

# DEUTSCH AFD Series Connectors

Qualified to MIL-DTL-26482 Series II

Miniature Circular Connectors with Quick-Connect Bayonet Coupling and Environmental Sealing to Help Withstand Harsh Environments

# DEUTSCH AFD Series Connectors

## Miniature Connectors Sealed To Help Withstand Harsh Environments



### WITHSTAND HARSH ENVIRONMENTS

- Triple wire sealed for sealing over a wide range of wire diameters
- Raised moisture barriers around each pin for individual contact sealing

### EASY INSTALLATION

- Bayonet coupled
- Closed entry socket insert for positive pin alignment
- Rear-release crimp contact system for superior contact stability

### VERSATILE AND ROBUST DESIGN OPTIONS

- Variety of shell styles including square flange, single hole mount, cable connecting, solder mount (hermetic only).
- Aluminum alloy material, nickel, black anodic, and olive drab chromate (cadmium) over nickel platings available
- Power and shielded contacts
- Intermateable with MIL-DTL-26482 Series I connectors

### APPLICATIONS

- Commercial Aerospace
- Military Aerospace
- Military Ground Vehicles

TE Connectivity's DEUTSCH AFD series connectors are MIL-DTL-26482 Series II-qualified connectors. They feature bayonet coupling and rear release contacts in a miniature circular connector system with environmental sealing.

This series features four receptacle mounting styles: square flange, wide square flange, cable connecting, and single-hole mount. Plugs are available with and without EMI fingers.

### MATERIALS

- **Shell:** Aluminum alloy
- **Shell Plating:** Nickel, black anodized, or olive drab cadmium over nickel base
- **Contacts:** Copper alloy, selectively plated 50 µin gold
- **Insulator:** Rigid plastic dielectric
- **Seals:** Silicone-based elastomer

### ENVIRONMENTAL

- **Temperature:** -55° to 200°C (class W rated to 175°C)
- **Durability:** 500 mating cycles  
250 cycles for parts with EMI fingers
- **Vibration:** Meets performance requirements of MIL-DTL-26482
- **Shock:** Meets performance requirements of MIL-DTL-26482

### ELECTRICAL

- **Shielding:** EMI spring fingers as per MIL-DTL-26482 Series II
- **Conductivity:** 5 mV max. drop (with EMI Shielding)  
200 mV max. drop (except class A) (without EMI Shielding)

| Voltage Rating:                        | Service Rating 1                | Service Rating II                 |
|----------------------------------------|---------------------------------|-----------------------------------|
| <b>Recommended Operating Voltage</b>   |                                 |                                   |
| @ Sea Level                            | 600 VAC <sub>RMS</sub> /850 VDC | 1000 VAC <sub>RMS</sub> /1275 VDC |
| <b>Test Voltages (V<sub>RMS</sub>)</b> |                                 |                                   |
| @ Sea Level                            | 1500                            | 2300                              |
| @ 50,000 ft.                           | 500                             | 750                               |
| @ 70,000 ft.                           | 375                             | 500                               |
| @ 110,000 ft.                          | 200                             | 200                               |

### Contacts

| Size | Pin Contact  | Socket Contact | Seal Plug    | Insertion/Removal Tool |
|------|--------------|----------------|--------------|------------------------|
| 20   | M39029/4-110 | M39029/5-115   | MS27488-20-2 | M81969/14-11           |
| 16   | M39029/4-111 | M39029/5-116   | MS27488-16-2 | M81969/14-03           |
| 12   | M39029/4-113 | M39029/5-118   | MS27488-12-2 | M81969/14-04           |

| Contact Size | Wire Range (AWG) | Wire Range (mm <sup>2</sup> ) | Crimp Tool                 | Test Current (Amps) |
|--------------|------------------|-------------------------------|----------------------------|---------------------|
| 20           | 24-20            | 0.20-0.52                     | M22520/1-01 or M22520/2-01 | 7.5                 |
| 16           | 20-16            | 0.52-1.31                     | M22520/1-01                | 13                  |
| 12           | 14-12            | 2.08-3.31                     | M22520/1-01                | 23                  |

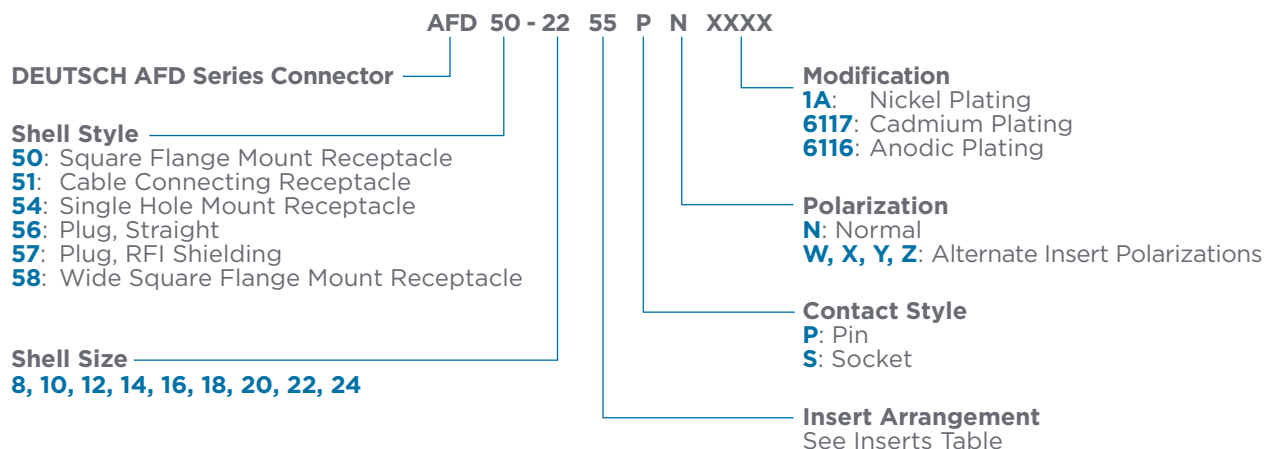
### TE Components . . . TE Technology . . . TE Know-how . . .

AMP | AGASTAT | CII | HARTMAN | KILOVAC | MICRODOT | NANONICS | POLAMCO | Raychem  
SEACON | Rochester | DEUTSCH

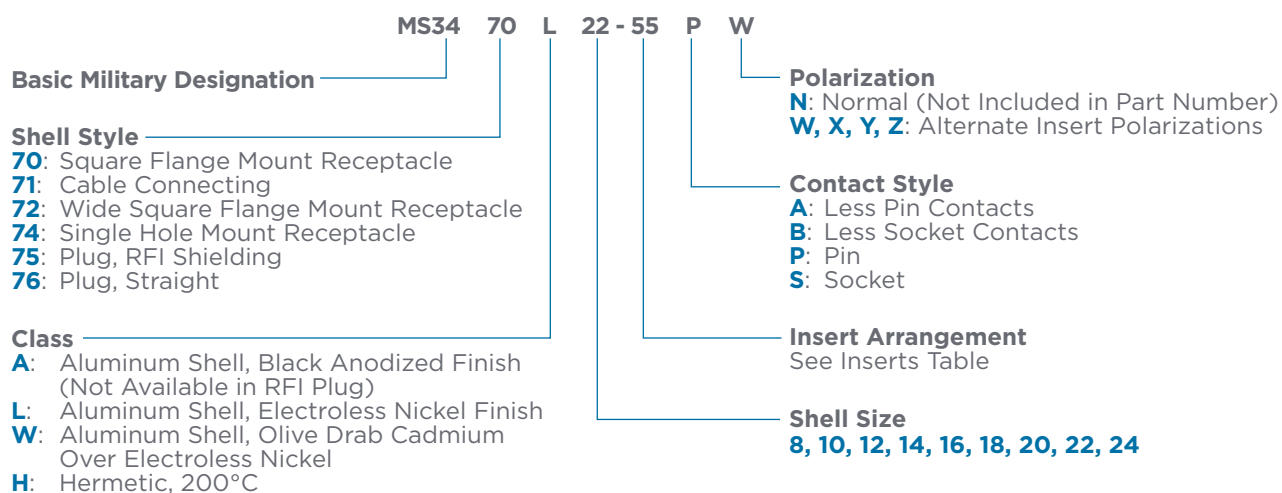
Empower Engineers to Solve Problems, Moving the World Forward.



## DEUTSCH AFD Series Part Numbering System



## MIL-DTL-26482 Part Numbering System



## Insert Arrangements

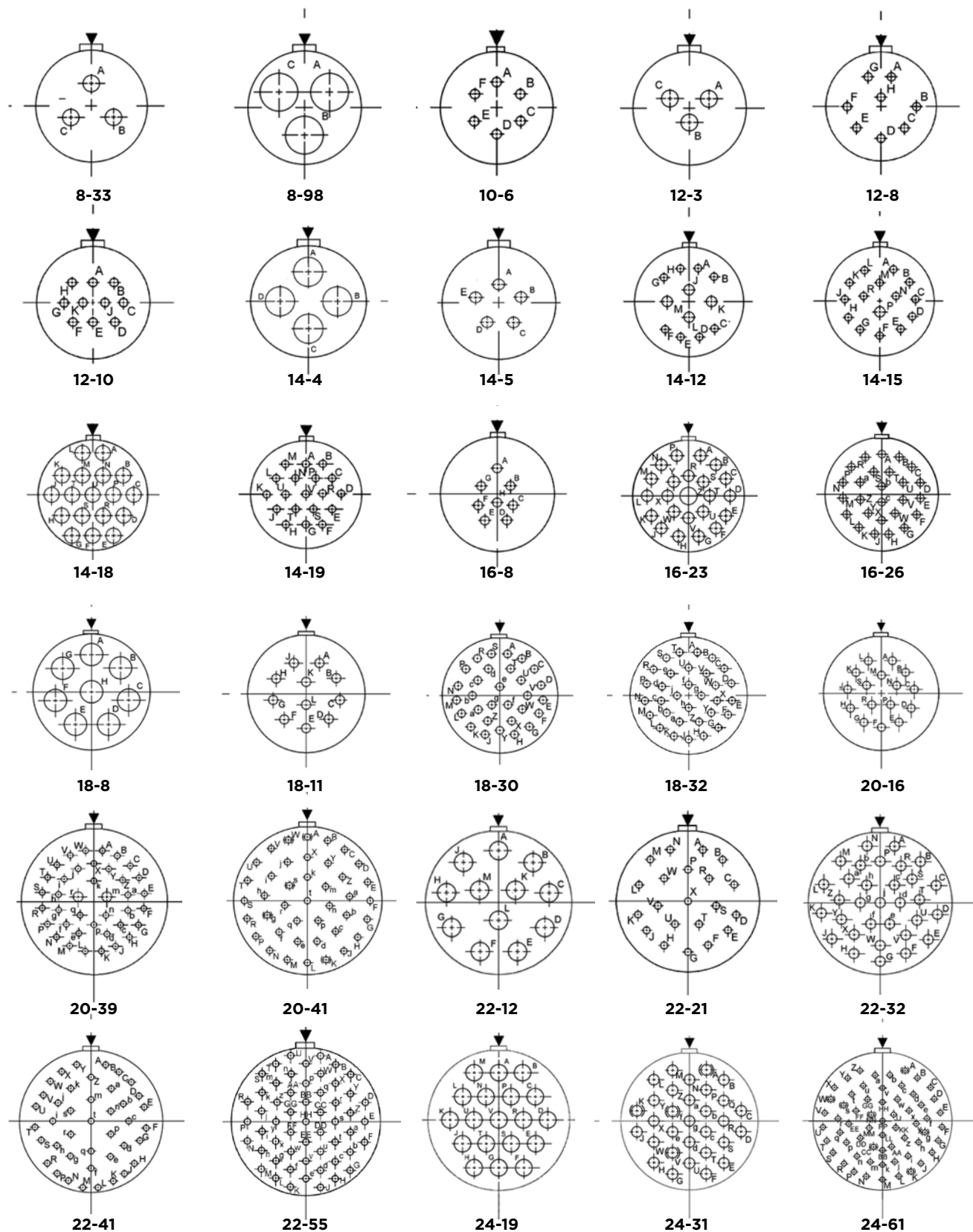
| Insert | Contact Size |    |    | Insert Positions |
|--------|--------------|----|----|------------------|
|        | 20           | 16 | 12 |                  |
| 8-33   | 3            | —  | —  | N, W             |
| 8-98   | 3            | —  | —  | N                |
| 10-6   | 6            | —  | —  | N, W             |
| 12-3   | —            | 3  | —  | N, Y             |
| 12-8   | 8            | —  | —  | N, W, X, Y, Z    |
| 12-10  | 10           | —  | —  | N, W, X, Y, Z    |
| 14-4   | —            | —  | 4  | N, W             |
| 14-5   | —            | 5  | —  | N, W, X, Y, Z    |
| 14-12  | 8            | 4  | —  | N, W, X          |
| 14-15  | 14           | 1  | —  | N, W, X, Y, Z    |

| Insert | Contact Size |    |    | Insert Positions |
|--------|--------------|----|----|------------------|
|        | 20           | 16 | 12 |                  |
| 14-18  | 18           | —  | —  | N, W, X, Y, Z    |
| 14-19  | 19           | —  | —  | N, W, X          |
| 16-8   | —            | 8  | —  | N, W, X, Y, Z    |
| 16-23  | 22           | 1  | —  | N, W             |
| 16-26  | 26           | —  | —  | N, W, Y, Z       |
| 18-8   | —            | —  | 8  | N, W             |
| 18-11  | —            | 11 | —  | N, W, X, Y, Z    |
| 18-30  | 29           | 1  | —  | N, W, X, Y, Z    |
| 18-32  | 32           | —  | —  | N, W, X, Y, Z    |
| 20-16  | —            | 16 | —  | N, W, X, Y, Z    |

| Insert | Contact Size |    |    | Insert Positions |
|--------|--------------|----|----|------------------|
|        | 20           | 16 | 12 |                  |
| 20-39  | 37           | 2  | —  | N, W, X, Y, Z    |
| 20-41  | 41           | —  | —  | N, W, X, Y,      |
| 22-12  | —            | —  | 12 | N                |
| 22-21  | —            | 21 | —  | N, W, X, Y,      |
| 22-32  | 32           | —  | —  | N, W, X, Y, Z    |
| 22-41  | 27           | 14 | —  | N, W, X, Y,      |
| 22-55  | 55           | —  | —  | N, W, X, Y, Z    |
| 24-19  | —            | —  | 19 | N, W, X, Y,      |
| 24-31  | —            | 31 | —  | N, W, X, Y,      |
| 24-61  | 61           | —  | —  | N, W, X, Y, Z    |

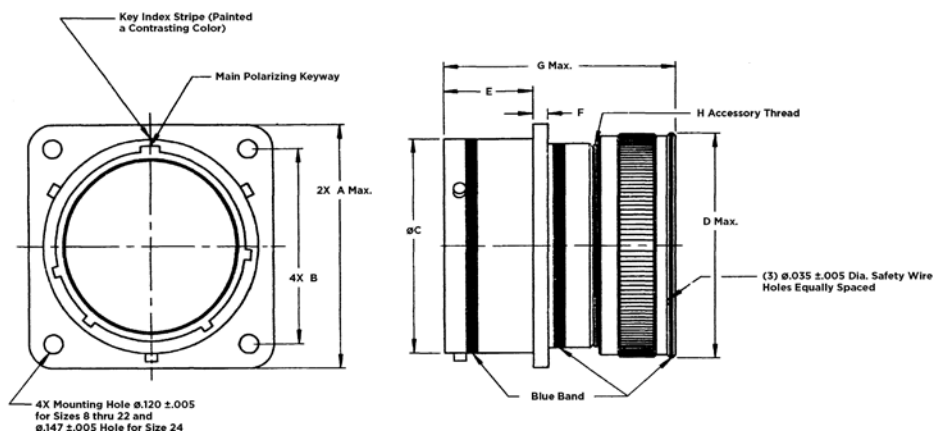


## Insert Arrangements





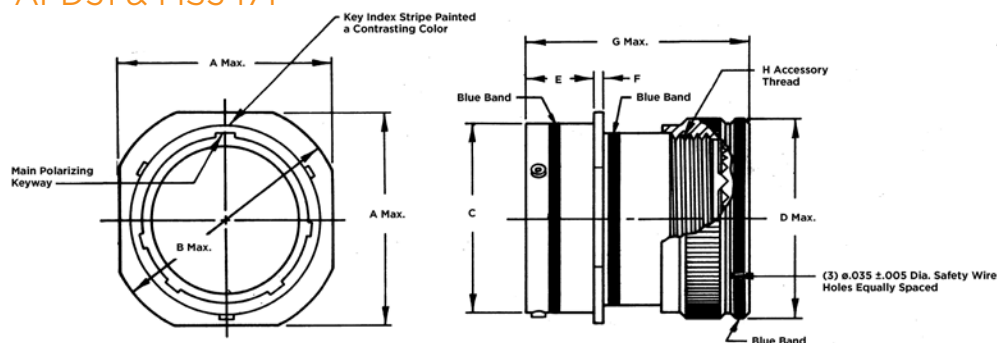
## AFD50 & MS3470



### AFD50 & MS3470

| Size | A     |        | B ± .005 |        | C ± .000/-0.005 |        | D     |        | E ± .031/-0.000 |        | F ± .015 |       | G     |        | H Thread         |
|------|-------|--------|----------|--------|-----------------|--------|-------|--------|-----------------|--------|----------|-------|-------|--------|------------------|
|      | in    | mm     | in       | mm     | in              | mm     | in    | mm     | in              | mm     | in       | mm    | in    | mm     |                  |
| 8    | 0.828 | 21.031 | 0.594    | 15.088 | 0.473           | 12.014 | 0.499 | 12.675 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 1/2 - 20 UNF     |
| 10   | 0.954 | 24.232 | 0.719    | 18.263 | 0.590           | 14.986 | 0.625 | 15.875 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 5/8 - 24 UNEF    |
| 12   | 1.047 | 26.594 | 0.812    | 20.625 | 0.750           | 19.050 | 0.750 | 19.050 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 3/4 - 20 UNEF    |
| 14   | 1.141 | 28.981 | 0.906    | 23.012 | 0.875           | 22.225 | 0.875 | 22.225 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 7/8 - 20 UNEF    |
| 16   | 1.234 | 31.344 | 0.969    | 24.613 | 1.000           | 25.400 | 1.000 | 25.400 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 1 - 20 UNEF      |
| 18   | 1.328 | 33.731 | 1.062    | 26.975 | 1.125           | 28.575 | 1.062 | 26.975 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 1 1/16 - 18 UNEF |
| 20   | 1.453 | 36.906 | 1.156    | 29.362 | 1.250           | 31.750 | 1.187 | 30.150 | 0.556           | 14.122 | 0.094    | 2.388 | 1.275 | 32.385 | 1 3/16 - 18 UNEF |
| 22   | 1.578 | 40.081 | 1.250    | 31.750 | 1.375           | 34.925 | 1.312 | 33.325 | 0.556           | 14.122 | 0.094    | 2.388 | 1.275 | 32.385 | 1 5/16 - 18 UNEF |
| 24   | 1.703 | 43.256 | 1.375    | 34.925 | 1.500           | 38.100 | 1.437 | 36.500 | 0.589           | 14.961 | 0.094    | 2.388 | 1.275 | 32.385 | 1 7/16 - 18 UNEF |

## AFD51 & MS3471

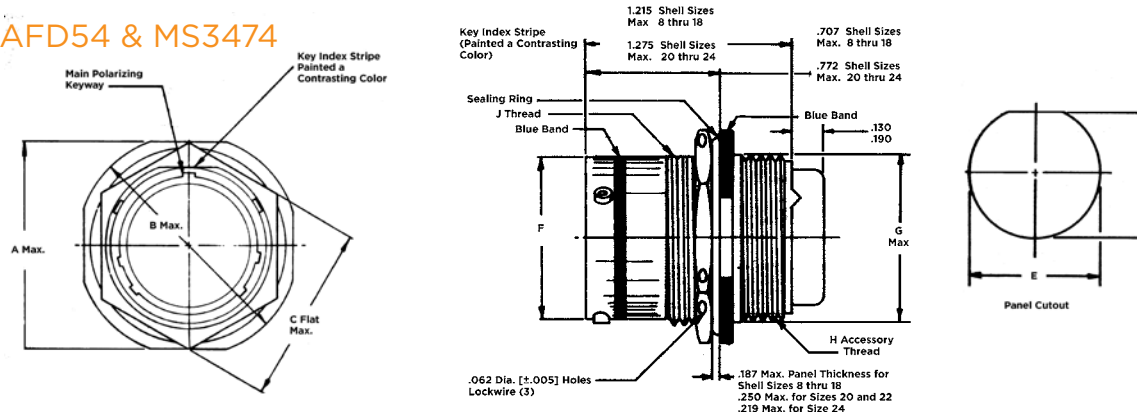


### AFD51 & MS3471

| Size | A     |        | B ± .005 |        | C ± .000/-0.005 |        | D     |        | E ± .031/-0.000 |        | F ± .015 |       | G     |        | H Thread         |
|------|-------|--------|----------|--------|-----------------|--------|-------|--------|-----------------|--------|----------|-------|-------|--------|------------------|
|      | in    | mm     | in       | mm     | in              | mm     | in    | mm     | in              | mm     | in       | mm    | in    | mm     |                  |
| 8    | 0.828 | 21.031 | 0.958    | 24.333 | 0.473           | 12.014 | 0.617 | 15.672 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 1/2 - 20 UNF     |
| 10   | 0.954 | 24.232 | 1.082    | 27.483 | 0.590           | 14.986 | 0.734 | 18.644 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 5/8 - 24 UNEF    |
| 12   | 1.047 | 26.594 | 1.176    | 29.870 | 0.750           | 19.050 | 0.858 | 21.793 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 3/4 - 20 UNEF    |
| 14   | 1.141 | 28.981 | 1.270    | 32.258 | 0.875           | 22.225 | 0.984 | 24.994 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 7/8 - 20 UNEF    |
| 16   | 1.234 | 31.344 | 1.364    | 34.646 | 1.000           | 25.400 | 1.112 | 28.245 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 1 - 20 UNEF      |
| 18   | 1.328 | 33.731 | 1.458    | 37.033 | 1.125           | 28.575 | 1.218 | 30.937 | 0.431           | 10.947 | 0.062    | 1.575 | 1.215 | 30.861 | 1 1/16 - 18 UNEF |
| 20   | 1.453 | 36.906 | 1.582    | 40.183 | 1.250           | 31.750 | 1.345 | 34.163 | 0.556           | 14.122 | 0.094    | 2.388 | 1.275 | 32.385 | 1 3/16 - 18 UNEF |
| 22   | 1.578 | 40.081 | 1.708    | 43.383 | 1.375           | 34.925 | 1.468 | 37.287 | 0.556           | 14.122 | 0.094    | 2.388 | 1.275 | 32.385 | 1 5/16 - 18 UNEF |
| 24   | 1.703 | 43.256 | 1.832    | 46.533 | 1.500           | 38.100 | 1.593 | 40.462 | 0.589           | 14.961 | 0.094    | 2.388 | 1.275 | 32.385 | 1 7/16 - 18 UNEF |



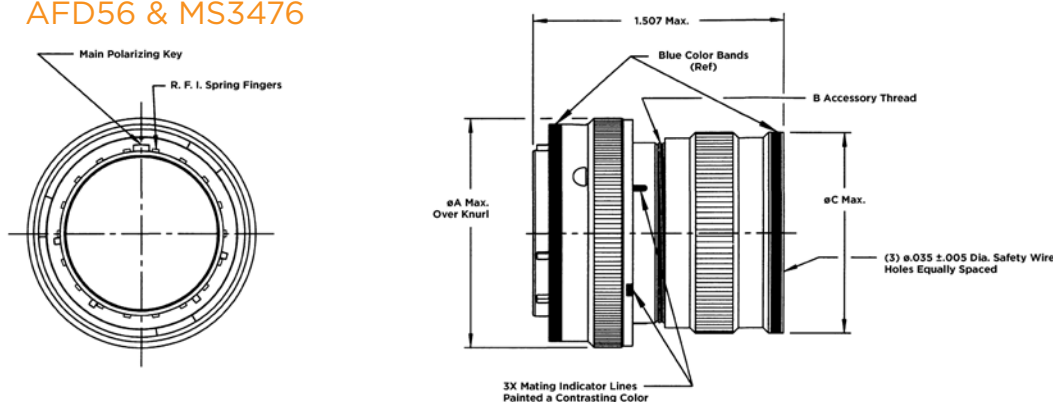
## AFD54 & MS3474



### AFD54 & MS3474

| Size | A     |        | B     |        | C ± .005 |        | D ± .005 |        | F ± .000/- .005 |        | F ± .015 |        | G     |        | H Thread         | J Thread        |
|------|-------|--------|-------|--------|----------|--------|----------|--------|-----------------|--------|----------|--------|-------|--------|------------------|-----------------|
|      | in    | mm     | in    | mm     | in       | mm     | in       | mm     | in              | mm     | in       | mm     | in    | mm     |                  |                 |
| 8    | 0.954 | 24.232 | 1.078 | 27.381 | 0.766    | 19.456 | 0.536    | 13.614 | 0.572           | 14.529 | 0.473    | 12.014 | 0.615 | 15.621 | 1/2 - 20 UNF     | 9/16 - 24 UNEF  |
| 10   | 1.078 | 27.376 | 1.203 | 30.556 | 0.892    | 22.657 | 0.661    | 16.789 | 0.697           | 17.704 | 0.590    | 14.986 | 0.734 | 18.644 | 5/8 - 24 UNEF    | 11/16 - 24 UNEF |
| 12   | 1.266 | 32.156 | 1.391 | 35.331 | 1.079    | 27.407 | 0.824    | 20.930 | 0.895           | 22.733 | 0.750    | 19.050 | 0.858 | 21.793 | 3/4 - 20 UNEF    | 7/8 - 20 UNEF   |
| 14   | 1.391 | 35.331 | 1.516 | 38.506 | 1.205    | 30.607 | 0.948    | 24.079 | 1.010           | 25.654 | 0.875    | 22.225 | 0.984 | 24.994 | 7/8 - 20 UNEF    | 1 - 20 UNEF     |
| 16   | 1.516 | 38.506 | 1.641 | 41.681 | 1.329    | 33.757 | 1.072    | 27.229 | 1.135           | 28.829 | 1.000    | 25.400 | 1.112 | 28.245 | 1 - 20 UNEF      | 1 1/8 - 18 UNEF |
| 18   | 1.641 | 41.681 | 1.766 | 44.856 | 1.455    | 36.957 | 1.197    | 30.404 | 1.260           | 32.004 | 1.125    | 28.575 | 1.218 | 30.937 | 1 1/16 - 18 UNEF | 1 1/4 - 18 UNEF |
| 20   | 1.828 | 46.431 | 1.954 | 49.632 | 1.579    | 40.107 | 1.322    | 33.579 | 1.384           | 35.154 | 1.250    | 31.750 | 1.345 | 34.163 | 1 3/16 - 18 UNEF | 1 3/8 - 18 UNEF |
| 22   | 1.954 | 49.632 | 2.078 | 52.781 | 1.705    | 43.307 | 1.447    | 36.754 | 1.510           | 38.354 | 1.375    | 34.925 | 1.468 | 37.287 | 1 5/16 - 18 UNEF | 1 1/2 - 18 UNEF |
| 24   | 2.078 | 52.781 | 2.203 | 55.956 | 1.829    | 46.457 | 1.572    | 39.929 | 1.635           | 41.529 | 1.500    | 38.100 | 1.593 | 40.462 | 1 7/16 - 18 UNEF | 1 5/8 - 18 UNEF |

## AFD56 & MS3476



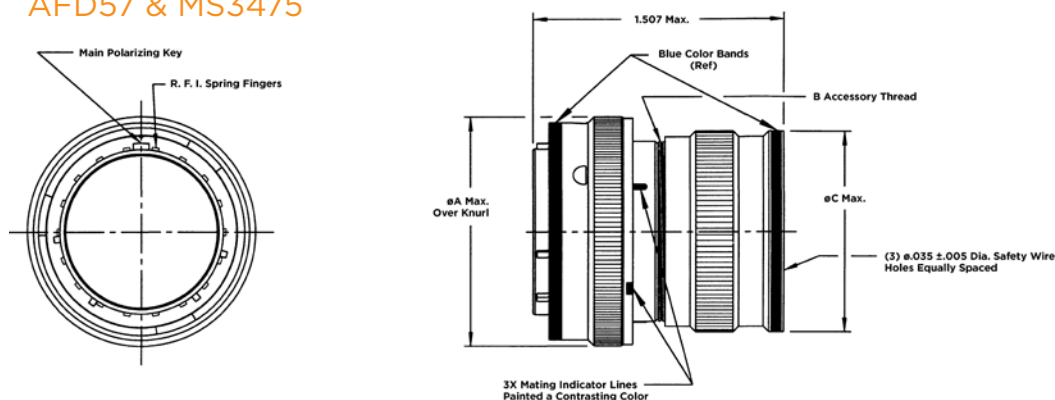
### AFD56 & MS3476

| Size | A     |        | B Thread         | C     |        |
|------|-------|--------|------------------|-------|--------|
|      | in    | mm     |                  | in    | mm     |
| 8    | 0.782 | 19.863 | 1/2 - 20 UNF     | 0.470 | 11.938 |
| 10   | 0.926 | 23.520 | 5/8 - 24 UNEF    | 0.630 | 16.002 |
| 12   | 1.043 | 26.492 | 3/4 - 20 UNEF    | 0.724 | 18.390 |
| 14   | 1.183 | 30.048 | 7/8 - 20 UNEF    | 0.849 | 21.565 |
| 16   | 1.305 | 33.147 | 1 - 20 UNEF      | 0.974 | 24.740 |
| 18   | 1.391 | 35.331 | 1 1/16 - 18 UNEF | 1.030 | 26.162 |
| 20   | 1.531 | 38.887 | 1 3/16 - 18 UNEF | 1.154 | 29.312 |
| 22   | 1.656 | 42.062 | 1 5/16 - 18 UNEF | 1.279 | 32.487 |
| 24   | 1.777 | 45.136 | 1 7/16 - 18 UNEF | 1.404 | 35.662 |





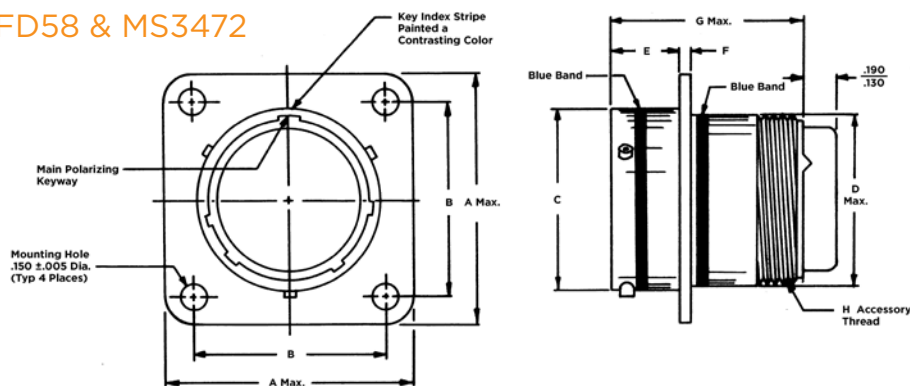
## AFD57 & MS3475



### AFD57 & MS3475

| Size | A     |        | B Thread         | C     |        |
|------|-------|--------|------------------|-------|--------|
|      | in    | mm     |                  | in    | mm     |
| 8    | 0.782 | 19.863 | 1/2 - 20 UNF     | 0.617 | 15.672 |
| 10   | 0.926 | 23.520 | 5/8 - 24 UNEF    | 0.734 | 18.644 |
| 12   | 1.043 | 26.492 | 3/4 - 20 UNEF    | 0.858 | 21.793 |
| 14   | 1.183 | 30.048 | 7/8 - 20 UNEF    | 0.984 | 24.994 |
| 16   | 1.305 | 33.147 | 1 - 20 UNEF      | 1.112 | 28.245 |
| 18   | 1.391 | 35.331 | 1 1/16 - 18 UNEF | 1.218 | 30.937 |
| 20   | 1.531 | 38.887 | 1 3/16 - 18 UNEF | 1.345 | 34.163 |
| 22   | 1.656 | 42.062 | 1 5/16 - 18 UNEF | 1.468 | 37.287 |
| 24   | 1.777 | 45.136 | 1 7/16 - 18 UNEF | 1.593 | 40.462 |

## AFD58 & MS3472



### AFD58 & MS3472

| Size | A     |        | B ± .005 |        | C ± .000/- .005 |        | D     |        | E ± .031/- .000 |        | F ± .015 |       | G     |        | H Thread         |
|------|-------|--------|----------|--------|-----------------|--------|-------|--------|-----------------|--------|----------|-------|-------|--------|------------------|
|      | in    | mm     | in       | mm     | in              | mm     | in    | mm     | in              | mm     | in       | mm    | in    | mm     |                  |
| 8    | 1.064 | 27.026 | 0.734    | 18.644 | 0.473           | 12.014 | 0.615 | 15.621 | 0.462           | 11.735 | 0.062    | 1.575 | 1.492 | 37.897 | 1/2 - 20 UNF     |
| 10   | 1.141 | 28.981 | 0.812    | 20.625 | 0.590           | 14.986 | 0.734 | 18.644 | 0.462           | 11.735 | 0.062    | 1.575 | 1.492 | 37.897 | 5/8 - 24 UNEF    |
| 12   | 1.266 | 32.156 | 0.938    | 23.825 | 0.750           | 19.050 | 0.858 | 21.793 | 0.462           | 11.735 | 0.062    | 1.575 | 1.492 | 37.897 | 3/4 - 20 UNEF    |
| 14   | 1.360 | 34.544 | 1.031    | 26.187 | 0.875           | 22.225 | 0.984 | 24.994 | 0.462           | 11.735 | 0.062    | 1.575 | 1.492 | 37.897 | 7/8 - 20 UNEF    |
| 16   | 1.453 | 36.906 | 1.125    | 28.575 | 1.000           | 25.400 | 1.112 | 28.245 | 0.462           | 11.735 | 0.062    | 1.575 | 1.492 | 37.897 | 1 - 20 UNEF      |
| 18   | 1.532 | 38.913 | 1.203    | 30.556 | 1.125           | 28.575 | 1.218 | 30.937 | 0.462           | 11.735 | 0.062    | 1.575 | 1.492 | 37.897 | 1 1/16 - 18 UNEF |
| 20   | 1.688 | 42.875 | 1.297    | 32.944 | 1.250           | 31.750 | 1.345 | 34.163 | 0.556           | 14.122 | 0.094    | 2.388 | 1.552 | 39.421 | 1 3/16 - 18 UNEF |
| 22   | 1.766 | 44.856 | 1.375    | 34.925 | 1.375           | 34.925 | 1.468 | 37.287 | 0.556           | 14.122 | 0.094    | 2.388 | 1.552 | 39.421 | 1 5/16 - 18 UNEF |
| 24   | 1.891 | 48.031 | 1.500    | 38.100 | 1.500           | 38.100 | 1.593 | 40.462 | 0.589           | 14.961 | 0.094    | 2.388 | 1.552 | 39.421 | 1 7/16 - 18 UNEF |

## LET'S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need. Just call your local support number or visit [te.com](http://te.com) to chat with a Product Information Specialist.

## Technical Support

[te.com/support-center](http://te.com/support-center)

|                      |                 |              |                    |
|----------------------|-----------------|--------------|--------------------|
| North America        | +1 800 522 6752 | Asia Pacific | +86 400 820 6015   |
| North America (Toll) | +1 717 986 7777 | Japan        | +81 044 844 8180   |
| EMEA/South Africa    | +800 0440 5100  | Australia    | +61 2 9554 2695    |
| EMEA (Toll)          | +31 73 624 6999 | New Zealand  | +64 (0) 9 634 4580 |
| India (Toll-Free)    | +800 440 5100   |              |                    |

[te.com/afd](http://te.com/afd)

AMP, AGASTAT, CII, DEUTSCH, HARTMAN, KILOVAC, MICRODOT, NANONICS, POLAMCO, Raychem, SEACON, TE, TE Connectivity and the TE connectivity (logo) are trademarks owned or licensed by TE Connectivity. Other products, logos, and company names mentioned herein may be trademarks of their respective owners.

While TE Connectivity (TE) has made every reasonable effort to ensure the accuracy of the information herein, nothing herein constitutes any guarantee that such information is error-free, or any other representation, warranty or guarantee that the information is accurate, correct, reliable or current. The TE entity issuing this publication reserves the right to make any adjustments to the information contained herein at any time without notice. All implied warranties regarding the information contained herein, including, but not limited to, any implied warranties of merchantability or fitness for a particular purpose are expressly disclaimed. The dimensions herein are for reference purposes only and are subject to change without notice. Specifications are subject to change without notice.

Consult TE for the latest dimensions and design specifications.

© 2019 TE Connectivity. All Rights Reserved.

1-1773850-3 09/19