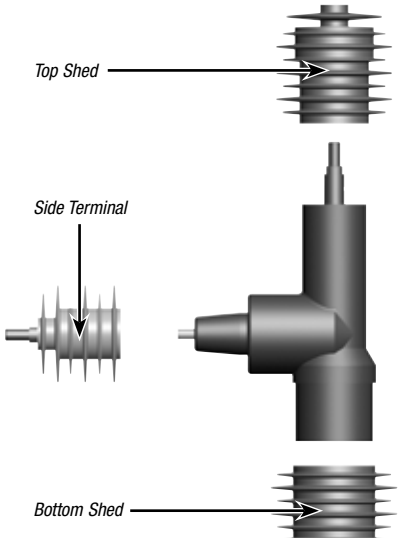
Translates into a lightweight device



Flexible

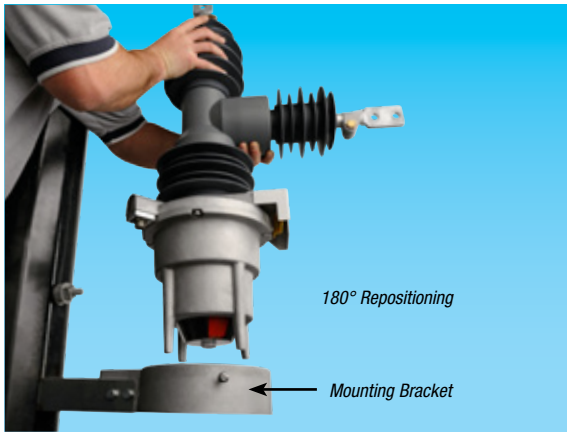
Modular design

Optimized modular design is lightweight and maintenance free. Design is modular and allows for individual pole or shed replacement if ever required



Pole rotation mount

The single-phase recloser has a unique pole rotation mounting bracket for easier installation and repositioning from 0° to 180°



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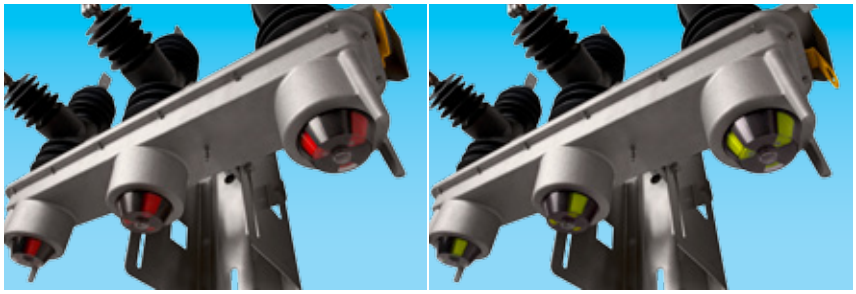
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Molded Vacuum Reclosers

Easy-to-see position indicator

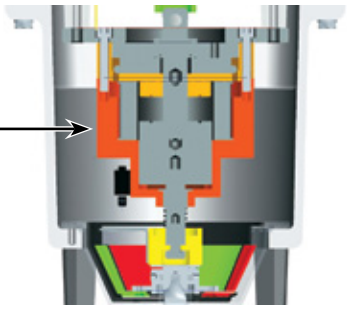
360° position indicator view with large color-coded reflective open/closed indicators on bottom of recloser for easy visibility from ground level



Closed Indication | Open Indication

Reliable long-life mechanism

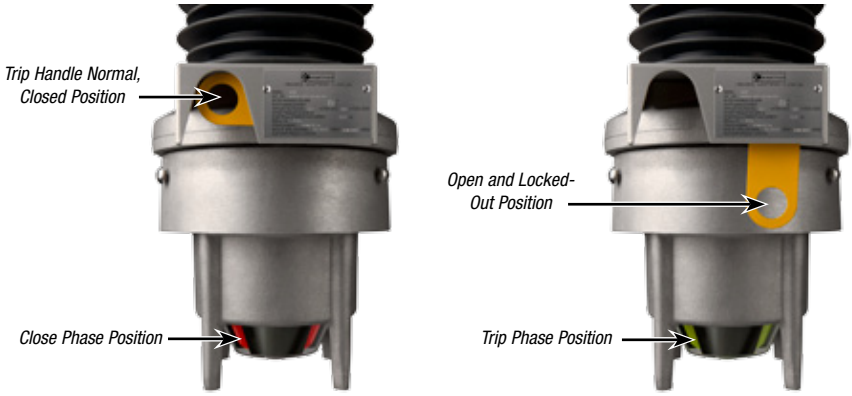
The state-of-the-art design of our magnetic actuator offers over 10,000 trip and close full-load operations with no maintenance required



Single- and three-phase tripping capabilities

The fast and highly reliable electrically ganged operation provides flexibility of simultaneous three-phase tripping or single-phase tripping with three-phase lockout

The manual trip lever is mechanically linked to trip and lockout all three phases simultaneously



Reduced inventory items

Incorporating extra features and extended capabilities as standard can lead to less stock on your floor

RATED MAXIMUM VOLTAGE	15kV		27kV		38kV	
	OTHERS STANDARD	ELASTIMOLD® STANDARD	OTHERS STANDARD	ELASTIMOLD® STANDARD	OTHERS STANDARD	ELASTIMOLD® STANDARD
CONTINUOUS CURRENT	630A	800A	630A	800A	630A	800A
BIL	95kV	150kV	125kV	150kV	150kV	170kV

	15kV		27kV		38kV	
POLLUTION LEVEL	REQUIRED CREEP	ELASTIMOLD® STANDARD	REQUIRED CREEP	ELASTIMOLD® STANDARD	REQUIRED CREEP	ELASTIMOLD® STANDARD
I – LIGHT	9.8" (248mm)	N/A	17.0" (432mm)	N/A	23.9" (608mm)	N/A
II – MEDIUM	12.2" (310mm)	N/A	21.3" (540mm)	N/A	30.0" (760mm)	N/A
III – HEAVY	15.3" (388mm)	N/A	26.6" (675mm)	N/A	37.4" (950mm)	N/A
IV – VERY HEAVY	18.9" (481mm)	41.5" (1054mm)	33.0" (837mm)	41.5" (1054mm)	46.4" (1178mm)	51.0" (1295mm)

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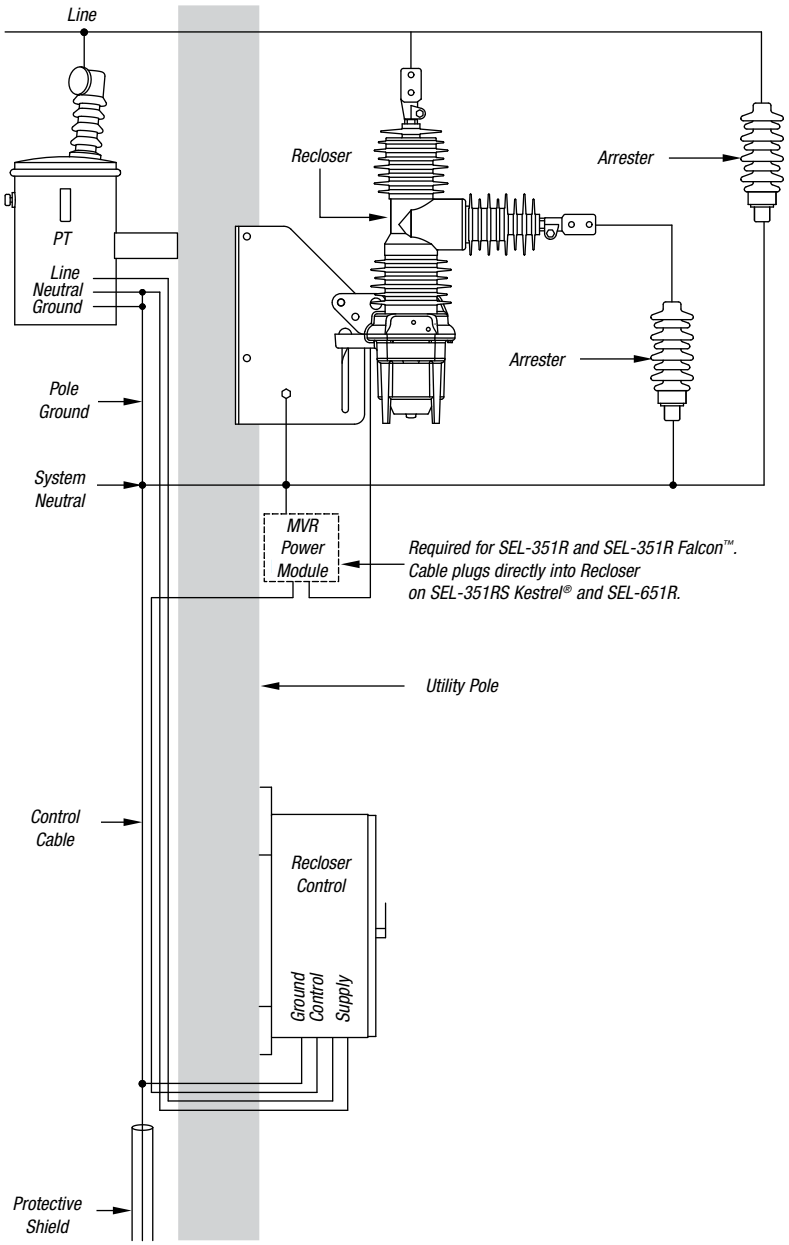
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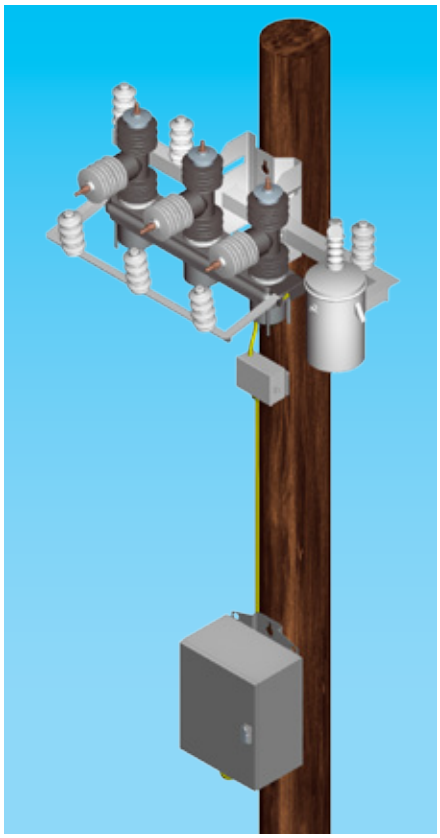
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Molded Vacuum Reclosers

Typical Recloser Installation







Arresters are recommended to provide protection against overvoltage conditions. When arresters are installed, they should be mounted on the supplied arrester brackets or as close to the recloser as practical.

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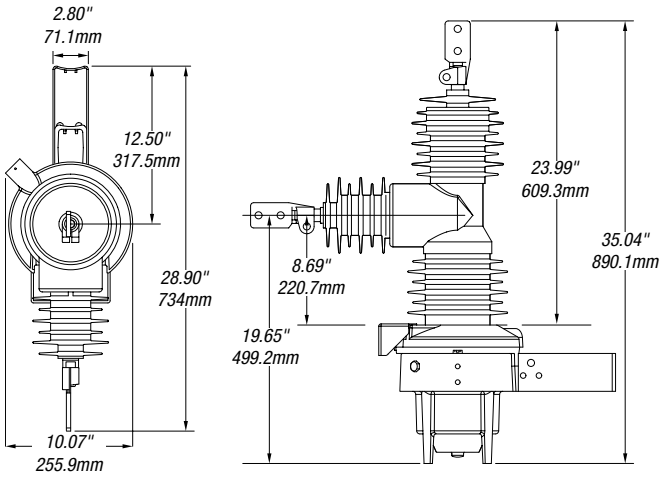
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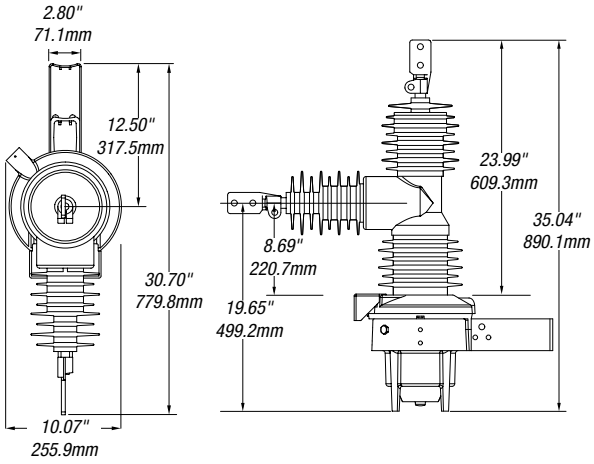
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Dimensions for Elastimold® Single-Phase Molded Vacuum Reclosers

15kV and 27kV

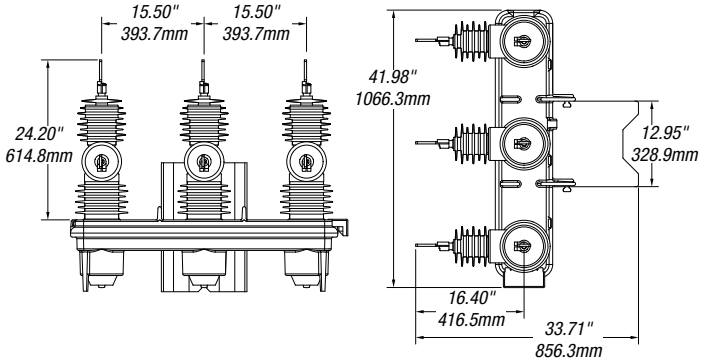


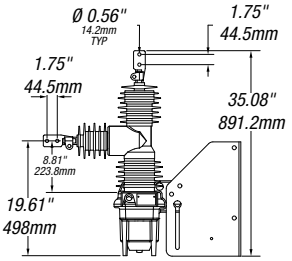
38kV



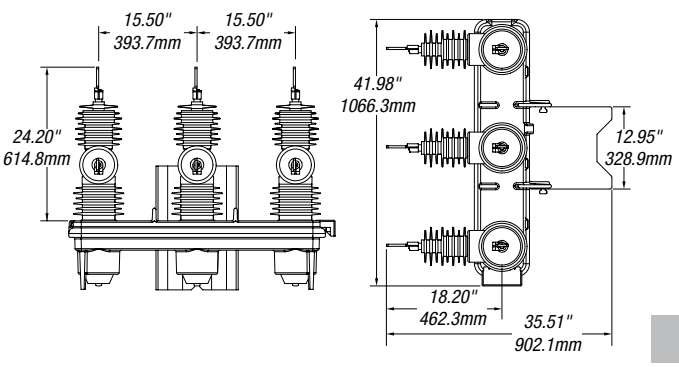
Dimensions for Elastimold® Three-Phase Molded Vacuum Reclosers

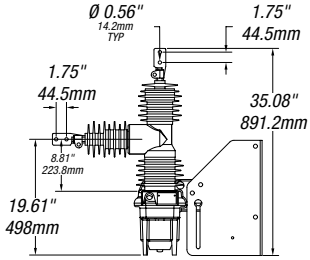
15kV and 27kV





38kV

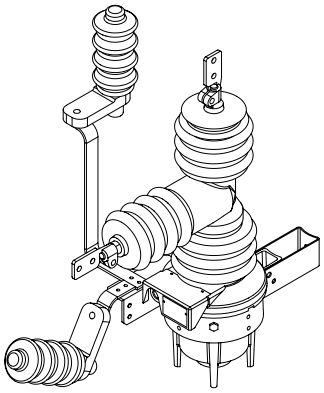


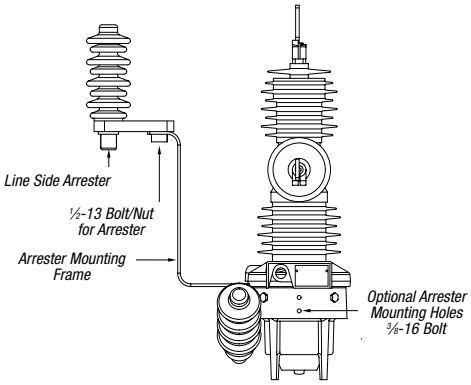


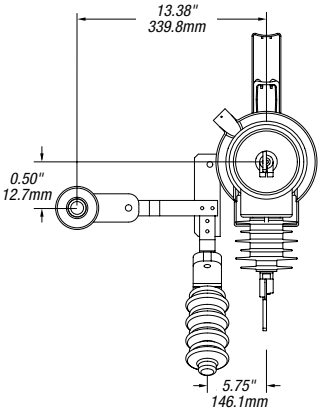
Molded Vacuum Reclosers

Typical Pole-Mounting Installations

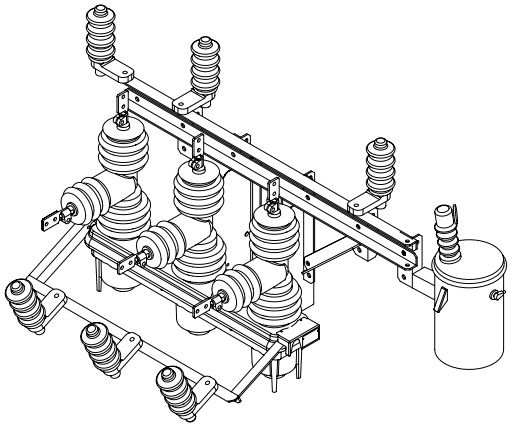
Single-Phase Recloser

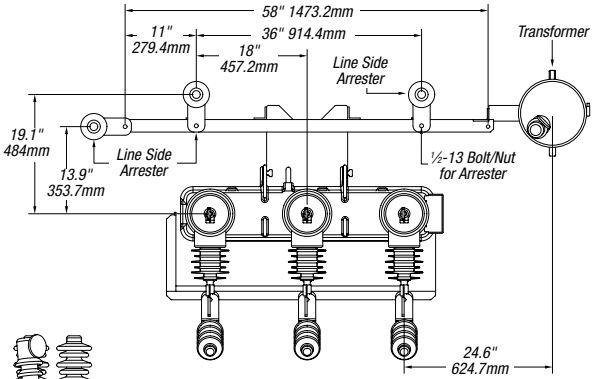


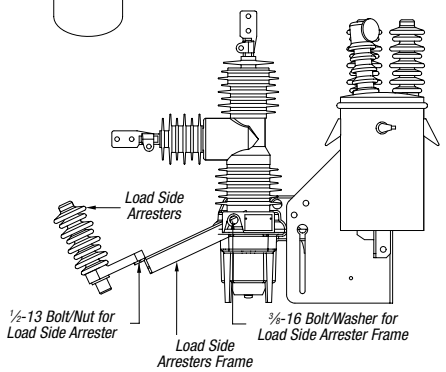




Three-Phase Recloser







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Molded Vacuum Reclosers

Ratings

DESCRIPTION	15kV	27kV	38kV*
Nominal System Voltage (kV RMS)	14.4	25	35
Rated Maximum Voltage (kV RMS)	17.1	29.3	38
Nominal Frequency (Hz)	50 or 60	50 or 60	50 or 60
Phase Spacing on Three-Phase Units (Inches)	15.5	15.5	15.5
BIL (kV)	150	150	170
Power Frequency Withstand—Dry (kV)	50	60	70
Power Frequency Withstand—Wet (kV)	45	50	60
Continuous Current (A RMS)	800	800	800
Eight-Hour Overload Current (A RMS)	960	960	960
CT Ratio	1,000 to 1	1,000 to 1	1,000 to 1
Interrupting Current (kA RMS Symmetrical)	12.5	12.5	12.5
Making Current (kA Asymmetrical Peak)	32.5	32.5	32.5
Creepage Distances (Inches—Line to Ground)	41.5	41.5	51
Arc-Extinction Medium	Vacuum	Vacuum	Vacuum
Insulation Medium	EPDM/Silicon Rubber	EPDM/Silicon Rubber	EPDM/Silicon Rubber
Mechanical Operations	10,000	10,000	10,000
Operating Temperatures	-40° C to 65° C	-40° C to 65° C	-40° C to 65° C
Voltage Sensor Accuracy (Load/Line)	3%/1%	3%/1%	3%/1%
CT Accuracy	Class 1	Class 1	Class 1
Weight (Single-Phase/Three-Phase)	57 lb./208 lb.	57 lb./208 lb.	58 lb./211 lb.

** Single-phase 38kV units are rated for use on grounded systems only. Three-phase 38kV units can be used for single-phase tripping on grounded systems only. For ungrounded systems, three-phase tripping is required.*

Test Data Summary

Elastimold® MVRs are tested under the requirements of ANSI C37.60-2003.

This table highlights the testing covered in Elastimold® Test Report #372-17-12010:

C37.60-2003 STANDARD CLAUSE & DESCRIPTION	15kV MVR COMPLIANCE	27kV MVR COMPLIANCE	38kV MVR COMPLIANCE
6.2 Insulation (Dielectric) Tests	✔	✔	✔
6.3 Switching Tests	✔	✔	✔
6.4 Making Current Capability	✔	✔	✔
6.5 Operating Duty Tests	✔	✔	✔
6.6 Minimum Tripping Current Tests	✔	✔	✔
6.7 Partial Discharge (Corona) Tests	✔	✔	✔
6.10 Temperature Rise Tests	✔	✔	✔
6.11 Time-Current Tests	✔	✔	✔
6.12 Mechanical Duty Tests	✔	✔	✔
6.13 Surge Withstand Capability (SWC) Tests	✔	✔	✔
Other Testing UV/Weathering Tests	✔	✔	✔
Other Testing IEC 62217—Salt Fog Spray Test (1,600 hours)	✔	✔	✔

Elastimold® Single- and Three-Phase Molded Vacuum Reclosers

The following diagram shows how to construct a catalog number for Single- and Three-Phase Molded Vacuum Reclosers.

EXAMPLE: The catalog number for a Molded Vacuum Recloser for a three-phase, 15kV system, with 25.5kA interrupting rating and three voltage sensors for use with the SEL-651R control is **MVR-3-15-12-3-2.**

Indicates field that must be filled in to complete order.

MVR - ☐ - ☐ - ☐ - ☐ - ☐

Phases

1	Single-Phase
3	Three-Phase

Voltage Class

15	15.0kV
27	27.0kV
38	38.0kV

Interrupting Rating

12	12.5kA
—	Future

Source-Side Voltage Sensing

N	No
1	One Voltage Sensor
3	Three Voltage Sensors

Control Model

1	SEL-351R, SEL-351R Falcon™ (14-pin)
2	SEL-651R (32-pin)
3	SEL-351RS Kestrel® (single-phase only)

- Single-phase reclosers function with the SEL-351RS Kestrel® control. Three-phase reclosers function with SEL-651R, SEL-351R or SEL-351R Falcon™ controls. The MVR Power Module must be specified when using a SEL-351R and SEL-351R Falcon controls.
- Load-side voltage sensors are standard on all units and function with any SEL® Control having at least three 8VAC low-energy analog (LEA) voltage inputs. All units are upgradeable to Elastimold® source-side voltage sensing but require a SEL-651R x 2 control with six 8VAC low-energy analog (LEA) inputs.

** For complete catalog number configuration, contact your Thomas & Betts sales representative.*

SEL is a registered trademark of Schweitzer Engineering Laboratories, Inc.

Accessories

CAT. NO.	ACCESSORY NAME/DESCRIPTION
3188D0120G1	Three-Phase Line-Side Arrester Frame
3188D0121G1	Three-Phase Load-Side Arrester Frame
3188C0122G1	Single-Phase Line-Side Arrester Frame
3188C0123G1	Single-Phase Load-Side Arrester Frame
3070A1191P1	Wildlife Protector Top Bushing (one per phase)
3070A1190P1	Wildlife Protector Side Bushing (one per phase)
3188C0075G1	Source-Side Voltage Sensors (one per phase)
3188D0119G1	Substation Mounting Frame
3188B0126G1	NEMA 2-Hole Pad
3180A0661P1	NEMA 4-Hole Pad
3070B0913G1	Aerial Lug
1548FH-ANC3JNAA	Fisher Pierce® Overhead Faulted Circuit Indicator — Adaptive Trip™; 4-hr. automatic reset time with current reset override (60 sec. after restoration of power), five ultra-bright LEDs for increased visibility display
1548FH-ANC3XNA1	Fisher Pierce® Overhead Faulted Circuit Indicator — Adaptive Trip™; 4-hr. automatic reset time with current reset override (60 sec. after restoration of power), with 4-hr. temporary fault reset time, temporary fault indication option, four red and one amber LED

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JOSLYN HI-VOLTAGE®

Joslyn Hi-Voltage® Capacitor Switches

In this section...



Joslyn Hi-Voltage® Capacitor Switches

Overview H-152–H-153
VerSaVac® 15–38kV Capacitor Switches H-154–H-161
Varmaster VBM 15–69kV Capacitor and Reactor Switches H-162–H-174
VBU 69–230kV Capacitor Switches H-175–H-180
Zero Voltage Closing Control H-181–H-184
Transmaster® VBT Electric Furnace Switches H-185–H-188

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Overview

Why Use Joslyn Hi-Voltage® Capacitor Switches?

There are four major reasons for using switched power capacitors:

1. To reduce losses caused by reactive load current
2. To reduce kVA demand
3. To improve voltage profile
4. To increase revenue or decrease customer energy consumption

Switched capacitor banks can dramatically reduce losses caused by the reactive component of the load. The resistance of the feeder conductors causes about 60% of a system's energy loss. Thus, it is important to locate the power capacitors on the feeders as close to the loads as practical. Losses can be reduced by 89% by installing one bank that is only two-thirds as large as the peak load KVAr. Typically, the VAr sensing control should be set to switch the bank to close when the load inductive current equals two-thirds of the bank capacitive current. Even though this scheme drives the line leading when the bank is first turned on and before it is turned off, the loss reduction is optimum for a single bank.

The reduction in reactive current caused by a switched power capacitor also reduces the total line current. This reduction in kVA demand during heavy load periods has a number of benefits:

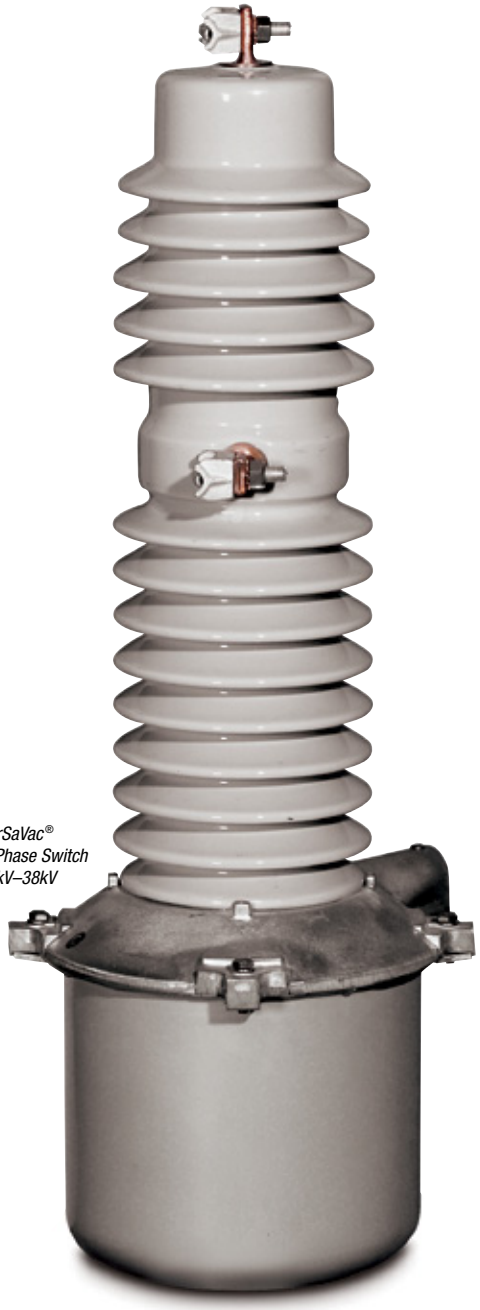
- The peak allowable loading is increased when it is most needed
- The effective ampacity of the lines is increased
- The operating temperatures of the lines and transformers are reduced, increasing equipment life
- The necessity to upgrade lines and transformers may be delayed

The demand capacity of distribution feeders is usually limited by voltage drop along the line. The service entrance voltage of all customers must be kept within certain limits, usually +5 to +10%. "Flattening" the feeder voltage profile offers several benefits:

- The kVA demand can be increased
- The substation voltage can be lowered to reduce peak demand and save energy
- The service entrance voltage can be allowed to increase, resulting in increased revenue

When one bank on a feeder is switched on, the entire feeder voltage, upstream and downstream from the bank, is increased. Additional banks on the line will add to the voltage rise, so that all active capacitors contribute to the shape of the voltage profile along the entire feeder.

Joslyn Hi-Voltage® capacitor and reactor switches, together with Fisher Pierce® capacitor controls, provide a complete solution to optimize losses, voltage, kVA demand and, ultimately, revenue in electrical systems from 15 to 230kV.



VerSaVac® Single-Phase Switch 15kV–38kV

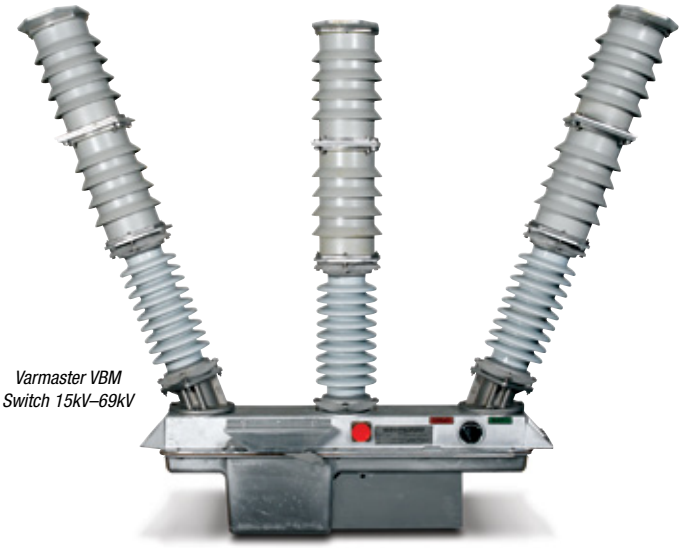
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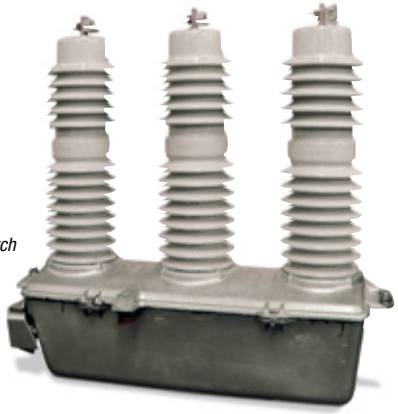
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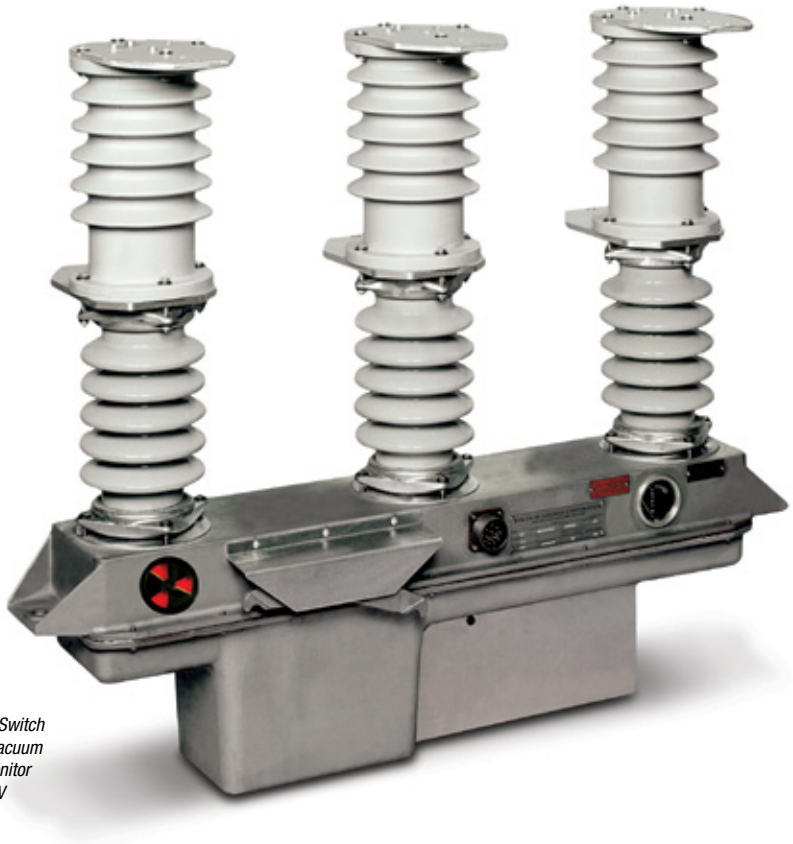
Overview



Varmaster VBM Switch 15kV–69kV



VerSaVac® Three-Phase Switch 15kV–38kV



Varmaster VBM Switch with Vacstat® Vacuum Interrupter Monitor 15kV–69kV

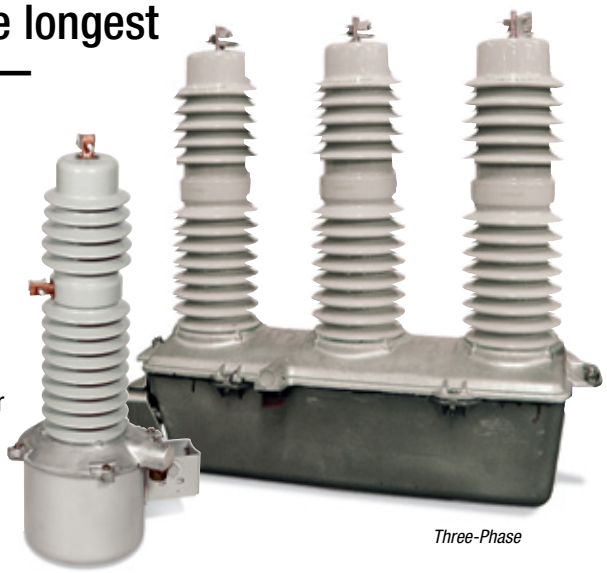


VBU Switch 69kV–230kV

VerSaVac® 15–38kV Capacitor Switches

Solenoid operating mechanism offers the longest life of any distribution capacitor switch — 100,000 maintenance-free operations!

Joslyn Hi-Voltage® VerSaVac® Capacitor Switches



Three-Phase

Single-Phase

- Synchronized operation from a fast, repeatable solenoid operating mechanism ensures all phases will operate within ¼ cycle — unlike slow motor-operated devices — reducing recovery voltage when the bank is switched off, which, in turn, reduces electrical stress on capacitor bank insulation
- Optional Zero Voltage Closing (ZVC) Control mitigates transients associated with bringing capacitor banks online, virtually eliminating costly customer equipment damage resulting from voltage spikes created when switching capacitor banks
- Retrofits to existing oil switch power supply transformer impedances and existing 14 AWG oil switch wiring*
- Optional manual trip lever not mechanically connected to operating mechanism to eliminate wear during normal operation
- Vacuum interruption and solid dielectric Joslyte insulation — no oil, no gas, no maintenance
- Long-life solenoid operating mechanism yields 100,000 maintenance-free operations (50,000 open and 50,000 close)
- Models support grounded and ungrounded systems in a variety of applications, 15–38kV, single- or three phase
- Compatible with existing oil switch or vacuum switch installations
- Available with Vacstat® Vacuum Interrupter Monitor that provides local/remote status of vacuum bottle and can block operation if a problem is detected
- Field-proven reliable design — more than 150,000 worldwide installations and more than 20 years of operational experience
- Select porcelain or polymer housing

** See I 750-271 Single-Phase VerSaVac® Switch Installation and Operating Procedure for complete details.*

The Joslyn Hi-Voltage® VerSaVac® Capacitor Switch is a completely sealed vacuum switch that provides an operational life of more than 100,000 (50,000 open/50,000 close) maintenance-free operations — greater than other switches used for pole-top capacitor switching. Specifically designed as a replacement for maintenance-intensive oil switches, the VerSaVac® switch can be used as a direct replacement on existing capacitor banks or supplied by capacitor manufacturers on new banks. The VerSaVac® switch not only results in substantial savings from reduced maintenance and maximized capacitor bank uptime, but also improves power quality.

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VerSaVac® Single-Phase Capacitor Switch

No Oil or Gas
Vacuum interruption and solid dielectric Joslyte insulation around vacuum bottle. This material is non-hydroscopic and absorbs stresses from the thermal expansion and shock. Joslyte insulation has been field-proven for more than 40 years.

Synchronized Operation
The fast and repeatable solenoid operating mechanism ensures all phases will operate within ¼ cycle, unlike slow motor-operated devices, reducing the recovery voltage when the bank is being switched off, which in turn reduces the electrical stress on the insulation of the capacitor bank.

Exceeds electrical requirements of ANSI C37.66

Zero Voltage Closing (ZVC) Control
Optional Zero Voltage Closing control mitigates transients associated with bringing capacitor banks online. It virtually eliminates costly customer equipment damage resulting from voltage spikes created when switching capacitor banks.

Porcelain or Cycloaliphatic Epoxy Housing

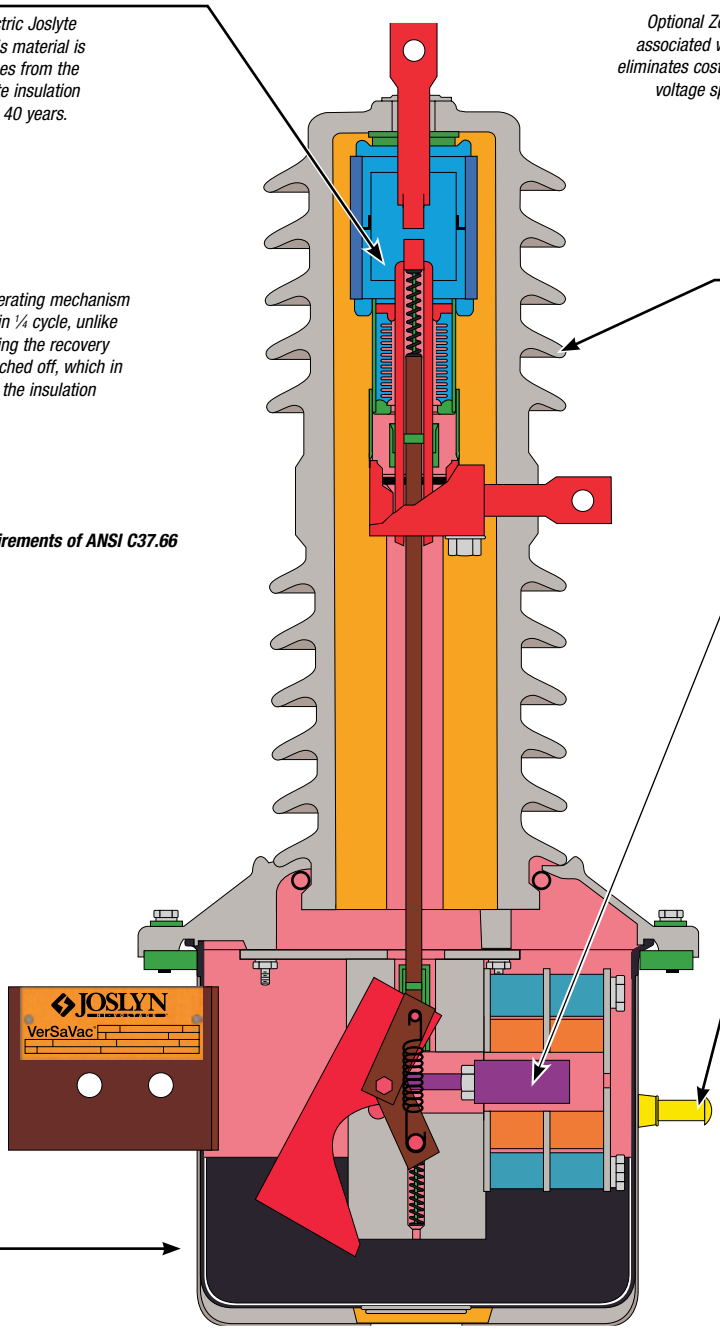
Long-Life Solenoid Mechanism
Provides 100,000 operations (50,000 open/50,000 close).

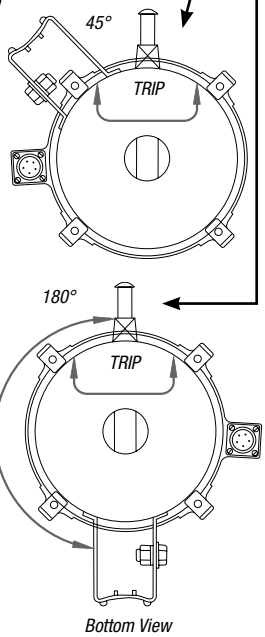
Optional Manual Trip Lever





Bottom View





Bottom View

Bladder
completely seals switch system.

Position Indicator (Bottom View)
Highly visible reflective lettering indicates switch position.

VerSaVac® 15–38kV Capacitor Switches

Eliminate costs associated with off-line vacuum interrupter inspections by using the VerSaVac® Single-Phase Capacitor Switch with Vacstat® Vacuum Interrupter Monitor.

- Continuously monitors vacuum interrupter status while the switch is energized and in service
- Reduces operating and maintenance costs by eliminating the need for routine off-line vacuum interrupter inspections
- Blocks switch operation if vacuum loss is detected and protects your equipment and personnel from potential harm
- Provides local and remote indication of vacuum interrupter status — enables operating and maintenance personnel to take corrective action immediately in the event of loss of vacuum, maximizing system reliability
- SCADA notification available

The Vacstat® Vacuum Interrupter Monitor is the only system that can give you real-time status of your vacuum interrupters. This simple device notifies you immediately of a loss of vacuum through a visual indicator located on the switch and via a contact in the VerSaVac® Switch control. The Vacstat monitor will also block further operation of the switch. Use the Vacstat® Vacuum Interrupter Monitor to:

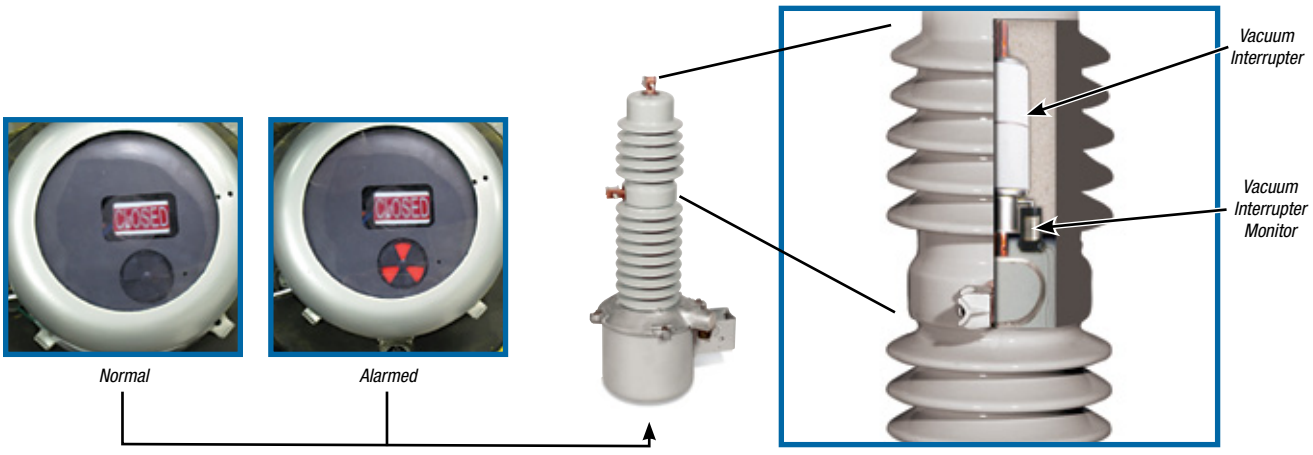
- Increase reliability
- Reduce maintenance costs
- Reduce the risk of harm to employees and assets

How the Vacstat® Vacuum Interrupter Monitor works.

The Vacstat® sensor is attached to the vacuum interrupter of a VerSaVac® capacitor switch during the manufacturing process. The sensor then continuously monitors the interrupter for the presence of vacuum.

Once the capacitor switch is installed, the sensor generates an optical signal that travels via a pair of fiber optic cables to a control board in the low-voltage section of the switch. As long as vacuum exists, the fiber optic signal has a continuous path, and the Vacstat® indicator remains in the normal (unalarmed) state.

If a loss of vacuum occurs, the sensor blocks the optical signal to the control board, and the Vacstat status indicator automatically turns to red to alert the operator to the problem. In addition, the remote status dry contact provides a means to send an alarm signal to a remote location. The Vacstat monitor also blocks further electrical operation of the switch to prevent possible damage to equipment or injury to personnel.



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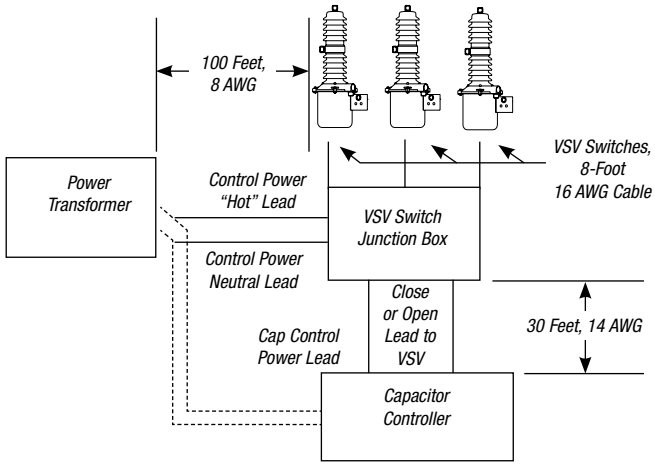
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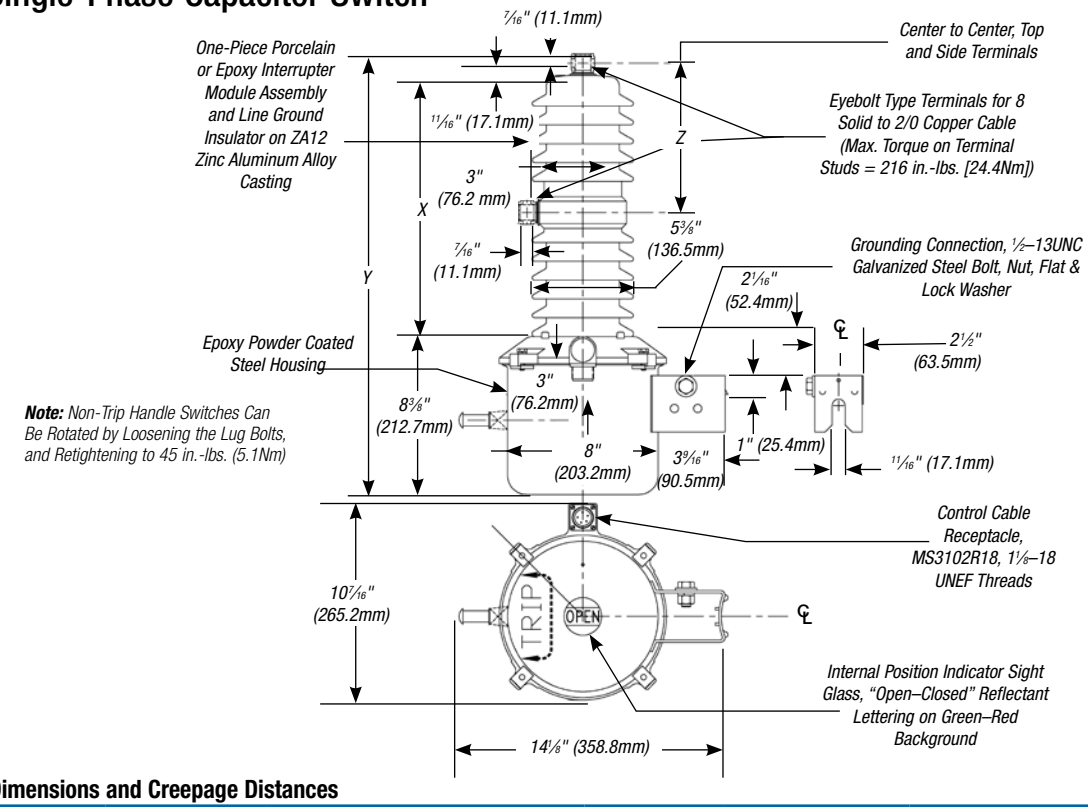
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VerSaVac® 15–38kV Capacitor Switches

Typical VerSaVac® Single-Phase Installation



Dimensions and Creepage Distances for Joslyn Hi-Voltage® VerSaVac® Single-Phase Capacitor Switch



Dimensions and Creepage Distances

MAX. VOLTAGE	LINE TO GROUND kV BIL	LINE TO GROUND INSULATION CREEPAGE DISTANCE IN. (MM)	X IN. (MM)	Y IN. (MM)	Z IN. (MM)	WEIGHT LBS. (KG)
15kV	95	12.63 (320.7)	14 (355.6)	23.63 (600.1)	7.94 (201.6)	27.5 (12.5)
15kV	125	17.19 (436.6)	16 (406.4)	25.63 (650.9)	7.94 (201.6)	28.5 (12.9)
27kV	125	17.19 (436.6)	17 (431.8)	26.63 (676.3)	8.94 (227.0)	29.3 (13.3)
27kV	150	19.44 (493.7)	18 (457.2)	27.63 (701.7)	8.94 (227.0)	30.8 (14.0)

VerSaVac® 15–38kV Capacitor Switches

Ratings

Exceeds Electrical Requirements of ANSI C37.66			
Continuous Current		200A	
Short-Time Current		6kA (½ sec.), 4.5kA (1 sec.)	
Asymmetrical Momentary/Making Current		9kA Asymmetrical RMS/23kA Peak	
Peak Inrush Current Limit for Parallel or Back-to-Back Switching Applications		6kA	
Control Voltages		120VAC, 240VAC (see accessories, p. H-170)	
Minimum Operating Voltage		80VAC, 160VAC	
Recommended Control Pulse Time		100 msec.	
Auxiliary Contact Rating		15A @ 120VAC, .5A @ 125VDC	
Voltage Class (kV)			
Maximum Voltage			
- Solid Grounded Applications (kV)	27.5	38	38
- Ungrounded Applications (kV)	15.5	27.5	N/A
- Ungrounded Applications with Manual Trip* (kV)	12.47	22.5	N/A
Impulse Withstand (kV BIL)			
- Line to Ground	95	125	150
- Open-Gap	95	95/125	125
Power Frequency AC Withstand Dry/Wet (kV RMS)	36/30	60/50	70/60

** Units equipped with manual trip handle.*

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VerSaVac® Three-Phase Capacitor Switch

The VerSaVac® switch is a completely sealed, long-life vacuum switch that provides an operational life of over 100,000 (50,000 open/50,000 close) maintenance-free operations. This results in an operational life greater than other switches used for pole-top capacitor switching. The VerSaVac® switch was specifically designed as a replacement for maintenance-intensive oil switches and can be used as a direct replacement on existing banks or supplied by capacitor manufacturers on new banks. Using the VerSaVac® switch will result in substantial savings from reduced maintenance and maximized bank uptime and will also improve power quality.

No Oil or Gas

Vacuum interruption and solid dielectric Joslyte insulation around vacuum bottle. This material is non-hydroscopic and absorbs stresses from thermal expansion and shock. Joslyte insulation has been field proven for more than 40 years.

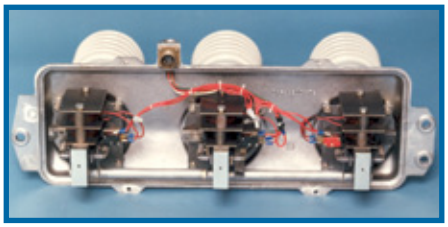
Compatibility

VerSaVac® switches are compatible with existing oil switch or vacuum switch installations.

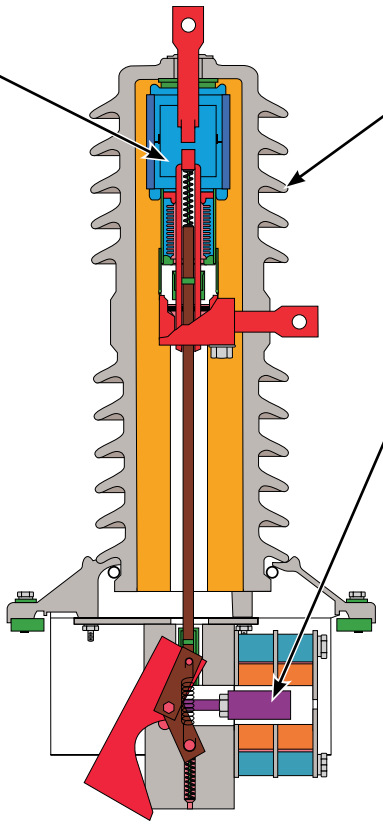
Reliability

Proven design with over 150,000 worldwide installations and over 35 years of operational experience.

Exceeds Electrical Requirements of ANSI C37.66



*See I 750-272 Three-Phase VerSaVac® Switch Installation and Operating Procedure for complete details



Porcelain or Cycloaliphatic Epoxy Housing

Long-Life Solenoid Mechanism

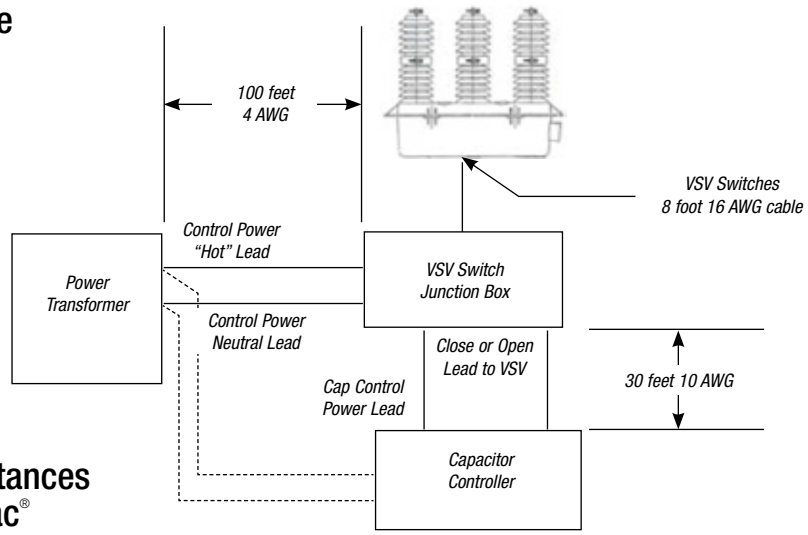
Provides 100,000 operations (50,000 open/50,000 close).



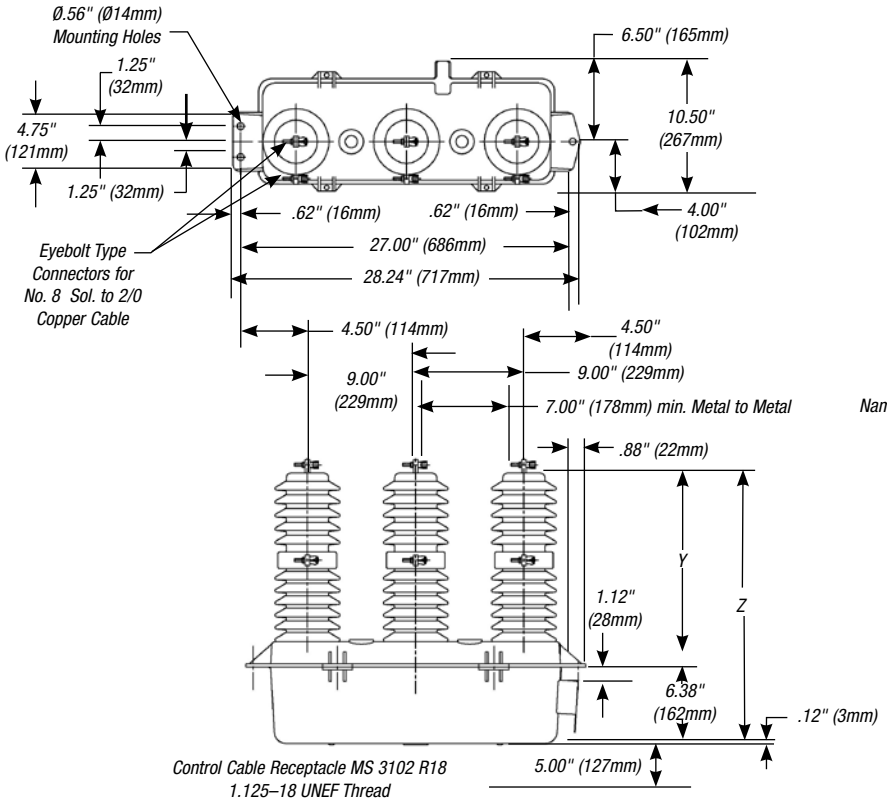
Manual Operating Handle for Open and Close

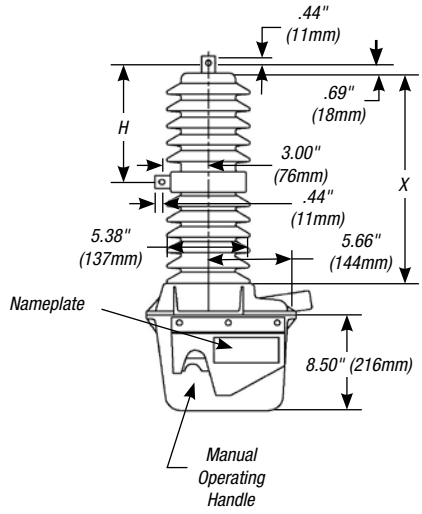
VerSaVac® 15–38kV Capacitor Switches

Typical VerSaVac® Three-Phase Switch Installation



Dimensions and Creepage Distances for Joslyn Hi-Voltage® VerSaVac® Three-Phase Capacitor Switch





Dimensions and Creepage Distances

LINE TO GROUND kV BIL	LINE TO GROUND INSULATION CREEPAGE DISTANCE IN. (MM)	X IN. (MM)	Y IN. (MM)	Z IN. (MM)	H IN. (MM)	WEIGHT LBS. (KG)
95	12.63 (321)	14 (356)	17.25 (438)	23.63 (600)	7.94 (202)	75 (34.0)
125	17.19 (437)	16 (406)	19.25 (489)	25.63 (651)	7.94 (202)	78 (35.4)
150	19.44 (494)	18 (457)	21.25 (540)	27.63 (702)	8.94 (227)	85 (38.6)

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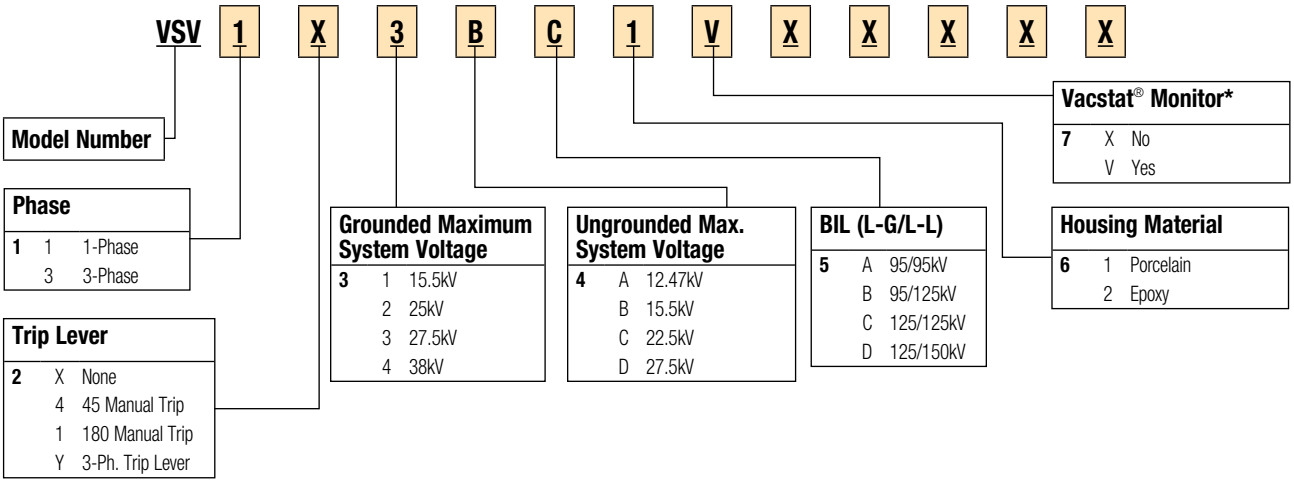
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VerSaVac® Single- and Three-Phase Capacitor Switch

To order a basic VerSaVac® Switch, the catalog number would be constructed as follows:



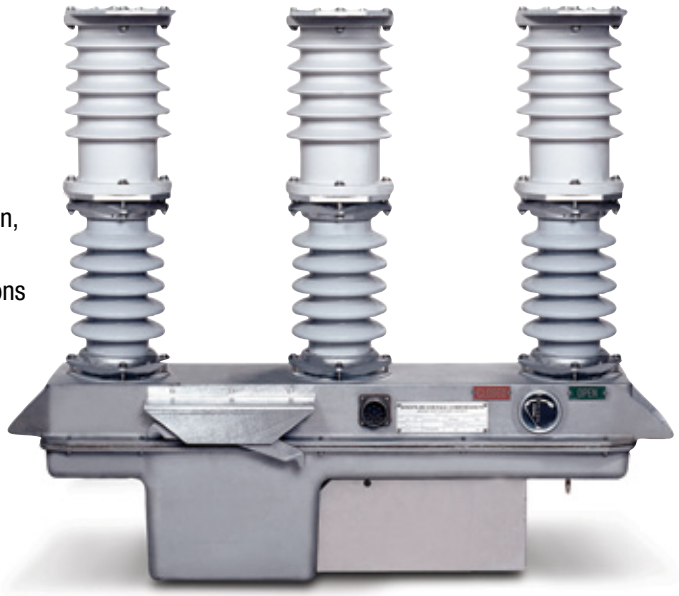
X Indicates sequential numbers. Sequential numbers are used for controls and other accessories.

** Vacstat® Vacuum Interrupter Monitor available only in single-phase switches.*
For more information on the Vacstat® Vacuum Interrupter Monitor, see ***page H-156****.*

Varmaster VBM 15–69kV Capacitor and Reactor Switches

For substation capacitor and reactor switching.

Joslyn Hi-Voltage® Varmaster VBM Switching Systems



- Vacuum interruption and solid dielectric Joslyte insulation — no oil, no gas, no maintenance
- Depending on operating mechanism and control voltage selection, offers up to 100,000 maintenance-free operations
- 15kV–69kV system range, substation or pole mounted installations
- Available Vacstat® Vacuum Interrupter Monitor provides local/remote status of vacuum bottle and can block operation if a problem is detected
- Available Zero Voltage Closing (ZVC) Control mitigates the system overvoltages and high inrush currents typically associated with bringing capacitor banks online, preventing resulting customer equipment damage and stress on capacitors
- Compact and lightweight, no special foundations or support required
- Completely sealed construction provides safe interruption with no external arcing and quiet yet high-speed operation
- Factory-assembled for fast, easy, low-cost installation
- Solenoid or motor operating mechanism with AC or DC control voltage

Joslyn Hi-Voltage® Varmaster switching systems use VBM switches that are completely sealed, breaker-class devices using a vacuum as the interrupting dielectric. VBM switches offer high reliability with little or no maintenance and quiet, safe interruption with no external arcing. Manufactured for system voltages from 15kV to 69kV, VBM switches are electrically connected in series to provide the necessary recovery voltage characteristics for the specific application. They may also be electrically connected in parallel for high continuous or momentary current requirements. VBM switches ship completely factory-assembled, ready for fast, easy installation requiring no special foundations or supports due to their compact, lightweight design. Each vacuum interrupter is enclosed in a shatterproof, high-dielectric housing to form a module designed with all solid insulation. The interrupter is surrounded by Joslyte high-dielectric, non-hydroscopic solid insulation that does not absorb moisture, eliminates condensation and increases the impulse level on the outside of the vacuum interrupter. No gas, oil or other material is required to maintain electrical properties.

One or two vacuum modules are mounted on each line-to-ground insulator and connected to the operating mechanism by a high-strength pull rod. The operating mechanism is completely sealed in a housing that supports the line-to-ground insulators and the modules. An environmental protection system in the housing, consisting of a breather chamber and desiccant, prevents moisture and contaminated air from entering the switch operator, and an "Open/Closed" position indicator is directly coupled to the mechanism. The entire assembly can withstand a force of several G's without damage.

Stored-energy operating mechanisms, which can be operated manually or electrically, move the contacts at high speed and are unaffected by control voltage fluctuation or manual operating speed. Each switch features an operation counter. A wide range of AC and DC voltage control package options are available. All electrical control connections to the operating mechanism are made through a single environmental-control cable connector.

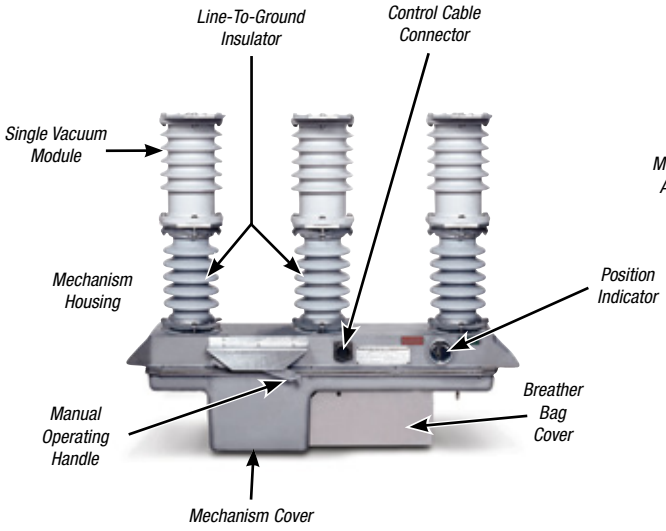
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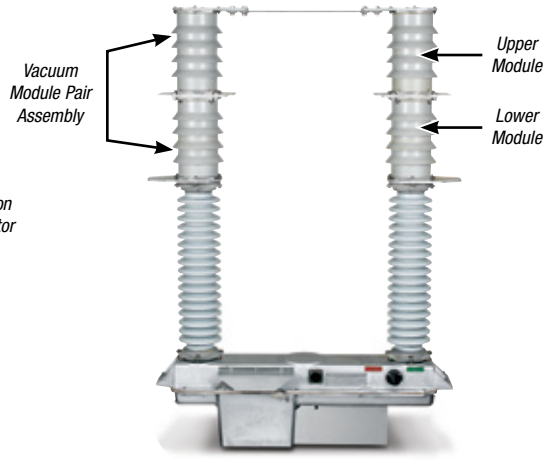
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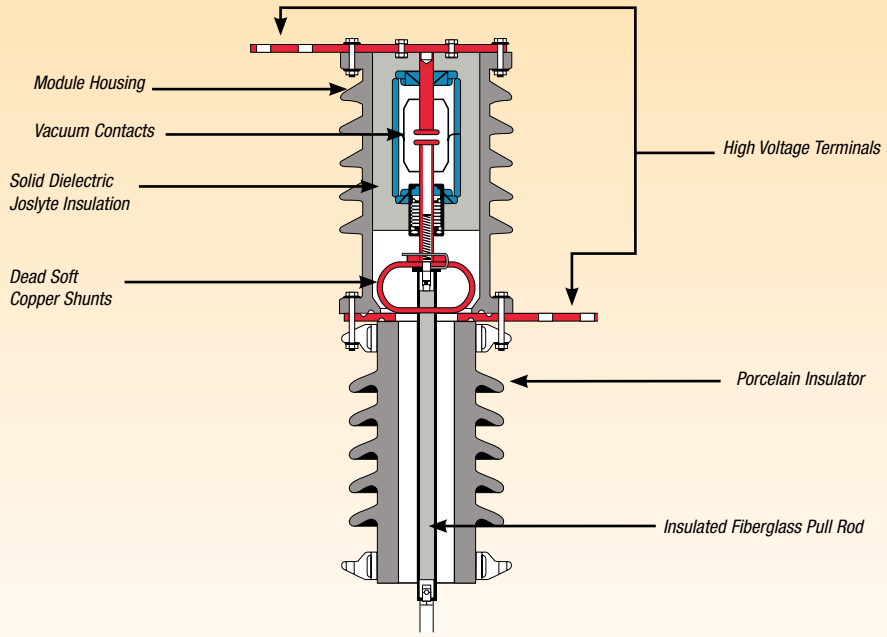
VBM Switch Construction





The VBM switch is manufactured in voltage ratings from 15kV to 69kV with continuous current capabilities from 200A to 600A. The mechanism may be operated manually, or electrically by solenoid or motor operators.

Single Vacuum Module Cutaway



Cutaway of single-vacuum module mounted on 15kV line-to-ground insulator.

The assembly containing the vacuum interrupter is called a module. Each module has a vacuum interrupter contact sealed in Joslyte solid dielectric insulation, which provides mechanical strength, high dielectric strength and complete moisture sealing. The module housing is cycloaliphatic or EPR rubber bonded to a fiberglass tube. One or two modules are mounted on each insulator and connect to the mechanism by a high-strength pull rod.

Varmaster VBM 15–69kV Capacitor and Reactor Switches

Varmaster VBM Switch with Vacstat® Vacuum Interrupter Monitor alerts you immediately of loss of vacuum!

- Continuously monitors vacuum interrupter status while the switch is energized and in service
- Reduces operating and maintenance costs by eliminating the need for routine off-line vacuum interrupter inspections
- Blocks switch operation if vacuum loss is detected and protects your equipment and personnel from potential harm
- Provides local and remote indication of vacuum interrupter status and enables operating and maintenance personnel to take corrective action immediately in the event of loss of vacuum, maximizing system reliability
- SCADA notification available

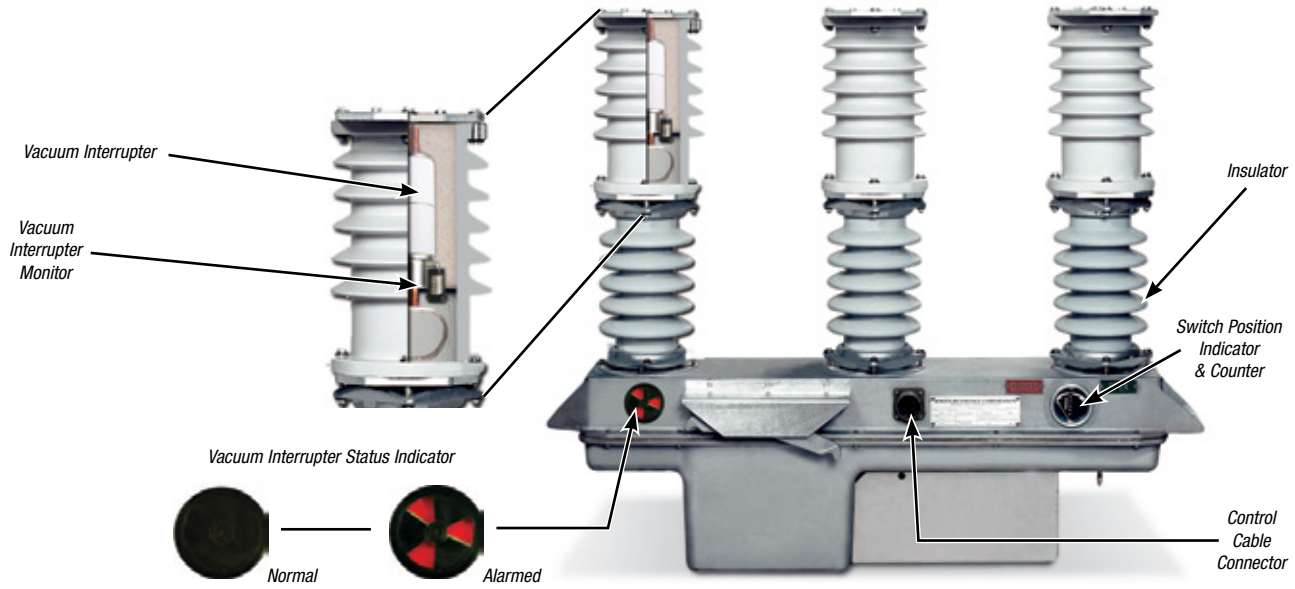
The Joslyn Hi-Voltage® Vacstat® Vacuum Interrupter Monitor provides you real-time status monitoring of your vacuum interrupters. This simple device notifies you immediately of a loss of vacuum through a visual indicator located on the switch and via a contact in the switch control. Once the Vacstat® Vacuum Interrupter Monitor senses a loss of vacuum, all switch operations will be blocked until the switch has been serviced.

How the Vacstat® Vacuum Interrupter Monitor works.

The Vacstat® sensor is attached to the vacuum interrupter of a Varmaster VBM Switch during the manufacturing process. The sensor then continuously monitors the interrupter for the presence of vacuum.

Once the capacitor switch is installed, the sensor generates an optical signal that travels via a pair of fiber optic cables to a control board in the low-voltage section of the switch. As long as vacuum exists, the fiber optic signal has a continuous path, and the Vacstat® indicator remains in the normal (unalarmed) state.

If a loss of vacuum occurs, the sensor blocks the optical signal to the control board, and the Vacstat® status indicator automatically turns to red to alert the operator to the problem. In addition, the remote status dry contact provides a means to send an alarm signal to a remote location. The Vacstat® monitor also blocks further electrical operation of the switch to prevent possible damage to equipment or injury to personnel.



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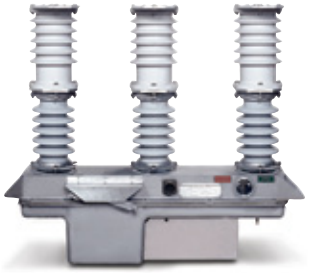
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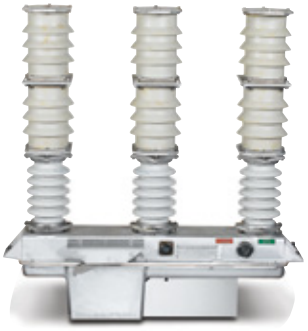
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Varmaster VBM 15–69kV Capacitor and Reactor Switches

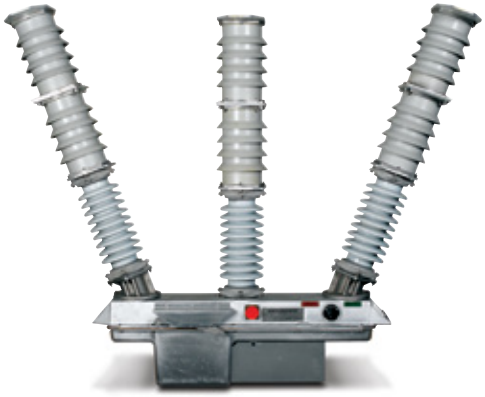
Varmaster VBM Switch Models



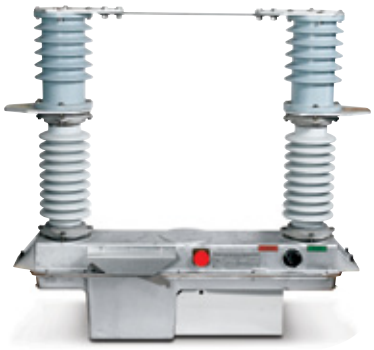
Three Phase
15kV/25kV 400A*
15kV/25kV 600A*
** 25kV rating for solidly grounded capacitor bank configurations only.*



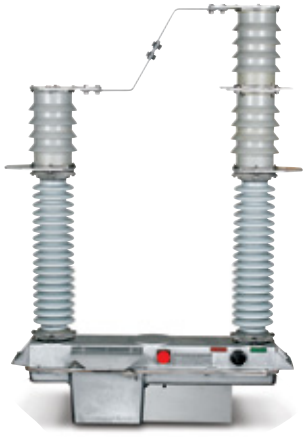
Three Phase
25kV 200A
25kV 300A
25kV 400A



Three Phase
38kV 300A



One Pole*
38kV 400A
38kV 600A
*48.5kV 200A***
** Three poles required for a three-phase installation.*
*** Solidly grounded capacitor bank configurations only.*



One Pole*
48.5kV 300A
48.5kV 400A
** Three poles required for a three-phase installation.*



One Pole*
72.5kV 300A
** Three poles required for a three-phase installation.*

Varmaster VBM Switch Options and Accessories

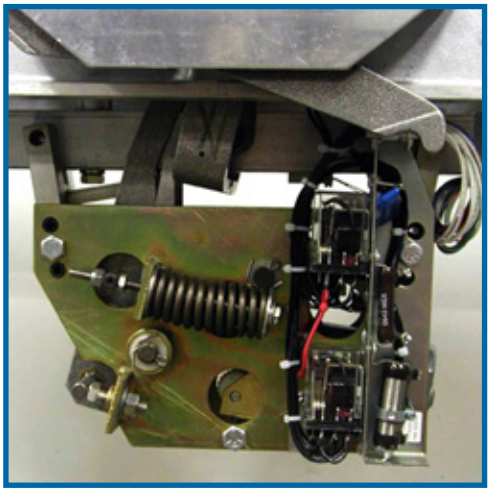
Operating Mechanisms

A solenoid mechanism has an expected maintenance-free life of 100,000 operations on AC and 15,000 operations on DC. Controls for solenoid operators are mounted in a separate enclosure.

A motor operator is only used on single-mechanism three-phase Varmaster VBM switches, such as 15kV, 400A and 600A models and 34.5kV, 300A models. All controls are located inside the VBM mechanism housing. Inspection after 10,000 operations is recommended.



Solenoid Operator



Motor Operator

The completely sealed operating mechanism housing supports line-to-ground insulators and the modules. An expansion bag in the housing prevents the intake of contaminants or moisture and contains a desiccant package to maintain dry air.

All electrical control connections to the mechanism are made through a single environmental control cable connector.

An "open-closed" position indicator is directly coupled to the mechanism. A separate operating crank enables manual operation of the switch. The entire assembly can withstand several G's without damage. Note that there may be one or more mechanisms for a three-phase Varmaster VBM switch.

Operating Mechanism Options

CONTROL VOLTAGE	OPERATING MECHANISM	CONTROL CURRENT PER SWITCH MECHANISM	CLOSE TIME[4]	TRIP TIME[4]	AUXILIARY CONTACTS
AC 120V	Motor[5]	5A	3 sec.	2 cycles	2 A and 2 B[1]
AC 120V	Solenoid[3]	60A[7, 8]	6 cycles	6 cycles	4 A and 4 B[2]
DC 48V	Motor[5]	3A	5 sec.	2 cycles	2 A and 2 B[1]
DC 48V	Solenoid[3, 8]	60A[6]	6 cycles	6 cycles	4 A and 4 B[2]
DC 125V	Motor[5]	4A	3 sec.	2 cycles	2 A and 2 B[1]
DC 125V	Solenoid[3]	60A[7, 8]	6 cycles	6 cycles	4 A and 4 B[2]
DC 250V	Solenoid[3, 8]	60A	6 cycles	6 cycles	4 A and 4 A[2]

1. Two A and two B mechanically operated contacts are standard. Six A and six B contacts are available as an option. Contacts are rated at 10A, 125VDC or 115VAC.

2. Four A and four B contacts available from auxiliary relay. Eight A and eight B contacts are available as an option. Contacts are rated at 15A, 120VAC and 10A, 125VDC.

3. For capacitor or reactor switching, a low-energy control is available. See Options and Accessories.

4. Close or Trip Times are measured from applying of close or trip signals. Vacuum contact travel time is six milliseconds. All Varmaster VBM switches have built-in anti-pump controls.

5. Motor operating mechanisms are designed for single-mechanism three-phase switches only.

6. Current is 60A peak for one-, two- or three-mechanism switch systems.

7. Current is 120A for the 34.5kV, 300A Varmaster VBM switch.

8. Current for three-mechanism switch systems is approximately 180A peak for three cycles.

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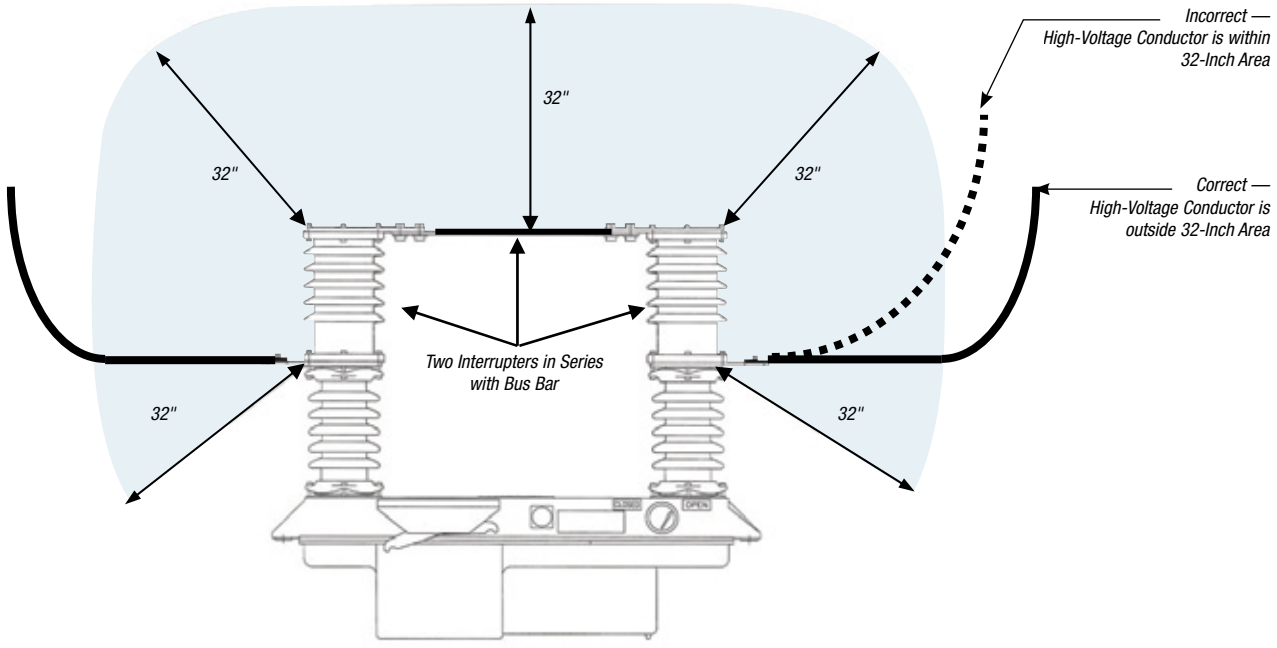
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Varmaster VBM Switch Clearance Requirements

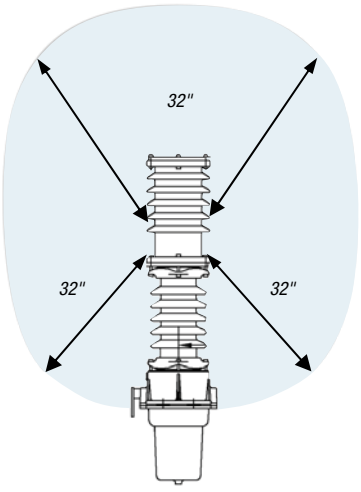
For Varmaster VBM switches with multiple vacuum interrupters in series, a 32" (813mm) clearance must be maintained from all switch line parts to adjacent equipment, such as buses, reactors, CTs, transformers or frames. Adjacent equipment also includes high-voltage conductors, which must run horizontally for at least 32" before bending upward.

Failure to meet this clearance requirement will adversely affect the electrical voltage distribution and electromagnetic field within the interrupters during opening and closing operations. This insufficient clearance can prevent proper interruption within the vacuum switch interrupters, resulting in undesirable restrikes during opening operations for some application parameters.

32" Clearance around 38kV Single-Phase Interrupters, Front View

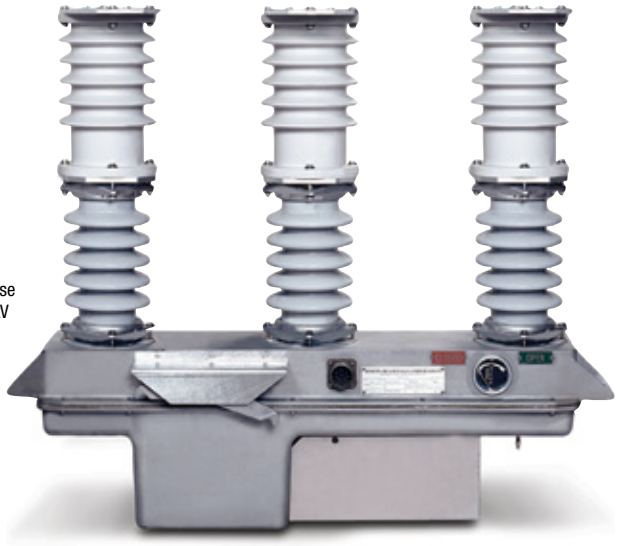


32" Clearance around 38kV Single-Phase Interrupters, Side View



Varmaster VBM 15–69kV Capacitor and Reactor Switches

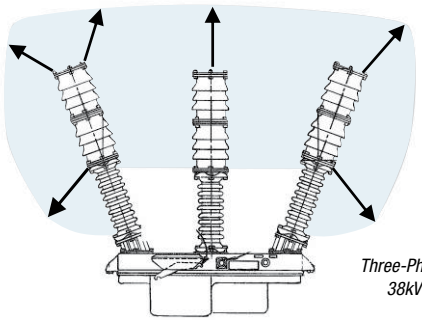
One Interrupter per Phase, 32" (813mm) Clearance Not Required



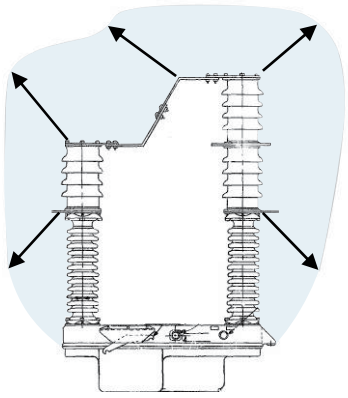
Three-Phase
15kV/25kV

***Note**: The 32" (813mm) clearance requirement does not apply to Varmaster VBM switches with only one interrupter per phase, as shown above. All other configurations shown must maintain the 32" (813mm) clearance.*

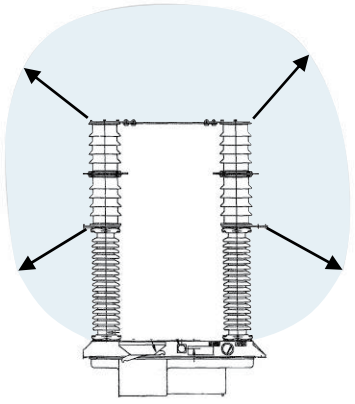
Two or More Interrupters per Phase, 32" (813mm) Clearance Required



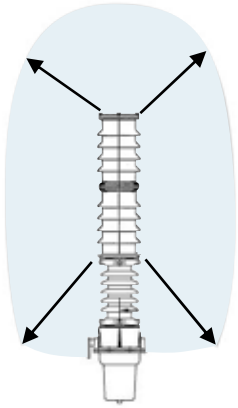
Three-Phase
38kV



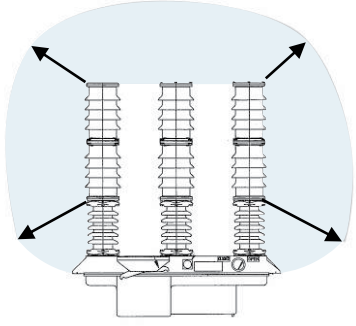
Single-Phase
48.5kV



Single-Phase
69kV



Double-Stack Interrupters



Three-Phase
25kV

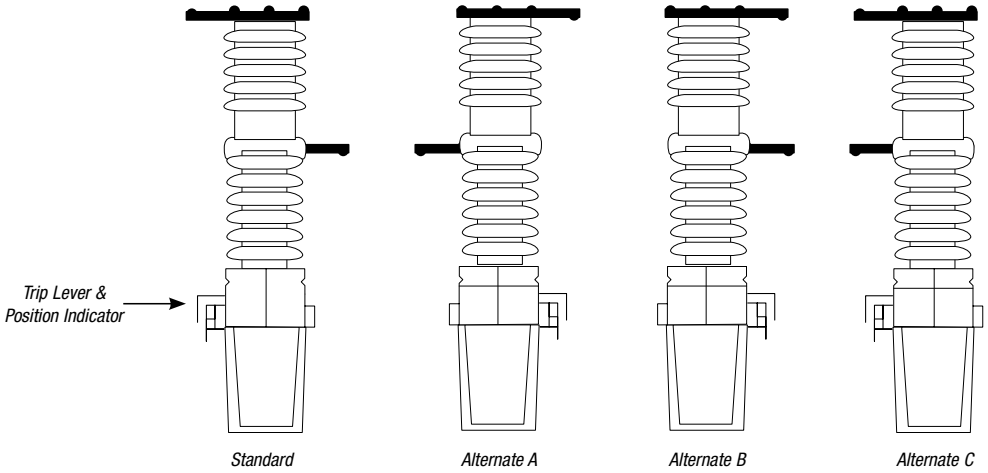
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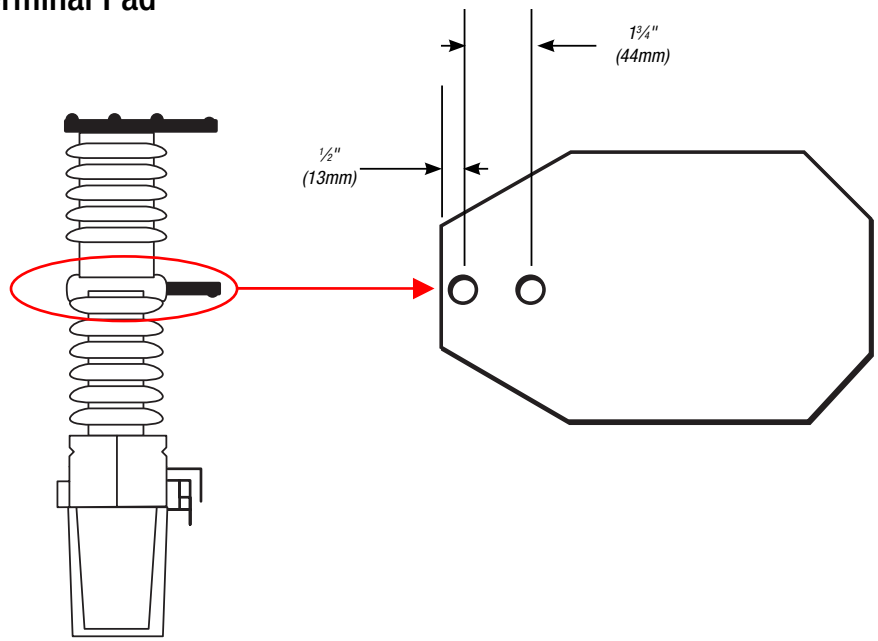
Varmaster VBM Terminal Pad Orientation Options for Single-Mechanism Switches



High-Voltage Connections

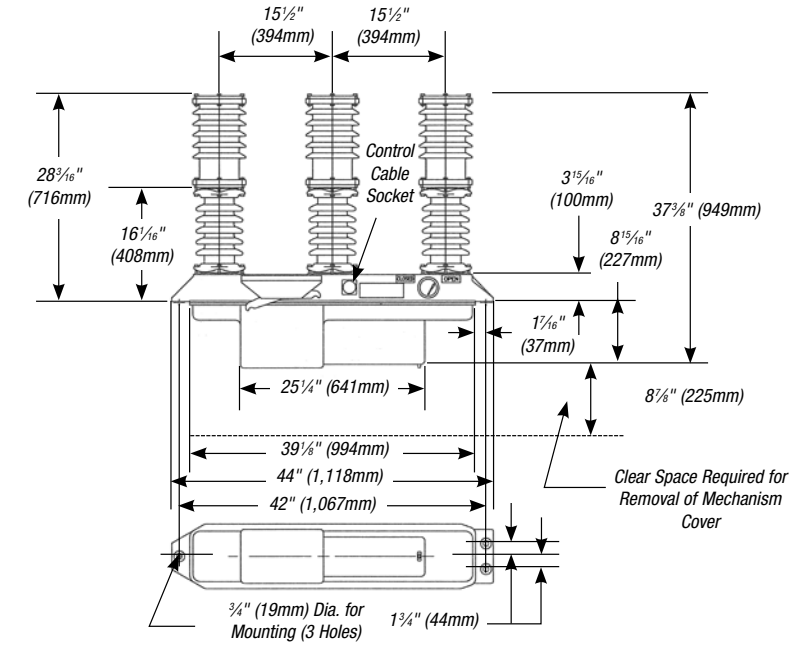
Varmaster VBM switches have terminal pads made of aluminum alloy with standard NEMA two-hole drilling. The electrical connection at the terminal pad must be treated with Alcoa No. 2 joint compound or equivalent. Remove the brown paper from the terminal pad before making electrical connections. Wire brushing through the compound will improve the connection.

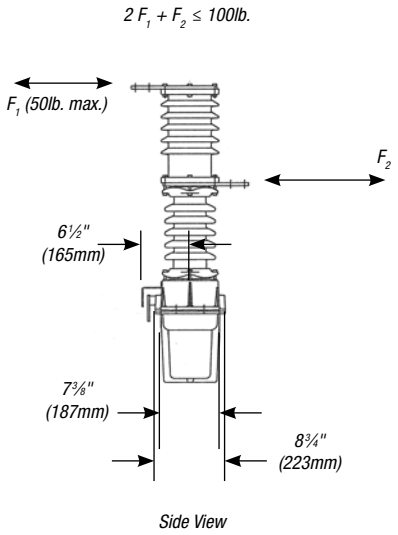
Terminal Pad



Varmaster VBM 15–69kV Capacitor and Reactor Switches

Dimensions for Three-Phase Switch, 15kV/25kV* Grounded 400A, 15kV/25kV* Grounded 600A

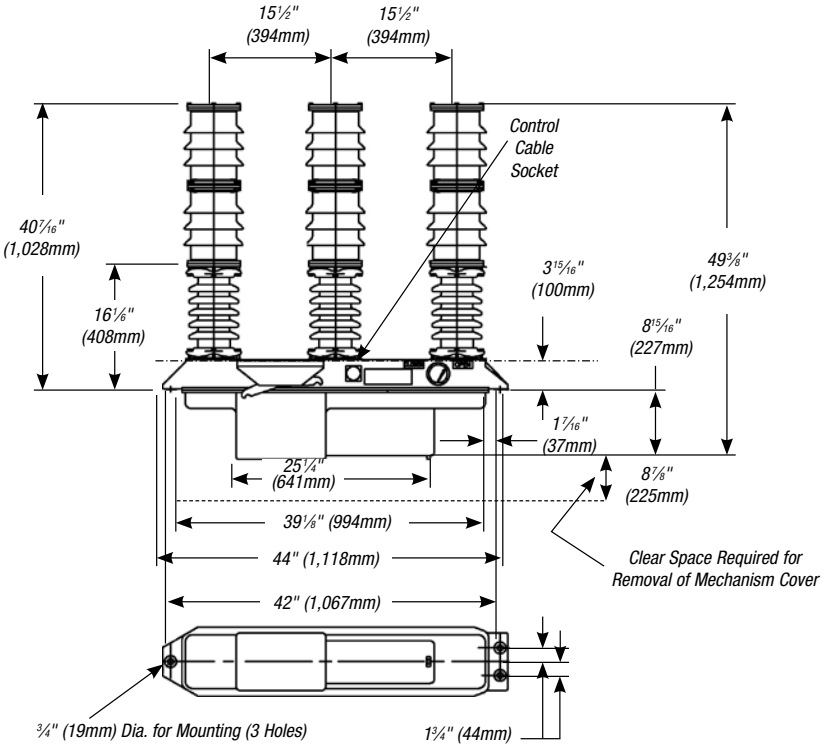


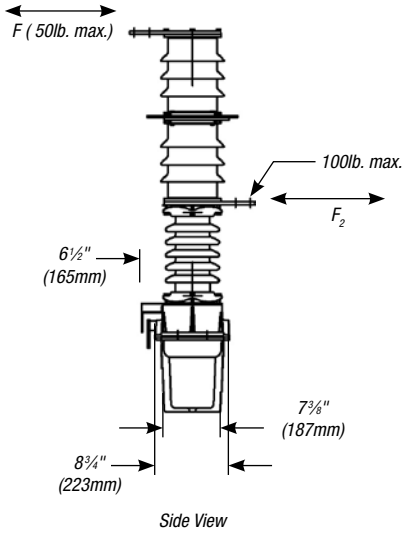


* Solid grounded systems and capacitor bank only.

Weight: 148lb. (67kg) maximum.

Dimensions for Three-Phase Switch, 25kV 200A, 25kV 300A, 25kV 400A





Weight: 225lb. (102kg) maximum.

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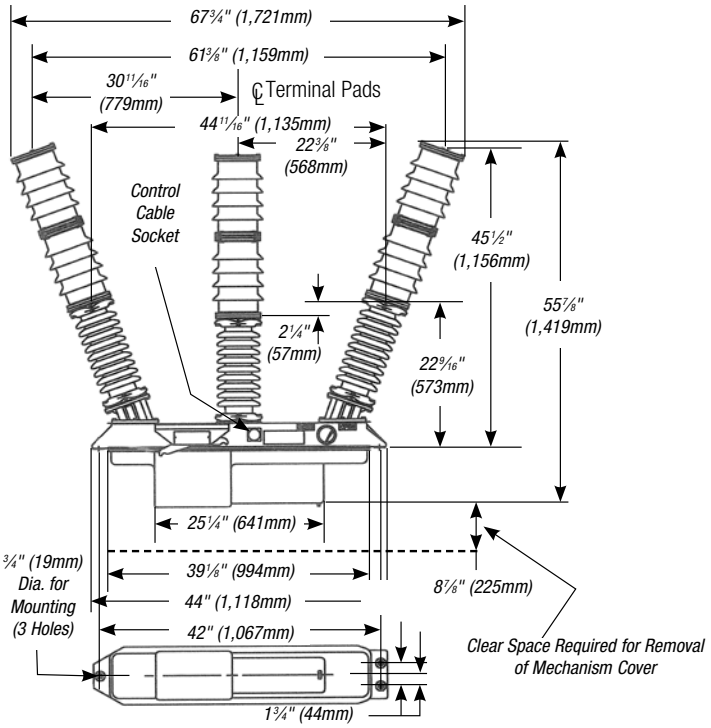
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800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

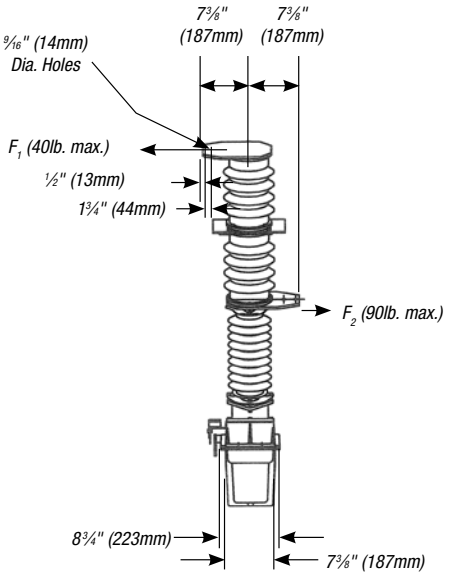
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Varmaster VBM 15–69kV Capacitor and Reactor Switches

Dimensions for Three-Phase Switch, 38kV 300A



Front View

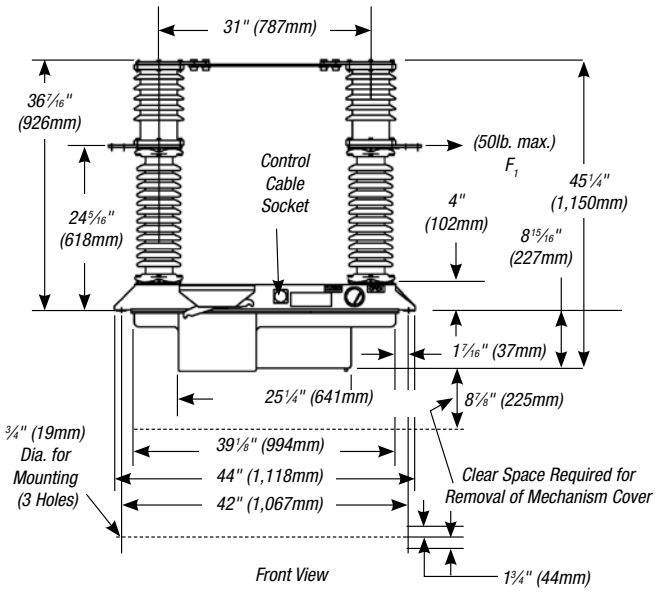


Side View

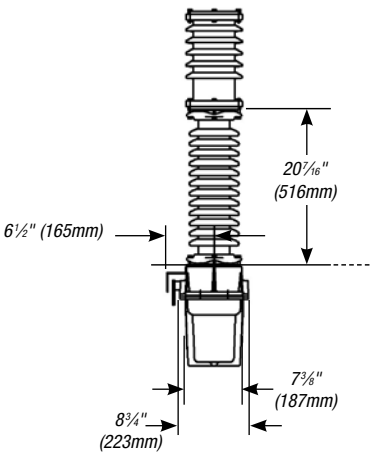
Note: *Other insulation ratings are available for extra creepage.*

Weight: 225lb. (102kg) maximum.

Dimensions for One-Pole* Switch, 38kV 400A, 38kV 600A, 48.5kV 200A**



Front View



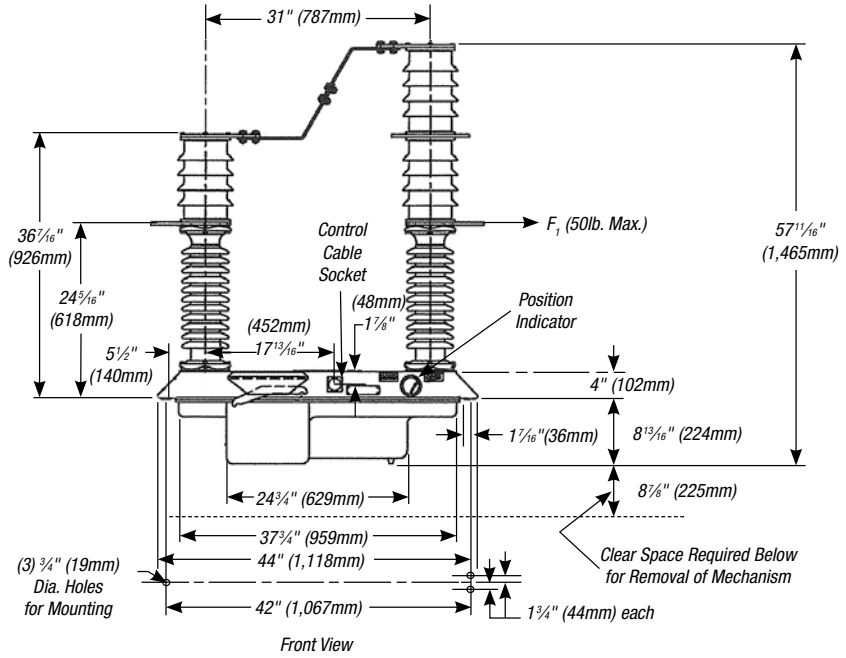
Side View

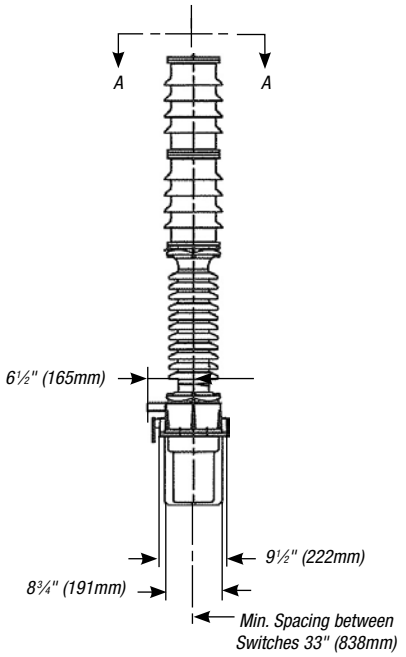
Weight: 180lb. (82kg) maximum.

** Three poles are required for a three-phase installation.*
*** Solidly grounded 46kV capacitor bank configuration.*

Varmaster VBM 15–69kV Capacitor and Reactor Switches

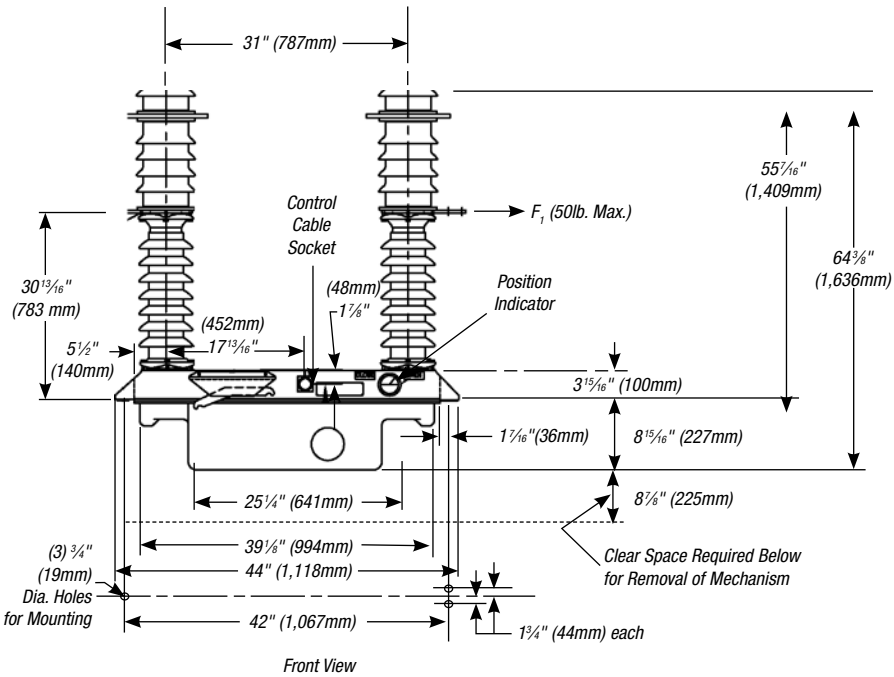
Dimensions for One-Pole* Switch, 48.5kV 300A, 48.5kV 400A

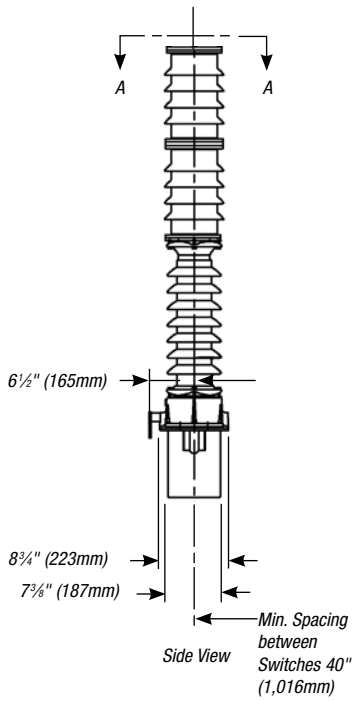




Weight of one-pole switch: 200lb. (91kg) maximum.
** Three poles are required for a three-phase installation.*

Dimensions for One-Pole* Switch, 72.5kV 300A





Weight of one-pole switch: 225lb. (103kg) maximum.
** Three poles are required for a three-phase installation.*

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Varmaster VBM 15–69kV Capacitor and Reactor Switches

VBM Switch Ratings

MAXIMUM VOLTAGE	15.5kV/25KV[3]		25kV			38kV			48.5kV			72.5kV
Capacitor and Load Switching Current[1,2] (Amps)	400	600	200	300	400	300	400	600	200[4]	300	400	300
Fault Interrupting Current (kA)	3	4	3	3	3	3	3	4	4	3	3	3
Momentary Current (kA RMS, Asymmetric)	20	20	15	15	15	15	20	20	20	15	15	15
Impulse Withstand (kV BIL) Terminal-to-Terminal[5]	110	110	200	200	200	200	200	200	200	250	250	280
Line-to-Ground (kV BIL) (1.2 x 50 Positive Wave)	150	150	150	150	150	200	200	200	250	250	250	350
Maximum 60-Cycle Withstand Line-to-Ground (kV)												
One Minute Dry	101	101	101	101	101	138	138	138	178	178	178	178
Two Seconds Wet	74	74	74	74	74	119	119	119	176	176	176	176
Maximum Peak Making Current (kA)[6]	20	20	15	15	15	15	20	20	20	15	15	15
Maximum Peak Back-to-Back Inrush Current (kA)	10	10	8	8	8	8	10	10	10	8	8	8
Two-Second Current (Amps)	12,500											
Four-Second Current (Amps)	9,000											

Notes:

1. *Varmaster VBM switches can switch loads of any power factor up to their continuous current rating. Include effects of voltage variances, harmonic currents and load tolerances in calculating continuous current.*
2. *Varmaster VBM switches are available with continuous current ratings through 3,000A for non-capacitor bank applications. Consult your T&B representative regarding application of these switches.*
3. *Grounded systems only at 25kV.*
4. *In capacitor switching applications, the 48.5kV, 200A Varmaster VBM may be used on solidly grounded systems and grounded capacitor banks with total current less than 200A. For all other loads, this VBM rating is 600A.*
5. *Interrupter portion of switch does not provide a visible open gap; therefore, it cannot be used to establish a safety clearance for personnel.*
6. *In back-to-back capacitor bank switching applications, it is recommended that inrush current be limited to the values shown for maximum maintenance-free performance. Current limiting reactors through 60 microhenries/phase are available from Joslyn Hi-Voltage®. Refer to Joslyn Hi-Voltage® bulletin T.D. 750-457.*

Varmaster Three-Phase Capacitor Switch

To order a basic Varmaster Switch, the catalog number would be constructed like this:

VBM	3	15	3	M	S	N	X	X	X	X	X

Model Number

Number of Poles

1	1	1 Pole
	3	3 Pole

Maximum System Voltage

2–3	15	15.5kV
	22	22kV
	25	25.8kV
	38	38kV
	48	48.5kV
	72	72.5kV

Continuous Current

4	2	200 Amps
	3	300 Amps
	4	400 Amps
	6	600 Amps

Operating Mechanism

5	M	Motor
	S	Solenoid

Terminal Pad Orientation

6	S	Standard
	A	A-Alternate*
	B	B-Alternate*
	C	C-Alternate*
	D	D-Alternate**

VacStat Monitor***

7	N	No
	Y	Yes

X Indicates sequential numbers. Sequential numbers are used for controls and other accessories.

** Apply only to 15kV through 38kV 300A. For more information on Terminal Pad orientation, see **page H-169**.*

*** Apply to 38kV and above. For more information on Terminal Pad orientation, see **page H-169**.*

**** VacStat Vacuum Interrupter Monitor available only in 15kV through 38kV 300A three-phase switches. For more information on the VacStat Vacuum Interrupter Monitor, see **page H-156**.*

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VBU 69–230kV Capacitor Switches

Ideally suited for capacitor switching on 69kV to 230kV systems.

Joslyn Hi-Voltage® VBU Capacitor Switches

- Vacuum interruption and solid dielectric Joslyte insulation provide completely oil-free operation, and explosive or combustible materials won't compromise the safety of personnel or equipment
- Modular design — change voltage rating simply by adding or removing vacuum contact modules
- Completely sealed construction for long, virtually maintenance-free service life, with no heaters or routine exercise required
- Wide choice of control options ensures dependable switching of magnetizing current, cable or line charging current or load current of any power factor
- Available Zero Voltage Closing (ZVC) Control closes three switch poles independently, synchronized with the occurrence of zero voltage in each phase, eliminating overvoltage duty on capacitors and system overvoltage disturbances

Joslyn Hi-Voltage® VBU Capacitor Switches are sealed against the environment, immune to ice and contamination and designed to withstand system voltage continuously in the open position. The completely sealed operating mechanism requires neither heaters nor routine exercise.

Suitable for all loads, the reliable vacuum interrupters in the VBU capacitor switches ensure dependable switching of magnetizing current, cable or line charging current or load current of any power factor. VBU capacitor switches are ideally suited for capacitor switching.

VBU capacitor switches can be applied on 69kV to 230kV systems. The flexibility of their modular design makes a change in the voltage rating of VBU capacitor switches as simple as adding or subtracting the appropriate number of vacuum contact modules.

VBU capacitor switches are free of explosive or combustible materials and are designed to be virtually maintenance-free. Normal operation inspections should be conducted every 5–10 years or 10,000 operations. Testing, when required, is fast and easy.

VBU capacitor switches ship completely assembled and adjusted. They are lightweight and easy to install, requiring a minimum of structural support and space. Less expensive to purchase and install than circuit breakers, they are often mounted on potential transformer stands and offer quiet yet high-speed operation.



VBU Capacitor Switch

Interrupter Module

Each vacuum interrupter module contains a vacuum interrupter mounted within an outer housing. Capacitors are connected in parallel with each vacuum interrupter to ensure uniform voltage distribution across all interrupter modules in an interrupter assembly. The space within the outer housing is filled with Joslyte solid dielectric insulation, which provides increased dielectric strength over the exterior of the vacuum interrupter and enables the module assembly to resist physical shock.

The electrical connection between interrupter modules is accomplished through the upper end flange and lower end flange. Current is transferred from the upper end flange to the movable contact end of the vacuum interrupter through laminated shunts. The non-moving end of the vacuum interrupter is connected directly to the lower end flange. The vacuum interrupter contacts are opened and closed by the module drawbar.

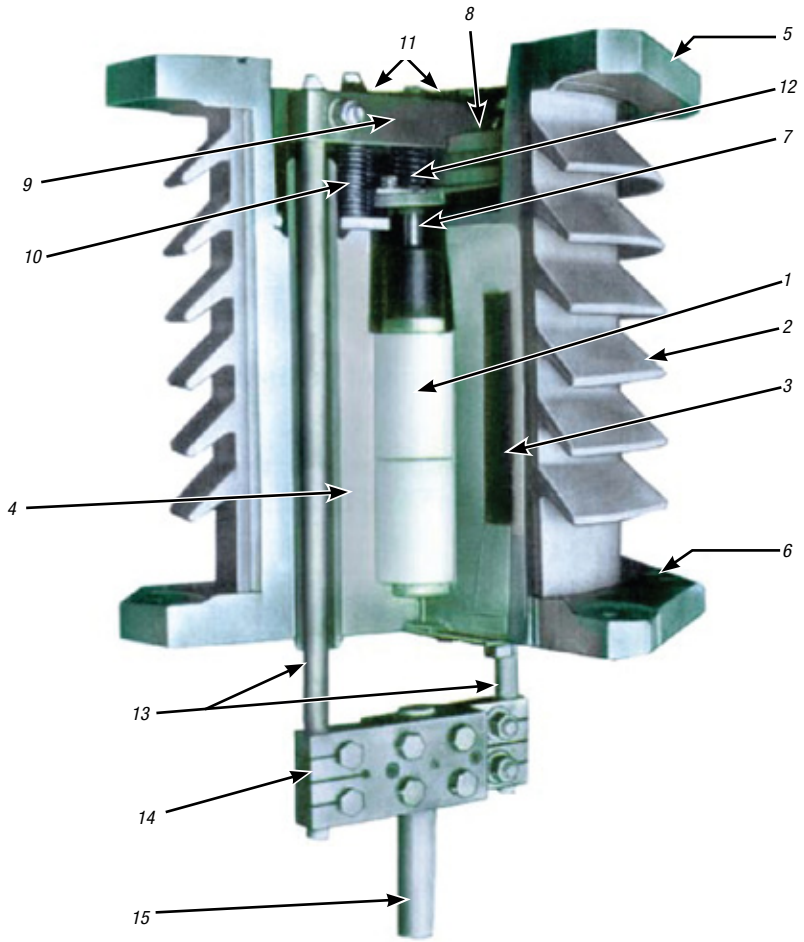
A pair of compression springs forces the drawbar upward — which opens the vacuum interrupter —and drawbar stop bolts limit the amount of upward motion of the module drawbar.

The stop bolts determine the separation of the vacuum contacts in the open position. The vacuum interrupter contacts close with a downward motion of the module drawbar. The downward motion also compresses the springs, providing stored energy for the opening operation.

After the module drawbar has been moved downward to the point where the vacuum contacts close, it is moved downward an additional distance. This distance is referred to as overtravel. During overtravel, the vacuum contacts are not moving since they are a butt design and are essentially fully closed once continuity is established. The overtravel of the module drawbar increases the stored energy in the opening springs and compresses the contact pressure spring. The contact pressure spring is preset so the amount of contact pressure is substantially independent of the amount of overtravel.

The module drawbars connect mechanically to each other and to the master drawbar by a pair of pull rods, which pass through each module. The master drawbar connects to the operating mechanism via the master pull rod located within the line-to-ground insulator.

1. Vacuum Interrupter
2. Outer Housing
3. Capacitors
4. Joslyte Solid Dielectric Insulation
5. Upper End Flange
6. Lower End Flange
7. Movable Contact End
8. Laminated Shunts
9. Module Drawbar
10. Compression Springs
11. Drawbar Stop Bolts
12. Contact Pressure Spring
13. Pull Rods
14. Master Drawbar
15. Master Pull Rod



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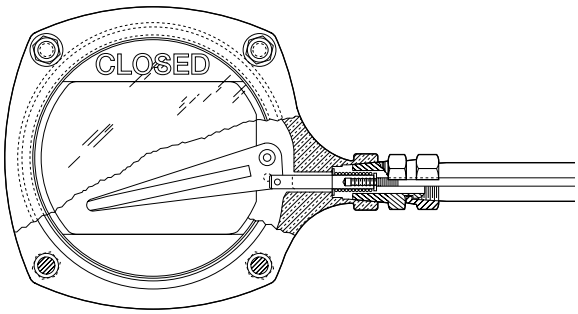
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Position Indicator

A visual position indicator attaches to each mechanism housing. It directly activates by movement of the primary switch mechanism. Auxiliary switch contacts are available in each VBU pole for remote indication of VBU position and interlocking the VBU with other equipment.

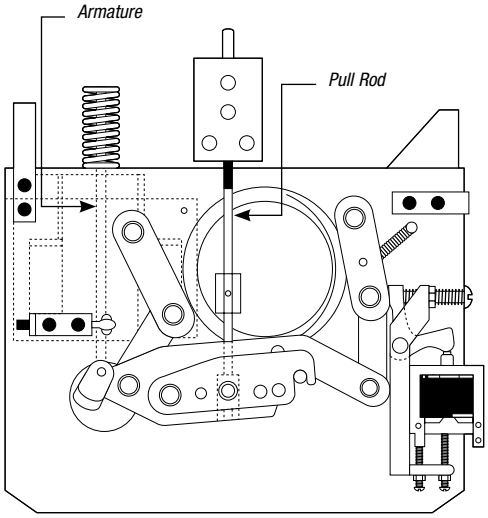


Position Indicator

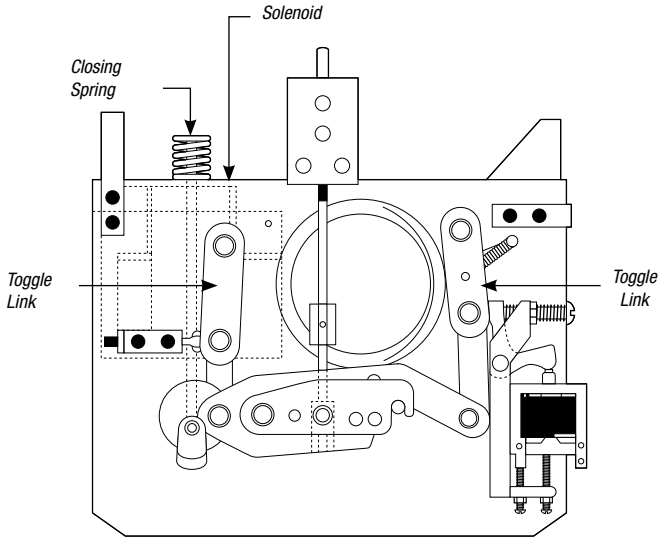
Operating Mechanism

Each pole of the VBU contains an operating mechanism; there is no mechanical interphase connection.

The vacuum interrupters are held in the open position by the opening springs located in each interrupter module. The operating mechanism utilizes solenoids to impart a downward motion to the master pull rod, which pulls the vacuum interrupters to the closed position. The operating mechanism linkages then lock in an overtoggle position to restrain the contacts in the closed position. When the mechanism reaches the closed overtoggle position, the close solenoids are automatically de-energized. The VBU is opened by energizing a low-energy trip solenoid. The solenoid untoggles the mechanism and removes the restraining force that holds the contacts closed. This action enables the opening springs within the interrupter modules to open the vacuum contacts.



Operating Mechanism (open)



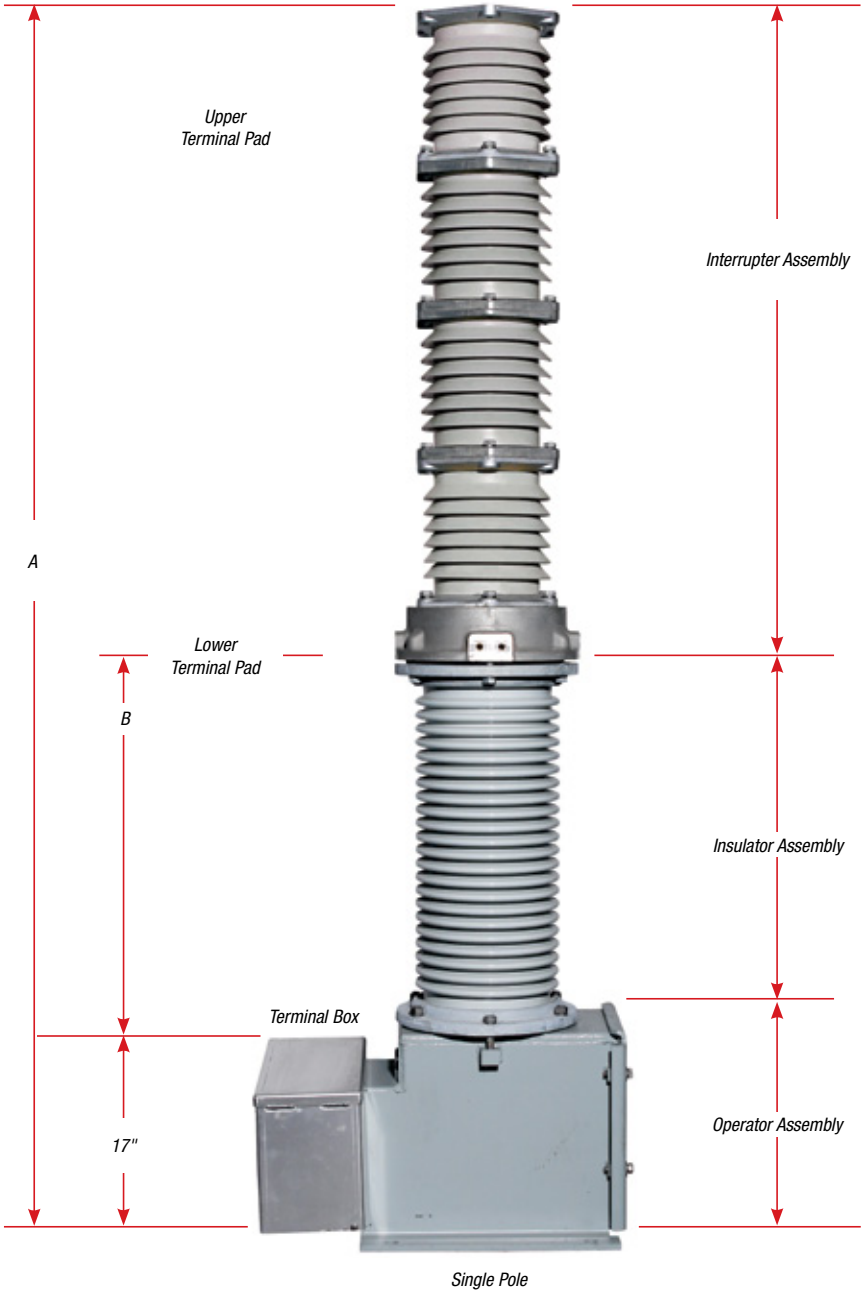
Operating Mechanism (closed)

VBU 69–230kV Capacitor Switches

General Description

The major components of a Joslyn Hi-Voltage® VBU Capacitor Switch are the interrupter assembly, the insulator assembly and the operator assembly.

The interrupter assembly is a modular design that connects vacuum interrupter modules electrically in series. The number of vacuum interrupter modules is determined by recovery voltage considerations. The interrupter assembly is connected to the operating mechanism with an insulating operating rod located within the hollow line-to-ground insulator assembly.



Single Pole

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VBU 69–230kV Capacitor Switches

Specifications and Ratings

The VBU capacitor switch yields a very long service life with a modular design including vacuum interrupter modules connected electrically in series and mechanically in parallel. The VBU system is supplied with the appropriate number of modules determined by recovery voltage considerations for specific applications (refer to VBU Ratings table). Order by fully describing the application, options and accessories.

Specifications

- Standard Control Features Include: Electrical Operations Counter, Heater, Anti-Single Phasing Circuit
- Voltage Class: 69kV–230kV
- Continuous Current (Amperes): 600
- Fault Interrupting Current (Amperes, Symmetrical): 4,000
- Momentary Current (Amperes, Asymmetric): 40,000
- Two-Second Current (Amperes): 10,000
- Three-Second Current (Amperes): 8,000
- Four-Second Current (Amperes): 7,000
- Closing Time: 55 milliseconds
- Max. Interrupt Time: 2 cycles
- Control Current Close: 1A peak at 48VDC or 125VDC
- Control Current Trip: 18A at 125VDC; 54A at 48VDC

VBU Switch Ratings

RATED MAXIMUM VOLTAGE (kV)	L-G BIL (kV)	TERM. TO TERM. BIL (kV)	INTERRUPTER MODULES PER PHASE	A	B	WEIGHT PER PHASE (LBS.)	PRIMARY APPLICATION*
72	350	400	4	8' 7¼"	30"	710	T G U
121	550	550	5	11' 1¼"	48"	860	T G
121	550	750	7	13' 1¼"	48"	940	U
145	750	650	6	13' 1¼"	60"	950	T
145	750	750	7	14' 1¼"	60"	990	G
145	750	850	8	15' 1¼"	60"	1,030	U
169	750	750	7	14' 1¼"	60"	990	T
169	750	850	8	15' 1¼"	60"	1,030	G
169	750	950	9	16' 1¼"	60"	1,070	U
242	900	950	9	17' 7¼"	78"	1,180	T G

** Primary Application Codes:*

T = Transformer Switching & Fault Protection — Grounded or Ungrounded

G = Shunt Capacitor or Reactor Switching — Solidly Grounded Source & Load

U = Shunt Capacitor or Reactor Switching — Ungrounded Source or Load

Refer to Joslyn Hi-Voltage Bulletin TD 750-457 for recommended inrush current-limiting reactor size if applied for back-to-back capacitor banks.

Joslyn Hi-Voltage® VBU Switches

Please specify:

1. Application

Capacitor Switching, Reactor Switching or Filter Bank Switching

Note: *a) With capacitor bank applications, specify grounded or ungrounded configuration.*

b) Certain filter banks may require additional vacuum interrupters. Please consult your Thomas & Betts representative when applying VBU switches for filter bank switching.

2. Voltage Rating

72kV, 121kV, 145kV, 169kV or 242kV

3. Continuous Current Rating

600A

4. Control Voltage

120VAC, 220/240VAC, 48VDC, 110VDC, 125VDC or 250VDC

5. Operating Mechanism

Solenoid only

6. Cable Length

Solenoid: 17' 6" or 26'

7. Mounting Stand

Substation Frame — Height: 8 ft.; Material: Galvanized Steel

8. Options & Accessories

- Capacitor Controls: Fisher Pierce® 4400, 4500, AC100 AutoCap® Control
- Zero Voltage Closing (ZVC) Control
- Current Limiting Reactors

Example:

1. Capacitor Switching — Ungrounded
2. 169kV VBU Switch
3. 600A Continuous
4. 120VAC Control Voltage
5. Solenoid-Operated Mechanism
6. 17' 6" Cable
7. 8-ft. Galvanized Steel Substation Frame
8. Zero Voltage Closing Control, Fisher Pierce® Series 4400 AutoCap® Capacitor Control

Note: *For standard control configurations and faster delivery, call Customer Service.*

For more information on capacitor controls, see ***pages H-272–H-292.***

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Zero Voltage Closing Control

Eliminates overvoltage disturbances.

Joslyn Hi-Voltage® Zero Voltage Closing (ZVC) Control



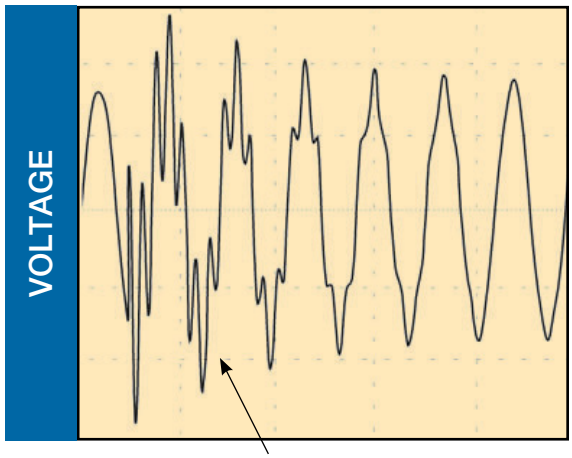
- Works with new or existing capacitor controllers and Joslyn Hi-Voltage® VerSaVac® Capacitor Switches, Varmaster VBM Switches and VBU Capacitor Switches
- Mitigates system overvoltage disturbances and eliminates electronic adjustable-speed drive nuisance tripping
- Eliminates high inrush currents, increasing capacitor and related high-voltage equipment life
- Installations worldwide — more than 15 years successful field experience
- Available for 15kV to 230kV voltages
- Supports a variety of systems and applications; available for pole-top distribution capacitor banks
- Easy installation and setup: Simply select phase rotation, reference phase, voltage sensing and bank configuration (grounded or ungrounded)

The Joslyn Hi-Voltage® Zero Voltage Closing (ZVC) Control is a cutting-edge microprocessor-based capacitor control. When an external close command is received, the ZVC virtually eliminates capacitor energization transients by closing three switch poles independently, synchronized with the occurrence of zero voltage in each phase. The closing sequence of the poles minimizes the time from the first pole closure to the last pole closure.

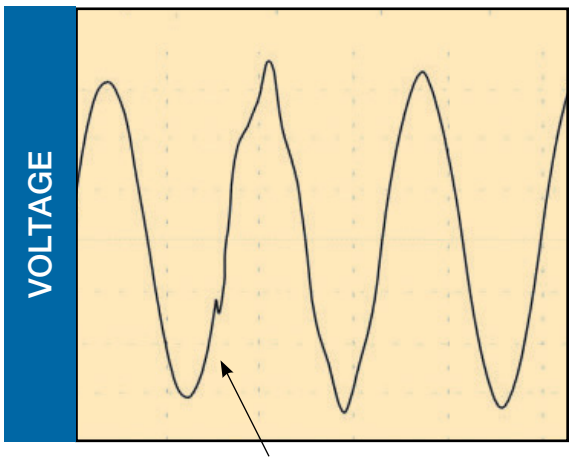
A selected reference phase of the system voltage is used for determining the zero voltage crossing information, and an internal calibration process is used for determining accurate closing time requirements. With this information, the microprocessor sets the individual close command delays required to ensure pole closures at points corresponding to the system zero voltage crossing.

The expected benefits include:

- Increased power quality by utilizing capacitor switching, significantly reducing voltage spikes that are a nuisance to sensitive equipment like computers and adjustable-speed drives
- Increased capacitor and switch life
- A reduction of induced voltages into the low-voltage control wiring
- A reduction of station ground transients and distribution ground transients



Standard Control



With ZVC Control

** Only one phase shown for clarity.*

Zero Voltage Closing Control

The ZVC is designed to automatically close Joslyn Hi-Voltage® VerSaVac® Capacitor Switches, Varmaster VBM Switches and VBU Capacitor Switches at strategic points that correspond to the zero voltage crossing and the bank's configuration. For a grounded bank configuration, the capacitor phases energize .3 milliseconds after each respective phase zero voltage crossing point. For an ungrounded capacitor bank configuration, the ZVC initiates the first pole to close .3 milliseconds after the zero voltage crossing reference point. The second pole automatically closes .3 milliseconds after the voltage difference between the first and second phases is zero (which occurs 30 electrical degrees after the first pole's zero voltage crossing point). The third pole is closed at .3 milliseconds after the zero voltage crossing reference point associated with that phase. The microprocessor control circuitry is intentionally designed to energize at these timing points to allow for any switch variations to have minimal effect on the intended transient reduction results.

A timing accuracy of ±.89 milliseconds, with respect to the zero voltage crossing target point, should be maintained after initial set-up of the ZVC. With this level of accuracy and control, overvoltages can be reduced from a theoretical maximum of 2 per-unit voltage to .1 per-unit voltage. Also, overcurrents can be reduced to less than .2 per-unit current of the maximum theoretical inrush currents that ranged from 40 to 100 per-unit current for back-to-back capacitor bank switching and 5 to 20 per-unit current for single-bank switching.

The ZVC Control works with any manufacturer's new or existing capacitor controllers and offers:

- Zero voltage closing
- Low close energy
- Automatic calibration
- Calibration data storage (non-volatile memory)
- Voltage zero synchronization
- Improper sequence trip monitoring
- Flashing self-check LED
- Error-indication LED
- Error-reset push buttons

Provided Standard Features

- Automatic improper sequence trip
- Extra switch auxiliary contacts (4-A and 4-B)
- Control alarm output contact (form C)
- Control cabinet heater
- Calibration cable (either 18.5- or 27-ft. length)

Additional Available Options

- Two-pole control for ungrounded capacitor bank applications
- Capacitor-operated low-energy trip
- Undervoltage trip
- Aluminum cabinet
- Bypass ZVC mode switch — enables emergency close operations without using the ZVC control logic

Specifications

- **Timing Accuracy:** ±.89ms @ 3 sigma with respect to designated zero voltage crossing target point
- **Close Response Time:** 5–7 cycles after receiving external close command
- **Open Response Time:** 3–5 cycles after receiving external open command
- **Temperature Range:** -22 to +158° F (-30 to +70° C)*
- **Control Voltage:** 120VAC nominal, ±10%

* Control is designed for operation through this range; however, timing variances greater than .89ms could be encountered at temperatures colder than -4° F (-18° C) and warmer than 140° F (60° C). These variances are expected to remain within 1ms of the zero voltage crossing reference point.

Specifications can change without notice.

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Zero Voltage Closing Control

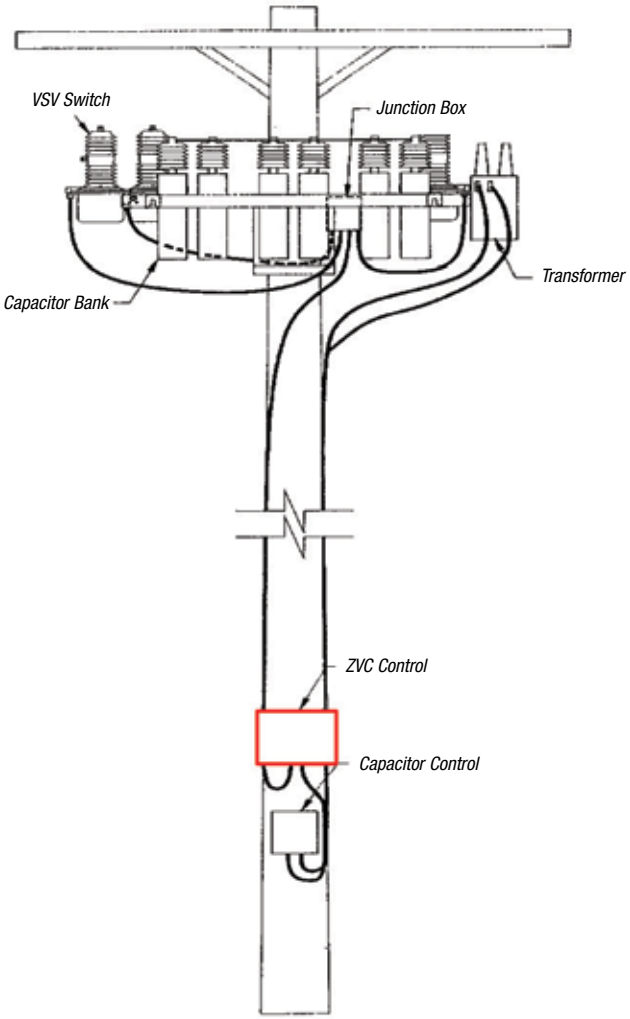
ZVC Control and VerSaVac® switches

A typical layout of system and control using both the ZVC and a VerSaVac® switch is shown below. As a customer-ordered option, the ZVC Control can be mounted directly on the capacitor rack assembly. This application will eliminate the need for the junction box assembly.

For greater control, opt for the Joslyn Hi-Voltage® ZVC Control System with VerSaVac switches. It consists of the following components:

- ZVC Control
- Three VerSaVac switches
- Junction box assembly that includes three separate VerSaVac cables and one main control cable

General Equipment Layout

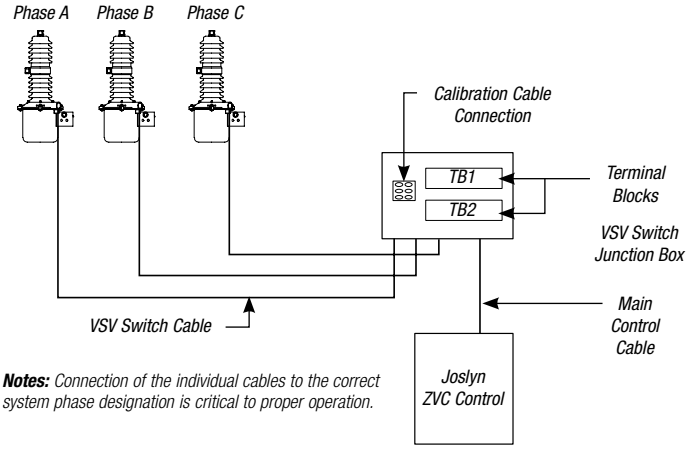


Zero Voltage Closing Control

ZVC Control and the junction box assembly

Additional details on the junction box assembly are shown in the diagram below. The individual switches are connected to the junction box using cables with threaded pin connectors. Also, a keyed pin connector is provided for an easy and secure connection of the main control cable to the ZVC Control. The main control cable runs from the junction box to the control. All necessary connections into the junction box for the individual VerSaVac switch cables and the main control cable are made at the factory.

Junction Box Assembly



Notes: *Connection of the individual cables to the correct system phase designation is critical to proper operation.*

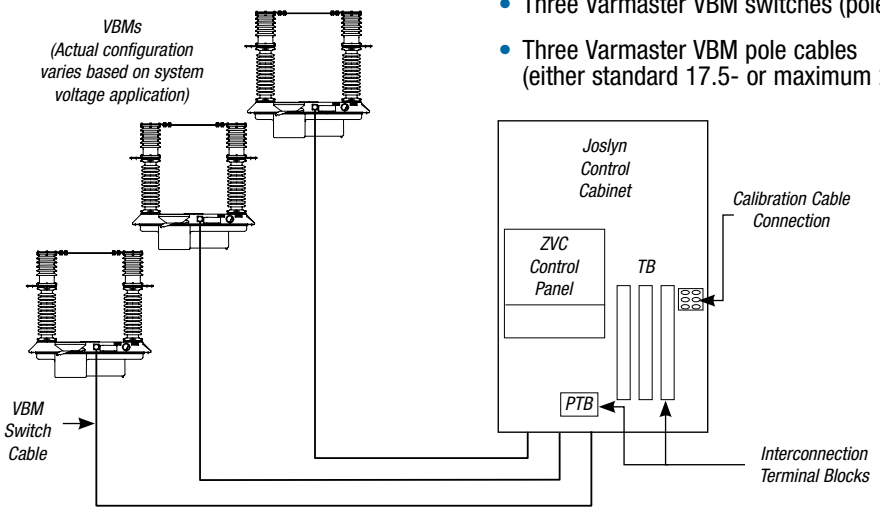
ZVC Control and Varmaster VBM switches

A typical layout of system and control using both the ZVC and Varmaster VBM switches is shown below.
The individual poles are connected to the ZVC Control using cables with keyed pin connectors on the switch end.

For greater control, opt for the Joslyn Hi-Voltage® ZVC Control System with Varmaster VBM switches.
It consists of the following components:

- ZVC Control cabinet
- Three Varmaster VBM switches (poles)
- Three Varmaster VBM pole cables (either standard 17.5- or maximum 26-ft. lengths)

General System Layout



Notes: *The cables can be shortened as required in the field, but it is recommended that all three cables be the same length. Connection of the individual cables to the correct system phase designation is critical to proper operation.*

For ordering information for ZVC Control, see ***pages H-174*** *and* ***H-180****.*

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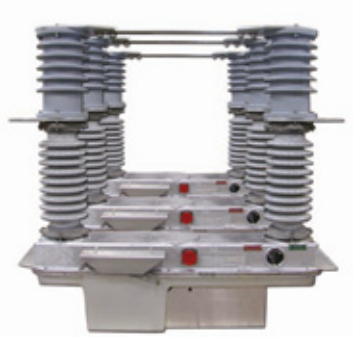
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Transmaster® VBT Electric Furnace Switches

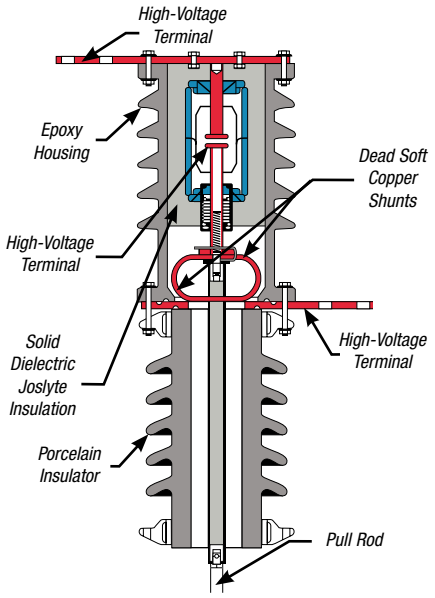
Longest life product for electric furnaces!

Joslyn Hi-Voltage® Transmaster® Electric Furnace Switch

- Long, maintenance-free life under demanding conditions, designed for 100,000 operations
- No oil or gas used for interruption or insulation
- Safe — no visible or hazardous arcing and no hot exhaust or ionized gas dissemination
- Vacuum interrupter condition can be determined by a high-potential withstand test quickly
- Lightweight modular design — no special foundations or costly support required
- Removable fuses provide protection
- Vacuum contacts withstand excessive overloads and system short circuits at any power factor
- Eight heavy-duty auxiliary contacts are provided for remote indications, control and interlocking of other furnace functions or equipment
- Capacitor discharge circuit trips switch open upon loss of control voltage
- Circuit trips switch open if one mechanism does not close within the specified time



38kV 600-Amp Transmaster® Switch



The operation of electric furnaces requires large amounts of power to be under constant control. The Transmaster® switch is rugged and can withstand this kind of duty. Joslyn Hi-Voltage® VBT and VBU-T switches operate uniformly on all power factors and are available for system voltages from 15kV up to 230kV.

If the primary circuit breaker is used as a switching device for control of transformer magnetizing, load and secondary fault currents, this will result in the circuit breaker being opened and closed more than 100 times per day.

This wear and tear causes even the most durable breakers to require frequent maintenance, which is costly.

Joslyn Hi-Voltage® engineers worked closely with electric furnace manufacturers to develop the Transmaster® Electric Furnace Switch, a heavy-duty vacuum switch designed to deliver maintenance-free switching of electric furnaces.

Since 1962, over 3500 field installations worldwide have proven the capability and reliability of the Transmaster® Electric Furnace Switch.

Ideal Furnace System

Fault Protection	Visible Isolation	Primary Interrupter	Loss of Vacuum Detector	Overvoltage Protection	Furnace Transformer
Circuit Breaker	Motorized Air Switch Equipped with Vac-Rupter Interrupter Motor Operator Remote Position Indicator **pages H-220–H-223**	Transmaster® VBT or VBU-T with Independent Pole, Point on Wave, Synchronous Closing Control	Vacstat® or Power Circuit Monitor Vacstat PCM **page H-186**	Station Class Arresters RC Network	

Options

Extra auxiliary contacts, stainless steel enclosure, local/remote switch, heater, pushbuttons, Point On Wave Control

Transmaster® VBT Electric Furnace Switches

Monitor alerts you immediately of loss of vacuum when you use the Transmaster® VBT Switch with Vacstat® Vacuum Interrupter Monitor!

- Continuously monitors vacuum interrupter status while the switch is energized and in service
- Reduces operating and maintenance costs by eliminating the need for routine off-line vacuum interrupter inspections
- Blocks switch operation if vacuum loss is detected, protecting your equipment and personnel from potential harm
- Provides local and remote indication of vacuum interrupter status, enabling operating and maintenance personnel to take corrective action immediately in the event of loss of vacuum
- SCADA notification available

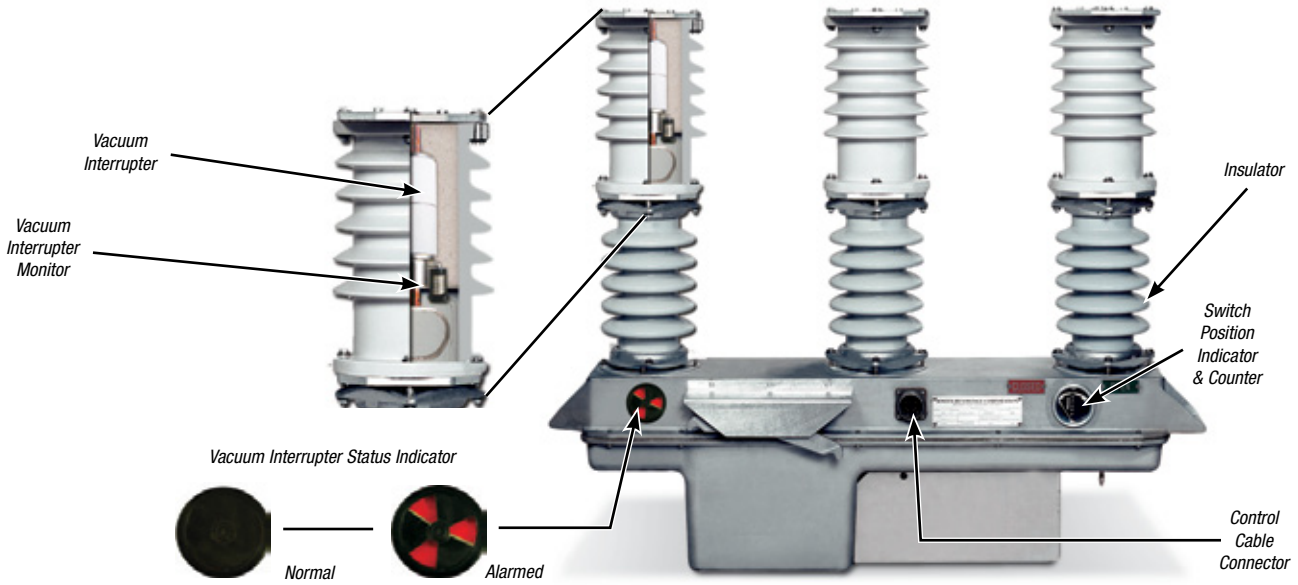
The Joslyn Hi-Voltage® Vacstat® Vacuum Interrupter Monitor provides you with real-time status monitoring of your vacuum interrupters. This simple device notifies you immediately of a loss of vacuum through a visual indicator located on the Transmaster® VBT Switch and via a contact in the switch control. Once the Vacstat® Vacuum Interrupter Monitor senses a loss of vacuum, all switch operations will be blocked until the switch has been serviced.

How the Vacstat® Vacuum Interrupter Monitor works.

The Vacstat® sensor is attached to the vacuum interrupter of a Transmaster® VBT Switch during the manufacturing process. The sensor then continuously monitors the interrupter for the presence of vacuum.

Once the capacitor switch is installed, the sensor generates an optical signal that travels via a pair of fiber optic cables to a control board in the low-voltage section of the switch. As long as vacuum exists, the fiber optic signal has a continuous path, and the Vacstat® indicator remains in the normal (unalarmed) state.

If a loss of vacuum occurs, the sensor blocks the optical signal to the control board, and the Vacstat® status indicator automatically turns to red to alert the operator to the problem. In addition, the remote status dry contact provides a means to send an alarm signal to a remote location. The Vacstat® monitor also blocks further electrical operation of the switch to prevent possible damage to equipment or injury to personnel.



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Transmaster® VBT Electric Furnace Switches

VBT Ratings

VBT 15kV–69kV Maximum Voltage

DESCRIPTION	15.5kV						38kV					
Continuous Current (Amps)	600	1000	1500	2000	3000	4000	600	1000	1500	2000	2500	3000
Momentary Current (RMS Amps, Asymmetrical) (kA)	20	35	50	65	65	65	20	35	50	65	65	65
Impulse Withstand Open-Gap (kV BIL)	110	110	110	110	110	110	200	200	200	200	200	200
Impulse Withstand Line-to-Ground (kV BIL)	150	150	150	150	150	150	200	200	200	200	200	200
Maximum 60 Cycle Withstand Line-to-Ground Dry (One Minute) (kV)	112	112	112	112	112	112	112	112	112	112	112	112
Maximum 60 Cycle Withstand Line-to-Ground Wet (Ten Seconds) (kV)	55	55	55	55	55	55	55	55	55	55	55	55
Fault Interrupting Rating (Amps, Symmetric) (kA)	4	4	4	4	4	4	4	4	4	4	4	4

DESCRIPTION	48kV						69kV	
Continuous Current (Amps)	600	1000	1500	2000	2500	3000	300	400
Momentary Current (RMS Amps, Asymmetrical) (kA)	20	35	50	65	65	65	15	15
Impulse Withstand Open-Gap (kV BIL)	220	220	220	220	220	220	280	280
Impulse Withstand Line-to-Ground (kV BIL)	250	250	250	250	250	250	350	350
Maximum 60 Cycle Withstand Line-to-Ground Dry (One Minute) (kV)	112	112	112	112	112	112	245	245
Maximum 60 Cycle Withstand Line-to-Ground Wet (Ten Seconds) (kV)	55	55	55	55	55	55	198	198
Fault Interrupting Rating (Amps, Symmetric) (kA)	4	4	4	4	4	4	4	4

VBU-T Ratings



VBU-T Transmaster® Module Cutaway



VBU-T Transmaster® Switch Installation 69kV 600 Amp

VBU-T 72kV–242kV Maximum Voltage

DESCRIPTION	72kV			121kV			145kV	161kV	242kV
Continuous Current (Amps)	600	1000	1500	600	1000	1500	600	600	600
Momentary Current (RMS Amps, Asymmetrical) (kA)	40	50	50	40	50	50	40	40	40
Impulse Withstand Open-Gap (kV BIL)	400	400	400	550	550	550	650	750	950
Impulse Withstand Line-to-Ground (kV BIL)	350	350	350	550	550	550	750	750	900
Maximum 60 Cycle Withstand Line-to-Ground Dry (One Minute) kV	175	175	175	293	293	293	350	365	425
Maximum 60 Cycle Withstand Line-to-Ground Wet (Ten Seconds) (kV)	175	175	175	281	281	281	350	315	350
Fault Interrupting Rating (Amps, Symmetric) (kA)	4	4	4	4	4	4	4	4	4

Transmaster® VBT Electric Furnace Switches

Point on Wave Control

The purpose of the independent pole, point on wave, synchronous close system is to reduce transformer energization transients by being able to close each pole at the natural current zero point. The expected benefits include significantly reduced inrush currents, reduced electromechanical stress on transformer bushings and windings and reduced stress on all equipment associated with the closing circuit of the transformer.

Application

When an electric furnace switch is called on to close, a "random closing" occurs, which can energize the transformer at any point on the voltage waveform. This produces high-magnitude transient inrush currents rated 1000% of full load current. The Point on Wave Control is designed to energize the transformer at the optimal point on the voltage waveform which provides these benefits:

- **Longer Equipment Life**
  Reduces mechanical forces on the transformer bushings and windings, resulting in lower total ownership cost
- **Increased Safety**
  Less electrical stress on transformer interwinding insulation
- **Reduced Maintenance Costs**
  Minimal wear on components decreases maintenance requirements
- **Increased Reliability**
  Reduces stress on all other components of the furnace

Note: To order Joslyn Hi-Voltage® Transmaster® VBT and VBU-T Switching Systems, contact your Thomas & Betts representative.



Point on Wave Control

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JOSLYN HI-VOLTAGE®

Joslyn Hi-Voltage® Overhead Reclosers & Switches



In this section...

Joslyn Hi-Voltage®
Overhead Reclosers & Switches

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Disconnect Switches H-211–H-219
Load Interrupter Attachments H-220–H-234

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TriMod™ Reclosers

Improve your system reliability by using Joslyn Hi-Voltage® reclosers.

- Vacuum interrupter technology provides twice the contact life required by ANSI C37.60 plus maintenance-free operation
- Solid dielectric Joslyte provides superior insulation and environmentally friendly technology — no oil, no gas, no hassle
- Magnetic actuator mechanisms offer 10,000 trip and close full-load operations with no maintenance required
- Variety of microprocessor relay controls are compatible with Schweitzer's SEL351R and SEL651R recloser controls
- PowerMAX 100 and 130 batteryless control option for single-phase reclosers
- Supports single-phase tripping, single-phase lockout; single-phase tripping, three-phase lockout; and three-phase tripping, three-phase lockout
- Mounting options include wood pole, cross arms and cluster frame mounting
- Lightweight control can be mounted directly to recloser or remotely for single-phase models
- Moisture-control bladder system means no internal heater required, no need to energize heaters during long storage periods and no maintenance worries
- Externally mounted current transformers on grounded plane with covers for enhanced safety and easy replacement in the field

To improve system reliability, many utilities are moving toward system configurations such as:

- Open-tie reclosers
- Midpoint reclosers
- Single-phase reclosing
- Feeder loop restoration

These configurations, when combined with remote communication capability, can substantially improve reliability indices and subsequently enhance customer service.

Utility companies' performance is measured by reliability indices.

These indices will measure duration and frequency of interruption for distribution systems and will help assess penalty and/or performance-based rates at the utilities:

- System Average Interruption Frequency Index (SAIFI)
- System Average Interruption Duration Index (SAIDI)
- Momentary Average Interruption Frequency Index (MAIFI)

Joslyn TriMod™ automated reclosers feature capabilities well suited for specialty applications that help utilities reduce outages and improve service reliability.

Available in both single- and three-phase models, TriMod™ reclosers offer advanced capabilities such as:

- Fault location
- Adaptive protection
- Power quality
- Control monitoring
- SCADA communications
- Single- and three-phase tripping
- Loop automation

On the following page are illustrations of typical system reliability improvement applications using TriMod™ reclosers.

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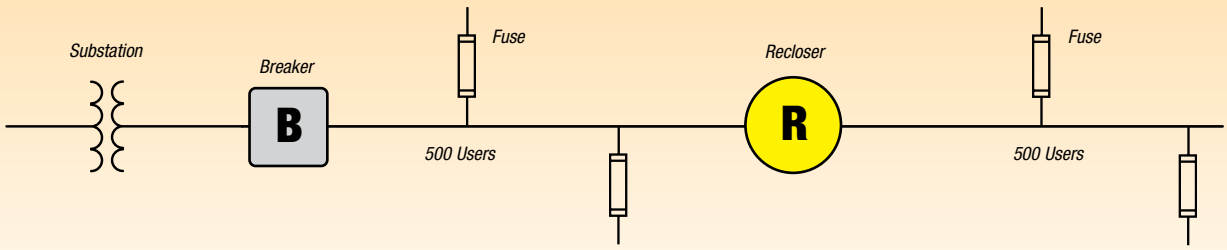
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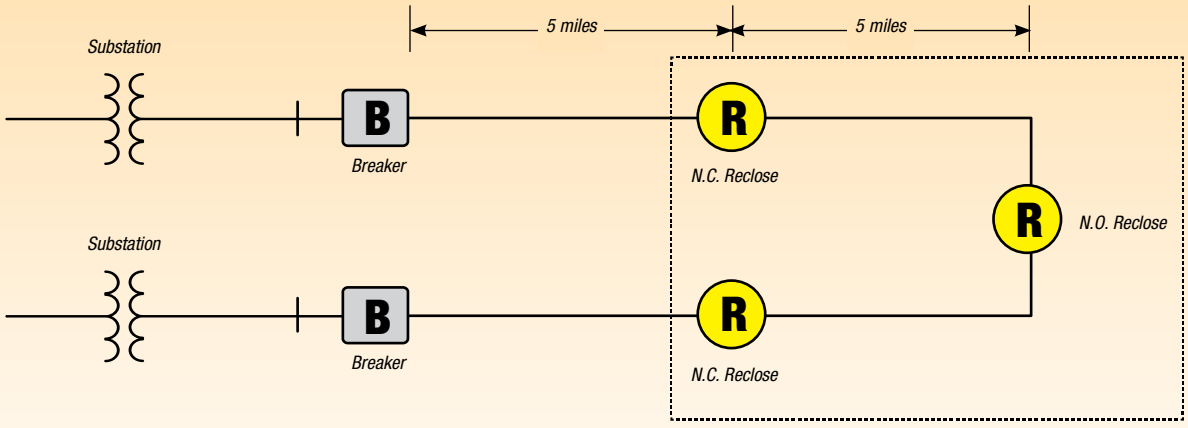
TriMod™ Reclosers

Feeder with Midpoint Recloser



Without Midpoint Recloser	With Midpoint Recloser		With Midpoint Recloser and Single-Phase Tripping	
SAIFI = 2 int/yr	SAIFI = 1.5 int/yr	(25% reduction)	SAIFI = 1.3 int/yr	(35% reduction)
SAIDI = 3 hr/yr	SAIDI = 2 hr/yr	(33% reduction)	SAIDI = 1.8 hr/yr	(40% reduction)
MAIFI = 7 mom/yr	MAIFI = 5.5 mom/yr	(21% reduction)	MAIFI = 4.5 mom/yr	(36% reduction)

Loop Configuration



Loop without Reclosers		Loop with Reclosers and Single-Phase Tripping	
SAIFI = 1.4 int/yr	(30% reduction versus Feeder configuration)	SAIFI = 1.12 int/yr	(44% reduction versus Feeder configuration)
SAIDI = 1.8 hr/yr	(40% reduction versus Feeder configuration)	SAIDI = 1.5 hr/yr	(50% reduction versus Feeder configuration)
MAIFI = 5.1 mom/yr	(27% reduction versus Feeder configuration)	MAIFI = 2.3 mom/yr	(67% reduction versus Feeder configuration)

Utilities can reduce outages an average of 45% with the use of reclosers.

Compact and easily installed, TriMod™ reclosers can be applied in substations as well as on riser poles. They feature advanced, microprocessor-based relay control for easy coordination with upstream and downstream devices such as:

- Substation circuit breakers
- Sectionalizers
- Line fuses (for fuse savings or fuse clearing schemes)
- Existing reclosers

TriMod™ Reclosers

Raising the standard of recloser performance and reliability.

Joslyn Hi-Voltage® TriMod™ 100 Series Single-Phase Vacuum Recloser

- Vacuum interrupter technology provides twice the duty-cycle interruption life and uses no oil or gas for interruption
- Joslyte solid dielectric insulating system provides maintenance-free, environmentally safe operation, with no need to monitor or maintain gas pressure or oil levels
- Magnetic actuator system yields a minimum of 10,000 operations with no maintenance required
- PowerMAX 100 microprocessor-based control offers reliable accuracy regardless of time and temperature — plus it offers features traditionally only available with three-phase recloser controls
- Mounts to a wood pole, cross arms or cluster mounting frame — with control mounted directly to TriMod™ recloser or remotely
- Manual operating handles on recloser for mechanical opening and lockout and disabling automatic reclosing
- Large color-coded reflective open and closed position indicators located on bottom of recloser for easy visibility from ground level
- Durable module materials: upper housing — cycloaliphatic epoxy, lower housing — aluminum casting
- Externally mounted current transformers on grounded plane with covers for enhanced safety and easy replacement in the field



TriMod™ 100 Series Vacuum-Interrupting, Single-Phase, Microprocessor-Controlled Automatic Circuit Recloser

The Joslyn Hi-Voltage® TriMod™ 100 Series Single-Phase Vacuum Recloser raises the standard of recloser performance by incorporating state-of-the-art vacuum interrupter technology with Joslyn's field-proven Joslyte solid dielectric insulating system and a long-life operating mechanism and magnetic actuator system. Unique, field-proven features make the TriMod™ 100 Series Recloser the long-life, easy-to-use solution for utility recloser needs.

The TriMod™ 100 Recloser contains no oil or gas for interruption or insulation. The 40-year field-proven Joslyte solid dielectric insulation system provides dielectric strength around the vacuum interrupter without the danger of leaks or environmental hazards.

Traditional single-phase reclosers with hydraulic controls have difficulty maintaining accuracy over time, particularly through temperature variations. This can affect coordination and limit protection flexibility. Conversely, the TriMod™ 100 Series Recloser features microprocessor-based PowerMAX control. Its accuracy does not change over time or with temperature variations, thus enabling better and more reliable protection coordination.

For user convenience, manual operating handles are located on the recloser. The yellow handle permits mechanical opening and mechanically actuated, electrical closing of the recloser. The non-reclosing lever provides the capability of blocking reclosing after the first trip operation regardless of the number of recloses pre-programmed in the control.

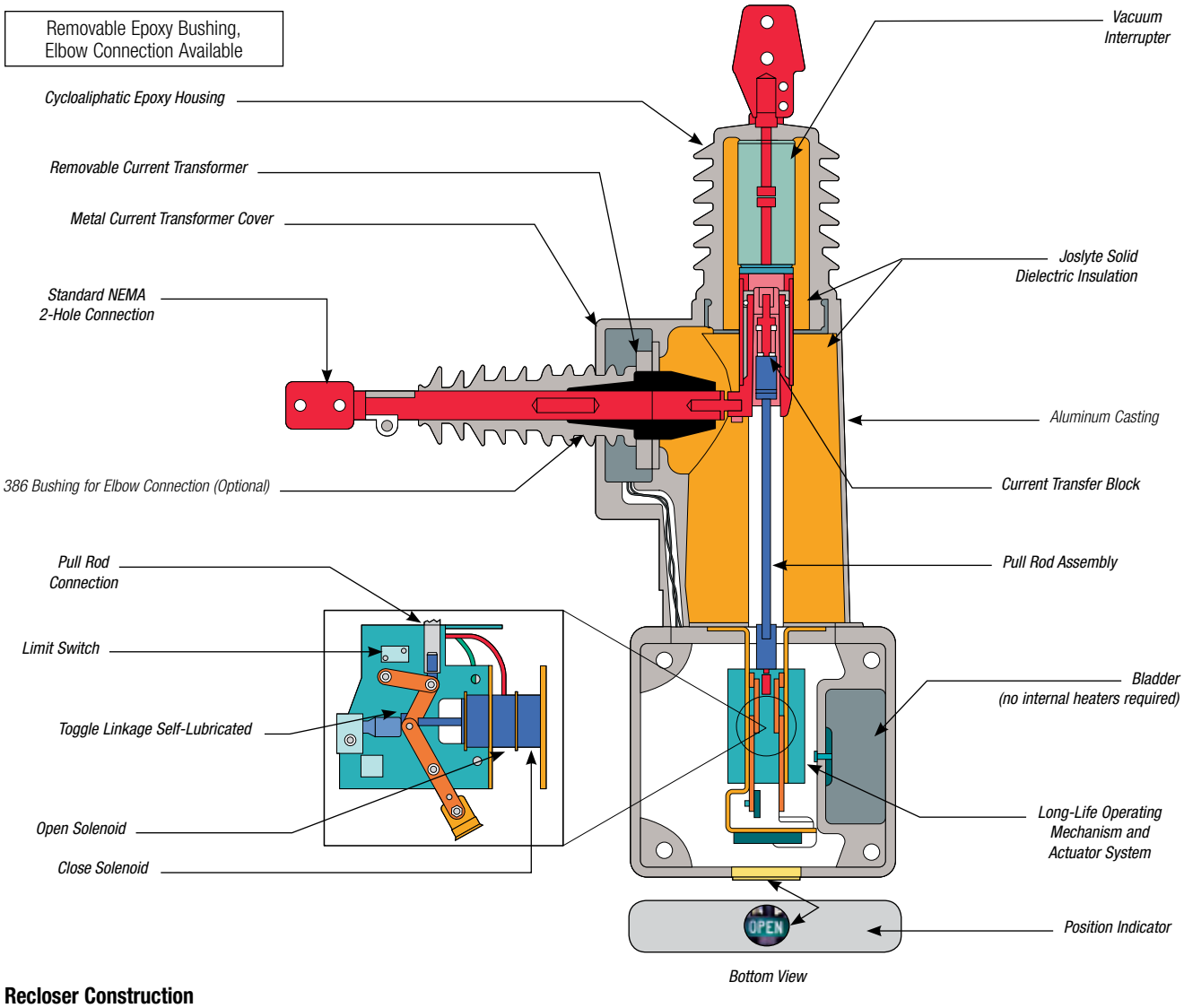
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TriMod™ Reclosers



Bottom View

Recloser Construction

The Joslyn Hi-Voltage® TriMod™ 100 Series Single-Phase Vacuum Recloser is manufactured for a range of distribution voltages with continuous current capabilities up to 800A. It is operated electrically by energizing a magnetic actuator system.

Each pole has a vacuum interrupter sealed in Joslyte solid dielectric insulation, which provides mechanical strength, high dielectric strength and complete moisture sealing. The pole is constructed of an epoxy main bushing and aluminum casting. The side terminal may be a permanently fixed epoxy bushing or a removable polymer bushing that enables an elbow connection to a 386 bushing assembly.

The operating mechanism is located in a completely sealed housing. An expansion bladder in the mechanism housing prevents breathing in of outside contaminants and/or moisture. Based on this design, external power is NOT supplied or required by the recloser.

The "open-close" position indicator connects directly to the operating mechanism linkage. An external manual trip assembly, located on the front of the recloser, is provided for manual tripping of the recloser by pulling down on the yellow trip lever. The manual trip lever, in the down position, will maintain the recloser in a lockout position until it is manually restored to the normal position. The trip lever does not move during the electrical operation.

All electrical control connections to the mechanism are made through a sealed single environment control cable connector located on the side of the recloser.

Joslyn Hi-Voltage® PowerMAX 100 Control Unit and ControlMAX Interface Software

The PowerMAX 100 Control Unit provides unprecedented application flexibility and data recording capabilities. All protection settings are changeable from the integrated keypad, without the need to change or stock any components. Remote monitoring and operation is available via dry contacts or the RS-232 communications port.

Enhanced Features

The PowerMAX 100 control unit offers features traditionally only available with three-phase recloser controls. The microprocessor-based control uses only a small lithium clock battery to maintain accurate time and date event stamping. The unit's enhanced accuracy and reliability means that its timing remains constant and is not affected by temperature.

No other batteries are used in the operation of the control, thus eliminating costly battery maintenance normally associated with electronic controls. All settings and stored information are retained without the use of batteries — even in the absence of line voltage.

The PowerMAX 100 control unit is incredibly versatile. It can be mounted directly to the TriMod™ 100 Series Recloser or conveniently placed at a remote location. What's more, connecting the control unit to other PowerMAX 100 controllers provides single-phase tripping and three-phase lockout.

Programmable Settings

Programming of the PowerMAX 100 control unit is easily accomplished with the self-explanatory keypad. No DIP switches or additional components are required to make any setting changes. All settings are changeable from the keypad, and no computer is required. Changes to the settings and retrieval of stored information can be accomplished with a computer using the ControlMAX interface software.

Time-Current Curves

All traditional single-phase recloser curves plus ANSI inverse curves are user-programmable without the need to change any components. Select from A, B, C, D, E, F, N, R, EF, KF and TF (with modifier curves).

Voltage Protection

The PowerMAX 100 control unit has the ability to be programmed to trip on overvoltage or undervoltage conditions.

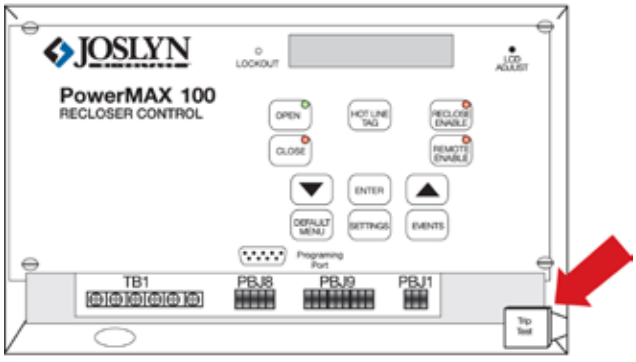
Single-Phase Trip, Three-Phase Lockout

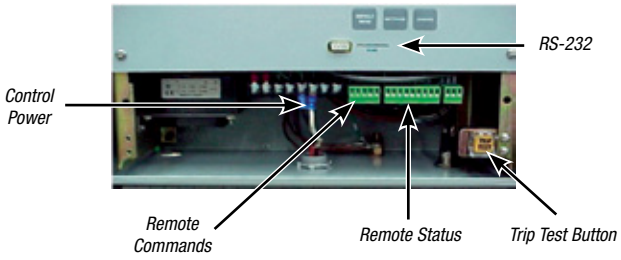
The PowerMAX 100 control unit may be connected to other PowerMAX controls to provide single-phase tripping and three-phase lockout.



Trip Test Button

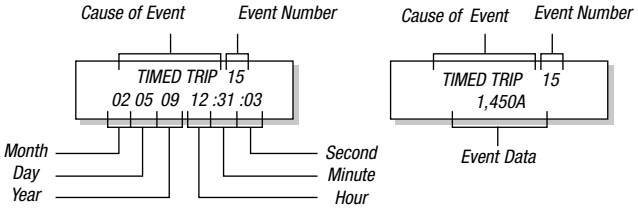
The trip test button is a convenient option to verify recloser trip sequence. It enables simulation of a 1,000A fault.





Event Recording

The event recorder stores the 20 most recent events, enabling fast troubleshooting of problematic feeders. Each time- and date-stamped event includes the cause of the event and any data associated with it. The events can be retrieved locally using the keypad and display or remotely via the RS-232 port.



SCADA Ready

The PowerMAX 100 control unit has an isolated RS-232 port that can be configured for communications and uses the MODBUS communications protocol.

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TriMod™ Reclosers

Lockout Indicator

The control indicates lockout by illuminating the lockout LED on the front panel as well as a high-powered LED on the bottom of the control enclosure. This enables quick and accurate determination from ground level as to which TriMod™ 100 Series Recloser has operated to lockout.



Lockout Indicator

Low-Voltage Testing Capability

The PowerMAX 100 control unit is powered from 120 or 240VAC. This, along with the fact that the TriMod™ 100 Series Recloser does not use a high-voltage closing solenoid, enables safe and convenient testing of the recloser system. In addition, the operations counter and duty monitor are stored in each recloser, eliminating the need for manual recording of recloser operational data. The PowerMAX 100 control unit reads this information and displays it on the LCD.

ControlMAX Interface Software

The ControlMAX interface software can be accessed via a computer connection to view and/or modify settings. The software auto-links with the PowerMAX 100 control unit with a straight communication cable connection and enables the user to program the unit or change its settings in the shop or in the field.



Main Menu



Setpoint Menu

Mounting Options

The PowerMAX 100 control unit can come mounted directly to the TriMod™ 100 Series Recloser, or it can be remotely mounted with a Remote Mounting Package. The package includes a pole-mounting bracket-on control enclosure and a 35-ft. control cable with environmental connectors on both ends.

A PowerMAX 100 mounting bracket is available to install three individual controls at the bottom of a pole on the same bracket.

Joslyn Hi-Voltage® PowerMAX 130 Control Option

Integrates three PowerMAX 100 control units in one enclosure!

- Faster installation
- Wired for single-phase trip and three-phase lockout
- Less pole clutter
- More convenient field access
- Battery-backup option available

Package Includes:

(1) PowerMAX 130 Control

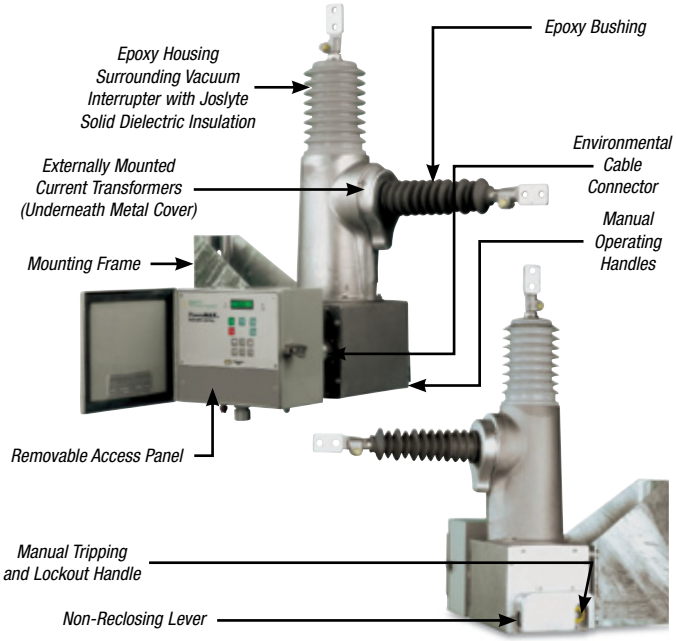
(3) TriMod™ 100 Single-Phase Reclosers

(3) Control Cables



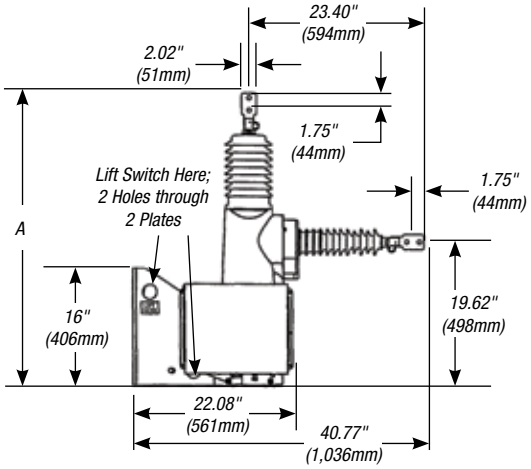
Direct Control Mounting

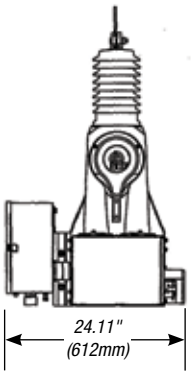
(Remote Control Mounting Optional)

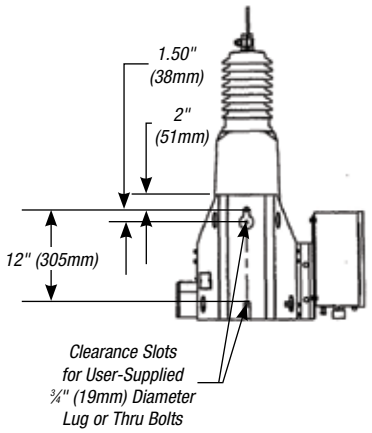


TriMod™ Reclosers

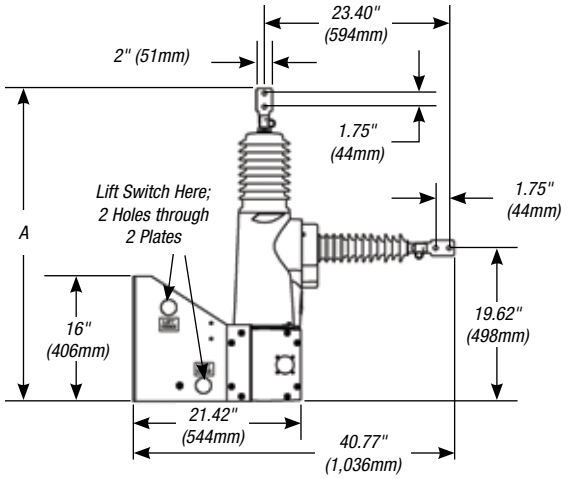
Dimensions and Creepage Distances for TriMod™ 100 Series Reclosers with Direct-Control Mounting of PowerMAX 100 Control Unit

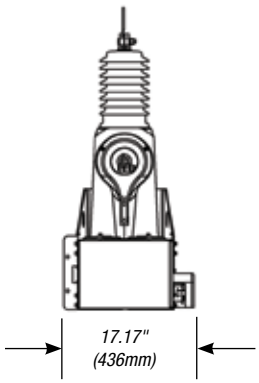


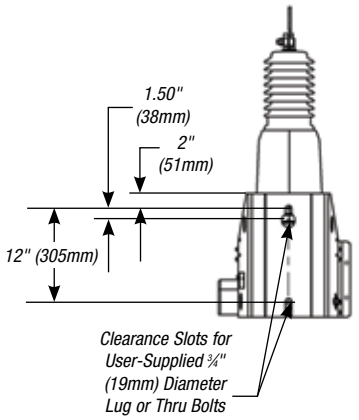




Dimensions and Creepage Distances for TriMod™ 100 Series Reclosers with Remote-Control Mounting of PowerMAX 100 Control Unit







Creepage Distances

DESCRIPTION	15kV, 110kV BIL IN. (MM)	27kV, 125kV BIL IN. (MM)
Top Terminal	15.83 (402)	20.36 (517)
Side Terminal	17.75 (451)	21.35 (542)

Dimensions — Direct-Control Mounting

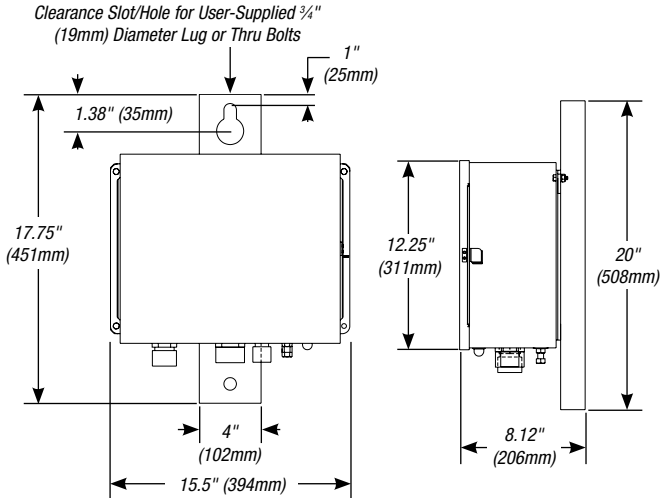
SYSTEM kV	HEIGHT (A) IN. (MM)	WEIGHT LB. (KG)
15kV, 110kV BIL	37.92 (963)	137 (62)
27kV, 125kV BIL	40.07 (1,018)	144 (65)

Dimensions — Remote-Control Mounting

SYSTEM kV	HEIGHT (A) IN. (MM)	WEIGHT LB. (KG)
15kV, 110kV BIL	37.92 (963)	97 (44)
27kV, 125kV BIL	40.07 (1,018)	109 (49)

Note: *Maximum cantilever terminal pad load of 60 lb. (27kg) per pad. Horizontal cable tensions to be opposite in direction.*

Remote-Mounted Control Cabinet



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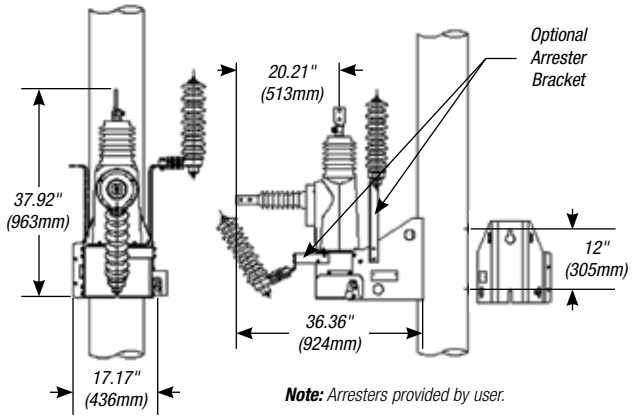
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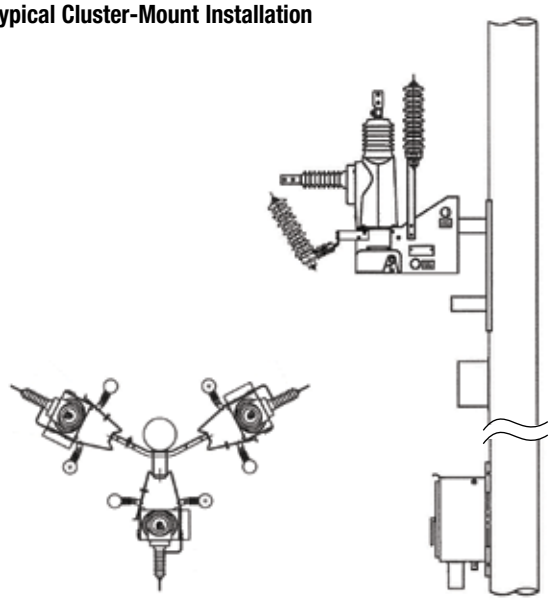
TriMod™ Reclosers

Typical Pole-Mounting Installation



Note: *Arresters provided by user.*

Typical Cluster-Mount Installation



Ratings

DESCRIPTION	15kV	27kV
Nominal System Voltage (kV, RMS)	14.4	25
Rated Maximum Voltage (kV, RMS)	17.1	27
Nominal Frequency (Hz)	50 or 60	50 or 60
Number of Phases	1	1
BIL (kV)	110	125
Power Frequency Withstand — Dry (kV)	50	60
Power Frequency Withstand — Wet (kV)	45	50
Continuous Current (A RMS)	630/800	630/800
8-Hour Overload Current (A RMS)	800	800
CT Ratio	600:1 (800:1)*	600:1 (800:1)*
Interrupting Current (kA RMS Symmetrical)	10/12.5	10/12.5
Making Current (kA Asymmetrical Peak)	33	33
Arc Extinction Medium	Vacuum	Vacuum
Insulating Medium	Solid High-Dielectric Insulation	Solid High-Dielectric Insulation
Mechanical Operations	10,000	10,000

** Other CT ratios are available upon request.*

Each TriMod™ 100 Recloser includes:

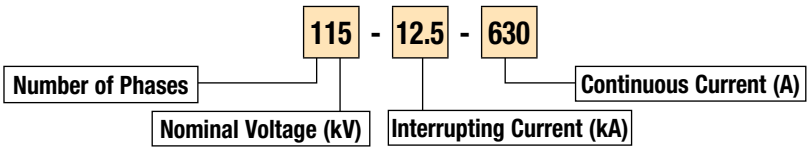
- PowerMAX microprocessor-based recloser control unit mounted to the TriMod™ recloser (remote mounting of the control is optional)
- Mounting frame that can mount the TriMod™ recloser to a wood pole, cross arms or a standard transformer cluster mounting bracket

Options

- Remote mounting control package including pole-mounting bracket for the control and shielded control cable with connectors on both ends (specify length up to 45 feet)
- Arrester mounting provision

Example:

- TriMod™ 115-12.5-630 Vacuum Recloser
- Remote Mounting Control Package with 35-foot control cable
- Arrester mounting provision



Joslyn Hi-Voltage® TriMod™ 100 Series Single-Phase Vacuum Reclosers

CAT. NO.	VOLTAGE RANGE (kV)	CONTINUOUS CURRENT (AMPS)	INTERRUPTING CURRENT (kA RMS SYMMETRICAL)	BIL (kV)	HEIGHT IN. (MM)	WEIGHT LB. (KG)	
						DIRECT	REMOTE
115-10-630	4–17.1	630	10	110	37.92 (963)	137 (62)	97 (44)
115-12.5-630	4–17.1	630	12.5	110	37.92 (963)	137 (62)	97 (44)
115-12.5-800	4–17.1	800	12.5	110	37.92 (963)	137 (62)	97 (44)
127-10-630	17–27	630	10	125	40.07 (1,018)	144 (65)	109 (49)
127-12.5-630	17–27	630	12.5	125	40.07 (1,018)	144 (65)	109 (49)
127-12.5-800	17–27	800	12.5	125	40.07 (1,018)	144 (65)	109 (49)

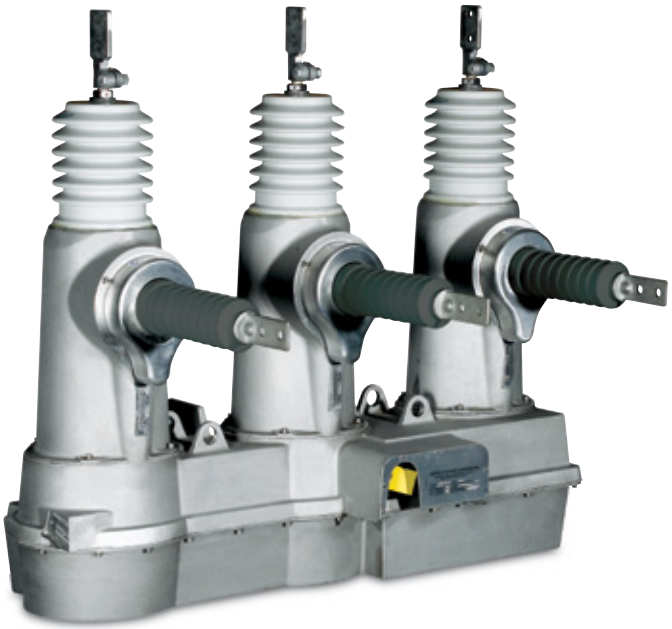
Note: *Specify TriMod™ 100 Series Vacuum Reclosers by selecting voltage class, continuous current and interrupting current rating from the ratings table. Maximum cantilever terminal pad load of 60 lb. (27kg) per pad. Horizontal cable tensions to be opposite in direction.*

TriMod™ Reclosers

Raises the standard.

Joslyn Hi-Voltage® TriMod™ 300R Series Three-Phase Vacuum Recloser

- Vacuum interrupter technology provides twice the duty cycle required by ANSI C37.60
- Joslyte solid dielectric insulating system provides maintenance-free, environmentally safe operation, with no need to monitor or maintain gas pressure or oil levels
- Magnetic actuator mechanism offers 10,000 trip and full-load operations with no maintenance
- Variety of microprocessor relay controls are compatible with Schweitzer's recloser controls SEL351R and SEL651R
- Requires only one C510 SEL 14-pin control cable — faster and more economical to install than other reclosers, which require up to three cables
- Externally mounted current transformers on grounded plane with covers for enhanced safety and easy replacement in the field
- Balanced load-lifting provisions — the TriMod™ 300R Series Recloser can be smoothly raised by utilizing the four lifting rings



TriMod™ 300R Series Vacuum-Interrupting, Three-Phase, Microprocessor-Controlled Automatic Circuit Recloser

The Joslyn Hi-Voltage® TriMod™ 300R Series Three-Phase Vacuum Recloser raises the standard of recloser performance by incorporating state-of-the-art vacuum interrupter technology with Joslyn's field-proven Joslyte solid dielectric insulating system and a long-life operating mechanism and magnetic actuator system. Unique, field-proven features make the TriMod™ 300R Series Recloser the long-life, easy-to-use solution for utility recloser needs.

The TriMod™ 300R Series Recloser contains no oil or gas for interruption or insulation. The 40-year field-proven Joslyte solid insulation system provides dielectric strength around the vacuum interrupter without the danger of leaks or environmental hazards.

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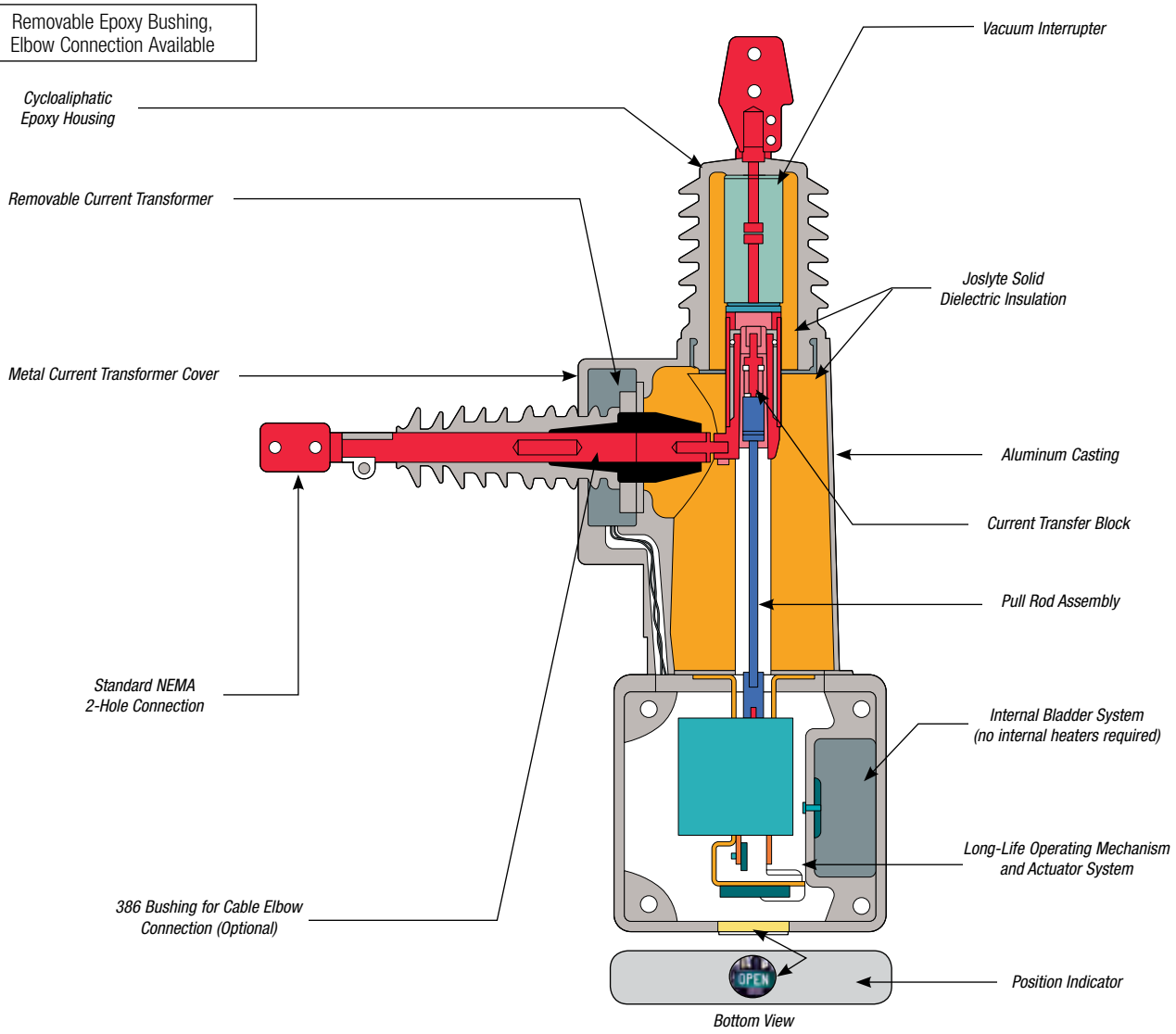
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TriMod™ Reclosers

Removable Epoxy Bushing, Elbow Connection Available



Recloser Construction

The Joslyn Hi-Voltage® TriMod™ 300R Series Three-Phase Vacuum Recloser is manufactured for a range of distribution voltages with continuous current capabilities up to 800A. The mechanism is operated electrically by energizing a magnetic actuator.

Each pole has a vacuum interrupter sealed in Joslyte solid dielectric insulation, which provides mechanical strength, high dielectric strength and complete moisture sealing. The pole is constructed of an epoxy main bushing, epoxy housing and aluminum casting. The side terminal may be a permanently fixed epoxy bushing or a removable polymer bushing that enables a cable elbow connection to a 386 bushing assembly.

Each pole is identical and is mechanically connected to a ganging bar assembly in a completely sealed operating mechanism housing. An expansion bladder in the mechanism housing prevents breathing in of outside contaminants and/or moisture. Based on this design, external power is NOT supplied or required by the recloser.

The "open-close" position indicator joins directly to the ganging bar mechanism. The ganging bar is used to group each of the three single poles together to ensure three-phase synchronization for both open and close operations. An external manual trip assembly, located on the front of the recloser, connects to the gang bar for manual tripping of the recloser by pulling down on the yellow trip lever.

The manual trip lever, in the down position, will maintain the recloser in a lockout position until it is manually restored to the normal position. The trip lever does not move during electrical operation.

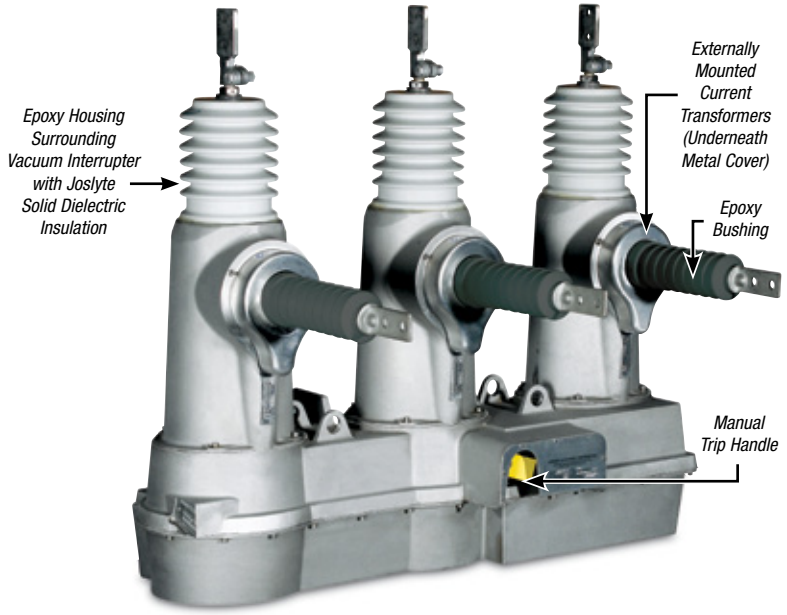
All electrical control connections to the mechanism are made through a sealed single environment control cable connector located on the side of the recloser.

Joslyn Hi-Voltage® TriMod™ 300R Series Recloser Operation

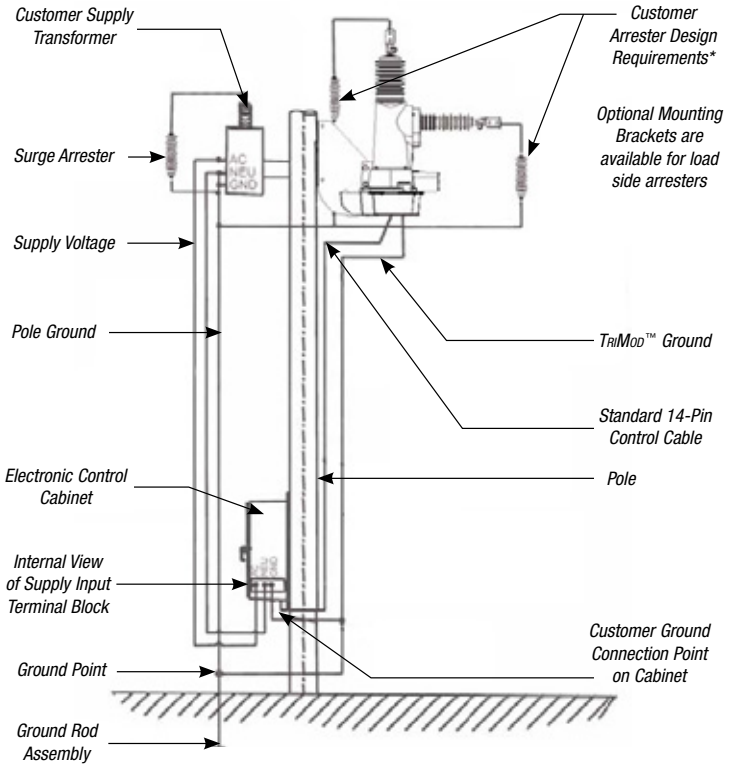
The TriMod™ 300R Series Recloser is connected to an electronic control through the use of a standard 14-pin cable. The combination of the TriMod™ 300R Series Recloser and an electronic control provides state-of-the-art technology in accurate detection of a wide range of line disturbances and reliable, high-speed isolation against adverse conditions common to utility lines.

Various style controls are available for different applications. Typical control settings include:

- Overcurrent protection — fast and delay curves
- Sensitive earth fault
- Complete metering capabilities
- Recloser wear monitor
- Fault locator
- Flexible control logic and integration
- SCADA ready with multiple available communications protocols
- Load profile
- And much more!



Typical TriMod™ 300R Series Recloser Installation Detail





Schweitzer SEL351R control

*Arresters are recommended to provide protection against lightning overvoltage conditions. When arresters are installed, they should be mounted on the supplied arrester brackets or as close to the recloser as practical.

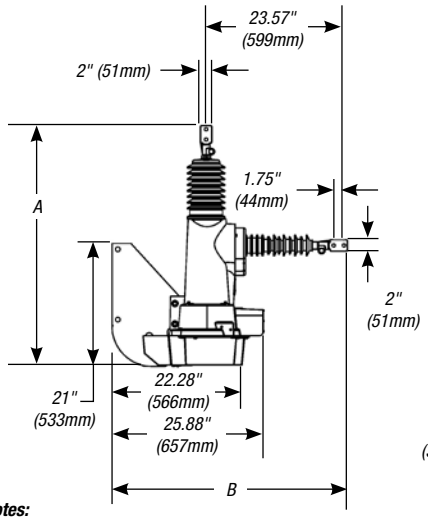
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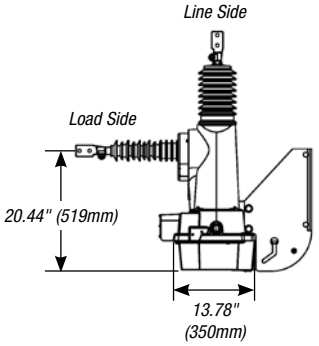
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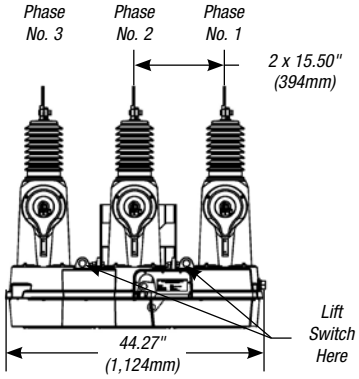
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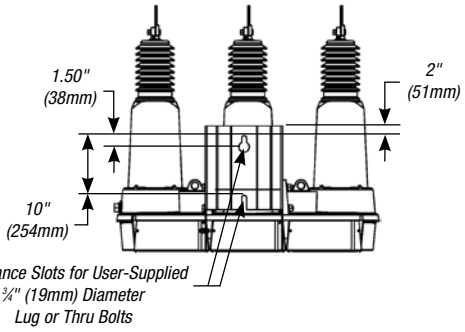
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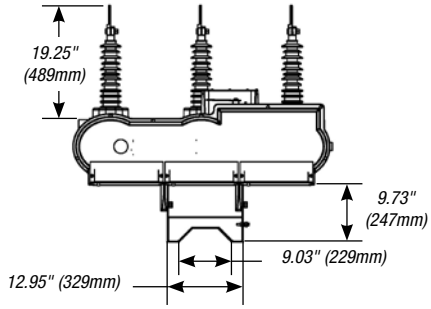
Dimensions and Creepage Distances for TriMod™ 300R Series Reclosers











Notes:

All dimensions are in inches and millimeters.

Maximum cantilever terminal pad load of 60 lb. (27kg) per pad.

Horizontal cable tensions per phase to be opposite in direction.

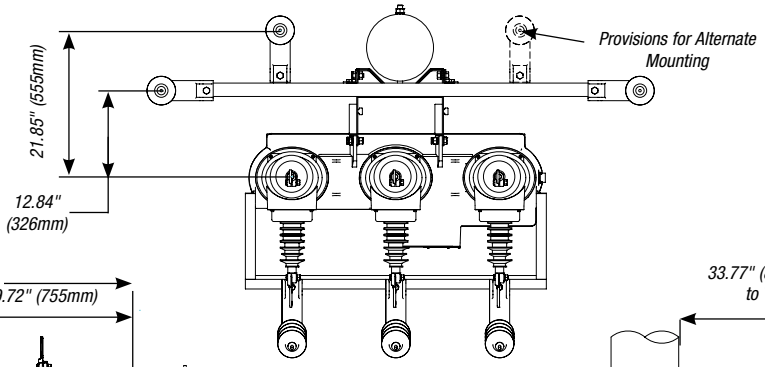
Creepage Distances

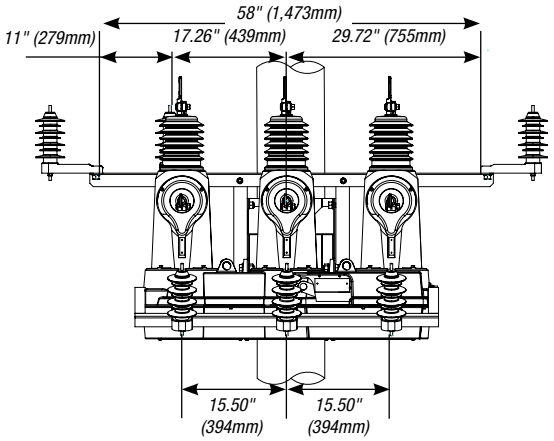
DESCRIPTION	15kV, 110kV BIL IN. (MM)	27kV, 125kV BIL IN. (MM)
Top Terminal	15.83 (402)	20.36 (517)
Side Terminal	17.75 (451)	21.35 (542)

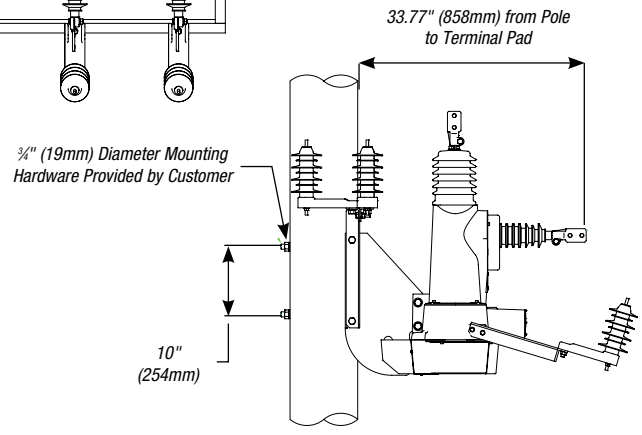
Dimensions

SYSTEM kV	A IN. (MM)	B IN. (MM)	WEIGHT LB. (KG)
15kV, 110kV BIL	39.07 (992)	39.67 (1,008)	330 (150)
27kV, 125kV BIL	41.15 (1,045)	40.30 (1,024)	340 (154)

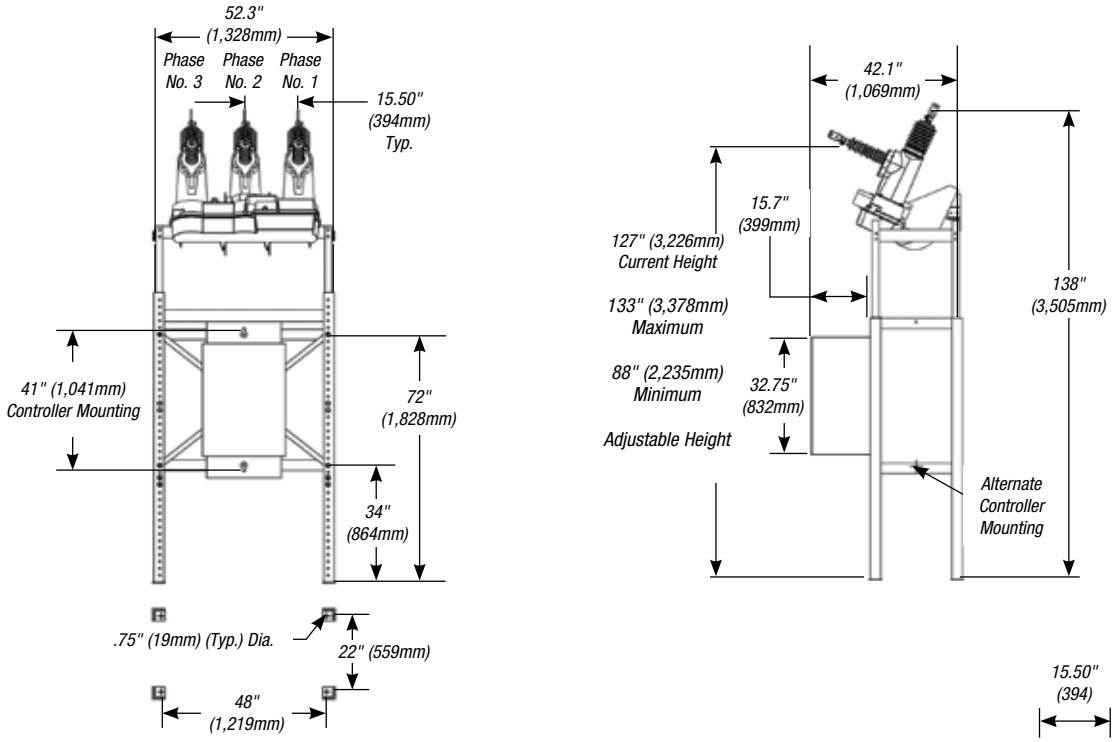
Typical Pole-Mounting Installation



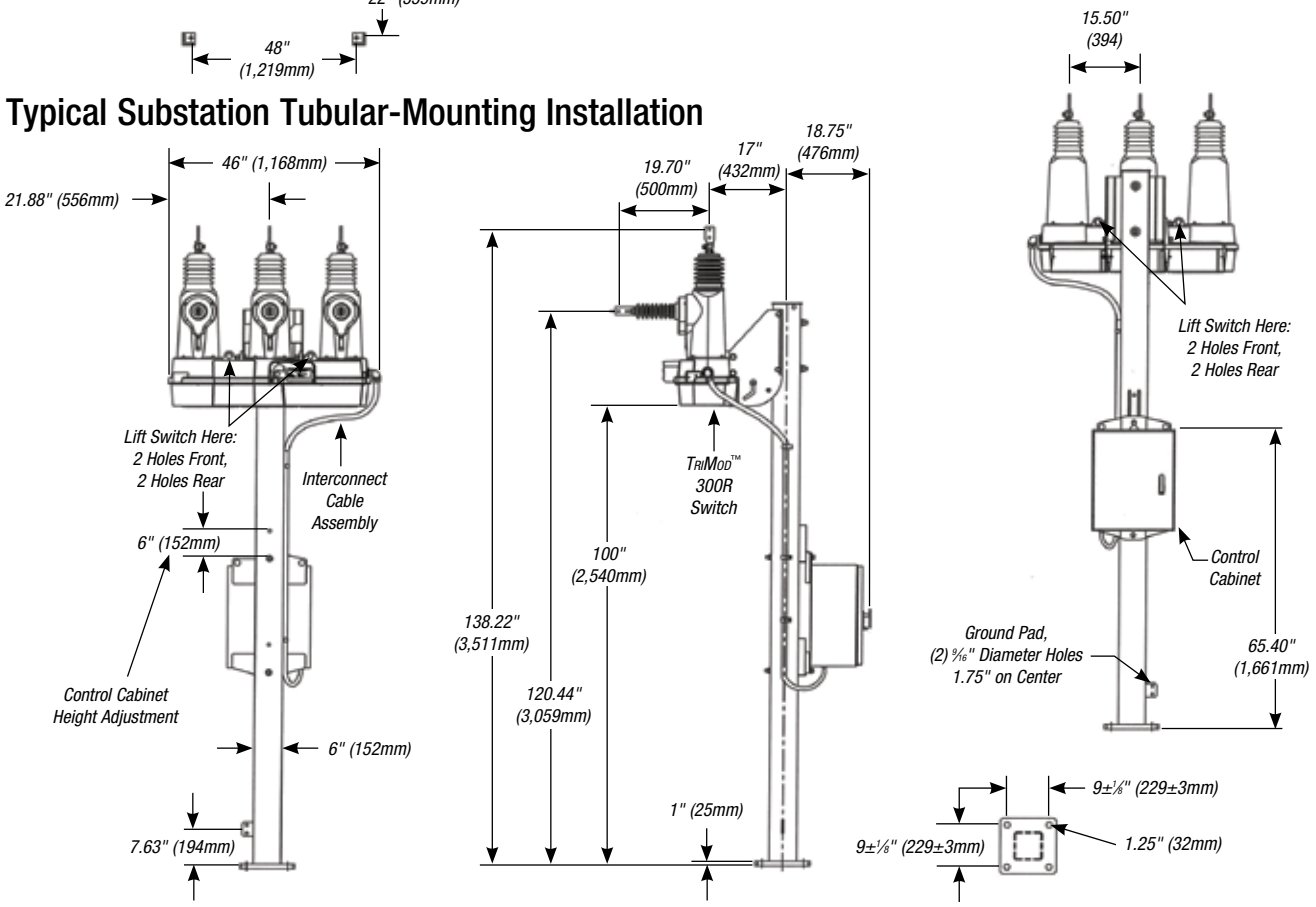




Typical Substation Adjustable Frame-Mount Installation



Typical Substation Tubular-Mounting Installation



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TriMod™ Reclosers

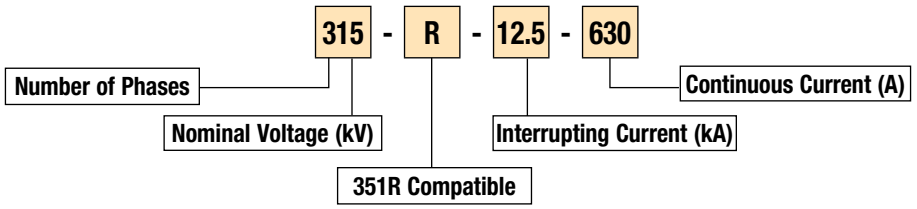
Ratings

DESCRIPTION	15kV	27kV
Nominal System Voltage (kV, RMS)	14.4	25
Rated Maximum Voltage (kV, RMS)	17.1	29.3
Nominal Frequency (Hz)	50 or 60	50 or 60
Number of Phases	3	3
Phase Spacing (inches)	15.5	15.5
BIL (kV)	110	125
Power Frequency Withstand — Dry (kV)	50	60
Power Frequency Withstand — Wet (kV)	45	50
Continuous Current (A RMS)	630 or 800	630 or 800
8-Hour Overload Current (A RMS)	800	800
CT Ratio	1000:1	1000:1
Interrupting Current (kA RMS Symmetrical)	12.5 or 16	12.5 or 16
Making Current (kA Asymmetrical Peak)	42	42
Arc Extinction Medium	Vacuum	Vacuum
Insulating Medium	Solid High-Dielectric Insulation	Solid High-Dielectric Insulation
Mechanical Operations	10,000	10,000
Weight (lb./kg) (with standard mounting frame)	330/150	340/154

1. Select model number from table.
2. Specify length of interconnecting control cable up to 50 ft.
3. Specify SEL351R or SEL651R (14-pin model only) recloser control.
4. Select options and accessories.

Options

- Arrester mounting brackets (source and load side)
- Substation mounting frames
- Extra creepage bushings
- Removable side bushings
- 400:1, 600:1 or 800:1 CT Ratio



Joslyn Hi-Voltage® TriMod™ 300R Series Three-Phase Vacuum Reclosers

CAT. NO.	VOLTAGE RANGE (kV)	CONTINUOUS CURRENT (AMPS)	INTERRUPTING CURRENT (kA RMS SYMMETRICAL)	BIL (kV)	HEIGHT IN. (MM)	DEPTH IN. (MM)	WEIGHT LB. (KG)
315R-12.5-630	4–17.1	630	12.5	110	39.07 (992)	39.67 (1,008)	330 (150)
315R-12.5-800	4–17.1	800	12.5	110	39.07 (992)	39.67 (1,008)	330 (150)
315R-16-630	4–17.1	630	16	110	39.07 (992)	39.67 (1,008)	330 (150)
315R-16-800	4–17.1	800	16	110	39.07 (992)	39.67 (1,008)	330 (150)
327R-12.5-630	17–29.3	630	12.5	125	41.15 (1,045)	40.30 (1,024)	340 (154)
327R-12.5-800	17–29.3	800	12.5	125	41.15 (1,045)	40.30 (1,024)	340 (154)
327R-16-630	17–29.3	630	16	125	41.15 (1,045)	40.30 (1,024)	340 (154)
327R-16-800	17–29.3	800	16	125	41.15 (1,045)	40.30 (1,024)	340 (154)

TriMod™ Reclosers

Single- or three-phase operation!

Joslyn Hi-Voltage® TriMod™ 600R Series Vacuum Recloser

- Vacuum interrupter technology provides twice the duty cycle required by ANSI C37.60
- Joslyte solid dielectric insulating system provides maintenance-free, environmentally safe operation, with no need to monitor or maintain gas pressure or oil levels
- Magnetic actuator system offers 10,000 operations with no maintenance required
- State-of-the-art microprocessor control is compatible with Schweitzer's recloser control SEL651R
- Requires only one C510 SEL 27-pin control cable — faster and more economical to install than other reclosers, which require up to three cables
- Externally mounted current transformers on grounded plane with covers for enhanced safety and easy replacement in the field
- Balanced load-lifting provisions — the TriMod™ 600R Series Recloser can be smoothly raised by utilizing the four lifting rings



TriMod™ 600R Series Vacuum-Interrupting, Single- or Three-Phase Operation, Microprocessor-Controlled, Automatic Circuit Recloser

The Joslyn Hi-Voltage® TriMod™ 600R Series Recloser raises the standard of recloser performance by incorporating state-of-the-art vacuum interrupter technology with Joslyn's field-proven Joslyte solid dielectric insulating system and a long-life operating mechanism and magnetic actuator system. Unique, field-proven features make the TriMod™ 600R Series Recloser the long-life, easy-to-use solution for utility recloser needs.

The TriMod™ 600R Series Recloser contains no oil or gas for interruption or insulation. The 40-year field-proven Joslyte solid dielectric insulation system provides dielectric strength around the vacuum interrupter without the danger of leaks or environmental hazards.

The TriMod™ 600R Series Recloser features single- or three-phase operation modes:

- Single-phase trip/single-phase lockout
- Single-phase trip/three-phase lockout
- Three-phase trip/three-phase lockout

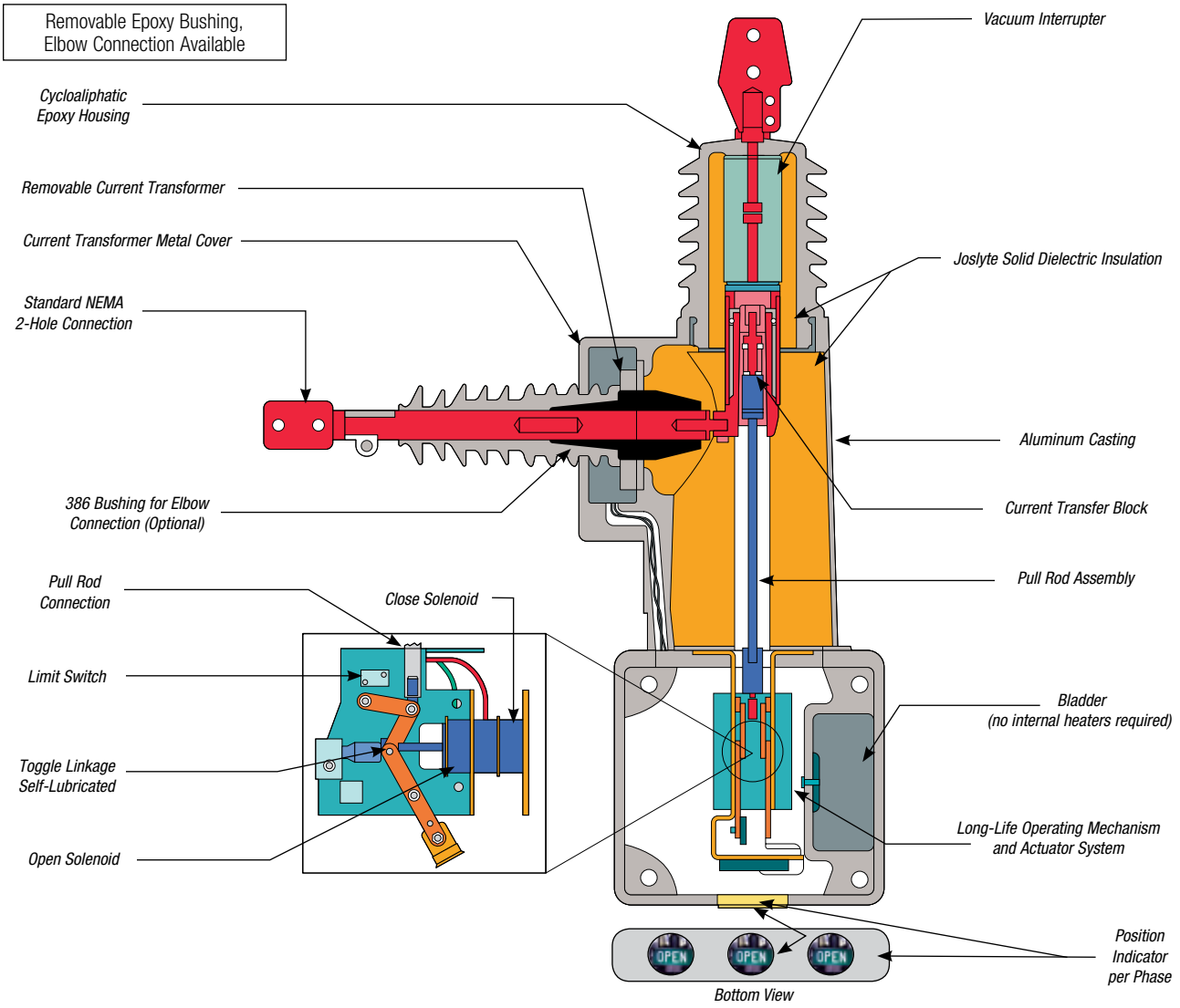
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TriMod™ Reclosers



Recloser Construction

The Joslyn Hi-Voltage® TriMod™ 600R Series Vacuum Recloser for Single- or Three-Phase Operation is manufactured for a range of distribution voltages with continuous current capabilities up to 800A. The mechanism is operated electrically by energizing a magnetic actuator system.

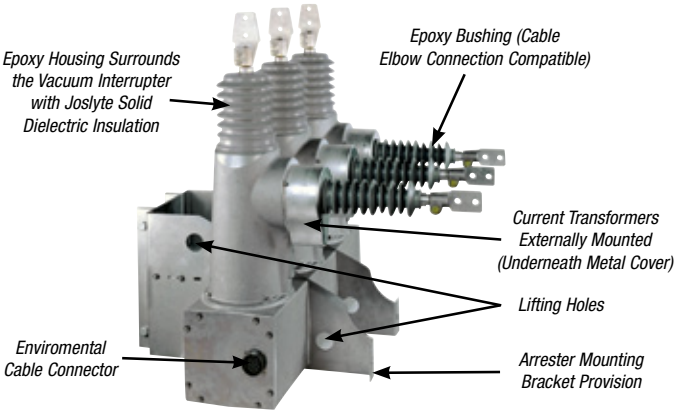
Each pole has a vacuum interrupter sealed in Joslyte solid dielectric insulation, which provides mechanical strength, high dielectric strength and complete moisture sealing. The pole is constructed of an epoxy main bushing and aluminum casting. The side terminal may be a permanently fixed epoxy bushing or a removable polymer bushing that enables an elbow connection to a 386 bushing assembly.

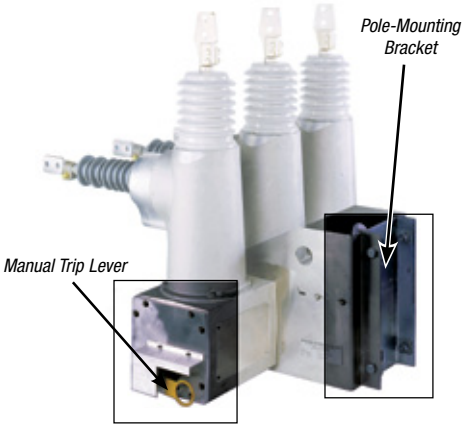
Each pole is identical and is mechanically independent of each other. Each step of the reclose cycle can be individually configured to single- or three-phase trip lockout for optimum coordination. An expansion bladder in the mechanism housing is provided to prevent breathing in of outside contaminants and/or moisture. Based on this design, external power is NOT supplied or required by the recloser.

The "open-close" position indicator connects directly to each individual mechanism. An external manual trip assembly, located on the side of the recloser, connects to the gang bar for manual tripping of the recloser by pulling down on the yellow trip lever. The manual trip lever, in the down position, maintains the recloser in a lockout position until it is manually restored to the normal position. The trip lever does not move during electrical operation.

All electrical control connections to the mechanism are made through a sealed single environment control cable connector located on the side of the recloser.

Joslyn Hi-Voltage® TriMod™ 600R Series Recloser Operation



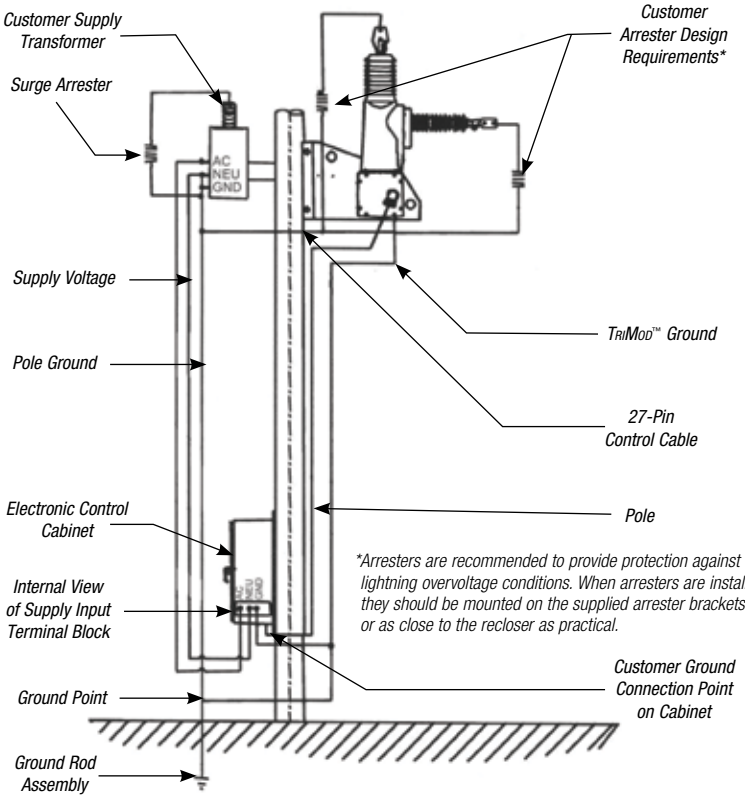


The TriMod™ 600R Series Recloser connects to an electronic control through the use of a 27-pin cable. The combination of the TriMod™ 600R Series Recloser and an electronic control provides state-of-the-art technology in accurate detection of a wide range of line disturbances and reliable, high-speed isolation against adverse conditions common to utility lines.

Standard control settings include:

- Three-phase reclosing with single-phase tripping
- Overcurrent protection — fast and delay curves
- Sensitive earth fault
- Complete metering capabilities
- Load-encroachment logic
- Fault locator
- Flexible control logic and integration
- Event reporting and oscillography
- Recloser wear monitor
- Load profile
- And much more!

Typical TriMod™ 600R Series Recloser Installation Detail



*Arresters are recommended to provide protection against lightning overvoltage conditions. When arresters are installed, they should be mounted on the supplied arrester brackets or as close to the recloser as practical.

For TriMod™ 600R Series Recloser installation, testing and programming features specific to your application, refer to the electronic control instruction manuals and factory drawings provided at delivery.



Schweitzer SEL651R single-door control for recloser applications. Front-/rear-access control cabinets are available.

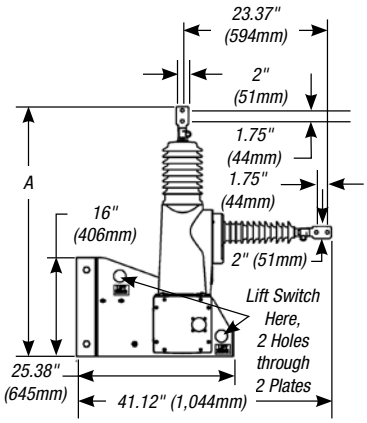
Thomas&Betts

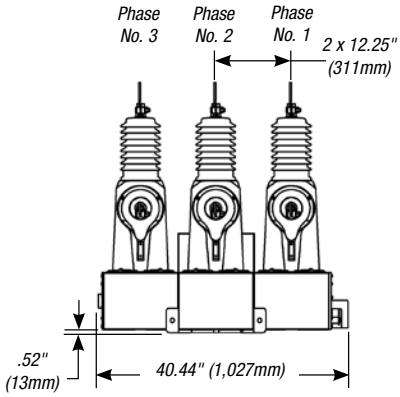
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

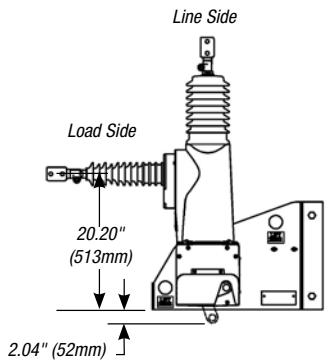
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Tel: 888.862.3289

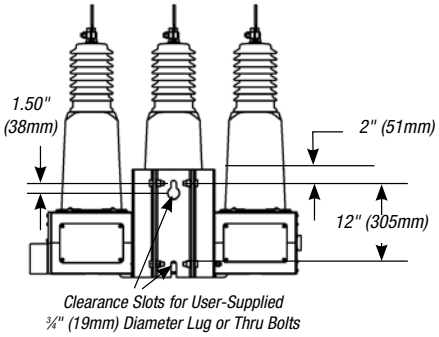
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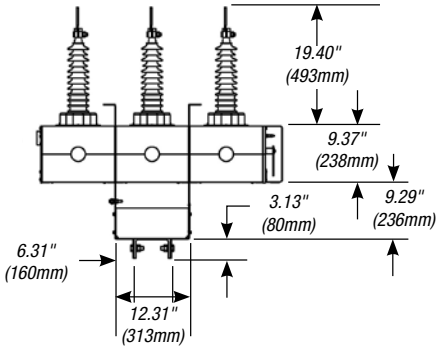
Dimensions and Creepage Distances for TriMod™ 600R Series Reclosers











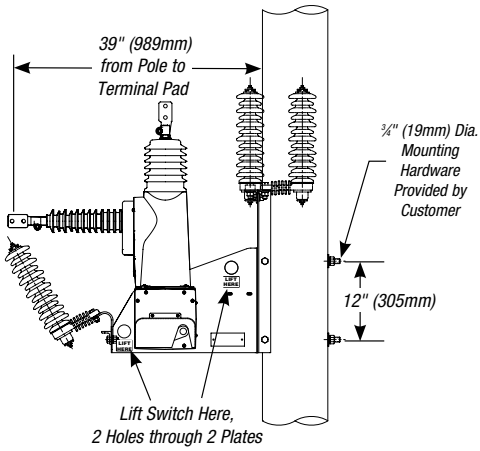
Creepage Distances

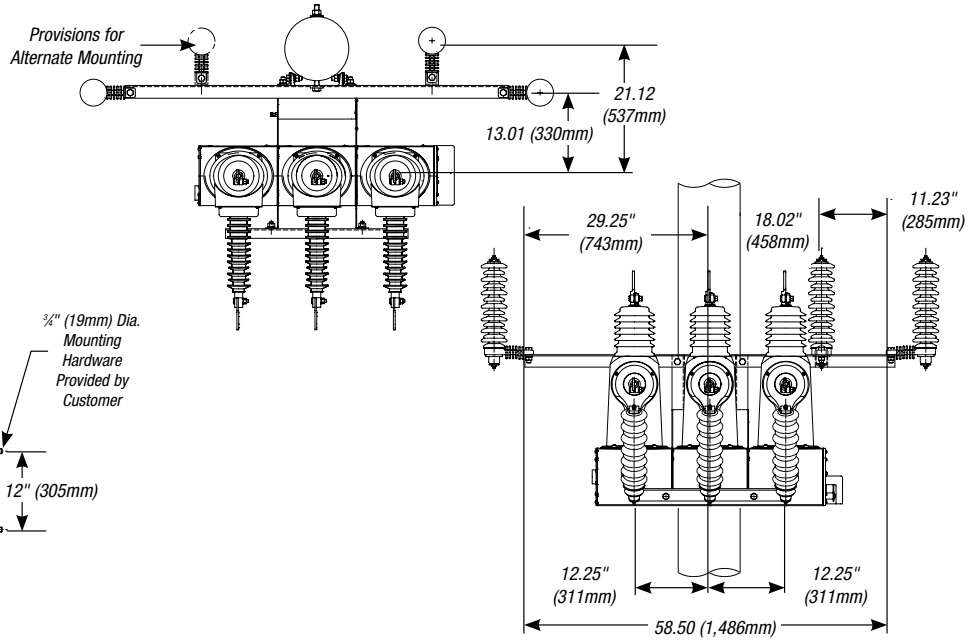
DESCRIPTION	15kV, 110kV BIL IN. (MM)	27kV, 125kV BIL IN. (MM)
Top Terminal	15.83 (402)	20.36 (517)
Side Terminal	22.50 (572)	22.50 (572)

Dimensions

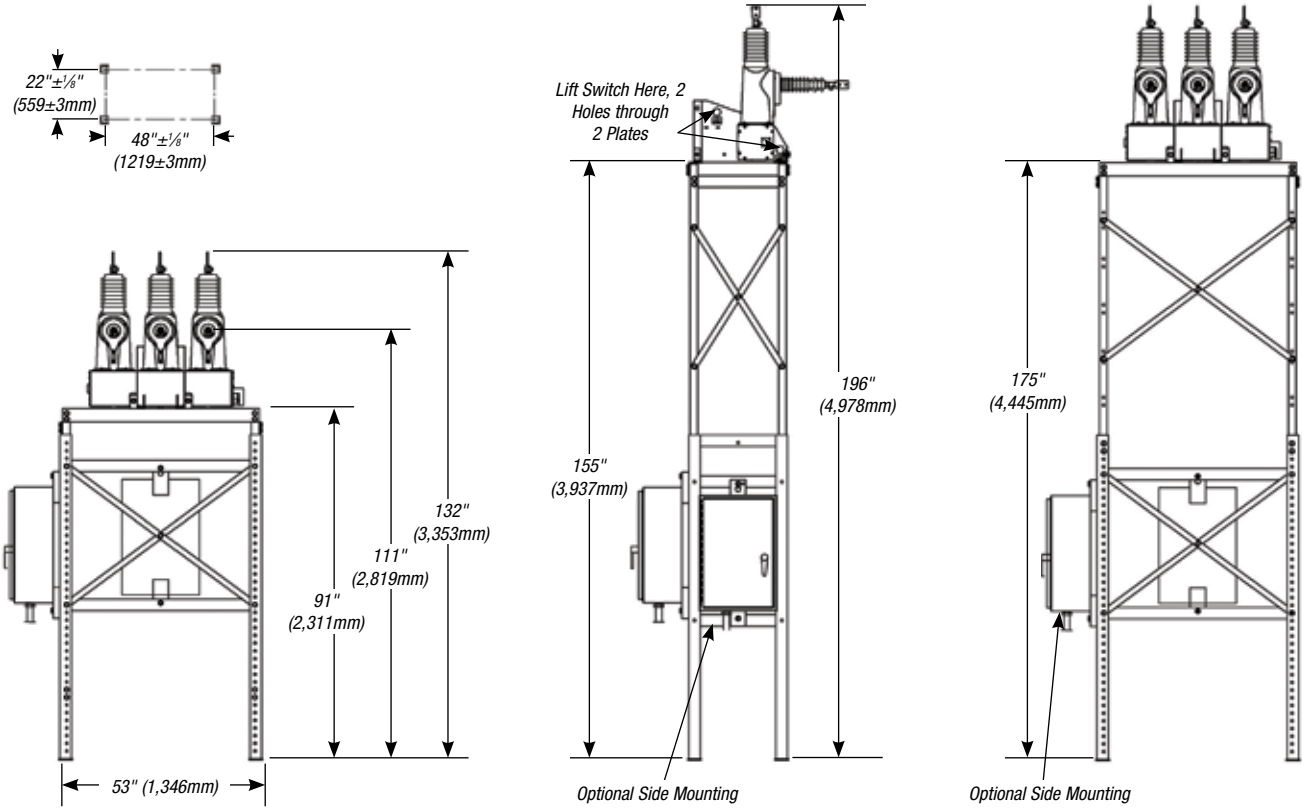
SYSTEM kV	HEIGHT A IN. (MM)	WEIGHT LB. (KG)
15kV, 110kV BIL	37.92 (963)	251 (114)
27kV, 125kV BIL	40.07 (1,018)	279 (127)

Typical Pole-Mounting Installation

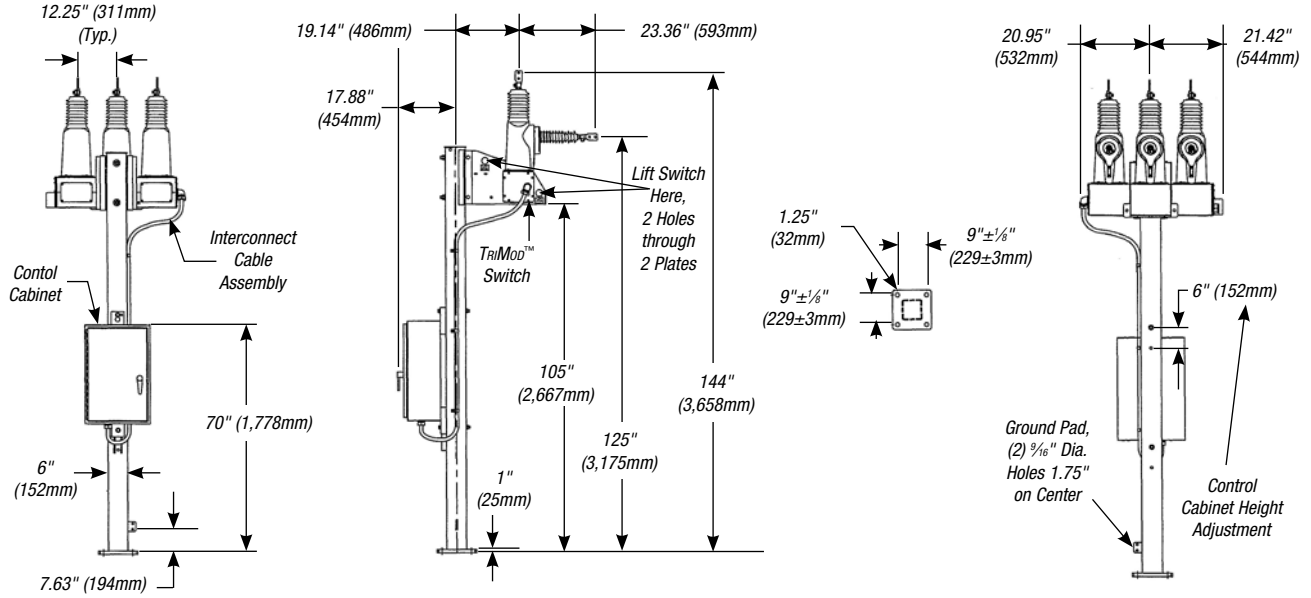




Typical Substation Adjustable Frame-Mount Installation



Typical Substation Tubular-Mounting Installation



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TriMod™ Reclosers

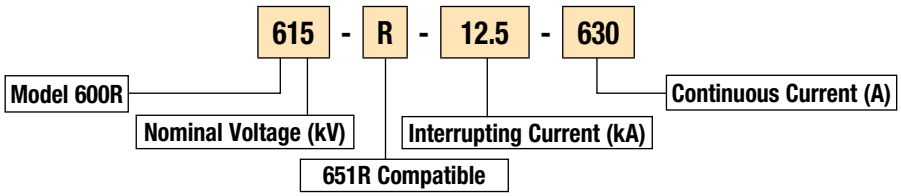
Ratings

DESCRIPTION	15kV	27kV
Nominal System Voltage (kV, RMS)	14.4	25
Rated Maximum Voltage (kV, RMS)	17.1	27
Nominal Frequency (Hz)	50 or 60	50 or 60
Number of Phases	3	3
Phase Spacing (inches)	15.5	15.5
BIL (kV)	110	125
Power Frequency Withstand — Dry (kV)	50	60
Power Frequency Withstand — Wet (kV)	45	50
Continuous Current (A RMS)	630 or 800	630 or 800
8-Hour Overload Current (A RMS)	800	800
CT Ratio	600:1 (800:1)	600:1 (800:1)
Interrupting Current (kA RMS Symmetrical)	12.5	12.5
Making Current (kA Asymmetrical Peak)	33	33
Arc Extinction Medium	Vacuum	Vacuum
Insulating Medium	Solid High-Dielectric Insulation	Solid High-Dielectric Insulation
Mechanical Operations	10,000	10,000
Weight (lb./kg) (with standard mounting frame)	251/113	279/127

1. Select model number from table.
2. Specify length of interconnecting control cable up to 50 ft.
3. Specify Schweitzer 651R recloser control.
4. Select options and accessories.

Options

- Arrester mounting brackets (source and load side)
- Substation mounting frames
- Extra creepage bushings
- Removable side bushings
- 1000:1 CT Ratio



Joslyn Hi-Voltage® TriMod™ 600R Series Vacuum Reclosers

CAT. NO.	VOLTAGE RANGE (kV)	CONTINUOUS CURRENT (AMPS)	INTERRUPTING CURRENT (kA RMS SYMMETRICAL)	BIL (kV)	HEIGHT IN. (MM)	WEIGHT LB. (KG)
615R-12.5-630	4–17.1	630	12.5	110	37.92 (963)	251 (114)
615R-12.5-800	4–17.1	800	12.5	110	37.92 (963)	251 (114)
627R-12.5-630	17–27	630	12.5	125	40.07 (1,018)	279 (127)
627R-12.5-800	17–27	800	12.5	125	40.07 (1,018)	279 (127)

Note: *Maximum cantilever terminal pad load of 60 lb. (27kg) per pad. Horizontal cable tensions per phase to be opposite in direction.*

TriMod™ Reclosers

The only 46kV-rated recloser in the industry.

Joslyn Hi-Voltage® TriMod™ 46kV Three-Phase Vacuum Recloser

- Vacuum interruption and solid dielectric Joslyte insulation — no oil, no gas, no maintenance
- Magnetic actuator system offers 10,000 operations with no maintenance required
- State-of-the-art microprocessor control is compatible with Schweitzer's SEL651R recloser control

Joslyn Hi-Voltage® TriMod™ 46kV Three-Phase Vacuum Reclosers use Varmaster VBM switches. These switches are completely sealed, breaker-class devices using vacuum as the interrupting dielectric. The TriMod™ 46kV vacuum recloser offers high reliability with little or no maintenance and quick, safe interruption with no external arcing. The 40-year field-proven Joslyte solid dielectric insulation system provides dielectric strength around the vacuum interrupter without the danger of leaks or environmental hazards.

The combination of the TriMod™ 46kV vacuum recloser and Schweitzer SEL651R recloser control provides state-of-the-art technology and accurate detection of a wide range of line disturbances and reliable high-speed isolation against adverse conditions common to utility lines.

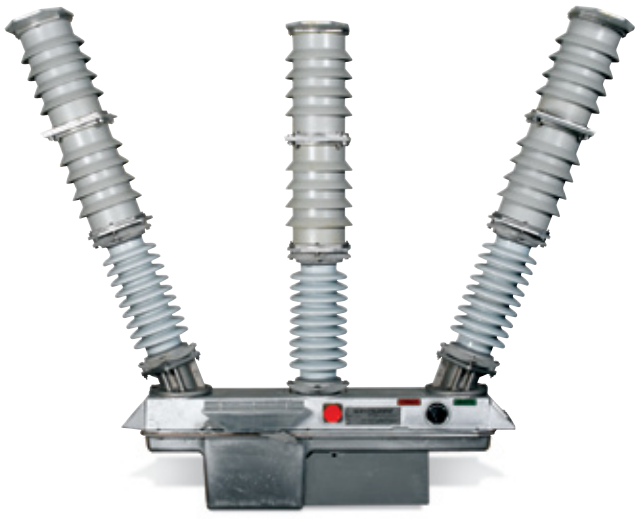
Ratings

DESCRIPTION	46kV
Nominal System Voltage (kV, RMS)	46
Rated Maximum Voltage (kV, RMS)	48.3
Power Frequency (Hz)	50 or 60
Number of Phases	3
BIL (kV)	200/250
Power Frequency Withstand — Dry (kV)	60
Power Frequency Withstand — Wet (kV)	50
Continuous Current (A RMS)	600
Interrupting Current (kA RMS Symmetrical)	3
Making Current (kA Asymmetrical Peak)	20
Arc Extinction Medium	Vacuum
Insulating Medium	Solid High-Dielectric Insulation
Mechanical Operations	10,000
Weight (lb./kg)	300/136

Note: To order TriMod™ 46kV Three-Phase Vacuum Reclosers, contact your Thomas & Betts sales representative.



Typical Pole-Mounting Installation



TriMod™ 46kV Vacuum-Interrupting, Three-Phase, Microprocessor-Controlled Automatic Circuit Recloser

Thomas&Betts

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800.816.7809
Fax: 901.252.1354

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Tel: 888.862.3289

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Disconnect Switches

Joslyn Hi-Voltage® disconnect switches offer installation flexibility and dependable service.

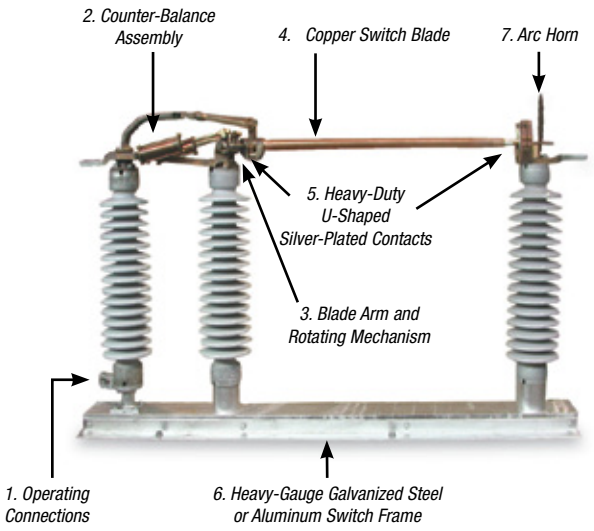
Joslyn Hi-Voltage® disconnect switches offer installation flexibility with their ability to mount in a horizontal, vertical or underhung position. The operating mechanism can be located at various positions. One pole of a three-pole switch has an adjustable crank, permitting easy installation. Space requirements are minimized by the side-break opening offered by Joslyn Hi-Voltage® Series RB-1 Switches.

The Series RF-2 switch's advanced design features give you highly dependable, year-round switching.

Modern power systems demand highly dependable equipment. The Joslyn Hi-Voltage® Series RF-2 disconnect switch is designed and built specifically to provide longer service and more reliable operation wherever you need a high-voltage air-break switch. Series RF-2 switches use all copper and bronze parts and hardware for superior corrosion protection in harsh environments. Switches rated through 161kV can be mounted vertically or underhung as well as upright. The Series RF-2 switch includes these outstanding features:

1. Operating mechanism connections can be located at various positions. One pole of the three-pole switch has an adjustable crank, permitting mechanism bearings to be arranged in virtually any required position.
2. Counter-balance assembly affixed to blade is standard for switches from 69kV to 230kV or for switches with 3,000A continuous rating. The counter-balance assembly provides a uniform opening and closing stroke and reduces stress on switch mechanism parts.
3. Blade arm and rotating mechanism feature low-friction bearings throughout. Maximum force is delivered to the blade by locating rotator insulator "stops" at the blade hinge.
4. Switch blade built from a single piece of copper. Contact surfaces are silver plated to increase conductivity to prevent hot joints typical with braided connections.
5. Heavy-duty U-shaped contacts are silver-surfaced and backed with insulated stainless-steel springs to provide constant pressure.
6. Switch frame is constructed of heavy-gauge galvanized steel or aluminum for rigidity.
7. Current flow is diverted through the arc horns during operation, preventing wear on stationary contacts.

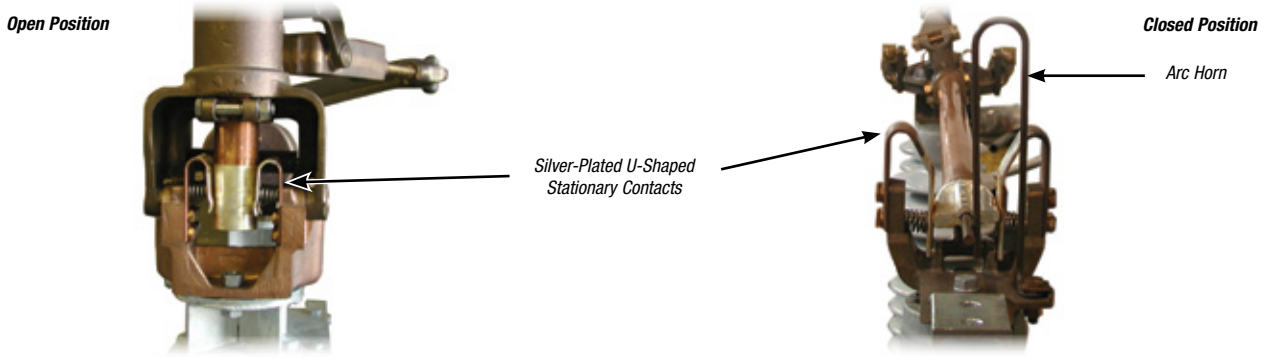
115kV, 1,200A Series RF-2 Switch



Operation

Rotating blade action firmly engages contacts.

1. Switch in fully open position. Rotation of rear insulator stack causes blade to move in downward arc toward closed position.
2. As it moves downward, the blade makes contact first with the arcing horn, eliminating any pitting on the main stationary contact surfaces. Any current flow is diverted through the arc horns, away from stationary contacts.
3. Blade does not engage stationary contacts until it is well into contact zone. Switch mechanism's high mechanical advantage provides slashing action to help clear contacts of any ice formation.
4. Rotating 45°, the blade "wipes" into place. Current flows up around U-shaped contacts, puts squeezing pressure on blade and effectively locks it in place under high momentary currents.



Disconnect Switches

Series RF-2 switches are ideally suited for demanding industrial applications.

Exhaustive tests in development laboratory and cold room prove the Series RF-2 disconnect switch's service life.

Heat Run — During the heat run, the Series RF-2 switch's temperature rose less than 30° C above ambient at each thermocouple location. This lower temperature rise results in a much longer service life due to lower stress on copper parts and less corrosion.

Impulse and Open Break Tests — The 161kV, 1,600A Series RF-2 switch more than met NEMA standards requiring open-break withstand test voltage 10% in excess of 750kV. Radio noise and corona tests revealed no visible corona in complete darkness.

Life Test — The 161kV, 1,600A Series RF-2 switch showed no visible excessive wear after 10,000 operations.

Short-Circuit Tests — At the development laboratory, all Series RF-2 switches demonstrated the ability to meet NEMA short-circuit requirements.

Ice Test — Blades of the 161kV, 1,600A Series RF-2 switch were frozen closed before the start of the first ice test. Even under extreme icing conditions, subsequent operation proved the ability of the switch to clear the contacts. Cold-room tests were conducted on switches preset in both the open and closed positions. Water at 34° F was sprayed on the pole units and operating mechanisms while room temperature was maintained at 25° F for 12 hours. After an additional three hours setting time, the Series RF-2 switches were operated and proved capable of breaking and clearing ice from the contact structures.



34.5kV 3,000A Series RF-2 Switch with MVI

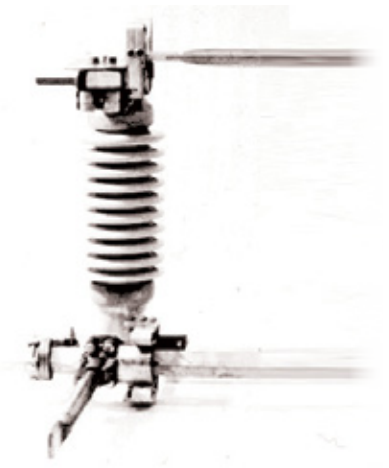


Underhung Application

FB-4 grounding switch

Rugged, long-life, maintenance-free operation for the Series RF-2 switch.

Joslyn Hi-Voltage® Series RF-2 switches are available with an optional FB-4 grounding switch. The FB-4 grounding switch can have a parallel or perpendicular operation and can be mounted on the hinge side or contact end. FB-4 grounding switches can also be supplied for freestanding installation, not associated with an isolating switch.



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Disconnect Switches

Rugged construction for applications demanding positive all weather operation.

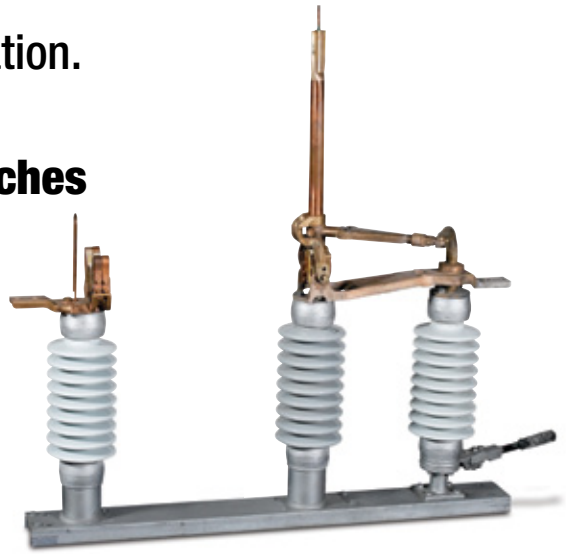
Joslyn Hi-Voltage® Series RF-2 Vertical-Break Air Disconnect Switches

- Available in ratings of 15kV–230kV for currents of 600A–3,000A
- Runs cooler than other switch designs, offering longer service life
- Tested and proven reliable more than 50 years in the field
- Systems can be designed and supplied with manual operators (swing-handle type), electric motor operators (MGO), Kirk Key interlocks, auxiliary position indicator contacts and a full range of Joslyn Hi-Voltage Load Interrupter Attachments
- Grounding Switches (FB-4) are available in parallel or perpendicular configurations and can also be supplied for free-standing installations



34.5kV 3,000A Series RF-2 Switch with MVI





Joslyn Hi-Voltage® Series RF-2 Vertical-Break Air Disconnect Switches have been subjected to exhaustive testing both in the field and in the lab and have met or surpassed all duty requirements within their prescribed ratings.

Because they run cooler than other switch designs, Series RF-2 Switches suffer less oxidation and corrosion to yield a longer service life. They were originally tested in accordance with ANSI Standard C37.70-1962, which allowed a more severe temperature rise of 30° C above a 40° C ambient while carrying rated current.

The Series RF-2 Switch is a rotating-insulation, vertical-break air switch. During opening and closing, the switch blade rotates into (or out of) the contacts, helping to provide a highly efficient ice-breaking action and contact surface wiping. Designed for group operation, the Series RF-2 Switch's interphase connections are easy to install and adjust.

Silver-surfaced, U-shaped stationary contacts actually increase pressure on the switch blade during momentary current flow, helping to lock the blade in place. Insulated stainless steel backup springs maintain constant pressure. A replaceable arc horn diverts current away from the primary contacts during opening and closing, eliminating contact pitting and erosion.

The Series RF-2 Switch is available in voltage ratings from 15kV through 230kV, for currents from 600A through 3,000A. The horn-gap-type is capable of interrupting magnetizing currents and relatively low charging currents.

Disconnect Switches

Ratings

RATED MAX. VOLTAGE (kV RMS)	RATED WITHSTAND VOLTAGE			CURRENT RATINGS IN AMPERES			INSULATOR NEMA TECH. REF. POST	SWITCH BOLT CIRCLE
	IMPULSE 1.2 X 5 WAVE kV CREST	60HZ kV RMS WET 10 SECONDS	60HZ kV RMS DRY 1 MINUTE	CONTINUOUS CURRENT AT 60 Hz	MOMENTARY (1)	4 SECONDS (2)		
15.5	110	45	50	600	40,000	25,000	TR 205	3"
15.5	110	45	50	1,200	61,000	38,125	TR 205	3"
15.5	110	45	50	2,000	100,000	62,500	TR 225	5"
15.5	110	45	50	3,000	120,000	75,000	TR 225	5"
25.8	150	60	70	600	40,000	25,000	TR 208	3"
25.8	150	60	70	1,200	61,000	38,125	TR 208	3"
25.8	150	60	70	2,000	100,000	62,500	TR 227	5"
25.8	150	60	70	3,000	120,000	75,000	TR 227	5"
38.0	200	80	95	600	40,000	25,000	TR 210	3"
38.0	200	80	95	1,200	61,000	38,125	TR 210	3"
38.0	200	80	95	2,000	100,000	62,500	TR 231	5"
38.0	200	80	95	3,000	120,000	75,000	TR 231	5"
48.3	250	100	120	600	40,000	25,000	TR 214	3"
48.3	250	100	120	1,200	61,000	38,125	TR 214	3"
48.3	250	100	120	2,000	100,000	62,500	TR 267	5"
48.3	250	100	120	3,000	120,000	75,000	TR 267	5"
72.5	350	145	175	600	40,000	25,000	TR 216	3"
72.5 HD	350	145	175	600	40,000	25,000	TR 278	5"
72.5	350	145	175	1,200	61,000	38,125	TR 216	3"
72.5 HD	350	145	175	1,200	61,000	38,125	TR 278	5"
72.5 HD	350	145	175	1,600	70,000	43,750	TR 278	5"
72.5 HD	350	145	175	2,000	100,000	62,500	TR 278	5"
72.5 HD	350	145	175	3,000	120,000	75,000	TR 278	5"
121.0	550	230	280	600	40,000	25,000	TR 286	5"
121.0	550	230	280	1,200	61,000	38,125	TR 286	5"
121.0	550	230	280	1,600	70,000	43,750	TR 286	5"
121.0	550	230	280	2,000	100,000	62,500	TR 286	5"
121.0	550	230	280	3,000	120,000	75,000	TR 286	5"
145.0	650	275	335	600	40,000	25,000	TR 288	5"
145.0	650	275	335	1,200	61,000	38,125	TR 288	5"
145.0	650	275	335	1,600	70,000	43,750	TR 288	5"
145.0	650	275	335	2,000	100,000	62,500	TR 288	5"
169.0	750	315	385	600	40,000	25,000	TR 291*	5"
169.0	750	315	385	1,200	61,000	38,125	TR 291*	5"
169.0	750	315	385	1,600	70,000	43,750	TR 291*	5"
169.0	750	315	385	2,000	100,000	62,500	TR 291*	5"
242.0	900	385	465	1,200	61,000	38,125	TR 304*	5"
242.0	900	385	465	1,600	70,000	43,750	TR 304*	5"
242.0	900	385	465	2,000	100,000	62,500	TR 304*	5"
242.0	1,050	455	545	1,200	61,000	38,125	TR 312*	5"
242.0	1,050	455	545	1,600	70,000	43,750	TR 312*	5"
242.0	1,050	455	545	2,000	100,000	62,500	TR 312*	5"

** These insulators are for horizontal upright installation only. Contact Thomas & Betts for additional information.*

Notes: *1. The momentary current rating is the maximum RMS total current which the switch shall be required to carry for at least one cycle. The current shall be the RMS value, including the D-C component, during the maximum cycle as determined from the envelope of the current wave, and the test period shall be at least 10 cycles.*

2. The 4-second rating is the total RMS current, including the D-C component if present, which the switch shall be taken as the integrated heating equivalent of the 4-second rating; the maximum test period shall not exceed 8 seconds.

Note: To order Joslyn High-Voltage® RF-2 Series Switch and FB-4 Grounding Switch, please contact your T&B sales representative.

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Disconnect Switches

Ensures reliable switching operation under the most adverse conditions.

Joslyn Hi-Voltage® MGO Motor Operator for RF-2 Switches



The optional MGO Motor Operator provides dependable local or remote operation for the Series RF-2 Disconnect Switches. The standard features of the MGO include an internal decoupler, hinged and removable doors on three sides and a view window in the front door allowing positive reading of the decoupler position. Adjustable external mechanical stops, asymmetric coupling and a permanent magnet motor that allows dynamic braking all add to the ease of operation. An eight-stage auxiliary switch is provided for customer use, along with open/close push buttons, a 230/115VAC thermostatically controlled heater and with fuse protection on the motor, control and heater circuits. Optional features include stop-push button operation, local/remote selector switch indicating lights, additional auxiliary switch stages, operations counter and circuit breakers to identify a few. Note the differentiating feature of the internal decoupler in the MGO. The internal decoupler allows the auxiliary switch to be above the decoupler. The auxiliary switch always reflects the position of the disconnect switch and is not subject to icing. A second, optional auxiliary switch assembly is available to follow the motor, if desired. A single padlock secures the operator from "kick" as energy from the vertical pipe wrap-up is released during decoupling.

Standard Features

- Internal decoupler
- Asymmetric coupling prevents re-coupling 180° out of position
- View window in front door allows positive reading of decoupler position
- Large housing — 32"H x 23"W x18"L — ample room for incoming wires
- Hinged, removable doors on three sides — maintenance free
- Adjustable external mechanical stops — swing handle operation kept within the same arc as when the motor is operated
- Permanent magnet motor allows dynamic brakings which adds to the ease of operation
- "U" joint output — allows for connected torsional
- 8-stage auxiliary switch for customer use
- Automatic lockout of motor circuit when hand crank is Inserted — safety feature
- 230/115VAC thermostatically controlled 150-watt heater
- Fuse protection on motor/control and heater circuits

Optional Features

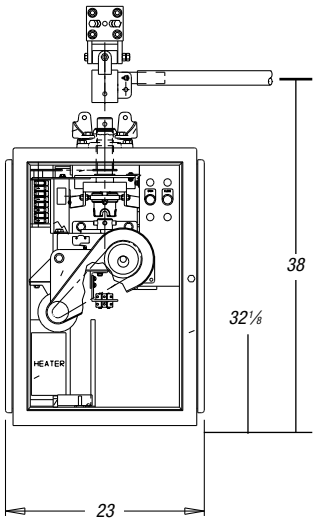
- Stop push-button operation
- Local/remote selector switch indicating lights
- Operations counter
- Circuit breakers
- Auxiliary switch below decoupler

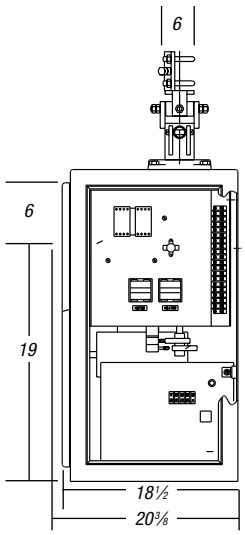
Differentiating Features

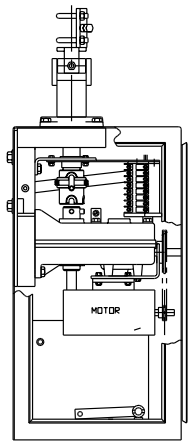
- Internal decoupler allows auxiliary switch to be above decoupler
- The auxiliary switch always reflects position of switch and is not subject to icing
- A single padlock secures the decoupler and housing
- A second, optional auxiliary switch is available to follow the motor, if desired
- A slip-ring mechanism isolates the operator from "kick" as energy from the vertical pipe wrap-up is released during decoupling

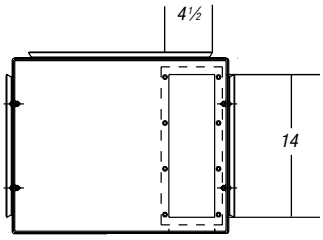
Disconnect Switches

Dimensions









Bottom View

Net Weight: 210 lbs.
Shipping Weight: 250 lbs.

Electrical Parameters

Motor Current Ratings

MOTOR	CURRENT (AMPS) INRUSH LOCKED ROTORS	CURRENT (AMPS) RUNNING FULL LOAD
24VDC	122	20
48VDC	59	10
125VDC	21	4

Operating Characteristics

MOTOR	OPERATING TIME (SEC.)*	OUTPUT TORQUE IN.-LBS. (X 1000)
DC	4	10
	6	15
	8	20
	10	30

** Time is for 180° rotation of output shaft.*

Note: To order the Motor Operator (MGO), contact your Thomas & Betts sales representative.

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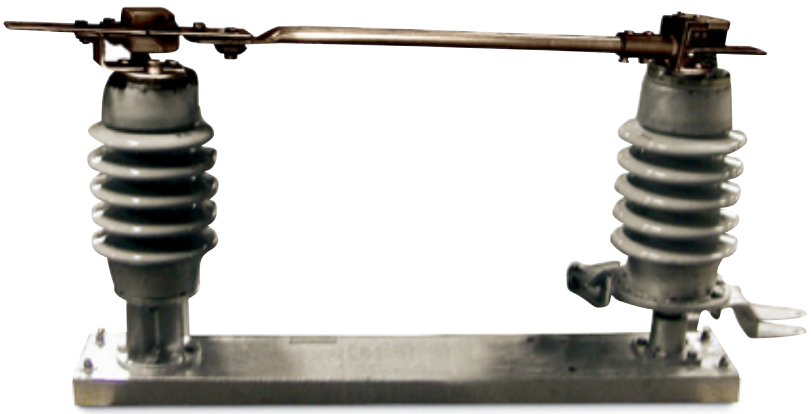
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Disconnect Switches

The copper solution for isolating and sectionalizing your service.

Joslyn Hi-Voltage® Series RB-1 Side-Break Disconnect Switches



- Available in ratings of 15kV–115kV for currents of 600A–1,200A
- Ability to be mounted vertically, horizontally or in an underhung position offers installation flexibility; side-break opening minimizes space requirements
- One pole of the three-pole switch features an adjustable crank to permit easy installation
- Silver-to-silver constant-pressure contacts provide long, trouble-free service life
- Fully tested to NEMA and ASA standards — meets or exceeds all industry requirements, ensuring maximum reliability and service
- Systems can be designed and supplied with manual operators (swing-handle type), electric motor operators (MGO), Kirk Key interlocks, auxiliary position indicator contacts and a full range of Joslyn Hi-Voltage® Load Interrupter Attachments

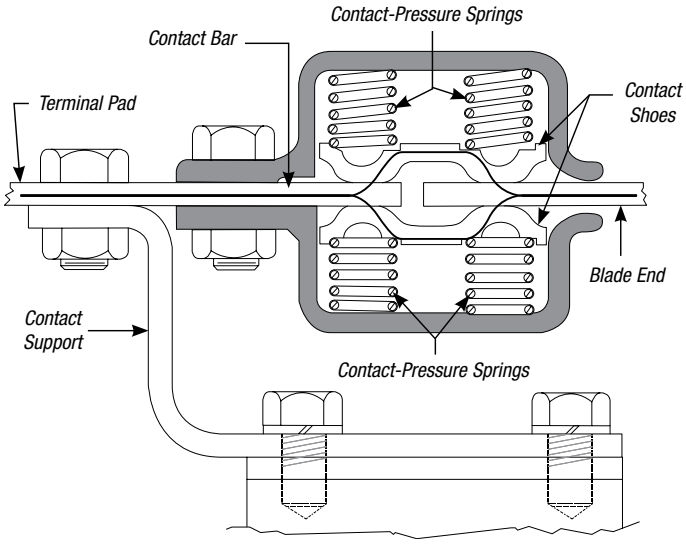
Joslyn Hi-Voltage® Series RB-1 Side-Break Disconnect Switches provide affordable, reliable and time-proven isolating of power circuit breakers, sectionalizing of transmission lines and opening primaries of transformer banks from 15kV through 115kV.

Featuring braidless side-break construction, Series RB-1 Switches yield long, trouble-free service life with silver-to-silver, constant-pressure contacts. Low-gradient compression springs create constant pressure for the contact shoes within the main contact. The full-floating shoes allow for variations in blade alignment, are self-adjusting and wipe the blade clean with every operation of the switch. High-density silver contact surfaces minimize wear and lengthen the life of the contacts.

Series RB-1 Switches offer installation flexibility with their ability to mount in a horizontal, vertical or underhung position. Space requirements are minimized by the side-break opening. The operating mechanism can be located at various positions. One pole of a three-pole switch has an adjustable crank, permitting easy installation.

Modern power systems demand highly dependable equipment, and Series RB-1 Switches are designed, tested and proven over years in the field to yield maximum reliability and service.

In a series of cold-room tests, the Series RB-1 Switch demonstrated complete ice-breaking action. Cold-room tests were conducted on switches preset in both open and closed positions. Water was sprayed on the pole units until a ¾" thick coating of clear ice formed. The switches were operated and proved capable of breaking and clearing ice from the contact structures.



RB-1 Switch Test Results

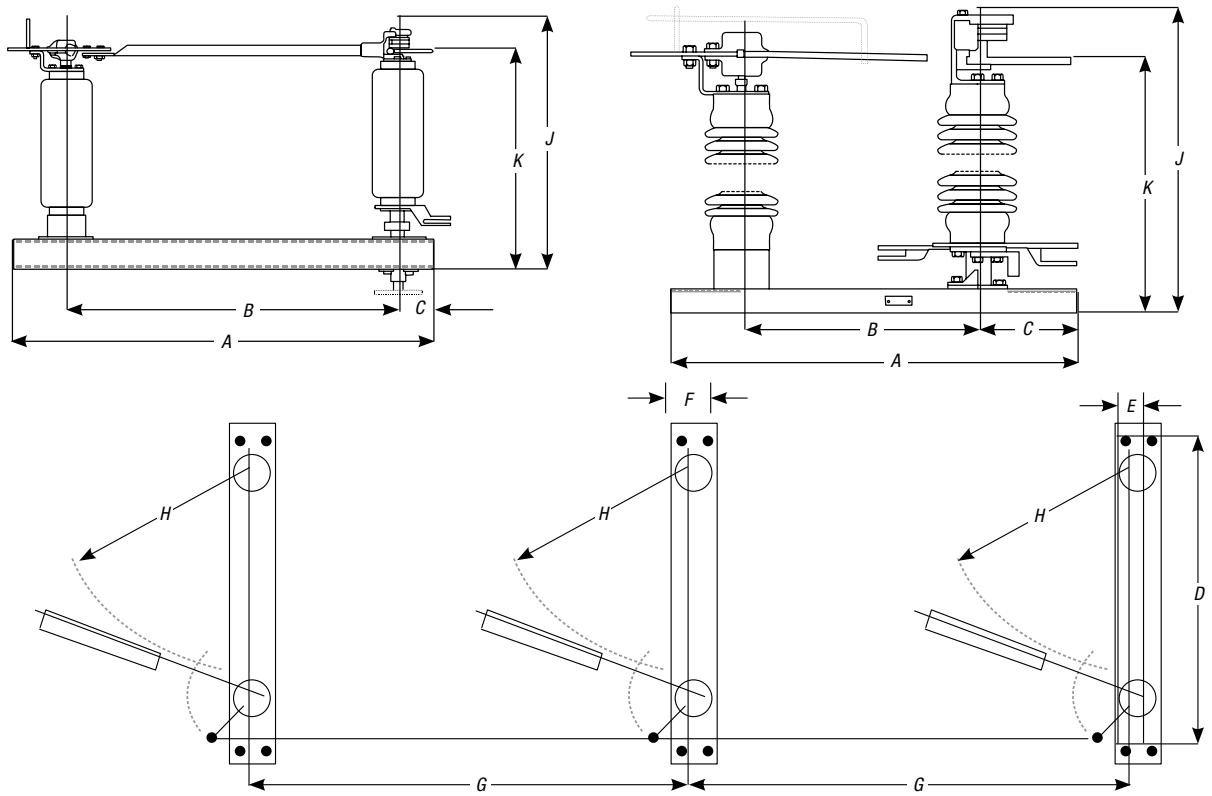
Short-Circuit Tests — The Series RB-1 Switch demonstrated ability to meet all industry requirements.

Ice Test — Even under extreme icing conditions, the Series RB-1 Switch proved capable of breaking and clearing ice from the contact structure.

Heat Run — During heat runs, the Series RB-1 Switch's temperature rose less than 30° C above ambient at each thermocouple location.

Corona Tests — Tests proved that the Series RB-1 Switch operated well within industry limits for radio noise and corona.

Mechanical Data



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Disconnect Switches

RB-1 Switch Ratings

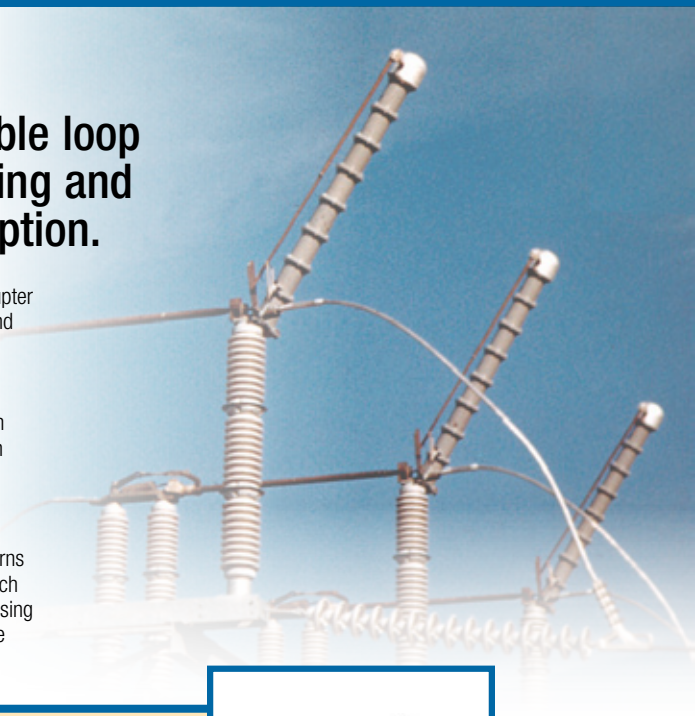
RATINGS		IMPULSE WITHSTANDING	INSULATOR	DIMENSIONS IN INCHES (APPROX)*										
										G				
kV	AMPS	kV	NEMA REF. NO.	A	B	C	D	E	F	HORN-GAP	DISC. SW.	H	J	K
14.4	600	110	TR205	27¾	15	7⅜	24	3	5	36	30	10¾	20½	17½
14.4	1,200	110	TR205	27¾	15	7⅜	24	3	6.7 #/ft.	36	30	10¾	21¼	17⅝
23	600	150	TR208	30¾	18	7⅜	27	3	5	48	36	13½	22½	19½
23	1,200	150	TR208	30¾	18	7⅜	27	3	6.7 #/ft.	48	36	13½	23¼	19⅝
34.5	600	200	TR210	36¾	24	7⅜	33	3	5	60	48	19	25½	22½
34.5	1,200	200	TR210	36¾	24	7⅜	33	3	6.7 #/ft.	60	48	19	26¼	22⅝
46	600	250	TR214	42¾	30	7⅜	39	3	6	72	60	25¼	28¾	25¾
46	1,200	250	TR214	42¾	30	7⅜	39	3.	8.2 #/ft.	72	60	25¼	29½	25⅞
69	600	350	TR216	54¾	42	7⅜	51	3	6 ship	84	72	36½	40¾	37¼
69	1,200	350	TR216	54¾	42	7⅜	51	3	12 #/ft.	84	72	36½	41	37⅜
69HD	600	350	TR278	67	48	9½	62	8¼	2–5	108	96	38	44⅞	41⅛
69HD	1,200	350	TR278	67	48	9½	62	8¼	6.7 #/ft.	108	96	38	45⅝	42
115	600	550	TR286	76	60	9½	71	8¼	2–5	120	108	50	59⅜	56⅜
115	1,200	550	TR286	76	60	9½	71	8¼	6.7 #/ft.	120	108	50	60⅛	56½

** Dimensions are subject to change and should not be used for construction.*

Note: To order Series RB-1 Side-Break Disconnect Switches, contact your Thomas & Betts sales representative.

Load Interrupter Attachments

Use load interrupter attachments to enable loop sectionalizing, line dropping, load breaking and transformer-magnetizing current interruption.



Increase the capability of your disconnect switches by adding Joslyn Hi-Voltage® load interrupter attachments to expand their versatility for loop sectionalizing, line dropping, load breaking and transformer-magnetizing current interruption. The value of this added capability is increased operational efficiency and flexibility, as well as reduced number of circuit breaker operations and/or investment. Additionally, devices that provide multiple functions on a single switch, such as the Joslyn Hi-Voltage® Series LSI Load Sectionalizer Interrupter, which provides both loop splitting and line dropping, increase personnel safety because they can eliminate switch misoperation.

Joslyn Hi-Voltage® load interrupter attachments do not in any way reduce the rating of the disconnect switch, nor do they violate the coordinated open gap design of the switch. Joslyn Hi-Voltage® interrupter attachments include custom-designed mounting brackets and arc horns to ensure that interrupters are properly transitioned into the circuit when the disconnect switch opens. In addition, the arc horns are designed to withstand the prestrike developed upon closing of the switch. Joslyn Hi-Voltage® load interrupter attachments are designed for a 30-year life and can be operated 5,000 times without any maintenance.

Series HVI Hi-Velocity Interrupter Attachment

This device stores energy in the spring rod and in the coil spring inside the aluminum housing. The stored energy in the spring rod is added to the energy stored in the coil spring at the instant the spring rod separates from the latch. The parting velocity is 22" (558mm) per cycle. This allows the Series HVI to be the highest rated device in this category. Applications include interruption of line charging current up to 161kV and transformer-magnetizing current up to 230kV.



Series UVI Universal Vac-Rupter Interrupter Attachment

This device uses one vacuum interrupter per phase. The vacuum interrupter is inserted into the circuit when the disconnect switch is opened. Once the switch blade is sufficiently away from the switch jaw, the vacuum contacts separate and interrupt the circuit. Specially designed arcing horns are designed to handle prestrikes upon closing of the switch. Applications include 2,000A load breaking up to 34.5kV for solidly grounded systems and parallel switching up to 230kV.

Add the Joslyn Hi-Voltage® Voltage Limiter (V/L) Attachment to interrupt line charging current of 15A up to 69kV.



Series LSI Load Sectionalizer Interrupter Attachment

The Series LSI combines both the Series HVI and Series UVI devices into one system.

The interrupter automatically determines which device will be providing the interruption with a preset latch/spark gap assembly.



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Load Interrupter Attachments



Series JMVI Modular Vac-Rupter Interrupter Attachment for 230kV Systems

This device uses up to eight vacuum interrupters in series per phase for 230kV systems. The vacuum interrupters are inserted into the circuit when the disconnect switch is opened. Once the switch blade is sufficiently away from the switch jaw, the vacuum contacts separate and interrupt the circuit. Specially designed arcing horns handle prestrikes upon closing of the switch. Applications include 2,000A load breaking, line charging current interruption and parallel switching up to 230kV.

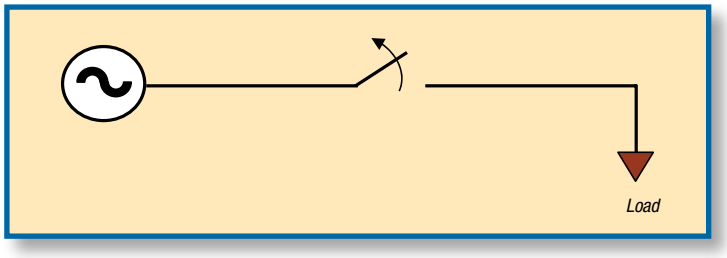
Applications for Joslyn Hi-Voltage® Load Interrupter Attachments

Load Dropping

Loads are being fed from one source, and opening the switch will disconnect the loads from that source. The interrupter needs to be able to interrupt the continuous load current at the system voltage. This is rarely done since it interrupts service to customers, and is usually specified only as a safety measure in case of an emergency.

Products used in this application:

- Series UVI (34.5kV and below)
- Series JMVI (46kV to 230kV)

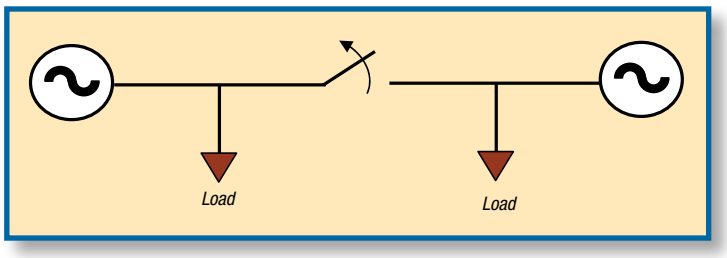


Loop Sectionalizing

Loads are being fed from multiple sources, and a switch in the circuit needs to be opened. The interrupter needs to be able to interrupt the circulating current between the two energized sources. When the switch is open, both sides will still be energized at the system voltage. The recovery voltage is typically low, but currents can be high.

Products used in this application:

- Series UVI (230kV and below, unless peak recovery voltage is greater than 30kV)
- Series JMVI (if peak recovery voltage is greater than 30kV)



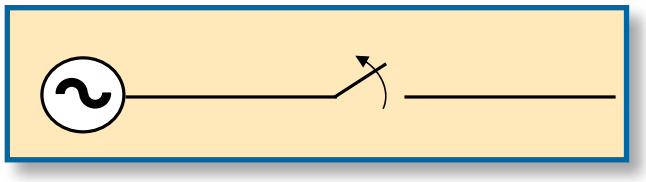
Load Interrupter Attachments

Line and Cable Dropping

When a section of line is energized and no load is connected, a small amount of charging current is flowing. When the line is de-energized, the recovery voltage will be high, because the system voltage will be seen on the source side of the switch and a charge will be trapped on the other side of the switch.

Products used in this application:

- Series UVI (34.5kV and below; up to 69kV with Voltage Limiter)
- Series HVI (69kV to 161kV)
- Series JMVI (230kV and below)



Typical Conductor and Cable Charging Currents

Underground Cable

Many factors determine the amount of cable charging current, such as the cable insulation material and geometry of the conductors. A common guideline for determining the charging current is to use 1.5A per 1,000 ft. of cable; however, it is always recommended to contact the cable manufacturer to obtain the exact charging current for a particular cable.

Overhead Conductor

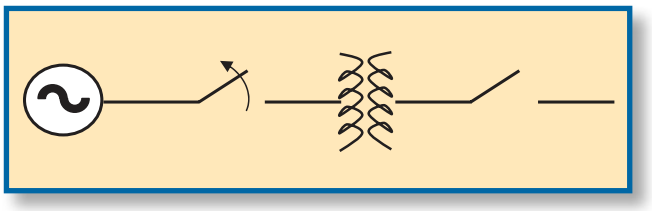
SYSTEM VOLTAGE (kV)	TYPICAL CHARGING CURRENT PER MILE (A)
69	.226
115	.377
138	.440
161	.502
230	.737

Transformer-Magnetizing Current

When a transformer is energized and no load is connected to it, a small amount of current still flows. This current is called transformer-magnetizing current. When the transformer is de-energized, the recovery voltage will be high, because the system voltage will be seen on the source side of the switch and a charge will be trapped on the other side of the switch.

Products used in this application:

- Series UVI (34.5kV and below; up to 69kV with Voltage Limiter)
- Series HVI (69kV to 230kV)



Transformer General Reference Information*

SYSTEM VOLTAGE (kV)	TRANSFORMER MVA	MAGNETIZING CURRENT PER PHASE	FULL LOAD CURRENT (%)
69	10	2.6	3.1
	25	5.0	2.4
138	10	.98	2.4
	25	3.2	3.1
	50	6.5	3.1
161	25	3.5	3.9
	50	7.0	3.9
230	25	2.2	3.5
	50	3.5	2.8

** Transmission & Distribution — Westinghouse Electric Corp., Fifth Edition, 1964*

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Series LSI Load Sectionalizer Interrupter Application

A typical application for the Series LSI Load Sectionalizer Interrupter is when a particular section of a circuit needs to be de-energized for maintenance. Loop sectionalizing is the first step in this process. At the other end of the line, a device will have to de-energize the line by interrupting the line charging current.

The Series LSI Load Sectionalizer Interrupter combines the functions of both low charging current interruption and higher current loop sectionalizing. To accomplish this, the Series LSI Load Sectionalizer Interrupter consists of two complementary devices connected in parallel:

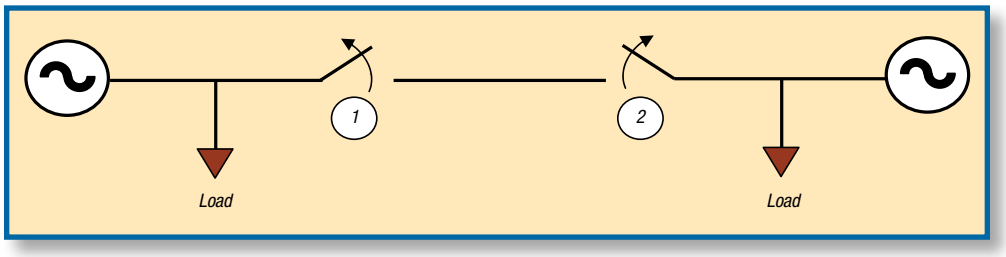
- Series UVI Universal Vac-Rupter Interrupter
- Series HVI Hi-Velocity Interrupter

The UVI device interrupts the high current associated with loop sectionalizing, and the HVI device interrupts the line charging current. During an opening operation, the two interrupters are mechanically controlled so that the vacuum contact opens prior to the separation of the HVI device. If the recovery voltage is within the capability of the UVI device, the UVI device interrupts the circuit. If the recovery voltage exceeds the capability of the UVI device, a spark gap will ignite and instantly place the HVI device in the circuit. The HVI device will then interrupt the circuit. The mechanical operation of the Series LSI Load Sectionalizer Interrupter is the same every time it is operated. The determining factor as to which interrupter is used is the magnitude of the recovery voltage.

In the figure below, Series LSI Load Sectionalizer Interrupters are installed on both switches. When Switch 1 is opened while Switch 2 is closed, loop sectionalizing will be performed. Because the recovery voltage is low, the UVI device interrupts the loop current. When Switch 2 is subsequently opened, the higher recovery voltage associated with line dropping will result in the HVI device being inserted into the circuit. The HVI device will then interrupt the line charging current.

The significant advantage of the Series LSI Load Sectionalizing Interrupter is that the switches can be opened in any sequence, because this device automatically inserts the correct interrupting device in the circuit. This provides operational flexibility and is inherently safer than specific function devices. Some advantages are:

- Reduce switching time
- Eliminate misoperation due to switching errors
- Increase personnel safety
- Reduce breaker operations



Application Summary Table

SYSTEM VOLTAGE (kV)	2,000A LOAD DROPPING	2,000A LOOP SECTIONALIZING[1,2]	LINE DROPPING[2]	MAGNETIZING CURRENT[2]
15.5	UVI	UVI	UVI	UVI
25	UVI	UVI	UVI	UVI
34.5	UVI	UVI	UVI V/L	UVI
46	JMVI	UVI	UVI V/L	UVI V/L
69	JMVI	UVI UVI V/L LSI	HVI UVI V/L LSI	HVI UVI V/L LSI
115	JMVI	UVI LSI JMVI V/L	HVI LSI JMVI V/L	HVI LSI JMVI V/L
138	JMVI	UVI LSI JMVI V/L	HVI LSI JMVI V/L	HVI LSI JMVI V/L
161	JMVI	UVI LSI JMVI V/L	HVI LSI JMVI V/L	HVI LSI JMVI V/L
230	JMVI	UVI LSI JMVI V/L	JMVI	HVI LSI JMVI V/L

Notes: *1. UVI and LSI can be applied where the peak recovery voltage is less than 30kV.*

2. V/L = Joslyn Hi-Voltage® Voltage Limiter Attachment.

Load Interrupter Attachments

Easy and economical interrupting of line charging or transformer-magnetizing current.

Joslyn Hi-Voltage® Series HVI Hi-Velocity Load Interrupter Attachments



- Economical attachments for air switches mount quickly on most gear- or motor-operated vertical- and side-break switches, enabling affordable conversion of existing air switches
- Install on the air switch's existing hardware — no special tools or training required
- Reliable operation
- Interruption reliability is not dependent upon switch opening speed
- Virtually maintenance-free; requires only an inspection every five years or 5,000 operations
- Unique design ensures proper operation at all times, and air switches equipped with Series HVI Interrupters have operated dependably in the field for many years
- Interrupting performance far exceeds the capabilities of quick-break attachments of more conventional design
- Mount on almost any vertical- or side-break horn gap air switch equipped with 3" or 5" bolt circle insulators and a manual gear or motor-operated mechanism

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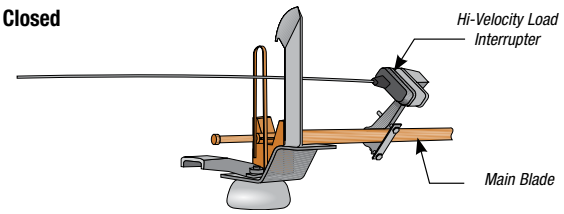
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Load Interrupter Attachments

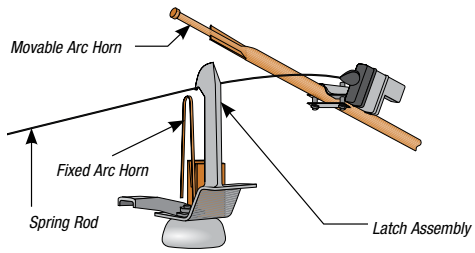
Operation

1. With the air switch closed (top diagram), current flows through the main blade. The Series HVI Interrupter is out of the circuit.
2. As the air switch blade operates (second diagram), the movable arc horn slides along the fixed arc horn until the spring rod engages the latch. Current flow is established through the Series HVI Interrupter, its spring rod and the latch.
3. As the air switch blade continues to open (third diagram), energy is stored in the spring rod of the Series HVI Interrupter.
4. At the point where the spring rod is released from the latch, a large open gap has been established between the movable arc horn and the fixed arc horn (bottom diagram). The circuit is interrupted, and visible isolation is provided.

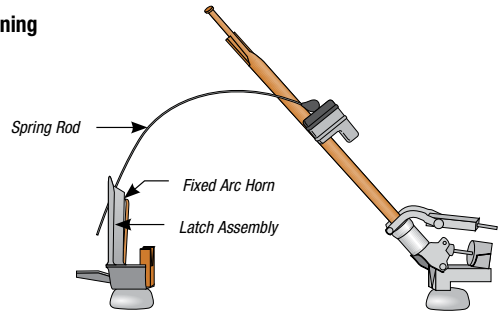
1. Closed



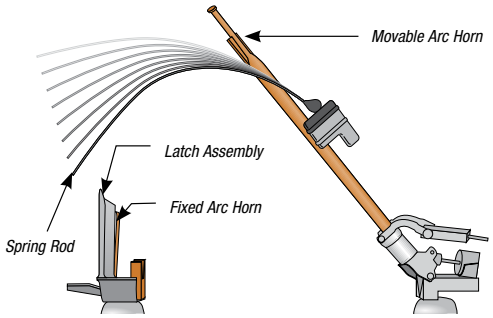
2. Opening



3. Opening



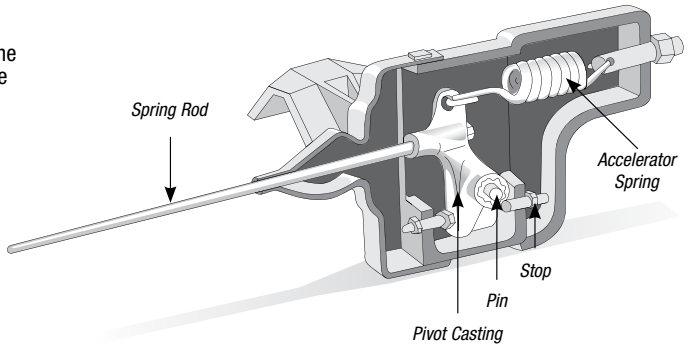
4. Open



Mechanical Data

Cutaway of Series HVI Hi-Velocity Load Interrupter

When latched, the spring rod pivots around the pin, loading the accelerator spring. Maximum energy is stored in the accelerator spring when the pivot casting reaches its full travel as set by stop.



Ratings

Loop Dropping and Cable Switching					
System Voltage (kV)	96	115	138	161	230
Approximate Line Length (miles)	70	50	30	20	—
Current (amps)	20	20	15	10	.5
Transformer-Magnetizing Switching					
System Voltage (kV)	96	115	138	161	230
Transformer Size (MVA)	70	100	150	200	300

Note: To order a Joslyn Hi-Voltage® Series HVI Load Interrupter, please supply the following information:

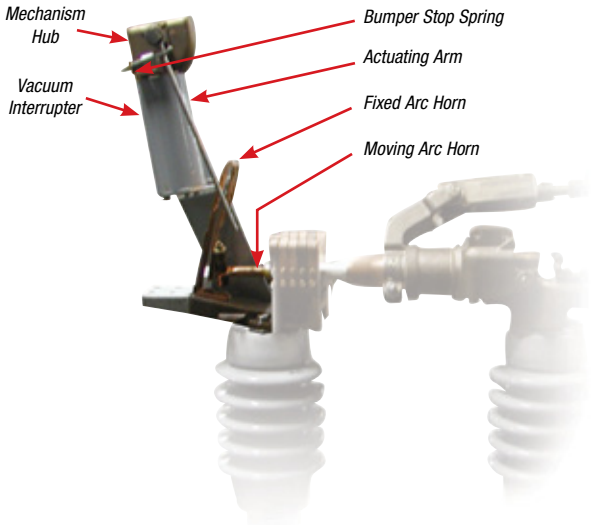
1. Air switch manufacturer
2. Switch model number
3. Voltage rating
4. Current rating
5. Size of insulator bolt circle
6. Description of blade movement, including rotation as viewed from hinge end looking back at the jaw assembly end

Load Interrupter Attachments

Convert an isolating switch into a load interrupter switch.

Joslyn Hi-Voltage® Series UVI Universal Vac-Rupter Load Interrupter Attachments

- Quick and affordable conversion of existing switches
- Mount quickly on most group-operated isolating switches, including vertical-break, side-break, double-side break, center-side break and in-line designs, in all configurations including phase-over-phase, with no special tools or training required
- May be used for full load interruption up to 34.5kV
- May also be used for reduced recovery voltage applications of loop splitting or parallel switching up to 230kV, depending on system voltage, grounding of system and load and load characteristics
- Optional voltage limiter expands capability for transmission line charging current and transformer-magnetizing current interruption at voltages up to 72.5kV, in addition to providing 2,000A of loop splitting or parallel switching capability
- Virtually maintenance-free; requires only an inspection every five years or 5,000 operations
- Anodized aluminum mechanism housing protects against corrosive action
- Fiberglass interrupter module housing with special coating inhibits ultraviolet activity
- Sealed vacuum interrupter chamber is encapsulated in Joslyte solid-dielectric, closed-cell insulation to seal against moisture and contamination
- Current-transfer and arcing horn components are made from special non-welding, high-current materials
- The Series UVI Interrupter is in the power circuit only for a few seconds during the opening operation; it is not in the circuit while the switch is closing or closed, and continuous momentary and impulse ratings of the switch are unaffected
- Reliable operation — a spring toggle mechanism opens the vacuum contacts at the proper speed, independent of air switch operation
- External spark gap protects vacuum module if operated above its recovery voltage capability



Joslyn Hi-Voltage® Series UVI Universal Vac-Rupters are economical attachments to convert an isolating switch into a load interrupter switch. Depending upon system voltage, grounding considerations of the system and the load and load characteristics, the Series UVI Interrupter enables the switch to be used for full load interruption or for the reduced recovery voltage application of loop splitting or parallel switching.

Series UVI Interrupters mount quickly on most types of group-operated isolating switches from all manufacturers, whether vertical-break, side-break, double side-break, center side-break or in-line designs in all configurations, including phase-over-phase.

You can easily and affordably convert an existing air switch. No special tools or training are required. Instructions detail simple procedures to install the interrupter, along with the fixed and moving arc horns, and to verify proper operation. Adding a Series UVI Load Interrupter will not affect the mechanical operation of the switch.

The Series UVI Interrupter converts an isolating switch into a load interrupter switch. The switch may be used for full 2,000A load interruption up to 34.5kV. The Series UVI Interrupter may also be used for the reduced recovery voltage application of loop splitting or parallel switching up to 230kV, depending on system voltage, grounding considerations of the system and load and load characteristics. Use the ratings table for determination.

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Load Interrupter Attachments

Loop Sectionalizing (Loop Splitting — Parallel Switching)

This switching requirement arises at switches in closed transmission loops and tie switches in substation primary and secondary buses. These are situations in which the switch will still be energized at both terminals after it has opened. Depending upon system conditions, rated load current may be flowing through the switch. The recovery voltage (i.e. the voltage that will appear across the switch terminals immediately following interruption of the circuit) is generally a small percentage of full system voltage. This reduced recovery voltage enables the economics of application of the Series UVI Interrupter on systems energized at voltages up to 230kV. A more detailed technical discussion of this application is contained in the Joslyn Hi-Voltage paper, "Some Fundamental Aspects of Recovery Voltage," TD 745-510.

As load currents increase, the ability to reliably open transmission loop switches and substation tie switches while they are energized becomes increasingly important from the standpoint of safety and system operating efficiency. Unlike other types of interrupters, the life of the Joslyn Hi-Voltage Series UVI Interrupter does not significantly relate to number of amps interrupted or recovery voltage duty.

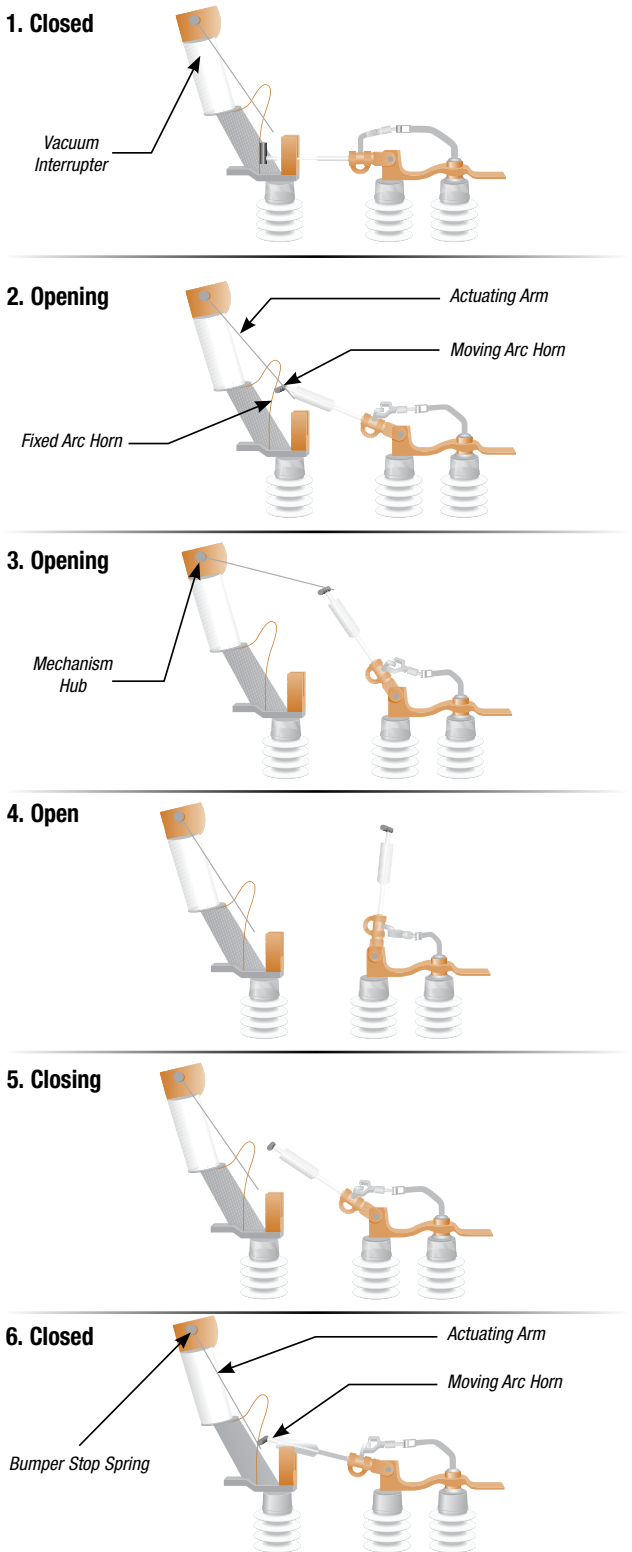
Operation

Opening Sequence

1. Air switch is closed. Series UVI Interrupter is not in the circuit. Current flows between the jaw and blade contacts. Vacuum contacts are closed, but no current flows through them because the device is not engaged in the circuit when the switch is fully closed.
2. Air switch contacts separate, but the circuit is maintained through the moving arc horn and fixed arc horn. As blade movement continues, the moving arc horn engages the actuating arm. Vacuum contacts are closed.
3. As blade movement continues farther, the fixed and moving arc horns separate. The current has been transferred to a path through the closed vacuum contacts. Rotation of the mechanism hub brings the spring toggle mechanism to the trip position after adequate clearance distance is established. Current is interrupted inside the vacuum chamber with no external arcing as contacts open.
4. The switch moves to full open position, releasing the actuating arm, which is spring loaded to return to original position, closing the vacuum contacts.

Closing Sequence

5. As the switch blade closes, the circuit is energized between the moving and fixed arc horns.
6. As the switch nears the fully closed position, the moving arc horn depresses the actuating arm. The bumper stop spring returns the actuating arm to its original position for the next operation.



Load Interrupter Attachments

Voltage Limiter extends capability of Series UVI Interrupter

With the addition the Joslyn Hi-Voltage® Voltage Limiter (V/L), the Series UVI Interrupter can be used for transmission line charging current and transformer-magnetizing current interruption at voltages up to 72.5kV in addition to providing 2,000A of loop splitting or parallel switching capability. The V/L and Series UVI Interrupter combination enables a single switch to be opened to split a loop or drop charging current — the two operations required to isolate a section of a transmission line for maintenance. Sequential switching operations or temporary outages are thereby eliminated with a resulting economical increase of system operating convenience and efficiency. The small, lightweight V/L and Series UVI Interrupter combination represents an advanced technology version of the Joslyn Hi-Voltage® Series LSI Load Sectionalizer Interrupter, which provides the same functions through 161kV.



Series UVI Interrupter with Voltage Limiter

Ratings for Standard UVI

SYSTEM VOLTAGE (kV)	APPLICATION	INTERRUPTING CAPABILITY (AMPS) (PEAK RECOVERY VOLTAGE OF 30kV)
Up to 15	Capacitor Switching, Grounded & Ungrounded	800
25	Capacitor Switching, Grounded Only	140
Up to 25	Load Switching, Grounded & Ungrounded	2,000
34.5	Load Switching, Grounded Only	2,000
Up to 25	Reactor Switching	2,000
Up to 25	Transformer-Magnetizing Switching	2,000
Up to 25	Line Dropping	140
Up to 25	Cable Switching	800
Up to 230	Loop Splitting/Parallel Switching	2,000

Ratings for UVI with Voltage Limiter

SYSTEM VOLTAGE (kV)	CABLE CHARGING CURRENT (AMPS)	LINE CHARGING CURRENT (AMPS)	PARALLEL OR LOOP SWITCHING CURRENT (AMPS)
38	50	25	2,000
48.3	25	20	2,000
72.5	15	15	2,000

Note: To order a Joslyn Hi-Voltage® Series UVI Load Interrupter, please supply the following information:

1. Air switch manufacturer
2. Switch model number
3. Voltage rating
4. Current rating
5. Size of insulator bolt circle
6. Description of blade movement, including rotation as viewed from hinge end looking back at the jaw assembly end
7. Application, system voltage and grounding

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Load Interrupter Attachments

Convert an isolating switch into an interrupter switch.

Joslyn Hi-Voltage® Series LSI Load Sectionalizer Interrupter Attachments

- Eliminate sequential switching of a loop system, which minimizes the possibility of a switching error, thereby increasing personnel safety and system operating flexibility
- Can be supplied mounted and pre-adjusted on Joslyn Hi-Voltage® isolating switches to provide a complete, single-source interrupter switch
- Also available as an add-on for existing air switches — can be applied easily and economically to existing vertical-break or side-break disconnect switches rated 69kV through 161kV, regardless of manufacturer
- 69kV Series LSI with Voltage Limiter is ideally suited for additional switch types including center-break and in-line designs
- Virtually maintenance-free; requires only an inspection every five years or 5,000 operations
- Anodized aluminum mechanism housing protects against corrosive action
- Fiberglass interrupter module housing with special coating inhibits ultraviolet activity
- Sealed vacuum interrupter chamber is encapsulated in Joslyte solid-dielectric, closed-cell insulation to seal against moisture and contamination
- Current-transfer and arcing horn components are made from special non-welding, high-current materials
- The Series LSI Interrupter is in the power circuit only for a few seconds during the opening operation; it is not in the circuit while the switch is closing or closed, and the continuous momentary and impulse ratings of the switch are unaffected
- Spring toggle mechanism opens the vacuum contacts at the proper speed, independent of air switch operating time
- External spark gap protects vacuum module if operated above its recovery voltage capability



Joslyn Hi-Voltage® Series LSI Load Sectionalizer Interrupters convert isolating switches into interrupter switches for sectionalizing transmission loops. A transmission loop switch requires the functions of loop splitting, or parallel switching, and line dropping (see Load Interrupter Attachment Applications on **page H-223** for more information). The Series LSI Interrupter is a co-coordinated device that combines the capability of a vacuum interrupter for loop splitting with the articulated spring-rod interrupter (HVI) or the Joslyn Hi-Voltage® Voltage Limiter (V/L) for line dropping. The spring rod design incorporates a gap-type voltage sensor, which automatically determines the required function and inserts the proper interrupter into the power circuit. The Series LSI Interrupter can also interrupt the magnetizing current of unloaded transformers.

Design Features

Each Series LSI Interrupter consists of a vacuum interrupter (UVI) and an articulated spring rod interrupter (HVI) or a voltage limiter (V/L). A gap-type sensor measures the recovery voltage across the switch when the spring rod is supplied. If the recovery voltage is within the capability of the vacuum interrupter — which will be the case in the reduced recovery voltage loop-splitting situation — the circuit will be interrupted within the vacuum interrupter. If the recovery voltage exceeds the capability of the vacuum interrupter — which will be the case if another switch in the loop has already opened — the voltage limiter will function, or the gap-type sensor will trigger and insert the articulated spring rod to interrupt the line charging current. Therefore, it doesn't matter which switch is opened first. The Series LSI Interrupter will automatically determine the required function and insert the correct interrupter. Use of the Series LSI Load Sectionalizer Interrupter on every transmission loop switch eliminates sequential switching procedures and precludes the possibility of switching sequence error.

Series LSI Operation

Opening Sequence of Series LSI Interrupter with Spring Rod Component

1. With the air switch closed (top diagram), the Series LSI Interrupter is completely out of the circuit. The only current path is through the air switch blade.
2. As the air switch blade operates (second diagram), the movable arc horn slides along the fixed arc horn and engages the actuator arm of the vacuum interrupter. Current flow is diverted through the closed contacts of the vacuum interrupter. The spring rod of the Hi-Velocity Interrupter (HVI) is caught on its latch. No current flows through the Hi-Velocity Interrupter (HVI) because an insulating rod supports the latch.
3. When the actuator arm approaches the limit of travel (third diagram), a toggle mechanism within the weatherproof housing opens the vacuum interrupter contacts. If the application is loop sectionalizing (parallel switching), the circuit is interrupted. If the application is line dropping, cable switching or transformer-magnetizing switching, the air gap ignites, inserting the Hi-Velocity Interrupter (HVI) into the circuit. Current flow is established through the Hi-Velocity Interrupter (HVI), spring rod, latch and air gap.
4. As the air switch blade continues to open (bottom diagram), the movable arc horn disengages from the actuator arm and allows it to reset, closing the vacuum contact. After a sufficient opening is established between the air switch blade and fixed arc horn, the spring rod releases from the latch. The circuit is interrupted. Visible isolation is now provided by the air switch.

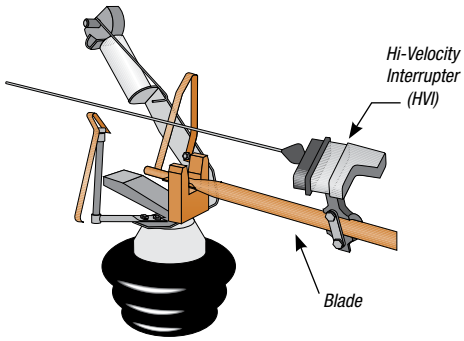
Closing

As the air switch blade closes, the load is picked up through the movable arc horn and fixed arc horn.

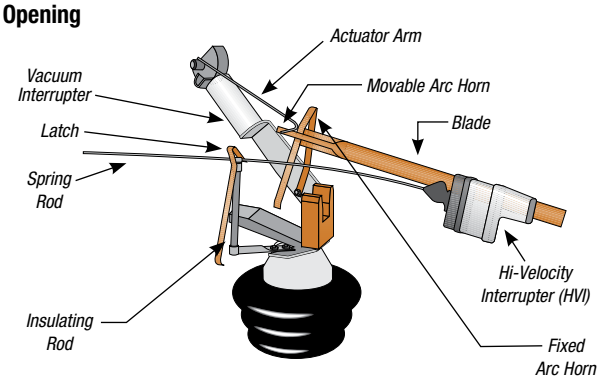
Opening Sequence of Series LSI Interrupter with Voltage Limiter

Operation is similar except the spark gap and spring rod considerations are eliminated.

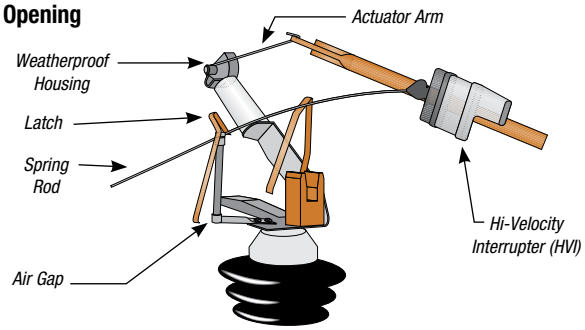
1. Closed



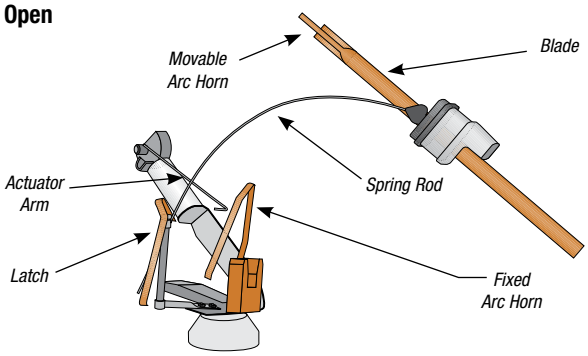
2. Opening



3. Opening



4. Open



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Load Interrupter Attachments

Ratings

Loop Splitting/Parallel Switching					
69–230kV: Maximum interrupting current 2,000A — Maximum recovery voltage 30kV peak					
Line Dropping and Cable Switching					
System Voltage (kV)	69	115	138	161	230
Approximate Line Length (miles)	70	50	30	20	—
Current (Amps)	20 (15*)	20	15	10	.5
Transformer-Magnetizing Switching					
System Voltage (kV)	69	115	138	161	230
Transformer Size (MVA)	70	100	150	200	300

** Rating using Voltage Limiter instead of HVI.*

Note: To order a Joslyn Hi-Voltage® Series LSI Load Interrupter, please supply the following information:

1. Air switch manufacturer
2. Switch model number
3. Voltage rating
4. Current rating
5. Size of insulator bolt circle
6. Description of blade movement, including rotation as viewed from hinge end looking back at the jaw assembly end

Load Interrupter Attachments

Use with a disconnect switch to provide load switching capability.

Joslyn Hi-Voltage® Series JMVI Modular Vac-Rupter Interrupter Attachments



Single pole of Series JMVI Interrupter installed on the Series RF-2 Vertical-Break Switch.

- Consist of one or more vacuum interrupter modules connected in series to form an interrupter assembly to be installed on a disconnect switch to provide load switching capability
- Supplied complete with all mounting hardware, enabling fast and easy installation on most vertical-break disconnect switches from any manufacturer
- Available with Joslyn Hi-Voltage® Series RF-2 Vertical Break Switches to provide a complete load interrupter switch package

The Joslyn Hi-Voltage® Series JMVI Modular Vac-Rupter Interrupter is one or more vacuum interrupter modules connected in series to form an interrupter assembly, which is installed on a disconnect switch to provide load switching capability. The movement of the air switch blade activates a high-speed toggle mechanism that opens all contacts of each phase simultaneously. The contact speed is independent of the air switch blade speed. Switches equipped with Series JMVI Interrupters can provide a high degree of pole-to-pole synchronization. The Series JMVI Interrupter does not change the continuous, momentary or closing capabilities of the air switch because the interrupter is not in the circuit when the air switch is closing or fully closed. Interruption takes place inside permanently sealed ceramic vacuum chambers encapsulated in Joslyte, a sealed, solid-dielectric insulation, to provide a permanent dielectric system inside a rugged housing.

Operation

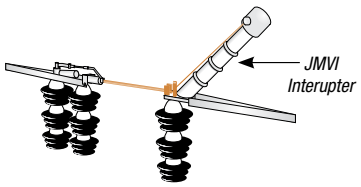
Opening

1. Switch is closed. Series JMVI Interrupter is not in circuit. The only current path is through the switch blade and jaw contacts.
2. As switch begins to open, blade has rotated and raised out of the jaw. The current path is maintained through the moving and fixed arc horns. As the blade continues to open, the contact on the moving arc horn engages the actuator arm of the Series JMVI Interrupter and the control transfer rod. The control transfer rod holds the moving arc horn contact against the actuator arm and breaks any accumulation of ice on the arm.
3. After the moving and fixed arc horns have separated, continuity is retained through the switch blade, moving arc horn contact, actuator arm and closed vacuum contacts to the jaw terminal.
4. When the blade raises the actuator arm to a position that establishes necessary clearances between the blade and the jaw, the over-center toggle mechanism in the housing on top of the interrupter stack opens the vacuum contacts at high speed.
5. As the air switch blade continues to its full open position, the actuator arm is disengaged and returns to its normal position. This closes the vacuum contacts and resets the mechanism for the next operation.

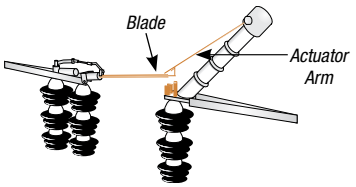
Closing

6. As the blade closes, the moving arc horn approaches the fixed arc horn until an arc strikes to close the circuit in air. After the arc horns contact, the moving arc horn will depress the bottom tip of the actuator arm and pass under it in reaching the fully closed position. The interrupter is not in the circuit when the switch is closed or closing.

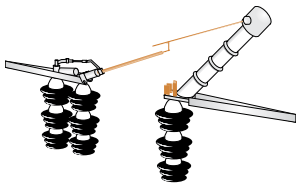
1. Closed



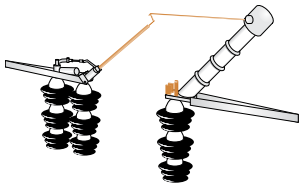
2. Opening



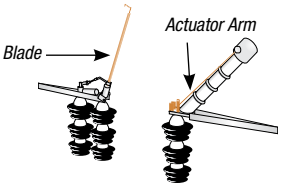
3. Opening



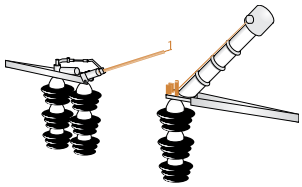
4. Opening



5. Open



6. Closing



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Vacuum Module Requirements Guide for Full-Voltage Applications

Applications

- High-Voltage Transmission Line Switching
- High-Voltage Capacitor Bank Switching
- Shunt Reactor Bank Switching
- Cable Switching

Reduced Voltage Applications

For loop switching or parallel switching, each vacuum contact per phase is rated 2,000A interrupting at a peak recovery voltage of 30kV. In most cases, these applications may be served with a single vacuum contact per phase.

Voltage Limiter Extended Capability

For loop splitting and line dropping/load sectionalizing, use the Joslyn Hi-Voltage® Voltage Limiter in parallel with Series JMVI Interrupter modules to extend capability. The resulting interrupting will be smaller because fewer modules are required. See Series LSI Load Sectionalizer Interrupters on **pages H-229–H-231**.



138kV typical full load-break switch combining the Series JMVI Interrupter with the Joslyn Hi-Voltage® Series RF-2 Vertical-Break Switch. The Series JMVI Interrupter converts the isolating switch for full load switching at system voltages up to 230kV.

Ratings for Standard JMVI

NOMINAL SYSTEM VOLTAGE	MAXIMUM INTERRUPTING CURRENT (RMS AMPS) SWITCHING APPLICATION				MODULES REQUIRED PER PHASE
	70% P.F. LOAD	LINE CHARGING OR 3-PHASE CABLE	CAPACITOR BANK GROUNDED NEUTRAL	UNGROUNDED NEUTRAL	
14.4	2,000	600	800	140	1
14.4	2,000	600	1,000	800	2
23	2,000	140	700	—	1
23	2,000	600	700	600	2
34.5	2,000	600	700	—	2
34.5	2,000	600	700	600	3
46	2,000	450	700	—	2
46	2,000	600	800	140	3
46	2,000	600	1,000	600	4
69	2,000	450	600	—	3
69	2,000	600	600	—	4
69	2,000	600	600	450	5
69	2,000	600	600	600	6
115	2,000	450	600	Call	5
115	2,000	600	600	Call	6
115	2,000	600	600	Call	7
138	2,000	450	600	Call	6
138	2,000	600	600	Call	7
161	1,200	110	450	Call	6
161	2,000	450	600	Call	7
230	2,000	110	450	Call	8

Load Interrupter Attachments

Ratings for JMVI with Voltage Limiter

SYSTEM VOLTAGE	JMVI REQUIRED MODULES PER PHASE	CABLE CHARGING CURRENT (AMPS)	LINE CHARGING CURRENT (AMPS)	PARALLEL OR LOOP SWITCHING (AMPS)
72.5	2	50	50	2,000
121	2	50	15	2,000
145	2	10	10	2,000
145	3	50	20	2,000
169	3	50	25	2,000
242	4	15	15	2,000
242	5	50	100	2,000

Note: To order Joslyn Hi-Voltage® Series JMVI Modular Vac-Rupter Interrupter Attachments, please supply the following information:

1. Air switch manufacturer
2. Switch model number
3. Voltage rating
4. Current rating
5. Size of insulator bolt circle
6. Description of blade movement, including rotation as viewed from hinge end looking back at the jaw assembly end
7. Application, system voltage and grounding

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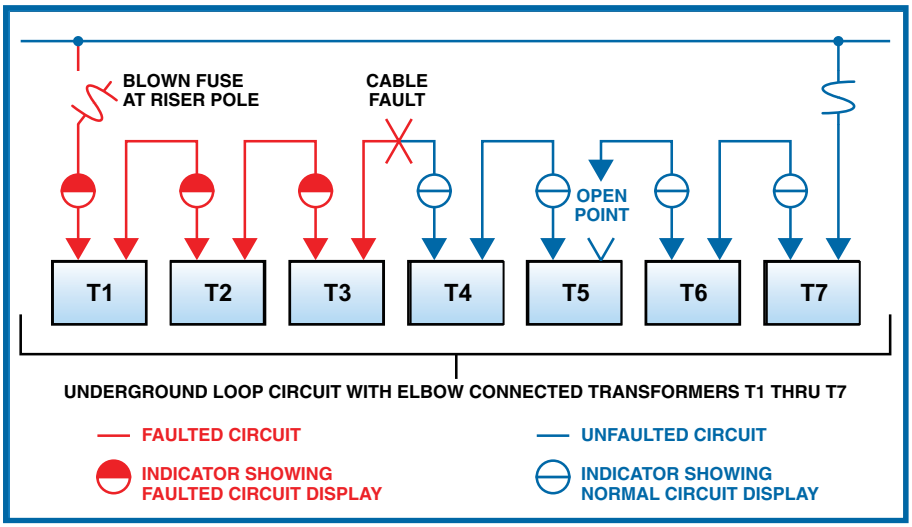
Overview H-236–H-238
Overhead Faulted Circuit Indicators..... H-239–H-241
Underground Faulted Circuit Indicators H-242–H-252
Cellular RTUs and Receivers H-253–H-257
Clamp-Type Faulted Circuit Indicators..... H-258–H-261
Test Point Indicators H-262–H-268
Current Sensors..... H-269–H-271
Capacitor Controls H-272–H-292

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Overview

Quickly locate faulted cable or equipment in overhead and underground distribution systems through 35kV (L–G).



With a complete line of cable-mount and test-point mounted faulted circuit indicators, voltage indicators and phase indicators, Fisher Pierce has the right fault-indication solution to meet your system's performance needs.

Fisher Pierce® fault indicators reduce outage duration by quickly pinpointing the location of faults. As illustrated in the circuit diagram, the fault is located between the last tripped indicator and the first untripped indicator. Once identified, this section can be switched to become the new open point, allowing full-service restoration to the rest of the customers during repairs.

- Adaptive Trip™ logic can handle load growth
- AccQTrip™ logic circuitry "off-the-trip" logic circuit with high/low trip setting selection prevents false tripping due to transient current surges or system overloading
- Inrush restraint eliminates false tripping due to capacitor inrush and cold load pickup
- Temporary fault detection helps locate nuisance temporary faults
- Highly visible strobe, LED and fluorescent orange flag indication options enable easier viewing in daylight, as well as during outage/storm conditions
- Multiple reset options supporting current, voltage and time allows proper FCI choice for any application
- Directional capability allows for fault sensing based on phase relationship for network applications
- Internal adjacent phase shielding prevents electromagnetic interference from adjacent phase conductors

What is…

...Inrush Current and Inrush Restraint?

Circuit inrush is a condition that occurs when a de-energized circuit becomes energized, such as from cold load pickup or recloser operation. The inrush of current is caused by the many loads attached to the circuit. The amount of inrush current depends upon the length of the circuit and circuit loading. Fault indicators without inrush-restraint logic would sense high inrush current and provide a false indication that a fault occurred. For this reason, Fisher Pierce® has developed inrush-restraint logic to mitigate the possibility of false trips due to inrush current.

...Backfeed and Backfeed Restraint?

Distribution system capacitors have been identified as a potential source of backfeed trips downstream of the actual faulted location. Field testing has characterized most backfeeds from this source to have duration of less than 1 cycle. The backfeed-restraint feature applies to the trip algorithm, which ignores any overcurrent with a duration of less than 1.5 cycles. This feature can greatly improve the reliability of the FCI targets during an outage condition. System Consideration: The backfeed-restraint feature is not recommended if the clearing time of the protective device is faster than 2 cycles and the expected fault current magnitude is less than 300 amps.

...Trip Logic?

In non-adaptive trip applications, trip logic is the fixed or programmable current level at which the FCI is set to switch the indicator to the "tripped" or "fault" position.

...Reset Logic?

Reset logic is the means by which the FCI returns the indicator to the "untripped" or "no fault" position.

...Directional Fault capability?

After a settling period is satisfied when a feeder is energized, a phase relationship is learned, stored and considered normal power flow. When the trip current is sensed, the phase angle is calculated and compared to the normal phase angle. If the measured relationship is within the normal relationship, the FCI will indicate a valid fault. If the measured relationship is outside the predetermined phase relationship, the FCI will not trip to indicate a fault.

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Overview

How does Fisher Pierce® Adaptive Trip™ logic work?

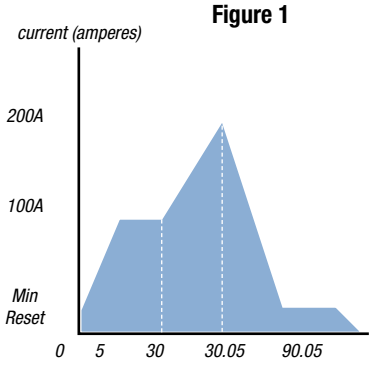
Full criteria for the Adaptive Trip™ FCI to trip are as follows:

1. Range of operation is from the minimum reset current level (dependent on model selected) to 800A maximum. Load current within this range must be present for at least 60 seconds to energize the unit to sense a fault condition.
2. When a system disturbance occurs, the line current must increase by a minimum of the preset fault current level (dependent on model selected) within a 50 msec. time frame.
3. The total current must be greater than the original load current plus the preset fault current level to enable operation of the indicator.
4. Following the current increase, a loss of line current for 150 msec. (duration dependent on model selected), must take place within 40–60 seconds, confirming that the increase resulted from a fault and not from a sudden load increase.

All four of these steps must take place in proper sequence for the Adaptive Trip™ FCI to indicate that a fault has occurred.

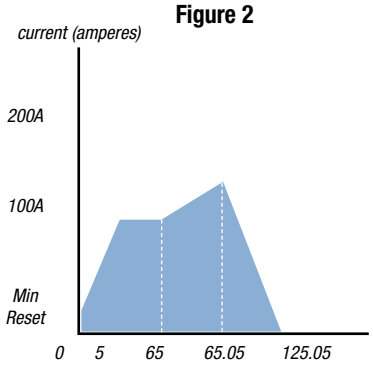
Example based on model parameters: Reset Current = 3A; Trip Current = 100A di/dt

Figure 1



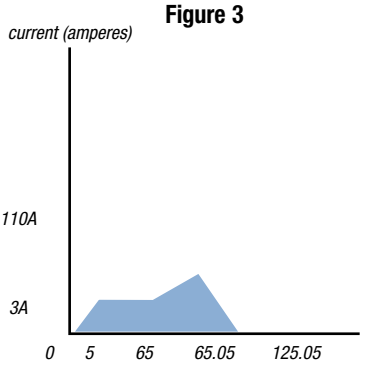
Conditions 1 and 4 not met.
Unit in inrush restraint.
Unit will not enable.

Figure 2



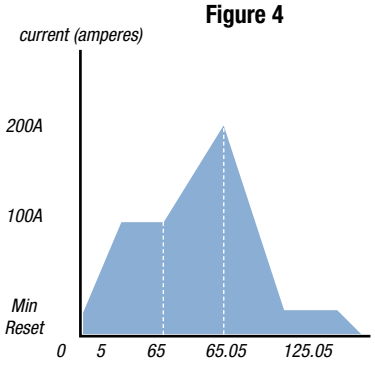
Condition 2 not met.
di/dt Rate of change not satisfied.
Unit not armed.

Figure 3



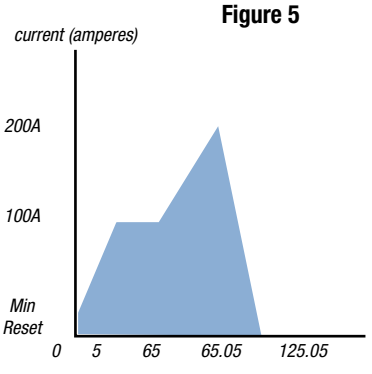
Condition 3 not met.
Total line current magnitude not met.
Unit will not enable.

Figure 4



Condition 4 not met.
Total loss of load current not met.
Unit armed, trip not activated.

Figure 5



All 4 conditions satisfied.
Normal trip indication.
Unit armed and tripped.

Overview

Which Fisher Pierce® FCI is recommended for your application?

	1580	1548	1547	1543	1542	1541	1516	1515	1514	TPMVF	TPMVL	TPMVOL	TPMTL	UCMTL	OLMVOL	OLMVF	OLMVL	OLMTL
Overhead	X	X													X	X	X	X
Underground			X	X	X	X	X	X	X	X	X	X	X	X				
Test Point Installation										X	X	X	X					
Backfeed Restraint		X								X	X	X			X	X	X	
Inrush Restraint		X	X	X	X	X	X	X	X	X	X	X	X	X	X			
Temporary Fault Detection		X																
Directional Fault Capability (1514AM-45102)									X									
Neutral Current (Cap. Banks)	X																	
Phase(s)	1	1	1	3	2	1	1	3	1	1	1	1	1	1	1	1	1	1
Trip Logic																		
Fixed Current Trip		X		X	X	X	X	X	X									
Adaptive Trip		X	X															
High/Low trip										X	X	X	X	X	X	X	X	X
Reset Logic																		
Current		X	X															
Voltage							X			X	X	X			X	X	X	
Time		X	X	X	X	X		X	X			X	X	X	X			X
Manual		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fault Indication Options																		
LED	X	X	X	X	X	X		X	X		X	X	X	X	X		X	X
Fluorescent Flag		X	X				X	X	X	X						X		
Strobe Light		X																
Fiber Optic Display			X	X	X	X		X	X		X	X	X	X				
Radio Transmitter		X	X					X	X									
SCADA Contacts			X				X		X									
Batteryless Options	X									X						X		

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Overhead Faulted Circuit Indicators

Reliable fault indication for single-phase overhead applications.

Fisher Pierce® Series 1548 Overhead FCIs

- Adaptive or fixed current trip with inrush restraint logic
- Adaptive trip logic eliminates the need for trip-rating selection or revision with changing load
- Automatic reset with return of load current and/or time reset of permanent fault indication
- Automatic time reset for temporary fault indication
- Manual trip test and reset capabilities using hotstick-mountable trip/reset tool
- Visual fault indication choices of LED, 5-LED array, flag or strobe light; highly viewable 360° indication (strobe or LED); radio fault reporting capability also available
- Hotstick mounting with automatic torque limiting
- Replaceable lithium battery offers 10-year, maintenance-free service life (Flag model has non-replaceable battery)
- Mounts on conductors with diameters from .14" to 1.20" (3.56mm to 30.48mm)
- Options include temporary/permanent fault indication, instantaneous recloser coordination feature and backfeed restraint using a delay-trip scheme (requires protective device to pass two cycles minimum of fault current before closing)



Trip/Reset Tool AT2186-10
Manual trip/reset test for both permanent and temporary fault indication using hotstick-mountable reset tool.

FCIs with Radio Transmitters

Series 1548 radio FCIs can signal faults to handheld receivers, radio receivers and the SmartLink® Series 5000 cellular remote terminal unit (RTU) systems integrated with SCADA- and web-based reporting systems. Status, alarms and other event notifications can be integrated into SCADA systems, as well as sent to customer-designated personnel via e-mail, pager or text message. Having precise fault information reduces outage duration, improves system reliability and lowers operation costs.



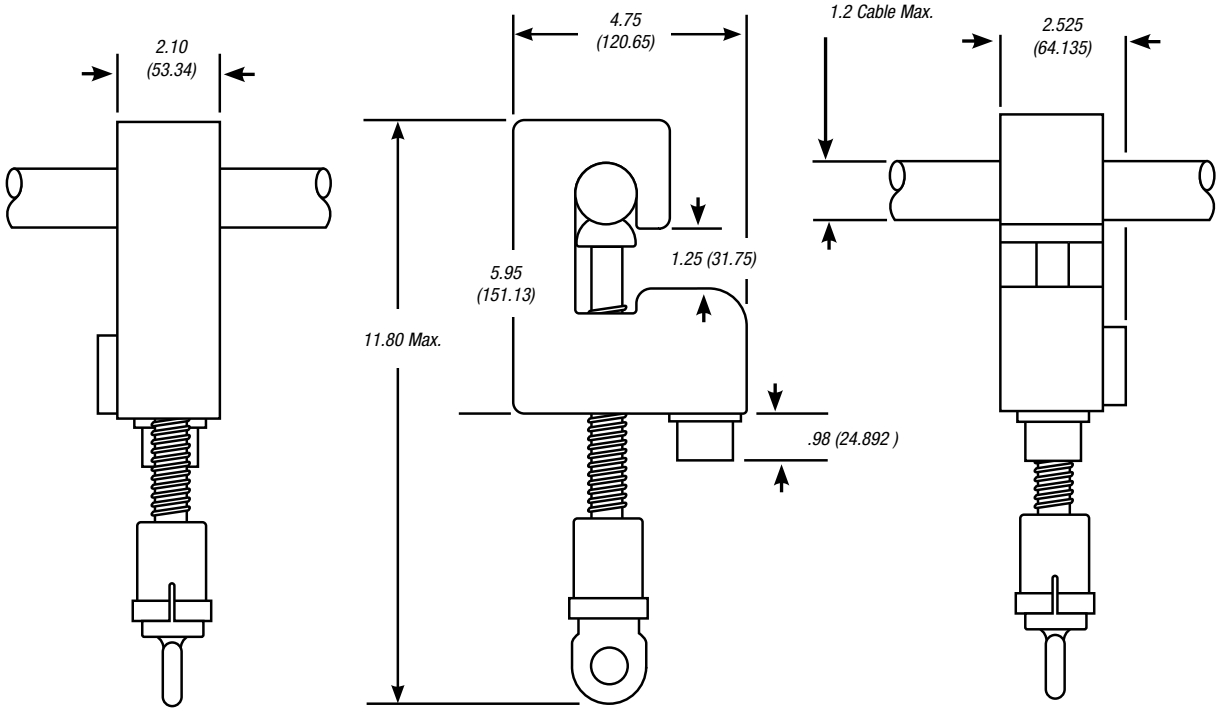
Overhead Faulted Circuit Indicators

Specifications

- **System Voltage**:
  - – Flag, Strobe Models: 44kV max.
  - – LED, Radio Models: 69kV max.
- **Continuous Withstand Load**: 1,000A max.
- **Operating Temperature**: -40° C to 85° C
- **Reset Time Accuracy**: ±10% at 23° C
- **Current Reset**: 3A or 8A min. (model specific)
- **Fixed Trip Current Level**: 50 to 1,500A
- **Adaptive Trip**: 100 di/dt, 300 di/dt
- **Fault Withstand**: 25kA for 10 cycles (per ANSI/IEEE 495-1986)
- **Trip Accuracy**: ±10% at 23° C
- **Battery**: Replaceable 10-yr. Lithium Cell (Flag model non-replaceable)
- **Battery Operating Life at 23° C**:
  - – Single Ultra Bright LED & Flag: 1,000 operating hrs.
  - – 5 Red LEDs: 400 operating hrs.
  - – Strobe: 120 operating hrs.
  - – Radio with LED: 800 operating hrs.
- **Temporary Fault Model**:
  - – 1 Amber (temporary fault) LED: 1,500 operating hrs.
  - – 4 Red (permanent fault) LEDs: 400 operating hrs.
- **Housing**: Semi-conductive UV-stable polycarbonate
- **Cable Diameter**: .14" to 1.2" (3.56mm to 30.48mm)
- **Certifications**: Complies with ANSI/IEEEE 495-1986

Mechanical Data

(all dimensions in inches with millimeter equivalents in parentheses)



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Overhead Faulted Circuit Indicators

Fisher Pierce® Series 1548 Overhead FCIs

CAT. NO.	DESCRIPTION
Recommended Models	
1548FH-ANC3-L-N-A	Branch Feeder (3A min. load, 100A increase within 50 msec. di/dt adaptive trip)
1548FH-BDC3-L-N-A	Main Feeder (3A min. load, 300A di/dt adaptive trip, 24-msec. delay for backfeed restraint)
1548FH-BDC3-X-N-A-1	Temporary Fault Indication (300A di/dt adaptive trip, 24-msec. delay for backfeed restraint); permanent fault indication with 4-hr. delay reset with 60-sec. current reset override, temporary fault indication with 4-hr. time delayed reset
Accessories	
AT2186-10	Manual test and reset tool
A615	Battery for L option
A615-REP	Battery with renewal sticker
A616	Battery for L, X and R options
A616-REP	Battery with renewal sticker
H2403-10	Battery with renewal sticker

The following diagram shows how to construct a catalog number for the Series 1548 FCI.

☐ *Indicates field that must be filled in to complete order.*
***Note**: Availability of selected configuration will be verified at quotation time.*

1548 ☐ H - ☐ - ☐ - ☐ - 3 - ☐ - ☐ - A - ☐

Basic Model

F	Standard offering, reclose dead time of 150 msec. (loss of current >150 msec.), 3A min. load current required for reset, adaptive and fixed inrush trip logic options available.
G	Special application offering for temporary fault detection where reclose recognition time of 32 msec. is required. Recommended for circuits with fast protection settings capable of opening and reclosing in less than 10 cycles. Available with adaptive trip logic only. Requires 8A min. load current required for reset. No current auto reset should be specified.

Factory Code

Trip/Inrush Logic Options
Adaptive Trip

A	Adaptive trip requires: 60 sec. continuous min. load current; arming time <¼ cycle fault current; loss of current within 60 sec. of fault current
B	Same as A with 24ms ±20% delay trip (backfeed restraint)

Trip/Current
Adaptive Trip

N	100A di/dt adaptive trip
D	300A di/dt main feeder applications

***Note:** 3A min. load required.*

Reset Time-Delay
LED, Radio, Strobe or Flag

C	4-hr. automatic with current reset override (60 sec. after restoration of power)
N	4-hr. automatic
P	24-hr. automatic
Z	60 seconds after restoration of power, otherwise no automatic reset
T	Manual reset only, most commonly used with Flag model since batteries are not used for indication; requires tool AT2186-10

Factory Code

Transmitter Phase Encoder

A	Phase A
B	Phase B
C	Phase C
T	Tap
N	No transmitter available for F, T, L of Indicator Options

Indicator Options

L	Single ultra-bright LED (standard for applications up to 69kV max.)
J	5 ultra-bright LEDs display (for applications up to 69kV max.)
X	Temporary fault indication option: 4 red, 1 amber LEDs (standard for applications up to 69kV max.)
T	Strobe light (for applications up to 44kV max.)
R	Radio with single LED (for applications up to 69kV max.)
F	Flag (for applications up to 44kV max.)

Factory Code

Temporary Fault Reset Time

1	4 hrs.
2	8 hrs.
3	12 hrs.
4	24 hrs.
5	Manual reset

***Note:** Only for Indicator Option "X".*

Underground Faulted Circuit Indicators

For single-phase underground or overhead applications.

Fisher Pierce® Series 1547 Adaptive Trip™ FCIs

- Adaptive current trip with inrush restraint logic
- Automatic reset with return of load current and/or time reset of fault indication; manual reset also available
- Visual fault indication choices of Flag, LED or 10-ft. remote fiber optic display; integrated radio transmitter with or without LED also available
- N.O. or N.C. contact enables fault indication alert to be integrated into SCADA systems
- Durable Lexan housing and epoxy-coated sensors protect against moisture for long, maintenance-free service life
- Mounting kits available, enable view-plate mounting for padmount applications



Mechanical Data

(all dimensions in inches with millimeter equivalents in parentheses)

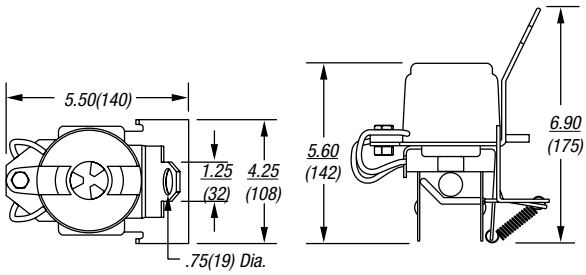


Figure A — Indicator with Attached Sensor. Hotstick Mounting.

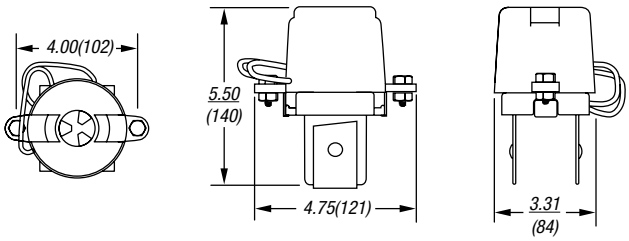


Figure B — Indicator with Attached Sensor. Tie-Wrap Mounting.

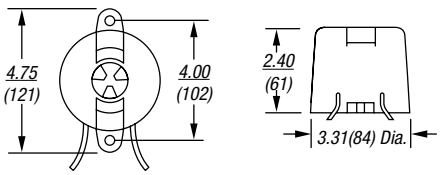


Figure C — Bracket/Surface Mounting.

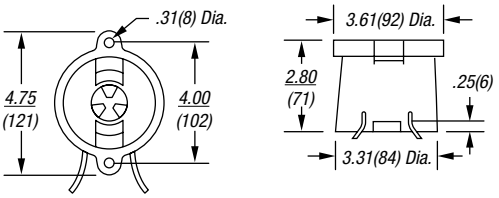


Figure D — Window/Flush Mounting.

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Underground Faulted Circuit Indicators

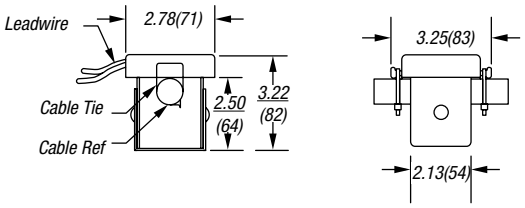


Figure E — Remote Sensor. Tie-Wrap Mounting.

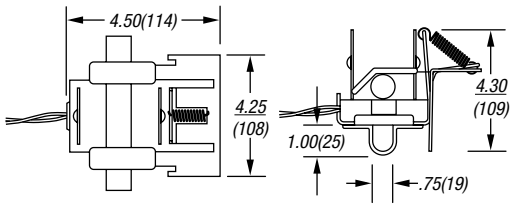


Figure F — Remote Sensor. Hotstick Mounting.



Specifications

- **Operating Speed**: Coordinates with properly applied current-limiting fuses, provided FCI trip-set and trip-release conditions are satisfied
- **Fault Withstand Capability**: 25kA for 10 cycles per ANSI/IEEE 495-1986
- **Operating Current Range**: Min. reset current to 800A for trip operation
- **Continuous Current Rating**: 800A max.
- **Submersibility: Tested to 30 ft**.
- **Reset Function**: Resets to normal indication according to unit selected from Ordering Information Reset Delay Options
- **Reset Current Level**:
  –1⅝" sensor with U-lamination: 1.0A;
  –2¾₁₆" sensor with U-lamination: 1.5A;
  –1⅝" sensor w/o U-lamination: 2.0A;
  –2¾₁₆" sensor w/o U-lamination: 3.0A
- **Life Expectancy**: 20+ years (Series 1547A Flag type)
- **Rated Battery Life**: 800 hrs. of operation; Lithium cell rated for 10-yr. life (Series 1547B LED type; Series 1547C Fiber Optic type)
- **Line Current Adjust**: Adjusts to line current 40–60 sec. after line current exceeds min. reset current
- **Trip Operation**: Trip Enable Condition: Occurs whenever line current increases by the rate of 100A (or greater) within 3 cycles; **Trip Indication**: FCI indicates trip only when line current drops .5A above min. reset current within 40–60 sec. after trip-set condition occurs
- **Approx. Shipping Weight: 2.0 lbs.**
- **Operating Temperature**: -40° C to 85° C
- **Certifications**: Complies with ANSI/IEEE 495-1986

Underground Faulted Circuit Indicators

Fisher Pierce® Series 1547 Adaptive Trip™ FCIs

The following diagram shows how to construct a catalog number for the Series 1547 FCI. Not all combinations are possible; consult factory.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

1547 ☐ - ☐ ☐ ☐ ☐ - ☐ - ☐ - ☐ - ☐

Basic Model

A	Standard Faulted Circuit Indicator Flag type
B	Standard Faulted Circuit Indicator LED type
C	Standard Faulted Circuit Indicator. 10-ft. Remote Fiber Optic cable display*
D	Integral Radio Transmitter LED type

** Consult factory for other cable lengths.*

Indicator Mounting Options

B(1)	Bracket/Surface Mount (See Mechanical Data Fig. C)
P(2)*	Window/Flush Mount (See Mechanical Data Fig. D)
M	Tie-Wrap Mount (See Mechanical Data Fig. B)
H(3)*	Hotstick Mount with Clamp (See Mechanical Data Fig. A)

** For Series 1547A and 1547B options only.*

Reset Delay

Flag with Manual Reset	
P	24-hr. reset time delay after power restoration
W	4-hr. reset time delay after power restoration
Z	60-sec. reset time delay after power restoration
R	Manual reset only
LED or Remote Fiber Optic	
C	4-hr. reset with current override
E	4-hr. reset with current and manual reset override
M	4-hr. reset with manual reset
N	4-hr. reset with manual trip and manual reset
T	4-hr. reset time delay with current override; manual trip and manual reset override
W	4-hr. reset time delay only
1547D Radio FCI (manual trip, manual reset)	
J	4-hr. reset with current override
K	4-hr. reset time delay
Z	60-sec. reset time delay only

Sensor Mounting

S	Remote tie-wrap (see Mechanical Data Fig. E)
G	Integral tie-wrap (see Mechanical Data Fig. B)
H	Remote hotstick (see Mechanical Data Fig. F)
T	Integral hotstick (see Mechanical Data Fig. A)

Consult factory for Series 1547A and 1547B options:
Mechanical (for both LED and flag indicators) —
B(1) *Bracket/Surface Mount Kit (N1767-1, -2, -3)*
P(2) *Lexan Window/Flush Mount Kit (AT2050-1), Reset Tool (AT2186)*
H(3) *Manual Trip Override Kit (LED) (overhead applications only)*

Transmitter Phase Encoding

A	Phase A
B	Phase B
C	Phase C
T	Tap

Close Proximity

R	Raised zero reference to 7A
N	Standard

Lead Length between Sensor and Display

10	10 ft. (standard)
XX	Specify length in feet (30 ft. max.)
N	None; attached indicator sensor units, "M" or "H" indicator mounting options

SCADA Output

A	N.O. (10-ft. lead)
B	N.C. (10-ft. lead)
N	No SCADA

Reset Current

D	3.0A (2 3/16" sensor)

Consult factory for lower reset currents.

Underground Application Note
A solution to problem FCI applications caused by close proximity cable placement and orientation is to set the loss of current operate point at 7A. This raised zero reference point greatly improves the adjacent field immunity of the Adaptive Trip FCI. The option is available only with time-delayed reset and closed core U-lam sensor. When ordering, add the suffix "R" to the model number. A 3" minimum separation between adjacent cables is recommended for installation.

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Underground Faulted Circuit Indicators

For single-phase or three-phase underground applications.

Fisher Pierce® Series 1514/15 Current-Reset FCIs



- Trip Logic: Adaptive current trip with inrush restraint logic
- Reset Logic: Automatic time reset with return of load current and/or time reset of fault indication; manual reset also available
- Fault Indication: Visual fault indication choices of Flag, LED or 10-ft. remote fiber optic display; integrated radio transmitter with or without LED also available
- N.O. contact enables fault indication alert to be integrated into SCADA systems
- Durable Lexan housing and epoxy-coated sensors protect against moisture for long, maintenance-free service life
- Mounting kits available to allow view-plate mounting for padmount applications



Specifications

- **System Voltage**: 29.3kV max
- **Trip Current**: Factory preset from 50 to 1,500A
- **Trip Current Accuracy**: ±10%
- **Trip Response Speed**: Coordinates with properly applied current-limiting or expulsion fuses
- **Reset Current**: Factory preset for 1.2, 1.5, 3.0 and 5.0A
- **Fault Withstand Capability**: 25kA for 10 cycles per ANSI/IEEE 495-1986
- **Maximum Continuous Load Current**: 1,000A
- **Operating Temperature**: - 40° C to 85° C
- **Submersibility**: Tested to 30 ft.; exceeds ANSI/IEEE 495-1986
- **Life Expectancy**: 30+ years (flag type)
- **Rated Battery Life**: 10 years (long-life lithium cell)
- **Model 1514B/1515B:** 800 hrs. of operation
- **Model 1514D:** 300 hrs. of operation
- **Warranty**: 3 years
- **Certifications**: Complies with ANSI/IEEEE 495-1986

Underground Faulted Circuit Indicators

Mechanical Data

(all dimensions in inches with millimeter equivalents in parentheses)

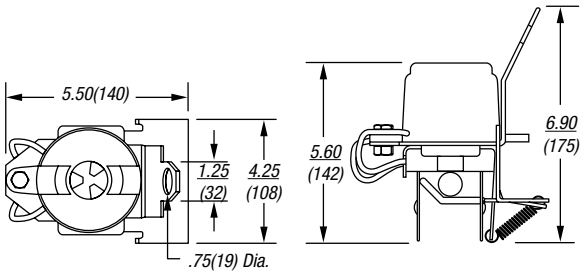


Figure A — Indicator with Attached Sensor. Hotstick Mounting.

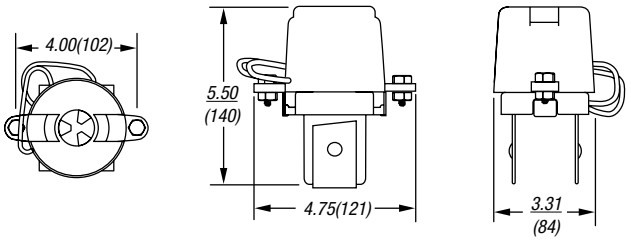


Figure B — Indicator with Attached Sensor. Tie-Wrap Mounting.

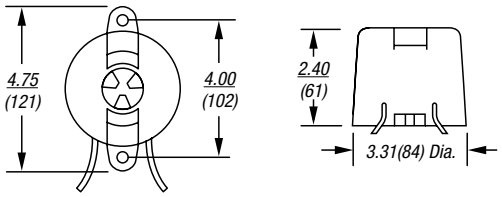


Figure C — Bracket/Surface Mounting.

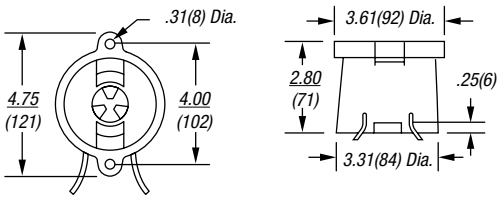


Figure D — Window/Flush Mounting.

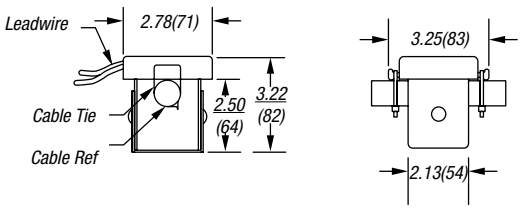


Figure E — Remote Sensor. Tie-Wrap Mounting.

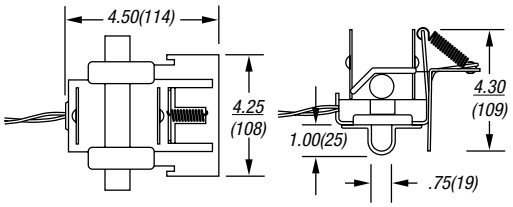


Figure F — Remote Sensor. Hotstick Mounting.

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Underground Faulted Circuit Indicators

Fisher Pierce® Series 1514/15 Current-Reset FCIs

The following diagram shows how to construct a catalog number for the Series 1514 or 1515 FCI. Not all combinations are possible. Consult factory for ordering assistance.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

1514 or 1515 [ ] [ ] [ ] - [ ] **3** [ ] - [ ] [ ] - **B** - [ ]

Basic Model

1514	Single-phase (one sensor, one indicator)
1515	Three-phase (three sensors, one indicator) Unit requires current in all three phases to reset
1514S/1515W	Flag display
1514A/1515A*	Flag display and single (N.O.) latching SCADA output contact
1514B/1515B	LED Display (non-replaceable battery)
1514C/1515C	Remote, 6-ft. fiber optic LED display (requires "M" mounting)
1514D	Integral Radio/LED display (requires "M" mounting)
1514M/1515M*	Flag display with momentary (N.O.) SCADA output

** SCADA Contacts: 3.0A @ 125/250VAC; 1/10 hp @ 250VAC, 10-ft. cable length.*

Max. Cable Diameter

B	1⅝"
D	2³⁄₁₆"
K	2⁵⁄₁₆"
M**	1⅝"
L**	2³⁄₁₆"
N**	2⁵⁄₁₆"

*** Has a snap-on U lamination for circuit isolation.*

Factory Code

Transmitter Phase Encoding

A	Phase A (1514D only)
B	Phase B (1514D only)
C	Phase C (1514D only)

Sensor Termination

S	Terminates with remote lead connected to sensor
T	Sensor and indicator attached to hotstick clamp
H	Hotstick clamp attached to sensor (1⅝" and 2³⁄₁₆" cable diameter only)
G	Sensor attached to indicator, Tie-wrap mount

Lead Length between Sensor and Display

10	10 ft. (standard)
XX	Specify length in feet (30 ft. max.)
N	None. Attached indicator sensor units, "G" or "T" sensor termination

Minimum Reset Current Level

Factory Code	Consult factory for lower reset currents.

Indicator Mounting Options

B	Bracket/surface mounting (remote from sensor)
P(1)*	Window/flush mounting (remote from sensor)
H(2)**	Hotstick mounting (attached indicator/sensor) (B and D sensors only, one phase only)
M	Tie-wrap mounting (attached indicator/sensors)

Manual Reset tool (AT2186)

** Special Lexan mounting kit (AT2050-1) available.*
*** Special Lexan spacer (F2079) available for small (<1" dia.) conductor overhead installation.*

***Note**: Availablity of selected configuration will be verified at quotation time.*

Underground Application Note:
A solution to problem FCI applications, caused by close proximity cable placement and orientation, is to set the loss of current operate point at 7A. This raised zero reference point greatly improves the adjacent field immunity of the Adaptive Trip FCI. The option is available only with time delayed reset and closed core U-lam sensor. When ordering, add the suffix "R" to the model number. A 3" minimum separation between adjacent cables is recommended for installation.

Trip Setting

.5	50A
1	100A
2	200A
3	300A
4	400A
6	600A
8	800A
10	1,000A
12	1,200A
15	1,500A

Inrush Restraint/Reset Delay Options

Flag Display (1514A, 1514M, 1514S, 1515A, 1515M, 1515W), Manual Reset Override	
A	Standard trip curve, 10- to 30-sec. delay after restoration of power
Z	Inrush restraint, 60-sec. reset time delay after restoration of power
W	Inrush restraint, 4-hr. reset time delay after restoration of power
N	Inrush restraint, no automatic reset, manual reset only
P	Inrush restraint, 24-hr. reset time delay after restoration of power
LED Display (1514B, 1514C, 1514R, 1515B, 1515C, 1515R), Inrush Restraint	
W	4-hr. reset time delay after fault occurrence
C	Same as W with current reset override upon energization of line
N	Same as W with manual trip and manual reset override
T	Same as N with current reset override
M	Same as W with manual reset override
E	Same as C with manual reset override
Radio Indication (1514D), Inrush Restraint, Manual Trip and Manual Reset Override	
K	4-hr. reset time delay after fault occurrence
J	Same as K with current reset override upon energization of line
Z	60-sec. time delay after fault occurrence

Underground Faulted Circuit Indicators

For single-phase, two-phase or three-phase underground applications.

Fisher Pierce® Series 1541/42/43 Automatic Time Reset FCIs

- Fixed current trip with inrush delay
- Automatic time reset of fault indication; manual reset also available
- Visual fault indication choices of LED with replaceable or non-replaceable battery; audible alarm fault indication with replaceable battery also available
- Optional permanent or removable remote fiber optic display available

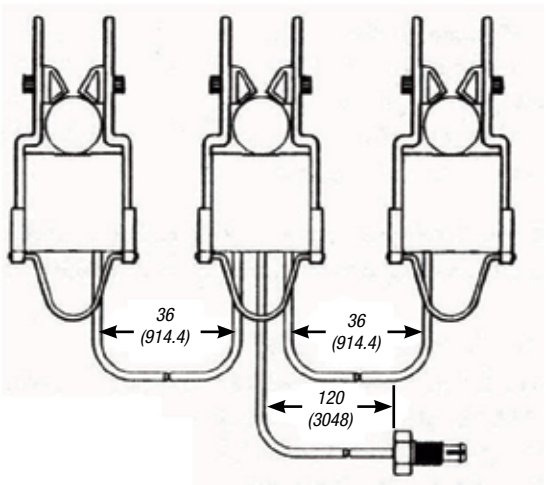


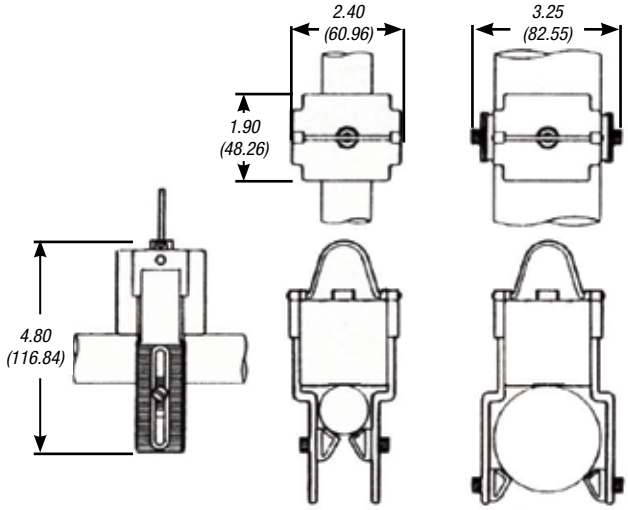


Mechanical Data

(all dimensions in inches with millimeter equivalents in parentheses)

Three-Phase 1543





Thomas&Betts

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800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

www.tnb.com

Underground Faulted Circuit Indicators

Specifications

- **Fault Registration**: Red, high-intensity LED with choice of hard-wired or fiber optic cable remote mounting or audible intermittent beeper signal
- **Trip Current**: Factory preset to customer specifications within range of 50A and 100A to 1,500A in 100A increments
- **Trip Current Accuracy**: ±10% of trip rating (calibrated using 1" dia. cable for 400A trip or less or 2.0" dia. cable for greater than 400A trip)
- **Trip Response Speed**: Consult trip curves (coordinated to properly applied link, expulsion, power and current-limiting fuses)
- **Reset Time**: 4 hrs., 2 hrs., 1 hr., manual trip/reset standard
- **Overload Capacity**: Capable of withstanding 25,000A for 10 cycles
- **Continuous Load Current**: Rated at 1,000A max.
- **Temperature Range**: -40° C to 85° C
- **Submersibility**: Tested to 30 ft.
- **Operating Battery Life**: 800 hrs. for LED indication, 160 hrs. for audible indication, both with 10-yr. life at 20° C
- **Battery**: Long-life lithium cell
- **Cable Ranges**: .63" (16mm) to 1.58" (40mm); 1.58" (40mm) to 2.36" (60mm); 2.36" (60mm) to 3.55" (90mm)
- **Remote Fiber Optic Options**: Permanent or removable (10 ft. standard, 30 ft. max.)
- **Certifications**: Complies with ANSI/IEEE 495-1986

The following diagram shows how to construct a catalog number for the Series 1541/1542/1543 FCIs. Not all combinations are possible. Consult factory for ordering assistance.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

154 [ ] [ ] [ ] - [ ] [ ] - [ ] [ ] [ ] B

Factory Code (154)

Basic Model

1	Single-Phase
2	Two-Phase
3	Three-Phase

Inrush Restraint

F	Inrush trip delay
N	Non-inrush delay

Indication/Battery Options

H	LED, non-replaceable battery, hotstick mounted
R	LED, replaceable battery, hotstick mounted

Trip Point

.5	50A
1	100A
2	200A
3	300A
4	400A
4.5	450A
5	500A
6	600A
8	800A
10	1000A
12	1200A
15	1500A

Reset Time Delay after Fault Occurrence

A	4-hr. automatic reset time delay
B	2-hr. automatic reset time delay
C	1-hr. automatic reset time delay

Length of Remote LED Cable

N	Not applicable when code "T" is selected under display options
10	Remote LED, removable fiber optic cable

Display Options

R	Remote LED
T	Integral LED (always selected with code "H" under Indication/Battery Options)
E	Remote LED, fiber optic cable
F	Remote LED, removable fiber optic cable

Cable Clamp Size

S	Small, .63"–1.58" cable dia.
M	Medium, 1.58"–2.36" cable dia.
L	Large, 2.36"–3.55" cable dia.

Factory Code (B)

Underground Faulted Circuit Indicators

For single-phase underground applications.

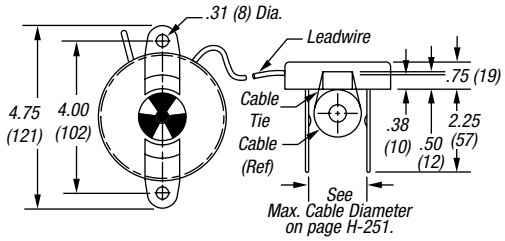
Fisher Pierce® Series 1516 Voltage Reset FCIs

- Fixed current trip with inrush restraint
- Automatic reset after restoration of secondary voltage; manual reset also available
- Flag model provides visual fault indication

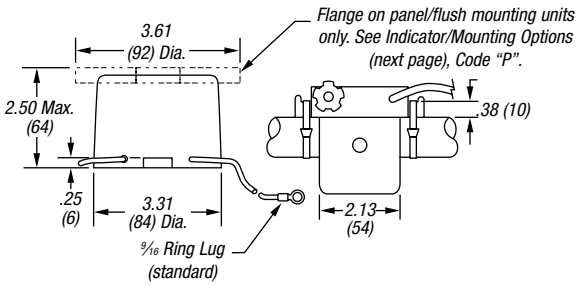


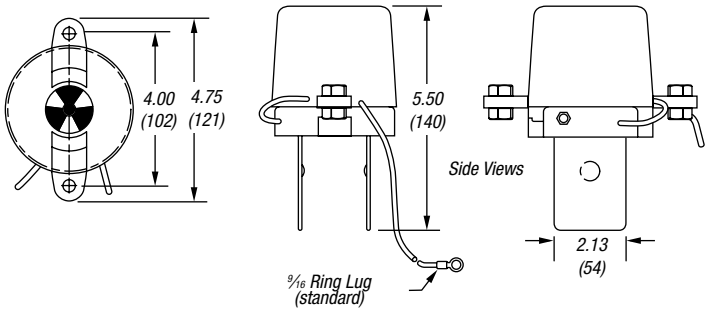
Mechanical Data

(all dimensions in inches with millimeter equivalents in parentheses)

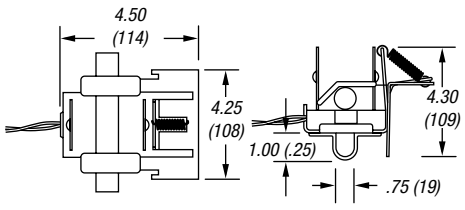


Remote Sensor Leads. Tie-Wrap Mounting.

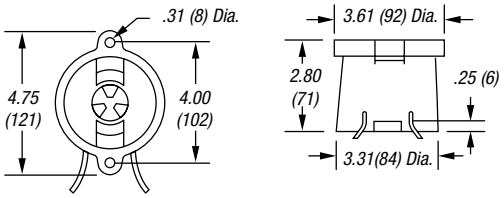




Indicator with Attached Sensor without U-Lamination. Tie-Wrap Mounting.



Remote Sensor Leads. Hotstick Mounting.



Window/Flush Mounting.

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Underground Faulted Circuit Indicators

Specifications

- **Trip Current**: Factory preset from 100 to 1,500A
- **Trip Current Accuracy**: ±10%
- **Trip Response Speed**: Coordinates with properly applied current-limiting fuses
- **Reset Voltage (factory preset)**: 120V Rating: 102V min.; 277V Rating: 235V min.
- **Max. Reset Response Time**: 60 sec.
- **Reset Lead Length**: 4 or 6 ft.
- **Life Expectancy**: ±20 yrs.
- **Fault Withstand Capability**: 25kA for 10 cycles per ANSI/IEEE 495-1986
- **Secondary Voltage Surge Withstand Capability**: Conforms to ANSI/IEEE C62.41
- **Max. Continuous Load Current**: 1,000A
- **Operating Temperature**: -40° C to 85° C
- **Submersibility**: Tested to 20 ft.
- **Certifications**: Complies with ANSI/IEEE 495-1986

Fisher Pierce® Series 1516 Underground FCIs — Secondary Voltage Reset

The following diagram shows how to construct a catalog number for the Series 1516 FCIs. Not all combinations are possible. Consult factory for ordering assistance and for more information on available mounting kits and brackets.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

1516 [ ][ ] - [ ][ ][ ][ ][ ][ ][ ] **B**

Basic Model

1516	Automatic reset after restoration of secondary voltage, flag display only

Trip Sensitivity and Outputs

S	Standard sensitivity +10% with latching relay
A	Standard sensitivity +10% with latching relay and SCADA output contacts (N.O.)

Indicator Mounting Options

B	Bracket/surface mounted (remote from sensor)
P*	Panel/flush mounted (remote from sensor)
M	Tie-wrap mounted (attached indicator/sensors)

** P Mounting Kit (2050-1)*

Trip Current Setting

1	100A
2	200A
2.5	250A
3	300A
4	400A
5	500A
6	600A
8	800A
10	1000A
12	1200A
15	1500A

Trip Curve/Reset Time

A	Standard
B	Standard with inrush restraint

Reset Voltage Sensitivity

1	120V nominal (102V minimum reset voltage) for use on 208/120V three-phase and 240/120V single-phase
2	277V nominal (235V minimum reset voltage) for use on 480/277V three-phase

Lead Length between Sensor and Display

10	10 ft. (standard)
XX	Specify length in feet (30 ft. max.)
N	None; attached indicator sensor units, "G" sensor termination

Sensor Termination

G	Sensor attached to indicator, tie-wrap mounted
S	Terminates with remote lead-connected sensor
H	Hotstick clamp attached to sensor ("B" & "D" cable diameter only)

Max. Cable Diameter

B	1⅝"
D	2 3/16"
K	2 5/16"

Reset Voltage and Lead Length

6	6 ft. (standard)
XX	Specify length in feet (12 ft. max.)

Factory Code

Underground Faulted Circuit Indicators

For single-phase underground applications.

Fisher Pierce® Model 1514A-45102 SmartNet® Directional Network FCI



- Programmable fixed-current trip
- Automatic reset of fault indication; manual reset also available
- Max. operational current: 25kA per ANSI 495
- Max. current withstand: 40kA for 10 cycles with no damage

Operation

When the feeder is energized, the unit's control algorithm initiates a settling period to allow unwanted transients to dampen. After the settling period is satisfied, a phase relationship is learned, stored and considered normal power flow. When the trip current is sensed, the phase angle is compared to the learned phase angle and, if within the pre-determined phase relationship, is considered a valid fault.

1514 Underground FCI — Directional Network

1514 A [ ] 45102

Basic Model

A Flag display and single (N.O.) Latching SCADA output contact

Factory Code

Indicator Mounting Options

B	Bracket/surface mounting (remote from sensor)
P	Window/flush mounting (remote from sensor)
H	Hotstick mounting (attached indicator/sensor)
M	Tie-wrap mounting (attached indicator/sensor)

***Note**: Availability of selected configuration will be verified at quotation time.*

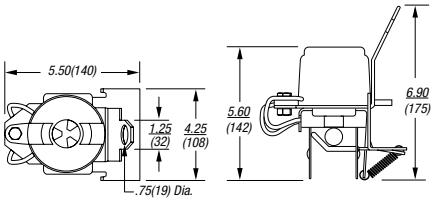


Figure A — Indicator with Attached Sensor. Hotstick Mounting.

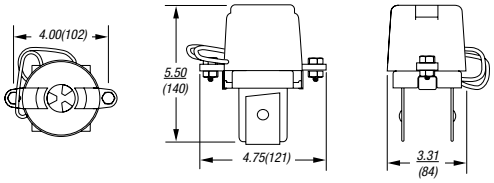


Figure B — Indicator with Attached Sensor. Tie-Wrap Mounting.

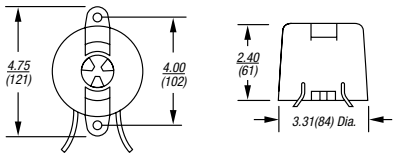


Figure C — Bracket/Surface Mounting.

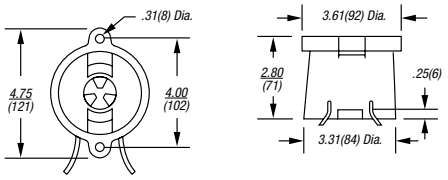


Figure D — Window/Flush Mounting.

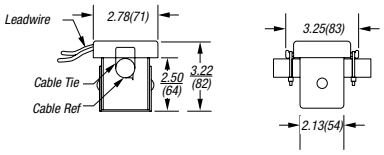


Figure E — Remote Sensor. Tie-Wrap Mounting.

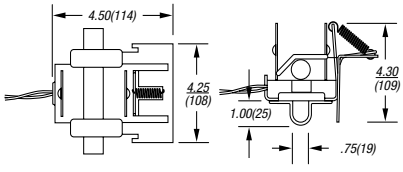


Figure F — Remote Sensor. Hotstick Mounting.

***Note**: To order Fisher Pierce® Model 1514AM-45102 SmartNet™ Directional Network FCIs, please contact the factory.*

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Cellular RTUs and Receivers

Reliable, cost-effective, two-way communication for fault reporting.

Fisher Pierce® SmartLink® Series 5000 Cellular RTU for Fisher Pierce® FCIs



- Local RF signal reports fault alarms from up to four Series 1548 radio FCIs (A, B, C phase + tap), located up to 100 feet away
- Provides instant notification of: Permanent fault on any phase, phase status; fault-cleared status by phase; overvoltage or undervoltage setpoints on control power phase; and low-battery alarm
- User-configurable to receive instant notification of momentary fault data or to wait for lower-cost off-peak hours
- Communicates over cellular data networks via Cingular Wireless and affiliated roaming partners with a variety of application data plans, with coverage available to more than 98% of the North American population
- RTU status-point querying is available at any time through the web-based application or by SCADA/EMS using optional Telemetric™ SCADA-Xchange™ software
- RTU battery-status check and low-battery alarms are sent automatically to ensure continuous, reliable operation

The Fisher Pierce® SmartLink® Series 5000 integrated cellular Remote Terminal Unit (RTU) provides reliable and cost-effective two-way communication for automated fault reporting from Fisher Pierce® Series 1548 radio FCIs. Electric utility operations personnel can have precise fault alarms and data fed to a variety of applications in seconds, increasing response time and system reliability.

The SmartLink® Series 5000 RTU uses technology from Telemetric to communicate over the digital or analog cellular data networks, with coverage available to over 98% of the population in North America. No additional radio equipment, license or local cellular account is required. The SmartLink® Series 5000's intelligent processor provides flexible reporting of permanent and temporary fault conditions. Utilities can access a secure, web-based fault-reporting application or integrate automatic fault reporting into SCADA/EMS systems using optional software from Telemetric.

The secure, web-based application displays device data that can be queried or polled remotely. A variety of user-specified fault alarms can be configured to notify a designated person of a reported event by e-mail, pager or text message.

Cellular RTUs and Receivers

How Radio FCIs help locate and report faults.

Helps crews locate faults easily when fault indicators are not directly visible.



1548 FCI In Field Location



SmartLink® 5000



Cell Tower

No Utillity Communication Infastructure Required

Designed for distribution RTU/SCADA overhead systems

RTU/SCADA System



1560-1 Handheld Receiver



1560-2, -3, -4 Fixed-Mount Receiver



Utility Control Room

Thomas&Betts

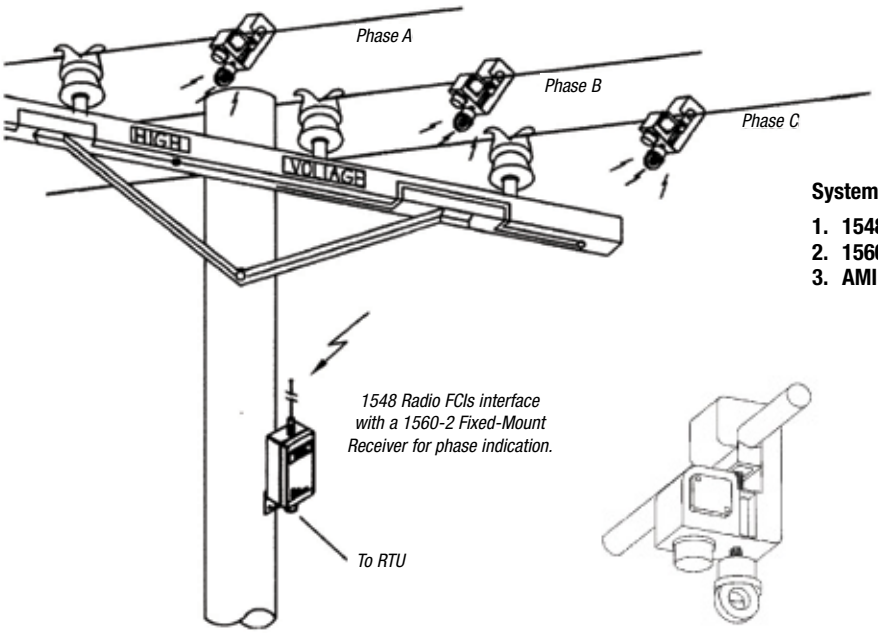
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Cellular RTUs and Receivers

Overhead Installation

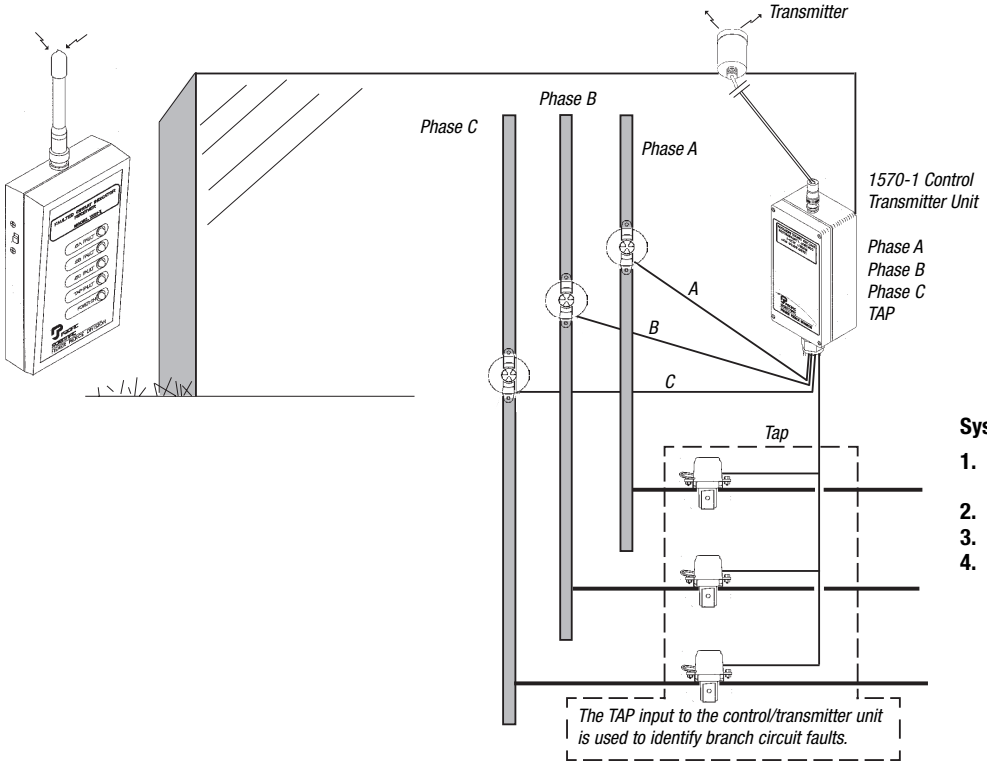


System:

1. **1548 Radio FCI**
2. **1560 Receiver**
3. **AMI Gateway/RTU**

Radio FCI Model 1548

Underground Installation



System:

1. **1547 or 1514 Radio FCI**
2. **1570 Transmitter**
3. **1560 Receiver**
4. **AMI Gateway/RTU**

Cellular RTUs and Receivers

Specifications

Fault Indicator Receiver

Operating Frequency:
312 MHz

Receiver Range:
100 ft. min. typical

Receiver Sensitivity Adjustment:
Selectable via local configuration or web application to max. range of local RF radio (low gain, high gain)

Certification:
Complies with FCC part 15 emissions

Cellular Radio Technology

Dual-band, dual-mode supporting GSM/GPRS 850/1900 MHz; nationwide GPRS support via Cingular Wireless and affiliated roaming partners with a variety of application data plans

Transmit Power:
.6 to 1.2W

External mounted antenna, flexible dual-band (850/1900) cellular, SMA(F) connector

Fault receiver antenna (312 MHz RF system, BNC connector)

Measurement Points List — Calls & Polling

- Permanent fault status indication from radio FCI
- Control Power Voltage Measurements: Undervoltage/Overvoltage Value Alarm
- Control Power Status (Outage)
- Battery Status
- Temporary Fault Data
- Time Scheduled Calls
- Alarm Calls (permanent fault, clearing, phase status, low battery)
- Polling of all status and analog points

Intelligent Web Server

- Data is secure and password protected
- Server authentication using 128-bit encryption key validation
- E-mail, text message or pager notification options

Local Serial Port

RS-232 communications port for local configuration; Windows® based configuration software included with RTU

Front-Panel LED Indicators

Qty.	Color	Label (Indication)
1	Green	Cellular Communication Present
1	Green	Processor OK
4	Red	Fault Received (A, B, C and Tap)
1	Tri-Color	Radio Signal Strength Indicator

Electrical/Environmental

Operating Voltage:
95–135VAC, 60 Hz

Surge Withstand:
ANSI/IEEE C37.90.1-2002, 4kV min. @ 1.2/50 µs surge

FNM style Slo-Blo® fuse, barrel-mounted

Operating Temperature Range:
-40° C to 70° C

Battery Backup

Standard:
Lead acid, rechargeable 12V (3 to 5 yrs. expected service life)

Carryover Time:
4 hrs. typical, 3 hrs. min.

Recharge Time after 3–4-hr. Carryover:
6 hrs. typical

Accessibility:
Front-panel replaceable

Status Message:
Sent weekly or by request

Enclosure

- Lexan enclosure for meter socket mounting
- NEMA 3R Rating
- Security latch for meter seal or ⅜" hasp padlock

Fisher Pierce® SmartLink® 5000 Cellular RTU

CAT. NO.	DESCRIPTION
3175B0126G1	SmartLink® 5000 Cellular RTU (includes battery back-up and antennas)

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Fax: 901.252.1354

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Cellular RTUs and Receivers

Drive-by FCI status.

Fisher Pierce® Series 1560 Receivers for FCIs

1560-1
Handheld Receiver

Specifications

- Frequency: 312 MHz
- Range: 100 ft. max.
- Power: 9V battery
- Handheld
- Complies with FCC Part 15 emissions



1560-2, -3, -4
Fixed-Mount Receiver

Specifications

- Frequency: 312 MHz
- Range: 100 ft. max.
- Power: 9–12VDC, 20mA external
- Complies with FCC Part 15 emissions



CAT. NO.	DESCRIPTION
JH-1560-1	Handheld Receiver with audible and LED indicator
JH-1560-2	RTU/SCADA Radio Receiver with (3) dry contact outputs for Phase A, B and C (includes mounting bracket)
JH-1560-3	RTU/SCADA Radio Receiver with (1) dry contact output for Phase A, B or C (includes mounting bracket)
JH-1560-4	RTU/SCADA Radio Receiver with (4) dry contact outputs for Phase A, B, C and tap (includes mounting bracket)

Fisher Pierce® Series 1570 Control/Transmitter for FCIs

1570-1
Control/Fixed-Mount Receiver

Specifications

- Frequency: 312 MHz
- Range: 100 ft. max.
- Power: 9–12VDC, 20 mA external
- Complies with FCC Part 15 emissions



CAT. NO.	DESCRIPTION
JH-1570-1	Control/Transmitter unit with (4) dry contact outputs for Phase A, B, C and Tap

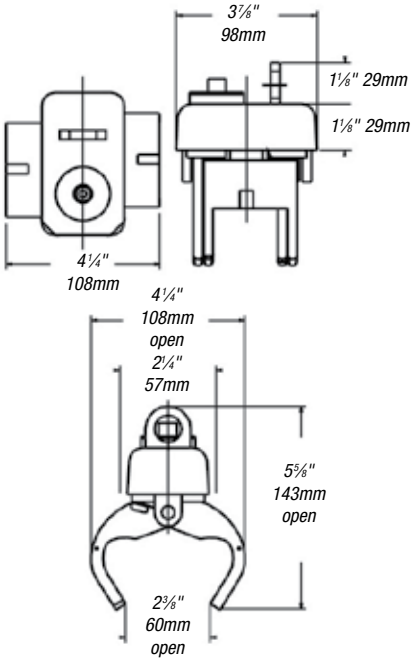
Clamp-Type Faulted Circuit Indicators

Locate faulted circuits and equipment on overhead distribution systems.

Fisher Pierce® Series OLM Overhead Line Fault Indicators



- AccQTrip™ logic circuitry in voltage reset units prevents false indications due to inrush currents, cold load pickup and overloading
- AccQClamp™ mounting provision — universal one-size-fits-all design automatically adjusts
- High/low trip setting selection eliminates minimum load current and the need for load surveys
- Trip response of .001 seconds coordinates with current-limiting fuses, as well as other protection devices
- Internal magnetic shielding prevents adjacent phase effects
- Magnetically latched flag indication — flag indication will not change states due to shock or vibration
- Compact and sealed lightweight enclosure



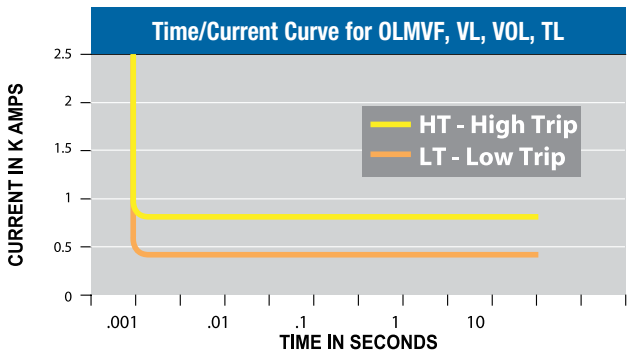
Self-powered Fisher Pierce® Series OLM Overhead Line Fault Indicators consist of a solid-state current sensor connected to a faulted circuit display. Advanced circuit logic monitors system protection operation and prevents indicator tripping unless an overcurrent condition is followed by a loss of system voltage. Trip and reset operations are automatic, and the same indicator may be used for 5kV thru 35kV line-to-ground applications.

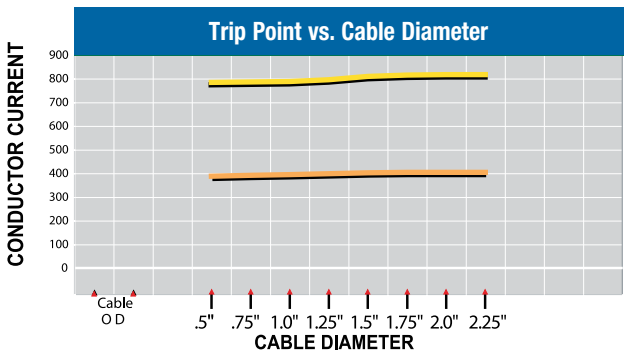
These compact, sealed and corrosion-resistant units are designed for direct installation to an overhead line using a spring-loaded, over-center toggle clamp. Equipped with retainer pads to prevent slip and twist, the clamp positions the conductor at a constant distance from the current sensor, maintaining trip accuracy over the entire conductor diameter range of .4" to 2.2".

Basic Operation

A faulted circuit produces a magnetic field, which closes a reed switch in the indicator and causes a tripped display. A trip response time of .001 seconds enables the indicator to properly coordinate with all circuit-protection schemes, including current-limiting fuses.

To eliminate confusing false trips, indicators feature inrush, overload and cold-load pick-up restraint circuitry as standard. Internal shielding of current sensors prevents inadvertent tripping when in close proximity to adjacent phases.





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Clamp-Type Faulted Circuit Indicators

Specifications for OLM Voltage Operated, Time Reset, LED Display: Model OLMVOL

- Nominal Voltage: 4.16–60kV (L-L)
- Nominal Trip Ratings: Low, 400 Amp; High, 800 Amp
- Trip Response Time: 1mS
- Fault Clearing Time[1]: .001–30 Seconds Subsequent to Arming
- Maximum Surge Level: 25kA 10 Cycles 60 Hz
- Effect of Adjacent Phase: Internal Shielding Prevents Adjacent Phase Effects
- Inrush/Backfeed Restraint: 100mS (Disable Delay)
- Load Current Requirements: None
- Power Up Requirement: 6 Minutes @ 5kV
- Display Type: Flashing Super-Bright LED
- Flash Rate: 30 Flashes per Minute
- LED Display Time: 4 Hours Standard
- Reset Time: 4 Hours Standard (longer times available upon request)
- Power Source[3]: 3.6-Volt Lithium Thyonil Chloride Battery
- Battery Capacity: 2.4 Ah
- Battery Operating Life: 1200 Flash Hours Minimum
- Battery Storage Life: 15–20 Years
- Temperature Range: -40° C to 85° C
- Housing Material: Mounting Boot — EPDM; Conductive Rubber Housing Body — UV-Stabilized Polycarbonate Polymer
- Weight: 258 Grams
- Certifications: Complies with ANSI/IEEE 495-1986

Specifications for OLM Voltage Reset[2], Flag Display: Model OLMVF

- Nominal Voltage: 4.16–60kV (L-L)
- Nominal Trip Ratings: Low, 400 Amp; High, 800 Amp
- Trip Response Time: mS
- Fault-Clearing Time[1]: .001–30 Seconds Subsequent to Arming
- Maximum Surge Level: 25kA 10 Cycles 60 Hz
- Effect of Adjacent Phase: Internal Shielding Prevents Adjacent Phase Effects
- Inrush Restraint Response: 100mS (Disable Delay)
- Load Current Requirements: None
- Display Type: Mechanical Flag
- Minimum Reset Voltage: 5kV (Beginning Initializing Sequence)
- Voltage Reset Time: 6 Minutes @ 5kV
- Power Source: Volt Test Point Powered
- Temperature Range: -40° C to 85° C
- Housing Material: Mounting Boot — EPDM Conductive Rubber; Housing Body — UV-Stabilized Polycarbonate Polymer
- Weight: 258 Grams
- Certifications: Complies with ANSI/IEEE 495-1986

Specifications for OLM Voltage Reset[2], LED Display: Model OLMVL

- Nominal Voltage: 4.16–60kV (L-L)
- Nominal Trip Ratings: Low, 400 Amp; High, 800 Amp
- Trip Response Time: 1mS
- Fault Clearing Time[1]: .001–30 Seconds Subsequent to Arming
- Maximum Surge Level: 25kA 10 Cycles 60 Hz
- Effect of Adjacent Phase: Internal Shielding Prevents Adjacent Phase Effects
- Inrush Restraint Response: 100mS (Disable Delay)
- Load Current Requirements: None
- Power Up Requirement: 6 Minutes @ 5kV
- Display Type: Flashing Super-Bright LED
- Flash Rate: 30 Flashes per Minute
- LED Display Time: 4 Hours Standard
- Voltage Reset Time: 6 Minutes @ 5kV
- Power Source[3]: 3.6-Volt Lithium Thyonil Chloride Battery
- Battery Capacity: 2.4 Ah
- Battery Operating Life: 1200 Flash Hours Minimum
- Battery Storage Life: 15–20 Years
- Temperature Range: -40° C to 85° C
- Housing Material: Mounting Boot — EPDM Conductive Rubber; Housing Body — UV-Stabilized Polycarbonate Polymer
- Weight: 258 Grams
- Certifications: Complies with ANSI/IEEE 495-1986

Specifications for OLM Time Reset, LED Display: Model OLMTL

- Nominal Voltage: 4.16–60kV (L-L)
- Nominal Trip Ratings: Low, 400 Amp; High, 800 Amp
- Trip Response Time: 1mS
- Maximum Surge Level: 25kA 10 Cycles 60 Hz
- Effect of Adjacent Phase: Internal Shielding Prevents Adjacent Phase Effects
- Power Up Requirement: None
- Display Type: Flashing Super-Bright LED
- Flash Rate: 30 Flashes per Minute
- Reset Time: 4 Hours Standard
- Power Source[3]: 3.6-Volt Lithium Thyonil Chloride Battery
- Battery Capacity; 2.4 Ah
- Battery Operating Life: 1200 Flash Hours Minimum
- Battery Storage Life: 15–20 Years
- Temperature Range: -40° C to 85° C
- Housing Material: Mounting Boot — EPDM Conductive Rubber; Housing Body — UV-Stabilized Polycarbonate Polymer
- Weight: 258 Grams
- Certifications: Complies with ANSI/IEEE 495-1986

1. *Prevents false trips due to short time interruptions without loss of voltage.*
2. *Inrush restraint is standard on voltage reset models. It is not available on the time reset models.*
3. *Battery powers LED and it is active only when LED is ON. Lithium Thyonil Chloride batteries provide accurate indication throughout the entire temperature range.*

Clamp-Type Faulted Circuit Indicators



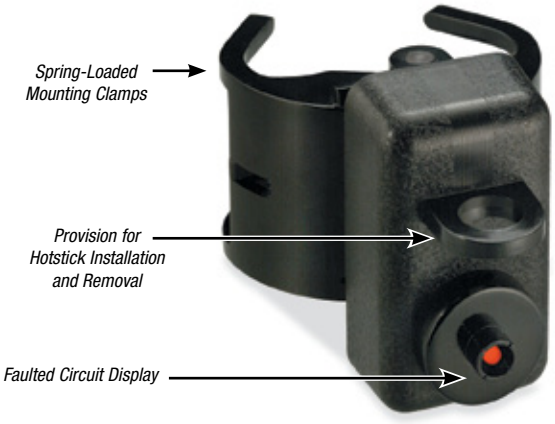


Locate faulted cables and equipment on underground distribution systems.

Fisher Pierce® UCM Series Underground Clamp-Type Fault Indicators

- AccQClamp™ mounting provision — universal one-size-fits-all design automatically adjusts
- High/low trip setting selection eliminates minimum load current requirement and need for load surveys
- Trip response of .001 seconds coordinates with current-limiting fuses, as well as other protection devices
- Internal magnetic shielding prevents adjacent phase effects

Self-powered Fisher Pierce® UCM Series Underground Clamp-Type Fault Indicators consist of a solid-state current sensor connected to a faulted circiut display. Units are designed for direct installation to an underground power cable using a spring-loaded, over-center toggle clamp mounting provision. The clamp accommodates cables ranging from .4" to 2.2" diameter and includes retainer pads to prevent slip and twist. The clamp positions the cable conductor at a constant distance from the current sensor, maintaining indicator trip accuracy over the entire range of cable sizes. Designs feature compact, shielded and sealed, corrosion-resistant construction. The indicator is enclosed in a durable, impact-resistant Lexan® housing and includes a built-in pulling eye for easy hotstick installation and removal from the cable.



Basic Operation

A faulted circuit produces an associated magnetic field, which closes a reed switch in the indicator, resulting in a tripped display. Trip response occurs in .001 seconds, allowing the fault indicator to properly coordinate with all types of circuit protection schemes including current-limiting fuses. Series UCM fault indicators are constructed with an internally shielded current sensor that prevents inadvertent tripping when located in close proximity to adjacent phases, such as junction-mounted applications.

Typical Installation

Install Fault Indicator in area shown.

As shown, proper installation of UCM cable-mounted fault indicators requires routing cable neutral wires to prevent the ground return from affecting trip accuracy. Similar procedures should be followed for tape, wire, LC or other types of shielded cable constructions.

Do not install indicator directly over the concentric neutral to avoid misindication (Fig. 4).

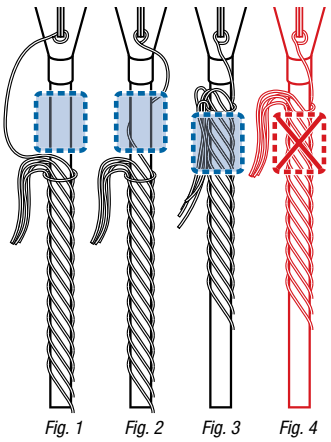


Fig. 1 *Fig. 2* *Fig. 3* *Fig. 4*

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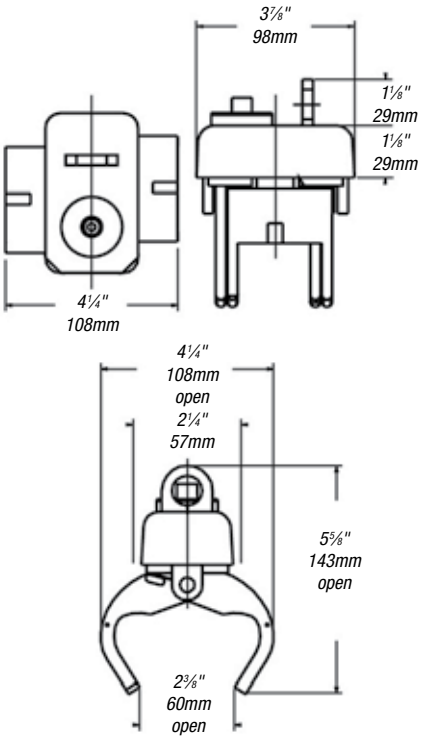
Clamp-Type Faulted Circuit Indicators

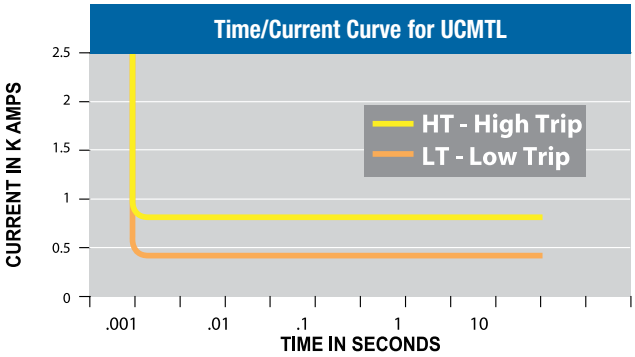
.....Specifications for UCM Time-Reset, LED Display: Model UCMTL .....

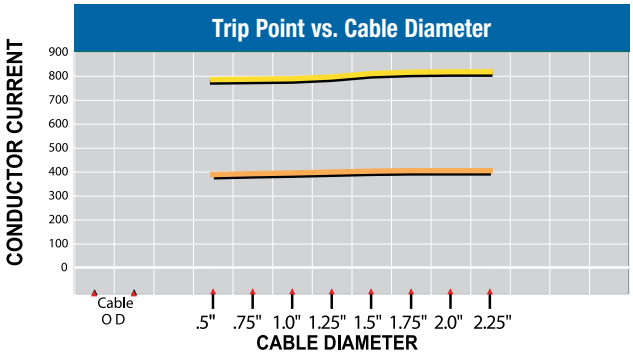
- Nominal Voltage: 4.16–60kV (L-L)
- Nominal Trip Ratings: Low, 400 Amp; High, 800 Amp
- Trip Response Time: 1mS
- Maximum Surge Level: 25kA 10 Cycles 60 Hz
- Effect of Adjacent Phase: Internal Shielding Prevents Adjacent Phase Effects
- Display Type: Flashing Super-Bright LED
- Flash Rate: 30 Flashes per Minute
- Reset Time: 4 Hours Standard
- Power Source[1]: 3.6-Volt Lithium Thyonil Chloride Battery
- Battery Capacity: 2.4 Ah
- Battery Operating Life: 1200 Flash Hours Minimum
- Battery Storage Life: 15–20 Years
- Temperature Range: -40° C to +85° C
- Housing Material: Mounting Boot — EPDM Conductive Rubber Housing Body — UV-Stabilized Polycarbonate Polymer
- Weight: 258 Grams
- Certification: Complies with ANSI/IEEE 495-1986

Notes:

1) *Battery powers LED and it is active only when LED is ON. Lithium Thyonil Chloride batteries provide accurate indication throughout the entire temperature range.*







UCM Series Underground Clamp-Type Fault Indicators

CAT. NO. PREFIX	DESCRIPTION
UCMTL	Time Reset with LED Display (Indicator auto-resets to normal after a four-hour time duration. (Indicator may also be manually reset using an FTT test tool.)

CAT. NO. SUFFIX	DESCRIPTION
LT	For 200-amp circuits. URD applications, use LOW trip rating. All fused taps use LOW trip rating.
HT	For 600-amp circuits. URD Applications, use HIGH trip rating.

Note: *For overhead bulk feeder applications, use HIGH or LOW trip ratings (whichever is greater than the minimum pickup setting of the related protection device).*

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Test Point Indicators

Mount directly to any IEEE 386 standard capacitive test point.

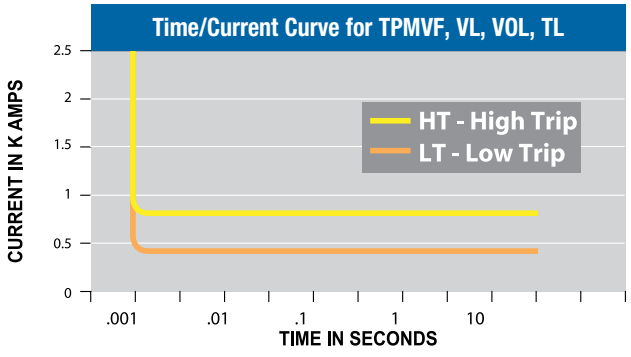
Fisher Pierce® TPM Series Test Point Fault Indicators

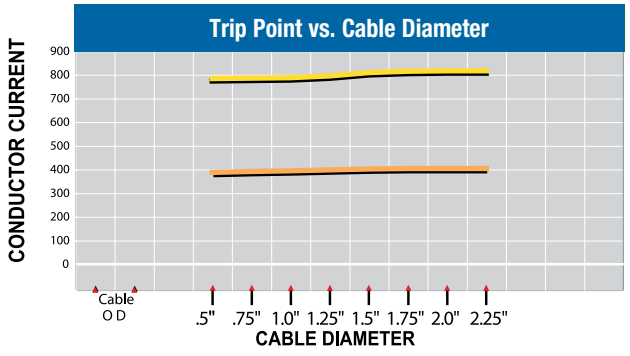
- AccQTrip™ logic circuitry prevents false indications in voltage-reset units due to inrush currents, cold load pickup and overloading
- High/low trip-setting selection requires no minimum load current and no load surveys
- Internal magnetic shielding prevents adjacent phase effects
- 1-msec. trip response coordinates with current-limiting fuses, as well as other protection devices
- Magnetically latched flag prevents flag indication from changing state due to shock or vibration
- Mounts directly to 200- and 600-amp elbows, splices and other cable accessories equipped with IEEE 386 standard capacitive test points from Fisher Pierce and other manufacturers
- Built-in pulling eye enables safe, easy hotstick installation and removal from test points
- Enclosed in a rugged, yet lightweight and compact, sealed, impact- and corrosion-resistant Lexan® housing with EPDM molded-rubber test point mounting boot



Fisher Pierce® Test Point Mounted Fault Indicators consist of a solid-state current sensor connected to a faulted-circuit display, providing a clear visual means for quickly locating faulted cables and equipment on underground distribution systems.

Designs incorporate advanced circuit logic and monitoring system protection operation to prevent the indicator from tripping unless an overcurrent condition is followed by a loss of system voltage. Trip and reset operations are automatic, and for versatility and convenience, the same indicator may be used for 5kV thru 35kV applications.





Basic Operation

A faulted circuit produces an associated magnetic field, which closes a reed switch in the indicator, resulting in a tripped display. Trip response occurs in .001 seconds (1 msec.), allowing the fault indicator to properly coordinate with all types of circuit-protection schemes, including current-limiting fuses. To eliminate confusing false trips, voltage-reset indicators are equipped with inrush, backfeed, overload and cold-load pick-up restraint circuitry. Current sensors feature internal shielding to prevent inadvertent tripping when located in close proximity to adjacent phases, such as in junction-mounted applications.

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Test Point Indicators

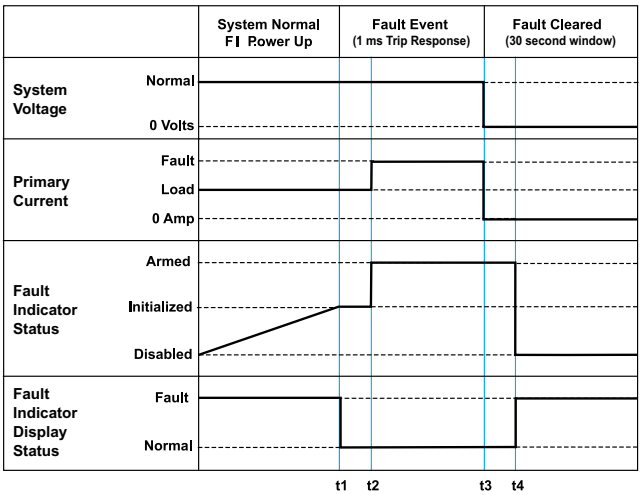
Faulted-Circuit Operation

t1 Fault Indicator is connected to the system and powers up. At 5kV, this takes three minutes for the test point mounted unit and six minutes for the overhead type unit. At higher voltages, power-up time is shorter.

t2 Fault current is detected. Fault Indicator is armed after 1 msec. Fault Indicator display shows Normal.

t3 Breaker/recloser locks out and voltage drops.

t4 Voltage is lost. A 30-second time window allows for the protective device to clear the fault and reclose. Indicator changes state.

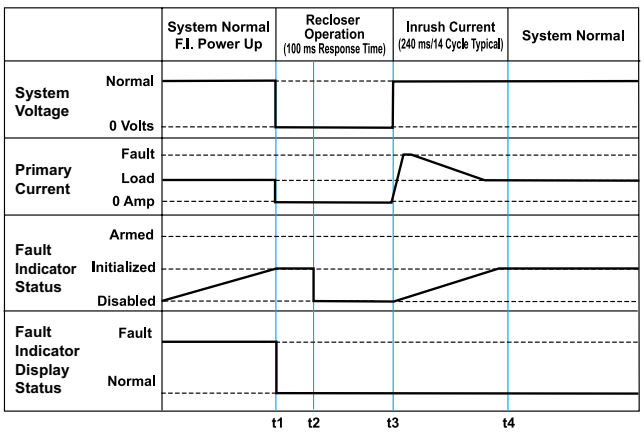


Inrush-Restraint Operation

t1 Fault Indicator is connected to the system and powers up. At 5kV, this takes three minutes for the test point mounted unit and six minutes for the overhead type unit. At higher voltages, power-up time is shorter.

t1–t2 Upline recloser/breaker operation due to fault on another phase. After 100 msec. (t2), the Fault Indicator is disabled because no fault current is detected.

t3 Recloser closes back. Voltage is back to normal. Unfaulted phases see inrush. No change in the Fault Indicator display.



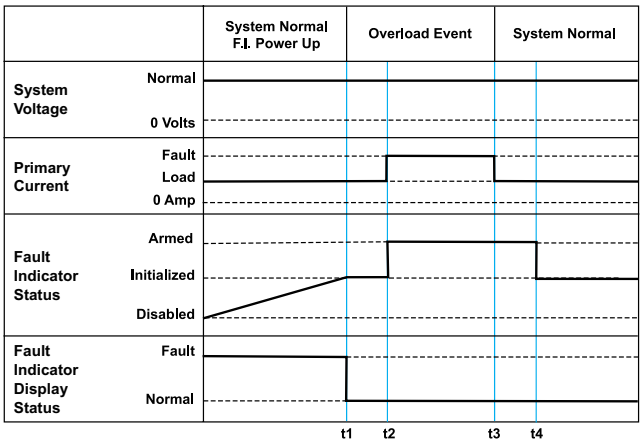
Overloading Operation

t1 Fault Indicator is connected to the system and powers up. At 5kV, this takes three minutes for the test point mounted unit and six minutes for the overhead type unit. At higher voltages, power-up time is shorter.

t2 Device downline from Fault Indicator switches, creating an overload. Fault Indicator is armed after 1msec. Fault Indicator display shows Normal.

t3 Overload condition over. Fault Indicator does not change state. After 30 seconds, Fault Indicator goes back to initialized state.

t4 Voltage is lost. A 30-second time window allows for the protective device to clear the fault and reclose. Indicator changes state.



Test Point Indicators

Specifications for TPM Voltage Operated, Time Reset, LED Display: Model TPMVOL

- Nominal Voltage: 4.16–60kV (L-L)
- Nominal Trip Ratings: Low, 400 Amp; High, 800 Amp
- Trip Response Time: 1mS
- Fault Clearing Time[1]: .001–30 Seconds Subsequent to Arming
- Maximum Surge Level: 25kA 10 Cycles 60 Hz
- Effect of Adjacent Phase: Internal Shielding Prevents Adjacent Phase Effects
- Inrush/Backfeed Restraint: 100mS (Disable Delay)
- Load Current Requirements: None
- Power Up Requirement: 3 Minutes @ 5kV
- Display Type: Flashing Super-Bright LED
- Flash Rate: 30 Flashes per Minute
- LED Display Time: 4 Hours Standard
- Reset Time: 4 Hours Standard (longer times available upon request)
- Power Source[3]: 3.6-Volt Lithium Thyonil Chloride Battery
- Battery Capacity: 2.4 Ah
- Battery Operating Life: 1200 Flash Hours Minimum
- Battery Storage Life: 15–20 Years
- Temperature Range: -40° C to 85° C
- Housing Material: Mounting Boot — EPDM; Conductive Rubber Housing Body — UV-Stabilized Polycarbonate Polymer
- Weight: 258 Grams
- Certifications: Complies with ANSI/IEEE 495-1986

Specifications for TPM Voltage Reset[2], Flag Display: Model TPMVF

- Nominal Voltage: 4.16–60kV (L-L)
- Nominal Trip Ratings: Low, 400 Amp; High, 800 Amp
- Trip Response Time: 1mS
- Fault Clearing Time[1]: .001–30 Seconds Subsequent to Arming
- Maximum Surge Level: 25kA 10 Cycles 60 Hz
- Effect of Adjacent Phase: Internal Shielding Prevents Adjacent Phase Effects
- Inrush/Backfeed Restraint: 100mS (Disable Delay)
- Load Current Requirements: None
- Power Up Requirement: 3 Minutes @ 5kV
- Display Type: Mechanical Flag
- Minimum Reset Voltage: 5kV (Beginning Initializing Sequence)
- Voltage Reset Time: 3 Minutes @ 5kV
- Power Source: Volt Test Point Powered
- Temperature Range: -40° C to 85° C
- Housing Material: Mounting Boot — EPDM; Conductive Rubber Housing Body — UV-Stabilized Polycarbonate Polymer
- Weight: 258 Grams
- Certifications: Complies with ANSI/IEEE 495-1986

Specifications for TPM Voltage Reset[2], LED Display: Model TPMVL

- Nominal Voltage: 4.16–60kV (L-L)
- Nominal Trip Ratings: Low, 400 Amp; High, 800 Amp
- Trip Response Time: 1mS
- Fault Clearing Time[1]: .001–30 Seconds Subsequent to Arming
- Maximum Surge Level: 25kA 10 Cycles 60 Hz
- Effect of Adjacent Phase: Internal Shielding Prevents Adjacent Phase Effects
- Inrush/Backfeed Restraint: 100mS (Disable Delay)
- Load Current Requirements: None
- Power Up Requirement: 3 Minutes @ 5kV
- Display Type: Flashing Super-Bright LED
- Flash Rate: 30 Flashes per Minute
- LED Display Time: 4 Hours Standard
- Voltage Reset Time: 6 Minutes @ 5kV
- Power Source[3]: 3.6-Volt Lithium Thyonil Chloride Battery
- Battery Capacity: 2.4 Ah
- Battery Operating Life: 1200 Flash Hours Minimum
- Battery Storage Life: 15–20 Years
- Temperature Range: -40° C to 85° C
- Housing Material: Mounting Boot — EPDM; Conductive Rubbe Housing Body — UV-Stabilized Polycarbonate Polymer
- Weight: 258 Grams
- Certifications: Complies with ANSI/IEEE 495-1986

Specifications for TPM Time Reset, LED Display: Model TPMTL

- Nominal Voltage: 4.16–60kV (L-L)
- Nominal Trip Ratings: Low, 400 Amp; High, 800 Amp
- Trip Response Time: 1mS
- Maximum Surge Level: 25kA 10 Cycles 60 Hz
- Effect of Adjacent Phase: Internal Shielding Prevents Adjacent Phase Effects
- Power Up Requirement: None
- Display Type: Flashing Super-Bright LED
- Flash Rate: 30 Flashes per Minute
- Reset Time: 4 Hours Standard
- Power Source[3]: 3.6-Volt Lithium Thyonil Chloride Battery
- Battery Capacity: 2.4 Ah
- Battery Operating Life: 1200 Flash Hours Minimum
- Battery Storage Life: 15–20 Years
- Temperature Range: -40° C to 85° C
- Housing Material: Mounting Boot — EPDM; Conductive Rubber Housing Body — UV-Stabilized Polycarbonate Polymer
- Weight: 258 Grams
- Certifications: Complies with ANSI/IEEE 495-1986

1. Prevents false trips due to short time interruptions without loss of voltage.

2. Inrush restraint is standard on voltage reset models. It is not available on the time reset models.

3. Battery powers LED and it is active only when LED is ON. Lithium Thyonil Chloride batteries provide accurate indication throughout the entire temperature range.

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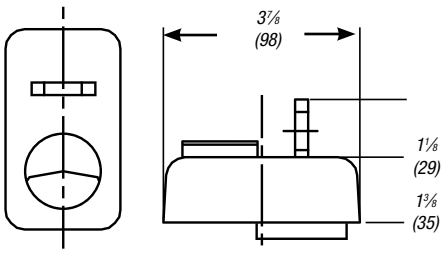
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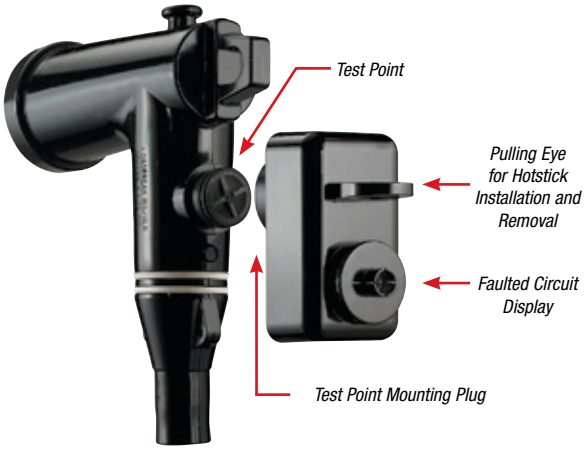
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Test Point Indicators

Mechanical Data

(all dimensions in inches with millimeter equivalents in parentheses)





Fisher Pierce® TPM Series Test Point Fault Indicators

CAT. NO.	DESCRIPTION
TPMTL-[_]	Time Reset with LED Display (auto-resets to normal after 4 hrs.; may also be manually reset using an FTT test tool)
TPMVF-[_]	Voltage Reset with Flag Display (auto-resets to normal after system voltage restoration; reset requires 5kV min. voltage with time required for reset proportional to system voltage)
TPMVL-[_]	Voltage Reset with LED Display (auto-resets to normal after system voltage restoration; reset requires 5kV min. voltage with time required for reset proportional to system voltage)
TPMVOL-[_]	Voltage Operated, Time Reset, LED Display (auto-resets after 4 hrs.; longer time resets available upon request)

CAT. NO. SUFFIX	DESCRIPTION
-LT	For 200A. All fused taps use LOW trip rating. For URD applications, use LOW trip rating.
-HT	For 600A. For URD applications, use HIGH trip rating.

Note: *For overhead bulk feeder applications, use HIGH or LOW trip ratings (whichever is greater than the minimum pickup setting of the related protection device).*
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Test Point Indicators

Series OLM Overhead Line Fault Indicators

CAT. NO. PREFIX	DESCRIPTION	RESET OPERATION
OLMTL	Time Reset with LED Display	Indicator auto-resets to normal after a four-hour time duration. Indicator may also be manually reset using an FTT test tool.
OLMVF	Voltage Reset with Flag Display	Indicator auto-resets to normal after system voltage restoration. Reset requires 5kV minimum voltage to operate. Reset operation time is proportional to system voltage.
OLMVL	Voltage Reset with LED Display	Example: at 15kV, reset occurs 30 seconds after system voltage restoration.
OLMVOL	Voltage Operated, Time Reset, LED Display	Indicator auto-resets after a four-hour time duration. Longer time resets are available upon request.

CAT. NO. SUFFIX	DESCRIPTION
LT	All fused taps use LOW trip rating for 200 amp. Overhead applications, use LOW trip rating.
HT	For 600 amp. Overhead applications, use HIGH trip rating.

Accessories for Series TPM, UCM and OLM Fault Indicators

FTT (Field Test Tool)

Permits field testing and reset of fault indicators and provides assurance that the indicator is properly functioning. The test tool is lightweight, portable and incorporates a built-in magnet which operates the indicator trip and reset functions. The unit is equipped with provisions for hotstick handling and operation.



FO-Cable06

Remote Fiber Optic Indicator for Underground Fault Indicators with LED Display can be extended to the outside of enclosures and/or vaults for ease of access and fault location. All the hardware for mounting the remote end of the cable to the enclosure is included. The display has a large reflective bolt to enhance visibility.



Fault Indicator Accessories

CAT. NO.	DESCRIPTION
FTT	Field Test Tool, overall dimensions 2" wide x 3" high x ⅝" deep
FO-CABLE06	Remote Fiber Optic Indicator for UFI

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Test Point Indicators

Easy way to visually determine the energized status of underground distribution circuits.

V2 Voltage Indicator

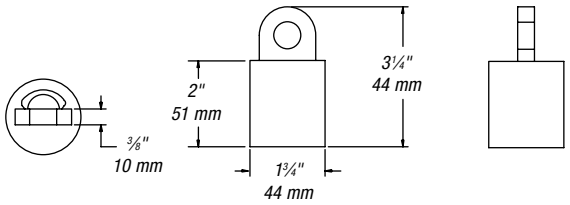
- Single model supports applications from 5kV to 35kV
- Flash rate per minute indicates system voltage (see chart below)
- Mounts to 200- and-600 amp elbows, splices and other cable accessory components equipped with IEEE 386 capacitive test points from Fisher Pierce® or other manufacturers
- Molded EPDM rubber housing for shielded, sealed and corrosion-resistant construction
- Built-in pulling eye enables safe, easy hotstick installation and removal from test point
- 20-year neon bulb yields long, maintenance-free service life
- Easily tested for confirmation of proper operation with the V2-TB voltage indicator test box



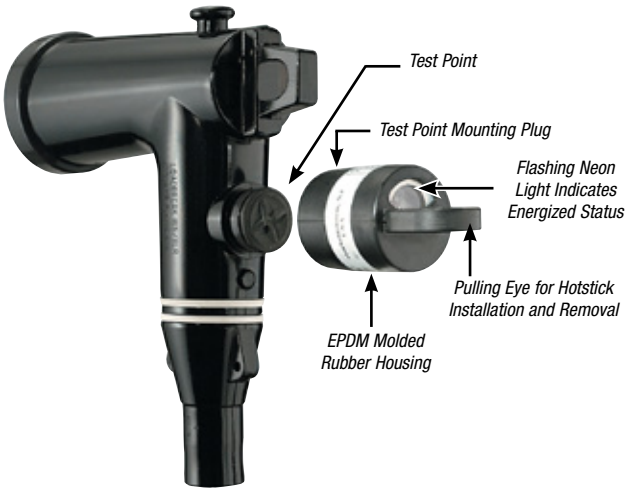
The V2 Voltage Indicator consists of a self-powered voltage sensor connected to a neon light that flashes when energized. Simply plug it into any IEEE 836 standard capacitive test point to determine the energized status of underground distribution circuits. Because the flash rate is proportional to the phase-to-phase system voltage, as indicated in the chart, one V2 model supports a wide range of applications — from 5 to 35kV.

Mechanical Data

(all dimensions in inches with millimeter equivalents in parentheses)



VOLTAGE	FLASH RATE	VOLTAGE	FLASH RATE
5kV	20	25kV	140
10kV	40	30kV	160
15kV	70	35kV	180
20kV	100		



V2-TB Test Box for easy field testing of V2 Voltage Indicators.

If the V2 Neon Voltage Indicator indicates a power failure in an underground distribution circuit, you'll want to ensure that it's actually the circuit that's failed and not the V2 itself. For fast, simple assurance, field test the V2 with the compact, portable V2-TB Voltage Indicator Test Box, powered by replaceable C batteries.



V2 Voltage Indicator — Test Point Mounted

CAT. NO.	DESCRIPTION
V2	Voltage Indicator with Neon Display
V2-TB	Voltage Indicator Test Box

Test Point Indicators

Safely determine the correct phasing and energized status of single- and three-phase underground distribution circuits from 5kV to 35kV.

PD35 Voltage and Phasing Indicator

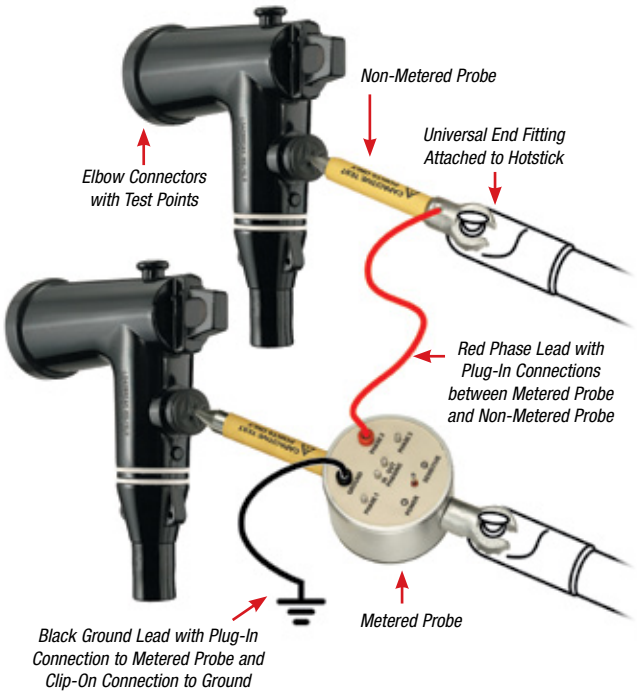


- Designed for use on 200- and 600-amp elbows, splices and other cable accessory components equipped with IEEE 386 capacitive test points from Fisher Pierce® or other manufacturers
- Universal end fittings enable convenient mounting to existing hotsticks
- Rugged construction — housed in an impact-resistant case to withstand field conditions
- LED indicator lights provide easy-to-read test results
- Highly portable for field use and powered by a standard, replaceable 9V battery

Designed for hotstick operation, the PD35 Voltage and Phasing Indicator eliminates direct exposure to high voltage while using established indirect test methods for capacitance-coupled, cable connection test points. Its advanced, low-impedance, solid-state circuitry provides accurate and reliable readings with sensitivity as low as 1.5kV phase to ground.

How to Use the PD 35 Voltage and Phasing Indicator

1. Attach the metered probe to a hotstick and connect the BLACK ground lead.
2. Switch the meter to the ON position. The red LED power light will illuminate, indicating that battery voltage is sufficient. All other LED indicators will momentarily light, showing that the meter is operating properly.
3. To test for voltage, touch the metered probe to the test point on the cable connection. The amber PHASE 1 LED will illuminate, showing that the high-voltage circuit is energized.
4. To test for proper phasing, attach the non-metered probe to an additional hotstick and connect the RED phase lead from the metered probe to the non-metered probe. Touch one probe to the test point on one of the cable connections. Touch the other probe to the test point on the other cable connection.
   - The **amber** **PHASE 1** and **PHASE 2** **LEDs** will illuminate, showing that each of the high-voltage circuits are energized.
   - If the circuits are **IN PHASE**, the **green LED** will illuminate.
   - If the circuits are **OUT of PHASE**, the **red LED** will illuminate.



Fisher Pierce® PD35 Voltage and Phasing Indicator

CAT. NO.	DESCRIPTION
PD-35	Voltage & Phasing Indicator

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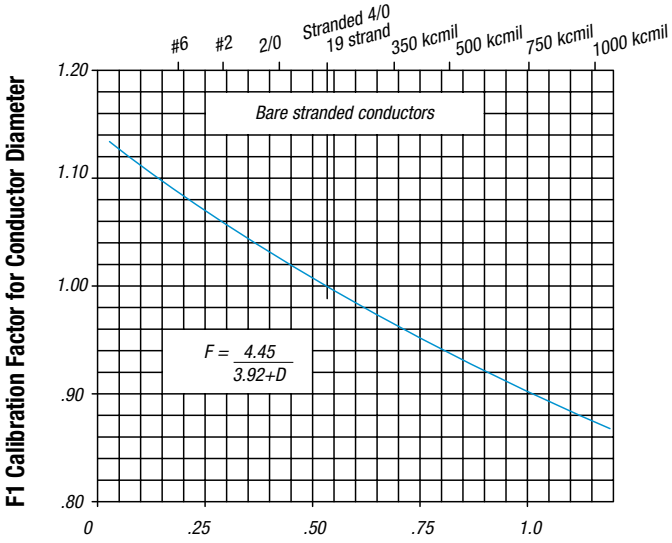
Current Sensors

Offers a unique combination of safety, installation without service interruption, space savings and low installed cost.

Fisher Pierce® Series 1301 PowerFlex® High-Accuracy Line-Post Current Sensors

- Easy installation — simply fasten conductor to sensor with any nonferrous-material conductor tie
- No line cutting or dead-ending required, no service interruption or loss of revenue
- Rugged, long-life, no-maintenance design withstands continuous high current, transients and switching surges
- Broad operating range meets increasing load requirements without requiring sensor change
- Low output voltage only 1V per 60A of line current — eliminates dangerous shock hazards, and output need not be shorted when disconnected





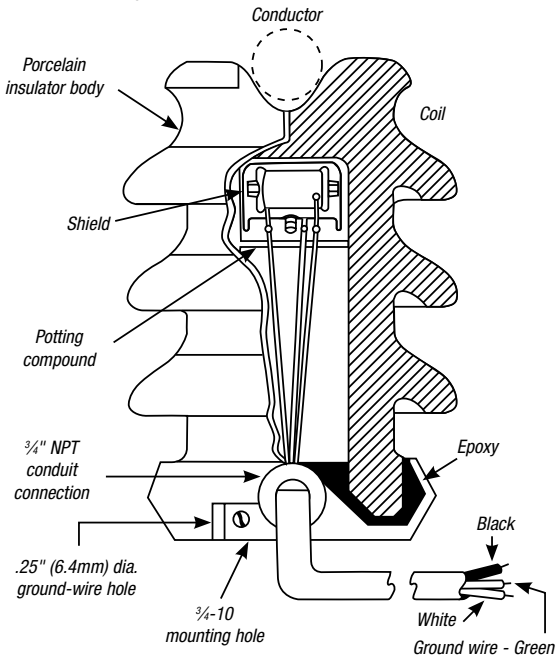
For 60-Hz: $I_{line} = \frac{60 \times E_{out}}{F}$

For 50-Hz: $I_{line} = \frac{72 \times E_{out}}{F}$

Correction Curve

The output voltage of a sensor varies inversely with the center-line spacing between the sensing coil and the primary conductor. While output differences are small, it may be desirable to provide correction in certain applications. Variations from the Fisher Pierce® standard size of 4/0 bare stranded copper cable are given above. This information is for round conductors only. Information regarding special conditions is available upon request.

Fisher Pierce® Series 1301 PowerFlex® High-Accuracy Line-Post Current Sensors provide reliable current measurement for distribution systems — from zero to thousands of amps. The sensor consists of a porcelain line-post insulator with an embedded coil, which is inductively coupled to the conductor mounted in the insulator top groove. The voltage induced in the coil is directly proportional to the alternating current in the primary conductor. This signal may be used for capacitor switching, load surveying or protective relaying.



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Current Sensors

Ratings

	MODEL 1301-17A	MODEL 1301-47A	MODEL 1301-27A
Nominal three-phase rating, kV	15	25	35
Maximum operating voltage to ground, kV	9.5	15	22
60 Hz dry flashover, kV	80	95	110
60 Hz wet flashover, kV	55	60	85
Impulse flashover, positive kV	105	140	180
Impulse flashover, negative kV	130	175	205
Impulse withstand, kV	95	130	160
Radio influence test voltage, kV	10	15	22
Radio influence voltage at 1 MHz, microvolts	110	500	500
Dry arcing distance, inches	6.5	9.5	11.5
Leakage distance, inches	11	17	25
Weight, pounds	13	19	28
Cantilever strength, pounds	2,000	1,700	1,500

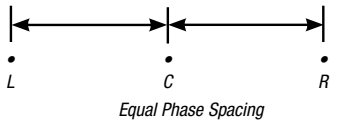


Performance Characteristics

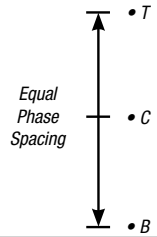
	HIGH ACCURACY
Sensitivity (A/Output V)	60A/VAC @ 60 Hz 72A/VAC @ 50 Hz
Source Impedance (ohms)	2.1 K = (1.2 K = j1.7K)
Calibration Accuracy at 120A	1%
Linearity Error, % Change In Sensitivity	<1.0% (3–1200A)
Angle Error, 3–600A, Change In Degrees	< .50
Temperature Error Change In Sensitivity	± .02% °C
7th Harmonic Response %, (100% = 7 x 60 Hz output)	82%

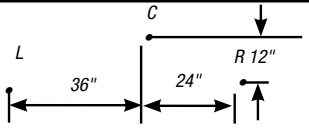
Typical Sensor Installation Characteristics

	AMPLITUDE PERCENT	ANGLE DEGREE
Conductor Size % Correction	See Correction Curve (on previous page)	N/A
Left and Right * **	-.8	±.5
Center	-1.3	0
30" Horizontal Phase Spacing		
Left and Right * **	-.4	±.2
Center	-.6	0
20" Vertical Phase Spacing		
Top	+9.1	±3.0
Center *	+3.1	±10.9
Bottom **	-7.7	±2.5
30" Vertical Phase Spacing		
Top	+5.9	±1.9
Center *	+1.4	±7.3
Bottom **	-5.3	±1.7
Triangular		
Left * **	-1.6	±1.5
Center	+3.8	±.9
Right	-2.5	±2.4



Equal Phase Spacing





** Recommended for current sensing.*

*** Recommended for VAr sensing.*

Recommend shielded cable for applications where power + sensor cables are routed in a common conduit.

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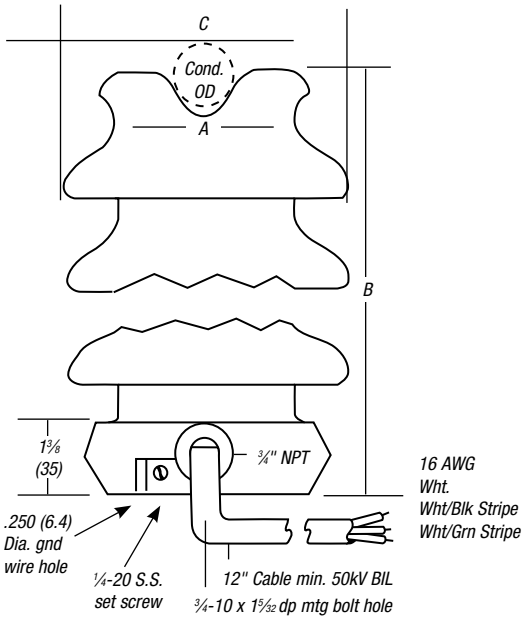
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Current Sensors

Mechanical Data

(all dimensions in inches with millimeter equivalents in parentheses)



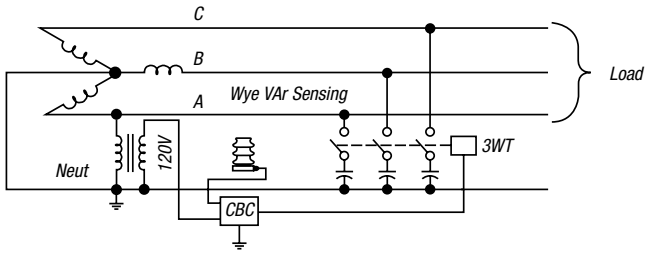


Installation and Preferred Sensor Location

Series 1301 High-Accuracy Sensors may be used interchangeably with all Series 1301 input current-sensing controls except VAr controls. VAr controls are field adjustable for high-accuracy sensors. Refer to catalog number cross reference below.

Dimensions A, B and C

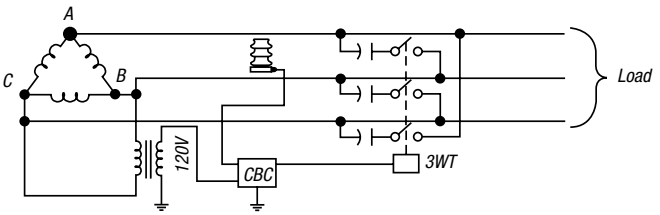
MODEL	A	B	C	MAX. COND. DIA.
1301-17A	3.3	9.3	5.6	1.5
(15kV)	(84)	(236)	(142)	(38)
1301-47A	5.0	12.5	7.0	2.0
(25kV)	127)	(317)	(178)	(51)
1301-27A	5.0	14.5	7.0	2.0
(35kV)	(127)	(366)	(178)	(51)



Fisher Pierce® Series 1301 PowerFlex™ High-Accuracy Line-Post Sensors

CAT. NO. HIGH ACCURACY	VOLTAGE CLASS (L-L)
1301-17A-XX*	15kV
1301-47A-XX*	25kV
1301-27A-XX*	35kV

** Designates cable length.*



Capacitor Controls

A reliable, flexible means of adding switching capability and automation to your capacitor banks.

- Easy to set up and operate via front-panel user interface
- Programmable control with primary and override control strategies
- Override and protective functions
- Programmable controls modes include VAr, Voltage, Time, Temperature and Current
- Microprocessor-based control featuring adaptive functions allow the unit to program itself
- Two-way radio technology from Telemetric to communicate over digital cellular data networks.
- Dedicated communications microprocessor and flash memory allow use of data radios, cellular and modem communication technologies
- Remote trip/close via SCADA

Switched capacitor banks benefit utilities by reducing losses due to reactive load current, reducing kVA demand, decreasing customer energy consumption, improving voltage profile and increasing revenue. The use of switched capacitor banks also reduces stress on equipment, resulting in longer service life.

Fisher Pierce® capacitor controls feature a range of analog and digital options with a variety of control parameters, including VAr, voltage, current, temperature and time. Both local and remote units are available with communications. These microprocessor-based smart controls offer the ultimate in versatility and are ideal for any pole-mounted or substation-switched application.



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Capacitor Controls

Which Fisher Pierce® Capacitor Control is right for your application?



The following table summarizes the applications of Fisher Pierce® controls based on system needs.

CONTROL TYPE	AC100	4400	4500
Voltage Control	X	X	X
Temperature Control	X	X	X
Time Control	X	X	X
Current Control		X	X
Adaptive VAr Control		X	X
Adaptive Voltage Guard		X	X
Phase Find		X	X
Data Recording		X	X

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Capacitor Controls

Provides voltage, time or temperature control with override function.

Fisher Pierce® Series AC100 AutoCap® Programmable Capacitor Control



- Models with voltage, time or temperature control with programmable override suit a variety of applications
- Low-profile, lightweight enclosure for easy handling and clean, sleek installation
- Front-panel programming keypad with audible confirmation and high-visibility LCD provide easy, on-the-spot set-up and operation
- SmartSet™ II Application Set Up software with USB interface enables optional set-up and operation from a laptop PC
- Audible manual mode alert warns you when the enclosure is closed and the controller is left in manual mode
- High-intensity status LEDs provide instant visual indication of status
- Wall- and pole-mounting capabilities available on request
- Neutral current sensing option detects neutral current unbalance, indicative of failing capacitor banks
- True RMS voltage sensing provides the most accurate method of AC voltage measurement
- Nonvolatile memory preserves programming information
- 10-year, replaceable Li-Ion battery for long, low-maintenance service life

The Series AC100 AutoCap® Programmable Capacitor Control incorporates Fisher Pierce® proven control algorithms providing voltage, time or temperature primary control with programmable override. The new low-profile enclosure with integral meter base simplifies handling during installation and offers a sleek, tight-to-the pole finished installation. Set up the Series AC100 AutoCap® Control from the easy-to-use front-panel LCD interface or use SmartSet™ II Application Set Up software on your laptop PC and simply download the information via USB connection.

Specifications

• Electrical

Operating Voltage Ranges:	95–145VAC, 60 Hz ±.5 Hz
Surge Withstand:	ANSI C62.41 (6kV)/ EN61000 ANSI C62.41–1987 (6kV)
Electrostatic Discharge Test:	IE10004–2, (15kV air discharge and 8kV contact applied to all accessible areas)
Output Relay:	
– Number	Two
– Type	Momentary closure
– Maximum Continuous Load	30A resistive load at 120VAC
– Maximum Inrush	50A, 50% pF, 6 cycles at make only
– Contact Closure Period	Programmable 0 to 1000secs in step of 1 second. (0 seconds corresponds to 00 seconds)
Fuse Rating:	
– Controller Input	1.5A, 250 volt, 5 x 14.5mm, Littlefuse 229 01.5 or equivalent
– Output to Capacitor Switch	10A Slo-Blo®, 250 volt, 1.5" x ⅜", Fiber Cartridge, Littlefuse FLM 10 or equivalent
USB 1.1 Communications Port:	Type B

• Mechanical

Enclosure:	Lexan®, NEMA 3R
Mounting:	4- or 6-jaw meter base wall or pole bracket
Dimensions:	9.68"H x 7.0"W x 7.29"D (Lexan) (Deep cover, Meter base)

• Environmental

Operating Temperature:	-40° C to +70° C (-40° F to +158° F); -20° C to +70° C (for Radio models)
Humidity Range:	0–95% (Non-condensing)

• Measurement Performance

Voltage (Secondary):	
– Resolution	.1VAC
– Accuracy	±.5% of reading over the operating temperature range
– Range	95VAC–145VAC True RMS, 60 Hz Primary
– Ratio Range	1:1 to 1000:1, in 1:1 increments
Temperature:	
– Resolution	1° F (1° C)
– Accuracy	±2° F (1° C) (-40° F to +140° F) outside air ambient
Real Time Clock:	
– Resolution	.1 minute
– Accuracy	±11 minutes/years at 25° C
– Range	25-hour clock
– Settings	1-minute increments
Neutral Current:	
– Resolution	
Fisher Pierce AT929 sensor:	.1A
– Accurancy	±2% of reading, ±.5% of full scale plus
Sensor Range:	
– Fisher Pierce AT929 sensor:	1 to 60A

• Controller Processor

Memory Size:	64KB (standard)
Memory Type:	Flash, 3KB RAM

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Capacitor Controls



The following diagram shows how to construct a catalog number for a Series AC100 AutoCap® Programmable Capacitor Controller.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

AC1		-				-		7	1	A

Basic Model
AC100 AutoCap® Programmable Control

Primary Control
24 Voltage Control
26 Radio Control
56 Time Control
57 Temperature Control

Override Control
NN None
24 Voltage Control
26 Radio Control
56 Time Control
57 Temperature Control

Radio Protocol
R REMS102
E FP11, Type E
D FP11, Type D
N None
G FP11, Type G
N FP11, Type F

Neutral Current
C Neutral Current Selected
N None

Factory Code

Calibration Code
1 120VAC, 60 Hz

Enclosure Type
7 Low-Profile Lexan

Wire Configuration

Four-Jaw Meter Socket Mounting and Wiring*

	1	2	3	4	5	6	EXT. GND LUG	ENCLOSURE	CURRENT INPUTS
FJ	L	N/GND	TR	CL	—	—	No	Lexan®	None
GJ	L	N/COM	TR	CL	—	—	Yes	Lexan®/Alum.	None

Six-Jaw Meter Socket Mounting and Wiring†

	1	2	3	4	5	6	EXT. GND LUG	ENCLOSURE	CURRENT INPUTS
SL	L	N/GND	NSL	NSH	TR	CL	No	Lexan®	Neutral Only
TL	L	N	NSL	NSH	TR	CL	Yes	Lexan®/Alum.	Neutral Only

Wrap-Around Pole Bracket Mounting with Circular MS Type Connector‡

	A	B	C	D	E	F	G	EXT. GND LUG	CURRENT INPUTS
BJ	CL	L	TR	NSL	N	NSH	Not Connected	Yes	Neutral Only

Flat Wall Bracket Mounting with Circular MS Type Connector

WJ	CL	L	TR	NSL	N	NSH	Not Connected	Yes	Neutral Only

* 1 2 3 4 — *View looking into socket*

† 1 2 3 4 5 6 — *Socket for CT shorting switch available for SJ and TJ wiring*

‡

Lexan is a registered trademark of Sabic Innovative Plastics IP B.V.

Capacitor Controls

Take the complexity out of your capacitor bank control.

Fisher Pierce® Series 4400 AutoCap® Adaptive Capacitor Control and Recorder

- Adaptive VAr™ control mode automatically measures capacitor bank size and establishes VAr setpoints for maximum energy loss reduction
- PhaseFind™ function locates current signal source and compensates for phase rotation and reversed wiring
- Voltage Guard™ function provides adaptive voltage restraint to prevent out-of-range line voltage conditions and capacitor bank cycling
- Reverse power functions calculate proper VAr setpoints to compensate for altered VAr measurement during this condition (four other control modes are also available for use in reverse power conditions)
- True RMS voltage and current sensing provides the most accurate method of AC voltage measurement
- Total harmonic distortion recording documents conditions that may require harmonic mitigation
- Reverse trip/close detection automatically senses reverse wiring of the close and trip drive circuits to the capacitor switch, and inhibits all switching except manual and indicates error by flashing LED on front panel
- Anti-hunt function automatically compensates for rapid bank tripping due to cycling loads or interaction from other switched banks on the feeder



Fisher Pierce® Series 4400 AutoCap™ Control

- Undervoltage inhibit feature protects the capacitor bank switch from damage caused by low voltage
- Plug-to-plug controller compatibility is compatible with existing controllers for easy installation — no adapters or rewiring required
- SmartSet™ Windows® based software simplifies programming for up to four seasons
- SmartSet™ graphs, reports and records load data/events for analysis and troubleshooting — no additional software required
- Optional expanded recording provides even more load data/event recording for analysis and troubleshooting
- Optional PanelSet™ program enables front-panel programming of controller without a laptop PC
- Compact enclosure for space-efficient installation

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Capacitor Controls

Simplify switched capacitor bank control with the Fisher Pierce® Series 4400 AutoCap® Adaptive Capacitor Control and Recorder. The Series 4400 AutoCap® Control offers a variety of features for performance and convenience, including Adaptive VAr™ Control and PhaseFind™ Compensator.

Voltage Guard™ Protection measures voltage change caused by capacitor switching and applies this value to the present line voltage. If Voltage Guard Protection predicts that bank switching will cause the line to exceed preset voltage limits, switching is inhibited, preventing both out-of-range line voltage conditions and capacitor bank cycling.

The Series 4400 AutoCap® Control automatically corrects for installation errors, such as sensing voltage and current from different phases, reversed current signal wiring, reversed trip/close wiring and calibration errors. It also adjusts to abnormal operating conditions, including reverse power flow, bank hunting, low switching voltage, capacitor failure (neutral sensing lockout) and excessive bank switching.

A programmable one- to four-season control, the Series 4400 AutoCap® Control can operate on the basis of VAr, voltage, current, temperature, time and combinations of these inputs. Programming is simple with SmartSet® application software, which is Windows® based and menu-driven for ease of use. In addition, the Series 4400 AutoCap® Control offers complete load data event recording and report creation supported by SmartSet™ software. Just plug in the factory-programmed unit and it adapts itself to the installation — there are more hassles with sensor wiring or setpoint calculations. What's more, you can install the Series 4400 AutoCap® Control without ever opening the enclosure!

Exclusive Advantages

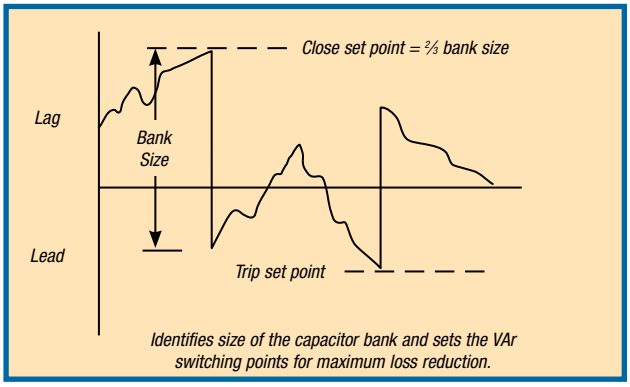
The Fisher Pierce® Series 4400 AutoCap® Adaptive Capacitor Control and Recorder delivers many new and innovative functions that eliminate the traditional struggle associated with:

- Setting optimum VAr setpoints (Fig. 1 – Adaptive VAr™ Control)
- Finding the voltage change caused by bank switching (Fig. 2 – Adaptive Voltage Guard™ Protection)
- Field wiring (Fig. 3 – PhaseFind™ Compensator)

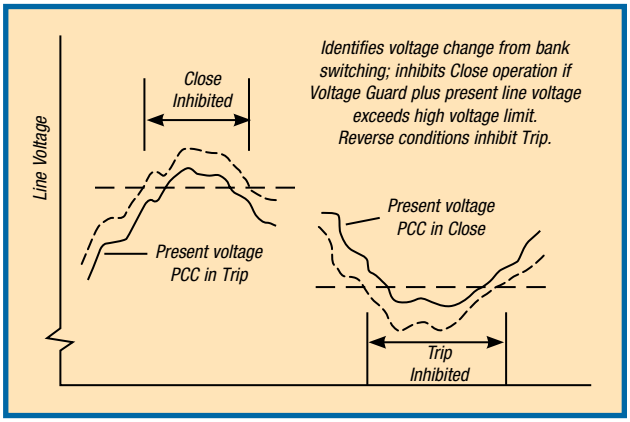
The Series 4400 AutoCap® Control also provides the following additional functions:

- Real-time monitoring of data readings and controller status through local RS-232 or optical port
- Traditional holiday calendar — 10-year predefined, can be user edited
- Individual and block holidays — 10-year user programmable
- Daylight Saving Time calendar — 10-year predefined, can be edited
- Daily close count limit — User programmable
- Switching time delays/inhibits—For automatic and manual modes with LED indication on controller panel
- Neutral sensing lockout — Trips bank and prevents further capacitor operation, flashes external lamp in the event of capacitor can failure, reset by external button or RS-232 command

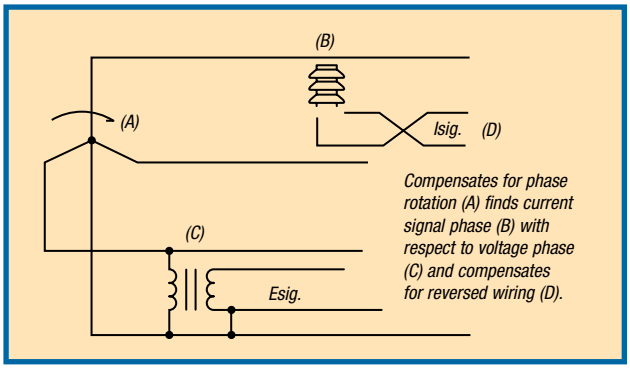
Adaptive VAr™ (Fig. 1)



Adaptive Voltage Guard™ Protection



PhaseFind™ Compensator



Capacitor Controls

Additional AutoCap® Control Features

Fisher Pierce® Series 4400 AutoCap® Control builds on more than 30 years of experience in the design, manufacture and application of electronic capacitor controls.



- Standard meter socket mounting; pole or wall mounting available
- Single-phase line current signal input: Line post sensor or CT input for VAr and current control and data recording
- Capacitor bank neutral sensing signal input: Fisher Pierce® split lamination sensor (AT929) or CT/VT neutral sensing input
- Neutral sensing lockout lamp; reset by manual button or command through RS-232
- Shielded ambient temperature sensor
- 9-Pin RS-232 communications port
- Optical communication port available
- 365/366-day time clock
- Programmable momentary output relays
- Nonvolatile memory
- Independent watchdog timer
- Electromechanical operations counter available
- Internal LCD read-only display available
- Operational status LEDs
- Manual Close/Trip operation and Auto/Manual switches

SmartSet™ Application Software

The Series 4400 AutoCap® Control is programmed using Windows® based SmartSet™ software created by Fisher Pierce for greater programming ease. Using SmartSet™ software, the Series 4400 AutoCap® Control is a multifunction microprocessor-based control, programmable for up to four seasons. You can assign each season its own primary and override functions as listed in the Control Modes table below. The Series 4400 AutoCap® Control connects to any Windows® based PC via standard RS-232 or optional optical communications port.

Control Modes

BASIC FUNCTIONS	OVERRIDE FUNCTIONS	VOLTAGE BIAS	REVERSE POWER
• Adaptive VAr	• Voltage	• Time	• Ignore
• VAr	• Time	• High Temp	• Voltage
• Voltage	• High Temp	• Low Temp	• VAr
• Current	• Low Temp		• Trip and Inhibit
• Time			• Close and Inhibit
• High Temp			
• Low Temp			

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Capacitor Controls

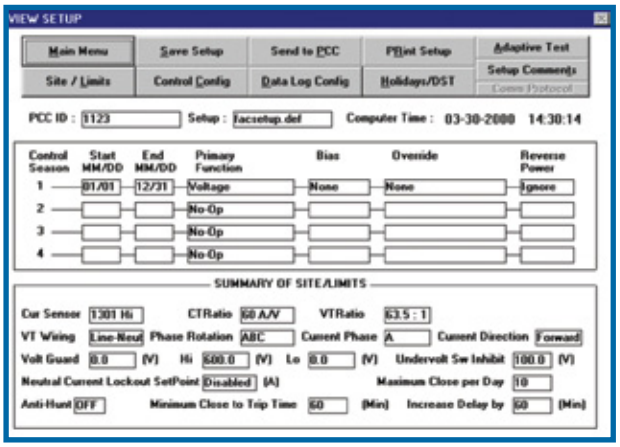
Extensive Data Recording

The Series 4400 AutoCap® Control provides a full spectrum of user-defined load data and control operations recording capability. Three-phase load data is derived from single-phase measurements and assumes balanced load. All recorded data is easily uploaded via RS-232 or optional optical port. Memory of 32K is standard; expanded 128K memory is also available.

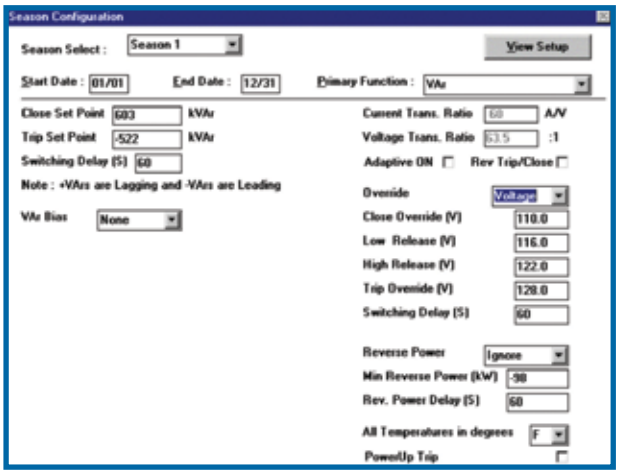
Data Recording Parameters

LOAD DATA RECORDING *	DAILY SUMMARY RECORDING	OPERATIONS RECORDING
Date/Time Stamp	Date Stamp	Date/Time
Voltage (Sec. or Line)	Time of Max./Min. Value	Basic Operations
Current (Sec. or Line)	Daily Max./Min. Voltage	Override Operations
kVAr (3ø)	Daily Max./Min. Current	Manual Operations
kVA (3ø)	Daily Max./Min. (3ø) kVAr	Power Up/Power Down
kW (3ø)	Daily Max./Min. Temp	Voltage Before/Delta
Power Factor	Daily Close Operations	kVAr Before and After
Total Harmonics	Daily Close Hours	kW Before and After
Temperature	Close Ops Running Total	Reverse Power
Trip/Close Status		

** 1 min. to 4 hour averaging period*



View Setup Screen — Allows user to review controller setup and site configuration summary.



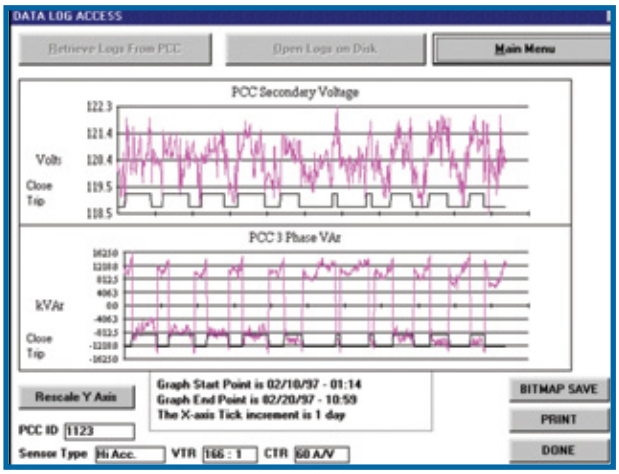
Season Configuration Screen — Fully prompted for easy controller programming.

Report Generation Capability

The SmartSet™ report-generation feature provides spreadsheet format and visual presentation of recorded data as well as many editing features. This capability is integrated into SmartSet™ software — no additional software is required. The ability to graph all load study data, specify time period and superimpose Close/Trip operations is included.

Load Data Reports

- Spreadsheet format
- Graphing of all load data
- Edit graph time period
- Scale of graph
- Title of graph
- Trip/Close status
- Report printing



Typical Load Data Graph

Capacitor Controls

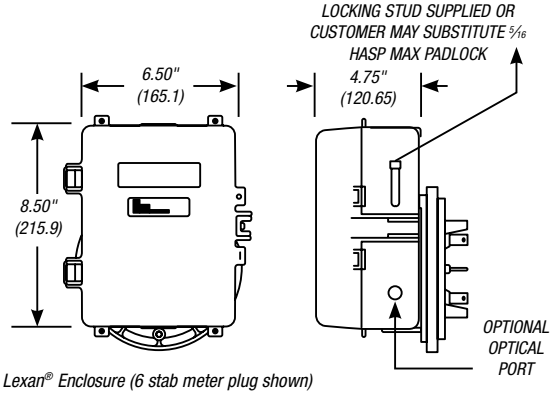
Specifications for Series 4400 AutoCap® Adaptive Capacitor Control and Recorder

- Voltage Range Power and True RMS Sensing: 95–140V, 60 Hz; 190–280V, 60 Hz; 95–125V, 50 Hz; 190–250V, 50 Hz
- Sensing Accuracy: ±.5% of reading over temperature
- Voltage Control and Override: 95–140V/190–280V secondary in .1V increments
- Voltage Bias: 0–20V/0–40V in 1V increments
- Voltage Transformer Ratio (VTR): 1:1 to 1000:1 in .1:1 increments
- Current: Sensors: Fisher Pierce® Series 1301
  – Line post sensor (60 A/V): 4–800A True RMS
  – Lindsey line post sensor (100 A/V) 4–800A True RMS
  – CT secondary .1–20A True RMS
- Accuracy: ± 1.0% Reading; ±.2% Range, ± sensor error
- Angle Accuracy: ± 1°, ± sensor error
- Current Control Range/Resolution:
  – Line post sensor 4–800A in .1A increments
  – Current transformer .1–20A secondary in .01A increments
- Current Transformer Ratio (CTR): 5:5 to 2000:5 in 1:5 increments
- VAr Control Range/Resolution:
  – Adaptive VAr: Limited only by secondary voltage range x current sensing range
  – 3ø kVAr: Range ± 1 to ± 99,999 kVAr in 1 kVAr increments
- Time Control Range/Resolution: Two Close and two Trip settings for each day of the week in 24 hour clock, in 1-minute increments
- Temperature Control Range/Resolution:
  – Sensor: located on bottom of enclosure with radiation shield
  – Range: -40° to 122° F (-40° to 50° C) outside air ambient
  – Accuracy: ± 2° F/1° C
- Temperature Control, Override and Bias:
  – Close on High temperature
  – Close on Low temperature
  – Range -40° F to 122° F (-40° C to 50° C) outside air ambient in 1° F (1° C) increments
- Serial Communications Port: DB9 female connector
- Optical Communications Port: Type 2
- Operating Humidity Range: 0–95% non-condensing
- Surge Withstand: ANSI C62.41-1987
- Electrostatic Discharge Test: 15kV applied to all accessible parts, IEC 801-2
- Output Relay Rating: 10A continuous. 50A, 50% PF, 6 cycles make only
- Relay Type: Momentary (two relays)
- Contact closure period: 1–1000 sec. in 1-sec. increments
- Fuse Rating:
  – Load Fuse – 10A FNM Slo-Blo®
  – Controller Fuse – 2A
- Enclosures:
  – Six-Stab Lexan: 8.5" H x 6.5" W x 4.0" D, includes optical port and electromechanical operations counter options
  – Aluminum: 11.5" H x 7.0" W x 4.0" D, includes optical port and electromechanical counter options
- Computer Requirements: SmartSet™ setup software requires Windows® 3.1 or better
- Series 1301 Line-Post Current Sensor Calibration Accuracy at 120A: ± 1%:
  – Linearity Error: 3–1200A, ± 1%
  – Angle Error: 3–600A, ± .50
  – Temperature Error: ± .02% °C;
  – 7th Harmonic Response: 82%

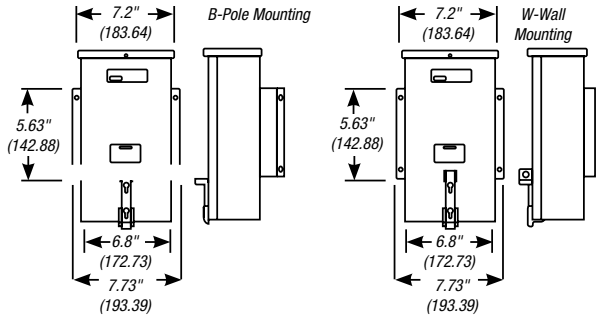
See **pages H-266–H-268** for complete specifications on Fisher Pierce® Series 1301 Line-Post Current Sensors.

Mechanical Data (Series 4400)

See **pages H-269–H-271** for more information on Fisher Pierce® Series 1301 PowerFlex® High-Accuracy Line-Post Current Sensors.



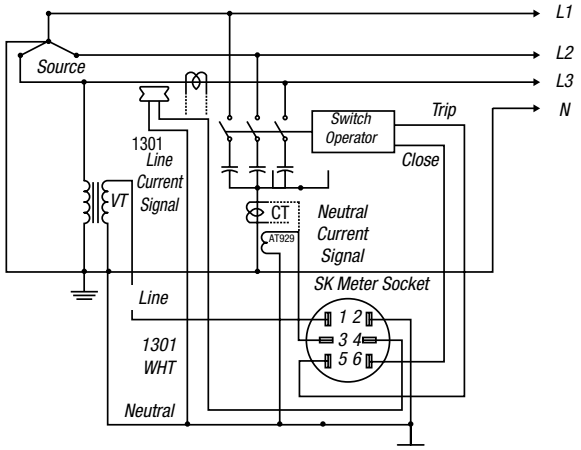
Lexan® Enclosure (6 stab meter plug shown)



Aluminum Enclosure

Installation and Preferred Sensor Location

1. 4W-grounded WYE circuit shown.
2. Refer to ordering information for wiring of other socket codes or terminal strip.
3. Refer to instruction manual for complete installation information.



Specifications are subject to change.

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Capacitor Controls

The following diagram shows how to construct a catalog number for the Series 4400 AutoCap® Adaptive Capacitor Control and Recorder. See **pages H-290–H-292** for Fisher Pierce® Series 2100 Meter Sockets.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

44 ☐ ☐ ☐ - ☐ ☐ ☐ - ☐ ☐ ☐ **A**

Basic Model
44 Series 4400 AutoCap® Programmable Capacitor ontroller in compact enclosure

Line Current Input
(current-sensing device ordered separately)
1 Fisher Pierce 1301 line post sensor (60 A/V 60 Hz and 72 A/V 50 Hz) or Lindsey sensor (100A/V)
2 CT (5A secondary)
0 None

CT/VT Neutral Sensing
1 Fisher Pierce AT929 sensor with 6-ft. lead (supplied)
2 CT (not supplied)
3 VT (not supplied)
0 None

Counter/Display
C Electromechanical counter only
D 2-line display only
E Electromechanical counter and 2-line display (read only)
N None

Optical Communication Port
F Supplied
N None

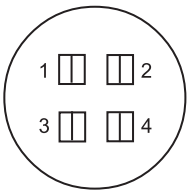
Memory
S Standard 32K
E Expanded 128K

Temperature Sensor
T Supplied
N None

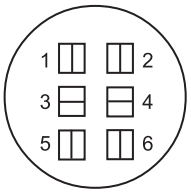
Factory Code

Voltage/Frequency
1 120 VAC, 60 Hz
2 240 VAC, 60 Hz
3 120 VAC, 50 Hz
4 220 VAC, 50 Hz

Enclosure Type
7 Lexan (meter socket mounting only)
8 Aluminum



View looking into socket



Socket for CT shorting switch available for SJ and TJ wiring

Four-Jaw Meter Socket Mounting and Wiring

	1	2	3	4	5	6	EXT. GND LUG	ENCLOSURE	CURRENT INPUTS
FJ	L	N/GND	TR	CL	—	—	No	Lexan®	None
GJ	L	N/COM	TR	CL	—	—	Yes	Lexan®/Alum.	None

Six-Jaw Meter Socket Mounting and Wiring

	1	2	3	4	5	6	EXT. GND LUG	ENCLOSURE	CURRENT INPUTS
SJ	CSL	N/GND	L	TR	CSH	CL	No	Lexan®	Line Only
TJ	CSL	N	L	TR	CSH	CL	Yes	Lexan®/Alum.	Line Only
SM	L	N/GND	CSL	CSH	TR	CL	No	Lexan®	Line Only
TM	L	N	CSL	CSH	TR	CL	Yes	Lexan®/Alum.	Line Only
SL	L	N/GND	NSL	NSH	TR	CL	No	Lexan®	Neutral Only
TL	L	N	NSL	NSH	TR	CL	Yes	Lexan®/Alum.	Neutral Only
SK	L	N/GND/COM	NSH	CSH	TR	CL	No	Lexan®	Line + Neutral
TK	L	N/COM	NSH	CSH	TR	CL	Yes	Lexan®/Alum.	Line + Neutral

Bracket Mounting with Terminal Strip

	MOUNTING LOCATION		EXT. GND LUG	ENCLOSURE	CURRENT INPUTS
BJ	Pole	Wire to Terminal Strip as shown below	Yes	Aluminum	None, Line, Neutral, or Line + Neutral
WJ	Wall				

Terminal Strip (Aluminum Enclosure Only)



***GND** = System ground **N** = Neutral **L** = Line*
***RLY** = Output relay armatures **CL** = Close*
***TR** = Trip **CSH** = Line current signal High*
***CSL** = Line current signal Low*
***NSH** = Neutral current signal High*
***NSL** = Neutral current signal Low*
***- -** Broken lines between terminals indicate removable jumper*

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Capacitor Controls

Combines AutoCap® intelligence with data radios for cost-effective automation of switched capacitors.

Fisher Pierce® Series 4500 AutoCap® Adaptive Capacitor Control and Recorder

- Factory-installed radio modem or cellular telephone
- Adaptive VAr™ control mode automatically measures capacitor bank size and establishes VAr setpoints for maximum energy-loss reduction
- PhaseFind™ function locates current signal source and compensates for phase rotation and reversed wiring
- Voltage Guard™ function provides adaptive voltage restraint to prevent out-of-range line voltage conditions and capacitor bank cycling
- Reverse power functions calculate proper VAr setpoints to compensate for altered VAr measurement during this condition (four other control modes are also available for use in reverse power conditions)
- True RMS voltage and current sensing provide the most accurate method of AC voltage measurement
- Total harmonic distortion recording documents conditions that may require harmonic mitigation
- Reverse trip/close detection automatically senses reverse wiring of the Close and Trip drive circuits to the capacitor switch and inhibits all switching except manual and indicates error by flashing LED on front panel
- Anti-hunt function automatically compensates for rapid bank tripping due to cycling loads or interaction from other switched banks on the feeder



Fisher Pierce® Series 4500 AutoCap™ Control

- Undervoltage inhibit feature protects the capacitor bank switch from damage caused by low voltage
- Plug-to-plug controller compatibility is compatible with existing controllers for easy installation — no adapters or rewiring required
- SmartSet™ Windows® based software simplifies programming for up to four seasons
- SmartSet™ graphs and reports record load data/events for analysis and troubleshooting — no additional software required
- Optional expanded recording provides even more load data/event recording for analysis and troubleshooting
- Optional PanelSet™ program enables front-panel programming of controller without a laptop PC
- Compact enclosure for space-efficient installation

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Capacitor Controls

The Fisher Pierce® Series 4500 AutoCap® Control and Recorder with Two-Way Communication combines the intelligence of the AutoCap® Adaptive Capacitor Control with data radios for cost-effective automation of switched capacitors, providing a powerful tool for discrete feeder management, data gathering, troubleshooting, system evaluation and analysis.

The unit enables integrated two-way communication by incorporating the data radio and capacitor control in the same enclosure, eliminating the need for additional communication equipment. Communications management and protocol conversion is performed using a dedicated high-speed processor and flash memory. This permits remote protocol changes and upgrade without the need for costly field modifications.

The control can be configured to operate under SCADA control or as a local control with SCADA override. Using any PC/modem and Fisher Pierce® SmartSet™ application software, which is Windows® based and menu-driven, the user can program the control, monitor real-time line conditions and retrieve and graph load survey data. The control can be used as an analytical tool and moved from site to site for verification of capacitor bank operation, load study and investigation of troublesome feeders.

The Series 4500 AutoCap® Control offers a variety of features for performance and convenience, including Adaptive VAr™ Control and PhaseFind™ Compensator.

Voltage Guard™ Protection measures voltage change caused by capacitor switching and applies this value to the present line voltage. If Voltage Guard Protection predicts that bank switching will cause the line to exceed preset voltage limits, switching is inhibited, preventing both out-of-range line voltage conditions and capacitor bank cycling.

The Series 4500 AutoCap® Control automatically corrects for installation errors, such as sensing voltage and current from different phases, reversed current signal wiring, reversed trip/close wiring and calibration errors. It also adjusts to abnormal operating conditions, including reverse power flow, bank hunting, low switching voltage, capacitor failure (neutral current lockout) and excessive bank switching.

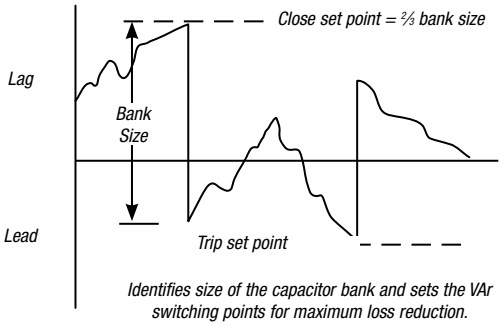
A programmable one- to four-season control, the Series 4500 AutoCap® Control can operate on the basis of VAr, voltage, current, temperature, time and combinations of these inputs. In addition, the Series 4500 AutoCap® Control offers complete load data/event recording and report creation supported by SmartSet™ software.

Exclusive Advantages

The Fisher Pierce® Series 4500 AutoCap® Adaptive Capacitor Control and Recorder with Two-Way Communications delivers many new and innovative functions to eliminate the traditional struggle associated with:

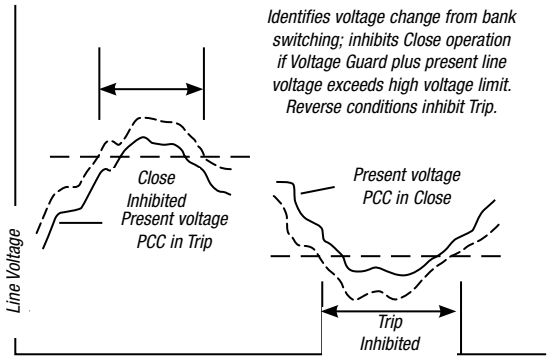
- Setting optimum VAr setpoints (Fig. 1 – Adaptive VAr™ Control)
- Finding the voltage change caused by bank switching (Fig. 2 – Adaptive Voltage Guard™ Protection)
- Field wiring (Fig. 3 – PhaseFind™ Compensator)

Adaptive VAr™ Control (Fig. 1)

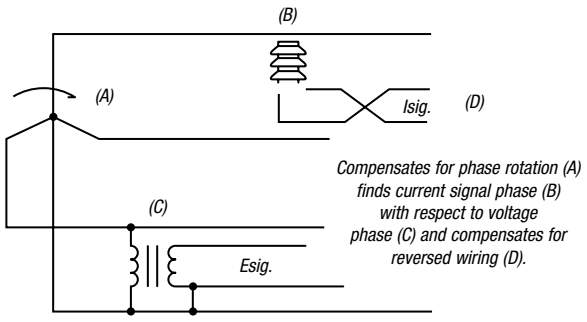


Identifies size of the capacitor bank and sets the VAr switching points for maximum loss reduction.

Adaptive Voltage Guard™ Protection (Fig. 2)



PhaseFind™ Compensator (Fig. 3)



Capacitor Controls

Additional AutoCap® Control Features

Fisher Pierce® Series 4500 AutoCap® Control builds on more than 30 years of experience in the design, manufacture and application of electronic capacitor controls.



- Standard meter socket mounting; pole or wall mounting available
- Single-phase line current signal input: Line post sensor or CT input for VAr and current control and data recording
- Capacitor bank neutral sensing signal input: Fisher Pierce® split lamination sensor (AT929) or CT/VT neutral sensing current input
- Neutral sensing lockout lamp; reset by manual button or command through RS-232
- Shielded ambient temperature sensor
- 9-pin RS-232 communications port
- Optical communication port available
- 365/366-day time clock
- Programmable momentary output relays
- Nonvolatile memory
- Independent watchdog timer
- Electromechanical operations counter available
- Internal LCD read-only display available
- Operational status LEDs
- Manual Close/Trip operation and Auto/Manual switches

SmartSet™ Application Software

The Series 4500 AutoCap® Control is programmed using Windows® based SmartSet™ software created by Fisher Pierce for greater programming ease. Using SmartSet™ software, the Series 4500 AutoCap® Control is a multifunction microprocessor-based control, programmable for up to four seasons. You can assign each season its own primary and override functions as listed in the Control Modes table (right). The Series 4500 AutoCap® Control connects to any Windows® based PC via standard RS-232 or optional optical communications port.

Control Modes

BASIC FUNCTIONS	OVERRIDE FUNCTIONS	VOLTAGE BIAS	REVERSE POWER
• Adaptive VAr	• Voltage	• Time	• Ignore
• VAr	• Time	• High Temp	• Voltage
• Voltage	• High Temp	• Low Temp	• VAr
• Current	• Low Temp		• Trip and Inhibit
• Time			• Close and Inhibit
• High Temp			
• Low Temp			

The Series 4500 AutoCap® Control also provides the following additional functions:

- Real-time monitoring of data readings and controller status through local RS-232 or optical port
- Traditional holiday calendar — 10-year predefined, can be user edited
- Individual and block holidays — 10-year user programmable
- Daylight Saving Time calendar — 10-year predefined, can be edited
- Daily close count limit — User programmable
- Switching time delays/inhibits — For automatic and manual modes with LED indication on controller panel
- Neutral sensing lockout — Trips bank and prevents further capacitor operation, flashes external lamp in the event of capacitor can failure, reset by external button or RS-232 command

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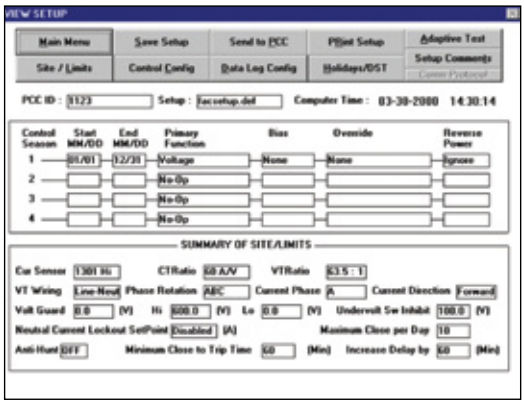
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Data Recording Parameters

LOAD DATA RECORDING *	DAILY SUMMARY RECORDING	OPERATIONS RECORDING
Date/Time Stamp	Date Stamp	Date/Time
Voltage (Sec. or Line)	Time of Max./Min. Value	Basic Operations
Current (Sec. or Line)	Daily Max./Min. Voltage	Override Operations
kVAr (3ø)	Daily Max./Min. Current	Manual Operations
kVA (3ø)	Daily Max./Min. (3ø) kVAr	Power Up/Power Down
kW (3ø)	Daily Max./Min. Temp	Voltage Before/Delta
Power Factor	Daily Close Operations	kVAr Before and After
Total Harmonics	Daily Close Hours	kW Before and After
Temperature	Close Ops Running Total	Reverse Power
Trip/Close Status		

** 1 min. to 4 hour averaging period.*



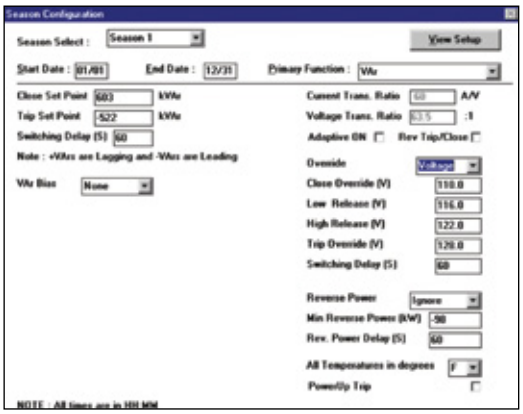
View Setup Screen — Allows user to review controller setup and site configuration summary.

Report Generation Capability

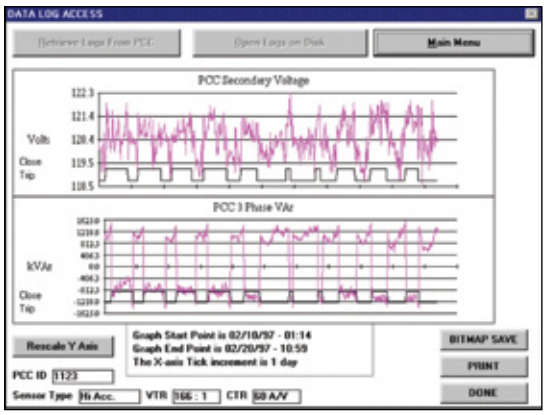
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Load Data Reports

- Spreadsheet format
- Graphing of all load data
- Edit graph time period
- Scale of graph
- Title of graph
- Trip/Close status
- Report printing



Season Configuration Screen — Fully prompted for easy controller programming.

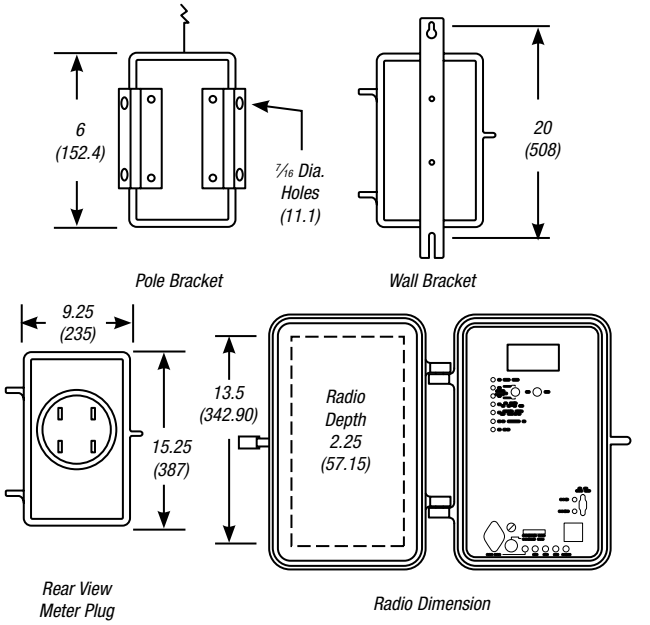


Typical Load Data Graph

Capacitor Controls

Mechanical Data (Series 4500)

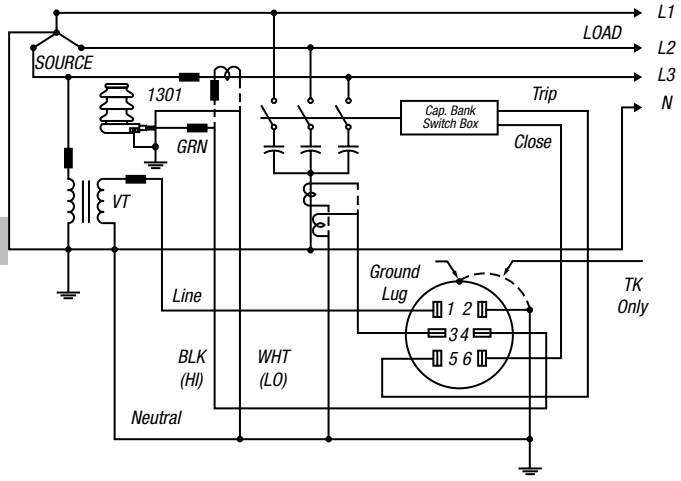
See ***pages H-269–H-271*** for more information on Fisher Pierce® Series 1301 PowerFlex® High-Accuracy Line-Post Current Sensors.



Installation and Preferred Sensor Location

Notes:

1. *4W-grounded WYE circuit shown.*
2. *Refer to ordering information for wiring of other socket codes or terminal strip.*
3. *Refer to instruction manual for complete installation information.*



View Looking into SK/Tk Socket

Specifications

Specifications for Fisher Pierce® Series 4500 AutoCap® Adaptive Capacitor Control and Recorder with Two-Way Communication

- **Radio**
  Maximum Radio Dimensions: 13.50"H x 7.25"W x 2.25"D
  Radio Power Supply: 13VDC, 2.0A continuous, 3.0A transmit
- **Electrical**
  Operating Voltage Ranges: 95–140V, 60 Hz; 190–280V, 60 Hz; 95–125V, 50 Hz; 190–250V, 50 Hz
  Surge Withstand: ANSI C62.41-1987
  Electrostatic Discharge Test: 15kV applied to all accessible parts, IEC 801-2
- **Output Relay**
  Number and Type: 2 momentary closure
  Maximum Continuous Load: 10A
  Maximum Inrush: 50A, 50% pF, 6 cycles, make only
  Contact Closure Period: Programmable 1–120 sec. in 1-sec. increments
- **Fuse Rating**
  Output to Capacitor Switch: 10A FNM Slo-Blo® load fuse
  Controller Input: 2A controller fuse.
- **RS 232 Communications Port**: DB9 female connector
- **Optical Communicatons Port**: Type 2
- **Mechanical**
  Enclosure: Luran, NEMA 3R
  Mounting: 4- or 6-jaw meter base, wall- or pole-mount bracket
  Dimensions: 15.25"H x 9.25"W x 8.50"D
- **Environmental**
  Operating Temperature: -40° C to 80° C (-40° F to 176° F)
  Humidity Range: 0 to 95% non-condensing
- **Measurement Performance**
  Voltage
  Secondary
  Resolution: .1 VAC
  Accuracy: ±.5% of reading over temperature
  Range: Same as operating range, True RMS
  Primary
  VT Ratio Range: 1:1 to 1000:1 in .1:1 increments
  Current
  Resolution: Fisher Pierce® 1301 sensor: .1A; Lindsey line-post sensor: .1A; Current transformer: .01A (secondary)
  Accuracy: ±1.0% Reading, ±.2% Range, ± sensor error
  Range: Fisher Pierce® 1301 sensor: 4–800A True RMS; Lindsey line-post sensor: 4–800A True RMS; Current transformer: .1–20A (secondary) True RMS; Current Transformer Ratio (CTR): 5:5 to 2000:5 in 1:5 increments
- **Reactive Power (VAr)**:
  Resolution: 1kVAr
  Range: ±99,999 kVAr
- **Temperature**:
  Resolution: 1° F (1° C)
  Accuracy: ±4° F (2° C)
  Range: -40° C to 60° C (-40° F to 140° F)
- **Time Clock**:
  Resolution: 1 sec.
  Accuracy: ±10 min. per yr.
  Range: 24-hr. clock
  Settings: 1-min. increments
- **Phase Angle**:
  Resolution: .1°
  Accuracy: ±1°, ± sensor error
  Range: 0°–359°
- **Neutral Current**
  Resolution: Fisher Pierce® AT929 sensor: .1A; Current Transformer: .01A (secondary); Potential Device: .1V (secondary)
  Accuracy: ±2% of reading, ±1% range, ±sensor error
  Range: Fisher Pierce AT929-400 sensor: 1 to 60A; Current Transformer Ratio Sec: 5:5 to 2000:5; Potential Device: 0–60V (secondary)
- **Controller Processor**
  Memory Size: 32 KB standard, 128 KB optional
  Memory Types: EPROM, NVRAM and battery-backed RAM

Series 1301 Line-Post Current Sensor
Calibration Accuracy at 120A: ± 1%
Linearity Error: 3–1200A, ± 1%
Angle Error: 3–600A, ± .50
Temperature Error: ± .02% °C
7th Harmonic Response: 82%

*See **pages H-269–H-271** for complete specifications on Fisher Pierce® Series 1301 Line-Post Current Sensors.*

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Capacitor Controls

Fisher Pierce® Series 4500 AutoCap® Control and Recorder

The following diagram shows how to construct a catalog number for the Series 4500 AutoCap® Adaptive Capacitor Controller and Recorder.

☐ Indicates field that must be filled in to complete order.

***Note**: Availability of selected configuration will be verified at quotation time.*

45 ☐ ☐ ☐ - ☐ ☐ ☐ - ☐ ☐ - ☐ 6 ☐ B - ☐

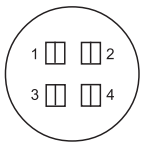
Basic Model	
45	Series 4500 AutoCap® Programmable Capacitor Controller in compact enclosure

Line Current Input	
(current-sensing device ordered separately)	
1	Fisher Pierce 1301 line post sensor (60 A/V 60 Hz and 72 A/V 50 Hz) or Lindsey sensor (100A/V)
2	CT (5A secondary)
0	None

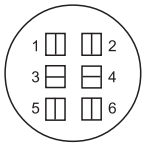
CT/VT Neutral Sensing	
1	Fisher Pierce AT929 sensor with 6-ft. lead (supplied)
2	CT (not supplied)
3	VT (not supplied)
0	None

Optical Communication Port	
F	Supplied (not available with Option D for Communications Protocol)
N	None

Counter/Display	
C	Electromechanical counter only
D	2-line display only
E	Electromechanical counter and 2-line display (read only)
N	None



View looking into socket



Socket for CT shorting switch available for SJ and TJ wiring

Memory	
S	Standard 32K
E	Expanded 128K

Temperature Sensor	
T	Supplied
N	None

Communications Protocol	
F	SmartSet™ (no comm. micro or flash memory)
D	DNP 3.0 (comm. Micro and flash memory installed)

Communications Circuitry	
MB	Modem installed — PSTN (public service telephone network)
BA	Radio installed — Metricom Model 20043
BB	Radio-ready
DA	Radio installed — MDS Model 9310, 9810
DB	Radio-ready
NC	Communications-ready or radio upgrade

***Notes**:*
***Radio Installed** = Radio installation by Fisher Pierce, supplied by customer. Communication micro, flash memory and power supply included.*
***Radio-Ready** = Radio installed by customer. Radio bracket, antenna mount and cables included. Communication micro, flash memory and power supply included.*
***Communications-Ready** (defined by selecting "D" for Communications Protocol) = Radio bracket and cables not included. Power supply included. Comm. micro and memory installed.*
***Radio Upgrade** (defined by selecting code "F" for Communications Protocol) = Radio bracket and cables not included. Power supply included. Comm. micro and memory not installed (Controller board change-out required for communications using a protocol other than SmartSet™).*

SCADA Options	
D	Two dry SCADA inputs — internally wetted
F	Blown-fuse detect (DNP 3.0 protocol)
W	Two wetted SCADA inputs — customer wetted 40–140VAC/DC

Factory Code

Voltage/Frequency	
1	120VAC, 60 Hz
2	240VAC, 60 Hz
3	120VAC, 50 Hz
4	220VAC, 50 Hz
5	240VAC, 50 Hz

Enclosure Type	
6	Luran

Four-Jaw Meter Socket Mounting and Wiring

	1	2	3	4	5	6	EXT. GND LUG	CURRENT INPUTS
FJ	L	N/GND	TR	CL	—	—	No	None
GJ	L	N/COM	TR	CL	—	—	Yes	None

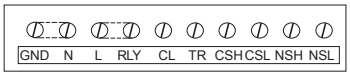
Six-Jaw Meter Socket Mounting and Wiring

	1	2	3	4	5	6	EXT. GND LUG	CURRENT INPUTS
SJ	CSL	N/GND	L	TR	CSH	CL	No	Line Only
TJ	CSL	N	L	TR	CSH	CL	Yes	Line Only
SM	L	N/GND	CSL	CSH	TR	CL	No	Line Only
TM	L	N	CSL	CSH	TR	CL	Yes	Line Only
SL	L	N/GND	NSL	NSH	TR	CL	No	Neutral Only
TL	L	N	NSL	NSH	TR	CL	Yes	Neutral Only
SK	L	N/GND/COM	NSH	CSH	TR	CL	No	Line + Neutral
TK	L	N/COM	NSH	CSH	TR	CL	Yes	Line + Neutral

Bracket Mounting with Terminal Strip

MOUNTING LOCATION			EXT. GND LUG	CURRENT INPUTS
BJ	Pole	Wire to Terminal Strip as shown below	Yes	None, Line, Neutral, Or Line + Neutral
WJ	Wall			

Terminal Strip



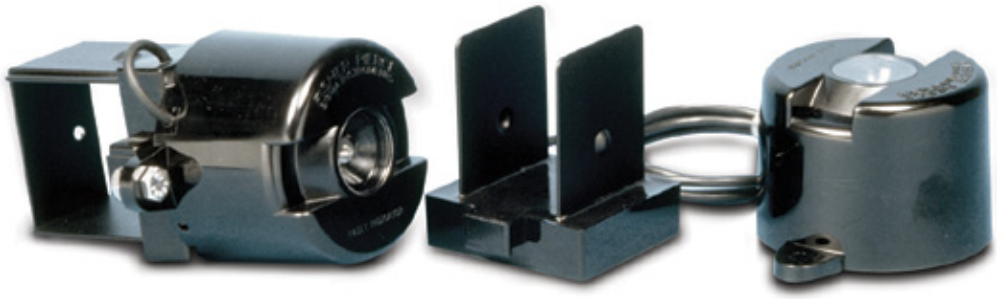
***CL** = Close **COM** = Com **TR** = Trip **GND** = System ground*
***N** = Neutral **L** = Line **RLY** = Output relay armatures **CL** = Close*
***TR** = Trip **CSH** = Line current signal High*
***CSL** = Line current signal Low **NSH** = Neutral current signal High*
***NSL** = Neutral current signal Low*
***- -** Broken lines between terminals indicate removable jumper*

Capacitor Controls

Alerts you to failed capacitors in fixed distribution capacitor banks.

Fisher Pierce® Series 1580 Fixed Capacitor Bank Neutral Sensing Indicator

- High-intensity LED provides clear visual indication of neutral current unbalance, and flash rate indicates magnitude of neutral current
- Low maintenance; draws operating current for its circuitry from the current sensor — no battery to check or change
- Ships fully assembled for easy installation
- Choose between hotstick or tie-wrap mounting
- Remote or integral sensor enables mounting of unit either separate from (10-ft. distance) or together with current sensor to suit different user needs
- Lexan® housing and epoxy-coated sensors protect against moisture to ensure long, trouble-free service life



The Fisher Pierce® Series 1580 Neutral Sensing Indicator continuously monitors the neutral conductor of a fixed distribution capacitor bank. When a capacitor fails and blows the fuse in one phase of the bank, the capacitor neutral signal becomes unbalanced. This unbalance is sensed by the Series 1580 Neutral Sensing Indicator.

The design of the Series 1580 Neutral Sensing Indicator is based on the field-proven Fisher Pierce® line of faulted circuit indicators. The Series 1580 uses the current sensor to detect neutral current unbalance, as well as to provide power for its circuitry, so no battery is required for operation.

Attached to a neutral conductor, the Series 1580 provides a continuous check on the capacitor bank. When it senses a high neutral current (typically 15 amps), it flashes a high-intensity LED with the flashing rate indicating the magnitude of the neutral current.

** Laxan is a registered trademark of Sabic Innovative Plastics IP B.V.*

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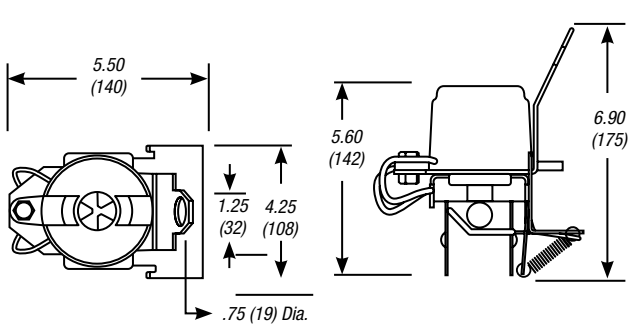
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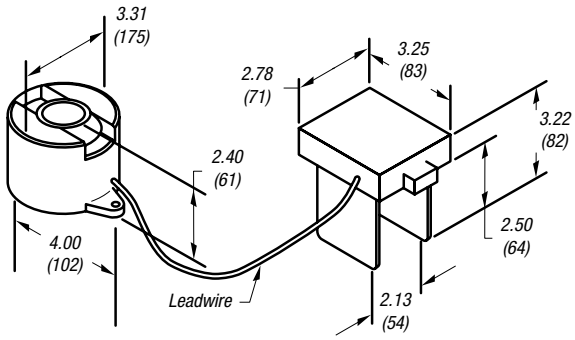
Capacitor Controls

Mechanical Data

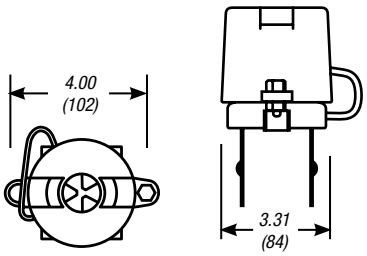
(all dimensions in inches with millimeter equivalents in parentheses)



Indicator with Attached Sensor—Hotstick Mounting



Remote Bracket Mounting Indicator

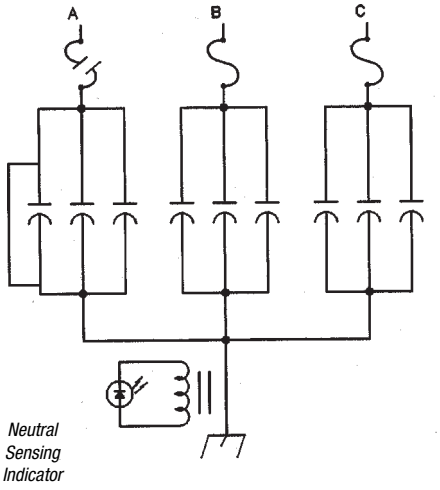


Indicator with Attached Sensor—Tie-Wrap Mounting

Specifications

- Operating Range: 15–200A
- Operating Temperature Range: -40° C to 85° C
- Continuous Load Current: 200A
- Overload Capability: 25,000A for 10 cycles
- Maximum Cable Diameter: 1⅝"

Installation Application



Fisher Pierce® Series 1580 Fixed Capacitor Bank Neutral Sensing Indicator

CAT. NO.	DESCRIPTION
1580-10	Indicator with hotstick clamp
1580-20	Indicator with 10-ft. remote sensor and tie-wrap mounting
1580-30	Indicator with integral sensor and tie-wrap mounting
1580-45134	Indicator with contact output

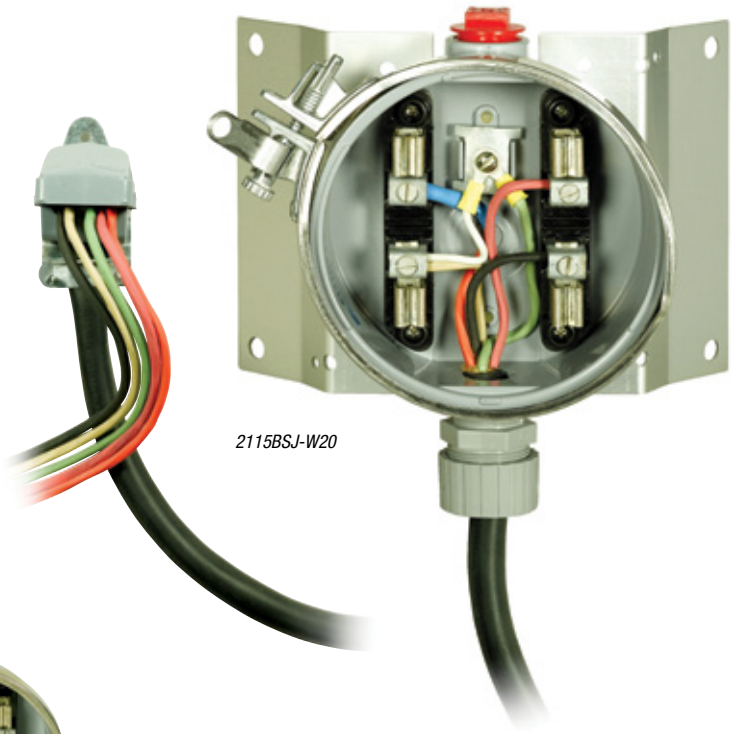
Capacitor Controls

Designed for faster, easier installation.

Fisher Pierce® Series 2100 Meter Sockets

- Variety of options provide flexibility to meet the needs of many utility applications
- Prewired sockets ship ready to install for maximum efficiency

Fisher Pierce® Series 2100 Meter Sockets streamline, simplify and standardize pole-mounted meter socket installations. Series 2100 Meter Sockets offer a variety of options to meet specific utility applications. Prewired units greatly reduce installation time and ship complete with all wiring in place and hardware installed, ready for mounting.



2115BSJ-W20



2102BFA

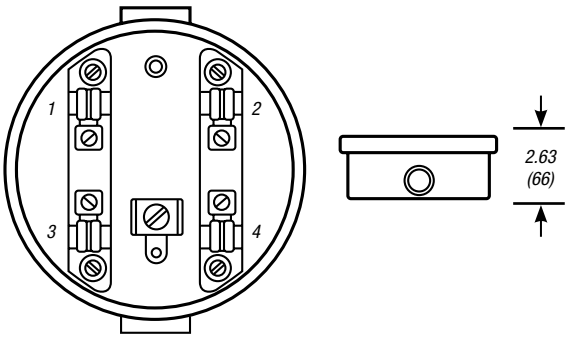


2101NFN

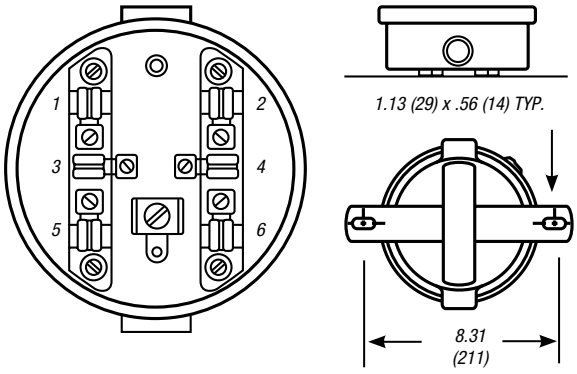
Series 2100 and 2110 Mechanical Data

(all dimensions in inches with millimeter equivalents in parentheses)

4-Jaw Socket



6-Jaw Socket



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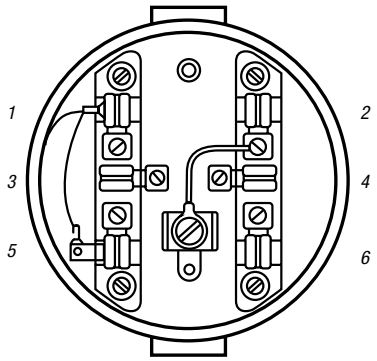
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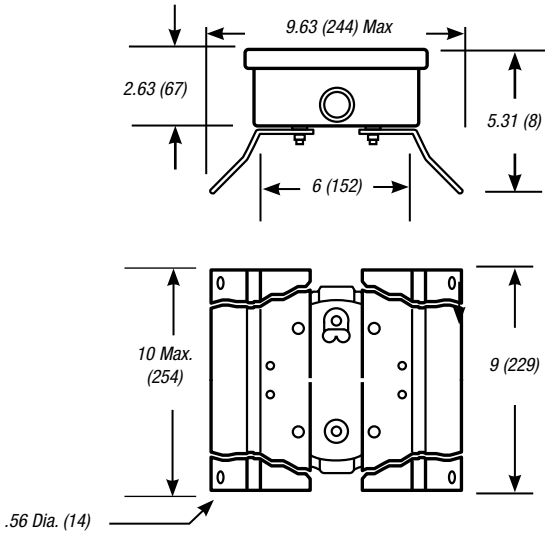
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Capacitor Controls

6-Jaw Socket with Automatic Shorting Device





Specifications

- Capacity: 100A, 600V
- Terminals: Set-screw type up to #2 conductors
- Hub Size: 1" internal type
- Enclosure: Die-cast aluminum
- Breakouts: Provided in back of each socket
- Sealing Ring: Snap-action standard
- Options: Padlock type on B options
- Cable Type: See ordering information

The following diagram shows how to construct a catalog number for the Series 2101 or 2102 Meter Socket.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

Basic Socket	
2101	Basic meter socket with two 1" hubs
2102	Basic meter socket with two 1" hubs and ground wire

Number of Jaws	
F	4-jaw
S	6-jaw
T	6-jaw with automatic shorting device

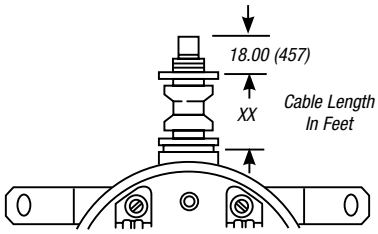
Sealing Ring/Mounting Options	
N	Snap-action sealing ring; standard socket only — wall-mount
A	Snap-action sealing ring; standard pole-/wall-mount bracket
B	Heavy-duty padlock-type sealing ring; heavy-duty wrap-around pole-mount bracket
C	Lock sealing ring; no mounting bracket
D	Lock sealing ring; pole-/wall-mount bracket
G	Heavy-duty snap-action sealing ring; heavy-duty wrap-around pole-mount bracket

Hub-Plug Options	
N	None
A	Male plastic plug top and female plastic plug with hole in bottom
B	Cable connector on top, 1" plug with hole on bottom, ⅜"–½"
C	½"–⅝"
D	⅝"–¾"
F	Cable connector on top and bottom, ½"–⅝"
G	⅝"–¾"
H	⅜"–½"

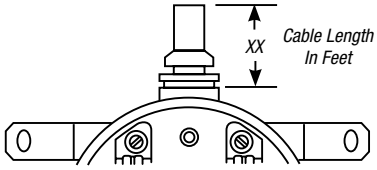
Capacitor Controls

Series 2111/2115 Cable Connector Mechanical Data

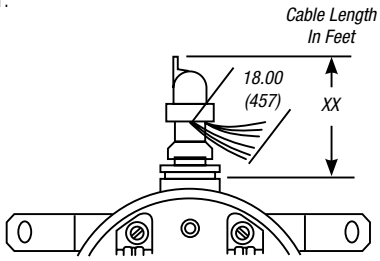
All dimensions in inches with millimeter equivalents in parentheses. XX: Length in feet — specified by customer.



Connector at Cable End

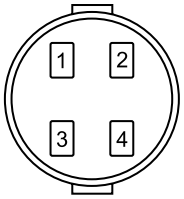


No Cable Termination at Top



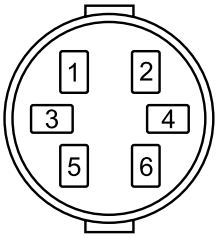
Weatherhead at Cable End

Wiring for Prewired Units



4-Jaw Wiring

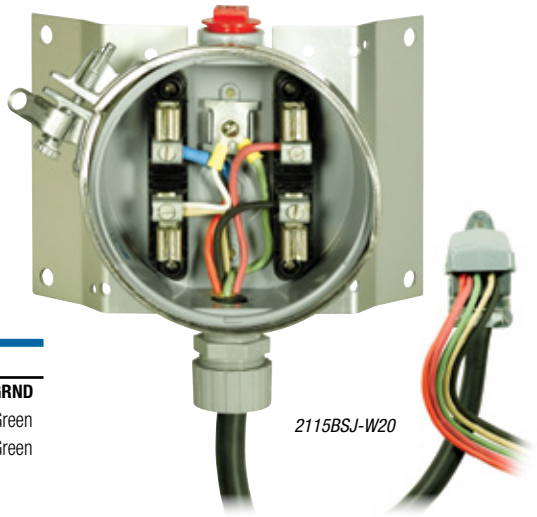
CODE	JAW #				
	1	2	3	4	GRND
J	Black	White	Red	Blue	Green



6-Jaw Wiring

CODE	JAW #						
	1	2	3	4	5	6	GRND
J	White/Black	White	Black	Red	Orange	Blue	Green
M	Black	White	White/Black	Orange	Red	Blue	Green

Specifications subject to change.



2115BSJ-W20

The following diagram shows how to construct a catalog number for the Series 2111 or 2115 Meter Socket.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

Basic Socket

2111	Basic meter socket prewired with polyethylene control cable and plastic plug-in bottom
2115	Basic meter socket prewired with polyethylene control cable and plastic plug-in bottom Sealtite flexible armored cable jacket

Sealing Ring/Mounting Options

N	Snap-action sealing ring; standard socket only
A	Snap-action sealing ring; standard pole-/wall-mount bracket
B	Heavy-duty padlock-type sealing ring; heavy-duty wrap-around pole-mount bracket
C	Lock sealing ring; no mounting bracket
D	Lock sealing ring; pole-/wall-mount bracket
G	Heavy-duty snap-action sealing ring; heavy-duty wrap-around pole-mount bracket

Top Cable Termination

C*	"AN"-type box connector
N*	No cable termination
W*	Weathered for drip loop

Number of Jaws

FJ	4-jaw with (5) #12's prewired with "J" wiring (see wiring diagram)
SJ*	6-jaw with (7) #12's prewired with "J" wiring (see wiring diagram)
TJ*	6-jaw with automatic shorting switch with "J" wiring (see wiring diagram)
	*"M" wiring also available (see wiring diagram); substitute **SM** or **TM** for codes above to order.

Length

2111 SERIES		2115 SERIES	
07	7 ft.	**10**	10 ft.
15	15 ft.	**15**	15 ft.
17	17 ft.	**25**	25 ft.
25	25 ft.	**29**	29 ft.
28	28 ft.	**30**	30 ft.
30	30 ft.	**35**	35 ft.
35	35 ft.	**40**	40 ft.
40	40 ft.		

***Note:** For other lengths, consult the factory.*

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Russellstoll®

Russellstoll® Pin & Sleeve Power Connectors



In this section...



Russellstoll® Pin & Sleeve Power Connectors

Overview/Application Guide H-294–H-295
MaxGard® Interconnection Systems H-296–H-343
J-Line™ Interconnection Systems H-344–H-356
DuraGard® Waterproof Connections H-357–H-375
FS/FD™ Metallic Connections H-376–H-388
UniGard® Pin and Sleeve IEC Connections H-389–H-408
DuraTite® and Ever-Lok® Locking Connections H-409–H-432
Control Circuit Connections H-433–H-443
Industrial Interlocked Receptacles H-444–H-452
Hazardous Location Plugs, Receptacles and Interlocks H-453–H-459
Safe Ground Indicator System H-460–H-462
Computer System Interconnections H-463–H-473
Mipco™ Connections for Refrigerated Containers H-474–H-490

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Overview/Application Guide

This catalog has been divided into sections based on standard application groups. Below is a description of each of the six general categories in which Russellstoll products appear. Applications are not limited to those listed below.

Heavy Industrial/Marine Applications: Outdoor, Severe or High Abuse Environments



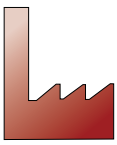
- Industrial hook-ups
- Shore-to-ship power connections stations
- Portable generator sets
- Mills and process plants
- Agriculture
- Portable power connections
- Aerospace manufacturing and airports
- Lift stations
- Irrigation and wastewater equipment
- Industrial and shipyard welding
- Power distribution centers
- Job site power: For telephone power and communications equipment

Washdown and Light Marine Applications: Watertight/Waterproof



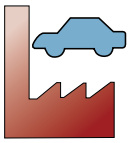
- Food processing plants
- Pharmaceutical manufacturing
- Bottling and beverage plants
- Barge and workboat applications
- Pulp and paper factories
- Outdoor construction sites

Industrial and Commercial Applications



- Entertainment (lighting and sound systems)
- Machinery
- Computer-related equipment
- Welding installations
- Construction sites
- Facilities' electrical power

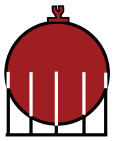
Control Circuit and Industrial Interlock Applications



Automotive/Industrial Interlock systems were designed for the needs of the manufacturing industry. These devices are used where safety requirements mandate a mechanically interlocked system for connection and removal of plugs under full load.

- Automatic press
- Heavy-duty portable welding
- Portable systems
- Machine tool control or Servo systems
- Shipyard maintenance power
- Battery chargers
- Automated welder applications
- Food processing
- Temporary power connections

Hazardous Location Applications: Class I, Div. 1/Class II, Div. 1



- Aerospace
- Steel mills and mining
- Petroleum
- Chemical
- Food processing
- Waste treatment

Computer Systems: Data Center and OEM Products



- Raised floor applications
- Main power connections
- Critical power for test, instrumentation, telephone and medical equipment

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Overview/Application Guide

	AMPERAGE						
	20	30	50	60	100	200	400
Heavy Industrial/Marine (pages H-296–H-356)							
MaxGard®	—	✔	—	✔	✔	✔	✔
J-Line™	—	✔	—	✔	✔	✔	—
Washdown and Light Marine (pages H-357–H-408)							
DuraGard®	✔	✔	✔	✔	—	—	—
FS/FD™	✔	✔	—	—	—	—	—
Mechanically Interlocked Receptacles	✔	✔	✔	—	—	—	—
UniGard® (IEC 309) IP67	✔	✔	—	✔	✔	—	—
Industrial and Commercial (pages H-409–H-432)							
DuraTite™	✔	✔	—	—	—	—	—
Standard Ever-Lok® (+Midget)	✔	✔	✔	—	—	—	—
Heavy Service Ever-Lok®	—	✔	—	✔	✔	—	—
UniGard® (IEC 309) IP44	✔	✔	—	✔	✔	—	—
Control Circuit and Industrial Interlock (pages H-433–H-452)							
Control Circuit Connectors	✔	—	—	—	—	—	—
Industrial Interlock Systems (Custom Products)	✔	✔	—	✔	✔	✔	✔
Hazardous Location (pages H-453–H-462)							
MaxGard®	—	✔	—	✔	✔	—	—
Interlocked Switch Receptacles	✔	✔	—	—	—	—	—
Delayed Action Circuit Breaking Receptacles	✔	✔	—	—	—	—	—
Safe Ground Indicator System	—	—	—	—	—	—	—
Computer Systems (pages H-463–H-473)							
FS/FD™ and Angle Type DP	✔	✔	✔	✔	—	—	—
Spec Grade	✔	✔	✔	—	—	—	—
DuraGard®	✔	✔	✔	✔	—	—	—
UniGard® (IEC)	✔	✔	—	✔	—	—	—

MaxGard® Interconnection Systems

Russellstoll Line Selections for Outdoor (and Indoor) Applications

MaxGard® **4P5W + 2 Opt.** **30 through 400A**	The widest range and toughest construction. Safety, durability and performance by design in copper-free, cast aluminum, epoxy powder-coated housings. Built to last, from 30- through 400-amp application, with a full interlock line, too. Optional 2-control contacts and more than 200 individual voltage polarization options through 600VAC/250VDC, 4P5W. O-ringed sealed pins, sleeves and interiors.

Usage

- Any application where electrical connections need protection from water and/or dust ingress to contacts or wiring compartment
- Cable-to-connector sealing and watertight device locking designs are critical
- Metal connectors are usually preferred for long service life



Typical Application Groups

Marine
- Lighting Systems
- Shore-to-Ship Power
- Welding Stations
- Power Distribution Centers
- Shipboard Power Outlets
- Barge Power Connection

Construction and Agricultural
- Generator Sets and Systems
- Portable Tools and Equipment
- Irrigation Systems Panels
- Portable Lighting and Equipment

Government Municipal and Utilities
- Portable Building Power
- Army Corps of Engineers
- Utilities Panels
- Emergency Power Systems
- Sewage Pumping Stations
- Light and Controls
- Telephone Vault Systems
- Cellular Telephone Masts

OEMs
- GenSet and Welding Systems
- Transportable Equipment

Screw Cap = NEMA 4X
Flip Lid = NEMA 3R

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MaxGard® Interconnection Systems

30A–400A (30–200A Load Breaking), Maximum 600VAC/250VDC Receptacles, Inlets, Plugs, Connectors, Interlocked Receptacles, Explosion-Proof Interlocked Receptacles

Benefits

Russellstoll® builds a variety of benefits into one plug, receptacle and interlock system for your application. The MaxGard® system: **Maximum Safety, Durability** and **Performance** in electrical interconnections.

Safety

- **Waterproof construction:** Standard Neoprene O-ringed interior components provide environmental separation at the front of each device; they are watertight even when not mated (or engaged)
- **Different power supply ratings can't mix:** 24 single-rate device polarizations ensure exact voltage, frequency and phase differentiation plus a few specials, too. Available in every current range
- **Plugs stay in:** Standard delayed action pull and turn withdrawal offers all plugs an XP rating (30–100 amps). All system components use mating screw collars
- **Foreign objects stay out:** All receptacles and connectors have a gated rotating disk on the face of the interior, which engages upon insertion

Durability

- **At last — durability:** Rugged cast aluminum housings with two layers of electrostatic epoxy coating are standard, along with stainless steel hardware. Available with flap or screw covers. Interiors are molded from a tough reinforced UL94-V0 thermoset polyester
- **The best connections for life:** Pins and sleeves are made from CDA 360 and Marine-grade CDA 485 brass; 200- and 400-amp lines are silver-plated as well
- **The most power available in the most packages:** 30-, 60-, 100-, 200- and 400-amp lines in one system with cast aluminum NEMA 4X interlocks; steel 30-, 60- and 100-amp NEMA 12 interlocks or cast aluminum XP interlocks in 30-, 60- and 100-amp ranges

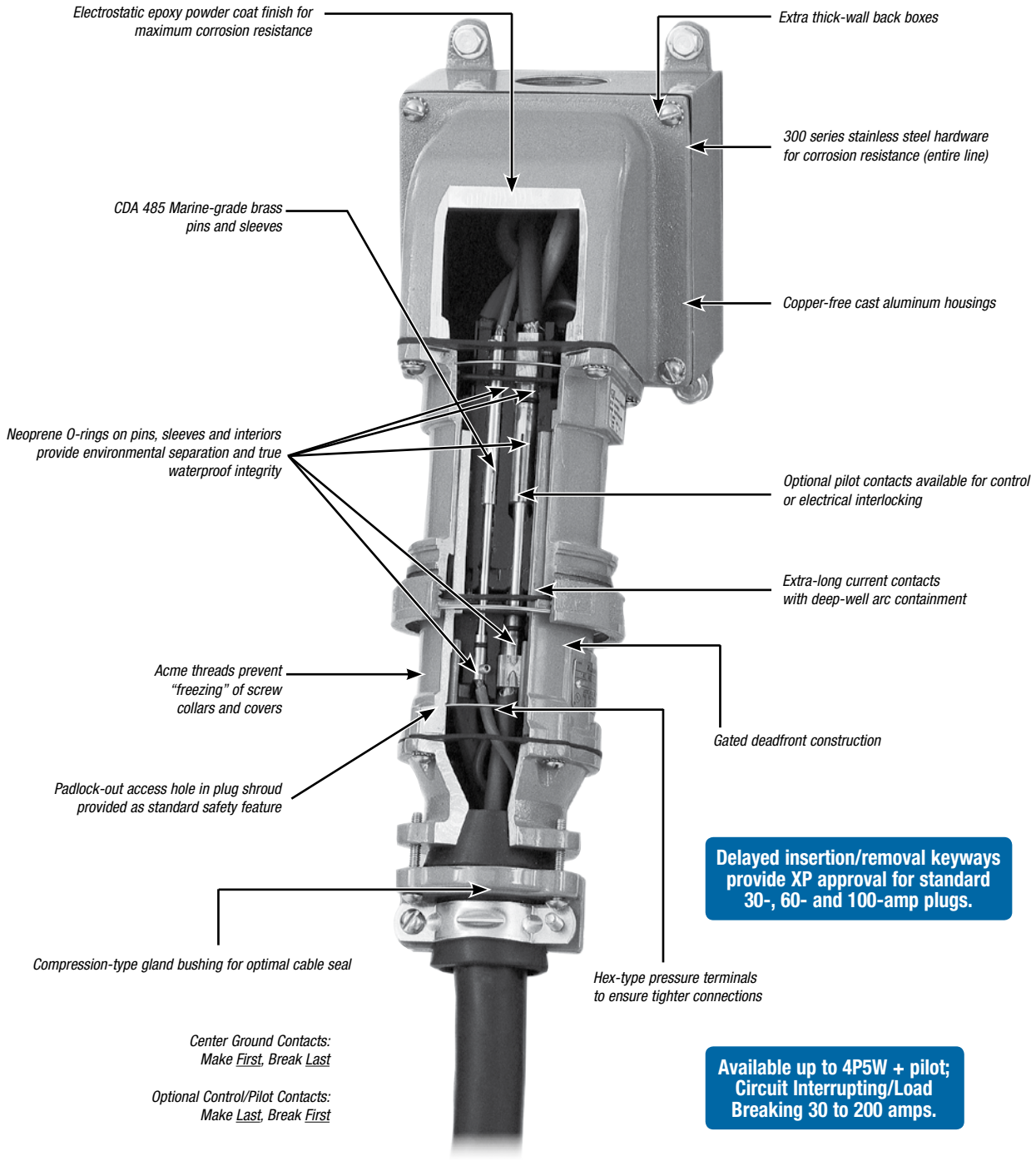
Performance

- **Any configuration you need:** Through 4-pole 5-wire configurations, all have a safety center earth ground pin design that makes first and breaks last. This feature applies to all of our plugs, connectors, receptacles, male inlets and interlock systems
- **More control available:** Two optional pilot/control pins for contactors, load monitor circuits, shunt trip or any other communication functions you need
- **Ease of assembly:** Solderless pressure-type screw terminals with hex socket heads and rear-access, take-apart housings provide quick wiring access. No interior removal required for wiring receptacles and connectors
- **More power:** 150% non-UL ratings allow extending MaxGard® installations to 600-amp custom loads, with separate disconnect service



30A–400A (30–200A Load Breaking), Maximum 600VAC/250VDC Receptacles, Inlets, Plugs, Connectors, Interlocked Receptacles, Explosion-Proof Interlocked Receptacles

Plug and Receptacle with Angle Adapter and Junction Box



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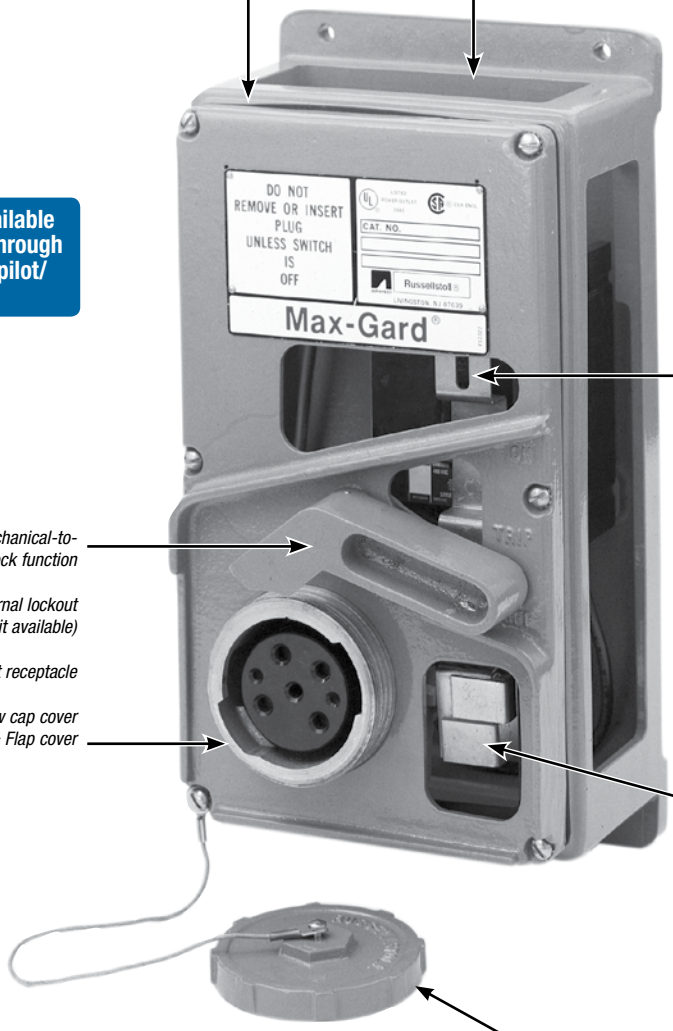
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Cast Aluminum Circuit Breaker Interlocked Receptacle (Cutaway View)

Thick-wall cast copper-free aluminum housing with epoxy powder coat finish

Standard conduit openings through top or side (cutaway shown), optional sizes and locations

NEMA 4X interlocks available in 30–400-amp ranges through 4P5W, with 2 optional pilot/ control contacts.



Standard, high A/C or NA breaker switch (cutaway shown)

Options include:
- *Shunt Trip*
- *Auxiliary Switch*
- *Trip Ratings*

Heavy On/Off handle adds mechanical-to-electrical interlock function

(External lockout option kit available)

Gated, rotating deadfront receptacle

Watertight = Screw cap cover
Splashproof = Flap cover

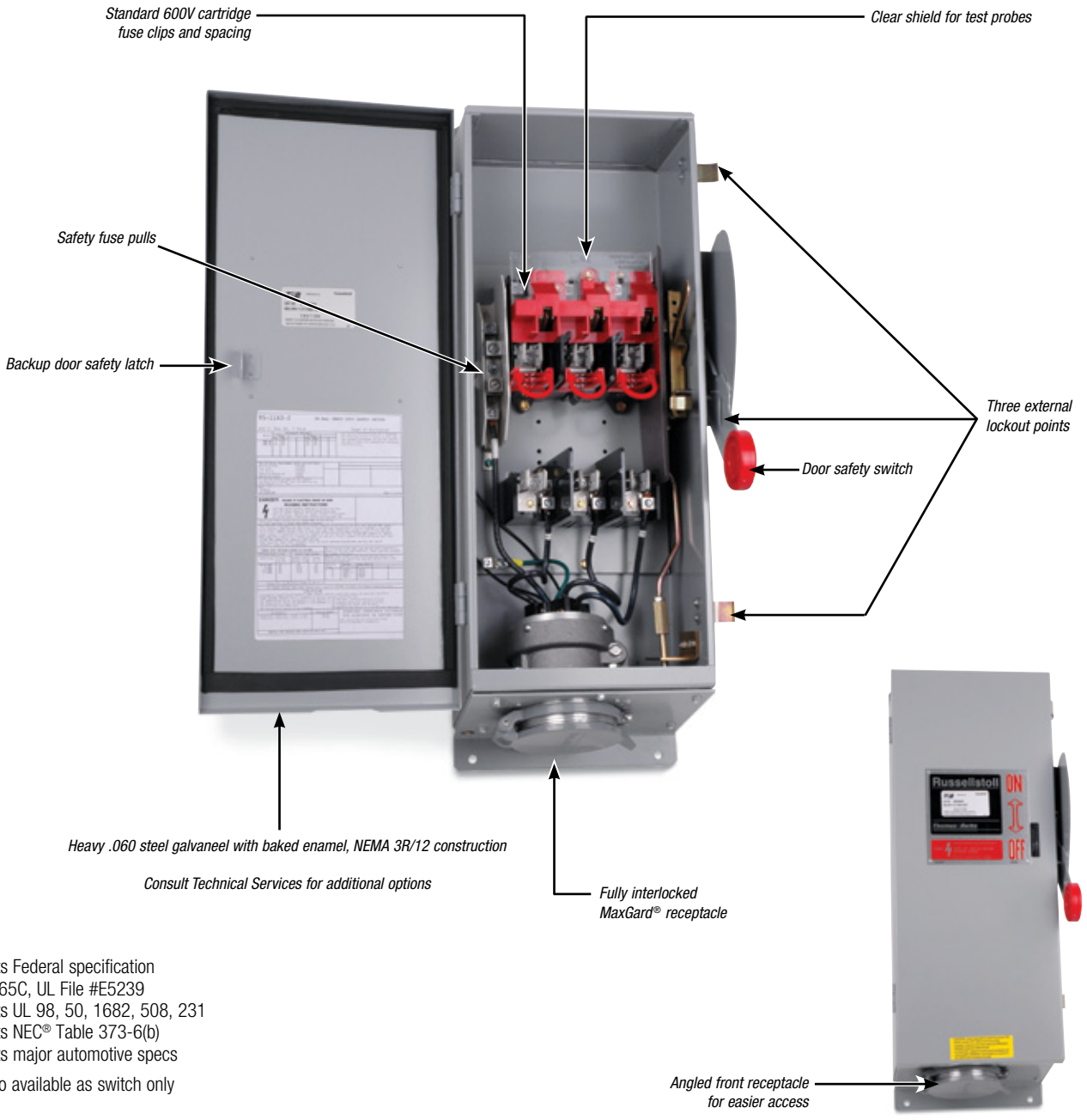
Heavy-duty sliding bar interlock mechanism (mates with plug padlock-out access hole)

Protective screw cap (flap cap also available)

30A–400A (30–200A Load Breaking), Maximum 600VAC/250VDC
Receptacles, Inlets, Plugs, Connectors, Interlocked Receptacles, Explosion-Proof Interlocked Receptacles

Fused-Disconnect Switch* Interlocked Receptacle

Available in 30-, 60- and 100-amp sizes, all polarizations through 600VAC.



Meets Federal specification WS865C, UL File #E5239
Meets UL 98, 50, 1682, 508, 231
Meets NEC® Table 373-6(b)
Meets major automotive specs

* Also available as switch only

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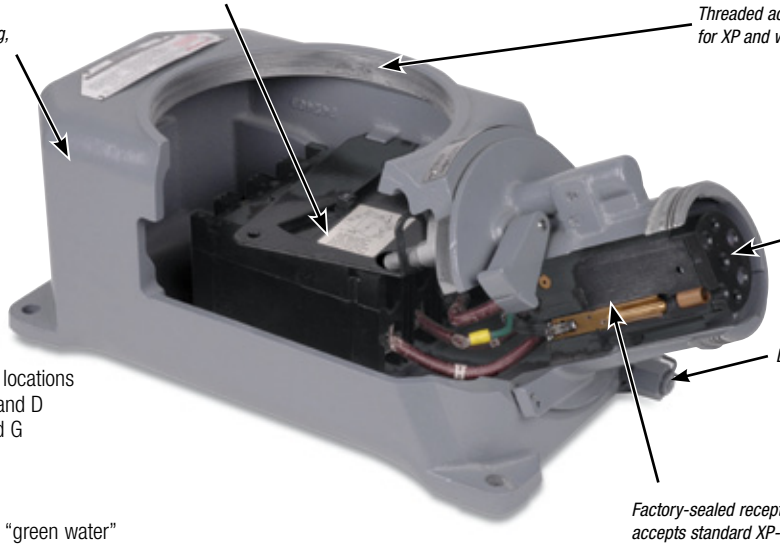
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Explosion-Proof Waterproof Circuit Breaker Interlocked Receptacle

Available in 30-, 60- and 100-amp sizes, all polarizations.

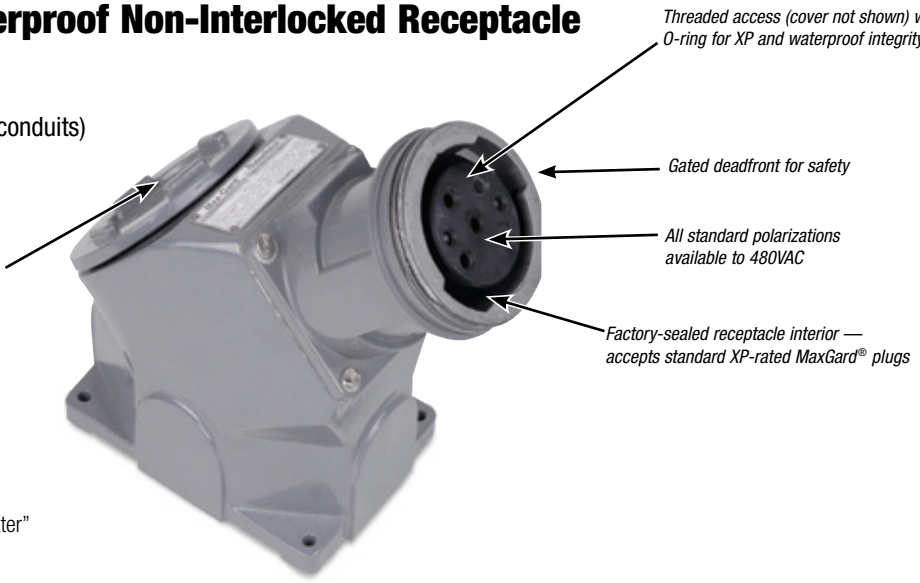


UL and CSA listed for hazardous locations
Class I, Division 1, Groups B, C and D
Class II, Division 1, Groups F and G
UL File E10919
NEMA 7, 8, 9
CSA
DOT shipboard used above deck "green water"
NEMA 4X
USCG approved

MaxGard® DBRE and DSRE series interlocks are explosion proof and waterproof (O-ring sealed), along with optional control contacts, and are fully UL Listed.

Explosion-Proof Waterproof Non-Interlocked Receptacle

- Factory-sealed interior (no filled conduits)
- Easy low-cost installation



UL and CSA Listed for hazardous locations
Class I, Division 1, C and D
Class II, Division 1, Groups F and G
UL File E10919
NEMA 7, 8, 9
CSA
DOT shipboard used above deck "green water"
NEMA 4X
USCG approved

30A–400A Plugs, Connectors, Receptacles, Inlets and Interlocked Receptacles

Receptacles, Plugs and Connectors

FEATURE	RUSSELLSTOLL MAXGARD®	CROUSE-HINDS ARKTITE®**	APPLETON POWERTITE®***
Center ground contact	Yes	No	No
24 single-rated factory polarizations	Yes	No	No
Gated deadfront construction	Yes	No	No
Two optional control contacts	Yes	No	No
Marine-grade CDA485 brass pins/sleeves (200–400 amp silver-plated)	Yes	No	No
O-rings/environmental separation, full line	Yes	No	No
Available to 5-wire (4-pole, 5-wire)	Yes	30 and 60 amp only	No
Complete line epoxy powder coated — standard	Yes	No	Some

Interlocked XP Receptacles

FEATURE	RUSSELLSTOLL DBRE/DSRE SERIES	CROUSE-HINDS EPC SERIES	APPLETON EBR SERIES (WITH FB BREAKER)
Waterproof (DurORing™) O-ring sealing	Yes	No	No
Available to 5-wire (4-pole, 5-wire) through 100 amp	Yes	No	No
Gated deadfront	Yes	No	No
Center ground sleeve contact	Yes	No	No
24 single-rated factory polarizations	Yes	No	No
Class I, Div. 1, Groups B, C, D	Yes	Yes	Yes
Class II, Div. 1, Groups F and G	Yes	Yes	Yes*
Meets Coast Guard (was CG259) approvals	Yes	No	No

** Group F excepting electrically conductive dusts*

*** Crouse-Hinds and Arktite are trademarks of Cooper Industries, Inc.*

**** Appleton and Powertite are trademarks of Appleton Electric Inc.*

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Receptacles, Plugs and Connectors

D	F	3	414	F	R	A	B	K

- **K**: Ø = Standard Configuration, K = 2 Control Contacts
- **B**: B = Junction Box, E = Angle Enclosure, Ø = No Box
- **A**: Ø = Without Adapter, A = Angle, S = Straight Adapter
- **R**: R = Receptacle, P = Plug
- **F**: M = Male Pins, F = Female Sleeves (contacts)
- **414**: Voltage Assignment Number — See **page H-340** (voltage selection chart)
- **3**: Amperage Rating — 3 = 30A, 6 = 60A, 1 = 100A, 2 = 200A, 4 = 400A
- **F**: F = Flap Cover, S = Screw Cover (screw collar for male plugs and male inlets)
- **D**: D = Gated Deadfront

} Ex: FP = Connector, MR = Motor Inlet

(Last 3 positions above: Ø can appear in any position — standard plugs, etc. will have a ØØØ suffix, e.g., "DS2404MPØØØ")

Interlocks (Standard or Explosion-Proof)

D	S	R	E	6	414	060	K	S

- **S**: Ø = Standard Configuration, S = Auxiliary Switch, Z = Shunt Trip
- **K**: Ø = Standard Configuration, K = 2 Control Contacts
- **060**: Breaker Rating code: (**page H-330** Breaker Rating Trip Charts) *NAO = Non-Automatic Switch
- **414**: Voltage Assignment Number (**page H-340** Voltage Selection Chart)
- **6**: Amperage Rating — 3 = 30A, 6 = 60A, 1 = 100A, 2 = 200A, 4 = 400A
- **E**: E = Explosion-Proof, F = Flap Cap (weathertight), S = Screw Cap (watertight)
- **R**: R = Receptacle
- **S**: * S = Switch, B = Circuit Breaker
- **D**: D = Gated Deadfront

** With S in position 2, positions 9, 10 and 11 must be NAO*

30 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS3CC.

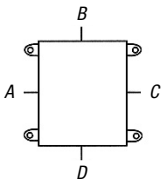
Maximum lug wire 8 AWG 7-strand or flexible, cable entrance .187" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 1" NPT.

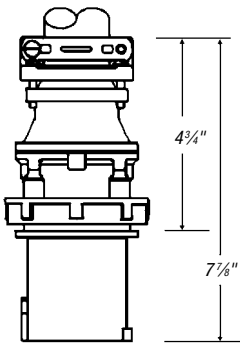


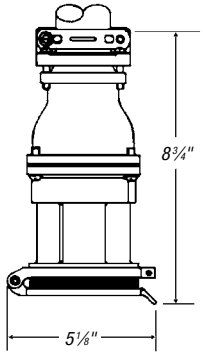
▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS3104MP00K***

*For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337.***



Male Plug†† | Female Connector





Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. ▼	STANDARD BUSHING I.D.†	CAT. NO. ▼	STANDARD BUSHING I.D.†
2	3		277	DS3104MP000	⅞"	DF3104FP000	⅞"
			125	DS3107MP000		DF3107FP000	
2	3		480	DS3204MP000	⅞"	DF3204FP000	⅞"
			250	DS3207MP000		DF3207FP000	
			600	DS3214MP000		DF3214FP000	
			208	DS3216MP000		DF3216FP000	
3	4		277/480	DS3304MP000	1"	DF3304FP000	1"
			125/250	DS3307MP000		DF3307FP000	
			120/208	DS3316MP000		DF3316FP000	
3	4		3Ø 480	DS3404MP000	1"	DF3404FP000	1"
			3Ø 250	DS3407MP000		DF3407FP000	
			3Ø 600	DS3414MP000		DF3414FP000	
			3Ø 208	DS3416MP000		DF3416FP000	
			3Ø 440	DS3421MP000		DF3421FP000	
4	5		3ØY 277/480	DS3504MP000	1 3/16"	DF3504FP000	1 3/16"
			3ØY 347/600	DS3514MP000		DF3514FP000	
			3ØY 120/208	DS3516MP000		DF3516FP000	
			3ØY 250/440	DS3521MP000		DF3521FP000	

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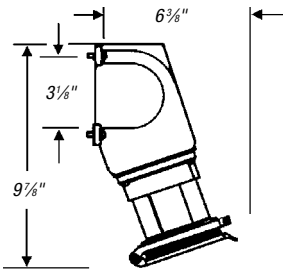
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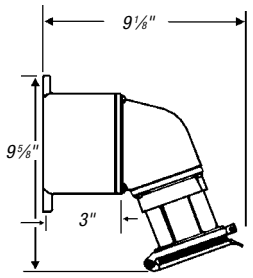


Female Receptacle with Angle Enclosure



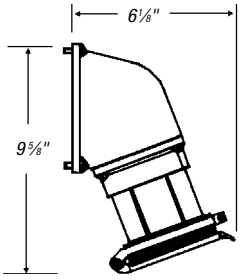


Female Receptacle with Angle Adapter** and Junction Box



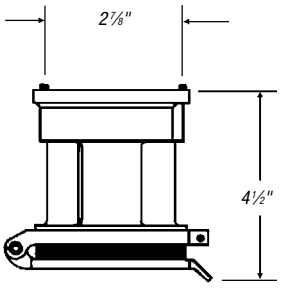


Female Receptacle with Angle Adapter**





Female Receptacle



CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DF3104FRØEØ	DF3104FRABØ	DF3104FRAØØ	DF3104FRØØØ
DF3107FRØEØ	DF3107FRABØ	DF3107FRAØØ	DF3107FRØØØ
DF3204FRØEØ	DF3204FRABØ	DF3204FRAØØ	DF3204FRØØØ
DF3207FRØEØ	DF3207FRABØ	DF3207FRAØØ	DF3207FRØØØ
DF3214FRØEØ	DF3214FRABØ	DF3214FRAØØ	DF3214FRØØØ
DF3216FRØEØ	DF3216FRABØ	DF3216FRAØØ	DF3216FRØØØ
DF3304FRØEØ	DF3304FRABØ	DF3304FRAØØ	DF3304FRØØØ
DF3307FRØEØ	DF3307FRABØ	DF3307FRAØØ	DF3307FRØØØ
DF3316FRØEØ	DF3316FRABØ	DF3316FRAØØ	DF3316FRØØØ
DF3404FRØEØ	DF3404FRABØ	DF3404FRAØØ	DF3404FRØØØ
DF3407FRØEØ	DF3407FRABØ	DF3407FRAØØ	DF3407FRØØØ
DF3414FRØEØ	DF3414FRABØ	DF3414FRAØØ	DF3414FRØØØ
DF3416FRØEØ	DF3416FRABØ	DF3416FRAØØ	DF3416FRØØØ
DF3421FRØEØ	DF3421MRABØ	DF3421FRAØØ	DF3421FRØØØ
DF3504FRØEØ	DF3504FRABØ	DF3504FRAØØ	DF3504FRØØØ
DF3514FRØEØ	DF3514FRABØ	DF3514FRAØØ	DF3514FRØØØ
DF3516FRØEØ	DF3516FRABØ	DF3516FRAØØ	DF3516FRØØØ
DF3521FRØEØ	DF3521FRABØ	DF3521FRAØØ	DF3521FRØØØ

30 Amp

*** Notes to Catalog Numbers**

Control Contacts (position 12)
use "K" example: DBRF3104030K0

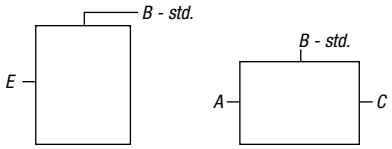
Shunt Trip Breaker (position 13)
add "Z" to above: DBRF3104030KZ

Breaker Trip Ratings (positions 9, 10, 11)
15 amp use 015 — 25 amp use 025
20 amp use 020 — 30 amp use 030

Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

Conduit Hubs: NEMA 4X
- Std. 1½" NPT-thread outlet at B (or E)
- 30 amp — Max. 2½"/64mm

Conduit Hubs: XP
- Std. 11½" -thread outlets provided at A, B or C
- 30 amp — 1.25"/32mm



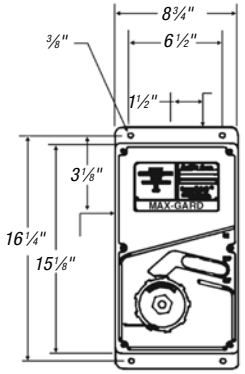
▼ ***Control contacts "K" designation.***

†† *Non-fused version available. Replace DFRF with DNRF.*

***Boldface** figures are for voltage assignment.*
*For different ratings, see **page H-340.***

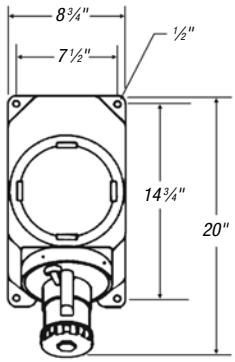


Interlocked Receptacle with Circuit Breaker NEMA 4X





Explosion-Proof Interlocked Receptacle Class I, Class II



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. *	CAT. NO. *
2	3		277	DBRF310403000	DBRE310403000
			125	DBRF310703000	DBRE310703000
2	3		480	DBRF320403000	DBRE320403000
			250	DBRF320703000	DBRE320703000
			600	DBRF321403000	DBRE321403000
			208	DBRF321603000	DBRE321603000
3	4		277/480	DBRF330403000	DBRE330403000
			125/250	DBRF330703000	DBRE330703000
			120/208	DBRF331603000	DBRE331603000
3	4		3Ø 480	DBRF340403000	DBRE340403000
			3Ø 250	DBRF340703000	DBRE340703000
			3Ø 600	DBRF341403000	DBRE341403000
			3Ø 208	DBRF341603000	DBRE341603000
			3Ø 440	DBRF342103000	DBRE342103000
4	5		3ØY 277/480	DBRF350403000	DBRE350403000
			3ØY 347/600	DBRF351403000	DBRE351403000
			3ØY 120/208	DBRF351603000	DBRE351603000
			3ØY 250/440	DBRF352103000	DBRE352103000

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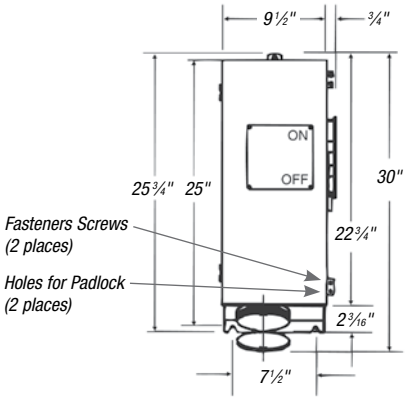
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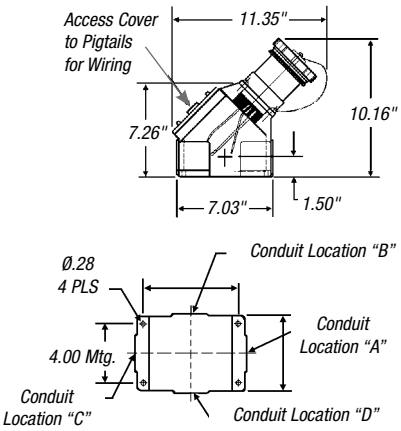


Fused†† Disconnect
Interlocked Receptacle
NEMA 12/3R



Explosion-Proof
Non-Interlocked
Receptacle





CAT. NO.	CAT. NO.
DFRF31040	DSE3104FRØ
DFRF31070	DSE3107FRØ
DFRF32040	DSE3204FRØ
DFRF32070	DSE3207FRØ
DFRF32140	DSE3214FRØ
DFRF32160	DSE3216FRØ
DFRF33040	DSE3304FRØ
DFRF33070	DSE3307FRØ
DFRF33160	DSE3316FRØ
DFRF34040	DSE3404FRØ
DFRF34070	DSE3407FRØ
DFRF34140	DSE3414FRØ
DFRF34160	DSE3416FRØ
DFRF34210	DSE3421FRØ
DFRF35040	DSE3504FRØ
DFRF35140	DSE3514FRØ
DFRF35160	DSE3516FRØ
DFRF35210	DSE3521FRØ



Application:

Dulles International Airport "People Mover."

"People Movers" are used at Dulles for shuttling passengers from check-in to mid-field terminals to board their flight. These vehicles require air conditioning and heater unit power when docked at either location for maintenance and overhaul.

Installation:

Vehicle-mounted 30-amp male inlet with mating connector and two control contacts.

MaxGard® receptacles, plugs and connectors were specified for their safety, construction and durability needed to withstand frequent reconnections. The single-rated factory polarization also ensured built-in protection against unsafe hookups. The control contacts offer monitoring capabilities for the vehicle while being overhauled. Deep insulating chambers confine and snuff out arcing when removing devices under load. Maintenance costs are minimal due to self-cleaning pin and sleeve contact design, rear-loaded interior wiring access and quick pressure-screw type wiring terminals.

30 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS3CC.

Maximum lug wire 4 AWG 7-strand or flexible, cable entrance .187" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

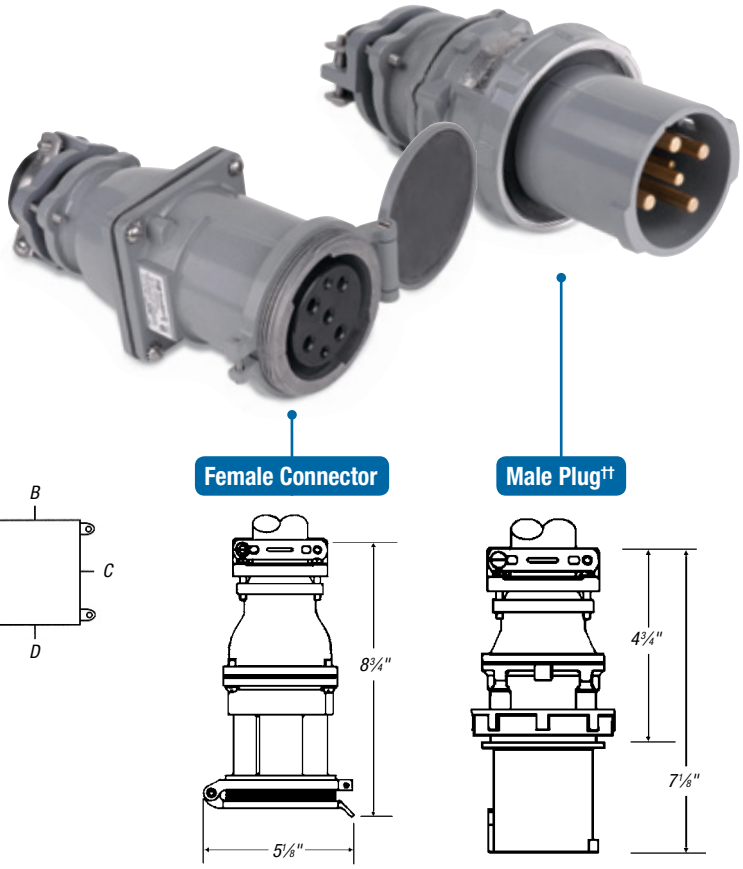
Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 1" NPT.

▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS3104MR00K***

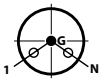
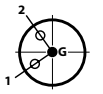
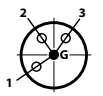
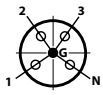
*For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337.***



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. ▼	STANDARD BUSHING I.D.†	CAT. NO. ▼	STANDARD BUSHING I.D.†
2	3		277	DF3104FP000	⅞"	DS3104MP000	⅞"
			125	DF3107FP000		DS3107MP000	
2	3		480	DF3204FP000	⅞"	DS3204MP000	⅞"
			250	DF3207FP000		DS3207MP000	
			600	DF3214FP000		DS3214MP000	
			208	DF3216FP000		DS3216MP000	
3	4		277/480	DF3304FP000	1"	DS3304MP000	1"
			125/250	DF3307FP000		DS3307MP000	
			120/208	DF3316FP000		DS3316MP000	
3	4		3Ø 480	DF3404FP000	1"	DS3404MP000	1"
			3Ø 250	DF3407FP000		DS3407MP000	
			3Ø 600	DF3414FP000		DS3414MP000	
			3Ø 208	DF3416FP000		DS3416MP000	
			3Ø 440	DF3421FP000		DS3421MP000	
4	5		3ØY 277/480	DF3504FP000	1⅜16"	DS3504MP000	1⅜16"
			3ØY 347/600	DF3514FP000		DS3514MP000	
			3ØY 120/208	DF3516FP000		DS3516MP000	
			3ØY 250/440	DF3521FP000		DS3521MP000	

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MaxGard® Interconnection Systems



Male Inlet with Angle Enclosure



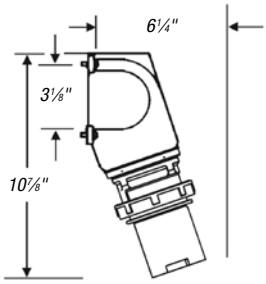
Male Inlet with Angle Adapter** and Junction Box

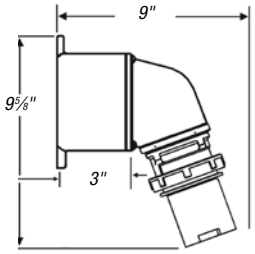


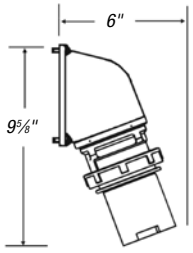
Male Inlet with Angle Adapter**

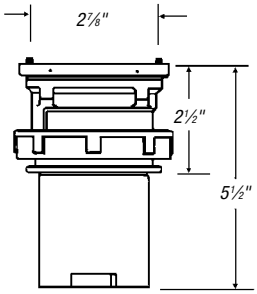


Male Inlet††









CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DS3104MRØEØ	DS3104MRABØ	DS3104MRA00	DS3104MR000
DS3107MRØEØ	DS3107MRABØ	DS3107MRA00	DS3107MR000
DS3204MRØEØ	DS3204MRABØ	DS3204MRA00	DS3204MR000
DS3207MRØEØ	DS3207MRABØ	DS3207MRA00	DS3207MR000
DS3214MRØEØ	DS3214MRABØ	DS3214MRA00	DS3214MR000
DS3216MRØEØ	DS3216MRABØ	DS3216MRA00	DS3216MR000
DS3304MRØEØ	DS3304MRABØ	DS3304MRA00	DS3304MR000
DS3307MRØEØ	DS3307MRABØ	DS3307MRA00	DS3307MR000
DS3316MRØEØ	DS3316MRABØ	DS3316MRA00	DS3316MR000
DS3404MRØEØ	DS3404MRABØ	DS3404MRA00	DS3404MR000
DS3407MRØEØ	DS3407MRABØ	DS3407MRA00	DS3407MR000
DS3414MRØEØ	DS3414MRABØ	DS3414MRA00	DS3414MR000
DS3416MRØEØ	DS3416MRABØ	DS3416MRA00	DS3416MR000
DS3421MRØEØ	DS3421MRABØ	DS3421MRA00	DS3421MR000
DS3504MRØEØ	DS3504MRABØ	DS3504MRA00	DS3504MR000
DS3514MRØEØ	DS3514MRABØ	DS3514MRA00	DS3514MR000
DS3516MRØEØ	DS3516MRABØ	DS3516MRA00	DS3516MR000
DS3521MRØEØ	DS3521MRABØ	DS3521MRA00	DS3521MR000

60 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS6CC.

Maximum lug wire 4 AWG 7-strand or flexible, cable entrance .302" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

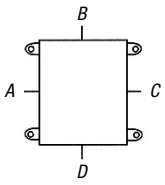
Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

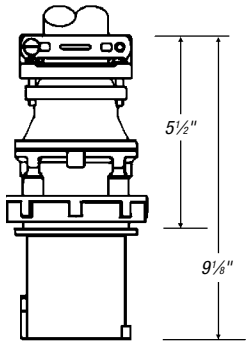
Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

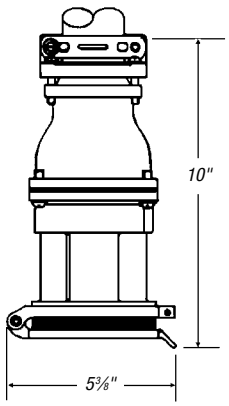
Outlet furnished at location "B" unless otherwise specified. 1½" NPT.



Male Plug†† | Female Connector







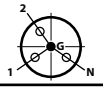
▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS6104MP00K***

*For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337.***

Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. ▼	STANDARD BUSHING I.D. †	CAT. NO. ▼	STANDARD BUSHING I.D. †
2	3		277	DS6104MP000	1¾₁₆"	DF6104FP000	1¾₁₆"
			125	DS6107MP000		DF6107FP000	
2	3		480	DS6204MP000	1¾₁₆"	DF6204FP000	1¾₁₆"
			250	DS6207MP000		DF6207FP000	
			600	DS6214MP000		DF6214FP000	
			208	DS6216MP000		DF6216FP000	
3	4		277/480	DS6304MP000	1⅝₁₆"	DF6304FP000	1⅝₁₆"
			125/250	DS6307MP000		DF6307FP000	
			120/208	DS6316MP000		DF6316FP000	
3	4		3Ø 480	DS6404MP000	1⅝₁₆"	DF6404FP000	1⅝₁₆"
			3Ø 250	DS6407MP000		DF6407FP000	
			3Ø 600	DS6414MP000		DF6414FP000	
			3Ø 208	DS6416MP000		DF6416FP000	
			3Ø 440	DS6421MP000		DF6421FP000	
4	5		3ØY 277/480	DS6504MP000	1½"	DF6504FP000	1½"
			3ØY 347/600	DS6514MP000		DF6514FP000	
			3ØY 110/208	DS6516MP000		DF6516FP000	
			3ØY 250/440	DS6521MP000		DF6521FP000	

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Female Receptacle with Angle Enclosure



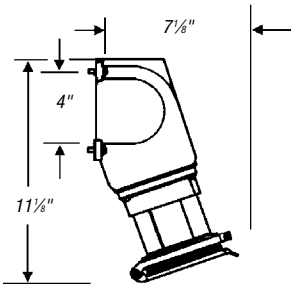
Female Receptacle with Angle Adapter** and Junction Box

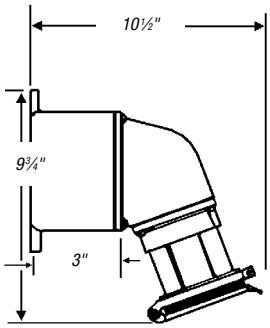


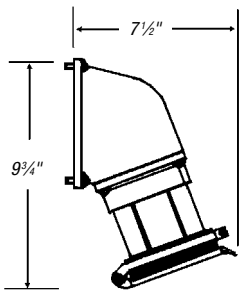
Female Receptacle with Angle Adapter**

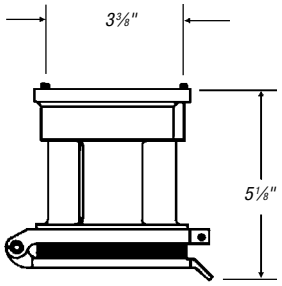


Female Receptacle









CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DF6104FRØEØ	DF6104FRABØ	DF6104FRAØØ	DF6104FRØØØ
DF6107FRØEØ	DF6107FRABØ	DF6107FRAØØ	DF6107FRØØØ
DF6204FRØEØ	DF6204FRABØ	DF6204FRAØØ	DF6204FRØØØ
DF6207FRØEØ	DF6207FRABØ	DF6207FRAØØ	DF6207FRØØØ
DF6214FRØEØ	DF6214FRABØ	DF6214FRAØØ	DF6214FRØØØ
DF6216FRØEØ	DF6216FRABØ	DF6216FRAØØ	DF6216FRØØØ
DF6304FRØEØ	DF6304FRABØ	DF6304FRAØØ	DF6304FRØØØ
DF6307FRØEØ	DF6307FRABØ	DF6307FRAØØ	DF6307FRØØØ
DF6316FRØEØ	DF6316FRABØ	DF6316FRAØØ	DF6316FRØØØ
DF6404FRØEØ	DF6404FRABØ	DF6404FRAØØ	DF6404FRØØØ
DF6407FRØEØ	DF6407FRABØ	DF6407FRAØØ	DF6407FRØØØ
DF6414FRØEØ	DF6414FRABØ	DF6414FRAØØ	DF6414FRØØØ
DF6416FRØEØ	DF6416FRABØ	DF6416FRAØØ	DF6416FRØØØ
DF6421FRØEØ	DF6421FRABØ	DF6421FRAØØ	DF6421FRØØØ
DF6504FRØEØ	DF6504FRABØ	DF6504FRAØØ	DF6504FRØØØ
DF6514FRØEØ	DF6514FRABØ	DF6514FRAØØ	DF6514FRØØØ
DF6516FRØEØ	DF6516FRABØ	DF6516FRAØØ	DF6516FRØØØ
DF6521FRØEØ	DF6521FRABØ	DF6521FRAØØ	DF6521FRØØØ

60 Amp

*** Notes to Catalog Numbers**

Control Contacts (position 12)
use "K" example: DBRF6104030K0

Shunt Trip Breaker (position 13)
add "Z" to above: DBRF6104030KZ

Breaker Trip Ratings (positions 9, 10, 11)

30 amp use	030
60 amp use	060
50 amp use	050

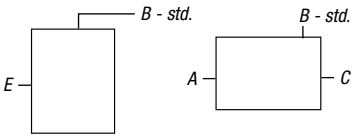
Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

Conduit Hubs: NEMA 4X

- Std. 2" NPT-thread outlet at B (or E)
- 60 amp — Max. 2½"/64mm

Conduit Hubs: XP

- Std. 11½" -thread outlets provided at A, B or C
- 60 amp — 1.50"/38mm



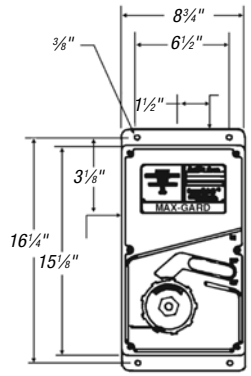
▼ ***Control contacts "K" designation.***

†† *Non-fused version available. Replace DFRF with DNRF.*

***Boldface** figures are for voltage assignment.*
*For different ratings, see **page H-340.***

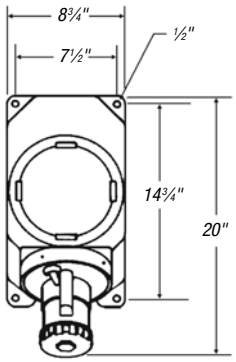


Interlocked Receptacle with Circuit Breaker NEMA 4X





Explosion-Proof Interlocked Receptacle Class I, Class II



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. *	CAT. NO. *
2	3		277	DBRF610406000	DBRE610406000
			125	DBRF610706000	DBRE610706000
2	3		480	DBRF620406000	DBRE620406000
			250	DBRF620706000	DBRE620706000
			600	DBRF621406000	DBRE621406000
			208	DBRF621606000	DBRE621606000
3	4		277/480	DBRF630406000	DBRE630406000
			125/250	DBRF630706000	DBRE630706000
			120/208	DBRF631606000	DBRE631606000
3	4		3Ø 480	DBRF640406000	DBRE640406000
			3Ø 250	DBRF640706000	DBRE640706000
			3Ø 600	DBRF641406000	DBRE641406000
			3Ø 208	DBRF641606000	DBRE641606000
			3Ø 440	DBRF642106000	DBRE642106000
4	5		3ØY 277/480	DBRF650403000	DBRE650406000
			3ØY 347/600	DBRF651406000	DBRE651406000
			3ØY 120/208	DBRF651606000	DBRE651606000
			3ØY 250/440	DBRF652106000	DBRE652106000

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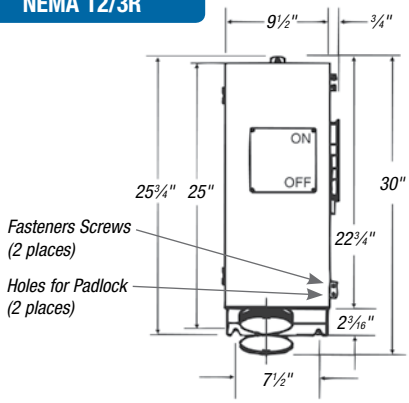
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Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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Fused†† Disconnect Interlocked Receptacle NEMA 12/3R



CAT. NO.
DFRF61040
DFRF61070
DFRF62040
DFRF62070
DFRF62140
DFRF62160
DFRF63040
DFRF63070
DFRF63160
DFRF64040
DFRF64070
DFRF64140
DFRF64160
DFRF64210
DFRF65040
DFRF65140
DFRF65160
DFRF65210

SOLUTION 60 Amp

Convention Centers and Arenas

Power for Trade Show Exhibits and Concerts







60 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS6CC.

Maximum lug wire 4 AWG 7-strand or flexible, cable entrance .302" diameter.

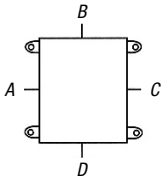
Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

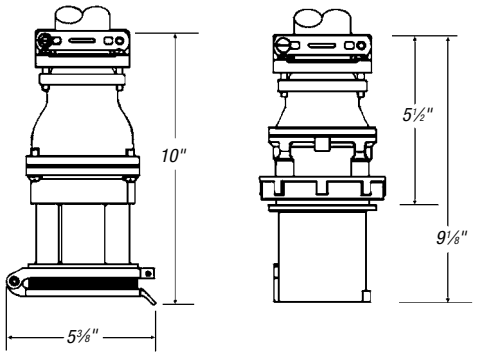
Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 1½" NPT.







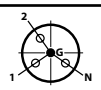
▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS3104MP00K***

*For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337.***

Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.	STANDARD BUSHING I.D.†	CAT. NO.	STANDARD BUSHING I.D.†
2	3		277	DF6104FP000	1¾₁₆"	DS6104MP000	1¾₁₆"
			125	DF6107FP000		DS6107MP000	
2	3		480	DF6204FP000	1¾₁₆"	DS6204MP000	1¾₁₆"
			250	DF6207FP000		DS6207MP000	
			600	DF6214FP000		DS6214MP000	
			208	DF6216FP000		DS6216MP000	
3	4		277/480	DF6304FP000	1⅝₁₆"	DS6304MP000	1⅝₁₆"
			125/250	DF6307FP000		DS6307MP000	
			120/208	DF6316FP000		DS6316MP000	
3	4		3Ø 480	DF6404FP000	1⅝₁₆"	DS6404MP000	1⅝₁₆"
			3Ø 250	DF6407FP000		DS6407MP000	
			3Ø 600	DF6414FP000		DS6414MP000	
			3Ø 208	DF6416FP000		DS6416MP000	
			3Ø 440	DF6421FP000		DS6421MP000	
4	5		3ØY 277/480	DF6504FP000	1½"	DS6504MP000	1½"
			3ØY 347/600	DF6514FP000		DS6514MP000	
			3ØY 120/208	DF6516FP000		DS6516MP000	
			3ØY 250/440	DF6521FP000		DS6521MP000	

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Male Inlet with Angle Enclosure



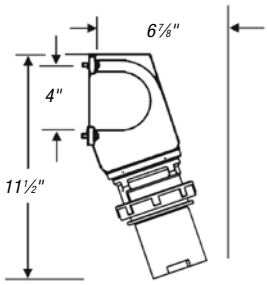
Male Inlet with Angle Adapter** and Junction Box

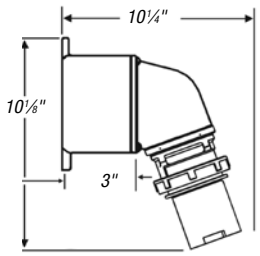


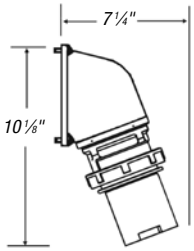
Male Inlet with Angle Adapter**

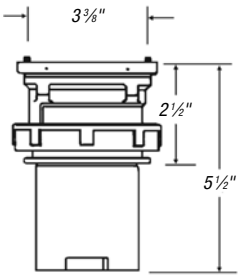


Male Inlet††









CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DS6104MRØEØ	DS6104MRABØ	DS6104MRAØØ	DS6104MRØØØ
DS6107MRØEØ	DS6107MRABØ	DS6107MRAØØ	DS6107MRØØØ
DS6204MRØEØ	DS6204MRABØ	DS6204MRAØØ	DS6204MRØØØ
DS6207MRØEØ	DS6207MRABØ	DS6207MRAØØ	DS6207MRØØØ
DS6214MRØEØ	DS6214MRABØ	DS6214MRAØØ	DS6214MRØØØ
DS6216MRØEØ	DS6216MRABØ	DS6216MRAØØ	DS6216MRØØØ
DS6304MRØEØ	DS6304MRABØ	DS6304MRAØØ	DS6304MRØØØ
DS6307MRØEØ	DS6307MRABØ	DS6307MRAØØ	DS6307MRØØØ
DS6316MRØEØ	DS6316MRABØ	DS6316MRAØØ	DS6316MRØØØ
DS6404MRØEØ	DS6404MRABØ	DS6404MRAØØ	DS6404MRØØØ
DS6407MRØEØ	DS6407MRABØ	DS6407MRAØØ	DS6407MRØØØ
DS6414MRØEØ	DS6414MRABØ	DS6414MRAØØ	DS6414MRØØØ
DS6416MRØEØ	DS6416MRABØ	DS6416MRAØØ	DS6416MRØØØ
DS6421MRØEØ	DS6421MRABØ	DS6421MRAØØ	DS6421MRØØØ
DS6504MRØEØ	DS6504MRABØ	DS6504MRAØØ	DS6504MRØØØ
DS6514MRØEØ	DS6514MRABØ	DS6514MRAØØ	DS6514MRØØØ
DS6516MRØEØ	DS6516MRABØ	DS6516MRAØØ	DS6516MRØØØ
DS6521MRØEØ	DS6521MRABØ	DS6521MRAØØ	DS6521MRØØØ

100 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS1CC.

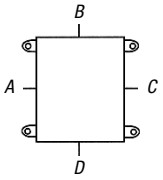
Maximum lug wire 0 AWG 19-strand or 1 AWG flexible, cable entrance .386" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

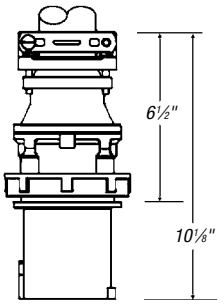
Outlet furnished at location "B" unless otherwise specified. 2" NPT.

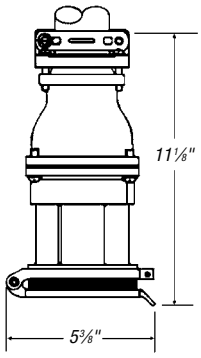




Male Plug††

Female Connector





▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS1104MP00K***

*For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337.***

Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60HZ	CAT. NO. ▼	STANDARD BUSHING I.D. †	CAT. NO. ▼	STANDARD BUSHING I.D. †
2	3		277	DS1104MP000	1 11/16"	DF1104FP000	1 11/16"
			125	DS1107MP000		DF1107FP000	
2	3		480	DS1204MP000	1 11/16"	DF1204FP000	1 11/16"
			250	DS1207MP000		DF1207FP000	
			600	DS1214MP000		DF1214FP000	
			208	DS1216MP000		DF1216FP000	
3	4		277/480	DS1304MP000	1 13/16"	DF1304FP000	1 13/16"
			125/250	DS1307MP000		DF1307FP000	
			120/208	DS1316MP000		DF1316FP000	
3	4		3Ø 480	DS1404MP000	1 13/16"	DF1404FP000	1 13/16"
			3Ø 250	DS1407MP000		DF1407FP000	
			3Ø 600	DS1414MP000		DF1414FP000	
			3Ø 208	DS1416MP000		DF1416FP000	
			3Ø 440	DS1421MP000		DF1421FP000	
4	5		3ØY 277/480	DS1504MP000	2"	DF1504FP000	2"
			3ØY 347/600	DS1514MP000		DF1514FP000	
			3ØY 118/208	DS1516MP000		DF1516FP000	
			3ØY 250/440	DS1521MP000		DF1521FP000	

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Female Receptacle with Angle Enclosure



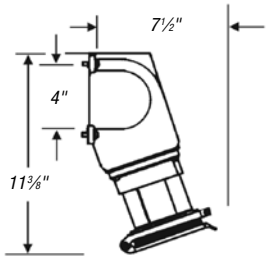
Female Receptacle with Angle Adapter** and Junction Box

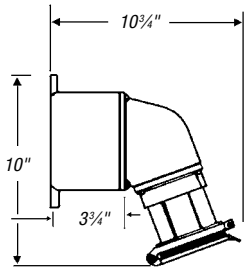


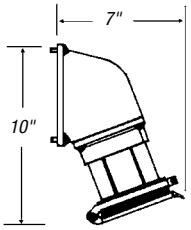
Female Receptacle with Angle Adapter**

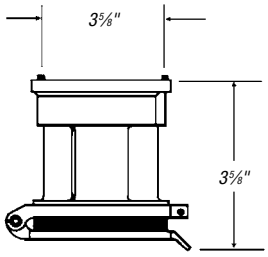


Female Receptacle









CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DF1104FR0E0	DF1104FRAB0	DF1104FRA00	DF1104FR000
DF1107FR0E0	DF1107FRAB0	DF1107FRA00	DF1107FR000
DF1204FR0E0	DF1204FRAB0	DF1204FRA00	DF1204FR000
DF1207FR0E0	DF1207FRAB0	DF1207FRA00	DF1207FR000
DF1214FR0E0	DF1214FRAB0	DF1214FRA00	DF1214FR000
DF1216FR0E0	DF1216FRAB0	DF1216FRA00	DF1216FR000
DF1304FR0E0	DF1304FRAB0	DF1304FRA00	DF1304FR000
DF1307FR0E0	DF1307FRAB0	DF1307FRA00	DF1307FR000
DF1316FR0E0	DF1316FRAB0	DF1316FRA00	DF1316FR000
DF1404FR0E0	DF1404FRAB0	DF1404FRA00	DF1404FR000
DF1407FR0E0	DF1407FRAB0	DF1407FRA00	DF1407FR000
DF1414FR0E0	DF1414FRAB0	DF1414FRA00	DF1414FR000
DF1416FR0E0	DF1416FRAB0	DF1416FRA00	DF1416FR000
DF1421FR0E0	DF1421FRAB0	DF1421FRA00	DF1421FR000
DF1504FR0E0	DF1504FRAB0	DF1504FRA00	DF1504FR000
DF1514FR0E0	DF1514FRAB0	DF1514FRA00	DF1514FR000
DF1516FR0E0	DF1516FRAB0	DF1516FRA00	DF1516FR000
DF1521FR0E0	DF1521FRAB0	DF1521FRA00	DF1521FR000

100 Amp

* Notes to Catalog Numbers

Control Contacts (position 12) use "K" example: DBRF1104030K0

Shunt Trip Breaker (position 13) add "Z" to above: DBRF1104030KZ

Breaker Trip Ratings (positions 9, 10, 11)
70 amp use 070 100 amp use 100
90 amp use 090

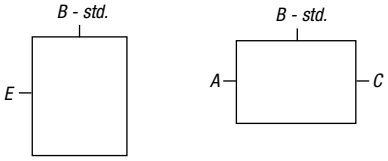
Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

Conduit Hubs: NEMA 4X

- Std. 2" NPT-thread outlet at B (or E)
- 100 amp — Max. 2½"/64mm

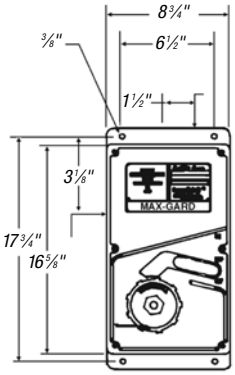
Conduit Hubs: XP

- Std. 11½" -thread outlets provided at A, B or C
- 100 amp — 2.00"/51mm





Interlocked Receptacle with Circuit Breaker NEMA 4X



†† *Non-fused version available. Replace DFRF with DNRF.*

***Boldface** figures are for voltage assignment.*
*For different ratings, see **page H-340.***

Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO.
				*
2	3		277	DBRF11041000
			125	DBRF11071000
2	3		480	DBRF12041000
			250	DBRF12071000
			600	DBRF12141000
			208	DBRF12161000
3	4		277/480	DBRF13041000
			125/250	DBRF13071000
			120/208	DBRF13161000
3	4		3Ø 480	DBRF14041000
			3Ø 250	DBRF14071000
			3Ø 600	DBRF14141000
			3Ø 208	DBRF14161000
			3Ø 440	DBRF14211000
4	5		3ØY 277/480	DBRF15041000
			3ØY 347/600	DBRF15141000
			3ØY 120/208	DBRF15161000
			3ØY 250/440	DBRF15211000

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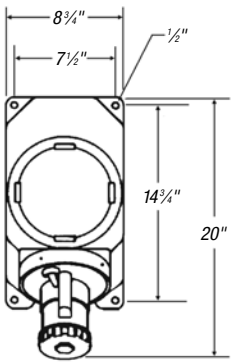
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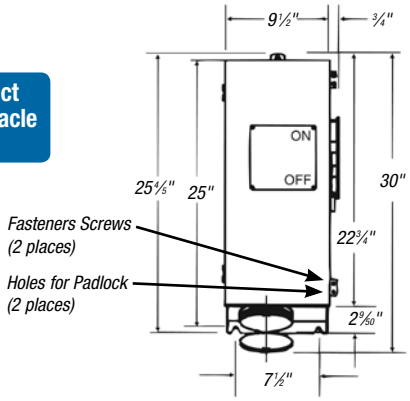


Explosion-Proof Interlocked Receptacle Class I, Class II





Fused†† Disconnect Interlocked Receptacle NEMA 12/3R



CAT. NO. *	CAT. NO.
DBRE11041000	DFRF11040
DBRE11071000	DFRF11070
DBRE12041000	DFRF12040
DBRE12071000	DFRF12070
DBRE12141000	DFRF12140
DBRE12161000	DFRF12160
DBRE13041000	DFRF13040
DBRE13071000	DFRF13070
DBRE13161000	DFRF13160
DBRE14041000	DFRF14040
DBRE14071000	DFRF14070
DBRE14141000	DFRF14140
DBRE14161000	DFRF14160
DBRE14211000	DFRF14210
DBRE15041000	DFRF15040
DBRE15141000	DFRF15140
DBRE15161000	DFRF15160
DBRE15211000	DFRF15210

100 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number **DS1**CC.

Maximum lug wire 0 AWG 19-strand or 1 AWG flexible, cable entrance .386" diameter.

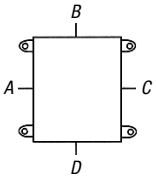
Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

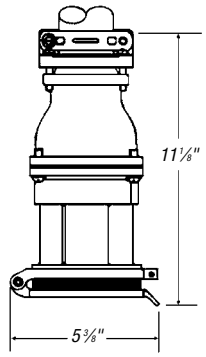
Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

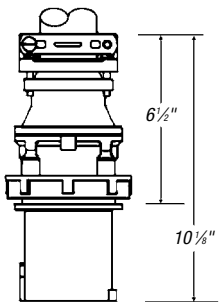
Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 2" NPT.









▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS1104MR00K***

*For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337.***

Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. ▼	STANDARD BUSHING I.D. †	CAT. NO. ▼	STANDARD BUSHING I.D. †
2	3		277	**DF1104FP000**	1 11/16"	**DS1104MP000**	1 11/16"
			125	**DF1107FP000**		**DS1107MP000**	
2	3		480	**DF1204FP000**	1 11/16"	**DS1204MP000**	1 11/16"
			250	**DF1207FP000**		**DS1207MP000**	
			600	**DF1214FP000**		**DS1214MP000**	
			208	**DF1216FP000**		**DS1216MP000**	
3	4		277/480	**DF1304FP000**	1 13/16"	**DS1304MP000**	1 13/16"
			125/250	**DF1307FP000**		**DS1307MP000**	
			120/208	**DF1316FP000**		**DS1316MP000**	
3	4		3Ø 480	**DF1404FP000**	1 13/16"	**DS1404MP000**	1 13/16"
			3Ø 250	**DF1407FP000**		**DS1407MP000**	
			3Ø 600	**DF1414FP000**		**DS1414MP000**	
			3Ø 208	**DF1416FP000**		**DS1416MP000**	
			3Ø 440	**DF1421FP000**		**DS1421MP000**	
4	5		3ØY 277/480	**DF1504FP000**	2"	**DS1504MP000**	2"
			3ØY 347/600	**DF1514FP000**		**DS1514MP000**	
			3ØY 110/208	**DF1516FP000**		**DS1516MP000**	
			3ØY 250/440	**DF1521FP000**		**DS1521MP000**	

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Male Inlet with Angle Enclosure



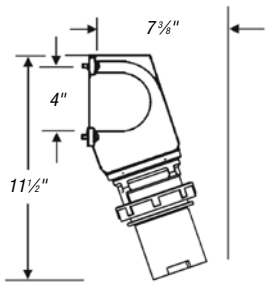
Male Inlet with Angle Adapter** and DJB3 Junction Box

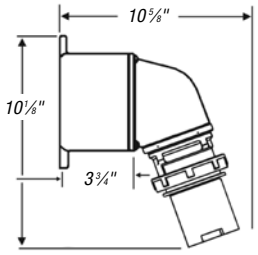


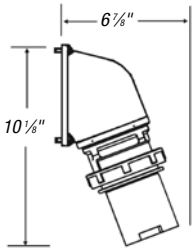
Male Inlet with Angle Adapter**

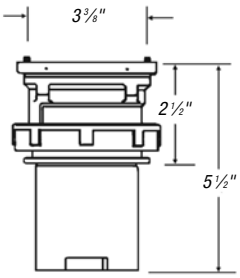


Male Inlet††









CAT. NO.	CAT. NO.	CAT. NO.	CAT. NO.
DS1104MRØEØ	DS1104MRABØ	DS1104MRA00	DS1104MR000
DS1107MRØEØ	DS1107MRABØ	DS1107MRA00	DS1107MR000
DS1204MRØEØ	DS1204MRABØ	DS1204MRA00	DS1204MR000
DS1207MRØEØ	DS1207MRABØ	DS1207MRA00	DS1207MR000
DS1214MRØEØ	DS1214MRABØ	DS1214MRA00	DS1214MR000
DS1216MRØEØ	DS1216MRABØ	DS1216MRA00	DS1216MR000
DS1304MRØEØ	DS1304MRABØ	DS1304MRA00	DS1304MR000
DS1307MRØEØ	DS1307MRABØ	DS1307MRA00	DS1307MR000
DS1316MRØEØ	DS1316MRABØ	DS1316MRA00	DS1316MR000
DS1404MRØEØ	DS1404MRABØ	DS1404MRA00	DS1404MR000
DS1407MRØEØ	DS1407MRABØ	DS1407MRA00	DS1407MR000
DS1414MRØEØ	DS1414MRABØ	DS1414MRA00	DS1414MR000
DS1416MRØEØ	DS1416MRABØ	DS1416MRA00	DS1416MR000
DS1421MRØEØ	DS1421MRABØ	DS1421MRA00	DS1421MR000
DS1504MRØEØ	DS1504MRABØ	DS1504MRA00	DS1504MR000
DS1514MRØEØ	DS1514MRABØ	DS1514MRA00	PDS1514MR000
DS1516MRØEØ	DS1516MRABØ	DS1516MRA00	DS1516MR000
DS1521MRØEØ	DS1521MRABØ	DS1521MRA00	DS1521MR000

200 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS2CC.

Maximum lug wire 4/0 AWG 19-strand or flexible, cable entrance .625" diameter.

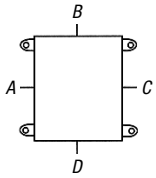
Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

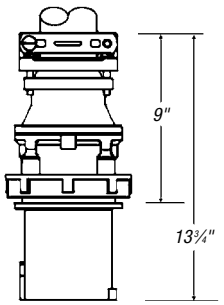
Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 3" NPT.

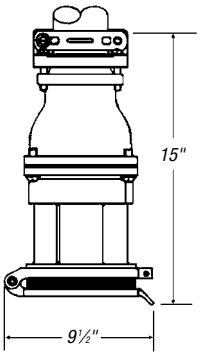




Male Plug††



Female Connector



▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS2104MP00K***

*For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337.***

Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. ▼	STANDARD BUSHING I.D.†	CAT. NO. ▼	STANDARD BUSHING I.D.†
2	3		277	DS2104MP000	2⅛"	DF2104FP000	2⅛"
			125	DS2107MP000		DF2107FP000	
2	3		480	DS2204MP000	2⅛"	DF2204FP000	2⅛"
			250	DS2207MP000		DF2207FP000	
			600	DS2214MP000		DF2214FP000	
			208	DS2216MP000		DF2216FP000	
3	4		277/480	DS2304MP000	2¼"	DF2304FP000	2¼"
			125/250	DS2307MP000		DF2307FP000	
			120/208	DS2316MP000		DF2316FP000	
3	4		3Ø 480	DS2404MP000	2¼"	DF2404FP000	2¼"
			3Ø 250	DS2407MP000		DF2407FP000	
			3Ø 600	DS2414MP000		DF2414FP000	
			3Ø 208	DS2416MP000		DF2416FP000	
			3Ø 440	DS2421MP000		DF2421FP000	
4	5		3ØY 277/480	DS2504MP000	2½"	DF2504FP000	2½"
			3ØY 347/600	DS2514MP000		DF2514FP000	
			3ØY 110/208	DS2516MP000		DF2516FP000	
			3ØY 250/440	DS2521MP000		DF2521FP000	

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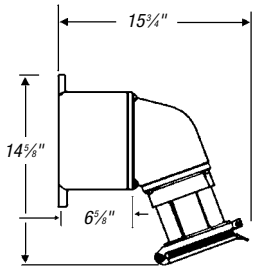
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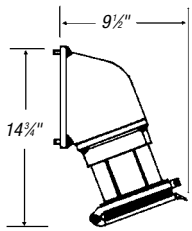


Female Receptacle with Angle Adapter and Junction Box**



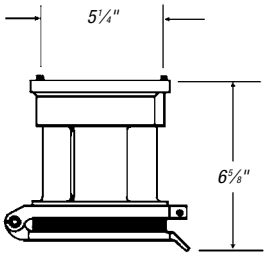


Female Receptacle with Angle Adapter**





Female Receptacle



CAT. NO.	CAT. NO.	CAT. NO.
DF2104FRABØ	DF2104FRAØØ	DF2104FRØØØ
DF2107FRABØ	DF2107FRAØØ	DF2107FRØØØ
DF2204FRABØ	DF2204FRAØØ	DF2204FRØØØ
DF2207FRABØ	DF2207FRAØØ	DF2207FRØØØ
DF2214FRABØ	DF2214FRAØØ	DF2214FRØØØ
DF2216FRABØ	DF2216FRAØØ	DF2216FRØØØ
DF2304FRABØ	DF2304FRAØØ	DF2304FRØØØ
DF2307FRABØ	DF2307FRAØØ	DF2307FRØØØ
DF2316FRABØ	DF2316FRAØØ	DF2316FRØØØ
DF2404FRABØ	DF2404FRAØØ	DF2404FRØØØ
DF2407FRABØ	DF2407FRAØØ	DF2407FRØØØ
DF2414FRABØ	DF2414FRAØØ	DF2414FRØØØ
DF2416FRABØ	DF2416FRAØØ	DF2416FRØØØ
DF2421FRABØ	DF2421FRAØØ	DF2421FRØØØ
DF2504FRABØ	DF2504FRAØØ	DF2504FRØØØ
DF2514FRABØ	DF2514FRAØØ	DF2514FRØØØ
DF2516FRABØ	DF2516FRAØØ	DF2516FRØØØ
DF2521FRABØ	DF2521FRAØØ	DF2521FRØØØ

200 Amp

* Notes to Catalog Numbers

Control Contacts (position 12) use "K" example: DBRF2104200K0

Shunt Trip Breaker (position 13) add "Z" to above: DBRF2104200KZ

Breaker Trip Ratings (positions 9, 10, 11)
150 amp use 150

175 amp use 175

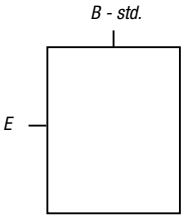
200 amp use 200

Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

Conduit Hubs: NEMA 4X

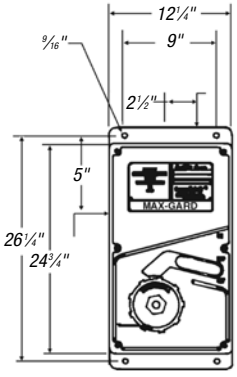
- Std. 2" NPT-thread outlet at B (or E)
- 200 amp — Max. 3 1/16 mm

Boldface figures are for voltage assignment.
For different ratings, see **page H-340**.





Interlocked Receptacle with Circuit Breaker NEMA 4X



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. *
2	3		277	DBRF21042000
			125	DBRF21072000
2	3		480	DBRF22042000
			250	DBRF22072000
			600	DBRF22142000
			208	DBRF22162000
3	4		277/480	DBRF23042000
			125/250	DBRF23072000
			120/208	DBRF23162000
3	4		3Ø 480	DBRF24042000
			3Ø 250	DBRF24072000
			3Ø 600	DBRF24142000
			3Ø 208	DBRF24162000
			3Ø 440	DBRF24212000
4	5		3ØY 277/480	DBRF25042000
			3ØY 347/600	DBRF25142000
			3ØY 120/208	DBRF25162000
			3ØY 250/440	DBRF25212000

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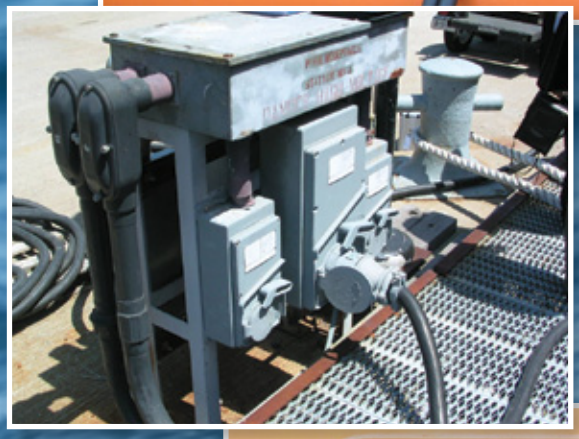
SOLUTION
200 Amp

200A MaxGard® inlets with disconnects





200A MaxGard® connections on ferry deck



30A and 200A MaxGard® interlocks



200A MaxGard® interlocks in parallel



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200 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number **DS2**CC.

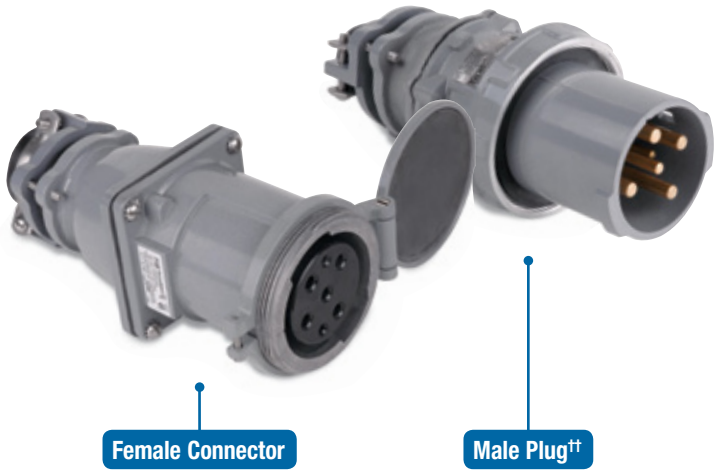
Maximum lug wire 4/0 AWG 19-strand or flexible, cable entrance .625" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

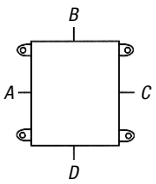
Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

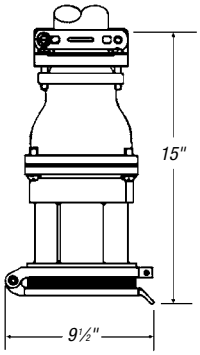
Outlet furnished at location "B" unless otherwise specified. 3" NPT.

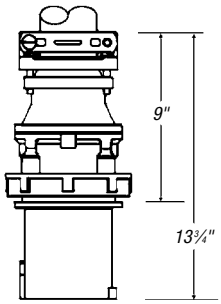


▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS2104MR00K***

*For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337.***







Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. ▼	STANDARD BUSHING I.D. †	CAT. NO. ▼	STANDARD BUSHING I.D. †
2	3		277	**DF2104FP000**	2⅛"	**DS2104MP000**	2⅛"
			125	**DF2107FP000**		**DS2107MP000**	
2	3		480	**DF2204FP000**	2⅛"	**DS2204MP000**	2⅛"
			250	**DF2207FP000**		**DS2207MP000**	
			600	**DF2214FP000**		**DS2214MP000**	
			208	**DF2216FP000**		**DS2216MP000**	
3	4		277/480	**DF2304FP000**	2¼"	**DS2304MP000**	2¼"
			125/250	**DF2307FP000**		**DS2307MP000**	
			120/208	**DF2316FP000**		**DS2316MP000**	
3	4		3Ø 480	**DF2404FP000**	2¼"	**DS2404MP000**	2¼"
			3Ø 250	**DF2407FP000**		**DS2407MP000**	
			3Ø 600	**DF2414FP000**		**DS2414MP000**	
			3Ø 208	**DF2416FP000**		**DS2416MP000**	
			3Ø 440	**DF2421FP000**		**DS2421MP000**	
4	5		3ØY 277/480	**DF2504FP000**	2½"	**DS2504MP000**	2½"
			3ØY 347/600	**DF2514FP000**		**DS2514MP000**	
			3ØY 110/208	**DF2516FP000**		**DS2516MP000**	
			3ØY 250/440	**DF2521FP000**		**DS2521MP000**	

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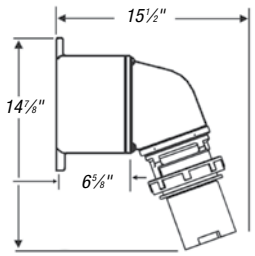
Male Inlet with Angle Enclosure

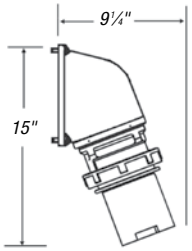


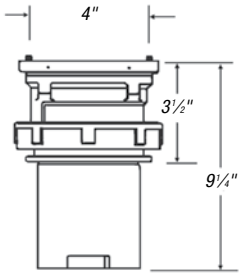
Male Inlet with Angle Adapter**



Male Inlet††







CAT. NO.	CAT. NO.	CAT. NO.
DS2104MRABØ	DS2104MRAØØ	DS2104MRØØØ
DS2107MRABØ	DS2107MRAØØ	DS2107MRØØØ
DS2204MRABØ	DS2204MRAØØ	DS2204MRØØØ
DS2207MRABØ	DS2207MRAØØ	DS2207MRØØØ
DS2214MRABØ	DS2214MRAØØ	DS2214MRØØØ
DS2216MRABØ	DS2216MRAØØ	DS2216MRØØØ
DS2304MRABØ	DS2304MRAØØ	DS2304MRØØØ
DS2307MRABØ	DS2307MRAØØ	DS2307MRØØØ
DS2316MRABØ	DS2316MRAØØ	DS2316MRØØØ
DS2404MRABØ	DS2404MRAØØ	DS2404MRØØØ
DS2407MRABØ	DS2407MRAØØ	DS2407MRØØØ
DS2414MRABØ	DS2414MRAØØ	DS2414MRØØØ
DS2416MRABØ	DS2416MRAØØ	DS2416MRØØØ
DS2421MRABØ	DS2421MRAØØ	DS2421MRØØØ
DS2504MRABØ	DS2504MRAØØ	DS2504MRØØØ
DS2514MRABØ	DS2514MRAØØ	DS2514MRØØØ
DS2516MRABØ	DS2516MRAØØ	DS2516MRØØØ
DS2521MRABØ	DS2521MRAØØ	DS2521MRØØØ

MMI Trailer



SOLUTION 200 Amp

Application:

Electrical hook-up of mobile medical imaging (MMI) trailers

Mobile medical units provide trailer-transportable blood banks, dental clinics, magnetic resonance imaging (MRI), X-ray and other diagnostic equipment to many hospitals and clinics throughout the country on a regular leased basis. Safe outdoor usage connections are required for up to 200-amp power supplies at each facility. Major specialized custom trailer manufacturers rely on the MaxGard® 200-amp interface.

Installation:

Site-mounted 200-amp receptacles with trailer-mounted plugs and connectors

When a mobile medical unit trailer is at the desired location, a heavy-duty MaxGard® 200-amp cable assembly connects the trailer with a corresponding receptacle or connector at each site, usually mounted on an outside wall. A primary safety feature is the receptacle's gated deadfront construction that ensures no exterior access to live receptacle contacts. With so many different hands involved on a daily basis, the MaxGard epoxy powder-coat finish and rugged waterproof construction provide hospital-safe long service life.

400 Amp Standard Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS4CC.

Maximum lug wire 500 kcmil 37-strand or flexible, cable entrance .937" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

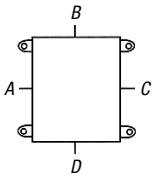
Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

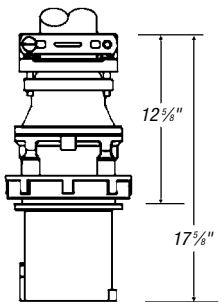
Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

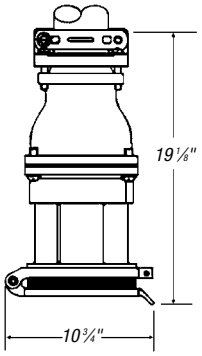
Outlet furnished at location "B" unless otherwise specified. 4" NPT.



Male Plug†† | Female Connector







▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS4104MP00K***

For Adapters, Junction Boxes and Accessories, see ***pages H-334–H-337.***

Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. ▼	STANDARD BUSHING I.D. †	CAT. NO. ▼	STANDARD BUSHING I.D. †
2	3		277	DS4104MP000	2¾"	DF4104FP000	2¾"
			125	DS4107MP000		DF4107FP000	
2	3		480	DS4204MP000		DF4204FP000	
			250	DS4207MP000		DF4207FP000	
			600	DS4214MP000		DF4214FP000	
			208	DS4216MP000		DF4216FP000	
3	4		277/480	DS4304MP000	3"	DF4304FP000	3"
			125/250	DS4307MP000		DF4307FP000	
			120/208	DS4316MP000		DF4316FP000	
3	4		3Ø 480	DS4404MP000		DF4404FP000	
			3Ø 250	DS4407MP000		DF4407FP000	
			3Ø 600	DS4414MP000		DF4414FP000	
			3Ø 208	DS4416MP000		DF4416FP000	
			3Ø 440	DS4421MP000		DF4421FP000	
4	5		3ØY 277/480	DS4504MP000	3¼"	DF4504FP000	3¼"
			3ØY 347/600	DS4514MP000		DF4514FP000	
			3ØY 110/208	DS4516MP000		DF4516FP000	
			3ØY 250/440	DS4521MP000		DF4521FP000	

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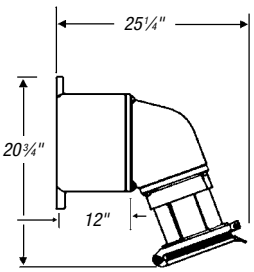
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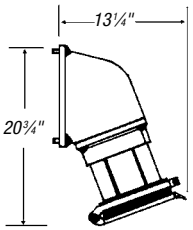


Female Receptacle with Angle Adapter and Junction Box**



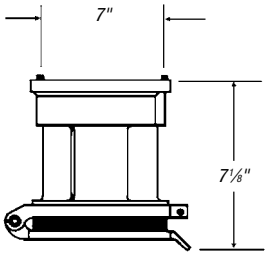


Female Receptacle with Angle Adapter**





Female Receptacle



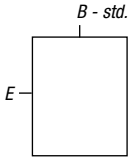
CAT. NO.	CAT. NO.	CAT. NO.
DF4104FRAB0	DF4104FRA00	DF4104FR000
DF4107FRAB0	DF4107FRA00	DF4107FR000
DF4204FRAB0	DF4204FRA00	DF4204FR000
DF4207FRAB0	DF4207FRA00	DF4207FR000
DF4214FRAB0	DF4214FRA00	DF4214FR000
DF4216FRAB0	DF4216FRA00	DF4216FR000
DF4304FRAB0	DF4304FRA00	DF4304FR000
DF4307FRAB0	DF4307FRA00	DF4307FR000
DF4316FRAB0	DF4316FRA00	DF4316FR000
DF4404FRAB0	DF4404FRA00	DF4404FR000
DF4407FRAB0	DF4407FRA00	DF4407FR000
DF4414FRAB0	DF4414FRA00	DF4414FR000
DF4416FRAB0	DF4416FRA00	XDF4416FR000
DF4421FRAB0	DF4421FRA00	DF4421FR000
DF4504FRAB0	DF4504FRA00	DF4504FR000
DF4514FRAB0	DF4514FRA00	DF4514FR000
DF4516FRAB0	DF4516FRA00	DF4516FR000
DF4521FRAB0	DF4521FRA00	DF4521FR000

400 Amp

*** Notes to Catalog Numbers**
Control Contacts (position 12)
use "K" example: DBRF4104200K0
Shunt Trip Breaker (position 13)
add "Z" to above: DBRF4104200KZ
Breaker Trip Ratings (positions 9, 10, 11)
250 amp use 250 350 amp use 350
300 amp use 300 400 amp use 400
Non-Auto Sw. NAO (repl. "DBRF" with "DSRF")

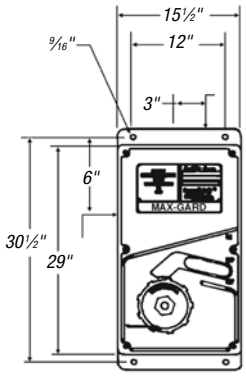
Conduit Hubs: NEMA 4X

- Std. 4" NPT-thread outlet at B (or E)
- 400 amp — Max. 4" (102mm)





Interlocked Receptacle with Circuit Breaker NEMA 4X

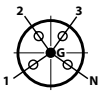


***Boldface** figures are for voltage assignment.*
*For different ratings, see **page H-340.***

Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. *
2	3		277	DBRF41044000
			125	DBRF41074000
2	3		480	DBRF42044000
			250	DBRF42074000
			600	DBRF42144000
			208	DBRF42164000
3	4		277/480	DBRF43044000
			125/250	DBRF43074000
			120/208	DBRF43164000
3	4		3Ø 480	DBRF44044000
			3Ø 250	DBRF44074000
			3Ø 600	DBRF44144000
			3Ø 208	DBRF44164000
			3Ø 440	DBRF44214000
4	5		3ØY 125/250	DBRF45044000
			3ØY 347/600	DBRF45144000
			3ØY 120/208	DBRF45164000
			3ØY 250/440	DBRF45214000

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Shore-to-ship power





SOLUTION
400 Amp

Application:

Shore power to marine vessels — sightseeing boats

When docked, marine vessels need shore power when their engines aren't running. Dockside designs need to be as safe as possible during heavy use, rough treatment and adverse weather conditions. High amperage-rated systems are installed using parallel power delivery with cross-network protection.

Installation:

400-amp male inlets and power connectors with control contacts

Watertight devices are necessary for dockside installations. MaxGard® connections go further with O-rings on both pins and interiors for environmental separation and true waterproof performance. The male inlet center ground pin feature and keyed entry design align easily, make ground first and break last, while quarter-turn insertion delayed-action removal and locking screw collars provide accidental pull-out protection. Upon connector insertion, two auxiliary control contacts complete a contactor circuit, which powers the line through a make-last-and-break-first configuration. Contactors are installed separately in an on-shore sheltered power distribution panel.

This can be wired for each contactor or for multiple connections; if one plug is removed, power is cut off.

400 Amp Reverse Service

** If receptacle is desired with a Straight Adapter instead of standard Angle Adapter, substitute "S" for the "A" in the catalog number of the Receptacle with Angle Adapter or Adapter and Box.

† Standard cable bushings shown; see **page H-334** for other sizes available at no extra cost if specified on order.

†† Always furnished with screw collar. We recommend cup cap with male plug; order catalog number DS4CC.

Maximum lug wire 500 kcmil 37-strand or flexible, cable entrance .937" diameter.

Receptacles furnished with flap cap also have screw thread to accept male collar on plug.

Catalog numbers shown are for flap cap receptacles; change "DF" to "DS" for ordering screw cap.

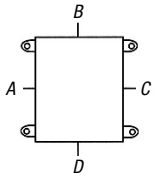
Boldface figures are for voltage assignment. For different ratings, see **page H-340**.

Outlet furnished at location "B" unless otherwise specified. 4" NPT.

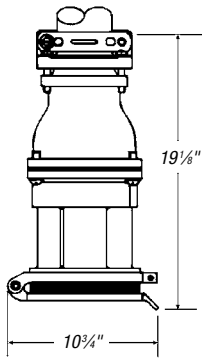
▼ ***Control contacts for plug/receptacles: Use "K" where noted. Ex: DS4104MR00K***

*For Adapters, Junction Boxes and Accessories, see **pages H-334–H-337.***

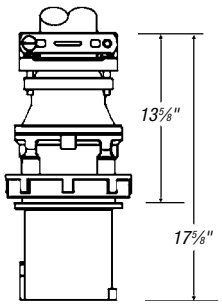




Female Connector



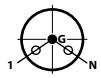
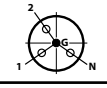
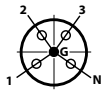
Male Plug††



Device Ratings and Polarizations

Maximum 600VAC or 250VDC

(For full polarization, see **page H-340**)

POLE	WIRE	CONDUCTOR PLACEMENT	VOLTAGE 60 HZ	CAT. NO. ▼	STANDARD BUSHING I.D.†	CAT. NO. ▼	STANDARD BUSHING I.D.†
2	3		277	DF4104FP000	2¾"	DS4104MP000	2¾"
			125	DF4107FP000		DS4107MP000	
2	3		480	DF4204FP000		DS4204MP000	
			250	DF4207FP000		DS4207MP000	
			600	DF4214FP000		DS4214MP000	
			208	DF4216FP000		DS4216MP000	
3	4		277/480	DF4304FP000	3"	DS4304MP000	3"
			125/250	DF4307FP000		DS4307MP000	
			120/208	DF4316FP000		DS4316MP000	
3	4		3Ø 480	DF4404FP000		DS4404MP000	
			3Ø 250	DF4407FP000		DS4407MP000	
			3Ø 600	DF4414FP000		DS4414MP000	
			3Ø 208	DF4416FP000		DS4416MP000	
			3Ø 440	DF4421FP000		DS4421MP000	
4	5		3ØY 277/480	DF4504FP000	3¼"	DS4504MP000	3¼"
			3ØY 347/600	DF4514FP000		DS4514MP000	
			3ØY 120/208	DF4516FP000		DS4516MP000	
			3ØY 250/440	DF4521FP000		DS4521MP000	

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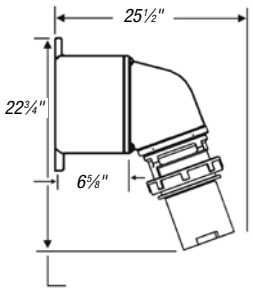
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MaxGard® Interconnection Systems

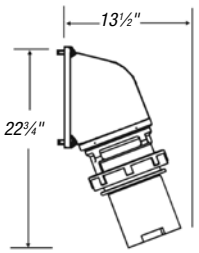


Male Inlet with Angle Adapter and Junction Box**



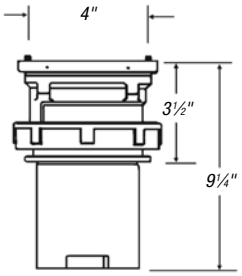


Male Inlet with Angle Adapter**





Male Inlet††



CAT. NO.	CAT. NO.	CAT. NO.
DS4104MRABØ	DS4104MRAØØ	DS4104MRØØØ
DS4107MRABØ	DS4107MRAØØ	DS4107MRØØØ
DS4204MRABØ	DS4204MRAØØ	DS4204MRØØØ
DS4207MRABØ	DS4207MRAØØ	DS4207MRØØØ
DS4214MRABØ	DS4214MRAØØ	DS4214MRØØØ
DS4216MRABØ	DS4216MRAØØ	DS4216MRØØØ
DS4304MRABØ	DS4304MRAØØ	DS4304MRØØØ
DS4307MRABØ	DS4307MRAØØ	DS4307MRØØØ
DS4316MRABØ	DS4316MRAØØ	DS4316MRØØØ
DS4404MRABØ	DS4404MRAØØ	DS4404MRØØØ
DS4407MRABØ	DS4407MRAØØ	DS4407MRØØØ
DS4414MRABØ	DS4414MRAØØ	DS4414MRØØØ
DS4416MRABØ	DS4416MRAØØ	DS4416MRØØØ
DS4421MRABØ	DS4421MRAØØ	DS4421MRØØØ
DS4504MRABØ	DS4504MRAØØ	DS4504MRØØØ
DS4514MRABØ	DS4514MRAØØ	DS4514MRØØØ
DS4516MRABØ	DS4516MRAØØ	DS4516MRØØØ
DS4521MRABØ	DS4521MRAØØ	DS4521MRØØØ

Cable Bushings for MaxGard® Plugs and Connectors

To order non-standard bushing, add cable bushing number to the end of a catalog number. The bushing is furnished at no additional cost at time of order.

Ex: DF2504FP000/DF2032.

Shaded areas show Cable Bushings provided with a strain-relief neck; larger bushings are collar style.



Size No. 3 and 6
(Identification Letter Inside Hole)



Size No. 10, 20 and 40

HOLE DIAMETER FOR CABLE	SIZE 3 30 AMP	SIZE 6 60 AMP	SIZE 10 100 AMP	SIZE 20 200 AMP	SIZE 40 400 AMP
.625"	**JG63**				
.750"	**JG64**	**JG104**			
.875"	**JG65** Std. 2P3W	**JG105**			
1.000"	**JG66** Std. 2P3W	**JG106**	**DF1020**	**DF2020**	
1.188"	**JG67** Std. 3P4W	**JG107** Std. 2P3W	**DF1022**	**DF2022**	
1.313"		**JG108** Std. 3P4W	**DF1024**	**DF2024**	
1.375"	**JG69**				
1.500"	**JG610**	**JG1010** Std. 4P5W	**DF1026**	**DF2026**	
1.625"					
1.688"		**JG1011**	**DF1027** Std. 2P3W	**DF2027**	
1.813"			**DF1029** Std. 3P4W	**DF2029**	
1.875"		**JG1013**	**DF1030**	**DF2032** Std. 2P3W	
2.000"			**DF1032** Std. 4P5W		
2.125"				**DF2034** Std. 3P4W	
2.250"				**DF2036** Std. 4P5W	
2.500"				**DF2040**	
2.625"					**DF4042**
2.750"					**DF4044**
3.000"					**DF4048** Std. 3P4W
3.250"					**DF4054** Std. 4P5W

Standard Cable Bushings

Notes: *When ordering, select bushing size slightly larger than your cable O.D. for best fit.*

Material *— Neoprene*

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Adapters for Conduit and Fittings

Adapters are tapped NPT standard pipe thread to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.



JPA Conduit Adapters

30 AMP CAT. NO.	TAPPED HOLE SIZE NPT	60 AMP CAT. NO.	TAPPED HOLE SIZE NPT	100 AMP CAT. NO.	TAPPED HOLE SIZE NPT	200 AMP CAT. NO.	TAPPED HOLE SIZE NPT	400 AMP CAT. NO.	TAPPED HOLE SIZE NPT
JPA62	¾"	**JPA104**	1¼"	**DFA14**	1¼"	**DFA25**	1½"	**DFA46**	2"
JPA63	1"	**JPA105**	1½"	**DFA15**	1½"	**DFA26**	2"	**DFA47**	2½"
JPA64	1¼"	**JPA 106**	2"	**DFA16**	2"	**DFA27**	2½"	**DFA48**	3"
JPA65	1½"	—	—	—	—	—	—	—	—

Note:

Material — cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated. Furnished complete with gasket and screws.

To specify standard plugs or connectors equipped with one of the above adapters, add the catalog number of the adapter selected to the catalog number of the plug or connector. Complete list price is the list price of the device plus list price of the adapter.

Ex.: Cat. No. DS3107MP000 with adapter tapped 1" would be Cat. No. DS3107MP000/JPA63.

Replacement Flap Covers and Screw Covers

- For connectors, receptacles and interlocks

CAT. NO.	DESCRIPTION	AMPERAGE
DFC3	Flap Cover Assembly (Weathertight)	30
DFC6		60
DFC10		100
DFC20		200
DFC40		400
DSC3	Screw Cap and STS — Lanyard Assembly (Watertight)	30
DSC6		60
DSC10		100
DSC20		200
DSC40		400



DFC6



DSC6

Accessories for Receptacles

	DESCRIPTION	30 AMP CAT. NO.	60 AMP CAT. NO.	100 AMP CAT. NO.	200 AMP CAT. NO.	400 AMP CAT. NO.
	**Cup Caps** For watertight plugs/inlets. Cup caps are used where portable equipment is on a standby basis and plugs are not in use. Effectively protect insulation and contacts from excessive moisture, dirt, dust and corrosion. **Material** — Cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated with steel braid cable attached.	DS3CC	DS6CC	DS1CC	DS2CC	DS4CC
	**Adapter Flush Frames — Single Gang** Provide suitable means for mounting box covers of junction box receptacles flush in a wall.	JFA6	JFA10	JFA10	JFA20	CONSULT FACTORY
	**Adapters for Conduit Box Receptacles** Adapters to fit existing boxes and for special mounting requirements can also be furnished. Consult your Thomas & Betts representative.					
	20° Vertical Angle Adapter	JAA6-AB6	JAA10	DAA10	DAA20	—
	30° Vertical Angle Adapter	—	—	—	—	DAA40
	45° Vertical Angle Adapter	JAA6-45	JAA10-45	—	—	—
	Straight Adapter	JRA6-AB6	JRA10	DRA10	DRA20	DRA40
	**Junction Box — Single Gang**	JB6-1	JB10-B150	JB10-B200	DJB20	DJB40
	**Angle Enclosure**	JE6	JE10	JE10M	—	—
	**MACK Adapter Plates** Enables mounting of MaxGard® receptacles to competitive existing back boxes. This involves removing the existing non-hazardous location receptacle from back box, inserting adapter plate and installing MaxGard® receptacle. Adapter plates are available for competitors' boxes including Hubbel, Killark, Appleton and Crouse-Hinds.	DCCA3	DCCA6	DCCA10	DCCA20	—
	**Russellstoll® Adapter Plates** Adapt MaxGard® receptacles to existing J-Line™, Angle Type and Heavy-Service Ever-Lok® back boxes.	DRCA3	DRCA6	DRCA10	—	N/A

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Replacement Interiors for Receptacles, Connectors, Plugs and Male Inlets





RATING		VOLTAGE POLARIZATION	CORRESPONDING MALE INTERIOR ASSEMBLY		CORRESPONDING FEMALE INTERIOR ASSEMBLY	
			PLUG/INLET	MALE INTERIOR	CONNECTOR/RECEPTACLE	FEMALE INTERIOR
30A	2P3W	125VAC	DS3107MP000	DFPU3107	DF3107FP000	DFRU3107
	2P3W	250VAC	DS3207MP000	DFPU3207	DF3207FP000	DFRU3207
	3P4W	125/250VAC	DS3307MP000	DFPU3307	DF3307FP000	DFRU3307
	3P4W	3-ph 480VAC	DS3404MP000	DFPU3404	DF3404FP000	DFRU3404
	4P5W	277/480VAC	DS3504MP000	DFPU3504	DF3504FP000	DFRU3504
60A	2P3W	250VAC	DS6207MP000	DFPU6207	DF6207FP000	DFRU6207
	3P4W	125/250VAC	DS6307MP000	DFPU6307	DF6307FP000	DFRU6307
	3P4W	3-ph 480VAC	DS6404MP000	DFPU6404	DF6404FP000	DFRU6404
	4P5W	277/480VAC	DS6504MP000	DFPU6504	DF6504FP000	DFRU6504
100A	2P3W	250VAC	DS1207MP000	DFPU1207	DF1207FP000	DFRU1207
	3P4W	125/250VAC	DS1307MP000	DFPU1307	DF1307FP000	DFRU1307
	3P4W	3-ph 480VAC	DS1404MP000	DFPU1404	DF1404FP000	DFRU1404
	4P5W	277/480VAC	DS1504MP000	DFPU1504	DF1504FP000	DFRU1504
200A	3P4W	277/480VAC	DS2304MP000	DFPU2304	DF2304FP000	DFRU2304
	3P4W	3-ph 480VAC	DS2404MP000	DFPU2404	DF2404FP000	DFRU2404
	4P5W	277/480VAC	DS2504MP000	DFPU2504	DF2504FP000	DFRU2504
400A	3P4W	277/480VAC	DS4304MP000	DFPU4304	DF4304FP000	DFRU4304
	3P4W	3-ph 480VAC	DS4404MP000	DFPU4404	DF4404FP000	DFRU4404
	4P5W	277/480VAC	DS4504MP000	DFPU4504	DF4504FP000	DFRU4504

Note: *For other interiors not shown, use same polarization index as plug, connector, etc. Ex: DS6416MP000 plug uses DFPU6416 interior.*

Accessories for Interlocked NEMA 12/3R Receptacles

DESCRIPTION	30 AMP CAT. NO.	60 AMP CAT. NO.	100 AMP CAT. NO.	200 AMP CAT. NO.	400 AMP CAT. NO.
Fused Disconnect Interlocked Receptacle with Safety Switch 30–100A					
1 NO — 1 NC Contact	F34757	F34757	F34757	N/A	N/A
2 NO — 2 NC Contact	F34758	F34756B	N/A	N/A	N/A
Copper Body Lugs — 6 lugs per kit	F34756A	F34756B	F34756C	N/A	N/A
Type R Fuse Clips — 3 per kit	F34755A	F34755B	F34755C	N/A	N/A
Neutral Block	F34754A	F34754B	F34754B	N/A	N/A

Pin and Sleeve Plugs, Receptacles and Systems

1.0 Scope

1.1 This document covers multi-contact pin and sleeve, industrial grade, arc-quenching, circuit interrupting-rated electrical plugs, motor plugs, connectors, receptacles, mechanically interlocked receptacles and assorted accessories. Usable in dry, damp, wet, marine and/or hazardous locations for electrical power circuits. Devices are to be rated 30, 60, 100, 200 and/or 400 amperes at 600VAC, 50–400 Hz and 250VDC maximum. Devices are also rated for continuous use in temperatures from -40° C to +130° C. These devices must provide internal environmental seals for marine and extreme wet applications and can be electrically interlocked.

1.2 The devices described shall be Thomas & Betts/Russellstoll® MaxGard® catalog numbers as specified.

2.0 Product Classifications (Features)

2.1 **Gated Deadfront —** All receptacles and connectors must have a rotating disk on the face of the interior, which provides live contact isolation and environmental separation.

2.2 **Delayed Action Arc Containment —** All devices upon disconnect under load shall have provision so the arc is contained and extinguished within the insulation cavity, making it impossible to withdraw a live plug.

2.3 **Flap Cover or Screw Cover Option —** Flap cover option must provide weathertight capability by utilizing a spring actuated self-closing flap. Watertight capability shall be obtained by using a gasketed screw cap.

2.4 **Polarization —** All devices shall be factory polarized for amperage, voltage, frequency and phase; thus providing a single voltage rating, single interface system.

2.5 **Grounding —** The grounding of the device shall be accomplished through a separate center ground (earth) make-first and break-last pole on all devices for complete system grounding.

2.6 **Pole Capabilities —** All devices shall accommodate up to four power pins plus a separate center ground pin and they shall be integral with the connector bodies (five pins total).

2.7 **Interior Type —** Interiors must be male (pin type) or female (sleeve type). Pins and sleeves shall also be self-aligning and self-wiping/self-cleaning.

2.8 **Control Contacts —** All devices must have an option for two control contacts, which shall be make-last and break-first for use in electrical interlocks and/or control circuits. See table **below**.

2.9 **Conductor Terminals —** Pin and sleeve connections shall employ solderless pressure-type screw terminals and be sized to accept stranded or solid copper conductors in AWG sizes (max. O.D.s as noted). The screw terminals shall also have socket heads to ensure proper torquing of wires.

2.10 **Environmental Seals —** Each device must have an environmental seal or O-ring around all interiors and around each pin and sleeve to prevent water and contaminants from entering the wiring compartment. This provides waterproof capability, even when not mated.

2.11 **Hazardous Location —** All standard plugs 30, 60 and 100 amp shall be UL and CSA listed for hazardous location Class I Division 1, Groups C and D; Class II Division 1, Groups F and G. A hazardous location circuit breaker-protected interlock shall also be applicable to the same environments and possess all the same product features as outlined above. Enclosures shall meet NEMA 8 hazardous outdoor-duty classifications and shall meet shipboard use above deck in accordance with the Department of Transportation (USCG "Green Water").

2.12 **Lockout Devices —** Plug connection lockout is achieved by a padlock through plug sleeve housing hole provided for this purpose. On Hazardous Location/Explosion Proof Interlock Receptacles, lockout shall additionally be achieved by separate lockout accessory available from the factory. On standard Interlocks, lockout accessory/construction is available from the factory.

Rating for Pilot/Control Contacts

Contact Rating Code Designation A-600, Table 119.1 — UL 508 Heavy Pilot Duty Load (720 VA/600VAC) Maximum

THERMAL CONTINUOUS CURRENT AMPS	MAXIMUM CURRENT AMPERE									
	120V		240V		480V		600V		MAX. VOLT AMPERE	
	Make	Break	Make	Break	Make	Break	Make	Break	Make	Break
10 (#12 AWG)	60	6	30	3	15	1.5	12	1.2	7200	720

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3.0 Materials Requirements

3.1 **Housings —** Plug, motor plug, receptacles, connectors and interlock housings, associated covers and caps, screw collars, and clamp holders shall be made of copper-free cast aluminum (max. .004% copper).

3.2 **Finish —** All external surfaces except those that provide means of grounding shall be epoxy powder coated to resist corrosion.

3.3 **Hardware —** All hardware, external and springs, shall be stainless steel. Cable clamps shall be stainless steel or epoxy powder coated, copper-free cast aluminum.

3.4 **Insulators —** All device body insulators shall be molded from glass-reinforced high strength thermoset polyester, minimum of UL94V0 flammability rated.

3.5 **Contacts —** Contacts base material shall be made of a conductive copper alloy, (brass CDA485) to prevent dezincification. Accessory material of the contacts shall be made of a compatible corrosion resistant material.

3.6 **Environmental Seals —** Environmental gaskets and O-rings shall be made of Neoprene material.

4.0 Design and Construction Requirements

4.1 **Circuit Interrupting Rating —** All devices 30, 60, 100 and 200 amperes shall be tested to be interrupted at 150% of rated current. Additionally, all devices shall be designed and tested to interrupt 100% of rated current.

4.2 **Wiring —** All devices shall be wired from the rear requiring no disassembly of the pins and/or sleeves from the insulated body.

5.0 **Applicable Documents (Compliances)**

5.1 **Underwriters Laboratories (UL) —** The devices specified herein shall be listed in applicable sections of UL Standards 1010, 231, 1682 and 1686, File Nos. E2630, E57324, E68085, E123752.

5.2 **Canadian Standard Association (CSA) —** The devices specified shall be listed in the applicable sections of CSA C22.2-182.1, File Number LR14096.

5.3 **International Electro-Technical Commission (IEC) —** The 30-, 60- and 100-ampere devices specified shall have been tested and comply with IEC 309-1.

5.4 **Federal Department of Transportation —** Refrigerated National Shipboard location devices shall meet and comply with Federal Register volume 47, number 68, subpart 111.79.

5.5 **Standards —** The devices specified shall comply with Military Standards MIL-STD-105 and 1344; ASTM Standards D570 and D2565: NEMA Standard PR4-1983; and OSHA regulations when installed in accordance with the National Electrical Code (NEC®).

5.6 NEMA 250 Enclosures Standard

NEMA 1 — General Purpose for indoor use; guards against contact with equipment.

NEMA 3R — Outdoor use primarily to protect against rain, sleet, wind-blown dust and damage from external ice formation.

NEMA 4 — Indoor or outdoor use to protect against windblown dust and rain; splashing and hose-directed water.

NEMA 4X — Watertight, dust-tight corrosion-resistant for indoor or outdoor applications.

NEMA 6 — Watertight, casual/ temporary immersion.

NEMA 7 — Class I (Hazardous) for indoor use in Class I areas, per NEC®.

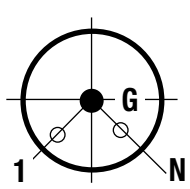
NEMA 8 — Class I (Hazardous) for indoor use in Class I, oil-immersed equipment.

NEMA 9 — Class II (Hazardous) for indoor use in Class II areas, per NEC®.

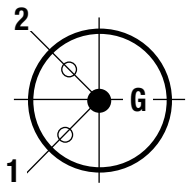
NEMA 12 — Industrial use, dust-tight for indoor use to protect against dust, falling dirt and dripping non-corrosive liquids.

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

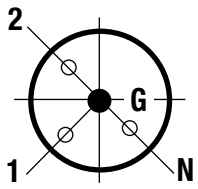
Single Polarization/Multiple Service* Assigned Voltages and Wiring Systems



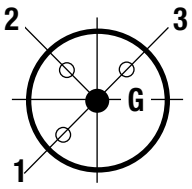
N-R1-G



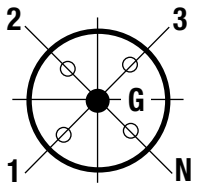
R1-S2-G



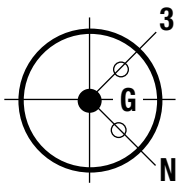
N-R1-S2-G



R1-S2-T3-G



N-R1-S2-T3-G



2P+G(DC)

VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	VOLTAGE ASSIGN. NO.	VOLTAGE	INDEX
101	220V–50 Hz	**201**	380V–50 Hz	**301**	220/380V–50 Hz	**401**	380V–50 Hz	**501**	220/380V–50 Hz			01
103	127V–50 Hz	**203**	220V–50 Hz	**303**	220/127V–50 Hz	**403**	220V–50 Hz	**503**	220/127V–50 Hz			03
104	277V–60 Hz	**204**	480V–60 Hz	**304**	277/480V–60 Hz	**404**	3Ø 480V–60 Hz	**504**	3ØY 277/480V–60 Hz			04
105	250V–50 Hz	**205**	440V–50 Hz	**305**	250/440V–50 Hz	**405**	3Ø 440V–50 Hz	**505**	3Ø 250/440V–50 Hz			05
107	125V–60 Hz	**207**	250V–60 Hz	**307**	125/250V–60 Hz	**407**	3Ø 250V–60 Hz	**507**	3ØY 125/250V–60 Hz			07
108	220V–60 Hz	**208**	380V–60 Hz	**308**	220/380V–60 Hz	**408**	3Ø 380V–60 Hz	**508**	3Ø 220/380V–60 Hz			08
109	100V–60 Hz	**209**	220V–60 Hz	**309**	100/220V–60 Hz	**409**	3Ø 220V–60 Hz	**509**	3Ø 100/220V–60 Hz			09
111	115V–400 Hz	**211**	220V–400 Hz	**311**	220/115V–400 Hz	**411**	220V–400 Hz	**511**	220/115V–400 Hz			11
	—		—		—		—	**513**	230V DC	**613**	250 VDC	13
114	347V–60 Hz	**214**	600V–60 Hz	**314**	347/600V–60 Hz	**414**	3Ø 600V–60 Hz	**514**	3ØY 347/600V–60 Hz			14
115	100V–50 Hz	**215**	220V–50 Hz	**315**	100/220V–50 Hz	**415**	3Ø 220V–50 Hz	**515**	3Ø 100/220V–50 Hz			15
116	120V–60 Hz	**216**	208V–60 Hz	**316**	120/208V–60 Hz	**416**	3Ø 208V–60 Hz	**516**	3ØY 120/208V–60 Hz			16
117	120V–400 Hz	**217**	208V–400 Hz	**317**	120/208V–400 Hz	**417**	3Ø 208V–400 Hz	**517**	3Ø 120/208V–400 Hz			17
	—		—		—		208V		—	**618**	28 VDC	18
												20
	—	**221**	440V–60 Hz	**321**	250/440V–60 Hz	**421**	3Ø 440V–60 Hz	**521**	3ØY 250/440V–60 Hz			21
							250V		Reserved			22
							480V		Reserved			23
							600V		Reserved			24

MaxGard® receptacles and plugs may be furnished in any of the above voltage and phasing systems.

To order any device in a voltage and phasing not shown in the preceding catalog pages, substitute the Voltage Assignment Number in the **above** chart for that portion of the listed catalog number appearing in **boldface** type.

Example: 200 Amp Weathertight Receptacle with Flap Cover, Angle Adapter and Junction Box for 3Ø 480 volt (3-pole and ground) is DF2404FRAB0.

To change to 3Ø 208 volt, the catalog number becomes DF2416FRAB0.

Note: *All devices may be furnished with two control contacts. Add "K" to the end of the catalog number, in place of last position Ø.*

*** Dual-Voltage or Multiple-Service Applications** (for any given polarization number) — Example: A factory installation may consist of all receptacles specified and wired at polarization "507." This is a 3ph.Y–125/250V–60 Hz supply. However, all circuit requirements "below" (507) can also be met; for instance a "207" plug will draw phasing for 250V–60 Hz operation of equipment as well, while another ".507" receptacle supplies power for a 3-phase motor installation. See chart **above**.

For non-interrupting polarizations at 45, 90, 150, 300, 600A ratings, consult Technical Services.

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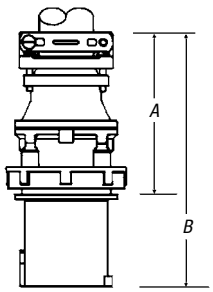
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800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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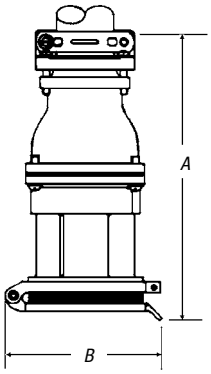
MaxGard® Interconnection Systems

Male Plug



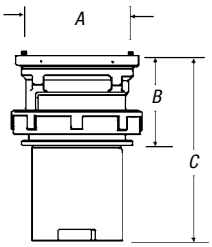
AMP	A	B
30	4¾"	7⅞"
60	5½"	9⅛"
100	6½"	10⅛"
200	9"	13¾"
400	12⅝"	17⅝"

Connector



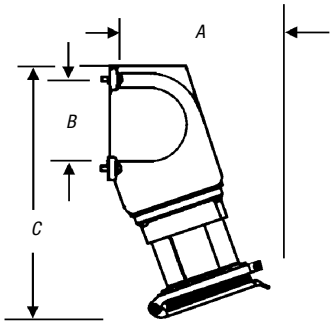
AMP	A	B
30	8¾"	5⅛"
60	10"	5⅜"
100	11⅛"	5⅜"
200	15"	9½"
400	19⅛"	10¾"

Male Inlet



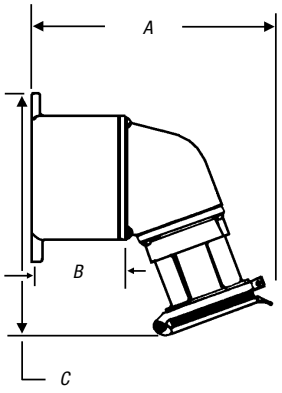
AMP	A	B	C
30	2⅞"	2½"	5½"
60	3⅜"	2½"	5½"
100	3⅜"	2½"	5½"
200	5¼"	3½"	9¼"
400	3⅜"	4⅜"	9¼"

Receptacle with Angle Enclosure



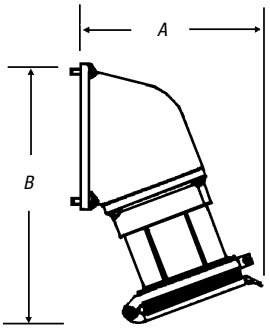
AMP	A	B	C
30	6⅜"	3⅛"	9⅞"
60	7⅛"	4"	11⅛"
100	7½"	4"	11⅜"
200	—	—	—
400	—	—	—

Receptacle with Angle Adapter and DJB Junction Box



AMP	A	B	C
30	9⅛"	3"	9⅝"
60	10½"	3"	9¾"
100	10¾"	3¾"	10"
200	15¾"	6⅝"	14⅝"
400	25¼"	12"	20¾"

Receptacle with Angle Adapter

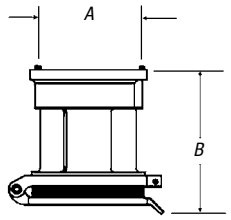


AMP	A	B
30	6⅛"	9⅝"
60	7½"	9¾"
100	7"	10"
200	9½"	14¾"
400	13¼"	20¾"

(Flap covers shown — screw covers available. On all, screw covers have nominal effect on outside dimensions.)

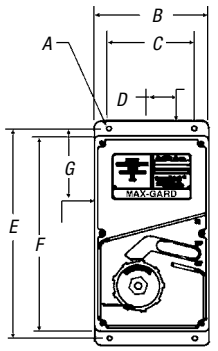
MaxGard® Interconnection Systems

Receptacle Only



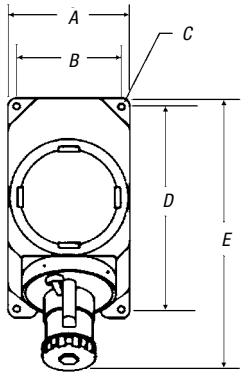
AMP	A	B
30	2⅞"	4½"
60	3⅜"	5⅛"
100	3⅜"	5⅜"
200	5¼"	6⅝"
400	7"	7⅛"

Interlocked Receptacle with Circuit Breaker NEMA 4X



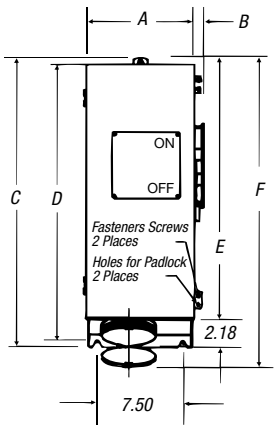
AMP	A	B	C	D	E	F	G
30	⅜"	8¾"	6½"	1½"	16¼"	15⅛"	3⅛"
60	⅜"	8¾"	6½"	1½"	16¼"	15⅛"	3⅛"
100	⅜"	8¾"	6½"	1½"	17¾"	16⅝"	3⅛"
200	9⁄16"	12¼"	9"	2½"	26¼"	24¾"	5"
400	9⁄16"	15½"	12"	3"	30½"	29"	6"

Explosion-Proof Circuit-Breaker Interlocked Receptacle



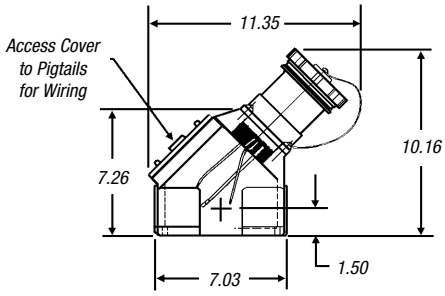
AMP	A	B	C	D	E
30	8¾"	7½"	½"	14¾"	20"
60	8¾"	7½"	½"	14¾"	20"
100	8¾"	7½"	½"	14¾"	20"
200	N/A	N/A	N/A	N/A	N/A
400	N/A	N/A	N/A	N/A	N/A

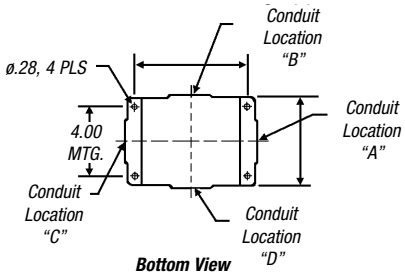
Fused Disconnect Interlocked Receptacle NEMA 3R/12



AMP	A	B	C	D	E	F
30	9½"	¾"	25¾"	25"	22¾"	30"
60	9½"	¾"	25¾"	25"	22¾"	30"
100	9½"	¾"	25¾"	25"	22¾"	30"
200	N/A	N/A	N/A	N/A	N/A	N/A
400	N/A	N/A	N/A	N/A	N/A	N/A

Explosion-Proof Non-Interlocked Receptacle





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Circuit Breakers for NEMA 4X Interlocked Receptacles

High interrupt breakers may be furnished at additional cost.

	STANDARD CIRCUIT BREAKERS		HIGH INTERRUPT CIRCUIT BREAKERS (OPTIONAL)	
INTERLOCK	MAX. VOLTS (60 Hz)	AMPERES	MAX. VOLTS (60 Hz)	AMPERES
30, 60 and 100 Amp	240 AC	20,000 Asym., 18,000 Sym.	240 AC	75,000 Asym., 65,000 Sym.
	277 AC	15,000 Asym., 14,000 Sym.	277 AC	30,000 Asym., 25,000 Sym.
	480 AC	15,000 Asym., 14,000 Sym.	600 AC	20,000 Asym., 18,000 Sym.
	600 AC	15,000 Asym., 14,000 Sym.	600 AC	20,000 Asym., 18,000 Sym.
	250 DC	10,000 Amperes	250 DC	10,000 Amperes
200 Amp	240 AC	75,000 Asym., 65,000 Sym.	N/A	
	480 AC	30,000 Asym., 25,000 Sym.		
	600 AC	20,000 Asym., 18,000 Sym.		
	250 DC	10,000 Amperes		
400 Amp	240 AC	50,000 Asym., 42,000 Sym.	240 AC	75,000 Asym., 65,000 Sym.
	277 AC	35,000 Asym., 30,000 Sym.	480 AC	40,000 Asym., 35,000 Sym.
	480 AC	25,000 Asym., 22,000 Sym.	600 AC	30,000 Asym., 25,000 Sym.
	250 DC	10,000 Amperes	250 DC	20,000 Amperes

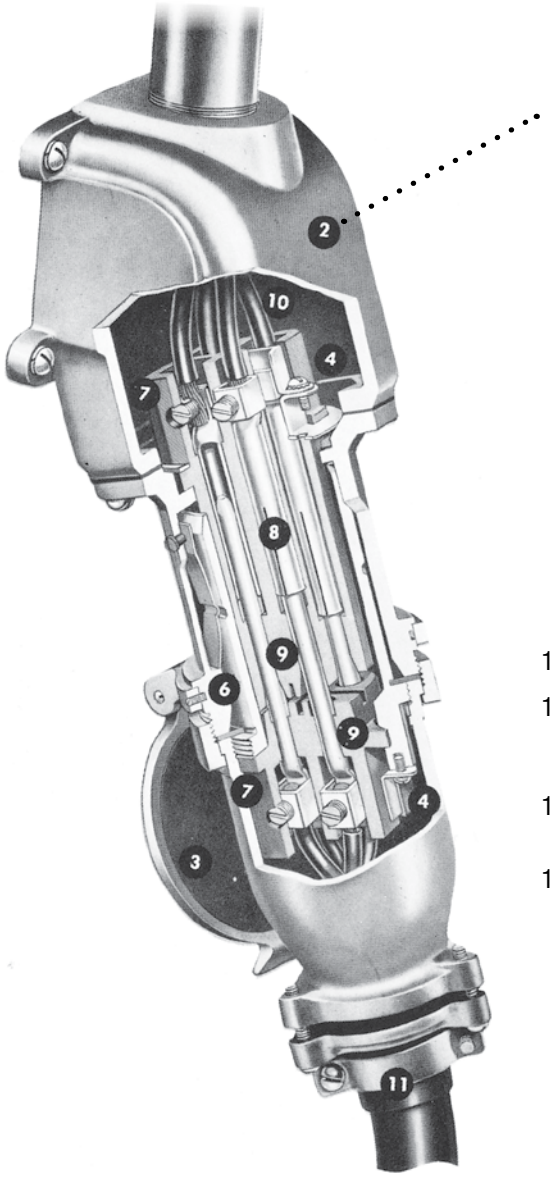
J-Line™ Interconnection Systems

J-Line™
4P4W Max.
30 through 200A

Robust service in metal for many industrial applications, the J-Line™ offers a value alternative to MaxGard® in 3P4W, 30–200 Amp applications with less severe needs. Unique among competitors, the J-Line™ uses a reversible contract carrier for maximum flexibility in many portable service applications.

Design Features

Russellstoll® J-Line™ Load-Breaking Plugs, Connectors and Receptacles



1. Circuit-interrupting rated safety
2. Cast aluminum, corrosion-resistant copper-free alloy housings and enclosures provide lightweight and maximum corrosion resistance, along with electrostatic epoxy powder coat finish
3. Quick conversion between weathertight flap cover and watertight screw cap assemblies. Basic receptacle housing accommodates both covers and is the basic component of all complete units. All watertight configured plugs may be used interchangeably
4. Two grounding arrangements (Style No. 1 and Style No. 2)
5. Four complete J-Lines: 30, 60, 100 and 200 amps; 600VAC/250VDC (plus 150A/270A specials)
6. Flap cover can be rotated and locked in any convenient position
7. Pressure-type solderless wiring terminals
8. Silver-plated contacts
9. One-piece interior assemblies interchangeable from regular to reverse service in the field with a screwdriver
10. Wiring space ample for maximum requirements
11. Cable clamps adjustable for maximum range of cable size. Oil-resistant Neoprene strain-relief bushing compresses around cable tightly, prevents entry of dust and moisture
12. Polarization provides positive non-interchangeability for different electrical systems
13. Reversed contacts flexibility: male–female reversed installation within any housing

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Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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Polarization



Devices offer standard and custom polarization for total operator safety so that plugs will fit only into receptacles or connectors having the same electrical/specification characteristics.

Visual means of aligning units for a specific, positive polarization are provided:

- Button inside of receptacle housing mates to groove on plug shroud
- Smaller primary guides also assist positive part-part mating
- External I.D. of 1 of 8 polarization indexes visible
- Different polarizations assigned to voltages can't mate — a safer system!

Conversion to Weathertight and Watertight Types



Weathertight J-Line™ with flap cover assembly



Watertight J-Line™ with screw cap

Substitution of either the flap cover assembly or the screw cap assembly on the housing of the basic receptacle permits quick and easy conversion between the weathertight and watertight types. Only a small screwdriver is needed to change in the field.

The basic receptacle housing is constructed with a threaded end to accommodate a screw cap or the collar nut of a watertight plug. A special groove above the threads accommodates the flap cover assembly. The flap cover assembly may be rotated around this grooved shell and the set-screw locked in any convenient position.

The watertight plug, with its collar screwed firmly to the basic receptacle shell, forms a completely watertight connection on either type of receptacle assembly.

These conversion features also permit the use of flap cover or screw cap on connector housings.

30–200/270 Amp (30–200A Load Breaking), Maximum 600VAC/250VDC
Load-Breaking Receptacles, Plugs, Connectors and Inlets

For all Weathertight and Watertight types.

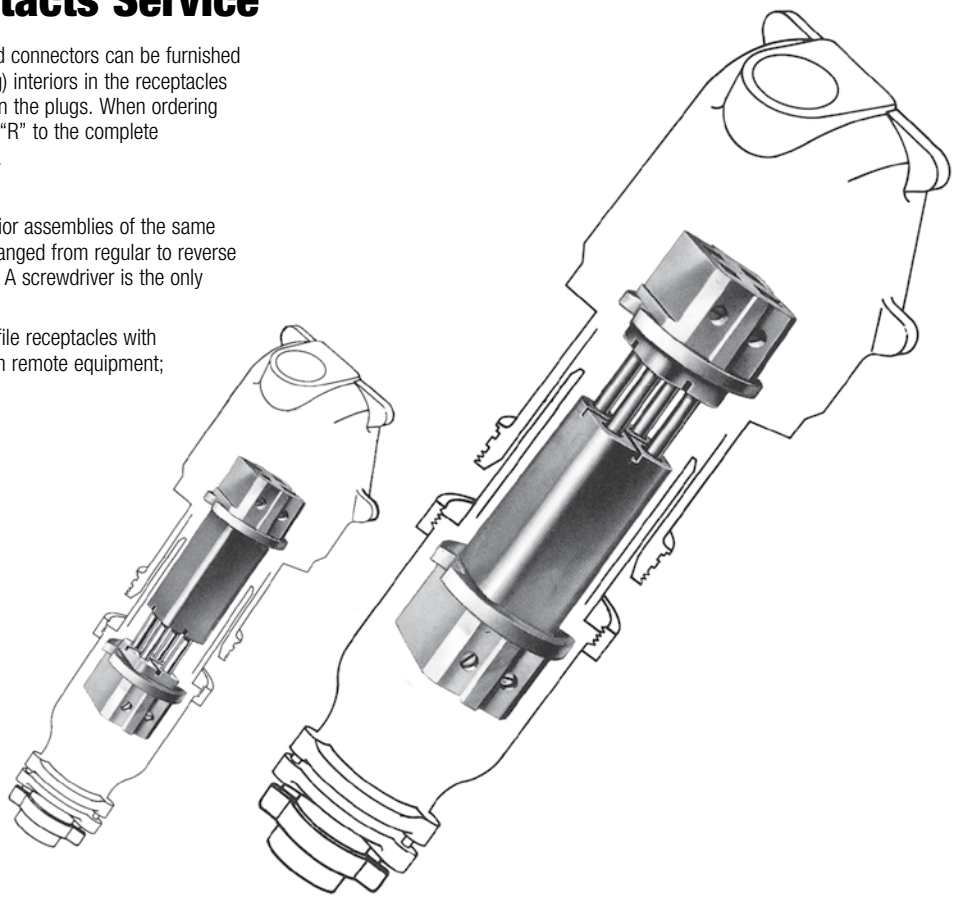
Reversed Contacts Service

All J-Line™ plugs, receptacles and connectors can be furnished for Reverse Service — male (plug) interiors in the receptacles and female (receptacle) interiors in the plugs. When ordering reverse service, add a final suffix "R" to the complete catalog number. Price on request.

Example: JRFA334HR

J-Line™ receptacle and plug interior assemblies of the same amperage may be quickly interchanged from regular to reverse service (or vice versa) in the field. A screwdriver is the only tool required.

Example: Panel-mounted low-profile receptacles with male interiors act as male inlets in remote equipment; receive power from female plugs. (Cup cap also recommended.)



Regular Service

Interior assemblies placed in normal, standard positions — female interior assembly is positioned in the receptacle housing and the male interior assembly is positioned in the plug housing.

Reversed Service

Note the complete interior assemblies have now been interchanged so that the male (plug) interior assembly is positioned in the receptacle housing and the female (receptacle) interior assembly is positioned in the plug housing.

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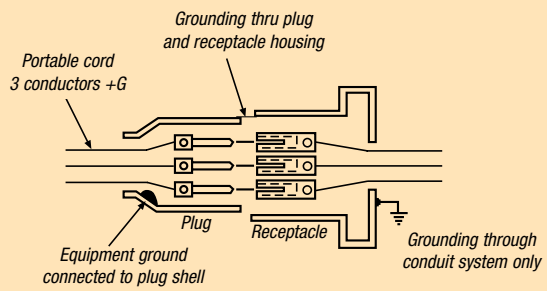
Grounding Data

Effective grounding of portable electrical equipment is necessary to protect operators from electric shock. The National Electrical Code® requires that in most cases, exposed non-current-carrying metal parts of portable equipment shall be grounded if operated at more than 150 volts to ground. Grounding must be used in other than residential occupancies when used in damp or wet locations, or by persons standing on the ground or on metal floors or working inside of metal tanks or boilers, except where supplied through an insulating transformer with ungrounded secondary of not over 50 volts. **Plugs and receptacles provide for grounding of portable equipment in either of two ways:**

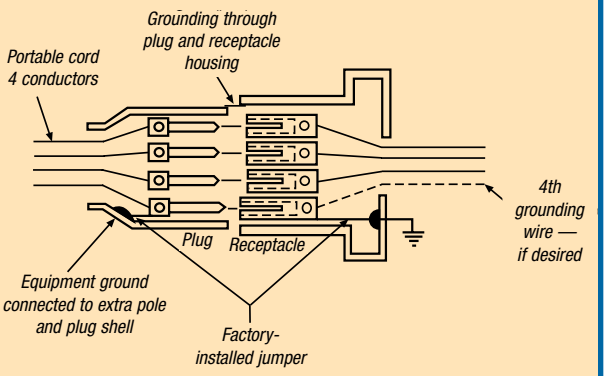
Corrosive Locations

The National Electrical Code® requires that under conditions favorable to corrosion, the grounding conductor for enclosures and equipment be of copper or other corrosion-resistant material. In alternating current systems, this necessitates running another conductor back to the common grounding electrode. This may be run through the conduit containing the circuit conductors. At the receptacle, this grounding conductor should be connected to the extra (grounding) pole by the pressure connector provided for that purpose. Where such an extra grounding conductor is required, Style 2 receptacles should be used.

STYLE 1 — Typical 3P3W Plug and Receptacle



STYLE 2 — Typical 3P4W Plug and Receptacle



Style 1

4P4W (or 3P3W) through Metal Housings of Plug and Receptacle

In this system shown **above**, the equipment grounding conductor in the flexible cable is electrically connected directly to the plug or cable connector housing by a suitable terminal. The receptacle is grounded by being part of a grounded conduit system.

When inserted, the plug housing makes contact with the grounded receptacle or connector housing by means of the receptacle ground spring before the current-carrying contacts engage. On withdrawal, it remains in contact until after the current-carrying contacts disengage.

Style 2

3P4W (or 2P3W) through a Separate Grounding Pole in Plug and Receptacle

In this system shown **above**, the equipment grounding conductor in the flexible cable is electrically connected to the equipment grounding pole in the plug or cable connector interior. The grounding pole of the receptacle interior is electrically connected by a spring-strap jumper to the receptacle housing, which itself is grounded by being part of the ground spring of the receptacle or connector housing as described in Style 1.

The grounding contact in a type 2 receptacle is longer than the current-carrying contacts so that the ground connection makes first and breaks last.

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J-Line™ Interconnection Systems

30–270 Amp (30, 60, 100 and 200 Amp Load-Breaking, 150 and 270 Amp Special Service), Maximum 600VAC/250VDC Receptacles, Plugs, Connectors and Inlets

For any J-Line™ catalog numbers not shown here, check **page H-350** for "Series" information.
For special polarizations (suffixes), contact Technical Services.

Plugs



(All plugs come with watertight screw collar)

Max. 600VAC/250VDC

CURRENT RATING	WEATHERTIGHT/WATERTIGHT	CONFIGURATION	❒ ▼
30 Amp	Weathertight (Spring Hinged Flap Cover)	2P3W	JPS323H __
		3P3W*	JPS333F
		3P4W	JPS334H
		4P4W*	JPS344F
	Watertight (Screw Cover)	2P3W	JPS323H
		3P3W*	JPS333F
		3P4W	JPS334H
		4P4W*	JPS344F
60 Amp	Weathertight (Spring Hinged Flap Cover)	2P3W	JPS623H
		3P3W*	JPS633F
		3P4W	JPS634H
		4P4W*	JPS644F
	Watertight (Screw Cover)	2P3W	JPS623H
		3P3W*	JPS633F
		3P4W	JPS634H
		4P4W*	JPS644F
100 Amp (150 Amp)**	Weathertight (Spring Hinged Flap Cover)	2P3W	JPS1023H
		3P3W*	JPS1033F
		3P4W	JPS1034H
		4P4W*	JPS1044F
	Watertight (Screw Cover)	2P3W	JPS1023H
		3P3W*	JPS1033F
		3P4W	JPS1034H
		4P4W*	JPS1044F
200 Amp (270 Amp)**	Weathertight (Spring Hinged Flap Cover)	2P3W	JPS2023H
		3P3W*	JPS2033F
		3P4W	JPS2034H
		4P4W*	JPS2044F
	Watertight (Screw Cover)	2P3W	JPS2023H
		3P3W*	JPS2033F
		3P4W	JPS2034H
		4P4W*	JPS2044F

** Housing Ground Only (Style 1 Grounding), see **page H-347**.*

+ Shown with 20° angle adapter. Can be furnished with 45° angle at same price. When ordering, add suffix -45 to catalog number.

*** Special rated devices (not shown). Consult Customer Service for details.*

***Note**: To order Reverse Service, add a final suffix "R" to catalog number.*
Example: JRFA334HR — a receptacle housing with male interior.

❒ Polarization index (std. shown); consult Technical Services for more information.

◆ Flap Cover "F" noted. Screw Cover "S" also available.

▼ For Reversed Contacts, use "R" suffix to any catalog number.

Std. Cable Bushing

CURRENT RATING	BUSHING I.D.	MAX. AWG SIZE
30	⅞"	**#6** 7-strand or **#8** flexible
60	1 3⁄16"	**#4** 7-strand or flexible
100	1½"	**#10** 19-strand or **#1** flexible
200	2"	**4/0** 19-strand or flexible

*(See **page H-354** for other bushings.)*

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J-Line™ Interconnection Systems

Connectors





Receptacles





	PANEL MOUNT	BASIC RECEPTACLE	STANDARD SERIES*
◆ ❒ ▼	◆ ❒ ▼	◆ ❒ ▼	◆ ❒ ▼
JCF323H __	JRFX323H __	JRF323H __	JRFA323H __
JCF333F	JRFX333F	JRF333F	JRFA333F
JCF334H	JRFX334H	JRF334H	JRFA334H
JCF344F	JRFX344F	JRF344F	JRFA344F
JCS323H	JRSX323H	JRS323H	JRSA323H
JCS333F	JRSX333F	JRS333F	JRSA333F
JCS334H	JRSX334H	JRS334H	JRSA334H
JCS344F	JRSX344F	JRS344F	JRSA344F
JCF623H	JRFX623H	JRF623H	JRFA623H
JCF633F	JRFX633F	JRF633F	JRFA633F
JCF634H	JRFX634H	JRF634H	JRFA634H
JCF644F	JRFX644F	JRF644F	JRFA644F
JCS623H	JRSX623H	JRS623H	JRSA623H
JCS633F	JRSX633F	JRS633F	JRSA633F
JCS634H	JRSX634H	JRS634H	JRSA634H
JCS644F	JRSX644F	JRS644F	JRSA644F
JCF1023H	JRFX1023H	JRF1023H	JRFA1023H
JCF1033F	JRFX1033F	JRF1033F	JRFA1033F
JCF1034H	JRFX1034H	JRF1034H	JRFA1034H
JCF1044F	JRFX1044F	JRF1044F	JRFA1044F
JCS1023H	JRSX1023H	JRS1023H	JRSA1023H
JCS1033F	JRSX1033F	JRS1033F	JRSA1033F
JCS1034H	JRSX1034H	JRS1034H	JRSA1034H
JCS1044F	JRSX1044F	JRS1044F	JRSA1044F
JCF2023H	JRFX2023H	JRF2023H	JRFA2023H
JCF2033F	JRFX2033F	JRF2033F	JRFA2033F
JCF2034H	JRFX2034H	JRF2034H	JRFA2034H
JCF2044F	JRFX2044F	JRF2044F	JRFA2044F
JCS2023H	JRSX2023H	JRS2023H	JRSA2023H
JCS2033F	JRSX2033F	JRS2033F	JRSA2033F
JCS2034H	JRSX2034H	JRS2034H	JRSA2034H
JCS2044F	JRSX2044F	JRS2044F	JRSA2044F

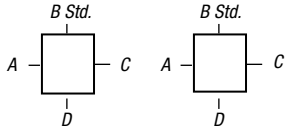
Conduit Size (Using JPA_ Series Conduit Adapters)

CURRENT RATING	STD. SIZE	MAX. SIZE
30	1"	1¼"
60	1½"	1½"
100	2"	2"
200	3"	3"

** Smaller NPT openings available on request.*

*Cable Conduit Adapters, see **page H-355**.*

Conduit Entry Location: Standard Series



30 and 60 Amp *100 and 200 Amp*

30–200/270 Amp (30–200A Load Breaking), Maximum 600VAC/250VDC
Load-Breaking Receptacles, Plugs, Connectors and Inlets

Receptacle Mounting Options — J-Line™ Construction

Progressive Assembly

MOUNTING STYLE	TO ORDER USE:	CURRENT RATING			
		30 AMP	60 AMP	100/150 AMP	200/270 AMP
Standard Series **JRFA/JRSA** ❒ 	 Receptacle +  Vertical or Square Mount Box +  Angle Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JAA3 (20°) or JAA3-45 (45°)	Basic Receptacle* + JB6-B150 1½" Std. Conduit Size + JAA6-AB6 (20°) or JAA6-45 (45°)	Basic Receptacle* + JB10-B200 2" Std. Conduit Size + JAA10 (20°) or JAA10-45 (45°)	Basic Receptacle* + JB20 3" Std. Conduit Size + JAA20 (20°) or JAA20-45 (45°)
Series **JRFR/JRSR** ❒ Straight 	 Receptacle +  Vertical Mount Box +  Straight Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JRA3	Basic Receptacle* + JB6-B150 1½" Std. Conduit Size + JRA6-AB6	Basic Receptacle* + JB10-B200 2" Std. Conduit Size + JRA10	Basic Receptacle* + JB20 2½" Std. Conduit Size + JRA20
Series **JRFB/JRSB** ❒ 	 Receptacle +  30° Angle Adapter	Basic Receptacle* + JAAB3	Basic Receptacle* + JAAB6	Basic Receptacle* + JAAB10	Basic Receptacle* + JAAB20
Series **JRFE/JRSE** ❒ 	 Receptacle +  Angle Enclosure	Basic Receptacle* + JE3 1" Std. Conduit Size	Basic Receptacle* + JE6 1½" Std. Conduit Size	Basic Receptacle* + JE10 2" Std. Conduit Size	N/A
Series **JRFH/JRSH** ❒ Horizontal 	 Receptacle +  Horizontal Mount Box +  Angle Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JAA10 (20°)	N/A	N/A	N/A

** Select appropriate receptacle by rating, configuration and voltage on* ***page H-349****.*

❒ ***Note****: JRXX 3rd letter denotes Flap (F) pr Screw (S) Cover.*
EX: JRSA — Screw Cover
JRFA — Flap Cover
JRF — Flap Cover, Basic Receptacle
JRS — Screw Cover, Basic Receptacle

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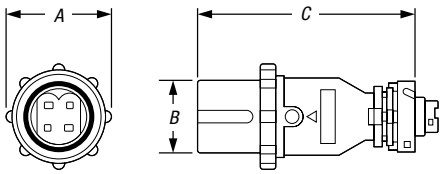
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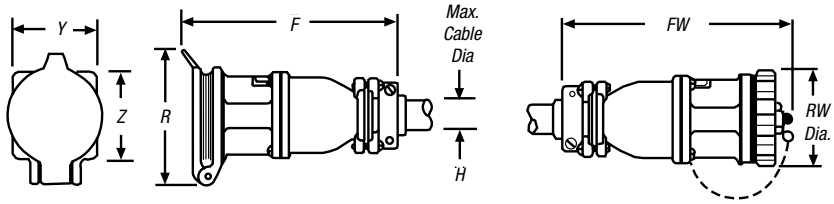
30–200/270 Amp (30–200A Load Breaking), Maximum 600VAC/250VDC
Load-Breaking Receptacles, Plugs, Connectors and Inlets

Plugs and Connectors

Watertight Male — Plug



Female — Connector

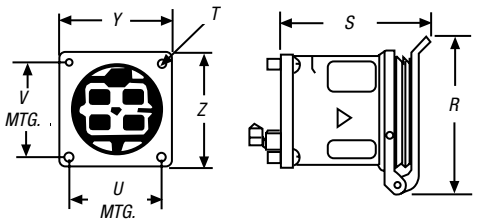


Weathertight *Watertight*

Dimensions for 2-, 3- or 4-Wire Weathertight and Watertight Units

AMP	A	B	C	WEATHERTIGHT F	WATERTIGHT FW	WEATHERTIGHT R	WATERTIGHT RW	Y	Z	H
30	3"	2 1/8"	7"	8 1/8"	8 3/8"	4 1/4"	3"	2 3/4"	2 3/4"	1
60	3 3/4"	2 9/16"	8 7/8"	10 3/4"	10 3/8"	5"	3 3/4"	3 1/2"	3 1/2"	3 3/8"
100/150	4 1/8"	2 13/16"	10 1/4"	10 1/2"	10 7/8"	5 1/4"	4 1/8"	4"	4"	1 7/8"
200/270	5 3/4"	3 15/16"	14 5/8"	14 7/8"	15 3/8"	7 1/8"	5 3/4"	5 5/8"	5 5/8"	2 1/2"

Basic Receptacles

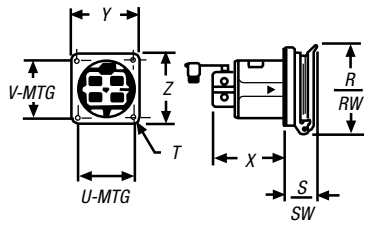


Dimensions for 2-, 3- or 4-Wire Units

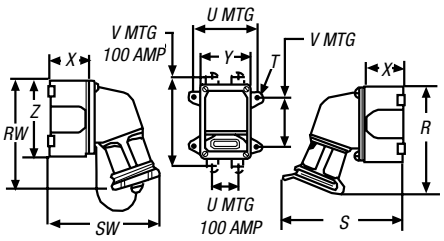
AMP	Z	Y	X	WEATHERTIGHT S	WATERTIGHT SW	WEATHERTIGHT R	WATERTIGHT RW	V	U	T
30	2 3/4"	2 3/4"	1	3 3/8"	3 3/4"	4 1/4"	3"	2 1/4"	2 1/4"	1/4"
60	3 1/2"	3 1/2"	1 1/4"	4 5/8"	4 3/4"	5"	3 3/4"	2 7/8"	2 7/8"	9/32"
100/150	4"	4"	1 1/4"	5"	5 1/4"	5 1/4"	4 1/8"	3 3/8"	3 3/8"	9/32"
200/270	5 5/8"	5 5/8"	1 3/4"	6 1/8"	6 3/8"	7 1/8"	5 3/4"	4 7/8"	4 7/8"	11/32"

J-Line™ Interconnection Systems

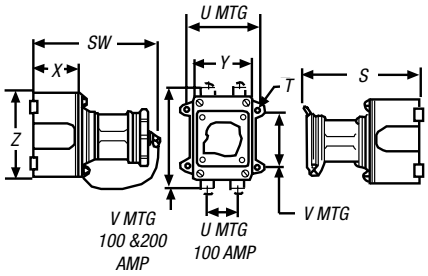
Panel Mount Series



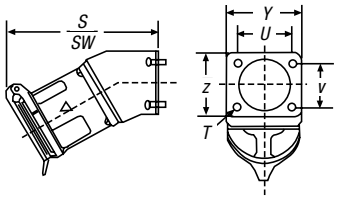
Standard Series JRFA/JRSA



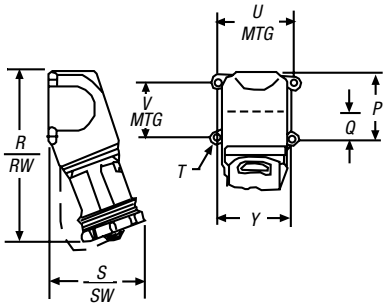
Series JRFR/JRSR



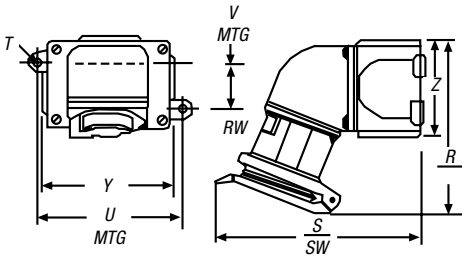
Series JRFB/JRSB



Series JRFE/JRSE



Series JRFH/HRSH



AMP	SERIES	Z	Y	X	WEATHERTIGHT S	WEATHERTIGHT SW	WEATHERTIGHT R*	WEATHERTIGHT RW†	Q	P	V	U	T	PANEL OPENING
30	Panel Mount	3½"	3½"	2⅜16"	1¾"	2"	4¼"	3"	—	—	2⅞"	2⅞"	¼"	2¾"
	Standard (20°)	4½"	3"	2⅛"	7"	6½"	6¾"	6¾"	—	—	2¹¹⁄16"	3¹¹⁄16"	¼"	—
	JRFR/JRSR	4½"	3"	2⅛"	6⅛"	6½"	—	—	—	—	2¹¹⁄16"	3¹¹⁄16"	¼"	—
	JRFB/JRSB	3⅛"	3⅛"	—	5¾"	5¾"	—	—	—	—	2¼"	2¼"	¼"	2¼"
	JRFE/JRSE	—	3½"	—	5¼"	4⅝"	7⅛"	7⅛"	1¼"	2⅜"	—	4	¼"	—
	JRFH/JRSH	3⅝16"	4½"	2⅛"	7"	6½"	6⅝"	6⅝"	—	—	2¹¹⁄16"	3¹¹⁄16"	¼"	—
60	Panel Mount	4"	4"	3⅜"	1¾"	2"	5"	3¾"	—	—	3⅜"	3⅜"	9⁄32"	3¼"
	Standard (20°)	5⅝"	4"	3"	9¼"	8⅜"	8⅞"	9"	—	—	3¹³⁄16"	4¹³⁄16"	11⁄32"	—
	JRFR/JRSR	5⅝"	4"	3"	8⅜"	8½"	—	—	—	—	3¹³⁄16"	4¹⁵⁄16"	11⁄32"	—
	JRFB/JRSB	3¾16"	3⅝"	—	7⅜"	7⅜"	—	—	—	—	2¾16"	2⅝"	9⁄32"	2½"
	JRFE/JRSE	—	4¼"	—	6⅜"	5¾"	9¾"	9½"	1⁹⁄16"	3¹¹⁄16"	3⅛"	4½"	9⁄32"	—
100/150	Panel Mount	4¼"	4¼"	4⅞16"	1¾"	2"	5¼"	4⅛"	—	—	3⅝"	3⅝"	9⁄32"	3½"
	Standard (20°)	5½"	5½"	3½"	10½"	9⅞"	9⅞"	9¾"	—	—	6¾"	4¼"	11⁄32"	—
	JRFR/JRSR	5½"	5½"	3½"	11¼"	11⅞"	—	—	—	—	6¾"	4¼"	11⁄32"	—
	JRFB/JRSB	3¾16"	3⅝"	—	8¼"	8¼"	—	—	—	—	2¾16"	2⅝"	9⁄32"	—
200/270	Panel Mount	6"	6"	5⅞"	2"	2½"	7⅛"	5¾"	—	—	5¼"	5¼"	11⁄32"	5⅛"
	Standard (20°)	8⅝16"	8⅝16"	6⅝16"	15⅞"	15⅝"	12¹¹⁄16"	12⁵⁄16"	—	—	9⅝"	7⅛"	⅜"	—
	JRFR/JRSR	8⅝16"	8⅝16"	6⅝16"	15"	15½"	—	—	—	—	9⅝"	7⅛"	⅜"	—
	JRFB/JRSB	4"	4"	—	12¼"	12¼"	—	—	—	—	2¾"	2¾"	11⁄32"	—

***Note**: U = horizontal mounting hole centers; V = vertical mounting hole centers.*

** = Flap Cap.*

† = Screen Cap.

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J-Line™ Interconnection Systems

Replacement Interiors for Receptacles, Connectors, Plugs and Male Inlets





	FEMALE INTERIORS: RECEPTACLES AND CONNECTORS				MALE INTERIORS: PLUG AND MALE INLETS			
POLES/WIRES	30 AMP	60 AMP	100/150 AMP	200/270 AMP	30 AMP	60 AMP	100/150 AMP	200/270 AMP
2P2W+	**JRU322**	**JRU622**	**JRU1022**	**JRU2022**	**JPU322**	**JPU622**	**JPU1022**	**JPU2022**
2P3W	**JRU323**	**JRU623**	**JRU1023**	**JRU2023**	**JPU323**	**JPU623**	**JPU1023**	**JPU2023**
3P3W*	**JRU333**	**JRU633**	**JRU1033**	**JRU2033**	**JPU333**	**JPU633**	**JPU1033**	**JPU2033**
3P4W	**JRU334**	**JRU634**	**JRU1034**	**JRU2034**	**JPU334**	**JPU634**	**JPU1034**	**JPU2034**
4P4W*	**JRU344**	**JRU644**	**JRU1044**	**JRU2044**	**JPU344**	**JPU644**	**JPU1044**	**JPU2044**

** Includes equipment grounding lug for attachment to enclosure.*

+ For replacement only — includes equipment grounding lug.

Material — Molded composition with silvered copper contacts.

Cup Caps for Watertight (Series JPS) Plugs — Standard or Reverse Service

CAT. NO.	AMPERES
F30717A	30
F30718A	60
F30814A	100
F30815A	200



Cup Caps are used:

** Where portable equipment is on a standby basis and plugs are not in use.*

** To effectively protect insulation and contacts from excessive moisture, dirt, dust and corrosion.*

Material — Cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated with steel braid cable attached.

Cable Bushings for J-Line™ Plugs and Connectors

Boxed catalog numbers are standard bushing sizes. To order non-standard bushing, specify as follows: example JPS634H/JG65.



Standard Cable Bushings — Size No. 3, 6, 10 and 20



Oversize Cable Bushings — *Size No. 3, 6, 10 and 20*

HOLE DIAMETER FOR CABLE	SIZE 3 30 AMP	SIZE 6 60 AMP	SIZE 10 100/150 AMP	SIZE 20 200/270 AMP
.375"	**JG31**			
.500"	**JG32**			
.563"	**JG325**			
.594"	**JG32B**			
.625"	**JG33**	**JG63**		
.750"	**JG34**	**JG64**	**JG104**	
.781"	**JG341**			
.875"	**JG35**	**JG65**	**JG105**	
.938"	**JG355**			
1.000"	**JG36***	**JG66**	**JG106**	**JG206**
1.125"	**JG361***			
1.188"		**JG67**	**JG107**	**JG207**
1.313"			**JG108**	**JG208**
1.375"		**JG69***		
1.500"		**JG610***	**JG1010**	**JG2010**
1.688"			**JG1011**	**JG2011**
1.813"				**JG2012**
1.875"			**JG1013***	
2.000"				**JG2014**
2.125"				**JG2015**
2.500"				**JG2016***

***Notes**:*

Boxed numbers denote standard bushing size supplied.

When ordering, select bushing size slightly larger than your cable O.D. for best fit.

Material — Neoprene.

Identification letter inside hole.

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Adapters for Conduit and Fittings for use on J-Line™ Plugs and Connectors

Adapters are tapped NPT standard pipe thread to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.



JPA62 Conduit Adapter (replaces cable gland assembly)



JPA106 Conduit Adapter

Plug or Connector Sizes

30 AMP CAT. NO.	TAPPED HOLE SIZE NPT	60 AMP CAT. NO.	TAPPED HOLE SIZE NPT	100/150 AMP CAT. NO.	TAPPED HOLE SIZE NPT	200/270 AMP CAT. NO.	TAPPED HOLE SIZE NPT
JPA31	½"	**JPA62**	¾"	**JPA104**	1¼"	**JPA205**	1½"
JPA32	¾"	**JPA63**	1"	**JPA105**	1½"	**JPA206**	2"
JPA33	1"	**JPA64**	1¼"*	**JPA106**	2"	**JPA207**	2½"

** JPA65 @ 1½" also available.*

***Notes**:*

Material — Cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated.

Furnished complete with gasket and screws.

To specify standard plugs or connectors equipped with one of the above adapters, add the catalog number of the adapter selected to the catalog number of the plug or connector.

Complete list price is the list price of the device plus list price of the adapter.

Example: Cat. No. JPS634H with adapter tapped 1" would be Cat. No. JPS634H/JPA63.

Covers

	CAT. NO.	DESCRIPTION	AMPERAGE
For Connectors and Receptacles			
	**JFC3**	Flap Cover Assembly (Weathertight)	30
	JFC6		60
	JFC10		100/150
	JFC20		200/270
	**JSC3**	Screw Cap and Braid Cable Assembly (Watertight)	30
	JSC6		60
	JSC10		100/150
	JSC20		200/270
For Plugs			
	**JSN3**	Plug Collar	30
	JSN6		60
	JSN10		100/150
	JSN20		200/270

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DuraGard® Waterproof Connections

Russellstoll® Line Selections for Outdoor (and Indoor) Applications

DuraGard® to 3P4W 20 through 60A	The toughest design and construction in thermoplastic safety, durability and performance in UL 94-V0 flame-rated DuraV® material. With DurOring™ sealed pins, sleeves and interiors are watertight even unmated. A 30A and 50A Circuit Breaker Interlock line in DuraV® are the best choices for standard voltage polarization options through 600VAC (Interlock to 480VAC).
Interlocked Outlets 20 through 60A	USCG Accepted 20–50A convenience Interlocked Receptacles accept DuraGard® plugs. Built from aluminum or brass for rough-service installations, in Switched or Circuit Breaker formats, their extremely heavy-duty designs provide maximum durability.
IEC (IP67) to 4P5W 20 to 100A	Thermoplastic international standard IEC 309-2 or CEE-17 connector usage is growing especially in OEM, export and standard performance applications. The IP67 style is watertight when mated and directly interchangeable with other manufacturers. International designations shadow U.S. amperage ratings: 20/(16), 30/(32), 60/(63) and 100/(125) Amps. IP67 devices have screw collars or flap/screw covers, with catalog number "W" suffixes.



Usage

- Any application where electrical connections need protection from water and/or dust entrance to the contacts or the wiring compartment
- Cable-to-connector sealing and device locking designs are critical

Typical Application Groups

Marine
- Lighting Connectors
- Shore-to-Ship Power
- Low-Power Welding
- Power Distribution Panels
- Shipboard Power Outlets
- Barge Power Connection

Construction and Agricultural
- Generator Set Panels
- Portable Tools and Equipment
- Irrigation Systems Panels
- Portable Lighting and Equipment

Food Processing, Brewery/ Beverage, Pulp and Paper, Pharmaceuticals, Portable Building Power
- Welding Outlets
- Motor Power Connections
- Lighting Systems
- Machinery Interconnections
- Process Control Power Systems

OEMs
- Export Machinery
- Critical Power Connections and Welding Systems
- Transportable Equipment

DuraGard® Waterproof Connections

Washdown Duty, Chemical, Outdoor, Industrial and Marine Use Non-Metallic Plugs, Connectors, Receptacles and Inlets — 20, 30, 50 and 60 Amp, Maximum 600VAC/250VDC

The Next Generation: DuraGard® Waterproof Connectors

Severe environments and high-pressure washdown duty applications require durable, waterproof and safe connections. Russellstoll® takes design reliability to new heights with Safety Grade™ standards for truly waterproof connectors. Many watertight specifications cover mated connections only. DuraGard® connectors are designed to be watertight mated or unmated, thus offering the ultimate waterproof connection. DuraGard® connectors are also UL94-V0 flame rated for safety and utilize a durable, efficient pin and sleeve contact design that is voltage polarized to meet NEC® 210-7 and OSHA standards. DuraGard®... designed for maximum safety, durability and performance.



DuraGard® Features Make the Performance Difference.

Not just "watertight"; Waterproof for Washdown Duty: DurORing™ Sealing

- Specifically designed for wet environments with our unique DurORing™ sealing system. Unit is watertight mated or unmated
- Eliminates need for costly "weather boots" or "adapters"
- Compact size
- "Lockout Ready" plugs have padlock access hole in front (30A/50A)

Durable, Tough and Flame Safety Rated Housings

- DuraV® housing material specially selected for hot or cold washdown duty
- Flame safe UL94-V0 rated housings
- Superior performance in corrosive environments
- High-visibility yellow housings

Safe and Reliable Power Connections: Pin and Sleeve, Voltage Polarized

- Long life: round, self-cleaning, constant pressure pin and sleeve contacts of solid CDA 360 brass for long, reliable electrical life
- More power, operates cooler: large circular electrical contact area enables more current flow with lower temperature rise
- Ground pin keyed for voltage polarization (O-ring seal)

Easy to Wire

- No twist-off "Locking Plugs": integral threaded screw collars and compression-type bushings make wiring a snap
- Fast assembly and wiring: "Drop-In" rear-loaded interiors use no assembly screws versus 3–5 or more with other connectors, 30A/50A/60A connectors use unique E-Z Tite™ external gland lock screw



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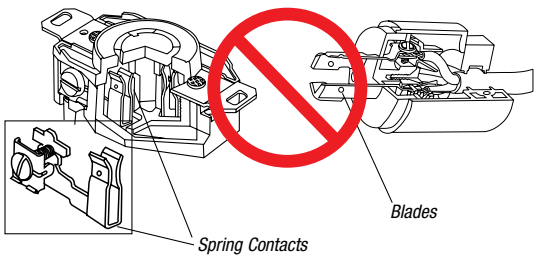
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Washdown Duty, Chemical, Outdoor, Industrial and Marine Use Non-Metallic Plugs, Connectors Receptacles and Inlets — 20, 30, 50 and 60 Amp, Maximum 600VAC/250VDC

DuraGard® Pin and Sleeve Connections

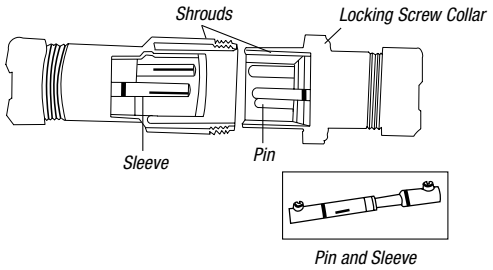
Pin and Sleeve contact devices consist of round male pins that are inserted into tubular female sleeves. Current flows through a large pin-to-sleeve circular contact area. Because current is not restricted through point contact only, higher current flow and cooler operating temperatures are achieved in a compact connection. Wiping action during insertion or withdrawal provides positive self cleaning. Shrouded pins and sleeves are protected from physical damage or casual access and aid in polarization features of the line. The shroud and screw collar completely lock plugs to receptacles or connectors for a reliable connection. Step on the cord, kick or drop a plug — your connection will remain tight. **Pin and Sleeve devices are the safety standard for high-current applications worldwide**.

Bladed Plug and Receptacle



Spring blade contact designs offer point contact only, with minimal mechanical support in receptacles. Higher heat is generated in use as contacts loosen with age and dirt accumulation, resulting in failures. Exposed blade contacts can easily be damaged. Contacts are both the electrical and mechanical locking method.

Pin and Sleeve Connector and Plug



Pin and Sleeve design enables higher current flow at cooler temperatures due to large circular contact area. Sleeves act as retainers for the pins, making a reliable connection. Shrouded pins and sleeves are protected from damage and inadvertent access. Locking housing screw collars provide for a reliable, long-lasting connection with electrical contacts separate.

DuraGard® Waterproof Connections



The Water Spray Test

1000-PSI water spray was directly applied at the face of DuraGard® receptacles. No damage occurred, and no water penetrated the housing or cord seal. DuraGard® plugs, connectors and receptacles are designed to withstand water spray test at 1000 PSI. No extra boots or adapters required.



DuraGard®: Designed for the Toughest Washdown Applications



Pulp and Paper



Food Processing



Beverage and Bottling



Pharmaceutical Manufacturing

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DuraGard® Waterproof Connections

Washdown Duty, Chemical, Outdoor, Industrial and Marine Use Non-Metallic Plugs, Connectors Receptacles and Inlets — 20, 30, 50 and 60 Amp, Maximum 600VAC/250VDC

The Ultimate in Waterproof Connections

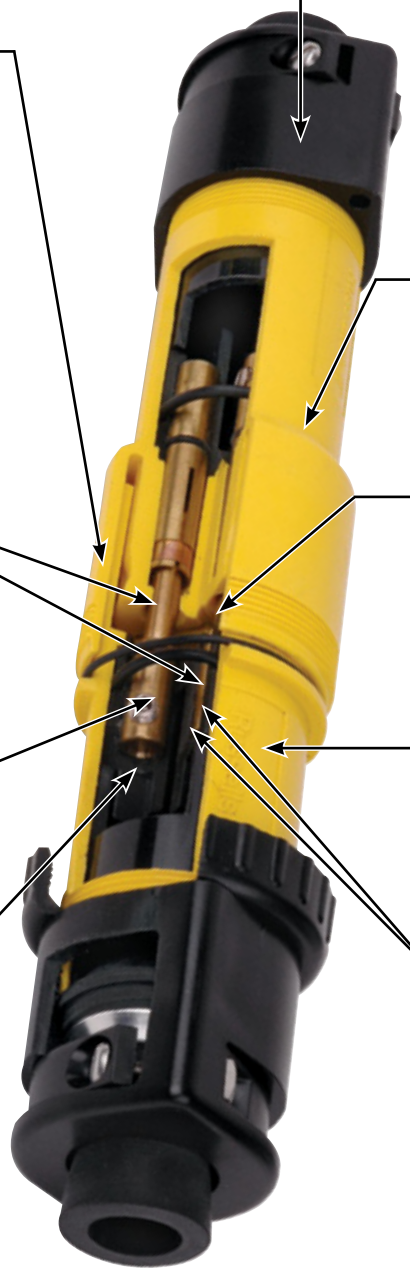
20, 30, 50 and 60 Amp, 600VAC
20 Amp, 250VDC

Lockout Capable (30/50/60A Plugs):
- Access hole (not seen) for padlock hasp
- Interlock engagement CDA 360 solid brass pin and sleeve contacts

High Reliability, High-Performance Connections:
- CDA 360 solid brass pin and sleeve contacts

Long-Lasting Self-Cleaning Connections:
- Full round pin and sleeve contacts

Fast, Easy, Rear-Load Wiring and Assembly:
- Drop-in assembly interior
- Sleeve and cable bushing
- Easy-in pressure screw wiring terminations



(50-Amp Plug and Connector Shown)

Waterproof Cable Sealing:
- Neoprene compression bushing cable locking system
- Locking bushing nut with external cable clamps
- Bushing sizes available for any cable size

Waterproof Locking Connections:
- Locking screw collars with O-ring gaskets
- Housing mechanical support and pin and sleeve connection

Safety Specified Voltage Connections:
- Safety ground makes first breaks last
- Voltage polarized to meet NEC® 210-7 and OSHA standards

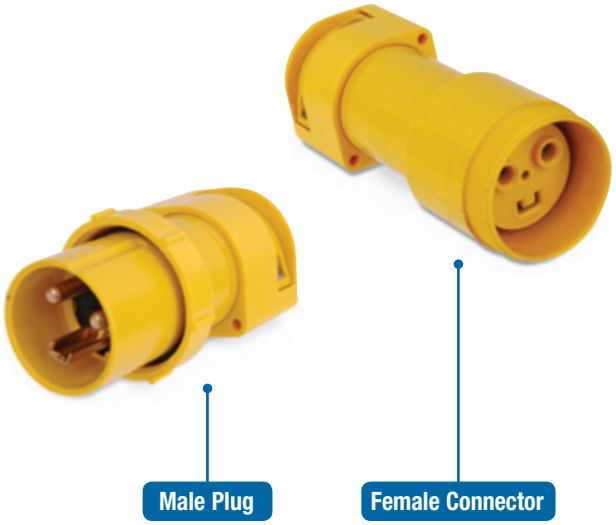
Durable and UL94-V0 Flame Rated Housings:
- DuraV® high-impact body and collars
- Thermoset interiors
- Deadfront construction

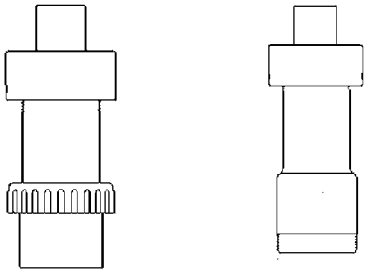
Dry Wiring Compartments:
- DurOring™ Sealing System for each pin and sleeve and interior assembly

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DuraGard® Waterproof Connections

20 Amp Standard Service





Device Ratings and Polarizations

Maximum 600VAC or 250VDC

POLE	WIRE	SAFETY POLARIZATION (RECEPTACLE)	VOLTAGE	❑ CAT. NO.	❑ CAT. NO.
2	3		125VAC	9P23U1_	9C23U1_
			250VAC	9P23U2	9C23U2
			277VAC	9P23U3	9C23U3
			480VAC	9P23U4	9C23U4
			600VAC	9P23U5	9C23U5
			through 600VAC/250VDC	9P23U0	9C23U0
3	4		125/250VAC	9P24U1	9C24U1
			3Ø 250VAC	9P24U2	9C24U2
			3Ø 480VAC	9P24U4	9C24U4
			3Ø 600VAC	9P24U5	9C24U5
			through 600VAC/250VDC	9P24U0	9C24U0

❑ *Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.*

♦ *"W" suffix is watertight; "F" suffix for splash-proof spring flap cover.*

** Consult Technical Services.*

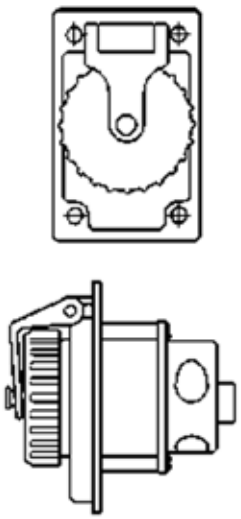
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DuraGard® Waterproof Connections





Female Receptacle

STANDARD BUSHING I.D.: PLUG/CONN.*	❑ CAT. NO.
Standard .625"; or optional size, see **page H-370**	**9R23U1W**
	9R23U2W
	9R23U3W
	9R23U4W
	9R23U5W
	9R23U0W
Standard .625"; or optional size, see **page H-370**	**9R24U1W**
	9R24U2W
	9R24U4W
	9R24U5W
	9R24U0W

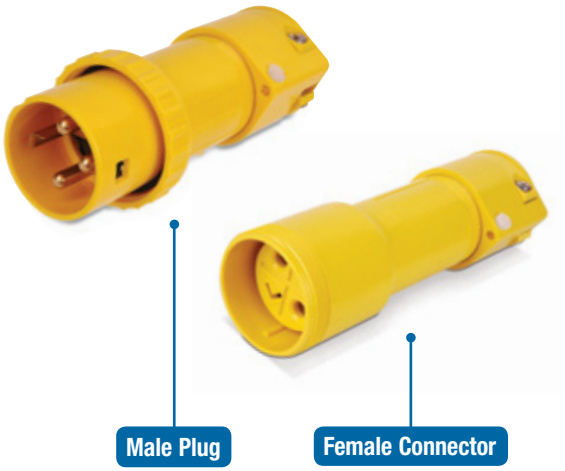
❑ *Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.*

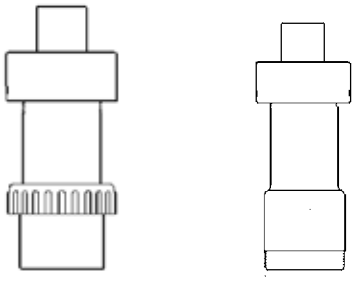
♦ *"W" suffix is watertight; "F" suffix for splash-proof spring flap cover.*

** Consult Technical Services.*

DuraGard® Waterproof Connections

30 Amp Standard Service





Device Ratings and Polarizations

Maximum 600VAC or 250VDC

POLE	WIRE	SAFETY POLARIZATION (RECEPTACLE)	VOLTAGE	❑ CAT. NO.	❑ CAT. NO.
2	3		125VAC	9P33U1	9C33U1
			250VAC	9P33U2	9C33U2
			277VAC	9P33U3	9C33U3
			480VAC	9P33U4	9C33U4
			600VAC	9P33U5	9C33U5
			through 600VAC/250VDC	9P33U0	9C33U0
3	4		125/250VAC	9P34U1	9C34U1
			3Ø 250VAC	9P34U2	9C34U2
			3Ø 480VAC	9P34U4	9C34U4
			3Ø 600VAC	9P34U5	9C34U5
			through 600VAC/250VDC	9P34U0	9C34U0

❑ *Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.*

♦ *"W" suffix indicates watertight receptacle;*
"F" suffix indicates splash-proof spring flap cover included.

** Consult Technical Services.*

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30 Amp Reverse Service



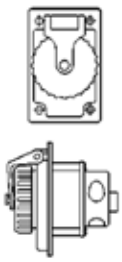
Female Receptacle

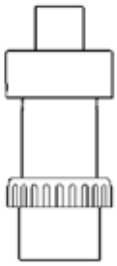


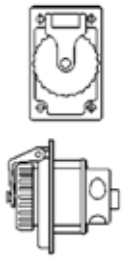
Female Plug



Male Receptacle







STANDARD BUSHING I.D.: PLUG/CONN.*	♦ CAT. NO.	❑ CAT. NO.	♦ CAT. NO.
Standard .700"; for optional size, see **page H-370**	9R33U1W	9F33U1_	9B33U1F
	9R33U2W	9F33U2	9B33U2F
	9R33U3W	9F33U3	9B33U3F
	9R33U4W	9F33U4	9B33U4F
	9R33U5W	9F33U5	9B33U5F
	9R33U0W	9F33UØ	9B33UØF
Standard .750"; for optional size, see **page H-370**	9R34U1W	9F34U1	9B34U1F
	9R34U2W	9F34U2	9B34U2F
	9R34U4W	9F34U4	9B34U4F
	9R34U5W	9F34U5	9B34U5F
	9R34U0W	9F34UØ	9B34UØF

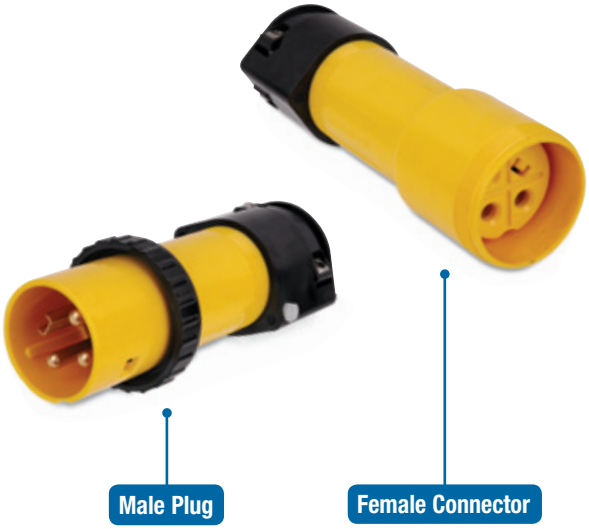
❑ *Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.*

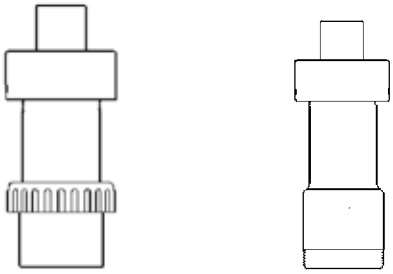
♦ *"W" suffix indicates watertight receptacle;*
"F" suffix indicates splash-proof spring flap cover included.

** Consult Technical Services.*

DuraGard® Waterproof Connections

50 Amp
Standard Service





Device Ratings and Polarizations

Maximum 600VAC or 250VDC

POLE	WIRE	SAFETY POLARIZATION (RECEPTACLE)	VOLTAGE	❑ CAT. NO.	❑ CAT. NO.
2	3		125VAC	9P53U1	9C53U1
			250VAC	9P53U2	9C53U2
			277VAC	9P53U3	9C53U3
			480VAC	9P53U4	9C53U4
			600VAC	9P53U5	9C53U5
			through 600VAC/250VDC	9P53U0	9C53U0
3	4		125/250VAC	9P54U1	9C54U1
			3Ø 250VAC	9P54U2	9C54U2
			3Ø 480VAC	9P54U4	9C54U4
			3Ø 600VAC	9P54U5	9C54U5
			through 600VAC/250VDC	9P54U0	9C54U0

❑*Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.*

♦ *"W" suffix is watertight; "F" suffix for splash-proof spring flap cover.*

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50 Amp Reverse Service



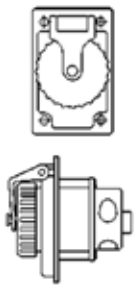
Female Receptacle

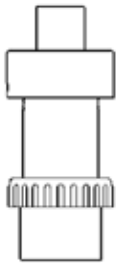


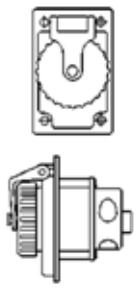
Female Plug



Male Receptacle







STANDARD BUSHING I.D.: PLUG/CONN.*	♦ CAT. NO.	❑ CAT. NO.	♦ CAT. NO.
Standard .925"; for optional size, see **page H-370**	9R53U1W	9F53U1	9B53U1F
	9R53U2W	9F53U2	9B53U2F
	9R53U3W	9F53U3	9B53U3F
	9R53U4W	9F53U4	9B53U4F
	9R53U5W	9F53U5	9B53U5F
	9R53U0W	9F53UØ	9B53UØF
Standard .925"; For optional size, see **page H-370**	9R54U1W	9F54U1	9B54U1F
	9R54U2W	9F54U2	9B54U2F
	9R54U4W	9F54U4	9B54U4F
	9R54U5W	9F54U5	9B54U5F
	9R54U0W	9F54UØ	9B54UØF

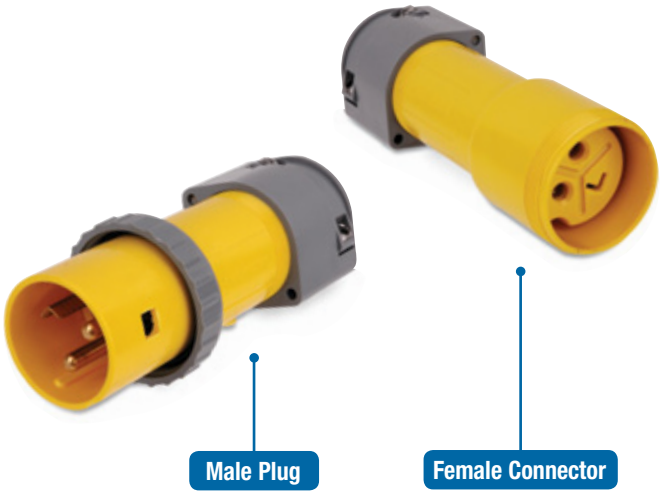
❑ *Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.*

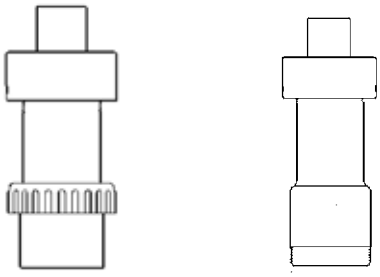
♦ *"W" suffix is watertight; "F" suffix for splash-proof spring flap cover.*

** Consult Technical Services.*

DuraGard® Waterproof Connections

60 Amp Standard Service





Device Ratings and Polarizations

Maximum 600VAC or 250VDC

POLE	WIRE	SAFETY POLARIZATION (RECEPTACLE)	VOLTAGE	❑ CAT. NO.	❑ CAT. NO.
2	3		125VAC	9P63U1	9C63U1
			250VAC	9P63U2	9C63U2
3	4		125/250VAC	9P64U1	9C64U1
			3Ø 250VAC	9P64U2	9C64U2

❑ *Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.*

♦ *"W" suffix is watertight; "F" suffix for splash-proof spring flap cover.*

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60 Amp Reverse Service



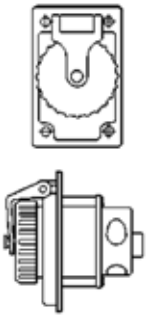
Female Receptacle

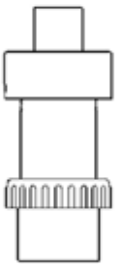


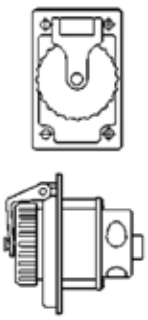
Female Plug



Male Receptacle







STANDARD BUSHING I.D.: PLUG/CONN.*	♦ CAT. NO.	❑ CAT. NO.	♦ CAT. NO.
Standard 1.000"; for optional size, see **page H-370**	**9R63U1**	**9F63U1**	**9B63U1**
	9R63U2	**9F63U2**	**9B63U2**
Standard 1.000"; for optional size, see **page H-370**	**9R64U1**	**9F64U1**	**9B64U1**
	9R64U2	**9F64U2**	**9B64U2**

❑ *Add suffix — / xxxx for bushing I.D. (**page H-370**) or conduit adapter assembled.*

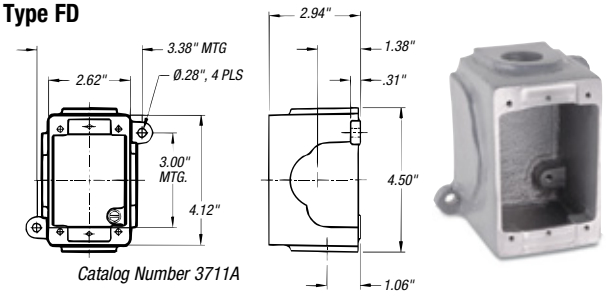
♦ *"W" suffix is watertight; "F" suffix for splash-proof spring flap cover.*

* *Consult Technical Services.*

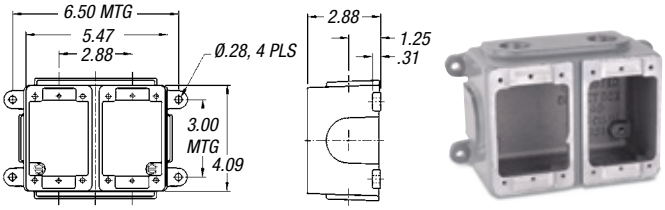
DuraGard® Waterproof Connections

Conduit Boxes (For Surface Mounting)

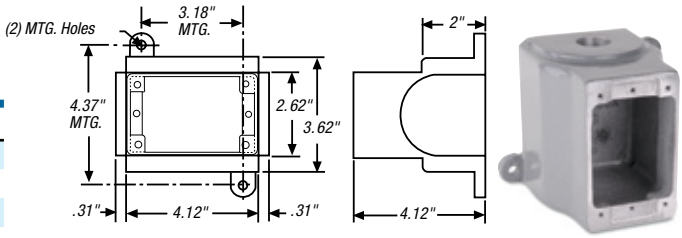
Type FD



Catalog Number 3711A



Catalog Number 3712A

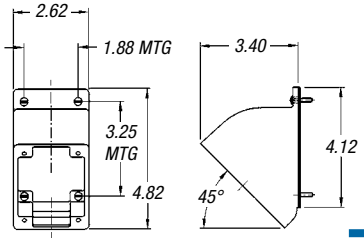


Catalog Number 3781A

	CAST ALUMINUM	CAST BRASS	USE WITH
Single	3711A	3731-RS	20A
Double	3712A	3732-RS	30A
DSFD	3781A	—	50A

Note: *¾" NPT Hole Std. Additional accessories are available. Please consult your Thomas & Betts representative.*

45° Angle Adapter



Catalog Number 3678A



CAST ALUMINUM	CAST BRASS
3678A	3678B

Cable Bushings



20-Amp Cable Bushing

MAX. CABLE O.D. (INCHES)	20 AMP	30 AND 50 AMP
.375	C16984A	—
.437	C16984B	—
.500	C16984C	—
.545	—	2000-11
.562	C16984D	—
.606	B16506	—
.620	—	2000-03
.625	B16524	—
.700	—	2000-04
.750	—	2000-01
.800	—	2000-06
.870	—	2000-02
.925	—	2000-12
1.000	—	2000-05

(Minimum limit 85% of O.D. size for sealing.)
Material — Oil-resistant Neoprene.
State catalog number followed by slash (/) and bushing code; example: 9P33U1/1000.

Conduit Adapter Kits (Plugs or Connectors)



SIZE	20 AMP	30 AMP	50 AMP	60 AMP
½"	9X2C50	9X3C50	—	—
¾"	9X2C75	9X3C75	9X5C75	9X6C75
1"	—	9X3C10	9X5C10	9X6C10

Replacement Caps



	20 AMP	30 AMP	50 AMP	60 AMP
Screw Cap (Connector)	9X2PSC	9X3PSC	9X5PSC	9X6PSC
Cup Cap (Plug)	—	F26874C	F26874C	F26874C
Screw Cap (Receptacle)	—	7X3RCW	7X5RCW	7X6RCW
Flap Cap (Receptacle)	—	7X3RCF	7X5RCF	7X6RCF

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DuraGard® Waterproof Connections

Replacement Interiors





AMPS	VOLTAGE POLARIZATION	CAT. NO. MALE INTERIOR ASSEMBLY	CAT. NO. FEMALE INTERIOR ASSEMBLY
2P3W 20A	125VAC	9XM23U1	9XF23U1
	250VAC	9XM23U2	9XF23U2
	277VAC	9XM23U3	9XF23U3
	480VAC	9XM23U4	9XF23U4
	600VAC	9XM23U5	9XF23U5
	through 600VAC/250VDC	9XM23U0	9XF23U0
2P3W 30A	125VAC	9XM33U1	9XF33U1
	250VAC	9XM33U2	9XF33U2
	277VAC	9XM33U3	9XF33U3
	480VAC	9XM33U4	9XF33U4
	600VAC	9XM33U5	9XF33U5
	through 600VAC/250VDC	9XM33U0	9XF33U0
2P3W 50A	125VAC	9XM53U1	9XF53U1
	250VAC	9XM53U2	9XF53U2
	480VAC	9XM53U4	9XF53U4
	600VAC	9XM53U5	9XF53U5
	through 600VAC/250VDC	9XM53U0	9XF53U0
3P4W 20A	125/250VAC	9XM24U1	9XF24U1
	3Ø 250VAC	9XM24U2	9XF24U2
	3Ø 480VAC	9XM24U4	9XF24U4
	3Ø 600VAC	9XM24U5	9XF24U5
	through 600VAC/250VDC	9XM24U0	9XF24U0
3P4W 30A	125/250VAC	9XM34U1	9XF34U1
	3Ø 250VAC	9XM34U2	9XF34U2
	3Ø 480VAC	9XM34U4	9XF34U4
	3Ø 600VAC	9XM34U5	9XF34U5
	through 600VAC/250VDC	9XM34U0	9XF34U0
3P4W 50A	125/250VAC	9XM54U1	9XF54U1
	3Ø 250VAC	9XM54U2	9XF54U2
	3Ø 480VAC	9XM54U4	9XF54U4
	3Ø 600VAC	9XM54U5	9XF54U5
	through 600VAC/250VDC	9XM54U0	9XF54U0
2P3W 60A	125VAC	9XM63U1	9XF63U1
	250VAC	9XM63U2	9XF63U2
3P4W 60A	125/250VAC	9XM64U1	9XF64U1
	3Ø 250VAC	9XM64U2	9XF64U2

Safety Interlocks

Circuit Breaker Interlocked Outlet:

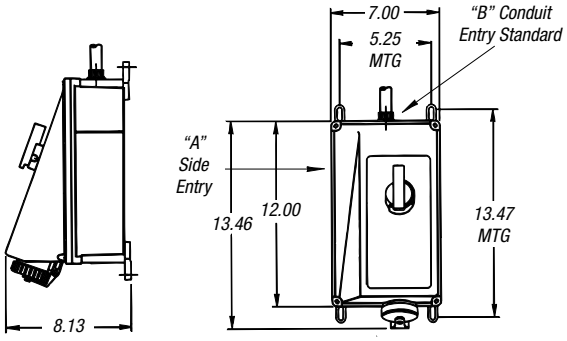
- 30A and 50A ranges and polarizations to 480VAC
- 22kA interrupt capacity breaker
- Easy handle reset after trip
- Auxiliary switch or other options

User Friendly — Flexible Mounting:

- Variable footprint mounting tabs
- Compact size fits 8" standard I-beam webs
- Conduit entry from top, bottom or side (¾", 1" or 1¼" NPT)
- Large red handle with lockout access

Flame Rated and DuraV® Tough Housing:

- UL 94-V0 housing and interior with stainless steel components
- High-impact thermoplastic housing
- NEMA 4X construction





*The **only** non-metallic, 22kAIC, 30A and 50A series circuit breaker interlocked receptacle available today!*

AMPS	3P4W EXAMPLES SHOWN: VOLTAGE POLARIZATION	CAT. NO. SAFETY INTERLOCK WITH CIRCUIT BREAKER ♦ [1]	CIRCUIT BREAKER TRIP RATING	MATING PLUG	ROTARY CONTROLLER	REPLACEMENT INTERIOR
3P4W 30A	125/250VAC	9MT34U1W30B	30A	9P34U1	9MI34U1WNAB	9XL34U1
	3Ø 250VAC	9MT34U2W30B	30A	9P34U2	9MI34U2WNAB	9XL34U2
	3Ø 480VAC	9MT34U4W30B	30A	9P34U4	9MI34U4WNAB	9XL34U4
	3Ø 600VAC	9MT34U5W30B	30A	9P34U5	9MI34U5WNAB	9XL34U5
	through 600VAC/3P4W	9MT34U0W30B	30A	9P34U0	9MI34U0WNAB	9XL34U0
3P4W 50A	125/250VAC	9MT54U1W50B	50A	9P54U1	9MI54U1WNAB	9XL54U1
	3Ø 250VAC	9MT54U2W50B	50A	9P54U2	9MI54U2WNAB	9XL54U2
	3Ø 480VAC	9MT54U4W50B	50A	9P54U4	9MI54U4WNAB	9XL54U4
	3Ø 600VAC	9MT54U5W50B	50A	9P54U5	9MI54U5WNAB	9XL54U5
	through 600VAC/3P4W	9MT54U0W50B	50A	9P54U0	9MI54U0WNAB	9XL54U0

***Note**: 1. Change suffix for alternate trip ratings. Example: 9MT54U2W30B — 50-amp, 3P4W, safety interlock with 30-amp circuit breaker, conduit top entry.*

♦ Change "W" to "F" for flap cap access. Example: 9MI34U2F30B — 30-amp, 3P4W, safety interlock with rotary controller and flap cap.

(Minimum limit 85% of O.D. size for sealing.)

Foot and Hardware Replacement Kit: Cat. No. 9XLMF (non-metallic) and Cat. No. 9XLMF-SS (stainless steel).

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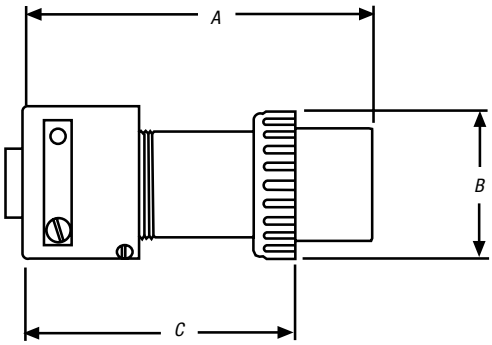
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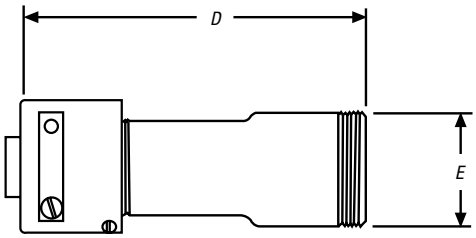
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DuraGard® Waterproof Connections

Plugs and Female Plugs (30A/50A only)



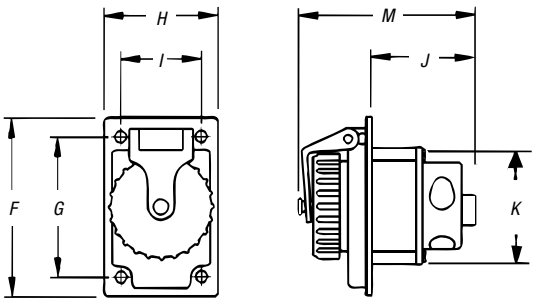
Connectors



AMPS		A*	B	C*	D	E	MAX AWG	TERMINAL Ø IN./MM
20A	**Inches**	**3.87**	**2.16**	**2.75**	**4.75**	**1.88**	12	.140/.0055
	mm	98.3	54.9	69.9	120.7	47.8		
30A	**Inches**	**5.385**	**2.38**	**4.16**	**6.25**	**2.13**	8	.235/.0092
	mm	136.6	60.5	105.7	158.8	54.1		
50A	**Inches**	**5.75**	**2.38**	**4.16**	**6.25**	**2.13**	6	.235/.0092
	mm	146.1	60.5	105.7	158.8	54.1		
60A	**Inches**	**5.75**	**2.38**	**4.16**	**6.25**	**2.13**	6	.235/.0092
	mm	146.1	60.5	105.7	158.8	54.1		

** Dimensions will vary slightly with assembly.*

Receptacles and Male Receptacles (Inlets — 30A/50A only)



Screw cover shown. Flap cover also available; no dimensional changes.

AMPS		F	G	H	I	J	K	M	MAX. AWG	TERMINAL Ø IN/MM
20A	**Inches**	**4.14**	**3.25**	**2.66**	**1.88**	**1.49**	**2.26**	**3.17**	12	.140/.0055
	mm	105.2	82.6	67.6	47.8	37.8	57.4	80.5		
30A	**Inches**	**4.14**	**3.25**	**2.66**	**1.88**	**2.44**	**2.71**	**4.12**	8	.235/.0092
	mm	105.2	82.6	67.6	47.8	62.0	68.8	104.6		
50A	**Inches**	**4.14**	**3.25**	**2.66**	**1.88**	**2.44**	**2.71**	**4.12**	6	.235/.0092
	mm	105.2	82.6	67.6	47.8	62.0	68.8	104.6		
60A	**Inches**	**4.14**	**3.25**	**2.66**	**1.88**	**2.44**	**2.71**	**4.12**	6	.235/.0092
	mm	105.2	82.6	67.6	47.8	62.0	68.8	104.6		

DuraGard® Waterproof Connections

Plugs, Connectors and Receptacles



Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	6000 volts RMS (minimum creepage and minimum clearance per UL 840)
Circuit Interrupting/Load Breaking	UL Listed and CSA Certified for circuit interrupting at full rated current
Temperature Rise	Max. 30° C/86° F temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pf

Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords. 10 standard diameters from .405" to 1.00", custom sizes to spec
Terminal Identification	In accordance with UL 1682
Cable Pull Out Force	In accordance with UL 1682
Product Identification	Identification label and molded in name
Lockout/Tagout	Lockout/tagout hole on plug complies with OSHA Reg. 29 CFR 1910.147

Performance — Environmental

Moisture Resistance	Per UL 1682 Paragraph 49 Watertight/ flap screw cover on receptacle, O-rings on all pins and sleeves, interiors and plug shell. Watertight even when not engaged
Flammability	V0 or better per UL 94
Operating Temperatures	Maximum continuous: 95° C/203° F Minimum: -40° C/-40° F without impact
Chemicals	Resists standard industrial hydrocarbons, acids, bases and solvents

Material

Contact Carrier Interior	Molded arc-resistant UL 94-V0 phenolic thermoset
Housing, Gland Nuts, Screw Collar Rings	DuraV® UL 94-V0, high-impact Thermoplastic
O-Rings	Buna-N (Nitrile)
Contacts: Pins and Sleeves	Brass CDA 360
Hinge Pins (Receptacle)	Stainless steel
Terminals	Brass CDA 360
Terminal Screws, Flap Springs, Assembly Screws, Nuts, Hardware	Stainless steel
Gland Friction Washer	20 amp — Nylon 30, 50 and 60 amp — Aluminum
Cable Clamp Bushing	Neoprene

Approvals*

630/E47956 *LL14096*

** TUV & PSE listed product also available; contact Technical Services.*

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Safety Interlocks

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	480 volts RMS (minimum creepage distance and minimum clearance per UL 840) (using circuit breaker)
Circuit Interrupting/Load Breaking	UL Listed and CSA Certified for circuit interrupting at full rated current
Temperature Rise	Max. 30° C/86° F temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pf
Shrouded Contacts	Complies with California Code Title 8, Art. 51, S2510.7(b) for devices exceeding 300VAC

Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Wiring Accommodation	Conduit entries at top, side and bottom, .750" NPT top entry standard
Terminal Identification	In accordance with UL 1682
Plug Pull Out Force	In accordance with UL 1682
Product Identification	Identification label
Lockout/Tagout	Lockout/tagout access on switch complies with OSHA Reg. 29 CFR 1910.147

Performance — Environmental

Moisture Resistance	Per UL 1682 Paragraph 49. Watertight/ flap screw cover on receptacle, O-rings on all pins and sleeves, interiors and plug shell. Watertight even when not engaged (screw cover closed/locked)
Flammability	V0 or better per UL 94
Operating Temperatures	Maximum continuous: 95° C/203° F Minimum: -40° C /-40° F without impact (***Note:*** per C/B trip at elevated temps.)
Chemicals	Resists standard industrial hydrocarbons, acids, bases and solvents
UV Resistance	UV-stabilized material

Material

Contact Carrier Interior	Molded arc-resistant UL 94-V0 thermoset material
Housing, Gland Nuts, Screw Collar Rings	DuraV® UL 94-V0, high-impact Thermoplastic
O-Rings	Buna-N (Nitrile)
Contacts: Pins and Sleeves	Brass CDA 360
Hinge Pins (Receptacle)	Stainless steel
Terminals	Brass CDA 360
Terminal Screws, Flap Springs, Assembly Screws, Nuts, Hardware	Stainless steel
Gland Friction Washer	20 amp — Nylon 30, 50 and 60 amp — Aluminum
Cable Clamp Bushing	Neoprene

Approvals

FS/FD™ Metallic Connections

The FS/FD™ general-purpose interconnection system is designed for lower-amperage marine and rough service applications with rugged die-cast aluminum housings and epoxy powder-coated finishes. Interlocked receptacles add branch circuit-protected outlet capability and base receptacles fit existing Russellstoll® FS, FD and DSFD single- and multi-gang back boxes. Its versatility and watertight features make it ideal for washdown industrial and light marine applications.



Safety

- Circuit-interrupting up to 30A, 250VAC (20A, 600VAC)
- Factory-polarized interiors permit mating of same voltage/same type devices through configured ground pins and housing features
- Shell grounding by means of ground strap integral with ground contact for assured assembly safety



Durability

- Constructed of copper-free cast aluminum (brass construction also available)
- Optional conduit adapters, strain reliefs and cable bushings available (modified catalog number construction)
- Non-metallic versions of most metallic plugs and receptacles also available (see DuraGard®, **pages H-357–H-375**)

Performance

- Precision-made, self-aligning and self-wiping contacts
- Devices available in watertight and weathertight versions
- Solderless binding screw terminals for convenient wiring (20A, 2P3W devices have set-screw pressure terminals)

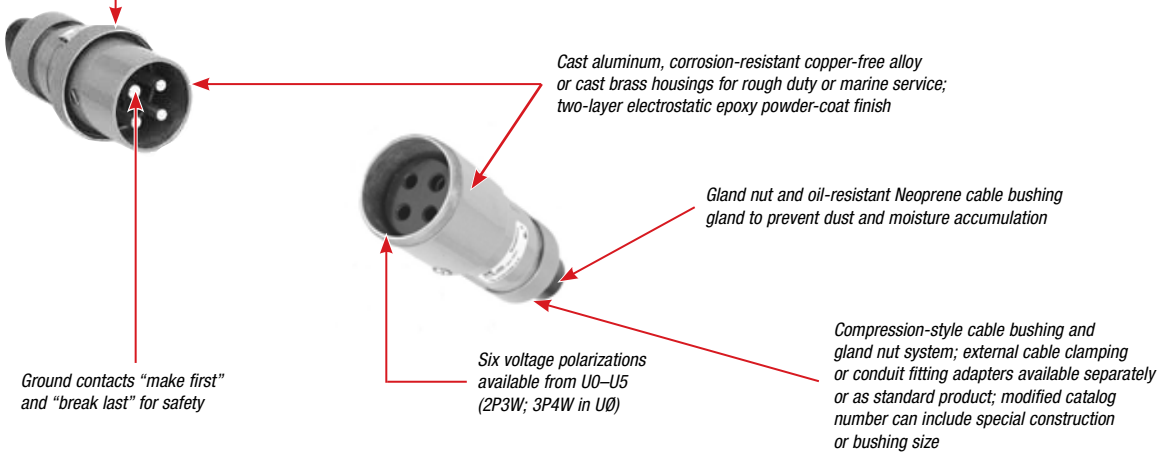
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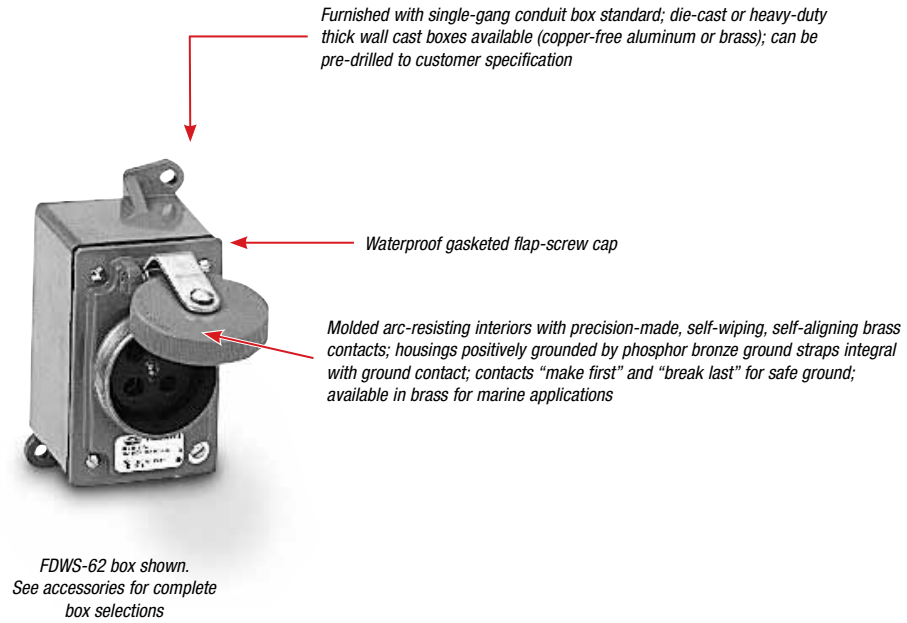
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Plug and Connector (+ Reverse Service Female Plug)



Receptacle (+ Reverse Service Male Inlet)



FDWS-62 box shown. See accessories for complete box selections

FS/FD™ Metallic Connections

10–30 Amp



Male Plugs



Female Connectors

POLES/WIRES	AMPERES	VOLTAGE	POLARIZATION (RECEPTACLE)	ALUMINUM	CAST BRASS	ALUMINUM	CAST BRASS
2P3W	15A	125VAC		3720U-2	3720BU-2	3913U-2	3913BU-2
		177VAC		3720U-3	3720BU-3	3913U-3	3913BU-3
		480VAC		3720U-4	3720BU-4	3913U-4	3913BU-4
		600VAC		3720U-5	3720BU-5	3913U-5	3913BU-5
	20A	250VAC		3720	3720B	3913	3913B
		125VAC		3720U-1	3720BU-1	3913U-1	3913BU-1
	30A	250VAC		3750	3750B	3933	3933B
3P4W	10A	600VAC		3730	3730B	3914	3914B
	15A	250VAC		3730	3730B	3914	3914B
	20A	600VAC		3760	3760B	3934	3934B
	30A	250VAC		3760	3760B	3934	3934B

Cable Bushings — Oil-resistant, Neoprene cable bushing is regularly furnished with hole sizes listed above. Other hole sizes are available at no extra cost when specified on order. See ***page H-382*** *for available sizes.*

Screw caps for connectors can be furnished with retained screw cap at extra cost. For kits order:

9X2PSC	*20A screw cap*
9X3PSC	*30A screw cap*
F26874C	*30A plug cup cap*

See the DuraGard® section for Thermoplastic families.

Standard Cable Bushing Hole Diameter

PREFIX	HOLE DIA.
3720	—
3730	—
3750, 3760	—
3913	5/8"
3914	11/16"
3933, 3934	3/4"
3789	—
3790	—
3809, 3810	—

For other plug and connector accessories, see ***pages H-382–H-385****.*

Plugs can be furnished with adapters to accommodate rigid conduit or standard connectors. For armored cable or flexible conduit, see ***page H-382****.*

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FS/FD™ Metallic Connections



Female Receptacles





Inlets

Reverse Service

		FEMALE PLUGS		MALE RECEPTACLES	
ALUMINUM WITH BOX *	CAST BRASS WITH BOX *	ALUMINUM	CAST BRASS	ALUMINUM WITH BOX FDWS-62	CAST BRASS WITH BOX 3731
3743U-2	3763U-2	3789U-2	3789BU-2	3776U-2	3779U-2
3743U-3	3763U-3	3789U-3	3789BU-3	3776U-3	3779U-3
3743U-4	3763U-4	3789U-4	3789BU-4	3776U-4	3779U-4
3743U-5	3763U-5	3789U-5	3789BU-5	3776U-5	3779U-5
3743	3763	3789	3789B	3776	3779
3743U-1	3763U-1	3789U-1	3789BU-1	3776U-1	3779U-1
3753	3773	3809[1]	3809B[1]	3796[2]	3799[3]
3744	3764	3790	3790B	3777	3780
3744	3764	3790	3790B	3777	3780
3754	3774	3810	3810B	3797	3800
3754	3774	3810	3810B	3797	3800

** Receptacles come with the following boxes:*

MATERIAL	AMPERES	BOX
Aluminum	10, 15 and 20	FSWS-62
	30	FDWS-62
Brass	10, 15 and 20	3721
	30	3731

Note:

1. Also in plastic. Use 3809P or 9F33UO.

2. Also in plastic. Use 3796P — Aluminum back box (use 3797-P for brass).

3. Also in plastic. Use 3799P (Brass J-Box) or 9B33U0F (without J-Box).

For 20A/30A Thermoplastic devices, see DuraGard® section.

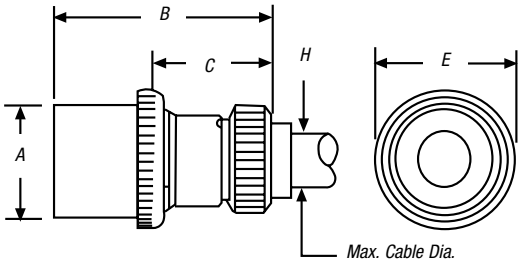
Mating with DuraGard® line:

— 20A devices will mate and lock across lines.

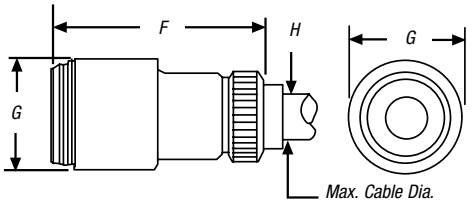
— 30A metal male devices cannot mate to DuraGard®; 30A female devices can be mixed.

Plug, Female Plug and Connector Dimensions

AMPS		A	B	C	E	F	G	H
10 Amp	**Inches**	**1.75**	**3.62**	**2.25**	**2.00**	**4.00**	**1.87**	**.75**
	mm	45.65	92.07	57.15	50.80	101.60	47.62	19.050
15 Amp	**Inches**	**1.75**	**3.62**	**2.25**	**2.00**	**4.00**	**1.87**	**.75**
	mm	45.65	92.07	57.15	50.80	101.60	47.62	19.050
20 Amp	**Inches**	**1.75**	**3.62**	**2.25**	**2.00**	**4.00**	**1.87**	**.75**
	mm	45.65	92.07	57.15	50.80	101.60	47.62	19.050
30 Amp	**Inches**	**1.87**	**3.75**	**2.25**	**2.25**	**4.25**	**2.25**	**1.12**
	mm	47.62	95.25	57.15	57.15	107.95	57.15	28.57

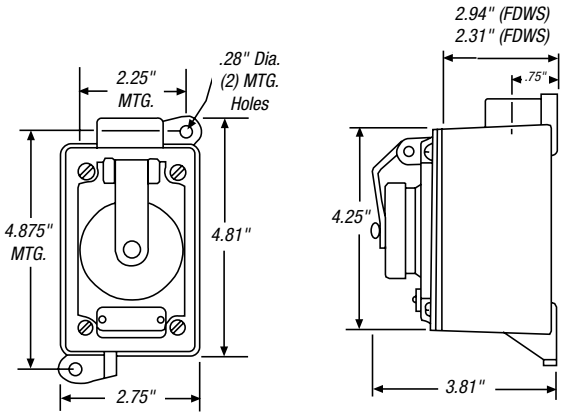


Plugs and Female Plugs

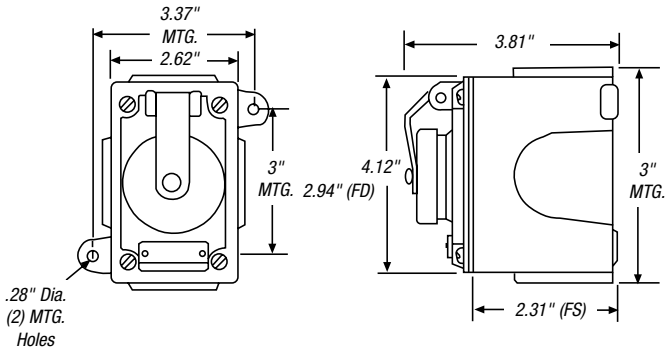


Connectors

Receptacles and Male Receptacles



Standard Die-Cast Aluminum Back Box (FSWS/FDWS)



Cast Aluminum/Cast Brass Back Box (3701–3732 Series)

Thomas&Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

www.tnb.com

FS/FD™ Metallic Connections

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	600 volts RMS (minimum creepage distance and minimum clearance per UL 840)
Circuit Interrupting/Load Breaking	UL Listed and CSA Certified for circuit interrupting at full rated current
Temperature Rise	Max. 30° C/86° F temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pF
Shrouded Contacts	Complies with California Code Title 8, Art. 51, S2510.7(b) for devices exceeding 300VAC
Horsepower	Per NEC® 430-151 ratings (non-interrupting)



Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords per UL standard 62 and CSA C22.2 No. 49.1
Terminal Identification	In accordance with UL 1682
Cable Pull Out Force	In accordance with UL 1682
Product Identification	Identification label and name per UL 1686

Performance — Environmental

Moisture Resistance	Per UL 1682 Paragraph 49 Watertight/flap screw cover on receptacle
Flammability	VØ/5VA per UL 94
Operating Temperatures	Maximum continuous: 95° C/203° F Minimum: -40° C/-40° F without impact
Chemicals	Resists standard industrial hydrocarbons, acids, bases and solvents

Material

Contact Carrier Interior	Thermoset
Housing, Gland Nuts, Screw Collar Rings	Cast Aluminum or Brass
Contacts: Pins and Sleeves	Brass
Hinge Pins (Receptacle)	Stainless steel
Terminals	Brass
Terminal Screws, Flap Springs, Assembly Screws, Nuts, Hardware	Stainless steel
Gland Friction Washer	Brass or Aluminum
Cable Clamp Bushing	Neoprene

Approvals

E2630/E47956 *LL14096*

NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

FS/FD™ Metallic Connections

For Plugs and Connectors

Combination Gland Nut and Cable Clamp



Provides extra clamping protection in hard service applications. Relieves terminals and rubber gland of all cable strain.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	MAX. CABLE DIA.
EX: 3913 10–20 Amp	**3905**	**3905B**	.62"
EX: 3934 20/30 Amp	**3906**	**3906B**	1.12"

Material — Cast aluminum, corrosion-resistant copper-free alloy; cast brass, epoxy powder coat finish.

Conduit Adapters



Adapter tapped with NPT thread to accommodate armored and non-metallic cable or flexible conduit.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	TAPPED NPT
EX: 3913	**FSA11**	**FSA11B**	½"
10–20 Amp	**FSA12**	**FSA12B**	¾"
EX: 3934	**FSA21**	**FSA21B**	½"
20/30 Amp	**FSA22**	**FSA22B**	¾"
	FSA23	**FSA23B**	1"

Furnished complete with gasket.

Cable Bushings

HOLE DIAMETER FOR CABLE (INCHES)	TYPE 2 10 AMP	TYPE 3 20 AND 30 AMP
.313	**SG05**	**—**
.375	**SG1**	**JG31**
.438	**SG15**	**—**
.500	**SG2**	**JG32**
.531	**SG2A**	**—**
.563	**SG25**	**JG325**
.594	**SG2B**	**—**
.625	**SG3**	**JG33**
.688	**SG3A**	**—**
.750	**SG4**	**JG34**
.875	**—**	**JG35**
1.000	**—**	**JG36****
1.125	**—**	**JG361****

*** Special for large O.D. cable.*



Type 2 Cable Bushing



Type 3 Cable Bushing

Note:
When standard plugs or connectors are required to be furnished with one or more of the above accessories, add the suffix and catalog number of the accessory selected to the catalog number of the plug or connector. Complete list price is the total of the list price of the device plus the list price of the accessory.

Examples — Using Catalog No. 3934:

Combo. Gland Nut and Cable Clamp	*3934-3906*
Adapter at ¾"	*3934-FSA22*
½" Cable Bushing	*3934-JG32*

Material — Oil-resistant Neoprene.

Thomas&Betts

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Type FS (Shallow) and Type FD (Deep)

Aluminum boxes have 6-32 cover mounting holes tapped to accommodate all FS and FD cover assemblies.

Brass boxes have 10-24 cover mounting holes tapped to accommodate all FS and FD cover assemblies.



Single-Gang



Two-Gang



DSFD

GANGS	TYPE	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS*	FOR USE WITH
Single	FS	**3701A**	**3721**	4.12" x 2.62" x 2.31"	15–20A
	FD	**3711A**	**3731**	4.12" x 2.62" x 2.94"	30A
	DSFD	**3781A**	**—**	4.12" x 3.62" x 4.12"	30A
Two	FS	**3702A**	**3722**	4.12" x 5.5" x 2.25"	15–20A
	FD	**3712A**	**3732**	4.12" x 5.62" x 2.87"	30A

** Dimensions are overall exclusive of conduit pads and mounting lugs*

Note:

When Type FD devices (20A) are to be mounted in boxes, Type FD boxes should be used. FS boxes will not accommodate FD devices (30A or 3P4W).

Mounting — All the above boxes are for surface mounting. For flush mounting, see ***page H-384****.*

Boxes — Cast brass, natural finish; cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish.

Outlets — Unless otherwise specified, furnished with one .75" outlet per gang, top or bottom. Additional outlets charged extra — see price list. Specify size and location.

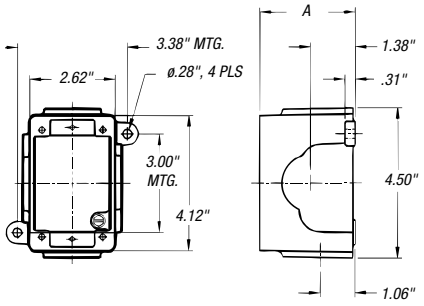
Maximum Conduit — FS and FD: 1", one per gang top and bottom and one each side.

DSFD — One 1.5" or two .5" top and bottom.

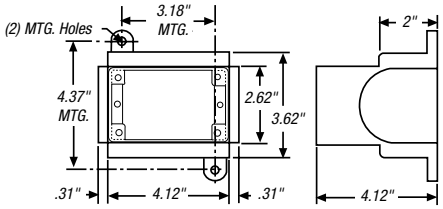
Cast iron available on special order — consult your Thomas & Betts representative.

Dimensions

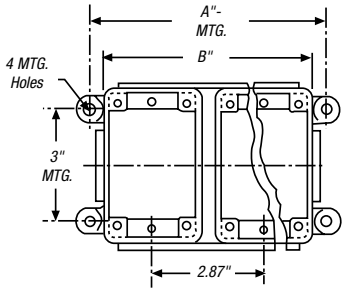
FS/FD™



DSFD



Multiple Gang



TYPE	A
FS	2.31
FD	2.94

A		B	
FS	FD	FS	FD
6.50"	6.50"	5.50"	5.62"

FS/FD™ Metallic Connections

Adapter Flush Frames*

For mounting to standard wall outlet boxes (2-screw mount).



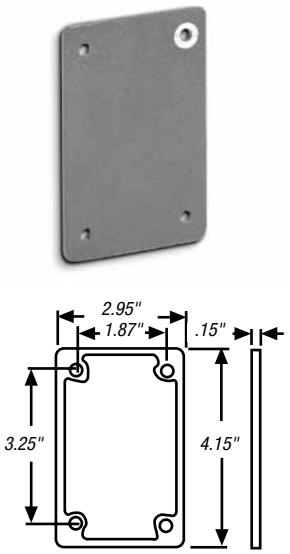
GANGS	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS
1	**3671A**	**3681**	5" x 3.5"
2	**3672A**	**3682**	5" x 6.5"

*Adapters and covers to fit boxes on **page H-379.***

** Furnished complete with gasket and screws.*

Blank Cover*

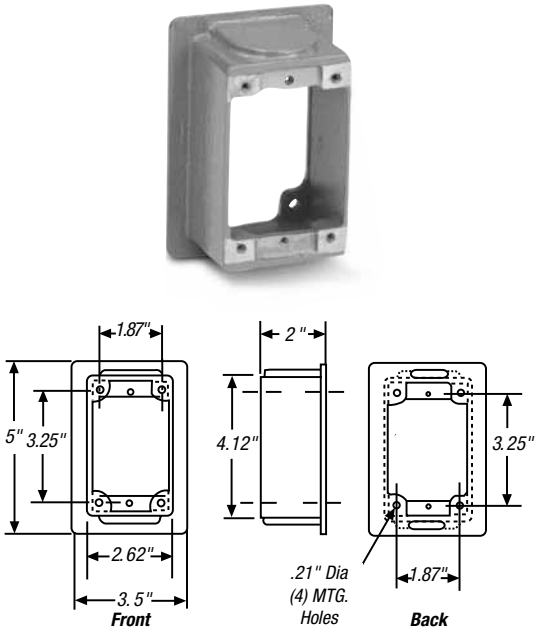
Covers standard FS/FD™ box openings.



CAT. NO.	MATERIAL
3677A	Cast Aluminum
3687	Cast Brass

** Furnished complete with gasket and screws.*

Flush Wall Mounting Extension*



CAT. NO.	MATERIAL
3679A	Cast Aluminum
3679B	Cast Brass

** Furnished complete with gasket and screws.*

Thomas&Betts

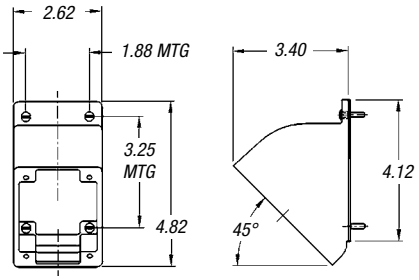
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

www.tnb.com

45° Angle Adapter*

Mounts to any FS/FD™ box.





CAT. NO.	MATERIAL
3678A	Cast Aluminum
3678B	Cast Brass

** Furnished complete with gasket and screws.*

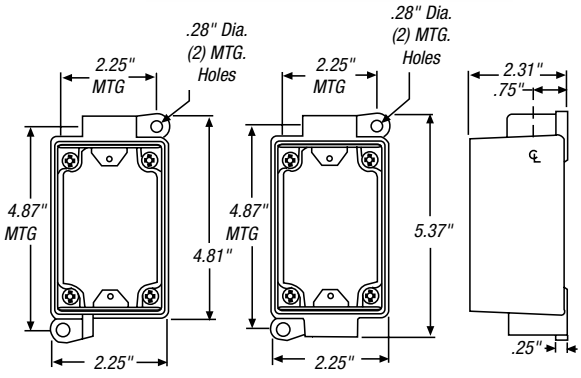
Type FSWS and FDWS (with Mounting Shelf for Box-Mounted Devices)

Aluminum die-cast boxes with cover mounting holes tapped for 6-32 screws to accommodate all FS and FD cover assemblies.



	CONDUIT ENTRIES	
CAT. NO.	TOP	BOTTOM
FSWS-62	¾"	NA
FDWS-62	¾"	NA
FDWS-622	¾"	¾"
FDWS-63	1"	NA
FDWS-633	1"	1"

** Furnished complete with gasket and screws.*



Notes:

Materials — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish; cast brass, natural finish.

Boxes — Aluminum die-cast, corrosion-resistant copper-free alloy, epoxy powder-coat finish.

Outlets — Standard as listed.

Mounting — All of the above boxes are for surface mounting.

FS/FD™ Metallic Connections

Marine/Industrial Series — 20 and 30 Amp, 250VAC

Mechanically interlocked FS/FD™ Interface receptacle outlets, available through 30 amp 250VAC, provide added electrical safety in branch circuits.

By design, the plug must be fully inserted into the interlocked receptacle before the switch or circuit breaker can be turned to the "ON" position, and the switch or circuit breaker must be in the "OFF" position before the plug can be withdrawn. This design ensures that when properly installed and operated, the circuit is made and broken by the switch or circuit breaker, not by the connectors.

As with all Russellstoll products, mechanically interlocked receptacles were designed with safety, durability and performance in mind.



Safety

- Mechanical linkage prevents plug insertion or withdrawal unless switch is in "OFF" position
- Circuit breaker protection available on many models
- Ground contacts "make first," "break last"

Performance

- Precision-made, self-aligning and self-wiping contacts
- Receptacles provided with spring-actuated, self-closing flaps
- Devices available in watertight and weathertight versions
- Solderless screw terminals for convenient wiring

Durability

- Constructed of copper-free cast aluminum (some types available in brass)
- Sturdy die-cast and sand-cast housings

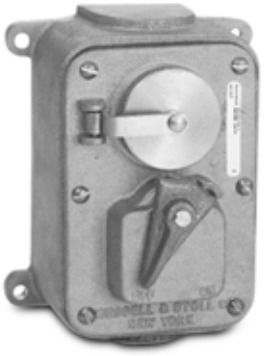
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800.816.7809
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Mechanically Interlocked Receptacle with Switch





Rating:
20 Amp/600VAC
30 Amp/250VAC

POLES/WIRES	ALUMINUM RECEPTACLE W/BOX**	FS/FD PLUG	BRASS RECEPTACLE W/BOX	FS/FD PLUG	DURAGARD® PLUG	BUSHING I.D.
2P3W	**F20493C**	**3750**	**1593LP**	**3750B**	**9P33UØ**	5/8"
3P4W	**F20493A****	**3760**	**1594LP**	**3760B**	**9P34UØ**	3/4"

*** For flap cover brass version, add "-B" suffix.*

Mechanically Interlocked Receptacle with Circuit Breaker





Rating:
20 Amp/250VAC
30 Amp/250VAC

POLES/ WIRES	TRIP RATING	ALUMINUM RECEPTACLE W/BOX	FS/FD PLUG	DURAGARD PLUG	BUSHING I.D.
2P3W	20A	**F33048B**	**3750**	**9P33UØ**	5/8"
	30A	**F33048C**	**3750**		
3P4W	20A	**F33054B**	**3760**	**9P34UØ**	3/4"
	30A	**F33054C**	**3760**		
50A, 250V* 3P4W	50A	**C1479AH**	**3760**	**9P34UØ***	7/8"

** Consult technical services for all 50A trip applications (30A device, 50A trip). Also see DuraGard® Interlocks. For brass versions, contact Technical Services.*

***Note:** For panel mounting or cover assemblies only, please consult your Thomas & Betts representative.*

FS/FD™ Metallic Connections

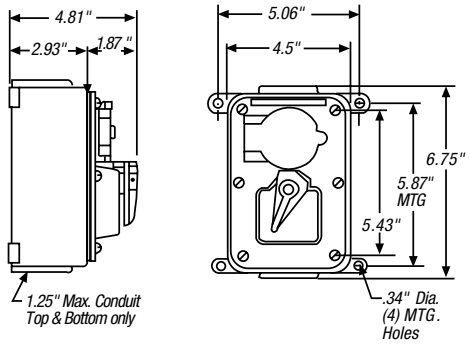
Specifications

- Housings: Cast brass, natural finish; Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder coat finish
- Cable bushings: Oil-resistant, Neoprene strain-relief cable bushings regularly furnished with hole size as listed for plug; other hole sizes available if specified on order; see Accessory Reference Section, Bushing sizes on **page H-388**
- Outlets: Unless otherwise specified, boxes are furnished blank
- Receptacle interlocked with switch: Maximum conduit outlets 1¾" top and bottom; specify outlets required
- Receptacle interlocked with circuit breaker: Maximum conduit outlet 1¾" at locations V, W, X, Y and Z as per diagram; specify outlets required, use symbols

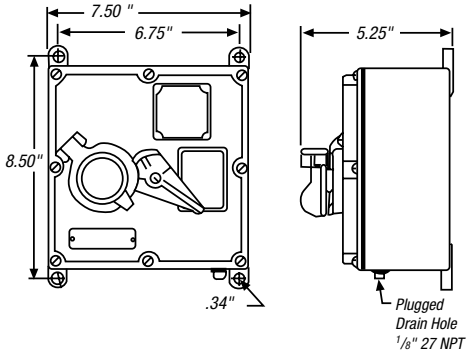
Dimensions

Interlocked with Switch, Surface Mount

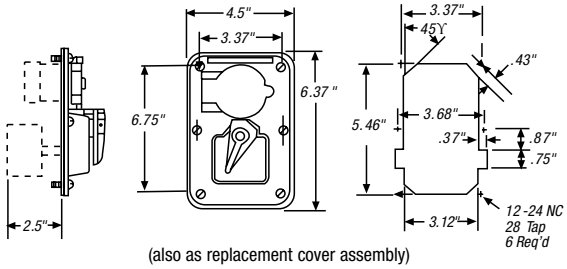
CAT. NO. F18196B&C and F20493A&B



Interlocked with Circuit Breaker

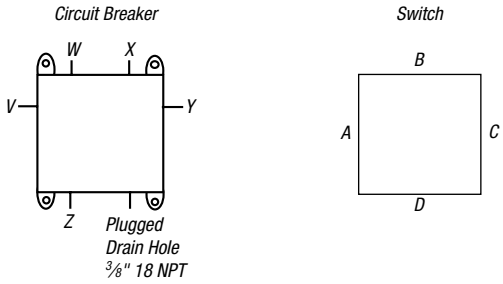


Machine Panel Mount



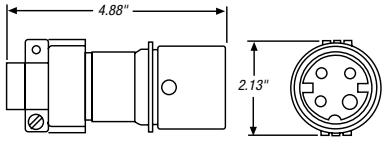
(also as replacement cover assembly)

Floor Extension Mount

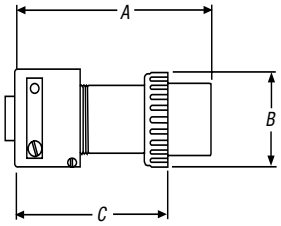


Standard Plug

20/30 Amp FS/FD™



30/50 Amp DuraGard®



AMPS		A	B	C
30 Amp	**Inches**	**5.38**	**2.38**	**4.16**
	mm	136.6	60.5	105.7
50 Amp	**Inches**	**5.75**	**2.38**	**4.16**
	mm	146.1	60.5	105.7

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UniGard® Pin and Sleeve IEC Connections

Safety, Performance and Durability… in a Snap!



Beverage Plants



Construction Sites



Food Processing



Marine and Shipboard



Pulp and Paper Mills



Chemical Plants



CE c UL us E2630 E47956 — CLASSIFIED UL E205590

Extensive Product Family

- Safe and reliable, portable electrical connections
- Wide variety of plugs, connectors, receptacles, inlets and mounting boxes
- Watertight (IP67) and splashproof (IP44) versions available
- 20-, 30-, 60- and 100-Amp ratings for small, medium or large current loads
- cULus Listed for North American ratings
- UL classified to IEC 309-1 and IEC 309-2 for North American and International ratings
- Complete interchangeability with all manufacturers' IEC309-1 and IEC 309-2 devices
- Meets IEC 309 global configurations for safety in industrial applications
- 16, 32, 63 and 125A international ratings available

Watertight

- Watertight design and construction meet stringent IP67 internal protection standards
- Rugged thermoplastic housings resist impact or abuse and provide excellent corrosion resistance
- Unique Thomas & Betts strain-relief grip and sealing system ensures superior cable retention and watertight conductor termination
- Ideal for outdoor, wet, marine and washdown applications
- Unique 75% faster assembly with EZ Clik® handle locking, and EZ Tite™ cable grip system

Splashproof

- Suitable for indoor use where splashing liquids and other contaminants may interfere with electrical connections
- Ideal for most heavy commercial applications and light industrial applications
- Available in 20- and 30- Amp ratings

UniGard® Pin and Sleeve IEC Connections

EZ Clik® Locking Mechanism



Self-Aligning Solid Contacts —

- Self-aligning nickel-plated full-round pins and sleeves for maximum cool contact area
- Sleeve pressure rings ensure constant surface contact force
- Nickel plating offers maximum corrosion for any use

Screw Collars Stay Put —

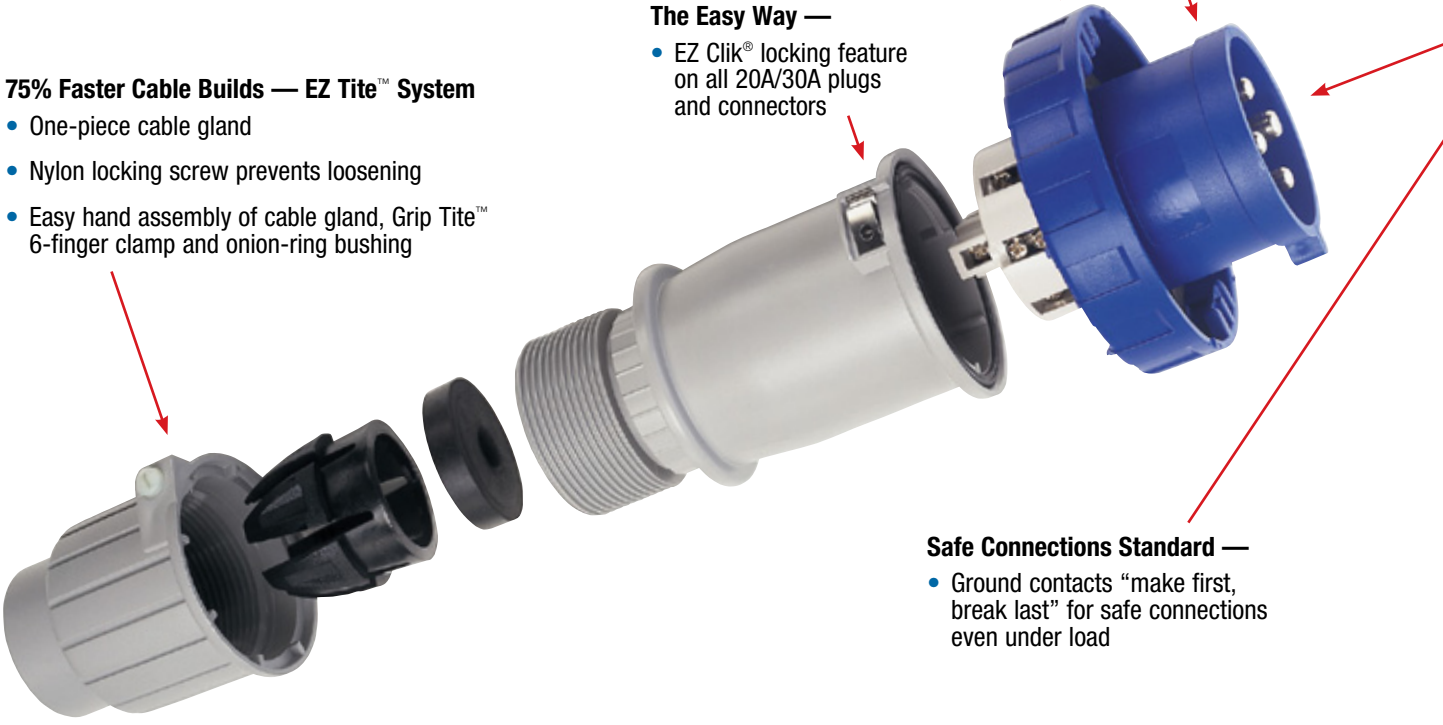
- Turreted grip allows for easy handling

The Easy Way —

- EZ Clik® locking feature on all 20A/30A plugs and connectors

75% Faster Cable Builds — EZ Tite™ System

- One-piece cable gland
- Nylon locking screw prevents loosening
- Easy hand assembly of cable gland, Grip Tite™ 6-finger clamp and onion-ring bushing



Safe Connections Standard —

- Ground contacts “make first, break last” for safe connections even under load

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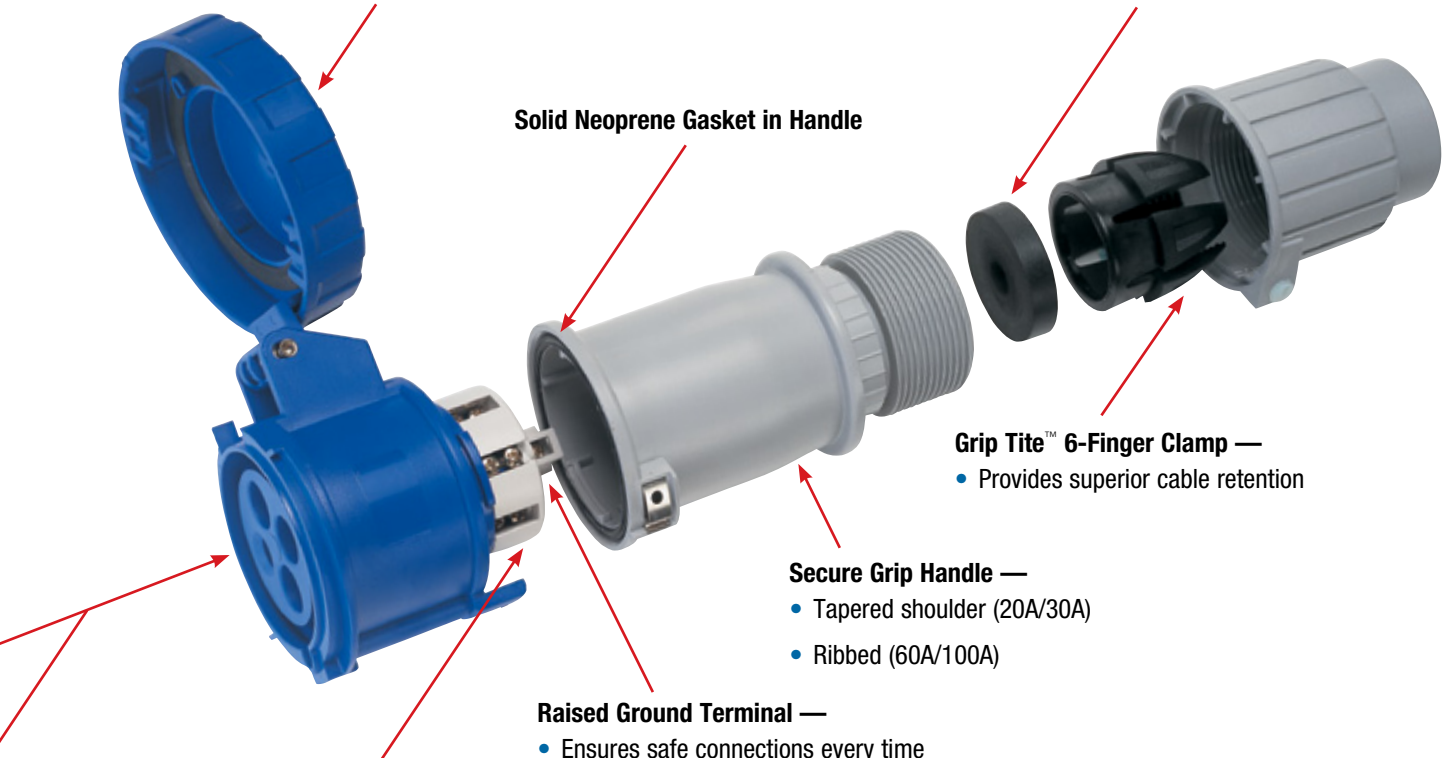
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UniGard® Pin and Sleeve IEC Connections

Combination Flap/Screw Cover —
- Integral Neoprene gasket for IP67 watertight protection
- Standard flap cover for IP44 splashproof protection
- Unique flex hinge design

Neoprene Cable Bushing —
- Onion-ring design
- Universal fit capability



Solid Neoprene Gasket in Handle

Grip Tite™ 6-Finger Clamp —
- Provides superior cable retention

Secure Grip Handle —
- Tapered shoulder (20A/30A)
- Ribbed (60A/100A)

Raised Ground Terminal —
- Ensures safe connections every time

Fast and Easy Wiring —
- Unique, one-way terminal access
- Clearly marked terminal connections

Double Secure Wiring —
- Dual, combination point terminal screws for fail-safe connections

Standard Interface/World Ready Full International Compliances

EN60309

UL Classification to IEC 309-1 and IEC 309-2

cULus Listing: UL 1682/1686 and CSA C22.2 No. 182.1

CE conforms to EC Low Voltage Directive

North American and Global Voltage Polarization "clock positions" available in all standard ratings

Solid, Safe Voltage Selections

One-piece contact carriers with full-color IEC standard voltage-phasing

Coding ensures correct product application every time

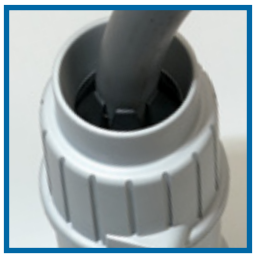
UniGard® Pin and Sleeve IEC Connections













Features

No Tools, No Screws Necessary

- EZ Clik® locking handle saves 75% on assembly time
- Unique EZ Clik® assembly feature on 20 and 30 Amp plugs and connectors makes installation and inspection fast and reliable
- Captured gaskets in handles seal out water, chemicals and dust

Easy Action Single-Wiring Point Access Saves Time Wiring

- All terminal screws face in same direction allowing installer to make safe and secure conductor terminations in 30% less time than other devices
- Rugged, corrosion-free thermoplastic housings are color-coded for safe and reliable connections to all other mating type/polarizations, with raised ground terminal standard

Simple Cable Clamping

- Threaded EZ Tite™ cable gland on 20 and 30 Amp devices makes assembly fast and easy
- One-piece lock screw verifies clamp locking hold, with no external metal contact possible (20 and 30 Amp devices)

Unique Fast Assembly

- One-piece EZ Tite™ cable gland with locking screw loads to cable followed by Grip Tite™ 6-finger cable clamp/grip piece
- Watertight onion-ring bushing fits a wide variety of outside diameters

Watertight and Grip Tite™ Safety

- Grip Tite™ flexible 6-finger clamp teeth hold well beyond all agency test pullout forces
- No internal clamps required
- Available in all amperages

The Performance Connection

- Watertight spring-loaded covers with high-strength flex-hinge screw covers on IP67 devices
- Flap covers on IP44 splashproof styles
- Safety, performance and durability for all IEC 309 applications worldwide

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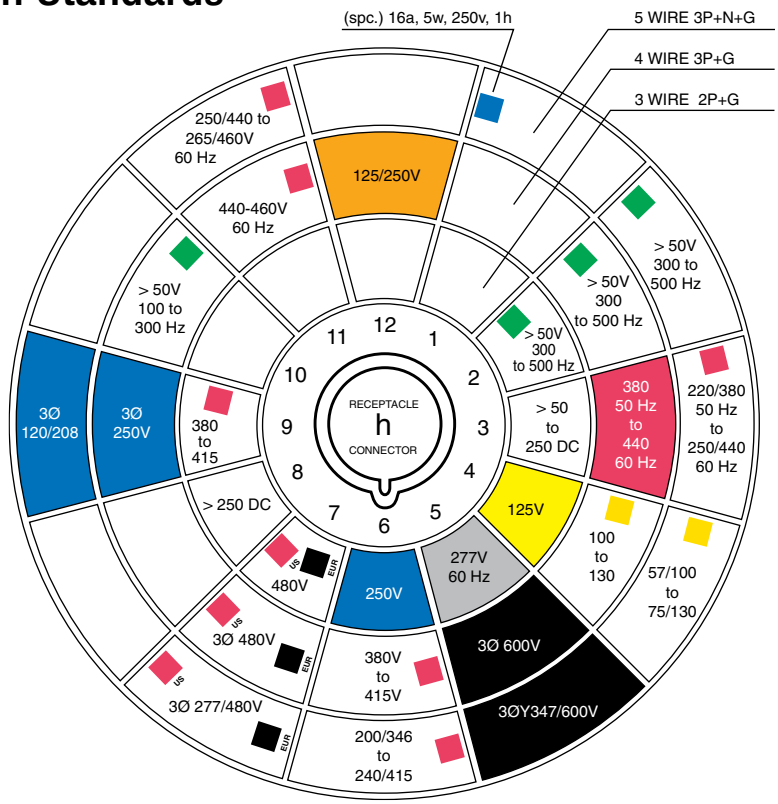
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UniGard® Global Configuration Standards

Configuration

It's impossible to mismate different voltages of the IEC 309-2 Standard Devices

- **Device size determines amperage.** Each voltage grouping is a different size so they are easily distinguishable for compatibility.
- **All IEC 309-2 devices are color coded.** Each voltage grouping has its own distinct color coding for mating compatibility.
- **Every IEC 309-2 mating plug grounding pin is a mirror image of the female device.** Devices of differing voltages cannot be mated to one another.
- **The female receptacles and connectors have a "clock face" voltage polarization.** A "keyway" female housing notch is always at 6 o'clock reference position. Ground contact (sleeve) position on this "clockface" establishes voltage polarization (ie. "7h"= 7 o'clock ground sleeve position). Male pin positions are mirror image.



RATED VOLTAGE	COLOR	USAGE (N. AMER., R.O.W. EURO)
110–130V	YELLOW	No. Amer. and Euro.
208–250V	BLUE	No. Amer. and Euro.
380–415V	RED	Euro.
500V +	BLACK	N. Amer. and Euro.
277/480V	RED	N. Amer.
277V	GRAY	N. Amer.
125/250V	ORANGE	N. Amer.
250/440V	RED	Latin Amer.
50–600V, 300/400 Hz	GREEN	Euro. and N. Amer.
50–250VDC	WHITE	Euro. and N. Amer.

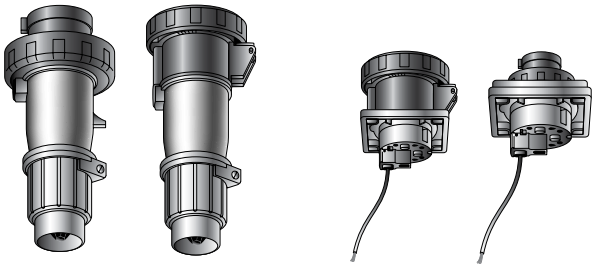
Catalog Numbering System

R S 4 30 P 9 W ____

- **Suffixes: Construction Options**
- **Internal Protection** — IP67 = Watertight = **W**; IP44 = Splashproof = **S**
- **Polarization/Voltage** **9** = "9h" Clock Hour = 250VAC, 3-phase
- **P**lug, **C**onnector, **R**eceptacle, Inlet **B**
- **Amperage**: 20, 30, 60, 100A or EURO 16, 32, 63, 125A
- **Poles and Wires**: 2p**3**w, 3p**4**w, 4p5**w**

UniGard® Pin and Sleeve IEC Connections

20 Amp



IP67 (shown)

	POLES AND WIRES	CONFIGURATION RECEPTACLE/ CONNECTOR	CONFIGURATION PLUG/ INLET	CLOCK HOUR	VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE*	INLET*
WATERTIGHT IP67	2P3W			4h	125	RS320P4W	RS320C4W	.57–.71	RS320R4W	RS320B4W
	2P3W			6h	250	RS320P6W	RS320C6W	.57–.71	RS320R6W	RS320B6W
	2P3W			5h	277	RS320P5W	RS320C5W	.57–.71	RS320R5W	RS320B5W
	2P3W			7h	480	RS320P7W	RS320C7W	.57–.71	RS320R7W	RS320B7W
	3P4W			12h	125/250	RS420P12W	RS420C12W	.57–.71	RS420R12W	RS420B12W
	3P4W			9h	3Ø250	RS420P9W	RS420C9W	.57–.71	RS420R9W	RS420B9W
	3P4W			7h	3Ø480	RS420P7W	RS420C7W	.57–.71	RS420R7W	RS420B7W
	3P4W			5h	3Ø600	RS420P5W	RS420C5W	.57–.71	RS420R5W	RS420B5W
	4P5W			9h	3ØY120/208	RS520P9W	RS520C9W	.57–.71	RS520R9W	RS520B9W
	4P5W			7h	3ØY277/480	RS520P7W	RS520C7W	.57–.71	RS520R7W	RS520B7W
	4P5W			5h	3ØY347/600	RS520P5W	RS520C5W	.57–.71	RS520R5W	RS520B5W

IP44 Construction: No screw collars on male devices; female devices have flap covers only.

SPLASHPROOF IP44	2P3W			4h	125	RS320P4S	RS320C4S	.57–.71	RS320R4S	RS320B4S
	2P3W			6h	250	RS320P6S	RS320C6S	.57–.71	RS320R6S	RS320B6S
	2P3W			5h	277	RS320P5S	RS320C5S	.57–.71	RS320R5S	RS320B5S
	3P4W			12h	125/250	RS420P12S	RS420C12S	.57–.71	RS420R12S	RS420B12S
	3P4W			9h	3Ø250	RS420P9S	RS420C9S	.57–.71	RS420R9S	RS420B9S
	4P5W			9h	3Ø120/208	RS520P9S	RS520C9S	.57–.71	RS520R9S	RS520B9S

** See **page H-401** for back box/mounting options.*

UL Listing E2630, E47956

UL Classification E205590

Liquidtight Conduit Adapter Kit

CAT. NO.	DESCRIPTION
2LTK4C50	20A 3W and 4W ½" NPT
3LTK4C75	20A 5W ¾" NPT

Thomas&Betts

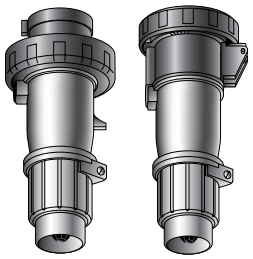
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

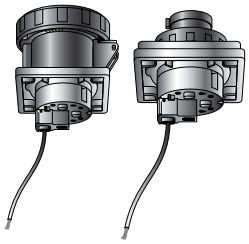
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UniGard® Pin and Sleeve IEC Connections

30 Amp



IP67 (shown)



	POLES AND WIRES	CONFIGURATION RECEPTACLE/ CONNECTOR	CONFIGURATION PLUG/ INLET	CLOCK HOUR	VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE*	INLET*
WATERTIGHT IP67	2P3W			4h	125	RS330P4W	RS330C4W	.675–.91	RS330R4W	RS330B4W
	2P3W			6h	250	RS330P6W	RS330C6W	.675–.91	RS330R6W	RS330B6W
	2P3W			7h	480	RS330P7W	RS330C7W	.675–.91	RS330R7W	RS330B7W
	3P4W			12h	125/250	RS430P12W	RS430C12W	.675–.91	RS430R12W	RS430B12W
	3P4W			9h	3Ø250	RS430P9W	RS430C9W	.675–.91	RS430R9W	RS430B9W
	3P4W			7h	3Ø480	RS430P7W	RS430C7W	.675–.91	RS430R7W	RS430B7W
	3P4W			5h	3Ø600	RS430P5W	RS430C5W	.675–.91	RS430R5W	RS430B5W
	4P5W			9h	3ØY120/208	RS530P9W	RS530C9W	.675–.91	RS530R9W	RS530B9W
	4P5W			7h	3ØY277/480	RS530P7W	RS530C7W	.675–.91	RS530R7W	RS530B7W
	4P5W			5h	3ØY347/600	RS530P5W	RS530C5W	.675–.91	RS530R5W	RS530B5W

IP44 Construction: No screw collars on male devices; female devices have flap covers only.

SPLASHPROOF IP44	2P3W			4h	125	RS330P4S	RS330C4S	.675–.91	RS330R4S	RS330B4S
	2P3W			6h	250	RS330P6S	RS330C6S	.675–.91	RS330R6S	RS330B6S
	2P3W			5h	277	RS330P5S	RS330C5S	.675–.91	RS330R5S	RS330B5S
	3P4W			12h	125/250	RS430P12S	RS430C12S	.675–.91	RS430R12S	RS430B12S
	3P4W			9h	3Ø250	RS430P9S	RS430C9S	.675–.91	RS430R9S	RS430B9S
	4P5W			9h	3Ø120/208	RS530P9S	RS530C9S	.675–.91	RS530R9S	RS530B9S

** See **page H-401** for back box/mounting options.*

UL Listing E2630, E47956

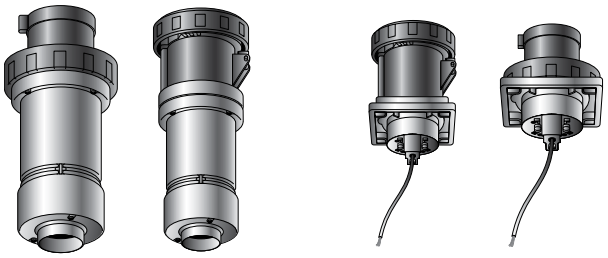
UL Classification E205590

Liquidtight Conduit Adapter Kit

CAT. NO.	DESCRIPTION
3LTK4C50	30A 3W and 4W ½" NPT
3LTK4C10	30A 3W and 4W 1" NPT
3LTK4C75	30A 3W and 4W ¾" NPT
3LTK5C75	30A 5W ¾" NPT
3LTK5C10	30A 5W 1" NPT

UniGard® Pin and Sleeve IEC Connections

60 Amp



	POLES/ WIRES	CONFIGURATION RECEPTACLE/ CONNECTOR	CONFIGURATION PLUG/ INLET	CLOCK HOUR	VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE*	INLET*
WATERTIGHT IP67	2P3W			4h	125	RS360P4W	RS360C4W	.937–1.375	RS360R4W	RS360B4W
	2P3W			6h	250	RS360P6W	RS360C6W	.937–1.375	RS360R6W	RS360B6W
	2P3W			5h	277	RS360P5W	RS360C5W	.937–1.375	RS360R5W	RS360B5W
	2P3W			7h	480	RS360P7W	RS360C7W	.937–1.375	RS360R7W	RS360B7W
	2P3W			3h	250DC	RS360P3W	RS360C3W	.937–1.375	RS360R3W	RS360B3W
	3P4W			12h	125/250	RS460P12W	RS460C12W	.937–1.375	RS460R12W	RS460B12W
	3P4W			9h	3Ø250	RS460P9W	RS460C9W	.937–1.375	RS460R9W	RS460B9W
	3P4W			7h	3Ø480	RS460P7W	RS460C7W	.937–1.375	RS460R7W	RS460B7W
	3P4W			5h	3Ø600	RS460P5W	RS460C5W	.937–1.375	RS460R5W	RS460B5W
	4P5W			9h	3ØY120/208	RS560P9W	RS560C9W	.937–1.375	RS560R9W	RS560B9W
	4P5W			7h	3ØY277/480	RS560P7W	RS560C7W	.937–1.375	RS560R7W	RS560B7W
	4P5W			5h	3ØY347/600	RS560P5W	RS560C5W	.937–1.375	RS560R5W	RS560B5W

** See **page H-401** for back box/mounting options.*

UL Listing E2630, E47956

UL Classification E205590

***Notes**: All UniGard 60- and 100-amp devices ship standard with IEC 309-1 configuration "pilot" pin/sleeves used for auxillary contact service.*

Special construction without these pilot contacts is available. Add "XC" to end of Cat. No.

Liquidtight Conduit Adapter Kit*

CAT. NO.	DESCRIPTION
6LTK5C75	60A 5W ¾" NPT
6LTK5C10	60A 5W 1" NPT

** Additional sizes available on request.*

Thomas&Betts

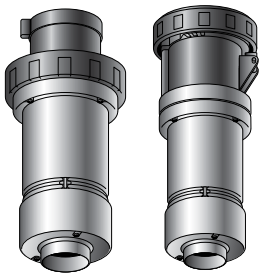
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

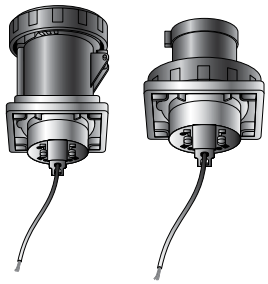
Technical Services
Tel: 888.862.3289

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UniGard® Pin and Sleeve IEC Connections

100 Amp





	POLES/ WIRES	CONFIGURATION RECEPTACLE/ CONNECTOR	CONFIGURATION PLUG/ INLET	CLOCK HOUR	VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE*	INLET*
WATERTIGHT IP67	2P3W**			6h	250	RS3100P6W	RS3100C6W	1.2650–1.790	RS3100R6W	RS3100B6W
	2P3W**			7h	480	RS3100P7W	RS3100C7W	1.2650–1.790	RS3100R7W	RS3100B7W
	3P4W			12h	125/250	RS4100P12W	RS4100C12W	1.2650–1.790	RS4100R12W	RS4100B12W
	3P4W			9h	3Ø250	RS4100P9W	RS4100C9W	1.2650–1.790	RS4100R9W	RS4100B9W
	3P4W			7h	3Ø480	RS4100P7W	RS4100C7W	1.2650–1.790	RS4100R7W	RS4100B7W
	3P4W			5h	3Ø600	RS4100P5W	RS4100C5W	1.2650–1.790	RS4100R5W	RS4100B5W
	4P5W			9h	3ØY120/208	RS5100P9W	RS5100C9W	1.2650–1.790	RS5100R9W	RS5100B9W
	4P5W			7h	3ØY277/480	RS5100P7W	RS5100C7W	1.2650–1.790	RS5100R7W	RS5100B7W
	4P5W			5h	3ØY347/600	RS5100P5W	RS5100C5W	1.2650–1.790	RS5100R5W	RS5100B5W

** See **page H-401** for back box/mounting options.*

*** Alternate vendor-supplied item; construction features will vary from specs in this catalog. Full IEC approval and mating guaranteed. Contact Technical Services for inlet/receptacle mounting components.*

UL Listing E2630, E47956

UL Classification E205590

***Notes**: All UniGard 60- and 100-amp devices ship standard with IEC 309-1 configuration "pilot" pin/sleeves used for auxillary contact service. Special construction without these pilot contacts is available. (Add "XC" to end of Cat. No.)*

Liquidtight Conduit Adapter Kit

CAT. NO.	DESCRIPTION
10LTK5C10▼	100A 4W, 5W 1" NPT
10LTK5C125▼	100A 4W, 5W 1¼" NPT
10LTK5C150▼	100A 4W, 5W 1½" NPT

▼ *For 4-wire and 5-wire plugs and connectors only. Contact Technical Services for 3-wire plug and connector conduit adapters. 100A 3-wire plugs and connectors use PG48 backhandle thread.*

UniGard® Pin and Sleeve IEC Connections

Performance — Electrical

c UL us E2630 E47956

CLASSIFIED UL E205590

CE

Dielectric Voltage Withstand	3000 volts for 1 minute (fixed devices)
	2200 volts for 1 minute (portable devices)
Maximum Working Voltage	600VAC/250VDC (minimum creepage and clearances per UL 840)
Current Interrupting/Load Breaking	Tested to 150% of full rated current for circuit interrupting
Temperature Rise	Maximum 30° C rise at full rated current after 50 cycles overload at 150% rated load at .75 pF
Endurance with Load Per IEC309-1 Clause 21	20 Amp: 5000 cycles — Load only
	30 Amp: 1000 cycles — Alternating load
	60 Amp: 1000 cycles — Alternating load
	100 Amp: 250 cycles — Alternating load

Performance — Mechanical

Cold (-25° C) Impact Resistance	Per UL 1682 Section 34 and IEC 309-1 Clause 24
Cable O.D. Accommodation	Round portable service cord from .57" O.D. through 1.79" O.D.
Terminal Identification	In accordance with UL 1682 standards and IEC390-1: as L1-L2-L3-N-G
Cable Pull-Out Force	Per UL 1682 Section 33 and IEC309-1 Clause 23
Product Identification	Molded-in product trademark(s) and UL approved product label

Performance — Environmental

Moisture Resistance	Per IEC309-1; Watertight flap/screw cover on IP67 devices or splashproof flap cover on IP44 devices
Flammability	All components V1 or better per UL94, V0 product ratings available
Operating Temperatures	Maximum continuous 90° C/194° F; minimum -25° C/-13° F
Chemical Resistance	Resists standard industrial hydrocarbons, acids, bases and solvents
Corrosion Resistance	All metallic components stainless steel or nickel-plated brass sleeve pressure rings of zinc-plated steel

Materials

Housing	Valox®
Contact Carriers	Valox®
Cable Gland Nut	Valox®
Cable Bushing	Solid Neoprene, onion-ring type
O-Ring, Seals and Gaskets	Solid Neoprene
Pins & Sleeves	Nickel-plated brass
Sleeve Force Ring	Zinc-plated steel
Terminal Screws	Nickel-plated steel
Flap/Screw Cover Springs	Stainless steel
EZ Clik® Spring	Stainless steel
Mounting Flanges	Valox
Cast Enclosures/Adapters	Two-layer electrostatic epoxy-coated, copper-free aluminum enclosures (Valox Euro style NM also available)

Valox® is a trademark of GE.

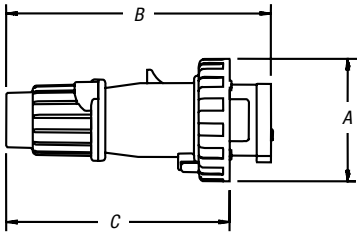
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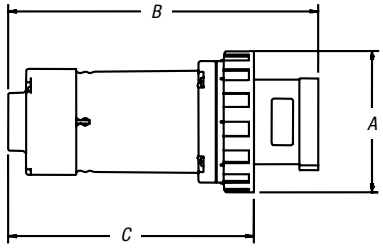
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UniGard® Pin and Sleeve IEC Connections



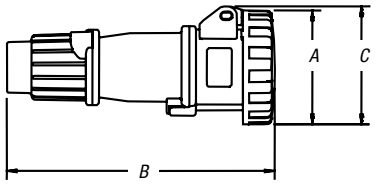
Plug IP67 16/20A and 30/32A

	A		B		C		CORD GRIP RANGE	
CAT. NO.	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.87	73	6.20	157	5.23	133	.570–.710	14–18
16/20A 3P4W	3.17	81	6.47	164	5.51	140	.570–.710	14–18
16/20A 4P5W	3.48	88	7.02	178	6.06	154	.570–.710	14–18
30/32A 2P3W	3.66	93	7.37	187	6.13	156	.675–.910	17–23
30/32A 3P4W	3.66	93	7.37	187	6.13	156	.675–.910	17–23
30/32A 4P5W	3.96	101	8.15	207	6.91	176	.675–.910	17–23



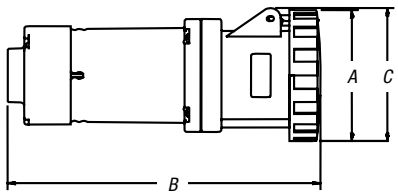
Plug IP67 60/63A and 100/125A

	A		B		C		CORD GRIP RANGE	
CAT. NO.	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
60/63A 2P3W	4.41	112	9.68	246	7.67	195	.937–1.375	24–35
60/63A 3P4W	4.41	112	9.68	246	7.67	195	.937–1.375	24–35
60/63A 4P5W	4.41	112	9.68	246	7.67	195	.937–1.375	24–35
100/125A 3P4W	5.06	129	12.16	309	9.83	250	1.265–1.790	32–45
100/125A 4P5W	5.06	129	12.16	309	9.83	250	1.265–1.790	32–45



Connector IP67 16/20A and 30/32A

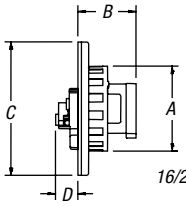
	A		B		C		CORD GRIP RANGE	
CAT. NO.	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.87	73	6.75	171	2.97	75	.570–.710	14–18
16/20A 3P4W	3.17	81	7.04	179	3.28	83	.570–.710	14–18
16/20A 4P5W	3.48	88	7.62	194	3.75	95	.570–.710	14–18
30/32A 2P3W	3.66	93	8.04	204	4.04	103	.675–.910	17–23
30/32A 3P4W	3.66	93	8.04	204	4.04	103	.675–.910	17–23
30/32A 4P5W	3.96	101	8.83	224	4.03	102	.675–.910	17–23



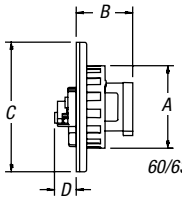
Connector IP67 60/63A and 100/125A

	A		B		C		CORD GRIP RANGE	
CAT. NO.	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
60/63A 2P3W	4.41	112	10.52	267	4.47	114	.937–1.375	24–35
60/63A 3P4W	4.41	112	10.52	267	4.47	114	.937–1.375	24–35
60/63A 4P5W	4.41	112	10.52	267	4.47	114	.937–1.375	24–35
100/125A 3P4W	5.06	129	12.80	325	5.06	129	1.265–1.790	32–45
100/125A 4P5W	5.06	129	12.80	325	5.06	129	1.265–1.790	32–45

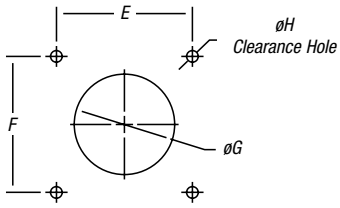
UniGard® Pin and Sleeve IEC Connections



Inlet IP67
16/20A and 30/32A



Inlet IP67
60/63A and 100/125A

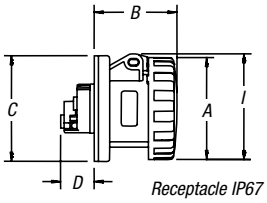


Inlet IP67 16/20A and 30/32A

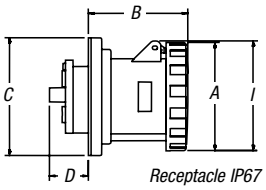
	A		B		C		D		E		F		G		H	
CAT. NO.	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.87	73	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	3.0	76	.282	7.2
16/20A 3P4W	3.17	81	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	3.03	77	.282	7.2
16/20A 4P5W	3.48	88	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	3.5	89	.282	7.2
30/32A 2P3W	3.66	93	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	3.5	89	.282	7.2
30/32A 3P4W	3.66	93	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	3.5	89	.282	7.2
30/32A 4P5W	3.96	101	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	3.75	95	.282	7.2

Inlet IP67 60/63A and 100/125A

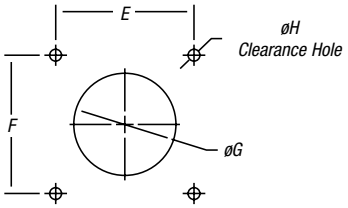
	A		B		C		D		E		F		G		H	
CAT. NO.	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
60/63A 2P3W	4.41	112	3.44	87	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2
60/63A 3P4W	4.41	112	3.44	87	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2
60/63A 4P5W	4.41	112	3.44	87	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2
100/125A 3P4W	5.06	129	3.88	99	5.50	140	1.94	49	4.87	124	4.87	124	4.5	114	.282	7.2
100/125A 4P5W	5.06	129	3.88	99	5.50	140	1.94	49	4.87	124	4.87	124	4.5	114	.282	7.2



Receptacle IP67
16/20A and 30/32A



Receptacle IP67
60/63A and 100/125A



Receptacle IP67 16/20A and 30/32A

	A		B		C		D		E		F		G		H		I	
CAT. NO.	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.87	73	2.32	59	2.97	76	.94	24	2.36	60	2.36	60	2.56	65	.219	5.5	2.97	75
16/20A 3P4W	3.17	81	2.34	60	2.97	76	.94	24	2.36	60	2.36	60	2.56	65	.219	5.5	3.28	83
16/20A 4P5W	3.48	88	2.37	60	2.97	76	.94	24	2.36	60	2.36	60	2.56	65	.219	5.5	3.75	95
30/32A 2P3W	3.66	93	2.79	71	2.97	76	1.52	39	2.36	60	2.36	60	2.56	65	.219	5.5	4.04	103
30/32A 3P4W	3.66	93	2.79	71	2.97	76	1.52	39	2.36	60	2.36	60	2.56	65	.219	5.5	4.04	103
30/32A 4P5W	3.96	101	2.81	71	2.97	76	1.52	39	2.36	60	2.36	60	2.56	65	.219	5.5	4.03	102

Receptacle IP67 60/63A and 100/125A

	A		B		C		D		E		F		G		H		I	
CAT. NO.	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
60/63A 2P3W	4.41	112	4.16	106	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2	4.47	114
60/63A 3P4W	4.41	112	4.16	106	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2	4.47	114
60/63A 4P5W	4.41	112	4.16	106	4.50	114	1.68	43	3.87	98	3.87	98	3.5	89	.282	7.2	4.47	114
100/125A 3P4W	5.06	129	4.52	115	5.50	140	1.94	49	4.87	124	4.87	124	4.5	114	.282	7.2	5.06	129
100/125A 4P5W	5.06	129	4.52	115	5.50	140	1.94	49	4.87	124	4.87	124	4.5	114	.282	7.2	5.06	129

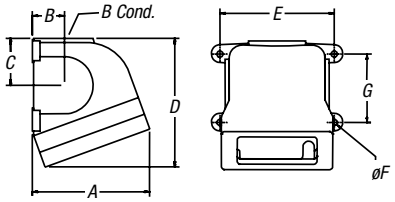
Thomas&Betts

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Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

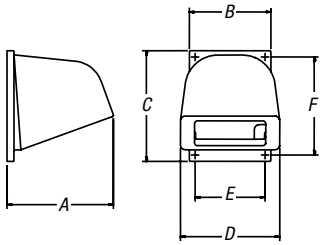
Technical Services
Tel: 888.862.3289

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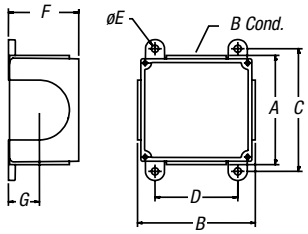
UniGard® Pin and Sleeve IEC Connections



Angle Enclosure



Angle Adapter



Junction Box

20° Angle Enclosures*

CAT. NO.	CONDUIT SIZE	USE	A		B		C		D		E		F		G	
			INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
BE3-B75	¾"	20A and 30A Devices	3.34	85	.97	25	1.12	28	4.12	105	4.00	102	.25	6	2.38	60
BE3-B100	1"	20A and 30A Devices	3.34	85	.97	25	1.12	28	4.12	105	4.00	102	.25	6	2.38	60
AE6-B125	1¼"	60A Devices	5.13	130	1.41	36	2.05	52	5.62	143	5.00	127	.28	7	3.00	76
AE6-B150	1½"	60A Devices	5.13	130	1.41	36	2.05	52	5.62	143	5.00	127	.28	7	3.00	76
AE10-B150	1½"	100A Devices	7.05	179	1.81	46	2.68	68	6.88	175	5.50	140	.34	9	4.00	102
AE10-B200	2"	100A Devices	7.05	179	1.81	46	2.68	68	6.88	175	5.50	140	.34	9	4.00	102

** For use where there is no existing T&B Russellstoll JB series junction box installed. For 20/30A inlets, use 60A size.*

20° Angle Adapters*

CAT. NO.	USE	A		B		C		D		E		F	
		INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
AA3	20A and 30A Devices	3.17	81	3.00	76	4.25	108	3.00	76	2.50	64	3.75	95
AA6L	60A Devices	5.23	133	4.00	102	5.43	138	4.88	124	3.44	87	4.81	122
AA10L	100A Devices	7.36	187	5.50	140	5.50	140	6.00	152	4.87	124	4.87	124

** To be used with JB series junction boxes or panel mount. For 20/30A inlets, use 60A size.*

Rectangular Junction Boxes*

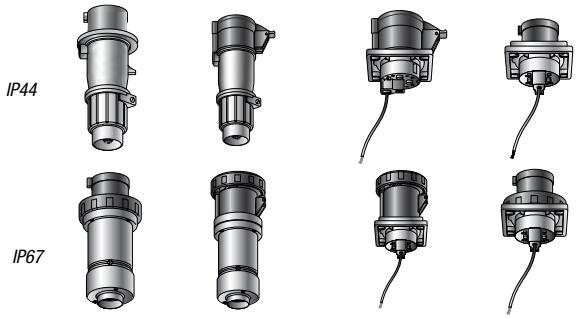
CAT. NO.	CONDUIT SIZE	USE	A		B		C		D		E		F		G	
			INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
JB3-B75	¾"	20A and 30A Devices	2.94	75	4.19	106	3.69	94	2.69	68	.25	6	2.38	60	1.25	32
JB3-B100	1"	20A and 30A Devices	2.94	75	4.19	106	3.69	94	2.69	68	.25	6	2.38	60	1.25	32
JB6-B125	1¼"	60A Devices	4.00	102	5.63	143	4.94	125	3.81	97	.34	9	3.00	76	1.50	38
JB6-B150	1½"	60A Devices	4.00	102	5.63	143	4.94	125	3.81	97	.34	9	3.00	76	1.50	38
JB10-B150	1½"	100A Devices	5.50	140	5.50	140	4.25	108	6.75	171	.34	9	3.75	95	2.00	51
JB10-B200	2"	100A Devices	5.50	140	5.50	140	4.25	108	6.75	171	.34	9	3.75	95	2.00	51

** Unless otherwise specified, junction boxes are furnished with one conduit size at location B. To be used with AA series angle adapters. For 20/30A inlets, use 60A size.*

UniGard® Pin and Sleeve IEC Connections

International Ratings

Common polarizations shown. Other ratings are available; contact Technical Services. For 16A or 32A IP67 watertight ratings (-W suffix), substitute -W instead of -S in catalog number. Example: RS316P4W.



	POLES/ WIRES	CONFIGURATION RECEPTACLE/ CONNECTOR	PLUG/ INLET	CLOCK HOUR	VOLTAGE/ COLOR CODING	PLUG	CONNECTOR	CABLE O.D. RANGE INCHES	RECEPTACLE	INLET
16 AMP IP44	2P3W			4h	110V	RS316P4S	RS316C4S	.57–.71	RS316R4S	RS316B4S
	2P3W			6h	250V	RS316P6S	RS316C6S	.57–.71	RS316R6S	RS316B6S
	3P4W			6h	380–415V	RS416P6S	RS416C6S	.57–.71	RS416R6S	RS416B6S
	4P5W			6h	220–240/ 380–415V	RS516P6S	RS516C6S	.57–.71	RS516R6S	RS516B6S

*See **page H-400** for Conduit Adapter Options.*

32 AMP IP44	2P3W			4h	110V	RS332P4S	RS332C4S	.675–.91	RS332R4S	RS332B4S
	2P3W			6h	250V	RS332P6S	RS332C6S	.675–.91	RS332R6S	RS332B6S
	3P4W			6h	380–415V	RS432P6S	RS432C6S	.675–.91	RS432R6S	RS432B6S
	3P4W			3h	380–440V	*SPECIAL APPLICATION — CONTACT TECHNICAL SERVICES*				
	4P5W			6h	220–240/ 380–415V	RS532P6S	RS532C6S	.675–.91	RS532R6S	RS532B6S

*See **page H-401** for Conduit Adapter Options.*

63 AMP IP67	2P3W			6h	250V	RS363P6W	RS363C6W	.937–1.375	RS363R6W	RS363B6W
	3P4W			6h	380–415V	RS463P6W	RS463C6W	.937–1.375	RS463R6W	RS463B6W
	4P5W			6h	220–240/ 380–415V	RS563P6W	RS563C6W	.937–1.375	RS563R6W	RS563B6W

*See **page H-402** for Conduit Adapter Options.*

125 AMP IP67	2P3W*			6h	250V	RS3125P6W	RS3125C6W	1.265–1.790	RS3125R6W	RS3125B6W
	3P4W			6h	380–415V	RS4125P6W	RS4125C6W	1.265–1.790	RS4125R6W	RS4125B6W
	4P5W			6h	220–240/ 380–415V	RS5125P6W	RS5125C6W	1.265–1.790	RS5125R6W	RS5125B6W

*See **page H-401** for back box/mounting options.*
Euro color is "red"; devices supplied in North America will use "blue" (mating is not affected).

**Alternate vendor supplied item; construction features will vary from specs in this catalog. Full IEC approval and mating guaranteed. Contact Technical Services for inlet/receptacle mounting components.*

UL Classification E205590

***Note**: All UniGard 63- and 125-amp devices ship standard with IEC 309-1 configuration "pilot" pin/sleeves used for auxillary contact service.*

Special construction without these pilot contacts is available. (Add "XC" to end of catalog number.)

Thomas&Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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International Amperages — UniGard® Series Specifications

CLASSIFIED UL E205590

CE

Performance — Electrical

Dielectric Voltage Withstand	3000 volts for 1 minute per IEC 309-1, Clause 19
Maximum Working Voltage	690VAC/250VDC (minimum creepage and clearances per IEC)
Current Interrupting/Load Breaking	Tested to 125% rated current at 110% rated voltage per IEC 309-1 clause 20
Temperature Rise	Maximum 50° C rise at rated current per IEC 309-1 Clause 22, Table 8
Endurance with Load Per IEC 309-1 Clause 21	16 Amp: 5000 cycles — Load only 32 Amp: 1000 cycles — Alternating load 63 Amp: 1000 cycles — Alternating load 100 Amp: 250 cycles — Alternating load

Performance — Mechanical

Cold (-25° C) Impact Resistance	Per IEC 309-1 Clause 24; -25° C with 75cm drop
Cable O.D. Accommodation	Round portable service cords from 14.5mm O.D. through 50mm O.D.
Terminal Identification	In accordance with IEC 309-1 standards; as L1-L2-L3-N-G
Cable Pull-Out Force	In accordance with IEC 309-1, Clause 23
Product Identification	Molded-in product trademark(s) and CE mark on packaging

Performance — Environmental

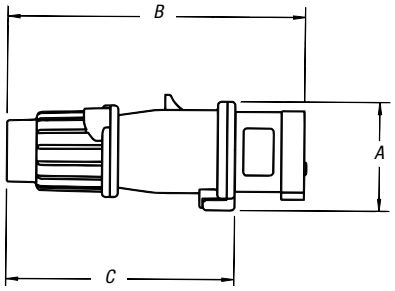
Moisture Resistance	Per IEC 309-1; watertight flap/screw cover on IP67 devices or flap cover on IP44 devices
Flammability	Per IEC 695-2-1; housing glow wire tested to 650° C; contact carrier insert tested to 850° C
Operating Temperatures	Maximum continuous 90° C/194° F; Minimum -25° C/-13° F with impact
Chemical Resistance	Resists standard industrial hydrocarbons, acids, bases and solvents
Corrosion Resistance	All metallic components stainless steel or nickel-plated brass Sleeve pressure rings of zinc-plated steel
UV Resistance	External thermoplastic components are UV stabilized IP67 Series 2 is suitable for outdoor use

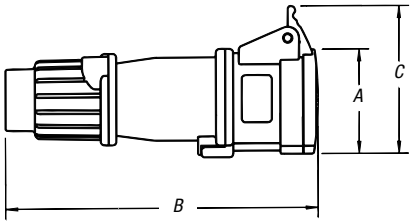
Materials

Housing	Valox®
Contact Carriers	Valox®
Cable Gland Nut	Valox®
Cable Bushing	Solid Neoprene, onion-ring type
O-Ring, Seals and Gaskets	Solid Neoprene
Pins and Sleeves	Nickel-plated brass
Sleeve Force Ring	Zinc-plated steel
Terminal Screws	Nickel-plated steel
Flap/Screw Cover Springs	Stainless steel
EZ Clik® Spring	Stainless steel
Mounting Flanges	Valox®
Cast Enclosures/Adapters	Two-layer electrostatic epoxy-coated, copper-free aluminum enclosures (Valox® Euro style NM available)

Valox is a registered trademark of GE.

UniGard® Pin and Sleeve IEC Connections



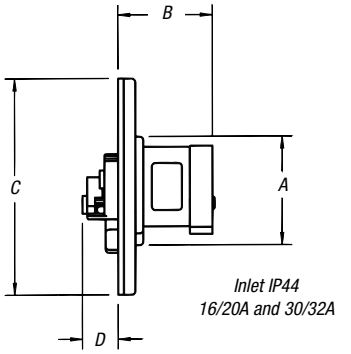


Plug IP44

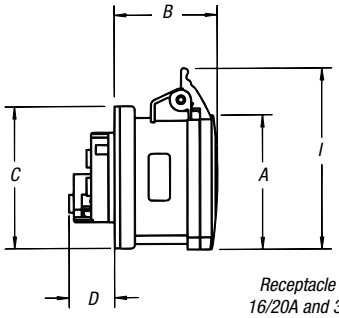
CAT. NO.	A		B		C		CORD GRIP RANGE	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.26	58	6.20	157	4.76	121	.570–.710	14–18
16/20A 3P4W	2.52	64	6.47	164	5.04	128	.570–.710	14–18
16/20A 4P5W	2.85	73	7.02	178	5.58	142	.570–.710	14–18
30/32A 2P3W	2.85	73	7.37	187	5.58	142	.675–.910	17–23
30/32A 3P4W	2.85	73	7.37	187	5.58	142	.675–.910	17–23
30/32A 4P5W	3.13	80	8.15	207	6.36	162	.675–.910	17–23

Connector IP44

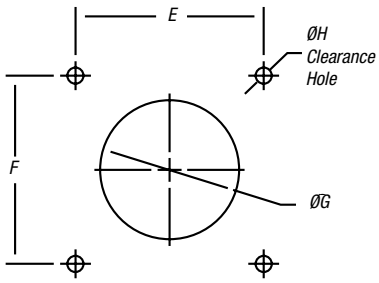
CAT. NO.	A		B		C		CORD GRIP RANGE	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.18	55	6.53	166	3.07	78	.570–.710	14–18
16/20A 3P4W	2.43	62	6.83	173	3.33	85	.570–.710	14–18
16/20A 4P5W	2.81	71	7.41	188	3.79	96	.570–.710	14–18
30/32A 2P3W	2.81	71	781	198	3.79	96	.675–.910	17–23
30/32A 3P4W	2.81	71	781	188	3.79	96	675–.910	17–23
30/32A 4P5W	3.09	79	8.62	219	4.17	106	.675–.910	17–23



Inlet IP44
16/20A and 30/32A



Receptacle IP44
16/20A and 30/32A



Inlet IP44

CAT. NO.	A		B		C		D		E		F		G		H	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.26	58	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	2.38	60	.282	7.2
16/20A 3P4W	2.52	64	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	2.38	60	282	7.2
16/20A 4P5W	2.85	73	1.96	50	4.50	114	.75	19	3.87	98	3.87	98	2.38	60	282	7.2
30/32A 2P3W	2.85	73	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	2.38	60	282	7.2
30/32A 3P4W	2.85	73	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	2.38	60	282	7.2
30/32A 4P5W	3.13	80	2.32	59	4.50	114	1.32	34	3.87	98	3.87	98	2.38	60	282	7.2

Receptacle IP44

CAT. NO.	A		B		C		D		E		F		G		H		I	
	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
16/20A 2P3W	2.18	55	2.11	54	2.97	76	.94	24	2.36	60	2.36	60	2.38	60	.219	5.5	3.07	78
16/20A 3P4W	2.43	62	2.13	54	2.97	76	.94	24	2.36	60	2.36	60	2.38	60	.219	5.5	3.33	85
16/20A 4P5W	2.81	71	2.17	55	2.97	76	.94	24	2.36	60	2.36	60	2.38	60	.219	5.5	3.79	96
30/32A 2P3W	2.81	71	2.56	65	2.97	76	1.52	39	2.36	60	2.36	60	2.38	60	.219	5.5	3.79	96
30/32A 3P4W	2.81	71	2.56	65	2.97	76	1.52	39	2.36	60	2.36	60	2.38	60	.219	5.5	3.79	96
30/32A 4P5W	3.09	79	2.60	66	2.97	76	1.52	39	2.36	60	2.36	60	2.38	60	.219	5.5	4.17	106

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IEC 309 Safety Interlock — The UniGard® Difference



c UL us E211951
CE E47955

The Only True Circuit Breaker Interlocked IEC 309 Receptacle (Outlet)

- Circuit breaker integrated interlock mechanism
- UL 489 Listed 22kAIC protection
- Alternate trip ratings available
- Auxiliary switch option

Watertight — IP67

- "W" suffixes (UL Type 4X construction)
- Rugged thermoplastic housings resist impact or abuse and provide excellent corrosion resistance
- Rugged V0-5VA flameproof housings
- Ideal for outdoor, wet, marine and washdown applications
- Unique industry-first circuit breaker interlock
- US: 20-, 30-, 60- and 100-amp sizes
- International: 16-, 32-, 63- and 125-amp sizes

Splashproof — IP44

- "S" suffixes (NEMA 3R construction)
- Suitable for indoor use where splashing liquids and other contaminants may interfere with electrical connections
- Ideal for most heavy commercial applications and light industrial applications
- US 20-, 30- and 60-amp ratings
- International 16-, 32- and 63-amp ratings



Protection and Safety in Power Delivery

- Red vertical "ON'' indication
- Lock on and Lock "OFF" positions
- Branch circuit load and operation protection or switched-only version (shown)



Mount It Anywhere

- Swivel 3- or 4-point feet variable footprint for flexible mounting
- Fits in web of 8" I-beams



Or Switched-Only Version

- Rugged UL Listed switch
- Proven performance components
- Through 600VAC 4P5W plus auxiliary contacts capable



Wire It Up, Sideways or Down

- Top, side and bottom entry
- Industry standard entry sizes

TOP AND BOTTOM	TOP	SIDE ENTRY
20/30 Amp	60/100 Amp	All

United States
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Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

UniGard® Pin and Sleeve IEC Connections



Integral UL 489 22kAIC Circuit Breaker OR Switched Interlocked Receptacle



Top or side conduit entry

Gasketed UL Type-4X construction

Auxiliary switch and/or trip frame ratings available

Bottom conduit entry — optional 30A/60A location

Sturdy bright red EZ handle (Vertical-on Lock-off and Lock-on positions)

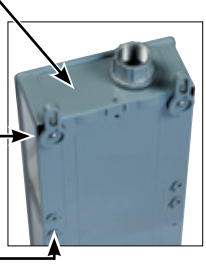
UL 94 V0-5VA flame-rated housing and external components

Voltage and polarization labeled and color coded

IP67 color coded; flap screw cap; IP44 splashproof also available

Accepts UniGard *plugs and all approved IEC 309 lines*

Five mounting points for three or four tab mounting



Adjustable feet fit any existing mounting!

External DIN rail hard points

Thomas&Betts

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Russellstoll® UniGard® IEC 309 Circuit Breaker Interlocked Receptacle

16/20A, 30/32A, 60/63A and 100/125A International and U.S. Ratings IN ALL STANDARD VOLTAGE POLARIZATIONS:

RANGE	COLOR CODE	USAGE (N. AMER., R.O.W. EURO)	2P3W	3P4W	4P5
110–130V	YELLOW	N. Amer./Euro	4h	4h	—
208–250V	BLUE	N. Amer./Euro	6h	9h	9h
380–415V	RED	Euro	9h	6h/3h (spec)	6h
500V +	BLACK	N. Amer./Euro	—	5h	5h
277/480V	RED	N. Amer. (Black, Euro)	7h	7h	7h
277V	GRAY	N. Amer.	5h	—	—
125/250V	ORANGE	N. Amer.	—	12h	—
250/440V	RED	Latin Amer./N. Amer.	—	11h	11h/3h
to 600V, to 400 Hz	GREEN	N. Amer./Euro	2h	2h	2h

Contact T&B for other special polarizations.

Specifications for Any New or Replacement Project

2 options available

MT **Integral Circuit Breaker (UL 231 and UL 489) Power Outlet**
> (replaces all fused-switched competitor "FMIR" or "MIF" series) (US amperage only)

MI **Rotary Switched (UL 508 and UL 98) Manual Motor Controller Outlet**
> (replaces all switched-only competitor "MI" or "MIR" series) (all amperages)

RS 4 30 _ 9 W

- **Brand prefix - or - "blank"**
- **Poles and Wires** — 2p3w, 3p4w, 4p5w
- **Amperage** — 20, 30, 60, 100A or EURO 16, 32, 63, 125A
- **Device Type** — See above
- **Polarization/Voltage** — 9 = "9h" Clock Hour = 250 VAC, 3-phase
- **Internal Protection** — IP67 = Watertight = W; IP44 = Splashproof = S
- **Suffixes: Construction Options**

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UniGard® Pin and Sleeve IEC Connections

Specifications: IEC 309 Interlocked Receptacles — North American Standards

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Maximum Working Voltage	480 volts RMS (circuit breaker version) 600 volts RMS (switch version)
Current Interrupting	Certified for current interrupting at full rated current and voltage
Short-Circuit Current Rating Operations	10,000 RMS symmetrical amperes Mechanical:10,000 cycles Electrical: 6000 cycles
HP Ratings (switch version)	Complies with NEC® 430–151 ratings
Circuit Breaker UL Listed Interrupting Rating	22,000 AIC

Performance — Mechanical

Cold (-35° C) Impact Resistance	In accordance with UL 746C
Wiring Accommodations	Suitable for metallic conduit. Conduit entry locations at enclosure top and bottom (60A and 100A top only)
Terminal Identification	In accordance with UL, CSA and IEC 309 conventions
Product Identification	Identification, ratings and color code in accordance with UL, CSA and IEC 309 requirements
Lockout/Tagout	"ON" and "OFF" lockout/tagout capability at switch handle. Complies with OSHA Reg. 29CFR 1910.147
Mounting	External adjustable feet

Performance — Environmental

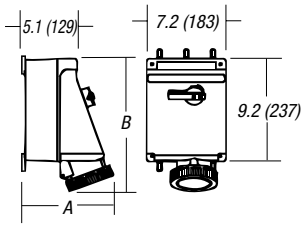
Moisture Resistance	Screw cap version: UL Type 4X, IP67 Flap cap version: IP44
Flammability	UL 94-5VA and V0 classifications
Operating Temperatures	Maximum continuous: 60° C (140° F) Minimum continuous: -40° C (-40° F)
UV Resistance	UV-stabilized material
Chemicals	Resists most standard industrial hydrocarbons, acids, bases and solvents

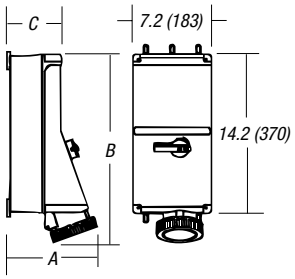
Materials

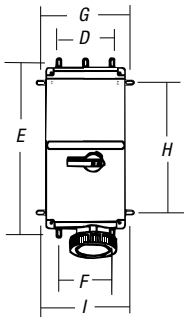
Enclosure (all exterior components)	UL 94-5VA/V0, UV-stabilized, impact-modified Valox®
Contact Carrier	Molded arc-resistant UL 94-V0 thermoplastic
Gaskets	Neoprene or EPDM
Contacts (sleeves)	Nickel-plated brass
Hardware (screws and springs)	Steel with zinc-plated blue chromate or nickel plating

Approvals and Compliances

UL 508 and UL 98 (switch version)
UL 231 and UL 489 (circuit breaker version)
UL 1682
CSA C22.2 No. 14, 182.1
IEC 309-1, -2







OVERALL DIMENSIONS (INCHES — MM)

	16/20A, 30/32A AND 60/63A SWITCH VERSIONS						30A AND 60A BREAKER AND 100/125A SWITCH AND BREAKER VERSIONS				
	16/20A		30/32A		60/63A		30A		60A		100/125A
DIM.	IP44	IP67	IP44	IP67	IP44	IP67	IP44	IP67	IP44	IP67	IP67
A	7.5–140	8.0–203	7.7–196	8.2–208	8.0–203	8.5–216	7.7–196	8.2–208	8.0–203	8.5–216	9.8–249
B	10.8–273	10.9–277	11.2–284	11.4–289	11.9–302	12.2–309	16.4–417	16.5–418	17.0–432	17.4–443	17.7–450
C	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.1–129	5.6–149

3-pt. and 4-pt. mounting positions available. 100A versions have 4-pt. mounting position only.

Adjustable mounting feet, vertical or horizontal.

Slotted through holes for easier alignment.

MOUNTING DIMENSIONS (INCHES — MM)

DIM.	16/20A 30/32A 60/63A SWITCH	30A 60A BREAKER	100/125A SWITCH 100A BREAKER
D	5.5–140	5.5–140	5.5–140
E	10.0–254	15.2–387	15.2–387
F	5.5–140	5.5–140	6.0–152
G	8.0–203	8.0–203	8.0–203
H	7.5–191	12.8–324	12.8–324
I	8.0–203	8.0–203	8.5–215

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DuraTite® and Ever-Lok® Locking Connections

Russellstoll® Line Selections for Indoor Applications

DuraTite® to 3P4W 20A and 30A	A new thermoplastic option to 20/30A Standard Ever-Lok® plugs and connectors. 20A and 30A plugs will mate directly to Standard Ever-Lok® receptacles, with a new EZTab locking feature. For new installations, specify Ever-Lok® receptacles with DuraTite® plugs and connectors. Clamp or conduit options complete a flexible value option for new and existing installations.
Ever-Lok® Standard and Midget Series to 3P4W 15A through 50A	Steel self-locking housings make Standard and Midget Ever-Lok® connections famous for their endurance in punishing factory installations. Clamp, bushing or hub fitting cable entries are offered for both with Standard Ever-Lok® available at 20A, 30A and 50A over the 15A Midget Ever-Lok®. Standard voltage polarizations are maintained in these lines through 480VAC.
Heavy Service Ever-Lok® to 4P4W 30A through 100A	The standard in portable welding installations, from 30A to 100A. Rugged aluminum housings and self-locking upon insertion, HSE series products are ideal for indoor factory use. With unique handle designs, a simple ⅛ turn counter-clockwise releases plug for withdrawal. Switched/fused or circuit breaker interlocks in several configurations are also offered. See Automotive/Industrial Interlock section.
IEC (IP44) to 4P5W 20A through 100A	Thermoplastic International Standard 309-2 or CEE-17 type connector lines usage is growing in OEM, export and standard performance applications. The IP44 indoor-use style is splashproof when mated and directly interchangeable with other manufacturers. International designations shadow U.S. ratings: 20/16A, 30/32A, 60/63A and 100/125A. IP44 devices have NO locking features except flap covers, with catalog numbers "S" or "SW" suffixes.

Usage

- Any application where electrical connections need protection from water and/or dust entering the contacts or the wiring compartment
- Less credit cable sealing but easier-to-use device locking designs are employed
- Metal connectors are usually preferred with thermoplastic options increasing; thermoplastic devices must withstand normal industrial handling



Typical Application Groups

General Industrial
- Lighting Connections
- Indoor Welding Stations
- Machinery/Tool Connections
- Power Distribution Panels
- Convenience Power
- Battery Charging Equipment

Construction
- Generator Set Panels
- Portable Tools and Equipment
- Limited-Life Installations
- Portable Lighting Equipment

Instrumentation
- Portable Equipment
- Critical Power Connections
- Motor Power Connections
- Critical Robotics Power
- Test Equipment
- Laboratory/Test Stations

OEMs
- Export Machinery
- Critical Power Connections
- nternational Indoor Usage
- Transportable Equipment

DuraTite® and Ever-Lok® Locking Connections

Industrial Specification Grade Redefined.

Non-Metallic Self-Locking Plugs, Connectors and Receptacles

From our industry-standard Ever-Lok® series of plugs, connectors and receptacles, Russellstoll® has developed DuraTite® — the first non-metallic, self-locking pin and sleeve power interconnection system. In 20- and 30-amp ranges, DuraTite® mates with existing 15–30A Ever-Lok® receptacles already in use.





Industrial "Safety Grade" Construction

- 20- and 30-amp plugs and connectors (600VAC max.)
- Indoor industrial and heavy-duty use
- Durable, tough and flame safety rated housings
- DuraV® housing material specially selected for hot or cold washdown duty
- Flame safe UL94-V0 rated housings
- Superior performance in corrosive environments
- High-visibility yellow housings

Safe and Reliable Power Connections: Pin and Sleeve, Voltage Polarized

- Long life: Round, self-cleaning, constant-pressure pin and sleeve contacts, of solid CDA 360 brass for long reliable electrical life
- More power, operates cooler: Large circular electrical contact area allows more current flow with lower temperature rise
- Ground pin keyed for voltage polarization (O-ring seal)
- Voltage polarized for safe connection (U-ground) (pins shown with optional O-ring seals)

Easy To Wire

- "No Twist-Off" locking plugs: Integral threaded screw collars and compression-type bushings make wiring a snap
- Fast assembly and wiring: "Drop-In" rear loaded interiors use no assembly screws, versus 3–5 or more with other connectors. 30/50A connectors use unique E-Z Tite™ external gland lock screw
- Set-screw terminals: Are quick and easy to wire, with complete wire capture in deep pin/sleeve barrels

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DuraTite® and Ever-Lok® Locking Connections

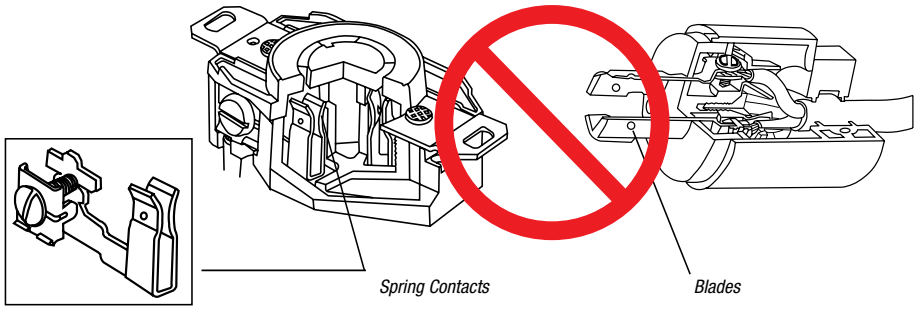
@ 250V AMPS	VOLTAGE	FACE RECEP./ CONN.	CAT. NOS. PLUG DURATITE®	PLUG EVER-LOK®	CONNECTOR DURATITE®	CONNECTOR EVER-LOK®	STD. I.D. BUSHING: PLUG/ CONN.*	RECEPTACLE — EVER-LOK®	
2P3W 20A	125VAC		5P23U1LD	8013U1 8153U1 8593U1	5C23U1LD	8023U1 8093U1 8683U1	.625	8003U1	8083U1
	250VAC		5P23U2LD	8013U2 8153U2 8593U2	5C23U2LD	8023U2 8093U2 8683U2	.625	8003U2	8083U2
	277		5P23U3LD	8013U3 8153U3 8593U3	5C23U3LD	8023U3 8093U3 8683U3	.625	8003U3	8083U3
	480		5P23U4LD	8013U4 8153U4 8593U4	5C23U4LD	8023U4 8093U4 8683U4	.625	8003U4	8083U4
	600		5P23U5LD	801345 8153U5 8593U5	5C23U5LD	8023U5 8093U5 8683U5	.625	8003U5	8083U5
	through 600 (all)		5P23U0LD	8013 8153 8593	5C23U0LD	8023 8093 8683	.625	8003N	8083N
2P3W 30A	125VAC		5P33U1LD	—	5C33U1LD	—	.700	NA	NA
	250VAC		5P33U2LD	—	5C33U2LD	—	.700	NA	NA
	277VAC		5P33U3LD	—	5C33U3LD	—	.700	NA	NA
	480VAC		5P33U4LD	—	5C33U4LD	—	.700	NA	NA
	600VAC		5P33U5LD	—	5C33U5LD	—	.700	NA	NA
	through 600 (all)		5P33U0LD	8015 8155 8656	5C33U0LD	8025 8095 8646	.700	8030N	8005N
3P4W 20A (10A, 600V)	125/250VAC		5P24U1LD	—	5C24U1LD	—	.625	NA	NA
	3Ø 250VAC		5P24U2LD	—	5C24U2LD	—	.625	NA	NA
	3Ø 480VAC		5P24U4LD	—	5C24U4LD	—	.625	NA	NA
	347/600VAC		5P24U5LD	—	5C24U5LD	—	.625	NA	NA
	through 600 (all)		5P24U0LD	8018 8158 8594	5C24U0LD	8028 8098 8684	.625	8008	8084
3P4W 30A (20A, 600V)	125/250VAC		5P34U1LD	—	5C34U1LD	—	.750	NA	NA
	3Ø 250VAC		5P34U2LD	—	5C34U2LD	—	.750	NA	NA
	3Ø 480VAC		5P34U4LD	—	5C34U4LD	—	.750	NA	NA
	347/600V		5P34U5LD	—	5C34U5LD	—	.750	NA	NA
	through 600 (all)		5P34U0LD	8014 8154 8597 8657	5C34U0LD	8024 8094 8687 8647	.750	8031	8004

***Note**: DuraTite® plugs and connectors will mate but not lock to metal plugs and connectors referenced above. DuraTite® will lock to existing metal receptacles, from standard Ever-Lok® line.*

DuraTite® and Ever-Lok® Locking Connections

Bladed Plug and Receptacle

Spring-blade contact designs offer point contact only, with minimal mechanical support in receptacles. Higher heat is generated with use as contacts loosen due to age and dirt accumulation, resulting in failures. Exposed blade contacts can easily be damaged.



Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	6000 volts RMS (minimum creepage and minimum clearance per UL 840)
Circuit Interrupting/ Load Breaking	UL Listed and CSA Certified for circuit interrupting at full rated current
Temperature Rise	Max. 30° C temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pF
Horsepower	Per NEC® 430-151 ratings

Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords; 10 standard diameters from .405" to 1.00", custom sizes to spec
Terminal Identification	In accordance with UL 1682
Cable Pull-Out Force	In accordance with UL 1682
Product Identification	Identification label and molded-in name

Approvals

NEC is a registered trademark of the National Fire Protection Association, Inc.

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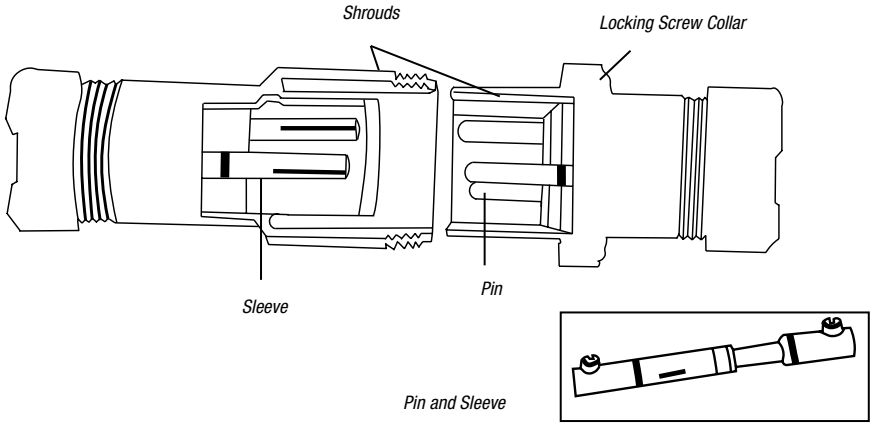
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DuraTite® and Ever-Lok® Locking Connections

Pin and Sleeve Connector and Plug

Pin and Sleeve design enables higher current flow at cooler temperatures due to the large circular contact area. Sleeves act as retainers for the pins, making a reliable connection. Shrouded pins and sleeves are protected from damage and casual access. Locking screw collars provide for a reliable, long-lasting connection.



Performance — Environmental

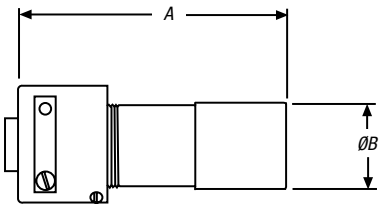
Moisture Resistance	Per UL 1682 Paragraph 49. Flap cover on receptacle, O-rings optional on all pins, sleeves and interiors. Watertight interiors with optional O-rings. Meets requirements for NEMA 3R/12 and IP44
Flammability	V0 or better per UL 94
Operating Temperatures	Maximum continuous: 95° C/203° F Minimum: -40° C/-40° F without impact
Chemicals	Resists standard industrial hydrocarbons, acids, bases and solvents

Material

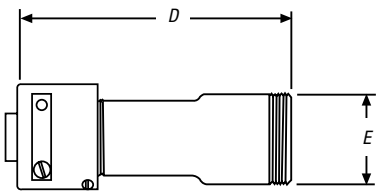
Contact Carrier Interior	Molded arc-resistant UL 94-V0 phenolic thermoset
Housing, Gland Nuts	DuraV® UL 94-V0, high impact
Screw Collar Rings	Thermoplastic
O-Rings	Buna-N (Nitrile)
Contacts: Pins and Sleeves	Brass CDA 360
Terminals	Brass CDA 360
All Hardware	Stainless steel
Gland Friction	20 Amp — Nylon
Washer	30 and 50 Amp — Aluminum
Cable Clamp Bushing	Neoprene

DuraTite® and Ever-Lok® Locking Connections

Plugs



Connectors



Receptacles

DuraTite® mates and locks to standard Ever-Lok® (see **page H-416**).

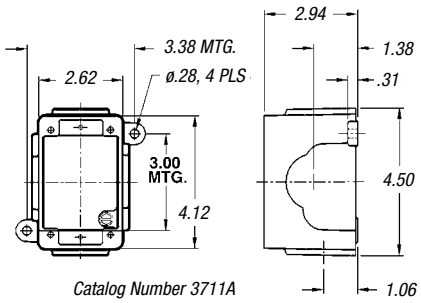
AMPS		A*	ØB	C*	ØD
20A	**inches**	**3.87**	**1.53**	**4.40**	**1.79**
	mm	98.3	38.9	111.8	45.5
30A	**inches**	**6.00**	**1.79**	**6.25**	**2.05**
	mm	152.4	45.5	158.8	52.1

** Dimensions will vary slightly with assembly.*

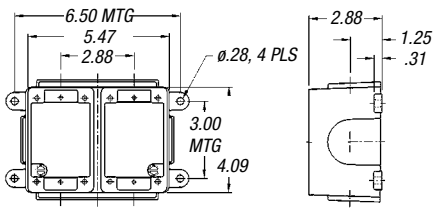
Accessories

Additional Boxes and Accessories Available: Ever-Lok® Section

Conduit Boxes (For Surface Mounting)



Catalog Number 3711A



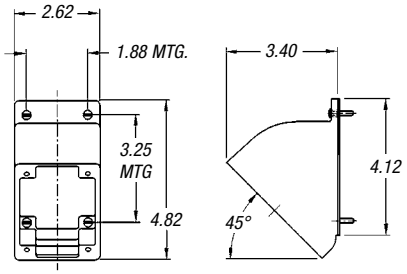
Catalog Number 3712A

	CAST ALUMINUM	CAST BRASS
Single	**3711A**	**3731**
Double	**3712A**	**3732**

***Note**: ¾" NPT Hole standard.*

Additional accessories are available. Consult your Thomas & Betts representative.

45° Angle Adapter



Catalog Number 3678A

CAST ALUMINUM	CAST BRASS
3678A	**3678B**

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DuraTite® and Ever-Lok® Locking Connections

Standard: 10–50 Amp, Maximum 600VAC or 250VDC

Heavy Service: 30–100 Amp, Maximum 480VAC or 250VDC

Midget: 10–20 Amp, Maximum 250VAC or 250VDC

When an Ever-Lok® connection is made, it is a mechanical attachment that will not pull apart unless it is unlocked by hand.

To install, line up the tabs and plug it straight in. External buttons or ribs lock with the mating internal housing automatically. When an Ever-Lok® connector plugs in, it stays in. Locked housings do the work so Ever-Lok® contacts can carry the load! A firm grip and a counter-clockwise reverse twist-release locking for easy removal.

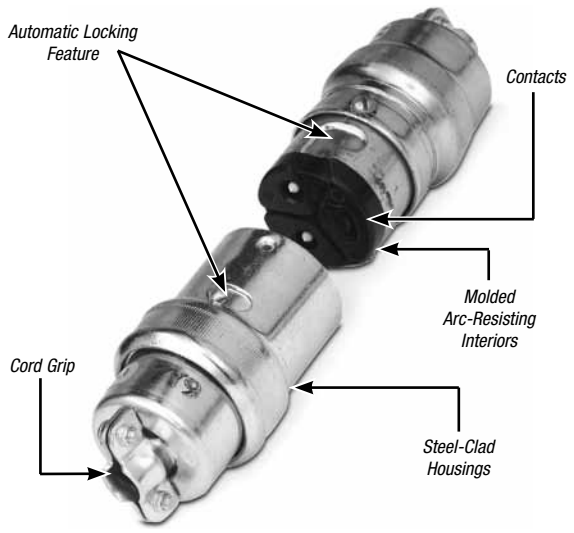


Design Features

1. **Automatic Locking —** Automatic locking feature mechanically attaches the plug casing to the receptacle or connector and eliminates strain on electrical contacts.
2. **Positive Grounding —** Casings are positively grounded by means of phosphor-bronze ground straps integral with ground contacts. Equipment grounding is secured by separate set of contacts which "make first" and "break last" as required by UL.
3. **Dust-Proof —** On clamp-type plugs and connectors, a washer is provided in each cap to be forced over the cord. This serves as a shield to prevent metal particles, dust, etc., from entering the interiors of plugs and connectors.

   Bushing-type plugs and connectors are furnished with a gland nut and Neoprene cable bushing gland to exclude dust and moisture. A formed glide washer is also provided to facilitate tightening of the gland nut.

   Receptacle covers are sealed to boxes by gaskets and have hinged flaps which are gasket-lined and equipped with strong springs to keep them closed and dust out.
4. **Steel-Clad —** Plugs and connectors are plated steel. Plugs have encased locking spring in machine-assembled non-separable housings.
5. **Cord Grip —** Plugs and connectors are provided with adjustable cord grips, preventing strains on connections.
6. **Contacts —** Contacts are precision-made, self-wiping and self-aligning brass and nickel-plated brass.
7. **Unit Assembly —** Contacts and terminals are permanently assembled in an arc-resisting composition body, permitting removal of interior as a unit for wiring. All connections are entirely enclosed, thus avoiding accidental short circuits and tampering by inexperienced personnel.
8. **Handles Lined —** Shell handles have an HDPE liner to contain stray wire ends.
9. **Interiors —** All interiors are molded arc-resisting composition.



DuraTite® line offers thermoplastic performance and Ever-Lok® interface.

Male Plugs





	250VAC RATING	RATING	CLAMP TYPE	MAX CABLE DIA.	BUSHING TYPE	CABLE BUSHING HOLE DIA.	HUB TYPE*	CONDUIT SIZE
2P3W	15 AMP	20 Amp, 125VAC 15 Amp, 250VAC 10 Amp, 600VAC	8013	½"	8153	⅝"	8593 8593CTN**	½" ½"
		20 Amp, 125VAC	8013U1	½"	8153U1	⅝"	8593U1 8593U1CT*	½" ½"
		15 Amp, 250VAC	8013U2	½"	8153U2	⅝"	8593U2	½"
		15 Amp, 277VAC	8013U3	½"	8153U3	⅝"	8593U3	½"
		15 Amp, 480VAC	8013U4	½"	8153U4	⅝"	Consult T&B Representative	
		15 Amp, 600VAC	8013U5	½"	8153U5	⅝"	Consult T&B Representative	
	30 AMP	30 Amp, 250VAC 20 Amp, 600VAC	8015	⅝"	8155	⅝"	8656	¾"
3P4W	15 AMP	20 Amp, 125VAC 10 Amp, 250VAC 15 Amp, 250VAC 10 Amp, 600VAC	8018	½"	8158	11/16"	8594	½"
	30 AMP	20 Amp, 600VAC 30 Amp, 250VAC	8014	⅝"	8154	¾"	8597 8657	½" ¾"
	50 AMP	50 Amp, 250VAC 30 Amp, 250VAC 30 Amp, 600VAC	8314-S 8314	¾" 1⅛"	8354	1"	8396 8397	½" ¾"

** Hub with clamp added at size.*

*** Accommodates rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.*

Notes: *(for Plugs and Connectors):*

Cable Bushing — Oil-resistant Neoprene cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost, when specified on order. See ***page H-425*** *for available sizes. Bushing-type plugs and connectors can be furnished with adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See* ***page H-425****.*

"N" in catalog number refers to nickel-plated neutral pin replace.
Ex: 8013 with 8013N.

Special construction options for Ever-Lok® plugs include control Dummy Plugs" for press lockout function. Consult Technical Services.

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Female Connectors







CLAMP TYPE	MAX. CABLE RATING	BUSHING TYPE	CABLE BUSHING HOLE DIA.	HUB TYPE**	CONDUIT SIZE
8023	½"	**8093**	⅝"	**8683N/8683CTN***	½"
8023U1	½"	**8093U1**	⅝"	**8683U1/8683U1CT***	½"
8023U2	½"	**8093U2**	⅝"	**8683U2**	½"
8023U3	½"	**8093U3**	⅝"	**8683U3**	½"
Consult T&B Representative		Consult T&B Representative		Consult T&B Representative	
Consult T&B Representative		Consult T&B Representative		Consult T&B Representative	
8025	⅝"	**8095**	⅝"	**8646**	¾"
8028	½"	**8098**	11⁄16"	**8684**	½"
8024	⅝"	**8094**	¾"	**8687/8687CT***	½"
				8647	¾"
8324S	¾"	**8394**	1"	**8386**	½"
				8387	¾"

** Hub with clamp added at size.*

*** Accommodates rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.*

Standard Service Female Receptacles





	250VAC RATING	RATING	FEMALE RECEPTACLE ONLY WITH FLAP COVER^	RECEPTACLE WITH BOX FSWS-62*	2-GANG‡
2P3W	15 AMP	20 Amp, 125VAC 15 Amp, 250VAC 10 Amp, 600VAC	8003	8083	8128
		20 Amp, 125VAC	8003U1	8083U1	8128U1
		15 Amp, 250VAC	8003U2	8083U2	8128U2
		15 Amp, 277VAC	8003U3	8083U3	8128U3
		15 Amp, 480VAC	8003U4	8083U4	8128U4
		15 Amp, 600VAC	8003U5	8083U5	8128U5
	30 AMP	30 Amp, 250VAC 20 Amp, 600VAC	8005	8030	8131
3P4W	15 AMP	20 Amp, 125VAC	—	—	—
		10 Amp, 250VAC	8008	8084	8129
		15 Amp, 250VAC	—	—	—
		10 Amp, 600VAC	—	—	—
	30 AMP	20 Amp, 600VAC	—	WITH FS BOX	WITH FD BOX
		30 Amp, 250VAC	8004	8031	8132
	50 AMP	50 Amp, 250VAC	—	WITH FD BOX	WITH FD BOX
		30 Amp, 250VAC	8304	8331	8334
		30 Amp, 600VAC	—	—	—

Notes:

^ For FS, FD, FSWS, FDWS and similar conduit fittings.

** Receptacle with box and cover.*

*** Provided with FDWS62 Box.*

‡ Two-gang receptacles can also be provided in mixed configurations including NEMA bladed, etc. Consult Technical Services.

Male inlets (reversed contacts service): Use receptacle mountings but accept standard female connector.

Horsepower ratings:

½ hp, 1-phase, 230VAC
1 hp, 3-phase, 115VAC

***Note**: Standard Ever-Lok receptacles also accept DuraTite® plugs.*

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Reverse Service Male Receptacles





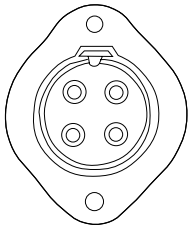
MALE INLET	MALE INLET WITH BOX**
8143	8143D
8143U1	8143U1D
8143U2	8143U2D
8143U3	8143U3D
CONSULT YOUR THOMAS & BETTS REPRESENTATIVE	CONSULT YOUR THOMAS & BETTS REPRESENTATIVE
CONSULT YOUR THOMAS & BETTS REPRESENTATIVE	CONSULT YOUR THOMAS & BETTS REPRESENTATIVE
8146	CONSULT YOUR THOMAS & BETTS REPRESENTATIVE
—	
—	—
8144	8144D
—	—
—	—
8147	8147D
—	—
8374	8374
—	—

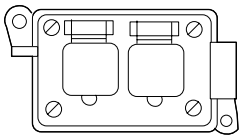
Specifications

- Receptacle Housing: Plated steel; receptacle with cover only; furnished with 6–52 mounting screws; for mounting on switch box or outlet box, use adapter plate 8091A; see **page H-424**
- Back Boxes: Cast aluminum, epoxy powder-coat finish; flap and screw caps aluminum, corrosion-resistant copper-free alloy or steel, CAD plated
- Plug: All cable entry styles of plugs with equivalent ratings fit above receptacles
- Conduit Boxes: Type FSWS-62 or FDWS-62 standard, cast aluminum; additional boxes available; see **page H-423**
- Gang Type: Can be furnished in gang or tandem units and in combination with other FS and FD devices; see **page H-423**
- Outlets: Unless otherwise specified, furnished with one ¾" outlet; additional outlets charged extra, specific size and location; consult Technical Services

Standard Service Female Receptacles







POLES/WIRES	RATING	SINGLE RECEPTACLE		FLANGED PANEL MOUNT RECEPTACLE	DUPLEX RECEPTACLE	
		RECEPTACLE ONLY	WITH BACK BOX		RECEPTACLES ONLY	WITH BACK BOX
2P3W	10 Amp, 250VDC 20 Amp, 250VAC*	**8703**	**8753**	**8943**	**8733**	**8773**
	20 Amp, 125VAC	**8703U1**	**8753U1**	**8943U1**	**8733U1**	**8773U1**
	15 Amp, 250VAC	**8703U2**	**8753U2**	**8943U1**	**8733U2**	**8773U2**
3P4W	10 Amp, 125VDC 20 Amp, 250VAC**	**8704**	**8754**	**8944**	**8734**	**8774**
4P5W	10 Amp, 125VDC 20 Amp, 250VAC**	**8705**	**8755**	**8945**	**8735**	**8775**

Notes:
** ½ hp, 1-Phase, 230VAC*
***1 hp, 3-Phase, 115VAC*

Specifications

- Receptacle Housing: Heavy gauge steel, plated
- Back Boxes: Type FSWS-62 standard, cast aluminum; Additional boxes available, see **page H-423**
- Gang Type: Can be furnished in gang or tandem units and in combination with other FS and FD devices; see **page H-423**
- Outlets: Standard, one ¾" top or bottom; additional outlets charged extra; see boxes listed on **page H-423**
- Plug and Connector Housings: Steel, plated
- Cable Diameter:
  Clamp Type: .500" max. cable diameter
- Bushing Type:
  2P3W — .563" diameter standard
  3P4W — .281" diameter standard
  4P5W — .594" diameter standard
- Cable Bushing: Oil-resistant Neoprene cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost when specified on order; see **page H-425** for available sizes

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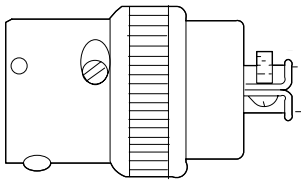
Technical Services
Tel: 888.862.3289

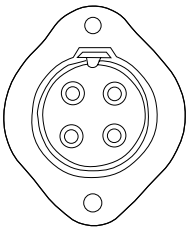
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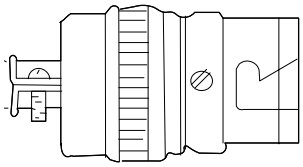
DuraTite® and Ever-Lok® Locking Connections

Standard Service Plugs and Connectors

Reverse Service







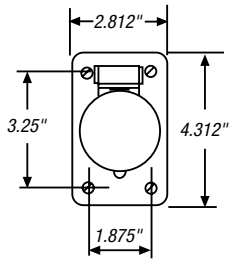
CLAMP TYPE^		MALE FLANGED PANEL MOUNT	CLAMP TYPE^	
MALE PLUG	FEMALE CONNECTOR		FEMALE PLUG	MALE CONNECTOR
8713	8723	8943R	8713R	8723R
8713U1	8723U1	8943U1R	8713U1R	8723U1R
8713U2	8723U2	8943U2R	8713U2R	8723U2R
8714	8724	8944R	8714R	8724R
8715	8725	8945R	8715R	8725R

^ Plugs and connectors are also available as bushing or hub type similar to those in standard Ever-Lok. Please consult your Thomas & Betts representative.

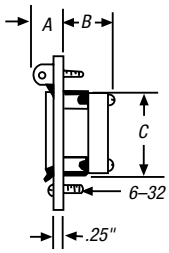
DuraTite® and Ever-Lok® Locking Connections

Female Receptacles and Reverse Service

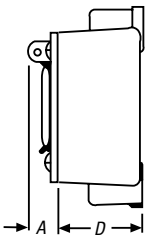
Without Box



With Box FSWS-62

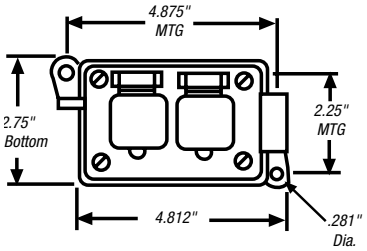


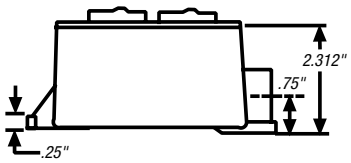
Without Box FDWS-62



	STANDARD SERVICE				REVERSE SERVICE			
SIZE	**A**	**B**	**C**	**D**	**A**	**B**	**C**	**D**
Standard								
10 Amp 15 Amp 20 Amp	.875"	1.375"	2.375"	2.313"	.875"	2.000"	1.750"	2.937"
30 Amp	.875"	1.500"	2.875"	2.937"	.875"	1.500"	2.875"	2.937"
50 Amp	1.470"	1.875"	2.125"	2.937"	1.470"	1.875"	2.125"	2.937"
Midget	.687"	1.810"	1.280"	NA	.687"	1.810"	1.280"	NA

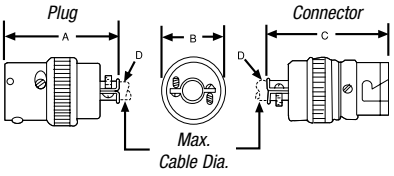
Midget Duplex



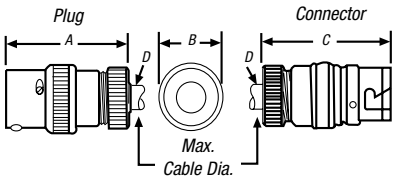


Plugs and Connectors

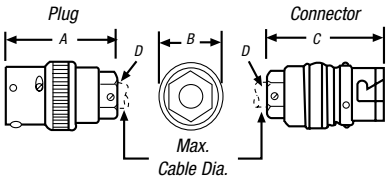
Clamp Type



Bushing Type



Hub Type



	CLAMP TYPE				BUSHING TYPE				HUB TYPE			
SIZE	**A**	**B**	**C**	**D**	**A**	**B**	**C**	**D**	**A**	**B**	**C**	**D**
Standard												
15–20 Amp	3.125"	1.750"	3.187"	.500"	3.250"	1.750"	3.375"	.750"	3.125"	1.750"	3.187"	.500"
30 Amp	3.437"	2.125"	4.250"	.625"	3.750"	2.125"	4.500"	1.125"	3.500"	2.125"	4.250"	.750"
50 Amp	4.750"	2.125"	4.750"	1.125"	4.875"	2.125"	4.875"	1.125"	4.500"	2.125"	4.625"	.750"
Midget	2.875"	1.440"	2.875"	.500"	3.000"	1.440"	3.000"	.625"	2.875"	1.440"	2.875"	.500"

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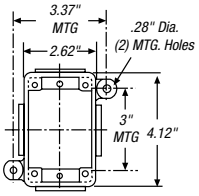
Mounting Options for Midget and Standard Ever-Lok®.

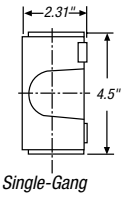
Type FS (Shallow) and Type FD (Deep)

Aluminum boxes have 6-32 cover mounting holes tapped to accommodate all FS and FD cover assemblies.
Brass boxes have 10-24 cover mounting holes tapped to accommodate all FS and FD cover assemblies.

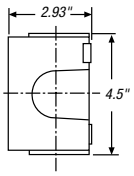


Single-Gang



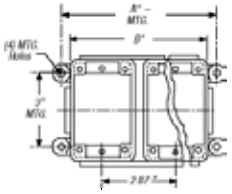


Single-Gang





Two-Gang



Multiple-Gang



DSFD

GANGS	TYPE	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS*
Single	FS	**3701A**	**3721-RS**	4.12" x 2.62" x 2.31"
	FD	**3711A**	**3731-RS**	4.12" x 2.62" x 2.94"
	DSFD	**3781A**	**—**	4.12" x 3.62" x 4.12"
Two	FS	**3702A**	**3722-RS**	4.12" x 5.5" x 2.25"
	FD	**3712A**	**3732-RS**	4.12" x 5.62" x 2.87"

** Dimensions are overall exclusive of conduit pads and mounting lugs.*

Notes:

When Type FD devices are to be mounted in boxes, Type FD boxes should be used. FS boxes will not accommodate FD devices.

Mounting — All the above boxes are for surface mounting. For flush mounting, see ***page H-424****.*

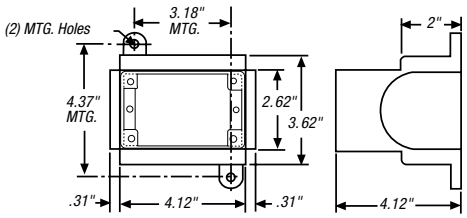
Boxes — Cast brass, natural finish; cast aluminum, corrosion-resistant copper-free alloy, epoxy powder coat finish.

Conduit Entries — Unless otherwise specified, furnished with one .75" outlet per gang, top or bottom. Additional conduit entries available — see price list. Specify size and location.

Maximum Conduit — FS and FD: 1", one per gang top and bottom and one each side.

DSFD — One 1.5" or two .5" top and bottom. Cast iron available on special order — consult your Thomas & Betts representative.

DSFD



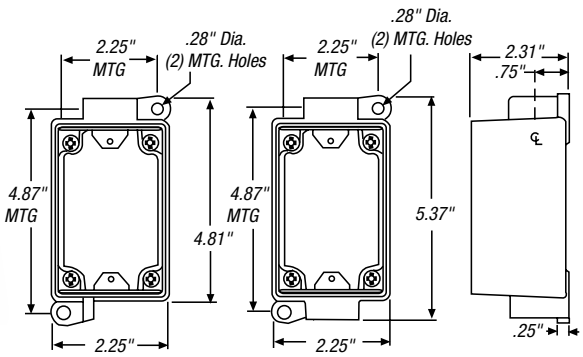
Multiple-Gang Dimensions

	A		B	
GANGS	FS	FD	FS	FD
2-Gang	6.50"	6.50"	5.50"	5.62"
3-Gang	11.25"	9.37"	10.37"	8.50"
4-Gang	14.12"	12.25"	13.25"	11.37"

Type FSWS and FDWS (with Mounting Shelf for Box-Mounted Devices)

Aluminum Die-Cast Boxes with cover mounting holes tapped for 6-32 screws to accommodate all FS and FD cover assemblies.





	CONDUIT ENTRIES	
CAT. NO.	TOP	BOTTOM
FSWS-62	¾"	NA
FDWS-62	¾"	NA
FDWS-622	¾"	¾"
FDWS-63	1"	NA
FDWS-633	1"	1"

Notes:

Boxes — Aluminum die-cast, corrosion-resistant copper-free alloy, epoxy powder coat finish.

Conduit Entries — Standard as listed.

Mounting — All of the above boxes are for surface mounting.

DuraTite® and Ever-Lok® Locking Connections

Adapter Flush Frames*

GANGS	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS
1	**3671A**	**3681**	5" x 3.5"
2	**3672A**	**3682**	5" x 6.5"

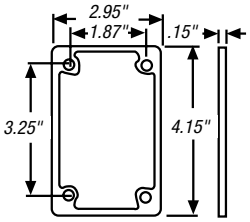
** Furnished complete with gasket and screws.*

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.



Blank Cover*

Covers Standard FS/FD™ box openings.



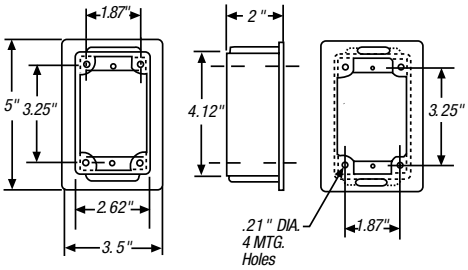


CAT. NO.	MATERIAL
3677A	Cast Aluminum
3687	Cast Brass

** Furnished complete with gasket and screws.*

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.

Flush Wall-Mounting Extension*





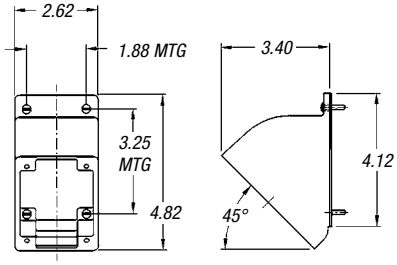
CAT. NO.	MATERIAL
3679A	Cast Aluminum
3679B	Cast Brass

** Furnished complete with gasket and screws.*

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.

45° Angle Adapter*

Mounts to any FS/FD™ box.



Catalog Number 3678A



CAT. NO.	MATERIAL
3678A	Cast Aluminum
3678B	Cast Brass

** Furnished complete with gasket and screws.*

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.

Adapter Sub-Plate

The addition of this adapter sub-plate will permit the use of Ever-Lok® conduit box-type receptacles in switch boxes or outlet boxes with raised covers, as listed. Used on standard (deep) stamped metal conduit boxes. Adapts two-hole to four-hole patterns.



CAT. NO.	MATERIAL
8091A	Cast Aluminum

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DuraTite® and Ever-Lok® Locking Connections

Combination Gland Nut and Cable Clamp



Provides extra clamping protection in hard service applications. Relieves terminals and rubber gland of all cable strain.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	MAX. CABLE DIA.
10 Amp	**3905**	**3905B**	.62"
20 Amp	**3906**	**3906B**	1.12"
30 Amp	—	—	—

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish, cast brass.

Conduit Adapters



Adapter tapped with NPT thread to accommodate armored and non-metallic cable or flexible conduit.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	TAPPED HOLE NPT
15 Amp	**FSA11**	**FSA11B**	.5"
	FSA12	**FSA12B**	.75"
30 Amp	**FSA21**	**FSA21B**	.5"
50 Amp	**FSA22**	**FSA22B**	.75"
	FSA23	**FSA23B**	1"

Cable Bushings

HOLE DIAMETER FOR CABLE	SIZE 1 MIDGET EVER-LOK	SIZE 2 STD. 15 AMP	SIZE 3 20, 30 AND 50 AMP
.250"	**MG0**	—	—
.313"	—	**SG05**	—
.375"	—	**SG1**	**JG31**
.438"	**MG15**	**SG15**	—
.500"	**MG2**	**SG2**	**JG32**
.531"	—	**SG2A**	—
.563"	**MG25**	**SG25**	**JG325**
.594"	**MG2B**	**SB2B**	—
.625"	—	**SG3**	**JG33**
.688"	—	**SG3A**	—
.750"	—	**SG4**	**JG34**
.875"	—	—	**JG35**
1.000"	—	—	**JG36***
1.125"	—	—	**JG361****



Size 2 Cable Bushing



Size 3 Cable Bushing

Material — Oil-resistant Neoprene.

Size 3 Cable Bushing:

** Style for maximum cable only.*

*** Special minimum wall style.*

Notes:

Bushing specials available at time of order.

When standard plugs or connectors are required to be furnished with one or more of the above accessories, add the suffix and catalog number of the accessory selected to the catalog number of the plug or connector. Complete list price is the total of the list price of the device plus the list price of the accessory.

Example — Catalog No. SKP3G with adapter tapped ¾" would be Catalog No. SKP3G/JG31.

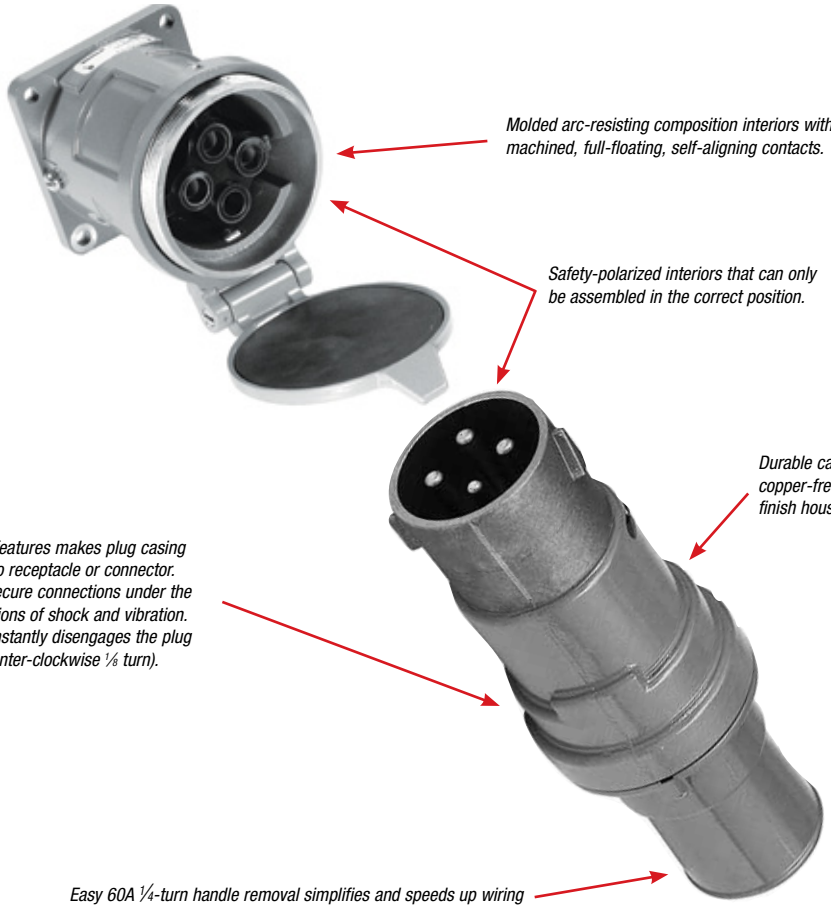
Heavy-Duty Automatic Locking Receptacles, Plugs and Connectors

30–100 Amp, 480VAC/250VDC

Heavy Service Ever-Lok® components stay plugged in so your portable equipment stays on. The industrial standard for portable welders and other industrial equipment locks in place automatically at insertion — no screw collars to bother with. With its contoured handle, an easy counter-clockwise twist releases the plug for withdrawal, even under full-rated load/circuit-interrupting conditions.

Simple and rugged, the Heavy Service Ever-Lok® self-locking system sets the standard for easy access in facilities, welding and industrial equipment use. All standard receptacle configurations are available, as well as reversed contact service options.

Design Features



Molded arc-resisting composition interiors with machined, full-floating, self-aligning contacts.

Safety-polarized interiors that can only be assembled in the correct position.

Durable cast aluminum, corrosion-resistant, copper-free alloy, epoxy powder-coated finish housings.

Automatic locking features makes plug casing mechanically fast to receptacle or connector. Provides positive secure connections under the most severe conditions of shock and vibration. Twist of the wrist instantly disengages the plug when required (counter-clockwise ⅛ turn).

Easy 60A ¼-turn handle removal simplifies and speeds up wiring (combination conduit adapter thread/clamp assembly included).

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DuraTite® and Ever-Lok® Locking Connections

	Plugs	Connectors	Receptacles	
				

CONFIGURATION				HSF SERIES BASIC RECEPTACLE	HSA SERIES*
30 Amp	2P3W	**8407**	**8443**	**HSF8403**	**8403**
	3P4W	**8408**	**8444**	**HSF8404**	**8404**
60 Amp	2P3W	**8417**	**8453**	**HSF8413**	**8413**
	3P4W	**8418†**	**8454**	**HSF8414**	**8414**
100 Amp	3P4W	**8428-72**	**8464-72**	**HSF8424-72**	**8424-72**

Notes:

Reverse service available by adding "R" suffix to catalog number. Solder lugs on 100 amp only.

*Connectors — Can be furnished with conduit adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See **page H-432**.*

Flap covers are standard on all receptacles.

** Can be furnished with 45° angle adapter when specified on order. Add suffix -45 to catalog number.*

† 8418 or F27194 Automotive 480VAC version plug.

Standard Cable Bushing

(**see page H-432** for other Bushings)

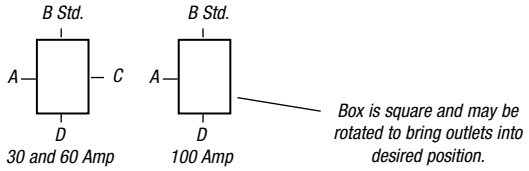
CURRENT RATING	BUSHING	MAX. AWG SIZE
30	7/8"	#8, 7-strand or flexible
60	1 3/16"	#4, 7-strand or flexible
100	1 1/2"	#2, 7-strand or flexible

Conduit Size

CURRENT RATING	STD. SIZE	MAX. SIZE
30	1"	1 1/4"
60	1"	1"
100	2"	2"

*See **page H-431** for cable conduit adapters.*

Outlet Location — Standard Series



Receptacle Mounting Options

Progressive Assembly

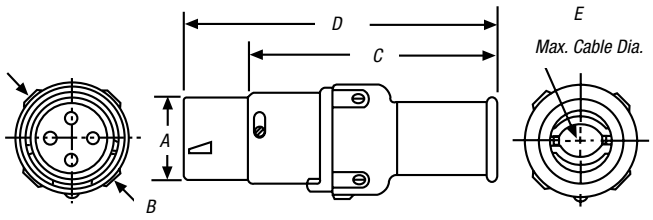
MOUNTING STYLE		TO ORDER USE:	CURRENT RATING 30 AMP	60 AMP	100 AMP
Standard Series **HSA** 		Receptacle + Vertical or Square Mount Box + Angle Adapter or JAA3-45 (45°)	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JAA3 (20°) or JAA6-45 (45°)	Basic Receptacle* + JB6-B150 1½" Std. Conduit Size + JAA6-AB6 (20°) or JAA10-45 (45°)	Basic Receptacle* + JB10-B200 2" Std. Conduit Size + JAA10 (20°)
Series **HSR** Straight 		Receptacle + Vertical Mount Box + Straight Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JRA3	Basic Receptacle* + JB6-B150 1½" Std. Conduit Size + JRA6-AB6	Basic Receptacle* + JB10-B200 2" Std. Conduit Size + JRA10
Series **HSB** 		Receptacle + 30° Angle Adapter	Basic Receptacle* + JAAB3	Basic Receptacle* + JAAB6	Basic Receptacle* + JAAB10
Series **HSE** 		Receptacle + Angle Enclosure 1" Std. Conduit Size	Basic Receptacle* + JE3 1½" Std. Conduit Size	Basic Receptacle* + JE6	N/A
Series **HSH** Horizonal 		Receptacle + Horizontal Mount Box + Angle Adapter	Basic Receptacle* + JB3-B100 1" Std. Conduit Size + JHA3 (20°)	N/A	N/A

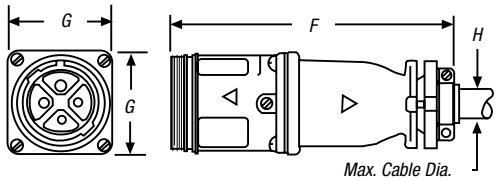
** Select appropriate receptacle by rating, configuration and voltage on* ***page H-427****.*
Ordering — Order individual pairs or use series letters followed by receptacle I.D. (ref. HSA series number).
Example: HSB8414. (For HSA, use receptacle catalog numbers only.)

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DuraTite® and Ever-Lok® Locking Connections

Plugs and Connectors





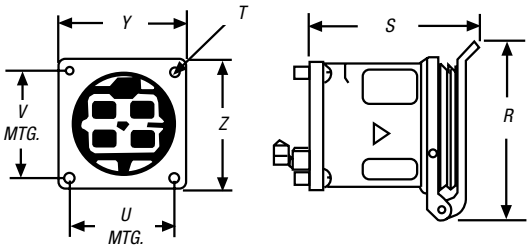
Female — Connector

Dimensions for 2-, 3- or 4-Wire Weathertight Units

AMP	A	B	C*	D	E	F	G	H
30	2"	3"	5.625"	7"	1"	7.625"	2.750"	1.125"
60	2.625"	3.750"	7.687"	9.750"	1.50"	9.625"	3.500"	1.500"
100	2.625"	3.750"	7.687"	11"	1.50"	10.875"	4"	1.875"

** Length of plug exposed when engaged in receptacle or connector.*

Basic Receptacles

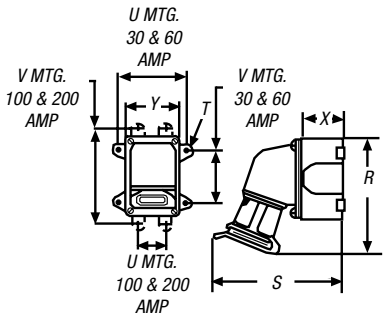


Dimensions for 3- or 4-Wire Units

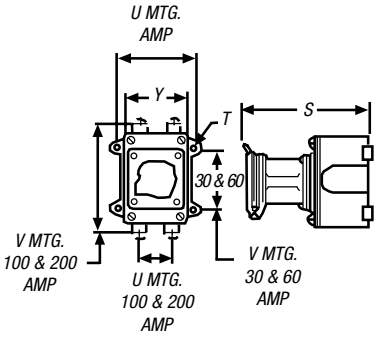
AMP	Y	V	U	T	S	R	PANEL OPENING
30	2.750"	2.250"	2.250"	.213"	3.250"	7.000"	2.250" D
60	3.500"	2.875"	2.875"	.281"	4.625"	8.875"	2.875" D
100	4"	3.375"	3.375"	.281"	5.875"	10.500"	3"

DuraTite® and Ever-Lok® Locking Connections

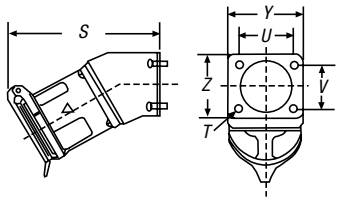
Standard Series HSA



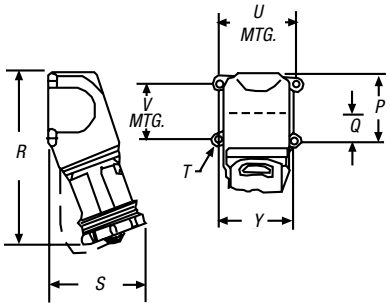
Series HSR



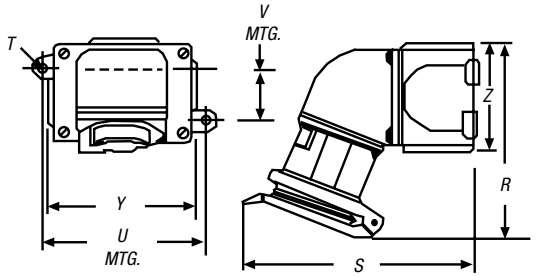
Series HSB



Series HSE



Series HSH



AMP	SERIES	Z	Y	X	V	U	T	Q	P	S	R	PANEL OPENING
30	HSA (20°)	4.500"	3.000"	2.375"	2.687"	3.687"	.250"	—	—	7.375"	7.000"	—
	HSA (45°)	4.500"	3.000"	2.375"	2.687"	3.687"	.250"	—	—	7.875"	6.625"	—
	HSR	4.500"	3.000"	2.375"	2.687"	3.687"	.250"	—	—	6.750"	—	—
	HSB	3.125"	3.125"	—	2.250"	2.250"	.213"	—	—	6.250"	—	2.250"
	HSE	—	3.500"	—	—	4.000"	.250"	1.250"	2.375"	5.250"	7.250"	—
	HSH	3.937"	4.500"	2.375"	3.687"	2.687"	.250"	—	—	7.250"	6.125"	—
60	HSA (20°)	5.625"	4.000"	3.000"	3.812"	4.937"	.343"	—	—	9.250"	8.875"	—
	HSA (45°)	5.625"	4.000"	3.000"	3.812"	4.937"	.343"	—	—	9.875"	8.250"	—
	HSR	5.625"	4.000"	3.000"	3.812"	4.937"	.343"	—	—	8.375"	—	—
	HSB	3.187"	3.625"	—	2.187"	2.625"	.281"	—	—	9.250"	—	2.500"
	HSE	—	4.250"	—	3.125"	4.500"	.281"	1.562"	3.687"	6.750"	9.750"	—
100	HSA (20°)	5.500"	5.500"	3.750"	6.750"	4.250"	.343"	—	—	10.750"	10.500"	—
	HSA (45°)	5.500"	5.500"	3.750"	6.750"	4.250"	.343"	—	—	11.750"	9.500"	—
	HSR	5.500"	5.500"	3.750"	6.750"	4.250"	.373"	—	—	12.250"	—	—
	HSB	3.187"	3.625"	—	2.187"	2.625"	.281"	—	—	9.250"	—	2.500"

Note: *U = horizontal mounting hole centers; V = vertical mounting hole centers.*

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Replacement Interiors

For Receptacles, Connectors, Plugs and Male Inlets





	FEMALE INTERIORS: RECEPTACLES AND CONNECTORS			MALE INTERIORS: PLUGS		
POLES/WIRES	30 AMP	60 AMP	100 AMP	30 AMP	60 AMP	100 AMP
2P3W	ARU323	ARU623	—	APU323	APU623	—
3P4W	ARU334	ARU634	ARU134-6	APU334	APU634	APU134-6

Notes:

Interiors — Arc-resisting composition with machined, full-floating, self-aligning contacts.
Solder lug interior will not interchange with mechanical lug. If you have solder lugs, reorder solder lugs.

Conduit Adapters

Adapters are tapped NPT standard pipe thread to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit.



JPA62 Conduit Adapter

Plug or Connector Sizes

30 AMP CAT. NO.	TAPPED HOLE SIZE NPT	60 AMP CAT. NO.	TAPPED HOLE SIZE NPT	100 AMP CAT. NO.	TAPPED HOLE SIZE NPT
JPA31	½"	JPA62	¾"	JPA104	1¼"
JPA32	¾"	JPA63	1"	JPA105	1½"
JPA33	1"	JPA64	1¼"	JPA106	2"

Notes:

Material — Cast aluminum, corrosion-resistant copper-free alloy, electrostatic epoxy coated. Furnished complete with gasket and screws.

To specify standard plugs or connectors equipped with one of the above adapters, add the catalog number of the adapter selected to the catalog number of the plug or connector. Complete list price is the list price of the device plus list price of the adapter.

Example: Cat. No. 8443 with adapter tapped 1" would be Cat. No. 8443/JPA33.

Cable Bushings

Boxed catalog numbers are standard bushing sizes. To order non-standard bushing, specify as follows: Example 8418/JG65.

Standard Cable Bushings

- Size No. 3, 6, 10 and 20



Oversize Cable Bushings

- Size No. 3, 6, 10 and 20



HOLE DIAMETER FOR CABLE	30 AMP	60 AMP	100 AMP
.375"	**JG31**	—	—
.500"	**JG32**	—	—
.563"	**JG325**	—	—
.594"	**JG32B**	—	—
.625"	**JG33**	**JG63**	—
.750"	**JG34**	**JG64**	**JG104**
.781"	**JG341**	—	—
.875"	**JG35**	**JG65**	**JG105**
.937"	**JG355**	—	—
1.000"	**JG38***	**JG66**	**JG106**
1.125"	**JG361***	—	—
1.188"	—	**JG67**	**JG107**
1.313"	—	—	**JG108**
1.375'	—	**JG69***	—
1.500"	—	**JG610***	**JG1010**
1.687"	—	—	**JG1011**
1.813"	—	—	—
1.875"	—	—	**JG1013***

** Oversize cable bushings.*

***Note**: When ordering, select bushing size slightly larger than your cable O.D. for best fit.*

Material — Neoprene.

Identification letter inside hole.

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Control Circuit Connections

Russellstoll Line Selections for Indoor and Outdoor Applications

SK/SKW Multi-Pin Control Circuit to 11P12W 20A	The toughest multi-circuit, screw-termination circular connector system; use self-locking SK components indoor and collar-locking SKW components outdoor; load breaking at 20 amps. Solid brass (silver-plated) contacts ensure long life and interiors can be rebuilt. All pin counts are available from 3P4W through 11P12W, gasketed interiors in SKW.
Switches 125/250VAC 10A, 20A and 30A	SPST and SPDT Tumbler Switches are offered in industrial and hazardous-duty styles. Heavy-duty, copper-free aluminum housings (brass available) around selected common ratings. Switches carry AC-only ratings (see Hazardous Duty section for explosion-proof switches).
Interlocks through 4P5W 30A through 400A	A broad offering of performance interlocks in sheet steel, cast aluminum or brass. Automotive/ Industrial welding units include 60A and 100A versions, both Heavy Service Ever-Lok® and MaxGard® lines. Switched, fused and circuit breaker versions are available as well as switchgear selections. Custom enclosures wall-mount or column-mount in standard 8" I-beam webs.

Usage

- Any application where electrical connections need protection from water and/or dust entering the contacts or the wiring compartment
- Cable or conduit sealing and device locking designs are critical
- Metal connectors are usually preferred for long service life



Typical Application Groups

General Industrial Marine
- Lighting Systems
- Shore-to-Ship Power
- Welding Stations
- Portable Distribution Centers
- Shipboard Power Outlets
- Telephone Shore-to-Ship

Construction and Agriculture
- Generator Sets and Systems
- Portable Tools and Equipment
- Irrigation System Panels Portable Lighting and Equipment

Government, Municipal and Utilities
- Portable Building Power
- Army Corps of Engineers
- Utilities Panels
- Emergency Power Systems
- Sewage Pumping Stations
- Lighting and Controls

Industrial and OEM
- Factory Power Outlets
- HVACR Controls
- Machine Tool Controls
- Amusement Park Systems

20 Amp, 250 Volts AC or DC, 600 Volts AC Maximum Rating
Load-Breaking Multi-Circuit Receptacles, Plugs, Connectors and Inlets

Features and Benefits

Type SK

Type SK multi-circuit receptacles, plugs, inlets and connectors are designed for indoor or NEMA 1 automatic press, tool control and welder applications requiring rugged, shock-resistant devices capable of safely interrupting rated currents under load.

Receptacles and connectors have Neoprene gasket mounts and positive grounding path through separate contact. Equipment grounding contacts "make first" and "break last." Wiring space is generous. Listed ratings are for interrupting currents under load.

The time-tested Ever-Lok® automatic locking feature provides positive connections under the most severe conditions of shock and vibration. Yet a twist of the wrist instantly disengages the plug when required.



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20 Amp, 250 Volts AC or DC, 600 Volts AC Maximum Rating
Load-Breaking Multi-Circuit Receptacles, Plugs, Connectors and Inlets

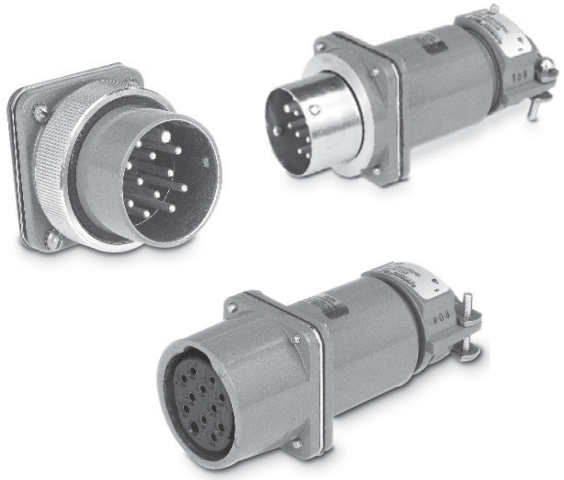
Features and Benefits

Type SKW

Type SKW multi-circuit receptacles, plugs, inlets and connectors are designed for outdoor NEMA 4, rough service and critical environment machinery, HVACR systems, servo control and other automatic/controlled functions requiring rugged, shock-resistant devices capable of safely breaking rated loads. These watertight and oil-tight devices are equipment grounded with ground contacts that "make first" and "break last." Wiring space is generous. Listed ratings are for full load interrupting currents.

Both series feature simple set-screw wiring termination in a circular connector with up to 11-pole 12-wire circuit capability. A wide selection of cable bushings can be specified upon ordering at no additional charge. Conduit adapters are also available for shielded or construction usage for both SK and SKW series.

***Notes**: For more than 12 circuits, miniature connectors or rectangular format, ask about T&B Pos-E-Kon® line.*



Control Circuit Connections

Indoor, NEMA 1
20 Amp Load Breaking
250 Volts DC
600 Volts AC (Maximum Rating)

Standard Service **Connector** **Reverse Service**



POLES/ WIRES	FEMALE RECEPTACLE STYLE SKR	MALE PLUG STYLE SKP	FEMALE CONNECTOR STYLE SKC	MALE RECEPTACLE STYLE SKRR	CONNECTOR*/ FEMALE PLUG STYLE SKCU	CABLE BUSHING HOLE ID
2P3W	**SKR3G**	**SKP3G**	**SKC3G**	**SKRR3G**	**SKCU3G**	5/8"
3P4W	**SKR4G**	**SKP4G**	**SKC4G**	**SKRR4G**	**SKCU4G**	5/8"
4P5W	**SKR5G**	**SKP5G**	**SKC5G**	**SKRR5G**	**SKCU5G**	3/4"
5P6W	**SKR6G**	**SKP6G**	**SKC6G**	**SKRR6G**	**SKCU6G**	3/4"
6P7W	**SKR7G**	**SKP7G**	**SKC7G**	**SKRR7G**	**SKCU7G**	3/4"
7P8W	**SKR8G**	**SKP8G**	**SKC8G**	**SKRR8G**	**SKCU8G**	7/8"
8P9W	**SKR9G**	**SKP9G**	**SKC9G**	**SKRR9G**	**SKCU9G**	7/8"
9P10W	**SKR10G**	**SKP10G**	**SKC10G**	**SKRR10G**	**SKCU10G**	1"
10P11W	**SKR11G**	**SKP11G**	**SKC11G**	**SKRR11G**	**SKCU11G**	1"
11P12W	**SKR12XG**	**SKP12XG**	**SKC12XG**	**SKRR12XG**	**SKCU12XG**	1"

** Connectors: Both SKCU and SKC connectors will mate with standard service SKP plugs. SKC devices offer external shroud protection for female contacts. Both devices will lock with plug.*

Note: *With conduit fittings, plugs and connectors can be furnished with adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See* ***page H-443****. Special construction: press control lockout dummy, Cat. #SKPD-.*

Specifications

- Receptacle Housing:

  Furnished with Neoprene gasket and 6-32 mounting screws
  Type SKWR — Cast aluminum, corrosion-resistant copper free alloy
  Style SKR — Heavy-gauge steel, plated
- Plug Housing:

  Type SKP — Steel, zinc-plated with heavy-cast aluminum alloy cable clamp and cable bushing
  Type SKWP — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Furnished with heavy-cast cable clamp and cable bushing
- Connector Housing: Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder coat finish. Furnished with heavy-cast cable clamp and cable bushing
- Conduit Boxes: Cast boxes for above receptacles are listed on **page H-440**. Type SK receptacles require FD series or DSFD box; can be furnished with single-gang outlet box at additional cost. When required, add suffix catalog number of box to catalog number of receptacle
- Cable Bushing: Oil-resistant Neoprene strain relief cable bushing regularly furnished with hole size as listed; other hole sizes available at no extra cost if specified on order. See **page H-443** for additional sizes
- Interiors: Contacts are removable and have pressure type terminals for 12 AWG maximum conductors
- Insulating Bodies: Arc- and impact-resisting mold composition
- Contacts: Silver plated with fully insulated pressure screw-type terminals
- Repair Kits: Pins/Sleeves Repair — Components for rebuild of 2–4 interiors

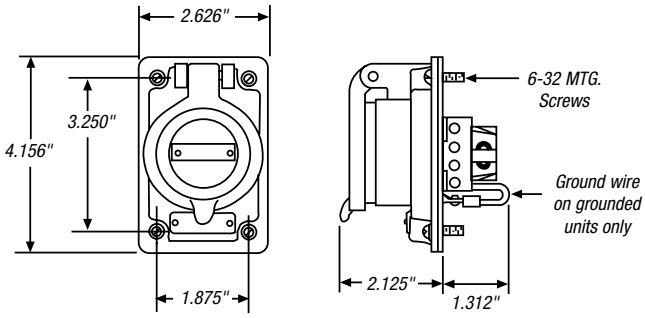
  Male Devices **Cat. No. SKX12MS**
  Female Devices **Cat. No. SKX12FA**

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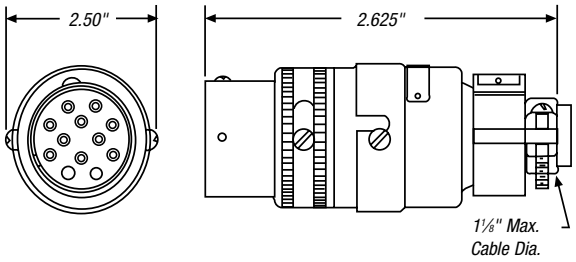
Control Circuit Connections

Standard Service

Female Receptacle — Style SKR



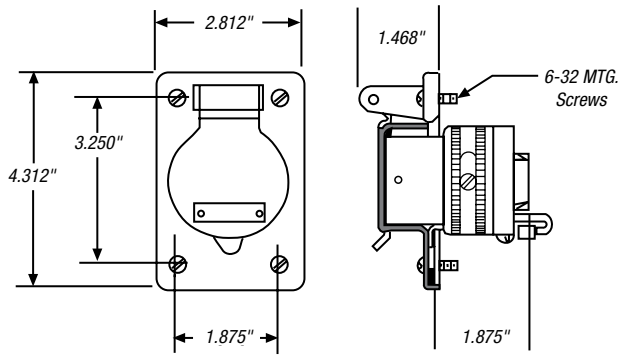
Male Plug — Style SKP



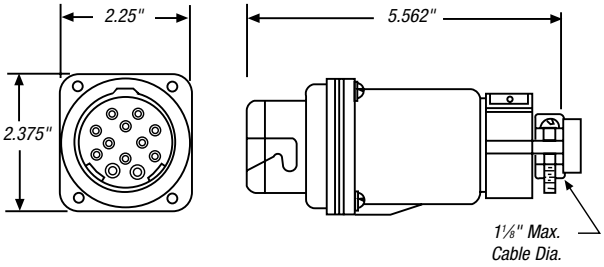
Note: *All require FD or DSFD series box mounting.*

Reverse Service

Male Receptacle — Style SKRR

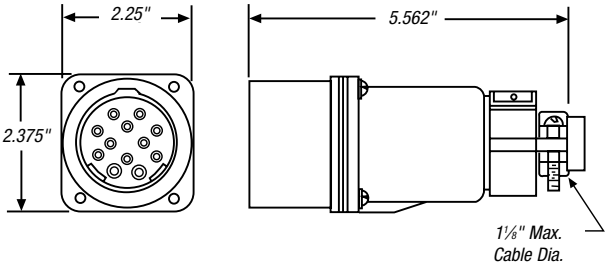


Female Plug — Style SKCU (non-shrouded connection)



Connector

Female Connector — Style SKC (shrouded style)



Control Circuit Connections

Outdoor, NEMA 4 (with screw cap)
20 Amp Load Breaking
600 Volts AC Max.
250 Volts DC






POLES/ WIRES	FEMALE RECEPTACLE STYLE SKWR	MALE PLUG STYLE SKWP	FEMALE CONNECTOR STYLE SKWC	MALE MOTOR PLUG STYLE SKWM	CABLE BUSHING HOLE ID
2P3W	**SKWR3G**	**SKWP3G**	**SKWC3G**	**SKWM3G**	5/8"
3P4W	**SKWR4G**	**SKWP4G**	**SKWC4G**	**SKWM4G**	5/8"
4P5W	**SKWR5G**	**SKWP5G**	**SKWC5G**	**SKWM5G**	3/4"
5P6W	**SKWR6G**	**SKWP6G**	**SKWC6G**	**SKWM6G**	3/4"
6P7W	**SKWR7G**	**SKWP7G**	**SKWC7G**	**SKWM7G**	3/4"
7P8W	**SKWR8G**	**SKWP8G**	**SKWC8G**	**SKWM8G**	7/8"
8P9W	**SKWR9G**	**SKWP9G**	**SKWC9G**	**SKWM9G**	7/8"
9P10W	**SKWR10G**	**SKWP10G**	**SKWC10G**	**SKWM10G**	1"
10P11W	**SKWR11G**	**SKWP11G**	**SKWC11G**	**SKWM11G**	1"
11P12W	**SKWR12XG**	**SKWP12XG**	**SKWC12XG**	**SKWM12XG**	1 1/8"

Note: *SKWM male inlet accommodates SKWC Connector (female). Plugs and connectors can be furnished with adapters to accommodate rigid conduit or standard connectors for armored and non-metallic cable or flexible conduit. See* ***page H-443****.*

Specifications

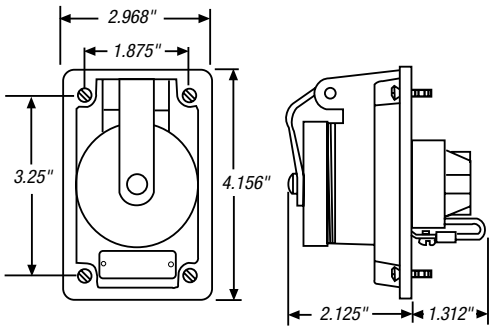
- Receptacle Housing: Type SKWR — Cast aluminum, corrosion-resistant copper-free alloy. Furnished with Neoprene gasket and stainless steel 6-32 mounting screws.
- Plug and Connector Housing: Heavy-cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish; furnished with heavy-cast cable clamp and cable bushing.
- Conduit Boxes: Cast boxes for above receptacles are on **page H-440**. Can be furnished with single-gang outlet box at additional cost. When required, add suffix catalog number of box to catalog number of receptacle.
- Cable Bushing: Oil-resistant, Neoprene strain relief cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost if specified on order. See **page H-443** for additional sizes.
- Protective Caps: Waterproof caps complete with mounting cable
  Male Devices **Cat. No. F26874C** (Cup Cap)
  Female Devices **Cat. No. F04077** (Screw Cap)
- Repair Kits: Pins/Sleeves Repair — Components for rebuild of 2–4 interiors
  Male Devices **Cat. No. SKX12MW**
  Female Devices **Cat. No. SKX12FA**

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Control Circuit Connections

Receptacle

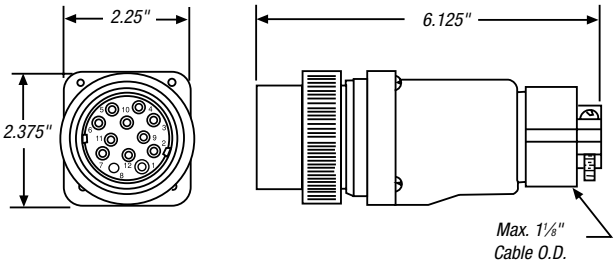
Style SKWR



Note: *All require FD or DSFD series box mounting.*

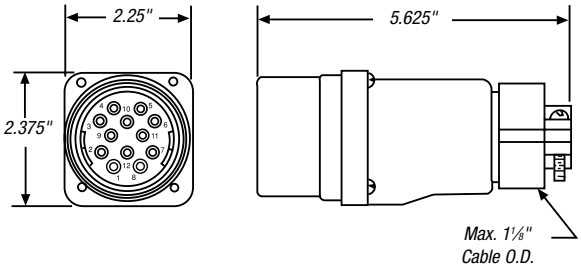
Plug

Style SKWP



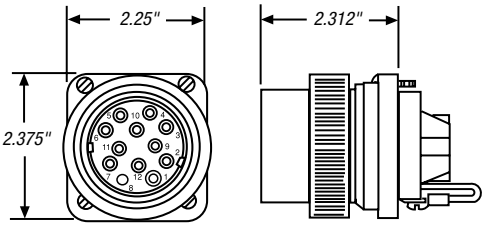
Connector

Style SKWC



Motor Plug

Style SKWM



Control Circuit Connections

Type FS (Shallow) and Type FD (Deep)

Aluminum boxes have 6-32 cover mounting holes tapped to accommodate all FS and FD cover assemblies.
Brass boxes have 10-24 cover mounting holes tapped to accommodate all FS and FD cover assemblies.



Single-Gang



Two-Gang



DSFD

GANGS	TYPE	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS*
Single	**FS**	**3701A**	**3721–RS**	4.12" x 2.62" x 2.31"
	FD	**3711A**	**3731–RS**	4.12" x 2.62" x 2.94"
	DSFD	**3781A**	**—**	4.12" x 3.62" x 4.12"
Two	**FS**	**3702A**	**3722–RS**	4.12" x 5.5" x 2.25"
	FD	**3712A**	**3732-RS**	4.12" x 5.62" x 2.87"

** Dimensions are overall exclusive of conduit pads and mounting lugs.*

Notes:

When Type FD devices are to be mounted in boxes, Type FD boxes should be used. FS boxes will not accommodate FD devices.

Mounting — All the above boxes are for surface mounting. For flush mounting, see ***page H-441****.*

Boxes — Cast brass, natural finish. Cast aluminum, corrosion-resistant, copper-free alloy, epoxy powder-coat finish.

Outlets — Unless otherwise specified, furnished with one .75" outlet per gang, top or bottom. Additional outlets charged extra — see price list. Specify size and location.

Maximum Conduit — FS and FD: 1"; one per gang top and bottom and one each side.

DSFD — One 1.5" or two .5" top and bottom.

Cast iron available on special order — consult your Thomas & Betts representative.

Type FSWS and FDWS (with Mounting Shelf for Box-Mounted Devices)

Aluminum die-cast boxes with cover mounting holes tapped for 6-32 screws to accommodate all FS and FD cover assemblies.



	STANDARD OUTLETS	
CAT. NO.	TOP	BOTTOM
FSWS-62	¾"	NA
FDWS-62	¾"	NA
FDWS-622	¾"	¾"
FDWS-63	1"	NA
FDWS-633	1"	1"

Note:

Boxes — Aluminum die-cast, corrosion-resistant copper-free alloy, epoxy powder-coat finish.

Outlets — Standard as listed.

Mounting — All of the above boxes are for surface mounting.

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Control Circuit Connector Accessories

Adapter Flush Frames*

GANGS	CAST ALUMINUM	CAST BRASS	OVERALL DIMENSIONS
1	**3671A**	**3681**	5" x 3.5"
2	**3672A**	**3682**	5" x 6.5"

** Furnished complete with gasket and screws.*

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.



Blank Cover*

Covers standard FS/FD™ box openings.

CAT. NO.	MATERIAL
3677A	Cast Aluminum
3687	Cast Brass

** Furnished complete with gasket and screws.*

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.



Flush Wall Mounting Extension*

CAT. NO.	MATERIAL
3679A	Cast Aluminum
3679B	Cast Brass

** Furnished complete with gasket and screws.*

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.



45° Angle Adapter*

Mounts to any FS/FD™ box.

CAT. NO.	MATERIAL
3678A	Cast Aluminum
3678B	Cast Brass

** Furnished complete with gasket and screws.*

Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish. Cast brass, natural finish.



Adapter Sub-Plate

The addition of this adapter sub-plate will permit the use of Ever-Lok® conduit box-type receptacles in switch boxes or outlet boxes with raised covers, as listed. Used on standard (deep) stamped metal conduit boxes. Adapts two-hole to four-hole patterns.

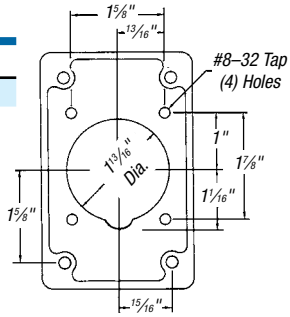
CAT. NO.	MATERIAL
8091A	Cast Aluminum



SKWM Mount Adapter Plate

Used to mount SKWM to FS/FD™ standard series boxes.

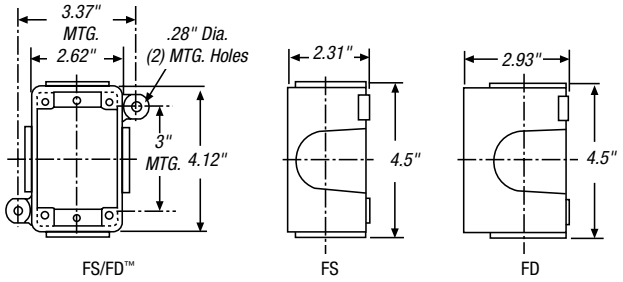
CAT. NO.	MATERIAL
SKWMFS	Aluminum



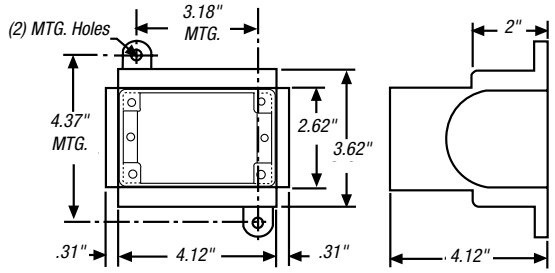
Control Circuit Connections

Type FS and FD

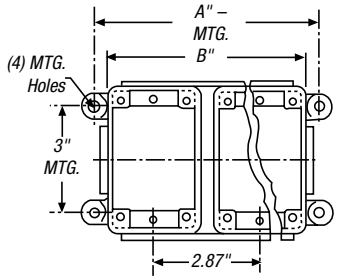
Single-Gang



DSFD



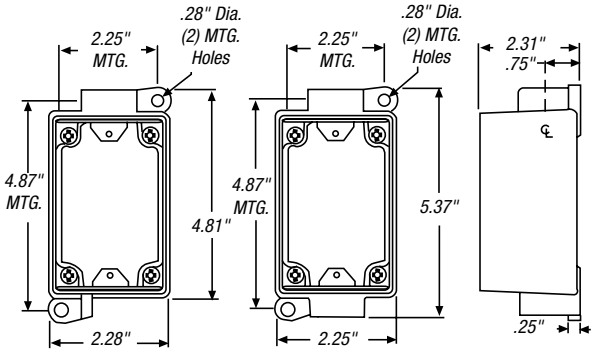
Multiple-Gang



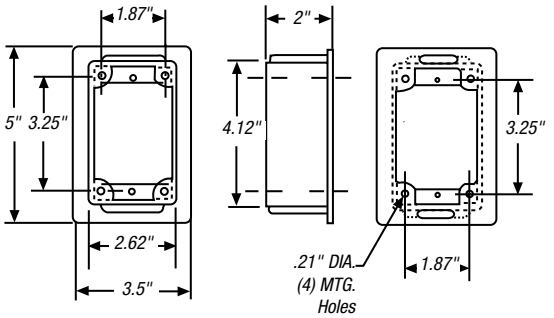
Multiple-Gang Dimensions

NO. OF GANGS	A		B	
	FS	FD	FS	FD
2-Gang	6.50"	6.50"	5.50"	5.62"

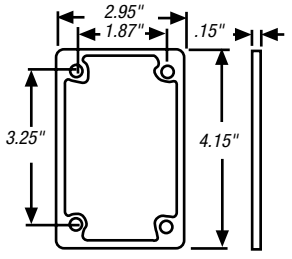
Type FSWS and FDWS



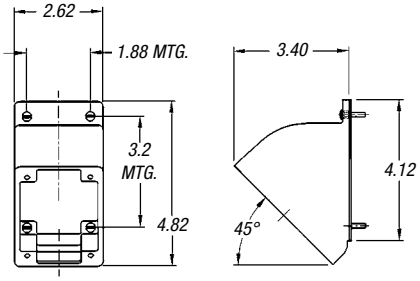
Flush Mounting Extension



Blank Cover



45° Angle Adapter



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Control Circuit Connections

Combination Gland Nut and Cable Clamp



Provides extra clamping protection in hard service applications. Relieves terminals and rubber gland of all cable strain.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	MAX CABLE DIA.
20 Amp and SKW	**3906**	**3906B**	1⅛"

Note: *Material — Cast aluminum, corrosion-resistant copper-free alloy, epoxy powder-coat finish or cast brass, natural finish.*

Adapters for Conduit



Adapter tapped with NPT thread to accommodate armored and non-metallic cable or flexible conduit.

PLUG OR CONNECTOR SIZE	CAST ALUMINUM CAT. NO.	CAST BRASS CAT. NO.	TAPPED HOLE NPSM
20 Amp and All SKW	**FSA21**	**FSA21B**	½"
	FSA22	**FSA22B**	¾"
	FSA23	**FSA23B**	1"

Cable Bushings

HOLE DIAMETER FOR CABLE	SIZE 3 20 AMP
.375"	JG31
.500"	JG32
.563"	JG325
.625"	JG33
.750"	JG34
.875"	JG35
1.000"	JG36*
1.125"	JG361**

Material — Oil-resistant Neoprene.

Size 3 Cable Bushing:

** Style for maximum cable only.*

*** Special minimum wall style.*

Notes: *When standard plugs or connectors are required to be furnished with one or more of the above accessories, add the suffix and catalog number of the accessory separated by a "/" to the catalog number of the plug or connector. Complete list price is the total of the list price of the device plus the list price of the accessory.*

Example: Catalog No. SKP9G with with 1" bushing would be Catalog No. SKP9G/JG36.



Size 3
Cable Bushing

Industrial Interlocked Receptacles

Industrial interlocked receptacles are available in 30 through 400 Amp. Switched receptacles have mechanical linkages for added safety. Safety features include:

- Plugs cannot be inserted unless power is safely turned off
- Plugs cannot be removed until power is safely turned off
- Specialty designs may also automatically disengage power if plug is removed while power is on, either mechanically or electrically

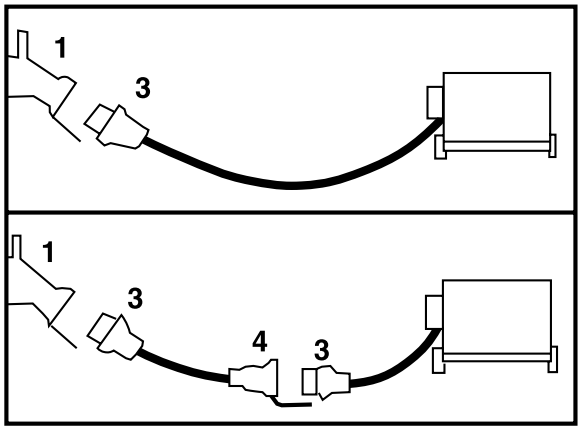


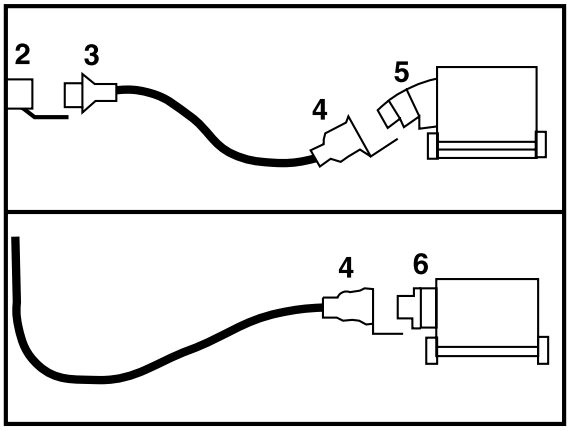
Applications

Applications where these units are most commonly used are:

- Welding stations in automotive and heavy industry
- Temporary and portable power distribution for construction
- Marine shore-to-ship power
- Industrial machinery installation
- Portable power distribution, vehicle and gen-set power for aerospace
- Custom systems in all industries

Sample Installation: Fixed Power Source (Wall) to Remote/Portable Location





1. Receptacle (wall-mounted female)
2. Receptacle (panel-mounted female)
3. Plug (attachment)
4. Female connector
5. Male Inlet with angle adapter
6. Male inlet with straight adapter

Other installations: generator power sources, custom control circuits, multiple voltage service — contact Technical Services.

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Mounting Options



Industrial Wall-Mount Interlocks

- Indoor service NEMA 3R
- Fused protection
- 30–100A models, 600V
- Heavy Service Ever-Lok® or MaxGard® interfaces



Automotive/Heavy Industrial I-Beam Web-Mount

- Indoor service NEMA 12/3R
- Fused or circuit breaker protection
- 30–100A models, 600V
- Stepdown transformer-disconnect designs with convenience outlets
- Cast aluminum and sheet steel housing versions
- Mounts inside web of standard 8" I-beam column
- Interfaces with Heavy Service Ever-Lok®, MaxGard®, standard Ever-Lok® and FS/FD™



Marine/Heavy Industrial and Custom

- Outdoor service NEMA — 3R to 4X
- Switched or circuit breaker protection
- 30–400A models, 600V
- Cast aluminum or cast brass
- Mounting to customer specifications
- Interfaces with MaxGard®, FS/FD™ and more

Industrial Interlocked Receptacles

MaxGard® Fused-Disconnect** Interlocked Receptacle with Disconnect Switch



MaxGard® Fused-Disconnect Interlocked Receptacle with Safety Switch meets UL, NEC® and major automotive specifications. This unit is the maximum in:

Safety

- Door safety switch with three external lockout points
- Safety fuse pulls for standard class R fuses
- Backup door safety latch

Durability

- Heavy .060 steel galvaneel with baked enamel, NEMA 3R/12 construction
- Clear shield for test probes

Performance

- Standard 600V cartridge fuse clips and spacing
- Fully interlocked MaxGard® receptacle
- Angled front receptacle for easier access

Ordering Information

Maximum 600VAC or 250VDC

Notes: ***Non-fused, non UL version available:*

Specify DNRF _____ .

Standard polarizations shown. Boldface figures are for voltage assignment; for different ratings, see ***page H-340****.*

E5239

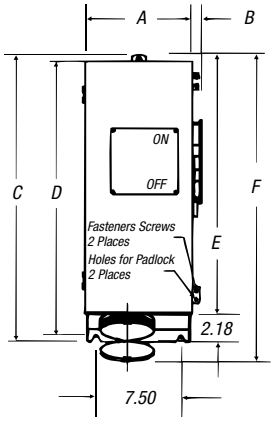
	POLES/ WIRES	VOLTAGE	FUSED DISCONNECT** INTERLOCKED RECEPTACLE NEMA 12/3R CAT. NO.	MATING MAXGARD PLUG CAT. NO.	STD. BUSHING ID
30 AMP	2P3W	125	**DFRF31070**▼	**DS3107**MP000	⅞"
	2P3W	250	**DFRF32070**	**DS3207**MP000	⅞"
	3P4W	3Ø250	**DFRF33070**	**DS3307**MP000	1"
	3P4W	3Ø480	**DFRF34040**	**DS3404**MP000	1"
	4P5W	277/480	**DFRF35040**	**DS3504**MP000	1 3/16"
60 AMP	2P3W	250	**DFRF62070**	**DS6207**MP000	1 3/16"
	3P4W	125/250	**DFRF63070**	**DS6307**MP000	1 5/16"
	3P4W	3Ø480	**DFRF64040**	**DS6404**MP000	1 5/16"
	4P5W	277/480	**DFRF65040**	**DS6504**MP000	1½"
100 AMP	2P3W	250	**DFRF12070**	**DS1207**MP000	1 11/16"
	3P4W	125/250	**DFRF13070**	**DS1307**MP000	1 13/16"
	3P4W	3Ø480	**DFRF14040**	**DS1404**MP000	1 13/16"
	4P5W	277/480	**DFRF15040**	**DS1504**MP000	2"

▼ *Control Contacts (position 9) use "K" example: DFRF1207K.*
Always use liquidtight fittings to limit condensation entry.

Conduit Hubs

AMP	STD. NPT THREAD OUTLET	MAX.
30	1½"	2½"
60	2"	2½"
100	2"	2½"

Specifications on ***pages H-338–H-339****.*



E5239

Dimensions

AMP	A	B	C	D	E	F
30	9½"	¾"	25¾"	25"	22¾"	30"
60	9½"	¾"	25¾"	25"	22¾"	30"
100	9½"	¾"	25¾"	25"	22¾"	30"

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Industrial Interlocked Receptacles

Fused-Disconnect Interlocked Receptacle/Safety Switch

Heavy Service Ever-Lok® 60 Amp

Standard fused/non-fused disconnect interlocked receptacle and safety switch is specified by major automotive manufacturers for welding disconnects and other applications. The Heavy Service Ever-Lok® system features "one-handed" insertion, locking and removal with your choice of switchgear!

Benefits

- Specified switchgear: GE or Square D
- Door safety switch with external lockout access
- Backup door safety latch
- Push-in plug locking: no screw collars needed
- Full interlocked outlet protection and functions
- Angled front receptacle in compact one-handed interlock

Options (Custom Capabilities)

- Other Russellstoll product interfaces
- 30-, 60-, 100- or 200-amp installations
- Specialty enclosures for your application
- Circuit breaker interlocked mechanisms

*See **pages H-426–H-432** for full Heavy Service Ever-Lok line.*

Features

- Heavy steel galvaneel with baked enamel finish
- NEMA 3R/12 construction
- Standard 600V class R fuses
- Listed components

GE Switchgear

CAT. NO.	MATING PLUG
TH3362JRS (60 AMP)	8418 or F27194†

† F27194 Automotive, 480VAC label.

Notes: *Mating Plugs sold separately.*
Other styles available.

Square D (Mechanism)

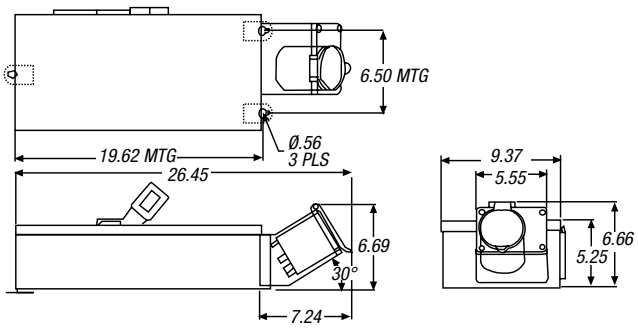
CAT. NO.	MATING PLUG
ESDFH8414F00	8418 or F27194†

† F27194 Automotive, 480VAC label.

Notes:
Mating Plugs sold separately.
Other styles available.

Also available: Many options for mounting, configuration or interfaces.





Industrial Interlocked Receptacles

60 Amp, 480VAC plus 120 or 240VAC convenience outlets to specification 3P4W (100A also available)

Combination Interlocked Transformer Disconnect Automotive/Heavy Industrial I-Beam Web Mount

Benefits

Transformer Disconnects offer a combination of voltage outlets from a single facility 480V 3Ø service drop. Standard configurations include a fused, interlocked 480VAC, 60A 3Ø receptacle outlet and separately protected 120VAC, 15–20A convenience outlets. Custom configurations are available to meet your application requirements.

- Quickest way to expand or build a single voltage factory or facility, with voltage combinations available at every power drop
- Safest way to operate: with fuses and breaker protection for each receptacle. 60A plug cannot be inserted or removed unless power is off
- Most cost-effective way of providing power and convenience outlets in one location; wall mount or column mount in standard 8" I-beam pillars

Mechanical and Safety Features

- Three-point, two-way interlock function
  - — Blade-type disconnect handle interlocked with door handle
  - — Main disconnect uses steel rod arm interlock to 480VAC outlet
- High-strength 3-point door hinge design
- Standard 8" I-beam web vertical mounting or conventional wall mount
- Easy access angled front 480VAC receptacle position
- Heavy-duty 14-gauge steel NEMA 3R/12 welded enclosure with gasketed door. Electrostatic epoxy powder-coat gray finish
- Dual lockout locations on main switch handle and door handle

Optional Construction Features

- Stepdown transformer 2kVA and secondary
- 30/60A outlet (Heavy Service Ever-Lok®, Angle Type or 30A MaxGard®)
- Convenience outlet types (including NEMA bladed styles) and protection

Ordering Information

- Many other configurations available



UL E57324

CAT. NO.	480VAC 60A RECEPTACLE	MATING PLUG	120VAC 20A RECEPTACLE	MATING PLUG
ERSFH8414FBB	8414Spl.	8418 or F27194†	8003N (x2)	8593CTN*
ERSFH8414FDC	8414Spl.	8418 or F27194†	8003U-1 (x2)	8013U-1*

** Other styles available.*

† F27194 Automotive 480VAC label.

Notes: *Mating Plugs sold separately.*

100A also available — consult your Thomas & Betts representative.

Specifications

Electrical and Safety Features:

- Fused 480VAC 60A 3P4W Receptacle + Fused Dual 120VAC 20A 2P3W Outlets
- 20A Combination breaker/GFCI convenience outlets on door
- Heavy-duty (8-hour rated) 2kVA 480VAC–120VAC (fused primary) transformer

Thomas&Betts

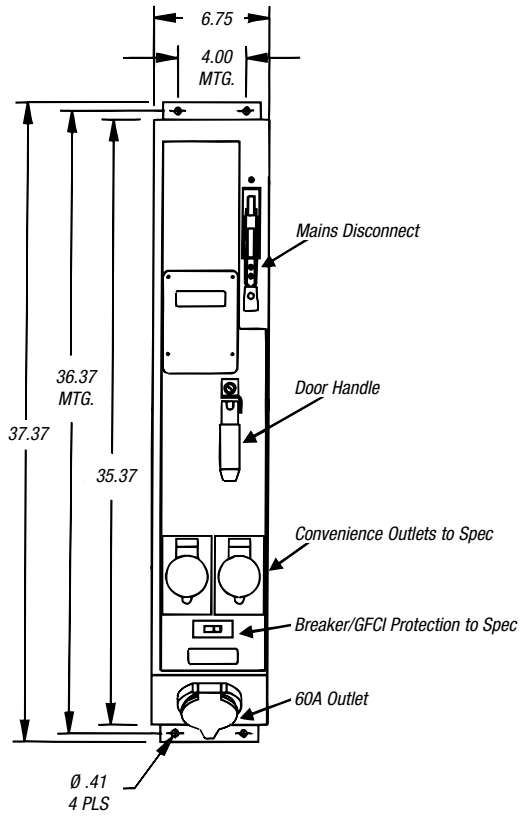
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

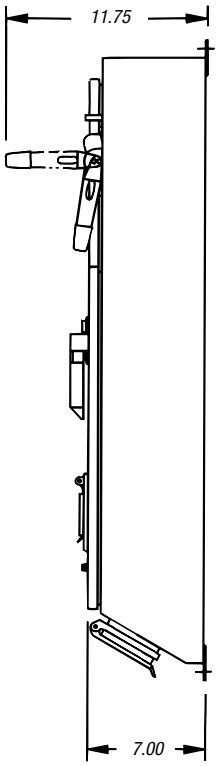
Technical Services
Tel: 888.862.3289

www.tnb.com

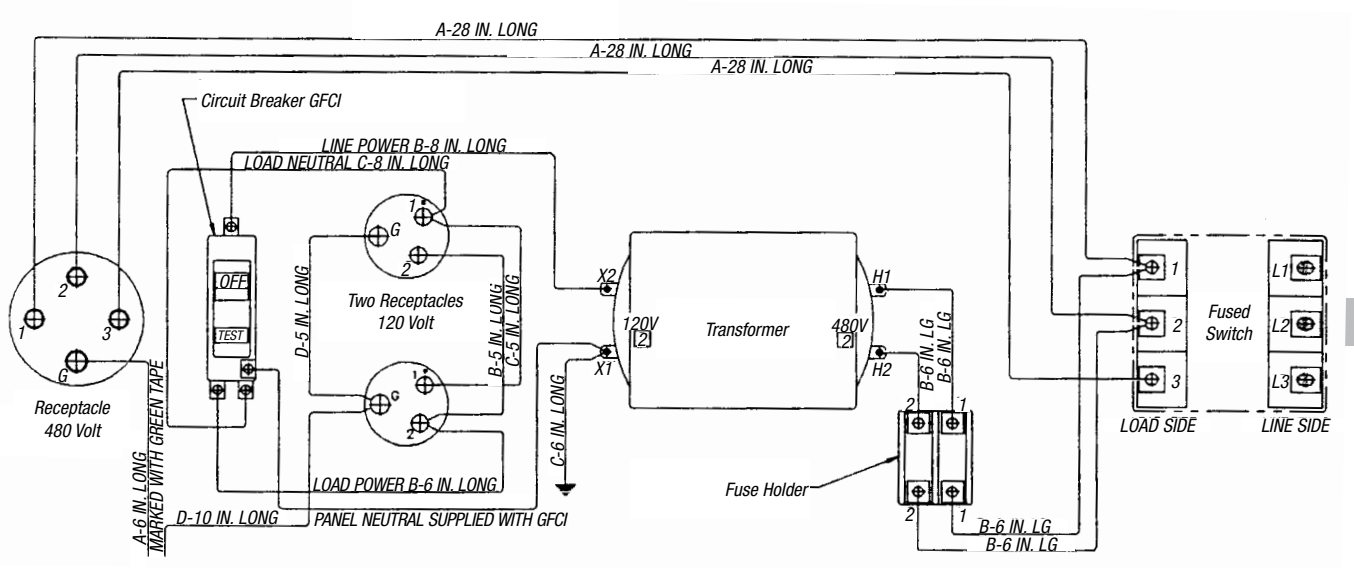
Industrial Interlocked Receptacles

Dimensions





Wiring Diagram



60 Amp, 480VAC/250VDC, 3P4W Circuit Breaker Interlocked Receptacle Option

Ever-Lok® Mechanically Interlocked Receptacle and Switch Automotive/Heavy Industrial I-Beam Web Mount Heavy Service Ever-Lok® Mechanically Interlocked Receptacles and Switch

Features and Benefits

Mechanically interlocked between the receptacle and the switch. Designed so that when the plug is fully inserted, the switch interlock is automatically released, permitting the switch to be turned on. The plug cannot be removed from the receptacle until the switch is manually turned off.

- Switch: 60 amp, 480VAC, 3-pole, quick “make” and quick “break”
- Housings: heavy-cast aluminum corrosion-resistant copper-free alloy with gray electrostatic epoxy powder-coat finish. Furnished with oil-resistant gaskets
- Handle lock-out feature
- Circuit-breaker interlocked version available in standard and high AIC models
- One-handed insertion or removal: unique auto-locking collar engages upon insertion, ⅛ counter-clockwise turn disengages for removal
- Simple and rugged full interlock safety; plug cannot be inserted or withdrawn whilepower is on
- Fits in standard 8" I-beam web or wall mounting



INTERLOCK CAT. NO.	MATING TYPE	PLUG
CFCSRA13-60	Switched only	8418 or F27194†
F32753‡	Circuit breaker	8418 or F27194†

† *Automotive 480VAC.*

‡ *70A Trip version F26313 and other variations also available.*

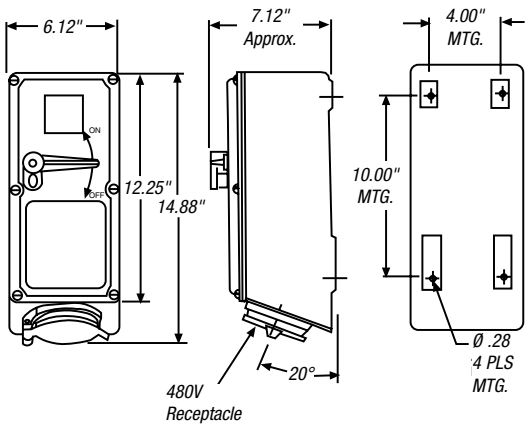
Notes: *CFCSRA13-60 replaces previous Cat. #FCSRA13-60.*

Mating plugs sold separately.

Dimensions

Mechanically Interlocked Switch

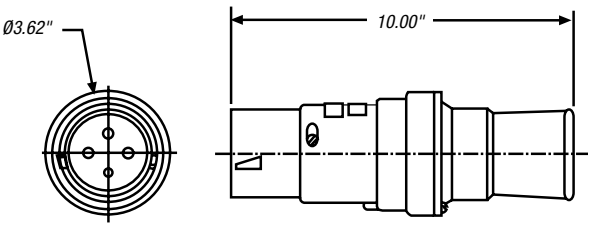
1¼" NPT Top Entry Std./Other Sizes Available



**17" dim. for F32753 unit*

Mating Plug

60A, 3P4W, 8418 or F27194



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Industrial Interlocked Receptacles

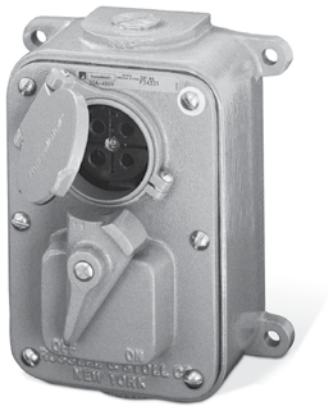
30 Amp, 480VAC, 3P4W (other polarizations available)

Interlocked Switch (30A, 480VAC) Automotive/Heavy Industrial I-Beam Web Mount Interlocked Switch (FS/FD™ Interface)

Features and Benefits

The FS/FD™ Interlocked Switch is made of heavy-duty cast aluminum. The mechanical interlock functions when the plug is fully engaged, enabling the switch to be operated. Basic interlock design has many variations including screw cover, brass and circuit breaker versions.

- Male plug cannot be plugged or unplugged under load
- Deadfront female receptacle for safety
- Weathertight receptacle made of cast aluminum, corrosion-resistant copper-free alloy, gray electrostatic epoxy powder-coat finish
- Compact size for limited space applications
- Available with UL style steel back boxes to user specifications

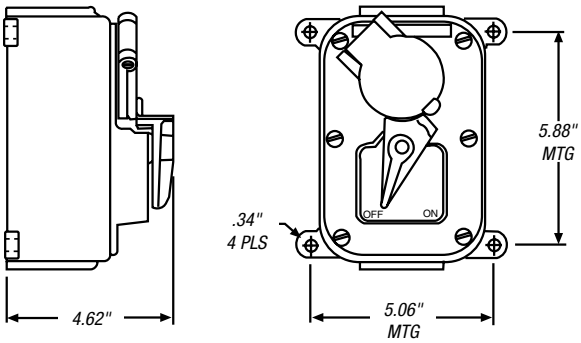


CAT. NO.	MATING PLUG
F34331	F34332

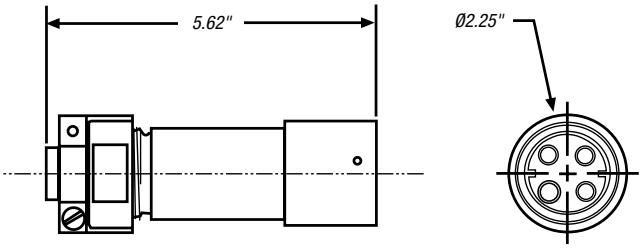
Mating plugs sold separately.

Dimensions

Interlocked Switch



Mating Plug



Industrial Interlocked Receptacles

Maximum 600VAC/250VDC

MaxGard® NEMA 4X interlocks are ideal for demanding non-hazardous areas where dust, dirt, moisture and corrosion might be a problem — such as shipyards, food processing facilities, manufacturing operations or similar areas.

Safety

- Gated deadfront waterproof receptacle
- Standard, high AIC or NA/switch circuit breaker
- Protective screw cap for watertight protection

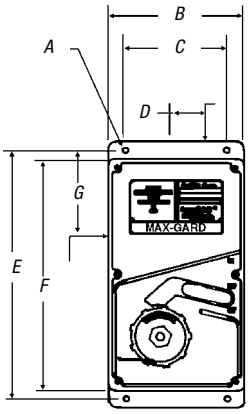
Durability

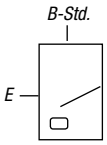
- Thick-wall cast copper-free aluminum housing with epoxy powder-coat finish
- Heavy-duty sliding bar interlock mechanism

Performance

- Heavy on/off handle adds mechanical ability to electrical interlock function
- Standard conduit openings through top or side







Boldface *figures are for voltage assignment; for different ratings, see* ***page H-346****.*	POLES/ WIRES	VOLTAGE	MECHANICALLY INTERLOCKED RECEPTACLE NEMA 4X CAT. NO. ▼	MATING MAXGARD PLUG CAT. NO. ▼	STD. BUSHING ID
30 Amp	2P3W	125	**DBRF310703000**	**DS3107MP000**	⅞"
	2P3W	250	**DBRF320703000**	**DS3207MP000**	⅞"
	3P4W	3Ø250	**DBRF330703000**	**DS3307MP000**	1"
	3P4W	3Ø480	**DBRF340403000**	**DS3404MP000**	1"
	4P5W	277/480	**DBRF350403000**	**DS3504MP000**	1 3/16"
60 Amp	2P3W	250	**DBRF620706000**	**DS6207MP000**	1 3/16"
	3P4W	125/250	**DBRF630706000**	**DS6307MP000**	1 5/16"
	3P4W	3Ø480	**DBRF640406000**	**DS6404MP000**	1 5/16"
	4P5W	277/480	**DBRF650406000**	**DS6504MP000**	1½"
100 Amp	2P3W	250	**DBRF120710000**	**DS1207MP000**	1 11/16"
	3P4W	125/250	**DBRF130710000**	**DS1307MP000**	1 13/16"
	3P4W	3Ø480	**DBRF140410000**	**DS1404MP000**	1 13/16"
	4P5W	277/480	**DBRF150410000**	**DS1504MP000**	2"
200 Amp	3P4W	277/480	**DBRF230720000**	**DS2307MP000**	1¼"
	3P4W	3Ø480	**DBRF240420000**	**DS2404MP000**	2¼"
	4P5W	277/480	**DBRF250420000**	**DS2504MP000**	2½"
400 Amp	3P4W	277/480	**DBRF430740000**	**DS4307MP000**	3"
	3P4W	3Ø480	**DBRF440440000**	**DS4404MP000**	3"
	4P5W	277/480	**DBRF450440000**	**DS4504MP000**	3¼"

Conduit Hubs: (at B or E)

AMP	STD. NPT THREAD OUTLET	MAX.
30	1½"	2½"
60	1½"	2½"
100	2"	2½"

▼ **Control Contacts** (position 12) use "K" example: DBRF6104060K0

Shunt Trip Breaker (position 13) add "Z" to above: DBRF6104060KZ

Breaker Trip Ratings (positions 9, 10, 11) 30 amp use 030; 50 amp use 050; 60 amp use 060

Non-Auto Sw. NA0 (repl." DBRF" with "DSRF")

For additional full line and polarization options, see MaxGard section on ***pages H-296–H-343***.

Dimensions

AMP	A	B	C	D	E	F	G
30	⅜"	8¾"	6½"	1½"	16¼"	15⅛"	3⅛"
60	⅜"	8¾"	6½"	1½"	16¼"	15⅛"	3⅛"
100	⅜"	8¾"	6½"	1½"	16¼"	15⅛"	3⅛"
200	9/16"	12¼"	9"	2½"	26¼"	24¾"	5"
400	9/16"	15½"	12"	3"	30½"	29"	6"

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Hazardous-Duty Applications

Russellstoll® Hazardous-Duty Plugs, Receptacles and Interlocks are designed to support a variety of installation needs throughout 20A, 30A, 60A and 100A ranges where Division 1, Class 1 NEC® guidelines require the utmost in safety.

Unique among others, the Russellstoll® MaxGard® also offers true O-ring sealed waterproof design protection in addition to standard threaded flame-path construction employed elsewhere. In rough service, washdown and outdoor applications, MaxGard® performance goes beyond normal XP ratings.

With coming increases in harmonized designations for classifications between NFPA/NEC® and IEC (International) hazardous area standards, a quick reference classification chart is provided below. In all cases, the customer must determine and approve proper area classification standards and degree of harmonized standards acceptance.



HAZARDOUS MATERIALS ENVIRONMENT	U.S. NEC STANDARDS	EURO IEC STANDARDS
Gas or Vapor	Div. 1, Cass I Div. 2, Class I	Zone 0 and 1 Zone 2
Dust	Div. 1, Class II Div. 2, Class II	Zone 10 Zone 11
Fibers/Flyings	Div. 1, Class III Div. 2, Class III	Zone 10 Zone 11
GROUP APPLICATIONS	**NEC ART. 500 CLASS I: GROUPS**	**NEC ART. 505 ZONES 0, 1 AND 2**
Div. 1 and 2, Class I	A: Acetylene B: Hydrogen	IIC
	C: Ethylene D: Propane	IIB IIA

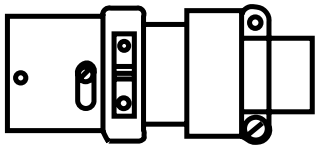
The above chart is presented for quick reference only and should only be used in conjunction with noted Articles.
Further definition of harmonized standards will be supported by Russellstoll through appropriate specification efforts whenever practical.

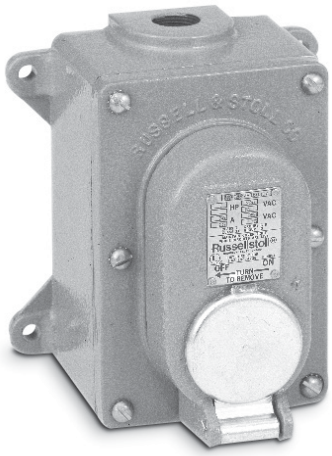
Explosion-Proof: Class I, Groups C and D Dust Ignition-Proof: Class II, Groups G

Interlocked Switch and Receptacles

These receptacles are for use in general Div. 1 classified industrial installations such as chemical plants, oil refineries, bulk stations, distilleries, solvent areas, mills, etc. A higher degree of safety is afforded by interlocking the plug with the switch, making it impossible to insert or withdraw plug under load.

When the polarized plug is inserted into the receptacle and the plug shell is turned clockwise, it turns the switch to the "on" position and vice-versa.





20 Amp, 575VAC
30 Amp, 250VAC

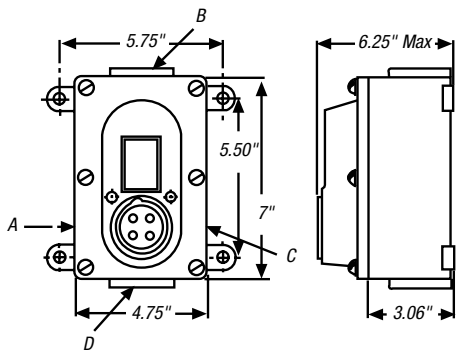
DESCRIPTION	FLAP COVER	SCREW COVER	PLUG	CABLE STD. BUSHING HOLE DIA.
2P3W 1 HP 220/575VAC	**4240FC/ F16081A**	**4240SC**	**4241**	5/8"
3P4W 2 HP 110/575VAC	**4242FC**	**4242SC**	**4243**	3/4"

Specifications

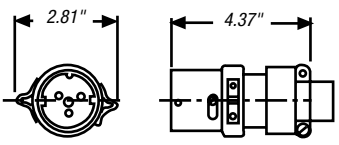
- Receptacle Housings: Cast aluminum; electrostatic epoxy powder coated finish Plugs: steel, cadmium plated. Furnished with aluminum alloy cable clamp and Neoprene cable bushing
- Outlets: standard ¾" top, additional or larger outlets available. Maximum 1" four way. See diagram, use symbols when ordering
- Cable Bushing: Oil-resistant, Neoprene strain relief cable bushing regularly furnished with hole I.D. size as listed. Other hole sizes available. Consult Technical Services for catalog number
- Two-Gang Style: Consult Technical Services

Approvals: E10919

Dimensions



For 2-gang unit, width is 9⅜".
Mounting Lugs — C to C 10½" W x 5½" H



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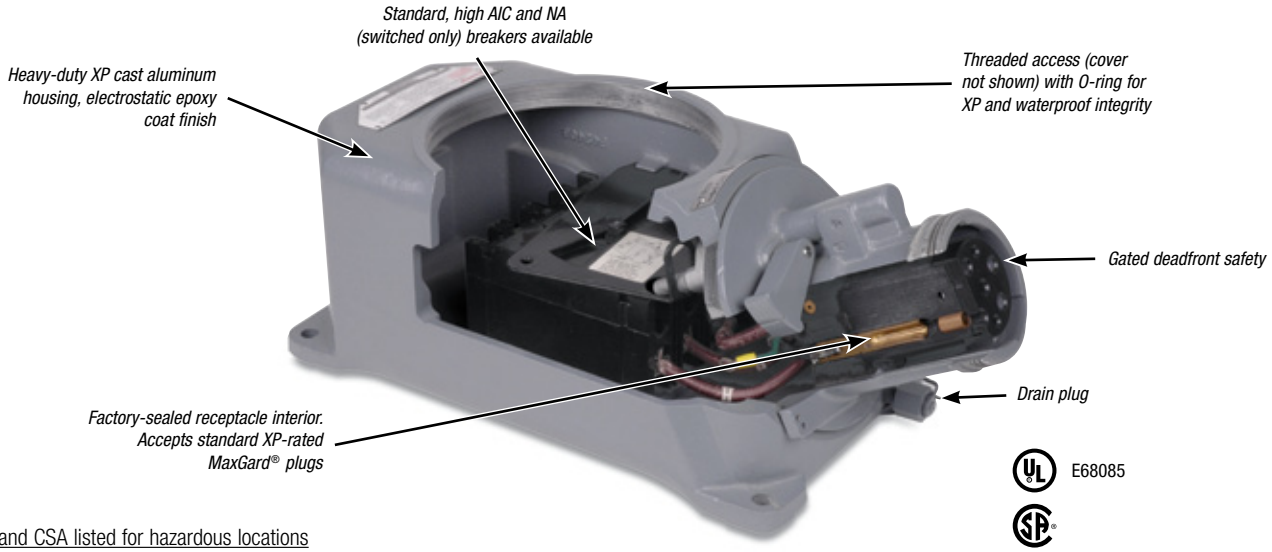
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Explosion-Proof Waterproof Circuit Breaker Interlocked Receptacle

Available in 30-, 60- and 100-amp sizes, all polarizations. Division 1, Class I and II.



UL and CSA listed for hazardous locations

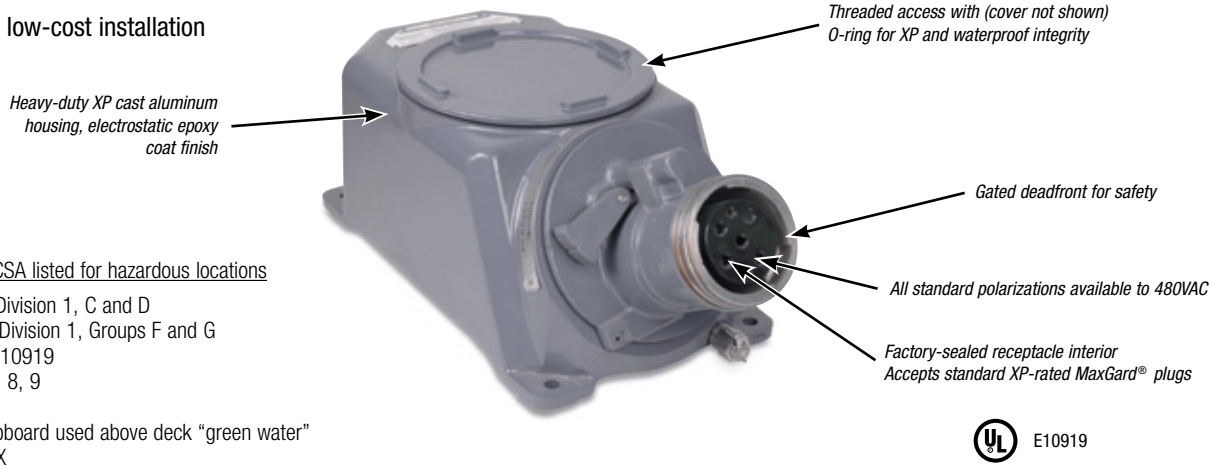
Class I, Division 1, Groups B, C and D
Class II, Division 1, Groups F and G
UL File E10919
NEMA 7, 8, 9
CSA
DOT shipboard used above deck "green water"
NEMA 4X
USCG approved

MaxGard® DBRE and DSRE Series Interlocks are the only devices certified both explosion-proof and waterproof, along with optional control contacts, and are fully UL Listed.

Explosion-Proof Waterproof Circuit Breaker Interlocked Receptacle

Available in 30A 480VAC max., all polarizations

- Factory-sealed interior (no filled conduits)
- Easy low-cost installation



UL and CSA listed for hazardous locations

Class I, Division 1, C and D
Class II, Division 1, Groups F and G
UL File E10919
NEMA 7, 8, 9
CSA
DOT shipboard used above deck "green water"
NEMA 4X
USCG approved

Hazardous Location Plugs, Receptacles and Interlocks

Maximum
600VAC or 250VDC



Explosion-Proof Interlocked Receptacle with Circuit Breaker Class I, Class II



Explosion-Proof Receptacle



Male Plug

	POLES/ WIRES	VOLTAGE (VAC)	CAT. NO. ▼	CAT. NO. ▼	CAT. NO. ▼	STD. BUSHING I.D.*
30 Amp						
	2P3W	125	**DBRE310**703000	**DSE310**7FR0	**DS3107MP000**	⅞"
	2P3W	250	**DBRE320**703000	**DSE320**7FR0	**DS3207MP000**	⅞"
	3P4W	3Ø250	**DBRE330**703000	**DSE330**7FR0	**DS3307MP000**	1"
	3P4W	3Ø480	**DBRE340**403000	**DSE340**4FR0	**DS3404MP000**	1"
	4P5W	277/480	**DBRE350**403000	**DSE350**4FR0	**DS3504MP000**	1 3/16"
60 Amp						
	2P3W	250	**DBRE620**706000	—	**DS6207MP000**	1 3/16"
	3P4W	3Ø250	**DBRE630**706000	—	**DS6307MP000**	1 5/16"
	3P4W	3Ø480	**DBRE640**406000	—	**DS6404MP000**	1 5/16"
	4P5W	277/480	**DBRE650**406000	—	**DS6504MP000**	1½"
100 Amp						
	2P3W	250	**DBRE120**710000	—	**DS1207MP000**	1 11/16"
	3P4W	3Ø250	**DBRE130**710000	—	**DS1307MP000**	1 13/16"
	3P4W	3Ø480	**DBRE140**410000	—	**DS1404MP000**	1 13/16"
	4P5W	277/480	**DBRE150**410000	—	**DS1504MP000**	2"

Boldface *figures are for voltage assignment; for different ratings, see* ***page H-340****.*

** For specification information and additional bushing sizes, see MaxGard® section,* ***pages H-296–H-343****.*

▼ **Control Contacts** (position 12) use "K" example: DBRF6104060K0

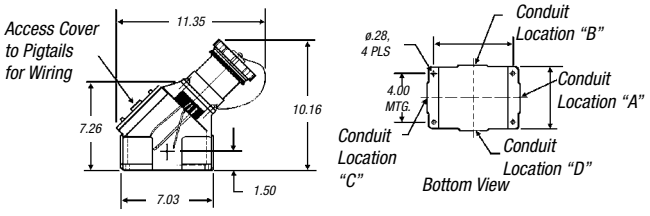
Shunt Trip Breaker (position 13) add "Z" to above: DBRF6104060KZ

Breaker Trip Ratings (positions 9, 10, 11) 30 amp use 030; 50 amp use 050; 60 amp use 060

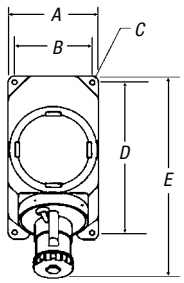
Non-Auto Sw. NA0 (repl. "DBRE" with "DSRE")

Dimensions

Explosion-Proof Receptacle



Explosion-Proof Interlocked Receptacle



AMP	A	B	C	D	E
30	8¾"	7½"	½"	14¾"	20"
60	8¾"	7½"	½"	14¾"	20"
100	8¾"	7½"	½"	14¾"	20"

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Delayed-Action Receptacles

Explosion-Proof: Div. 1, Class 1, Groups C and D

Circuit-breaking receptacles, plugs and connectors ensure complete circuit breaking under full rated loads. Equipment grounding is provided by means of a separate pole that makes contact before and breaks contact after the circuit poles. The delayed action operation sequence is as follows:

Insert plug, turn left, push in to make electrical contact then turn right to prevent accidental disconnection. To withdraw plug, the reverse procedure is followed, which provides time for extinction of the arc and cooling before the plug can be completely withdrawn.

Receptacles



Plug



RATINGS	POLES/WIRES	SURFACE MOUNT** STRAIGHT	SURFACE MOUNT** ANGLED	FLUSH MOUNT ▼	CABLE HOLE DIA.	
Type EFS						
20 Amp	2P3W	**4462**	**4464FC**	**4445**	**4466**	9/16"
125VAC or 250VAC	3P4W	—	**4465FC**	**4446**	**4467**	19/32"
Type DA						
30 Amp+	2P3W	—	**4233BC**	—	**4237BC**	5/8"
250VAC or 480VAC	3P4W	**RA4234BC**	**4234BC**	—	**4238BC**	3/4"
60 Amp*	2P3W	—	**4263BC**	—	**4267BC**	1¼"
480VAC	3P4W	**RA4264BC**	**4264BC**	—	**4268BC**	1¼"

Notes:

** Also available for use at 30 Amp, 480VAC.*

*** Can be furnished with flap or screw cap covers. When so required, add suffix "FC" for flap or suffix "SC" for screw cap to above catalog number. Price on application.*

▼ Furnished with plaster gauge plate. Requires wall depth of 4" minimum.

+ 30 Amp Iron-Bodied Plug Family for replacement use only. Not UL Listed. (60 Amp carries full listing.)

Delayed-Action Receptacles (EFS and DA)

Specifications

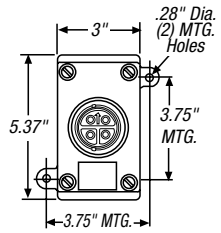
- Receptacle Housings: EFS — Cast copper-free aluminum; DA — Cast iron, corrosion-resisting baked enamel finish
- Plug Housings: 20 Amp — Steel, cadmium plated; 30 Amp — Cast iron; 60 Amp — Steel and aluminum, natural finish. Plugs are furnished with aluminum alloy cable clamp and Neoprene cable bushing
- Connectors: Cast aluminum, natural finish. Furnished with aluminum cable clamp and Neoprene cable bushing
- Flush Plates: Brass, polished chromium finish
- Outlets: Furnished with one outlet top or bottom as follows. 20 Amp — ¾"; 30 Amp — 1"; 60 Amp — 1½". Additional or larger outlets charged extra. Maximum conduit sizes, four ways as follows: 20 Amp — 1"; 30 Amp — 1½"; 60 Amp — 2". Single gang — top and bottom only; two gang — one per gang top and bottom and one on each side. Specify size and location
- Cable Bushing: Oil-resistant, Neoprene strain-relief cable bushing regularly furnished with hole size as listed. Other hole sizes available at no extra cost if specified on order. See **page H-459**.
- Surface Gang Units: EFS available and can be furnished in 2-gang units or in combination with other like devices
- Approvals: 20 and 60 Amp

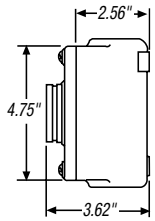
Dimensions

UL E10919

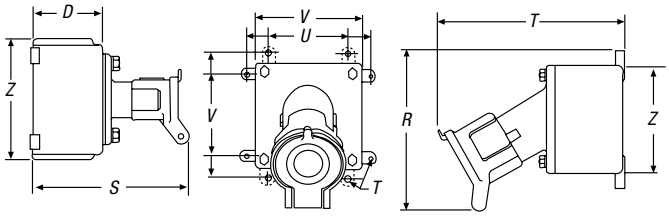
Surface-Mount Receptacles

Type EFS (20 Amp) Straight





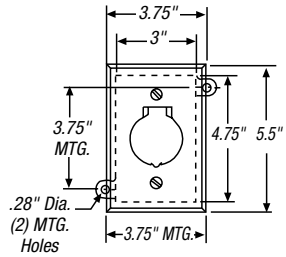
Type DA (30 and 60 Amp) Straight

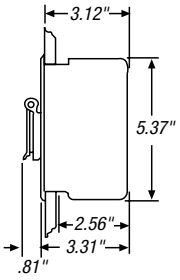


AMP		D	R	S	T	U	V	Y	Z
20	Angle	2.56"	—	6.12"	.28"	3.75"	3.75"	3"	5.37"
30	Straight	3.87"	—	8.62"	.34"	6.12"	5"	5.25"	6.75"
	Angle	3.06"	7.37"	8.37"	.28"	3.50"	5.50"	4.75"	4.75"
60	Straight	3.87"	—	9.25"	.34"	6.12"	5"	5.25"	6.75"
	Angle	3.87"	9"	9.25"	.34"	6.12"	5"	5.25"	6.75"

Flush-Mount Receptacles

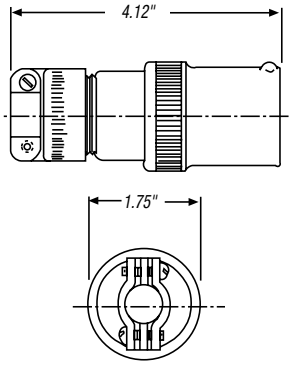
Type EFS



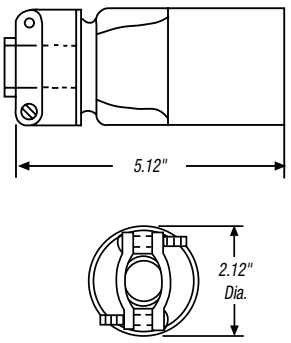


Plug

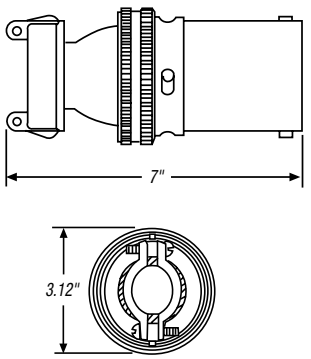
20 Amp Plug



30 Amp Plug



60 Amp Plug



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Hazardous Location Plugs, Receptacles and Interlocks

For Explosion-Proof Plugs and Connectors

Cable Bushings

To order non-standard bushing, add cable bushing number to end of catalog number. This is furnished at no additional cost at time of order. For 60A devices, see J-line 60A chart on **page H-354**.



CAT. NO.	HOLE DIAMETER FOR CABLE
SG05	.312"
SG1	.375"
SG15	.438"
SG2	.500"
SG2A	.531"

20A CAT. NO.	HOLE DIAMETER FOR CABLE
SG25	.563"
SG2B	.594"
SG3	.625"
SG3A	.687"
SG4	.750"

Notes: *Cable outside diameter should be at or slightly less than bushing I.D.*
Bushings can compress approx. 10% at installation.
To order, add suffix as example: 4466/SG3.
Material — Oil-resistant Neoprene.

For 20 Amp Delayed-Action Circuit Receptacles

Flap Cover Assembly

CAT NO.	FINISH	USED ON CAT. NO.
F19054C	Chrome Plated	4445
F19054D	Natural Finish	4464

For 20 Amp Delayed-Action Circuit Plugs — Provides Extra Clamping Protection in Hard Service Applications

Combination Gland Nut and Cable Clamp



CAT. NO.	USED ON CAT. NO.
F24853C	4466
F24853D	4467

Material — Cast aluminum alloy, natural finish.

Aerospace/Industrial Static Ground Devices

Static grounding receptacles are used in airport and aerospace installations worldwide during fueling, testing and maintenance procedures. Normal mounting is concrete/tarmac floor inset, threaded onto copper ground rod.

Heavy brass construction cup includes optional cover and receptacle's contact pin. Accommodates a wide variety of single-contact (copper on steel wire) static ground wire clamps in service.

CAT. NO.	DESCRIPTION
GCC1	Ground cup with cover*
GC1	Ground cup without cover*
F06146	Replacement contact tip**

** Hub is tapped for ¾"–10.*

*** Hub is tapped for ½"–13.*



F07073
(cover only)

Safe Ground Indicator System

Prevents operation of pumps without a safe ground for static dissipation.

GSUL Safe Ground Indicator System

Class I, Division 1, Groups C, D, and Zone 1, Groups IIB, IIA; NEMA 7 Class II, Division 1, Groups E, F, G; NEMA 9

Instant Visual Confirmation of Safe Ground

The Russellstoll® GSUL Safe Ground Indicator System is designed to ensure that a safe ground has been established for dissipating ever-present static electricity from tank vehicles, carriers, drums and other conductive equipment before allowing the transfer of flammable materials. The GSUL indicates the establishment of a safe ground via two parallel-connected green signal lights. Two lights are used for redundancy — if one lamp burns out, visual indication of safe grounding will be maintained by the other.

Intrinsically Safe Circuitry

The GSUL Safe Ground Indicator System features an intrinsically safe, low-energy ground-sensing circuit, which does not carry sufficient electrical energy to cause ignition in classified Hazardous Locations.

In operation, the ground-sensing circuit extends through the grounding clamp and its connection to the ground indicator, the metal portion of the vehicle between the jaw terminals of the clamp and earth ground electrode.

Pumps Won't Operate Until Safe Ground Is Established

A control relay in the GSUL Safe Ground Indicator System provides interlocked control of pump motors at the loading platform. The electronic control circuit will be de-energized while the green lights are off. Attaching the clamps to the tank closes the interlocking contact and energizes the control circuits to the motors.

Applications

Volatile or classified areas such as:

- Tank farms
- PetroChem
- Cosmetics
- Grain mills
- Vehicular or rail transport

Specifications

- Enclosure: Cast copper-free aluminum with epoxy powder-coated finish
- Outlets: Regularly furnished tapped ¾" NPT
- Relay Contacts: Rated ⅓ HP, 10A, 120VAC; ½ HP, 10A, 240VAC
- Certifications: UL Listed, CSA Certified

E33553





Unit shown with covers removed

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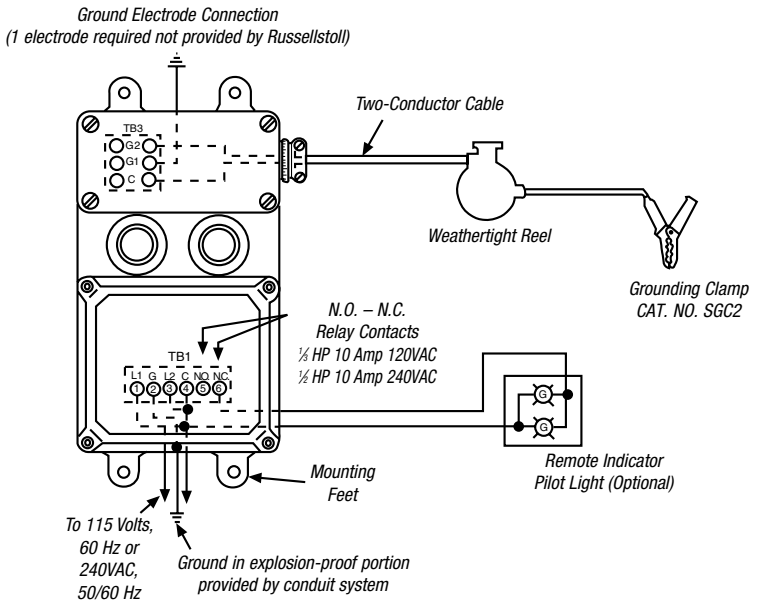
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Safe Ground Indicator System

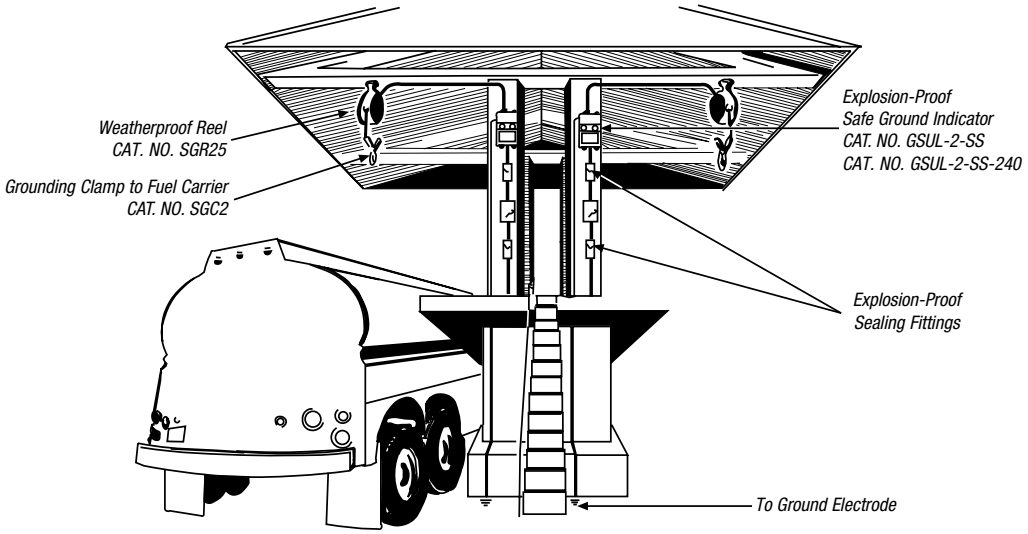
GSUL Safe Operating Features

- Two redundant, parallel green indicator lights glow when safe ground is established
- Lamps offer approximately 20,000 hours of operating life
- Unit may be ordered without lights where remote visual indication is desired
- Intrinsically safe, simplified circuitry
- Integral, intrinsically safe wiring compartment with approved strain-relief fitting for connection of cable from grounding clamp
- Solid-state actuating and control circuits mounted on removable printed circuit board
- Enclosure protects components against moisture
- Control relay provided for interlocked control of pump motor at loading rack
- Grounding clamp (ordered separately) provides dual isolated tip contacts in a heavy-duty cast-aluminum handle design

Wiring Diagram



Typical Installation



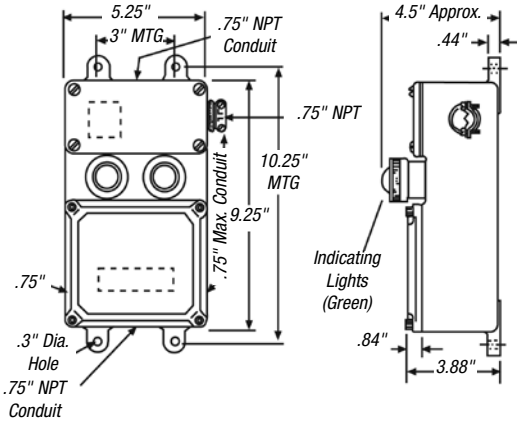
Loading rack illustration suggests a typical installation, which includes an Explosion-Proof Switch, Explosion-Proof Sealing Fittings, Weathertight Reel and the GSUL-2-SS Safe Ground indicator with 2-wire grounding clamp.

Safe Ground Indicator System

Russellstoll® GSUL Safe Ground Indicator System



GSUL-2-SS

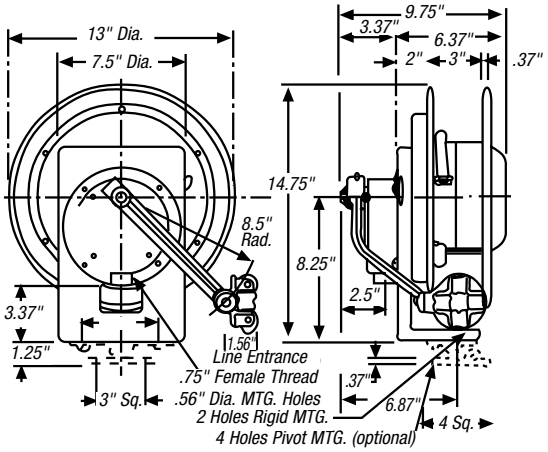


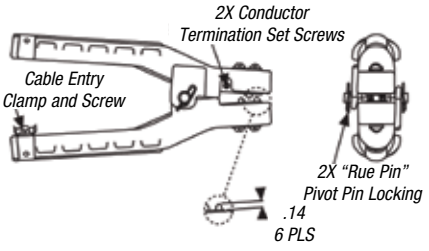


SGC2



SGR25
SGR50
SGR75





CAT. NO.	DESCRIPTION
GSUL2SS	Safe Ground Indicator with Indicator Lights, 120V, UL/CSA
GSUL2SS-240	Safe Ground Indicator with Indicator Lights, 240V, CSA
SGC2	Safe Ground Static Clamp
SGR25	Weathertight Retracing Reel with 25 ft. of 12/2 SJO-W Cable
SGR50	Weathertight Retracing Reel with 50 ft. of 12/2 SJO-W Cable
SGR75	Weathertight Retracing Reel with 75 ft. of 12/2 SJO-W Cable
Replacement Parts for GSUL	
C13662	Printed Circuit Board, 120 Volts (includes relay)
6X24RCB	Printed Circuit Board, 240 Volts (includes relay)
F30674	Control Relay
F30602	Lamp Socket Assembly
ELAG	Pilot Light Globe Assembly (green)
310993	Lamp for GSUL2SS
Replacement Parts for SGC2	
GX2TK	Ground Clamp Repair Kit

Computer System Interconnections

Russellstoll Line Selections for Indoor and Outdoor Applications

DuraGard® to 4P4W 20A through 60A

The toughest construction in thermoplastic safety, durability and performance by design, in UL 94-V0 flame-rated DuraV® material. With DurOring sealed pins, sleeves and interiors are watertight even unmated. 30A and 50A unique circuit breaker interlock line in DuraV® are the best choices in all standard voltage polarization options through 600VAC (Interlock to 480VAC).

Angle Type to 3P4W 60A use

The original 60A main power computer system connector, Angle Type plugs are also available in specialty UL 94-V0 material (aluminum connectors). As part of the MRO usage 30–200A Angle Type Line, the 60A connector is still commonly used today. Other lines such as MaxGard® should be used for changeout when possible.

Spec Grade to 4P4W 20A and 30A

Otherwise similar to the DuraGard®, Spec Grade refers to blue Lexan plugs only made to the same original FS/FD™ design standards as DuraGard®, in UL 94-5VA flame-rated material. Spec Grade features DurOring sealed pins, and sleeves and interiors are watertight even unmated. Spec Grade devices have been superceded by DuraGard® ratings for OEM use.

MaxGard® 30A to 4P5W

For DP/Computer System Applications, a special MaxGard® polarization reflects DP installations. Special thermoplastic housing and back handle are supplied for these applications. Use wherever 4P5W installations are required.

FS/FD™ to 3P4W 15A through 30A

The original 15/20/30A computer system connectors, the FS/FD™ line in aluminum continues in MRO usage. Many installations can also mate directly or convert to DuraGard® units. Our large installed base can be supported with any construction and product options. Convert to DuraGard® when possible.

UniGard® to 4P5W 20A to 100A

Thermoplastic International standard 309-2 or CEE-17 type connector lines usage is growing, especially in OEM, export and standard performance applications. The IP67 style is watertight when mated and directly interchangeable with other manufacturers. International designations shadow U.S. ratings: 20/16A, 30/32A, 60/63A and 100/125A. IP67 devices have screw collars or flap/screw covers, with catalog number "W" suffixes.

Computer System Interconnections

More than 30 years ago, Russellstoll® offered the first pin and sleeve connectors that met the demanding needs of the Data Processing industry, and we've been leading the way ever since.

The expanding technology of the Computer System Industry is creating more sophisticated applications, which require safe, reliable connections that exceed the tough demands of today's applications. Russellstoll's commitment to excellence offers you that and more... Safety, Durability, Reliability and Performance on our complete line of plugs, receptacles and connectors.

Pin and sleeve power connections are chosen for Computer System interconnections because of the absolute performance required in today's mainframe and peripheral installation. Pin and sleeve connections have been proven to be more reliable in service than any bladed device. Data centers stay in service because Russellstoll® keeps them connected.

Usage

- Any application where electrical connections must be protected from humidity, water, condensation and/or dust entering the wiring compartment and contacts
- Cable-to-connector sealing and device locking designs are critical
- Thermoplastic connectors preferred: some with aluminum conduit grounded shell
- Connection integrity needs are absolute; data center systems cannot go down
- Underfloor data center applications and wall-mount installations

Typical Application Groups



- Telephony Equipment
- Switching Rack Systems
- Power Distribution Units
- Test and Laboratory Equipment
- Mainframes from 30–270A
- Peripherals
- Data Storage Devices
- Military or Critical Power Supplies

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Computer System Interconnections

Quick Selection Chart






SERIES*	FS/FD™ AND ANGLE TYPE	SPEC GRADE	DURAGARD®	UNIGARD®
Available Ranges (Amp)	20, 30 and 60*	20 and 30	20, 30, 50 and 60	30 (IEC)
Safety Grade™ UL Flame-Rated High-Temp Thermoplastic	UL 94-V0 Aluminum	UL94-5VA	UL94-V0	UL94-V0
Easy-to-Wire Rear-Loaded Interiors	—	✔	✔	✔
Single Rated Safety Voltage Polarizations	20A	20A 30A	20A 30A 50A 60A	30A (9h–IEC)
Waterproof O-Ring Seal (pins, sleeves and interiors)	—	✔	✔	✔
2nd Internal Ground Lug (cable shielding alt.)	—	✔	(optional)	—
External Cable Clamp	✔	—	✔	✔
External Gland Nut Lock	—	—	✔	✔

** 60A devices are specially designed versions of Russellstoll Angle Type (7328DP).*

E2630

LR14096

TüV *For TüV listed devices, contact Technical Services.*

Computer System Interconnections

Plugs





		VOLTAGE	PLUG SAFETY POLARIZATION	STD. CABLE BUSHING**	FS/FD™ ALUMINUM•	SPEC GRADE UL 94-5VA	SEE BUSHING CHART DURAGARD® UL 94-V0*
2P/3W	15/20 Amp	Up to 600VAC/ 250VDC		.625" .455" .405"	3720	3720DP (.375) 3720DP/0455 3720DP/0405	9P23U0
		125VAC		.625" .455" .405"	3720U1	3720DPU1 (.375) 3720DPU1/0455 3720DPU1/0405	9P23U1
		250VAC		.625" .455" .405"	3720U2	3720DPU2 (.375) 3720DPU2/0455 3720DPU2/0405	9P23U2
	30 Amp	Up to 600VAC		.760" .700" .625"	3750	3750DP	9P33U0
	50 Amp	Up to 600VAC		1.000" .925" .750"	—	—	9P53U0
	60 Amp	125VAC		1.000"	—	—	9P63U1
		250VAC		1.000"	—	—	9P63U2
3P/4W	20 Amp	Up to 600VAC/ 250VDC		.688" .625" .606"	3730	— 3730DP/0625 3730DP	— 9P24U0 —
	30 Amp	Up to 600VAC		1.100" 1.000" .875" .760"	3760	3760DPG/1100 3760PDG/1000 3760PDG/0875 3760DPG0760	— 9P34U0◆ — —
	50 Amp	Up to 600VAC 250VDC		1.000" .925" .750"	—	—	9P54U0
	60 Amp	125/250VAC		1.000"	—	—	9P64U1
		250 3Ø VAC		1.000"	—	—	9P64U2
	60 Amp	Special Angle Type Up to 600VAC	 Angle Type	1.375" 1.188" 1.020" .750"	7328-78^	— — — —	7328DP/1375 — 7328DP† 7328DP/0750
4P/5W	30 Amp	3øY 120/208 VAC	 MaxGard	.775"	—	—	DS3516MPDP+

Notes: *All 20A devices are compatible. 30A FS/FD™ receptacles and connectors will accept all styles of mating plugs.*

* *For a more complete listing of UL 94-V0 rated devices, consult DuraGard® information on* ***pages H-357–H-375****.*

** *Consult your Thomas & Betts representative for additional cable bushing sizes not listed.*

† *7328 DP series thermoplastic can replace 7328 metallic.*

• *30A FS/FD™ aluminum plugs may not directly exchange with DuraGard® plugs. FS/FD metal mating devices must be used.*

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Computer System Interconnections

Connectors





Receptacles





FS/FD™ ALUMINUM	DURAGARD® UL94-V0*	FS/FD™ ALUMINUM•	DURAGARD® UL94-V0*
3913	9C23U0	3743	9R23U0W▼
3913U1	9C23U1	3743U1	9R23U1W▼
3913U2	9C23U2	3743U2	9R23U2W▼
3933■	— 9C33U0■ —	3753■	9R33U0W▼■
—	9C53U0	—	9R53U0W●
—	9C63U1	—	9R63U1
—	9C63U2	—	9R63U2
3914	— 9C24U0 —	3744	9R24U0W▼
3934■	— 9C34U0◆■ — —	3754■	9R34U0W▼■
—	9C54U0	—	9R54U0W▼
—	9C64U1	—	9R64U1
—	9C64U2	—	9R64U2
7428-78^	— — — —	—	SCF7324-78
DS3516FP+	—	DS3516FR+	—

◆ *Standard 0.750 Bushing.*

■ *DuraGard® receptacles and connectors 30/50A will accept only DuraGard® or Spec Grade. FS/FD™ Aluminum 30A plugs must be used with FS/FD™ metal connectors or receptacles.*

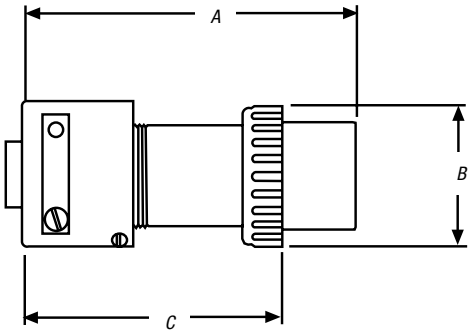
^ *Angle Type Line*

\+ *MaxGard® Line — for further information, see* ***pages H-296–H-343****.*

▼ *Requires 3711A conduit FD box or 3781A DSFD Box (50A).*

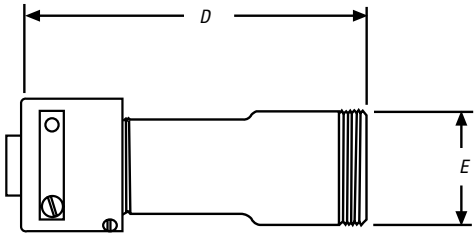
Computer System Interconnections

Plugs



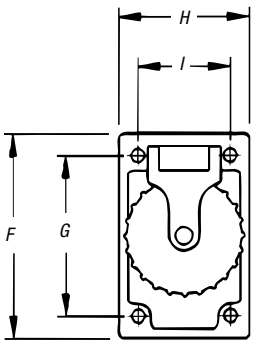
	RECEPTACLE SIZE	A	B	C
FS/FD™	20 Amp	3⅝"	2"	2¼"
	30 Amp	3¾"	2¼"	2⅜"
Angle Type DP (Thermoplastic)	60 Amp	8"	2½"	3¾"
Spec Grade DuraGard®	20 Amp	3¼"	2⅛"	2⅛"
	30 Amp	5"	2⅜"	3⅜"
	50 Amp	5¼"	2⅜"	3⅜"

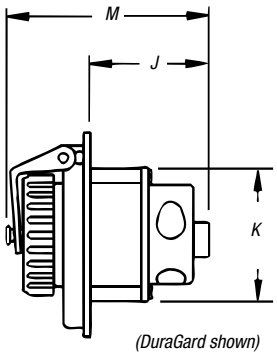
Connectors



	RECEPTACLE SIZE	D	E
FS/FD™	20 Amp	4"	1⅞"
	30 Amp	4⅝"	2⅛"
Angle Type (Metallic)	60 Amp	9⅛"	3½"
Spec Grade DuraGard®	20 Amp	4⅛"	1⅞"
	30 Amp	5⅝"	2⅛"
	50 Amp	5⅝"	2⅛"

Receptacles





(DuraGard shown)

	RECEPTACLE SIZE	F	G	H	I	J	K	M
FS/FD™	20 Amp	4⅛"	3¼"	2⅝"	1⅞"	1⅛"	2¼"	2½"
	30 Amp	4⅛"	3¼"	2⅝"	1⅞"	1⅜"	2¾"	2⅝"
Angle Type (Metallic)	60 Amp	3½"	2⅞"	3½"	2⅞"	—	2½"	6"
DuraGard®	20 Amp	4⅛"	3¼"	2⅝"	1⅞"	1½"	2"	3⅛"
	30 Amp	4⅛"	3¼"	2⅝"	1⅞"	2½"	2¾"	4⅛"
	50 Amp	4⅛"	3¼"	2⅝"	1⅞"	2½"	2¾"	4⅛"

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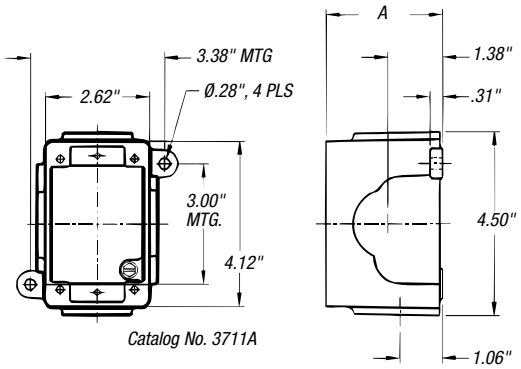
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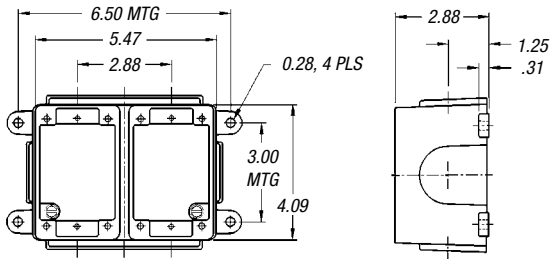
Computer System Interconnections

All Conduit Boxes/Angle Adapters are Copper-Free, Cast Aluminum, Epoxy Powder Coat Finish.

Conduit Boxes (for Surface Mounting)



Catalog No. 3711A



Catalog No. 3712A

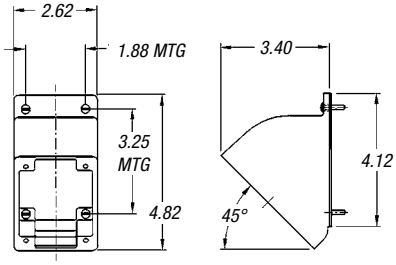


RECEPTACLE SIZE	CAT. NO. SINGLE-GANG	CAT. NO. DOUBLE-GANG
20, 30 and 50 Amp	**3711A**	**3712A**
60 Amp*	**JB6-1**	—
50 Amp	**3781A**	—

** Various mounting options available. 4" deep (not shown)*



Angle Adapter



Catalog Number 3678A

RECEPTACLE SIZE	CAT. NO. 45°	CAT. NO. 20°
20, 30 and 50 Amp	**3678A**	—
60 Amp*	**JAA6-45**	**JAA6-AB6**

Mounts to conduit boxes to angle receptacle downward for easier access, no moisture retention on surfaces and better plug-cable drop bend relief.

** Various mounting options available.*

Conduit Adapter

Kit includes gland nuts for plugs or connectors.

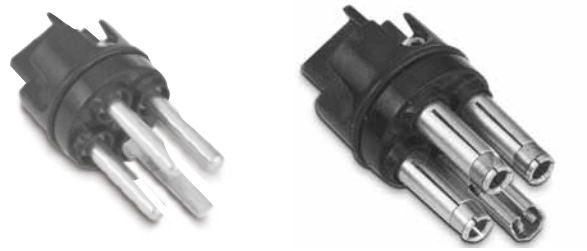


PLUG/CONNECTOR SIZE	TAPPED HOLE SIZE	CAT. NO. FS/FD™	CAT. NO. SPEC GRADE	CAT. NO. DURAGARD®
20 Amp	½"	**FSA11**	—	**9X2C50**
	¾"	**FSA12**	—	**9X2C75**
	½"	**FSA21**	—	**9X3C50**
30 Amp	¾"	**FSA22**	—	**9X3C75**
	1"	**FSA23**	—	—
50 Amp	¾"	—	—	**9X5C75**
	1"	—	—	**9X5C10**
60 Amp Angle Type	¾"	**JPA62**	—	—
	1"	**JPA63**	—	—
	1¼"	**JPA64**	—	—
	1½"	**JPA65**	—	—

Plug/Connector Replacement Items

	SPEC GRADE	DURAGARD®	SPEC GRADE	DURAGARD®	
Item Color	Blue	Yellow	Blue	Yellow	Black
Plug/Connector Amperage	20A	20A	30A	30A	50A
Gland Nut	C17077C	C17077A	C17076CX	C17076AX	C17076BX
Nylon Locking Screw	N/A	NA	B16983	B16983	B16983
Bushing, Clamp, Nut and Screw Kit (Inc. Nylon Locking Screw — 30/50A)	B17019CPR	B17019APR	B17018CPR	B17018APR	B17018BPR
Bushings	To Spec	To Spec	To Spec	To Spec	To Spec
Glide Washer	863-8	863-8	500RS	500RS	500RS
Gland Nut Assembly	B17019CR	B17019AR	B17018CR	B17018AR	B17018BR

Note: *Minimum purchase quantities apply.*



Replacement Interiors

AMPERAGE		VOLTAGE POLARIZATION	CAT. NO.	
			MALE INTERIOR ASSEMBLY	FEMALE INTERIOR ASSEMBLY
—	—	125VAC	**9XM23U1**	**9XF23U1**
2P3W	20	250VAC	**9XM23U2**	**9XF23U2**
—	—	Through 600VAC/250VDC	**9XM23U0**	**9XF23U0**
2P3W	30	Through 600VAC/250VDC	**9XM33U0**	**9XF33U0**
2P3W	50	Through 600VAC/250VDC	**9XM53U0**	**9XF53U0**
3P4W	20	Through 600VAC/250VDC	**9XM24U0**	**9XF24U0**
3P4W	30	Through 600VAC/250VDC	**9XM34U0**	**9XF34U0**
3P4W	50	Through 600VAC/250VDC	**9XM54U0**	**9XF54U0**

Notes: *For replacement bushings, see DuraGard® section,* ***page H-371****.*
Interiors with ground straps are specials.

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Computer System Interconnections

Performance — Electrical

Dielectric Voltage Withstand — 3000 volts

Max. Working Voltage — 600 volts RMS (minimum creepage distance and minimum clearance per UL 840)

Circuit Interrupting/ Load Breaking — UL Listed and CSA Certified for circuit interrupting at full rated current

Temperature Rise — Max. 30° C temperature rise at full rated current after 50 cycles of overload at 150% rated current at .75 pF

Shrouded Contacts — Complies with California Code Title 8, Art. 51, S2510.7(b) for devices exceeding 300VAC

Horsepower — Per NEC® 430–151 ratings

Performance — Environmental

Moisture Resistance — Per UL 1682 Paragraph 49. Watertight flap screw cover on receptacle, O-Rings on all V0/5VA pins and sleeves (excludes 60A)

Flammability — V0/5A per UL 94 (DuraV® also 5VA in some applications)

Operating Temperatures

	V0	5VA	Metal
Maximum Continuous	95° C (230° F)	130° C (266° F)	130° C (266° F)
Minimum without Impact	-40° C (-40° F)	-29° C (-20° F)	-40° C (-40° F)

Chemicals — Resists standard industrial hydrocarbons, acids, bases and solvents (DuraV® and Metal)

Performance — Mechanical

Impact Resistance — Per UL 1682 Paragraph 34

Cord Accommodation — Round portable service cords per UL standard 62 and CSA C22.2 No. 49.1

Terminal Identification — In accordance with UL 1682

Cable Pull-Out Force — In accordance with UL 1682

Product Identification — Identification label and molded-in name

Lockout/Tagout — Lockout/Tagout hole in 30/50A DuraGard® plug complies with OSHA Reg. 29 CFR 1910.147 (V0 30A and 50A plugs only)

Approvals

TüV

Conforms to NEMA 4, 4X and 6 (DuraGard® and Spec Grade)

Contact Technical Services

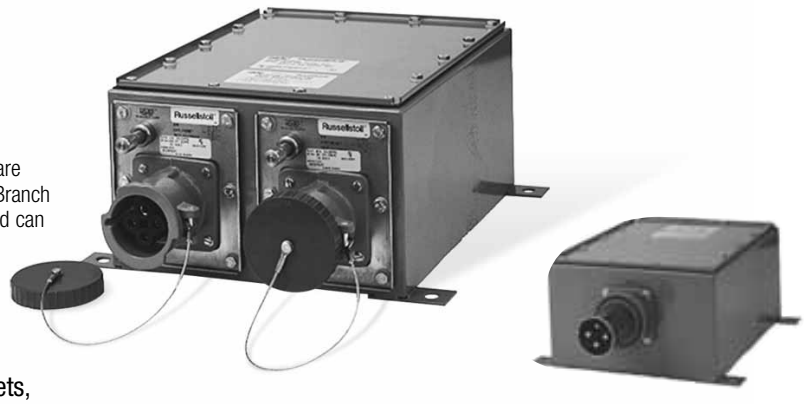
NEC and National Electrical Code are registered trademarks of the National Fire Protection Association, Inc.

Materials

	FS/FD™	SPEC GRADE	DURAGARD® SAFETY GRADE™
Contact Carrier Interior	Thermoset/Thermoplastic) (20A and 30A)	Arc-Resistant UL 94-V0 Phenolic Thermoset	Arc-Resistant UL 94-V0 Phenolic Thermoset
Housing, Gland Nuts	Cast Aluminum	Lexan® UL 94-5VA	DuraV® UL 94-V0
Screw Collar Rings	—	High-Impact Thermoplastic	High-Impact Thermoplastic
O-Rings	—	Buna-N (Nitrile)	Buna-N (Nitrile)
Contacts: Pins and Sleeves	Brass	Brass CDA 360	Brass CDA 360
Hinge Pins (Receptacle)	Stainless Steel	—	Stainless Steel
Terminals	Brass	Stainless Steel	Stainless Steel
All Hardware	Stainless Steel	Stainless Steel	Stainless Steel
Gland Glide Washer (or Internal Cable Grip)	Brass	Nylon	20 Amp — Nylon 30 and 50 Amp — Aluminum
Cable Clamp Bushing	Neoprene	Neoprene	Neoprene

Lexan® is a registered trademark of GE.

Custom Products



Interlocked Branch Distribution Centers

Utilize an existing higher amperage service and split it into multiple lower-current service outlets. The outlets are individually interlocked with circuit breaker protection. Branch Distribution Centers are UL Listed and CSA Certified and can be configured for many inlet/outlet combinations.

Standard Dual Configuration

- 60A male inlet
- 2–30A individually interlocked female outlets, each circuit breaker protected
- Heavy-duty NEMA 4 welded, gasketed enclosure

Benefits

- **Saves rewiring costs** in a facility when installing small-sized, lower-current machines using existing electrical service
- **Quickest and most cost-effective** way to expand or reconfigure a single service with multiple service outlet combinations possible at every power drop
- **Safest way to operate:** UL Listed 22kA interrupt capacity interlocked circuit breaker protection for each branch outlet receptacle, in a NEMA 4 enclosure

Electrical and Safety Features

- One: 250VAC, 3P4W, 60 amps, male inlet feeding; Two: 250VAC, 3P4W, 30 amps, IEC 309-2 (9h Blue) female receptacle outlets, each protected by 22kAIC circuit breaker; each mechanically interlocked
- Power is manually energized only after plug is inserted; externally visible trip indicator handles on each interlock
- Automatic shut off when plug is removed before contacts disengage; ground sleeves “make first, break last”
- “Trip-free” safety mechanism where outlets are not powered unless plug is inserted
- Full NEMA rated UL 489 listed 22kA circuit breakers, available to 480V at 30 amps. 60 amp and other options available

Applications

- **Data Processing:** CPU/disk arrays/peripherals; new, smaller multiple units
- **Industrial/Manufacturing Lines:** Reorganization, process reconfiguration
- **Portable Power:** Machinery, tools, test and diagnostic equipment

Mechanical and Safety Features

- All internal wiring is complete: a drop-in, plug-in specified device
- DP underfloor (horizontal) installation standard; vertical or other mounting conventions optional
- Electrostatic epoxy powder-coat gray finish over 14-gauge steel, NEMA 4 welded enclosure with gasketed access cover
- Screw cover protects outlet receptacles (flap cap option)
- Long-life stainless steel and nylon external hardware, copper-free aluminum castings, O-ring seals (to device spec) and brass electrical contacts

	INLET SIDE		OUTLET SIDE*	
CAT. NO.	250VAC, 60A MALE INLET	MATING CONNECTOR	250VAC, 30A OUTLET RECEPTACLE	MATING PLUG
ER206M39	7528 Spl.	7428-78	RS430MM9W (x2)	RS430P9WV0

** IEC 309-2 configuration, 9h, 3P4W.*

Notes: *External mating plugs and connectors sold separately.*
Other configurations available. Consult factory or your Thomas & Betts representative.

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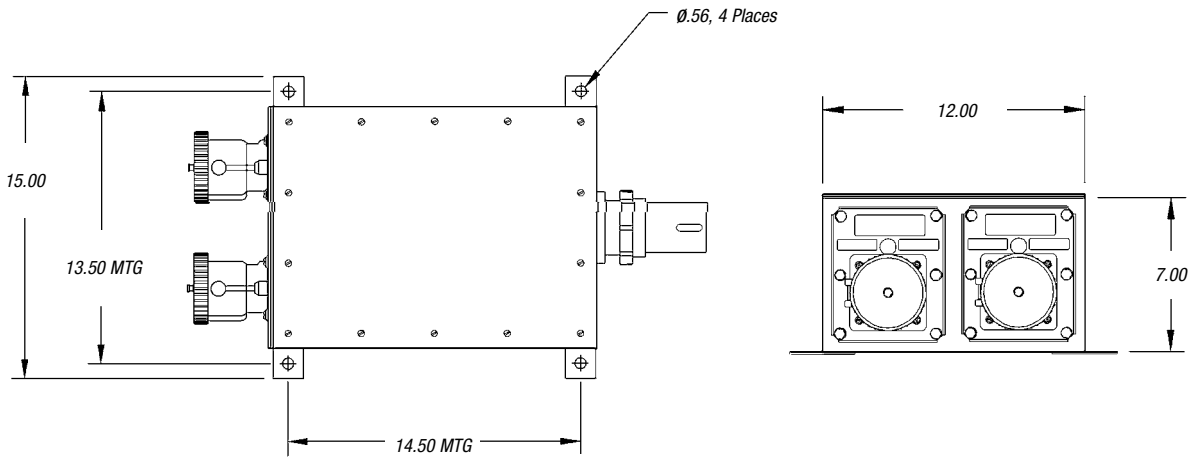
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Fax: 901.252.1354

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Tel: 888.862.3289

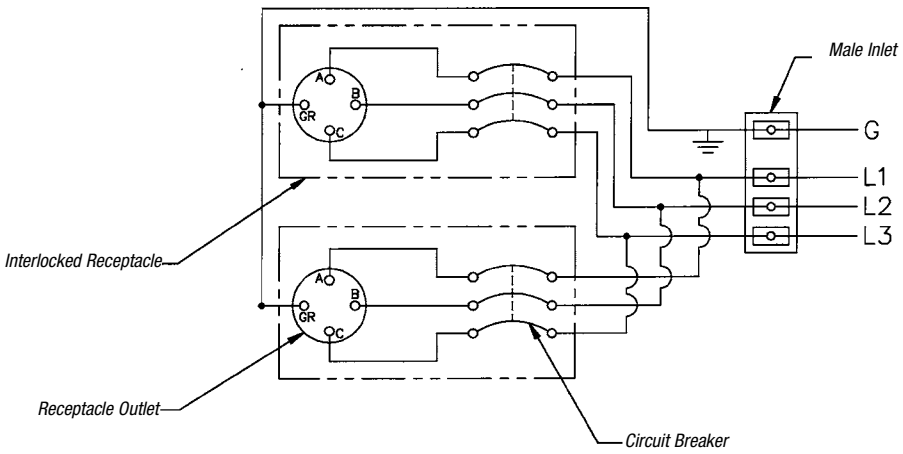
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Computer System Interconnections

Outline Dimensions



Schematic Diagram



Mipco™ Connections for Refrigerated Containers

Plug Into Mipco™ Power

Mipco™ plugs, connectors and receptacles are used extensively in ports, terminals, transport and shipboard applications to provide a safe, watertight electrical connection for refrigerated containers. Mipco™ construction and design benefits are a quality benchmark:

- **No corrosion**: Aluminum receptacles are copper-free aluminum castings with a unique two-layer electrostatic epoxy powder-coat finish. Stainless steel and brass components are used extensively.
- **Tougher and better**: Thermoplastic receptacle, connectors and plugs are made from AMTUF™ high-abuse Nylon thermoplastic and DuraV® high-strength thermoplastic. Wide range chemical, UV withstand, impact and overall performance characteristics set the standard for construction.
- **Safety Listed and Approved**: We lead with safety in UL/CSA listings, approvals and certifications. "Recognized" or "non-listed" offshore supplier components just aren't the same.



The Mipco™ Advantage

Safety

- Safety ground pin "makes first", "breaks last" for optimum operator safety
- Internal O-ring seals provide watertight integrity, even without plug engaged or cap in place
- Thermoset interiors provide the safest insulation under extreme conditions
- Color-coded housings provide easy identification of mating components

Durability

- AMTUF™ housings provide three times the impact and temperature resistance of polycarbonate. Extremely resistant to oil, fuel, grease and most common solvents
- Neoprene cable compression bushings with locking collars provide a watertight, tug-proof connection

Reliability

- Solid brass contact sleeves with beryllium copper compression springs minimize heat rise and corrosion
- Waterproof cable sealings and locking screw collars ensure waterproof connections

Easy Installation & Service

- Fast assembly and wiring with "drop-in" rear loaded interiors
- A variety of optional bushing sizes available for plugs and connectors to ensure sealing to your cable
- Readily available service parts:
  - Interior assemblies
  - Gland nut assemblies
  - Screw collars
  - Flap cap/screw cap assemblies

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Mipco™ Connections for Refrigerated Containers

Waterproof Cable Sealing:

- Nut with cable locking clamps
- Neoprene compression bushing cable sealing/ locking system

Fast, Easy, Rear Load Wiring & Assembly:

- Terminal set screws

The Most Durable Materials Available

- AMTUF™ high-impact housings
- Thermoset interiors

Waterproof Locking Connections:

- Locking screw collars with gasket seals
- IP67 minimum

Dry Wiring Compartments

- Interior O-ring seals around compartments, and each pin and sleeve ensure waterproof connections

High Reliability, High-Performance Connections

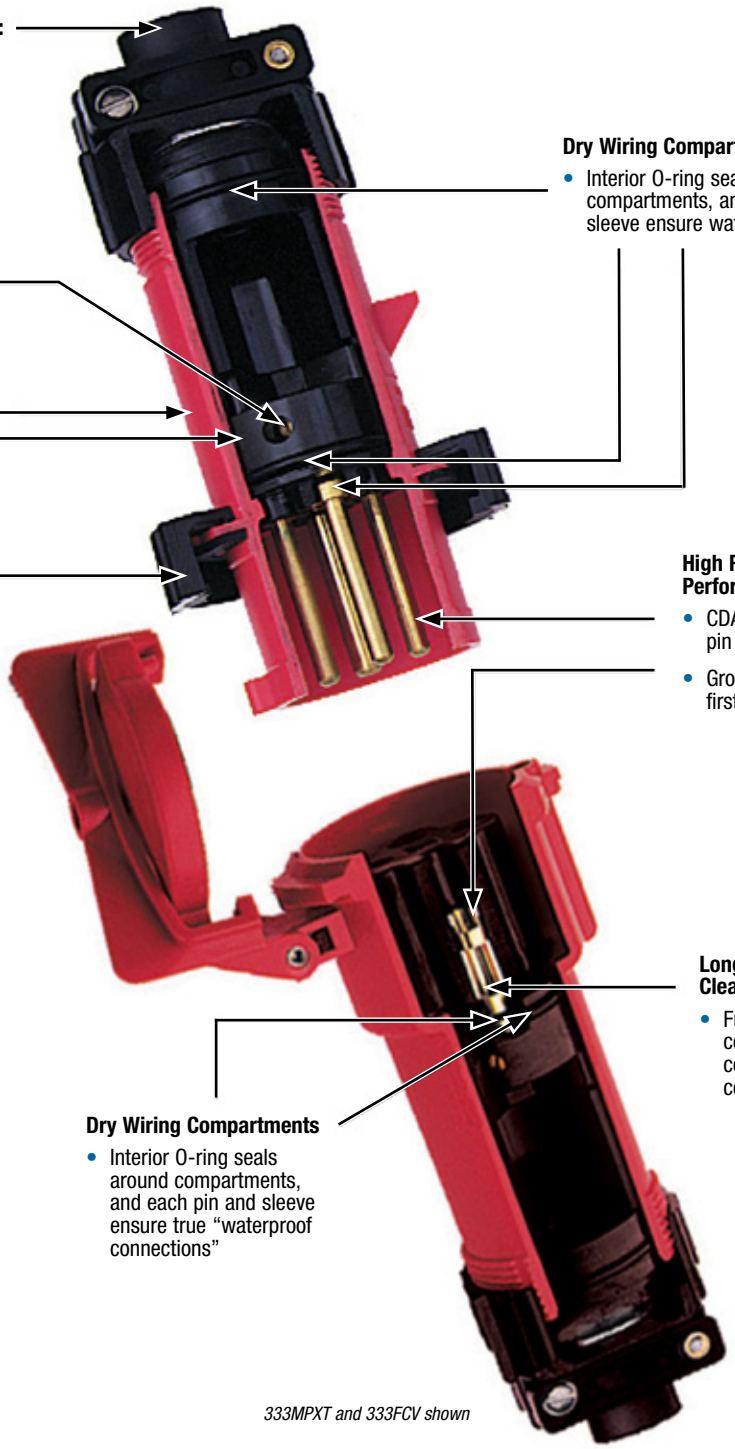
- CDA 360 solid brass pin & sleeve
- Ground contacts "makes first", "breaks last"

Long-Lasting, Self-Cleaning Connections

- Full round pin & sleeve contacts for maximum contact area and coolest connection

Dry Wiring Compartments

- Interior O-ring seals around compartments, and each pin and sleeve ensure true "waterproof connections"

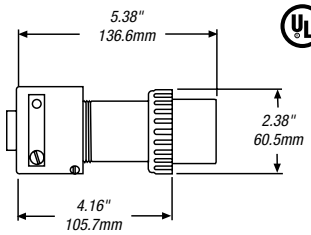
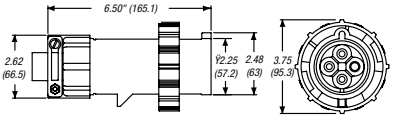
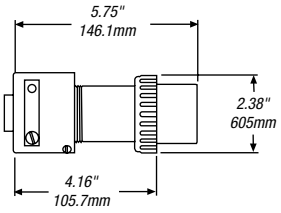
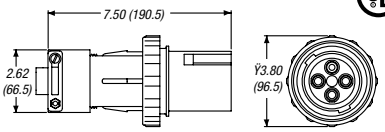
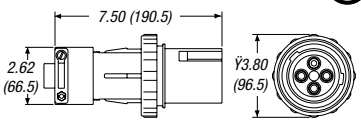


333MPXT and 333FCV shown

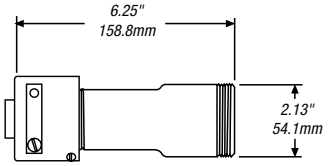
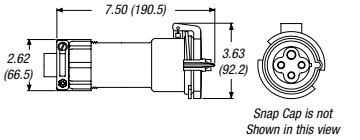
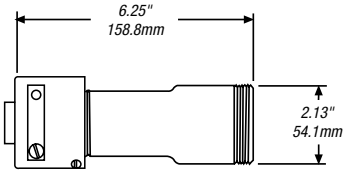
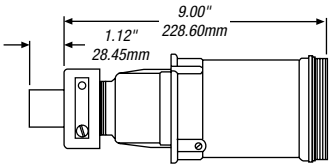
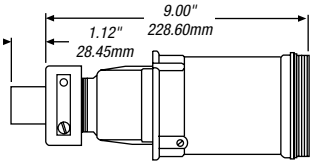
Mipco™ Connections for Refrigerated Containers

Plugs and Connectors

Male Plugs

CAT. NO.	DIMENSIONS	RATING
334MPXT	 	**30 AMP 250VAC** 60 Hz 3P4W
333MPXT ★	 	**32 AMP 380/440VAC** 50/60 Hz 3P4W IEC 309-2 480VAC USA
534MPXT	 	**50 AMP 250VAC** 60 Hz 3P4W
634MP2XT	 	**60 AMP 250VAC** 60 Hz 3P4W
634MP4XT	 	**60 AMP 480VAC** 60 Hz 3P4W

Female Connectors

CAT. NO.	DIMENSIONS
334FC •	 
333FCV ▲ (DuraV® Housing)	 
534FC •	 
634FC2 •	 
634FC4V ▲ (DuraV Housing)	 

Additional bushing sizes available for plugs and connectors to ensure sealing to your cable. See ***page H-478*** *for ordering information.*

• Polycarbonate housing.

▲ DuraV® housing, UL94V-0 flame rated.

★ AMTUF® housing.

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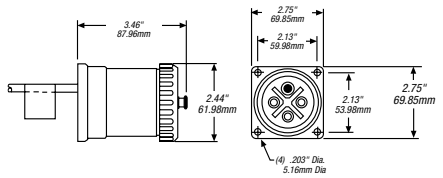
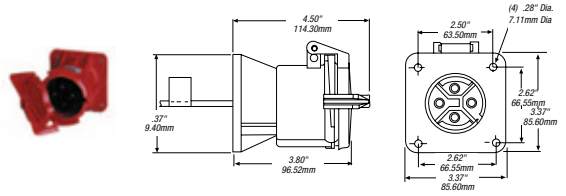
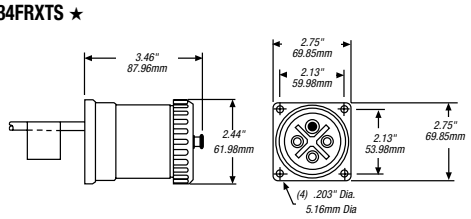
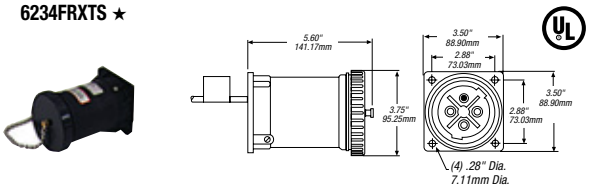
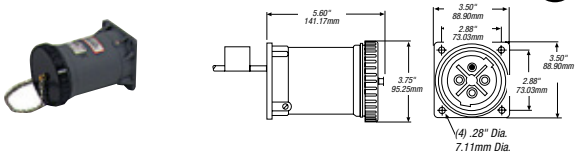
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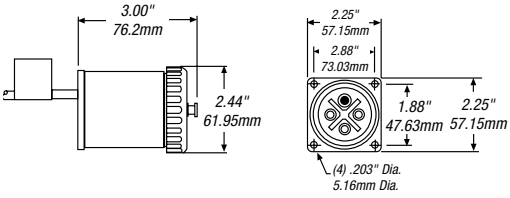
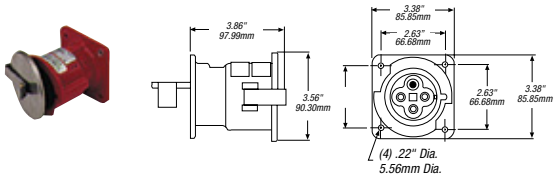
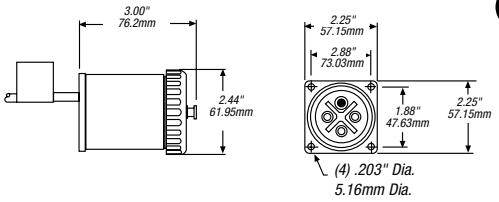
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Receptacles

Non-Metallic Female Receptacles

CAT. NO.	DIMENSIONS	RATING
3034FRXTS		**30 AMP 250VAC** 60 Hz 3P4W
3334FRVS ▲		**32 AMP 380/440VAC** 50/60 Hz 3P4W IEC 309-2 480VAC USA
5034FRXTS ★		**50 AMP 250VAC** 60 Hz 3P4W
6234FRXTS ★		**60 AMP 250VAC** 60 Hz 3P4W
6434FRXTS ★		**60 AMP 480VAC** 60 Hz 3P4W

Metallic Female Receptacles

CAT. NO.	DIMENSIONS
3034FRS	
3334FRF	
5034FRS	

For all Receptacles — Flap Cap, order using suffix "F". Example 3334FRVF.
Screw Cap, order using suffix "S". Example 3034FRXTS.

Additional bushing sizes available for plugs and connectors to ensure sealing to your cable. See ***page H-478*** *for ordering information.*

- *Polycarbonate housing.*
- ▲ *DuraV® housing, UL94V-0 flame rated.*
- ★ *AMTUF® housing.*

Mipco™ Connections for Refrigerated Containers

Accessories for Plugs and Connectors

Additional Bushing Sizes

CAT. NO.	WASHER & BUSHING I.D.
B16779AR	.750
B16779BR	.875
B16779CR	.620
B16779DR	.700
B16779ER	1.000
B16779FR	.800
B16779GR	.545
B16779HR	.925

For 30, 32, 50 and 60A standard devices.



Accessories for Non-Metallic Receptacles[1]

Junction Box and Straight Adapter[2]

STRAIGHT ADAPTER CAT. NO.	JUNCTION BOX CAT. NO.	RECEPTACLE RATING
SAM50	JM99	30A, 250V
SAM32	JM99	32A, 380/440V (480V)
SAM50	JM99	50A, 250V
SAM60	JM99	60A, 250V
SAM60	JM99	60A, 480V



Straight Adapter and Junction Box shown assembled.

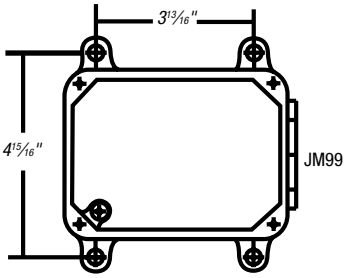
Junction Box and Straight Adapter

STRAIGHT ADAPTER CAT. NO.	JUNCTION BOX CAT. NO.	RECEPTACLE RATING
AM50	JM99	30A, 250V
AM32	JM99	32A, 380/440V (480V)
AM50	JM99	50A, 250V
AM60	JM99	60A, 250V
AM60	JM99	60A, 480V

Notes:
1. Does not exclude 32-amp metallic receptacles.
2. Adapter and Junction Box may differ from photo.



Angle Adapter and Junction Box shown assembled.



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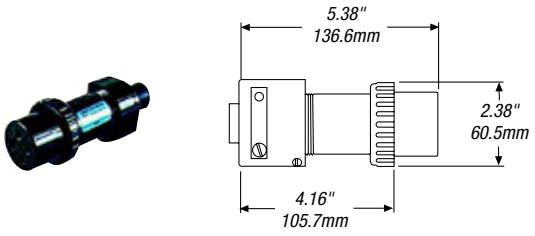
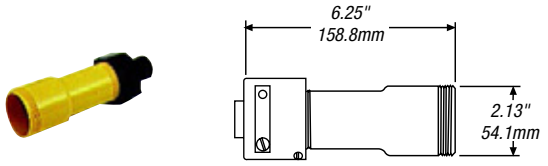
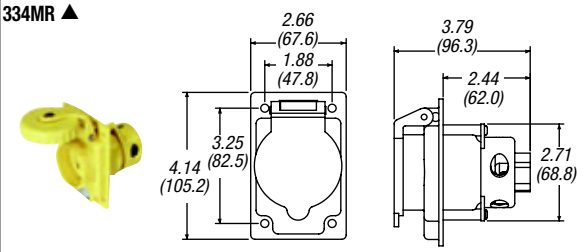
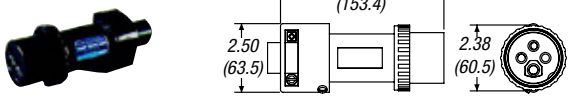
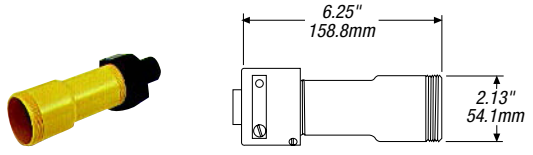
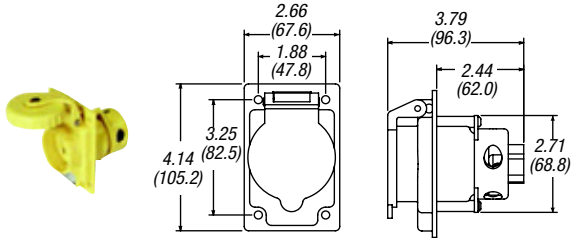
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800.816.7809
Fax: 901.252.1354

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Mipco™ Connections for Refrigerated Containers

Reversed Contacts Service — 30A and 50A, 250VAC

Female Plugs			Male Connectors and Receptacles	
CAT. NO.	DIMENSIONS	RATING	CAT. NO.	DIMENSIONS
334FP•		30 AMP 250VAC, 60 Hz 3P4W	334MC ▲	
		30 AMP 250VAC, 60 Hz 3P4W	334MR ▲	
534FP•		50 AMP 250VAC, 60 Hz 3P4W	534MC ▲	
		50 AMP 250VAC, 60 Hz 3P4W	534MR ▲	

***Note**: Many additional bushing sizes available; see **page H-478**.*

• Polycarbonate housing.

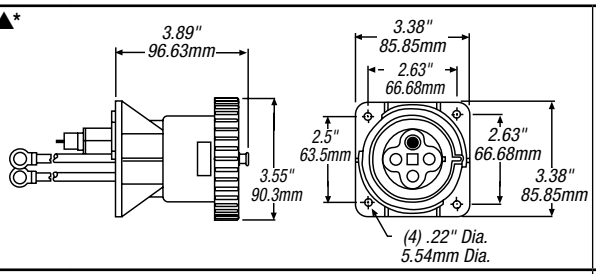
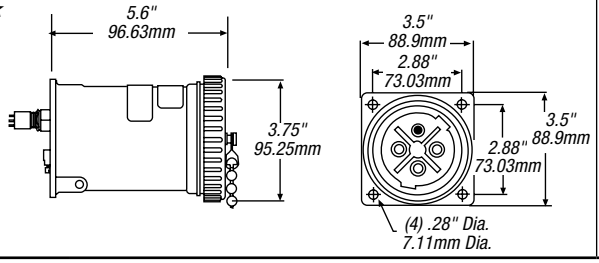
▲ DuraV® housing, UL94V-0 flame rated.

★ AMTUF® housing.

Mipco™ Connections for Refrigerated Containers

Fixed Receptacles with Monitor Switches

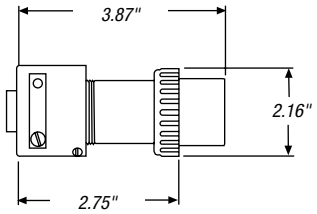
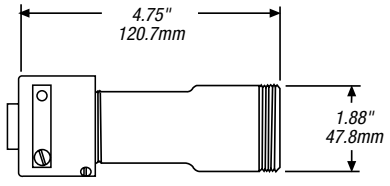
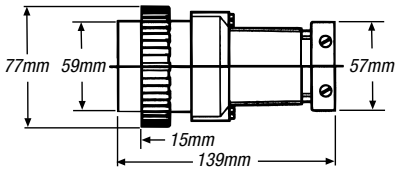
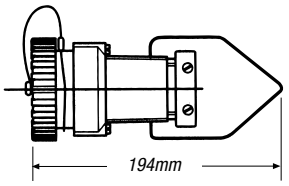
These receptacles include a micro switch mounted at the rear of the interior. The switch is mechanically activated by plug (ground pin) insertion. Applications include electrical interlocking, control circuits and safe switch or monitor systems. (Micro switch is a separate circuit.)

CAT. NO.	DIMENSIONS	RATING	
3334FRVSMS▲*		**32 AMP 380/440VAC** 50/60 Hz, 3P4W IEC309-2 480VAC USA	
6234FRMS*★		**60 AMP 250VAC** 60 Hz 3P4W	

** Flap Cap also available.*
Polycarbonate housing used on 6234FRMS.
▲ DuraV® housing used for 3334FRVSMS; replaces 3334FRPSMS.
★ AMTUF® housing.

Special Rated Plugs and Connectors

20 Amp and Australian

CAT. NO.	DIMENSIONS	RATING	CAT. NO.	DIMENSIONS
Male Plugs			***Female Connectors***	
223MP2	 	**20 AMP 250VAC,** 60 Hz 2P3W	**223FC2**	 
334MP5	 	**32 AMP Australian Standard 440/500 VAC,** 50 Hz 3P4W	**334FC5**	 

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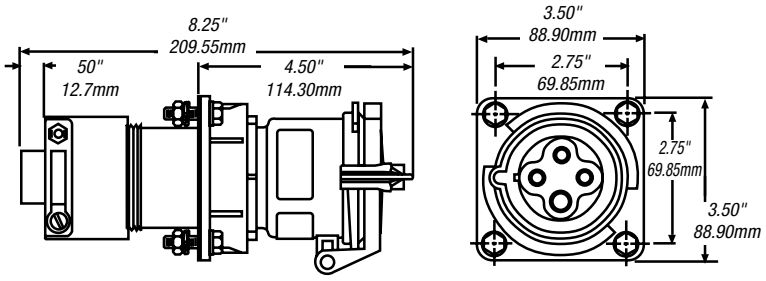
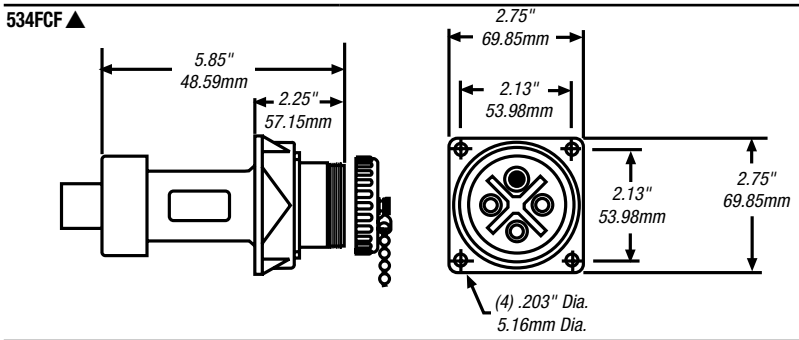
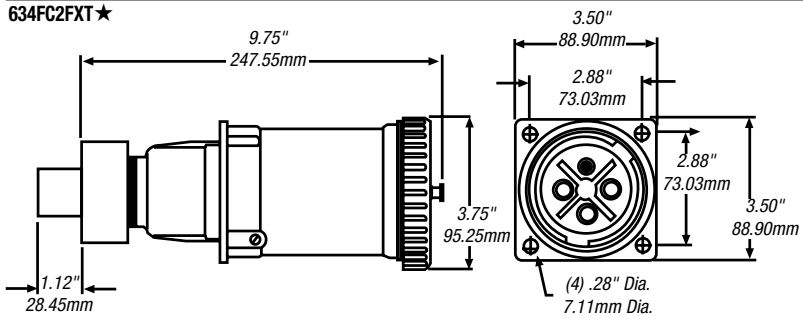
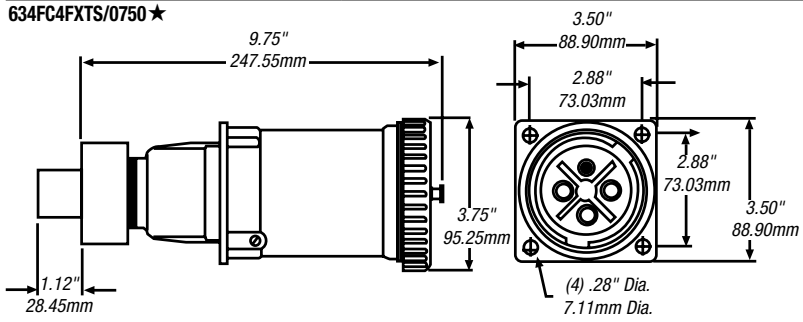
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Tel: 888.862.3289

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Mipco™ Connections for Refrigerated Containers

Flanged Connectors

Flanged connectors are used in many trailer-mount or underslung applications where connector needs to be mounted through a bulkhead plate or other fixed position.

CAT. NO.	DIMENSIONS	RATING	
333FCVF▲		**32 AMP, 380–440VAC** 50/60 Hz, 3P4W IEC 309-2 (480) VAC-USA)	
534FCF▲		**50 AMP, 250VAC** 60 Hz, 3P4W	
634FC2FXT★		**60 AMP, 250VAC** 60 Hz, 3P4W	
634FC4FXTS/0750★		**60 AMP, 480VAC** 60 Hz, 3P4W	

** Polycarbonate housing.*

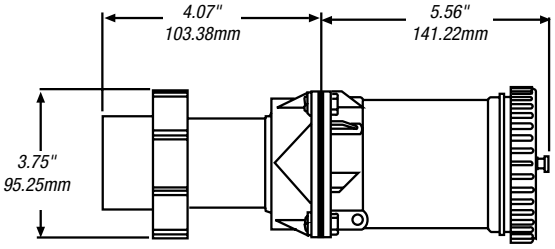
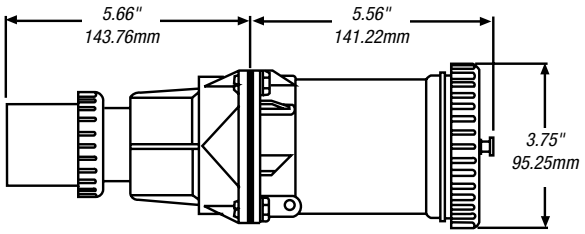
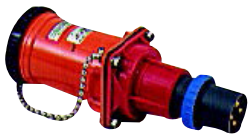
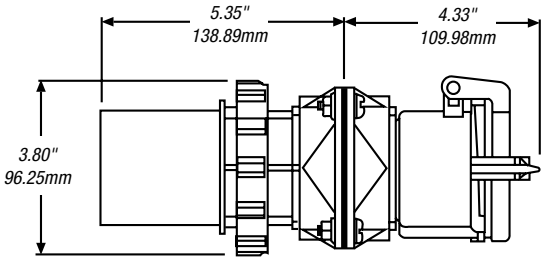
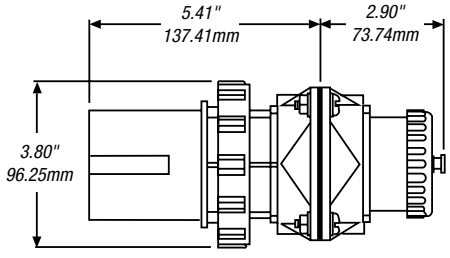
▲ *DuraV® housing, UL94V-0 flame rated.*

★*AMTUF® housing.*

Mipco™ Connections for Refrigerated Containers

Converter Plugs

Converter plugs and converter cords facilitate the connection of a plug and receptacle with different ratings. Vessel sharing has become increasingly common, resulting in refrigerated containers with plug configurations that do not match the existing shipboard or port terminal receptacles. The converter plug eliminates the need for time-consuming and expensive temporary changeovers when these situations are encountered.

CAT. NO.	DIMENSIONS	RATING	
3260CPV▲ **32 Amp** 380/440V Male Plug		**60 Amp** 480VAC Female Connector	
5060CP **50 Amp** 250VAC Male Plug		**60 Amp** 250VAC Female Connector	
6032CP▲ **60 AMP** 250VAC Male Plug		**32 Amp** 380/440VAC Female Connector	
6050CP **60 AMP** 250VAC Male Plug		**50 Amp** 250VAC Female Connector	

▲ *DuraV® housings.*

Converter Cord Sets

Converter cord sets are also available using a Mipco™ plug and connector, with two feet (.6 meters) of suitably rated, four-conductor cable. They are available with any plug/connector combination of the same voltage. Contact Technical Services to specify.



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Mipco™ Connections for Refrigerated Containers

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	Minimum creepage distance and minimum clearance per UL 840
Temperature Rise	Max. 30° C temperature rise at full rated current after 50 cycles of overload at 150% rated current at 75 pF

Performance — Mechanical

Impact Resistance	Per UL 1682 Paragraph 34
Cord Accommodation	Round portable service cords. 10 standard diameters from .405 to 1.00, custom sizes to spec
Terminal Identification	In accordance with UL 1682
Cable Pull-Out Force	In accordance with UL 1682
Product Identification	Identification label or molded in name

Performance — Environmental

Moisture Resistance	Per UL1682 Paragraph 49. Watertight/flap screw cover on receptacle, O-rings on all pins and sleeves, interiors and plug shell. Watertight even when not engaged
Flammability	HB or better per UL94 (housing) VØ or better per UL 94 (interior)
Operating Temperatures	Maximum continuous: 95° C/203° F Minimum: -29° C/-20° F w/o impact (Polycarbonate) -40° C/-40° F w/o impact (AMTUF™ and DuraV®)
Chemicals	Resists standard industrial hydrocarbons, acids, bases and solvents

Material

Contact Carrier Interior	Molded arc-resistant UL94-V0 thermoset
Housing, Gland Nuts, Screw Collar Rings	Polycarbonate, high-impact thermoplastic
O-Rings	Buna-N (Nitrile)
Contacts: Pins and Sleeves	Brass CDA 360
Hinge Pins (Receptacle)	Stainless steel
Terminals	Brass CDA 360
Terminal Screws, Flap Springs, Assembly Screws, Nuts, Hardware	Stainless steel or brass
Bushing Glide Washer	20 Amp — Nylon 30, 50 & 60 Amp — Aluminum
Cable Clamp Bushing	Neoprene or Santoprene

Approvals

Meets requirements for NEMA 4, 4X, & IP 67.
UL Listed and CSA Certified.

UL • *E2630/E47956* CSA • *LR14096*

Mipco™ Connections for Refrigerated Containers

No One Does It Like Mipco™

Mipco™ Interlocked Reefer Power Outlets are used extensively in port terminals and shipboard applications to provide a safe, watertight electrical connection for refrigerated containers. They feature a heavy-duty, interlocked UL/CSA listed and circuit breaker-protected electrical power outlet. This ensures the outlet cannot be switched "live" until a plug is fully engaged and the actuator rod is pushed to the "On" position. Pulling the actuator rod to the "Off" position manually de-energizes the circuit. The circuit de-energizes automatically if the plug is accidentally withdrawn while in the "On" position. Also, the interlock mechanism "breaks" the circuit while the pin and sleeve contacts are still engaged. This provides total operator safety and protection against shock hazard while eliminating arcing damage to the plug and receptacle.

The modular design pioneered by Mipco™ allows for quick, easy installation and maintenance. Mipco™ engineers designed the Interlocked Reefer Power Outlet for the utmost safety, durability and reliability.



M433-30F22



M464-30S22

The Mipco™ Advantage

Safety

- Interlock Mechanism protects against shock hazard and cannot be overridden like other designs
- Plug cannot be inserted or withdrawn under load. Ground pin activates interlock
- Thermoset interiors provide the safest insulation under extreme conditions
- UL 489 listed circuit breaker for optimum operator and circuit protection
- Non-conductive knob is oversize for safe, easy operation

Durability

- Heavy-duty ½" diameter stainless steel actuator rod offers superior resistance to corrosion and abuse
- UL 489 listed circuit breaker is resettable after circuit interruption
- Heavy-gauge stainless steel platform and aluminum receptacle housing resists corrosion and physical damage
- O-ring sealed insulator, contact sleeves, ground pin, interlock actuating pin and actuator rod ensure watertight integrity of wiring compartment when screw cover or plug is removed

Reliability

- Segmented solid brass contact sleeves with beryllium copper compression springs minimize heat rise and corrosion
- UL 489 listed circuit breaker provides branch circuit protection per NEC®

Easy Installation & Service

- Mipco's "modular design" makes installation and maintenance fast and inexpensive with easy accessibility to individual parts
- 4-screw, 3-wire receptacle service
- One-piece interlock mechanism requires no adjustment and simplifies maintenance
- Complete line of service parts readily available:
  - Receptacle assembly
  - Circuit breaker assembly
  - Interior assembly
  - Linkage kits
  - Hardware kits
  - Flap cap/screw cap assemblies

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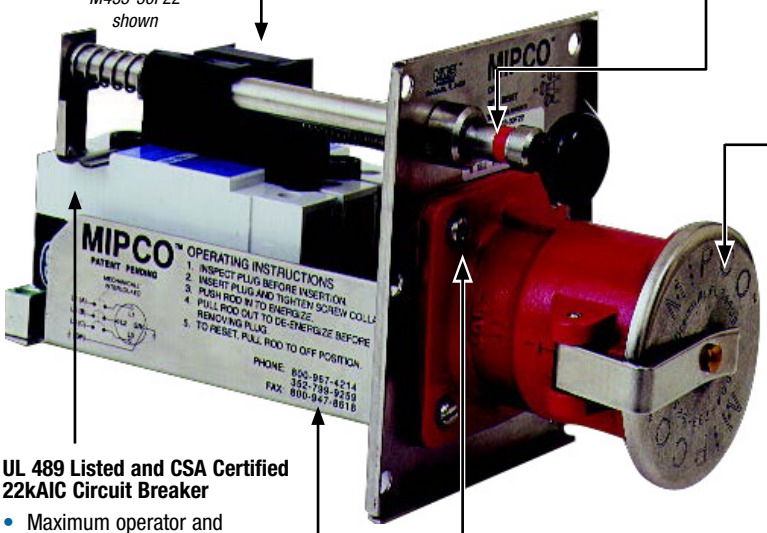
Mipco™ Connections for Refrigerated Containers

The compact frame choice with nominal inrush current protection.

22kAIC, 480V Interlocked Reefer Power Outlet

Mechanical Interlock Mechanism
- Protects against shock hazard
- Eliminates arcing damage
- Automatically de-energizes the circuit upon plug withdrawal; even if actuating rod is jammed in the On position

Cat. No. M433-30F22 shown



Heavy-Duty Actuating Rod
- Superior durability
- Located away from the receptacle for maximum operator safety
- Withstands user abuse

Stainless Steel Self-Aligning Flap Cap
- Ensures a positive environmental seal
- Maximum corrosion resistance
- Withstands user abuse

UL 489 Listed and CSA Certified 22kAIC Circuit Breaker
- Maximum operator and circuit protection
- Branch circuit protection per NEC®

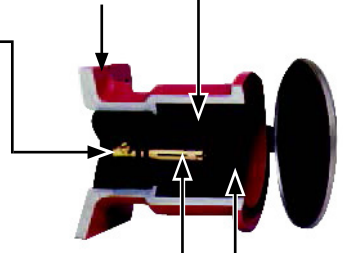
Receptacle Mounting Design
- Easy installation and service (four stainless steel screws, three wires)

Heavy-Gauge Stainless Steel Platform
- Maximum durability from user abuse
- Corrosion resistant

Ground Pin Actuates Interlocking Mechanism
- Ensures grounding integrity with ground pin
- Receptacle is de-energized upon plug removal. When plug is reinserted, switch can be operated

Metallic Receptacle Housing
- Withstands physical abuse
- Corrosion resistant

O-Ring Sealed Interiors and Sleeves
- Seals wiring compartment from environment
- Eliminates accidents and burnouts



Segmented Contact Sleeves with Compression Springs
- Consistent contact pressure
- Minimizes heat rise and corrosion
- Self-cleaning pins and sleeves for longer life

Thermoset Interiors
- Resist high heat and arcs

Mipco™ Connections for Refrigerated Containers

Interlocks with Metallic Receptacle Housings



M432-30S22



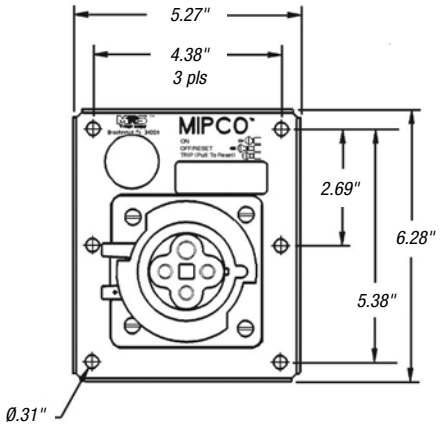
M433-30F22

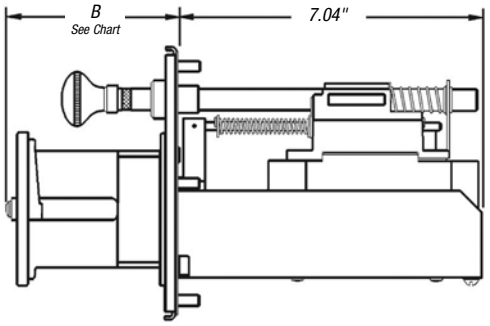


M452-50S22



M464-30S22





CAT. NO.						
FLAP CAP	SCREW CAP	AMPS	VOLTAGE RATINGS	POLES, WIRES	TRIP RATING AMPS†	MATING PLUG CAT. NO.*
M432-30F22	**M432-30S22**	30	250V, 60 Hz	3P4W	30	**334MPXT**
M433-30F22	**M433-30S22**	32	380/440V 50/60 Hz[1]	3P4W	30	**333MPXT**
M452-50F22	**M452-50S22**	50	250V, 60 Hz	3P4W	50	**534MPXT**
M462-50F22	**M462-50S22**	60	250V, 60 Hz	3P4W	50	**634MP2XT**
M464-60F22	**M464-60S22**	60	480V, 60 Hz	3P4W	60	**634MP4XT**

**Mating plugs are sold separately.*

†Other trip ratings available upon request.

[1]480VAC/60 Hz US Common Rating.

AMPERAGE	B
30 & 50A	3.23"
32A	4.00"
60A	5.10"

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Mipco™ Connections for Refrigerated Containers

Catalog Number Construction Guide

Mipco™ interlocked reefer power outlet catalog numbers are easily specified using the guide below.

Options include auxiliary switch construction.

Indicates field that must be filled in to complete order.
***Note**: Availability of selected configuration will be verified at quotation time.*

M — **4** **33** - **30** **F** **22**

Receptacle Housing Material
M = Metallic: Copper-Free, Cast Aluminum; 32 & 60A modules only
Brass; 30 & 50A modules only

Optional Module Style
Omit for standard interlock
T = "T" Style, Center Push-Rod Module, 32A only

Poles/Wires
4 = 3 Pole, 4 Wire

Receptacle Rating/Configuration
32 = 30A, 250VAC, 50/60 Hz
33 = 32A, 380/440V, 50/60 Hz
52 = 50A, 250VAC, 50/60 Hz
62 = 60A, 250VAC, 50/60 Hz
64 = 60A, 440/48 VAC, 50/60 Hz

Circuit Breaker Trip Rating
30 = 30 Amp
50 = 50 Amp
60 = 60 Amp
***Note:** Breaker trip rating will not exceed receptacle rating.*

Receptacle Cover
F = Flap Cap
S = Screw Cap

Circuit Breaker In-Rush Current Rating
18 = 18kAIC @ 480VAC - Shock Resistant, 15g
22 = 22kAIC @ 480VAC (65kAIC @ 250VAC)
65 = 65kAIC @ 480VAC

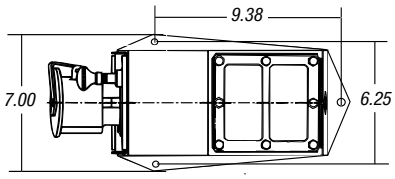
Options
PA = Auxiliary Switch

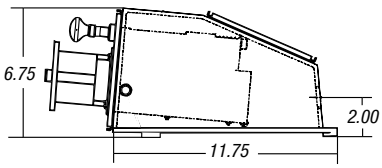
Mipco™ Connections for Refrigerated Containers

Interlocks Complete with Single-Gang Cast Aluminum Enclosure



1BM432-30F22





CAT. NO.						
FLAP CAP	SCREW CAP	AMPS	VOLTAGE RATINGS	POLES, WIRES	TRIP RATING AMPS	MATING PLUG CAT. NO.*
1BM432-30F22	1BM432-30S22	30	250V, 60 Hz	3P4W	30	334MPXT
1BM433-30F22	1BM433-30S22	32	380/440V 50/60 Hz[1]	3P4W	30	333MPXT
1BM452-30F22	1BM452-30S22	50	250V, 60 Hz	3P4W	50	534MP2XT
1BM462-30F22	1BM462-30F22	60	250V, 60 Hz	3P4W	60	634MP4XT
1BM464-30F22	1BM464-30S22	60	480V, 60 Hz	3P4W	60	634MPXT

** Mating plugs are sold separately.*

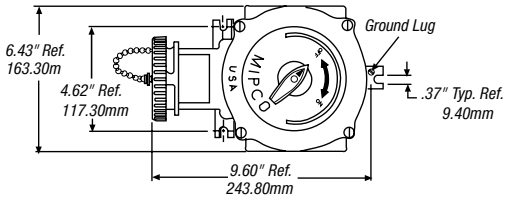
[1] 480VAC/60 Hz US Common Rating.

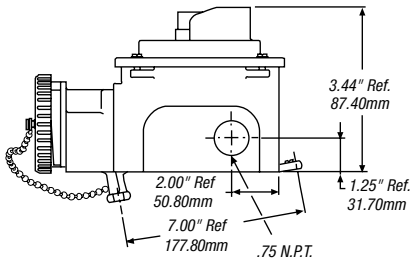
Special Rotary Switch Interlock

Cast aluminum (or brass) switched interlocked used for trailer, rail and common-feed shipboard applications. Circuit protection normally is upstream of load.



SR33341B





CAT. NO.	RATING
SR33341B	32 Amp, 380–440VAC 50/60 Hz, 3P4W IEC309-2, 3h 480 VAC USA

Accessories

Single-Gang Enclosures – Copper free cast aluminum for maximum corrosion resistance and durability, these can be ordered separately or complete with interlocked outlet by using a "1B" prefix with any interlocked outlet catalog number.

Wedge Gaskets – Molded Neoprene wedge gaskets provide drainage 4° down angle for interlocked outlets; easily installed behind front plate.

Large-Frame Adapter Plate Kit – Stainless steel adapter plate kit allows small-frame 6-bolt interlocked outlets to replace large-frame 8-bolt outlets. Kit bolts to existing 8-bolt enclosure opening.

	CAT. NO.		
OUTLET FRAME SIZE	SINGLE ENCLOSURE	WEDGE GASKET KIT	8-BOLT ADAPTER KIT
Small Frame, 6-Bolt	1255-01R	980-50R	523R

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Technical Services
Tel: 888.862.3289

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Mipco™ Connections for Refrigerated Containers

Performance — Electrical

Dielectric Voltage Withstand	3000 volts
Max. Working Voltage	480VAC
Circuit Protection	UL 489 Listed, CSA Certified circuit breaker
FLA Interrupting Capacity	Specified breaker rating
Short Circuit Withstand Rating	22,000 AIC or 18,000 AIC (shock resistant)
Operations	>10,000 cycles at rated current

Performance — Mechanical

Mounting	(6) 5/16" diameter through holes
Breaker Terminals	Pressure screw lugs (slotted) accept #14–1/0 AWG wire
Terminal Identification	In accordance with UL489 and UL1682 A,B,C,G (earth ground) on line side
Product Identification	External label on face plate
Operations	>25,000 cycles of operation

Performance — Environmental

Moisture	Watertight screw cover or spring-loaded self-aligning flap cap. O-rings on all sleeves, interior, interlock actuating pin and circuit breaker actuator rod bushings. Gasket on receptacle and module flange
Operating Temperatures	Min. continuous -20° F (non-enclosed) Max. continuous +140° F
Chemicals	Resists common industrial hydrocarbons, acids, bases and solvents
UV Resistance	Polyurethane enamel (32A) and natural metallic finishes provide maximum UV protection

Materials

Receptacle Housing Metallic	30A/50A — Brass (natural) 32A — Copper-free aluminum 356-T6 (red epoxy powder coated) 60A — Copper-free aluminum 356-T6 (natural)
Non-Metallic	30A/50A & 60A — AMTUF™ 32A – DuraV®
Interior	Molded arc-resistant thermoset phenolic (UL 94-V0 flame rating)
Contact Sleeves	Brass with beryllium copper compression springs
Terminal Screws	Brass, slotted
O-Rings	Buna-N (Nitrile)
Gaskets	Neoprene
Mounting Platform	Heavy-gauge stainless steel welded construction
Actuator Rod	½"-inch diameter solid stainless steel. Heavy-duty non-conductive impact-resistant plastic knob
Ground Lug	Aluminum terminal screw (slotted) accepts up to #2 AWG wire
Interlock Mechanism	Sealed self-lubricating thermoplastic
Flap Cap	12-gauge stainless steel, gasketed cover
Screw Cap	High-impact plastic, gasketed
Washers	Nylon
Springs, Fasteners	Stainless steel

Approvals

Underwriters Laboratory (UL) — Sections 489, 1682 and 1686

CSA Section — C22.2–182.1

Federal Department of Transportation — Federal Register volume 47, number 68, subpart 11.79 **United States Coast Guard (USCG)**

International Electro-Technical Commission (IEC) — 32-amp devices conform to IEC 309-1 and 309-2

International Standards Organization (ISO) — ISO 1496/2, Annex 1

• E47955 • LR96445

Mipco™ Connections for Refrigerated Containers

Engineering Specifications

1.0 SCOPE

1.1 This document covers pin and sleeve marine/industrial-grade reefer power outlet assemblies. Useable in dry, damp, wet, outdoor marine locations for providing electrical power to refrigerated containers. Assemblies shall be UL Listed with enclosures incorporating interlocked reefer power outlets in a modular multi-gang arrangement. Devices are factory wired to a UL recognized power distribution block and rated 30, 32, 50 and/or 60 amps at 250 or 480VAC, 50–60 Hz. Devices are also rated for continuous use in temperatures from -20 degrees to +140 degrees F. These devices must provide internal environmental seals for marine and extreme wet applications and are to be mechanically interlocked.

1.2 All assemblies specified shall be manufactured by Mipco™ as complete assemblies and shall be marked as stated.

2.0 PRODUCT CLASSIFICATION

ENCLOSURES:

2.1 **Construction** – All enclosures shall be specified either 12 or 14-gauge stainless steel and shall conform to NEMA 4X requirements for watertight, dust-tight and corrosion resistance.

2.2 **Access Panel** – Each enclosure shall provide an access panel designed to allow complete wiring compartment accessibility. Bolted plate or hinged panel to be specified.

2.3 **Power Distribution Block** – All interlocked reefer power outlet assemblies shall be factory wired to a UL recognized power distribution block. Line lugs shall accommodate a range of wire sizes compatible with the total amperage rating of all enclosed receptacles

RECEPTACLES

2.4 **Interlocked Receptacles** – The receptacles shall be of a modular design, mechanically interlocked to allow the circuit to be energized only after a mating plug is fully inserted into the receptacle and the actuating rod is pushed forward. All interlocked receptacles shall allow the de-energizing of the circuit before mated contacts are disengaged upon plug removal. Plug ground pin will activate interlock mechanism. The mounting dimensions shall be the same for interlocked receptacles with a high (65K) or nominal (greater than or equal to 20K) inrush current circuit breaker to allow for future upgrades.

2.5 **Grounding** – The grounding of the device shall be accomplished through a separate ground (earth) that will “make first”, “break last”. Plug ground pin will activate interlock mechanism. The ground pole shall be bonded to a UL recognized ground block labeled for connection to the ground conductor. All non-current carrying metallic components must be grounded to ensure complete system grounding.

2.6 **Housings** – Receptacle housings shall be metallic, copper-free aluminum or thermoplastic with performance equal to or greater than DuraV® or AMTUF™, and have a flame rating no less than UL94 V0.

2.7 **Interiors** – Receptacle interiors must be molded thermoset UL94 V0 and be replaceable for ease of maintenance.

2.8 **Contact Sleeves** – Quad-slit brass contact sleeves shall have contact pressure springs of electromotively similar material to maintain consistent contact pressure between sleeves and mating male pins and prevent galvanic corrosion.

2.9 **Environmental Seals** – Each device must have an environmental seal or O-ring around all interiors and around each sleeve to prevent water and contaminants from entering the wiring compartment. The seals shall provide waterproof capability if plug or screw cap are removed.

2.10 **Circuit Protection** – Each interlocked receptacle must be protected by a molded cased, thermal-magnetic type UL 489 listed circuit breaker. The circuit breaker must also comply with NEC® Articles 240 and 430 for branch circuit protection.

2.10a **High Inrush Current Protection Requirements** – Circuit breaker shall have a minimum 65,000-amp interrupting capacity.

2.10b **Nominal Inrush Current Protection Requirements** – Circuit breaker shall have a minimum (18,000-amp high shock) 22,000-amp interrupting capacity.

2.11 **Flap Cover or Screw Cover Option** – Flap cover option must provide weather-tight capability to the exposed contacts by utilizing a spring-actuated self-closing flap. Watertight capability shall be obtained by using a gasketed screw cap.

3.0 DESIGN AND WIRING REQUIREMENTS

3.1 **Wiring** – All enclosure assemblies must be factory wired to conform to guidelines stated in the NEC® for wire sizing, Table 310-16 and wire bending space, Article 373-6. Wiring of individual interlocked reefer outlets must allow for the removal/replacement without opening the access door.

3.2 **Conduit Entry** – Assemblies shall include a conduit entrance with an aluminum conduit hub; size and location to be specified.

4.0 APPLICABLE COMPLIANCES

4.1 **Underwriters Laboratories (UL)** – The enclosure assemblies specified herein shall be listed in applicable sections of UL Standards 489, 1682 and 1686.

4.2 **Canadian Standard Association (CSA)** – The devices shall be listed in the applicable sections of CSA C22.2-182.1.

4.3 **American Bureau of Shipping (ABS)**

4.4 **Federal Department of Transportation** – Devises shall comply with Federal Register volume 47, number 68, subpart 11.79 and the United States Coast Guard (USCG).

4.5 **International Electro-Technical Commission (IEC)** – The 32-ampere devices specified shall conform to IEC 309-1 and IEC 309-2, EN60309.

4.6 **International Standards Organization (ISO)** – The 32-ampere devices specified shall conform to 150 1496/2, Annex L.

NEC is a registered trademark of the National Fire Protection Association, Inc.

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In this section...



Jennings® Vacuum Devices

High-Voltage Vacuum Fixed Capacitors H-492–H-501
High-Voltage Vacuum Variable Capacitors H-502–H-524
High-Voltage Vacuum and Gas-Filled Relays H-525–H-536
High-Voltage Vacuum Coaxial Relays H-537
Vacuum Contactors H-538–H-548

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High-Voltage Vacuum Fixed Capacitors

CKT Series

CKT Series Vacuum Fixed Capacitors, 25–250pF

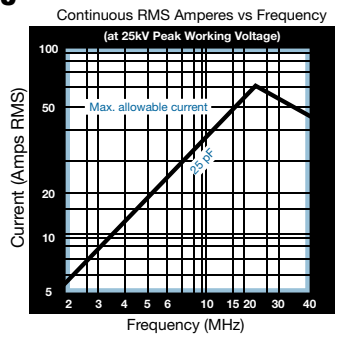
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	DIA. (IN.)	LENGTH (MM)	DIA. (MM)	NOM. WEIGHT
CKT-25-0035	25*	35	25	65	6.44	2.32 Max.	163.60	58.93 Max.	1 lb., 6 oz.
CKT-50-0035	50*	35	25	75	6.44	2.32 Max.	163.60	58.93 Max.	1 lb., 6 oz.
CKT-100-0035	100	35	25	85	6.44	2.32 Max.	163.60	58.93 Max.	1 lb., 6 oz.
CKT-150-0030	150	30	20	90	6.44	2.66 Max.	163.60	67.60 Max.	1 lb., 14 oz.
CKT-200-0030	200	30	20	95	6.44	2.66 Max.	163.60	67.60 Max.	1 lb., 15 oz.
CKT-250-0030	250	30	20	100	6.44	2.66 Max.	163.60	67.60 Max.	2 lb.

** Capacitance tolerance ±0.15.*

***Note**: Optional mounting flange FMOA available.*

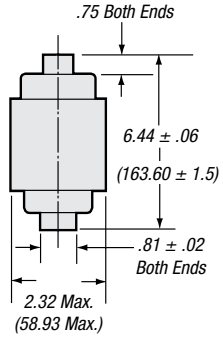
CKT-25

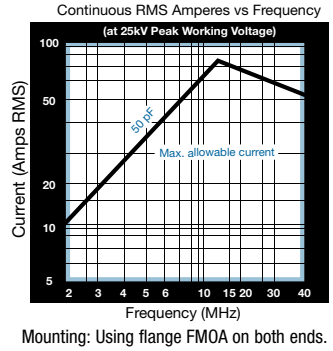




Mounting: Using flange FMOA on both ends.

CKT-50

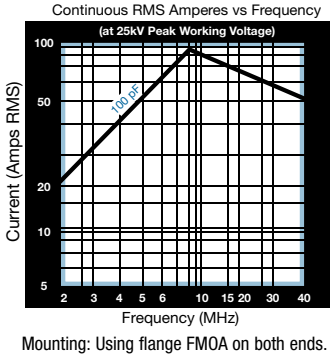




Mounting: Using flange FMOA on both ends.

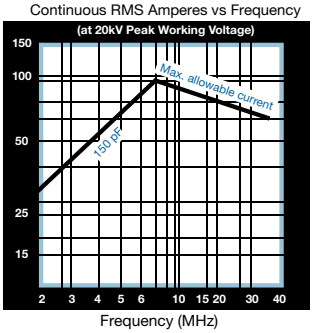
CKT-25
CKT-50
CKT-100

CKT-100



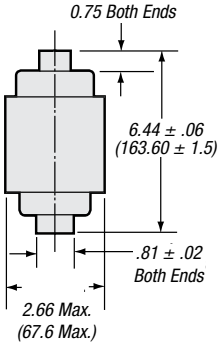
Mounting: Using flange FMOA on both ends.

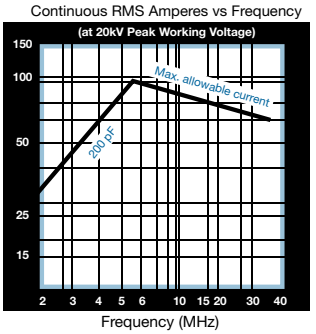
CKT-150



Mounting: Using flange FMOA on both ends.

CKT-200

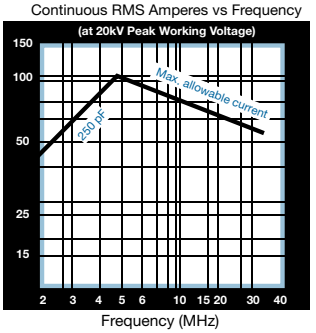




Mounting: Using flange FMOA on both ends.

CKT-150
CKT-200
CKT-250

CKT-250



Mounting: Using flange FMOA on both ends.

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High-Voltage Vacuum Fixed Capacitors

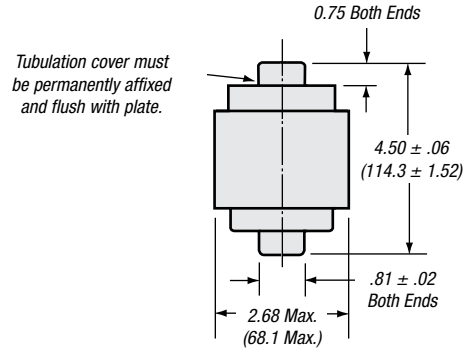
CKT1 Series

CKT1 Series Vacuum Fixed Capacitors, 25–100pF

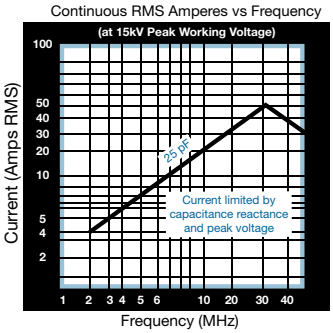
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	DIA. (IN.)	LENGTH (MM)	DIA. (MM)	NOM. WEIGHT
CKT1-25-0025	25*	25	15	50	4.50	2.68 Max.	114.00	68.10	1 lb., 6 oz.
CKT1-50-0025	50*	25	15	60	4.50	2.68 Max.	114.30	68.10	1 lb., 6 oz.
CKT1-100-0025	100	25	15	75	4.50	2.68 Max.	114.30	68.10	1 lb., 6 oz.

** Capacitance tolerance ±0.15.*



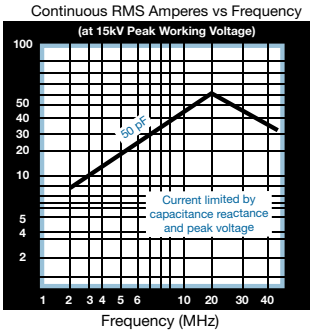


CKT1-25



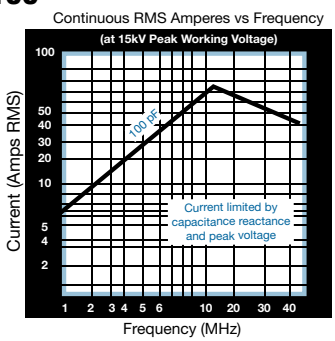
Mounting: Using flange FM0A on both ends.

CKT1-50



Mounting: Using flange FM0A on both ends.

CKT1-100



Mounting: Using flange FM0A on both ends.

High-Voltage Vacuum Fixed Capacitors

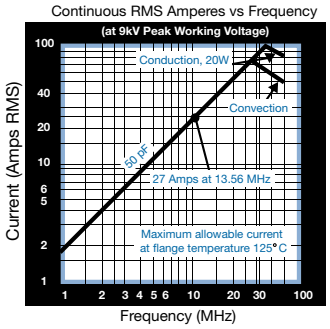
CF2 Series

CF2 Series Compact Vacuum Fixed Capacitors, 50–210pF

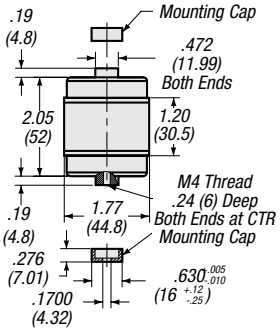
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	DIA. (IN.)	LENGTH (MM)	DIA. (MM)	NOM. WEIGHT
CF2-50-0015	50	15	9	27	2.45	1.75	62.3	44.5	9 oz.
CF2-80-0015	80	15	9	76	2.45	1.75	62.3	44.5	9 oz.
CF2-100-0015	100	15	9	80	2.45	1.75	62.3	44.5	9 oz.
CF2-150-0015	150	15	9	75	2.45	1.75	62.3	44.5	10 oz.
CF2-180-0015	180	15	9	90	2.45	1.75	62.3	44.5	10 oz.
CF2-210-0010	210	10	6	76	2.45	1.75	62.3	44.5	10 oz.

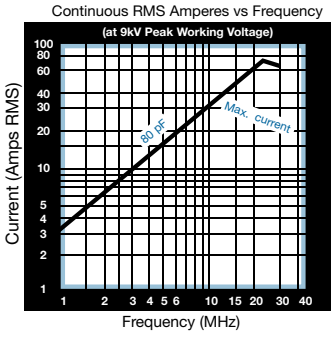
CF2-50



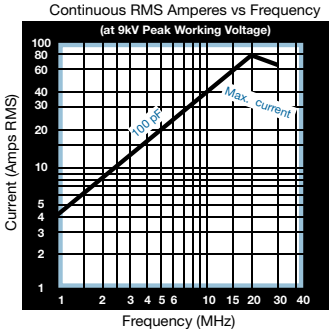


CF2-80

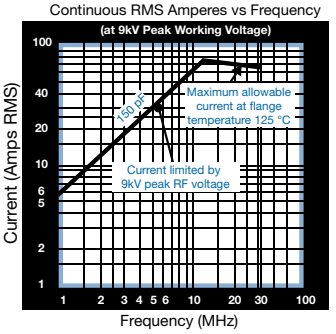




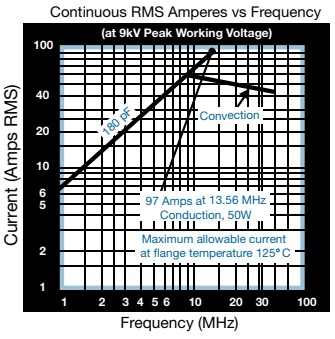
CF2-100



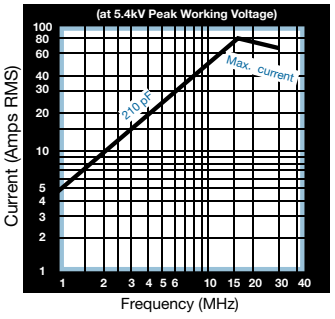
CF2-150



CF2-180



CF2-210



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High-Voltage Vacuum Fixed Capacitors

CFC Series

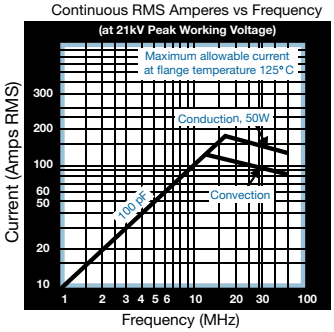
CFC Series Compact Vacuum Fixed Capacitors, 100–1000pF

CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	DIA. (IN.)	LENGTH (MM)	DIA. (MM)	NOM. WEIGHT
CFC-100-35S*	100	35	21	126	3.43	2.52	87	64	2 lb., 4oz.
CFC-175-35S*	175	35	21	168	3.43	2.52	87	64	2 lb., 4oz.
CFC-350-15S*	350	15	9	132	2.05	1.89	52	48	15 oz.
CFC-500-12S*	500	12	7.2	126	2.05	1.89	52	48	15 oz.
CFC-1000-08S*	1000	10	4.8	115	2.05	1.89	52	48	15 oz.

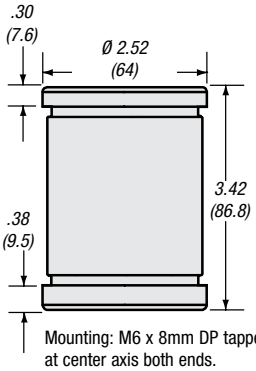
** Capacitance tolerance ±5%.*

CFC-100

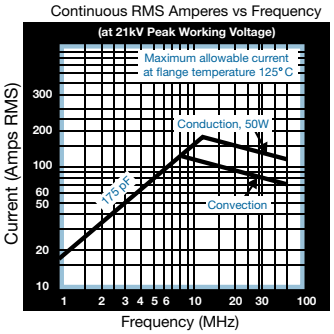




CFC-175

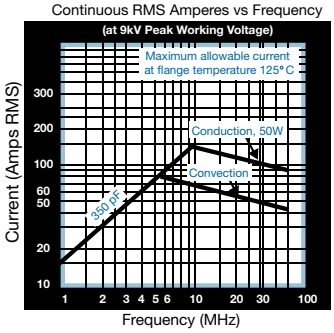


Mounting: M6 x 8mm DP tapped hole at center axis both ends.

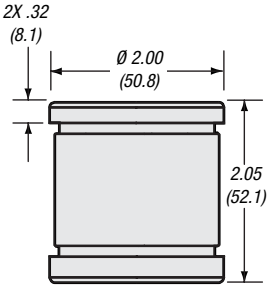


CFC-350

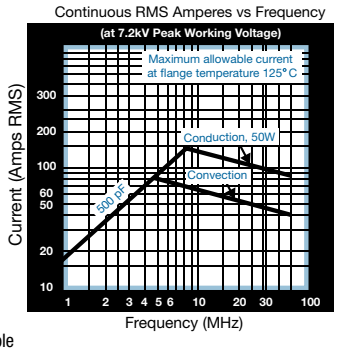




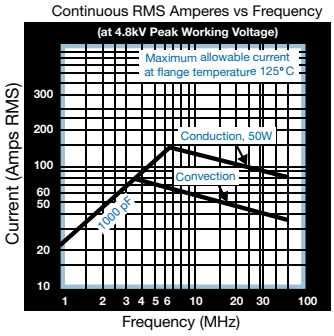
CFC-500



Mounting: M6 x 8mm DP tapped hole at center axis both ends.



CFC-1000



High-Voltage Vacuum Fixed Capacitors

CFHD, CFHP and CFED Series

CFHD, CFHP and CFED Series Vacuum Fixed Capacitors, 300–500pF

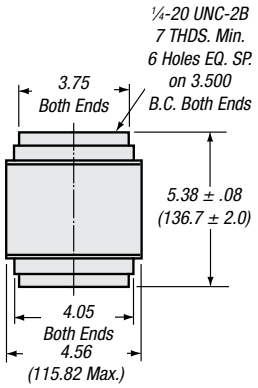
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	DIA. (IN.)	LENGTH (MM)	DIA. (MM)	NOM. WEIGHT
CFHD-300-45S	300	45	27	225	5.38	4.56	136.70	115.82	5 lb., 2 oz.
CFHD-300-50S	300	50	30	230	5.38	4.56	136.70	115.82	5 lb., 2 oz.
CFHD-300-55S	300	55	33	235	5.38	4.56	136.70	115.82	5 lb., 2 oz.
CFHD-300-60S†	300	60	36	240	5.38	4.56	136.70	115.82	5 lb., 2 oz.
CFHP-450-45S*	450	45	27	260	5.50	5.62	139.70	142.75	7 lb., 5 oz.
CFHP-450-50S*	450	50	30	280	5.50	5.62	139.70	142.75	7 lb., 5 oz.
CFHP-450-55S*	450	55	33	300	5.50	5.62	139.70	142.75	7 lb., 5 oz.
CFED-500-10S	500	10	6.0	170	3.81	4.56	96.77	115.82	4 lb., 2 oz.
CFED-500-15S	500	15	9.0	180	3.81	4.56	96.77	115.82	4 lb., 2 oz.
CFED-500-20S	500	20	12	190	3.81	4.56	96.77	115.82	4 lb., 2 oz.
CFED-500-25S	500	25	15	200	3.81	4.56	96.77	115.82	4 lb., 2 oz.

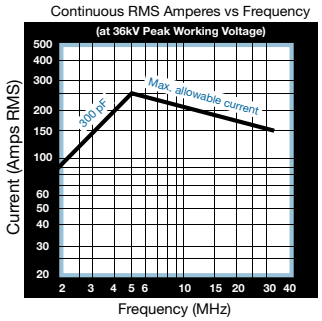
† *Max. Diameter is 4.80 with corona rings.*

* *CFHP (metric version) available.*

CFHD-300



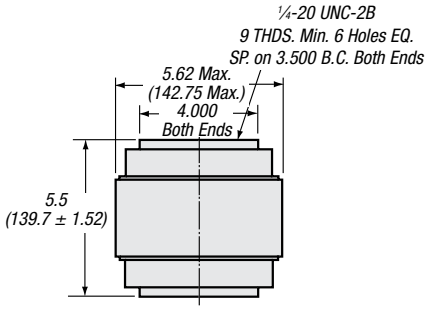


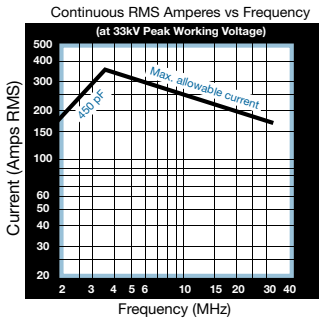


Mounting: Both ends have tapped holes.

CFHP-450



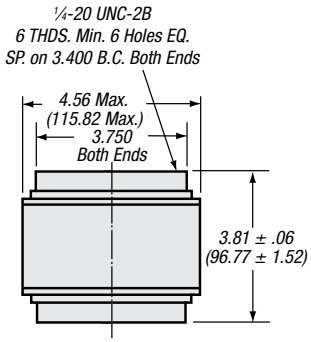


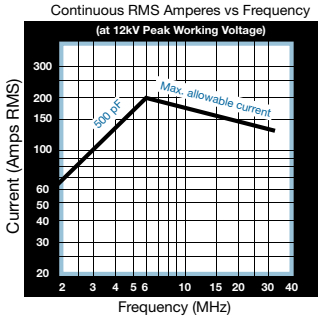


Mounting: Both ends have tapped holes.

CFED-500







Mounting: Both ends have tapped holes.

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High-Voltage Vacuum Fixed Capacitors

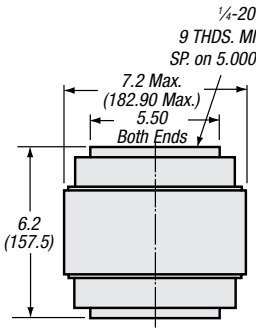
CFHP and CFED Series

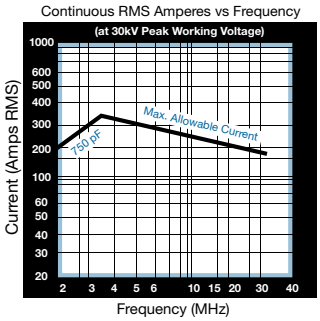
CFHP and CFED Series Vacuum Fixed Capacitors, 750–1000pF

CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	NOM. WEIGHT
CFHP-750-0040	750	40	24	310	6.20	7.20	157.50	182.90	13 lb.
CFHP-750-0045	750	45	27	325	6.20	7.20	157.50	182.90	13 lb.
CFHP-750-0050	750	50	30	340	5.12	3.44	130.10	182.90	13 lb.
CFED-750-10S	750	10	6	185	3.81	4.56	96.77	115.82	5 lb., 3 oz.
CFED-750-15S	750	15	9.0	200	3.81	4.56	96.77	115.82	5 lb., 3 oz.
CFED-750-20S	750	20	12	215	3.81	4.56	96.77	115.82	5 lb., 3 oz.
CFED-750-25S	750	25	15	225	3.81	4.56	96.77	115.82	5 lb., 3 oz.
CFHP-1000-40S	1000	40	24	340	6.20	7.20	157.48	182.88	13 lb.
CFHP-1000-45S	1000	45	27	350	6.20	7.20	157.48	182.88	13 lb.
CFHP-1000-50S	1000	50	30	360	6.20	7.20	157.48	182.88	13 lb.

CFHP-750



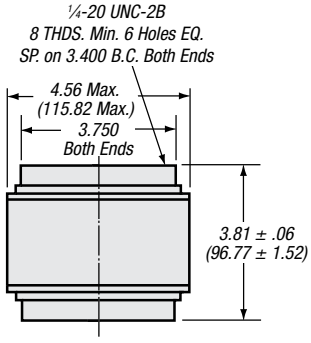


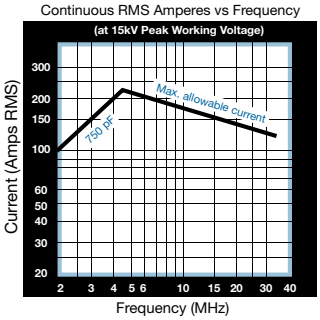


Mounting: Both ends have tapped holes.

CFED-750



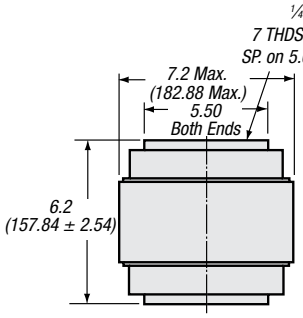


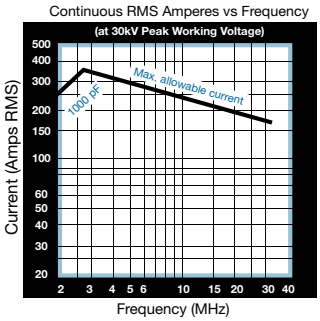


Mounting: Both ends have tapped holes.

CFHP-1000







Mounting: Both ends have tapped holes.

High-Voltage Vacuum Fixed Capacitors

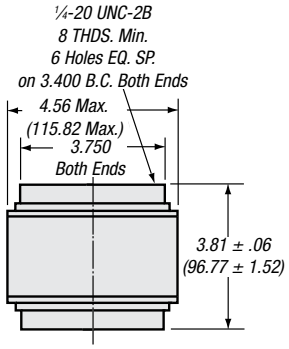
CFED, CFDP and CFFP Series

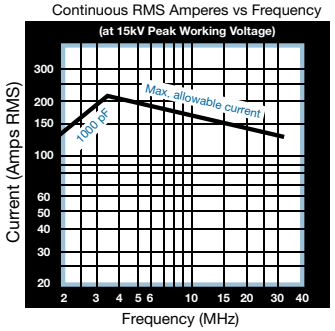
CFED, CFDP and CFFP Series Vacuum Fixed Capacitors, 1000–1500pF

CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	NOM. WEIGHT
CFED-1000-10S	1000	10	6.0	190	3.81	4.56	96.77	115.82	5 lb., 13 oz.
CFED-1000-15S	1000	15	9.0	205	3.81	4.56	96.77	115.82	5 lb., 13 oz.
CFED-1000-20S	1000	20	12	220	3.81	4.56	96.77	115.82	5 lb., 13 oz.
CFED-1000-25S	1000	25	15	230	3.81	4.56	96.77	115.82	5 lb., 13 oz.
CFDP-1500-7.5S	1500	7.5	4.5	150	3.30	5.62	83.82	142.75	5 lb., 12 oz.
CFDP-1500-10S	1500	10	6.0	170	3.30	5.62	83.82	142.75	5 lb., 12 oz.
CFDP-1500-15S	1500	15	9.0	190	3.30	5.62	83.82	142.75	5 lb., 12 oz.
CFFP-1500-25S	1500	25	15	310	5.78	8.20	146.80	208.30	23 lb., 8 oz.
CFFP-1500-30S	1500	30	18	330	5.78	8.20	146.80	208.30	23 lb., 8 oz.
CFFP-1500-35S	1500	35	21	350	5.78	8.20	146.80	208.30	23 lb., 8 oz.

CFED-1000



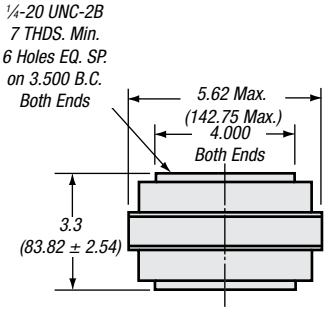


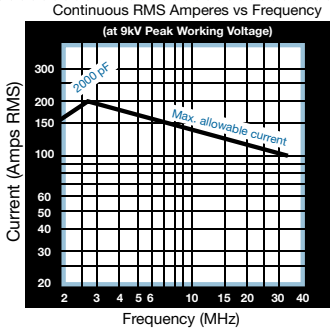


Mounting: Both ends have tapped holes.

CFDP-1500



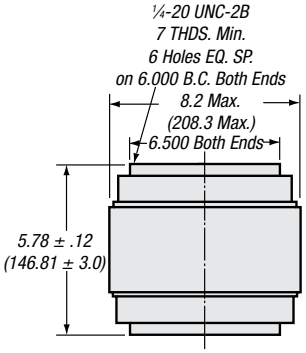


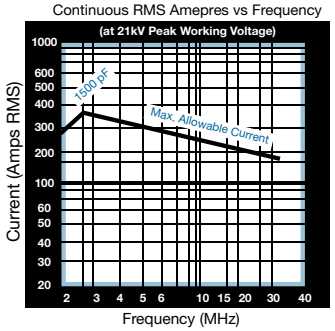


Mounting: Both ends have tapped holes.

CFFP-1500







Mounting: Both ends have tapped holes.

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High-Voltage Vacuum Fixed Capacitors

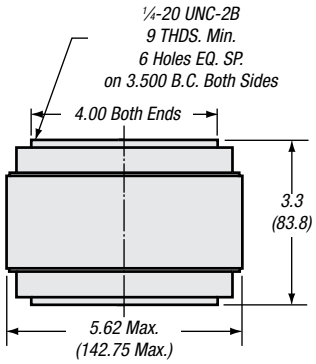
CFDP and CFFP Series

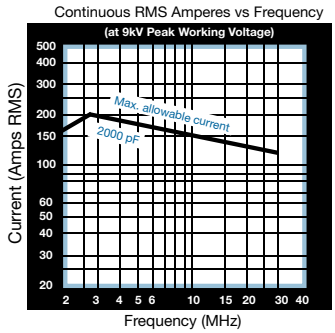
CFDP and CFFP Series Vacuum Fixed Capacitors, 2000pF

CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	NOM. WEIGHT
CFDP-2000-7.5S	2000	7.5	4.5	160	3.30	5.62	83.80	142.75	5 lb., 12 oz.
CFDP-2000-10S	2000	10	6.0	180	3.30	5.62	83.80	142.75	5 lb., 12 oz.
CFDP-2000-15S	2000	15	9.0	200	3.30	5.62	83.80	142.75	5 lb., 12 oz.
CFFP-2000-25S	2000	25	15	350	5.78	8.20	146.81	208.30	23 lb., 8 oz.
CFFP-2000-30S	2000	30	18	370	5.78	8.20	146.81	208.30	23 lb., 8 oz.
CFFP-2000-35S	2000	35	21	390	5.78	8.20	146.81	208.30	23 lb., 8 oz.

CFDP-2000



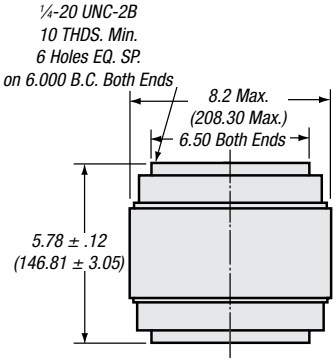


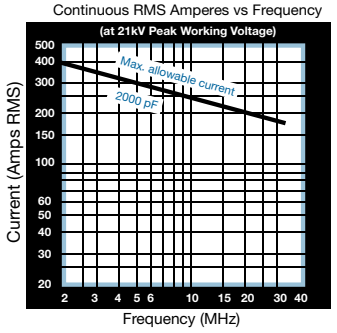


Mounting: Both ends have tapped holes.
CFDM Version has additional
M6 Hole pattern.

CFFP-2000







Mounting: Both ends have tapped holes.

High-Voltage Vacuum Fixed Capacitors

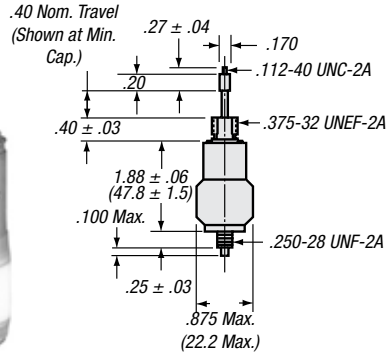
CVH1N and CGF1 Series

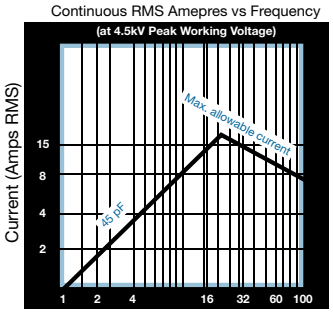
CVH1N and CGF1 Series Gas Variable Fixed Capacitors, 45–260pF

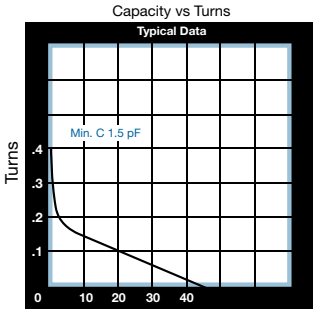
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CHV1N-45-0103	1.5–45	3.0	1.8	13	3.50	0.875	88.90	22.22	80	25 lb.	3 oz.
CHV1N-45-0105	1.5–45	5.0	3.0	15	3.50	0.875	88.90	22.22	80	25 lb.	3 oz.
CHV1N-45-0107	1.5–45	7.5	4.5	17	3.50	0.875	88.90	22.22	80	25 lb.	3 oz.
CGF1-210-0040	210	40	30	140	5.30	4.75	134.60	120.60	—	—	10 lb.
CGF1-210-0045	210	45	35	160	5.30	4.75	134.60	120.60	—	—	10 lb.
CGF1-210-0050	210	50	40	180	5.30	4.75	134.60	120.60	—	—	10 lb.
CGF1-260-0040	260	40	30	180	5.30	4.75	134.60	120.60	—	—	10 lb.
CGF1-260-0045	260	45	35	185	5.30	4.75	134.60	120.60	—	—	10 lb.
CGF1-260-0050	260	50	40	190	5.30	4.75	134.60	120.60	—	—	10 lb.

CHV1N-45





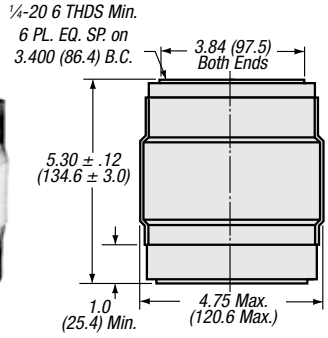


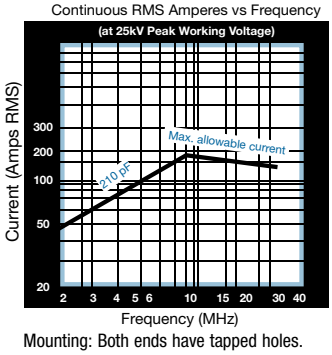


Mounting: Fixed and variable end threaded .

CGF1-210



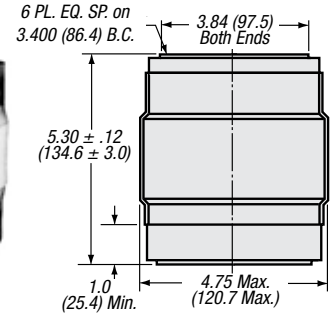


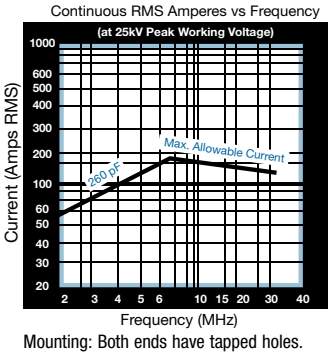


Mounting: Both ends have tapped holes.

CGF1-260







Mounting: Both ends have tapped holes.

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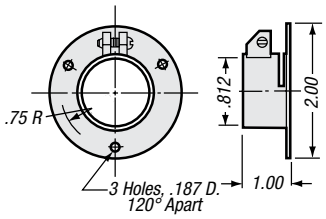
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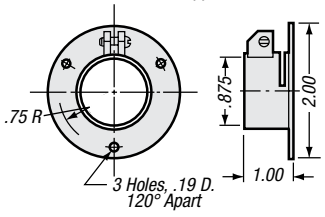
Flanges

MAT. .032 Copper/Silver



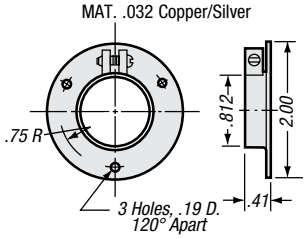
FM0A Flange Mount

MAT. .032 Copper/Silver



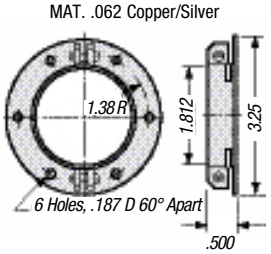
FM0B Flange Mount

MAT. .032 Copper/Silver



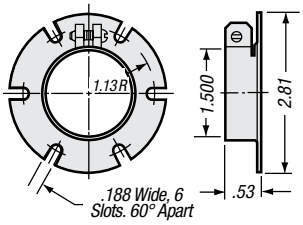
FM0D Flange Mount

MAT. .062 Copper/Silver



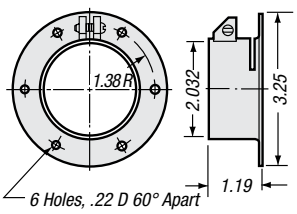
FM1C Flange Mount

MAT. .062 Copper/Silver



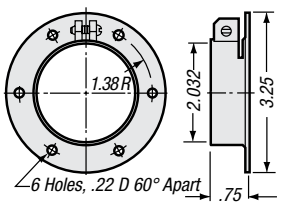
FM1H Flange Mount

MAT. .032 Copper/Silver



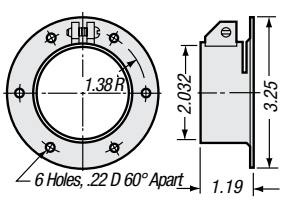
FM2 Flange Mount

MAT. .062 Copper/Silver



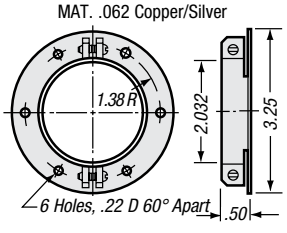
FM2B Flange Mount

MAT. .062 Copper/Silver



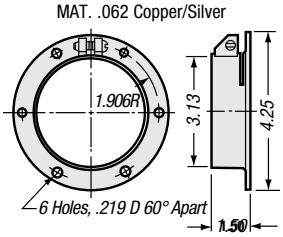
FM2D Flange Mount

MAT. .062 Copper/Silver



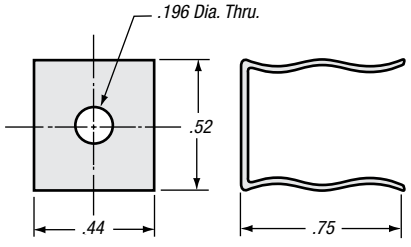
FM2S Flange Mount

MAT. .062 Copper/Silver

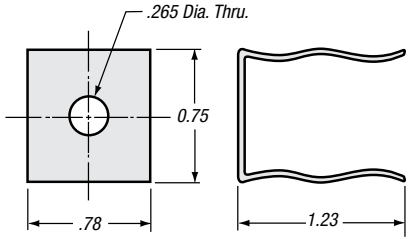


FM3B Flange Mount

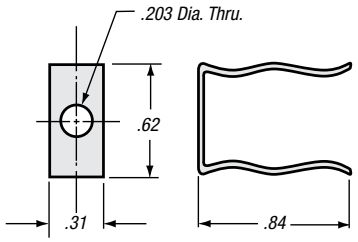
Fuse Clips



Fuse Clip No. 104277



Fuse Clip No. 112304



Fuse Clip No. 111515

High-Voltage Vacuum Variable Capacitors

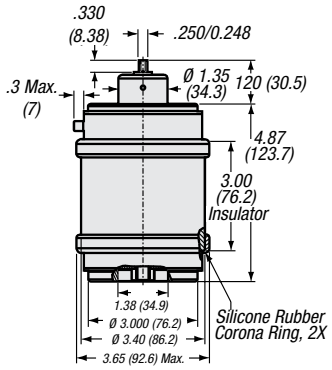
CVHD, CADC and CADD Series

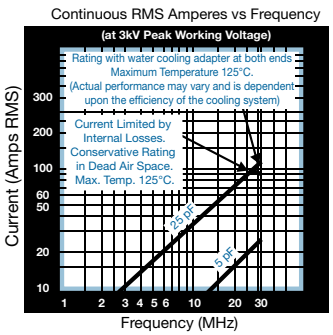
CVHD, CADC and CADD Series Vacuum Variable Capacitors, 25–30pF

CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVHD-25-45S	6.5–25	45	27	109	6.07	3.65	154	93	2.5	85	5 lb.
CVHD-25-50S	6.5–25	50	30	117	6.07	3.65	154	93	2.5	85	5 lb.
CVHD-25-55S	6.5–25	55	33	125	6.07	3.65	154	93	2.5	85	5 lb.
CADC-30-7.5S	3–30	7.5	4.5	15	4.62	1.30	117.34	33.27	1.5	20	5 oz.
CADC-30-10S	3–30	10	6.0	16	4.62	1.30	117.34	33.27	1.5	20	5 oz.
CADC-30-15S	3–30	15	9.0	17	4.62	1.30	117.34	33.27	1.5	20	5 oz.
CADD-30-0107	3–30	7.5	4.5	18	4.12	1.30	104.65	33.27	1.3	20	6.2 oz.
CADD-30-0110	3–30	10	6.0	20	4.12	1.30	104.65	33.27	1.3	20	6.2 oz.
CADD-30-0115	3–30	17.5	10.5	30	4.12	1.30	104.65	33.27	1.3	20	6.2 oz.

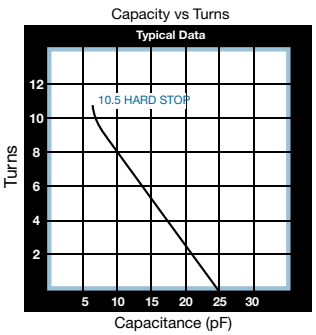
CVHD-25







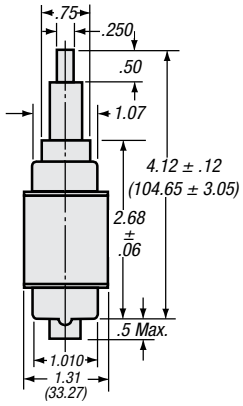
Mounting: Both ends have tapped holes.

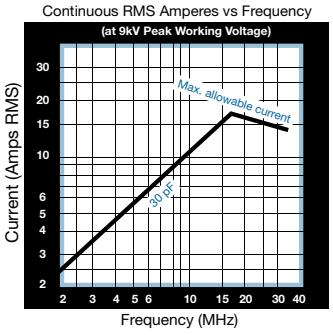


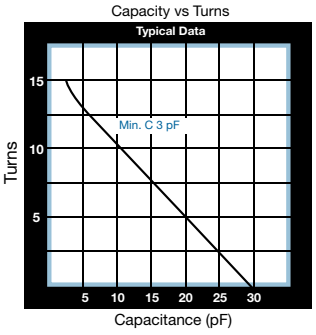
6X M5 Thread on 2.350 B.C.; 6X M4 Thread on 2.350 B.C.; Both Ends.

CADC-30





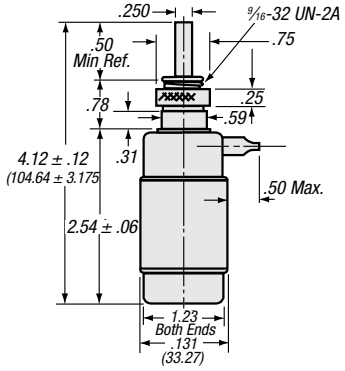


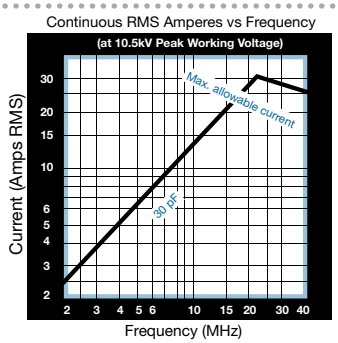


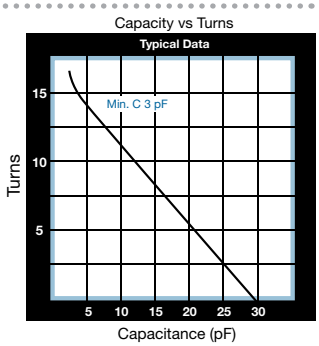
Mounting: Use Jennings No. 112304 Fuse Clip, or soldered-on flange types: CADC30-XXD1834 (flanges on both ends); CADC30-XXD1823 (fixed end flange only).

CADD-30









Mounting: Fixed end has threaded hole 62-32 UNC-2B. Maximum screw length 0.17. Variable end threaded or use Jennings No. 111515 fuse clip.

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High-Voltage Vacuum Variable Capacitors

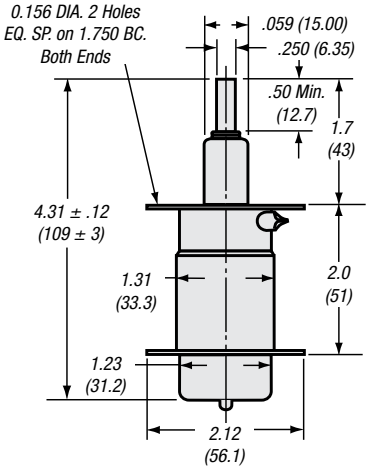
CVDD Series

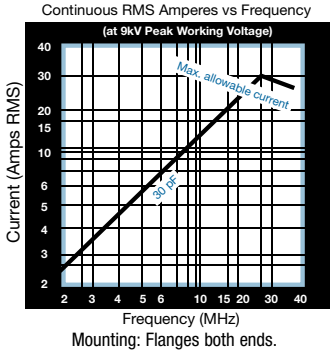
CVDD Series Vacuum Variable Capacitors, 30–60pF

CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVDD-30-0007	3–30	7.5	4.5	18	4.31	2.12	109.47	56.10	1.3	25	6.2 oz.
CVDD-30-0010	3–30	10	6.0	19	4.31	2.12	109.47	56.10	1.3	25	6.2 oz.
CVDD-30-0015	3–30	15	9.0	30	4.31	2.12	109.47	56.10	1.3	25	6.2 oz.
CVDD-60-0010	9–60	10	6.0	50	5.91	3.06	150.00	78.00	3.5	45	2 lb.
CVDD-60-0015	9–60	15	9.0	55	5.91	3.06	150.00	78.00	3.5	45	2 lb.

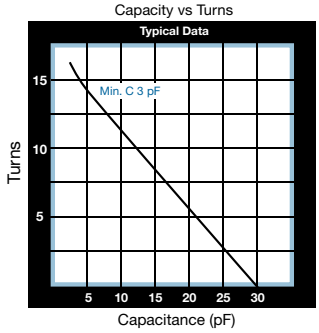
CVDD-30





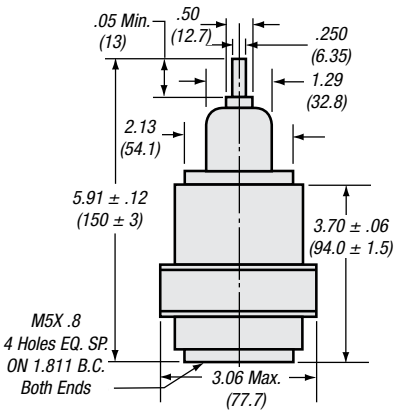


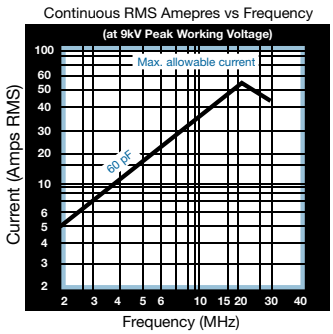
Mounting: Flanges both ends.



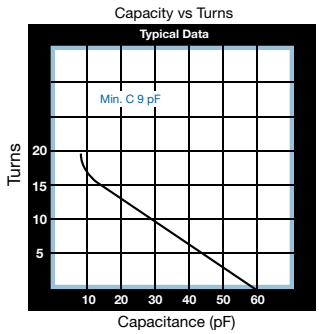
CVDD-60







Mounting: both ends have tapped holes.



High-Voltage Vacuum Variable Capacitors

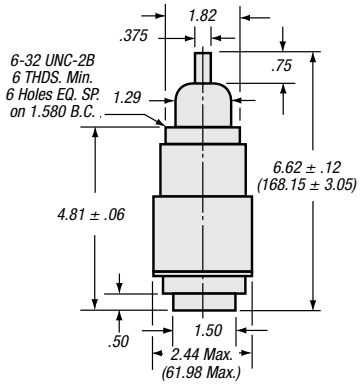
CVDD, C/GCS and CACAN Series

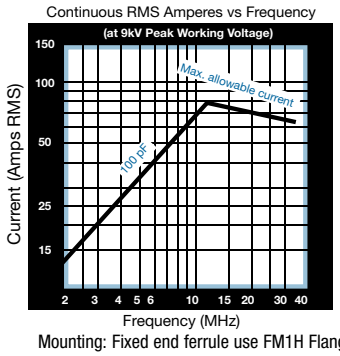
CVDD, C/GCS and CACAN Series Vacuum Variable Capacitors, 100–125pF

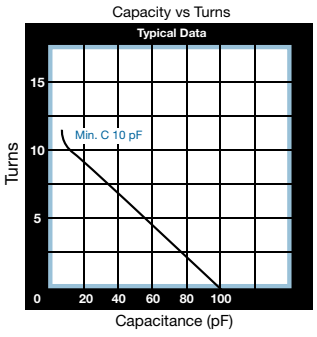
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVDD-100-7.5S	10–100	7.5	4.5	60	6.62	2.44	168.15	62.00	1.3	30	1 lb., 10 oz.
CVDD-100-10S	10–100	10	6.0	65	6.62	2.44	168.15	62.00	1.3	30	1 lb., 10 oz.
CVDD-100-15S	10–100	15	9.0	77	6.62	2.44	168.15	62.00	1.3	30	1 lb., 10 oz.
C/GCS-100-7.5S	5–100	7.5	4.5	35	4.76	2.12	120.65	53.85	1.9	—	.75 lb.
C/GCS-100-10S	5–100	10	6.0	40	4.76	2.12	120.65	53.85	1.9	—	.75 lb.
C/GCS-100-15S	5–100	15	9.0	60	4.76	2.12	120.65	53.85	1.9	—	.75 lb.
CACAN-125-0003	5–125	3.0	1.8	20	4.65	1.31	118.10	33.27	1.3	20	6.5 oz.
CACAN-125-0005	5–125	5.0	3.0	22	4.65	1.31	118.10	33.27	1.25	20	6.5 oz.

CVDD-100





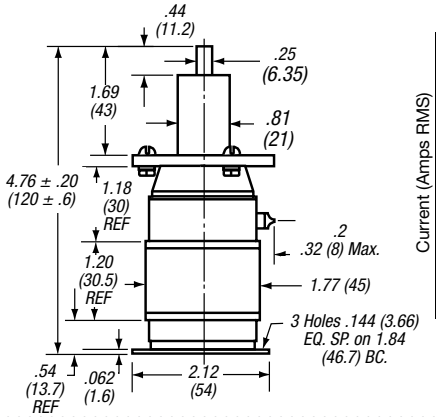


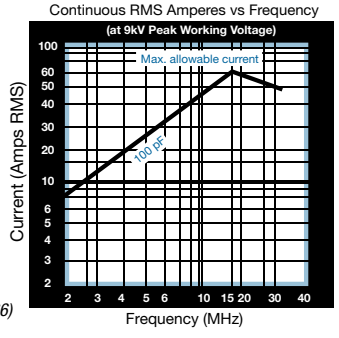


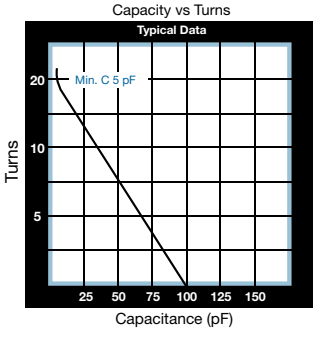
Mounting: Fixed end ferrule use FM1H Flange.
Variable end tapped holes.

C/GCS-100





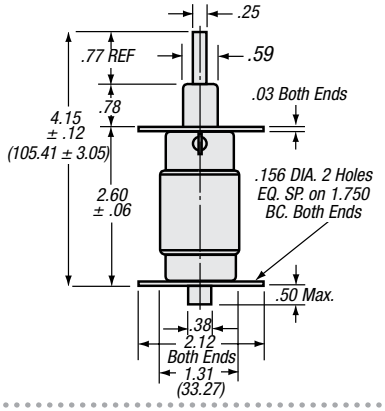


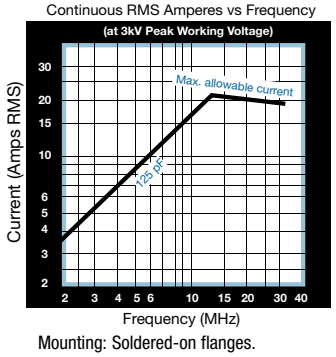


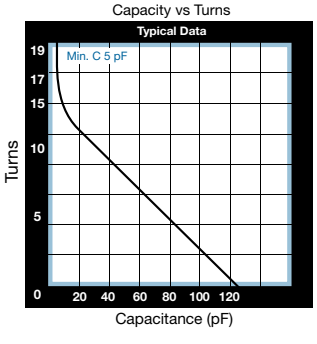
Mounting: Both ends have tapped holes.

CACAN-125









Mounting: Soldered-on flanges.

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High-Voltage Vacuum Variable Capacitors

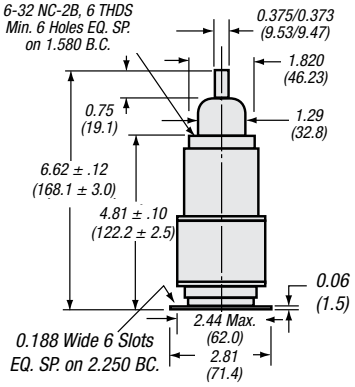
CVDDN, CACAN and CVCD Series

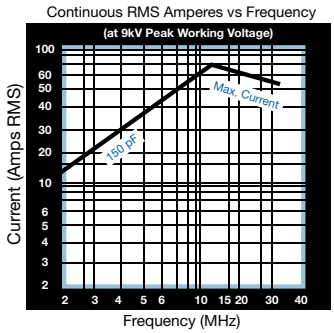
CVDDN, CACAN and CVCD Series Vacuum Variable Capacitors, 150–250pF

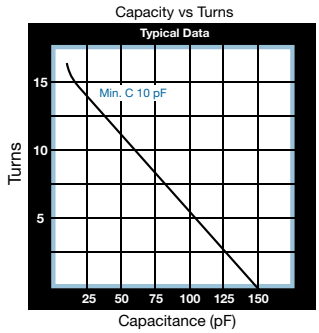
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVDDN-150-0107	10–150	7.5	4.5	50	6.62	2.81	168.10	71.40	1.3	30	1 lb., 10 oz.
CVDDN-150-0110	10–150	10	6.0	65	6.62	2.81	168.10	71.40	1.3	30	1 lb., 10 oz.
CVDDN-150-0115	10–150	15	9.0	70	6.62	2.81	168.10	71.40	1.3	30	1 lb., 10 oz.
CACAN-250-0003	5–250	3.0	1.8	22	4.27	1.31	108.46	33.27	1.5	25	8 oz.
CACAN-250-0005	5–250	5.0	3.0	24	4.27	1.31	108.46	33.27	1.5	25	8 oz.
CVCD-250-3S	5–250	3.0	1.8	40	6.00	2.44	152.40	61.98	1.5	42	1 lb., 10 oz.
CVCD-250-5S	5–250	5.0	3.0	50	6.00	2.44	152.40	61.98	1.5	42	1 lb., 10 oz.

CVDDN-150





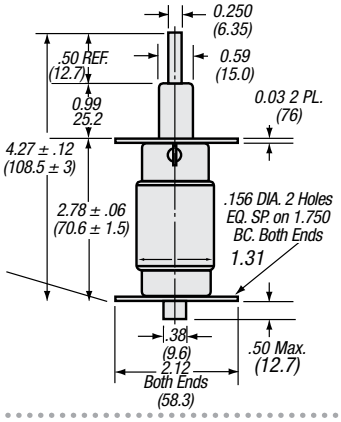


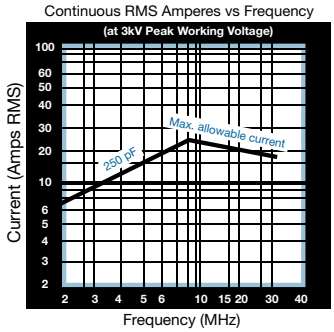


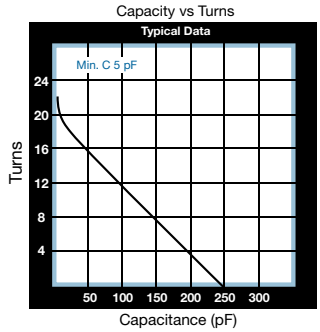
Mounting: Use Flange FM1H on fixed end. Tapped holes on variable end.

CACAN-250





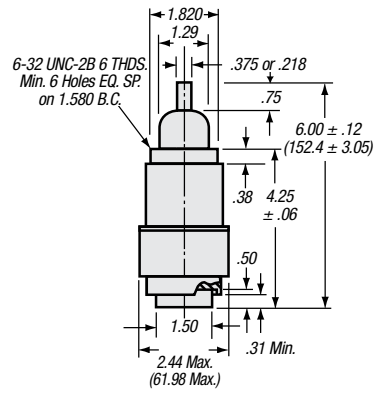


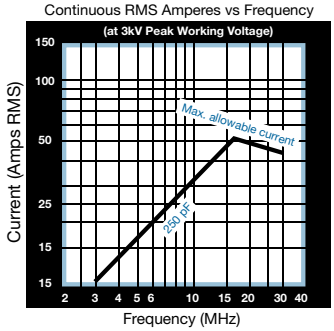


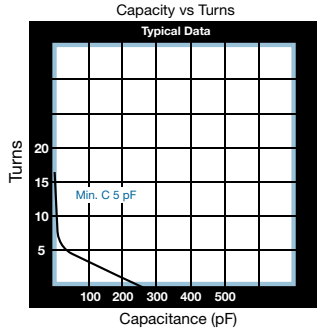
Mounting: Flange soldered-on flanges.

CVCD-250









Mounting: Fixed end ferrule use FM1H flange. Variable end tapped holes.

High-Voltage Vacuum Variable Capacitors

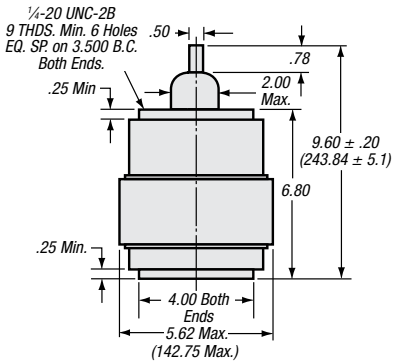
CVFP and CVHP Series

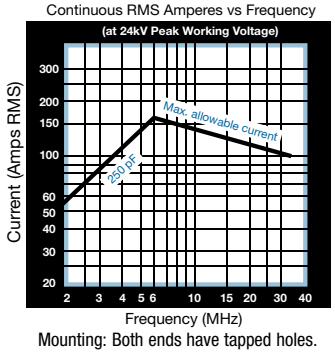
CVFP and CVHP Series Vacuum Variable Capacitors, 250pF

CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVFP-250-30S	15–250	30	18	140	9.60	5.56	243.84	142.80	5.6	156	9 lb., 7 oz.
CVFP-250-35S	15–250	35	21	150	9.60	5.56	243.84	142.80	5.6	156	9 lb., 7 oz.
CVFP-250-40S	15–250	40	24	160	9.60	5.56	243.84	142.80	5.6	156	9 lb., 7 oz.
CVHP-250-45S	10–250	45	27	180	11.90	7.20	302.26	182.9	13	156	17 lb., 15 oz.
CVHP-250-50S	10–250	50	30	200	11.90	7.20	302.26	182.9	13	156	17 lb., 15 oz.
CVHP-250-55S	10–250	55	33	220	11.90	7.20	302.26	182.9	13	156	17 lb., 15 oz.

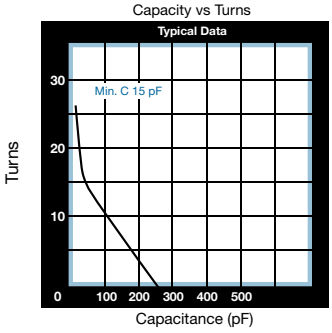
CVFP-250





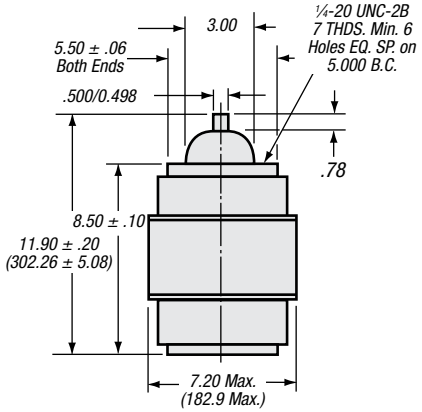


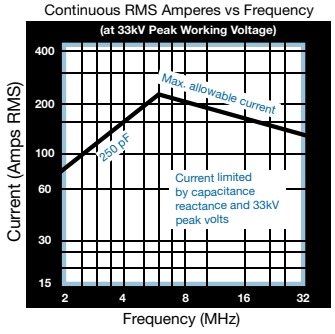
Mounting: Both ends have tapped holes.



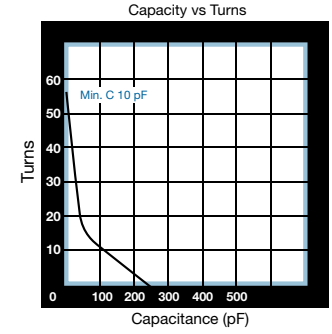
CVHP-250







Mounting: Both ends have tapped holes.



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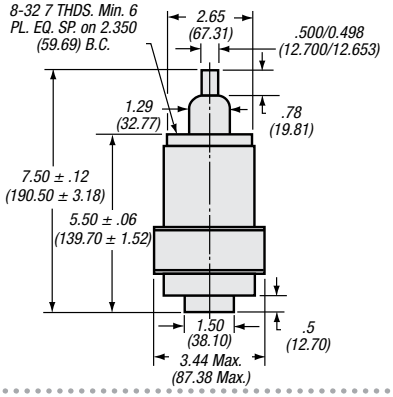
CVDD and CSV1 Series

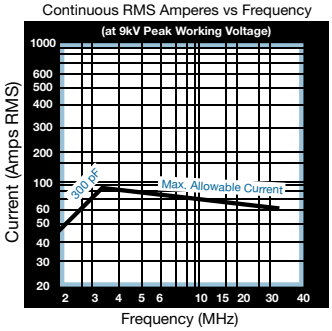
CVDD and CSV1 Series Vacuum Variable Capacitors, 300–400pF

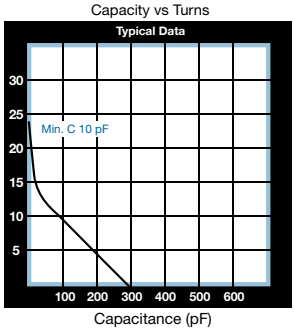
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVDD-300-7.5S	10–300	7.5	4.5	75	7.50	3.44	190.50	87.38	1.8	29	3 lb.
CVDD-300-10S	10–300	10	6.0	80	7.50	3.44	190.50	87.38	1.8	29	3 lb.
CVDD-300-15S	10–300	15	9.0	85	7.50	3.44	190.50	87.38	1.8	29	3 lb.
CSV1-300-0103	8–300	3.0	1.8	30	5.35	2.375	60.33	135.89	2	50	1 lb., 2 oz.
CSV1-300-0105	8–300	5.0	3.0	40	5.35	2.375	60.33	135.89	2	50	1 lb., 2 oz.
CVDD-400-7.5S	20–400	7.5	4.5	70	7.50	3.44	190.50	87.38	2.625	35	3 lb., 1 oz.
CVDD-400-10S	20–400	10	6.0	75	7.50	3.44	190.50	87.38	2.625	35	3 lb., 1 oz.
CVDD-400-15S	20–400	15	9.0	80	7.50	3.44	190.50	87.38	2.625	35	3 lb., 1 oz.

CVDD-300





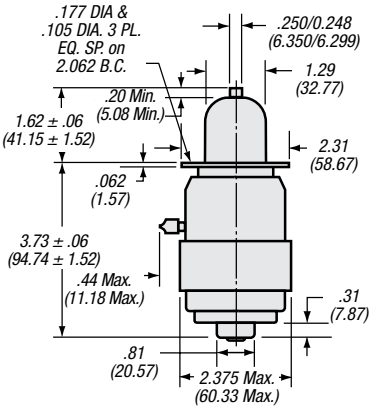


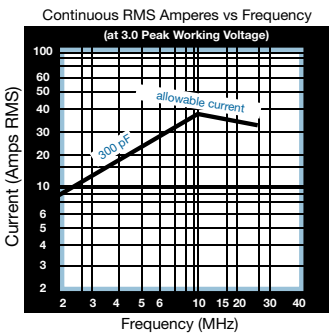


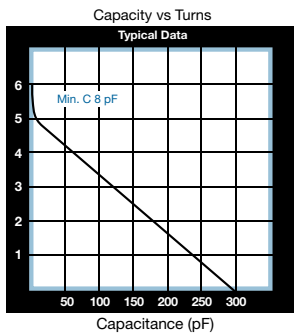
Mounting: Use Flange FM1H on fixed end. Tapped holes on variable end.

CSV1-300





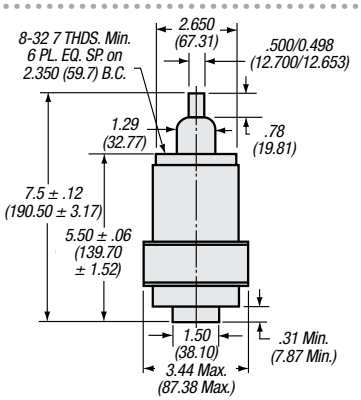


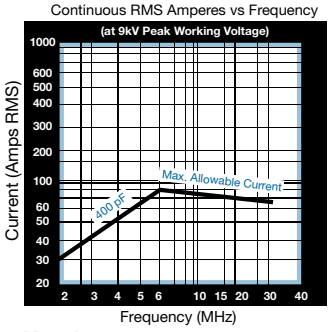


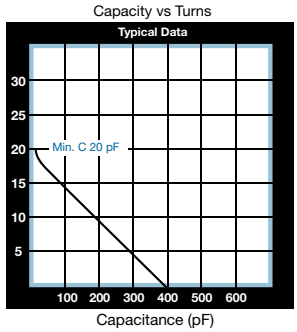
Mounting: Fixed end has tapped holes. Variable end has soldered-on flanges.

CVDD-400









Mounting: Use Flange FM1H on fixed end. Tapped holes on variable end.

High-Voltage Vacuum Variable Capacitors

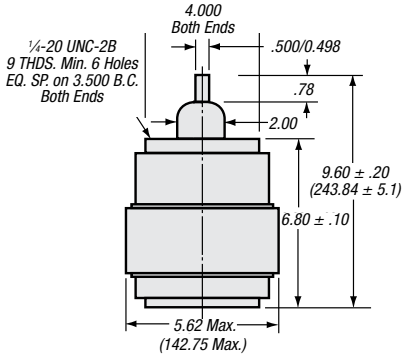
CVFP and CVHP Series

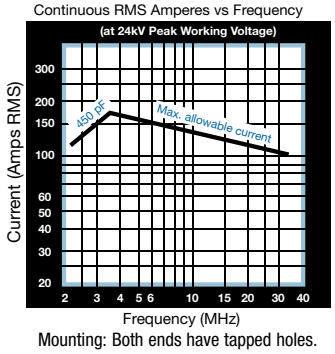
CVFP and CVHP Series Vacuum Variable Capacitors, 450pF

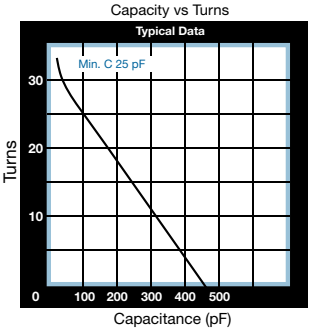
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVFP-450-30S	25–450	30	18	150	9.60	5.62	243.8	142.75	5.062	94	9 lb., 7 oz.
CVFP-450-35S	25–450	35	21	160	9.60	5.62	243.8	142.75	5.062	94	9 lb., 7 oz.
CVFP-450-40S	25–450	40	24	170	9.60	5.62	243.8	142.75	5.062	94	9 lb., 7 oz.
CVHP-450-45S	25–450	45	27	200	11.90	7.20	302.3	182.9	8.4	134	18 lb., 8 oz.
CVHP-450-50S	25–450	50	30	210	11.90	7.20	302.3	182.9	8.4	134	18 lb., 8 oz.
CVHP-450-55S	25–450	55	33	240	11.90	7.20	302.3	182.9	8.4	134	18 lb., 8 oz.

CVFP-450





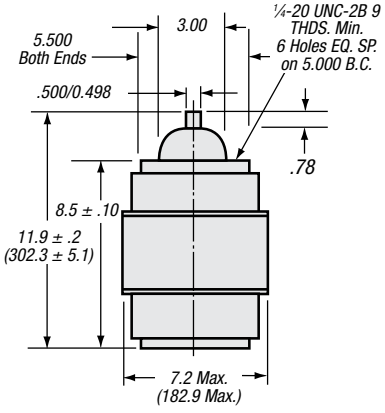


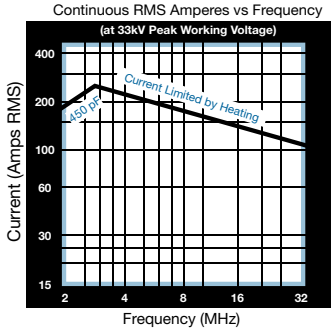


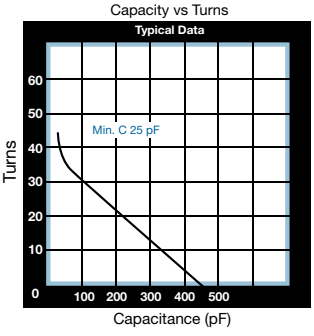
Mounting: Both ends have tapped holes.

CVHP-450









Mounting: Both ends have tapped holes.

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High-Voltage Vacuum Variable Capacitors

CSV1, CSVS and CVDD Series

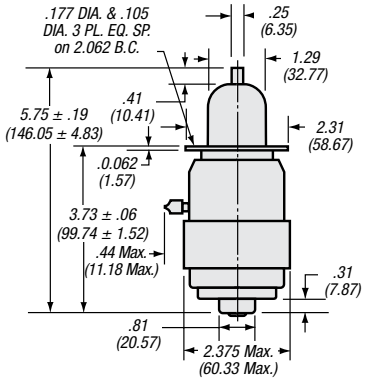
CSV1, CSVS and CVDD Series Vacuum Variable Capacitors, 500pF

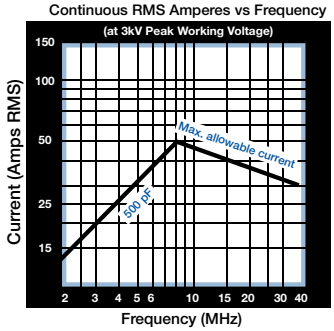
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CSV1-500-0003*	5–500	3.0	1.8	40	5.75	2.375	146.05	60.33	2.0	50	1 lb., 5 oz.
CSV1-500-0005*	5–500	5.0	3.0	45	5.75	2.375	146.05	60.33	2.0	50	1 lb., 5 oz.
CSVS-500-0003[1]	5–500	3.0	1.8	40	5.75	2.375	146.05	60.33	5	50	1 lb., 8 oz.
CSVS-500-0005[1]	5–500	5.0	3.0	45	5.75	2.375	146.05	60.33	5	50	1 lb., 8 oz.
CVDD-500-7.5S	20–500	7.5	4.5	80	7.50	3.44	190.50	87.38	1.8	42	3 lb.
CVDD-500-10S	20–500	10	6.0	90	7.50	3.44	190.50	87.38	1.8	42	3 lb.
CVDD-500-15S	20–500	15	9.0	95	7.50	3.44	190.50	87.38	1.8	42	3 lb.

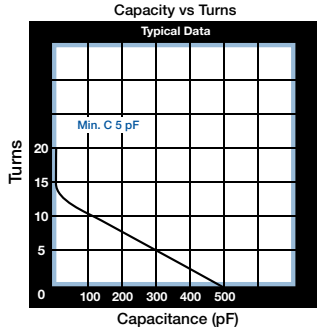
** CSV1 (non-magnetic version) available. [1]Has shorting switch.*

CSV1-500





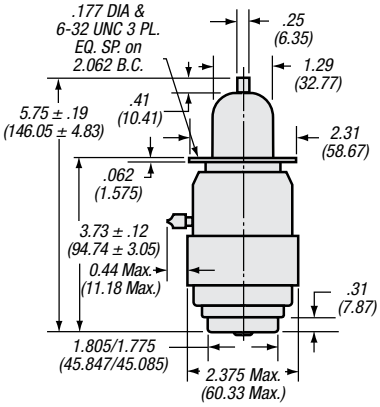


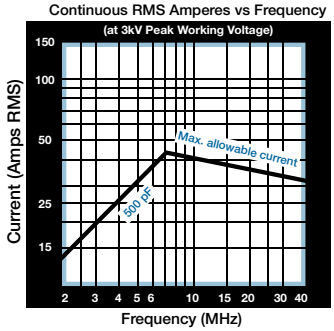


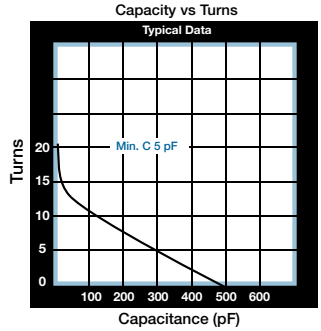
Mounting: Use flange FMOD on fixed end. Variable end has flang soldered-on.

CSVS-500





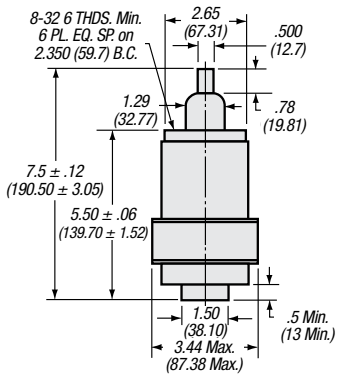


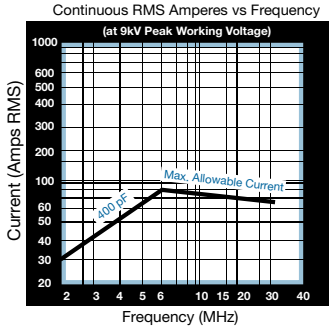


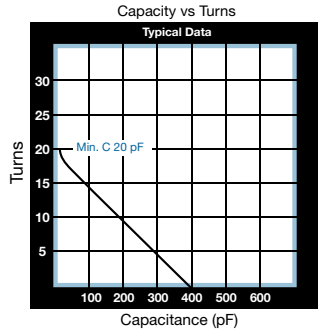
Mounting: Both ends have tapped holes.

CVDD-500









Mounting: Use Flange FM1H on fixed end. Tapped holes on variable end.

High-Voltage Vacuum Variable Capacitors

CVEP, M/CSVF and M/CSV5 Series

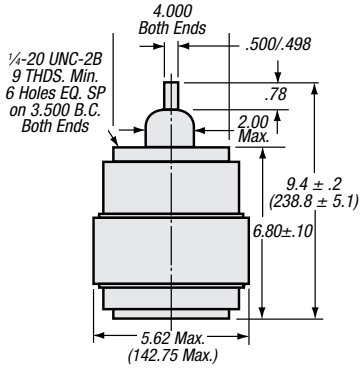
CVEP, M/CSVF and M/CSV5 Series Vacuum Variable Capacitors, 500pF

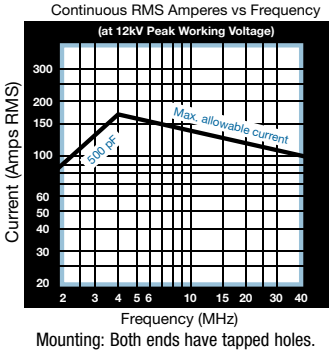
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVEP-500-10S	25–500	10	6.0	140	9.40	5.62	238.80	142.75	4.375	61	9 lb., 4 oz.
CVEP-500-15S	25–500	15	9.0	150	9.40	5.62	238.80	142.75	4.375	61	9 lb., 4 oz.
CVEP-500-20S	25–500	20	12	160	9.40	5.62	238.80	142.75	4.375	61	9 lb., 4 oz.
M/CSVF-500-0007*	12–500	7.5	4.5	80	7.88	3.50	200.15	88.90	12	50	3 lb.
M/CSVF-500-0010*	12–500	10	6.0	90	7.88	3.50	200.15	88.90	12	50	3 lb.
M/CSVF-500-0015*	12–500	15	9.0	100	7.88	3.50	200.15	88.90	12	50	3 lb.
M/CSV5-500-05*	50–500	5	3	37	5.18	2.32	132	59	1.9	50	1 lb., 4 oz.
M/CSV5-500-08*	50–500	8	4.8	58	5.18	2.32	132	59	1.9	50	1 lb., 4 oz.

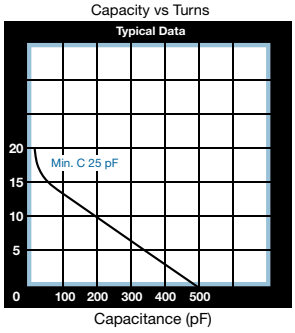
* M/C = Long Life Jenn-X.

CVEP-500







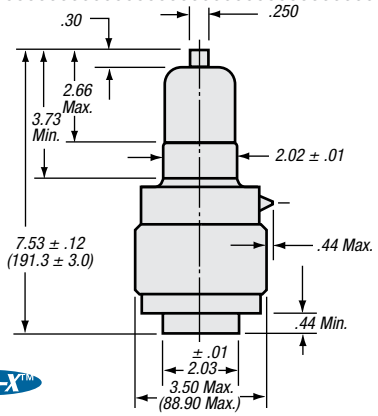


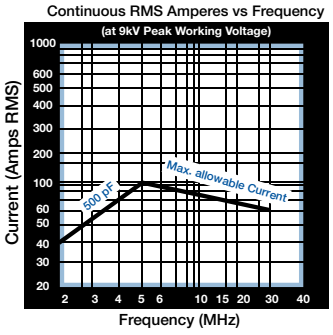
Mounting: Both ends have tapped holes.

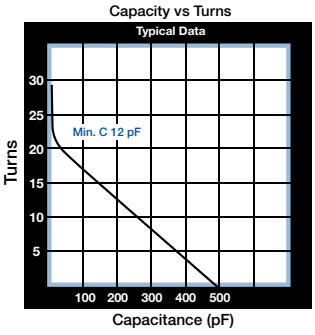
M/CSVF-500



Jenn-X™





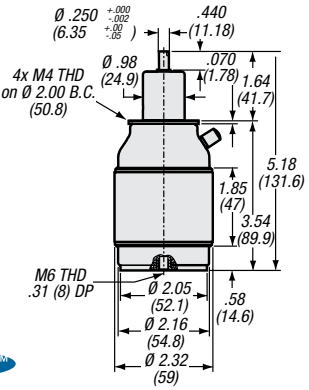


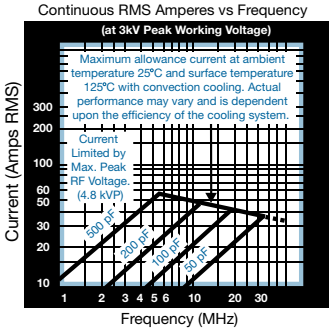
Mounting: Use flange FM2S on fixed end. Flange FM2 on variable end.

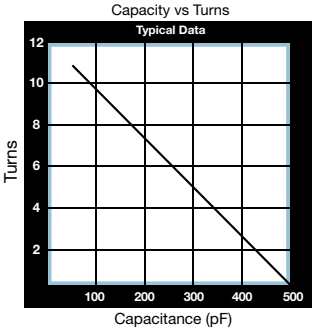
M/CSV5-500



Jenn-X™







Mounting: Both ends have tapped holes.

High-Voltage Vacuum Variable Capacitors

M/CSV6 and PV4 Series

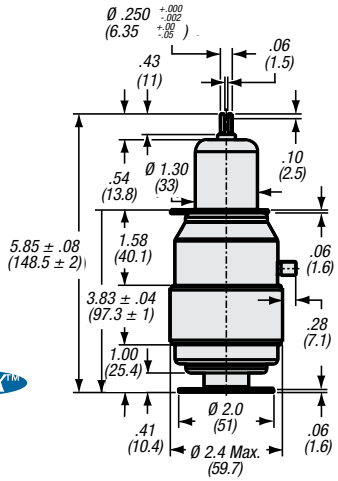
M/CSV6 and PV4 Series Vacuum Variable Capacitors, 500pF

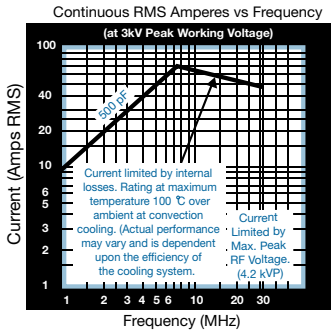
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
M/CSV6-500-05*	5–500	5	3	47	5.85	2.35	149	60	1.5	50	1 lb., 8 oz.
M/CSV6-500-07*	5–500	7	4.2	70	5.85	2.35	149	60	1.5	50	1 lb., 8 oz.
PV4-500-15	40–500	15	9	110	5.55	3.4	140.9	86.4	2.062	85	4 lb., 10 oz.

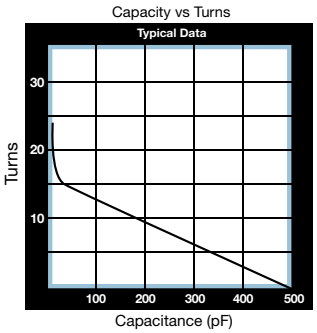
** M/C = Long Life Jenn-X.*

M/CSV6-500





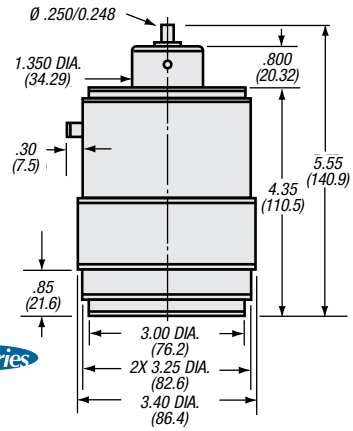


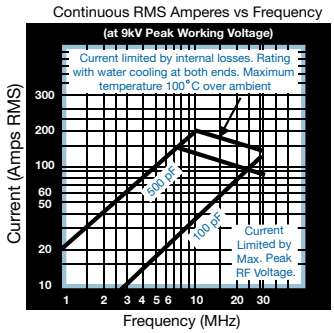


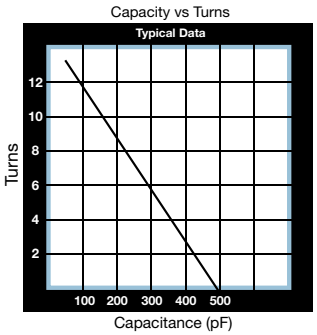
Mounting: Both ends have tapped holes, M4.

PV4-500









Mounting: Both ends have tapped holes.
6X M5 Thread on 2.350 B.C.

6X M4 Thread on 2.350 B.C.

Both Ends.

Water cooling disk available: FMWPV, 1 each end.

Conservative limit with unit in dead airspace.

Maximum temperature 100 °C over ambient.

High-Voltage Vacuum Variable Capacitors

CAV3, CMV1 and CMV3 Series

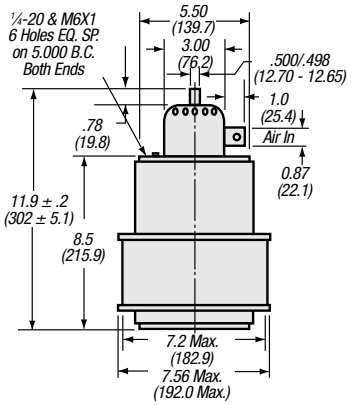
CAV3, CMV1 and CMV3 Series Vacuum Variable Capacitors, 650pF

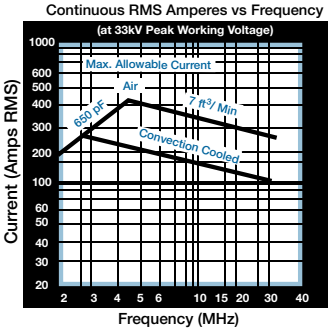
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CAV3-650-0045	30–650	45	27	375††	11.90	7.56	302.30	192.00	13	200	20 lb.
CAV3-650-0050	30–650	50	30	400††	11.90	7.56	302.30	192.00	13	200	20 lb.
CAV3-650-0055	30–650	55	33	425††	11.90	7.56	302.30	192.00	13	200	20 lb.
CMV1-650-0005[1]	8–650	5.0	5.0	40	4.35	1.78	110.49	45.21	1.1	42	15 oz.
CMV3-650-0008	10–650	8	4.8	40	4.50	1.78	114.35	45.21	18	42	15 oz.

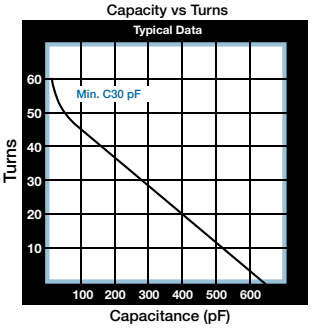
[1]Has shorting switch. †† Forced air cooling.

CAV3-650





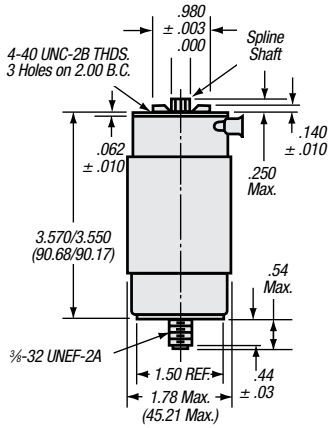


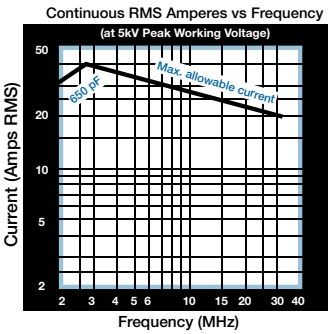


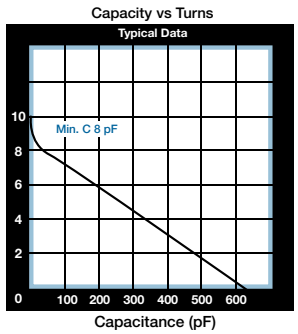
Mounting: Both ends have tapped holes.

CMV1-650





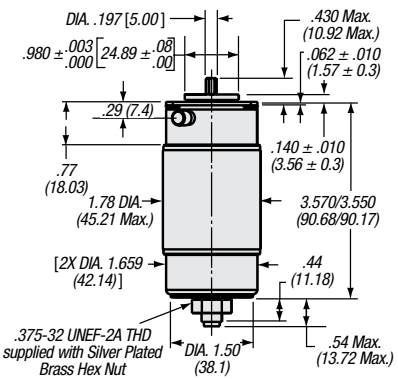


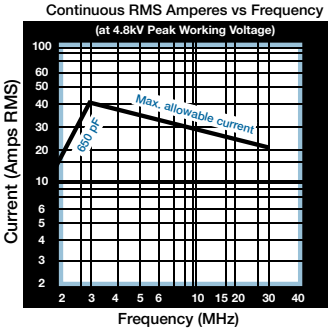


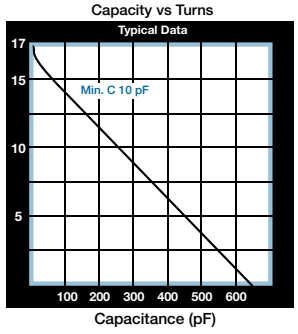
Mounting: Fixed end threaded stud. Variable end tapped holes.

CMV3-650









Mounting: Both ends have tapped holes.

Thomas&Betts

Jennings Technology
Sales and Technical Support
Tel: 408.292.4025

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High-Voltage Vacuum Variable Capacitors

CVHP and CWV3 Series

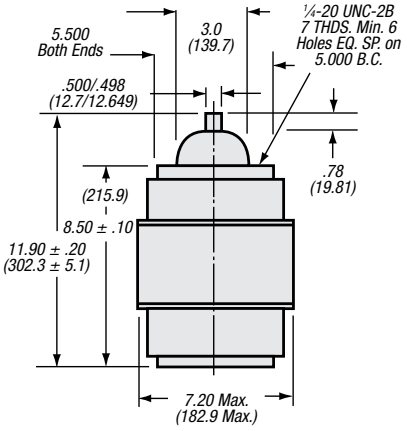
CVHP and CWV3 Series Vacuum Variable Capacitors, 650pF

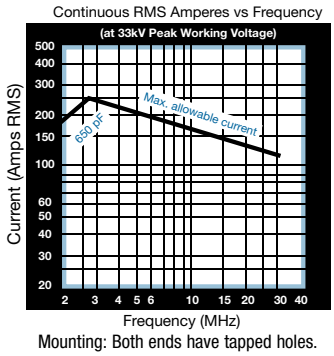
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVHP-650-45S	30–650	45	27	220	11.90	7.20	302.30	182.9	11.3	200	19 lb., 2 oz.
CVHP-650-50S	30–650	50	30	230	11.90	7.20	302.30	182.9	11.3	200	19 lb., 2 oz.
CVHP-650-55S	30–650	55	33	240	11.90	7.20	302.30	182.9	11.3	200	19 lb., 2 oz.
CWV3-650-0140	30–650	40	24	760†	16.50	7.60	419.10	193.0	17	200	23 lb.
CWV3-650-0145	30–650	45	27	780†	16.50	7.60	419.10	193.0	17	200	23 lb.
CWV3-650-0150	30–650	50	30	800†	16.50	7.60	419.10	193.0	17	200	23 lb.

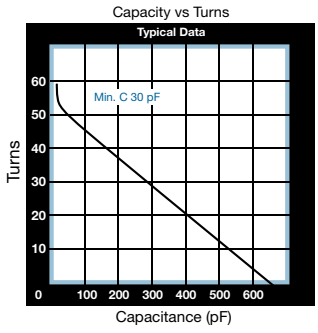
† *Water cooling.*

CVHP-650





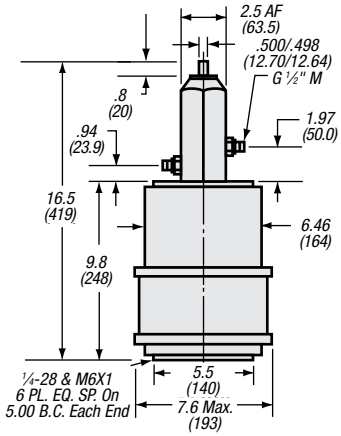


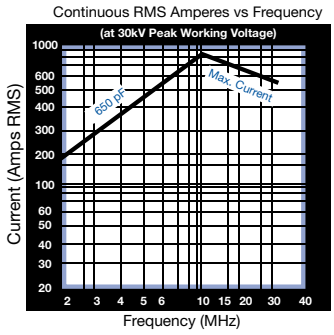


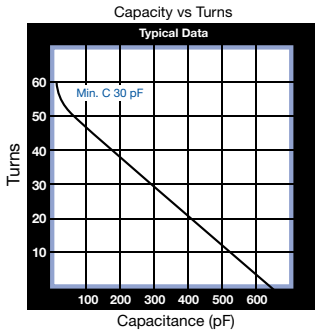
Mounting: Both ends have tapped holes.

CWV3-650









Mounting: Both ends have tapped holes.

High-Voltage Vacuum Variable Capacitors

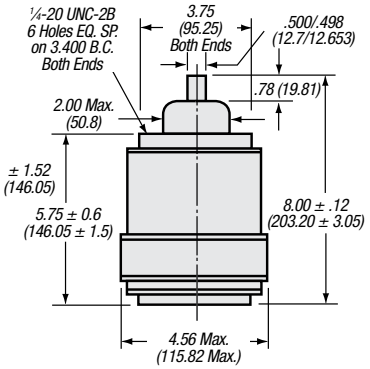
CVDD, CVFP and CSV4 Series

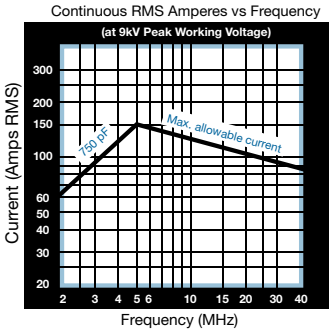
CVDD, CVFP and CSV4 Series Vacuum Variable Capacitors, 750–900pF

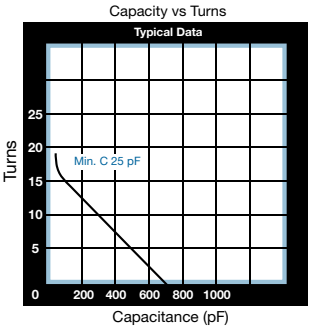
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVDD-750-7.5S	25–750	7.5	4.5	130	8.00	4.56	203.20	115.82	4.2	68	6 lb., 13 oz.
CVDD-750-10S	25–750	10	6.0	140	8.00	4.56	203.20	115.82	4.2	68	6 lb., 13 oz.
CVDD-750-15S	25–750	15	9.0	150	8.00	4.56	203.20	115.82	4.2	68	6 lb., 13 oz.
CVFP-750-30S	20–750	30	18	200	11.70	7.20	297.18	182.90	9.0	134	17 lb., 13 oz.
CVFP-750-35S	20–750	35	21	210	11.70	7.20	297.18	182.90	9.0	134	17 lb., 13 oz.
CVFP-750-40S	20–750	40	24	220	11.70	7.20	297.18	182.90	9.0	134	17 lb., 13 oz.
CSV4-900-0103	10–900	3	1.8	39	6.53	2.35	165.80	59.70	25	—	23 oz.
CSV4-900-0106	10–900	5	3	43	6.53	2.35	165.80	59.70	25	—	23 oz.
CSV4-900-0206	10–900	6	3.6	45	6.53	2.35	165.80	59.70	25	—	23 oz.

CVDD-750





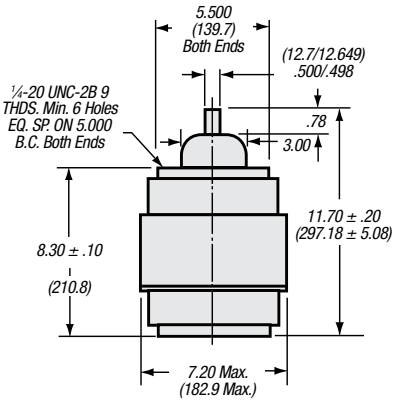


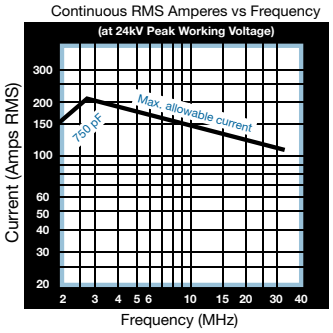


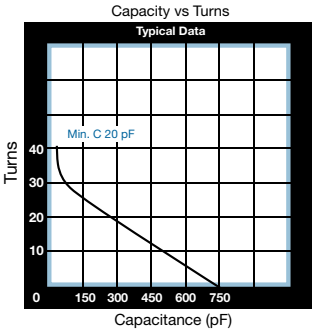
Mounting: Both ends have tapped holes.

CVFP-750





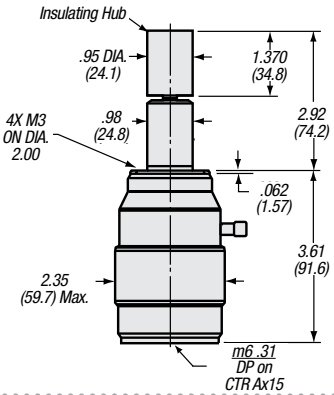


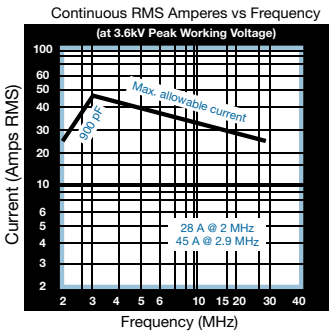


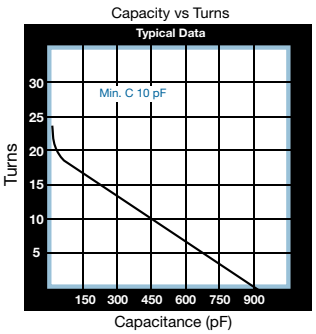
Mounting: Both ends have tapped holes.

CSV4-900









Mounting: Both ends have tapped holes.

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Tel: 408.292.4025

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High-Voltage Vacuum Variable Capacitors

CAV2, CMV1 and CSV1 Series

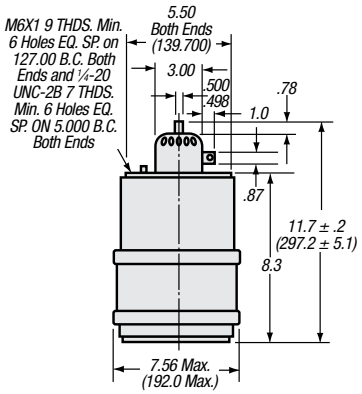
CAV2, CMV1 and CSV1 Series Vacuum Variable Capacitors, 1000pF

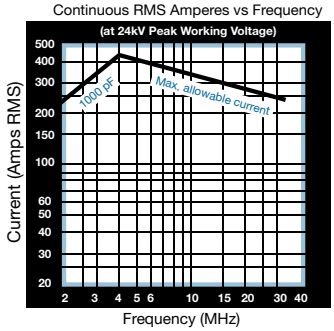
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CAV2-1000-0030	35–1000	30	18	400††	11.70	7.56	297.20	192.00	13	156	18 lb., 2 oz.
CAV2-1000-0035	35–1000	35	21	410††	11.70	7.56	297.20	192.00	13	156	18 lb., 2 oz.
CAV2–1000-0040	35–1000	40	24	425††	11.70	7.56	297.20	192.00	13	156	18 lb., 2 oz.
CMV1-1000-0003[1]	8–1000	3.0	3.0	40	4.33	1.78	109.86	45.21	1.1	43	14 oz.
CSV1-1000-0003	10–1000	3.0	1.8	65	5.00	3.12	127.00	79.25	2.5	50	1 lb., 14 oz.
CSV1-1000-0005	10–1000	5.0	3.0	70	5.00	3.12	127.00	79.25	2.5	50	1 lb., 14 oz.

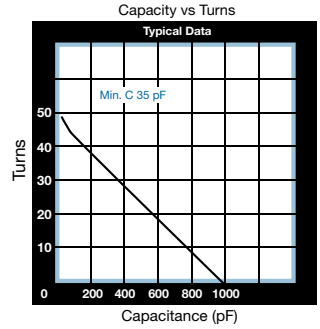
[1]*Has shorting switch.* †† *Forced air cooling.*

CAV2-1000





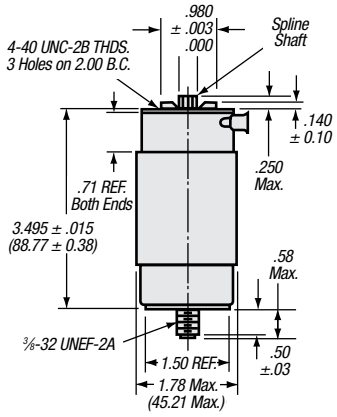


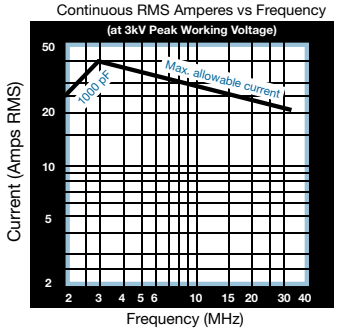


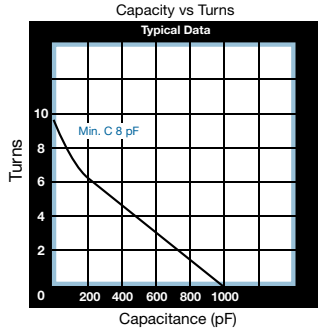
Mounting: Both ends have tapped holes.

CMV1-1000





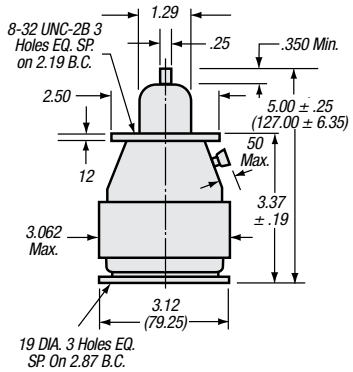


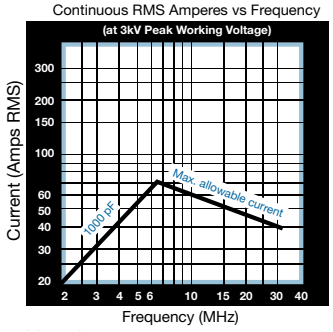


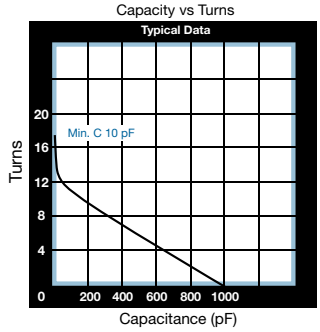
Mounting: Fixed end threaded stud. Variable end tapped holes.

CSV1-1000









Mounting: Both ends have flanges soldered-on.

High-Voltage Vacuum Variable Capacitors

CVDD, CVFP and CVHP Series

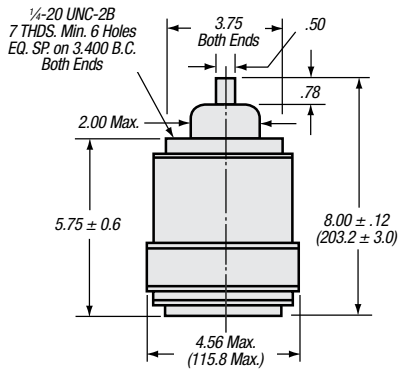
CVDD, CVFP and CVHP Series Vacuum Variable Capacitors, 1000pF

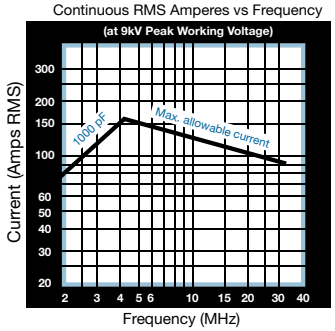
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVDD-1000-7.5S	25–1000	7.5	4.5	130	8.00	4.56	203.20	115.80	4.2	68	6 lb., 13 oz.
CVDD-1000-10S	25–1000	10	6.0	140	8.00	4.56	203.20	115.80	4.2	68	6 lb., 13 oz.
CVDD-1000-15S	25–1000	15	9.0	150	8.00	4.56	203.20	115.80	4.2	68	6 lb. ,13 oz.
CVFP-1000-30S	35–1000	30	18	215	11.70	7.20	259.10	182.90	10	150	18 lb., 2 oz.
CVFP-1000-35S	35–1000	35	21	220	11.70	7.20	259.10	182.90	10	150	18 lb., 2 oz.
CVFP-1000-40S	35–1000	40	24	225	11.70	7.20	259.10	182.90	10	150	18 lb., 2 oz.
CVHP-1000-40S*	60–1000	40	24	260	14.50	8.00	368.30	203.20	11.8	168	28 lb., 4 oz.
CVHP-1000-45S*	60–1000	45	27	265	14.50	8.00	368.30	203.20	11.8	168	28 lb., 4 oz.
CVHP-1000-50S*	60–1000	50	30	270	14.50	8.00	368.30	203.20	11.8	168	28 lb., 4 oz.

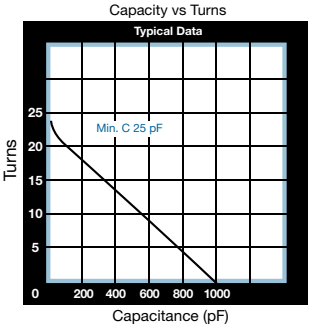
** CVHP (metric version) available.*

CVDD-1000





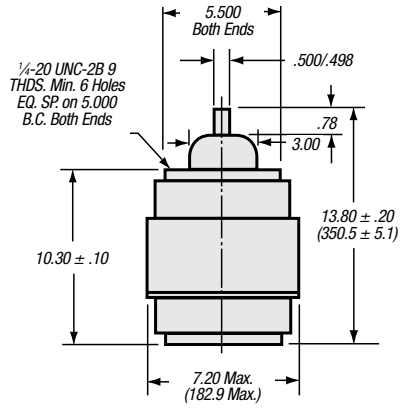


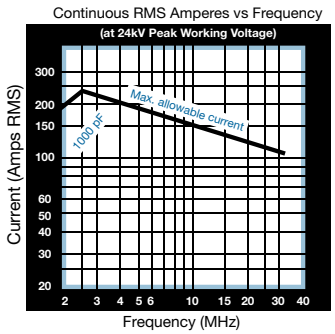


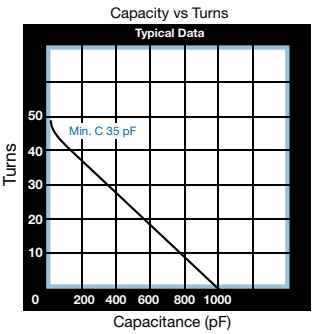
Mounting: Both ends have tapped holes.

CVFP-1000





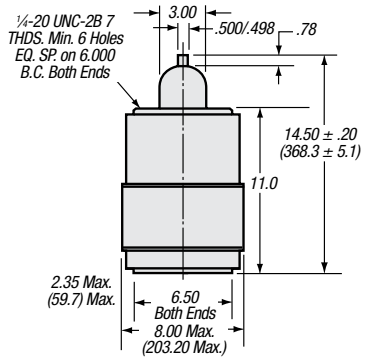


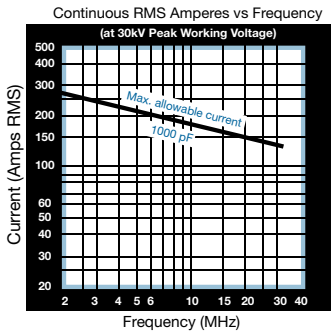


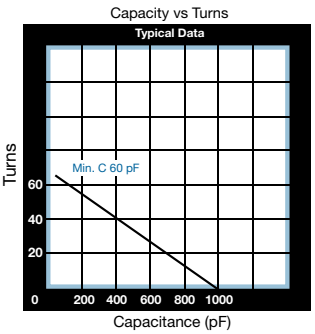
Mounting: Both ends have tapped holes.

CVHP-1000









Mounting: Both ends have tapped holes.

Thomas&Betts

Jennings Technology
Sales and Technical Support
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High-Voltage Vacuum Variable Capacitors

CWV5, M/CVCJ and M/CSV5 Series

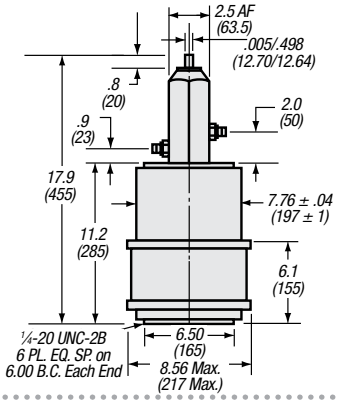
CWV5, M/CVCJ and M/CSV5 Series Vacuum Variable Capacitors, 1000pF

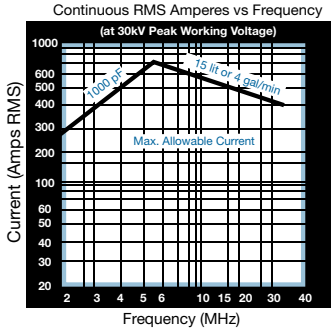
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CWV5-1000-0040	100–1000	40	24	660†	17.90	8.56	455.00	217.00	18	250	30 lb.
CWV5-1000-0045	100–1000	45	27	680†	17.90	8.56	455.00	217.00	18	250	30 lb.
CWV5-1000-0050	100–1000	50	30	700†	17.90	8.56	455.00	217.00	18	250	30 lb.
M/CVCJ-1000-3S*	7–1000	3	1.8	60	7.56	3.07	192.02	77.98	2.5	45	2 lb., 12 oz.
M/CVCJ-1000-5S*	7–1000	5	3.0	70	7.56	3.07	192.02	77.98	2.5	45	2 lb., 12 oz.
M/CSV5-1000-003*	100–1000	3	1.8	37	5.18	2.32	132	59	1.9	50	1 lb., 6 oz.
M/CSV5-1000-005*	100–1000	5	3.0	62	5.18	2.32	132	59	1.9	50	1 lb., 6 oz.

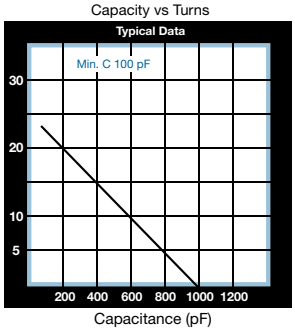
** M/C = Long Life Jenn-X.*

CWV5-1000







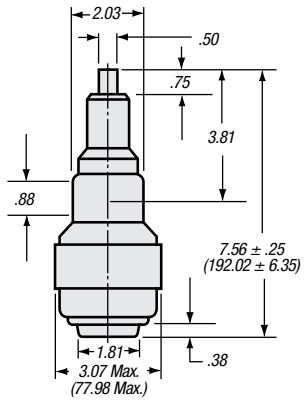


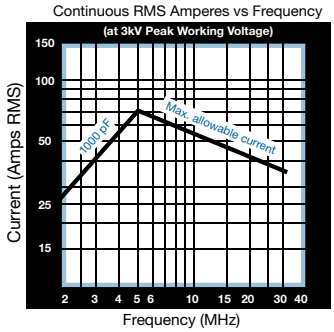
Mounting: Both ends have tapped holes.

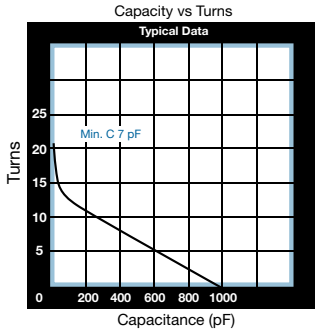
M/CVCJ-1000



Jenn-X™





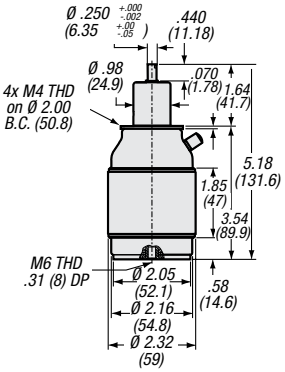


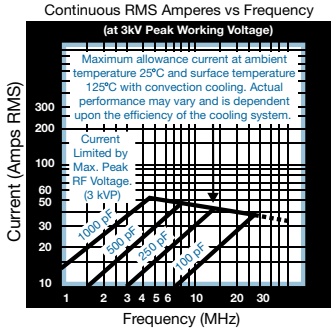
Mounting: Use flange FM1C on fixed end. Flange FM2 on variable end.

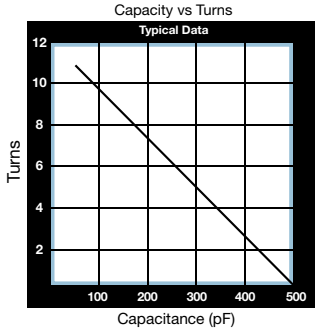
M/CSV5-1000



Jenn-X™







Mounting: Both ends have tapped holes.

High-Voltage Vacuum Variable Capacitors

PV4, CWV5 and CSV4 Series

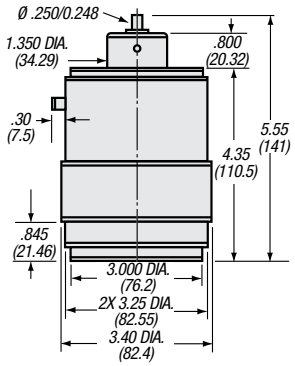
PV4, CWV5 and CSV4 Series Vacuum Variable Capacitors, 1000–1400pF

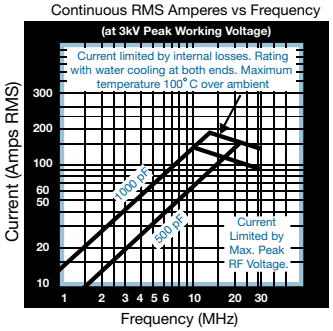
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
PV4-1000-05	80–1000	5	3	180	5.55	3.40	141.00	86.4	2.062	85	4.6 lb.
CWV5-1300-0140	40–1300	40	24	700†	21.70	8.56	550.00	218.00	25	250	35 lb.
CWV5-1300-0145	40–1300	45	27	725†	21.70	8.56	550.00	218.00	25	250	35 lb.
CWV5-1300-0150	40–1300	50	30	750†	21.70	8.56	550.00	218.00	25	250	35 lb.
CSV4-1400-0003	8–1400	3.0	1.8	45	5.57	2.36	142.00	60.00	1.5	15	1 lb., 7 oz.

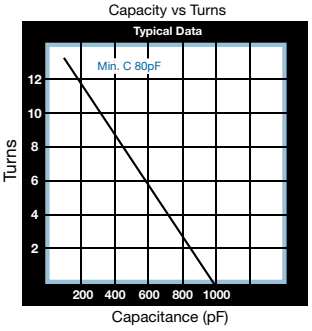
† *Water cooling.*

PV4-1000





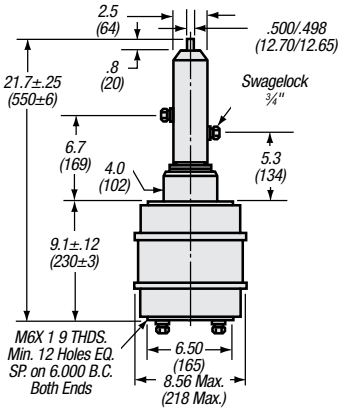


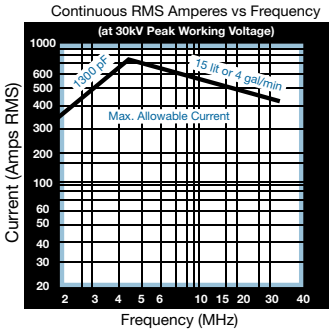


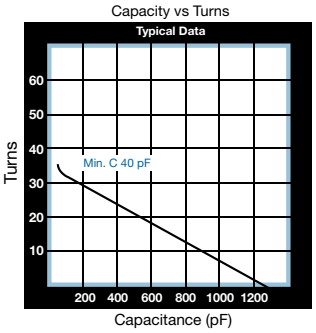
Mounting: Both ends have tapped holes.

CWV5-1300





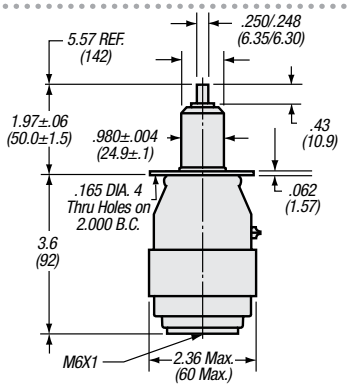


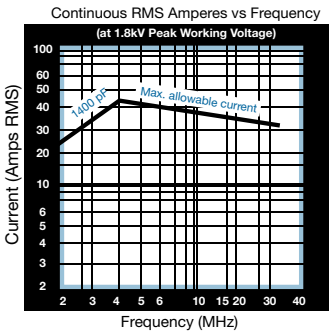


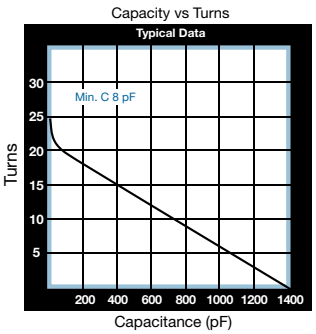
Mounting: Both Ends have tapped holes.

CSV4-1400









Mounting: Use flange FM2S on fixed end. Flange FM2 on variable end.

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High-Voltage Vacuum Variable Capacitors

CVCD, CVDP and CVFP Series

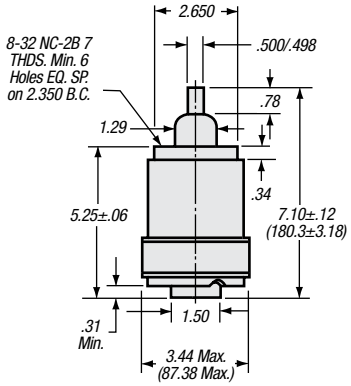
CVCD, CVDP and CVFP Series Vacuum Variable Capacitors, 1500pF

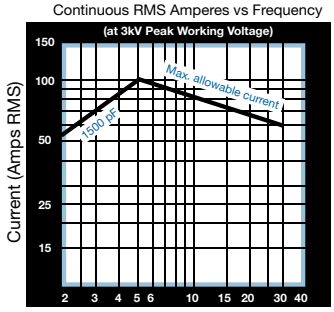
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVCD-1500-3S	10–1500	3.0	1.8	80	7.10	3.44	180.30	87.38	2.5	42	3 lb., 10 oz.
CVCD-1500-5S	10–1500	5.0	3.0	100	7.10	3.44	180.30	87.38	2.5	42	3 lb., 10 oz.
CVDP-1500-7.5S	35–1500	7.5	4.5	160	9.80	5.56	248.90	142.70	8.0	84	10 lb.
CVDP-1500-10S	35–1500	10	6.0	165	9.80	5.56	248.90	142.70	8.0	84	10 lb.
CVDP-1500-15S	35–1500	15	9.0	180	9.80	5.56	248.90	142.70	8.0	84	10 lb.
CVFP-1500-30S*	100–1500	30	18	215	13.80	7.20	350.50	182.90	10	250	20 lb., 4 oz.
CVFP-1500-35S*	100–1500	35	21	220	13.80	7.20	350.50	182.90	10	250	20 lb., 4 oz.
CVFP-1500-40S*	100–1500	40	24	225	13.80	7.20	350.50	182.90	10	250	20 lb., 4 oz.

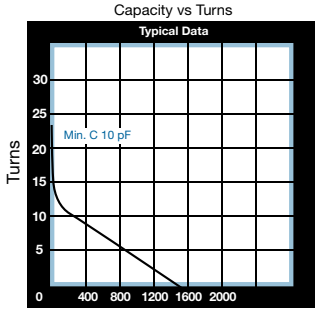
** CVFP (metric version) available.*

CVCD-1500





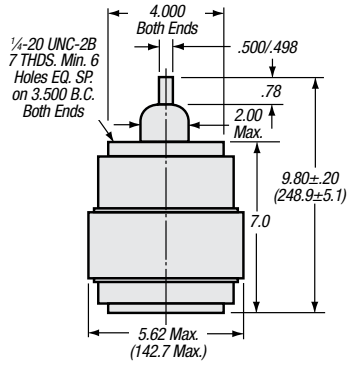


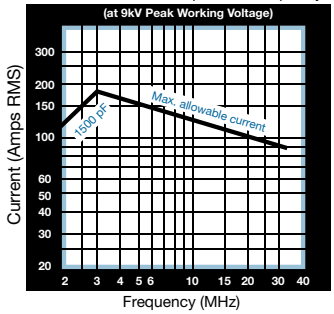


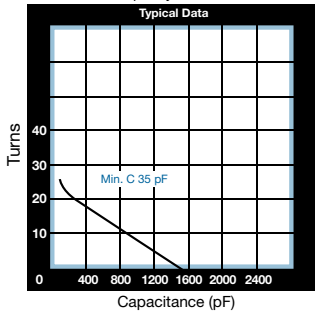
Mounting: Fixed end ferrule use FM1H flange. Variable end tapped holes.

CVDP-1500





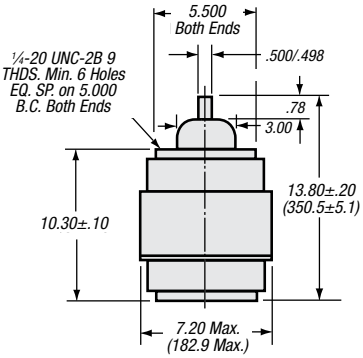


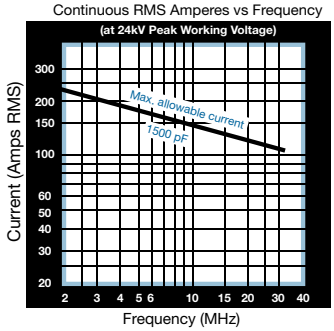


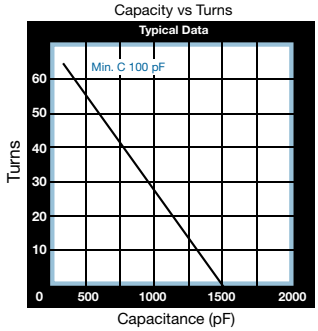
Mounting: Both ends have tapped holes.

CVFP-1500









Mounting: Both ends have tapped holes.

High-Voltage Vacuum Variable Capacitors

CWV1 and CWV2 Series

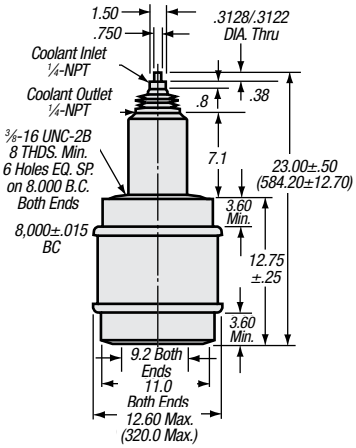
CWV1 and CWV2 Series Vacuum Variable Capacitors, 1600pF

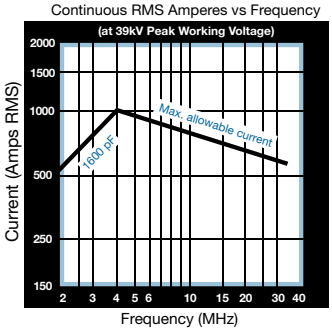
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CWV1-1600-0055	100–1600	55	33	960†	23.00	12.60	584.20	320.00	N/A	375	138 lb.
CWV1-1600-0060	100–1600	60	36	980†	23.00	12.60	584.20	320.00	N/A	375	138 lb.
CWV1-1600-0065	100–1600	65	39	1000†	23.00	12.60	584.20	320.00	N/A	375	138 lb.
CWV2-1600-0030	100–1600	30	18	750†	25.00	8.56	635.00	217.42	26	156	30 lb.
CWV2-1600-0035	100–1600	35	21	770†	25.00	8.56	635.00	217.42	26	156	30 lb.
CWV2-1600-0040	100–1600	40	24	790†	25.00	8.56	635.00	217.42	26	156	30 lb.

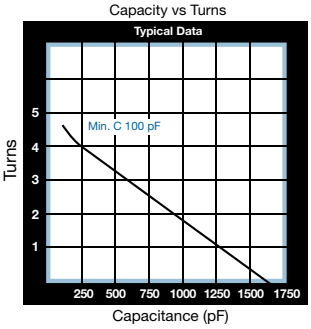
† *Water cooling.*

CWV1-1600





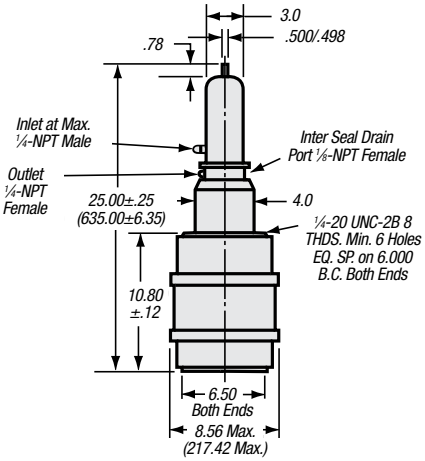


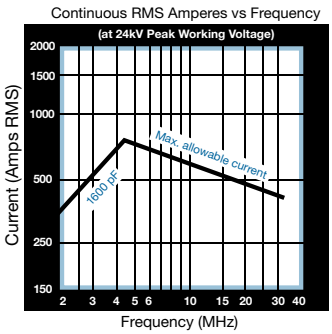


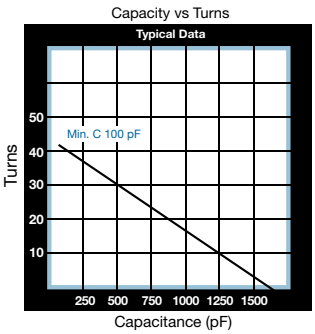
Mounting: Both ends have tapped holes.

CWV2-1600









Mounting: Both ends have tapped holes.

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High-Voltage Vacuum Variable Capacitors

CWV3 and CWV4 Series

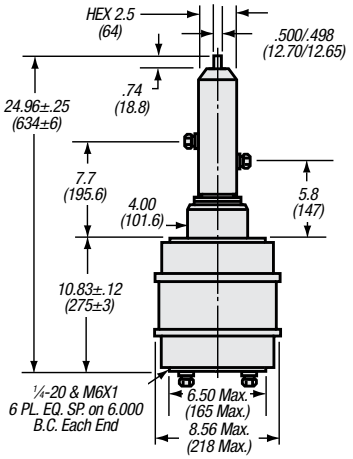
CWV3 and CWV4 Series Vacuum Variable Capacitors, 1600pF

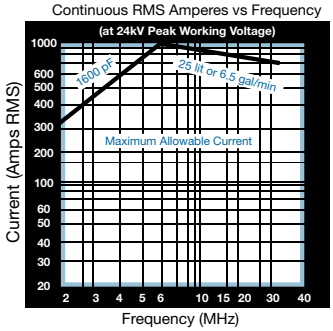
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CWV3-1600-0035	100–1600	35	21	980†	24.96	8.56	634.00	218.00	13	250	35 lb.
CWV3-1600-0040	100–1600	40	24	1000†	24.96	8.56	634.00	218.00	13	250	35 lb.
CWV4-1600-0050	100–1600	50	30	970†	21.50	12.90	546.10	327.70	17	250	125 lb.
CWV4-1600-0055	100–1600	55	33	980†	21.50	12.90	546.10	327.70	17	250	125 lb.
CWV4-1600-0060	100–1600	60	36	1000†	21.50	12.90	546.10	327.70	17	250	125 lb.

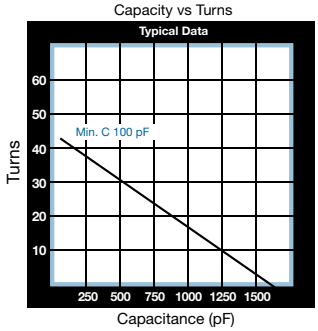
† *Water cooling.*

CWV3-1600





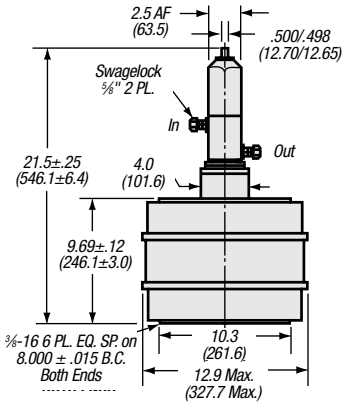


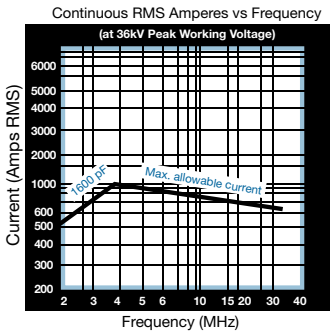


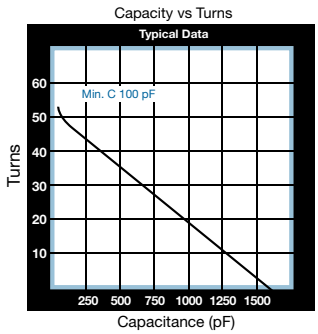
Mounting: Both ends have tapped holes.

CWV4-1600









Mounting: Both ends have tapped holes.

High-Voltage Vacuum Variable Capacitors

CVCD, CVEP and CVFP Series

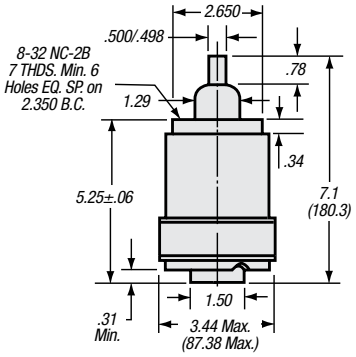
CVCD, CVEP and CVFP Series Vacuum Variable Capacitors, 2000pF

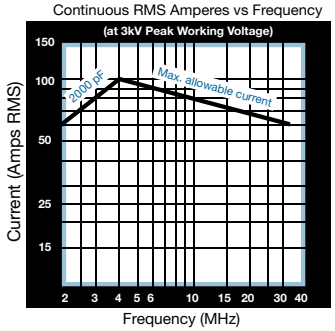
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVCD-2000-3S	20–2000	3.0	1.8	70	7.10	3.44	180.30	87.38	2.5	42	3 lb., 10 oz.
CVCD-2000-5S	20–2000	5.0	3.0	100	7.10	3.44	180.30	87.38	2.5	42	3 lb., 10 oz.
CVEP-2000-10S	100–2000	10	6.0	190	10.20	7.20	259.10	182.90	13	144	18 lb., 2 oz.
CVEP-2000-15S	100–2000	15	9.0	200	10.20	7.20	259.10	182.90	13	144	18 lb., 2 oz.
CVFP-2000-25S*	100–2000	25	15	205	14.50	8.20	368.30	208.28	11.8	180	29 lb., 4 oz.
CVFP-2000-30S*	100–2000	30	18	215	14.50	8.20	368.30	208.28	11.8	180	29 lb., 4 oz.
CVFP-2000-35S*	100–2000	35	21	220	14.50	8.20	368.30	208.28	11.8	180	29 lb., 4 oz.

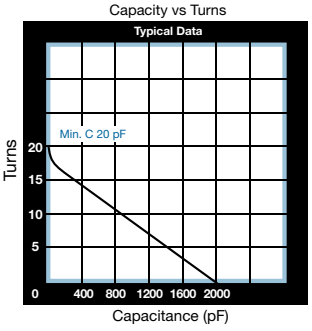
** CVFP (metric version) available.*

CVCD-2000





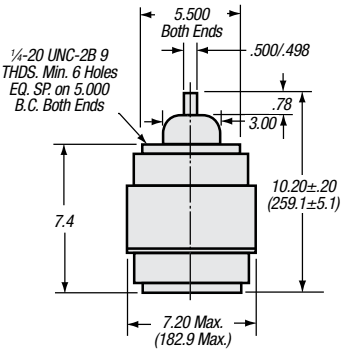


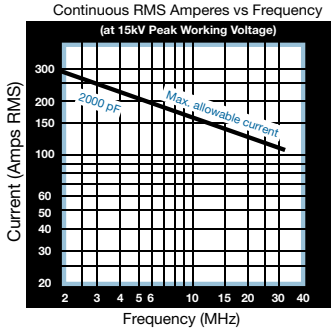


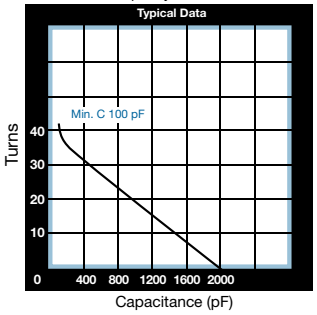
Mounting: Fixed end ferrule use FM1H flange. Variable end tapped holes.

CVEP-2000





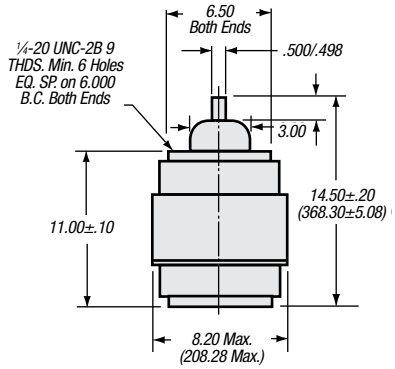


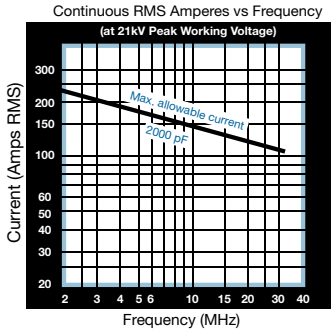


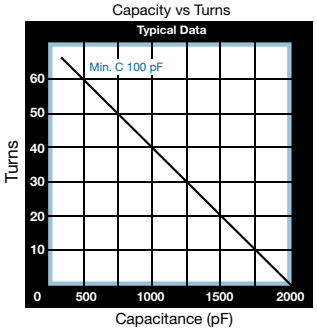
Mounting: Both ends have tapped holes.

CVFP-2000









Mounting: Both ends have tapped holes.

High-Voltage Vacuum Variable Capacitors

PV4, CWV4 and CVDP Series

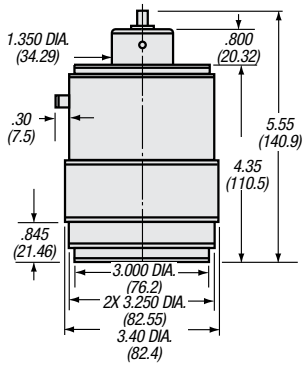
PV4, CWV4 and CVDP Series Vacuum Variable Capacitors, 2000–2300pF

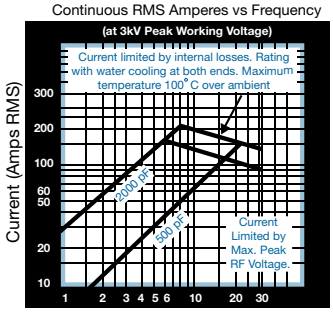
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
PV4-2000-05	100–2000	5	3	210	5.55	3.40	140.90	86.40	2.062	85	4.6 lb.
CWV4-2050-0040	100–2050	40	24	940†	25.00	12.90	635.00	327.70	18	250	125 lb.
CWV4-2050-0045	100–2050	45	27	960†	25.00	12.90	635.00	327.70	18	250	125 lb.
CWV4-2050-0050	100–2050	50	30	1000†	25.00	12.90	635.00	327.70	18	250	125 lb.
CVDP-2300-7.5S	50–2300	7.5	4.5	160	9.80	5.62	248.90	142.70	6.0	84	9 lb., 14 oz.
CVDP-2300-10S	50–2300	10	6.0	180	9.80	5.62	248.90	142.70	6.0	84	9 lb., 14 oz.
CVDP-2300-15S	50–2300	15	9.0	200	9.80	5.62	248.90	142.70	6.0	84	9 lb., 14 oz.

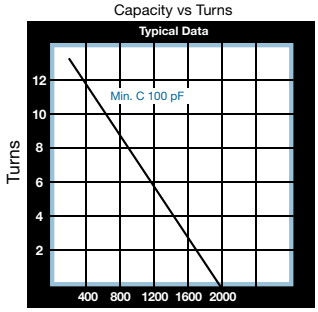
† *Water cooling.*

PV4-2000





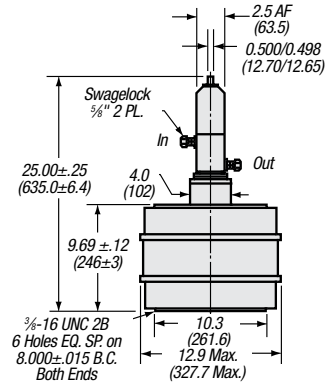


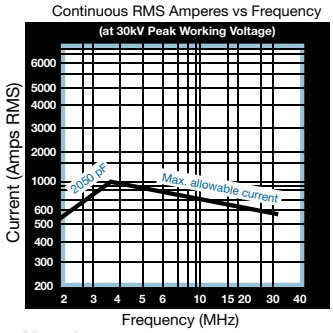


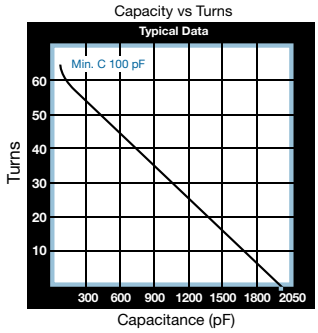
Mounting: Both ends have tapped holes.

CWV4-2050





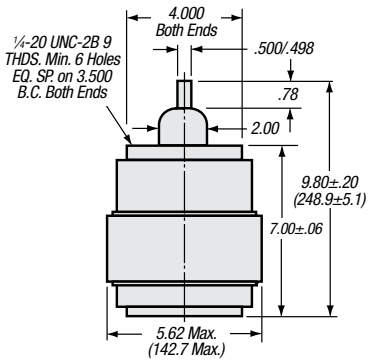


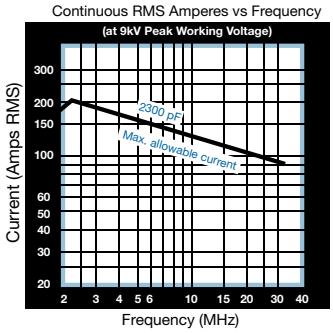


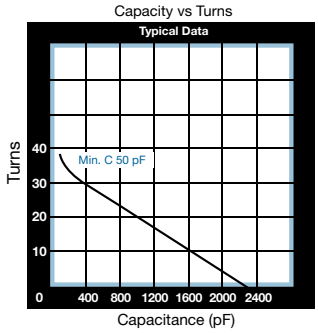
Mounting: Both ends have tapped holes.

CVDP-2300









Mounting: Both ends have tapped holes.

High-Voltage Vacuum Variable Capacitors

CVCD and CMV1 Series

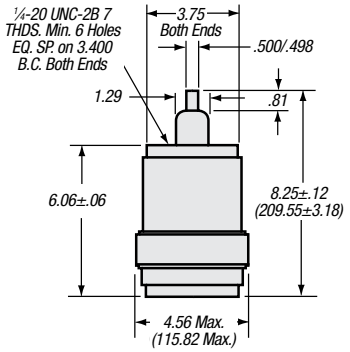
CVCD and CMV1 Series Vacuum Variable Capacitors, 3000–4000pF

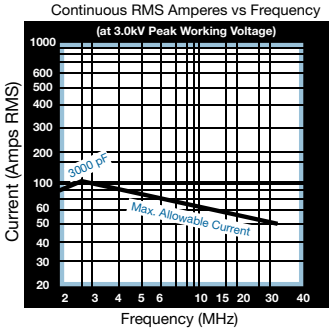
CAT. NO.	CAPACITY RANGE (PF)	VOLTAGE PEAK (KV) TEST	VOLTAGE PEAK (KV) WORKING	CURRENT AMPS (RMS) MAX.	NOM. DIMENSIONS LENGTH (IN.)	NOM. DIMENSIONS DIA. (IN.)	NOM. DIMENSIONS LENGTH (MM)	NOM. DIMENSIONS DIA. (MM)	TORQUE (IN.-LBS.) MAX.	DIRECT PULL (LBS.) MAX.	NOM. WEIGHT
CVCD-3000-3S	50–3000	3.0	1.8	88	8.25	4.56	209.55	115.82	1.562	45	5 lb., 12 oz.
CVCD-3000-5S	50–3000	5.0	3.0	100	8.25	4.56	209.55	115.82	1.562	45	5 lb., 12 oz.
CMV1-4000-0005[1]	25–4000	5.0	5.0	70	6.54	3.40	166.12	86.36	1.875	50	4 lb., 2 oz.

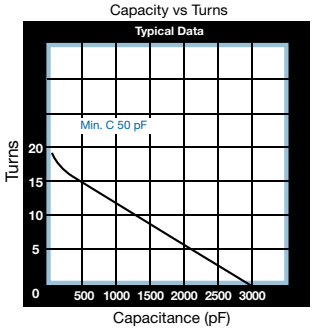
[1]*Has shorting switch.*

CVCD-3000





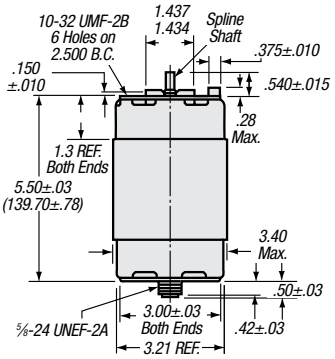


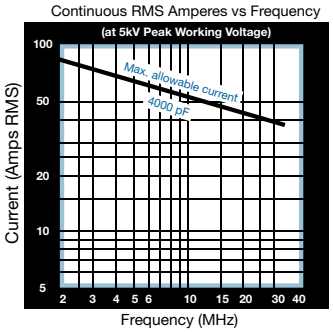


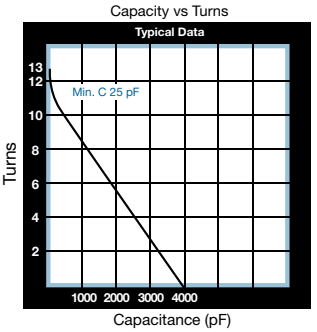
Mounting: Both ends have tapped holes.

CMV1-4000









Mounting: Fixed end threaded stud. Variable end tapped hole.

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RF41, RF42, RF43 and RF44 Series

RF41, RF42, RF43 and RF44 Series SPST Vacuum Relays, 4–9kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RF41-26S **RF42-26S**	4	3.6 12	3.6 10	3.2 7.5	2.5 5	1.6	1.6	20	10	10	16	1–10	290	50	10 @ 55–2000 Hz	1	1 (28)
RF44-26S	6	3.6 12	3.6 10	3.2 6	2.5 5	1.6	1.6	12	4	4	16	1–10	80	50	30 @ 95–2000 Hz	1	1 (28)
RF43-26S	9	7 12	7 10	6 6	4 5	1.6	1.1	20	10	10	16	1–10	47	50	10 @ 55–500 Hz	0.5	1 (28)

12VDC coil versions available; please contact factory for lead times. For available flange versions, the flange diameter is 1.125".

RF41-26S

Form: N/C

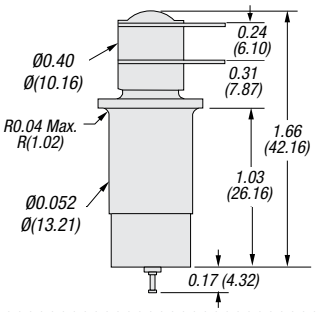
Flange Version Available:
RF41D-26S

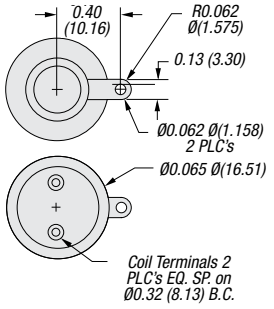
RF42-26S

Form: N/O

Flange Version Available:
RF42D-26S





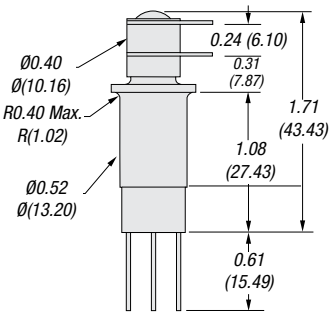


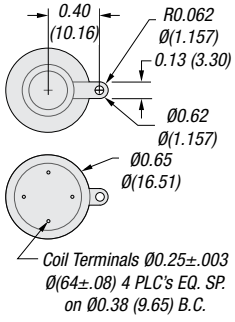
RF44-26S

Form: Latching

Flange Version Available:
RF44D-26S





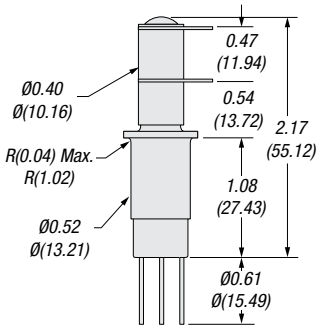


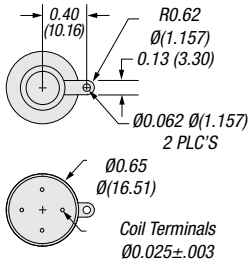
RF43-26S

Form: Latching

Flange Version Available:
RF43D-26S







High-Voltage Vacuum and Gas-Filled Relays

RF4A, RF5A, RF6A and RF47 Series

RF4A, RF5A, RF6A and RF47 Series SPST Vacuum Relays, 10kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RF4A-26S	10	8 30	7 25	6 15	5 10	2.5	2.5	15	18	18	16	1–10	156	50	10 @ 55–2000 Hz	1	2 (56)
RF5A-26S **RF6A-26S**	10	8 12	8 10	6 5	5 2	1.6	1.6	20	8	6	16	1–10	920	30	10 @ 55–1000 Hz	10	.5 (14)
RF47-26S	10	8 35	8 35	6 18	5 12	1.6	1.6	8*	4	4	16	1–10	80	50	30 @ 55–2000 Hz	1	1 (28)

12VDC coil versions available; please contact factory for lead times. For available flange versions, the flange diameter is 1.125".

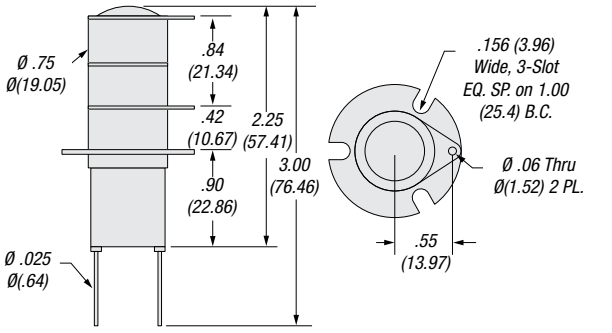
** Please contact Jennings Technology for lower/different values.*

RF4A-26S

Form: N/C

Equipped with integral flange





RF5A-26S

Form: N/C

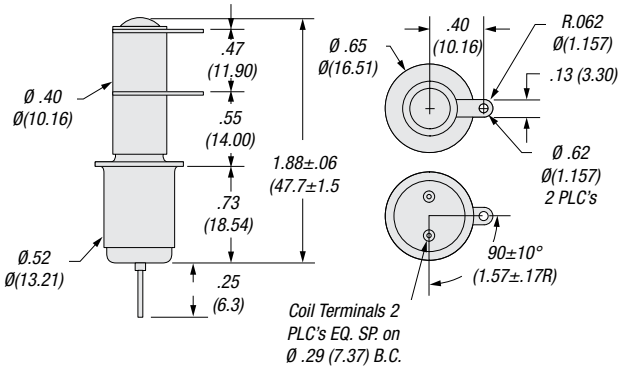
Flange Version Available:
RF5AD-26S

RF6A-26S

Form: N/O

Flange Version Available:
RF6AD-26S



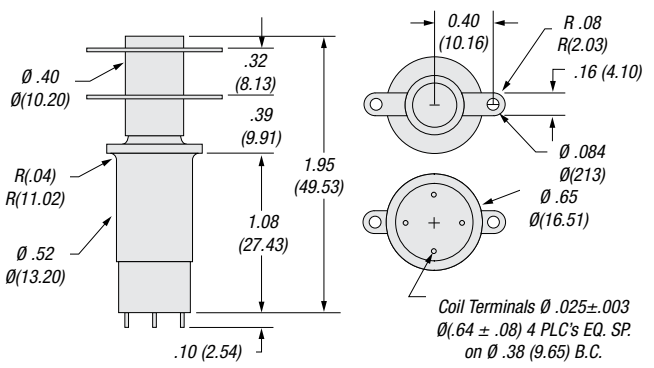


RF47-26S

Form: Latching

Flange Version Available:
RF47D-26S





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RF72, RF80 and RF88 Series

RF72, RF80 and RF88 Series SPST Vacuum Relays, 10kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RF72-26S		8	8	6	5			20	4	4	16*	1–10*					
RF72-N1105	10	50	35	18	12	1.6	1.6	8*	1.5	1.5	6–12	7–17	80	50	30 @ 55–2000 Hz	2	1 (28)
RF72-N1107								20	2.5	2.5	5–16	6–20					
RF80-26S	10	8 35	8 35	6 18	4 12	1.6	1.6	8*	8	3	16	1–10	290	30	10 @ 55–2000 Hz	2	1 (28)
RF88-26S	10	8 10	8 10	6 6	5 5	1.6	1.6	20	4	4	16	1–10	80	50	10 @ 55–2000 Hz	1	1 (28)

12VDC coil versions available; please contact factory for lead times. For available flange versions, the flange diameter is 1.125".

** Please contact Jennings Technology for lower/different values.*

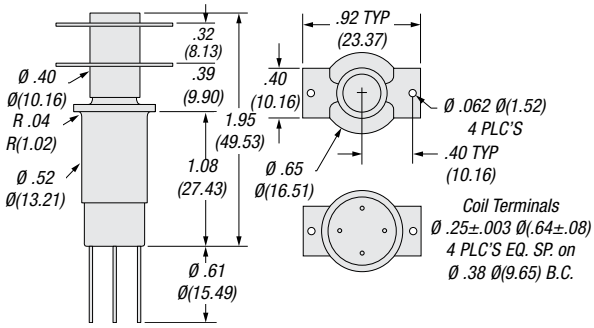
RF72-26S, RF72-N1105 and RF72-N1107

All three models —

Form: Latching

Flange Version Available:
Yes, please call to order



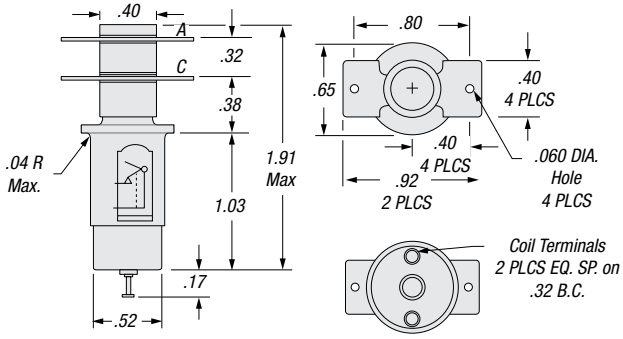


RF80-26S

Form: N/O

Flange Version Available:
Yes, please call to order



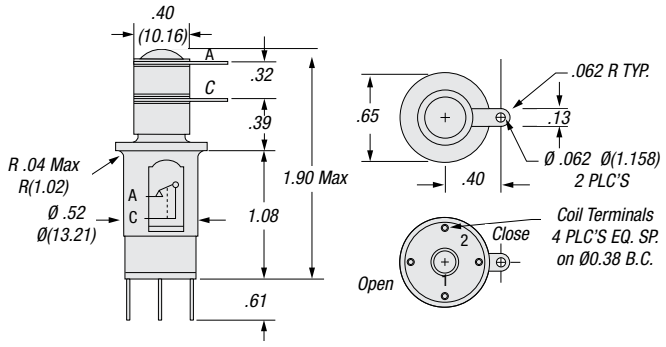


RF47-26S

Form: N/C

Flange Version Available:
Yes, please call to order





RF50, RF51, RF52, RF53 and RF73 Series

RF50, RF51, RF52, RF53 and RF73 Series SPST Vacuum Relays, 12–17.5kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RF50-26S†	12*	10	7	6	4	1.5	1.5	20	15	15	16	1–10	290	50	10 @ 55–2000 Hz	0.5	1 (28)
RF51-26S†		12	10	6	5												
RF73-26S	14	12 35	12 35	9 25	7 15	1.2	1.2	8**	4	4	16*	1–10*	47	30	10 @ 55–2000 Hz	5	1.5 (43)
RF52-26S	17.5	12	12	9	7	0.8	0.8	20	15	15	16	1–10	290	30	10 @ 55–500 Hz	1	1 (28)
RF53-26S		15	12	6	4												

† *Can be used for hot switch applications.*

* *2kV achieved in insulating medium: fluorocarbon liquid or tightly adherent and void-free encapsulant.*

12VDC coil versions available; please contact factory for lead times. For available flange versions, the flange diameter is 1.125".

** *Please contact Jennings Technology for lower/different values.*

RF50-26S†

Form: N/C

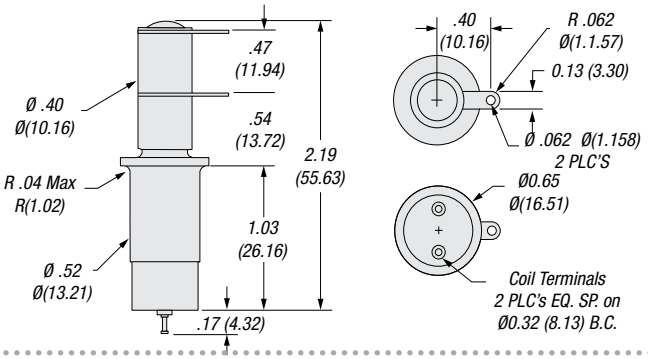
Flange Version Available:
RF50D-26S

RF51-26S†

Form: N/O

Flange Version Available:
RF51D-26S



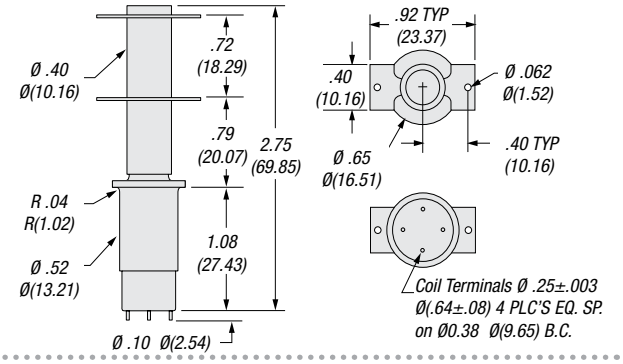


RF73-26S

Form: Latching

Flange Version Available:
Yes, please call to order





RF52-26S

Form: N/C

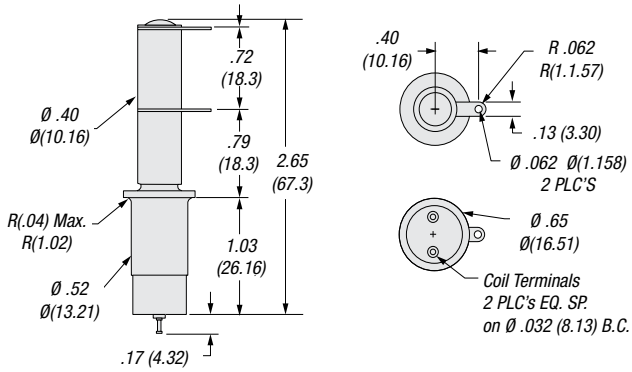
Flange Version Available:
RF52D-26S

RF53-26S

Form: N/O

Flange Version Available:
RF53D-26S





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High-Voltage Vacuum and Gas-Filled Relays

RF69 and RJ8A Series

RF69 and RJ8A Series SPST Vacuum Relays, 24–33kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RF69-26S	24	12 15	— —	— —	— —	2.5	2.5	40	15	15	18	1–10	290	30	.06 @ 55–500 Hz	2	3 (85)
RJ8A-26S	33	28 110	25 60	12 40	10 30	1.3	1	3	18	8	16	1–10	120	30	10 @ 55–500 Hz, 5 @ 500–2000 Hz	2	10 (283)

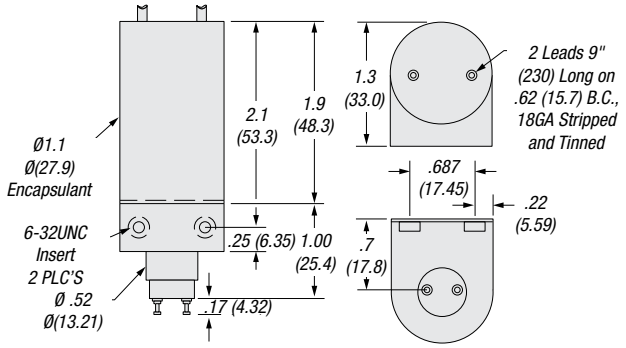
12VDC coil version available for model RF69-26S; please contact factory for lead times.
For available flange versions, the flange diameter is 1.125".

RF69-26S

Form: N/C

Equipped with integral flange



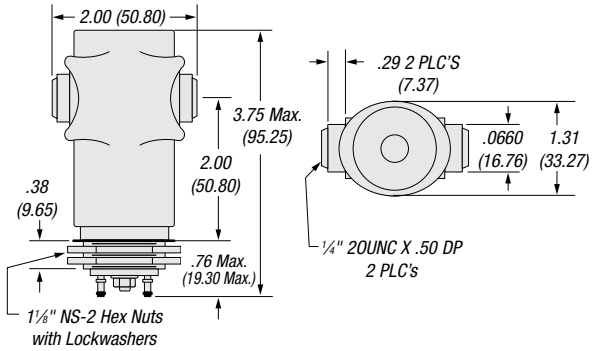


RJ8A-26S

Form: N/O

Flange Version Available:
None





RF1E, RF60 and RF61 Series

RF1E, RF60 and RF61 Series SPDT Vacuum Relays, 4kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) / MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RF1E-26S	4	2 8	2 6	2 4	2 2	1.6	2	30	10	10	16	1–10	920	30	10 @ 55–2000 Hz	10	1 (28)
RF60-26S	4	3.6 12	3.6 10	3.2 6	2.5 5	1.6	1.6	20	7	7	18	1–12	47	50	10 @ 55–2000 Hz	0.5	1 (28)
RF61-26S	4	3.6 10	3.6 8	3.2 7	2.5 5	1.6	1.6	20	10	10	16	1–10	290	50	10 @ 55–2000 Hz	0.5	1 (28)

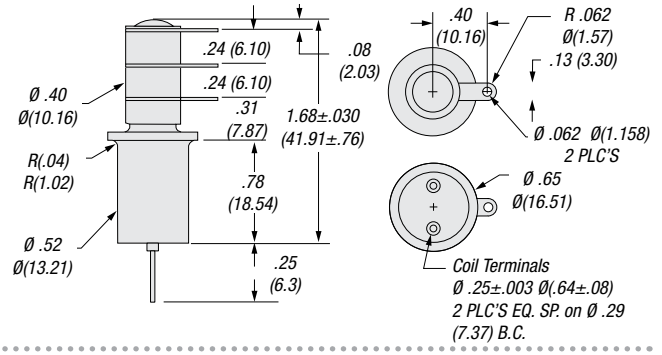
12VDC coil versions available; please contact factory for lead times. For available flange versions, the flange diameter is 1.125".

RF1E-26S

Form: SPDT

Flange Version Available:
RF1D-26S



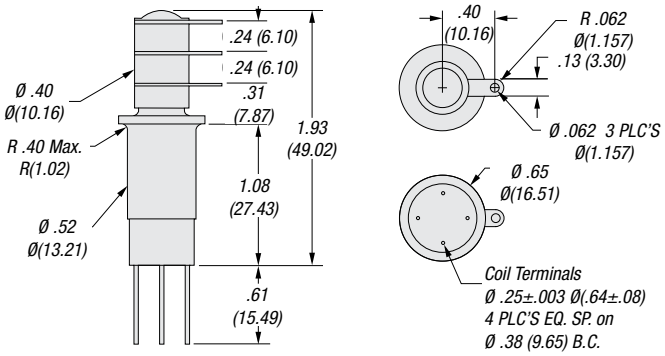


RF60-26S

Form: Latching

Flange Version Available:
RF60D-26S



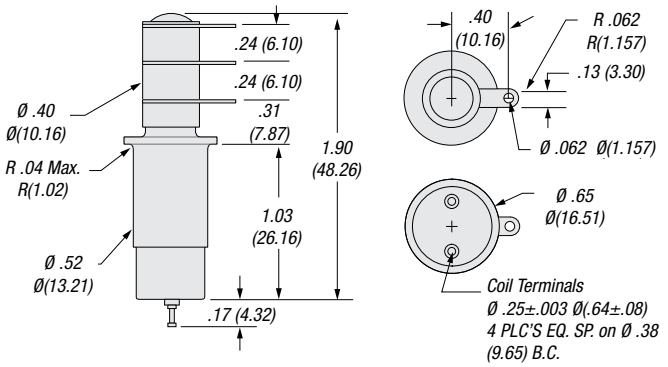


RF61-26S

Form: SPDT

Flange Version Available:
RF61D-26S





RJ1A, RJ1H, RJ1C and RJ1D Series

RJ1A, RJ1H, RJ1C and RJ1D Series SPDT Vacuum Relays, 5–7kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RJ1A-26S	5	3.5 18	2.5 14	2 9	1.5 7	2	2.5	10	8	8	16	1–10	335	50	10 @ 55–2000 Hz	2	1 (28)
RJ1H-26S† **RJ1H-26N877†**	5	2.5 3	Hot Break Hot Break		— —	2	2.5	30	6	6	16	1–10	335	50	10 @ 55–2000 Hz	2 1	1 (28)
RJ1C-26S†* **RJ1D-15S†***	6 7 7	6 7 18	Hot Break Hot Break		— —	2	2.5	20	6	6	14 10	1–10 0.7–7	335 85	50	20 @ 35–60 Hz, 40 @ 60–125 Hz, 30 @ 125–550 Hz	1	1 (28)

12 or 115VDC coil versions available; please contact factory for lead times.

For available flange versions, the flange diameter is 1.125".

† Can be used for hot switch applications.

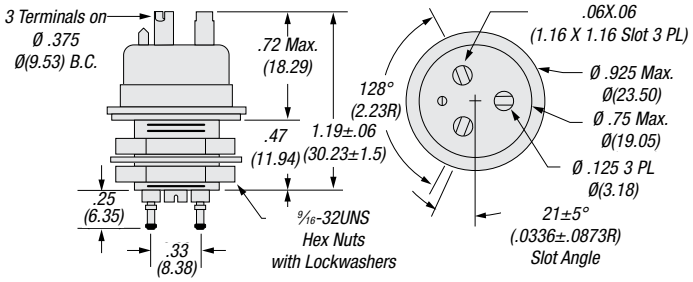
** Units to be encapsulated by customer, extended vibration profile, HiPot in insulating fluid.*

RJ1A-26S

Form: SPDT

Flange Version Available:
None





RJ1H-26S†

Form: SPDT

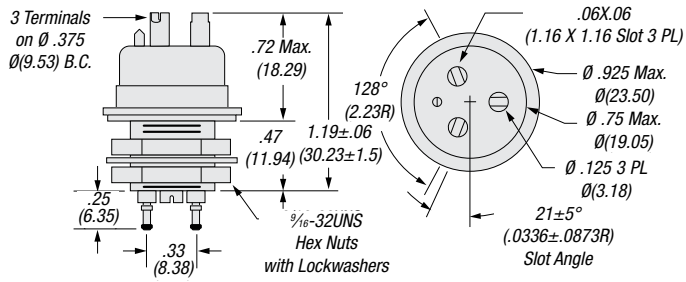
Flange Version Available:
None

RJ1H-26N877†

Form: SPDT

Flange Version Available:
None





RJ1C-26S†*

Form: SPDT

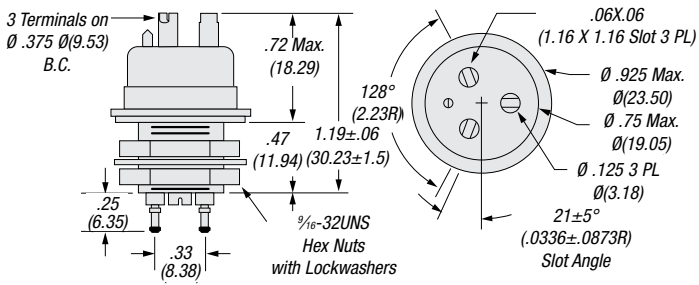
Flange Version Available:
None

RJ1D-15S†*

Form: SPDT

Flange Version Available:
None





High-Voltage Vacuum and Gas-Filled Relays

RF62, RF65, RF63 and RF3A Series

RF62, RF65, RF63 and RF3A Series SPDT Vacuum Relays, 9–10kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10⁶ CYCLES)	WEIGHT, OZ. (GRAMS)
RF62-26S	9	7	7	6	4	1.6	1.1	20	10	10	16	1–10	290	50	10 @ 55–2000 Hz	1	1 (28)
RF65-12S		10	10	6	5						8	1–5	48				
RF63-26S	9	7	7	6	4	1.6	1.1	20	10	10	16	1–10	47	50	10 @ 55–2000 Hz	1	1 (28)
		10	10	6	5												
RF3A-26S	10	8	7	6	5	4	2.5	15	18	18	16	1–10	156	50	10 @ 55–2000 Hz	1	2 (56)
		30	25	15	10												

12VDC coil versions available; please contact factory for lead times. For available flange versions, the flange diameter is 1.125".

RF62-26S

Form: SPDT

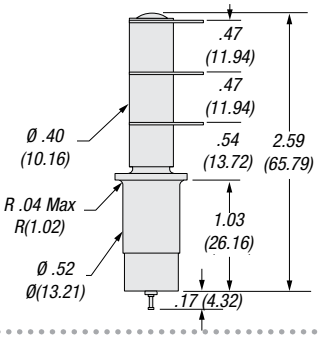
Flange Version Available:
RF62D-26S

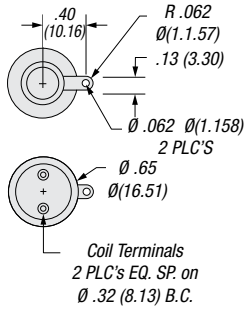
RF65-12S

Form: SPDT

Flange Version Available:
RF65D-12S





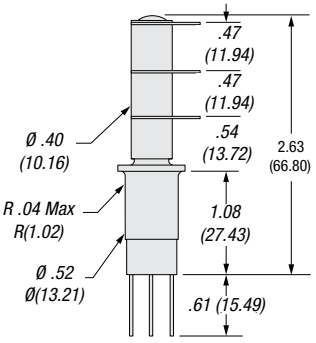


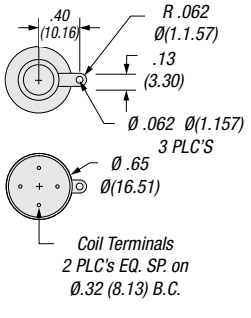
RF63-26S

Form: Latching

Flange Version Available:
RF63D-26S





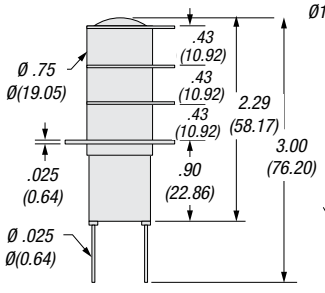


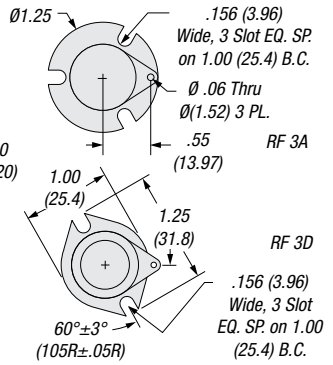
RF3A-26S

Form: SPDT

Equipped with integral flange







RJ1A, RJ2B and RJ6B Series

RJ1A, RJ2B and RJ6B Series SPDT Vacuum Relays, 10–15kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RJ1A-26N696	10	8 18	— —	— —	— —	2	2.5	10	8	8	16	1–10	335	50	10 @ 55–2000 Hz	2	1 (28)
RJ2B-26S† **RJ6B-26S†**	15	12 50	10 30	8 17	6 10	0.5 1	1 1.5	12	18	9	16	1–10	270	50	10 @ 55–500 Hz	1 25	3 (85)
RJ6B-26D3136†	15	12 50	10 30	8 17	6 10	1	1.5	12	18	9	16	1–10	270	50	10 @ 55–500 Hz	25	3 (85)

† *Can be used for hot switch applications.*

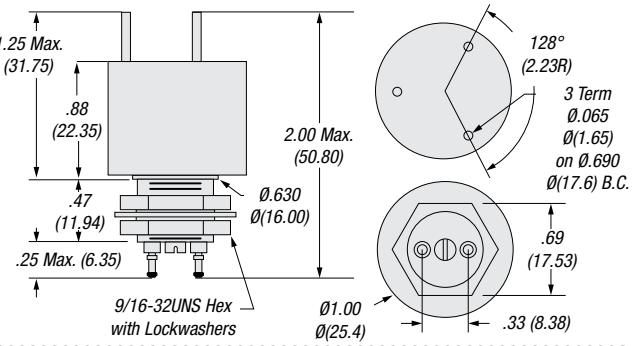
12 or 115VDC coil versions available; please contact factory for lead times.
For available flange versions, the flange diameter is 1.125".

RJ1A-26N696

Form: SPDT

Flange Version Available:
None





RJ2B-26S†

Form: SPDT

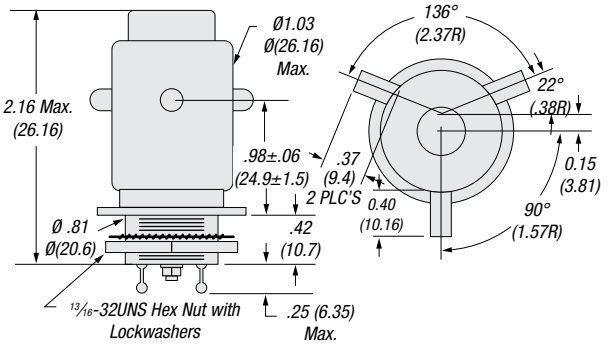
Flange Version Available:
RJ2C-26S

RJ6B-26S†

Form: SPDT

Flange Version Available:
RJ6C-26S



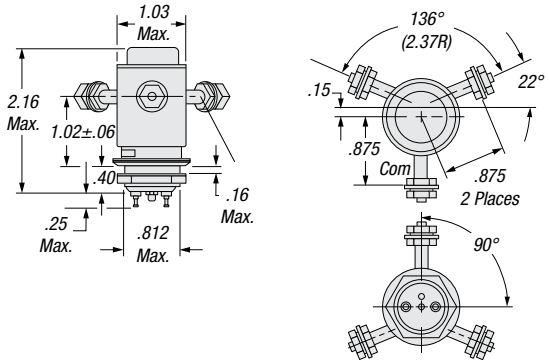


RJ6B-26D3136†

Form: SPDT

Flange Version Available:
RJ6C-26D3136





High-Voltage Vacuum and Gas-Filled Relays

RJ4B, RJ4C and RF10B Series

RJ4B, RJ4C and RF10B Series SPDT Vacuum Relays, 18–20kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RJ4B-26S†	18	15 50	12 30	10 17.5	6 10	0.5	1	12	18	9	14	1–10	270	30	10 @ 55–500 Hz	1	3 (85)
RJ4C-26S†	18	15 50	12 30	10 17.5	6 10	0.5	1	12	18	9	14	1–10	270	30	10 @ 55–500 Hz	1	3 (85)
RF10B-26S	20	15 75	13 22	10 15	7.5 12	1.8	1.5	12	30	12	16	1–10	225	30	5 @ 55–500 Hz	0.1	16 (453)

† *Can be used for hot switch applications.*

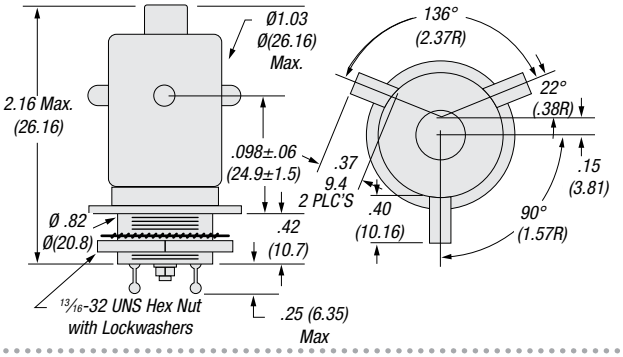
12 or 115VDC coil versions available for models RJ4B-26S and RJ4C-26S; please contact factory for lead times. For available flange versions, the flange diameter is 1.125".

RJ4B-26S†

Form: SPDT

Flange Version Available:
RJ4C-26S



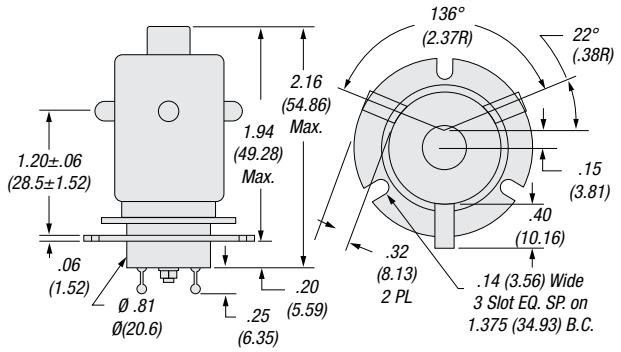


RJ4C-26S†

Form: Latching

Equipped with integral flange



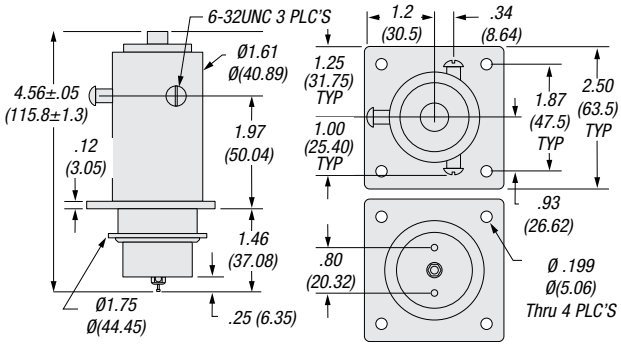


RF10B-26S

Form: SPDT

Equipped with integral flange





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RJ9B and RJ5B Series

RJ9B and RJ5B Series SPDT Vacuum Relays, 20–30kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10⁶ CYCLES)	WEIGHT, OZ. (GRAMS)
RJ9B-26S†	20	15 110	13 50	10 20	— —	3	3.5	10	30	8	16	1–10	190	50	10 @ 55–500 Hz	1	11 (312)
RJ5B-26S	30	25 10	— —	— —	— —	6	3	50	20	15	18	1–10	167	20	10 @ 55–500 Hz	1	12 (340)

12 or 115VDC coil versions available for model RJ5B-26S; please contact factory for lead times.

For available flange versions, the flange diameter is 1.125".

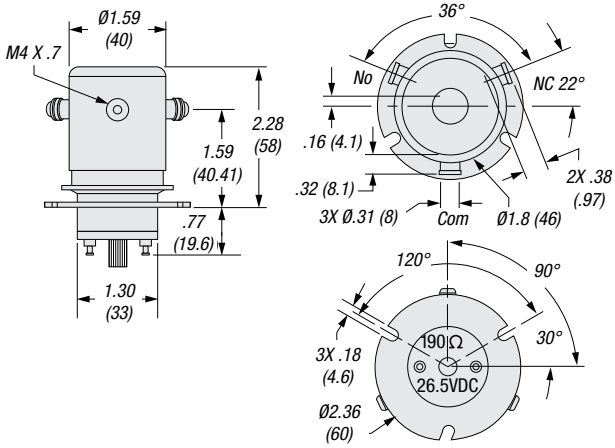
† *Can be used for hot switch applications.*

RJ9B-26S†

Form: SPDT

Equipped with integral flange



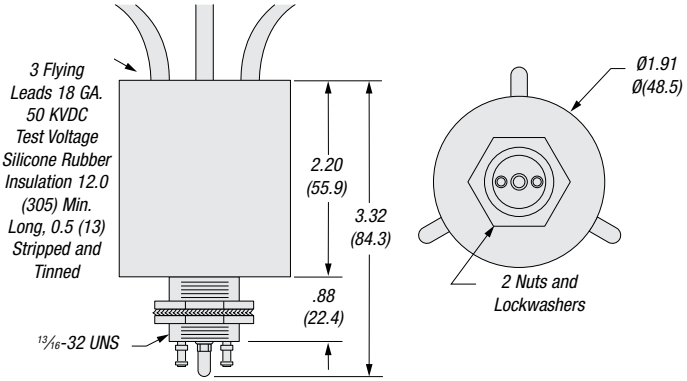


RJ5B-26S

Form: SPDT

Flange Version Available:
None





RGH5 and RGH3 Series

RGH5 and RGH3 Series Gas-Filled Relays, 50–70kV

CAT. NO.	TEST VOLTAGE (KV PEAK) 60 HZ	RATED OPERATING VOLTAGE (KV PEAK) / MAX CONT. CURRENT (AMPS) DC OR 60 HZ	2.5 MHZ	16 MHZ	32 MHZ	CONTACT CAPACITY (PF) OPEN CONTACT TO OPEN CONTACT	OPEN CONTACTS TO GROUND	MAX CONTACT RESIST. (MΩ)	MAX OPERATE TIME (MS)	MAX RELEASE TIME (MS)	PULL-IN VOLTAGE @ 25° C (VDC)	DROP-OUT VOLTAGE @ 25° C (VDC)	COIL RESISTANCE (Ω ±10%)	SHOCK, 11MS ½ SINE (PEAK G'S)	VIBRATION PEAK G'S @ FREQ.	MECHANICAL LIFE (10^6 CYCLES)	WEIGHT, OZ. (GRAMS)
RGH5-26S*	50	40 10	— —	— —	— —	6	3	500	20	15	18	1–10	167	20	10 @ 55–500 Hz	1	12 (340)
RGH3-24D2524*	70	70 15	— <—30 Make—>	— —	— —	1.5	1.5	1000	N/A	15	18	16	24	30	10 @ 55–500 Hz	5	16 (454)

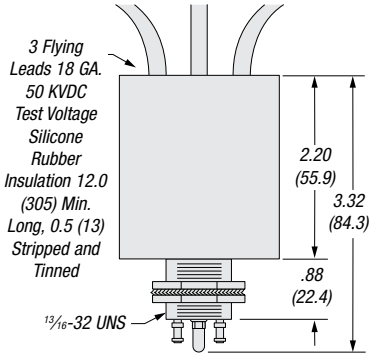
** Gas-filled relay, make-only load switching applications (CR measured at 28 VDC/1 amp).*

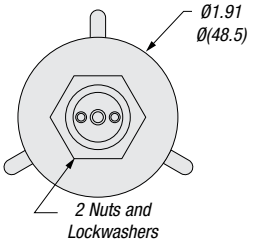
RGH5-26S*

Form: SPDT

Flange Version Available:
None





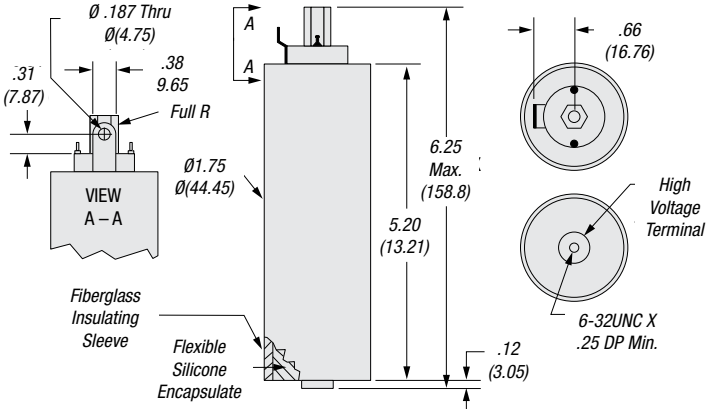


RGH3-24D2524*

Form: SPST N/C

Flange Version Available:
None





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High-Voltage Vacuum Coaxial Relays

RC21 Series

RC21 Series Vacuum Coaxial Relays, 90kW

CAT NO.	POWER RATING*	FREQUENCY RANGE	CHARACTERISTIC IMPEDANCE Ω	VSWR	CROSSTALK	INSERTION LOSS	COIL RESISTANCE (Ω ±10%)	ACTUATOR COIL CONNECTION	CONTACT CONFIG.	INPUT/OUTPUT LINE SIZE	ACTUATION	ACTUATING VOLTAGE	POSITION INDICATORS	OPERATE. TIME**	WEIGHT, LB. (KG)
RC21A5510F14B	90 kW CW @ 30 MHz 2 MW Peak Spec. Order	0–500 MHz	50	1.15:1 Max. @ 500 MHz	Greater than 60 dB isolation @ 30 MHz	0.01 dB Max.	4.8	MS receptacle	SPDT	3.125"	Permanent magnet latching, electrical or manual	26.5VDC Auto De-energize	DPDT Aux. Contacts and Visual Indicator	50 msecs. Max.	14 (6.35)

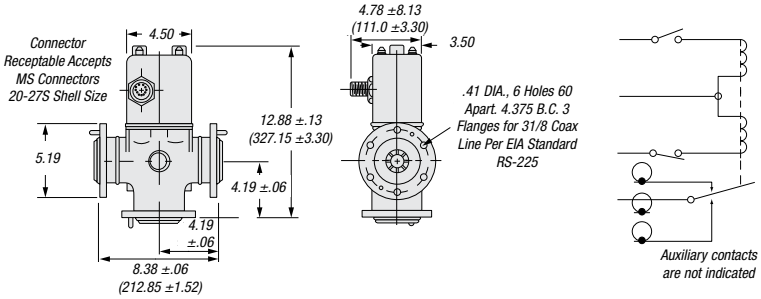
** This power rating is for the frequency at which the relay is most commonly used.*

*** Faster operating times can be obtained on most units by coil pulse circits. Please contact us for details.*

RC21

Form: SPDT





RC26 and RC27 Series

RC26 and RC27 Series Vacuum Coaxial Relays, 90kW

CAT NO.	POWER RATING*	FREQUENCY RANGE	CHARACTERISTIC IMPEDANCE Ω	VSWR	CROSSTALK	INSERTION LOSS	SERVICE LIFE	MAX. OPERATING ALTITUDE	COIL VOLTAGE (V ±10%)	COIL CURRENT	COIL RESISTANCE	COIL CURRENT DURATION	AUX. SWITCH RATING	AMBIENT TEMP. RANGE	MAX. OPERATE TEMP.	PRESSURIZATION	NORM. OPERATE PRESSURE	WEIGHT, LB. (KG)
RC265552G24F	90 kW CW @ 30 MHz 2 MW Peak Spec. Order	0–600 MHz	50	1.1:1 Max. to 400 MHz	Greater than 60 dB isolation @ 30 MHz	0.01 dB Max.	15,000 operating hours min.	35,000 feet	26	5 amps max. per coil	19 Ω nominal	2 sec. max. 22 msec. min.	5 amps resistive	-55° C to +85° C	+71° C	45 PSIA Dry Air	31± 1.5 PSIA Dry Nitrogen	14 (6.35)
RC275576G24F																		13 (5.9)

** This power rating is for the frequency at which the relay is most commonly used.*

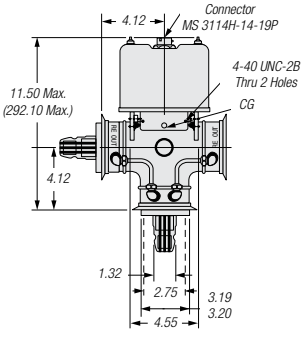
*** Faster operating times can be obtained on most units by coil pulse circits. Please contact us for details.*

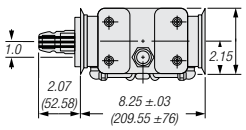
RC26

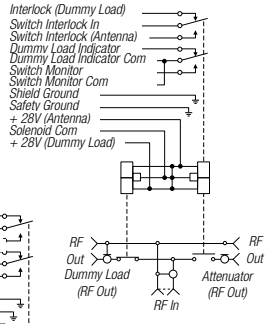
Switch Assembly

Form: SPDT







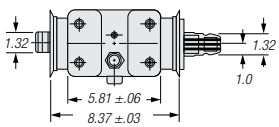


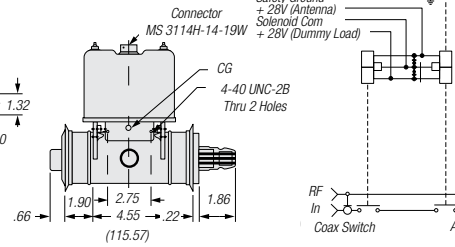
RC27

Attenuator

Form: SPST







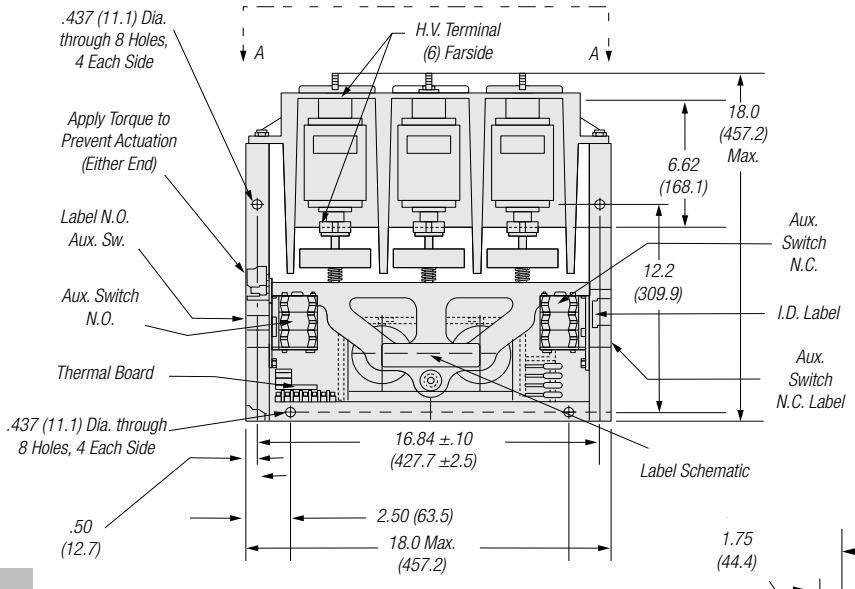
RP173 Three-Phase Vacuum Contactors

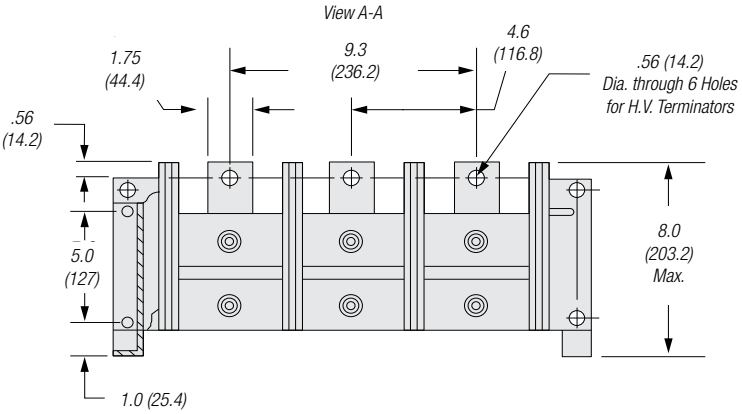
Measuring 18"H x 18"W x 8"D and weighing less than 67 lbs., the Jennings RP173 Three-Phase Vacuum Contactor is built tough to work in a variety of heavy-duty applications. Able to withstand the frequent switching required to control furnaces and large motors, this contactor can also be used to switch power transformers and capacitor banks for voltage regulation and power factor correction as a means of reducing operating costs. It is ideal for use in motor controllers that operate production and processing equipment, mining and petroleum equipment, earth movers and conveyors, power shovels and all types of industrial loads. Using a trio of vacuum interrupters, the three-phase unit provides a short contact-to-contact gap required to interrupt the circuit for highly reliable operation. The contact materials are rated for 7.2kV, 600-amp load life and 6000-amp fault current.



Features

- Sealed main contacts provide a minimum of 1 million maintenance-free open and close operations
- Reliable operation in harsh temperature extremes ranging from -20° C to 70° C
- Versatility for use with heavy-duty motors, power equipment and motor controllers





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Vacuum Contactors

Voltage Ratings	
Maximum Three-Phase Line (kV)	1.5, 2.5, 5.0, 7.2
Dielectrics 50/60/400 Hz, 60-Second Withstand	
— Line-to-Ground (kV RMS)	30
— Line-to-Line (kV RMS)	30
— Across Open Contacts (kV RMS)	30
BIL, 1.2 x 50 µsec Impulse	
— Line-to-Ground Peak (kV)	20
— Line-to-Line Peak (kV)	20
Current Rating	
Continuous (Amps RMS)	450/600
Load-Switching (Amps RMS)	450
— Capacitors (grounded neutral)	2000kVAR @ 4.16kV
— Motors	5000 HP @ 7.2kV
— Transformers	5000kVA @ 7.2kV
Making Current (Random Make)	
— 100 Times @ 7.2kV with 3-Second Backup (kA RMS)	4.5
— 10 Times @ 7.2kV with Current-Limiting Fuse (kA)	55 peak
— 100 Times @ 5.0kV with 3-Second Backup (kA RMS)	6
Minimum Load Life @ 600-amps RMS	1 million open/close operations
Interrupt (Amps RMS @ 5.0kV)	6000
Actuator	
Control Voltage	
— RP173-2310-XX	115VAC, 50/60 Hz or 110VDC
— RP173-2311-XX	230VAC, 50/60 Hz or 220VDC
Control Current	3.3 pull-in amps, 0.5 hold-in amp
Auxiliary Contacts Configuration	2 N/C, 3 N/O, SPST double break, 10 amps resistive @ 600VAC
Mechanical	
Weight (lb.)	67 max.
Release Time (msec.) from Control Switch Off to Separation of Main Contacts	100 max.
Mounting	Operates in any position

RP173 Three-Phase Vacuum Contactors

CAT. NO.	MOUNTING OPTION	ACTUATOR VOLTS	LINE-TO-LINE VOLTAGE (RMS)
RP173-2310-00	Standard	115VAC/110VDC	7200
RP173-2310-01*	Standard	115VAC/110VDC	7200
RP173-2311-00	Standard	230VAC/220VDC	7200
RP173-2311-01†	Standard	230VAC/220VDC	7200
RP173-2314-00	View A-A 180°	115VAC/110VDC	7200
RP173-2315-00**	View A-A 180°	115VAC/110VDC	7200

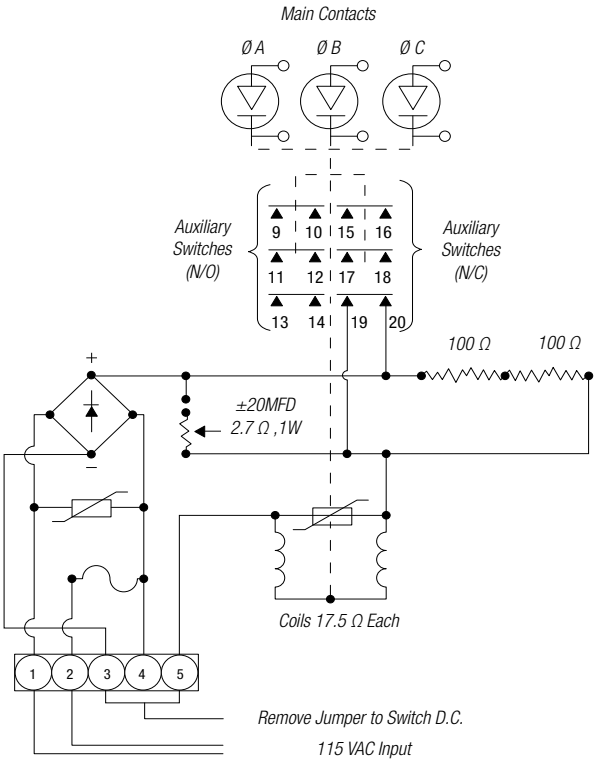
** Includes ruggedized frame.*

† Includes contact-wear indicator line.

*** Modified for slower release time.*



Units Shown in De-Energized Position RP173-2310-XX Shown.



Vacuum Contactors

RP133 Three-Phase Vacuum Contactors

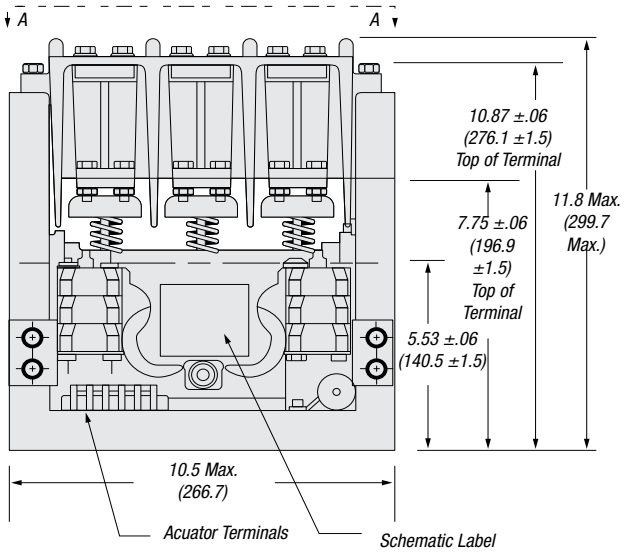


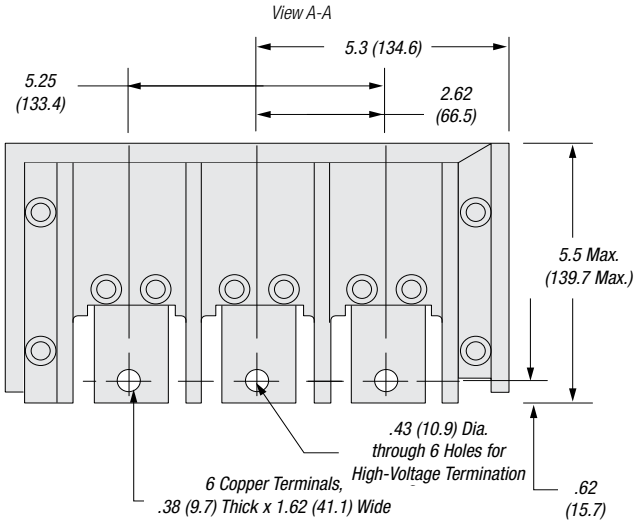
The Jennings RP133 Vacuum Contactor may be small — only 11.8"H x 10.5"W x 5.5"D — and weigh less than 30 pounds, but it can take on requirements of the most demanding equipment. Using a trio of vacuum interrupters, the three-phase unit provides a short contact-to-contact gap required to interrupt the circuit for highly reliable operation. The contact materials are rated for 1.5kV, 450-amp load life and 4500-amp fault current.

Designed to withstand the frequent switching required to control furnaces and large air conditioning motors, the RP133 is commonly used to protect power transformers and DC power supplies. Use it to switch capacitor banks for voltage regulation and power factor correction as a means of reducing operating costs. Reliable and durable, the RP133 can also be used in motor controllers that operate production and processing equipment, mining and construction equipment, earth movers or carriers, power shovels, rock crushers and conveyors.

Features

- Sealed main contacts provide a minimum of 1 million maintenance-free open and close operations
- Reliable operation in harsh temperature extremes ranging from -20° C to 70° C
- Versatility for use with heavy-duty motors, power equipment and motor controllers





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Vacuum Contactors

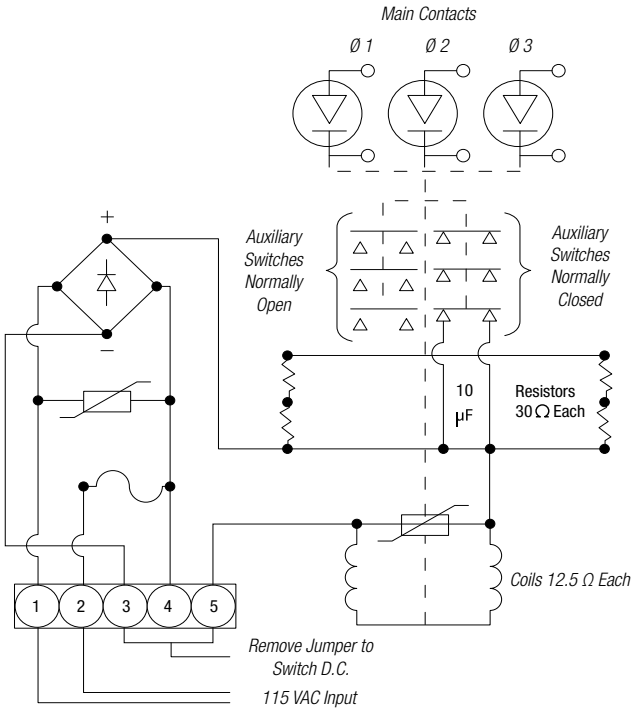
Voltage Ratings	
Maximum Three-Phase Line (V & kV)	600 and 1.5
Dielectrics 50/60/400 Hz, 60-Second Withstand	
— Line-to-Ground (kV RMS)	6.5
— Line-to-Line (kV RMS)	6.5
— Across Open Contacts (kV RMS)	6.5
BIL, 1.2 x 50 µsec Impulse	
— Line-to-Ground Peak (kV)	20
— Line-to-Line Peak (kV)	20
— Across Open Contacts (kV)	20
Current Rating	
Continuous (Amps RMS)	450
Load-Switching (Amps RMS)	450
— Capacitors	750kVAR @ 1.5kV
— Motors	750 HP @ 1.1kV
Making Current (Random Make)	
— 100 Times @ 1.5kV with 3-Second Backup (kA RMS)	4.5
— 10 Times @ 1.5kV with Current-Limiting Fuse (kA)	28 peak
— 100 Times @ 1.5kV with 3-Second Backup (kA RMS)	6
Minimum Load Life @ 450 amps RMS	1 million open/close operations
Interrupt (Amps RMS @ 1.5kV)	4500
Actuator	
Control Voltage	115VAC, 50/60 Hz or 110VDC
Control Current	7.1 pull-in amps, 0.9 hold-in amps
Auxiliary Contacts Configuration	2 N/C, 3 N/O, SPST double break, 10 amps resistive @ 600VAC
Mechanical	
Weight (lb.)	30 max.
Release Time (msec.) from Control Switch Off to Separation of Main Contacts	16 max.
Mounting	Operates in any position

RP133 Three-Phase Vacuum Contactors

CAT. NO.	MOUNTING OPTION	ACTUATOR VOLTS	LINE-TO-LINE VOLTAGE (RMS)
RP133-2332-00	2332	115VAC/110VDC	1500
RP133-2332-01	2332	115VAC/110VDC	3300
RP133-2334-00	2334	100VDC	1500
RP133-2335-00	2335	115VAC/110VDC	1500



Units Shown in De-Energized Position



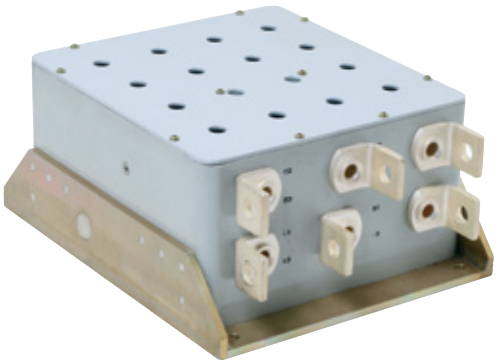
Vacuum Contactors

RP151B Three-Phase Vacuum Contactors

The Jennings RP151B Three-Phase Vacuum Contactor is a compact, normally open, three-phase device for use in equipment that requires a high-speed interrupt. It is useful as an overload interrupter to 2000 amps RMS interrupting capacity. Special erosion-resistant contacts provide an operational load life of 250,000 maintenance-free operations at the rated 200-amp current.

Features

- Erosion-resistant contacts provide a minimum of 250,000 operations for long, maintenance-free life
- 2000 amps RMS interrupting capacity — ideal for use in an overload interrupter
- Three-phase, normally open operation provides high-speed interrupt

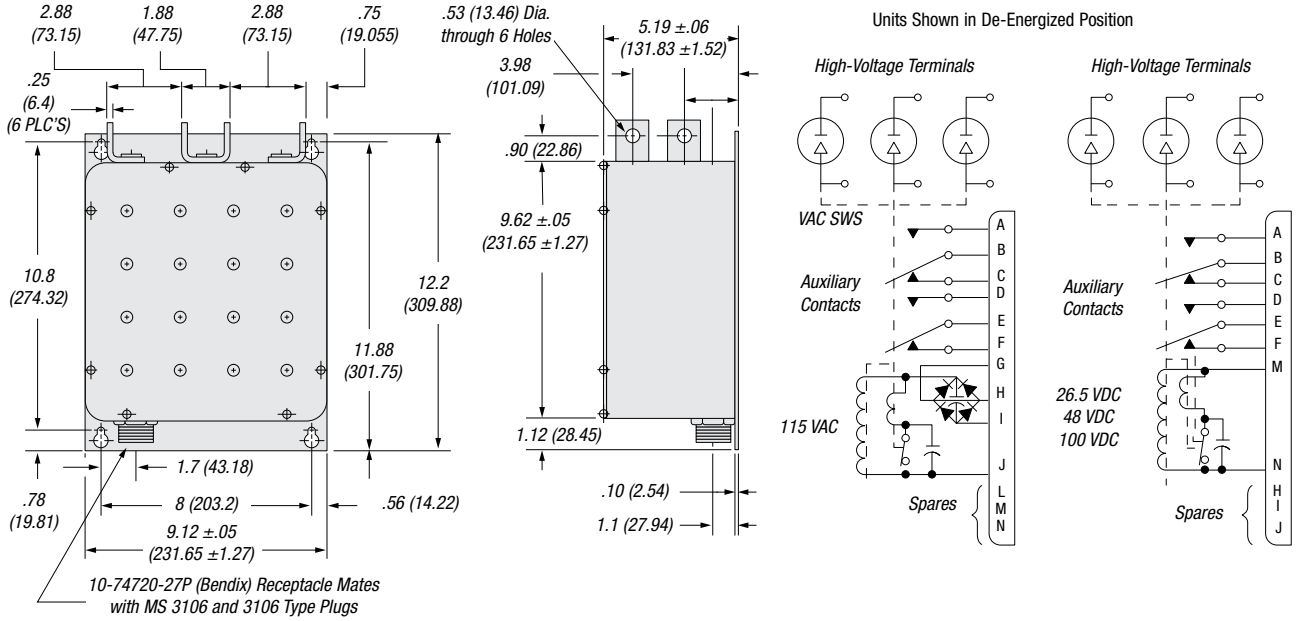


Mechanically shock-hardened version available as shown

Voltage Ratings	
50/60/400 Hz (V)	600
Current Rating	
Continuous (Amps RMS)	200
Maximum Interrupting Current (Amps)	2000
Minimum Load Life	250,000 operations
Interrupt	Less than 2 cycles
Auxiliary Contacts Configuration	DPDT, 115/230VAC, 8 Amps

RP151B Three-Phase Vacuum Contactors

CAT. NO.	MOUNTING OPTION	VOLTAGE	PULL-IN CURRENT (AMPS)	HOLD CURRENT (AMPS)
RP151B4541X44R20	4541	26.5VDC	4.0	0.40
RP151B4541X46R20	4541	100VDC	1.5	0.05
RP151B4541X47R20	4541	115VAC	1.5	0.05
RP151B4541X4XR20	4541	50VDC	2.1	0.17
RP151B4548X46R20	4548	100VDC	1.5	0.05



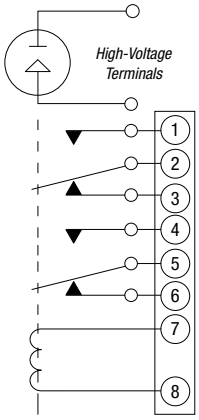
Thomas&Betts

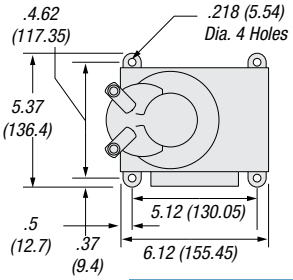
Jennings Technology
Sales and Technical Support
Tel: 408.292.4025

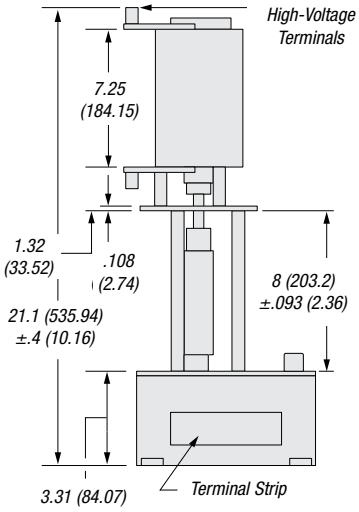
www.tnb.com

RP101F, RP901K and RP900K SPST High-Voltage AC/DC Contactors

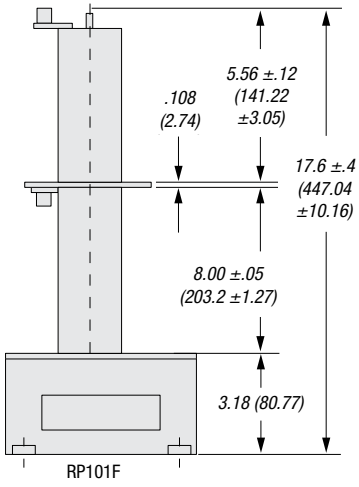
These contactors feature a vacuum interrupter and an actuator linked together by an insulated actuating rod. The contactors provide all of the operating advantages of vacuum interrupting plus the benefits of a matching actuator-solenoid motor. They offer a minimum of 100,000 operations and are ideal for use in high-power broadcast transmitters.



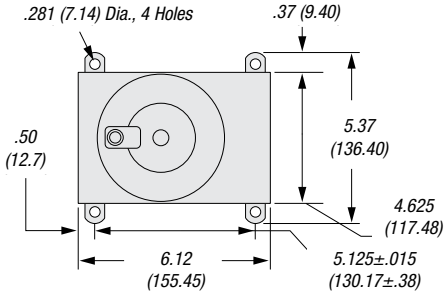





RP900K



RP101F



VOLTAGE RATINGS	RP101F	RP901K	RP900K
Test Voltage (kV Peak)	50	70	70
Rated Voltage (kV Peak)*	30	50	50
Current Rating			
Continuous (Amps RMS)	100 DC	200 DC	200 RMS
Maximum Interrupting Current (Amps)	—	—	4000
Maximum Interrupt DC Power (kW)	500 (10 amps max.)	500 (10 amps max.)	—
Specifications			
Capacitor Discharge Decaying to 0 in 200µs (kA)	50	100	100
Contact Resistance (Micro Ohms)	200	500	200
Contact Capacity (pF)	4.5	5.5	5.5
Contact Inductance (nH)	32	45	45
Mechanical Life (operations)	100,000	100,000	100,000
Auxiliary Contacts	DPDT	DPDT	DPDT
Auxiliary Contact (Volts AC RMS)	230	230	230
Auxiliary Contact Current (Amps RMS)	15	15	15

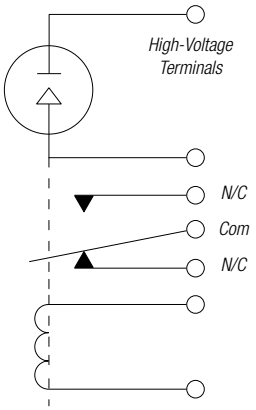
* Derate to 15.5kV RMS for 50/60 Hz Cycle Power.

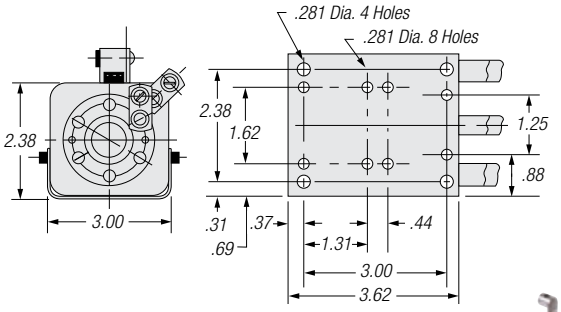
RP101F, RP901K and RP900K SPST High-Voltage AC/DC Contactors

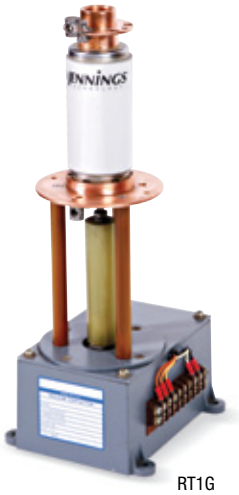
CAT. NO.	CONTACT ARRANGEMENT	INSULATOR LENGTH	ACTUATOR (VOLTS)	PULL-IN CURRENT (AMPS)	HOLD CURRENT (AMPS)	HOLD POWER (WATTS)	TIME TO CLOSE (MSEC)	BREAK TIME (MSEC)
RP101F4903D21B20	N/O	6	115VAC	5.20 RMS	0.54 RMS	18.0	46	26
RP101F4304D26B20	N/C	6	100VDC	15.00 DC	0.07 DC	7.0	36	30
RP101F4903A21B20	N/O	2	115VAC	5.20 RMS	0.54 RMS	18.0	46	26
RP101F4903D2KB20	N/O	6	110VAC/50 Hz	3.00 RMS	0.30 RMS	17.0	46	26
RP901K4903D21B30	N/O	6	115VAC/60 Hz	5.20 RMS	0.54 RMS	18.0	60	50
RP900K4903D21B30	N/O	6	115VAC	5.20 RMS	0.54 RMS	18.0	25	46
RP900K4904D21B30	N/C	6	115VAC	5.20 RMS	0.54 RMS	18.0	40	70
RP900K4903D2LB30	N/C	6	220VAC/50 Hz	2.50 RMS	0.35 RMS	12.0	40	70
RP900K4601D26B3C	N/O	6	100VDC	3.75 DC	0.14 DC	14.3	18	7
RP900K4602D26B30	N/C	6	100VDC	3.75 DC	0.20 DC	20.0	23	14
RP900K4315E26B30	N/O	8	100VDC	1.50 DC	0.07 DC	7.0	80	10
RP900K4665XX6B30	N/C	NA	100VDC	3.75 DC	0.20 DC	20.0	40	12
RP900K4667DX6B30	N/O	6	100VDC	5.20 DC	0.14 DC	15.9	18	7
RP900K4803D25B30	N/O	6	48VDC	2.00 DC	0.14 DC	7.0	40	100
RP900K4803D26B30	N/O	6	100VDC	1.60 DC	0.07 DC	7.0	40	100
RP900K4903C2KB20	N/C	4	115VAC/50 Hz	5.10 RMS	0.70 RMS	19.0	26	46

Vacuum Contactors

RT1G and RT8A SPST High-Voltage Vacuum Contactors







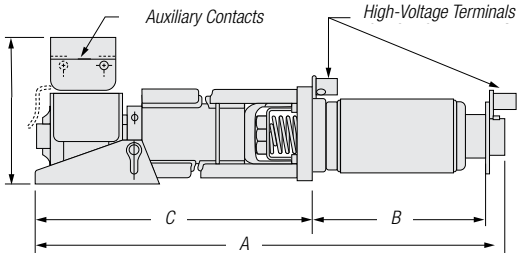
RT1G



RT1G

Type SPST (N/O and N/C)

TYPICAL MODEL	RT1G	RT8A
Insulation	4" – 55 kV	6" – 75 kV
Dimension A ± 0.19	13.53	18.91
Dimension B ± 0.13	5.00	8.38
Dimension C ± 0.06	8.03	10.03

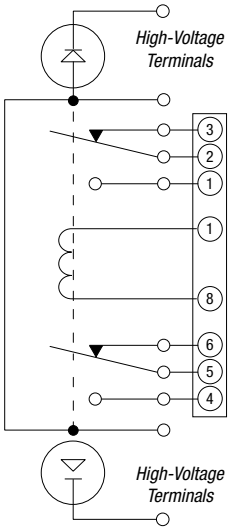


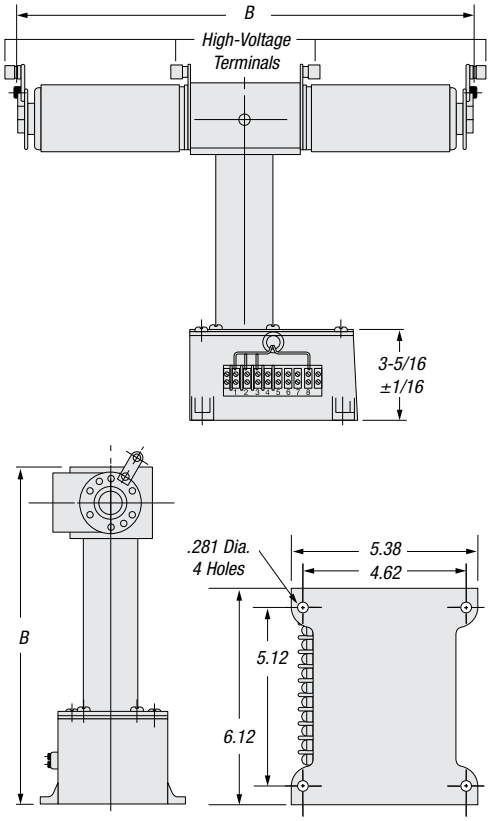
RT1G and RT8A SPST High-Voltage Vacuum Contactors

CAT NO.	CONTACT ARRANGEMENT	OPERATING VOLTAGE (KV PEAK)	CONTINUOUS CURRENT (AMPS)	MAX. INTERRUPT AC CURRENT (AMPS RMS)	MAX. INTERRUPT DC POWER (KW)	CAPACITOR DISCHARGE 0 IN 200 μSEC. (AMPS)	MAX. CONTACT RESISTANCE (MΩ)	APPROX. CONTACT CAPACITY (PF)
RT1G4202C21A10	N/C	20	100	500	100	1000	3.00	3.5
RT1G4201C22A10	N/O	20	100	500	100	1000	0.01	3.5
RT8A4201D22A10	N/O	40	100	2000	100	3000	0.30	2.5
RT8A4202D22A10	N/C	40	100	2000	100	3000	0.30	2.5
RT1G4401E21B10*	SPDT	20	100	500	100	1000	3.00	3.5
RT8A4401D21B10*	SPDT	40	100	1000	100	3000	0.30	2.5

** To order latching models, change 4401 to 4402 in Catalog Number.*

Vacuum Contactors







RT8A

Type SPDT

TYPICAL MODEL	RT1G	RT8A
Insulation	6" – 80kV	6" – 80kV
Dimension A ± 0.4	14.8	14.8
Dimension B ± 0.5	16.2	23.0

ACTUATOR VOLTAGE AT 50/ 60 HZ (VAC)	PULL-IN CURRENT (AMPS)	HOLD CURRENT (AMPS)	HOLD POWER (WATTS)	TIME TO CLOSE (MSEC)	BREAK TIME (MSEC)	MECH. LIFE (OPERATIONS)	WEIGHT (LBS.)	AUXILIARY CONTACTS NO. & TYPE	AUXILIARY CONTACT VOLTAGE (VAC RMS)	AUXILIARY CONTACT CURRENT (AMPS RMS)
115	2.5	0.5	17	60	25/30	100,000	2	1 SPDT	115	15
230	1.2	0.2	17	60	25/30	100,000	2	1 SPDT	230	15
230	1.2	0.2	17	60	25/30	100,000	4	1 SPDT	230	15
230	1.2	0.2	17	60	25/30	100,000	4	1 SPDT	230	15
115	2.5	0.5	17	60	25	100,000	8	2 SPDT	115	15
115	2.5	0.5	17	90	90	100,000	10	2 SPDT	115	15

High-Voltage Vacuum RF Contactors



Jennings High Voltage Vacuum RF Contactors

RF Switching

The use of a vacuum as a contact environment provides increased operating reliability and ensures long life. Low contact resistance is maintained even when high current causes overheating or arcing occurs.

The high dielectric strength of a vacuum and its very fast recovery after arcing are features that manifest themselves in the small size of the vacuum contactor. Only slight contact separation is required to withstand high voltages. The limited contact movement results in a small contactor size. This reduction in overall size makes available RF switchgear with low inductance and low capacitance.

Applications

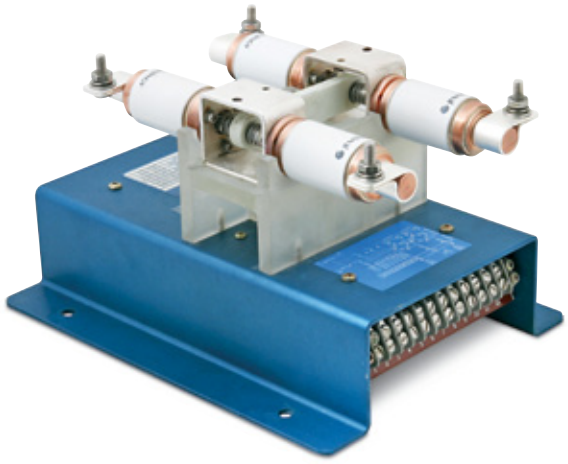
Vacuum contactors are commonly used in the MF and RF bands to handle currents ranging from 20 to several hundred amps. Typical applications include band switching of transmitters, switching filter sections and antenna multicoupler, antenna reflector switching, tap changing of RF coils used in induction and dielectric heating RF generators and switching of transmission lines.

Jennings Technology
Sales and Technical Support
Tel: 408.292.4025

Vacuum Contactors

RT22-4070-A317B and RT22-4070-A31NB

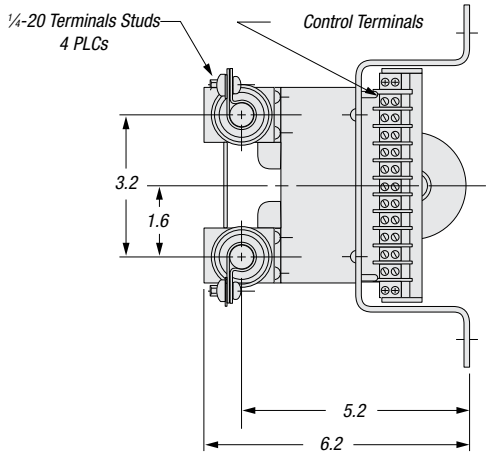
RT22-4070-A317B and RT22-4070-A31NB are vacuum contactors with DPDT contact arrangements. These units can also be used as SPDT contactors by wiring the contacts in parallel. These contactors are commonly used in antenna switching for high-power RF circuits, such as those encountered in transmitters.

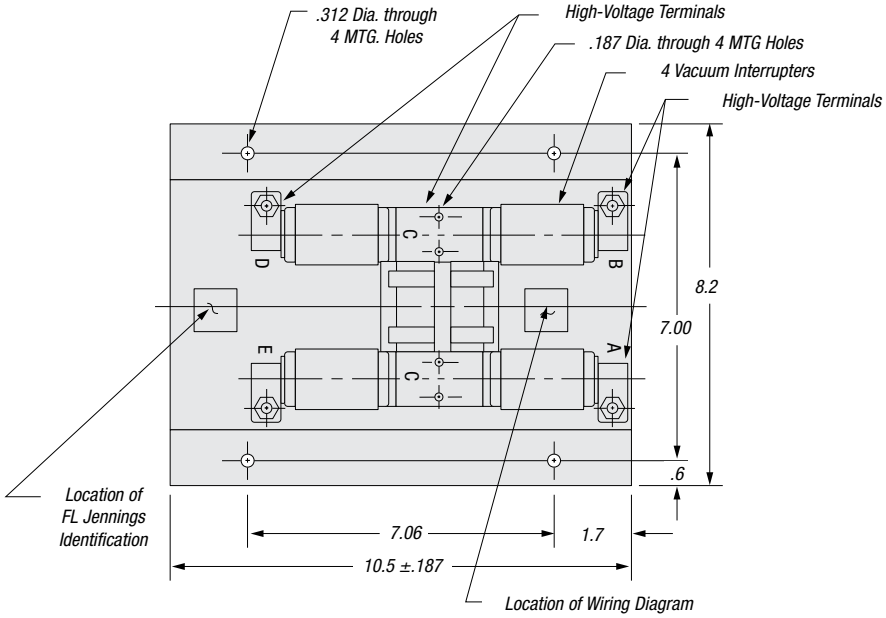


Voltage Ratings	**RT22-4070-A317B**	**RT22-4070-A31NB**
Rated Voltage (kV Peak) @ 2 MHz	22	22
Operating Voltage (VACR RMS) @ 50/60 Hz	115	230
Current Rating		
Continuous (Amps RMS) @ 2 MHz	40	40
Max. Contact Resistance (MΩ) @ Rated Continuous Current	500	500
Max. Capacitance Across Open Contacts (pF)	2.5	2.5
Max. Capacitance Contacts to Frame (pF)	1.0	1.0
Specifications		
Max. Opening Time (msec.)	300	300
Max. Closing Time (msec.)	300	300
Actuator Type	Latching	Latching
Actuator Voltage (VACR)	115	230
Max. Pull-In Current (Amps)	0.4	0.3
Dielectric Withstand to Frame (V) @ 60 Hz RMS for 1.0 min.	1250	1250
Max. Weight (lbs.)	12	12
Mechanical Life (operations)	250,000	250,000
Auxiliary Contact Rating @ 115/230VAC RMS (Amps)	15	15

RT22-4070-A317B and RT22-4070-A31NB (continued)







CYBEREX®

Cyberex® Mission Critical Power Quality



In this section...



Cyberex® Mission Critical Power Quality

Digital Static Transfer Switches H-550–H-553
Power Distribution Systems H-554–H-560
Integrated Systems H-561–H-564
Branch Circuit Management H-565–H-566

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Digital Static Transfer Switches

SuperSwitch$_3$™



SuperSwitch$_3$™ Redefines Reliability

Thirty years ago, Cyberex® revolutionized power distribution with its invention of the Static Transfer Switch. Since then, Cyberex® has installed more units than any other manufacturer. It is from this experience and our customers' requirements that the SuperSwitch$_3$™ has evolved.

Designed with a true fault-tolerant architecture, SuperSwitch$_3$™ ensures there is truly no single point of failure through the use of our transfer algorithm and robust electrical components. With an increased MTBDE to an estimated 10 million hours, SuperSwitch$_3$'s reliability is unmatched. SuperSwitch$_3$™ redefines power reliability with its exceptional design, serviceability and user interface.

Breakthrough Technology

- Fault-tolerant architecture eliminates single point of failure
- SuperSwitch™ algorithm delivers unmatched transfer characteristics
- Dynamic Inrush Restraint protects system by minimizing downstream magnetizing currents
- Three tiered user-defined thresholds for power quality management
- Software-guided breaker operation eliminates human error
- Graphical user interface and mimic panel for local system monitoring and configuration
- Remote access capability for system, event and alarm monitoring
- Flexible access for ease of cabling, operation and maintenance
- Unparalleled alarms, metering and diagnostics
- Detailed monitoring, reporting and trending capability
- Advanced communications allow access at any time from any location
- Unique modular design reduces open-door time to 15 minutes for standard servicing
- Ultra-dense footprint reduces demand on valuable data center real estate
- Reduced number of internal components maximizes reliability

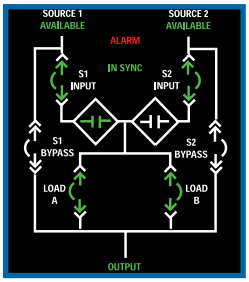
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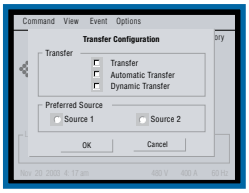
United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

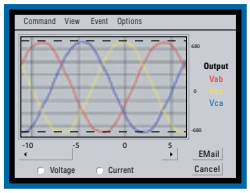
Technical Services
Tel: 888.862.3289

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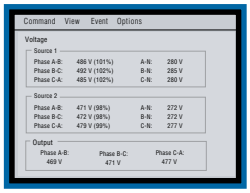
Digital Static Transfer Switches











Dynamic Inrush Restraint Limits Inrush Current for 480V Applications

Based on loading and power system parameters, SuperSwitch3™ can dynamically modify its standard transfer switching algorithm. This technology limits the load inrush current in situations where the switch must make an immediate transfer to preserve load power quality. This breakthrough technology not only restricts the stress on fuses and breakers in the power distribution train, but also minimizes the chance of load interruption. Ultimately, this capability provides the maximum possible power quality of the voltage output for mission-critical applications.

Expert Power Management

With ever-increasing power requirements and the necessity to ensure uptime, SuperSwitch3™ provides exceptional power management.

Waveform Capture

SuperSwitch3™ is available with waveform capture. Cyberex's waveform capture feature uses digital signal processors and high-speed analog-to-digital converters to simultaneously sample both source voltages and currents. The waveform data is collected in .1 millisecond intervals as 12-bit samples to provide an extremely high level of detail.

The SuperSwitch3™ is capable of storing 25 waveform capture events for both transfer and non-transfer events. Each measurement contains a total of five cycles; two cycles prior to the event and three cycles after the event.

The waveform can be sent via e-mail and imported into an Excel® spreadsheet for additional viewing and analysis.

Software-Guided Breaker Operation and Bypass

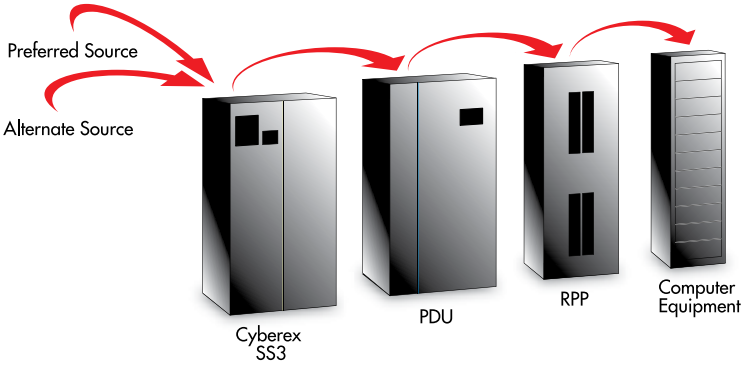
Easy-to-follow command and indicator lights eliminate the causes of human error.

Data and Alarm Management

With over 100 event types, 2500 events can be stored or downloaded for analysis.

Remote Access

Compatibility with Building Management Systems provides access from any location at any time.



SuperSwitch3™ provides added reliability to any architecture.



Rear view of SuperSwitch3™ showing top or bottom power feed access.

Digital Static Transfer Switches

Reliability through Design Excellence

SuperSwitch3™ provides maximum reliability through its innovative design. The modular components, from the power stage to the redundant bus architecture, have been engineered to unprecedented standards. With the fewest numbers, yet most reliable components, SuperSwitch3™ ensures the highest level of functionality and minimum open-door time.



Small-Footprint Chassis
As much as 30% smaller than comparable industry models, the ultra-dense design maximizes floor space. Ease of installation and flexibility are ensured by flexible access from either the front, side or rear. Power connections are made from either the top or bottom.



Graphical User-Interface
User-friendly software and Rapid Response™ mouse allow for quick system configuration, power monitoring and response to alarms. Independent mimic panel provides redundancy to LCD data.



Printed Circuit Boards
Designed to eliminate a single point of failure, 10 robust boards are easily accessible (no stacking) and removed without load disruption. LED indication quickly provides comprehensive self-diagnosis status.



Power Stage Assembly
Fully rated SCRs are employed to prevent system damage after load faults. Infrared scans are easily accomplished without removal of assembly. Service-friendly design permits removal in 15 minutes or less.



Main Logic Board
Integral design provides advanced diagnostics and management of three-tiered power quality. Separate boards are used for each source, while independent drive circuits, with high fault isolation, are used for each phase. Fiber optic communications between the Gate Drive Board improve noise immunity and fault isolation.



Control Wiring
Electrical noise is mitigated by limited harnesses and signal interconnections, coupled with pre-defined cable routing and quick disconnects.



Power Wiring and Bus
Connections and maintenance are made easier by staggered phase connections and ample gutter space. 100% of connections are torqued, ensuring maximum reliability.



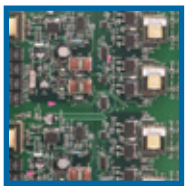
Hinged Access Panels



Molded Case Switches
Provide maximum interruption for fault currents and eliminate nuisance trips. Plug-in style components designed for easy and quick exchange.



Redundant Cooling
Smartly designed to ensure maximum cooling and reliability, the double-redundant fans provide back-up cooling and notification of any fan failures.



Gate Drive Board
Continuously monitors and reports the state of the SCRs and provides precision scaled voltage for power quality and metering. Independent of graphical user interface, board always remains in state last commanded by the main logic.

Thomas&Betts

United States
Tel: 901.252.8000
800.816.7809
Fax: 901.252.1354

Technical Services
Tel: 888.862.3289

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Digital Static Transfer Switches

Specifications

Components	
SCR	Fully-Rated, Hockey-Puck Type
Mimic Panel	LED Current Flow
LCD	Graphical, Backlit (Std.) or Color Display (Opt.)
Fans	Dual Redundant
Power Supplies	Triple Redundant
Internal Bus	Dual Redundant
TVSS	80kA
Communications and Software	
Password Protection	Defined User Tiers
Remote Access	RS-232, RS-485 and Web-Based
Event Types	Information, Warnings and Alarms
Alarm Notification	E-mail (or E-mail to Pager)
Software Upgrades	Remote Downloadable
Emergency Power Off	Remote (Std.) or Local (Opt.)
Relay Contacts	5 (Std.)
Power and Event Management	
Metering 1	kVA, kW, Ipeak, Phase, Current, Voltage, Frequency
Metering 2	Power Factor, kVA Demand, Harmonic Analyzer
Event Alarm Log	2500 Events
Electrical Characteristics	
Voltage/Frequency	208/480/600V, 3-Phase, 4-Wire, 60 Hz
Current Rating	200/400/600/800A/1000A
Short-Circuit Withstand	100kA
Overload Capability	125% (30 Min.) 150% (1 Min.) 1000% (3 Cycles)
Circuit Breakers	Non-Automatic or Automatic
Operational Characteristics	
Controls	Full Digital
Type II	Fuseless Current Path
Bypass	System Assisted
PQ States	Preferred, Acceptable and Emergency
Transfer	Automatic or Manual
Sensing Time	2ms
Auto Transfer	4ms (or Less)
Reacquisition	3 Cycles
Transfer Angle	User-Defined, Max 180°
Temperature	0 to 40° C (Operating) 0 to 80° C (Storage)
Audible Noise	<65 dBA (6 ft.)
Standards	
NEMA	All Applicable Standards
UL®	1008 Listed
FCC	Compliant (Part 15)
NEC®	2002
ANSI/NFPA	70 (2002)
IEEE	587 (ANSI C62.41)

Ordering Information

CAT. NO.	AMPS	VOLTS	DIM. (W x D x H)	BTU/HR.	WEIGHT (LB.)
DSR-02002-326-208-6N100	200A	208V	34" x 34" x 76"	2400	1200
DSR-02002-326-480-6N100	200A	480V	34" x 34" x 76"	2400	1200
DSR-04002-326-208-6N100	400A	208V	34" x 34" x 76"	3600	1200
DSR-04002-326-480-6N100	400A	480V	34" x 34" x 76"	3600	1200
DSR-06002-326-208-6N100	600A	208V	34" x 34" x 76"	4800	1400
DSR-06002-326-480-6N100	600A	480V	34" x 34" x 76"	4800	1400
DSR-08002-326-208-6N065	800A	208V	46" x 34" x 76"	6000	1800
DSR-08002-326-480-6N065	800A	480V	46" x 34" x 76"	6000	1800
DSR-10002-326-208-6N065	1000A	208V	46" x 34" x 76"	8400	2400
DSR-10002-326-480-6N065	1000A	480V	46" x 34" x 76"	8400	2400

Configurations available up to 4000A. Contact your T&B sales representative for more information.

To order the DSTS Series, please contact your T&B sales representative.

Power Distribution Systems

PDM II Series



Data centers are essential for individual businesses to have a presence on the Internet. Reliable uninterrupted power is critical to the mission of any organization's data center. At Cyberex®, we have embraced the challenge to develop solutions that meet the needs of the modern data center while maintaining our heritage of offering the highest reliability on the market today.

The Cyberex® PDM II Series offers the most reliable and flexible power distribution product on the market today, with almost unlimited configurations of panelboards and subfeed breakers to meet every load requirement. Three cabinet designs support kVA ratings up to 500kVA.

Our Circuit Management series of products provides solutions to monitor and manage any combination of individual branch circuits or subfeeds from a single hardware platform.

The flexibility of the Cyberex® PDM II Series benefits the system designer, the installer and the owner. If one of our countless standard configurations doesn't meet your application's needs, Cyberex® is a master at customization. Our engineering staff stands ready to create just what you need.

Designed for Performance and Flexibility

- Multiple panelboard and breaker configurations offer the highest level of customization for diverse loads
- Comprehensive system monitoring provides ultimate flexibility for collecting and managing power data
- Optional safety barrier to separate primary and secondary voltages
- Branch circuit and subfeed management (optional) provides enhanced power data collection for branch circuits and subfeeds
- Remote monitoring interfaces to building management system using Modbus, web server and SNMP traps
- PDM Hi Res display with 320 x 240 resolution capable of monitoring and storing data from up to 16 local or remote circuit management devices — each with up to 168 circuits
- Efficient high-isolation, copper-wound transformers increase performance and significantly reduce EMI and RFI noise
- Spacious cable management and landing area simplifies frequent wiring changes and provides ease of installation
- Easy maintenance access ensures safe and trouble-free repair in minimum time
- Compact footprint maximizes valuable floor space
- ETL Listed to both UL® 60950 and UL 891; suitable for installation inside or outside IT-designated spaces

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Power Distribution Systems

Standard Product Specifications

Electrical	
kVA	50–500kVA
Input	3-Phase, 3-Wire + Ground
Input Voltage	480VAC @ 60 Hz*
Output	3-Phase, 4-Wire + Ground
Output Voltage	208/120VAC*
Panelboards	Up to (6) 42-Circuit Output Panelboards
Transformer Ratings	K13 (Std.) • K4/K20 (Opt.)
Transformer	Copper, Delta-Wye, Electrostatic Shielding
Transformer Temperature Rise	150° C (Std.) • 115° C (Opt.)
Transformer Inrush	Normal (11X) and Low (5X)
Transformer Compensation Taps	(4) 2½% FCBN, (2) 2½% FCAN
Transformer Insulation	220° C (Class R)
Neutral Rating	200%
Operating Conditions	
Temperature (Operating)	0 to 40° C • 37° C for 300 kVA
Temperature (Storage)	-40 to 60° C
Audible Noise	Maximum: 55 dBA
Maximum Operating Altitude	8,200 ft. (2,500m)
Dimensions	
Height (All Cabinets, Sidecars)	77.4"
Depth (All Cabinets, Sidecars)	34"
Width (Main Transformer Section)	34" or 46" Depending on kVA
Sidecars Available in Three Widths	10" Side Facing
	24" Front and/or Rear Facing
	34" Front and/or Rear Facing
Up to Three Sidecars Allowed	
Up to Four Panelboards per Sidecar	(2) Front Facing and/or (2) Rear Facing
Six Panelboards Maximum	
I-Line Panel Available	
Standard, Column-Width or 400A Panelboards Available	
Subfeed Breakers Available	100/150/225/400A
General	
Natural Convection Cooled	
Hinged Dead Front Panel	
320 x 240 LCD Display	
Swivel Casters	
Single Point Ground	
Top and Bottom Entry	
Welded Frame Construction on Main Transformer Cabinet	
Options	
Branch Circuit Monitoring	
Subfeed and Branch Circuit Breakers with or without Monitoring	
Remote Emergency Power Off (EPO)	
Transient Voltage Surge Suppression	
Lightning Arrestor, Surge Arrestor	
Floor Stands	
Input Junction Box • Input Terminal Block	
Standards	
NEMA (All Applicable Standards)	
ETL Listed to UL® 60950 and UL 891	
FCC Compliant (Part 15)	

** Other configurations available as non-standard.*

Standard Monitoring Specifications

Power Monitoring	
Input Voltage Line to Line (True RMS)	S
Output Voltage Line to Line (True RMS)	S
Output Voltage Line to Neutral (True RMS)	S
Output Current (True RMS)	S
Neutral Current (True RMS)	S
Ground Current (True RMS)	S
kVA	S
kW	S
Frequency	S
Percent Load per Phase	S
kWH Consumption	S
Power Factor per Phase	S
Peak Demand	S (UC)
Total Harmonic Distortion (Voltage and Current)	S
Load Crest Factor	S
Load Power Factor	S
Percent of Full Load	S
Control	
Emergency Power Off (EPO) Push Button	S
Remote EPO Push Button Compatible	S
Four Form C Output Alarm Contacts	S
Four Form C Input Contacts – User Configurable	S
Power Alarms	
High Transformer Temperature	S
Shutdown-Transformer Temperature	S
High/Low Input Voltage	S (UC)
High Output Current	S (UC)
Annunciation	
Horn	S
Acknowledge Push Button	S
Communications	
Modbus RTU (RS-485)	S
Modbus TCP (Ethernet)	S

S = Standard
(UC) = User Configurable



Cyberex® cables complement any PDM configuration and are designed to mate with virtually any computer or peripheral device. Features include:

- UL® Listed and NEC® compliant
- NEMA, IEC, Russellstoll® and field wire configurations
- Identification labeling and optional colors
- Quick delivery

To order the PDM II Series, please contact your T&B sales representative.

Power Distribution Systems

PDM II Slim Series

PDM II Slim — Reduced-Footprint Power Distribution Module

Today's data centers are struggling to add servers to meet the ever-increasing demand for computer services. Not all installations have the luxury of a sprawling computer room for expansion. Small data centers are bounded by the available floor space and must make the best of use of every square foot. Cyberex's new Slim PDM blends the isolation transformer and panel board distribution into the middle or end-of-the-rack lineup, saving valuable space normally taken by oversized PDU cabinets. The mid-sized transformer in the PDM Slim is tuned to the rack form factor to maximize power density while offering all the same features found in a full-sized PDM.

Big Mission-Critical Features in a Small Package

- Two 42-circuit panel boards placed conveniently within your rack lineups
- Top or bottom entry/exit provides flexible installation options
- Branch circuit management provides detailed status of individual circuits and early warning of overloads
- Advanced communications allow remote monitoring of circuits by the BMS
- Local display can be used as an Ethernet gateway to concentrate branch circuit data from up to 15 other Slim PDMs



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Power Distribution Systems

Standard Product Specifications

Electrical	
kVA	50, 75, 100, 125kVA
Input	480 or 600VAC, 60 Hz, 3-Phase, 3-Wire + Ground
Output	208/120VAC, 3-Phase, 4-Wire + Ground
Transformer	
Type	Copper, Delta-Wye, Dual Shield, Class 220, 200% Neutral, 60 Hz
K-Rating	K-20 (std.), K-13 (opt.)
Temperature Rise	150° C (std.), 115° C (opt.)
Taps	(4) 2.5% FCBN, (2) 2.5% FCAN
Distribution	
Panel Boards	(2) Square D or GE Standard 42 Circuit
Operating Conditions	
Temperature	0 to 40° C (operating), -40 to 60° C (storage)
Audible Noise	55 dBA (maximum)
Altitude	8,200 ft. (2,500m) maximum
Dimensions	
Height	77" (195.6cm)
Depth	38" (96.5cm)
Width	24" (61.0cm)
General	
Convection Cooled	
Hinged Dead Front Panels	
Casters and Leveling Feet	
Top/Bottom Entry/Exit	
Hi-Res LCD Display with Ethernet	
Options	
Branch Circuit Management	
TVSS	
Standards	
ETL Listed to UL® 60950 and UL 891	
NEMA (All Applicable Standards)	
FCC Part 15 Compliant	

** Other configurations available as non-standard.*

Power and System Monitoring

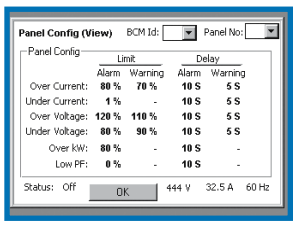
The PDM II Slim features all the same powerful power and circuit monitoring and communications capability as our full-size PDM, including branch circuit management, web server and SNMP alarm traps.

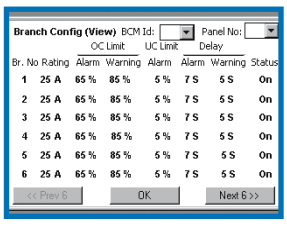
Standard Monitoring Specifications

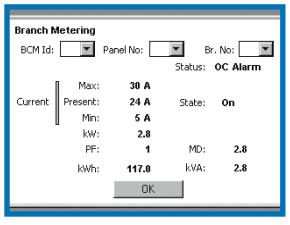
Power Monitoring	
Input Voltage Line to Line (True RMS)	S
Output Voltage Line to Line (True RMS)	S
Output Voltage Line to Neutral (True RMS)	S
Output Current (True RMS)	S
Neutral Current (True RMS)	S
Ground Current (True RMS)	S
kVA	S
kW	S
Frequency	S
Percent Load Per Phase	S
kWh Consumption	S
Power Factor per Phase	S
Peak Demand	S (UC)
Total Harmonic Distortion (Voltage and Current)	S
Load Crest Factor	S
Load Power Factor	S
Percent of Full Load	S
Control	
Emergency Power Off (EPO) Push Button	S
Remote EPO Push Button Compatible	S
Four Form C Output Alarm Contacts	S
Four Form C Input Contacts — User Configurable	S
Power Alarms	
High Transformer Temperature	S
Shutdown-Transformer Temperature	S
High/Low Input Voltage	S (UC)
High Output Current	S (UC)
Annunciation	
Horn	S
Acknowledge Push Button	S
Communications	
Modbus RTU (RS-485)	S
Modbus TCP (Ethernet)	S
Web Server	S
SNMP Summary Alarm Traps	S

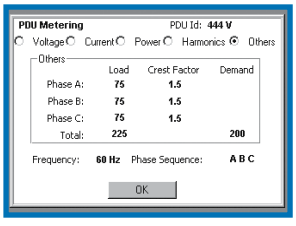
S = Standard
(UC) = User Configurable

Local Display









Web Server



PDM Main



BCM Panel Overview



BCM Panel Individual

To order the PDM II Slim Series, please contact your T&B sales representative.

Power Distribution Systems

RPP II Series

Today's data centers require the highest level of reliability and performance. The Cyberex® RPP II Series provides two tiers of products with the flexibility to expand your data center distribution capabilities. Fed from your existing PDM, the RPP readily provides up to four 42-pole panelboards, four main breakers all fed from up to four sources.

Our traditional RPP is sized to fit over standard 2-foot-square raised floor tile and serves loads at 208/120 volts.



Traditional Design Offers Performance And Flexibility

- Multiple input capability improves management of dual-corded loads
- Multiple panelboard and breaker configurations offer the highest level of customization
- Comprehensive system monitoring provides ultimate flexibility for collecting and managing power data
- Branch circuit management (optional) provides enhanced power data collection for branch circuits
- Remote monitoring interfaces to building management system
- Local high-resolution display (optional) monitors up to 16 RPPs with 2,688 branch circuits
- Spacious cable management and landing area simplify frequent wiring changes and make installation easy
- Compact footprint maximizes valuable floor space

Product Specifications

Electrical	
Input/Output	3-Phase, 4-Wire + Ground
Input/Output Voltage	208/120V @ 60 Hz
Input Amperage	100/150/225/400A
Panelboards	Up to (4) 42-Circuit Output Panelboards
Source Breakers	Up to 4
Neutral Rating	200%
Operating Conditions	
Temperature (Operating)	0 to 40° C
Temperature (Storage)	-40 to 60° C
Maximum Operating Altitude	8,200 ft. (2,500m)
Dimensions/Weight	
Height	77.75 in. (197.484cm)
Depth	26 in. (66.04cm)
Width	24 in. (61cm)
Weight	500–550 lbs. (227–249kg)

General
Natural Convection Cooled
Hinged Deadfront Panel
Single Point Ground
Communications
Modbus RTU (RS-485) (advanced and branch circuit monitoring)
Modbus TCP (with optional BCM and display)
Options
Basic or Advanced Monitoring
Branch Circuit Monitoring
Source and Branch Circuit Breakers with or without Monitoring
Transient Voltage Surge Suppression
Plug-In or Bolt-On Branch Circuit Breakers
Input Junction Boxes
Column Width Panelboards
Standards
NEMA (all applicable standards)
ETL Listed to UL® 508A
FCC Compliant (Part 15)
ANSI C62.41

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Power Distribution Systems

Basic Configurations

A – Source Quantity	
1	1 Source
2	2 Sources
3	3 Sources
4	4 Sources
B – Source Breakers	
1	1 Breaker
2	2 Breakers
3	3 Breakers
4	4 Breakers
C – Panelboards	
1	1 Panelboard
2	2 Panelboards
3	3 Panelboards
4	4 Panelboards
Basic Metering (Current)	
1	(1) Meter and (1) 4-Position Switch (3-phases +1 neutral)
2	(1) Meter and (1) 8-Position Switch (3-phases +1 neutral)
3	(2) Meters and (1) 8-Position Switch and (1) 4-Position Switch (3-phases +1 neutral)
4	(2) Meters and (2) 8-Position Switches (3-phases +1 neutral)
5	(3) Meters and (2) 8-Position Switches and (1) 4-Position Switch (3-phases +1 neutral)
6	(3) Meters and (3) 8-Position Switches (3-phases +1 neutral)
7	(4) Meters and (3) 8-Position Switches and (1) 4-Position Switch (3-phases +1 neutral)
8	(4) Meters and (4) 8-Position Switches (3-phases +1 neutral)
Advanced Metering (Current, Voltage & Power)	
1	(1) Meter with (1) 3-Phase Monitoring Point
2	(2) Meters with (2) 3-Phase Monitoring Points
3	(3) Meters with (3) 3-Phase Monitoring Points
4	(4) Meters with (4) 3-Phase Monitoring Points
D – Source Breaker Amps	
1	100A
2	150A
3	225A



RPP II systems are available in many different configurations.





RPP II systems, available with Advanced Branch Circuit Management to improve power quality management, enable you to manage individual circuits locally via the Web or BMS.

Cyberex® offers cables that complement any RPP configuration and are designed to mate with virtually any computer or peripheral device. Features include:

- UL® Listed and NEC® compliant
- NEMA, IEC, Russellstoll® and field wire configurations
- Identification labeling and optional colors
- Quick delivery



Power Distribution Systems

High Power RPP

Finally, a versatile new RPP design distributes 415/240-volt power directly to the rack lineup. The new High Power RPP has a rack form factor and is offered in higher voltage and higher amperage configurations, putting more kilowatts into the white space.



- Available in a wide range of standard voltages, including 415/240, 400/230, 380/220 and 208/120VAC, 3-phase, 4-wire configurations
- Available with up to 400-amp panelboard distribution options
- Input connections: direct connect to panelboard breakers (225A, 400A), main input breakers (400A, 600A), single or dual 800A lugs
- Traditional configurations: up to four sources, four panelboards, four main breakers
- 24" end-placed cabinet provides side access and can be configured to match height and depth of standard commercial racks
- 42-circuit panelboard offerings include Square D, ABB and GE; up to 415 volts and 400 amps
- Top or bottom entry/exit
- Door-in-door hinged dead front construction
- Metal barrier between front and rear distribution available

Options:

- Dual feed with main-tie-main and synch check available (3- or 4-pole)
- Windowed doors
- Branch circuit management, Modbus RTU, optional display with Modbus TCP, web server and SNMP trap monitoring
- TVSS, 40kA per source

Versatile Distribution and Cabinet Options

The Cyberex® High Power RPP is designed to fit in a standard rack lineup and is offered with Square D, GE and ABB panelboards in both 225A and 400A configurations and in voltages up to 415 volts.

The new ABB Proline panelboard is designed especially for mission-critical applications demanding superior coordination between branch breakers and panelboard main breakers. The high-speed, current-limiting design provides highly selective tripping in less than four milliseconds at up to 25kA available fault current. Additionally, the Proline panelboard has an innovative finger-safe design that ensures personnel safety even when the dead front is open.

The Cyberex® high-density rack-based RPP is available in most of the configurations of sources, main breakers and panelboards found in the conventional 225-amp, 208-volt models. A new feature is the adaptability to the form factor of the standard 24" wide rack lineup. The new RPP is configurable to a variety of standard "U" heights using top hats and a range of depths from 36" to 46" in 2" increments.

To order the High Power RPP, please contact your T&B sales representative.

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Integrated Systems

Mission-critical power switching and distribution in one integrated custom system.

ZF Series

The Zero Footprint (ZF) Series, similar to the MC Series, provides redundant operation using two sources feeding one common group of output distribution devices. The ZF Series has dual transformers at the input of a Cyberex® SuperSwitch3™ Digital Static Transfer Switch (DSTS). The output of the static switch feeds output distribution devices which may include subfeed breakers and/or panelboards.

This integrated package offers a single, easy-to-install, factory-tested unit with a footprint that saves valuable floor space and avoids expensive inter-cabinet wiring.

A multitude of available distribution features and comprehensive circuit management with advanced communications provide the ultimate in design flexibility and reliability.

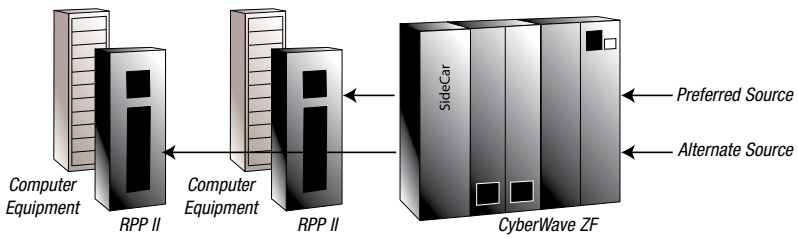
Proven Components and Performance

- Integrated SuperSwitch3™ DSTS and special distribution ensures reliability and availability of the entire critical power system
- Operator interface is the same reliable, easy-to-use interface found in the Cyberex® SuperSwitch3™ Digital Static Transfer Switch
- Dual input-positioned transformers offer ultimate redundancy and reliability
- Output distribution in separate side car cabinet offered in a wide range of configurations, including removable or fixed mounted breakers and panelboards
- Software-guided breaker operation reduces possibility of operator error
- Remote communications use standard protocols to interface with a building management system (BMS)
- Compact footprint maximizes valuable floor space and reduces power cabling costs
- Easy maintenance access means low MTTR (mean time to repair)



Front view of Zero Footprint showing system modularity.

Zero Footprint provides added reliability to any architecture



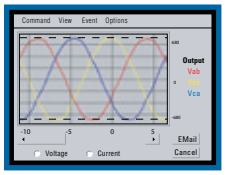
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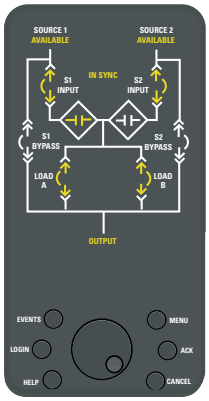
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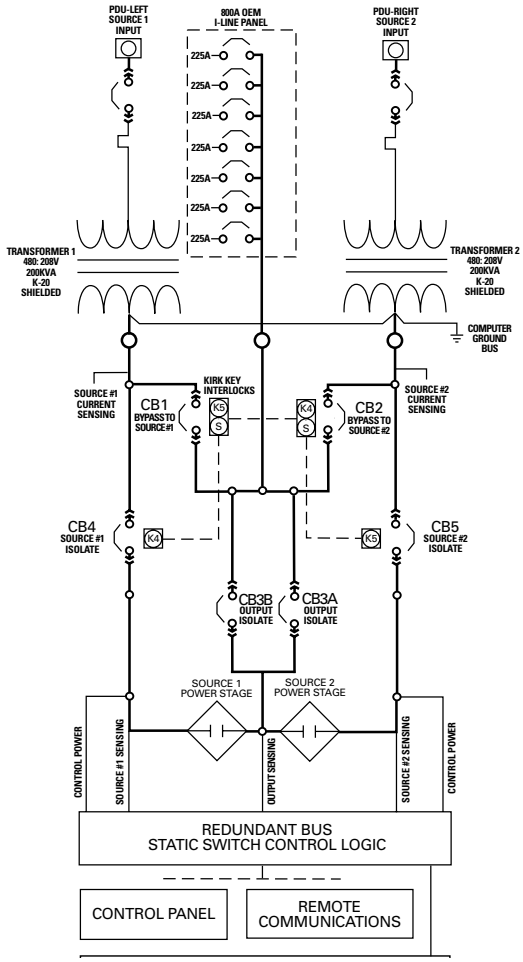
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Integrated Systems





Navigate and control the SuperSwitch™ with confidence using a rotary mouse, triple-redundant system status display, active mimic panel and LCD and LED indication.



The Zero Footprint Series features two main breakers, two impedance-matched transformers and DSTS to create the ultimate mission-critical system.

ZF Series Technical Specifications

Electrical	
kVA	75–300kVA
Input	3-Phase, 3-Wire + Ground
Input Voltage	480V @ 60 Hz
Output	3-Phase, 4-Wire + Ground
Output Voltage	208/120V 480/277V @ 60 Hz
Transformer Ratings	K20 (Std.) • K4, K13 (opt.)
Transformer	Copper, Dual Electrostatic Shield
Transformer Temperature Rise	150° C (Std.) • 80° C, 115° C (Opt.)
Transformer Compensation Taps	2½% (4 x FCBN, 2 x FCAN)
Transformer Insulation	220° C
Neutral Rating	200%
Operating Conditions	
Temperature (Operating)	0 to 40° C
Temperature (Storage)	0 to 60° C
Transformer Audible Noise	<60 dBA (Max.)
Maximum Operating Altitude	8,200 ft. (2,500m)
Operating Efficiency	98%
General	
SCR	Fully Rated, Hockey-Puck Type
Cooling	PDU – Convection, STS – Dual Redundant Fans
LCD	Graphical User Interface
STS Power Supplies	Triple Redundant
STS Internal Bus	Dual Redundant
STS TVSS	40kA
Communications	
Password Protection	Defined User Tiers
Protocol	Modbus RTU (RS-485); Modbus TCP
STS Alarm Notification	E-mail (or E-mail to Pager)
Emergency Power Off	Remote (Std.), Local (Opt.)
STS Relay Contacts	5 (Std.)
Waveform Capture	(Opt.)
Power and Event Management	
Metering	kVA, kW, Ipeak, Phase, Current, Voltage, Frequency, Power Factor, kVA Demand, THD, Percent Load, Sag, Surge, Transient
Event Alarm Log	2500 Events
Standards	
NEMA	All Applicable Standards
UL®	PDU — UL 478 Listed or Compliant STS — UL 1008 Listed
FCC	FCC Compliant (Part 15)
NEC®	All Applicable Standards
ANSI	C62.41

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MC Series

The Mission Critical (MC) Series provides redundant operation using two sources feeding one common group of output distribution devices. By integrating a Cyberex® SuperSwitch3™ Digital Static Transfer Switch (DSTS) and Cyberex® Power Distribution Module (PDM), the MC Series provides the highest level of customization for diverse equipment loads and maximum growth. Coupled with advanced communications and branch circuit and sub-feed circuit management, the MC Series is the key design element for ensuring maximum uptime for your facility.



Proven Components and Performance

- Integrated SuperSwitch3™ DSTS and PDM maximize reliability and availability of the entire critical power system
- Fault-tolerant DSTS design eliminates single point of failure
- Dynamic inrush restraint (DIR) decreases transformer inrush and increases system reliability
- Primary or secondary DSTS design options with input- or output-positioned DSTS offer maximum flexibility
- Software-guided breaker operation reduces possibility of operator error
- Multiple panelboard and breaker configurations provide maximum design flexibility
- Comprehensive system and circuit monitoring provides ultimate visibility of operating data
- Branch circuit and subfeed monitoring (optional) collects, organizes and manages detailed information about each circuit
- Remote communications use standard protocols to interface with a building management system (BMS)
- Compact footprint maximizes valuable floor space and reduces power cabling costs
- Easy maintenance access means low MTTR (mean time to repair)



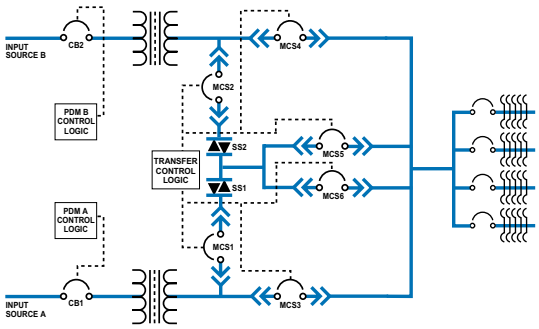
Integrated Systems

Product Specifications

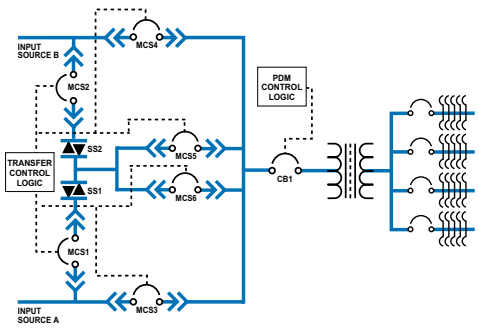
Electrical	
• kVA	75–300kVA
• Input	208, 480 or 600V, 3-Phase, 3-Wire plus Ground
• Output	208/120V, 3-Phase, 4-Wire plus Ground
• Neutral	200% Rated
Transformer(s)	
• K-Ratings	K-20 (std.), K-4, 9, 13 (opt.)
• Construction	Copper Windings, Dual Electrostatic Shield
• Temperature Rise	150° C (std.), 80° C, 115° C (opt.)
• Compensation Taps	2½% (4 FCBN, 2 FCAN)
• Insulation Rating	220° C
Distribution	
• PanelBoards	Up to 6 (252 poles)
• Subfeed Breakers	Up to 24 (100, 150, 225, 400 amps)
• I-Line	Up to Two 800-Amp I-Lines with 10 Removable Breakers
General Operating	
• Operating Temperature	0 to 40° C
• Cooling	PDM: Convection, DSTS: Dual-Redundant Fans
• Audible Sound	<65 dBA (maximum)
• Operating Altitude	8,200 ft. (2,500m)
• Efficiency	PDU: 97.5% (typical), DSTS: 99%
Digital Static Transfer Switch Section	
• Transfer Time	4 Milliseconds (sense plus transfer time)
• Controls	Digital Signal Processor (DSP)-Based
• Display	High-Res Graphical User Interface
• Type II	Fuseless Current Path
• SCR Type	Hockey Puck
• Bypass	Six Non-Automatic Breakers with Software-Guided Bypass Sequence
• Control Power	Dual Power Bus Fed by Three Sources
• Redundant Design	No Single Point of Failure
PDM Section	
• Dual Transformer	Positioned at Input to 208-volt DSTS
• Single Transformer	Positioned at Output of 480-volt DSTS
• Panel Boards	Up to 6 (252 poles)
• Sub Feed Breakers	Up to 24 (100, 150, 225, 400 amps)
• I-Line	Up to Two 800-Amp I-Lines with 10 Removable Breakers

Communications	
• Modbus	RTU (RS-485), TCP (Ethernet)
• Web Server	Access with Any Browser via Internet
• SNMP Traps	Summary Alarm Traps
• E-mail	DSTS Annunciates Selected Events
Metering and Event Management	
• Voltage and Current	DSTS and PDM Input and Output
• Power and Energy	DSTS and PDM Input and Output
• Branch Circuit Management	(Optional) Up to 168 Poles per Module
• Subfeed Management	(Optional) Up to 24 3-Pole Circuits
• Event Log	Up to 2500 Time-Stamped Alarms and Warnings
• Waveform Capture	(Optional) Records 25 5-Cycle Events
Options	
• Circuit Management	
• TVSS	
Standards	
• UL® (DSTS)	ETL Listed to UL 1008
• UL (PDM)	ETL Listed to UL 60950 and UL 891
• NEMA	All Applicable Standards
• NEC®	All Applicable Sections
• FCC	Part 15 Compliant
• ANSI/IEEE	C62.41
Dimensions	
• Height	77.4 in. (196.6cm)
• Depth	34.0 in. (86.4cm)
• Width	Consult Factory
• Weight (MC11)	2,500 lbs. (1,134kg) to 3,900 lbs. (1,769kg)
• Weight (MC12)	3,200 lbs. (1,451kg) to 6,700 lbs. (3,039kg)

To order the MC Series, please contact your T&B sales representative.



MC12 features dual-input transformers and an output-positioned DSTS.



MC11 features an input-positioned DSTS and a single transformer.

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Tel: 888.862.3289

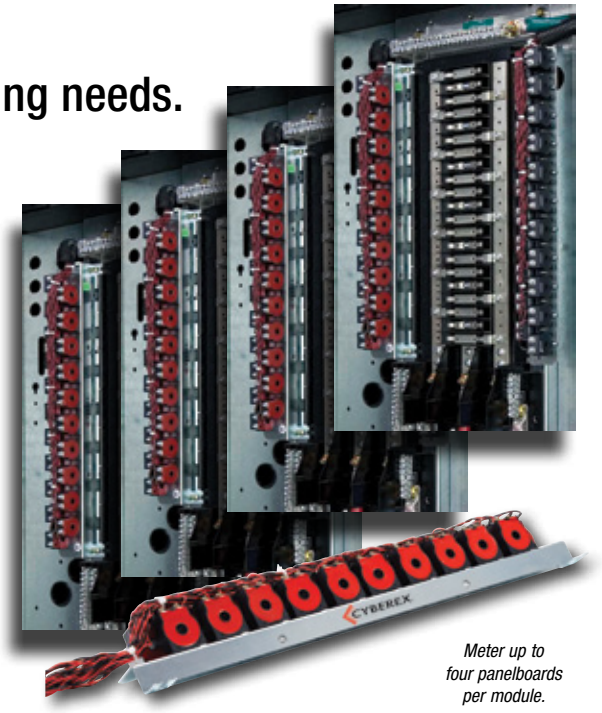
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Branch Circuit Management

A single solution for all your monitoring needs.

Circuit Management

Managing individual circuit loading is critical to the reliability of your center. The Circuit Management (CM) system provides accurate load management information and alerts you to potential problems before they affect your operation. User-configurable set points allow you to know when each circuit is approaching a load threshold that could interrupt power to that device. This notification allows your staff to proactively maintain your critical operation.



Meter up to four panelboards per module.

Designed for Performance, Flexibility and Reliability

- Factory integrated as an optional feature to your PDM or RPP, the Circuit Management system can be used for communicating valuable information to your central management system or to a local or remote display panel
- The CM actively monitors the load current of each of your circuits and reports this information to you for cost allocation or load protection management
- The Circuit Management system can be field maintained or upgraded to allow the addition or replacement of individual sensors — competitors offer only a fixed component system carried on a PCB that must be abandoned within your panels and bypassed with an inelegant hardware configuration when upgraded or repaired

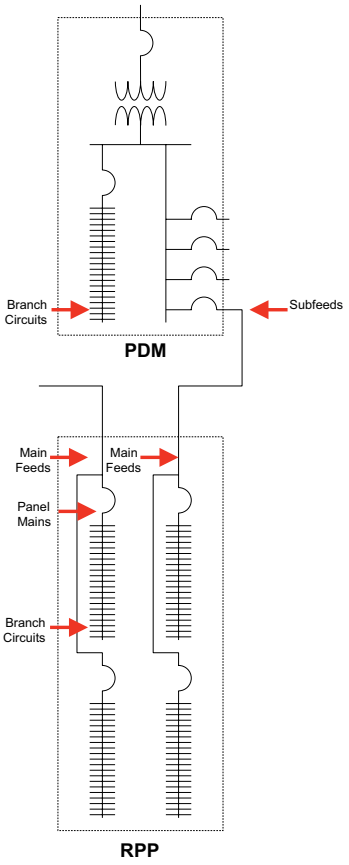


Flexible Configurations

A single Circuit Management module can be configured to gather current, voltage*, power* and energy* data in the following distribution devices:

- Circuit Management — Up to four 42-circuit panelboards (168 poles)
- Subfeed Circuit Management — Up to 24 3-wire or 4-wire subfeed breakers
- Combination Circuit Management — Panelboard branch breakers and sub-feed breakers can be combined in a single configuration
- Main Feed Circuit Management — Up to four sources in multi-fed RPPs can be monitored

** Requires energy option.*



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Branch Circuit Management

Innovation in Design

- Plug with connectors for circuit sensors simplify maintenance
- Snap-on mounting for circuit sensors with integral protection resistor are field replaceable
- Fully enclosed electronics module protect delicate circuit boards

Best in Class Serviceability

- Easily replace individual circuit sensors in the field, means only one circuit is affected, not the entire panel
- Only power down one individual branch, not entire panel
- Minimize costs and downtime

Ease of Configuration

- User-friendly, intuitive graphical user interface
- Flexible configuration — By individual circuit or entire panelboard

Advanced Connectivity

- Single system monitors up to 168 branch circuits — Can be panelboards or a combination of panelboards and subfeeds
- Monitor up to 2,688 circuits with one local display
- Both 2 and 4 wire modbus compatible
- Integrates with your building management system

Panelboard Compatibility

- Fits most panels: Square D, GE, standard and column width



A single local display can concentrate data from 16 Cyberex® Circuit Management systems and send it to remote monitoring systems via Modbus TCP or the Web Server. Connects to your building management system or a standard web browser.

Web Server & SNP

Web Server Features

- Provides instant snapshot of current or power levels on any circuit in your data center from a remote location
- Provides web page access to a maximum of 16 Cyberex® Circuit Management devices interconnected via Modbus and/or Ethernet
- Allows up to 2,688 individual circuits to be monitored remotely on the web for current, voltage*, power*, energy*, alarm status and set-point configuration (*requires energy option)
- Provides SNMP summary alarm traps for use with the customer's monitoring system
- When integrated with your building management system the circuit data can be used to create a load profile over time to help you better plan capacity
- Secure, multi-level password-protected environment



Individual Circuit Display Web Server



Panel Overview Display Web Server

Branch Circuit Management Retrofit

Cyberex® offers a complete Circuit Management Retrofit Solution available to any RPP, PDM or other panelboard or subfeed application. Our field service team can assess your facility's exact needs and configure a solution that provides Circuit Management capability equal in performance to our factory integrated system without interruption to your loads. Because of the diversity in today's facilities, Cyberex® Circuit Management retrofit products were designed to offer a broad range of mounting options without the use of drilling or intrusions into your existing equipment beyond the introduction of split core current transformers (CTs). The split core CTs are clamped onto energized branch circuits without interruption to your critical loads.

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CYBEREX®

Cyberex® Industrial Power Conditioning

In this section...



Cyberex® Industrial Power Conditioning

UL®/NEMA Industrial UPS Systems..... H-568–H-582
IEC Industrial UPS Systems..... H-583–H-585
Float Battery Chargers..... H-586–H-590
Standalone Inverter Systems..... H-591–H-592
Standalone Digital Static Transfer Switches..... H-593–H-594
Power Distribution Systems..... H-595–H-596

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UL®/NEMA Industrial UPS Systems

CyberWave UPS — 10kVA/8kW, 15kVA/12kW, 20kVA/16kW

CyberWave UPS, the world's first digitally controlled UPS for custom industrial applications, combines Cyberex's hallmark rugged electrical design with the versatility of digital signal processors, field-programmable gate arrays and EPROMs to set a new standard in UPS performance and reliability. CyberWave UPS has standard features no other UPS manufacturer can match, including Modbus communications, advanced battery management capabilities and the world's first VGA, full-color touch screen 8" x 11" control panel (PowerPad). In addition, every CyberWave UPS incorporates Cyberex's Digital Static Transfer Switch design for increased system redundancy and reliability.



Features

- IGBT-based PWM inverter
- Digital Signal Processing (DSP)
- Fiber optic datapaths
- Full-color touch screen monitor panel
- Full isolation – input/output transformers
- Industrial-grade frame/cabinet
- Fully rated static switch
- Maintenance bypass switch
- Modbus communications
- RS-232 communications port
- Meets NEMA/UL® 1778 standard

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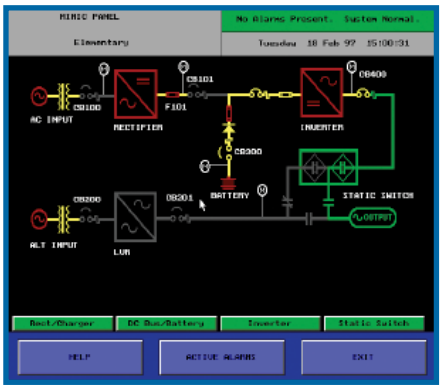
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UL®/NEMA Industrial UPS Systems

Mimic Display



UPS Module



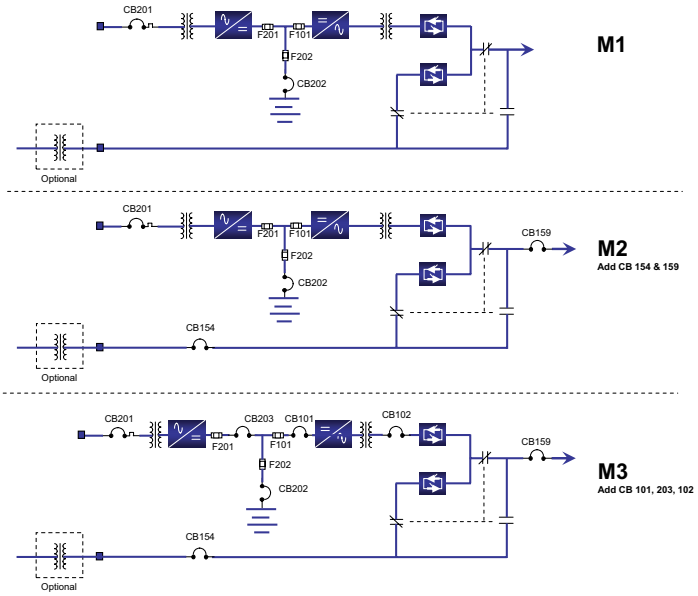
Circuit Breakers/Fuse Sizes

	10kVA/8KW	15kVA/12KW	20kVA/16kW
CB 201 – AF/AT			
208V	125AF/80AT	125AF/125AT	150AF/250AT
480V	125AF/35AT	125AF/50AT	125AF/80AT
F 101, 201, 202 – Rating (A)			
120VDC	150A	250A	300A
240VDC	80A	125A	150A
CB 102, 154, 159 – Rating (AF)			
120VAC	125A	250A	250A
CB 202, 203, 101 – Rating (AF)			
120VDC	125A	250A	250A



Inverter

Hardware Configuration





Isolation Transformer

UL®/NEMA Industrial UPS Systems

Product Specifications

AC Input	
Input Voltage	480VAC, 3W+G 208VAC, 3W+G
Max. Input Current @ Rated Load (Nominal VAC)	
(10kVA/8kW)	21A @ 480VAC–49A @ 208VAC
(15kVA/12kW)	32A @ 480VAC–74A @ 208VAC
(20kVA/16kW)	43A @ 480VAC–99A @ 208VAC
Input Voltage Range	+10, -20% VAC from Nominal
Input Power Factor	.75 @ Full Load and Nominal
Current Walk-In	Up to Full Load in 15 Seconds
Surge Withstand	Meets IEEE 587/ANSI C62.41
Input Current THD%	30% Typical, 10% with Optional Input Filter
DC Bus/Battery	
DC Voltage (Nominal)	120VDC (60 Cells Nominal) 240VDC (120 Cells Nominal)
DC Range	105–140VDC–210–280VDC
DC Regulation	±.25% from 0 to 100% Load
DC Ripple	< 2% RMS Ripple @ 100% Load with Battery Connected
DC-AC Efficiency	88% (Typical)
DC End Volts	1.75V/Cell End Volts
Environmental	
Acoustical Noise Level	< 60 dBA @ 3 Feet
Operating Temperature	0–40° C
Relative Humidity	0–95% Non-Condensing
Access	No Rear or Side Access Required for Operations or Maintenance
AC Efficiency	Typical 83% (kW out/kW in)
Cooling	Forced Air (in front/out top)
Heat Rejection	
(10 kVA/8 kW)	4200 BTU/hr.
(15 kVA/16 kW)	5600 BTU/hr.
(20 kVA/16 kW)	7460 BTU/hr.
Operating Altitude	Up to 1000m w/o Derating Load
AC Output	
Output Voltage	120V (other voltages available; contact factory)
Output Current (Nominal)	
(10kVA/8kW)	83A @ 120VAC
(15kVA/16kW)	125A @ 120VAC
(20kVA/16kW)	167A @ 120VAC
Voltage Regulation	<±.5% Steady State for 0 to 100% Load Change
Transient Response	<± 5% for a 100% Load Step <± 1% for a Loss/Return AC Input Power <± 5% for Manual Transfer to Bypass and Back, 100% Load <± 5% for a 100% Load Step
Recovery	Return to within ± 2.5% of Nominal within 16 msec
Voltage Distortion	Linear Loads: <± 3.5% @ 100% Load
Overload	Up to 150% for 15 Min.
Overload Static Bypass	>1000% for 1 Cycle
Frequency	60 Hz (50 Hz Optional)
Frequency Stability	±.1% Free Running
Frequency Slew Rate	1.0 Hz/Sec. Maximum
Weight	
M1, M2	1,600 lb. (726 kg)
M3	2,100 lb. (953 kg)

Metering

Three Options: PowerPad 1, PowerPad 2 and PowerPad 3

Metering Value (1% Accurate)

	Metering Features	PowerPad 1	PowerPad 2	PowerPad 3
Rectifier	Input Voltage (All Phase)	✔	✔	✔
	Input Current (All Phase)	✔	✔	✔
	Input Frequency		✔	✔
	Output Voltage (VDC)		✔	✔
	Output Current		✔	✔
Battery	Voltage (VDC)	✔	✔	✔
	Current	✔	✔	✔
	Runtime		✔	✔
	Time Remaining		✔	✔
	Power		✔	✔
	Cycles			✔
	Total Cycles			✔
	Test Cycles			✔
Inverter	Voltage (RMS)		✔	✔
	Current (RMS)		✔	✔
	Frequency		✔	✔
	Input Voltage (VDC)	Optional	Optional	Optional
Output	Voltage (RMS)	✔	✔	✔
	Current (RMS)	✔	✔	✔
	Frequency	✔	✔	✔
	Real Power (W)		✔	✔
	Apparent Power (VA)		✔	✔
	% Loading		✔	✔
	Crest Factor			✔
	Peak Current			✔
	Power Factor			✔
Alternate Line	Input Voltage	✔	✔	✔
	Input Frequency	✔	✔	✔

To order the CyberWave UPS, please contact your T&B sales representative.

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UL®/NEMA Industrial UPS Systems

CyberWave UPS — 25kVA/20kW, 30kVA/24kW

CyberWave UPS, the world's first digitally controlled UPS for custom industrial applications, combines Cyberex's hallmark rugged electrical design with the versatility of digital signal processors, field-programmable gate arrays and EPROMs to set a new standard in UPS performance and reliability. CyberWave UPS has standard features no other UPS manufacturer can match, including Modbus communications and advanced battery management capabilities and the world's first VGA, full-color touch screen 8" x 11" control panel (PowerPad). In addition, every CyberWave UPS incorporates Cyberex's Digital Static Transfer Switch design for increased system redundancy and reliability.

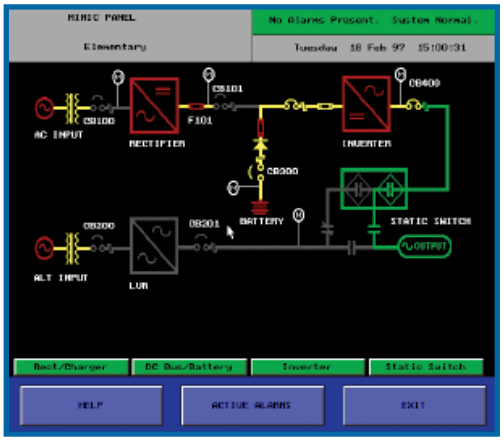


Features

- IGBT-based PWM inverter
- Digital Signal Processing (DSP)
- Fiber optic datapaths
- Full-color touch screen monitor panel
- Full isolation – input/output transformers
- Industrial-grade frame/cabinet
- Fully rated static switch
- Maintenance bypass switch
- Modbus communications
- RS-232 communications port
- Meets NEMA/UL® 1778 specifications

UL®/NEMA Industrial UPS Systems

Mimic Display



Circuit Breakers/Fuse Sizes

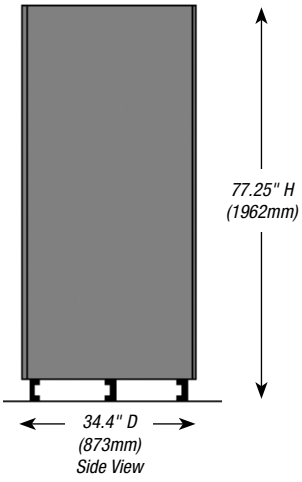
	25kVA/20kW	30kVA/24kW
CB 201 – AF/AT		
208V	250 AF/200 AT	225 AF/250 AT
480V	125 AF/80 AT	125 AF/90 AT
F 101, 201, 202 – Rating (A)		
120VDC	400A	500A
240VDC	200A	250A
CB 102, 154, 159 – Rating (AF)		
120VAC	400A	400A
CB 202, 203, 101 – Rating (AF)		
120VDC	400A	400A

UPS Module



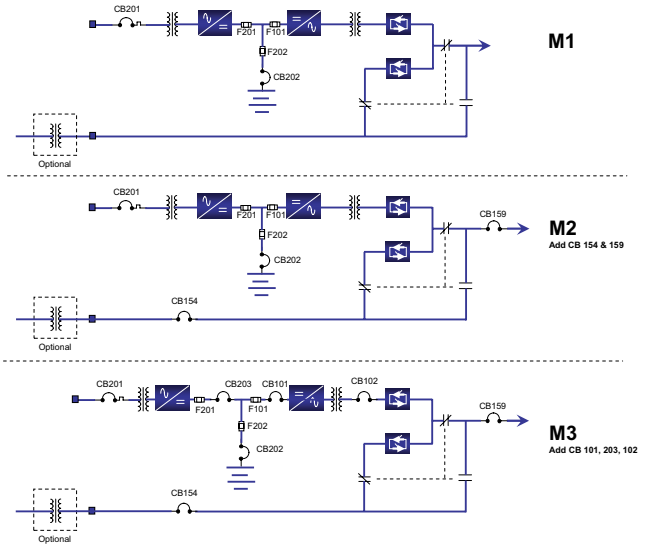
M1

M2 *(Not shown), 74" W (1880mm)*



Side View

Hardware Configuration





Inverter



Isolation Transformer

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UL®/NEMA Industrial UPS Systems

Product Specifications

AC Input		
Input Voltage	480VAC, 3W+G 208VAC, 3W+G	
Max. Input Current @ Rated Load (Nominal VAC)		
(25kVA/20kW)	53A @ 480VAC–123A @ 208VAC	
(30kVA/24kW)	43A @ 480VAC–148A @ 208VAC	
Input Voltage Range	+10, -20% VAC from Nominal	
Input Power Factor	.75 @ Full Load and Nominal	
Current Walk-In	Up to Full Load in 15 Seconds	
Surge Withstand	Meets IEEE 587/ANSI C62.41	
Input Current THD%	30% Typical, 10% with Optional Input Filter	
DC Bus/Battery		
DC Voltage (Nominal)	120VDC (60 Cells Nominal) 240VDC (120 Cells Nominal)	
DC Range	105–140VDC–210–280VDC	
DC Regulation	±.25% from 0 to 100% Load	
DC Ripple	< 2% RMS Ripple @ 100% Load with Battery Connected	
DC-AC Efficiency	88% (Typical)	
DC End Volts	1.75V/Cell End Volts	
Environmental		
Acoustical Noise Level	< 60 dBA @ 3 Feet	
Operating Temperature	0–40° C	
Relative Humidity	0–95% Non-Condensing	
Access	No Rear or Side Access Required for Operations or Maintenance	
AC Efficiency	Typical 83% (kW out/kW in)	
Cooling	Forced Air (in front/out top)	
Heat Rejection		
(25kVA/20kW)	12,050 BTU/hr.	
(30kVA/24kW)	19,320 BTU/hr.	
Operating Altitude	Up to 1000m without Derating Load	
AC Output		
Output Voltage	120V (other voltages available; contact factory)	
Output Current (Nominal)		
(25kVA/20kW)	208A @ 120VAC	
(30kVA/24kW)	250A @ 120VAC	
Voltage Regulation	<±.5% Steady State for 0 to 100% Load Change	
Transient Response	<± 5% for a 100% Load Step <± 1% for a Loss/Return AC Input Power	
	<± 5% for Manual Transfer to Bypass and Back, 100% Load	
	<± 5% for a 100% Load Step	
Recovery	Return to within ± 2.5% of Nominal within 16 msec	
Voltage Distortion	Linear Loads: <± 3.5% @ 100% Load	
Overload	Up to 150% for 15 Min.	
Overload Static Bypass	>1000% for 1 Cycle	
Frequency	60 Hz (50 Hz Optional)	
Frequency Stability	±.1% Free Running	
Frequency Slew Rate	1.0 Hz/Sec. Maximum	
Weight	***25kVA***	***30kVA***
M1	2,300 lb. (1,043kg)	2,590 lb. (1,175kg)
M2	2,560 lb. (1,161kg)	2,850 lb. (1,293kg)
M3	2,620 lb. (1,188kg)	2,910 lb. (1,320kg)

Metering

Three Options: PowerPad 1, PowerPad 2 and PowerPad 3 Metering Value (1% Accurate)

	Metering Features	PowerPad 1	PowerPad 2	PowerPad 3
Rectifier	Input Voltage (All Phase)	✔	✔	✔
	Input Current (All Phase)	✔	✔	✔
	Input Frequency		✔	✔
	Output Voltage (VDC)		✔	✔
	Output Current		✔	✔
Battery	Voltage (VDC)	✔	✔	✔
	Current	✔	✔	✔
	Runtime		✔	✔
	Time Remaining		✔	✔
	Power		✔	✔
	Cycles			✔
	Total Cycles			✔
	Test Cycles			✔
Inverter	Voltage (RMS)		✔	✔
	Current (RMS)		✔	✔
	Frequency		✔	✔
	Input Voltage (VDC)	Optional	Optional	Optional
Output	Voltage (RMS)	✔	✔	✔
	Current (RMS)	✔	✔	✔
	Frequency	✔	✔	✔
	Real Power (W)		✔	✔
	Apparent Power (VA)		✔	✔
	% Loading		✔	✔
	Crest Factor			✔
	Peak Current			✔
	Power Factor			✔
Alternate Line	Input Voltage	✔	✔	✔
	Input Frequency	✔	✔	✔

To order the CyberWave UPS, please contact your T&B sales representative.

UL®/NEMA Industrial UPS Systems

CyberWave UPS — 40kVA/32kW, 50kVA/40kW, 60kVA/48kW

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Features

- IGBT-based PWM inverter
- Digital Signal Processing (DSP)
- Fiber optic datapaths
- Full-color touch screen monitor panel
- Full isolation – input/output transformers
- Industrial-grade frame/cabinet
- Fully rated static switch
- Maintenance bypass switch
- Modbus communications
- RS-232 communications port
- Meets NEMA/UL® 1778 standard

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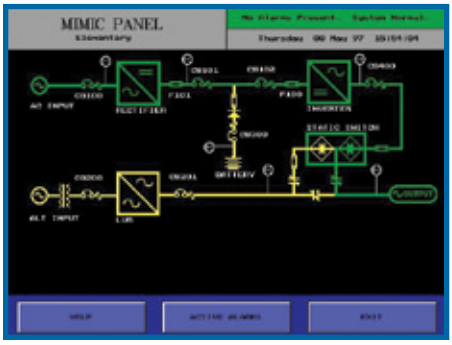
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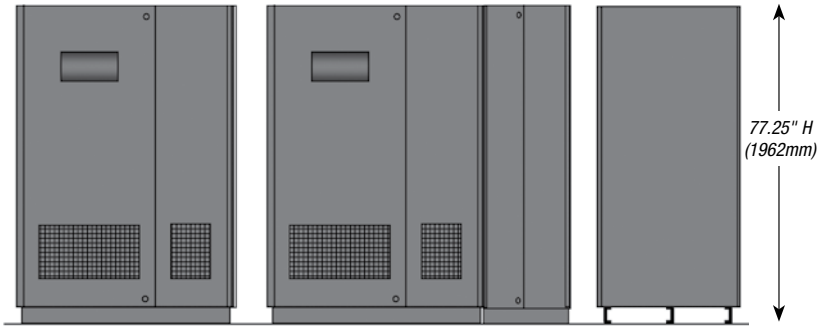
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UL®/NEMA Industrial UPS Systems

Mimic Display



UPS Module



55" W (1397mm)
M1

80" W (2032mm)
M2
M3 (Not Shown) 92" W (2370mm)

34.4" D
(873mm)
Side View

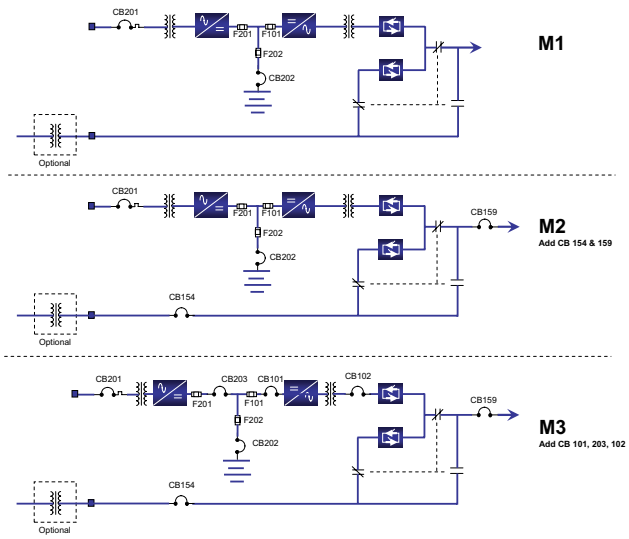
Circuit Breakers/Fuse Sizes

	40KVA/32KW	50KVA/40KW	60KVA/48KW
CB 201 – AF/AT			
208V	400AF/300AT	400AF/350AT	600AF/450AT
480V	125AF/125AT	250AF/150AT	250AF/175AT
F 101, 201, 202 – Rating (A)			
120VDC	600A	800A	800A
240VDC	300A	400A	500A
CB 102, 154, 159 – Rating (AF)			
120VAC	400A	600A	600A
CB 202, 203, 101 – Rating (AF)			
120VDC	600A	600A	600A



Inverter

Hardware Configuration





Isolation Transformer

UL®/NEMA Industrial UPS Systems

Product Specifications

AC Input	
Input Voltage	480VAC, 3W+G 208VAC, 3W+G
Max. Input Current @ Rated Load (Nominal VAC)	
(40kVA/32kW)	80A @ 480VAC–197A @ 208VAC
(50kVA/40kW)	107A @ 480VAC–247A @ 208VAC
(60kVA/48kW)	128A @ 480VAC–296A @ 208VAC
Input Voltage Range	+10, -20% VAC from Nominal
Input Power Factor	.75 @ Full Load and Nominal
Current Walk-In	Up to Full Load in 15 Seconds
Surge Withstand	Meets IEEE 587/ANSI C62.41
Input Current THD%	30% Typical, 10% with Optional Input Filter
DC Bus/Battery	
DC Voltage (Nominal)	120VDC (60 Cells Nominal) 240VDC (120 Cells Nominal)
DC Range	105–140VDC–210–280VDC
DC Regulation	±.25% from 0 to 100% Load
DC Ripple	< 2% RMS Ripple @ 100% Load with Battery Connected
DC-AC Efficiency	88% (Typical)
DC End Volts	1.75V/Cell End Volts
Environmental	
Acoustical Noise Level	< 60 dBA @ 3 Feet
Operating Temperature	0–40° C
Relative Humidity	0–95% Non-Condensing
Access	No Rear or Side Access Required for Operations or Maintenance
AC Efficiency	Typical 83% (kW out/kW in)
Cooling	Forced Air (in front/out top)
Heat Rejection	
(40 kVA / 32 kW)	19,320 BTU/hr.
(50 kVA / 40 kW)	24,196 BTU/hr
(60 kVA / 48 kW)	28,918 BTU/hr
Operating Altitude	Up to 1000m without Derating Load
AC Output	
Output Voltages	120V (other voltages available; contact factory)
Output Current (Nominal)	
(40kVA/32kW)	250A @ 120VAC
(50kVA/40kW)	417A @ 120VAC
(60kVA/48kW)	500A @ 120VAC
Voltage Regulation	<± .5% Steady State for 0 to 100% Load Change
Transient Response	<± 5% for a 100% Load Step <± 1% for a Loss/Return AC Input Power <± 5% for Manual Transfer to Bypass and Back, 100% Load <± 5% for a 100% Load Step
Recovery	Return to within ± 2.5% of Nominal within 16 msec
Voltage Distortion	Linear Loads: <± 3.5% @ 100% Load
Overload	Up to 150% for 15 Min.
Overload Static Bypass	>1000% for 1 Cycle
Frequency	60 Hz (50 Hz Optional)
Frequency Stability	± .1% Free Running
Frequency Slew Rate	1.0 Hz/Sec. Maximum

Weight		
40kVA		
M1	240V – 2,700 lbs. (1,225kg)	120V – 2,500 lbs. (1,134kg)
M2	240V – 2,700 lbs. (1,225kg)	120V – 2,900 lbs. (1,315kg)
M3	240V – 3,500 lbs. (1,588kg)	120V – 2,900 lbs. (1,315kg)
50kVA		
M1	240V – 3,200 lbs. (1,451kg)	120V – 2,800 lbs. (1,270kg)
M2	240V – 3,200 lbs. (1,451kg)	120V – 3,200 lbs. (1,451kg)
M3	240V – 3,800 lbs. (1,723kg)	120V – 3,200 lbs. (1,451kg)
60kVA		
M1	240V – 3,500 lbs. (1,588kg)	120V – 3,200 lbs. (1,451kg)
M2	240V – 3,500 lbs. (1,588kg)	120V – 3,500 lbs. (1,588kg)
M3	240V – 4,200 lbs. (1,905kg)	120V – 3,500 lbs. (1,588kg)

Metering

THREE OPTIONS: POWERPAD 1, POWERPAD 2 AND POWERPAD 3 METERING VALUE (1% ACCURATE)

	METERING FEATURES	POWERPAD 1	POWERPAD 2	POWERPAD 3
Rectifier	Input Voltage (All Phase)	✔	✔	✔
	Input Current (All Phase)	✔	✔	✔
	Input Frequency		✔	✔
	Output Voltage (VDC)		✔	✔
	Output Current		✔	✔
Battery	Voltage (VDC)	✔	✔	✔
	Current	✔	✔	✔
	Runtime		✔	✔
	Time Remaining		✔	✔
	Power		✔	✔
	Cycles			✔
	Total Cycles			✔
	Test Cycles			✔
Inverter	Voltage (RMS)		✔	✔
	Current (RMS)		✔	✔
	Frequency		✔	✔
	Input Voltage (VDC)	Optional	Optional	Optional
Output	Voltage (RMS)	✔	✔	✔
	Current (RMS)	✔	✔	✔
	Frequency	✔	✔	✔
	Real Power (W)		✔	✔
	Apparent Power (VA)		✔	✔
	% Loading		✔	✔
	Crest Factor			✔
	Peak Current			✔
	Power Factor			✔
Alternate Line	Input Voltage	✔	✔	✔
	Input Frequency	✔	✔	✔

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UL®/NEMA Industrial UPS Systems

CyberWave UPS — 75kVA/60kW, 112.5kVA/90kW

CyberWave UPS, the world's first digitally controlled UPS for custom industrial applications, combines Cyberex's hallmark rugged electrical design with the versatility of digital signal processors, field-programmable gate arrays and EPROMs to set a new standard in UPS performance and reliability. CyberWave UPS has standard features no other UPS manufacturer can match, including Modbus communications, advanced battery management capabilities and the world's first VGA, full-color touch screen 8" x 11" control panel (PowerPad). In addition, every CyberWave UPS incorporates Cyberex's Digital Static Transfer Switch design for increased system redundancy and reliability.

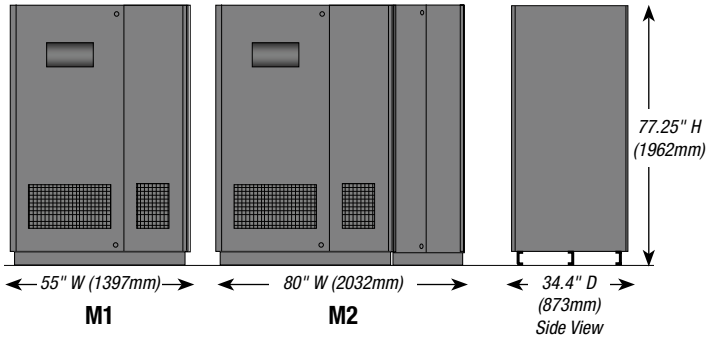


Features

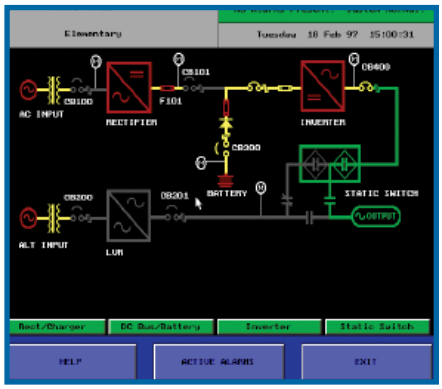
- IGBT-based PWM inverter
- Digital Signal Processing (DSP)
- Fiber optic datapaths
- Full-color touch screen monitor panel
- Full isolation – input/output transformers
- Industrial-grade frame/cabinet
- Fully rated static switch
- Maintenance bypass switch
- Modbus communications
- RS-232 communications port
- Meets NEMA/UL® 1778 standard

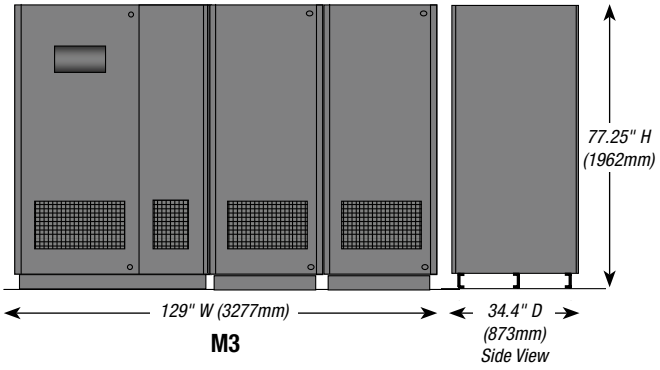
UL®/NEMA Industrial UPS Systems

UPS Module

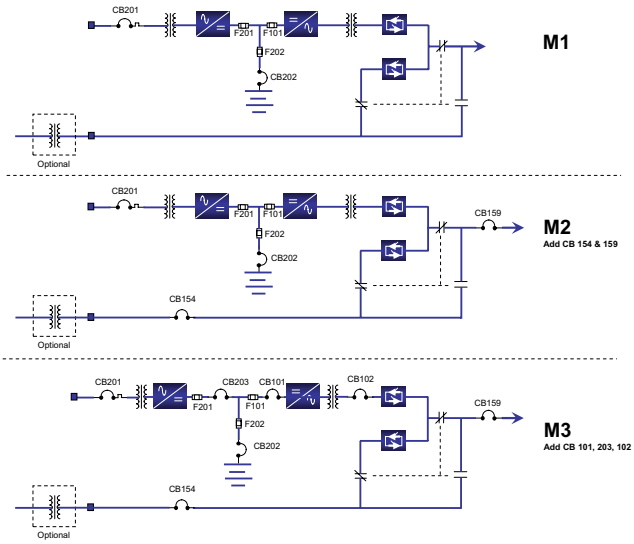


Mimic Display





Hardware Configuration





Inverter



Isolation Transformer

Circuit Breakers/Fuse Sizes

	75kVA/60kW	112.5kVA/90kW
CB 201 – AF/AT		
208V	600AF/600AT	1200 AF/900 AT
480V	250AF/250AT	400 AF/400 AT
F 101, 201, 202 – Rating (A)		
240VDC	500A	800A
CB 102, 154, 159 – Rating (AF)		
120VAC	800A	1200A
CB 202, 203, 101 – Rating (AF)		
240VDC	400A	600A

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Product Specifications

AC Input		
Input Voltage	480VAC, 3W+G 208VAC, 3W+G	
Max Input Current @ Rated Load (Nominal VAC)		
(75kVA/60kW)	160A @ 480VAC–370A @ 208VAC	
(112.5kVA/90kW)	239A @ 480VAC–553A @ 208VAC	
Input Voltage Range	+10, -20% VAC from Nominal	
Input Power Factor	.75 @ Full Load and Nominal	
Current Walk-In	Up to Full Load in 15 Seconds	
Surge Withstand	Meets IEEE 587/ANSI C62.41	
Input Current THD%	30% Typical, 10% with Optional Input Filter	
DC Bus/Battery		
DC Voltage (Nominal)	240VDC (120 Cells Nominal)	
DC Range	105–140VDC–210–280VDC	
DC Regulation	±.25% from 0 to 100% Load	
DC Ripple	< 2% RMS Ripple @ 100% Load with Battery Connected	
DC-AC Efficiency	88% (Typical)	
DC End Volts	1.75V/Cell End Volts	
Environmental		
Acoustical Noise Level	< 60 dBA @ 3 Feet	
Operating Temperature	0–40° C	
Relative Humidity	0–95% Non-Condensing	
Access	No Rear or Side Access Required for Operations or Maintenance	
AC Efficiency	Typical 83% (kW out/kW in)	
Cooling	Forced Air (in front/out top)	
Heat Rejection		
(75kVA/60kW)	12,050 BTU/hr.	
(112.5kVA/90kW)	19,320 BTU/hr.	
Operating Altitude	Up to 1000m without Derating Load	
AC Output		
Output Voltages	120V (other voltages available; contact factory)	
Output Current (Nominal)		
(75kVA/60kW)	625A @ 120VAC	
(112.5kVA/90kW)	933A @ 120VAC	
Voltage Regulation	<±.5% Steady State for 0 to 100% Load Change	
Transient Response	<± 5% for a 100% Load Step <± 1% for a Loss/Return AC Input Power	
	<± 5% for Manual Transfer to Bypass and Back, 100% Load	
	<± 5% for a 100% Load Step	
Recovery	Return to within ± 2.5% of Nominal within 16 msec	
Voltage Distortion	Linear Loads: <± 3.5% @ 100% Load	
Overload	Up to 150% for 15 Min.	
Overload Static Bypass	>1000% for 1 Cycle	
Frequency	60 Hz (50 Hz Optional)	
Frequency Stability	±.1% Free Running	
Frequency Slew Rate	1.0 Hz/Sec. Maximum	
Weight	***75kVA***	***112.5kVA***
M1	4,600 lb. (2,087kg)	2,850 lb. (1,293kg)
M2	5,100 lb. (2,313kg)	7,710 lb. (3,497kg)
M3	5,400 lb. (2,449kg)	8,000 lb. (3,629kg)

Metering

THREE OPTIONS: POWERPAD 1, POWERPAD 2 AND POWERPAD 3 METERING VALUE (1% ACCURATE)

	METERING FEATURES	POWERPAD 1	POWERPAD 2	POWERPAD 3
Rectifier	Input Voltage (All Phase)	✔	✔	✔
	Input Current (All Phase)	✔	✔	✔
	Input Frequency		✔	✔
	Output Voltage (VDC)		✔	✔
	Output Current		✔	✔
Battery	Voltage (VDC)	✔	✔	✔
	Current	✔	✔	✔
	Runtime		✔	✔
	Time Remaining		✔	✔
	Power		✔	✔
	Cycles			✔
	Total Cycles			✔
	Test Cycles			✔
Inverter	Voltage (RMS)		✔	✔
	Current (RMS)		✔	✔
	Frequency		✔	✔
	Input Voltage (VDC)	Optional	Optional	Optional
Output	Voltage (RMS)	✔	✔	✔
	Current (RMS)	✔	✔	✔
	Frequency	✔	✔	✔
	Real Power (W)		✔	✔
	Apparent Power (VA)		✔	✔
	% Loading		✔	✔
	Crest Factor			✔
	Peak Current			✔
	Power Factor			✔
Alternate Line	Input Voltage	✔	✔	✔
	Input Frequency	✔	✔	✔

To order the CyberWave UPS, please contact your T&B sales representative.

UL®/NEMA Industrial UPS Systems

CyberWave Three-Phase UPS

Cyberex® offers a true online, double conversion three-phase output UPS system. It is developed to UL® standards as the optimal solution for applications in oil and gas, power generation and heavy manufacturing processes. Ranging from 10–150kVA, the CyberWave Three-Phase Series incorporates state-of-the-art system topology for higher online system efficiency and longer battery life. In addition, the CyberWave three-phase incorporates Cyberex's Digital Static Transfer Switch design for increased redundancy and reliability and an optimized battery charging technology. Designed for a 20-year life, the CyberWave Three-Phase Series features PWM inverter technology, DSP digital controls, parallel redundancy and rugged overload and fault clearing capabilities. Moreover, the CyberWave three-phase includes features no other UPS manufacturer can match, including superior diagnostics via user interface, fiber optic data paths for enhanced and accurate controls communication and full-color 8" x 6" touch screen user interface panel. For critical industrial applications, the CyberWave Three-Phase Series ensures increased system reliability and security that only can be attained by a true industrial uninterruptible power supply.



10kVA/8kW
20kVA/16kW
30kVA/24kW
40kVA/32kW
50kVA/40kW
60kVA/48kW
80kVA/64kW
100kVA/80kW
125kVA/100kW
150kVA/120kW

Features

- High online efficiency
- Lowest input THD reflected back to source
- IGBT-based PWM inverter
- Advanced Cyberex® Static Transfer Switch design
- Higher online efficiency
- Optimized battery-charging topology
- Flexible battery string configuration
- Input power factor near unity
- Superior diagnostics
- Digital Signal Processing (DSP)
- Full-color touch screen user interface
- Fiber optic data paths
- Full isolation – input/output transformer
- Event log downloadable via USB
- Standard harmonic mitigating output transformer
- Ambient temperature max. 50° C with 10% derating

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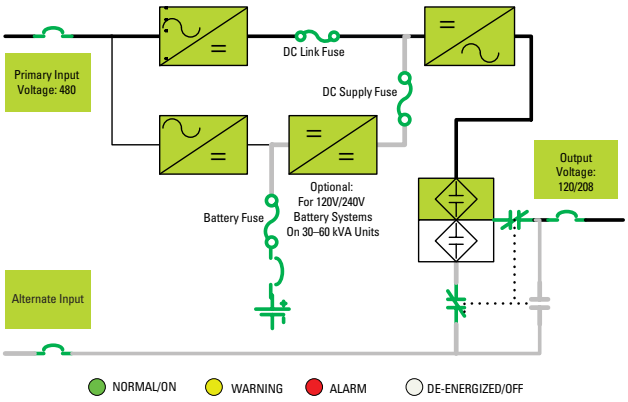
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UL®/NEMA Industrial UPS Systems

Optional Features

- Isolated, parallel and cascade redundancy
- Blown fuse sensing
- Alternate input and output voltages
- 12-pulse rectifier with isolation transformer
- Double rated charger
- Waveform capture feature
- Bottom cable entry
- Protection up to NEMA Type 12
- Remote battery temperature sensing
- Custom colors

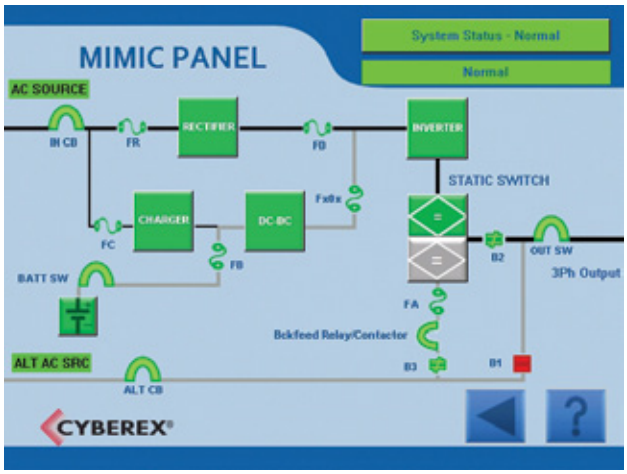
Hardware Configuration



Mimic/LED Indications

- Mains input
- Bypass input
- Load on bypass
- Charger status
- Inverter operation
- Load on inverter
- Synchronization/ bypass inverter
- Battery operations
- Battery discharge
- Battery MCCB
- Alarm indication

Mimic Display



Dimensions

KVA	H (IN.)	W (IN.)	D (IN.)	WEIGHT (LBS.)
10	81.5	50.3	34.4	1540
20	81.5	50.3	34.4	1650
30 (408VDC)	81.5	60.3	34.4	1850
30VDC	81.5	80.5	34.4	1900
40 (408VDC)	81.5	60.3	34.4	1960
40 (120 & 240VDC)	81.5	80.5	34.4	2400
50 (408VDC)	81.5	60.3	34.4	2620
50 (120 & 240VDC)	81.5	80.5	34.4	2700
60 (408VDC)	81.5	60.3	34.4	3000
60 (120 & 240VDC)	81.5	80.5	34.4	3500
80 (408VDC)	81.5	80.5	34.4	4100
80 (240VDC)	81.5	98.5	37	4100
100	81.5	98.5	37	4850
125	81.5	98.5	37	5200
150	81.5	98.5	37	5500

UL®/NEMA Industrial UPS Systems

Product Specifications

UPS Main Input	
Rectifier Voltage	480VAC, 3-Phase, 3W + G
Rectifier Voltage Range	-20% to +15%
Input Power Factor	.92 at Nominal Load
Current Total Harmonic Distortion (THDi)	28% or Better for 6-Pulse, 12% or Better for Optional 12-Pulse
Inrush Current	<150% Rectifier Soft Start (<5 sec.), w/Input Transformer (up to 300%) 1200% of Nominal Full Current Load for 100 ms on Input Transformer
Frequency	60 Hz
Frequency Range	±10% at Higher DC Bus
DC Bus/Circuit	
Voltage	120, 240 or 408VDC
Voltage Tolerance	±1% of Nominal Voltage
Float Voltage Range	100% – 120% of Nominal DC Output Voltage
Equalize (Boost) Voltage Range	100% – 130% of Nominal Output Voltage
Equalize Charge Time	8 – 10X Discharge Time
Charging Current Limitation	Programmable from 20% to 100% of Charger Capacity
UPS Output	
Nominal UPS Rating	kVA at pF .8
Voltage	277/480, 120/208
Voltage Regulation	
Steady State for 0 – 100%	±1%
Unbalanced Load for 0 – 100%	±3%
Dynamic at 100% Load Surge	±5% (return to ±1% within 25 msec)
Recovery Time	<25 msec
Phase Shift	
Balanced Load	120 deg. ± 1 deg.
Unbalanced Load	120 deg. ± 3 deg.
Voltage Distortion	
Linear Load	<5% at 100% Load
Non-Linear Load	<5% at 100% Load
Overload	
Inverter	200% for 200 msec 150% for 1 Min. 125% for 10 Min. 105% Continuous
Static Transfer Switch	1000% for 100 msec 200% for 1 Sec. 150% for 1 Min. 125% for 10 Min.
Nominal Frequency	
Free Running	<±.1%
Synchronization Range	Up to ±8% (selectable ±1% – ±8%)
Slew Rate	1 Hz/Sec.
System Efficiency	>89% w/o Input Transformer
Allowable Power Factor	.4 Lagging to .9 Leading
General Environment	
Ambient Temperature Range for Storage	-20° C – 70° C
Ambient Temperature Range for Operating	0° C – 40° C (to 50° C w/15% derate)
Relative Humidity	10 – 95% Non-Condensing
Operating Altitude	up to 1000m without Load Derating
Access	Front Only Access, No Rear or Side Access Required
Cooling	Forced Cooling with Redundant Fans
Noise Level	60 – 70 dBA Depending on Model
Degree of Protection	NEMA Type 1
Performance Test	IEC 62040-3
Safety	Designed to be UL® 1778, 4th Edition Compliant
EMC	FCC Part 15 Subpart J Class A
Enclosure Color	ANSI 61 Gray

Metering

- **Digital – LC Display**
- **Voltage Meters**
  - Input (Mains)
  - Rectifier
  - Alternate
  - Battery
  - Inverter
  - Load
- **Frequency Meters**
  - Mains
  - Alternate
  - Inverter
- **With True RMS Measurement**
- **Current Meters**
  - Input (Mains)
  - Battery
  - Inverter
  - Load
- **Power Meters**
  - Total kVA
  - Total kW
  - Total Power Factor
  - UPS kVA
  - UPS kW
  - UPS Power Factor

Alarms

Standard Alarms	
Input	Under Voltage
	Over Voltage
DC	Over Voltage
Battery	Discharging
	Under Voltage
	End of Battery Discharge
Inverter	Under Voltage
	Over Voltage
	IGBT Limb Fault
	Overload
	Overload Trip (inverse time)
	Over Temperature
Alternate	Under Voltage
	Over Voltage
	Frequency out of Range
Static Sw	Transfer to Bypass

System Ratings

UPS RATING (KVA)	BATTERY VOLTAGE (VDC) 120	240	408
10	✔	—	—
20	✔	—	—
30	✔	✔	✔
40	✔	✔	✔
50	✔	✔	✔
60	✔	✔	✔
80	—	✔	✔
100	—	—	✔
125	—	—	✔
150	—	—	✔

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IEC Industrial UPS Systems

CyberWave UPS CI Series

Cyberex® offers a true online, double conversion UPS system. It is developed to IEC standards as an optimal and cost-effective solution for applications in oil and gas, power generation and heavy manufacturing processes. Ranging from 10–160kVA, the CyberWave CI Series incorporates state-of-the-art system topology for increased system efficiency and battery life. Designed for a 20-year life, these systems feature PWM inverter technology, DSP digital controls, parallel redundancy and rugged overload and fault clearing capabilities. In addition, the CI Series includes fiber optic data paths for enhanced and accurate controls and communication, an input and output isolation transformer and a fully rated, rugged static transfer switch. For critical industrial applications, the CI Series ensures increased system reliability and security that only comes from having truly uninterruptible power.

Features

- IEC 62040 compliant; ideal for international applications
- IGBT-based PWM inverter; digital signal processor for accurate and reliable controls
- Input power factor near unity at full loads with reducing reflected harmonics
- Single-phase fully rated static switch for increased reliability and security
- Internal communication facilitates high-speed CAN bus for improved signal transfer between processors
- High-speed branch fuse clearing design provides enhanced fault-clearing capability
- Input and output isolation transformer provides continuous, clean and regulated power without external effects
- Monitoring via LAN through SNMP or Modbus communication for accurate system analysis



10kVA/8kW
20kVA/16kW
30kVA/24kW
40kVA/32kW
60kVA/48kW
80kVA/64kW
100kVA/80kW
120kVA/96kW
140kVA/112kW
160kVA/128kW

Hardware Configuration

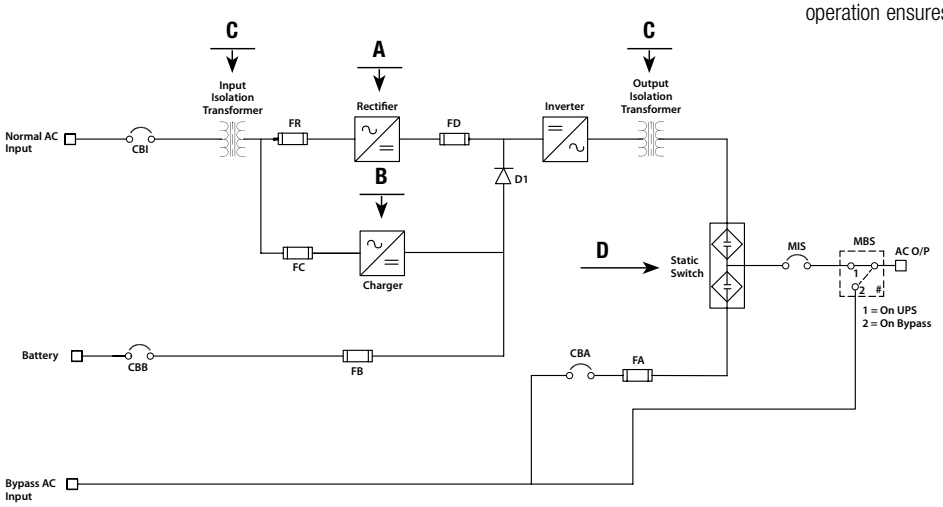
Hardware Configuration Key

A Unregulated bus enables flexible battery string configurations and low reflected harmonics

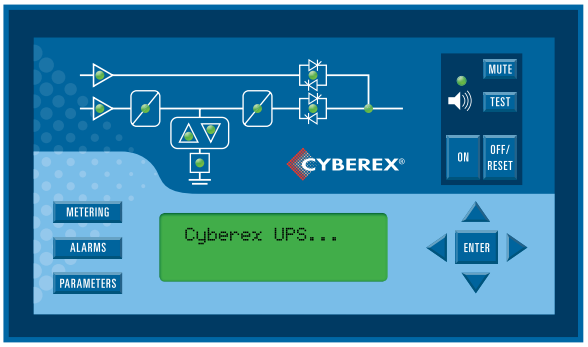
B Separate battery charger reduces ripple on battery for increased battery life and efficiency

C Input and output isolation transformer for maximum reliability

D Fully rated static switch for increased redundancy and reliability — make-before-break operation ensures no load droop



Mimic Display





Mimic/LED Indications

- Mains Input
- Bypass Input
- Load on bypass
- Charger status
- Inverter operation
- Load on inverter
- Synchronization/ bypass inverter
- Battery operations
- Battery discharge
- Battery MCCB
- Alarm indication

Options

- Parallel or hot standby redundancy
- Input isolation transformer
- Bypass line regulator
- AC distribution panel
- PC-based monitoring and recording unit
- RS-485 communication port
- Monitoring on LAN through SNMP
- Monitoring on LAN through Profibus
- Battery monitoring system
- Remote annunciator
- Automatic shutdown kit
- DCS connectivity through Modbus/Profibus
- Individual battery health monitoring systems (BHMS)
- IGBT-based rectifier (<5% THDI)
- 12-pulse rectifier for input harmonic reduction (<10)
- Harmonic filter (5th, 7th, 11th and 13th)

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IEC Industrial UPS Systems

Product Specifications

Main Input	
Voltage	415VAC (Std), 480VAC (optional)
Voltage Range	+15–20% at Full Load +15–25% at 75% Load
Phase	3-Phase, 3-Wire
Frequency	50 Hz (standard) 60 Hz (optional)
Frequency Range	±6%
Input Power Factor	>.95 at Full Load
Input Current Harmonics	<28% at Full Load
DC Bus Charger	
Voltage	110, 120, 220, 240, 360
Maximum DC Bus Ripple without Battery	< 2% RMS 100% Load
Maximum DC Bus Ripple with Battery	< 1% RMS 100% Load
Output	
Nominal Voltage	220/230/240V (standard) 110/115/120V (optional)
Load Power Factor Rated	.80
DC – AC Efficiency	92%
Load Crest Factor	3:1
Voltage Regulation Steady State	±1%
100% Step Load	±5%
Recovery Time	<20 msec return to 98.9% nominal voltage
Overload	125% 10 minutes • 150% 1 minute
Fault Clearing Capability	Fast acting fuse (4 msec)
Bypass Synchronization Window	±1% to 6% Field Programmable
Internal Oscillator	±.1%
Slew Rate	1 Hz/Sec
Total Harmonic Distortion Linear Load	<3%
Nonlinear Load (Crest Factor 3:1)	<5%
Frequency	50 Hz (standard) • 60 Hz (optional)
Operating Conditions	
Ambient Temperature	0–45° C
Altitude	up to 1000 Meters from MSL
Humidity	90% Non-Condensing
Audible Noise @	55–75 dBA at 1 meter (model dependent)
Enclosure	
Construction	CRCA Steel Sheet
Protection Class	IP21 (standard) • IP31, IP41 (optional)
Finish (Powder Coated)	RAL 7032 (other colors optional)
Ventilation	Forced Air (internal fans)
Cable Entry	Bottom (top optional)

Dimensions

kVA	Width	Depth	Height	Weight
10	1870mm 6.1 ft.	750mm 2.46 ft.	1800mm 5.90 ft.	700kg 1540 lb.
20	2630mm 8.6 ft.	750mm 2.46 ft.	1900mm 6.23 ft.	750kg 1650 lb.
30	2630mm 8.6 ft.	850mm 2.79 ft.	2000mm 6.56 ft.	1100kg 2420 lb.
40	2900mm 9.5 ft.	850mm 2.79 ft.	2000mm 6.56 ft.	1500kg 3300 lb.
60	3700mm 12.1 ft.	1000mm 3.28 ft.	2000mm 6.56 ft.	1600kg 3520 lb.
80	3900mm 12.8 ft.	1000mm 3.28 ft.	2000mm 6.56 ft.	2000kg 4400 lb.
100	3900mm 12.80 ft.	950mm 3.12 ft.	2000mm 6.56 ft.	2100kg 4630 lb.
120	3900mm 12.80 ft.	1050mm 3.44 ft.	2000mm 6.56 ft.	2250kg 4960 lb.
140	4200mm 13.78 ft.	1050mm 3.44 ft.	2000mm 6.56 ft.	2400kg 5291 lb.
160	4200mm 13.78 ft.	1050mm 3.44 ft.	2000mm 6.6 ft.	2600kg 5732 lb.

** Dimensions are for PR systems.*

Metering

Meters – Digital – LC Display		Metering with True RMS Measurement	
VOLTAGE METERS	Input (Mains)	**CURRENT METERS**	Input (Mains)
	Alternate		Battery
	Battery		Inverter
	Inverter		Load
	Load		
FREQUENCY METERS	Mains	**POWER METERS**	Total KVA
	Alternate		Total KW
	Inverter		Total Power Factor
			UPS KVA
			UPS KW
			UPS Power Factor

MAJOR ALARMS	TEXT READOUT	LC DISPLAY
INPUT	Under Voltage	Input Low
	Over Voltage	Input High
DC	Over Voltage	High DC Shutdown
BATTERY	Discharging	Bat. Discharge
	Under Voltage	Low Battery
	End of Battery Discharge	Low Battery Trip
INVERTER	Under Voltage	Inv. Low
	Over Voltage	Inv. High
	IGBT Limb Fault	Inv. Sat Trip
	Overload	Overload
	Overload Trip (Inverse Time)	Inv. Over LD Trip
	Over Temperature	Inv. Over Temp
ALTERNATE	Under Voltage	Alt. Low
	Over Voltage	Alt. High
	Frequency Out of Range	Alt. FO
STATIC SW	Transfer to Bypass	Load on Bypass

System Ratings

BATTERY VOLTAGE (VDC)	110	125	220	250 & 260	360
UPS Rating (kVA)	10	10	10	10	—
	15	15	15	15	—
	20	20	20	20	—
	30	30	30	30	—
	40	40	40	40	—
	—	—	50	50	—
	—	—	60	60	—
	—	—	80	80	—
	—	—	100	100	—
	—	—	—	—	120
	—	—	—	—	160

Higher ratings and other voltages available on request.

To order the CyberWave UPS, please contact your T&B sales representative.

Float Battery Chargers

CyberWave RBE II — Three-Phase or Single-Phase (Analog)

CyberWave RBE II industrial float chargers are designed to automatically control charging rates for a wide variety of battery types and to simultaneously provide full-rated output for both continuous and intermittent DC loads. The chargers are constant voltage devices with automatic current limiting. Voltage regulation and current limiting are controlled by solid-state integrated circuitry to ensure maximum performance in minimum space. The CyberWave RBE II is ideally suited to utility, communications and other stationary charger applications.



Computer & Control Systems
Utility & General Industry
Communications & Telecomm

Design Features

Component Selection

- Electronic and electrical components are substantially derated to ensure long life and reliability. Typical MTBF is 100,000 hours minimum. Components are selected or designed to provide a system life expectancy in excess of 30 years.

Modular Construction

- Control circuits, alarm circuits and electrical sub-assemblies are printed circuit board wired or modularized with plug and socket connections for easy serviceability.

Standard Sub-Assemblies

- Control modules and many electrical sub-assemblies are standardized across the entire range of charger sizes. This minimizes spare parts inventory and simplifies maintenance.

Durable

- Front panels are recessed to prevent accidental damage to meters and controls. Standard cabinets are NEMA 1 enclosures of heavy-gauge phosphatized steel with an attractive, long-lasting acrylic enamel finish.

Easy Troubleshooting

- A complete service manual, color-coded wiring, test-point identification and circuit-symbol labeling of internal components make troubleshooting easy.

Ease of Adjustment

- Tap adjustments are not required. Output float voltage, equalize voltage, current limit and alarm levels are potentiometer adjustable.

Ease of Access

- Internal components and connections are easily accessible and/or removable through a hinged front door that opens approximately 180 degrees for easy serviceability.

Ease of Installation

- Cabinets are floor, wall or rack mountable and equipped with knockouts for cable or conduit entrance. Input, output and remote alarm connections are wired to easily accessible, internal terminal blocks.

Random Parallel Operation

- RBE II Series Chargers may be random parallel operated with other chargers of similar regulation and current limit characteristics. Equal load sharing by two chargers requires the addition of the forced load sharing option.

Battery Eliminator Operation

- RBE II Series Chargers will operate as DC power supplies without batteries. Addition of the filtered battery eliminator option will reduce ripple, when used as a battery eliminator, to the greater of .06% or 30mV.

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Float Battery Chargers

Standard Features

- AC on indicating light
- AC input circuit breaker
- DC output fuses
- AC and DC surge suppressors
- DC output ammeter and voltmeter
- Manual float/equalize switch
- Float and equalize adjustment potentiometers
- Current limit adjustment potentiometer
- DC output blocking diode
- DC output protection diode
- Color-coded internal wiring



Typical internal construction detail showing combined alarm-status charger monitor option.

Options and Accessories

- Alarm relays for remote indication
- CASM — combined alarm status monitor
- DC ground detection for local indication
- Equalize timers
- AC fuse
- DC circuit breaker
- Forced load sharing
- High DC voltage charger shutdown
- Filtered battery eliminator
- Input lightning arrestors
- Surge withstand capability
- AC input voltmeter and/or ammeter

Product Specifications

AC Input	
Voltage	Single-Phase: 120/220, 480 or 120/208 Three-Phase: 208, 380 or 480V
Input Voltage Tolerance	+10%, –12%
Frequency	60 Hz
Input Frequency Tolerance	±5%
Efficiency	89–93% (typical at 130VDC)
DC Output	
Voltage Ratings	12, 24, 48, 130 or 260VDC Nominal
Current Ratings	16–600ADC (Three-Phase) 6–100ADC (Single-Phase)
DC Output	±.5% with Input Line Variations ±1.0% against the Combined Variations of Line, Load and Temperature
Output Transient	±5.0% with 20–100% Step Load Change
Response & Recovery	Response & Recovery Recovery to ± 2.0% of DC Voltage within 200 msec Recovery to Steady State DC Voltage within 500 msec
Output Current Limit	110% of Rated Load, Adjustable from 90% to 120% of Rated Load
Output Ripple and Electrical Noise*	Unfiltered: <3% RMS (Three-Phase) <1% RMS (Single-Phase) Filtered: <3% mVrms
** Measured when connected to a battery with an 8-hour, Amp-Hour rating of four times the full load current rating of the charger.*	
Environmental	
Operating Ambient Temperature	0° C to 50° C
Storage Temperature	-40° C to 85° C
Operating Altitude	Up to 1000 Meters without Derating
Relative Humidity	5% to 95% (without condensation)
Audible Noise	< 65 dBA at 5 ft.
Ventilation	6–300ADC: Convection Cooling 400–600ADC: Force Cooling
Heat Loss	70–23,600 BTU/hr.
Size	18.25"–58"W 15"–80"H 12.125"–30"D
Weight	80–1,950 lbs.

SCR Battery Charger DC Output Table

VDC NOMINAL	FLOAT ADJUSTMENT RANGE (VDC)	EQUALIZE ADJUSTMENT RANGE (VDC)	ADC SIZE CELL AVAILABLE (1)		LEAD-ACID CELL CAPABILITY (2) (NO. OF CELLS)		NI-CAD CELL CAPABILITY (3) (NO. OF CELLS)	
			1Ø INPUT	3Ø INPUT	NORMAL	REDUCED VPC	NORMAL	REDUCED VPC
12	10.5–14.5	11.3–16	6 to 100	60 to 100	5–6		8–10	
24	23–30	24.5–32	6 to 100	50 to 600	11–13		17–20	21
48	46–60	48–64	6 to 100	50 to 600	22–26	27	34–40	42
130	115–140	124–150	6 to 50	25 to 600	55–62	63	86–94	98
260	230–280	245–300	6 to 25	16 to 300	110–124	126	172–188	196

(1) The discrete ADC sizes offered within the ranges listed above are 6, 12, 16, 20, 25, 30, 35, 40, 50, 60, 75, 100, 125, 150, 175, 200, 250, 300, 400, 500, 600ADC. All sizes are rated at 100% load. Some current ratings are not available on certain chargers. Consult factory or current price list for exact offerings.

(2) Based on Lead-Acid Float of 2.15 to 2.25V/Cell and equalize of 2.25 to 2.4V/Cell.

(3) Based on Ni-Cad Float of 1.35 to 1.45V/Cell and Equalize of 1.50 to 1.60V/Cell.

To order the CyberWave RBE II, please contact your T&B sales representative.

Float Battery Chargers

CyberWave RBE II — Three-Phase or Single-Phase (Digital)

Design Features

Modular Construction

- Rectifier, microprocessor control, input/output, power transformer, filter and alarm assemblies are all modular and easily replaceable

30-Year Life

- All chargers are engineered for greater than 30-year life with a MTBF of 100,000 hours

Trouble Diagnosis: Less than 60 Minutes

- Trouble diagnosis and repair in an MTTR of less than 60 minutes
- All service can be performed from front of opened unit without disturbing chassis or installed conduit

Flexible Installation

- All chargers can be floor mounted
- Chargers in Style 5018 enclosure can be wall or rack mounted

Fast, Online Adjustment

- Control, alarm and operating level set points are adjusted digitally from the front panel while on line, without the need to vary loads or external conditions

Engineered for Safety and Acceptance

- The battery charger is designed and tested for worldwide applications
  - Meets NEMA PE 5-1996 specification for utility-type battery charger
  - NEMA 1/IP20 type standard enclosure
  - Meets FCC requirements for part 15 subclass J class A
- Agency approvals (for models in Style 5018 and Style 5030 enclosures only):
  - CSA C22.2 Certified
  - Complies with UL® 1012 battery charger and UL 1564 power supply specifications via CSA-NRTL/C listing
  - CE/IEC Compliant
  - Seismic Zone 4 qualified Style 5018 enclosure



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Float Battery Chargers

Standard Features

- 1% digital LED meter for VDC, ADC, timer hours and alarm settings
- AC On indicating light
- AC input and DC output circuit breakers
- Float/equalize selector switch with indicating light
- Manual equalize timer (0–255 hr.) with indicating light
- AC line failure automatic equalize timer (0–255 hr.) with indicating light
- Self diagnostics
- Local or remote voltage sense with redundancy to protect against remote sense failure
- High DC voltage shutdown (HVSD)
- Reverse polarity protection
- Front panel controls can be disabled for security
- MOV surge suppressors, input and output
- Cu/Al I/O compression lugs
- Switchboard insulation system number-coded wiring
- Membrane front panel
- ANSI 61 epoxy powder coat finish
- Alarm assembly with local LEDs and summary relay contact for AC failure, DC failure, high VDC, low VDC, positive and negative ground fault
- Redundant analog circuit for summary alarm operates on low DC voltage, independent of microprocessor
- Custom parts data package and production test data reports shipped with each unit
- User-friendly operating manual with standard drawings
- Quick setup sheet

Options and Accessories

Three-Phase and Single-Phase

- DC output filter per NEMA PE5 1996: 30 mVrms with battery (12/24/48VDC), 100 mVrms with battery (130VDC)
- Battery eliminator filter
- Medium or high AIC circuit breakers
- AC input lightning arrestor
- Fungus proofing (tropicalization)
- Static proofing
- Enclosure drip shield
- External temperature compensation (tempco) via remote probe
- Relay rack mounting (Style 5018 only)
- Padlock with hasp for front panel door
- Cabinet heater assembly
- NEMA 4/12 type enclosure with fan

Three-Phase Only

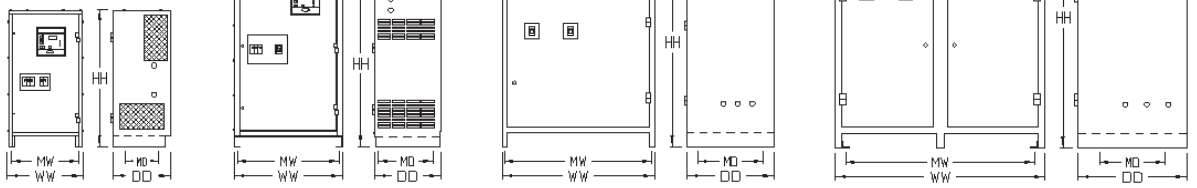
- Auxiliary alarm relay PC board (two form C contacts for all alarms, solderless compression terminals, contact rating is .5A @ 125VAC/VDC, accepting #22– #14 AWG wire)
- Copper ground pad (with Cu/Al compression lug)
- Wall mounting (Style 5018 only)
- Communications module for DNP3 Level 2 or Modbus protocols
- Forced load-sharing module (for two units of identical rating only)
- Analog AC ammeter
- Analog AC voltmeter
- Zero-center ground detection meter
- End-of-discharge alarm
- Battery-discharge alarm
- Custom drawing package with optional CAD and PDF files
- ABS certification upon request

Single-Phase Only

- Individual alarm contacts for each of the alarms
- Ground pad with #4 AWG lug
- Floor stand

ENCLOSURE DIMENSIONS

CABINET STYLE		5018	5030	163	198
Overall Dimensions (mm)	HH	37.95 (964)	54.25 (1378)	62.00 (1575)	80.00 (2032)
	WW	20.90 (531)	30.00 (762)	42.00 (1067)	58.00 (1473)
	DD	16.77 (426)	19.14 (486)	24.00 (610)	30.00 (762)
Mounting Dimensions (mm)	MW	18.50 (470)	27.90 (710)	40.00 (1016)	52.00 (1321)
	MD	9.00 (229)	15.00 (381)	18.00 (457)	18.00 (457)



Style 5018 *Style 5030* *Style 163* *Style 198*

Float Battery Chargers

Options and Accessories for Microprocessor Control Battery Charger

- Lightning arrester
- Medium interrupting capacity circuit breakers
- High interrupting capacity circuit breakers
- Temperature compensation
- Drip shield
- NEMA 4/12/13 enclosure
- Cabinet heater
- Padlock for front panel
- Standard output filtering
- Battery eliminator filtering
- Auxiliary relay PC board
- Ground pad
- Fungus proofing
- Forced load sharing
- Rackmount brackets
- Communications option

Product Specifications

AC Input	
Voltage	102, 208, 240, 480 or 550VAC, 60 Hz; 220, 380 or 415VAC, 50/60 Hz
Input Voltage Tolerance	+10%, -12%
Input Frequency Tolerance	±5%
Power Factor	.80 Typical Full Load
Efficiency	89–93% (typical at 130VDC)
DC Output	
Voltage Ratings	12, 24, 48 or 130VDC Nominal
Current Ratings	25–1000ADC (three-phase) 6–100ADC (single-phase)
Continous Ratings	110% Rated Current at Maximum Equalized Voltage of 50° C
Voltage Regulation	± .25% for Line, Load, Frequency and Temperature Variations
Electrical Noise/Ripple	30mVrms, 32 dBrnC Weighted Maximum on Filtered Units
Surge Withstand Capability	Meets IEEE 472/ANSI C37.90a
Environmental	
Operating Ambient	32° F to 122° F (0° C to 50° C) Temperature without Derating
Operating Altitude	3300 ft. (1000m) above Sea Level without Derating
Relative Humidity	5% to 95% (without condensation)
Audible Noise	Less than 65 dBA at Any Point 5 ft. (1.5m) from Any Vertical Surface of Enclosure

To order the CyberWave RBE II, please contact your T&B sales representative.

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Standalone Inverter Systems

CyberWave ISS

CyberWave ISS, the world's first digitally controlled Inverter/Static Switch System for custom applications, combines Cyberex's hallmark rugged electrical design with the versatility of digital signal processors, field-programmable gate arrays and EPROM's to set a new standard in ISS performance and reliability for industrial applications.

CyberWave ISS has standard features no other ISS manufacturer can match, including real-time voltage harmonic control and the world's first VGA, full-color touch-screen 8" x 11" control panel (PowerPad). In addition, every CyberWave ISS incorporates Cyberex's patented Digital Static Transfer Switch design for increased system redundancy and reliability.

Features

- IGBT-based PWM inverter
- Full digital controls with DSPs
- Full isolation output transformer
- Full-color touch-screen monitor panel
- RS-232 communications port
- Bidirectional fully rated static switch
- Maintenance bypass switch
- Fiber optic datapaths
- Surface-mount PCB technology



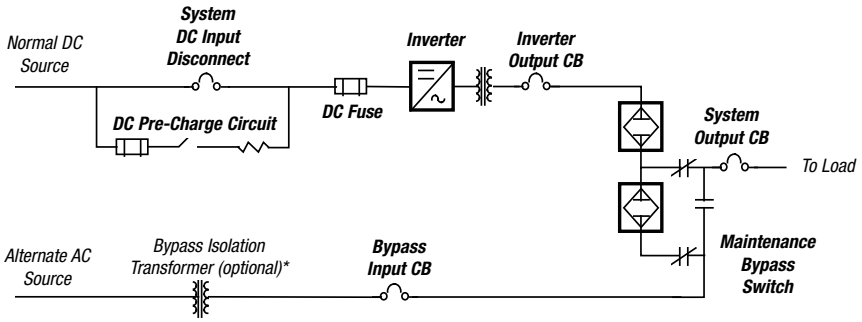
Inverter



Isolation Transformer

Hardware Configuration Summary

	INPUT			INVERTER					BYPASS			SYSTEM		
	DC INPUT BREAKER (NON-AUTO)	INPUT FUSE	INPUT PRE-CHARGE CIRCUIT	INVERTER INPUT CB (NON-AUTO)	IGBT PWM INVERTER (<5% VTHD FOR CF=3)	INTERNAL IGBT FUSES	INVERTER OUTPUT ISOLATION TRANSFORMER	INVERTER OUTPUT CB (NON-AUTO)	BYPASS CB	BYPASS ISOLATION TRANSFORMER	BYPASS VOLTAGE REGULATOR	MAINTENANCE BYPASS SWITCH	STATIC SWITCH: FULLY RATED, BI-DIRECTIONAL	SYSTEM OUTPUT CB (NON-AUTO)
M1	X	X	X		X	X	X			0	0	X	X	
M2	X	X	X		X	X	X		X	0	0	X	X	X
M3	X	X	X	X	X	X	X	X	X	0	0	X	X	X



** When alternate line transformer is needed, Cyberex recommends an M2 or M3 configuration*

Standalone Inverter Systems

Product Specifications

METERING		P1	P2	P3
INPUT	DC Input Voltage (A, B, C)	◆	◆	◆
	DC Input Current (A, B, C)	◆	◆	◆
INVERTER	Voltage (RMS)		◆	◆
	Current (RMS)		◆	◆
	Frequency		◆	◆
OUTPUT	Voltage (RMS)	◆	◆	◆
	Current (RMS)	◆	◆	◆
	Frequency	◆	◆	◆
	Real Power (W)		◆	◆
	Apparent Power (VA)		◆	◆
	% Loading		◆	◆
	Crest Factor			◆
	Power Factor			◆
	Line Phase Difference			◆
ALTERNATE LINE	Input Voltage	◆	◆	◆
	Input Frequency		◆	◆
NUMBER OF METERS		7	13	16

EVENTS/ALARMS	PARAMETERS	P1	P2	P3
INPUT	DC Input CB Open	Optional	Optional	Optional
	DC Input Fuse Blown	Optional	Optional	Optional
	DC Bus OK	◆	◆	◆
	DC Ground Fault Positive		◆	◆
	DC Ground Fault Negative		◆	◆
	DC Input Available/Failure			Optional
	DC Input Voltage High/Low			Optional
	DC Input Current High		Optional	Optional
INVERTER	OK	◆	◆	◆
	Failure	◆	◆	◆
	Overload	◆	◆	◆
	Current Limit	◆	◆	◆
	Sat Trip Event	◆	◆	◆
	Overtemp	◆	◆	◆
	Output Voltage High			◆
	Output Voltage Low			◆
	Output Frequency High			◆
	Output Frequency Low			◆
	Input CB Open	Optional	Optional	Optional
	Output CB Open	Optional	Optional	Optional
	Input Fuse Blown	Optional	Optional	Optional
BYPASS	Alternate Line OK	◆	◆	◆
	Alternate Line Fail	◆	◆	◆
	Sync Loss	◆	◆	◆
	STS on Alternate	◆	◆	◆
	STS on Preferred	◆	◆	◆
	Alt Line CB Open	Optional	Optional	Optional
OUTPUT	Load on Inverter	◆	◆	◆
	Load on Bypass	◆	◆	◆
	STS on Preferred	◆	◆	◆
	STS on Bypass	◆	◆	◆
	Output to Ground Fault			◆
	Output Failure			◆
	MBS in Normal Position	◆	◆	◆
	MBS in Bypass	◆	◆	◆
	MBS in Bypass Isolate	◆	◆	◆
	STS Output CB Open	Optional	Optional	Optional
	Emergency Power OFF			Optional
GENERAL	Inverter/Rectifier Normal	◆	◆	◆
	MBS Position	◆	◆	◆
	Summary Alarm	◆	◆	◆
	Fan Failure		◆	◆
	Cabinet Overtemperature	◆	◆	◆
OTHER	Event Log	◆	◆	◆
	STS Test		◆	◆
	Mimic Panel			◆

ENVIRONMENTAL SPECIFICATIONS	
Acoustical Noise Level	Less Than 60dBA at 3 Feet
Operating Temperature	0–40° C, 0–50° C Optional
Relative Humidity	0–95% Non-Condensing
Access	No Rear or Side Access Required for Operation or Maintenance
Cooling	Forced Air; Optional Redundant Fan Assemblies
Operating Altitude	Up to 1000m with No Derating Load
Standard Paint	Light Gray ANSI 61 Option: Cyberex White
DC Input Rating	
DC Voltage	Standard 240VDC, 120VDC Optional
Input Voltage	Nominal Voltage +10% and -20%
AC Output Rating	
Inverter Power	Rated at 0.8 Power Factor
Voltage	120V, 240V Optional (International Voltages Available)
Voltage Adjustability	+5% of Nominal
Voltage Regulation	< +1.5% Steady State for 0–100% Load Change
Transient Response	< +5% for a 100% Load Step < +1% for Loss or Return of AC Input Power < +5% for Manual Transfer to Bypass and Back @ 100% Load
Voltage Recovery	Return to within +2.5% of Nominal Value within 16 Milliseconds (One Cycle)
Voltage Distortion	Linear Loads: <2% at Full Load Non-Linear Loads (Crest Factor = 3:1): Max 5% at Full Load
Overload: Inverter	Up to 150% of Rated Output Power for 15 Minutes at Min. DC Bus and Input Voltage at 40° C Up to 150% of Rated Output Power for 5 Minutes at 50° C
Overload: Static Bypass	10–20kVA: 1193A RMS Symmetrical with XL/R = 15 for One Loop 25–30kVA: 1491A RMS Symmetrical with XL/R = 15 for One Loop 40–75kVA: 5321A RMS Symmetrical with XL/R = 15 for One Loop
Frequency	60 Hz Nominal, 50 Hz Optional
Frequency Stability	+.1% Free Running
Frequency Slew Rate	1.0 Hz/Sec. Maximum
Product Standards	
UL® 1778, ETL, CSA, CE & Seismic Zone 4 Compliances Available	
FCC Part 15 Subpart J Class A Compliant	
Year 2000 Compliant	
In Accordance with NEMA and IEC Product Standards	

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Standalone Digital Static Transfer Switches

Digital Static Transfer Switch



Cyberex's single-phase standalone Digital Static Transfer Switch (DSTS) increases overall electrical system reliability by adding redundancy where it counts most — at the point of use. This single-phase standalone DSTS is ideal for rugged industrial applications such as oil platforms, petro-chemical processing applications and power generation plants. It features Modbus communications for remote monitoring of alarms, system status and setpoints enabling users to select the standalone DSTS preferred source from a host computer.

Backed by Cyberex's 40-year history of single-phase DSTS design, this standalone DSTS features an exclusive solid-state design for longevity and reliability.

Features

- SuperSwitch design
- ¼ cycle break-before-make transfers
- Redundant logic and gate drive power supplies
- CMOS logic and DSP implementation for high-speed sensing and transfers
- Rugged, high-reliability SCR devices eliminate potential mechanical failures
- Internal fiber optics for high reliability
- Integral maintenance bypass
- Redundant fans
- Modbus RS-232 communications

Options

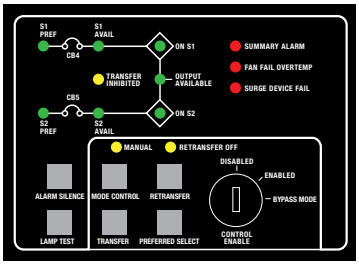
- Remote setpoint adjustments
- Operating temperature up to 50° C
- Various service access
- Enhanced enclosure

100A
200A
400A
600A
800A

Standalone Digital Static Transfer Switches

Product Specifications

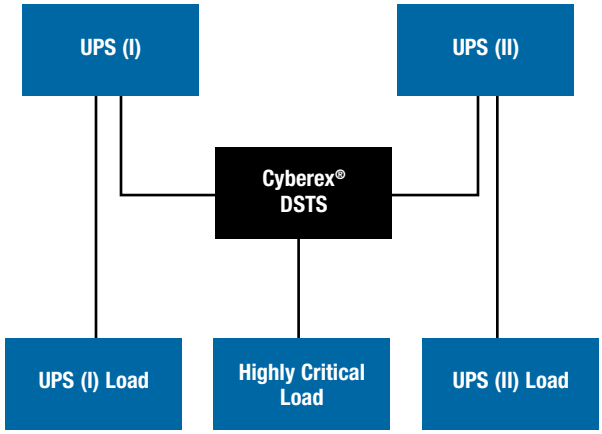
Electrical Characteristics	
Ampacity	100–800A
Voltage	120VAC
Interrupt Rating	65A
# Poles	1-Pole
Frequency	60 Hz
Operational Characteristics	
Transfer	Automatic or Manual
Auto Transfer	4 ms (or less)
Controls	Preferred Select Transfer: 2 ms Retransfer Control Alarm Silence Mode Control
Temperature	0–40° C
Humidity	0–95% Non-Condensing
Audible Noise	< 50 dBA at 1 Meter
Alarm Relays (Programmable)	Source 1 Source 2 Manual Mode Auto Re-Transfer Off Critical Alarm Summary Alarm
User Interface	
Status Indicators	***Indicators (LEDs)***
Source 1 (Available)	Source 1 (Preferred)
Source 1 (Preferred)	Source 2 (Preferred)
Source 2 (Available)	On Source 1
Source 2 (Preferred)	On Source 2
On Source 1	Source 1 (Available)
On Source 2	Source 2 (Available)
Output Available	Output Available Re-Transfer Off Source 2 (Preferred) Manual Mode Active Fan Failure Transfer Inhibited Summary Alarm
Alarms	
Fan Fail	Shorted SCR Source 1
Over-Temperature	Shorted SCR Source 2
Manual Mode	Transfer Inhibited
Auto Retransfer Off	Source 1 Unavailable
Surge Device Fail	Source 2 Unavailable
Output Unavailable	Loss of Internal Comm.
Open SCR Source 1	Critical Alarm
Open SCR Source 2	Summary Alarm
Standards	
NEMA (All Applicable Standards)	
Designed to UL® 1008	



Mimic Display


Front View Showing
Hinged Access Panels

Typical Applications



Ordering Information

CAT. NO.	AMPS	VOLTS	DIM. (W x D x H)	WEIGHT
DSF0-10100-126-120-6N065	100A	120V	25" x 34" x 77"	1000 lbs.
DSF0-10200-126-120-6N065	200A	120V	25" x 34" x 77"	1200 lbs.
DSF0-1400-126-120-6N065	400A	120V	25" x 34"x 77"	1400 lbs.
DSF0-10600-126-120-6N065	600A	120V	25" x 34" x 77"	1500 lbs.
DSF0-10800-126-120-6N065	800A	120V	37" x 34"x 77"	1600 lbs.

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Power Distribution Systems

100–400A Industrial Distribution Module

Today's industrial applications require the most technologically advanced support systems to ensure state-of-the-art power quality needs. The Cyberex® IDM provides the flexibility to expand your industrial distribution needs. Fed from your existing redundant UPS system, the IDM readily provides up to two 42-circuit output panelboards.



Features

- Industrial design includes switches, fuse and blown fuse indication for rugged application
- Easy maintenance access enables low mean time to repair (MTTR), minimizing critical load interruption
- Wall or floor mounted
- Spacious cable management for frequent wiring changes
- Top or bottom power feed entry simplifies installation for existing facility architecture
- System monitoring includes a relay for blown fuse indicator
- Compact footprint maximizes valuable real estate

Product Specifications

Electrical	
Ampacity	100–400A
Input/Output Voltage	120/120VAC (contact factory for other variations)
Input/Output Phase	1-Phase, 2-Wire + G
Frequency	60 Hz
Type	Fused Switches or Breakers
Panel-boards	Up to (2) 42-Circuit Output
Input Breaker	Up to (2) Input Breakers
Indication	Blown Fuse Indicators (Relay)
Subfeed Breakers Available	Contact Factory
Operating Conditions	
Temperature (Operating)	0° to 40° C
Temperature (Storage)	-40° to 60° C
Maximum Operating Altitude	8,200 ft. (2,500m)
Access	Front Access Only – Wall Mounted
Cooling	Natural Convection Cooling
Dimensions/Weight	
1 Panelboard	**2 Panelboards**
Height 51" (129.54cm)	Height 80" (203.2cm)
Depth 10.5" (26.67cm)	Depth 10.5" (26.67cm
Width 30" (76.2cm)	Width 60" (152.4cm)
Weight 250 lb. (113.40kg)	Weight 600 lb. (272.16kg)
General	
Hinged Dead Front Panel	
Single Point Ground	
Branch Circuit Breaker or Fused Switches	
Optional Additional Fuse on Hot Side	
Optional Circuit Monitoring	
Optional Transient Voltage Surge Suppression	
Communications	
Modbus 485	
Standards	
NEMA (All Applicable Standards)	
FCC Compliant (Part 15)	

Power Distribution Systems

Catalog Numbering System

A – Panelboard Quantity*	
1	1 Panelboard
2	2 Panelboards
B – Monitoring	
L0	No Monitoring
L1	Main Voltage Indicator
L2	Blown Fuse Indicator
C – Amperage*	
100	100A
200	200A
225	225A
400	400A
D – Input/Output Voltage*	
1	120VAC
E – Frequency*	
6	60 Hz

** Other variations available — please contact factory.*

Model Example:

IDM 1 - L0 - 100 - 1 - 6
A B C D E



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