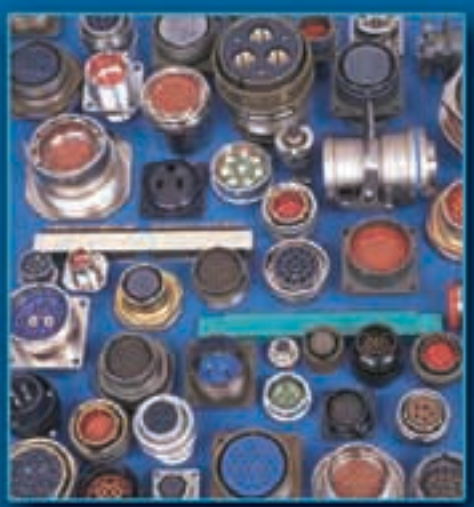
Military Aerospace and Industrial Operations

Product Overview



Connecting You to the Broadest Range of Interconnection Products in the Marketplace

Amphenol

Amphenol Solutions by Design

Military/Aerospace Solutions

It makes sense to come to Amphenol, the Military Aerospace Interconnection Product Leader. We have the engineering resources to address most any aerospace and ground vehicle interconnection design need. We have earned the reputation as the leader in the military electrical connection arena and our products are used on major programs that include the following and more:

- *International Space Station*
- *B1*
- *B2*
- *Stinger*
- *M1A2 Tank*
- *EA6B*
- *IRIS*
- *Bradley Fighting Vehicle*
- *Rafale*
- *AEGIS*
- *Long Bow*
- *Black Hawk*
- *ATIRCM*
- *Patriot*
- *F-22*
- *F-35*
- *Gripen*
- *AH-64D*
- *RAH-66*
- *F-18 E/F*
- *F-15*
- *Bowman*
- *F-16*
- *DD-51*
- *DD-X*
- *NSSN*
- *THAAD*
- *MILSTAR*
- *Harpoon*
- *C17*
- *EH101*
- *JTRS*
- *Tomahawk*
- *AAAV*
- *LAV*
- *Sincgars*
- *ATACMS*
- *LANTRIN*

Industrial Solutions

Amphenol and Pyle Industrial offers more choices, more solutions, more options than any other interconnection manufacturer and continues to develope products for emerging industrial/commercial technologies. We assist in the design of products to meet environmental stresses such as extreme temperatures, high insertion forces, vibration and most corrosive environments.

Our knowledge of industrial applications have made us a leader for reliable, proven connector solutions in such industrial markets as:

- *Process Control*
- *Communications*
- *Rail Mass Transit*
- *Heavy Equipment*
- *Petrochemical*
- *Power Generation*

Amphenol Aerospace & Amphenol Industrial Operations

Amphenol Aerospace (AAO)

We take pride that Amphenol-Aerospace is the undisputed leader in interconnect systems for aerospace/harsh environment applications. Such applications require a high degree of engineering sophistication and precision manufacturing capability that only a company that has been in the interconnection product design and manufacturing business for over 100 years can offer.

The AAO, Amphenol Aerospace division of Amphenol Corporation is the leading manufacturer of military aerospace connectors in the world. Brand names include Amphenol®, Pyle-National® and Matrix®.

An important segment of Amphenol Aerospace is the Amphenol Backplane Systems (ABS) facility in New Hampshire. With over 30 years of experience, ABS is the leading manufacturer of custom backplane interconnects for military and aerospace programs. Another Amphenol facility is Advanced Circuit Technology, Inc. or ACT, where flex circuitry products are manufactured.

Amphenol Industrial Operations (AIO)

Industrial Operations of Amphenol was consolidated and made a separate division in 2001 in order to give increased focus on the commercial, industrial interconnection marketplace. Dedicated to meeting customer needs for industries such as process control, factory automation, power generation plants, heavy equipment and mass transportation, Amphenol Industrial products meet a multitude of these applications with cost effective and reliable interconnects.

Amphenol Facilities and Distribution Support

The main facility which houses both the AAO and AIO Amphenol divisions is located in upstate New York and is over 675,00 sq. ft. (photo below). This incorporates state-of-the-art manufacturing technologies, product engineering and development. The facility is both ISO9001/AS9100 certified and qualified to MIL-STD-790 requirements.

Four satellite plants (shown right) have extended manufacturing, engineering and production responsibilities. All facilities have the same stringent quality standards that are carried out through design, process control practices in manufacturing and through customer commitment in marketing and sales. Amphenol Aerospace and Amphenol Industrial Operations are each supported by large distributor networks all over the world.

The Corporation of Amphenol employs approximately 13,900 people* on a worldwide basis and has manufacturing and assembly operations in the Americas, Europe and Asia.

* Reported in the Amphenol Corporation 2003 Annual Report.

Amphenol Backplane Systems (ABS) facility in Nashua, NH houses the manufacturing, design and engineering of backplane systems.

Amphenol Advanced Circuit Technology facility in Nashua, NH houses the manufacture, design and engineering of flex circuit products.

Amphenol facility in Nogalas, Mexico houses the manufacture of several industrial and aerospace connector product lines.

Amphenol Power Solutions in Fraser, MI houses the manufacture of RADSOK® and power cable products.

The main facility of Amphenol Aerospace and Amphenol Industrial Operations is located in upstate New York and has been in the interconnection product marketplace since World War II.

Manufacturing capabilities include state-of-the-art CNC machining, die-casting, molding, impact and extruding, plating, screw machining and process controls.

A fully equipped material evaluation laboratory and a highly qualified engineering support organization provide the degree of experience and skills for development, testing and quality production of the interconnects demanded in today's military, aerospace and industrial arenas.

Amphenol Aerospace operates Quality Systems that are certified to ISO9001: 2000 by third party Registrars.

Excellence in Design and Manufacture of Interconnection Products

Amphenol Aerospace and Amphenol Industrial Operations are highly integrated to design, manufacture, assemble and ship an extensive variety of military and commercial/industrial types of electrical, mechanical, filtered, sealed or fiber optic interconnections.

Advanced Engineering Capabilities

Amphenol has become the leader in interconnection products through its long history of engineering expertise for product solution solving. Many of the military specifications for cylindrical connectors were developed by Amphenol, formerly Bendix Connector Operations, at the Sidney, NY facility, and we continue to lead the way with many of today's interconnection demands for high speed digital signaling, filter protection devices, and fiber optic solutions.

New and innovative solutions are under development every day within our highly skilled engineering departments who are teamed with marketing product managers and production specialists. The teams have a customer-driven approach to produce the end result: defect-free parts, cost effectiveness, shorter lead and delivery times, and satisfied customers.

Environmental & Material Testing Capability

Sophisticated in-house testing facilities provide the qualification and specialization required for many of our connector products. The engineering materials laboratory specializes in metallurgy, polymers, adhesives and finishes. Capabilities for testing include vibration and shock testing, humidity, engagement/separation force evaluation, durability testing, as well as salt spray/fog, corona, ESD, optical performance testing, altitude simulation, and electrical characterization analysis.

Amphenol Meets The Most Demanding Interconnection Applications.

Within this publication, you will see the very broad range of products that are supplied by Amphenol. Engineering problem solving to meet special application needs, combined with system solutions incorporating additional products offered by other Amphenol divisions, make Amphenol the complete interconnection product supplier.

Expert design and applications engineering provides solid modeling and full Pro-Engineer® capabilities to develop new interconnection designs and perform structural analysis.

Large contact production area produces a wide variety of contacts for the many families of cylindrical and rectangular connectors.

High technology production centers create volume runs that are cost effective and meet on-time delivery demands.

Precision measuring and testing is performed to meet military and aerospace program requirements.

Highly trained machinists, technicians, and engineers are located in all the facilities of Amphenol to make sure parts are produced to the quality demands that our customers expect.

Amphenol Aerospace Interconnects meet high performance and general duty applications










Interconnects for Military Aircraft and Shipboard Applications

Amphenol has the world's broadest selection of cylindrical and rectangular connectors that exceed the high reliability and harsh environmental requirements for military aircraft and ships. When the success of the mission is critical, Amphenol is the clear choice for dependable connector products. Products include:

- MIL-DTL-38999 Series I, II and III
- MIL-C-5015
- MIL-C-83723
- Hermetic connectors
- Filter Protection connectors
- Fiber Optics
- MIL-C-55302 Rectangulars with low mating force Brush contacts
- LRM/Backplane Rectangulars
- Data Bus Transmission Twinax contacts

Interconnects for Military Ground Vehicles

Amphenol's high performance heavy duty connectors exceed all specification and program requirements for military ground vehicles. Amphenol connectors are also used in battlefield radio systems. Products include:

- MIL-DTL-38999 Series I, II and III
- MIL-C-5015
- MIL-C-22992
- MIL-C-26482
- MIL-C-55302 Rectangulars with low mating force Brush contacts
- Filter Protection connectors
- Data Bus Transmission Twinax contacts
- Hermetic connectors
- Fiber Optics

Interconnects for Space Applications

Amphenol was selected as the primary supplier for electrical connectors for the International Space Station. Our connectors are used in every electrical application from signal transmission to power distribution. Astronaut safety and program achievement are directly dependant upon our high performance connectors. Amphenol's success and reputation in a variety of space programs was a key factor in NASA's choice. The following military specs and interconnection types are used for space applications:

- SSQ-Q-21635
- MIL-DTL-38999 Series I, II and III
- Filter Protection connectors
- Energy Suppression connectors
- Hermetic connectors
- Fiber Optics
- LRM/Backplane Rectangulars

See further details of these products and all the other Amphenol Mil-Aero application products within this catalog.












Interconnects for Commercial Aircraft

The combined demand for high performance and efficiency leads the world's major commercial aircraft manufacturers to Amphenol. A complete range of interconnection products support the airframe and airline system manufacturers:

- MIL-C-26500
- MIL-C-83723
- Data Bus Couplers and Transmission Lines
- Hermetic connectors
- Filter protection connectors
- Energy Suppression connectors
- SWAMP area connectors

Interconnects for Missiles and Ordnance

From micro-miniature connectors to umbilical Failsafe release connectors, to Shear connectors, Amphenol's technology has met the mission critical requirements of today's smart weapons. Products for the missile and ordnance marketplace include:

- MIL-DTL-38999 Series I, II and III
- MIL-DTL-38999/29, /30 and /31 Lanyard Release
- MIL-STD-1760
- Hermetic connectors
- Fiber Optics

Interconnects for Turbine Engines

High reliability is critical in the demanding environment of heat, vibration and corrosive elements of military and commercial turbine engines. Amphenol manufactures a full range of connectors qualified and proven for these harsh environmental applications:

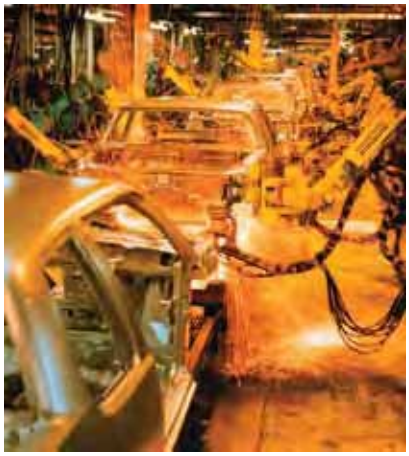
- MIL-DTL-38999 Series III
- MIL-C-5015
- MIL-C-83723
- Filter protection connectors
- Energy Suppression connectors

Interconnects for Military and Commercial Electronic Equipment

Amphenol supplies a broad range of cylindrical and rectangular connectors not only to the military test equipment marketplace, but also to the industrial and medical equipment markets. The same mission critical specifications that are demanded by the military serve the stringent life support requirements of medical instrumentation. Products include:

- MIL-DTL-38999 Series I, II and III
- MIL-C-5015
- MIL-C-22992
- MIL-C-55302 with low mating force Brush contacts
- Hermetic connectors
- Fiber Optics

Amphenol Industrial Interconnects meet a wide variety of industrial/commercial applications








Interconnects for Process Control

Amphenol has power and signal circular connectors that are used in:

- Factory automation, robotics, machine tool equipment
- Test, measurement and instrumentation equipment
- Medical equipment
- Portable welding equipment

Products include:

- 97 Series
- Mil-Type 5015 & AC
- Swiftmate® push/pulls
- Pre-Earth, FMLB
- Amphe-Lite, Industrial 38999

Interconnects for Telecommunications

Amphenol has been in the forefront of developing interconnects for the fast-pace telecommunications industry with coax cable, fiber optic and copper networks, LAN networks and interconnects for cellular handsets, and is reaching into opportunities for base stations, satellites and switching systems. Interconnects for telecommunications include:

- Cylindrical Connectors series:
  - Amphe-Lite, Industrial 38999
  - Reverse Bayonet
  - PT Miniature
  - JT Subminiature
  - 97 Series
  - Cylindricals with PC tails
  - EMI Filter and lightning suppression
- Rectangular connectors with Brush contacts for low mating force and high performance

Interconnects for Heavy Equipment

Amphenol has earned the reputation for supplying interconnect products that provide continual, reliable performance in demanding environmental conditions such as mining, construction and agricultural sites. Products for the heavy equipment marketplace include:

- Mil Type 5015 and 97 Series
- Connectors with black zinc alloy plating
- Reverse Bayonet
- PT Miniature

Interconnects for Rail, Mass Transportation

Amphenol offers the broadest choice of interconnect solutions in the marketplace for Railway and Mass Transportation.

Amphenol's product specialists jointly design with their customers to develop interconnect systems that will meet their particular issues of product performance, safety and cost effectiveness.

For the Rail and Mass Transit markets, the variety of interconnects includes:

- Freight-Mate™ cable assembly for ECP braking systems
- High voltage connectors for "Third Rail" applications
- Reverse Bayonet
- PT Miniature
- Fiber Optics
- Intercar Jumpers

Interconnects for Power Generation and Petro-Chemical

Amphenol technology provides innovative interconnect solutions for the demanding environmental requirements for equipment used in Power Generation, Geophysical and Oil & Gas Exploration. Amphenol environmental heavy duty cylindrical connectors provide many features and benefits, including:

- Circuit Breaking – U/L & CSA Listed
- Environmental Resistance
- Solder, crimp and pressure terminated contacts
- Reversible inserts
- Double-lead thread coupling in the Star-Line Series
- Reverse Bayonet coupling in the Star-Lok Series
- Star-Line EX Series listed for Zone 1 applications

See further details of these products and all the other Amphenol industrial application products within this catalog.

Amphenol®/Pyle®/Matrix® Quick Product Guide

Subminiature Cylindrical Connectors

MIL-C-27599 Solder

Military #	Proprietary #
MS20026	LJT00
MS20027	LJT01
MS20028	LJT06
MS20029	LJT07
MS27334	JT00
MS27335	JT02
MS27336	JT06
MS27337	JT07

MIL-DTL-38999* Series I & II

Military #	Proprietary #
MS27466	LJT00R
MS27467	LJT06R
MS27468	LJT07R
MS27469	LJT00Y
MS27470	LJT07Y
MS27471	LJTIY
MS27472	JT00R
MS27473	JT06R
MS27474	JT07R
MS27475	JT00Y
MS27476	JT02Y
MS27477	JT07Y
MS27478	JTIY
MS27479	JTS00R
MS27482	JTS00Y
MS27483	JTS07Y
MS27484	JTG06R
MS27496	LJT02R
MS27497	JTPQ00R
MS27499	JT02R
MS27500	JT08R
MS27503	JTSIY
MS27505	LJTP02R
MS27508	JTP02R
MS27656	LJTPQ00R

MIL-DTL-38999* Series III

	Metal	Composite (CTV)
D38999/20	TVP00R	CTVP00R
	TVP02R	CTVP02R
D38999/26	TV06R	CTV06R
D38999/24	TV07R	CTV07R
	TV01R	CTV01R
	TV09R	
D38999/21	TVPS02Y	Hermetic
D38999/23	TVS07Y	Hermetic
D38999/25	TVSIY	Hermetic
D38999/27		
D38999/29	TV Failsafe Lanyard Release Plug	
D38999/30	TV Failsafe Lanyard Release Plug	
D38999/31	MIL-STD-1760 Plug	

Other Proprietary 38999 Types

T-Line Series
Amphe-Lite Industrial
SJT (meets European Specifications)
Clutch-Lok TV/MTV (for high vibration)
38999 Power

MIL-C-81511

Military #	Proprietary #
M81511/01E	348-40E
M81511/03E	348-43E
M81511/05E	348-41E
M81511/06E	348-46E
M81511/18	348-140
M81511/21E	348-30E
M81511/23E	348-33E
M81511/25E	348-31E
M81511/26E	348-36E

Note: MIL-DTL-38999 supersedes MIL-C-38999

Miniature Cylindrical Connectors

MIL-C-26482 Series 1 Solder

Military #	Proprietary #
MS3110	PT00
MS3111	PT01
MS3112	PT02
MS3113	PTIH
MS3114	PT07
MS3116	PT06

MIL-C-26482 Series 1 Crimp

Military #	Proprietary #
MS3120	PT00SE
MS3121	PT01SE
MS3122	PT02SE
MS3124	PT07SE
MS3126	PT06SE
MS3127	MF02SE
MS3128	MF00SE

MIL-C-26482 Series 2

	Amphenol Part #	Matrix Part #
MS3470	PTS00DR	MB10
MS3471	PTS01DR	MB13
MS3472	PTPS00DR	MB11
MS3474	PTS07DR	MB14
MS3475	PTGS06DR	MB16
MS3476	PTS06DR	MB18

Other Proprietary (MIL-C-26482 Type)

PT-CE	SP-CE	PC-SE
SP	PC	PC-CE
SP-SE	Matrix MBL	AIPT

MIL-C-83723 Series III Available in Pyle or Matrix Part No.

M83723/71 thru /78
M83723/82 thru /92
M83723/95, /96
Matrix only: M83723/66 thru /69 Quick Disconnect
MB3, MT3

MIL-C-26500

MS24264	ZZY
MS24265	ZZW
MS24266	MS27613
BACC45FN, FT, FS, FM	
MS27614	
BACC63BP, BV	MS27615
BACC63CB, CC	

Other Proprietary Miniature Types

67 Series 165 Series

www.amphenol-aerospace.com
www.amphenol-industrial.com
www.amphenol-abs

Standard/Heavy Duty Cylindrical Connectors

MIL-C-5015 Solder	97 Series Solder	97 Series Crimp
MS3100	97-3100	97-4100
MS3101	97-3101	97-4101
MS3102	97-3102	97-4102
MS3106	97-3106	97-4106
MS3107	97-3107	97-4107
MS3108	97-3108	97-4108

97 Series is UL Approved file E115497(N) and CSA Approved certification file LR69183

Matrix MIL-C-5015 Crimp Rear Release

MS3450	9440
MS3451	9441
MS3452	9442
MS3454	9444
MS3456	9446
MS3459	9816
	9817 Quick Disconnect
	9818 Quick Disconnect

Proprietary GT Series (5015 inserts) (Reverse Bayonet)

GT-A	GT-G	GT-AGG
GT-AF/F	GT-R	GT-PP
GT-CF/CFZ	GT-RV	GT-PC
GT-CFGG	GT-E	GTC-M
GT-LCF/LCFZ		

Proprietary ACA-B Series

ACA-B Reverse Bayonet (5015 inserts)

Proprietary AC Series

AC Threaded (5015 inserts)

Heavy Duty

QWLD	Class L
MS17343	MS90555
MS17344	MS90556
MS17345	MS90557
MS17346	MS90558
MS17347	
MS17348	

Pyle Star-Line (UL, CSA listed)
Pyle Star-Line EX (certified for use in Zone 1-IIC hazardous environment)
Pyle Star-Lok (UL, CSA listed)

Amphe-Power Connectors with RADSOK Technology

High Amperage RADSOK sockets available in P-Lok Series, GT Series, 5015 (AC) Series, and several custom designs.

Other Proprietary Standard and Heavy Duty Types

Commercial Aircraft types:
DC Series and 10-244 Series
BT-M, BT-MA and BT-RA

Other Proprietary types:
Pre-Earth FMLB Series, 7 Series,
MS Modified types,
QWL, QWP Heavy duty types

We invite you to visit our websites where you can find product catalogs that can be downloaded and printed either as single pages or as multi-page documents. Catalogs will be added and updated on an on-going basis to this website.

We also invite you to contact us at: Phone: 607-563-5011 or 800-678-0141
Fax: 607-563-5157

Amphenol®/Pyle®/Matrix® Quick Product Guide

Engine Connectors (Class K Firewall)

D38999/20	BACC63BR/BT
D38999/24	BACC63CN/CM
D38999/26	M83723/82-92
ESC-10, 11	M83723/95, /96, /97
EN2997	ASN-EO

MIL-C-26500 types: FPK, FPL, FP5K, FYL

EMI Filter/Transient Protection Devices

Intermateable with/Features of

- FTV - MIL-DTL-38999 Series III
- FJT - MIL-DTL-38999/27599 Series II
- FLJT - MIL-DTL-38999/27599 Series I
- FSJT - Proprietary SJT
- FBL - MIL-DTL-38999 Series IV
- FPT - MIL-C-26482 Series 1 & 2, MIL-C-83723 Series I

Other EMI Filter/Transient Protection Devices

MOV's	Hermetic Filters
Diodes	Programmable
EMP	Filter Adapters
"AN" Filters	Filtered Plugs

Amphenol Canada Filter Products:
485 Series Filtered ARINC
MIL-DTL-24308 Filter D-Subs
MIL-DTL-83513 Micro D-Subs

Fiber Optic Products

Multi-Channel Fiber to Fiber Systems with MIL-DTL-38999 Series III Connectors and Fiber Optic Termini:
- Multi-mode Size 16 & 20
- Single mode Size 16
- 90 degree Multi-mode Size 16

Advanced Fiber Optic with Captivated Alignment Sleeves

Other Fiber Optic Products

MFM Family: Hermaphroditic, Duplex, Simplex
Fiber Optic Active Plug
TFOCA*two* Connectors
CTOS, CTOL Field Deployable Lens
2-4-8 Channel Weatherproof Optic Conn.
Multi-way Backplanes
Optical Backplane Systems
Space Application Fiber Optics
MTC Cylindrical Series
Brush & Fiber Optic Hybrid Rectangulars
Tactical Optical Splice
Fiber Optic Termination Tools

Rectangular Printed Circuit Board Connectors

MIL-C-55302 with Bristle Brush Contacts

M55302/166	MB ( )-( )P
M55302/167	MB ( )-( )W
M55302/168	PC ( )-( )P
M55302/169	IO ( )-( )C
M55302/169	IO ( )-( )P
M55302/170	DB ( )-( )P

MIL-C-55302 with Crimp, Solder or PCB Contacts

M55302/67-69	PCB90A
M55302/70-71	PCB100A
M55302/76-77	PCB100B
M55302/74-75	PCB100C
M55302/72-73	PCB150A
SIHD Series	
SIAL Series	

LRM Surface Mount with Bristle Brush Contacts

Series available in 80-472 positions
SEM-E Format available
Power Supply Modules
RF and Fiber Optic Modules
Ruggedized VME64-X
Ruggedized VME P0/J0 MT

Backplane Connectors with Tuning Fork & Blade Contacts

UHD (Ultra High Density) Connectors
NAFI Daughtercard/Backplane Conn.

Other Rectangular Connectors

I/O NAFI Series
LMD and LMS Modulars
SIM Modulars
SIHD, SIAL Interconnects

Backplane Systems

Electrical and Optical Backplane Systems that can incorporate:
- MIL-C-55302 Brush Contacts
- NAFI Fork and Blade Contacts
- UHD Fork and Blade
- ARINC
- MIL-DTL-38999 Cylindricals
- MT Optical Ferrules

Rack & Panel Connectors

Rectangular	Cylindrical
LPSRC, SR	RNJ
217 Series	
LE, LPX Series	
ARINC 404, ARINC 600	
RFM Modular Series	
Micro D-Subs	

Special Purpose Interconnection Products

Hermetics

Available in the following series:
MS Standard MIL-C-5015
Miniature MIL-C-26482
Subminiature MIL-DTL-38999 I, II, III

Breakaway/Lanyard Release

Available in the following series:
Fail-Safe Subminiature MIL-DTL-38999
Twist-Pull Miniature MIL-C-26482
Quick Disconnect Matrix MIL-C-83723
Quick Disconnect Matrix MIL-C-5015
Stores Management Type II, Rail Launch Gatelink Breakaway

Battlefield Interconnects & Cables

Stinger Missile types
EMC Protected & Over-molded Cable Audio Connectors
Sincgars, Bowman Program Connectors
Wind Corrected Munitions Dispenser

Rail Mass Transit/Industrial Interconnects & Cables

Freight-Mate Cable Assemblies
Trans-Power & 27 Pole Train-Line,
Over-molded Cable available with any Amphenol Cylindrical Industrial.

Data Bus Products

Can Couplers, Box Couplers
ARINC 629 Current Mode Couplers
Wire Integrated Connectors (W.I.C.s)
ARINC 629 Bus Cable Assys./Terminators
711 Data Bus

Other Special Purpose Products

RJ Field, USB Field, MTRJ Field, EZ Field Aquacon Immersible
Pyle Pon Series Indicator Lights
WFRS Interlocked Safety Switches
Pyle Quelarc Heavy Duty
Astronaut Zero-G Connectors
PMAT (ARINC 644)
Geophysical Miniatures
SCE and Mini SCE Push Pull Connectors
PPS Push-Pull Miniatures
Shorting Plugs
Micro-Miniature Connectors
ECTA 133, ECTA 544
Amphe-Base, Amphe-Com, Hi-Lok Series
Quick Connection Modules
1900 Rectangulars

Contacts, Accessories

Crimp M39029, Thermocouple, Wire Wrap
Coaxial, Twinax, Triax, Quadrax and Differential Twinax Shielded Contacts
Bristle Brush Contacts for Rectangulars
Fork & Blade Contacts for Rectangulars
Fiber Optic Termini
RADSOK Contacts for High Amperage
M85049 Accessories
Band Backshell Accessories
Pyle Cord Grips
Thermal Clamps
Pipe & Cable Supports
Relay Sockets and Junction Modules
For Attachment to Printed Circuit Boards:
- Press Fit Connectors
- Cylindricals with PC Tail Contacts
- Universal Header Assemblies
- Flex Circuit Assemblies
- Printed Circuit Bd. Terminal Blocks
- Wiring Interface Modules

Solutions by Design - Amphenol is Your One-Stop Source For All your Interconnection Product Needs.

This vast array of interconnection products surpasses other connector manufacturers, and represents the Amphenol expertise to provide almost any interconnection solution. We assist in the design of products and make experienced recommendations to our customers that will meet their specific performance requirements.

Subminiature Cylindrical

Amphenol Subminiature Family Main Features:

- **Lightweight, compact, high contact density**
- **Most popular cylindrical for high performance and environmental resistance**
- **The most sophisticated cylindrical connector to meet military aerospace demands under severe conditions**
- **Wide variety of customer options**

Mil-Specs covered within the Subminiature Family:

- MIL-DTL-38999 Series I, II, III
- MIL-C-27599 Series I
- MIL-C-81511 Series I

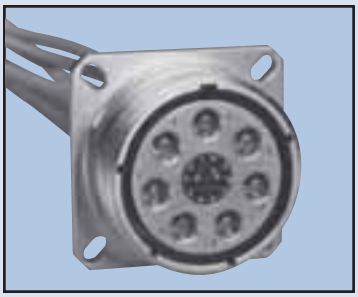
Tri-Start MIL-DTL-38999 Series III - The High Performance Subminiature Choice for Maximum Versatility

Amphenol® Tri-Start™ MIL-DTL-38999 Series III

Fiber Optic Multi-Channel D38999

Composite Tri-Start Qualified to MIL-DTL-38999, Rev. J

Filter/Transient Protection D38999

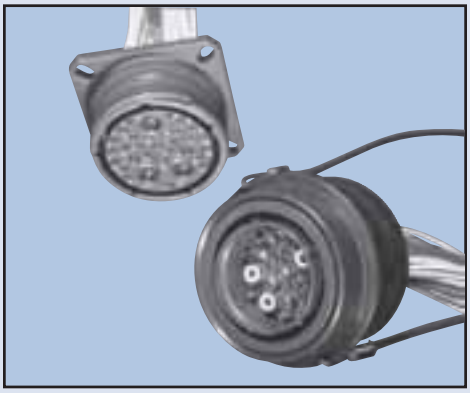


D38999 Ground Plane with Metallic Insert, Power Contacts and Shielded Twinax Contacts

Designed for performance, the Amphenol Tri-Start is the universally accepted leader in compact, lightweight cylindrical connector technology. It offers the highest performance capabilities for both general duty and severe environment applications.

Additional styles shown here and available in the Amphenol Tri-Start Series include:

- Firewall Class RK and RS with Stainless Steel shells
- New Clutch-Lok™ MTV 38999 for high vibration environments
- Hermetic Receptacles
- ESD Protection with Faraday cage
- New 38999 Power connectors with high amperage contacts
- Space application connectors
- PCB and compliant press-fit terminations



MIL-DTL-38999 Lanyard "Breakaway" Connector with Concentric Twinax Contacts, Qualified for MIL-STD-1760

D38999 with Flex Termination

D38999 with PC Tail Coax Contacts and PC Tail Alignment Disc

Please see our websites:
www.amphenol-aerospace.com
www.amphenol-industrial.com

Tri-Start™, MIL-DTL-38999 Series III

Reference Catalog 12-092

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
TV Series D38999 High performance, general duty and severe environmental applications.	MS versions meet or exceed MIL-DTL-38999 Series III. Lanyard release style meets MIL-STD-1760 requirements.	Threaded coupling. Quickly and completely mate in one 360° turn of the coupling nut. Self locking - lockwiring is eliminated. 5 key/keyway polarization eliminates mismating. Universal mounting holes for front or rear mounting. Locksmith metal keying to aid in blind mating.	Crimp termination. Recessed pins (100% scoop-proof feature minimizes contact damage). Also available with PCB and compliant press-fit termination (See Cylindrical Connectors for PCB application on pages 52-53).	Operating temp. from –65°C to +200°C. Superior EMI shielding is achieved through the combination of grounding fingers and solid metal to metal mating. IP67 rating for environmental sealing. Corrosion resistance: shells of stainless steel or cadmium over nickel plating withstand a 500 hr. salt spray exposure. Operating voltage to 900 VAC (RMS) at sea level.

TRI-START SPECIALS:

Tri-Start with Quadrax Contact

TRI-START SPECIALS:

Tri-Start with Deep Reach Shell

Tri-Start with Stand-off Flange

Tri-Start Fail-Safe Breakaway with Improved Durability Composite Shell

OPTIONAL FEATURES

- 6 shell styles plus special deep-reach shells for increased panel thickness and special stand-off flange shells for attachment to printed circuit boards.
- Special design wih integral strain reliefs.
- Over 50 insert patterns.
- Hermetic seal (glass fusion) receptacle styles available.
- Stainless Steel Firewall, Class K styles available. (See Engine Connectors, page 21.
- Variety of shell finishes.
- Twinax, coax, triax, quadrax and filter contacts and fiber optic termini options. See contact section at end of catalog.
- Ground plane versions (see page 13).
- Fail-safe lanyard release plug style versions. See page 59.
- Printed circuit board contacts, wire wrap and compliant press-fit contacts.
- ESD (Electrostatic Discharge Protection) available with use of Faraday cage to shunt high voltages.
- Additional EMI/RFI protection devices can be integrated. See Filter section.
- Flex termination assemblies for attachment to PCB boards. (See page 53).

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft
- Medical Equipment
- Space Applications

Composite Tri-Start™, MIL-DTL-38999 Series III

Reference Catalog 12-092

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
CTV Series D38999 Same high performance, environmental capability of metal shell 38999 Series III. Composite shells. Provides 17% to 70% weight savings over metal, and enhanced corrosion resistance.	MS versions meet or exceed MIL-DTL-38999 Rev. K.	Threaded coupling. Completely intermateable with standard metal D38999 Series III.	Crimp termination. Recessed pins (100% scoop-proof feature minimizes contact damage).	Operating temp. from –65°C to +200°C. IP67 rating for environmental sealing. Corrosion resistance: composite shells withstand 2000 hrs. of salt spray exposure. Operating voltage to 900 VAC (RMS) at sea level.

OPTIONAL FEATURES

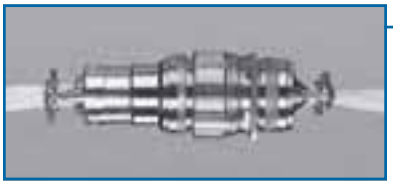
- 3 shell styles, utilizing same insert patterns as metal Series III.
- Includes all options available in metal Series III, except firewall capability.
- Unplated shells available.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft
- Space Applications

Clutch-Lok™ High Vibration, MIL-DTL-38999 Series III

Reference Brochure SL-383 and Catalog 12-092.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
TV/MTV Series D38999 Meets all MIL-DTL-38999 Series III requirements plus unique inner clutch design provides enhanced anti-vibration and anti-decoupling capability.	Meets or exceeds MIL-DTL-38999 Series III.	Threaded coupling. Quick low force mating in one 360° turn of the coupling nut. Mates with standard Series III receptacles.	Crimp termination. Recessed pins (100% scoop-proof feature minimizes contact damage).	Operating temp. from –65°C to +200°C. Stainless steel shells and Class K firewall inserts meet higher temperature ranges. IP67 rating for environmental sealing. High degree of differential torque. Actually tightens itself under vibration, which provides advantages in hard to reach areas. Operating voltage to 900 VAC (RMS) at sea level.

OPTIONAL FEATURES

- Includes all options available in metal Series III.
- Stainless steel firewall, Class K styles. (See Engine Connectors, page 21).

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft
- Mining Applications
- Space Applications

JT, MIL-DTL-38999 Series II and MIL-C-27599 Series II

Reference Catalog 12-090 - Crimp
Reference Product Data Sheet 158 - Solder

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
JT Series MS27473 High performance capability for both general duty and severe environmental applications. Shorter profile, designed for maximum weight/ space savings.	Crimp style MS versions meet or exceed MIL-DTL-38999 Series II. Solder style MS versions meet or exceed MIL-C-27599 Series II.	3 point bayonet coupling and 5 key/ keyway mating.	JT, MIL-DTL-38999 Series II is crimp termination. JT, MIL-C-27599 Series II is solder termination.	Operating temp. from –65°C to +200°C. EMI shielding is achieved with optional grounding fingers. IP67 rating for environmental sealing. Operating voltage to 900 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 6 shell styles with 70 insert patterns.
- Hermetic seal (glass fusion) receptacle styles available.
- Crimp termination (MIL-DTL-38999, II) has most options.
- Fixed solder termination (MIL-C-27599, II) also available.
- Variety of shell finishes.
- Twinax, coax, triax, filter contacts and fiber optic termini options.
- Printed circuit board contacts, wire wrap, compliant press-fit and thermocouple contacts.
- Flex termination assemblies for attachment to PCB boards.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft
- Medical Equipment

LJT, MIL-DTL-38999 Series I and MIL-C-27599 Series I

Reference Catalog 12-090 - Crimp
Reference Product Data Sheet 158 - Solder

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
LJT Series MS27473 High performance capability for both general duty and severe environmental applications. Longer shell profile than JT.	Crimp style MS versions meet or exceed MIL-DTL-38999 Series I. Solder style MS versions meet or exceed MIL-C-27599 Series I.	3 point bayonet coupling and 5 key/ keyway mating	LJT, MIL-DTL-38999 Series I is crimp termination. LJT, MIL-C-27599 Series I is solder termination. Both have recessed pins (100% scoop-proof feature minimizes contact damage).	Operating temp. from –65°C to +200°C. EMI shielding is achieved with standard grounding fingers. IP67 rating for environmental sealing. Operating voltage to 900 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 6 shell styles with 90 insert patterns.
- Hermetic seal (glass fusion) receptacle styles available.
- Crimp termination (MIL-DTL-38999, I) has most options.
- Fixed solder termination (MIL-C-27599, I) also available.
- Variety of shell finishes.
- Twinax, coax, triax, quadrax and filter contacts and fiber optic termini options.
- Printed circuit board contacts, wire wrap, compliant press-fit and thermocouple contacts.
- Flex termination assemblies for attachment to PCB boards.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft

Ground Plane Connectors, MIL-DTL-38999 Series I, II & III Types

Reference Product Data Sheet 139

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
For high speed Data Bus, LAN and coax, triax and twinax data transmission. Incorporates MIL-DTL-38999 receptacle shells with contacts grounded to a metallic insert.	Offers MIL-DTL-38999 type high performance capabilities.	Threaded or bayonet coupling. Uses metal shell of MIL-DTL-38999 Series I, II or III, but with special metallic inserts.	Crimp termination.	Operating temp. from –65°C to +200°C. IP67 rating for environmental sealing.

OPTIONAL FEATURES

- 40 popular insert patterns that incorporate coax, twinax or triax contacts
- Option of mixing grounded shielded contacts and insulated M39029 signal or power contacts in the same connector.
- Ground plane connectors can be designed into Tri-Start, JT, LJT or SJT Subminiature connectors.
- Stainless steel or composite shells available.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft
- Medical Equipment
- Space Applications

SJT Series, Non-MS 38999 Type

Reference Catalog 12-091

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
SJT Series High performance capability for both general duty and severe environmental applications. Expansion of the basic JT Series, but incorporates scoop-proof design of the LJT Series.	Compliance with European Specifications: PAN6433-2, LN29729, BS9522F0012, VG96912	3 point bayonet coupling and 5 key/ keyway mating	Crimp termination. Recessed pins (100% scoop-proof feature minimizes contact damage).	Operating temp. from –55°C to +200°C. Operating voltage to 900 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 5 shell styles and over 60 insert patterns.
- Hermetic seal (glass fusion) receptacle styles available.
- High temperature styles available.
- Variety of shell finishes.
- Coax contacts, solderless wrap contacts available.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft
- Medical Equipment

MIL-DTL-38999 Series I & III Power Connectors

Reference Amphenol Socapex Catalogs E116, E117, E122, E123 and Amphenol Aerospace Catalog 12-092.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Same high performance, environmental capability of MIL-DTL-38999 Series I and III, but designed for higher amperage needs.	Meets or exceeds applicable areas of MIL-DTL-38999 Series I and III.	Same bayonet metal shell as MIL-DTL-38999 Series I or threaded metal shell for MIL-DTL-389999 Series III, but with special insert patterns incorporating large size contacts and RADSOK technology for 500 Amps.	Crimp termination.	Operating temp. from –65°C to +175°C. IP67 rating for environmental sealing. Operating voltage to 400 VAC (RMS) at sea level. Contact rating: 4 X 60 Amps, 4 X 100 Amps, 1 X 250 Amps and 1 X 500 Amps.

OPTIONAL FEATURES

- 4 shell styles, utilizes special inserts with larger size contacts. for power amperage outputs (from 60 to 500 Amps).
- Available in RNJ configuration (See page 57).

MARKETS

- Batteries
- Connectors between shelters
- Power Suppllies

Amphe-Lite™, Non-MS Commercial 38999 Type

Reference Catalog 12-094

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
AL Series Commercial 38999, Series III type connector for higher performance industrial usage.	Offers 38999 type high performance capabilities for severe environment applications, yet is cost effective enough for general duty and non-environmental use.	Threaded coupling. Quickly, completely mates in one 360° turn of the coupling nut. Self locking - lockwiring is eliminated. Universal mounting holes for front or rear mounting, locksmith metal keying to aid in blind mating.	Crimp termination. Recessed pins (100% scoop-proof feature minimizes contact damage).	Operating temp. from –55°C to +125°C. IP67 rating for environmental sealing. Class F provides excellent EMI shielding. Class U provides a non-conductive finish. Composite shells resist severe corrosion. Operating voltage to 900 VAC (RMS) at sea level.

OPTIONAL FEATURES

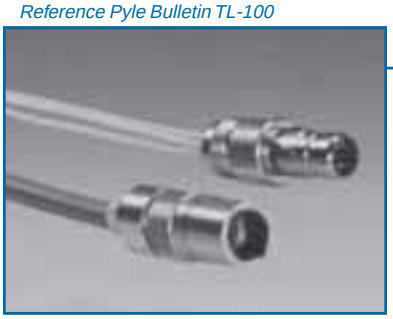
- 3 shell styles, 59 insert patterns.
- Twinax, coax, filter contacts and fiber optic termini can be incorporated - ideal for communications equipment.
- Ground plane version and high decoupling version available.

MARKETS

- Communications
- Automotive
- Medical Equipment

T-Line Series, with MIL-DTL-38999 Series III Inserts

Reference Pyle Bulletin TL-100



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
T-Series High performance connector with smallest subminiature size and lightweight but rugged design.	Utilizes MIL-DTL-38999 inserts and standard M39029/56,/58 series contacts.	Push-pull coupling and 2 key polarization.	Crimp termination.	Operating temp. from –65°C to +200°C. IP67 rating for environmental sealing. Operating voltage to 400 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles, 2 insert patterns with sizes 20 and 22 contacts.
- Stainless steel or aluminum shells.
- Variety of shell finishes.
- Lanyard release applications available.
- High voltage versions available.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft
- Medical Equipment

348 Series, MIL-C-81511 Series I & II

Reference Catalog 12-093

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
348 Series M81511 For general duty requirements. Series II is standard length, Series I is longer shell with recessed pins.	MS versions are approved to MIL-C-81511 Series I & II	3 point bayonet coupling and 5 key/ keyway mating	Crimp termination. Series I has recessed pins (100% scoop-proof feature minimizes contact damage).	Operating temp. from –55°C to +200°C. IP67 rating for environmental sealing. Operating voltage to 600 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles available.
- Series I with longer shells, recessed pins offers 28 insert patterns.
- Series II with standard shells offers 16 insert patterns.
- Shielded coax contacts available.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft
- Medical Equipment

For further information on Subminiature Connectors within this brochure, see the following subjects (listed in Table of Contents):

- Filter/Transient Protection Products
- Fiber Optic Products
- Hermetics
- Breakaway/Quick Disconnect Connectors
- Coax, Twinax, Triax and Quadrax Contacts
- Press-Fit 38999 Connectors for PCB Attachment
- MIL-STD-1553 Data Bus Products
- Flex Termination Assemblies

Miniature Cylindrical

Amphenol Miniature Family Main Features:

- **Medium to miniature in size and weight; offers twice the number of contacts in half the size of a Standard connector.**
- **MIL-C-26482 Series 1 and Matrix MIL-C-26482 Series 2 are widely used in general duty and environmental applications, both military and industrial**
- **MIL-C-83723 and MIL-C-26500 have higher temperature capabilities and are widely used in jet engines and other military aerospace applications**

Mil-Specs covered within the Miniature Family:

- MIL-C-26482, Series 1
- MIL-C-26482, Series 2
- MIL-C-83723
- MIL-C-26500

MIL-C-26482 - The Miniature Cylindrical Choice for Military and Industrial Applications

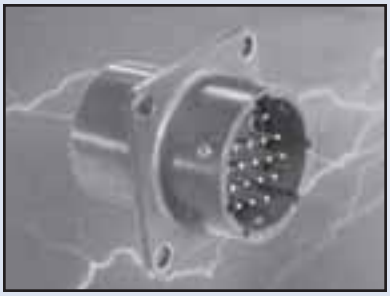
Amphenol® Miniature Cylindrical MIL-C-26482, Series 1

Wide Range of Connector Styles in "PT" family of Series 1

Bayonet Coupling with Solder termination

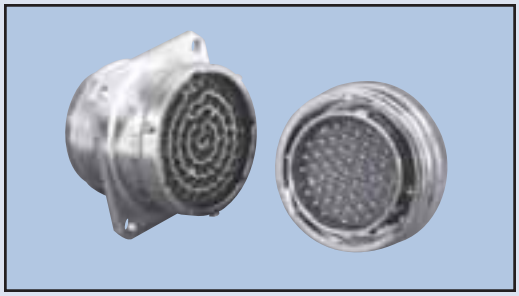
Bayonet Coupling with Crimp front release contact termination

Threaded Coupling with Solder or Crimp front release contact termination

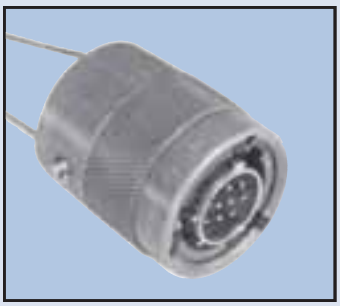


FTP Miniature Cylindrical Filters

MIL-C-26482 with PC tail contacts



Amphenol®/Matrix® MIL-C-26482, Series 2 with Crimp rear release contact termination



Miniature Breakaway with Lanyard Release

The Miniature cylindrical offers a more compact design with two times the density of contacts than its predecessor - the standard 5015. It performs well in most environments and provides a very large selection of styles and options.

In addition to the above, the following options are also available in the Amphenol MIL-C-26482 Miniature family:

- PT Hermetics
- PT styles with shielded coax contacts
- Matrix MBL Series that meet NAS 15999 Standards and Aerospatiale Standards
- AIPT Series - a modification of the PT Miniature with closed entry design on the socket insert

MIL-C-26482 Series 1, Bayonet, Solder

Reference Catalog 12-070

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
PT, MS/PT (Solder) for general duty applications and environmental sealing with grommet & clamp design. SP (Solder) is a modification of the PT with wider flange for back panel mounting.	MS/PT meets MIL-C-26482 Series 1, Service Classes E, F and P. MS/PT is UL recognized.	3 point bayonet coupling and 5 key/ keyway mating. Intermateable/ intermountable with all miniature series connectors except threaded PC Series.	Solder termination.	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. Operating voltage to 2300 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 7 shell styles with 57 insert patterns.
- Hermetic seal (glass fusion) receptacle styles available.
- Pressurized thru bulkhead receptacle style available.
- Pre-installed coax solder contacts are available.
- Printed Circuit board contacts available.
- Variety of shell finishes (including non-cadmium) and backend accessories.

MARKETS

- Instrumentation
- Communications
- Geophysical
- Monitoring Equipment
- Industrial Controls
- Military/Aerospace

MIL-C-26482 Series 1, Bayonet, Crimp

Reference Catalog 12-070

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
PT-SE, MS/PT-SE (Crimp) for general duty applications and environmental sealing with grommet & clamp design. SP-SE (Crimp) is a modification of the PT-SE with wider flange for back panel mounting. PT-CE, SP-CE (Crimp) has a special one-piece insert and grommet assembly.	MS/PT-SE meets MIL-C-26482 Series 1, Service Classes E, F and P.	3 point bayonet coupling and 5 key/ keyway mating. Intermateable/ intermountable with all miniature series connectors except threaded PC Series.	Crimp rear insertable/ front release contact termination. (Closed entry socket insert prevents probe damage.)	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. Operating voltage to 2300 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 6 shell styles and 57 insert patterns.
- Coax and thermocouple contacts are available.
- Variety of shell finishes (including non-cadmium) and backend accessories.

MARKETS

- Machine Tool
- Communications
- Rail/Mass Transit
- Production Equipment
- Factory Automation
- Robotic Assembly

MIL-C-26482 Series 1 Type, Threaded, Crimp or Solder

Reference Catalog 12-070

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
PC (Solder) for general duty applications and environmental sealing with grommet & clamp design. PC-SE (Crimp) utilizes a spring tower retention system. PC-CE (Crimp) utilizes a nylon wafer retention system.	Proprietary styles with performance levels that equal to PT series.	PC Series has double stub threaded coupling and single hole polarization. PC-SE, PC-CE Series are threaded coupling.	PC Series are solder termination. PC-SE and PC-CE are crimp, front release and front removable contacts. (Closed entry socket insert prevents probe damage)	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. Operating voltage to 2300 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 5 shell styles with 57 insert patterns.
- Hermetic seal (glass fusion) receptacle styles available.
- Pressurized thru bulkhead receptacle style available.
- Pre-installed coax solder contacts are available in the solder style.
- Variety of shell finishes (including non-cadmium) and backend accessories.

MARKETS

- Instrumentation
- Oil/Petrochemical Industries
- Off Highway

AIPT Series, MIL-C-26482 Series 1 Type

Reference Product Data Sheet 186

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
AIPT Series Lower cost PT miniature connector modification designed especially for industrial (non-environmental) applications. Specifically designed for use with automated termination.	Uses modified MIL-C-26482 Series 1 metal shells. Completely intermateable with MIL-C-26482 Series 1.	3 point bayonet coupling and 5 key/ keyway mating.	Crimp rear insertable/ front release contact termination. (Closed entry socket insert prevents probe damage.)	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. Operating voltage to 2300 VAC (RMS) at sea level.

OPTIONAL FEATURES

- Available in box mount receptacles and plugs only with 6 insert patterns.
- Offers increased manufacturing throughput by utilization of automated stripper/crimpers; Reeled, stamped and formed contacts are compatible with the Amphenol Vari-Crimp 2000.
- Variety of shell finishes (including non-cadmium) and backend accessories.

MARKETS

- Instrumentation
- Communications

Matrix MB1 & Amphenol PT-DR, MIL-C-26482 Series 2

Reference Catalog 12-071 for Matrix MB1 Series. Consult Amphenol, Sidney NY for information on Amphenol PT-DR Series.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Matrix MB1 Series and PT-DR Amphenol Series. For general duty applications and environmental applications. Differs from Series 1 in that it has rear insertable/ releasable contacts and an elastomer interfacial seal that provides moisture seal.	MS versions meet or exceed MIL-C-26482, Series 2.	3 point bayonet coupling and 5 key/ keyway mating.	Crimp rear insertable, rear releasable contact termination. (Insertion and removal of contacts from rear of connector assures no damage to the front that might affect sealing characteristics.)	Operating temp. from –65°C to +200°C. IP67 rating for environmental sealing. Operating voltage to 2300 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with 34 insert patterns.
- Optional wider flange wall mount receptacle.
- Optional plug design with RFI grounding.
- Variety of shell finishes and backend accessories.

MARKETS

- Military/Aerospace
- Instrumentation/Control/Machine Tool
- Communications
- Geophysical

Matrix MBL Series

Consult Amphenol, Sidney, NY for further information

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Matrix MBL Series For environmental applications requiring lighter weight. Designed to meet special aerospace standards.	Meets requirements of NAS1599 standards and Aerospatiale part numbers ASN-E0052 through -E0054.	3 point bayonet coupling and 5 key/ keyway mating.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –65°C to +200°C. IP67 rating for environmental sealing. Operating voltage to 2300 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with 31 insert patterns.
- Optional plug design with RFI grounding.
- Variety of shell finishes and backend accessories.

MARKETS

- Commercial Aerospace

Pyle/Matrix MIL-C-83723 Series III, Threaded & Quick Disconnect Push Pull

Reference Catalog MS-102 for Pyle Series.
Reference Catalog 12-073 for Matrix Series.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
High performance, environmental resistant. Military styles M83723/82-/87 included in both Pyle and Matrix. M83723/91, /92 and /95, /96 and /66-/69 non-firewall are Matrix only. BT, BJ, BN - Pyle threaded designations. MT - Matrix threaded designations. MQ - Matrix quick disconnect designations.	MS versions meet or exceed MIL-C-83723, Series III.	Threaded coupling. Other styles: /95, /96 - Pyle and Matrix plugs are threaded with a special self-locking clutch design. /66-/69 (Matrix only) are Quick Disconnect plugs with push-pull coupling.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –65°C to +200°C. IP67 rating for environmental sealing. MIL-C-83723/95, /-96 unique threaded coupling with self-locking clutch plate provides greater resistance to decoupling than coupling during vibration. Operating voltage to 1500 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with 29 insert patterns in Pyle Series and 34 insert patterns in Matrix Series.
- Aluminum or stainless steel (see firewall 83723 on next page) shells with options of conductive finish electroless nickel or olive drab, cadmium finishes.
- Hermetics available in Pyle Series.
- Twinax and thermocouple contacts are available in Pyle Series.
- Threaded unique design with self-locking clutch plate is available in both Pyle and Matrix Series. This design offers higher vibration features and eliminates safety wiring.
- Matrix Series includes Push-pull Quick Disconnect plugs w/without lanyards.
- Matrix Series includes threaded plugs with RFI grounding.
- Pyle Series includes threaded Non-Decoupling plug styles. (See Engine Connectors on page 21).

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft

Matrix MIL-C-83723 Series III, Bayonet

Reference Catalog 12-073

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
High performance, environmental resistant. Military styles: M83723/71-/78 MB- Matrix bayonet designations.	MS versions meet or exceed MIL-C-83723, Series III.	Bayonet coupling.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –65°C to +200°C. IP67 rating for environmental sealing. Operating voltage to 1500 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles. 29 insert patterns available in Pyle versions, 34 insert patterns available in Matrix versions.
- Aluminum or stainless steel shells with options of conductive finish electroless nickel or olive drab, cadmium finishes.
- Twinax and thermocouple contacts are available in Pyle Series.
- Matrix Series includes bayonet plugs with RFI grounding

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft

Pyle MIL-C-83723 Series III, High Temperature/Firewall

Reference Catalog MS-102

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
High performance, environmental connector that offers improved temperature capabilities for engine applications. Pyle designations: BTR, BTK, BSK, HTK	Meets fireproof requirements of MIL-C-83723 Series III, Class K. Styles also available to meet specifications: Aerospatiale ASN-EO44X Class KE/SE. European AECMA EN2997. General Electric M50TF3564. Boeing BACC63CM/CN. Rolls Royce/ SBAC, ESC 10 and ESC 11.	Threaded coupling.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –65°C to +260°C. IP67 rating for environmental sealing. Meets MIL-C-83723 vibration specifications of 41.7 G's for 16 hrs. Exceeds MIL-C-83723 requirements for non-decoupling - tends to tighten connectors under vibration. Operating voltage to 1500 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with 8 insert patterns.
- Stainless steel/firewall styles - rated for 260°C.
- Hermetics available in some series.
- Twinax, thermocouple, special higher temp. contacts available.
- Threaded unique design with self-locking clutch plate is available. This design offers higher vibration features and eliminates safety wiring.
- Threaded Non-Decoupling plug styles available.
- Scoop-proof versions available: ESC11, ESC16, Pyle HTK.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft

Pyle MIL-C-26500 Threaded/Ratchet Lock

Reference Catalog MS-101

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Military MS2426. Pyle ZZY General purpose and environmental resistant, medium size cylindrical for military aerospace. Lightweight aluminum or higher strength stainless steel. Pyle ZZL Hermetic threaded receptacles.	MS versions meet or exceed MIL-C-26500, Classes R & G for aluminum and Class E for stainless steel.	Threaded coupling. Ratchet lock threaded plugs are also available.	Crimp rear insertable, front releasable contact termination.	Operating temp. from –65°C to +200°C. IP67 rating for environmental sealing. Stainless steel styles have higher corrosion resistance up to 204°C. Operating voltage to 1500 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with 34 insert patterns, plus hermetic styles.
- Ratchet Lock non-decoupling plug available (eliminates need for safety wiring).
- Finish options: Aluminum non-conductive (black anodize), Aluminum conductive (chromate) or Stainless steel.
- Contact options: coax, thermocouple, PCB tail, wire wrap, contacts on reels.
- Variety of backend accessories.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft

Pyle MIL-C-26500 Bayonet

Reference Catalog MS-101

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Military MS2426 Pyle ZZW General purpose and environmental resistant, medium size cylindrical for military aerospace. Lightweight aluminum or higher strength stainless steel. Pyle ZZB Hermetic bayonet receptacles.	MS versions meet or exceed MIL-C-26500, Classes R & G for aluminum and Class E for stainless steel.	Bayonet coupling.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –65°C to +200°C. IP67 rating for environmental sealing. Operating voltage to 1500 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with 34 insert patterns, plus hermetic styles.
- Finish options: Aluminum non-conductive (black anodize), Aluminum conductive (chromate) or Stainless steel.
- Contact options: coax, thermocouple, PCB tail, wire wrap, contacts on reels.
- Variety of backend accessories.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft

Pyle MIL-C-26500 Firewall, Threaded, Ratchet Lock & Bayonet

Reference Catalog MS-101

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
High performance, environmental resistant. Military designation MS27613-27615 K Threaded. Pyle designation FPK Threaded or FYL Bayonet Class K stainless steel connectors designed for elevated temperatures in aircraft engine applications.	Meets fireproof requirements of MIL-C-5015 Class K. MS versions meet or exceed MIL-C-26500, Class K. Styles designed for Lockheed, General Electric and Boeing BACC63 designations.	MS27613-27615 K Military or FPK proprietary are threaded coupling. FYL is bayonet coupling. Ratchet lock threaded coupling also available.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –65°C to +238°C. IP67 rating for environmental sealing. Stainless steel styles have higher corrosion resistance up to 204°C. Operating voltage to 1500 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with 15 insert patterns.
- Ratchet Lock non-decoupling plug available (eliminates need for safety wiring).
- Optional styles qualified to Lockheed, GE and Boeing specifications.
- Contact options: coax, thermocouple, PCB tail, wire wrap, contacts on reels.
- Variety of backend accessories.

MARKETS

- Military Aerospace
- Military Vehicles
- Commercial Aircraft

67 Series, Miniaturized Standard

Reference Catalog 12-023

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
67 Series Environmentally sealed, medium size connector. Designed to meet MIL-C-5015 specifications, but lighter weight, with gray anodized aluminum shell and bayonet coupling.	Meets temperature ranges and moisture resistance of MIL-C-5015 requirements with potting. Miniaturized size (approx. half the weight of standard MIL-C-5015 connectors). UL approved.	Spring-loaded bayonet coupling.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –55°C to +125°C. IP67 rating for environmental sealing. Operating voltage to 1800 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 5 shell styles with 17 insert patterns.
- 4 construction classes for unitized back end grommet or optional wire sealing, clamping and potting styles.

MARKETS

- Military Aircraft
- Missiles

165 Series, Miniaturized Standard

Reference Catalog 12-023

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
165 Series Environmentally sealed, medium size connector. Designed to meet MIL-C-5015 Class C specifications, but lighter weight, with gray anodized aluminum shell and bayonet coupling.	Meets temperature ranges and moisture resistance of MIL-C-5015 requirements with potting. Miniaturized size (approx. half the weight of standard MIL-C-5015 connectors). UL approved.	Bayonet coupling.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –55°C to +125°C. IP67 rating for environmental sealing. O-ring seals in both plug and receptacles make connectors pressure proof and water protected when mated. Operating voltage to 600 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 5 shell styles with 7 insert patterns.
- Styles for jacketed cable attachment or for potting.

MARKETS

- Military Aircraft
- Missiles

Engine Connectors - High Temperature, High Vibration

Amphenol produces several connectors that are designed for use in harsh environments such as gas turbine engines and other military aerospace applications. Amphenol is widely accepted as a prime supplier of stainless steel/firewall connectors. High vibration capabilities are also offered within these connector types due to their non-decoupling designs. This page gives an overview of Amphenol's high temperature/firewall and high vibration Engine Application Connectors.

Mil-Specs covered within Engine Connectors:

- Pyle MIL-C-83723, Series III Stainless Steel/Firewalls
- MIL-DTL-38999 Series III Stainless Steel/Firewalls
- MIL-C-26500 Stainless Steel Firewalls
- Matrix® MIL-C-5015 Stainless Steel/Firewalls

High Temperature/Firewall and High Vibration Capable Connectors

Amphenol®/Pyle® MIL-C-83723 Series III, EN2997 and ESC Styles

ECS15 plug with integral EMI backshell

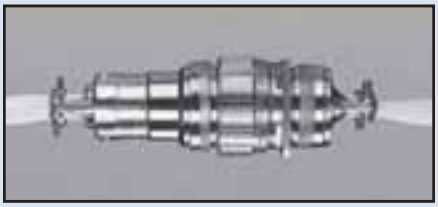
ESC11 plug and receptacle with recessed pins

Miniature cylindrical MIL-C-83723 Series III and high temperature derivative connectors for aircraft engines. These connectors are capable of operation at temperatures up to 260° C. Within the family there are several styles designed specifically to meet the performance requirements of the following specifications:

- Aerospatiale: ASN-EO44X Class KE/SE
- AECMA EN2997
- Boeing: BACC63CM/CN
- General Electric: M50TF3564
- Rolls Royce/SBAC: ESC 10/ESC 11/ESC 15/ ESC 16

MIL-C-83723 Series III Engine Connectors also offer the user a major performance advantage through a unique threaded coupling mechanism that features a greater resistance to decoupling than to coupling; in high vibration situations such as in jet aircraft engines, there is added assurance that the connectors will not decouple. These connectors are also described on page 19.

Amphenol® MIL-DTL-38999 Series III



Subminiature cylindrical MIL-DTL-38999 Series III stainless steel/firewall connectors, in Classes RK and RS, which are capable of temperatures up to 200° C. These connectors meet the highest performance requirements of MIL-DTL-38999 which includes high EMI/EMP shielding and electrolytic erosion resistance.

The latest Amphenol development in MIL-DTL-38999 technology, designed to provide assurance of non-decoupling under severe vibration, is the MTV CLUTCH-LOK™. These connectors have a unique clutch design that will not only remain mated and fully coupled under vibration, but will also tighten itself.

These connectors are also described on page 12.

Amphenol®/Pyle® MIL-C-26500

Pyle FPK/FPL miniature cylindrical MIL-C-26500 stainless steel/firewall connectors capable of temperatures up to 260° C. These connectors meet the fireproof requirements of MIL-C-5015, Class K. Within the family there are several variations including those designed to meet specifications of:

- Lockheed aircraft
- General Electric
- Boeing: BACC63

These connectors are also described on page 20.

Amphenol®/Matrix® MIL-C-5015

MS/Standard MIL-C-5015 firewall versions meet Classes KT and KS of MIL-C-5015 and are capable of temperatures to 200°C.

These connectors are also described on page 24.

Commercial Aircraft Cylindrical, High Temp., Fluid Resistant

DC Series Aircraft Connectors

Reference Catalog 12-101

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
DC Series Designed for aircraft applications. Materials and finishes provide higher temperature capability and resistance to fluids.	Meets applicable requirements of MIL-C-26482 bayonet. Approved for DC-8, DC-9 and DC-10 aircraft applications.	3 point bayonet coupling and 5 key/ keyway mating. Intermateable with other MIL-C-26482 bayonet connectors.	Crimp rear insertable/ front release contact termination. (Closed entry socket insert prevents probe damage.)	Operating temp. from –65°F to +300°F. Resilient inserts, main joint gaskets and strain reliefs are molded EPT material - resistance to Ozone and Corona, and synthetic oils. Operating voltage to 1000 VAC (RMS) at sea level.

OPTIONAL FEATURES

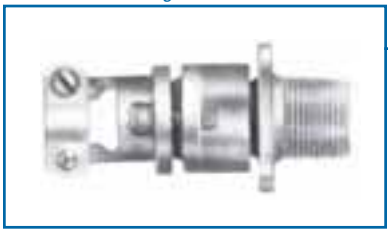
- 4 shell styles with 17 insert patterns.
- Class F has strain relief clamp assembly

MARKETS

- Commercial Aircraft

10-244 Series Aircraft Connectors

Reference Catalog 12-101



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
10-244 Series Designed for aircraft applications. Very high temperature capability and resistance to fluids.	MIL-C-5015 proprietary design for aircraft high temperature applications.	Threaded coupling.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –65°F to +400°F. Resilient inserts are molded fluorolastomer - resistant to turbine oils, kerosene and JP-4. Resistant to Skydrol. Gray anodize finish provides added corrosion resistance. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles including a 90° plug with closed or open elbow; 34 insert patterns.
- Strain relief clamps available.

MARKETS

- Commercial Aircraft

BT-M, BT-MA Aircraft Connectors

Reference Catalog 12-101

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
BT-M, BT-MA Series Firewall connector, designed for aircraft applications. Very high temperature capability, even direct exposure to flame.	MIL-C-5015 proprietary design.	Threaded coupling.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –65°F to +450°F. Stainless steel shells provide added durability and resistance to corrosion. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with 26 insert patterns.
- BT-M has MS-R type silicone grommet & clamp for termination of open wiring.
- BT-MA has conduit adapter for termination of cable conduit.
- Strain relief clamps available.

MARKETS

- Commercial Aircraft

BT-RA Aircraft Connectors

Reference Catalog 12-101

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
BT-RA Series Firewall connector, designed for aircraft applications. Very high temperature capability, even direct exposure to flame.	MIL-C-5015 proprietary design.	Threaded coupling.	Crimp rear insertable, rear releasable contact termination.	Operating temp. from –65°F to +450°F. Stainless steel shells provide added durability and resistance to corrosion. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with 26 insert patterns.
- BT-M has MS-R type silicone grommet & clamp for termination of open wiring.
- BT-MA has conduit adapter for termination of cable conduit.
- Strain relief clamps available.

MARKETS

- Commercial Aircraft

MS/Standard Cylindrical

Amphenol MS/Standard Family Main Features:

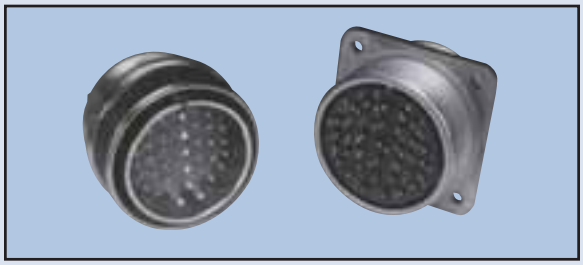
- **Medium to heavy in size and weight**
- **Durable, time-tested cylindricals based on MIL-C-5015 military specification, which was designed prior to the development of the more compact cylindrical connector mil-specs of MIL-C-26482 and MIL-DTL-38999.**
- **Military versions are produced in strict accordance with MIL-DTL-5015 specifications - for general duty and environmentally resistant applications.**
- **Several non-MS series are offered to meet a wide range of industrial applications. These have MIL-5015 type inserts and mil-spec characteristics.**

Mil-Specs covered within the MS/Standard Family:

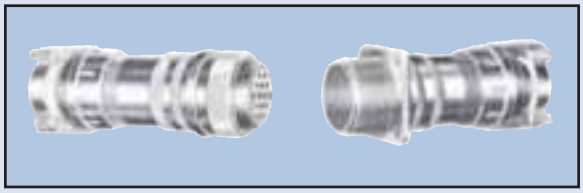
- MIL-DTL-5015 Classes F & R environmental
- MIL-5015 type Classes A, C, E

MIL-C-5015 - The Time-Tested Cylindrical for Military and Industrial Use

Amphenol® MS/Standard MIL-C-5015
Classes A, C, E, F and R
MS versions - Solder Contacts,
Non-MS versions - Solder or Crimp



Amphenol®/Matrix® MIL-C-5015
Classes L, W, LS and Firewall KT & KS
Crimp Rear Release Contacts

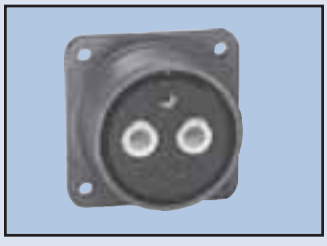


Amphenol® MIL-C-5015 Modifications
Includes Several Solder Types and 10-214 Crimp Types

97 Series

GT, Reverse Bayonet Series

ACA-B, Reverse Bayonet Series



Amphe-Power™ with RADSOK® High Amperage Contacts available in 3 series: P-Lok, 5015 AC, GT Series

The MS/Standard MIL-C-5015 cylindricals and the many non-MS styles that are modifications or further developments of MIL-C-5015 offer a very wide range of interconnection products.

All of these styles shown here are available plus:

- MS/Standard cylindricals with shielded coax contacts and PC tail contacts.
- MS/Standard cylindricals designed with over-molded cable.
- 97 Series Modifications: 97 with Reverse Bayonet shells; ECG connectors for medical instrumentation; Convenience Outlets used on power circuits.
- Pre-Earth, First Mate/Last Break Series.
- GT Series Modifications: GT-PC, GTC-M.
- Several Amphe-Power types with RADSOK high amperage sockets.

Amphenol also offers Heavy Duty Cylindricals for heavier electrical loads and some offer explosive environmental protection:

- Class L, MIL-22992
- QWL and QWLD Series
- Pyle Star-LIne, Star-LIne EX, and Star-Lok
- ARC Series, a new 5015 type with ratched double-start stub threads

MIL-C-5015, Classes A, C, E, F, R

Reference Catalog 12-020

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Military MS310( ). Proprietary designation: 75-. Environmental resistant and general duty cylindricals with resilient neoprene inserts.	MS versions produced in strict accordance with MIL-C-5015. Class A: general usage, Class C: Pressurized, Class E, F & R: environmental.	Threaded coupling.	MS versions are solder. Non-MS versions in closed socket or front release crimp contacts or solder contacts.	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. IP67 performance in environmental versions. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 5 shell styles with 286 insert patterns.
- Hermetic configurations available.
- Standard OD cadmium finish, optional finishes include non-cadmium zinc alloy.
- Coax, thermocouple and PCB contact options.
- Variety of backend accessories.

MARKETS

- Heavy Equipment/Off Road Vehicles
- Mass Transportation
- Power Generation

Matrix® MIL-C-5015, Classes L, W, LS, Firewall KT and KS

Reference Catalog 12-026

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Military MS345( ). Proprietary designation: 944-. Environmental and firewall applications, with crimp rear release contacts and complete environmental sealing.	MS versions produced in strict accordance with MIL-C-5015. Classes L & W: aluminum. Class LS: stainless steel. Classes KT & KS: firewall, stainless steel. All classes have fluid resistant inserts.	Threaded coupling. Self-locking threaded plug available with an internal ratcheting mechanism. Quick disconnect plug available.	Crimp rear release termination.	Operating temp. from –55°C to +200°C. Completely environmentally sealed with contact seals, gaskets, wire seals and insert-to-shell seals. IP67 rating for environmental sealing. Stainless style firewalls withstand higher temperatures. Self locking plug stays mated under higher vibration. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 threaded shell styles with 172 insert patterns.
- Self-locking plug available with an internal ratcheting mechanism to prevent unmating due to vibration and shock, eliminating the need for safety wiring.
- Proprietary quick disconnect plug is available with/without lanyards.
- Additional Classes offered with black anodize or electroless nickel finishes.
- Options for thermocouple and socket contacts are available.

MARKETS

- Heavy Equipment/Off Road Vehicles
- Mass Transportation
- Power Generation

MIL-C-5015 Modifications

Reference Catalog 12-021

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Proprietary supplements to MS5015 series. Use the same MIL-C-5015 inserts, but offer some additional special arrangements. FP3106 plug, 10-part numbers and SC potting types are Solder; 10-214 Series are Crimp.	Offer same electrical ratings and characteristics of MIL-C-5015 MS versions. 10-214 Series designed to accommodate Navy controlled multi-conductor armored cable per MIL-C-915 or MIL-C-2194.	Threaded coupling.	Solder and crimp termination.	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. Some styles have axial compression type clamping nut that provides stain relief and cable sealing. IP67 performance in environmental versions. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- Several receptacles and plug types designated as MS Modifications, incorporating MIL-C-5015 inserts.
- Some styles meet Class A general duty specifications, some meet Class C, pressurized specifications.
- Some styles have primed inserts and potting boots that provide for customer applied potting compounds.
- Variety of shell finishes.

MARKETS

- Heavy Equipment/Off Road Vehicles
- Mass Transportation
- Power Generation

97 Series

Reference Catalog 12-022

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Low cost, general duty, non-environmental cylindricals with hard dielectric inserts. 310( ) Solder types; 410( ) Crimp types.	MIL-C-5015 type. UL recognized. CSA certified.	Threaded coupling. (Intermateable with AC threaded and MIL-C-5015 connectors).	310X types are solder termination. 410X types are crimp rear release termination.	Operating temp. from –55°C to +125°C. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

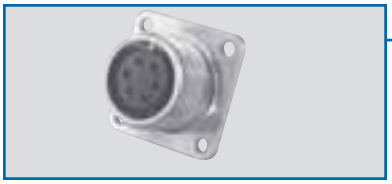
- Solid or split shell construction.
- 6 shell styles with 128 insert patterns.
- Variety of conductive and non-conductive platings including non-cadmium.
- Thermocouples and reel assembly contacts are available.
- Variety of backend accessories available.

MARKETS

- Machine Tool
- Semiconductor Test & Assembly
- Welding Equipment

ECG Connectors

Reference Catalog 12-022



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
For medical equipment - ECG monitoring cable and equipment. 7- Series designation. (97 Series modifications)	Special purpose connectors used for process control and medical instrumentation.	Threaded coupling.	Solder termination.	Performs to standards of MIL-C-5015.

OPTIONAL FEATURES

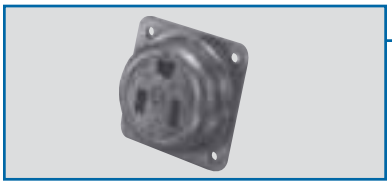
- 2 receptacle styles offered, each having different rotational positions of the insert.

MARKETS

- Medical Instrumentation
- Process Control

Convenience Plugs/Outlets

Reference Catalog 12-022



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Plugs and outlet devices used on a wide variety of power circuits. 7- Series designation.	Similar to MIL-C-5015 styles.	Threaded coupling.	Crimp termination.	Rated for duty at 15 amps. Provide 1000 VRMS dielectric withstanding voltage and 100 megohms insulation resistance. Will withstand 1000 cycles of use.

OPTIONAL FEATURES

- One style plug and receptacle outlet offered.
- 61-F receptacle is standard aluminum shell with olive drab cadmium finish, with optional cap and chain for environmental sealing.

MARKETS

- Power circuits in aircraft, trucks, trailers, ships.

Pre-Earth/FMLB

Reference Product Data Sheet 187

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
DL Series Grounded contact to shell provides first mate/last break capability and protects sensitive circuits and operators. Intermateable with MIL-C-5015 and 97 series.	MIL-C-5015 type shells and inserts. Conformity with European safety standards (DIN VDE 0627) and certified through TUV Product Service GMBH.	Threaded coupling.	Solder termination.	Meets Class IP67 protection against water and dust. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 3 shell styles with currently 7 insert patterns offered.
- Standard plating is conductive black zinc, green zinc plating optional.

MARKETS

- Servo and Power Motors
- Test Equipment
- Factory Automation

GT Series, Reverse Bayonet

Reference Catalog 12-024.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
GT Series Heavy duty, rugged connector, environmentally resistant. Preferred connector for mass transit. Also used in mil-aero applications such as military vehicles.	Utilizes MIL-C-5015 inserts. UL recognized. Intermateable with VG95234 connectors.	Reverse bayonet coupling (quick mating, audible, visual and tactile full mating indicators). Rated to 2000 couplings min. No lockwiring required.	Crimp or solder termination.	Operating temp. from –55°C to +125°C. With Viton inserts: –50°C to +200°C. Resilient inserts provide high dielectric strength and moisture barrier. IP67 performance in environmental versions. Resilient rubber covers provide higher shock and vibration capabilities. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- Over 40 varieties of shell styles and backend accessory combinations.
- Optional insert materials: Neoprene, Viton*, or low smoke/flame retardant.
- Variety of conductive and non-conductive platings including non-cadmium.
- Resilient cover coupling nuts available for added damage protection and increased gripping surface.
- Many contact types are available, including both gold and silver plating, and alternate crimp barrel sizes.

MARKETS

- Rail/Mass Transportation
- Power Generation, Petro-Chemical
- Heavy Equipment, Geophysical
- Power and Control Lighting Trusses
- Military Vehicles

GT-PC Series for High Power Applications

Reference Catalog 12-024

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
GT-PC Series Same standard features as the GT series, but with “Dead Front” pin contacts, size 0, recessed into the socket insert. Provides higher amperage capability and operator safety by preventing inadvertent contact with a live contact.	UL recognized. Currently available with 5 insert patterns incorporating size 0 contacts.	Reverse bayonet coupling (quick mating, audible, visual and tactile full mating indicators). Rated to 2000 couplings min. No lockwiring required.	Crimp termination.	Same performance as GT series, but special “Dead Front” recessed contacts provide higher amperage levels - up to 100 amps per contact. These special contacts also prevent accidental electrical shocks to technicians. “First Mate/ ”Last Break” features on one or more of the pins provide additional operator safety.

OPTIONAL FEATURES

- Same shell styles offered as in standard GT series family.
- Currently 5 insert patterns available.
- Wide selection of backend accessories available.

MARKETS

- High Voltage Power Distribution

GTC-M Series - The GT with Metal Clip Inserts

Reference Catalog 12-024. Reference Product Data Sheet 181.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
GTC-M Series Combines the GT reverse bayonet shell and the rear release metal clip retention system which is used in the Amphenol®/Matrix® MIL-C-5015 connector. Provides easier insertion/ removal of contacts and improved environmental sealing.	Intermateable and intermountable with standard GT series.	Reverse bayonet coupling (quick mating, audible, visual and tactile full mating indicators). Rated to 2000 couplings min. No lockwiring required. Captivated coupling nut assembly allows unmating without the rear accessories attached.	Crimp or solder termination.	Operating temp. from –55°C to +200°C. Completely environmentally sealed with contact seals, gaskets, wire seals and insert-to-shell seals. IP67 rating for environmental sealing. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 7 shell styles offered with all insert patterns available from standard GT series family.
- Wide selection of backend accessories available.

MARKETS

- Mass Transportation
- Power Generation, Petro-Chemical
- Heavy Equipment, Geophysical

* Viton is a registered trademark of Dupont/Dow Company.

AC Threaded Series

Reference Catalog 12-025

AC Threaded

NOTE: The previous AC-B Bayonet series is replaced by the new ACA-B Reverse Bayonet series (see below).
For availability of the AC-B series, consult Amphenol Industrial Operations.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
AC Series Threaded Modification of MIL-C-5015 connector family, designed for industrial applications. General duty, environmentally resistant.	Dimensions, styles and performance equate to MIL-C-5015 and the 97 Series. Class A: general duty. Class E or F: environmental for use with a wire bundle. Class PGA or PGR: Environmental for use with jacketed cable.	AC Series is threaded coupling.	Crimp or solder termination.	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 5 shell styles with 275 insert patterns
- Variety of conductive and non-conductive platings including non-cadmium.
- Variety of backend accessories, including PG adapters and cable clamps for use with jacketed cable.

MARKETS

- Process Control
- Sensors
- Test and Measurement

ACA-B Series, Reverse Bayonet

Reference Catalog 12-027

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
ACA Series Modification of MIL-C-5015 connector family,developed for industrial usage and performs in the most rugged environments. Is internateable with existing VG95234 connectors	Manufactured in accordance with MIL-C-5015 and VG95234. Classes E, F and R are environmental resisting.	ACA series is reverse bayonet coupling (quick mating, audible, visual and tactile full mating indicators). Rated to 500 couplings min.	Crimp or solder termination.	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

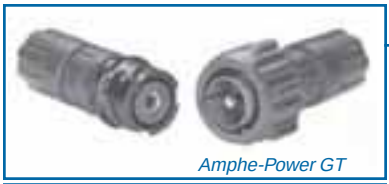
- 7 shell styles offered with a comprehensive selection of MIL-C-5015 insert arrangements and accessory hardware to accomodate heavy duty, commercial wire and cable.
- Additional Class G has backshell for heat shrink termination.
- Available in aluminum or stainless steel shells with a variety of finishes.
- Inserts available in Neoprene material with alternate materials upon request.

MARKETS

- Automation, Machine Tool, Robotics
- Process Control, Material Handling
- Test and Measurement
- Military Vehicles

Amphe-Power™ GT, Amphe-Power™ 5015 (AC)

Reference Brochure SL-391



Amphe-Power GT

Amphe-Power 5015 AC

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
High amperage capability connectors designed for the most demanding industrial and transportation applications. Amphe-Power GT designation: GT( )RDS Amphe-Power AC designation: AC( )R( ) designation	GT and 5015 (AC) connectors enhanced with RADSOK contacts (hyperbolic, stamped grid configuration within the socket) that handle up to 150% higher amperages than standard contacts.	Amphe-Power GT is reverse bayonet coupling. Amphe-Power 5015 is threaded coupling.	Crimp termination. RADSOK contacts, available in size 8 (69 amps), size 4 (120 amps), and size 0 (250 amps). For RADSOK contact advantages, see page 79.	Amphe-Power connectors are all 5015 type performance. Operating temp. from –55°C to +125°C. GT and 5015 styles are IP67 similar performance in environmental versions. Current Amphe-Power lines support from 50A to over 500A continuous duty.

OPTIONAL FEATURES

- Most shell styles available in GT family and in AC 5015 threaded family are also available in the Amphe-Power Series.
- Also see Composite Amphe-GTR on next page.
- Amphe-Power Connector family also includes P-Lok series with RADSOK contacts (see next page).
- Hybrid arrangements with RADSOK and power contacts tailored to meet customer needs.

MARKETS

- Power Generation, Petro-Chemical
- Mass Transportation

Amphe-Power™ Composite Amphe-GTR

Reference Brochure SL-391

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Amphe-GTR GT connector with RADSOK high amperage sockets. The plug shell, coupling nut, receptacle and hardware are all high performance molded composite material.	Listed per UL1977/UL1682/ UL817. Meets all the specifica-tions for high power process control and server applica-tions.	Reverse bayonet coupling.	Compression (setscrew) wire termination to the 4/6AWG or 8/ 10AWG conductors allows easy field replacement of pin or socket contacts, or complete plug and receptacle assemblies, without requiring specialized tooling.	Meets same performance levels as GT series.(See page 26). RADSOK contacts enable increased current ratings to 120A on individual contacts. Utilizes a standard PG adapter to achieve IP67 seal rating. Flammable rated to UL94V-0.

OPTIONAL FEATURES

- Currently available in shell size 32 with 4 or 5AWG contacts. Consult Amphenol Power Solutions for future sizes and patterns.

MARKETS

- Factory Automation
- Rail/Mass Transportation
- Process Control

Power GT Connectors

Reference Brochure SL-391.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Another Amphe-Power type - a GT series modification incorporating three 8.0mm RADSOK contacts mounted in a common termination to busbar or cable. This design created the first TUV "finger-proof" 500A connector in the markeplace.	GT series characteristics, but enhanced to an ultra-high current density in a compact shell size 28 layout.	Same reverse bayonet coupling as GT series. Ninety degree wire orientation on the plug also provides low-profile mounting for tight packaging requirements.	Crimp or solder termination. RADSOK sockets on receptacle side and the pins on the plug side can be fitted with "dead-front" tips to finger-proof the plug.	Operating temp. from –55°C to +125°C. TUV "finger-proof" 500A capability. IP67 performance in environmental versions. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- Currently available in shell size 28 with three 8.0mm RADSOK contacts. Consult Amphenol Power Solutions for future sizes and patterns.
- Can be over-molded or can be fitted with mechanical hardware.

MARKETS

- Hybrid Vehicles
- Rail/Mass Transportation
- Power Generation
- Heavy Equipment

Amphe-Power P-Lok Connectors

Reference Brochure SL-391

Amphe-Power P-Lok

Amphe-Power 14mm P-Lok

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Amphe-Power P-Lok connectors are designed for high amperage usage in industrial and transportation applications.	P-Lok and MIL-C-5015 characteristics, enhanced with RADSOK for higher amperage usage.	Spring pressure push-pull mating of the P-Lok series. Audible and tactile conformation of positive locking.	Crimp termination. Amphe-Power P-Lok connectors have RADSOK contacts, available in size 8 (69 amps), size 4 (120 amps), and size 0 (250 amps). The 14mm Amphe-Power design has size 28 shell, and a single crimp pin contact in 2/0 or 4/ 0 AWG size. The receptacle has the 14mm RADSOK socket with crimp or busbar-mount terminations available.	Meets same performance levels as P-Lok. RADSOK socket is rated for 500A continuous duty. Enivronmentally sealed to IP67.

OPTIONAL FEATURES

- Standard connector options available within the P-Lok family including electroless nickel finish on the shell.
- Dead-front pin contacts are available.
- UL recognized leakage paths is an option.
- Touch-proof sockets are available.
- Custom over-molded cable solutions are offered by Amphenol for this product and most all industrial cylindrical connectors. Neoprene, Hypalon and other materials are available in both straight and right-angle wire orientations.

MARKETS

- Power Generation, Petro-Chemical
- Rail/Mass Transportation
- Fuel Cells, Energy Storage, Power Motors
- Hybrid Vehlcles

Heavy Duty Cylindrical, MIL-C-22992 Type

Class “L”, MIL-C-22992

Reference Catalog 12-052

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Class L Military MS90555 and Proprietary designations. Heavy duty, rugged, environmental cylindricals designed to meet the heaviest electrical loads for military or industrial applications. Current ranges of 40 to 200 amps, conductor sizes 6 to 4/0. Automatic grounding for safety.	Qualified to MIL-C-22992. Within the controlled parameters of mil-spec - shell size relationship to current carrying capacity to reduce the possibility of inadequate wiring for heavy electrical loads.	Double stub threaded per MIL-STD-1373 for fast coupling, easy cleaning. 5 key polarizing system assures that circuits with incompatible power characteristics (voltage, phase and frequency) are not mated. Rated to 500 complete mating/ unmating cycles.	Crimp termination. Contacts can be soldered.	Operating temp. from –55°C to +125°C. Unique arc quenching capability provides a positive safety feature if connectors are inadvertently disconnected under load. Programmed coupling sequence - grounding and neutral contacts engage before power contacts. Grommets and seals provide waterproofing. Rugged shells are resistant to vibration, high impact, shock and corrosion.

OPTIONAL FEATURES

- Direct current or single/three phase, 60/400 Hertz alternating current.
- 4 shell styles with 7 insert patterns that facilitate large conductors.
- Accessories have left hand threads to minimize cable twisting, wire breakage, accidental connector disassembly.
- Conductive and non-conductive finishes available.

MARKETS

- Military ground vehicles/Mobile facilities
- Geophysical/Heavy equipment
- Power distribution systems

QWLD, MIL-C-22992

Reference Catalog 12-052

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
QWLD Military MS17343 and Proprietary designations. Heavy duty, rugged, environmental cylindricals designed for power and control circuits. Increased shell size compared to standard 5015 connectors for greater durability. Industrial version available.	MS approved versions qualified to MIL-C-22992. Incorporates MIL-C-5015 inserts plus special arrangements. Class C: pressurized. Class R: environmental.	Double stub threaded per MIL-STD-1373 for fast coupling, easy cleaning. 5 key polarization. Rated to 500 complete mating/ unmating cycles.	Crimp or solder termination.	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. Sealing gaskets at every joint for waterproofing. Rugged shells are explosion proof and are resistant to vibration and shock, hydraulic fluids, oils and salt spray corrosion. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 7 shell styles with over 300 insert patterns that include both MS and special patterns for a wide variety of multiconductor cables.
- Coax and thermocouple contacts available.
- Accessories have left hand threads to minimize cable twisting, wire breakage, accidental connector disassembly.
- Alumilite hard anodic finish for abrasion and corrosion resistance or conductive cadmium plate finish.

QDP SERIES ALSO AVAILABLE - Consult Amphenol for further information.

- QWLD type shells with miniature crimp (PT-SE) inserts.
- Applications which require heavy duty shells, rugged finish, higher contact density.

MARKETS

- Military ground vehicles/Heavy equipment
- Geophysical
- Portable lighting systems
- Power distribution systems

QWL, MIL-C-22992 Type

Reference Catalog 12-053

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
QWL Series Proprietary only. Heavy duty, rugged, environmental cylindricals designed to be more compact. Provides an economical alternative to military qualified designs for heavy duty connectors.	Proprietary styles with performance levels that equal to MIL-C-22992. Incorporates MIL-C-5015 inserts plus special arrangements.	Double stub threaded per MIL-STD-1373 for fast coupling, easy cleaning. Single keyway polarization. Rated to 500 complete mating/ unmating cycles.	Crimp or solder termination.	Operating temp. from –55°C to +125°C. Resilient inserts provide high dielectric strength and moisture barrier. Sealing gaskets at every joint for waterproofing. Rugged shells are resistant to vibration and shock, hydraulic fluids, oils and salt spray corrosion. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 8 shell styles with over 300 insert patterns that include both MS and special patterns for a wide variety of multiconductor cables.
- Coax and thermocouple contacts available.
- Accessories have left hand threads to minimize cable twisting, wire breakage, accidental connector disassembly.
- Alumilite hard anodic finish for abrasion and corrosion resistance or conductive cadmium plate finish.

MARKETS

- Instrumentation/Control/Machine Tool
- Communications
- Nuclear Industry
- Geophysical

Pyle Star-Line®

Reference Catalog 12-054

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Heavy duty, environmental cylindricals for high amperage and high density control and instrumentation applications. Rugged, double lead threaded. ZP/ZR designations.	Equals or exceeds MIL-C-5015 E and R specifications. UL listed and CSA listed for circuit breaking capability.	Double lead Acme threads provide complete coupling in one turn of the coupling nut, and do not clog under adverse weather conditions. Large wiring space provided in cable housings and conduit fitting bodies.	Solder, crimp and pressure terminals. Circuit breaking power and control types.	Operating temp. from –67°F to +257°F. IP67 rating for environmental sealing. Hard anodic coating provides dielectric strength with heat and corrosion resistance. Up to high amperage of 1135 amps at 1000VAC or DC rating available.

OPTIONAL FEATURES

- 5 shell styles with over 150 insert patterns.
- 3 retention styles with captive contacts or insertable/removable contacts.
- Contact inserts and adapters are interchangeable and reversible to suit special needs.
- Thermocouple contacts available.
- Variety of backend accessories including basketweave cable grips, straight or angled adapters, and receptacle mounted to junction boxes.

STAR-LOK® SERIES ALSO AVAILABLE. Reference Catalog 12-054.

- High power and rugged features of the Star-Line series, but with spring loaded reverse bayonet coupling.
- Same choices of inserts, contacts and hardware as Star-Line.
- Solder, crimp and pressure terminals. Circuit breaking power and control types.

MARKETS

- Mass Transportation
- Automotive Tooling
- Co Generation Equip.
- Oil Exploration & Production Equip.
- Motor Operated Valves

Pyle Star-Line EX®

Reference Catalog 12-054

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Heavy duty, environmental cylindricals for high power applications with harsh/ potentially explosive environments. Rugged, double lead threaded. EX designations.	Hybrid form of the Star-Line series with higher temperature ranges. Cenelec Certified for use in Zone 1-IIc hazardous environment. EX Certificate #03ATEX 1101X	Double lead Acme threads provide complete coupling in one turn of the coupling nut, and do not clog under adverse weather conditions. Large wiring space provided in cable housings and conduit fitting bodies.	Solder, crimp and pressure terminals. Circuit breaking power and control types.	Operating temp. from –65°C to +257°C. IP67 rating for environmental sealing. Hard anodic coating provides dielectric strength with heat and corrosion resistance. Up to high amperage of 1135 amps at 1000VAC or DC rating available.

OPTIONAL FEATURES

- 5 shell styles with same insert patterns of Star-Line series.
- Variety of backend accessories including basketweave cable grips, straight or angled adapters, and receptacles mounted to junction boxes.
- Can be terminated onto unarmored or armored and sheathed cables built to several popular standards. Custom cable assemblies available.

MARKETS

- Mass Transportation
- Petro-chemical
- Off-shore oil drilling
- Automotive paint booths
- Aircraft Refueling Pits
- Pharmaceutical Mfg. Equip.

ARC Series Connectors

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
ARC Series 5015 type connector with 38999 Series III type coupling.	Same electrical characteristics as 5015 standard product but offered with rugged ratched double start stub threads.	Ratched double-start stub coupling threads eliminate mis-mating and provides easy cleaning.	Crimp or solder termination.	Operating temp. from –55°C to +125°C. Elastomeric 5015 low-smoke flame-retardant inserts. IP67 performance in environmental versions. Operating voltage to 3000 VAC (RMS) at sea level.

OPTIONAL FEATURES

- 4 shell styles with all 5015 patterns available.
- Supplied with low smoke halogen inserts, but also can be supplied with standard 5015 inserts.
- Variety of backend accessories are available for all styles of cable and conduit.
- Variety of cable strain relief options including over-molding and heat shrink boots.
- RADSOK sockets are available.

MARKETS

- Rail Mass Transit
- Process Control
- Machine Tool

Filter/Transient Protection

Amphenol offers great versatility in interconnection products for EMI and EMP protection of sensitive circuits. Amphenol Filter connectors offer the advantage of internal housing of the filter device within a wide range of connector packages - virtually all major MIL-Spec cylindricals and rectangular series. Housing the filter protection within the connector eliminates costly and bulky exterior discrete protection devices.

It is recommended that the user analyze system requirements for EMI protection in the following areas:

- **Working voltage**
- **Peak voltage**
- **Desired attenuation at a given frequency level**
- **Any special capacitance limitations**

EMI/EMP Filter Protection connectors are available within all the MIL-Spec Series of cylindrical connectors including:

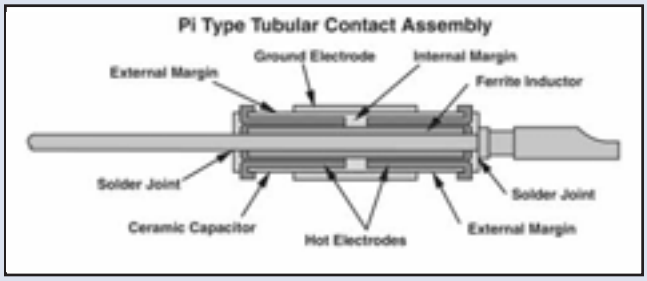
- MIL-DTL-38999
- MIL-C-5015
- MIL-C-26482
- MIL-C-27599
- MIL-C-83723
- MIL-C-26500

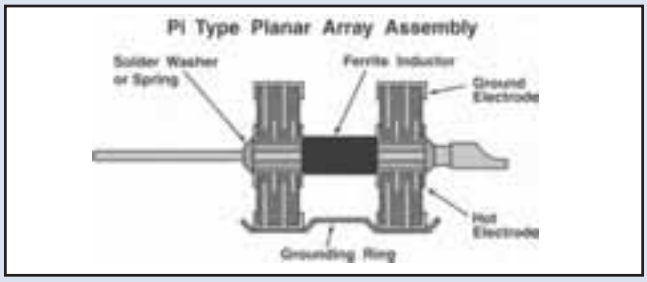
Filters also available in Rectangular Connectors:

- MIL-DTL-24308 D-Sub
- MIL-DTL-83513 Micro D
- ARINC 404/600
- DOD-83527 Rack and Panel
- MIL-DTL-83733 Rack and Panel

State of the Art Protection from Effects of EMI/EMP

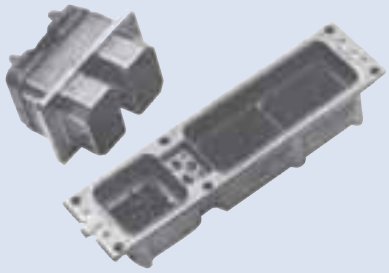
Amphenol Filter Connectors utilize two manufacturing technologies to provide protection in VHF, UHF, HF and other custom filter ranges:





Filter Adapters
For cost effective installation between existing plugs and receptacles.

Filter Rectangular ARINC 400/600

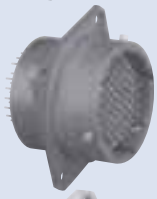


Filter/Transient Protection Connectors are available in all the styles shown here plus other configurations for protecting circuitry from EMI and EMP:

- EMP protection utilizing diodes
- EMP protection utilizing metal oxide varistors (MOV's)
- Programmable EMI filters
- Filter plug connectors
- Filtered hermetic connectors
- Filter connectors with electrostatic discharge (ESD) protection
- Header assemblies
- Filtered D-Sub MIL-DTL-24308
- Micro D-Sub MIL-DTL-83513

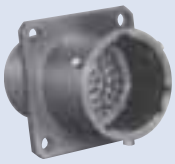
Select the option for the interference threat; couple with a connector package to protect your sensitive circuits. Or give Amphenol your custom shell design requirements - unique filter connector packaging can be designed.

FTV/FCTV
Subminiature Tri-Start, MIL-DTL-38999 Series III, Metal or Composite shells with Filter Protection*

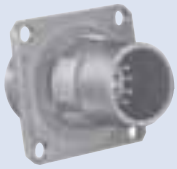


FJT
Subminiature JT, MIL-DTL-38999 Series II with Filter Protection

FLJT
Subminiature LJT, MIL-DTL-38999 Series I with Filter Protection



FSJT
Subminiature SJT, Non-MS 38999 Type with Filter Protection



FBL
MIL-DTL-38999 Series IV (Available in receptacle configurations only)

FPT
Miniature PT, MIL-C-26482 with Filter Protection

Filter "AN"
MIL-C-5015 Type with Filter Protection

*Filter protection is also available in Amphe-Lite Industrial 38999 type connectors. See Subminiature Cylindrical section.

Please see our websites:
www.amphenol-aerospace.com
www.amphenol-industrial.com

EMI Cylindrical Filter Connectors

Reference Catalog 12-120

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
For protection of sensitive circuitry from interferences in VHF, UHF, HF and other custom filter ranges. Available in all major mil-spec cylindricals. Contain a passive filter network comprised of combinations of ferrite inductors and ceramic capacitors to meet customer specifications.	Intermateable with the compatible series of connector. (See page 32 for mil-specs available with filters). Filter connectors are qualified to internal Amphenol specification BSF-1.	Threaded or bayonet coupling depending on connector series used for filtering.	Crimp, solder, PCB tail or wire wrap termination. Filter contacts can be provided in all frequencies in contact sizes 16, 20 and 22.	Operating temp. from –55°C to +125°C. Standard filter connectors withstand a 600 voltage spike with optional protection to 2500 voltage. Filter connectors meet the levels and wave forms of SAE4L without failure. Environmental sealing to 3 foot immersion available.

OPTIONAL FEATURES

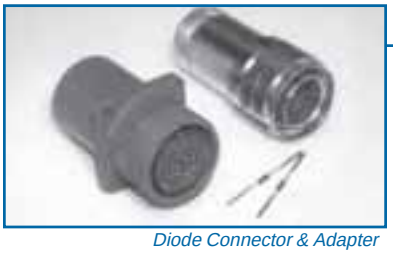
- Wide versatility in connector styles that can be enhanced as filter connectors - choose from all major mil-spec cylindrical families. (See opposite page).
- Custom shell configurations are readily available to meet a wide variety of customer requirements.
- Tubular or planar configurations: C, LC, CL, T, LL, PI, Cascaded Pi arrangements.
- Filter contacts with differing cutoff frequencies can be mixed in any insert.
- Combinations of contact options in the same connectors are possible - provide EMI and EMP within the same package.
- Insulated feed-through contacts and ground pins can be included.
- Hermetic filters available.

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment
- Industrial

Diode Connectors

Reference Catalog 12-120



Diode Connector & Adapter

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
For protection of sensitive circuitry - Utilizing silicon chip technology to shunt energy before reaching sensitive circuits. Offer protection for 5.8 to 200 VDC circuits. Available in all major mil-spec cylindricals.	Intermateable with the compatible series of connector. Screened to applicable requirements of MIL-S-19500TX/TXV.	Threaded or bayonet coupling depending on connector series used for filtering.	Crimp, solder, PCB tail or wire wrap termination. Diode protection can be provided in contact sizes 16, 20 and 22.	Operating temp. from –55°C to +125°C. Clamping ratio of 1.2 to 1. Nanosecond response time. Low impedance with high frequency response. Individual diodes are factory repairable.

OPTIONAL FEATURES

- Same wide variety of all major mil-spec cylindricals for incorporation of diodes.
- Unipolar or bipolar designs available.
- Diode protection packaged singularly or in combinations with EMI filter and/or MOV in the same connector.
- Low capacitance diodes <100 pfd are available.

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

MOV (Metal Oxide Varisitor) Connectors

Reference Catalog 12-120

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
For protection of sensitive circuitry - act as a variable resistor to efficiently dissipate energy in the 22-47 VDC or VAC range. Available in all major mil-spec cylindricals.	Intermateable with the compatible series of connector.	Threaded or bayonet coupling depending on connector series used for filtering.	Crimp, solder, PCB tail or wire wrap termination. MOV protection can be provided in contact sizes 16, 20 and 22.	Operating temp. from –55°C to +125°C. Clamping ratio of 1.2 to 1. Nanosecond response time. Low impedance with high frequency response. High energy potential impervious to radiation.

OPTIONAL FEATURES

- Same wide variety of all major mil-spec cylindricals for incorporation of MOV's.
- MOV packaged singularity or in combinations with EMI filter and/or diodes in the same connector.

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

Programmable EMI Filter

Reference Catalog 12-120

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Filter/transient protection of sensitive circuitry, with benefit of crimp contacts that are rear insertable and rear removable. Voltage range of 230 VDC. Available in MIL-DTL-38999 Series I, II, III and proprietary SJT receptacle shells.	Intermateable with the compatible series of connector.	Threaded or bayonet coupling depending on connector series used for filtering.	Crimp or PCB tail termination. Contacts can be provided in sizes 16, 20 and 22.	Operating temp. from –55°C to +125°C.

OPTIONAL FEATURES

- Filter, ground or insulated contacts can be combined to accommodate unique and changing EMI requirements.
- Pi filters and capacitor filters in the VHF and UHF frequency ranges, as well as a 50,000 pf straight capacitance filter, are available.

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

EMI/EMP Adapters

Reference Catalog 12-120

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
EMI and/or EMP capability for protection of sensitive circuitry. Adapters that are installed between existing plugs and receptacles. Circuit protection at VHF, UHF, HF and other custom filter ranges that use planar technology. For use with all the major mil-spec cylindricals.	Intermateable with the compatible series of connector.	Threaded or bayonet coupling to intermate between plugs and receptacles.	Contact termination not applicable. Used as an interface between a receptacle and plug.	Same performance as EMI cylindrical connectors.

OPTIONAL FEATURES

- Wide range of tooled patterns available to mate with all popular mil-spec cylindricals.

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

Filtered Plugs

Reference Catalog 12-120

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
For filtering applications where access to the receptacle is denied. Cost effective method of achieving EMI protection when length restrictions prohibit inclusion of an adapter to the system.	Designed with same components as a standard filter receptacle, but offers option of being mounted on the cable harness.	Threaded or bayonet coupling depending on connector series used for filtering.	Crimp, solder, or PCB tail termination.	Same performance as EMI cylindrical connectors.

OPTIONAL FEATURES

- Wide range of tooled patterns available to mate with all popular mil-spec cylindricals.

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

Filter Connectors with ESD Protection

Reference Product Data Sheet # 171.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Filter connectors with added feature of protection from Electrostatic Discharge (ESD). Utilizes the Faraday Cage principal to shunt electrostatic discharge events to the conductive enclosure on which the connector is mounted, thus protecting the contacts from the high voltage. Uses MIL-DTL-38999 Series III receptacles.	Exceeds protection requirements of IEC 801-2 and MIL-STD-1686.	MIL-DTL-38999 connector threaded coupling. The filter connector with ESD feature eliminates the need for discrete components such as diodes. Do not require special mounting or terminating techniques.	Crimp, solder, PCB tail, or wire wrap termination.	Ensures that all components within a conductive enclosure will be subjected to a max. of 10V during electrostatic discharges between –26 KV and +26 KV. Response time is instantaneous. Maximum ESD voltage tested to ± 26 KV. No capacitive loading.

OPTIONAL FEATURES

- ESD protection is currently available in MIL-DTL-38999 Series III connectors. (Also see ESD protection in LRM Surface Mount Rectangular connectors. Consult Amphenol for further availability.)

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

ARINC Filtered Connectors

Reference Amphenol Canada Brochure 485

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
485 Series Filtered ARINC 404 and 600 rack and panel connectors designed to provide space and cost-effective solutions to EMC compliance issues in avionics products. Incorporates planar capacitor array technology.	Qualified to requirements of ARINC 600-9 and MIL-C-81659. Used on Boeing, McDonnell Douglas and Airbus avionics equipment.	Rack and panel mounting.	Crimp, solder, PCB tail or wire wrap termination.	Operating temp. from –65°C to +125°C. Designed to RTCA/D0-160. Meet environmental requirements of ARINC 600 and MIL-C-81659. Typically 200VAC working/ 500VDC DWV.

OPTIONAL FEATURES

- ARINC 600 has 4 shell size configurations, including a MIL-C-83527 style.
- ARINC 404/MIL-C-81659 has 4 shell size configurations.
- Aluminum alloy shell with electroless nickel or cadmium finish.
- Other diode and MOV termination module designs are offered.

MARKETS

- Military Aerospace
- Commercial Aircraft

MIL-DTL-24308 Filtered D-Sub Connectors

Reference Amphenol Canada Brochure 308

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
308 Series Filtered D-Sub connectors for aerospace and commercial EMI requirements. Incorporates planar capacitor technology.	Qualified to requirements of MIL-DTL-24308.	Rack and panel mounting.	Solder, PCB tail or wire wrap termination.	Operating temp. from –65°C to +125°C. Meets performance requirements of MIL-DTL-24308.

OPTIONAL FEATURES

- Optional D-Sub programmable style, EMI grounded style.
- Aluminum alloy shell with a variety of finishes available.

Also see Micro D-Sub MIL-DTL-83513 Rack and Panel Connectors on pg. 58.

MARKETS

- Military Aerospace
- Commercial Aircraft
- Military Vehicles
- Satellites and Missiles
- Industrial
- Communications
- Medical Equipment

Fiber Optic Products

Amphenol offers Fiber Optic high performance termini and connector systems within a wide range of cylindrical and rectangular interconnect packaging. Fiber optic connectors and systems provide reliable transfer of data signals for communication systems in many applications - military, battlefield, commercial and medical.

Amphenol's MIL-T-29504/4 & 5 fiber to fiber termination offers low loss characteristics with high reliability and repeatability. Combined with the proven MIL-DTL-38999 Series III connector, Amphenol offers a multi-channel fiber optic connector system that is unsurpassed. The same fiber termini are incorporated into LRM surface mount connectors, and are combined with low mating force Brush contacts in PCB rectangular connectors.

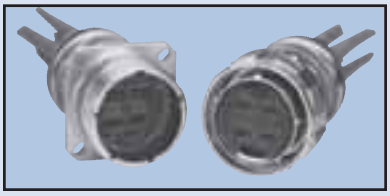
Fiber Optics are available in several Interconnection Products:

- MIL-DTL-38999 Cylindricals -
  - Several styles & configurations
  - With Fiber Optic termini only or mixed with other contact types
- LRM Surface Mount Rectangulars
- Optical Backplanes
- PCB Rectangulars - combined with Brush contacts
- Space application connectors including MIL-STD-1773 Data Bus

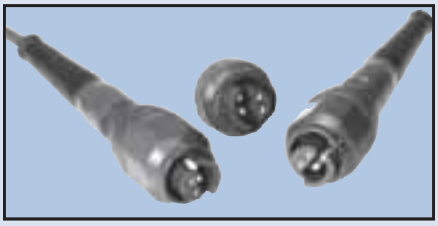
Amphenol® Fiber Optic Products and Systems Provide Reliable, High Speed and Secure Interconnections

Precision Optic Interconnect System within MIL-DTL-38999 Series III Connectors

Multi-Channel Fiber to Fiber Systems



D38999 Connectors with MT Optical Ferrules



HQM Hermaphroditic Connectors

Fiber Optics Backplane with MT Optical Ferrules

TFOCA*two* Connectors

CTOS Field Deployable Lens Connectors

Amphenol Fiber Optics are available in all the interconnection products shown here, plus:

- Advanced Fiber Optic Connectors with captivated alignment sleeves
- Fiber Optic Cable Assemblies
- Space Application Fiber Optic Connectors
- HLM Hermaphroditic Lensed Multiway Connectors
- Lens Connector Technology
- Fiber Optic Active Plugs
- CTOS and CTOL Tactical Connectors
- Optical Connectors: 5 smaller shell styles (2 and 4 channels) with threaded, bayonet or push-pull type coupling mechanisms
- Multi-way Backplane Connectors
- Termination Tool Kits

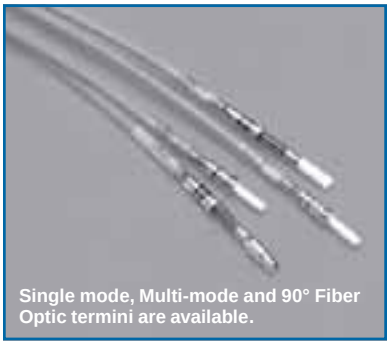
Hybrid Rectangular Connectors with Fiber Optics and Brush Contacts

Please see our websites:

www.amphenol-aerospace.com
www.amphenol-industrial.com
www.amphenol-abs.com
www.fo-interconnect.com

Multi-Channel Connectors - MIL-DTL-38999 Series III Cylindricals with Fiber Optic Termini

Reference Fiber Optic Catalog 12-352
Reference Tri-Start Catalog 12-092



Single mode, Multi-mode and 90° Fiber Optic termini are available.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
MIL-DTL-38999 Series III Tri-Start connectors with precision fiber optic termination systems for high speed and secure communication transmission.	Connectors are qualified to MIL-DTL-38999 Series III. Composite shells qualified to MIL-DTL-38999 Rev. J. Fiber optic size 16 multi-mode termini are qualified to MIL-T-29504/4 & 5.	Threaded coupling. Quickly, completely mates in one 360° turn of the coupling nut which is self locking. Lockwiring is eliminated. 5 key/ keyway polarization eliminates mismating. Universal mounting holes for front or rear mounting, locksmith metal keying to aid in blind mating.	Termination with inserts that allow for fiber optic termini in sizes 16 and 20. Recessed pins (100% scoop-proof feature minimizes contact damage).	Connector performances include temp. range of –55°C to +200° C, superior EMI shielding, shock resistance and IP67 environmental sealing which are consistent with MIL-DTL-38999 Series III. (See Subminiature Cylindrical Section) Optical performance is maximized with the unique methods of alignment in the termination systems. Insertion losses range from .3dB to <1/5dB depending upon launch conditions, fiber NA, fiber size and the type of termination.

OPTIONAL FEATURES

- Any of the shell styles of Tri-Start, MIL-DTL-38999 Series III are offered for incorporation of fiber optics. (See Subminiature Cyl. section for Tri-Start features and options).
- 35 popular insert patterns allow for fiber optics in any size 16 and 20 contact cavities and also for hybrid combinations of fiber optics, power contacts and shielded coax or twinax contacts.
- Size 16 multi-mode and single mode fiber optic termini and size 20 multi-mode fiber optic termini are readily available.
- 90 degree multi-mode size 16 are available.
- Optional fiber optic tools and termination tool kits are available for polishing, inserting and removing of fiber optic termini. (See fiber optic termination tool kit on page 42).

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

Fiber Optic LRM (Line Replaceable Module) Rectangular Connectors

Reference Fiber Optic Catalog 12-352
Reference LRM Publication L-2104

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Fiber optic high speed transmission available within high density Line Replaceable Modules for use in advanced avionics printed circuit boards. LRM connectors meet avionics packaging in SEM-E form factor, VHSIC and MMIC and custom form factors.	LRM connec-tors meet requirements of MIL-C-55302. Fiber Optic termini meet MIL-T-29504/4, /5, /14 &/15.	For attachment to printed circuit boards. Polarization is controlled by insert arrangement. Up to 4096 keying combinations.	Fiber optic termini for LRM connectors are available in size 16, straight and 90 degree styles, and are combined with low mating force Bristle Brush contacts or with power contacts. LRM connectors are available in several grid patterns that incorporate from 300 to 472 contacts in 6 to 8 rows.	LRM connectors typically house Bristle Brush contacts which provide low mating and unmating force advantages - 70% to 90% lower than with conventional pin and socket. (For other advantages of Brush contacts see Rectangular section). Optical performances of fiber optic termini within LRM connectors are the same as termini used in cylindrical connectors. (See above).

OPTIONAL FEATURES

- Fiber optic termini are available for LRM connectors in the following configurations:
  - MIL-T-29504/4, /5, /14 & /15 termini
  - Lucent ROC (Robust Optical Connector)
  - MT ferrule (2-24 fiber lines per ferrule) (See other MT Series, page 40).
- Hybrid arrangements with fiber optic termini, Brush contacts, power contacts and coaxial or twinax contacts are available.

(See Rectangular section for more information on LRM connectors and Brush contacts).

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

Environmental Weatherproof Optical Connectors

Consult your local Amphenol sales office for further information.

TVOP

LJTOP

RNJOP

MTRJ Field TV

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Fiber optic transmission interconnects for outdoor, industrial applications. 2 and 4 channels for MTRJ-Field. 2/4/8 channels for TVOP, LJTOP and RNJOP. Designed for cost effectiveness, but to provide high performance in many environments and for blindmate applications.	TVOP MIL-DTL-38999 Series III.	Threaded coupling.	2/4/8 channels.	TVOP/LJTOP/RNJOP/MTRJ Field TV. Typical insertion 0.5dB MM/SM. Waterproof IP67. Shells are high performance with resistance to corrosion and UV.
	LJTOP MIL-DTL-38999 Series I.	Bayonet coupling.	2/4/8 channels.	
	RNJOP MIL-DTL-38999 Series I.	Rackable coupling.	2/4/8 channels.	
	MTRJ Field TV MIL-DTL-38999 Series III.	Threaded coupling.	2/4 channels.	
	LC Field TV MIL-DTL-38999 Series III.	Threaded coupling.	2 channels. All styles offered with single mode or multi-mode ceramic termini 2.5mm size (MTRJ plastic ferrule for MTRJ).	

LC Field TV

OPTIONAL FEATURES

- Receptacle styles: square flange, jam nut and sq. flange with backshell.
- Plug style: straight with metal or plastic PG adapters or heat shrink.
- Shell materials and finishes offered vary per style.
- Single mode or multi-mode termini available in all styles.

MARKETS

- Communications
- Robotics
- Mining & Offshore
- Military Vehicles
- Navy

CTOS, CTOL, AXOS Field Deployable Lens Connectors

Consult your local Amphenol sales office for further information.

CTOS

CTOL

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Fiber optic high speed transmission Tactical Multiway interconnects for harsh environments like battlefield conditions and quick deployable large capacity links. CTOS 38 mm dia. CTOL 52 mm. dia. AXOS 27 mm. dia.	Produced with expanded beam fiber optic technology. Qualified to Stanag 4290.	Hermaphroditic connector. Entire family is equipped with the same hermaphroditic interface in order to extend the optical links by adding identical cable sections.	CTOS 2 and 4 channel configurations offered with single mode and multi-mode termini. CTOL 2, 4 and 8 channel configurations offered with multi-mode termini. AXOS 2 and 4 channel configurations offered with multi-mode termini.	Operating temp. from –40° C to +85° C. Durability: 10,000 mating for CTOS and CTOL. 5000 mating for AXOS. Provides EMI protection. Stainless steel bodies resist corrosion. Ergonomic and ribbed synthetic rubber shells improve handling and ensure mechanical protection. Connector interface can be easily cleaned and will perform in harsh environmental conditions. Insertion losses below 2.0 dB.

AXOS

OPTIONAL FEATURES

- Plugs and receptacles offered in straight and 90 degree styles.
- Tactical harnesses and protection caps available.

MARKETS

- Communications
- Radar Systems
- Robotics
- Military Vehicles
- Mining & Offshore
- Broadcast
- Homeland Security

Hermaphroditic Fiber Optic Connectors

Consult your local Amphenol sales office for further information.

HQM Hermaphroditic Connector

HDM Hermaphroditic Duplex Miniature

HLM Hermaphroditic Lensed Multiway

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Fiber optic transmission interconnects for semi to harsh environments, indoor and outdoor. All three styles eliminate the need for polarizing the assemblies or using adapters. HQM - fully hermaphroditic with an active receptacle option. HDM - lightweight, smaller design, fully hermaphroditic. HLM - fully hermaphroditic, for extreme harsh environments where cost and space are factors and lensing is preferred.	All three types are produced with butt joint fiber optic technology which provides for lower insertion losses.	All are bayonet coupling. HMFM is one-piece construction. HDM and HLM have removable shell components to facilitate cleaning.	All are available in 2 channels with multi-mode and single mode termini.	Operating temp. from –55°C to +125°C for HMFM series. Operating temp. from –55° C to +85° C for HDM and HLM series. Typical insertion losses: HMFM at 0.3 dB HDM at 0.3 dB HLM at less than 1.0 dB. Rated at IP68 mated for environmental sealing.

OPTIONAL FEATURES

- Interface with a wide range of rugged fiber optic cables.
- HQM has plug and jam nut receptacle styles. HDM and HLM have plug and panel mount receptacle styles. Over molded version available in HLM series.
- Choice of materials and platings.

MARKETS

- Communications
- Radar Systems
- Robotics
- Military Vehicles
- Mining & Offshore

TFOCA*two* Connectors

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
TFOCAtwo Fiber optic high speed transmission for interoperability with legacy tactical operational centre fielded equipment. Uses sealed floating ceramic ferrule system and a one-piece monobloc construction.	Put on the approved supplier list by the US Army Communications Div. (CECOM) for harsh environment fiber optic interconnects to TFOCA-II® specifications. Listed as a source of supply on CECOM specification drawing A3302584.	Hermaphroditic design to enable daisy chaining of cables. Fully intermateable and intermountable with the TFOCA-II® series. Custom designed monobloc is easily removable with a dime, to allow optical terminal, plug body and internal coupling ring cleaning.	Available in 4 channels with multi-mode and single mode termini.	Attenuation <0.30 dB > 0.50 dB. Fibre types: 50/125um, 62.5/125um. Cable types: 5.5mm OD tactical four core – 035 or 3mm OD ruggedized simplex for –011. Temperature range –55°C to +85°C. Durability > 2000 matings. Materials: aluminum alloy in zinc cobalt olive drab plated finish. Tensile load: 1780N. Water pressure: 1.5M immersion, 1 hr. MIL-C-83526/12/13.

OPTIONAL FEATURES

- Dime coin/screwdriver fit nut - turn once to easily remove monobloc for easy cleaning.
- Molded rubber boot for strain relief of cable.
- Arctic grip coupling nut.
- Cadmium plated/anodise finishes available on request.

MARKETS

- U.S. Army, Navy and Marine Corp military tactical deployments and military vehicles
- Communications
- Radar Systems
- Military Vehicles

Fiber Optic Active Plug

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Electro-optic transmission within MIL-DTL-38999 Series III connectors or within MIL-C-26482 Series 2 connectors. Accepts DC inputs, converts to optical and couples to an optical connector/ cable interface. One interface transmits; a second interface receives. The user sees an electrical interface, not an optical.	MIL-C-38999 Series III type or MIL-C-26482 Series 2 type.	MIL-DTL-38999 types are threaded coupling; MIL-C-26482 types are bayonet coupling.	Available in 1 or 2 channels with multi-mode termini.	Operating temp. from –45°C to +85°C. IP68 rating when mated for environmental sealing.

OPTIONAL FEATURES

- Duplex single mode operation using WDM is available.

MARKETS

- Communications
- Trucking
- Railway
- Offshore

Advanced Fiber Optic Connector with Captivated Alignment Sleeves

Reference Catalog 12-352

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
An advanced design of the MIL-DTL-38999 Series III fiber optic connector with the feature of an insert with captivated sleeves which facilitates cleaning of socket termini. The special insert can be incorporated into either the plug or the receptacle.	Meets or exceeds MIL-DTL-38999 Series III standards.	Threaded coupling. Intermateable and intermountable with MIL-DTL-38999 standard fiber optic connectors.	Dedicated to fiber optic termini only; will not accept copper contacts.	Operating temp. from –55°C to +200°C. Connector performances consistent with MIL-DTL-38999 Series III. (See Subminiature Cylindrical section). Typical insertion losses range from 0.3 dB to 1.0 dB.

OPTIONAL FEATURES

- Available in aluminum, stainless steel and composite shells.

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

Fiber Optics and Brush Contacts within PCB Rectangular Connectors

Reference Catalog 12-352
Reference Catalog 12-035

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Fiber optic transmission combined with low mating force Brush contacts within printed circuit board rectangular connectors. High circuit count capability.	Hybrid combinations of contacts within MIL-C-55302 rectangular connectors.	For mounting to printed circuit boards. Polarization keys provide up to 256 possible positions.	Fiber optics can be combined with Brush contacts in 2, 3 and 4 rows configurations with 10 to 100 contacts per row.	Operating temp. from –55°C to +125°C. Connector bodies are high performance glass-filled thermoplastic moldings. Amphenol rectangular PCB connectors typically house Bristle Brush contacts which provide low mating and unmating force advantages - 70% to 90% lower than with conventional pin and socket. (For other advantages of Brush contacts see Rectangular PCB Connectors). Optical performances of fiber optic termini are the same as termini used in multi-channel cylindrical connectors. (See page 36).

OPTIONAL FEATURES

- Mother Board, Daughter Board, Input/Output and PC styles are offered in Low Mating Force Rectangular Connectors. (See Rectangular section).
- Hybrid arrangements with fiber optic termini, Brush contacts, power contacts and coaxial or twinax contacts are available.

(See Rectangular Printed Circuit Board section for more information on LRM connectors and Brush contacts).

MARKETS

- Communications
- Test Equipment
- Factory Automation

Space Application Fiber Optic Connectors

Consult your local Amphenol sales office for further information.

NATC *NZGL*

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Fiber optic high speed transmission interconnects for the highest performance requirements of space application.	Incorporates MIL-T-29504 fiber optic termini. Connectors meet requirements of NASA specification SSQ-21635. Some versions meet MIL-STD-1773 databus.	Threaded coupling. Handle operated push-pull coupling design available. Wall mount, jam nut mount and bulkhead fee-thru receptacles.	Fiber optic termini in size 16 can be combined with power or shielded contacts.	Operating temp. from –55°C to +200°C. High grade stainless steel shells and finishes resist corrosion. Hermetic versions are rated to 5 X 10^{-9} cc/sec helium leakage at a 15 PSI pressure differential.

OPTIONAL FEATURES

- Handle operated design is available for use in space by suited astronauts.
- Available in hermetic and non-hermetic versions.
- Stainless steel or bi-metal shell hermetics are available.

MARKETS

- International Space Station
- Space Shuttles

Fiber Optic MTC Series

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
MTC - Fiber optic high speed transmission with MT optical ferrules within the high performance MIL-DTL-38999 Series III connector.	MIL-DTL-38999 Series III type. Utilizes butt joint fiber optic technology.	Threaded coupling.	12 channel configuration with MT ferrules is typical. Also can be configured with 4, 8, 24 and 48 channels.	Connector performances are consistent with MIL-DTL-38999 Series III. (See Subminiature Cylindrical Section) Optical performance is maximized with MT ferrules. Typical insertion loss is 0.5 dB to 1.0 dB.

OPTIONAL FEATURES

- Any of the shell styles of Tri-Start, MIL-DTL-38999 Series III are offered for incorporation of MT fiber optics. (See Subminiature Cyl. section for Tri-Start features and options).

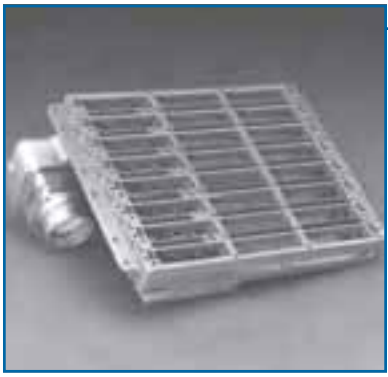
See also fiber optic VME P0 MT connector, page 49.

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

Optical Backplane Interconnect Systems with MT Ferrules

Consult your local Amphenol sales office for further information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Electro-optical backplane interconnect systems for advanced avionics systems high speed optical/digital signal processing. Available in SEM-E or custom form factors. Integrates the total electrical and optical rack interconnect needs into one discreet package.	Utilizes MT optical ferrules and ribbon cable routing.	For mounting to printed circuit boards. Ribbon cable routing allows programming flexibility - thus rendering the entire system easily upgradeable.	12 channel configuration with MT ferrules is typical. Also can be configured with 2, 8, 12, 24 and 48 channels.	Ruggedized LRM housings. Typical insertion loss is 0.5 dB to 1.0 dB.

OPTIONAL FEATURES

- Designs are per customer requirements.

Also see other Backplane Systems that can incorporate fiber optics on pages 50 and 55.

MARKETS

- Military Aerospace
- Military Vehicles
- Communications
- Commercial Aircraft
- Medical Equipment

Fiber Optic Cable Assemblies

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Custom fiber optic cable assemblies terminated with MIL-T-29504 termini, MIL-DTL-38999 III connectors and the following other series: ST, SMA, SC, FC, MTRJ, LC, MFM, TVOP.	Designed for both harsh and benign environments. MIL-T-29504 standards apply to termini. Connector standards vary per series.	Cabling for a multitude of applications designed to meet customer requirements for connector interface, desired cable lengths, and molding materials.	Any fiber optic termini, including butt joint and lens products, dependent on connector style.	Amphenol cable assemblies are crush resistant, have high tensile strength and are flexible with good bend radius characteristics. They are abrasion resistant and high fluid and chemical resistant. Amphenol has on-site testing capabilities which include optical and environmental performance testing as well as qualification testing.

OPTIONAL FEATURES

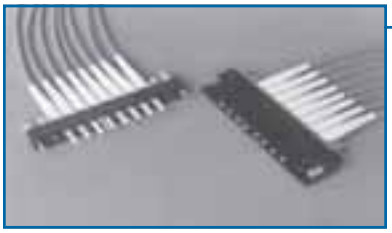
- Wide variety of cable options.
- Designs are per customer requirements.

MARKETS

- All fiber optic markets listed previously.

Fiber Optic Multi-Way Backplane Connectors

Consult your local Amphenol sales office for further information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
MBP High density fiber optic Rack and Panel connector for attachment to printed circuit boards.	Utilizes proven PC technology and butt joint fiber optic technology.	For mounting to printed circuit boards. Keyed ferrule assembly assures positive alignment, and optical termini are free floating.	Available in 4 and 8 channel configurations with multi-mode termini.	Connector bodies are one-piece robust construction that enhance connector reliability and also reduces assembly cost of the connector. Black zinc cobalt finish for durability. Operating temp. from –50 to +125° C. Rated at IP68 mated for environmental sealing. Typical insertion loss is 0.35 dB to 0.6 dB.

OPTIONAL FEATURES

- Available in mother board, daughter board and chassis mountable styles.

MARKETS

- Communications
- Shipboard
- Flight Control

Tactical Optical Splice

Consult your local Amphenol sales office for further information.

FTOS Flexible Tactical Splice

Optical Splice

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Fiber optical splice used for easy repair of tactical cables in the field with no epoxy handling.	Restores fiber optic cable to meet original standards.	N/A	N/A	Restores all the functions of the cable such as tensile strength and flexibility crush resistance. Reconstitutes the optical channels with low insertion loss.

OPTIONAL FEATURES

- Optical splice can be supplied on a reel for storing, and can be unrolled and rolled on a reel after it is repaired.
- Can be used to maintain CTOS connectors by splicing CTOS pigtails on the tactical cable of the harness. (See Amphenol CTOS connectors, page 37).

MARKETS

- All fiber optic markets listed previously.

Fiber Optic Products, cont.

MFM Singleway Fiber Optic Series

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
MFM - Fiber optic high speed transmission in a small, lightweight connector designed for harsh environments.	MIL-DTL-38999 Series III - 13, EN 3733 standards. Utilizes butt joint fiber optic technology.	Threaded coupling with keyway polarization.	1 and 2 channel configurations with multi-mode and single mode termini.	Operating temp. from –65°C to +155°C. Typical insertion loss 0.3 dB to 0.5 dB. Rated at IP68 mated for environmental sealing. Manufactured in Arcap for corrosion resistance.

OPTIONAL FEATURES

- Interface with a wide range of rugged fiber optic cables.
- One plug style and 3 receptacle styles with RFI gaskets are offered.

MARKETS

- Communications
- Shipboard
- Mining and Offshore
- Flight Control
- Robotics
- Military Vehicles

Fiber Optic Termination Tools

Reference Catalog 12-352

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Fiber optic termination kits are available for use with each Amphenol connector family. The kit includes the carrying case, heat gun, stripping tools, and microscope with adapters. Polishing plate includes a 70 duometer pad on one side to accommodate a physical contact (PC) polish, as well as an air gap (AG) polish.	Designed to aid users with stripping MIL-T-29504/4 and /5 fiber optic termini.	N/A	Tooling designed for MIL-T-29504 termini.	For maximum performance of fiber optic connectors, proper termination tools are recommended for cleaning and installing termini.

OPTIONAL FEATURES

- N/A

MARKETS

- All fiber optic markets listed previously.

Printed Circuit Board Interconnects

Amphenol provides an impressive array of Rectangular Connectors to meet the needs of high density systems and interconnect attachments to Printed Circuit Boards.

- **Low Mating Force Rectangular Connectors with Brush contacts**
- **LRM Surface Mount Connectors with Brush contacts**
- **Rectangular Connectors with Tuning Fork and Blade contacts**
- **Modular Interconnects**
- **Cylindrical Connectors with PCB tails**

Mil-Specs covered within the Rectangular Printed Circuit Board Family:

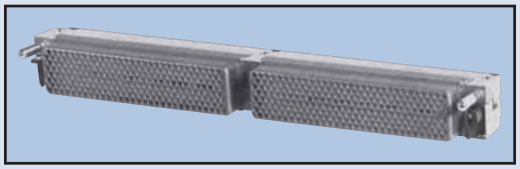
- MIL-C-55302
- UHD and NAFI Backplane Connectors qualified to MIL-C-28859 and MIL-C-28754

Amphenol® Bristle® Brush® Contacts

Brush Contact Advantages:

- Low mating/unmating forces - 70% to 90% reduction from conventional pin-socket contacts
- Superior electrical characteristics
- Durability - over 20,000 cycles of mating & unmating without degradation
- Intermittency-free performance
- Redundant current paths (stable, low resistance)

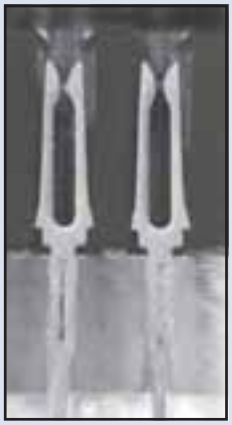
Low Mating Force Rectangular Connectors (2, 3, 4 rows with 10 to 100 contacts per row)



LRM Surface Mount Connectors (Shown top - Staggered Grid, 360 contacts) (Shown bottom - GEN-X Grid, 472 contacts)

Amphenol Rectangular Connectors with Tuning Fork and Blade Contacts

Amphenol Aerospace has a wide array of high density, high reliability rectangular connectors that use the proven tuning fork and blade technology. These are incorporated into backplane systems. UHD and NAFI Backplane connectors are available with customer tailored lengths and styles.



UHD Surface Mount Connectors (Up to 396 surface mount contacts in the SEM-E Format, Up to 556 pins in the 10 SU configuration)

Other Rectangular Connectors

SIHD Connectors

SIAL Modular Connectors

Rectangular Interconnection Products also offered (in addition to those represented on this page) include:

- PCB Connectors qualified to MIL-C-55302 with PCB, crimp or solder contacts
- Pyle LMD and LMS Linear Modular Connectors
- LRM Surface Mount Connectors with ESD Protection
- RF Modules and Power Supply Modules
- SIM Modular Connectors

Cylindrical Connector Attachment to Printed Circuit Boards

Also for printed circuit board applications:

- Cylindrical Connectors available with PCB contacts and Compliant Press-Fit contacts
- Flex Circuitry Assemblies
- Header Assemblies

See pages 52 and 53.

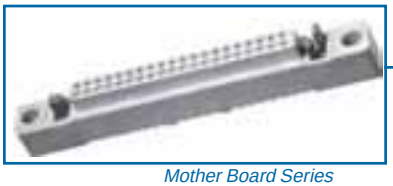
MIL-DTL-38999 Connector with PCB Tails

Please see our websites:
www.amphenol-aerospace.com
www.amphenol-industrial.com
www.amphenol-abs.com

Rectangular Printed Circuit Board Interconnects

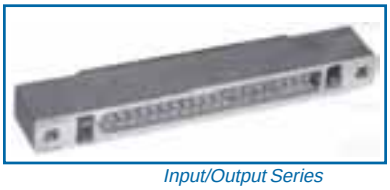
Low Mating Force Rectangular Connectors with Bristle Brush Contacts

Reference Catalog 12-035

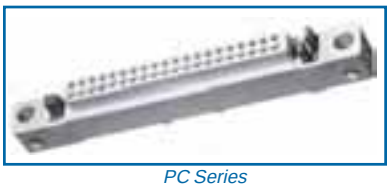


Mother Board Series

Daughter Board Series



Input/Output Series



PC Series

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Military designation: M55302. Proprietary designations: MB, DB, I/O, PC. Rectangular connectors for attachment to printed circuit boards. Offers high contact density capability. Contain Bristle Brush contacts, consisting of multiple strands of high tensile strength wire that are bundled together to form a "brush-like" contact.	Military versions meet MIL-C-55302/166 through /172.	For mounting to printed circuit boards or discrete wires. Body styles offered: • Mother board • Daughter board • Input/Output • PC Flexibility in mating: • Perpendicular boards • End to end boards • Parallel boards • Wire to boards • Card extenders. Polarization keys provide up to 256 possible positions.	Brush contact termination. (Also called B3 contacts). Termination Styles: • PCB through-hole solder • Wire wrap (MB only) • Crimp to discrete wires (Input/ Output only) • Solderless complaint into 0.040 plated through holes (MB only) Arrangements: • 2, 3 or 4 row arrangements with 10 to 100 contacts per row in one contact per row increments. • 0.100 inch center to center square grid contact spacing.	Operating temp. from –65°C to +125°C. Connector bodies are high performance glass-filled thermoplastic moldings. Connector configurations are capable of supporting data rates up to 400 Mbps. Bristle Brush contacts (See illustration on page 43) provide: • Low mating/unmating forces - 70% to 90% reduction from conventional pin and socket contacts. • Proven durability and long contact life - over 20,000 cycles of mating and unmating without performance degradation. • Multiple points (14-17) of contact per mated contact. • Intermittency-free performance. • Redundant current paths (stable, low resistance). • Proven electrical and gas tight contact sites.

Variety of Rectangular Brush Connectors including smaller styles that have only 10 contacts and are available in color coded moldings.

OPTIONAL FEATURES

- Locking screws and bushings are available for attaching connectors to boards.
- Contact styles available: straight, 90 degree, PCB stub, wire wrap and crimp.
- Small 10-contact arrangement styles are available with option of multi-colored moldings for color coding applications.

MARKETS

- Medical Equipment
- IC Chip Testers
- GPS Systems
- Telecommunications
- Factory Automation
- Military and Commercial Aviation
- Military Vehicles
- Space applications

Hybrid Rectangular Connectors with Brush/Power/Coax/Fiber Optic Combinations

Reference Catalog 12-035

Power/Coax/Brush Contact Combinations

Fiber Optics/Brush Contact Combinations

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Rectangular connectors for attachment to printed circuit boards. Offers versatility of combining contact types- power, coax, twinax, fiber optics and Brush contacts in one high density package.	M55302 type rectangular connectors with hybrid contact arrangements. Power contacts and shielded coax or twinax contacts meet M39029 standards. Fiber optic termini meet M29504/4 & /5 standards.	Same as shown above for Low Mating Force rectangular connectors.	Combinations of termination styles: • Brush contacts (as described above) • Power contacts - (standard M39029 size 16 or 12; same as used in MIL-DTL-38999 Series II) • Coax or twinax contacts - (M39029, size 16 and 12) • Fiber optic termini (multi-mode size 16; same as used in MIL-DTL-38999 Series III)	Connector performance and brush contact performance is the same as shown above for Low Mating Force Rectangular connectors. Optical performances of fiber optic termini are the same as termini used in multi-channel cylindrical connectors. (See page 36).

OPTIONAL FEATURES

- Hybrid configurations are available with fiber optics and brush contacts. (See photo above and Fiber Optic section of this catalog).
- Hybrid configurations are available with power and/or shielded (coax or twinax contacts. (See photo shown above).

MARKETS

- All markets of Rectangular Low Mating Force Connectors, as shown above.

PCB Connectors with Crimp, Solder or PCB Contacts

Reference Catalog 12-033

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Rectangular connectors for attachment to printed circuit boards. Mother board, Daughter board, I/O styles available.	MS versions meet MIL-C-55302 standards.	For mounting to printed circuit boards. Discrete wire termination also available. Accessory polarization provides additional keying positions.	Crimp, solder and PCB termination. Styles range in available spacing of .090, .100 and .150 ctr. to ctr. PCB90/A has 30 to 49 contacts. PCB100A has 61 contacts. PCB100B has 58 or 87 contacts. PCB100C has 39 or 59 contacts. PCB150A has 40 or 76 contacts.	Connector performances meet MIL-C-55302/67 through /78 standards. Operating temp. from –65° C to +125° C. Connector bodies are high performance glass fiber filled epoxy, dielectric material. Durability: 500 cycles of mating and unmating. Crimp contacts used are MIL-DTL-38999 Series II type.

OPTIONAL FEATURES

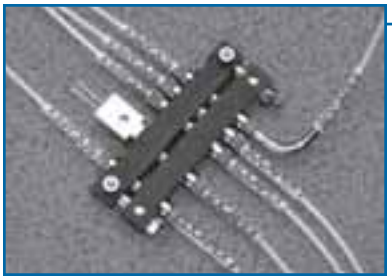
- Offered in 5 styles per MIL-C-55302/67 through /78 with varying spacing and contact arrangement choices.

MARKETS

- Heavy Equipment/Off Road Vehicles
- Mass Transportation
- Power Generation

HE8 Rectangular PCB Series

Reference Amphenol Socapex Catalog E301 or consult your local Amphenol sales office for further information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Low profile rectangular connectors for attachment to printed circuit boards. Mother board, daughter board styles.	In accordance with MIL-C-55302 (140 to 155) and IEC130-16 standards.	Panel and printed circuit board mounting. Hoods and locking devices are available for HE801, HE804 and HE807 plugs that enable polarization.	Offered in 3 styles: HE 801 17 to 144 contacts on 2 or 3 rows. Intermates to competitor styles. HE 804 17 to 144 signal contacts on 2 or 3 rows. Recommended version for harsh environments. HE 807 5 to 84 contacts on 2 rows only, and 3 to 10 size 16 cavities for power, coaxial contacts or optical termini.	Operating temp. from –55° C to +125° C. Insulator is DAP material. Contact resistance: <12 milliohms.

OPTIONAL FEATURES

- Straight, right-angled, crimp, solder, SMT and wire-wrap options.
- Mixed layouts available with cavities accepting power or coax contacts or optical termini.

MARKETS

- Military/Aerospace
- Telecommunications

SIHD High Density Interconnect Systems

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
High density mother board and daughter board rectangular connectors with fork and blade type contacts that are attachable to printed circuit boards.	Combines advanced thermal conductivity technology with grounding contacts (central ground straps) to provide transient protection.	Can be centered or off-centered mounted. Withstands rigors of soldering operations - vapor phase, infrared reflow, wave processes. Polarizing pins for mounting to boards.	Termination styles: Surfacemount and thru hole PCB. Arrangements: From 108 to 390 signal contacts (fork and blade style), arranged in 5 rows in a staggered grid pattern.	Operating temp. from –55° C to +125° C. Connector bodies are lightweight DAP material. Permissible lateral displacement of the plug within the receptacle of up to ± 0.012 inch, to allow for the use of thermal clamps. See page 48 for information on thermal clamps.

OPTIONAL FEATURES

- MB receptacle, DB plug, Plug test, and extender receptacles are available.
- Contact layouts available for backplane, daughter boards with right angle dip solder contacts, or daughter boards for surface mount contacts.

MARKETS

- Military Equipment and Flight Control Systems
- Nuclear Submarine Sonar and Missile Systems

SIAL Modular High Density Interconnect Systems

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
High density mother board and daughter board modular connectors with metallic housings and with fork and blade type contacts that are attachable to printed circuit boards.	Combines the SIHD connector features with the additional capability for combinations of power contacts (up to 20 Amps), coaxial contacts and/or fiber optic termini.	Available for surface mount and thru hole PCB's. Can be centered or off-centered mounted. Withstands rigors of soldering operations - vapor phase, infrared reflow, wave processes. Polarizing pins for mounting to boards.	Termination styles: PCB, compliant, surface mount or crimp. Arrangements: 18 to 392 contacts in 5 rows.	Operating temp. from –55° C to +125° C. Connector skirts are stainless steel. Insulators are DAP material. Permissible lateral displacement of the plug within the receptacle of up to ± 0.012 inch, to allow for the use of thermal clamps. (See page 48 for information on thermal clamps).

OPTIONAL FEATURES

- MB receptacle, DB plug, DB test receptacle, Plug test, and extender receptacles are available.
- Contact layouts available for backplane, daughter boards with right angle dip solder contacts, or daughter boards for surface mount contacts.
- Contact options: signal, power, coax and fiber optics.

MARKETS

- Military Equipment and Flight Control Systems
- Radar Control Measures
- Nuclear Submarine Sonar

Pyle LMD Modular Connectors

Reference Pyle Bulletin LM-300

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Rectangular interconnects comprised of housings, modules and contacts, designed to provide flexibility in the assembly of wire harnesses. For attachment to PC boards. Also designs for rack & panel or cable to cable attachment.	Designed for wire harness terminations and to eliminate costly PC board and associated hardware.	Linear module design - for rack & panel or cable to cable applications. Bussing modules - allow for a plurality of circuit networks without extra hardware. Diode modules - sealed for protection; eliminate need for PC boards/ hardware. Relay modules - sealed or unsealed; eliminate need for PC boards/hardware.	Modules incorporate crimp contacts in sizes 8, 16, 20 and 22.	Operating temp. from –55°C to +140°C. Durability: 250 cycles mating and unmating. Module insertion and removal force: 5 lbs. max. Housings, modules and contacts are all ordered separately and require assembly with appropriate LMD accessory tools. Housings of black thermoplastic are U/L rated 94VO flame retardant. Housings of white thermoplastic provide increased resistance to industrial oils and solvents.

OPTIONAL FEATURES

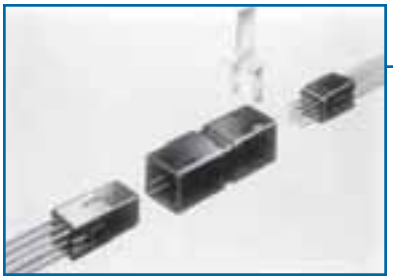
- Variety of module options provide a mix of both active and passive devices within one connector.
- Modules offered either environmentally sealed or unsealed.
- Standard design - housings with 6 bays with choice of four module contact arrangements: 1 #8, 4 #16, 9 #20, 16 #22. PC tail contacts also available.
- Housing material options: black or white thermoplastic.
- Plug and receptacle housings may be front or rear panel mounted.
- Optional keying post provides six position keying capability.
- Optional center jackscrew available for ease of mating and unmating and high reliability under vibration.
- Two types of cable strain reliefs - for either internal or external attachment.

MARKETS

- Instrumentation and Avionics Controls

Pyle LMS Modular Connectors

Reference Pyle Bulletin LM-300



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
In-line splice connectors - simple, low cost interconnection devices that incorporate LMD modules and contacts.	Supplements the LMD family.	3-piece assembly with 2 styles - standard requiring removal tool, or style with a push button release. Bracket available for panel mounting.	Uses modules common to LMD connectors. (See above)	Operating temp. from –55°C to +140°C.

OPTIONAL FEATURES

- Panel mounting bracket available or tie straps.
- Module removal tool available for standard splice style.

MARKETS

- Instrumentation and Testing Equipment

LRM Surface Mount Connectors with Brush Contacts

Reference L-2104 LRM Reference Guide

Chevron Grid - Up to 300 Contacts in 6 Rows.

Staggered Grid - Up to 360 Contacts in 8 Rows.

GEN-X Grid - Up to 472 Contacts in 8 Rows.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Line replaceable modular interconnects with very high contact densities, for attachment to printed circuit boards. Contain Bristle Brush contacts, consisting of multiple strands of high tensile strength wire that are bundled together to form a "brush-like" contact. (See illustration of Brush contact on page 43). LRM connectors are available in SEM-E and custom form formats.	Uses Bristle Brush contact which meets MIL-C-55302. Amphenol staggered grid LRM connector is the F-22 Avionics system connector choice.	Modules: Surface mount/Straddle mount with .0375 spacing between leads, with rows of leads on each side of the module. Can be centered or off-centered mounted. Backplanes: Available with through-hole solder posts or with compliant pins. Polarization: Insert arrangement controls mating orientation. Up to 4096 keying combinations.	Brush contact termination. (Same as used in Low Mating Force Connectors. - See page 44). Chevron Grid: Backplane termination: PCB through-hole solder. Module/LRM termination: Surface mount on 0.025 pitch. Staggered Grid: Backplane termination: PCB through-hole solder or solderless compliant into 0.025 plated-through holes. Module/LRM termination: Surface mount on 0.025 pitch to flex circuit. GEN-X Grid: Backplane termination: PCB through-hole solder or solderless compliant into 0.025 plated-through holes. Module/LRM termination: Surface mount on 0.0375 pitch to rigid flex circuit boards.	Operating temp. from –65°C to +125°C. Suitable for vapor phase soldering. Connector bodies are aluminum alloy with electroless nickel finish. Superior performance under vibration. Connector configurations are capable of supporting data rates in excess of 1 Gbps. Staggered and GEN-X styles are standard with ESD protection - see below. Bristle Brush contacts provide: • Low mating/unmating forces - 70% to 90% reduction from conventional pin and socket contacts. • Proven durability and long contact life - over 20,000 cycles of mating and unmating without performance degradation. • Multiple points (14-17) of contact per mated contact. • Intermittency-free performance. • Redundant current paths (stable, low resistance). • Proven electrical and gas tight contact sites.

Variety of Rectangular Interconnection Products, including LRMs and Low Mating Force Brush Connectors. Also shows the OBIS, Optic-Electric Backplane. (See Fiber Optic section and Backplane Rectangulars for more information).

OPTIONAL FEATURES

- Wide range of combinations available for PCB/heat sink accommodations.
- Ruggedized VME64-X is another LRM type connector - See next page.
- Hybrid arrangements with Brush contacts, coaxial, power and fiber optics are available in the Staggered grid style (See next page).

MARKETS

- Military and Commercial Aviation
- Military Vehicles and GPS Systems

LRM Connectors with ESD Protection

Reference Product Data Sheet # 171.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Staggered style and GEN-X style are standard with ESD protection. These connectors utilize the Faraday cage principal to shunt electrostatic discharge events to the conductive enclosure on which the connector is mounted, thus never allowing the high voltage, high current discharge event to reside on any contacts.	Exceeds protection requirements of IEC 801-2 and MIL-STD-1686.	LRM connectors with the added feature of ESD protection eliminate the need for discrete components (such as diodes) and maximizes PC board real estate.	See termination information for LRM connectors above.	Ensures that all components within a conductive enclosure will be subjected to a max. of 20V during electrostatic discharges between –26 KV and +26 KV. Response time is instantaneous. No capacitive loading of signal contacts. The ESD protection is provided on the module/LRM connector in the unmated condition, making it ideal for Level 2 maintenance.

OPTIONAL FEATURES

- (Also see ESD protection in MIL-DTL-38999 Series III connectors - Filter/ Transient Protection section. Consult Amphenol for further availability.)

MARKETS

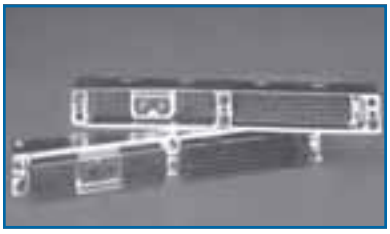
- Military and Commercial Aviation
- Military Vehicles and GPS Systems

LRM Surface Mount Connectors with Fiber Optics, RF Modules, Power Supply Modules

Reference L-2104 LRM Reference Guide

LRM with Fiber Optics

RF Modules



Power Supply Modules

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Line replaceable modular interconnects with very high contact densities, for attachment to printed circuit boards. Offers versatility of combining contact types within modules - fiber optics, shielded RF coax, and power contacts one high density package.	High performance LRM connectors with hybrid contact arrangements available.	Same as for LRM connectors shown on preceding page.	Combinations of: • Brush contacts • Fiber Optic LRM - MIL-T-29504 type termini or MT ferrules (2-24 fiber lines per ferrule) • RF Modules with coax contacts - size 16 M39029 type, size 12 for DC-2 GHz or size 8 for DC-32 GHz. Other RF contacts can be accommodated. • Power Supply Modules with custom 270VDC sections utilizing size 22D crimp or compliant pin contacts. Crimp termination size 16, 12 and 8 contacts for high current applications.	Connector performances and brush contact performances are the same as shown on preceding page for LRM connectors. Power supply modules with 270VDC sections are capable of providing corona-free operation at 75,000 ft.

OPTIONAL FEATURES

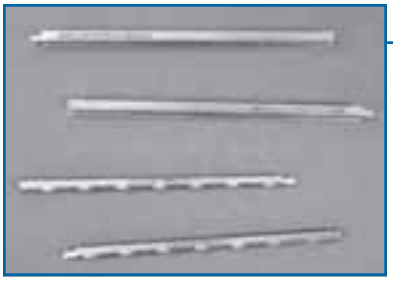
- Digital/Brush contact inserts can be partially populated to permit high voltage carrying capacity through the electrical PWB, while isolating sensitive electrical signals.
- Differential pair inserts have been specifically designed to support data rates with excess of 1.2 Gbps.
- Also see page 40 for optical backplane interconnection system, that can provide up to 192 fiber optic lines and 80 digital contacts in SEM-E format.

MARKETS

- Military and Commercial Aviation
- Military Vehicles
- GPS Systems

Thermal Clamps

Consult your local Amphenol sales office for further information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
For attachment to printed circuit boards to ensure the thermal dissipation of the PC board from the heatsinks to the chassis. Unique design produces a uniform pressure distribution, eliminating hot spots along the PCB edge.	Meets all performance objectives set by military and commercial users for high reliability and high density circuit board packaging of electronic equipments.	Provides for quick, positive guiding and locking of the daughter boards into the correct position (simply through a 1/4 turn). Visual indication that shows the "open" and "closed" position.	Fits to the PC board as required. Board lengths between 40 mm (1.57 in.) and 300 mm (11.81 in.) can be accommodated once the cold wall and heat sink are specified. Compatible with different heat sinks thicknesses. Various mounting, locking devices are available.	Operating temp. range: 1000 hours @ 125° C. The assembly of body, spring system, and axis has no moving parts and permits the clamp to stay together even when in unlocked position. Provides space saving, low weight and zero insertion/extraction forces. Very low wear and resistance to shocks and vibration, even in harsh environments. Springs are copper berrylium. Body is aluminum and axis is stainless steel.

OPTIONAL FEATURES

- Available in the following configurations:
  - with shell to be fixed on the structure
  - without shell to be fixed on the structure (machining drawing available)
  - without shell to be fixed directly on the heatsink
- Designed per customer requirements for lengths, plating options, and other design variations.

MARKETS

- Radar Equipment and Weapons Systems
- High Speed Calculators
- Submarine Equipment
- Ground Military Vehicles

Ruggedized VME64-X Connectors

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
High density modular and backplane connectors for attachment to VME64X printed circuit boards. Designed to meet the needs for a more ruggedized interconnect for harsh environments requiring Level 2 maintenance.	Metal shells, ESD protection, a robust contact system, and high data rate compatibility for electrical and optical interface makes this a superior choice for VME64X interconnection.	Mount to standard VME64X cards and backplanes, but do not mate to other types of VME commercial connectors.	3 module inserts can have different combinations: • P1, P2 and 2mm electrical P0 • P1 and P2 combination • P1, P2 and fiber optic MT ferrules in the P0 position.	Operating temp. from –65°C to +125°C. Connectors have metal shells that unify the dielectric inserts and create a faraday cage around the contacts, preventing ESD (Electrostatic Discharge) into the contacts.

MARKETS
- Military and Commercial Aviation
- Military Vehicles
- GPS Systems

OPTIONAL FEATURES
- Designed to customer specifications.

VME P0/J0 MT Connectors with Fiber Optics

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
For attachment to VME-64X printed circuit board and cards where fiber optics is required. Used in place of P0/J0 electrical applicable connectors.	Tested to IEEE 1156.1-1993 paragraphs.	Mount to standard VME64X cards and backplanes in the P0/J0 location.	Uses fiber optic "MT" ferrules in the P0/J0 location.	Operating temp. from –55°C to +125°C. Shock: 100g, 6ms, 1/2 sine, 18 pulses Shock: 30g, 6ms, 1/2 sine, 18 pulses Sine Vibration: 10g, 40 min/ axis, 3 axis Random Vibration: 0.15g^2 Hz, 40 min/axis, 3 axis ESD: 15 KV/150 pF

MARKETS
- Military and Commercial Aviation
- Military Vehicles
- GPS Systems

OPTIONAL FEATURES
- Designed to customer specifications.

SIM Modular Connectors

Consult Amphenol Air LB SIM Series 2 or Series 3 Catalogs or your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Rectangular interconnect system developed as an alternative to MIL-DTL-38999 circular connectors, where space and modularity are critical. For printed circuit board/ surface mount attachment and rack and panel applications.	Meets the EN 4165 spec. Meets or exceeds all the MIL-DTL-38999 mechanical, electrical, environmental sealing and EMI shielding performances. Available for use with 39029 Series 2 and Series 3 contacts.	Standard mating types: clicker nut screw or rack plug. Coupling screw provides 36 combinations for polarization between connec-tors. Consists of receptacle shells that can be stacked, flanged receptacle shells and free plug shells, all using snap-in removable modules.	2 or 4 module standard designs are offered, incorporating MIL-C-39029 Series 2 or Series 3 contacts in sizes 22, 20, 16 and 12.	Operating temp. from –55°C to +175°C. Environmental sealing is provided with overmolded modules, interfacial seals and peripheral seals for bulkhead applications. Superior EMI shielding is achieved when using hardened shells with backshells that have removable chimneys. Corrosion resistance: shells of cadmium plating on aluminum or composite withstand a 500 hr. salt spray exposure. Operating voltage: to 1800 VAC at sea level depending on contact size.

MARKETS
- Military and Aerospace:
  Fighter Jets, Tanks, Helicopters, and Missile Systems

OPTIONAL FEATURES
- Available with stainless steel shells.
- Filtered versions of the receptacles are available with fixed modules.
- Male or female contact modules can be fitted to either the plug or receptacle.
- SIM modules can be equipped with: printed circuit, coax, twinax, triax, quadrax contacts, or fiber optic termini up to a size 8 contact. Can be mounted on backplanes using pressfit (compliant) contacts.

UHD Module/Backplane Connectors with Fork and Blade Contacts, Rigid Pin Termination

Reference Catalog 12-036 from Amphenol Backplane Systems or Amphenol Aerospace.

UHD Module Connector, Rigid Pin Termination

UHD Backplane Connector

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
High density interconnects - module and backplane connectors for attachment to printed circuit boards. For military and aerospace applications. M1050 Rigid Pin Series UHD designation.	SEM-E Format. Qualified to: EIA 15-763, DESC 89065, IEEE 1101.1 to 1101.9.	For surface mount interconnection to printed circuit boards with rigid pin termination. Connector length and body styles can be tailored to meet specific needs.	80 contacts per inch, .025 pitch in an 8 row staggered grid pattern. Module connectors have surface mount blade contacts and the mating backplane connectors have solderless press-fit tuning fork contacts. Available in standard configurations of: • 372 pin • 300 pin multi-purpose (fiber optic, coax, power contacts can be intermixed) • 296 pin with 270V power contacts • 292 pin with coax • 396 pin Futurebus + SEM-E • 556 pin Futurebus + 10 SU (designs of up to 680 contacts)	Operating temp. from –65°C to +125°C. Current: 20 Amps DC @ 25°C. Voltage: 600V (RMS) @ 60 Hz. Contact resistance: 30 Milliohms. Durability: 500 cycles. Compliant press-fit tuning fork contacts provide a solderless, gas tight interface.

UHD Module Connector, Rigid Pin Termination plus Coax Contacts

UHD Backplane Connector, Rigid Pin Termination, Multi-Purpose with Fiber Optics, Coax or Power Contacts

OPTIONAL FEATURES

- Wide range of high contact density patterns.
- Connector length and body styles can be tailored to meet customer requirements.
- SEM-E Format or 10 SU configurations are available.
- Coax, fiber optic and power contacts available in many configurations.
- EMI shielding options.
- Module covers can be integrated into the connector system.
- Extender board connector configurations are also available so that customers can have access to probe and test modules that are electrically connected to the backplane.
- UHD interconnects are also available in a stacking configuration.

MARKETS

- Military and Commercial Aviation
- Space Applications
- Shipboard Applications
- Military Vehicles
- C^4I Electronics
- Ordnance

UHD Module/Backplane Connectors with Fork and Blade Contacts, Flex Termination

Reference Catalog 12-036 from Amphenol Backplane Systems or Amphenol Aerospace.

UHD Module Connector with Flex Termination

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
High density interconnects - module connectors for attachment to printed circuit boards. For military and aerospace applications. FM1050 Flex Term Series UHD designation.	SEM-E Format. Qualified to: EIA 15-763, DESC 89065, IEEE 1101.1 to 1101.9.	For surface mount interconnection to printed circuit boards with flex termination. Connector length and body styles can be tailored to meet specific needs, as well as custom flex designs to fit precise spacing requirements.	Same staggered grid pattern of UHD rigid pin connectors, but terminated to boards with flex circuits.	Meets same performance levels as UHD connectors with rigid pin termination.

OPTIONAL FEATURES

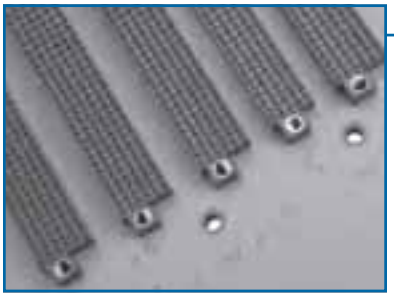
- Same options as UHD connectors with rigid pin termination shown above.

MARKETS

- Same as listed above

NAFI Daughtercard/Backplane Connectors with Fork and Blade Contacts, Rigid Pin Termination

Reference Catalog 12-036 from Amphenol Backplane Systems or Amphenol Aerospace.



NAFI Backplane Connectors

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Medium density interconnects - daughtercard and backplane connectors for attachment to printed circuit boards. For military and aerospace applications. M Series NAFI designation.	Meets MIL-C-28754 standards.	For through hole interconnection to printed circuit boards with rigid pin termination. Connector length and body styles can be tailored to meet specific needs. Standard NAFI-style features such as guide pins and D-and V-shaped polarizing keys are available.	Available with 2, 3, 4 and 5 rows of contacts, .100 X .100 pitch. Daughtercard termination is through hole, using nickel/gold solder plated contacts. The mating interface is a .020 x .050 male blade. The blade contacts can be configured either parallel or perpendicular to the daughtercard.	Operating temp. from –55°C to +125°C. Current: 3 Amps Cont. Voltage: 1000V (RMS) @ 60 Hz. Contact resistance: 6 Milliohms. Durability: 500 cycles.

OPTIONAL FEATURES

- Wide range of medium contact density patterns.
- Connector length and body styles can be tailored to meet customer requirements.

MARKETS

- Military Aerospace
- Commercial Aviation
- Space Applications
- Military Vehicles
- Shipboard Applications

NAFI Daughtercard/Backplane Connectors with Fork and Blade Contacts, Flex Termination

Reference Catalog 12-036 from Amphenol Backplane Systems or Amphenol Aerospace.

NAFI Daughtercard Connector, Flex Termination

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Medium density interconnects - daughtercard connectors for attachment to printed circuit boards. For military and aerospace applications. FM Series NAFI designation.	Meets MIL-C-28754 standards.	For surface mount interconnection to printed circuit boards with flex circuit termination. Connector length and body styles can be tailored to meet specific needs.	Same staggered grid pattern of NAFI rigid pin connectors, but terminated to boards with flex circuits.	Meets same performance levels as NAFI connectors with rigid pin termination.

OPTIONAL FEATURES

- Same options as NAFI connectors with rigid pin termination shown above.

MARKETS

- Same as listed above

I/O NAFI Connectors with Rear Removable Crimp Termination

Reference Catalog 12-036 from Amphenol Backplane Systems or Amphenol Aerospace.

I/O NAFI Connector - for Terminating Stranded Wire to a Backplane.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Interconnects that allow for terminating #22 and #26 gauge stranded wires to a backplane. For printed circuit board applications. 100 Series I/O designation.	Meets MIL-C-28754 standards.	Interconnects #22 gauge and #26 gauge wires to a backplane. Can be placed on either side of the backplane and includes captive hardware and polarizing features.	Available with 24, 36, 40 or 120 rear removable crimp-style blade contacts.	Meets same performance levels as NAFI connectors, using fork and blade termination.

OPTIONAL FEATURES

- N/A

MARKETS

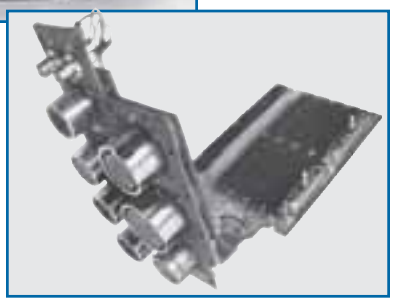
- Same as listed above

Cylindrical Connector Attachment to Printed Circuit Boards

Press Fit Connectors with Compliant Pins

Reference Product Data Sheet 188.
Reference Catalog 12-170.

APPLICATION	STANDARDS REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
MIL-DTL-38999 Series I, II or III connectors with compliant pin contacts for solderless mounting on printed circuit boards.	Meet MIL-DTL-38999 Series I, II or III requirements. Compliant pins engage the plated through-holes in the PC board without the need for soldering. Provides high speed, low cost board assembly.	Accommodate boards with minimum of 0.090 inch thickness and 0.040 ±.003 plated through holes. Insertion force for mounting the connector on boards is 7 to 16 lbs. per contact.	Both pin and socket contacts are available in any MIL-DTL-38999 Series I, II or III insert pattern having contact size 16, 20 or 22D.	Connector performances are compatible with MIL-DTL-38999 Series I, II or III. Solderless mounting eliminates soldering thermal stress, provides improved board processing time and provides easy board repairability.



Press Fit Connectors on Printed Circuit Board

OPTIONAL FEATURES

- Connectors are sold completely assembled or are available fully pre-assembled on a backplane assembly. See backplanes, page 55.

MARKETS

- All markets of MIL-DTL-38999 connectors.

Cylindrical Connectors with PC Tail Contacts

Reference Catalog 12-170.

PC Tails in MIL-DTL-38999

APPLICATION	STANDARDS REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Cylindrical connectors with PC tail contacts for solder mounting on printed circuit boards.	Meet Mil-Spec requirements of the cylindrical connector used. Available in: MIL-DTL-38999 Series I, II, III; MIL-C-26482 Series 1 and 2; MIL-C-5015. Also available in MIL-C-5015 type GT series with reverse bayonet coupling.	Cylindrical connectors in jam nut (D hole) or panel mount (four hole) styles are solder mounted to printed circuit boards. Considerations must be made for length of PCB tails and any mechanical methods needed to stabilize the board.	Insert arrangements within the 3 connector families incorporate PCB contacts in sizes 16, 20 and 22D. Most popularly used arrangements are shown with pin-out dimensional layouts in Catalog 12-170, Cylindrical Connectors for PCB application.	Connector performances are compatible with the Mil-spec requirements of the connector type used.

PC Tails in MIL-C-5015

PC Tails in MIL-C-26482

PC Tails in GT Series

PC Tails and Coax Contacts in 38999 Connector with Alignment Disc

Alignment Discs provide simplified installation of contacts to PCB boards. They optimize electrical circuit separation and provide protection during shipment.

OPTIONAL FEATURES

- Commonly used tail diameters and tail stick-out dimensions are given in Catalog 12-170 to assist in designing. Other custom designs are available.
- PCB tails for 38999 and 26482 cylindricals are standard with gold plating over nickel. PCB tails for 5015 cylindricals are standard with silver over copper. Pre-tinned contacts with a 60/40 lead-tin alloy are also available.
- PCB contacts are available in coax, twinax, and triax types.
- Alignment discs are available.
- Header assemblies and flex assemblies are also optional accessories. See next page.

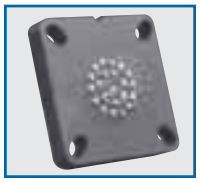
MARKETS

- All markets of MIL-DTL-38999 connectors.

Cylindrical Connector Attachment to Printed Circuit Boards

Universal Header Assemblies

Reference Product Data Sheet 169, Catalog 12-120, and Catalog 12-170.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Provides for easy separation and easy termination of connectors when attaching to flex print or printed circuit boards Available to fit all major cylindrical mil-spec and ARINC connectors. Provides the user with time and cost saving potentials.	Accessory product for connector attachment to PC boards. Provides time and cost savings, especially when installing and testing of more expensive connectors such as EMI Filters.	Can be attached to connectors with standard flange placement; or shell modifications may be recommended. Mounting to panel with cinch nuts. Attaching screws can be incorpo-rated.	Incorporates a short pin & socket crimp contact assembly. The tail of the contact accommodates standard thru-hole diameter and thickness of the flex or PCB board materials. 3 PCB stickout dimensions are available.	Performance is in accordance with the applicable connector specification. Body is molded from Torlon or PPS. Electrical engagement areas of the header contact are plated with .00003 in. min. of gold over .00005 in. min. of nickel.

OPTIONAL FEATURES

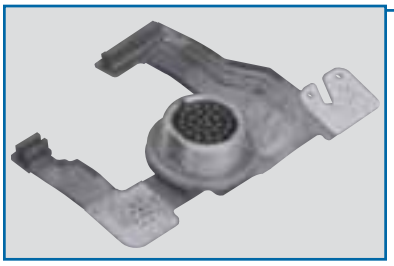
- Can be vapor phase or wave soldered to the PCB or flex prior to the receipt of a cylindrical connector or an ARINC rectangular connector.
- Can be installed to standard connectors, allowing for electrical testing that would adversely affect the sensitive diodes, MOV's or capacitors in the EMI/EMP connectors. Expensive connector assemblies can be easily removed from and reattached to the header assembly as manufacturing processes dictate.
- Accommodates up to 150 pins in an ARINC arrangement (see page 57 for ARINC 404 and ARINC 600 rack and panel connectors).
- Accommodates up to 128 pins in a cylindrical pattern.

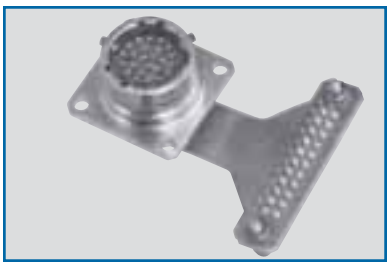
MARKETS

- Military Aerospace
- Commercial Aircraft
- Military Vehicles
- Industrial
- Communications
- Medical Equipment

Flex Termination Assemblies

Reference ACT brochure, AAO Catalog 12-170 or consult your local Amphenol sales office for further information.





APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Flex termination assemblies for attaching cylindrical connectors to printed circuit board. Available through Amphenol division of ACT, Advanced Circuit Technologies. They eliminate the need to purchase and attach individual pins or connectors, thus promoting system automation, reducing space requirements and lowering installation costs.	For use with MIL-DTL-38999, MIL-C-5015 and MIL-C-26482 cylindrical connectors. Also used for EMI/EMP connectors.	Flex circuits plug into a printed circuit board and create a self-locking terminal pad which eliminates the need for an additional interconnect to the PCB.	Designed to meet specific length, current carrying capacity and to fit the precise geometric shape of the connector to board package.	Connector performances are compatible with the Mil-spec requirements of the connector type used. Sculptured® Flexible Circuits have built-in terminations which eliminate the failures associated with crimped or soldered-on contacts, and geometrically fit the tight space requirements within a unit. They are strong and rigid, yet the circuit body is highly flexible. Each circuit on the flex is easily tested and quickly connected.

OPTIONAL FEATURES

- Custom designed to fit varied connector requirements.
- Conductor and termination thicknesses and widths can be varied, even on the same trace.

Also see flex termination on UHD Module/Backplane connectors (page 50).

MARKETS

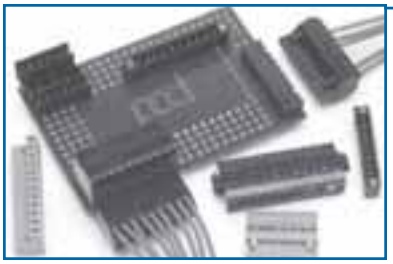
- All connector markets

Terminal Blocks, Wiring Interfaces for PCB and DIn-Rail Attachment

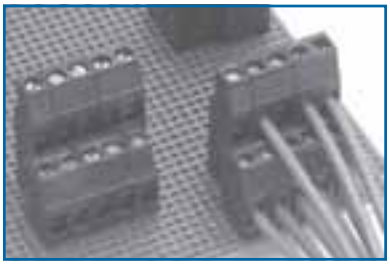
Printed Circuit Board Terminal Blocks

Reference Pcd Industrial Interconnect Catalog or consult your local Amphenol sales office for further information.

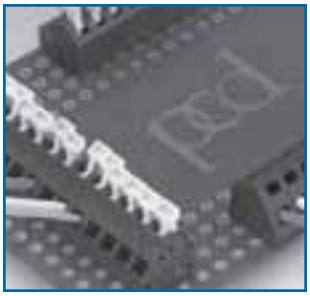
APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Wire-to-Board discrete-wire connections, standard and custom designs, suited for field and factory installations without special tooling. Industry accepted inch and metric pitches from .100 in. through 10mm.	UL, CSA and TUV approved, UL94V0 flame rating, reflow-compatible high-tempera-ture designs for mixed or SMT boards.	Fixed and pluggable styles available. Mounting screws or ejector ear mounting options, and DIN-rail mounting also available.	PC board through-hole, surface-mount and cardedge, repeatable rising-cage screw or spring wire attachment. Numerous wire entry configura-tions are available.	Typical operating temp. from –10°C to +85°C. 300V and 600V, current ratings from signal through 32A. Terminal blocks are standard black, available in green or other optional thermoplastic colors, and in high temperature thermoplastic for reflow processes. Contacts are tin-lead or gold.



Pluggable Terminal Blocks and Headers



Fixed Terminal Blocks



Fixed Terminal Block with Spring Clamp Wire Termination

Screw-Terminal Edgecard Connectors

Modifications and Custom Designs of Terminal Blocks

OPTIONAL FEATURES

- Variety of pluggable terminal blocks and headers in 3.5mm/.150" pitches with styles: straight, angled, with locking ears, 2-tier, 3-tier, low profile.
- Flexi-Plug® hybrid pluggable blocks combine U.S. style standard screw-drive barrier block wire terminations with a European-style pluggable block nose.
- Variety of fixed terminal blocks in 5.0mm, .200", .250", .375" pitches with styles: standard profiles, multi-tier, spring-clamp, high current and high voltage.
- Edgecard Connectors that are screw-terminal style in different size pitches.
- Custom designed terminal blocks with typical modifications that include: custom mounting ears for high vibration or cable stress applications, special tails for multilayer boards, custom markings.
- Optional colors, platings and markings.

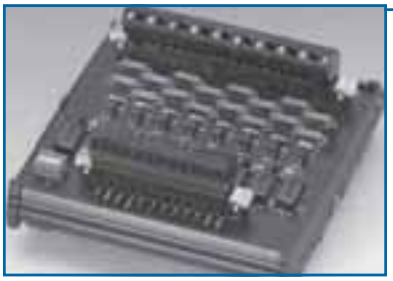
MARKETS

- Process Control
- Instrumentation
- Audio/Video
- HVAC
- Datacom
- Security
- UPS

Wiring Interface Modules

Reference Pcd Industrial Interconnect Catalog or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Industrial interconnect devices which expand traditional terminal block I/O functions by incorporating the blocks, high-density connectors and often additional components into a rail-mounted printed board assembly.	Provides a mistake-proofing and cost-effective alternate to DIN style terminal blocks in many applications. Replaces discrete terminations with a single pluggable unit. Reduces wiring time; reduces space needs; provides easier maintenance.	Wiring interfaces attach to industry-standard DIN-rail track, greatly reducing the necessary enclosure size and wiring complexity.	PCB termination.	Meet performance characteristics of the particular terminal block, connector and other electronic components used in the assembly.



OPTIONAL FEATURES

- Connectors can be D-Sub, ribbon cable, RJ style, Centronic or DIN types.
- Electronic components - typically diodes, LEDs, resistors, capacitors, relays or fuses can be included to perform signal modification and monitoring functions.
- Modules are built to meet customer needs and applications.
- Cable assemblies are available with customer logo for a complete installation kit.

MARKETS

- Factory Automation
- Process Contol
- Also see terminal blocks above.

Backplane Assemblies

Amphenol is the leading manufacturer of custom backplane assemblies using high density, ruggedized, board-to-board backplane interconnects. Amphenol backplanes are required to perform in the most demanding environments, such as Army helicopters, Navy and Air Force fighters, C⁴I electronics, missiles, ground vehicles, Navy warships and commercial aircraft.

Requirements met by Amphenol Backplane Assemblies include:

- MIL-A-28870 qualification for assembled backplanes

Amphenol's high technology backplane product offerings include:

- **Electrical Backplanes - Large panel sizes with high layer counts, and features such as high aspect ratio plating, small diameter plated-through holes, and controlled impedances.**
- **Optical Backplanes - Fiber termination with Multi-Terminal (MT) optical ferrules. Ribbon cable sorting allows programming flexibility; thus rendering the entire system easily upgradeable.**
- **Hybrid Optical Backplanes - Integrated electrical and optical systems in one discreet package for advanced avionics systems requiring high speed optical/digital signal processing.**

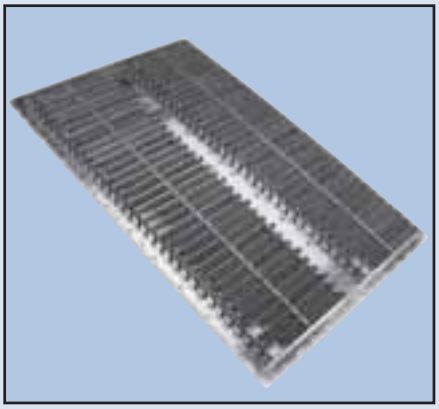
Amphenol Backplane Assemblies - Electrical and Optical

Amphenol Backplane Capabilities include:

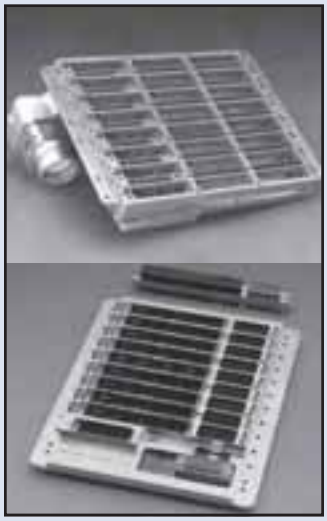
- Concurrent applications engineering support, value added assembly and advanced test capabilities
- Press-fit compliant pin contacts
- Rigid and rigid flex printed wiring boards
- Surface mount and through-hole soldering
- Hybrid electro-optical combinations
- Conformal coating

Amphenol Backplanes are on the following programs:

- F-35 Joint Strike Fighter
- F-22 Raptor
- MIDS Radio
- AH-64 Apache
- RAH-66 Comanche
- THAAD Radar



Electrical Backplanes

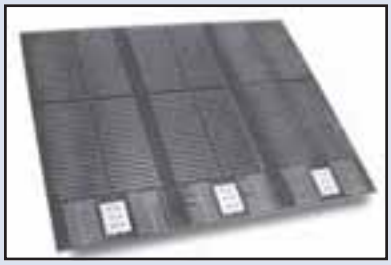


Optical Backplanes

Amphenol Backplanes Incorporate a Wide Range of Interconnects:

Almost any connector in the market can be integrated into a backplane.
SEM-E and custom form factors are available.

LRM Backplane with MIL-C-55302
Bristle Brush Contacts

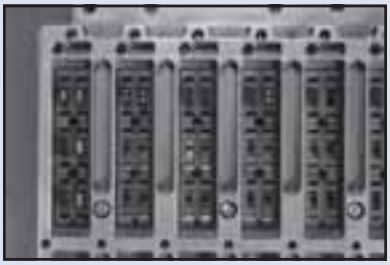


Backplane with NAFI
Fork and Blade Contacts

Backplane with ARINC

Backplane with UHD
Fork and Blade Contacts

Backplane with MIL-DTL-38999
Cylindrical Connectors



Backplane with MT Optical Ferrules

Please see our websites:
www.amphenol-aerospace.com
www.amphenol-abs.com
www.amphenol-industrial.com

SR Series Rectangular Rack and Panel Connectors, Solder Type

Reference Catalog 12-034

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
For sliding rack applications with solder contacts.	Resilient insert material is manufactured per MIL-STD-417 standards. Solid die cast aluminum shells are cadmium plated to QQ-P-416, Type II, Class 3 with a chromate treatment.	Push-pull coupling for box/panel/rack mounting.	Contacts are closed entry solder type sockets in sizes 16 and 20, or coaxial and power contacts in sizes 4 and 8.	Operating temp. from –55°C to +125°C. Resilient inserts grip contacts firmly and withstand severe vibration and physical shock. Inserts may be pressurized to provide a good barrier to moisture, gasses, dirt, etc. Contacts are gold plated for corrosion resistance and long shelf life.

OPTIONAL FEATURES

- Styles include a general duty class, a potted class with potting mold, a pressurized class designed to withstand 30 psi, and a pressurized potted class.
- Pin or socket contacts in the plug or the receptacle are available.
- 12 standard contact arrangements with up to 57 contacts.
- Accommodate a variety of wire sizes and RG cable types.
- Wide flange receptacle available for pressurized applications requiring sealing at the flange.

MARKETS

- Military Vehicles
- Power Distribution

LE Series Rectangular Rack and Panel Connectors, Crimp Type

Reference Catalog 12-034

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
For rack and panel applications with crimp contacts.	MIL-C-26518 type connector, incorporating neoprene resilient inserts and die cast shells.	Push-pull coupling for box/panel/rack mounting.	Crimp PT-SE type power or coaxial contacts. Receptacles with coaxial arrange-ments are available with a unique metal web as an integral part of the shell so that all outer coax contact conductors are completely grounded to the shell.	Operating temp. from –55°C to +125°C. Resilient inserts grip contacts firmly and withstand severe vibration and physical shock.

OPTIONAL FEATURES

- Pin or socket contacts in the plug or the receptacle are available.
- 2 standard contact arrangements of 52 or 102 contacts.
- Accommodate a variety of wire sizes and RG cable types.
- Standard crimp application tooling can be used.
- Accessories available: floating spring mounts, protection caps, and metal dummy plugs for coax contacts. Also hoods, cable clamps and jack screws for mating.

MARKETS

- Military Vehicles

RFM Series Modular Rack and Panel Connectors

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
For modular floating rack and panel applications. Designed for mass transit systems and incorporate inserts with low smoke properties.	Certified to French Railway Specification NFF-61032 and CEDD Specification EN-75201.	Push-pull coupling for box/panel/rack mounting.	Crimp contact termination. 3 module choices: • five 8 Amp contacts • three 15 Amp contacts • two 25 Amp contacts	Operating temp. from –55°C to +125°C. Contacts perform up to 5000 cycles of durability, as well as high vibration and low insertion forces.

OPTIONAL FEATURES

- Choice of 3 module designs; mixed module capability.

MARKETS

- Railway
- Power Rack Batteries
- Hybrid Vehicles

ARINC 404 Rack and Panel Connectors

Reference Amphenol Canada Brochure SL-378.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
'AR' Series Environmental and non-environmental application rack and panel connectors with crimp contacts.	Meet or exceed requirements of MIL-C-81659 and ARINC Specification 404.	Push-pull coupling for box/panel/rack mounting. Key posts are used for polarization positioning. Clinch nuts and floating bushings also used for mounting.	Crimp termination per MIL-C-39029B. Coax contacts are available. Single bay, double bay, triple bay and four bay insert styles available.	Operating temp. from –65°C to +125°C. Environmental sealing is accomplished by wire sealing grommets and interfacial seals. Contacts perform up to 500 cycles durability.

OPTIONAL FEATURES

- Five shell styles with up to four insert cavities available.
- Signal, power and coaxial contacts can be mixed in the insert arrangements.

MARKETS
- Commercial Aircraft
- MIlitary Avionics

ARINC 600 Rack and Panel Connectors

Reference Amphenol Canada Brochure SL-379.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
'A' Series Environmental and non-environmental application rack and panel connectors with crimp contacts. ARINC 600 is the successor to the ARINC 404 for many new avionic designs.	Designed per ARINC 600 specifications. Offers features beyond ARINC 400 Series: • lower mating force contacts • increased contact count • front release, floating keying system	Push-pull coupling for box/panel/rack mounting. Front removable key posts are used for polarization positioning. Clinch nuts and floating bushings also used for mounting.	Rear release crimp power/signal contacts. PCB, wire wrap, coax and concentric twinax contacts also available. Three shell size layouts with up to 800 size 22 contact positions available.	Operating temp. from –65°C to +125°C. Contacts perform up to 500 cycles of durability, as well as high vibration and low insertion forces. Resistant to vibration, shock and fluid immersion.

OPTIONAL FEATURES

- Shell size 1 - max. contact capacity is 160.
- Shell size 2 - max. contact capacity is 400.
- Shell size 3 - max. contact capacity is 800.
- Waveguide connections available.
- O-rings for environmental sealing and protective covers available.

MARKETS
- Commercial Aircraft
- MIlitary Avionics

RNJ & RNJLP Rack and Panel Connectors

Reference Amphenol Socapex Publication E115, RNJ and E124, RNJLP.

RNJ

RNJLP

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Cylindrical connector used to connect electrical and optical devices between a moving unit (rack) and a fixed unit (panel) without any coupling/uncoupling device. For environmental applications. Space saving between the 2 panels (same distance as ARINC 404 for the square flange version). The RNJLP offers 20% weight saving compared with RNJ.	Insert arrangements per MIL-DTL-38999 Series I and III. Insert arrangements for power available. (See page 13).	For rack and panel mounting with integrated realignment capability.	Crimp termination per MIL-C-39029. PCB and wire wrap contacts and fiber optic termini are also available.	Operating temp. from –65°C to +175°C. Provides moisture and corrosion resistance and EMI shielding. Contacts perform up to 500 cycles durability. Connector shells are grounded prior to contact engagement. RNJLP offers: Mechanical protection of the peripheral membrane and improved sealing performance.

OPTIONAL FEATURES

- Jam nut receptacle and plug styles offered in eight shell sizes.
- 1 to 128 contacts available.

MARKETS
- Military Aerospace
- Military Vehicles
- Advanced Industrial

Micro D Miniature MIL-DTL-83513 Connectors

Consult Amphenol Phoenix Interconnect catalog or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
MIL-DTL-83513 Rack and Panel Connectors offering packaging densities of .050 inch contact spacing for applications where space and weight are at a premium.	Designed to meet the requirements of MIL-DTL-83513.	Panel mount, cable mount and PCB mounting. Jack screws, jack posts.	Wire harness, verticle and right angle PCB.	Operating temp. from –55°C to +125°C. Qualified to MIL-DTL-83513. 500 cycles mating and unmating. Up to 900 VAC DWV, 3 Amps max. current rating.

OPTIONAL FEATURES

- Options of lengths, terminations, mounting features, wire gages, colors and shell sizes.
- Also available with filter planar capacitor technology. Consult Amphenol Canada for the filtered MIL-DTL-83513 micro D.

MARKETS

- Military Aerospace
- MIlitary Vehicles
- Missiles, Ordnance
- Satellites
- Medical Industry
- Geophysical Industry
- Communications

Microminiature Card Connectors

Consult Amphenol Phoenix Interconnect catalog or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Series 106 Microminiature Card is a high density interconnect designed for a space conscious industry. Provides extremely dense and reliable interconnection for card-to-card and card-to-cable applications.	Designed to meet the requirements of MIL-DTL-83513.	Board, panel and cable mounting. Card employs a D shape for correct mating. Jack screws, jack posts.	Wire harness, vertical and right angle PCB, horizontal and straddle surface mount terminations.	Operating temp. from –55°C to +125°C. Qualified to MIL-DTL-83513. 500 cycles mating and unmating. Up to 900 VAC DWV, 3 Amps max. current rating.

OPTIONAL FEATURES

- Options of lengths, terminations, mounting features, wire gages, colors and shell sizes.

MARKETS

- Military Aerospace
- MIlitary Vehicles
- Missiles, Ordnance
- Satellites
- Medical Industry
- Geophysical Industry
- Communications

Microminiature Strip Connectors

Consult Amphenol Phoenix Interconnect catalog or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
105 Series Microminiature Strip Connectors offer proven Mil-spec performance and reliability in single row strip line configurations.	Designed to meet the requirements of MIL-DTL-83513.	Board, panel and cable mounting. Guide pins, jack screws.	Wire harness, right angle PCB, surface mount terminations.	Operating temp. from –55°C to +125°C. Qualified to MIL-DTL-83513. 500 cycles mating and unmating. Up to 900 VAC DWV, 3 Amps max. current rating.

OPTIONAL FEATURES

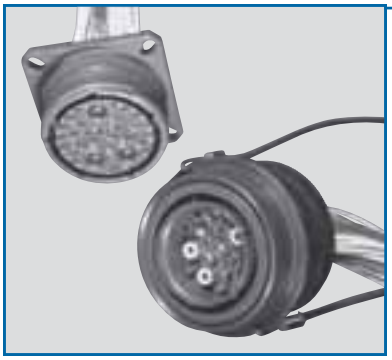
- Options of lengths, terminations, mounting features, wire gages, colors and shell sizes.

MARKETS

- Military Aerospace
- MIlitary Vehicles
- Missiles, Ordnance
- Satellites
- Medical Industry
- Geophysical Industry
- Communications

"Breakaway"/Quick Disconnect Connectors with Lanyard Release

Consult your local Amphenol sales office for further information. Consult catalog 12-092 for 38999 Fail Safe connector information.

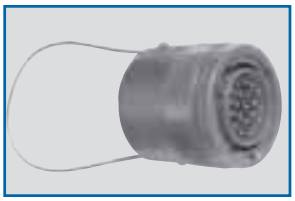


"Breakaway" Fail-Safe Subminiature MIL-DTL-38999 - available in Series I, II and III. The Series III Fail Safe is qualified for MIL-STD-1760 electrical interface between an aircraft and its "stores".

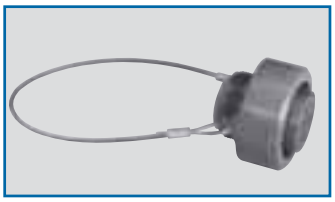
Fail Safe Breakaways with Improved Durability Composite Shells and Low Profile Backshells

APPLICATION	STANDARDS REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Cylindrical connectors with lanyard release capability. Designed to provide quick disconnect of a connector plug and receptacle with axial pull on the lanyard. Provides instant decoupling and damage free separation. Ideal for weapons release and blind or difficult accessibility situations.	Available in and meeting requirements of the following series: • MIL-DTL-38999 Series I, II, III • MIL-C-26482, Series 1 • Matrix MIL-C-83723, Series III • Matrix MIL-C-5015 Also meets requirements of MIL-STD-1760 and Fail-Safe MIL-DTL-38999/ 29, /30, /31. MIL-STD-1760 arrangements are compatible with MIL-STD-1553 Aircraft Multiplex data bus systems.	Uses straight plug connector style. Connector mating is accomplished in the normal fashion: • MIL-DTL-38999 types are threaded coupling. • MIL-C-26482 types are bayonet coupling. • Matrix MIL-C-83723 are push-pull coupling. • Matrix MIL-C-5015 are push-pull coupling. Unmating is by axial pull on the coupling nut via the swivel lanyard or conventional coupling nut rotation. The Fail Safe will disconnect even when not fully mated. Other styles need to be fully mated before disengagement by lanyard pull.	Contact termination is per connector series used. Intermateability is possible with standard recep-tacles within each series used. MIL-STD-1760 types use special inserts as designated.	Connector performances are compatible with the Mil-spec requirements of the connector type used. Separation forces vary per connector series. Lanyard lengths can be custom specified.

Quick Disconnect Miniature Matrix MIL-C-83723



"Breakaway" Twist Pull Miniature MIL-C-26482



Quick Disconnect Push Pull Miniature Matrix MIL-C-5015

OPTIONAL FEATURES

- Four series to choose from for lanyard release design flexibility.
- Availability of different lanyard lengths, depending on connector series.
- MIL-DTL-38999 Series III Fail Safe available in two shell lengths.
- MIL-DTL-38999 Series III Fail Safe has option of hybrid composite shells (consult Amphenol Aerospace for shell size availability).
- Full range of accessories are available with MIL-DTL-38999 Series III Fail Safes, including low profile backshells in shell size 25. These backshells have three heights available and they offer rear access covers to help ease harness assembly and repairability. Also available are dummy contacts for sealing unused contact cavities and wire combs to help stabilize and prevent contact side loading.
- MIL-DTL-38999 Series III Fail Safe available with fiber optic termini, coax, or twinax contacts.
- MIL-DTL-38999 Fail Safe connectors can be designed with larger flanges and other customer specific requirements.

MARKETS

- Military Aerospace
- Missiles and Space Applications

Stores Management Type II, Rail Launch Connectors

Reference Pyle Bulletin RL-100

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Designed for use on aircraft that carry rail launch missiles such as AMRAAM. Buffer plug and missile receptacle are designed for blindmating of stores on rail launch applications. Used on F-18, B-52, B-2 and SRAM II programs.	Meets specifications of MIL-STD-1760 Stores Management. Designed to MIL-C-83538 specifications.	Bayonet and push pull coupling.	Standard MIL-DTL-38999 crimp termination with power, coax and twinax contacts.	Connector performances are compatible with MIL-C-83538 specifications. Buffer provides flame barrier.

OPTIONAL FEATURES

- Buffers are replaceable.

MARKETS

- Missiles

Gatelink Breakaway

Reference Product Data Sheet 170

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Designed for commercial aircraft applications, with self-contained environmental closures for hook-up to the gateway. Lanyard release mechanism on the plug allows automatic separation. Ideal for usage where the receptacle will be unmated and exposed to the environment.	ARINC 644 type. Incorporates environmentally sealed spring loaded contacts, ref. MIL-C-55116B.	Push and turn, spring loaded coupling; detent locking. Plug has a keyed alignment with jam nut receptacle. Orientation indicator for ease of coupling.	Solder contact termination in plug. Utilizes standard MIL-C-83723 Series III socket contacts in the receptacle. Currently available with 10 size 16 contacts.	Operating temp. from –55°C to +85°C. Rated at 60 VDC and 0.5 amps current (surges to 500 VDC and 7.5 amps). Contact pressure of .80 lbs. to 1.38 lbs. in fully mated condition. Durability: 3000 matings. Vibration: 10-55-10 Hz sine with .06 in. max. excursions.

OPTIONAL FEATURES

- Accessories available, MIL-C-83723 type.

MARKETS

- Commercial Aircraft
- Geophysical
- Ground Support
- Military Aircraft
- Shipboard

PMAT (ARINC 644)

Reference Product Data Sheet 157

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
High performance plug and receptacle with a self-contained environmental cover on the receptacle half. Ideal for usage where the receptacle will be unmated and exposed to the environment.	Meets applicable requirements of ARINC 644 specification. Incorporates environmentally sealed spring loaded contacts, ref. MIL-C-55116B.	Push and turn, spring loaded coupling; detent locking. Plug has a keyed alignment with jam nut receptacle. Orientation indicator for ease of coupling.	Solder contact termination in plug. Utilizes standard MIL-C-83723 Series III socket contacts in the receptacle. Currently available with 10 size 16 contacts.	Operating temp. from –55°C to +85°C. Rated at 60 VDC and 0.5 amps current (surges to 500 VDC and 7.5 amps). Contact pressure of .82 lbs. to 1.22 lbs. in fully mated condition. Durability: 3000 matings. Vibration: 10-55-10 Hz sine with .06 in. max. excursions.

OPTIONAL FEATURES

- Accessories available, MIL-C-83723 type.

MARKETS

- Commercial Aircraft
- Geophysical
- Ground Support
- Military Aircraft
- Shipboard

Zero-G, Astronaut Handle-Operated Connectors

Reference Product Data Sheet 147.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
High environmental performance MIL-DTL-38999 Series III type connector designed for use in a manned spacecraft environment.	Meets parameters of MIL-DTL-38999, Series III. Astronaut EVA compatible. Qualified/listed on NASA specification SSQ-21635.	Handle-operated latch mechanism is uniquely designed for ease of mating and unmating by a suited astronaut. Wall mount and jam nut mount styles are standard.	Crimp termination. Recessed pins (100% scoop-proof feature minimizes contact damage). Current arrangements are per NASA SSQ21635.	Operating temp. from –80°C to +138°C. Capable of withstanding 175,200 thermal cycles. Firewall Explosion proof capability. Low out-gassing. See MIL-DTL-38999 Series III performances, page 11.

OPTIONAL FEATURES

- Several of the optional features for MIL-DTL-38999 Series III connectors are also available in the Zero-G. Consult Amphenol Aerospace for further information.
- Additional arrangements can be designed, consult Amphenol Aerospace for further information.

MARKETS

- Space Applications - Used on Apollo, Lunar Rover, Skylab and Space Station.

Special Purpose Interconnection Products, cont.

Aquacon Immersible Connectors

Reference Catalog 12-140

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
AJ Series Designed for underwater or fluid immersion applications, offering 1500 psi sealing capability assured by metal to metal threaded coupling and "O" ring seals.	MIL-DTL-38999 Series III type, with enhanced features for moisture sealing and corrosion resistance.	Threaded coupling. Quick mating with one 360° turn of the coupling nut. Visual mating indicator. (See page 11 for further description of MIL-DTL-38999 Series III connectors.	Crimp termination. Recessed pins (100% scoop-proof feature minimizes contact damage). Solder termination for hermetic receptacles.	Operating temp. from –55°C to +200°C. Specially designed aluminum bronze coupling nut and type 316 stainless steel shells resist corrosion and provide a 1500 pressure withstanding capability. Hermetic style inserts provide 1 x 10^{-6} cc/sec leakage rate. Rear accessory thread provides for the use of EMI hardware or environmentally resistant molded cable terminations.

OPTIONAL FEATURES

- Straight plug and either jam nut or square flange receptacle styles offered.
- Over 40 insert arrangements available.
- Hermetic receptacles are available with inserts of fused compression glass.

MARKETS

- Oceanic and fluid immersion applications.

Geophysical Miniature Connectors

Reference Product Data Sheet 146

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
GO Series Miniature cylindrical designed for the geophysical industry's rugged environments of extreme temperature and moisture.	Further development of MIL-C-26482, Series 1 type connectors with stronger shells along with an anodized finish for greater resistance, and interfacial sealing discs.	Bayonet coupling. Mounting styles: 4 receptacle styles and cable plug.	Solder contact termination. Utilizes MIL-C-26482 Series 1 insert arrangements; currently 6 patterns available.	Operating temp. from –55°C to +85°C. IP67 rated for moisture resistance. Machined shells provide increased strength. Anodized (non-conductive) finish provides greater salt, corrosion and abrasion resistance. Interfacial sealing discs including individual pin seals allow wet mateability.

OPTIONAL FEATURES

- Class "C" Pressurized available.
- Accessories available: cable sealing backshells, strain relief clamps, coupling nuts with round detent holes, protection caps.

MARKETS

- Heavy equipment
- Ground vehicles

M³ Micro-Miniature-Metric Threaded Connectors

Reference Product Data Sheet 126

(Coin in photo to show size relationship)

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Designed for light weight, micro-miniature size and low cost applications. Small size: 1.406 inch (35.71mm) max. length for a mated pair; 0.663 inch (16.84mm) max. diameter.	Designed from and meets many of the performance levels of MIL-DTL-38999 for Series II.	Metric threaded coupling. Straight plug and jam nut receptacle styles currently available. Positive key/ keyway system assures mating.	Crimp termination. Currently available with three size 22D contacts.	Meets many environmental performance requirements of MIL-DTL-38999 Series II with an environmental resistant main joint seal and olive drab cadmium finish for shell to shell conductivity. For EMI protection, a braid can be terminated to the rear of the connectors by use of a crimp ferrule.

OPTIONAL FEATURES

- EMI termination available.
- Alternate rotations can be made available.

MARKETS

- Military Aerospace
- Missiles and Space Applications

RJ Field Connectors

Consult Amphenol Pcd website: www.rjfield.com. or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Cylindrical interconnect with RJ45 Ethernet interface. Designed for use in all levels of harsh environments from Industrial to Mil-Aero applications providing IP67 protection from dust, fluids, vibration, shock and traction.	Allows use of Ethernet Class D/Cat 5 and Cat 5e connections for 10 BaseT, 100 BaseTX, or 1000 Base T networks.	RJF TV within MIL-DTL-38999 Series III threaded coupling connector shell. RJF within MIL-C-26482 bayonet coupling shell. RJF 544 within ECTA push-pull plastic shell coupling.	Uses any pre-existing, off-the-shelf Ethernet Class D/Cat 5/ Cat 5e cable; no additional terminations or tooling required.	Operating temp. from –40°C to +85°C. Rated IP67 for environmental sealing. Resistant to shock, vibration and traction. Eliminates hazardous, time-consuming and costly in-field cabling assembly and requires no special tooling. Offers reinforced EMI protection in all three series: RJF, RJF TV, and RJF 544.

OPTIONAL FEATURES

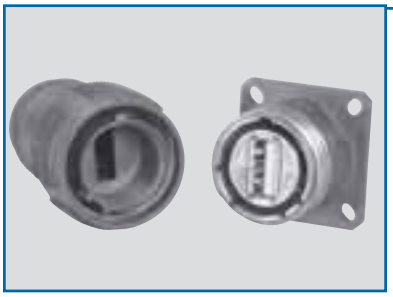
- Available in various shell styles: RJF TV – Threaded, RJF – Bayonet, and RJF 544 – Push Pull.
- Various shell platings available: nickel, olive drab cadmium, anodic, and plastic composite.
- Works with any standard RJ45 cordset with no extra tooling required.
- Optional mechanical clocking with 4 position polarization.

MARKETS

- Data Acquisition and Transmission in Harsh Environments
- Robotics, Process & Motion Control
- Rail Mass Transit, Geophysics, Petro Chemical
- Battlefield Communications, Radar Systems, Shelters

USB Field Connectors

Consult Amphenol Pcd website: www.rjfield.com. or consult your local Amphenol sales office for further information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Cylindrical interconnect with a USB interface. Designed for use in all levels of harsh environments from Industrial to Mil-Aero applications providing IP67 protection from dust, fluids, vibration, shock and traction.	Allows the use of standard USB with either 1.1 or 2.0 performance levels.	USBF TV within MIL-DTL-38999 Series III threaded coupling connector shell. Using a Tri-Start thread coupling mechanism, this system has an anti-decoupling device for high vibrations.	Uses any pre-existing, off-the-shelf standard USB 1.1 or 2.0 version cable assemblies; no additional termination or tooling required.	Operating temp. from –55°C to +85°C. Rated IP67 for environmental sealing. Resistant to shock, vibration and traction. Eliminates hazardous, time- consuming and costly in-field cabling assembly and requires no special tooling. Offers reinforced EMI protection with conductive plated shells and metallized receptacle inserts.

OPTIONAL FEATURES

- Available in various shell styles: USBF TV Series III 38999 – Threaded, USBF TV Series I 38999 – Bayonet.
- Two shell platings available: nickel, olive drab cadmium.
- Works with any standard 1.1 or 2.0 USB cable and requires no extra tooling.
- Optional mechanical clocking with 2 position polarization.

MARKETS

- Data Acquisition and Transmission in Harsh Environments
- Robotics, Process and Motion Control
- Rail Mass Transit, Embedded Computers
- Battlefield Communications, Radar Systems, Shipboard/Naval

MTRJ Field Connectors

Consult Amphenol Pcd website: www.rjfield.com. or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Cylindrical interconnect with a MTRJ interface. Designed for use in all levels of harsh environments from Industrial to Mil-Aero applications providing IP67 protection from dust, fluids, vibration, shock and traction.	Allows the use of any preassembled, standard MTRJ patchcord to upgrade it to a harsh environment connection system.	MTRJ within a MIL-DTL-38999 Series III threaded coupling connector shell. Using a Tri-Start thread coupling mechanism, this system has an anti-decoupling device for high vibrations.	Uses any pre-existing, off-the-shelf standard MTRJ patchcord (Mini Round, Flat Duplex or Duplex Zipcord) cable assemblies; no additional termination or tooling required.	Operating temp. from –20°C to +70°C. Rated IP67 for environmental sealing. Resistant to shock, vibration and traction. Eliminates hazardous, time-consuming and costly in-field cabling assembly and requires no special tooling. Number of channels: 1/2/4. Typical insertion loss: 0.5dB in MM. Durability: 500 mating cycles.

OPTIONAL FEATURES

- Available in various styles: MTRJ Field – Threaded, LC Field – Threaded, and LX5 Field – Threaded.
- Shell platings available: nickel, bronze and olive drab cadmium.
- Works with any standard patchcord and requires no extra tooling.
- Adapts to various cordset types and types of fiber 50/125, 62/125, 9/125.

MARKETS

- Data Acquisition and Transmission in Harsh Environments
- Robotics, Geophysics and Petro Chem, Base Stations
- Rail Mass Transit, Naval Shipboard
- Battlefield Communications, Radar Systems, Shelters

EZ Field Connectors

Consult Amphenol Pcd website: www.rjfield.com. or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Rectangular rugged composite plastic interconnect with a RJ45 Ethernet interface. Designed for use in many levels of harsh environments for Industrial applications providing IP67 protection from dust, fluids, vibration, shock and traction.	Allows the use of Ethernet Class D/Cat 5 and Cat 5e connections for 10 Base T, 100 Base TX or 1000 Base T networks.	The RJF EZ Field connectors consist of a rectangular interconnection system using a quick, user-friendly lever coupling mechanism.	Uses any pre-existing, off-the-shelf Ethernet Class D/Cat 5/Cat 5e cable; no additional termination or tooling required.	Operating temp. from –40°C to +100°C. Rated IP67 for environmental sealing. Resistant to shock, vibration and traction. Eliminates hazardous, time-consuming and costly in-field cabling assembly and requires no special tooling. The RJ45 cordset shielding is transmitted to the RJ45 receptacle through lateral grounding fingers.

OPTIONAL FEATURES

- Various back terminations available on the receptacle side, including another RJ45 recetpacle or a RJ45 cordset in multiple lengths and configurations.
- Works with any standard RJ45 cordset with no extra tooling required.

MARKETS

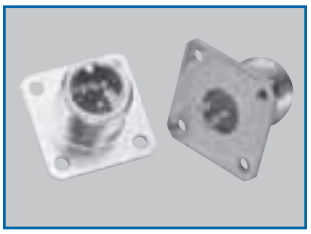
- Data Acquisition and Transmission in Harsh Environments
- Telecom Equipment, Video Control, Tele-maintenance
- Industrial Process and Motion Control, CNC Machines
- Factory Automation, Robotics

Hermetic Connectors

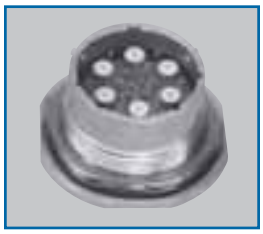
Consult your local Amphenol sales office for further information. Series catalogs provide hermetic information if applicable.

Variety of Hermetic Connectors

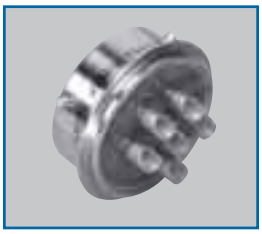
APPLICATION	STANDARDS REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Designed for environmental moisture sealing with fused compression glass sealed inserts.	Available in all the "basic" cylindrical connector families: • MIL-DTL-38999 • MIL-C-26482 • MIL-C-83723 • MIL-C-5015 Also available in rectangular rack and panel connectors.	Connector mating is accomplished in the normal fashion of the connector series used. Receptacle mounting styles: box mount, wall mount, jam nut, solder and weld mount.	Solder cup, flat eyelet or PCB termination. Contact counts from 2 to 128 are available. Coax and filter contacts can be accommodated into hermetic inserts.	Connector performances are compatible with the Mil-spec requirements of the connector type used. Leakage rate with hermetically sealed inserts is less than 1.0×10^{-6} cc/sec. at 15 psi differential. Hermetic Filter connectors provide all the benefits of a hermetic connector for low level leakage rate, as well as EMI protection for sensitive circuits.



Hermetic MIL-C-5015



Hermetic MIL-C-26482 with Shielded Coax Contacts



Hermetic JT (MIL-DTL-38999, Series II)

Hermetic Filter

OPTIONAL FEATURES

- Wide variety of connector series can be ordered with hermetic sealing.
- Specials such as sockets in glass and .050 center versions are common production lines. Other special designs can be accomplished.

MARKETS

- Military Aerospace and Commercial Aircraft
- Industrial

Special Purpose Interconnection Products, cont.

PPS Push Pull Miniature Connectors

Consult your local Amphenol sales office for further information.

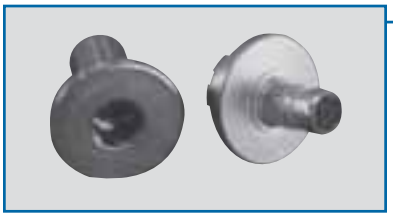
OPTIONAL FEATURES
- 90° overmolded.
- Color matched overmold to cable.
- Extended coupling nut.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
PPS Series Environmentally sealed miniature connectors with push pull coupling, designed for industrial and ground defense applications. Lightweight and small size, less than 1/2 inch diameter.	Designed from and meets many of the performance levels of MIL-DTL-38999 for Series II.	Push-pull coupling. 5 orientation keys with 4 keyways. Straight plug and jam nut mounting styles are available.	Solder termination. Contact arrange-ments with up to 7 contacts.	Operating temp. from –55°C to +85°C. IP67 rated for environmental sealing. EMC grounding fingers. Finish is chemical/NBC resistant.

MARKETS
- Military Aerospace
- Missiles and Space Applications

SCE and Mini SCE Push Pull Connectors

Consult your local Amphenol sales office for further information.



SCE Push Pull Connector

Mini SCE Push Pull Connector with Overmolded Cable

OPTIONAL FEATURES
- Can be supplied as overmolded assembly.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Miniature push pull with positive mating mechanism. Screened and rugged for harsh environment industrial and military applica-tions. Stainless steel shells. No moving parts. Supplied as molded assembly, low cost, no backshell, with indent markers.	N/A	Push to mate. Pull back to release	Solder termination. Insert arrange-ments 5, 6 and 7 way.	Operating temp. from –55°C to +85°C. IP67 rated and sealed mated interface. Fully waterproof. 500V d.c. working at sea level.

MARKETS
- Man Portable Radio Data
- Logging Equipment

Barrier Sealed Interfaces for MIL-DTL-38999 Connectors

Consult your local Amphenol sales office for further information.

OPTIONAL FEATURES
- N/A

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/	PERFORMANCE ENVIRON./ELECT.
Provides fully sealed interface connection on equipment in standard power and signal configuration in MIL-DTL-38999 connectors. Suitable for ground, marine and industrial applications.	Based on MIL-DTL-38999 coupling method. Fully intermateable with TV, LJT, SJT types.	N/A	Pintail, solder cup, wire wrap terminations.	Operating temp. from –55°C to +125°C.

MARKETS
- Military Ground Vehicles
- Marine
- Industrial

ECTA Series 133 Connectors

Reference Amphenol Air LB ECTA Series 133 Catalog or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Circular Push-Pull interconnection system for industrial applications for which frequent mating/unmating (1000 mating cycles), environmental sealing (up to IP67) and high vibration performance is critical. Available for signal and power transmission.	Meets UL 1977, IEC 61984: 2001 (VDE 0627) spec. Vibration: IEC 60512 (IEC 68-2-6) 10-2000 Hz/10g/10 cycles per axis. Shock: IEC 60512 (IEC 68-2-29) 25g/6 ms/ 50 bumps per axis.	Insert position provides multiple polarization combinations for polarization between connectors. The variety of standard shells include flanged receptacles and cable to cable receptacles. Standard shell sizes: 0.6 inches up to 2.6 inches.	Standard inserts offer a variety of contact arrangements for power and signal applications, incorporating contacts for 5, 7.5, 10, 13, 25, 40, 100 and 125 Amps. Contacts are available in crimp, solder and PCB versions.	Operating temp. from –40°C to +125°C. Environmental up to IP67, including bulkhead applications. Corrosion resistance: aluminum shells with nickel plating; locking ring is black anodized. Withstands a 48 hr. salt spray exposure. Operating voltage: to 1000 VAC depending on arrangement.

OPTIONAL FEATURES

- Includes a variety of backshells for unsealed, IP67 and EMI shielding applications.
- Fiber optic inserts available.
- Can be ordered cabled and overmolded.
- Inserts can be customized for a variety of arrangements.
- Available for high current applications up to 125 Amps, including the First Mate/Last Break feature and PCB applications.

MARKETS

- Industrial applications: Robotics, CNC Machines, Tool Interconnection, Heavy Machinery, Medical Equipment, Lab Testing Equipment, Transportation Industry

ECTA Series 544 Connectors

Reference Amphenol Air LB ECTA Series 544 Catalog or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Circular composite Push-Pull interconnection system developed for industrial applications for which frequent mating/unmating and high vibration performance is critical. Up to 1000 mating cycles with machined contacts. Available for signal and power transmission.	Meets UL 1977, IEC 48B/560/ CD (VDE 0627) spec. Vibration: IEC 60512 (IEC 68-2-6) 10-2000 Hz/10g/10 cycles per axis.	Insert position provides multiple polarization combinations for polarization between connectors. The variety of standard shells include flanged receptacles and cable to cable receptacles. Standard shell sizes: 0.8 inches up to 1.5 inches.	Standard inserts offer a variety of contact arrangements for power and signal applications, incorporating contacts for 5, 10 and 25 Amps. Contacts available in crimp and solder versions with a choice of machined contacts or formed contacts.	Operating temp. from –40°C to +125°C. Environmental up to IP67 B. Withstands a 48 hr. salt spray exposure. Operating voltage: to 1390 VRMS.

OPTIONAL FEATURES

- RJ45 insert and MTRJ fiber optic inserts are available.
- Includes a variety of IP67 backshells.
- Can be ordered cabled and overmolded.
- Inserts can be customized for a variety of arrangements.
- Available with the First Mate/Last Break feature and PCB applications.

MARKETS

- Industrial applications: Robotics, CNC Machines, Tool Interconnection, Heavy Machinery, Medical Equipment, Lab Testing Equipment, Transportation Industry

Quick Connection Modules

Consult Amphenol Air LB Quick Connection Module Catalog or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Modular quick connection modules mounted on rails for general purpose, signal and power distribution, grounding, printed circuit board/ surface mount. Electronic component carrier module in type 1765. Compact size, high density cabling, great flexibility. Environmental sealing.	Designed for the Aircraft Industry. Meets the NF/ UTE C93-462 spec. Contacts meet NF L53-105, NAS 1748, EN 3155-016, HL 105, HL 103.	Modules are rail mounted, which allows many contacts and size combinations. Modules require a minimum of tools to install.	Incorporate contact sizes 22, 20, 16, 12 and 10 in a wide variety of arrangements.	Operating temp. from –67°F to +347°F. Environmental sealing is provided with an overmolded grommet rated to IP66. Resistance to fluids complies with standards UTE C93-462, MIL-H-5606, MIL-L-7808 referring MIL-C-26482 C, NAS 1748.

OPTIONAL FEATURES

- Modules with inserted electronics components.

MARKETS

- Aerospace Applications: Commercial Aircrafts, Helicopters

Pyle Industrial Cord Grips - For Strain Relief, Cable Connecting and Environmental Protection

Reference Pyle Bulletin LT-300

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Large family of cable pass-thru and strain relief devices for use with industrial connectors. Designed for liquid-tight strain relief of cord, cable and flexible conduit.	UL listed and CSA certified. Used for sealing where moving parts or handling can abuse connections.	Threaded backend components to fit a wide variety of industrial series connectors. Straight, 45 degree and 90 degree styles available. Styles offered for mounting to existing threaded conduit and to conduit nipples. Styles also for use with flexible nonmetallic conduit.	N/A	Oil resistant grommets and compression nuts provide moisture sealing. Tapered conduit threads provide strong water and oil-tight joint. Some types are lightweight machined aluminum bodies and some types are ferrous alloy bodies for more abusive uses.

OPTIONAL FEATURES

- Wide variety of attachment options: plain compression nut, mechanical clamp nut or basketweave grip styles.
- Panelboard adapters, conduit fitting boxes and cord grip handles for heavy duty portable equipment usage are also available.
- Male and female threads provide versatility in panelboard or threaded hub applications.

MARKETS

- Power and Control Equipment - Switchboards, Machine Tools, Heating and Cooling, Lighting, Portable Equipment
- Communications Equipment
- Transportation and Shipyards

M85049 Accessories - For Strain Relief, Cable Connecting and Environmental Protection

Consult Amphenol Aerospace appropriate connector catalogs or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Wide variety of connector accessory items designed for use with military and non-military cylindrical connectors. Connector series catalogs cover the compatible accessories for each series.	Meet M85049 specifications. To be used with the compatible connector series. See list below:	Threaded backend components to fit a wide variety of military and non-military connectors. Straight, 45 degree and 90 degree styles available.	N/A	Meet environmental sealing performances as required by M85049 military specifications. Finishes are compatible with connector series used.

M85049/6	M85049/31	For the following MIL-Spec Connectors: MIL-C-5015 Crimp MIL-C-26482 Series 1 & 2 MIL-C-81703 Series 3 MIL-C-83723 Series III
M85049/7	M85049/43	
M85049/8	M85049/51	
M85049/9	M85049/52	
M85049/10	M85049/53	
M85049/11	M85049/54	
M85049/23	M85049/55	
M85049/24	M85049/60-1	
M8504925	M85049/60-2	
M85049/26-1		
M85049/17	M85049/47	For the following MIL-Spec Connectors: MIL-DTL-38999 Series I, II
M85049/27	M85049/49-2	
M85049/29	M85049/62	
M85049/33-2	M85049/57	
M85049/36	M85049/63	
M85049/37		
M85049/14	M85049/20	For the following MIL-Spec Connectors: MIL-DTL-38999 Series III, IV
M85049/15	M85049/21	
M85049/16	M85049/38	
M85049/18	M85049/39	
M85049/19	M85049/69	

Other Accessories:

MS/AN 3057 cable clamps	Special cable clamps, adapters, strain reliefs
MS 3420 sleeves	Special thru bulkhead shell, dummy receptacles
AN 3055 adapters	Protection caps, sealing gaskets, sealing plugs
AN3064 conduit box connectors	
AN3054 conduit coupling nuts	
AN3066 conduit coupling locknuts	

ADDITIONAL ACCESSORIES - LIGHTWEIGHT STRAIN RELIEFS

- Compatible with Amphenol subminiature and miniature environmental connectors.
- Offer similar performance, but lower cost compared to metallic assemblies.

OPTIONAL FEATURES

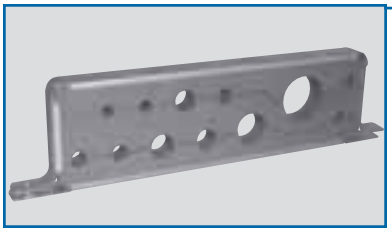
- Wide range of products with performance features to meet all the major military cylindrical series backend hardware requirements. Consult appropriate catalog sections for further information.
- See page 69 for additional backshells for EMI shielding protection.

MARKETS

- All markets of military and non-military connectors

Pipe Supports

Reference Amphenol Air LB Cable & Pipe Supports Catalog or consult your local Amphenol sales office for further information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Pipe support systems developed to retain various aircraft pipes. These provide reduction in weight and installation times in addition to simplifying installations.	Rail: aluminum (anodized or cadmium plated), steel (cadmium plated) Polymer block: per MIL-C-85052/2 (purple) Spacers:: aluminum alloy	Mounted with bolts.	N/A	Operating temp. from –65°F to +275°F. Resistant to most fluids: fuels, lubricants, solvents, cleaning agents and hydralic fluids; including phosphate ester base hydralic fluid type IV, CMS 564-03 (Skydrol).

OPTIONAL FEATURES

- Supports can be customized and are available in a variety of configurations.
- Other materials are available including different polymers and stainless steel rails.

MARKETS

- Military/Aerospace applications: Commercial Aircraft, Fighter Jets, Helicopters

Cable Supports

Reference Amphenol Air LB Wiring Accessories Catalog or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Composite cable support systems developed to retain wire bundles using tie-down strips (tie-wraps). These provide reduction in weight and installation times in addition to simplifying installations.	Material is thermoplastic.	Different types of cable supports are available for clip-on, adhesive bonded, riveted or bolted mounting.	N/A	Operating temp. from –65°F to +185°F. Flammability resistance as per FAA 25.853-B. Resistance to chemicals: ASTM 543, MIL-T-81533, TT-T-266, TT-M-261, ASTN D 1635, MIL-T-83133.

OPTIONAL FEATURES

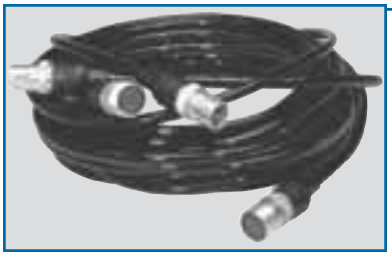
- Supports can be customized and are available in a variety of materials for industrial applications.

MARKETS

- Military/Aerospace applications: Commercial Aircraft, Fighter Jets, Helicopters

Over-Molded Cable - Custom Overmolds to any Amphenol Cylindrical Connector

Reference SL-381 Brochure or consult your local Amphenol sales office for further information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Cables designed with a custom overmold to any Amphenol cylindrical connector for almost any industrial application.	Standards are design specific to connector style.	Coupling types are design specific to connector style.	Termination types are design specific to connector style.	Overmold seals to the rear of the connector and to the cable jacket providing moisture sealing. Cables may be designed to meet any environmental performance requirement and any electrical perfor-mance requirement.

OPTIONAL FEATURES

- Molds are designed to specific application specifications.
- Variety of materials: Neoprene, Hypalon and others.
- Personalization/special stamping (such as company logo or cable part number) on the overmolds is available.
- See additional EMC protected and over-molded cable assemblies, pg. 73.

MARKETS

- All types of Industrial Markets

MIL-PRF-12883 Relay Sockets

Reference Amphenol Pcd Relay Sockets & Junction Modules Catalog or consult your local Amphenol sales office for information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Used as an environmentally sealed base for electromechanical relays. Designed to meet harsh environments in aircraft, shipboard and ground vehicle applications.	Meets military specification MIL-PRF-12883, including M12883/40, /41, /44,- /48, /52-/55.	Wide variety of mil-spec mounting hardware; also available in solder termination and track mounted versions.	Incorporate size 12, 16, 20 and 22 contacts which meet the M39029/5, M39029/92 and M39029/101 specifications.	Operating temp. from –65°C to +125°C. Environmentally sealed sockets are provided with silicone grommet per ZZ-R-765. Shock and vibration tested to MIL-STD-202, test condition G and C.

OPTIONAL FEATURES

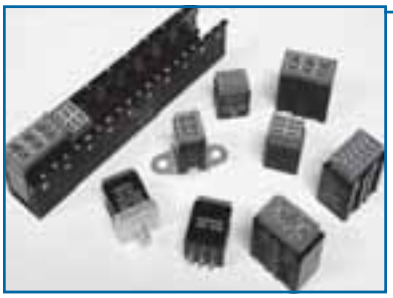
- Consult Amphenol Pcd for Quick Mount (JRS/JRE) relay sockets which are manufactured and designed to meet MIL-PRF-12883 and offer simplified installation, reduced mounting hardware and weight, and lower installed cost.

MARKETS

- Aircraft
- Ground Vehicles
- Shipboard

MIL-T-81714 Junction Modules

Reference Amphenol Pcd Relay Sockets & Junction Modules Catalog or consult your local Amphenol sales office for information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Modular quick connection modules - mounted on rails for signal and power distribution in harsh environments such as ground vehicles and missiles. Modules are environmentally sealed. Compact size offers great flexibility.	Meets military specification MIL-T-81714, including M81714/1-/8, /10-/12, /16, /17, /60-/63, /65, and /67.	Modules are rail mounted with minimal tooling required to install and remove.	Incorporate size 12, 16, 20 and 22 contacts in a wide variety of arrangements which meet M39029/1 and M39029/22 specifications.	Operating temp. from –65°C to +125°C. Environmentally sealed silicone blend elastomer. Internal socket contacts in accordance with MIL-G-45204. Shock and vibration tested to MIL-T-81714, Paragraph 3.4.4 and 3.5.8.

OPTIONAL FEATURES

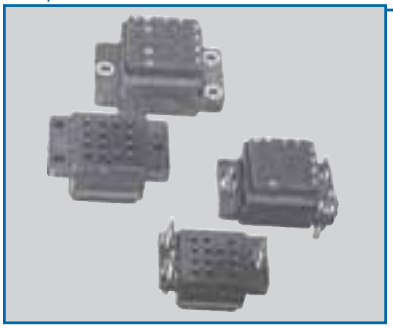
- Product line includes: grounding modules, high density modules, board mount modules, electronic component modules, in-line wire splices, in-lin electronic component splices.
- Rails for mounting are offered in aluminum, nickel or composite materials.

MARKETS

- Commercial and Military Aircraft
- Ground Vehicles

Relay Sockets

Reference Amphenol Air LB Sockets for Relays Catalog or consult your local Amphenol sales office for further information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Used as a base for relays. Offered in a complete range of electro-mechanical relay sockets to meet harshest conditions (sealed version) in professional electronic, telecommunication, armament, railway and aerospace applications.	Meets the UTE NF C 93-422 model HE 310A, MIL-S-1288/40 and /41, ASN-AEROSPATIALE, AIRBUS-ATR standards.	Wide variety of mounting hardware.	Incorporate size 22,20 and 16 contacts, crimp or solder termination. Meet spec NF C 93-422 and MIL-C-39029/92. Suitable for 5, 10, 15, 25A.	Operating temp. from –67°F to +302°F. Environmental sealing is provided with an overmolded back grommet rated to IP66. Resistance to fluids complies with standards MIL-L-23699, MIL-L-7870, MIL-D-16791, Glycol, Methylethyl Ketone, Skydrol.

OPTIONAL FEATURES

- Pressfit contact on backplane to eliminate wires.

MARKETS

- Aircrafts, Helicopters
- Railway

Band Backshell Accessories

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Provides EMI/RFI protection and braid retention between connector and cables. HE308-35 Band Backshells for use with MIL-DTL-38999 Series I, II and RNJ Series. LJTSBC - right angled version for use with MIL-DTL-38999 Series I, II and RNJ Series. TV-35 Band Backshells - for use with MIL-DTL-38999, Series III. TVB-35 - marine bronze, for use with MIL-DTL-38999, Series III. TVSBC - right angled version for use with MIL-DTL-38999, Series III. 3309 Double Band Backshells - for use with MIL-DTL-38999, Series I, II and III.	Meets MIL-C-85049 specifications as applicable. 5001 and PTSB Band Backshells - for use with 62GB, MIL-C-26482, MIL-DTL-38999 Series I, as well as other cylindricals types. 5003 Band Backshells - for use with MIL-DTL-38999	Facilitates an easy cabling process with threaded mounting to the applicable connector series. Suitable for termination using Bandit, Zetalock and heatshrink product.	N/A	Provides environmental sealing, meeting the requirements of the applicable connector mil-spec. Environmental sealing is assured when terminated with a straight or right angled heatshrink molded piece. Provides high performance EMI/RFI protection. Field termination reworkable design.

OPTIONAL FEATURES

- Available with different cabling chamber lengths to meet customer requirements.
- Other backshell accessories are available. Contact your local Amphenol sales office for further information.

MARKETS

- All markets of cylindrical connectors

Shorting Plugs

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Modified plugs or receptacles in all major mil-spec cylindrical connector types. Modified with a tethered eyelet/ braid attachment. Designed to provide specific circuit functions such as safety shorting, electrical commoning and arming.	Available modification design with the following series: MIL-C-26482 MIL-DTL-38999 MIL-C-5015 MIL-C-83723	Available with a tethered eyelet attachment.	Termination is per connector series utilized.	Performance is per connector series utilized.

OPTIONAL FEATURES

- Available with various lengths and attachments to meet customer requirements.

MARKETS

- Missiles

Wire Splice Connector (48 Series, MIL-C-26500 Type)

Reference Pyle Catalog MS-101

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Low cost, space and weight saving plug and receptacle connector. Utilizes a single size 16 pin and socket contact.	Pyle 48 Series, MIL-C-26500 type connector with M39029 contacts.	Push mating /twist-pull unmating.	Uses standard M39029 pin and socket contacts in a metal collet retention. Uses standard MIL-C-26500 contact removable tools.	Simple solution connection with performance of MIL-C-26500 type. Incorporates an environmental sealing grommet.

OPTIONAL FEATURES

- Color coded connector halves are available - red or blue.

MARKETS

- Commercial/Industrial
- Automotive
- Aircraft

Pyle QueLarc® Heavy Duty Plugs and Receptacles

Reference Pyle Brochure QA-300

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Ruggedly constructed, heavy duty plugs and receptacles designed for use on portable, detachable equipment. Withstand the most severe operating conditions in industrial applications. High circuit breaking and power capabilities.	UL listed. CSA certified. Conforms with the National Electrical code requirements.	Push-pull or threaded coupling. Several styles of conduit boxes offered.	Solder contacts are standard. Ground contacts are pressure type terminals.	Circuit breaking 30, 60 and 100 amperes capability. 600 VAC power capability. Rugged thick wall construction ensures safe operation, uninterrupted service and long life. Rust resistant ferrous alloy receptacles and aluminum alloy plugs. Arching is prevented from pole-to-pole and from poles to ground. Extraordinary long insulation paths makes for uninterrupted operation in moisture conditions.

OPTIONAL FEATURES

- 2, 3 and 4 pole-grounded through shell or extra long pole designs available.
- Designs for grounding, first mate/last break available.
- Special polarization is available.
- Panel mount, angled or straight receptacle styles can be ordered with either a hinged spring cover or with threaded style protection cover. Plug styles are plain or with a threaded coupling nut.
- Heavy duty handles are available.

MARKETS

- Power Generation
- Instrumentation/Control

Pyle WFRS Interlocked Safety Switches

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Safety switch for use with Pyle Quelarc receptacles. Same high circuit breaking and power capabilities as Quelarc connectors. For use in non-hazardous locations.	UL listed. Meets requirements of National Electric Code for wire bending space. Meets NEMA 3R requirements for use outdoors and NEMA 12 for indoor dusty locations.	Threaded mounting for Pyle Quelarc connector receptacles.	N/A	Switch can be turned “ON” only when proper plug is fully inserted. Plug cannot be removed when switch is “ON”. Cover can be opened only when switch is “OFF”. (except when manual override is actuated). Operating handle can be padlocked in “OFF” position. Built in fuse pullers.

OPTIONAL FEATURES

- Optional electrical interlocks.
- Optional blown fuse indicator.

MARKETS

- Welding
- Conveyors
- Air Compressors
- Portable Lighting
- Motor Generator Sets

Pyle Pon™ Series Indicator Lights

Reference Pyle Bulletin IL-300

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Large incandescent indicator lights that are gasketed and vapor-tight fixtures. PON-5 (smaller lamp size PON-15 (larger lamp size) PON-LED Series - cluster of 16 LEDs mounted to P.C. board with associated electronics.	UL listed. CSA certified. Wiring throughs meet NEMA 12 construction requirements.	Mounted on conduit adapters or wiring troughs. Also for mounting on metal cabinets or panels. PON-LED Series uses standard PON bases and can be mounted to a printed circuit board.	N/A	Standard Pon light utilizes a 10 watt, S-11 intermediate screw base lamp. For high vibration environments, a double contact bayonet base lamp and spring loaded socket are used. Shatter-resistant acrylic globes have high tolerance to shock and vibration. Standard voltages on the PON-LED Series are 110 AC and 24 DC.

OPTIONAL FEATURES

- 2 lamp sizes offered with options of colored globes.
- Single or multiple conduit adapter styles and variety of gaskets.
- Troughs that hold 2, 3 or 4 lamps are available.
- Wire globe guards are available.
- PON-LED Series has a variety of mounting and globe options.

MARKETS

- Machine Tool
- Printing Presses
- Automotive Facilities
- Architectural Lighting

Freightmate Cable Assemblies for Rail Mass Transit

Consult your local Amphenol sales office for further information.

Freightmate I

Freightmate II

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Connector and cable assemblies for ECP (Electronically Controlled Pneumatic) braking systems in railway applications.	Freightmate I style is AAR approved. Freightmate II is a more recent design that offers a dual system (electrical and pnuematic) for braking control, eliminating the need for two cables. Only one mating action is necessary to fully mate the cable assembly. (currently under AAR approval process.	Hermaphroditic, conventional gladhand coupling.	N/A	Fully environmental, qualified to AAR specification S4210. Designed to withstand extended exposure to shock, vibration and road debris.

OPTIONAL FEATURES
- Available in two styles.

MARKETS
- Rail Freight

Trans-Power® Connectors for Rail Mass Transit

Reference Pyle Transportation Brochure

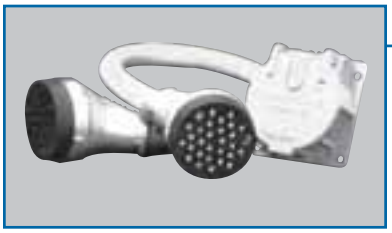
APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Head-end power connectors for commercial rail systems.	Meets Amtrak specification D-77-24, APTA #RP-E-016.	Slip-fit, double-seated for environmental protection. Retention by receptacle cover or optional accessories.	Crimp termination per Amtrak and APTA specifications. Socket contacts provide uniform pressure for low mating/ unmating forces, low voltage drop, consistently low temperature rise and shock resistance.	Operating ambient temp. –57°F to +110°F. Raintight per U/L standard. Electrical performance up to 600 volts, 400 Amps. All-molded elastomeric rubber body. Unique elliptical seal permits the escape of entrapped air while mating and also breaks the vacuum created as the plug is unmated.

OPTIONAL FEATURES
- Available in varying lengths, and optional color coding.
- Control only loop plugs available.
- Integrally molded or repairable styles.

MARKETS
- Mass Transportation

27 Pole Train-line Receptacles and Jumpers for Rail Mass Transit

Reference Pyle Transportation Brochure



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
27 Pole MU (multiple unit) and communication receptacles and jumpers for rail applications. Jumpers are either standard car to car jumpers or locomotive jumpers for use between locomotives or between locomotives and lead cars.	Designed to Amtrak and APTA specifications.	Push-pull mating.	Wire configuration, per Amtrak standards, calls for 1 #10 wire, five shield twisted pairs, and balance #12 wire. Jumpers are keyed differently from all other 27 pole jumpers to prevent mis-mating.	Rugged receptacle housing with spring loaded cover. Locomotive jumpers have identification of blue painted receptacle and "LOCO" suffix on them to safely distinguish them from car to car jumpers.

OPTIONAL FEATURES
- Receptacles can be supplied with or without leads.

MARKETS
- Mass Transportation

Amphe-Base™ Molded Connectors with RADSOK® High Amperage Contacts

Reference Amphenol Power Solutions Brochure SL-391 or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
2 or 3 position molded connectors for backplane, PC board or bus bar applications. Incorporates the RADSOK high amperage contact. Designed for one-handed mating and unmating operation.	Uses RADSOK high amperage contact technology with molded-in circuit identification.	Simply push on to mate, pull off to unmate.	Crimp termination. RADSOK contacts, available in 6.0mm size. Applicable wire sizes 4-12 AWG available. For RADSOK contact advantages, see page 75. No tools required for socket insertion.	Non-environmental rigid plastic housing. Provides full isolation from electrical contacts. Serrated texture on housing for sure grip. 6.0mm RADSOK contacts rated to up to 120 amps depending on wire termination size.

OPTIONAL FEATURES

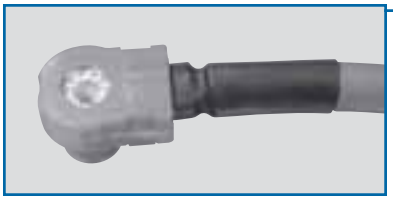
- 2- or 3- position molded housings.
- 6.0mm pin contacts also available in wire crimp, press-fit (for busbar) or threaded termination styles.

MARKETS

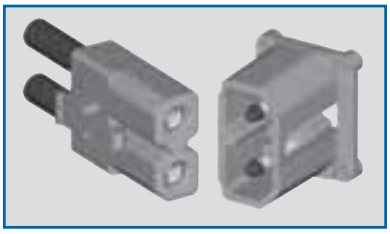
- Backplane, PC Board or Bus Bar Applications

Amphe-Com™ Molded Interconnects with RADSOK® High Amperage Contacts

Reference Amphenol Power Solutions Brochure SL-391 or consult your local Amphenol sales office for further information.



Single Position 8mm Amphe-Com



2-Position Plug /Receptacle with 3.6mm RADSOK Amphe-Com

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Custom molded interconnect designed for info-comm applications. Offered in a single position 8mm RADSOK with molded socket shell. Also offered in a range of non-environmental, TUV "touch-proof" molded connectors. Current design is with a 2-position plug and receptacle with 3.6mm RADSOK.	Uses RADSOK high amperage contact technology.	Single position 8mm design is a simply push on to mate, pull off to unmate. The 2-position molded connector design is busbar-mount with swage pins for single or multi-layer busbars.	Crimp termination. RADSOK contacts, available in 6.0mm size. Applicable wire sizes 4-12 AWG available. No tools required for socket insertion.	Variety of environmental and non-environmental molded connector solutions designed to suit high performance, high value requirements. RADSOK contacts available: 3.6mm (70 amps), 6.0mm (120 amps), 8.0mm (200 amps), 10.3mm (300 amps), 14.0mm (500 amps).

OPTIONAL FEATURES

- Box mount or busbar mount options on 2-position style.
- Box mount is available with either wire crimp or PC tail pins.
- Custom termination methods are available for specific applications.

MARKETS

- Backplane, PC Board or Bus Bar Applications

Amphe-Power RADSOK Hi-Lok ™

Reference Amphenol Power Solutions Brochure SL-391 or consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
Invented in response to customer demand for a tool-less but semi-permanent high amperage connector. Often used as a replacement to the traditional threaded post and ring terminal.	Uses RADSOK high amperage contact technology.	Simply push on to mate, pull off to unmate. The Hi-Lok functions with low connection force requirements of less than 15 lbs. and high removal force requirements of greater than 50 lbs.	Crimp termination. RADSOK contacts. Wide range of wire crimp barrels or PCB/Busbar swage mount features.	Variety of environmental and non-environmental molded connector solutions designed to suit high performance, high value requirements. RADSOK contacts available: 3.6mm (70 amps), 6.0mm (120 amps), 8.0mm (200 amps).

OPTIONAL FEATURES

- A Hi-Lok removal tool is available for easy disconnection of the mated contacts.
- Custom termination methods are available for specific applications.

MARKETS

- Backplane, PC Board or Bus Bar Applications

1900 Rectangular Connectors

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/ ARRANGEMENTS	PERFORMANCE ENVIRON./ELECT.
Composite rectangular interconnection system developed for the AirBus planes airframe connector, where space, environmental sealing and high vibration performance are critical.	Derived from the ASN 0390 spec. and meets the AECMA ENN 3545 spec. Available for use with MIL-C-39029 contacts.	The two coupling screws provide 36 combinations for polarization between connectors. Available for a variety of applications including cable to cable and printed circuit board mounting applications.	Monoblock design offers a variety of contact arrangements, incorporating MIL-C-39029 contacts in sizes 22, 20, 16, 12 and 10, or mixed contact sizes.	Operating temp. from –67°F to +347°F. Environmental sealing is provided with fluoronated silicon overmolded back grommet and interfacial seal. Withstands a 48 hr. salt spray exposure. Resistance to many fluids. Operating voltage: to 1500 VAC @ sea level depending on contact size.

OPTIONAL FEATURES

- Can be equipped with straight or angled PCB solder contacts.

MARKETS

- Commercial Aircraft

EMC Protected and Over-Molded Cable Assemblies

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/	PERFORMANCE ENVIRON./ELECT.
Broad range of products for use in battlefield communication equipment. Also used in commercial data logging equipment and for general harsh environments. Include connectors, over-molded cable jumpers and EMC protected cable assemblies.	Meet or exceed requirements of battlefield EMC screening and NBC wash-down. Waterproof immersible.	N/A	Factory terminated.	Operating temp. from –55°C to +125°C.

OPTIONAL FEATURES

- Designed and manufactured to meet specific customer requirements.
- Straight, 45°, 90° outlets
- Molded finger grips
- Molded identification

MARKETS

- Missiles
- Battlefield Radio Systems
- Fighting Vehicles
- Commercial Harsh Environment

Audio Connectors

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/	PERFORMANCE ENVIRON./ELECT.
Range of audio connectors including filtered and unfiltered types for battlefield communications.	BS9522, FOO23, MIL-C-55116 specifications.	Three recessed "J" slots. 3000 mating cycles.	Solder, power/ signal. Button type contacts.	Operating temp. from –40°C to +90°C.

OPTIONAL FEATURES

- Available with flex-print attachments. See page 53 for more information on flex termination.

MARKETS

- Missiles
- Battlefield Communication Systems

Interconnects for Sincgars, Bowman Program

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
High performance connectors and cables for battlefield interconnect applications.	MIL-C-26482 S 1/2, MIL-C-55116 Pattern 105 DON 10.	Bayonet and threaded coupling.	Crimp or solder termination.	Operating temp. from –55°C to +125°C.

OPTIONAL FEATURES

- Other termination choices: push-pull, snatch, solder mount
- High density platforms
- MBC plating
- Designed for customer specific applications

MARKETS

- Aerospace/Missiles
- Battlefield Communication Systems
- CHI

Wind Corrected Munitions Dispenser System (WCMD)

Consult your local Amphenol sales office for further information.

Close-up of Low Profile MIL-STD-1760 Connector

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/	PERFORMANCE ENVIRON./ELECT.
Low profile version MIL-STD-1760 connector and over-molded cable system for battlefield interconnection applications such as munitions and wing area stores. Lower, flatter design makes this an ideal connector for tight fitting aircraft and missile situations.	Meet MIL-STD-1760 specifications.	Threaded coupling.	Crimp termination.	Operating temp. from –65°C to +175°C.

OPTIONAL FEATURES

- Designed for customer specific applications

MARKETS

- Missiles
- Battlefield Radio Systems

711 Data Bus Interconnects

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION	PERFORMANCE ENVIRON./ELECT.
711 Series Connectors - Designed for data transmission as defined by MIL-STD-1553. Incorporates a vibration proof lock mechanism and utilizes shielded triax contacts. Used with other MIL-STD-1553 data bus components such as micro couplers, multiway cable assemblies, terminator products.	Meets the requirements of MIL-STD-1553 data bus systems. Qualified to DEF STAN 00-18 (Part 2) and to a number of International specifications.	Threaded or bayonet coupling.	Crimp termination. Incorporates size 8 or 10 triax contacts. This system is ideal for the termination of screened twisted pairs.	Operating temp. from –55°C to +150°C. Meets the performance specifications of MIL-STD-1553. Vibration proof.

OPTIONAL FEATURES

- Designed per customer requirements.

MARKETS

- Military Aircraft Data Bus Systems
- Video Transmission Systems

ARINC 629 Bus Cable Assemblies and Terminators

Consult your local Amphenol sales office for further information.

ARINC 629 Cable with Terminators

ARINC 629 Cable with Cable Couplers

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/	PERFORMANCE ENVIRON./ELECT.
Twisted pair conductors with a terminating resistor on each end. For data bus assemblies. Cable assemblies are designed for deferred maintenance and high reliability.	Meets ARINC 629 specifications.	For attachment to multiple current mode couplers in a data bus system.	N/A	Cables and terminator assemblies meet performance requirements of ARINC 629.

OPTIONAL FEATURES

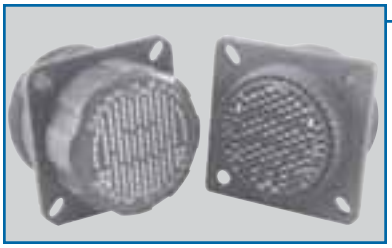
- Intended for use with couplers, see above.
- Cable is manufactured to lengths required by customers.
- The bus cable assemblies can be configured for the entire length of the plane.

MARKETS

- Military Aircraft Data Bus Systems

Data Bus Wire Integrated Connectors (W.I.C.s)

Consult your local Amphenol sales office for further information.



APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/	PERFORMANCE ENVIRON./ELECT.
Designed to allow the user to combine or redistribute circuits within a data bus system. This can be done in-line with a feed-thru type W.I.C or by mating a plug to a can W.I.C.	Meets the requirements of MIL-STD-1553 data bus systems. Utilizes Tri-Start MIL-DTL-38999 Series III wall mount receptacles with twinax contacts.	Threaded coupling per MIL-DTL-38999 Series III.	Incorporates size 8 twinax contacts in a sealed assembly.	Operating temp. from –65°C to +200°C. Meet performance specifications of MIL-STD-1553 and MIL-DTL-38999 Series III connectors.

OPTIONAL FEATURES

- Two styles available: feed-thru or can style

MARKETS

- Military Aircraft Data Bus Systems

Data Bus Couplers

Consult your local Amphenol sales office for further information.

APPLICATION	STANDARDS/ REQUIREMENTS	COUPLING/ MOUNTING	CONTACT TERMINATION/	PERFORMANCE ENVIRON./ELECT.
For data bus systems. Provides coupling between the main bus and remote terminals, and fault protection from the remote terminal or stub connection. Utilizes a coupling transformer isolation resistors for each stub.	Designed per MIL-STD-1553B. Qualified to a number of national, international and project specifications.	Threaded, bayonet and push-pull coupling.	Crimp rear release, PC tail and solder termination.	Operating temp. from –55°C to +150°C. Meets the performance specifications of MIL-STD-1553 and MIL-DTL-38999 connectors.

OPTIONAL FEATURES

- Available in three styles: In-line, Can and Box
- Ruggedized design with highest MBTF results
- Armored style for the most severe environments

MARKETS

- Military Aircraft Data Bus Systems
- C4I
- Naval Systems
- Video Transmission Systems

Contacts

Amphenol connectors can be supplied with a number of different contact types. From military standard to special application, our broad contact product range includes:

- **Standard 500 cycle and 1500 cycle, M39029 type power and signal contacts**
- **Crimp contacts for front or rear release connector applications**
- **Solder type, fixed contacts with cup or eyelet termination**
- **Thermocouple contacts**
- **ARINC contacts**
- **RADSOK® sockets for high amperage power contacts**
- **Printed circuit board contacts including solder and press-fit compliant pin types for PCB or flex print applications**
- **Spring-loaded and push-pull types**
- **Filter contacts: Pi type tubular or Pi type planar for MF, HF, VHF and UHF frequencies**
- **High frequency shielded coax, triax and twinax contacts**
- **High-speed differential twinax and quadrax contacts**
- **High-speed differential twinax and quadrax plug, receptacle / transition adapters**
- **Ground Plane Connectors**
- **Fiber Optic Termini: MIL-T-29504 type or MT ferrules**
- **Low mating force, high cycle, Bristle Brush contacts**
- **Tuning Fork and Blade contacts**

Amphenol contacts are designed and qualified to a number of military specifications and standards including:

- MIL-C-39029
- MIL-C-55302
- MIL-T-29504
- MIL-Std. 1553

All Amphenol connectors can be purchased with contacts, and most contacts can be purchased separately.

Amphenol has a number of contact technologies that are designed to facilitate easy assembly and termination in Printed Circuit Board applications. Connectors with pre-installed PC tail contacts, when supplied by Amphenol can help reduce overall system costs.

Amphenol's Wide Range of Contacts

MIL-DTL-38999 connectors allow users to mix a variety of different power, signal, shielded, fiber optic and high-speed contact styles within a common insert.

Standard Crimp Contacts

Designed and qualified to various military/customer specifications and M39029 slash-sheets. Amphenol crimp contacts are available in numerous sizes and finishes for use with front or rear release connector applications.

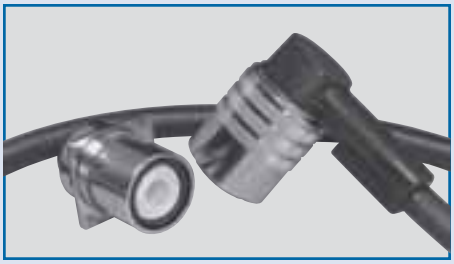
Thermocouple Contacts

Designed for temperature measuring applications. Amphenol thermocouple contacts are available for: MIL-DTL-38999, MIL-C-22992, MIL-C-26482, MIL-C-26500, MIL-C-83723 and other connector series. Material options include: alumel (type KN), chromel (type KP), iron (type JP) and constantan (type JN). Refer to each of the MIL series catalogs for ordering information.

RADSOK Socket Contact

RADSOK® Sockets

The RADSOK® contact has a hyperbolic, stamped grid configuration within the socket cylinder. As a male pin is inserted, axial members in the female socket deflect, enabling high current flow across the connection with minimal voltage loss. The RADSOK® contact is designed for high amperage applications and is available in the GT series, 5015 AC series, P-Lok series and MS345X type 5015 series. Enhanced with RADSOK® sockets, Amphe-Power® Connectors can now handle up to 150% higher amperages than connectors with standard contacts. Another benefit of the RADSOK contact is low insertion force. See pages 27, 28 for more information on Amphe-Power connectors.



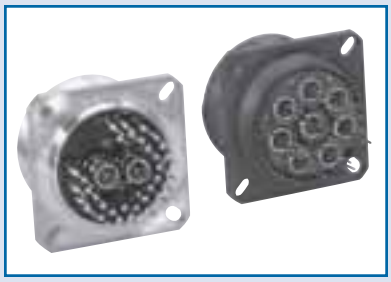
14mm RADSOK Contact in Amphe-Power Connector

Contacts, cont.

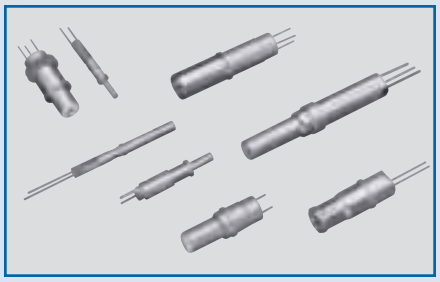
Amphenol's Wide Range of Contacts, cont.

Printed Circuit Board Contacts

Amphenol provides a full range of printed circuit tail contacts for signal and power applications. Coax, twinax, triax, differential twinax and quadrax designs are available. Connectors provided with printed circuit board contacts installed by Amphenol offer significant savings in system, installed costs. See page 52.



D38999 with PC Tail Quadrax Contacts



Variety of PCB Tail Twinax Contacts

Compliant Pin (Press Fit) Contacts

Press fit connectors with compliant pin contacts are available for high speed, reduced cost, solderless mounting to printed circuit boards. See page 52.

Press Fit 38999 Connector with Compliant Pin Contacts

Filter Pi Type Tubular and Planar Array Contact Assemblies

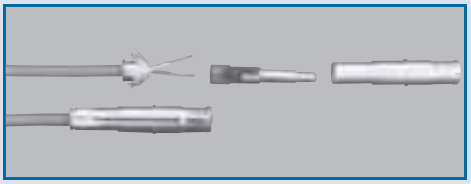
Amphenol Filter/Transient Protection Connectors utilize filter contact designs to provide protection for sensitive electronic circuits. See pages 31-34 for more information on filter connectors which include all the major Mil-spec cylindricals and rectangular D Subs, ARINC and rack and panel connectors.

Filter Contacts and MOVs Protect Sensitive Circuitry from Interferences in VHF, UHF, HF.

High Frequency Shielded Contacts: Coaxial, Twinax, Triax

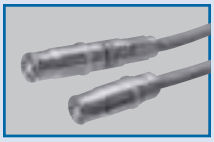
Amphenol Provides a Full Range of Shielded Contacts

Coaxial contacts for all popular series of Amphenol cylindrical and many rectangular connectors. Designed to provide shielding protection and RF/microwave performance for various RF and special cable types. Standardized diameters (sizes 4, 8, 12 and 16) facilitate interchangeability with standard power contacts. Amphenol coaxial contacts are designed to eliminate discontinuities or impedance variations due to movement of parts under axial load. Impedance matched options are available in sizes 8 and 12.

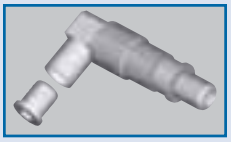


RCT (Reduced Component Twinax) Contacts

Concentric Twinax contacts for use in MIL-STD-1553B airborne multiplex data bus applications that require high performance interconnect characteristics in mult-pin connectors. Amphenol concentric twinax contacts are fully scoop-proof in MIL-DTL-38999 connectors and do not require polarization.



Short Profile Twinax vs. Standard Length Twinax Contact



Size 8, 90° Twinax Pin Contact

Reduced Component Twinax (RCT) contacts for use in MIL-STD-1760 and MIL-STD-1553 applications. The Amphenol RCT features 3 user-assembled components in contact sizes 8 and 10. With this design, the number of crimping operations is reduced to two.

90 Degree and Short Profile Twinax contacts are available when termination space is at a premium. The reduced profile designs offer increased packaging efficiency.

Triax shielded contacts have three conductors and are offered in sizes 8, 10 and 12. The contacts provide additional shielding when terminated to triax cable having solid or stranded center conductors. Each of the three conductors are separated by dielectric insulation to isolate ground planes and to improve shielding effectiveness. All conductors are crimp terminated for high reliability and ease of assembly.

Shielded Coax, Twinax, Triax Crimp and PCB Contacts

Crimp, insertion and removal tools for all connector styles including coax connectors are available from Amphenol Aerospace. Consult connector series catalogs for listings of the correct application tools to use for each connector type.

Amphenol's Wide Range of Contacts, cont.

High-Speed Differential Twinax and Quadrax Contacts

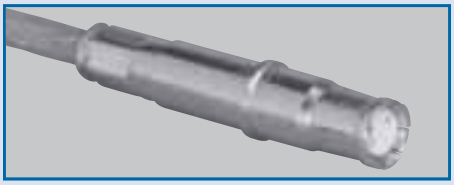
Differential Twinax contacts consist of an outer contact with two inner contacts spaced to form one 100 or 150 Ohm controlled impedance differential pair. **Quadrax** contacts consist of an outer contact with four inner contacts spaced to form two 100 or 150 Ohm controlled impedance differential pair.

38999 Connector with Quadrax Contacts

Variety of Quadrax and Differential Twinax Contacts, Connectors and Transition Adapters

Differential Twinax and Quadrax contacts provide high data transfer rates, low power consumption, and excellent EMI compatibility.

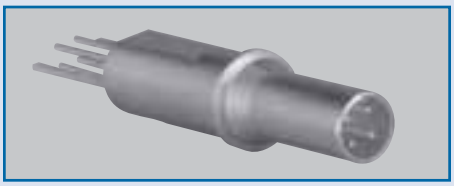
Both contacts, when used in Amphenol MIL-DTL-38999 Series III and ARINC type connectors, provide an excellent alternative for harsh environment applications requiring Ethernet 100 Base-T, Fibre Channel and IEEE1394B FireWire signal carrying capability.



Differential Twinax Contact

Typical electrical performance parameters include:

- Bandwidths up to 3 Gighertz
- Data rates exceeding 2 Gbits/second
- Voltages up to 500 Vrms at sea level
- Dielectric withstanding voltages up to 1000 VAC rms between all inner contacts at sea level and up to 500 VAC rms between inner and outer contacts at sea level



Quadrax Contact for ARINC Connectors

Differential Twinax and Quadrax contact options include:

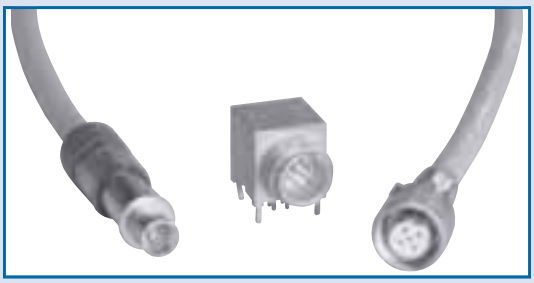
- Crimp or printed circuit board termination
- Established designs to accommodate a variety of cable types and gages

Special Rectangular Connector with Differential Twinax Contacts

High-Speed Differential Twinax and Quadrax Plug and Receptacle / Transition Adapters

In conjunction with its Differential Twinax and Quadrax contacts, Amphenol has developed a full line of Differential Twinax and Quadrax 100 and 150 Ohm plug contacts and receptacle/transition adapters in order to facilitate launching of controlled impedance signals to printed circuit boards.

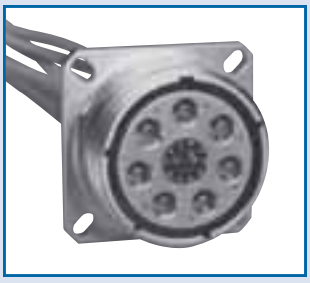
The receptacle/transition adapters are available in straight or 90 degree versions and can be either threaded or crimp. Threaded receptacles/ transition adapters provide an ideal method of disconnecting the Differential Twinax or Quadrax connector from the printed circuit board.



Quadrax Contact, Plug and Receptacle Transition Adapters

Ground Plane Connectors

In conjunction with our shielded and differential contacts, Amphenol offers MIL-DTL-38999 connectors with conductive inserts that ground the outer conductor of the contact body to the shell of the connector. Amphenol Ground Plane connectors accommodate size 8, 12 and 16 contacts. See page 13 for more information.



Ground Plane Connector with Twinax Contacts and Insulated Power/Signal Contacts

Quadrax with RJ45 Jack

Amphenol's Wide Range of Contacts, cont.

Multi-mode and Singlemode Fiber Optic Termini: MIL-T-29504 type or MT Ferrule

Amphenol provides fiber optic termini for multi-channel MIL-DTL-38999 Series III connectors and for Low Mating Force and LRM rectangular connectors. Amphenol MIL-T-29504/4 & /5 qualified fiber optic termination types offer low loss characteristics with high reliability and repeatability. Optical performance is maximized utilizing the unique alignment methods employed in these termination systems. Hybrid combinations of fiber optics and electrical circuits provide design flexibility. MT Ferrule Optics are another type of fiber optic termination used in rectangular and cylindrical connectors. See fiber optic capabilities on pages 35-42 and also backplane optical systems, page 55.

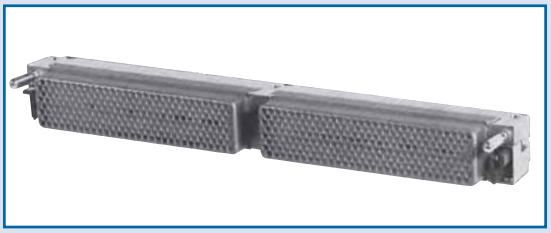
Fiber Optic Termini in MIL-DTL-38999 Series III

MT Ferrule Optics in Backplane Systems

Low Mating Force High Cycle, Bristle Brush Contacts

As mentioned in the Rectangular section of this publication, (pages 43, 44) the Amphenol Low Mating Force and Amphenol LRM Surface Mount Connectors utilize the Bristle Brush contact design. The Brush or B^3 contact is made up of multiple strands of high tensile wire that are bundled together. 70% to 90% reduction in mating/unmating forces is achieved over conventional contacts, and the brush contact has proven durability and long contact life. Hybrid Low Mating Force connectors can be designed with combinations of brush and coax/twinax/power contacts or fiber optic termini. LRM Surface Mount Connectors can also be designed with combinations of contact styles.

Bristle Brush Contacts - Multiple Stands of Wire are Bundled together to form a "Brush-like" Contact

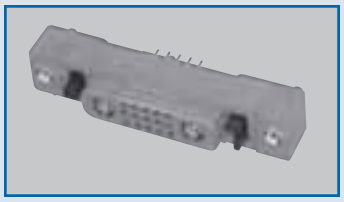


LRM High Density Surface Mount Connectors with Brush Contacts

Tuning Fork and Blade Contacts

Amphenol ABS Systems connectors, UHD Series and NAFI Series are offered with tuning fork and blade contact termination technology. See pages 43, 50 and 51 for more information.

Low Mating Force PCB Connector with Combination of Signal Brush Contacts and Fiber Optic Termini

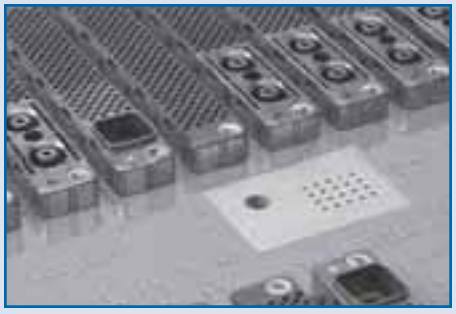


Low Mating Force PCB Connector with Combination of Signal Brush Contacts and Coax Contacts

Flex Circuit Termination Assemblies for PCB Application

Flex circuits are available for MIL-DTL-38999, MIL-C-5015 and MIL-C-26482, as well as for backplane/module connectors and special products such as rectangular PCB and EMI/EMP filter connectors. Sculptured flexible circuits with built-in terminations plug into a printed circuit board and create a self-locking terminal pad which eliminates the need for an additional interconnect to the PCB. See page 53 for more information.

UHD Module Connector uses Fork and Blade Contacts and Flex Circuitry for Attachment to PCB Boards



UHD Backplane Connector with Fiber Optics, Coax and Power Contacts

Please see our websites:
www.amphenol-aerospace.com
www.amphenol-abs.com
www.amphenol-industrial.com