

# 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                 |
|-----------------------------------|---------------------------------|-----------------------------------|
| Recommended Operating Voltage     |                                 |                                   |
| @ Sea Level                       | 600 VAC <sub>RMS</sub> /850 VDC | 1000 VAC <sub>RMS</sub> /1275 VDC |
| Test Voltages (V <sub>RMS</sub> ) |                                 |                                   |
| @ 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                  |

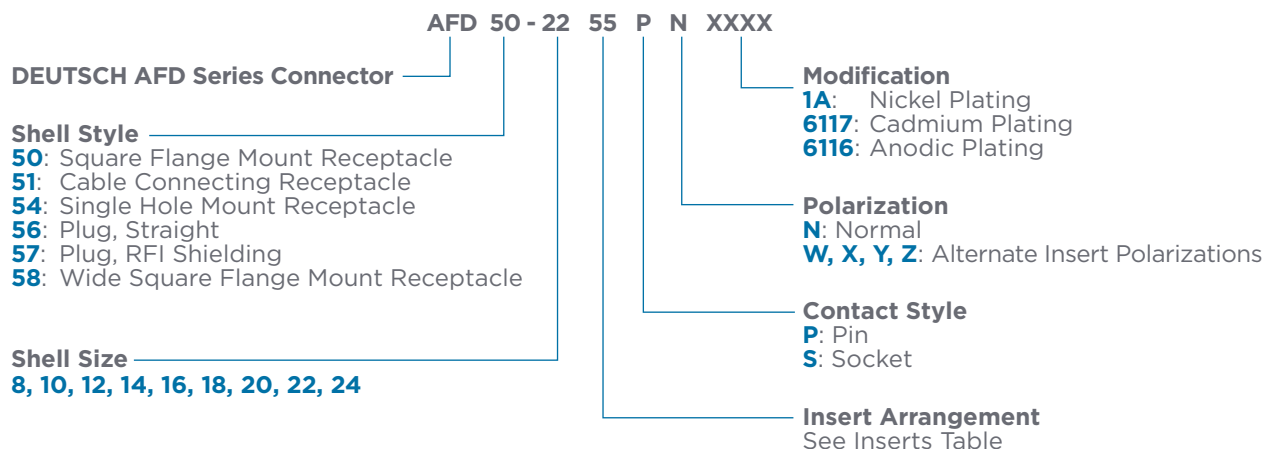
### TE Components . . . TE Technology . . . TE Know-how . . .

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

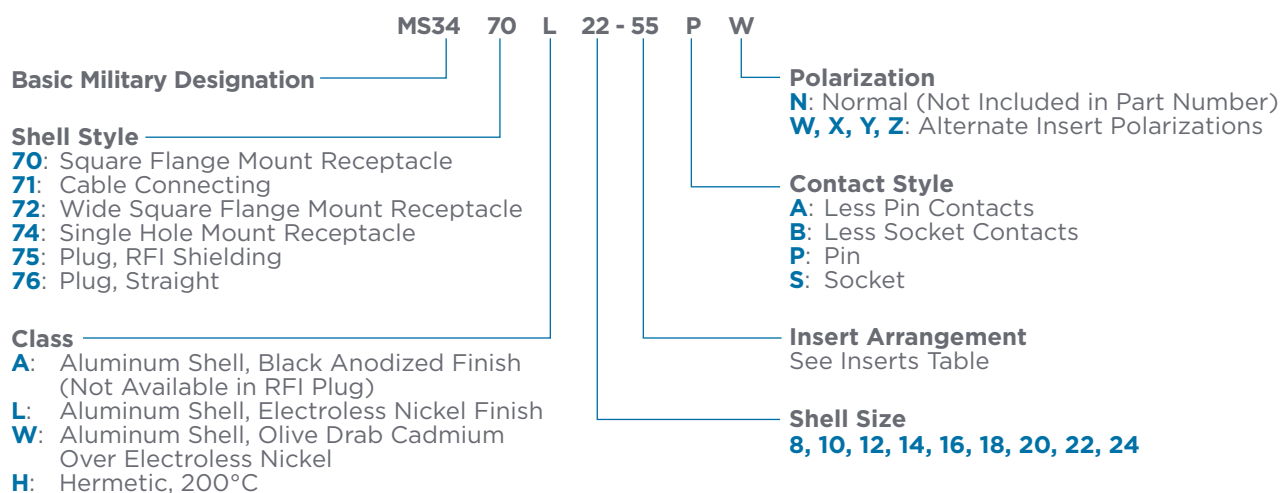
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## DEUTSCH AFD Series Part Numbering System



## MIL-DTL-26482 Part Numbering System



## Insert Arrangements

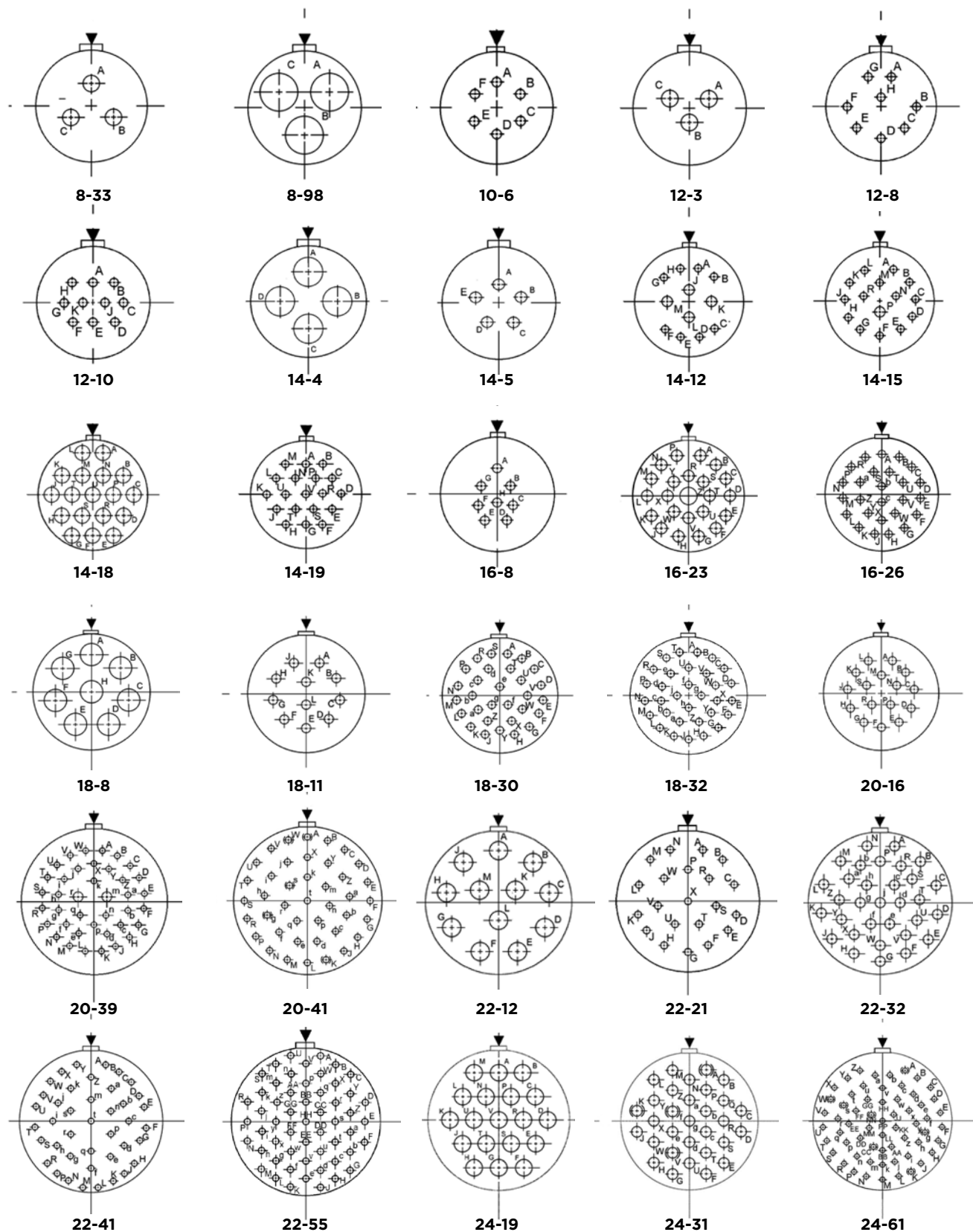
| Insert | Contact Size |    |    | Insert Positions |
|--------|--------------|----|----|------------------|
|        | 20           | 16 | 12 |                  |
| 8-33   | 3            | —  | —  | N, W             |
| 8-98   | 3            | —  | —  | N                |
| 10-6   | 6            | —  | —  | 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    |

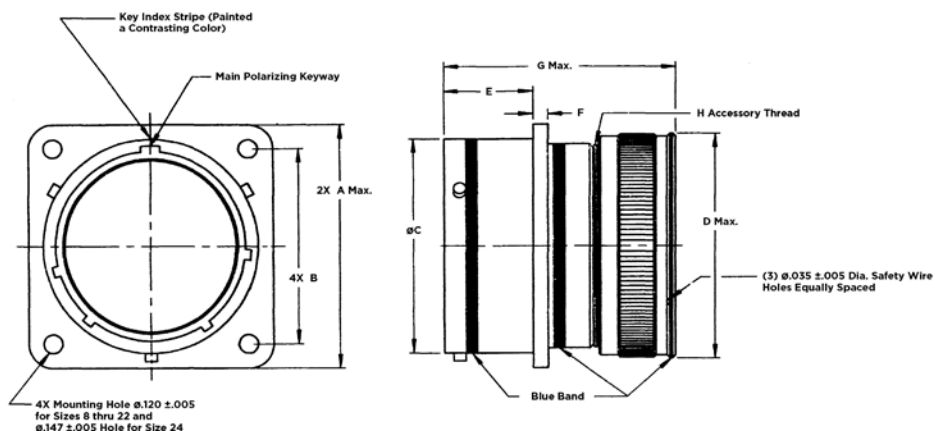


## Insert Arrangements





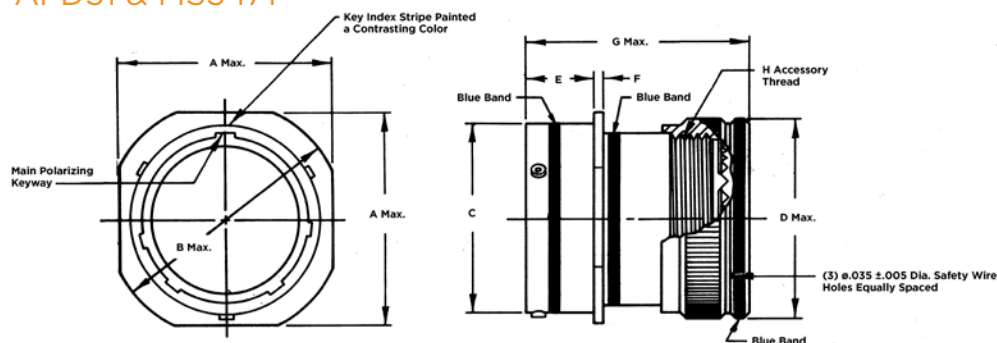
## AFD50 & MS3470



### 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

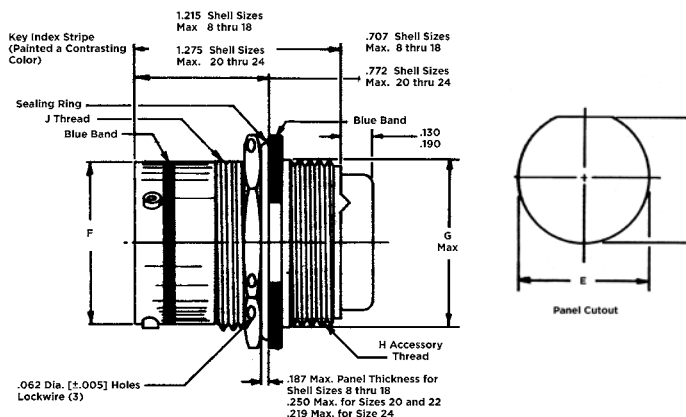
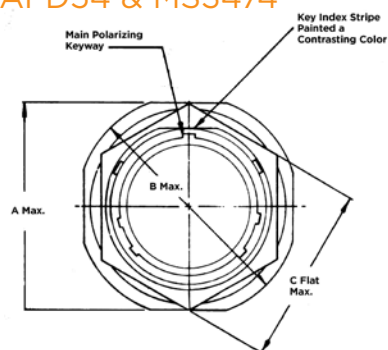


### AFD51 & MS3471

| 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 |



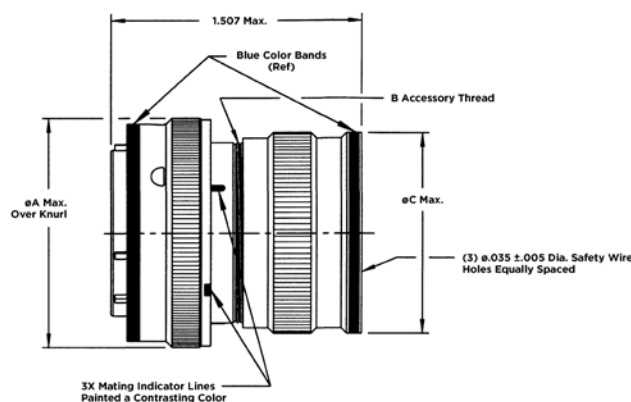
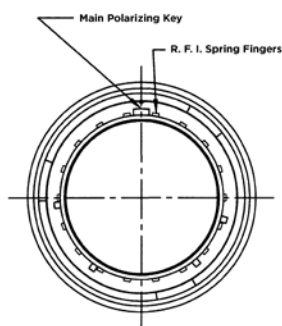
## AFD54 & MS3474



### 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

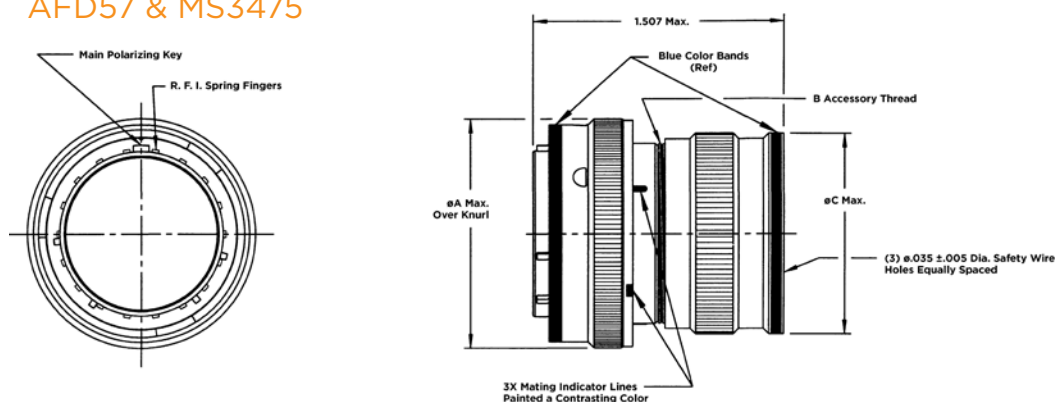


### AFD56 & MS3476

| 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 |



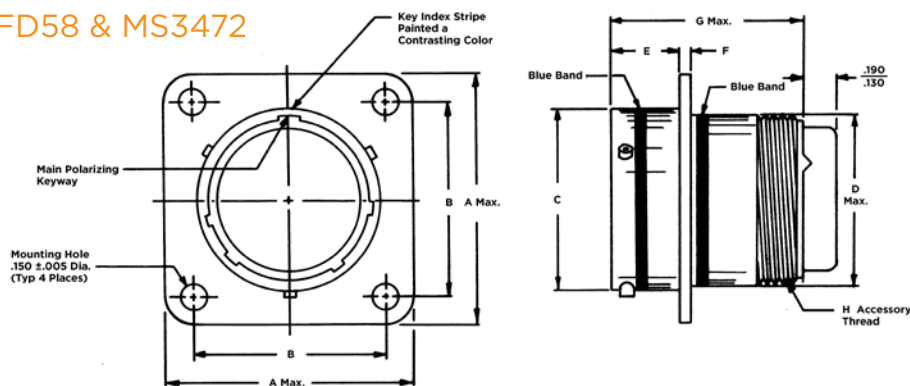
## AFD57 & MS3475



### 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 |

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Consult TE for the latest dimensions and design specifications.

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1-1773850-3 09/19

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[MS3470L12-8BZ](#) [MS3472W18-30SX-LC](#) [MS3476L18-32BZ](#) [MS3471L8-33PW-LC](#) [MS3471L18-11SX-LC](#)  
[MS3470L22-55SW-LC](#) [MS3475L20-16AY](#) [MS3471W22-21BY](#) [MS3472L12-8SZ-LC](#) [MS3476W12-3P](#) [MS3471L22-41S-LC](#) [MS3471W24-31S-LC](#) [MS3475W8-98S-LC](#) [MS3475W18-11SW-LC](#) [MS3472W12-8P](#) [MS3475W20-39BZ](#)  
[MS3474L24-31SY-LC](#) [MS3474W18-32PZ](#) [MS3474W16-8A](#) [MS3476A14-5PY-LC](#) [MS3471L18-11SW](#) [MS3470W22-55PX](#) [MS3476W22-55BY](#) [MS3475L22-21SW](#) [MS3476L14-5BY](#) [MS3470W18-30SW-LC](#) [MS3476L14-18S](#)  
[MS3471L12-8BZ](#) [MS3472W24-19SX](#) [MS3471L22-55SW-LC](#) [MS3475W22-41P](#) [MS3476L20-39P](#) [MS3474W18-11B](#) [MS3475L20-16P](#) [MS3474L12-8A](#) [MS3471L18-30SX-LC](#) [MS3474W12-10AY](#) [MS3470L24-19SX](#) [MS3470W20-41P-LC](#)  
[MS3475W14-12BX](#) [MS3476W20-16P](#) [MS3471W20-16PZ-LC](#) [MS3471W24-61SZ](#) [MS3476L18-32AX](#) [MS3474W18-11BY](#) [MS3470W12-8PZ](#) [MS3472L24-31SY-LC](#) [MS3471L22-55SY](#) [MS3472W18-32PX-LC](#) [MS3476W16-8PX](#)  
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[MS3471L18-11AX](#) [MS3471W20-41PX](#) [MS3476L24-61SW](#) [MS3475L20-41S](#) [MS3471W18-32BW](#) [MS3470W20-16BW](#) [MS3472L12-8BZ](#) [MS3472L22-55S](#) [MS3471L24-61BX](#) [MS3475W20-39SZ-LC](#) [MS3475L16-26P](#) [MS3475L20-41PX-LC](#) [MS3476A14-15AW](#) [MS3471L20-16BY](#) [MS3475W14-5S-LC](#) [MS3475W14-18PZ](#) [MS3471L12-10SZ](#) [MS3471W12-10PW](#) [MS3470W20-39PZ-LC](#) [MS3475L18-11BX](#) [MS3475W20-16PY](#) [MS3475W12-8PW-LC](#) [MS3474W22-12B](#) [MS3475L22-41AX](#) [MS3471W18-8S](#) [MS3476A14-5BX](#) [MS3476L24-19P-LC](#) [MS3475W24-61SY-LC](#) [MS3475W20-16PZ-LC](#) [MS3476L14-4SW](#)