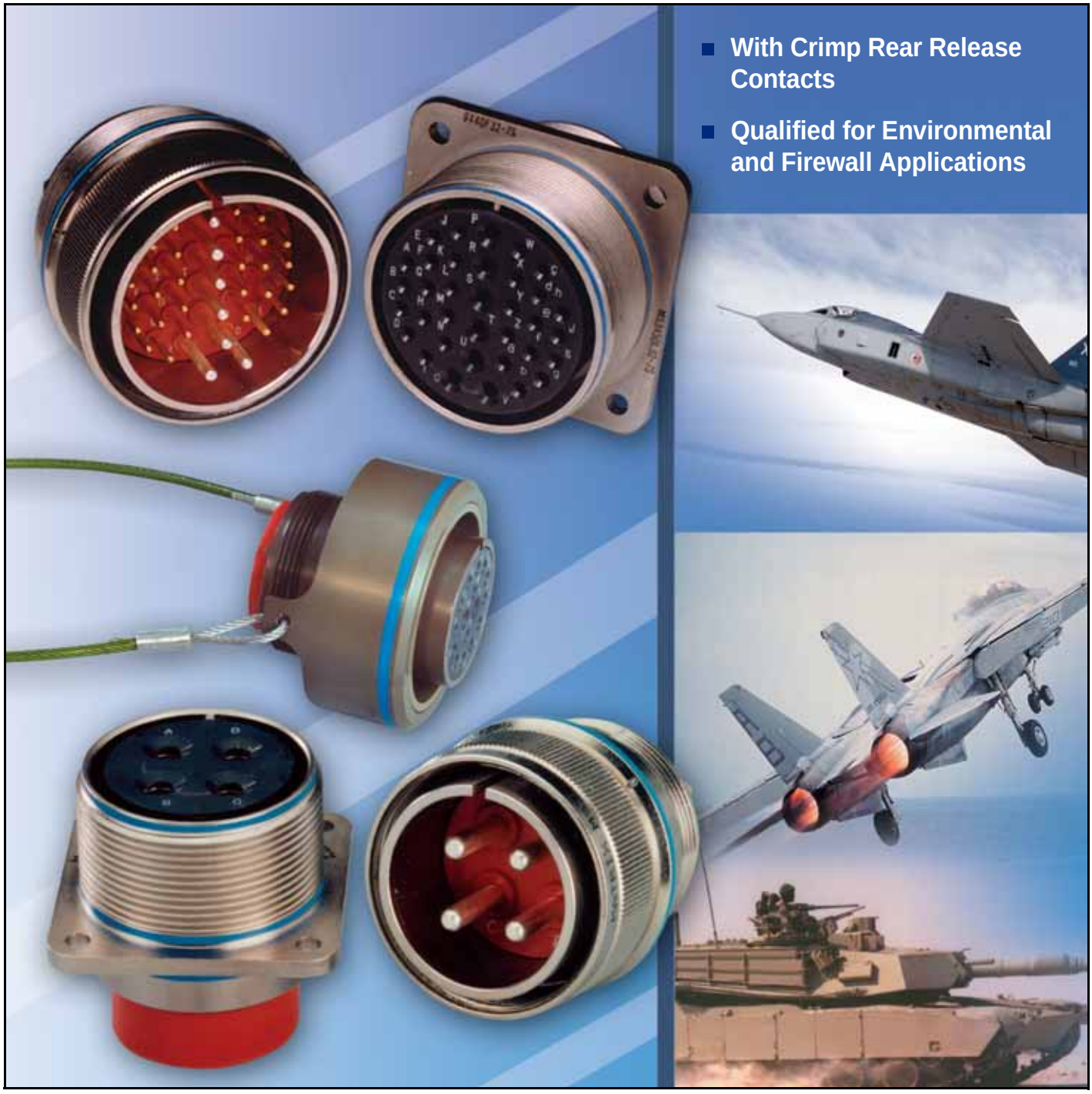
# Amphenol® /Matrix® MS/Standard MIL-DTL-5015 Cylindrical Connectors

12-026-4




**Amphenol**

This catalog covers the Amphenol ® /Matrix ® MIL-DTL-5015 Family of Connectors which incorporate rear release crimp contacts. MIL-C-5015 has been replaced by MIL-DTL-5015 for all Amphenol/Matrix rear release crimp type connectors. These connectors can be ordered through Amphenol, by military or equivalent proprietary part numbers.

Should more information be required concerning the connectors covered in this publication, or if special application needs arise, please contact:

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Amphenol Aerospace
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Sidney, New York 13838-1395
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www.amphenol-aerospace.com

The MIL-DTL-5015 crimp rear release type connector covered in this catalog, completes the MS/Standard family of connectors, so that now Amphenol can provide users with the broadest range of product available in the marketplace.

Catalog 12-020, Amphenol ® MIL-DTL-5015 and MIL-5015 Type Standard Cylindrical Connectors, is also available upon request. This catalog covers the MIL-5015 cylindrical connectors with solder contacts. It also covers the MIL-5015 type connectors with proprietary crimp contacts in a very broad range of insert patterns - up to 280 different arrangements. Within these connector styles, MIL-C-5015 has been replaced as follows: Environmental classes F and R are updated to and produced in strict accordance to MIL-DTL-5015. Classes A, C and E are still produced, but are no longer listed on the qualified products listing (QPL).

Also, ask for these additional Amphenol Product Catalogs:

Amphenol Industrial Connector Brochure, SL-381, for an overview of the industrial family of connectors.

Amphenol Brochure SL-100, which provides an overview of all products, military and industrial, offered through Amphenol Aerospace.

Visit our website www.amphenol-aerospace.com for this catalog and other catalogs of Amphenol products.

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Sales Office Listing

Amphenol Aerospace operates Quality Systems that are Certified to ISO-9001 and AS-9100 by third party Registrars.

# Amphenol ®/Matrix ®MS/Standard Cylindrical MIL-DTL-5015 Connectors with crimp rear release contacts

**MS3450**
**wall mounting receptacle**

**MS3451**
**cable connecting receptacle**

**MS3452**
**box mounting receptacle**

**MS3454**
**jam nut receptacle**

**MS3456**
**plug with threaded coupling**

**MS3459**
**plug with self-locking coupling nut**

**Proprietary quick disconnect plug with/without lanyard**

**Amphenol broadens their MS/Standard family of connectors with the MIL-DTL-5015 Crimp Rear Release Series.**

This series provides an alternative to the older MIL-C-5015 solder type. It bridges the gap between an old connector standard and the environmental and high performance needs of current technologies.

## DESIGN CHARACTERISTICS

- Medium to heavy weight cylindrical
- MS345( ) series intermateable with existing MIL-DTL-5015 solder or crimp versions on existing equipment
- Captive coupling nut mechanism, utilizes retaining rings in combination with “L” washers to prevent inadvertent disassembly
- Multiple interlock systems ensure permanent insert retention
- Positive control of dielectric separation with guaranteed ease of contact insertion
- Positive contact retention provided by a closely toleranced damage-proof metal retention clip
- Completely sealed against environmental extremes with -
  - individual contact seals (conical risers on pin interface)
  - interfacial seals between contacts
  - peripheral gasket shell-to-shell seals
  - redundant rear wire seals and insert-to-shell seals

## CUSTOMER OPTIONS

- Seven mounting styles, in shell sizes 8 to 48*
- Threaded coupling or self-locking plug (MS3459) with an internal racheting mechanism to prevent unmating due to vibration and shock, eliminating the need for safety wiring
- Proprietary quick disconnect plug, with or without lanyard available
- Classes include aluminum or stainless steel shells, or firewall capability
- MS and Proprietary versions available
- Some styles are supplied to McDonnell Douglas Specification BAN 7025, DC60 Series
- Accommodation of contact sizes 0 to 16
- Over 100 insert arrangement patterns available, accommodating from a minimum of 1 to a maximum of 85 circuits
- Alternate positioning available
- Thermocouple pin and socket contacts are available**

NOTE: MIL-C-5015 is superceded to MIL-DTL-5015 for all Amphenol/Matrix rear release crimp type contacts.

* Consult Amphenol, Sidney, NY for availability of shell sizes 44 and 48.

** Consult Amphenol, Sidney, NY for information on thermocouple contacts.

# Amphenol ®/Matrix ®MS/Standard Cylindrical MIL-DTL-5015 Connectors
# class descriptions, performance specifications

## CLASS DESCRIPTIONS

| Military MIL-DTL-5015 | |
|---|---|
| Class L* | aluminum shell, electroless nickel finish, fluid resistant insert |
| Class W | aluminum shell, cadmium olive drab finish, fluid resistant insert |
| Class LS | stainless steel shell, passivated, fluid resistant insert |
| Class KT** | firewall, steel shell, cadmium olive drab finish, non-flammable hard dielectric and fluid resistant insert |
| Class KS | firewall, stainless steel shell, passivated, non-flammable hard dielectric and fluid resistant insert |

* Class L inactivates older Class U (aluminum, electroless nickel)

** Class KT (ferrous alloy, cadmium/olive drab) inactivates older Class K (ferrous alloy, electroless nickel)

| Amphenol/Matrix | |
|---|---|
| Class A | aluminum shell, black anodize finish, fluid resistant insert |
| Class F | aluminum shell, electroless nickel finish, fluid resistant insert |
| Class W | aluminum shell, cadmium/olive drab finish, fluid resistant insert |
| Class FS | stainless steel shell, passivated, fluid resistant insert |
| Class KT | firewall, steel shell, cadmium olive drab finish, non-flammable hard dielectric and fluid resistant insert |
| Class KS | firewall, stainless steel shell, passivated, non-flammable hard dielectric and fluid resistant insert |

## PERFORMANCE SPECIFICATIONS

### VOLTAGE RATING

| Altitude | Inst. | A | D | E | B | C |
|---|---|---|---|---|---|---|
| Sea Level | 1000 | 2000 | 2800 | 3500 | 4500 | 7000 |
| 50,000 ft. | 400 | 600 | 675 | 750 | 825 | 975 |
| 70,000 ft. | 260 | 360 | 400 | 440 | 480 | 560 |
| 110,000 ft. | 200 | 200 | 200 | 200 | 200 | 200 |

### SHOCK

Wired, mated connectors are subjected to one shock in each of three mutually perpendicular axes with pulse of an approximate half sine wave of 50g magnitude for a duration of 11 milliseconds. All contacts wired in series circuit with 100 ±10 milliamperes of current flow.

### OPERATING TEMPERATURE RANGE

Classes L, LS and KS have temperature range of
–55°C (–75°F) to 200°C (392°F)
Classes W and KT have temperature range of
–55°C (–75°F) to 175°C (347°F)

### ENVIRONMENTAL SEAL

Wired, mated connectors with the specified accessory attached will meet the altitude immersion test specified in MIL-DTL-5015.

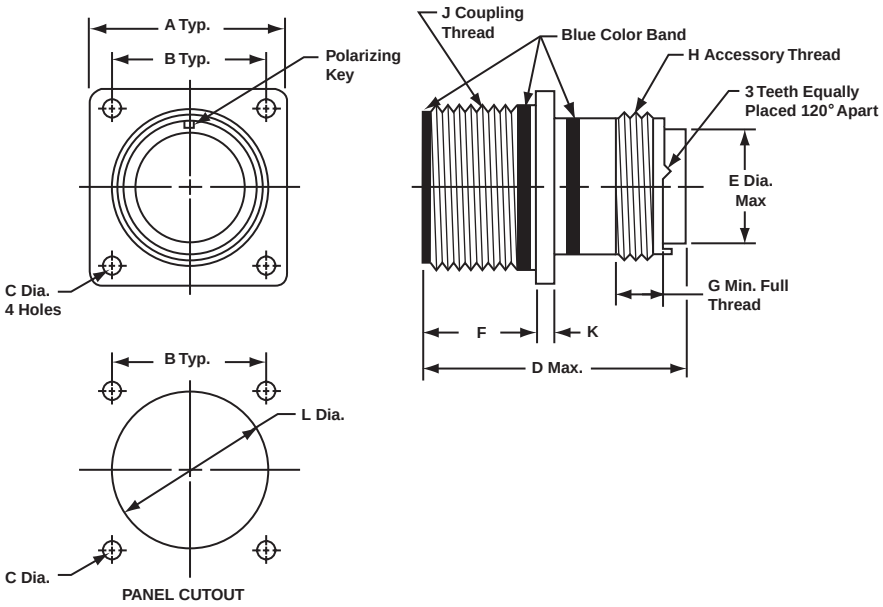
### DURABILITY

Minimum of 100 mating cycles.

# MS/Standard
# MS3450
# wall mounting receptacle

**Receptacle Shell, Flange Wall Mount, Threaded Coupling**

**Military No. MS3450**
**Amphenol/Matrix No. 9440**




To complete order number see how to order, page 29.

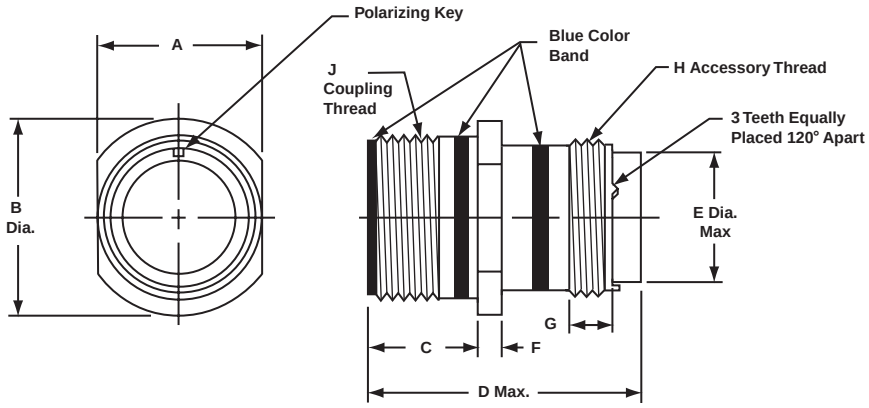
| Shell Size* | A ±.031 | B | C Dia. +.010 −.005 Class A, F, R, W | C Dia. +.010 −.005 Class K | D Max. Size 16 & 12 Contacts | D Max. Size 8, 4, 0 Contacts | E Dia. Max. | F | G Min. | H Thread Class 2A | J Thread Class 2A | K | L Dia. ±.010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8S | .875 | .594 | .120 | .150 | 2.031 | – | .305 | .593/.562 | .290 | .5000-20 UNEF | .5000-28 UNEF | .083 | .562 |
| 10S | 1.000 | .719 | .120 | .150 | 2.031 | – | .405 | .593/.562 | .290 | .6250-24 UNEF | .6250-24 UNEF | .083 | .688 |
| 10SL | 1.000 | .719 | .120 | .150 | 2.031 | – | .405 | .593/.562 | .290 | .6250-24 UNEF | .6250-24 UNEF | .083 | .688 |
| 12 | 1.094 | .812 | .120 | .150 | 2.125 | – | .549 | .781/.750 | .290 | .7500-20 UNEF | .7500-20 UNEF | .083 | .812 |
| 12S | 1.094 | .812 | .120 | .150 | 2.031 | – | .549 | .593/.562 | .290 | .7500-20 UNEF | .7500-20 UNEF | .083 | .812 |
| 14 | 1.188 | .906 | .120 | .150 | 2.125 | – | .665 | .781/.750 | .290 | .8750-20 UNEF | .8750-20 UNEF | .083 | .938 |
| 14S | 1.188 | .906 | .120 | .150 | 2.031 | – | .665 | .593/.562 | .290 | .8750-20 UNEF | .8750-20 UNEF | .083 | .938 |
| 16 | 1.281 | .969 | .120 | .150 | 2.125 | 2.500 | .790 | .781/.750 | .290 | 1.0000-20 UNEF | 1.0000-20 UNEF | .083 | 1.062 |
| 16S | 1.281 | .969 | .120 | .150 | 2.031 | – | .790 | .593/.562 | .290 | 1.0000-20 UNEF | 1.0000-20 UNEF | .083 | 1.062 |
| 18 | 1.375 | 1.062 | .120 | .177 | 2.125 | 2.500 | .869 | .781/.750 | .290 | 1.0625-18 UNEF | 1.1250-18 UNEF | .125 | 1.188 |
| 20 | 1.500 | 1.156 | .120 | .177 | 2.125 | 2.500 | .994 | .781/.750 | .290 | 1.1875-18 UNEF | 1.2500-18 UNEF | .125 | 1.312 |
| 22 | 1.625 | 1.250 | .120 | .177 | 2.125 | 2.500 | 1.119 | .781/.750 | .290 | 1.3125-18 UNEF | 1.3750-18 UNEF | .125 | 1.438 |
| 24 | 1.750 | 1.375 | .147 | .177 | 2.125 | 2.500 | 1.244 | .843/.812 | .290 | 1.4375-18 UNEF | 1.5000-18 UNEF | .125 | 1.562 |
| 28 | 2.000 | 1.562 | .147 | .177 | 2.125 | 2.500 | 1.465 | .843/.812 | .467 | 1.7500-18 UNS | 1.7500-18 UNS | .125 | 1.812 |
| 32 | 2.250 | 1.750 | .173 | .209 | 2.125 | 2.500 | 1.715 | .906/.875 | .467 | 2.0000-18 UNS | 2.0000-18 UNS | .125 | 2.062 |
| 36 | 2.500 | 1.938 | .173 | .209 | 2.125 | 2.500 | 1.930 | .906/.875 | .467 | 2.2500-16 UN | 2.2500-16 UN | .125 | 2.312 |
| 40 | 2.750 | 2.188 | .173 | .209 | 2.125 | 2.500 | 2.145 | .906/.875 | .467 | 2.5000-16 UN | 2.5000-16 UN | .125 | 2.562 |

* Consult Amphenol, Sidney, NY for availability of shell sizes 44 and 48.

# MS/Standard
# MS3451
# cable connecting receptacle

**Receptacle Shell, Cable Connecting, Threaded Coupling**

**Military No. MS3451**
**Amphenol/Matrix No. 9441**




To complete order number see how to order, page 29.

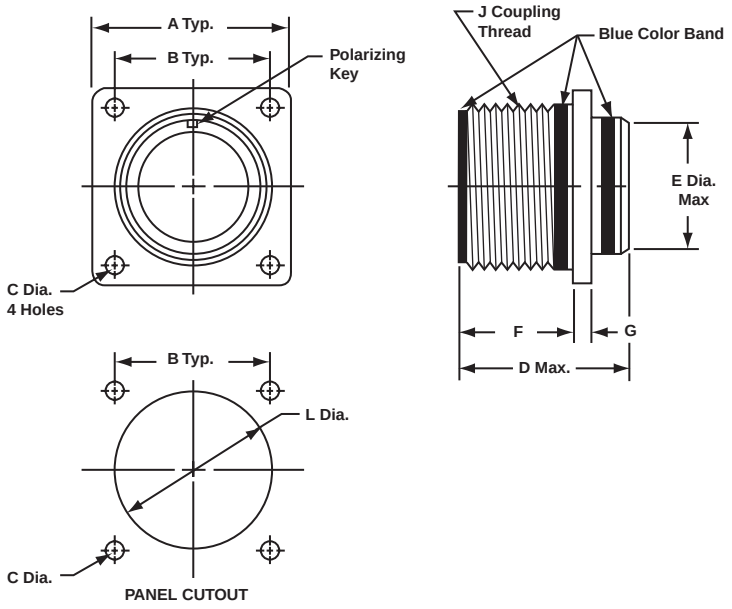
| Shell Size | A | B Dia. ±.031 | C | D Max. Size 16 & 12 Contacts | D Max. Size 8, 4, 0 Contacts | E Dia. Max. | F ±.015 | G Min. | H Thread Class 2A | J Thread Class 2A |
|---|---|---|---|---|---|---|---|---|---|---|
| 8S | .504/.496 | .729 | .577/.562 | 2.031 | – | .305 | .083 | .290 | .5000-20 UNEF | .5000-28 UNEF |
| 10S | .629/.621 | .854 | .577/.562 | 2.031 | – | .405 | .083 | .290 | .6250-24 UNEF | .6250-24 UNEF |
| 10SL | .629/.621 | .854 | .577/.562 | 2.031 | – | .405 | .083 | .290 | .6250-24 UNEF | .6250-24 UNEF |
| 12 | .754/.746 | .974 | .765/.750 | 2.125 | – | .549 | .083 | .290 | .7500-20 UNEF | .7500-20 UNEF |
| 12S | .754/.746 | .974 | .577/.562 | 2.031 | – | .549 | .083 | .290 | .7500-20 UNEF | .7500-20 UNEF |
| 14 | .879/.871 | 1.099 | .765/.750 | 2.125 | – | .665 | .083 | .290 | .8750-20 UNEF | .8750-20 UNEF |
| 14S | .879/.871 | 1.099 | .577/.562 | 2.031 | – | .665 | .083 | .290 | .8750-20 UNEF | .8750-20 UNEF |
| 16 | 1.005/.996 | 1.224 | .765/.750 | 2.125 | 2.500 | .790 | .083 | .290 | 1.0000-20 UNEF | 1.0000-20 UNEF |
| 16S | 1.005/.996 | 1.224 | .577/.562 | 2.031 | – | .790 | .083 | .290 | 1.0000-20 UNEF | 1.0000-20 UNEF |
| 18 | 1.131/1.121 | 1.349 | .765/.750 | 2.125 | 2.500 | .869 | .125 | .290 | 1.0625-18 UNEF | 1.1250-18 UNEF |
| 20 | 1.256/1.246 | 1.474 | .765/.750 | 2.125 | 2.500 | .994 | .125 | .290 | 1.1875-18 UNEF | 1.2500-18 UNEF |
| 22 | 1.381/1.371 | 1.599 | .765/.750 | 2.125 | 2.500 | 1.119 | .125 | .290 | 1.3125-18 UNEF | 1.3750-18 UNEF |
| 24 | 1.506/1.496 | 1.715 | .827/.812 | 2.125 | 2.500 | 1.244 | .125 | .290 | 1.4375-18 UNEF | 1.5000-18 UNEF |
| 28 | 1.756/1.746 | 1.974 | .827/.812 | 2.125 | 2.500 | 1.465 | .125 | .467 | 1.7500-18 UNS | 1.7500-18 UNS |
| 32 | 2.007/1.996 | 2.224 | .890/.870 | 2.125 | 2.500 | 1.715 | .125 | .467 | 2.0000-18 UNS | 2.0000-18 UNS |
| 36 | 2.257/2.246 | 2.474 | .890/.870 | 2.125 | 2.500 | 1.930 | .125 | .467 | 2.2500-16 UN | 2.2500-16 UN |
| 40 | 2.511/2.456 | 2.724 | .890/.870 | 2.125 | 2.500 | 2.145 | .125 | .467 | 2.5000-16 UN | 2.5000-16 UN |

* Consult Amphenol, Sidney, NY for availability of shell sizes 44 and 48.

# MS/Standard
# MS3452
# box mounting receptacle

**Receptacle Shell, Flange Box Mount, Threaded Coupling**

**Military No. MS3452**
**Amphenol/Matrix No. 9442**




To complete order number see how to order, page 29.

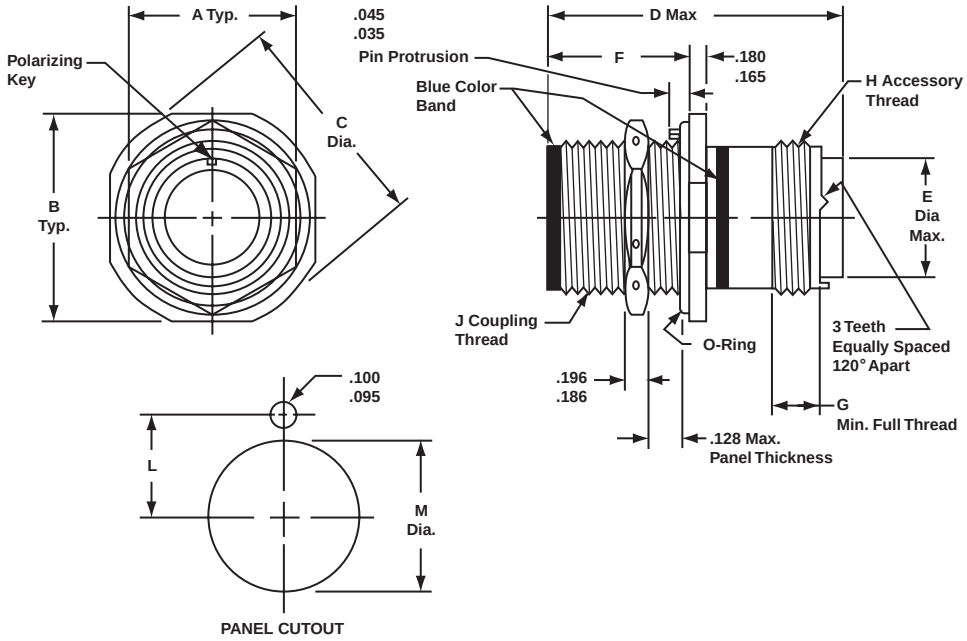
| Shell Size* | A ±.031 | B | C Dia. | D Max. Size 16 & 12 Contacts | D Max. Size 8, 4, 0 Contacts | E Dia. ±.016 | F | G ±.015 | J Thread Class 2A | L Dia. ±.010 |
|---|---|---|---|---|---|---|---|---|---|---|
| 8S | .875 | .594 | .130/.115 | 1.662 | – | .500 | .578/.562 | .083 | .5000-28 UNEF | .562 |
| 10S | 1.000 | .719 | .130/.115 | 1.662 | – | .625 | .578/.562 | .083 | .6250-24 UNEF | .688 |
| 10SL | 1.000 | .719 | .130/.115 | 1.662 | – | .625 | .578/.562 | .083 | .6250-24 UNEF | .688 |
| 12 | 1.094 | .812 | .130/.115 | 1.662 | – | .750 | .765/.750 | .083 | .7500-20 UNEF | .812 |
| 12S | 1.094 | .812 | .130/.115 | 1.662 | – | .750 | .578/.562 | .083 | .7500-20 UNEF | .812 |
| 14 | 1.188 | .906 | .130/.115 | 1.662 | – | .875 | .765/.750 | .083 | .8750-20 UNEF | .938 |
| 14S | 1.188 | .906 | .130/.115 | 1.662 | – | .875 | .577/.562 | .083 | .8750-20 UNEF | .938 |
| 16 | 1.281 | .969 | .130/.115 | 1.662 | 1.937 | 1.000 | .765/.750 | .083 | 1.0000-20 UNEF | 1.062 |
| 16S | 1.281 | .969 | .130/.115 | 1.662 | – | 1.000 | .577/.562 | .083 | 1.0000-20 UNEF | 1.062 |
| 18 | 1.375 | 1.062 | .130/.115 | 1.662 | 1.937 | 1.062 | .765/.750 | .125 | 1.1250-18 UNEF | 1.188 |
| 20 | 1.500 | 1.156 | .130/.115 | 1.662 | 1.937 | 1.187 | .765/.750 | .125 | 1.2500-18 UNEF | 1.312 |
| 22 | 1.625 | 1.250 | .130/.115 | 1.662 | 1.937 | 1.312 | .765/.750 | .125 | 1.3750-18 UNEF | 1.438 |
| 24 | 1.750 | 1.375 | .157/.142 | 1.662 | 1.937 | 1.437 | .827/.812 | .125 | 1.5000-18 UNEF | 1.562 |
| 28 | 2.000 | 1.562 | .157/.142 | 1.662 | 1.937 | 1.750 | .827/.812 | .125 | 1.7500-18 UNS | 1.812 |
| 32 | 2.250 | 1.750 | .183/.168 | 1.662 | 1.937 | 2.000 | .988/.875 | .125 | 2.0000-18 UNS | 2.062 |
| 36 | 2.500 | 1.938 | .183/.168 | 1.662 | 1.937 | 2.250 | .988/.875 | .125 | 2.2500-16 UN | 2.312 |
| 40 | 2.750 | 2.188 | .183/.168 | 1.662 | 1.937 | 2.500 | .988/.875 | .125 | 2.5000-16 UN | 2.562 |

* Consult Amphenol, Sidney, NY for availability of shell sizes 44 and 48.

# MS/Standard
# MS3454
# jam nut receptacle

**Receptacle Shell, Jam Nut Mount, Threaded Coupling**

**Military No. MS3454**
**Amphenol/Matrix No. 9444**




To complete order number see how to order, page 29.

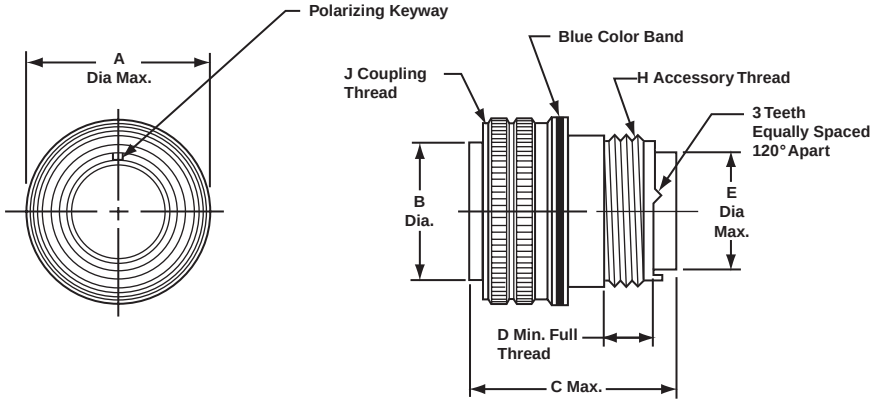
| Shell Size* | A ±.010 | B ±.005 | C Dia. ±.005 | D Max. Size 16 & 12 Contacts | D Max. Size 8, 4, 0 Contacts | E Dia. Max. | F ±.005 | G Mln. | H Thread Class 2A | J Thread Class 2A | Panel Cutout Dimensions L ±.005 | Panel Cutout Dimensions M Dia. +.015 −.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8S | .687 | 1.187 | 1.272 | 2.031 | – | .305 | .720 | .290 | .5000-20 UNEF | .5000-28 UNEF | .323 | .505 |
| 10S | .812 | 1.312 | 1.397 | 2.031 | – | .405 | .720 | .290 | .6250-24 UNEF | .6250-24 UNEF | .385 | .630 |
| 10SL | .812 | 1.312 | 1.397 | 2.031 | – | .405 | .720 | .290 | .6250-24 UNEF | .6250-24 UNEF | .385 | .630 |
| 12 | .937 | 1.437 | 1.522 | 2.125 | – | .549 | .970 | .290 | .7500-20 UNEF | .7500-20 UNEF | .448 | .755 |
| 12S | .937 | 1.437 | 1.522 | 2.031 | – | .549 | .720 | .290 | .7500-20 UNEF | .7500-20 UNEF | .448 | .755 |
| 14 | 1.125 | 1.562 | 1.647 | 2.125 | – | .665 | .970 | .290 | .8750-20 UNEF | .8750-20 UNEF | .510 | .880 |
| 14S | 1.125 | 1.562 | 1.647 | 2.031 | – | .665 | .720 | .290 | .8750-20 UNEF | .8750-20 UNEF | .510 | .880 |
| 16 | 1.250 | 1.687 | 1.772 | 2.125 | 2.500 | .790 | .970 | .290 | 1.0000-20 UNEF | 1.0000-20 UNEF | .573 | 1.005 |
| 16S | 1.250 | 1.687 | 1.772 | 2.031 | – | .790 | .720 | .290 | 1.0000-20 UNEF | 1.0000-20 UNEF | .573 | 1.005 |
| 18 | 1.375 | 1.812 | 1.897 | 2.125 | 2.500 | .869 | .970 | .290 | 1.0625-18 UNEF | 1.1250-18 UNEF | .635 | 1.130 |
| 20 | 1.500 | 1.937 | 2.022 | 2.125 | 2.500 | .994 | .970 | .290 | 1.1875-18 UNEF | 1.2500-18 UNEF | .698 | 1.255 |
| 22 | 1.625 | 2.156 | 2.241 | 2.125 | 2.500 | 1.119 | .970 | .290 | 1.3125-18 UNEF | 1.3750-18 UNEF | .760 | 1.380 |
| 24 | 1.750 | 2.281 | 2.366 | 2.125 | 2.500 | 1.244 | .970 | .290 | 1.4375-18 UNEF | 1.5000-18 UNEF | .823 | 1.505 |
| 28 | 2.000 | 2.531 | 2.616 | 2.125 | 2.500 | 1.465 | .970 | .467 | 1.7500-18 UNS | 1.7500-18 UNS | .948 | 1.755 |
| 32 | 2.375 | 2.781 | 2.866 | 2.125 | 2.500 | 1.715 | .970 | .467 | 2.0000-18 UNS | 2.0000-18 UNS | 1.073 | 2.005 |
| 36 | 2.625 | 3.031 | 3.116 | 2.125 | 2.500 | 1.930 | .970 | .467 | 2.2500-16 UN | 2.2500-16 UN | 1.198 | 2.255 |
| 40 | 2.875 | 3.281 | 3.366 | 2.125 | 2.500 | 2.145 | .970 | .467 | 2.5000-16 UN | 2.5000-16 UN | 1.323 | 2.505 |

* Consult Amphenol, Sidney, NY for availability of shell sizes 44 and 48.

# MS/Standard
# MS3456
# straight plug

**Plug Shell,**
**Threaded Coupling**

**Military No. MS3456**
**Amphenol/Matrix No. 9446**




To complete order number see how to order, page 29.

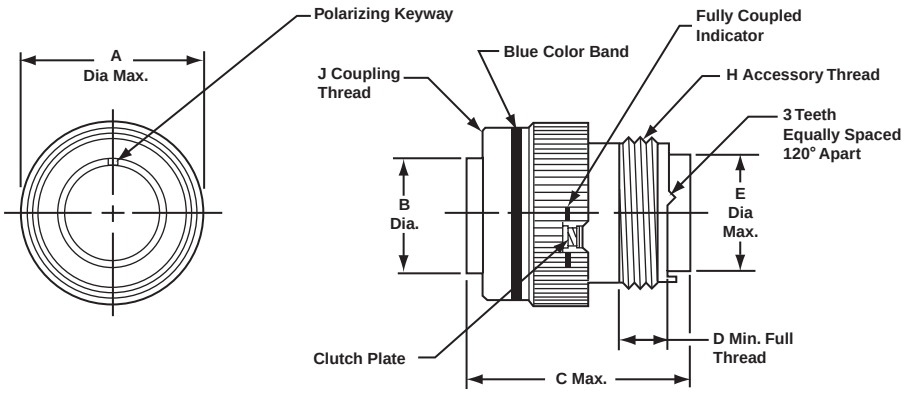
| Shell Size* | A Dia. Max. | B Dia. ±.005 | C Max. Size 16 & 12 Contacts | C Max. Size 8, 4, 0 Contacts | D Min. | E Dia. Max. | H Thread Class 2A | J Thread Class 2B |
|---|---|---|---|---|---|---|---|---|
| 8S | .844 | .360 | 2.031 | – | .290 | .305 | .5000-20 UNF | .5000-28 UNEF |
| 10S | .969 | .435 | 2.031 | – | .290 | .405 | .6250-24 UNEF | .6250-24 UNEF |
| 10SL | .969 | .441** | 2.031 | – | .290 | .405 | .6250-24 UNEF | .6250-24 UNEF |
| 12 | 1.062 | .550 | 2.125 | – | .290 | .549 | .7500-20 UNEF | .7500-20 UNEF |
| 12S | 1.062 | .550 | 2.031 | – | .290 | .549 | .7500-20 UNEF | .7500-20 UNEF |
| 14 | 1.156 | .670 | 2.125 | – | .290 | .665 | .8750-20 UNEF | .8750-20 UNEF |
| 14S | 1.156 | .670 | 2.031 | – | .290 | .665 | .8750-20 UNEF | .8750-20 UNEF |
| 16 | 1.250 | .800 | 2.125 | 2.500 | .290 | .790 | 1.0000-20 UNEF | 1.0000-20 UNEF |
| 16S | 1.250 | .800 | 2.031 | – | .290 | .790 | 1.0000-20 UNEF | 1.0000-20 UNEF |
| 18 | 1.344 | .925 | 2.125 | 2.500 | .290 | .869 | 1.0625-18 UNEF | 1.1250-18 UNEF |
| 20 | 1.469 | 1.045 | 2.125 | 2.500 | .290 | .994 | 1.1875-18 UNEF | 1.2500-18 UNEF |
| 22 | 1.594 | 1.170 | 2.125 | 2.500 | .290 | 1.119 | 1.3125-18 UNEF | 1.3750-18 UNEF |
| 24 | 1.719 | 1.295 | 2.125 | 2.500 | .290 | 1.244 | 1.4375-18 UNEF | 1.5000-18 UNEF |
| 28 | 1.969 | 1.515 | 2.125 | 2.500 | .467 | 1.465 | 1.7500-18 UNS | 1.7500-18 UNS |
| 32 | 2.219 | 1.765 | 2.125 | 2.500 | .467 | 1.715 | 2.0000-18 UNS | 2.0000-18 UNS |
| 36 | 2.469 | 1.975 | 2.125 | 2.500 | .467 | 1.930 | 2.2500-16 UN | 2.2500-16 UN |
| 40 | 2.719 | 2.225 | 2.125 | 2.500 | .467 | 2.145 | 2.5000-16 UN | 2.5000-16 UN |

* Consult Amphenol, Sidney, NY for availability of shell sizes 44 and 48.
** Tolerance on this dimension is +.000 –.006

# MS/Standard
# MS3459
# straight plug with self-locking coupling nut

**Plug Shell, Self-Locking,**
**Threaded Coupling**

**Military No. MS3459**
**Amphenol/Matrix No. 9816**




To complete order number see how to order, page 29.

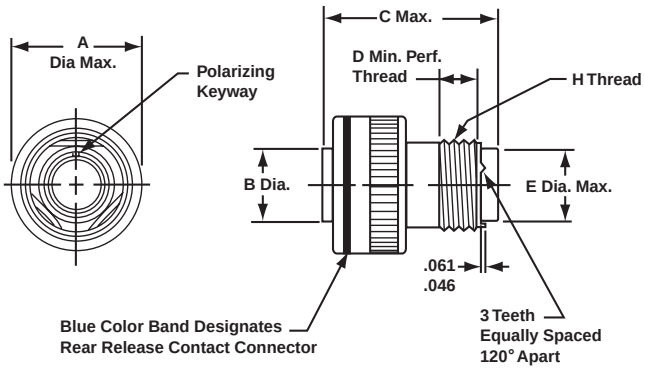
| Shell Size* | A Dia. Max. | B Dia. ±.005 | C Max. Size 16 & 12 Contacts | C Max. Size 8, 4, 0 Contacts | D Min. | E Dia. Max. | H Thread Class 2A | J Thread Class 2B |
|---|---|---|---|---|---|---|---|---|
| 8S | .963 | .360 | 1.510 | – | .290 | .305 | .5000-20 UNEF | .5000-28 UNEF |
| 10S | 1.088 | .435 | 1.510 | – | .290 | .405 | .6250-24 UNEF | .6250-24 UNEF |
| 10SL | 1.088 | .441** | 1.510 | – | .290 | .405 | .6250-24 UNEF | .6250-24 UNEF |
| 12 | 1.213 | .550 | 1.780 | – | .290 | .549 | .7500-20 UNEF | .7500-20 UNEF |
| 12S | 1.213 | .550 | 1.510 | – | .290 | .549 | .7500-20 UNEF | .7500-20 UNEF |
| 14 | 1.358 | .670 | 1.780 | – | .290 | .665 | .8750-20 UNEF | .8750-20 UNEF |
| 14S | 1.358 | .670 | 1.510 | – | .290 | .665 | .8750-20 UNEF | .8750-20 UNEF |
| 16 | 1.463 | .800 | 1.780 | 2.500 | .290 | .790 | 1.0000-20 UNEF | 1.0000-20 UNEF |
| 16S | 1.463 | .800 | 1.510 | – | .290 | .790 | 1.0000-20 UNEF | 1.0000-20 UNEF |
| 18 | 1.588 | .925 | 1.850 | 2.500 | .290 | .869 | 1.0625-18 UNEF | 1.1250-18 UNEF |
| 20 | 1.713 | 1.045 | 1.850 | 2.500 | .290 | .994 | 1.1875-18 UNEF | 1.2500-18 UNEF |
| 22 | 1.788 | 1.170 | 1.850 | 2.500 | .290 | 1.119 | 1.3125-18 UNEF | 1.3750-18 UNEF |
| 24 | 1.963 | 1.295 | 1.850 | 2.500 | .290 | 1.244 | 1.4375-18 UNEF | 1.5000-18 UNEF |
| 28 | 2.213 | 1.515 | 1.850 | 2.500 | .467 | 1.465 | 1.7500-18 UNS | 1.7500-18 UNS |
| 32 | 2.463 | 1.765 | 1.850 | 2.500 | .467 | 1.715 | 2.0000-18 UNS | 2.0000-18 UNS |
| 36 | 2.713 | 1.975 | 1.850 | 2.500 | .467 | 1.930 | 2.2500-16 UN | 2.2500-16 UN |
| 40 | 2.963 | 2.225 | 1.850 | 2.500 | .467 | 2.145 | 2.5000-16 UN | 2.5000-16 UN |

* Consult Amphenol, Sidney, NY for availability of shell sizes 44 and 48.
** Tolerance on this dimension is +.000 –.006

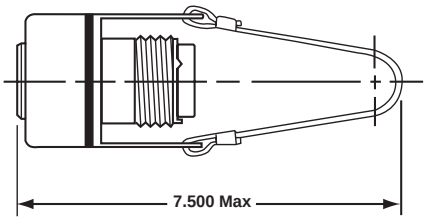
# MS/Standard
# 9817, 9818
# quick disconnect plug, with/without lanyard

**Plug Shell, Quick Disconnect,**
**Push-pull Coupling**

**Amphenol/Matrix No. 9817 with lanyard**
**Amphenol/Matrix No. 9818 without lanyard**




**9818 Connector**




**9817 Connector with Lanyard**

To complete order number see how to order, page 29.

| Shell Size* | A Dia. Max. | B Dia. | C Max. Size 16 & 12 Contacts | C Max. Size 8, 4, 0 Contacts | D MIn. | E Dia. Max. | H Thread Class 2A | Amphenol/ Matrix Part Number for Adapter Ring |
|---|---|---|---|---|---|---|---|---|
| 8S | 1.087 | .360 | 2.031 | – | .290 | .305 | .5000-20 UNF | 2500-008-0X08 |
| 10S | 1.224 | .435 | 2.031 | – | .290 | .405 | .6250-24 UNEF | 2500-008-0X10 |
| 10SL | 1.224 | .441 | 2.031 | – | .290 | .405 | .6250-24 UNEF | 2500-008-0X10 |
| 12 | 1.355 | .550 | 2.125 | – | .290 | .549 | .7500-20 UNEF | 2500-008-0X12 |
| 12S | 1.355 | .550 | 2.031 | – | .290 | .549 | .7500-20 UNEF | 2500-008-0X13 |
| 14 | 1.482 | .670 | 2.125 | – | .290 | .665 | .8750-20 UNEF | 2500-008-0X14 |
| 14S | 1.482 | .670 | 2.031 | – | .290 | .665 | .8750-20 UNEF | 2500-008-0X15 |
| 16 | 1.609 | .800 | 2.125 | 2.500 | .290 | .790 | 1.0000-20 UNEF | 2500-008-0X16 |
| 16S | 1.609 | .800 | 2.031 | – | .290 | .790 | 1.0000-20 UNEF | 2500-008-0X17 |
| 18 | 1.817 | .925 | 2.125 | 2.500 | .290 | .869 | 1.0625-18 UNEF | 2500-008-0X18 |
| 20 | 1.942 | 1.045 | 2.125 | 2.500 | .290 | .994 | 1.1875-18 UNEF | 2500-008-0X20 |
| 22 | 2.075 | 1.170 | 2.125 | 2.500 | .290 | 1.119 | 1.3125-18 UNEF | 2500-008-0X22 |
| 24 | 2.203 | 1.295 | 2.125 | 2.500 | .290 | 1.244 | 1.4375-18 UNEF | 2500-008-0X24 |
| 28 | 2.516 | 1.515 | 2.125 | 2.500 | .467 | 1.465 | 1.7500-18 UNS | 2500-008-0X28 |
| 32 | 2.735 | 1.765 | 2.125 | 2.500 | .467 | 1.715 | 2.0000-18 UNS | 2500-008-0X32 |
| 36 | 3.015 | 1.975 | 2.125 | 2.500 | .467 | 1.930 | 2.2500-16 UN | 2500-008-0X36 |
| 40 | 3.306 | 2.225 | 2.125 | 2.500 | .467 | 2.145 | 2.5000-16 UN | 2500-008-0X40 |

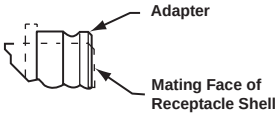
* Consult Amphenol, Sidney, NY for availability of shell sizes 44 and 48.

**Receptacle Adapter Ring**

Required to mate the quick disconnect plug with receptacle.

Not furnished with the quick disconnect plug and must be ordered separately.

Note: Use Locktite Material on the threads for a permanent installation to the shell.




**How to Order Adapter Ring**

**Part Number**
**2500-008-0 X XX**

Shell Size (varies from connector shell size designation, see last column of table at left)

Finish
0 - Electroless Nickel
1 - Black Anodize
2 - Cadmium/olive drab
3 - Stainless steel, passivated

# MS/Standard
# insert arrangements

| Insert Arrangement | Service Rating | Total Contacts | Contact Size | | | | |
|---|---|---|---|---|---|---|---|
| | | | 0 | 4 | 8 | 12 | 16 |
| 8S-1 | A | 1 | | | | | 1 |
| 10S-2 | A | 1 | | | | | 1 |
| 10SL-3 | A | 3 | | | | | 3 |
| 10SL-4 | A | 2 | | | | | 2 |
| 12S-1 | A | 2 | | | | | 2 |
| 12S-2 | A | 2 | | | | | 2 |
| 12S-3 | A | 2 | | | | | 2 |
| 12S-4 | D | 1 | | | | | 1 |
| 12-5 | D | 1 | | | | 1 | |
| 14S-1** | A | 3 | | | | | 3 |
| 14S-2 | Inst. | 4 | | | | | 4 |
| 14-3 | A | 1 | | | 1 | | |
| 14S-5 | Inst. | 5 | | | | | 5 |
| 14S-6 | Inst. | 6 | | | | | 6 |
| 14S-7 | A | 3 | | | | | 3 |
| 14S-9** | A | 2 | | | | | 2 |
| 14S-10 | Inst. | 4 | | | | | 4 |
| 14S-11 | Inst. | 4 | | | | | 4 |
| 14S-12 | A | 3 | | | | | 3 |
| 14S-13 | A | 3 | | | | | 3 |
| 16S-1 | A | 7 | | | | | 7 |
| 16-2* | E | 1 | | | | 1 | |
| 16S-3* | B | 1 | | | | | 1 |
| 16S-4* | D | 2 | | | | | 2 |
| 16-7* | A | 3 | | | 1 | | 2 |
| 16S-8 | A | 5 | | | | | 5 |
| 16-9 | A | 4 | | | | 2 | 2 |
| 16-10 | A | 3 | | | | 3 | |
| 16-11 | A | 2 | | | | 2 | |
| 16-12 | A | 1 | | 1 | | | |
| 16-13 | A | 2 | | | | 2 | |
| 18-1 | A/Inst. | 10 | | | | | 10 |
| 18-4 | D | 4 | | | | | 4 |
| 18-5 | D | 3 | | | | 2 | 1 |
| 18-6* | D | 1 | | 1 | | | |
| 18-7* | B | 1 | | | 1 | | |
| 18-8 | A | 8 | | | | 1 | 7 |
| 18-9 | Inst. | 7 | | | | 2 | 5 |
| 18-10** | A | 4 | | | | 4 | |
| 18-11 | A | 5 | | | | 5 | |
| 18-12* | A | 6 | | | | | 6 |
| 18-13 | A | 4 | | | 1 | 3 | |
| 18-14* | A | 2 | | 1 | | | 1 |
| 18-15* | A | 4 | | | | 4 | |
| 18-16* | C | 1 | | | | 1 | |
| 18-17 | Inst. | 7 | | | | 2 | 5 |
| 18-18 | Inst. | 7 | | | | 2 | 5 |
| 18-19** | A | 10 | | | | | 10 |
| 18-22** | D | 3 | | | | | 3 |

| Insert Arrangement | Service Rating | Total Contacts | Contact Size | | | | |
|---|---|---|---|---|---|---|---|
| | | | 0 | 4 | 8 | 12 | 16 |
| 18-23 | A/Inst. | 10 | | | | | 10 |
| 18-24 | A/Inst. | 10 | | | | | 10 |
| 18-27 | D | 3 | | | | 2 | 1 |
| 18-28 | D | 3 | | | | 2 | 1 |
| 20-2 | D | 1 | 1 | | | | |
| 20-4 | D | 4 | | | | 4 | |
| 20-7 | D/A | 8 | | | | | 8 |
| 20-8 | Inst. | 6 | | | 2 | | 4 |
| 20-9* | D/A | 8 | | | | 1 | 7 |
| 20-14 | A | 5 | | | 2 | 3 | |
| 20-15 | A | 7 | | | | 7 | |
| 20-16 | A | 9 | | | | 2 | 7 |
| 20-17 | A | 6 | | | | 5 | 1 |
| 20-18 | A | 9 | | | | 3 | 6 |
| 20-19 | A | 3 | | | 3 | | |
| 20-21 | A | 9 | | | | 1 | 8 |
| 20-22 | A | 6 | | | 3 | | 3 |
| 20-24 | A | 4 | | | 2 | | 2 |
| 20-27 | A | 14 | | | | | 14 |
| 20-29 | A | 17 | | | | | 17 |
| 20-32 | D/A | 8 | | | | | 8 |
| 20-33 | A | 11 | | | | | 11 |
| 22-2 | D | 3 | | | 3 | | |
| 22-4** | A | 4 | | | 2 | 2 | |
| 22-5 | D | 6 | | | | 2 | 4 |
| 22-6* | D | 3 | | | 2 | | 1 |
| 22-7* | E | 1 | 1 | | | | |
| 22-9* | E | 3 | | | | 3 | |
| 22-10* | E | 4 | | | | | 4 |
| 22-11* | B | 2 | | | | | 2 |
| 22-12* | D | 5 | | | 2 | | 3 |
| 22-14 | A | 19 | | | | | 19 |
| 22-15* | E/A | 6 | | | | 5 | 1 |
| 22-17* | D/A | 9 | | | | 1 | 8 |
| 22-18* | D/A | 8 | | | | | 8 |
| 22-19 | A | 14 | | | | | 14 |
| 22-21 | A | 3 | 1 | | | | 2 |
| 22-22 | A | 4 | | | 4 | | |
| 22-23 | D/A | 8 | | | | 8 | |
| 22-27* | D/A | 9 | | | 1 | | 8 |
| 22-30 | A | 19 | | | | | 19 |
| 22-32 | D | 6 | | | | 2 | 4 |
| 22-36* | D/A | 8 | | | | 8 | |
| 24-1** | D | 2 | 1 | | | 1 | |
| 24-2 | D | 7 | | | | 7 | |
| 24-4* | D | 4 | 1 | | | | 3 |
| 24-5** | A | 16 | | | | | 16 |
| 24-6* | D/A | 8 | | | | 8 | |

* Consult Amphenol, Sidney, NY for availability

** Inactive for new design

# MS/Standard
# insert arrangements

| Insert Arrangement | Service Rating | Total Contacts | Contact Size | | | | |
|---|---|---|---|---|---|---|---|
| | | | 0 | 4 | 8 | 12 | 16 |
| 24-7 | A | 16 | | | | 2 | 14 |
| 24-10 | A | 7 | | | 7 | | |
| 24-11 | A | 9 | | | 3 | 6 | |
| 24-12 | A | 5 | | 2 | | 3 | |
| 24-15 | A | 16 | | | | | 16 |
| 24-16* | D/A | 7 | | | 1 | 3 | 3 |
| 24-20 | D | 11 | | | | 2 | 9 |
| 24-21* | D | 10 | | | 1 | | 9 |
| 24-22 | D | 4 | | | 4 | | |
| 24-24 | A | 16 | | | | | 16 |
| 24-27* | E | 7 | | | | | 7 |
| 24-28 | Inst. | 24 | | | | | 24 |
| 24-80* | Inst. | 23 | | | | | 23 |
| 28-1 | D/A | 9 | | | 3 | 6 | |
| 28-2 | D | 14 | | | | 2 | 12 |
| 28-3* | E | 3 | | | 3 | | |
| 28-4* | E/D | 9 | | | | 2 | 7 |
| 28-5* | D | 5 | | 2 | | 1 | 2 |
| 28-8* | E/D/A | 12 | | | | 2 | 10 |
| 28-9 | D | 12 | | | | 6 | 6 |
| 28-10 | D/A | 7 | | 2 | 2 | 3 | |
| 28-11 | A | 22 | | | | 4 | 18 |
| 28-12 | A | 26 | | | | | 26 |
| 28-13 | A | 26 | | | | | 26 |
| 28-15 | A | 35 | | | | | 35 |
| 28-16* | A | 20 | | | | | 20 |
| 28-17 | B/D/A | 15 | | | | | 15 |
| 28-18* | C/D/A/Inst. | 12 | | | | | 12 |
| 28-19* | B/D/A | 10 | | | | 4 | 6 |
| 28-20 | A | 14 | | | | 10 | 4 |
| 28-21 | A | 37 | | | | | 37 |
| 28-22 | D | 6 | | 3 | | | 3 |
| 32-1 | E/D | 5 | 2 | | | 3 | |
| 32-2* | E | 5 | | 3 | | | 2 |
| 32-3* | D | 9 | 1 | 2 | | 2 | 4 |
| 32-6 | A | 23 | | 2 | 3 | 2 | 16 |
| 32-7 | Inst./A | 35 | | | | 7 | 28 |
| 32-9 | D | 14 | | 2 | | | 12 |
| 32-13 | D | 23 | | | | 5 | 18 |
| 32-15 | D | 8 | 2 | | | 6 | |
| 32-16 | A | 23 | | 2 | 3 | 2 | 16 |
| 32-17 | D | 4 | | 4 | | | |
| 32-19* | E/D | 5 | 2 | | | 3 | |
| 32-20 | A | 23 | | 2 | 3 | 2 | 16 |

| Insert Arrangement | Service Rating | Total Contacts | Contact Size | | | | |
|---|---|---|---|---|---|---|---|
| | | | 0 | 4 | 8 | 12 | 16 |
| 32-22* | A | 54 | | | | | 54 |
| 32-63 | D | 5 | | 5 | | | |
| 32-73 | A | 46 | | | | | 46 |
| 36-3 | D | 6 | 3 | | | 3 | |
| 36-5 | A | 4 | 4 | | | | |
| 36-6 | A | 6 | 2 | 4 | | | |
| 36-7 | A | 47 | | | | 7 | 40 |
| 36-8 | A | 47 | | | | 1 | 46 |
| 36-9 | A | 31 | | 1 | 2 | 14 | 14 |
| 36-10 | A | 48 | | | | | 48 |
| 36-11 | A | 48 | | | | | 48 |
| 36-12 | A | 48 | | | | | 48 |
| 36-15 | D/A | 35 | | | | | 35 |
| 36-16 | A | 47 | | | | 7 | 40 |
| 36-17 | A | 47 | | | | 7 | 40 |
| 36-18 | A | 31 | | 1 | 2 | 14 | 14 |
| 36-21 | A | 31 | | 1 | 2 | 14 | 14 |
| 36-52 | A | 52 | | | | | 52 |
| 36-66* | A | 56 | | | | 4 | 52 |
| 40-1 | D | 30 | | | | 6 | 24 |
| 40-2* | D | 23 | | | | | 23 |
| 40-3* | D | 23 | | 1 | | 4 | 18 |
| 40-4* | D | 23 | | 2 | 3 | 2 | 16 |
| 40-5* | A | 15 | 3 | 2 | 4 | 6 | |
| 40-6* | D | 26 | 1 | | | 1 | 24 |
| 40-7* | A/D | 22 | 2 | | | 2 | 18 |
| 40-9 | A | 47 | | | 1 | 22 | 24 |
| 40-10* | A | 29 | | 4 | 9 | | 16 |
| 40-11* | D | 25 | 1 | 1 | 1 | 4 | 18 |
| 40-56* | A | 85 | | | | | 85 |
| 40-62* | A | 60 | | | | | 60 |

* Consult Amphenol, Sidney, NY for availability

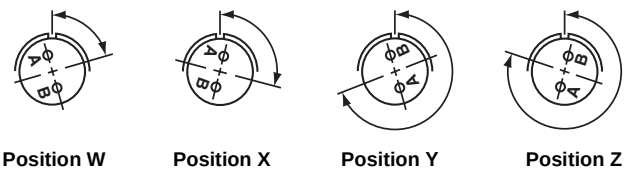
** Inactive for new design

# MS/Standard
# insert alternate positioning

To avoid cross-plugging problems in applications requiring the use of more than one connector of the same size and arrangement, alternate rotations are available as indicated in the accompanying charts.

As shown in the diagram below, the front face of the pin insert is rotated within the shell in a clockwise direction from the normal shell key. The socket insert would be rotated counter-clockwise the same number of degrees in respect to the normal shell key.

The charts give the W, X, Y, Z positions for the alternate rotations available for the insert arrangements of the rear release MIL-DTL-5015 series of connectors. If an insert arrangement number is not given, then there is no available alternate rotation for that pattern.



**Position W** **Position X** **Position Y** **Position Z**

**View looking into front face of pin insert or rear of socket insert.**

The following insert arrangements have the same alternate insert rotations for W, X, Y and Z, which are:

| Degrees | | | |
|---|---|---|---|
| W | X | Y | Z |
| 80 | 110 | 250 | 280 |

| | | | | | |
|---|---|---|---|---|---|
| 16-7 | 20-22 | 24-4 | 28-4 | 28-21 | 40-3 |
| 18-5 | 22-6 | 24-5 | 28-8 | 32-1 | 40-4 |
| 18-9 | 22-12 | 24-6 | 28-9 | 32-3 | 40-5 |
| 18-13 | 22-14 | 24-7 | 28-10 | 32-6 | 40-6 |
| 18-14 | 22-15 | 24-12 | 28-11 | 32-9 | 40-7 |
| 20-7 | 22-17 | 24-16 | 28-15 | 32-13 | 40-11 |
| 20-8 | 22-18 | 24-20 | 28-16 | 32-22 | |
| 20-9 | 22-19 | 24-21 | 28-17 | 36-7 | |
| 20-14 | 22-21 | 24-28 | 28-19 | 36-8 | |
| 20-16 | 24-1 | 28-1 | 28-20 | 40-2 | |

| Insert Arrangement | Degrees | | | |
|---|---|---|---|---|
| | W | X | Y | Z |
| 12S-3 | 70 | 145 | 215 | 290 |
| 14S-2 | – | 120 | 240 | – |
| 14S-5 | – | 110 | – | – |
| 14S-7 | 90 | 180 | 270 | – |
| 14S-9 | 70 | 145 | 215 | 290 |
| 16S-1 | 80 | – | – | 280 |
| 16S-4 | 35 | 110 | 250 | 325 |
| 16S-8 | – | 170 | 265 | – |
| 16-9 | 35 | 110 | 250 | 325 |
| 16-10 | 90 | 180 | 270 | – |
| 16-11 | 35 | 110 | 250 | 325 |
| 16-13 | 35 | 110 | 250 | 325 |
| 18-1 | 70 | 145 | 215 | 290 |
| 18-4 | 35 | 110 | 250 | 325 |
| 18-8 | 70 | – | – | 290 |
| 18-10 | – | 120 | 240 | – |
| 18-11 | – | 170 | 265 | – |
| 18-12 | 80 | – | – | 280 |
| 18-15 | – | 120 | 240 | – |
| 18-19 | – | 120 | 240 | – |
| 18-22 | 70 | 145 | 215 | 290 |
| 20-4 | 45 | 110 | 250 | – |
| 20-15 | 80 | – | – | 280 |

| Insert Arrangement | Degrees | | | |
|---|---|---|---|---|
| | W | X | Y | Z |
| 20-17 | 90 | 180 | 270 | – |
| 20-18 | 35 | 110 | 250 | 325 |
| 20-19 | 90 | 180 | 270 | – |
| 20-21 | 35 | 110 | 250 | 325 |
| 20-24 | 35 | 110 | 250 | 325 |
| 20-27 | 35 | 110 | 250 | 325 |
| 20-29 | 80 | – | – | 280 |
| 22-2 | 70 | 145 | 215 | 290 |
| 22-4 | 35 | 110 | 250 | 325 |
| 22-5 | 35 | 110 | 250 | 325 |
| 22-9 | 70 | 145 | 215 | 290 |
| 22-10 | 35 | 110 | 250 | 325 |
| 22-11 | 35 | 110 | 250 | 325 |
| 22-22 | – | 110 | 250 | – |
| 22-23 | 35 | – | 250 | – |
| 22-27 | 80 | – | 250 | 280 |
| 22-36 | 90 | – | 270 | – |
| 24-2 | 80 | – | – | 280 |
| 24-10 | 80 | – | – | 280 |
| 24-11 | 35 | 110 | 250 | 325 |
| 24-22 | 45 | 110 | 250 | – |
| 24-27 | 80 | – | – | 280 |
| 24-80 | 35 | 145 | 240 | 300 |

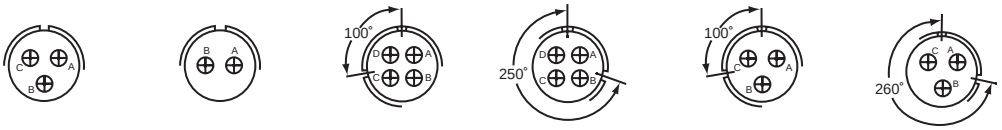
| Insert Arrangement | Degrees | | | |
|---|---|---|---|---|
| | W | X | Y | Z |
| 28-2 | 35 | 110 | 250 | 325 |
| 28-3 | 70 | 145 | 215 | 290 |
| 28-5 | 35 | 110 | 250 | 325 |
| 28-12 | 90 | 180 | 270 | – |
| 28-18 | 70 | 145 | 215 | 290 |
| 28-22 | 70 | 145 | 215 | 290 |
| 32-2 | 70 | 145 | 215 | 290 |
| 32-7 | 80 | 125 | 235 | 280 |
| 32-15 | 35 | 110 | 250 | 280 |
| 32-17 | 45 | 110 | 250 | – |
| 32-73 | 36 | – | – | – |
| 36-3 | 70 | 145 | 215 | 290 |
| 36-5 | – | 120 | 240 | – |
| 36-6 | 35 | 110 | 250 | 325 |
| 36-9 | 80 | 125 | 235 | 280 |
| 36-10 | 80 | 125 | 235 | 280 |
| 36-15 | 60 | 125 | 245 | 305 |
| 36-52 | 72 | 144 | 216 | 288 |
| 36-66 | 110 | 250 | 260 | 280 |
| 40-1 | 65 | 130 | 235 | 300 |
| 40-9 | 65 | 125 | 255 | 310 |
| 40-10 | 65 | 125 | 255 | 310 |
| 40-56 | 72 | 144 | 216 | 288 |
| 40-62 | 30 | 130 | 220 | 290 |

# MS/Standard
# contact arrangements

**front face of pin insert or rear face of socket insert illustrated**

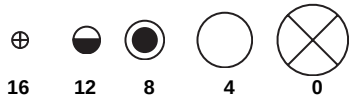
| | | | | | 100° Rotation of 12S-3 | 250° Rotation of 12S-3 | |
|---|---|---|---|---|---|---|---|
| **Insert Arrangement** | **8S-1** | **10S-2** | **10SL-3** | **10SL-4** | **12S-1** | **12S-2** | **12S-3** |
| **Service Rating** | **A** | **A** | **A*** ** | **A** | **A** | **A** | **A** |
| **Number of Contacts** | **1** | **1** | **3** | **2** | **2** | **2** | **2** |
| **Contact Size** | **16** | **16** | **16** | **16** | **16** | **16** | **16** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Insert Arrangement** | **12S-4** | **12-5** | **14S-1**** | **14S-2** | **14-3** | **14S-5** | **14S-6** |
| **Service Rating** | **D** | **D** | **A** | **Inst.** | **A** | **Inst.** | **Inst.** |
| **Number of Contacts** | **1** | **1** | **3** | **4** | **1** | **5** | **6** |
| **Contact Size** | **16** | **12** | **16** | **16** | **8** | **16** | **16** |




| | | | 100° Rotation of 14S-2 | 250° Rotation of 14S-2 | 100° Rotation of 14S-1 | 260° Rotation of 14S-1 |
|---|---|---|---|---|---|---|
| **Insert Arrangement** | **14S-7** | **14S-9**** | **14S-10** | **14S-11** | **14S-12** | **14S-13** |
| **Service Rating** | **A** | **A** | **Inst.** | **Inst.** | **A** | **A** |
| **Number of Contacts** | **3** | **2** | **4** | **4** | **3** | **3** |
| **Contact Size** | **16** | **16** | **16** | **16** | **16** | **16** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Insert Arrangement** | **16S-1** | **16-2*** | **16S-3*** | **16S-4*** | **16-7*** | **16S-8** |
| **Service Rating** | **A** | **E** | **B** | **D** | **A** | **A** |
| **Number of Contacts** | **7** | **1** | **1** | **2** | **1 2** | **5** | |
| **Contact Size** | **16** | **12** | **16** | **16** | **8 16** | **16** |

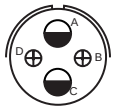


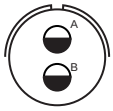
**CONTACT LEGEND** **16** **12** **8** **4** **0**

* Consult Amphenol, Sidney, NY for availability.
** Inactive for new design
*** Service rating Inst. Class K

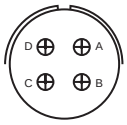
# MS/Standard
# contact arrangements

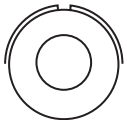
**front face of pin insert or rear face of socket insert illustrated**



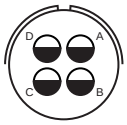


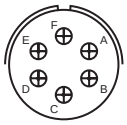
| | | | | | | |
|---|---|---|---|---|---|---|
| **Insert Arrangement** | **16-9** | **16-10** | **16-11** | **16-12** | **16-13** | **18-1** |
| **Service Rating** | **A** | **A** | **A** | **A** | **A** | **B, C, F, G = A; Bal. = Inst.** |
| **Number of Contacts** | **2 2** | **3** | **2** | **1** | **2††** | **10** |
| **Contact Size** | **12 16** | **12** | **12** | **4** | **12** | **16** |

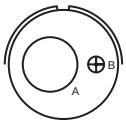
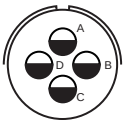




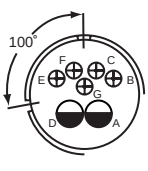
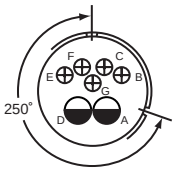
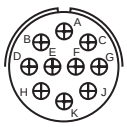
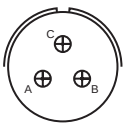
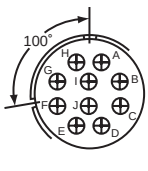
| | | | | | | |
|---|---|---|---|---|---|---|
| **Insert Arrangement** | **18-4** | **18-5** | **18-6*** | **18-7*** | **18-8** | **18-9** |
| **Service Rating** | **D** | **D** | **D** | **B** | **A** | **Inst.** |
| **Number of Contacts** | **4** | **2 1** | **1** | **1** | **1 7** | **2 5** |
| **Contact Size** | **16** | **12 16** | **4** | **8** | **12 16** | **12 16** |





| | | | | | | |
|---|---|---|---|---|---|---|
| **Insert Arrangement** | **18-10**** | **18-11** | **18-12*** | **18-13** | **18-14*** | **18-15*** |
| **Service Rating** | **A** | **A** | **A** | **A** | **A** | **A** |
| **Number of Contacts** | **4** | **5** | **6** | **1 3** | **1 1** | **4††** |
| **Contact Size** | **12** | **12** | **16** | **8 12** | **4 16** | **12** |

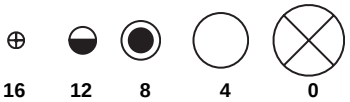
100° Rotation of 18-9

250° Rotation of 18-9

100° Rotation of 18-1

| | | | | | | |
|---|---|---|---|---|---|---|
| **Insert Arrangement** | **18-16*** | **18-17** | **18-18** | **18-19**** | **18-22**** | **18-23** |
| **Service Rating** | **C** | **Inst.** | **Inst.** | **A** | **D** | **B, C, F, G = A; Bal. = Inst.** |
| **Number of Contacts** | **1** | **2 5** | **2 5** | **10** | **3** | **10** |
| **Contact Size** | **12** | **12 16** | **12 16** | **16** | **16** | **16** |

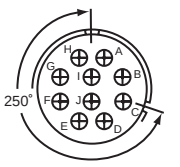
* Consult Amphenol, Sidney, NY for availability.
** Inactive for new design
† one alumel contact and one chromel contact
†† A, C = Iron; B, D = Constantan



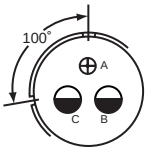
**CONTACT LEGEND** **16 12 8 4 0**

# MS/Standard
# contact arrangements

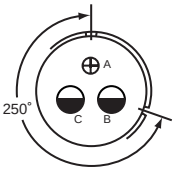
**front face of pin insert or rear face of socket insert illustrated**



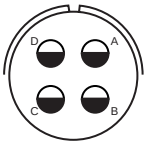

250° Rotation of 18-1

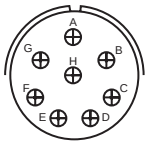



100° Rotation of 18-5

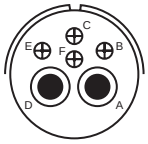


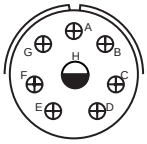

250° Rotation of 18-5

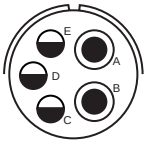


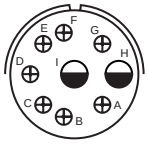



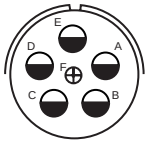

| | | | | | | |
|---|---|---|---|---|---|---|
| **Insert Arrangement** | **18-24** | **18-27** | **18-28** | **20-2** | **20-4** | **20-7** |
| **Service Rating** | **B, C, F, G = A; Bal. = Inst.** | **D** | **D** | **D** | **D** | **A, B, G, H = D; C, D, E, F = A** |
| **Number of Contacts** | **10** | **2 1** | **2 1** | **1** | **4** | **8** |
| **Contact Size** | **16** | **12 16** | **12 16** | **0** | **12** | **16** |



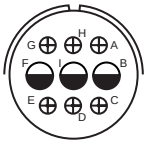



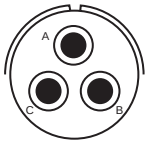



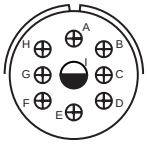


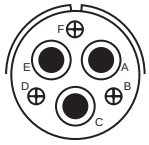



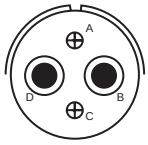

| | | | | | | |
|---|---|---|---|---|---|---|
| **Insert Arrangement** | **20-8*** | **20-9*** | **20-14** | **20-15** | **20-16** | **20-17** |
| **Service Rating** | **Inst.** | **H = D; Bal. = A** | **A** | **A** | **A** | **A** |
| **Number of Contacts** | **2 4** | **1 7** | **2 3** | **7** | **2 7** | **5 1** |
| **Contact Size** | **8 16** | **12 16** | **8 12** | **12** | **12 16** | **12 16** |

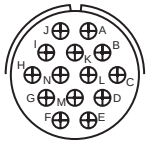


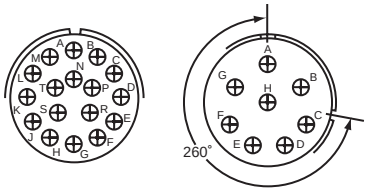

| | | | | | | |
|---|---|---|---|---|---|---|
| **Insert Arrangement** | **20-18** | **20-19** | **20-21** | **20-22** | **20-24** | **20-27** |
| **Service Rating** | **A** | **A** | **A** | **A** | **A** | **A** |
| **Number of Contacts** | **3 6** | **3** | **1 8** | **3 3** | **2 2** | **14** | |
| **Contact Size** | **12 16** | **8** | **12 16** | **8 16** | **8 16** | **16** |

* Consult Amphenol, Sidney, NY for availability.

| **CONTACT LEGEND** | **16** | **12** | **8** | **4** | **0** |
|---|---|---|---|---|---|

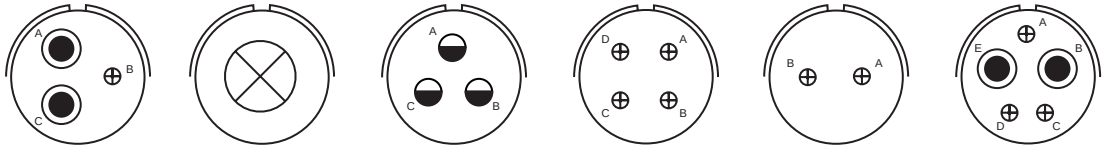
# MS/Standard
# contact arrangements

**front face of pin insert or rear face of socket insert illustrated**

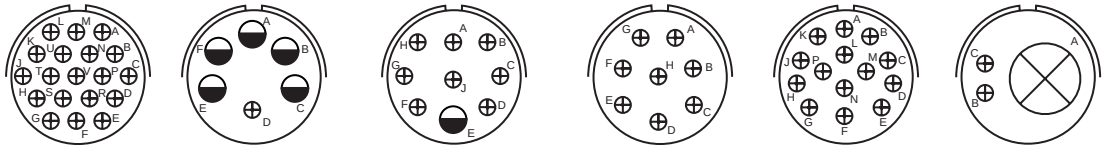



260° Rotation
of 20-7

| Insert Arrangement | 20-29 | 20-32 | 20-33 | 22-2 | 22-4** | 22-5 |
|---|---|---|---|---|---|---|
| Service Rating | A | A, B, G, H = D; Bal. = A | A | D | A | D |
| Number of Contacts | 17 | 8 | 11 | 3 | 2 2 | 2 4 |
| Contact Size | 16 | 16 | 16 | 8 | 8 12 | 12 16 |

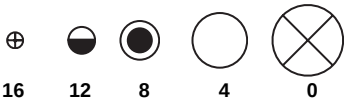


| Insert Arrangement | 22-6** | 22-7* | 22-9* | 22-10* | 22-11* | 22-12* |
|---|---|---|---|---|---|---|
| Service Rating | D | E | E | E | B | D |
| Number of Contacts | 2 1 | 1 | 3 | 4 | 2 | 2 3 |
| Contact Size | 8 16 | 0 | 12 | 16 | 16 | 8 16 |



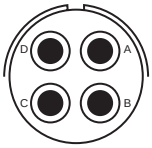
| Insert Arrangement | 22-14 | 22-15* | 22-17* | 22-18* | 22-19 | 22-21 |
|---|---|---|---|---|---|---|
| Service Rating | A | D = 3; Bal. = A | A = D; Bal. = A | C, D, E = A: Bal. = D | A | A |
| Number of Contacts | 19 | 5 1 | 1 8 | 8 | 14 | 1 2 |
| Contact Size | 16 | 12 16 | 12 16 | 16 | 16 | 0 16 |

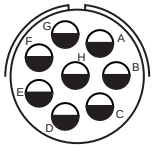
* Consult Amphenol, Sidney, NY for availability.
** Inactive for new design

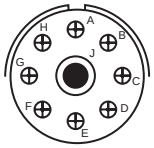


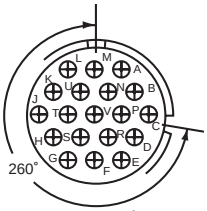
# MS/Standard
# contact arrangements

**front face of pin insert or rear face of socket insert illustrated**

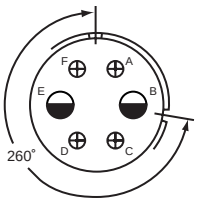


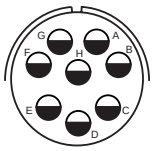



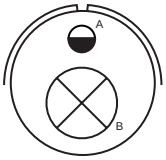

260° Rotation of 22-14

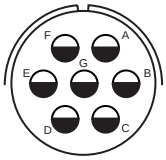


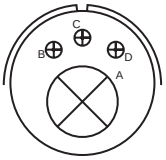

260° Rotation of 22-5

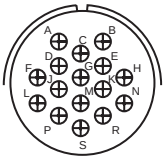
| | | | | | |
|---|---|---|---|---|---|
| **Insert Arrangement** | **22-22** | **22-23** | **22-27*** | **22-30** | **22-32** |
| **Service Rating** | **A** | **H = D; Bal. = A** | **J = D; Bal. = A** | **A** | **D** |
| **Number of Contacts** | **4** | **8** | **1 8** | **19** | **2 4** |
| **Contact Size** | **8** | **12** | **8 16** | **16** | **12 16** |



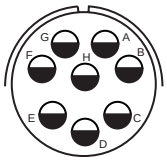



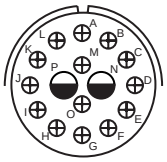



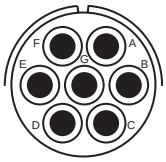



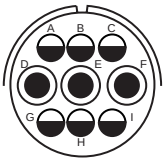



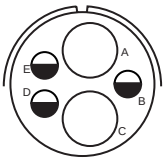

| | | | | | |
|---|---|---|---|---|---|
| **Insert Arrangement** | **22-36*** | **24-1**** | **24-2** | **24-4*** | **24-5**** |
| **Service Rating** | **H = D; Bal. = A** | **D** | **D** | **D** | **A** |
| **Number of Contacts** | **8** | **1 1** | **7** | **1 3** | **16** |
| **Contact Size** | **12** | **0 12** | **12** | **0 16** | **16** |



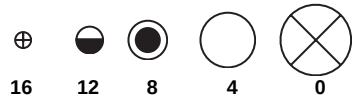




| | | | | | |
|---|---|---|---|---|---|
| **Insert Arrangement** | **24-6*** | **24-7** | **24-10** | **24-11** | **24-12** |
| **Service Rating** | **A, G, H = D; Bal. = A** | **A** | **A** | **A** | **A** |
| **Number of Contacts** | **8** | **2 14** | **7** | **3 6** | **2 3** |
| **Contact Size** | **12** | **12 16** | **8** | **8 12** | **4 12** |

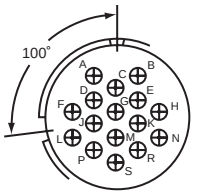
* Consult Amphenol, Sidney, NY for availability.
** Inactive for new design



| **CONTACT LEGEND** | **16** | **12** | **8** | **4** | **0** |
|---|---|---|---|---|---|

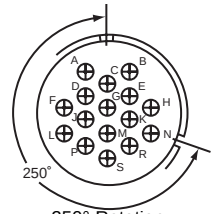
# MS/Standard
# contact arrangements

**front face of pin insert or rear face of socket insert illustrated**



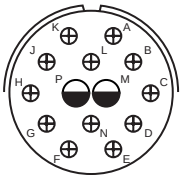

100° Rotation of 24-5

| Insert Arrangement | 24-15 | 24-16* | 24-20 | 24-21* | 24-22 |
|---|---|---|---|---|---|
| Service Rating | A | A, B, F, G = D; C, D, E = A | D | D | D |
| Number of Contacts | 16 | 1 3 3 | 2 9 | 1 9 | 4 |
| Contact Size | 16 | 8 12 16 | 12 16 | 8 16 | 8 |



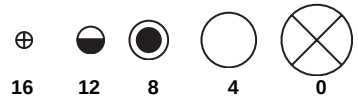

250° Rotation of 24-5

| Insert Arrangement | 24-24 | 24-27* | 24-28 | 24-80* | 28-1 |
|---|---|---|---|---|---|
| Service Rating | A | E | Inst. | Inst. | A, J, E = D; Bal. = A |
| Number of Contacts | 16 | 7 | 24 | 23 | 3 6 |
| Contact Size | 16 | 16 | 16 | 16 | 8 12 |



| Insert Arrangement | 28-2 | 28-3* | 28-4* | 28-5* | 28-8* |
|---|---|---|---|---|---|
| Service Rating | D | E | G, P, S = E; Bal. = D | D | L, M = E; B = D; Bal. = A |
| Number of Contacts | 2 12 | 3 | 2 7 | 2 1 2 | 2 10 |
| Contact Size | 12 16 | 8 | 12 16 | 4 12 16 | 12 16 |

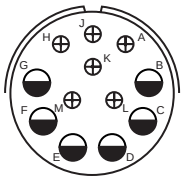
* Consult Amphenol, Sidney, NY for availability.



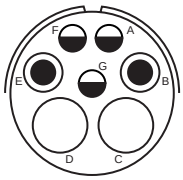
| CONTACT LEGEND | 16 | 12 | 8 | 4 | 0 |
|---|---|---|---|---|---|

# MS/Standard
# contact arrangements

**front face of pin insert or rear face of socket insert illustrated**



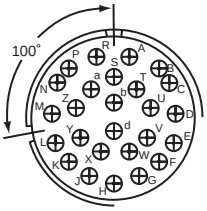
| | |
|---|---|
| **Insert Arrangement** | **28-9** |
| **Service Rating** | **D** |
| **Number of Contacts** | **6 6** |
| **Contact Size** | **12 16** |



| | |
|---|---|
| **Insert Arrangement** | **28-10** |
| **Service Rating** | **G = D, Bal. = A** |
| **Number of Contacts** | **2 2 3** |
| **Contact Size** | **4 8 12** |

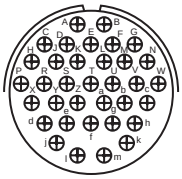
| | |
|---|---|
| **Insert Arrangement** | **28-11** |
| **Service Rating** | **A** |
| **Number of Contacts** | **4 18** |
| **Contact Size** | **12 16** |

| | |
|---|---|
| **Insert Arrangement** | **28-12** |
| **Service Rating** | **A** |
| **Number of Contacts** | **26** |
| **Contact Size** | **16** |

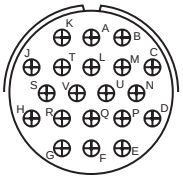



100° Rotation
of 28-12

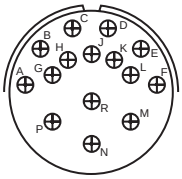
| | |
|---|---|
| **Insert Arrangement** | **28-13** |
| **Service Rating** | **A** |
| **Number of Contacts** | **26** |
| **Contact Size** | **16** |



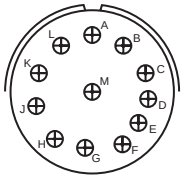
| | |
|---|---|
| **Insert Arrangement** | **28-15** |
| **Service Rating** | **A** |
| **Number of Contacts** | **35** |
| **Contact Size** | **16** |



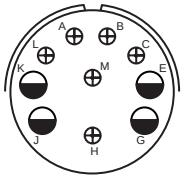
| | |
|---|---|
| **Insert Arrangement** | **28-16**** |
| **Service Rating** | **A** |
| **Number of Contacts** | **20** |
| **Contact Size** | **16** |



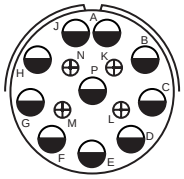
| | |
|---|---|
| **Insert Arrangement** | **28-17** |
| **Service Rating** | **R = B; M, N, P = D; Bal. = A** |
| **Number of Contacts** | **15** |
| **Contact Size** | **16** |



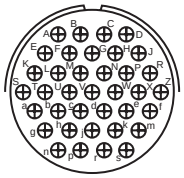
| | |
|---|---|
| **Insert Arrangement** | **28-18*** |
| **Service Rating** | **M = C; G, H, J, K, L = D; A, B = A; Bal. = Inst.** |
| **Number of Contacts** | **12** |
| **Contact Size** | **16** |



| | |
|---|---|
| **Insert Arrangement** | **28-19*** |
| **Service Rating** | **H, M = B; A, B = D; Bal. = A** |
| **Number of Contacts** | **4 6** |
| **Contact Size** | **12 16** |



| | |
|---|---|
| **Insert Arrangement** | **28-20** |
| **Service Rating** | **A** |
| **Number of Contacts** | **10 4** |
| **Contact Size** | **12 16** |



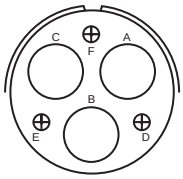
| | |
|---|---|
| **Insert Arrangement** | **28-21** |
| **Service Rating** | **A** |
| **Number of Contacts** | **37** |
| **Contact Size** | **16** |

* Consult Amphenol, Sidney, NY for availability.
** Inactive for new design

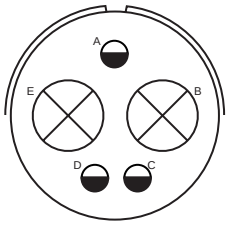
**CONTACT LEGEND** **16 12 8 4 0**

# MS/Standard
# contact arrangements

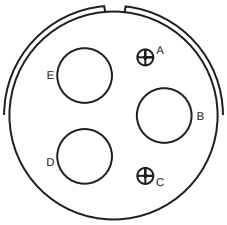
**front face of pin insert or rear face of socket insert illustrated**



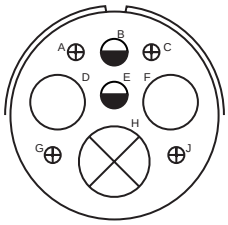

| | |
|---|---|
| **Insert Arrangement** | **28-22** |
| **Service Rating** | **D** |
| **Number of Contacts** | **3 3** |
| **Contact Size** | **4 16** |



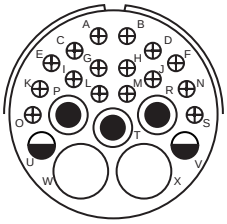

| | |
|---|---|
| **Insert Arrangement** | **32-1** |
| **Service Rating** | **A = E; B, C, D, E = D** |
| **Number of Contacts** | **2 3** |
| **Contact Size** | **0 12** |



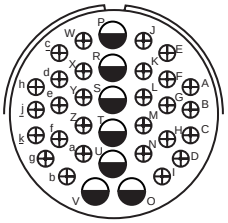

| | |
|---|---|
| **Insert Arrangement** | **32-2*** |
| **Service Rating** | **E** |
| **Number of Contacts** | **3 2** |
| **Contact Size** | **4 16** |



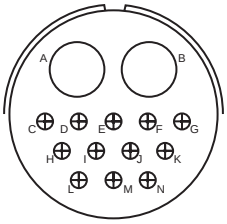

| | |
|---|---|
| **Insert Arrangement** | **32-3*** |
| **Service Rating** | **D** |
| **Number of Contacts** | **1 2 2 4** |
| **Contact Size** | **0 4 12 16** |



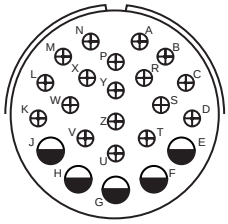
| | |
|---|---|
| **Insert Arrangement** | **32-6** |
| **Service Rating** | **A** |
| **Number of Contacts** | **2 3 2 16** |
| **Contact Size** | **4 8 12 16** |



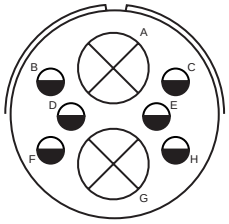
| | |
|---|---|
| **Insert Arrangement** | **32-7** |
| **Service Rating** | **A, B, h, j = Inst.; Bal. = A** |
| **Number of Contacts** | **7 28** |
| **Contact Size** | **12 16** |



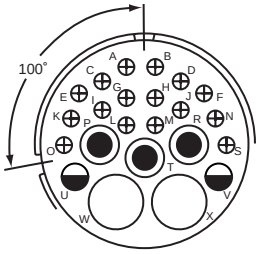
| | |
|---|---|
| **Insert Arrangement** | **32-9** |
| **Service Rating** | **D** |
| **Number of Contacts** | **2 12** |
| **Contact Size** | **4 16** |



| | |
|---|---|
| **Insert Arrangement** | **32-13** |
| **Service Rating** | **D** |
| **Number of Contacts** | **5 18** |
| **Contact Size** | **12 16** |

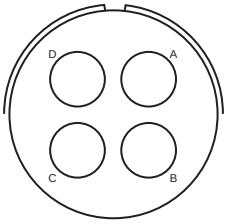


| | |
|---|---|
| **Insert Arrangement** | **32-15** |
| **Service Rating** | **D** |
| **Number of Contacts** | **2 6** |
| **Contact Size** | **0 12** |

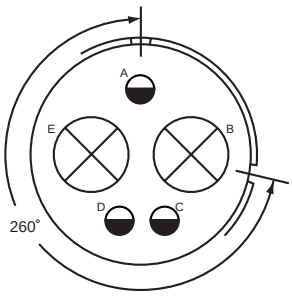



100° Rotation of 32-6

| | |
|---|---|
| **Insert Arrangement** | **32-16** |
| **Service Rating** | **A** |
| **Number of Contacts** | **2 3 2 16** |
| **Contact Size** | **4 8 12 16** |



| | |
|---|---|
| **Insert Arrangement** | **32-17** |
| **Service Rating** | **D** |
| **Number of Contacts** | **4** |
| **Contact Size** | **4** |




260° Rotation of 32-1

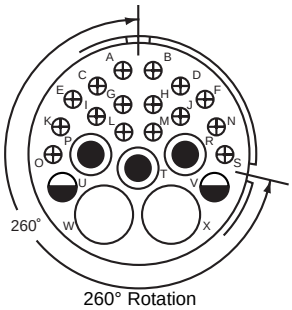
| | |
|---|---|
| **Insert Arrangement** | **32-19*** |
| **Service Rating** | **A = E, Bal. = D** |
| **Number of Contacts** | **2 3** |
| **Contact Size** | **0 12** |

* Consult Amphenol, Sidney, NY for availability.

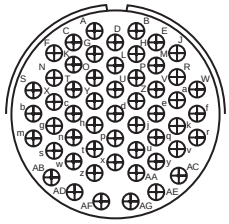
**CONTACT LEGEND** **16 12 8 4 0**

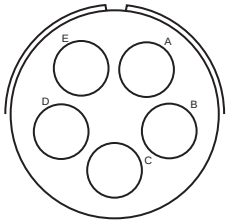
# MS/Standard
# contact arrangements

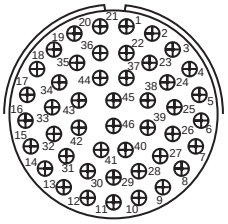
**front face of pin insert or rear face of socket insert illustrated**



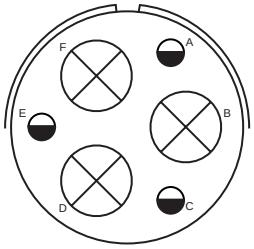

260° Rotation
of 32-6

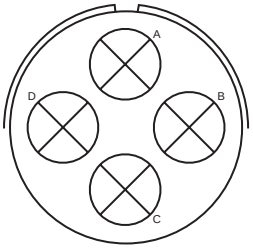


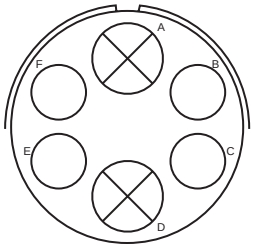


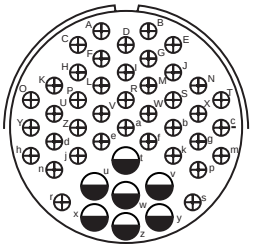


| | | | | |
|---|---|---|---|---|
| **Insert Arrangement** | **32-20** | **32-22*** | **32-63** | **32-73** |
| **Service Rating** | **A** | **A** | **D** | **A** |
| **Number of Contacts** | **2 3 2 16** | **54** | **5** | **46** |
| **Contact Size** | **4 8 12 16** | **16** | **4** | **16** |

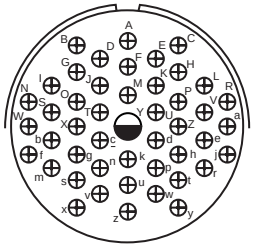


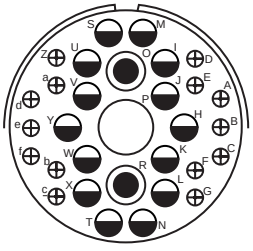


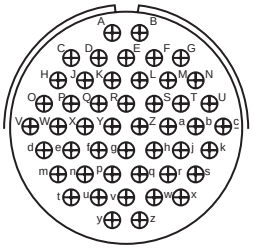


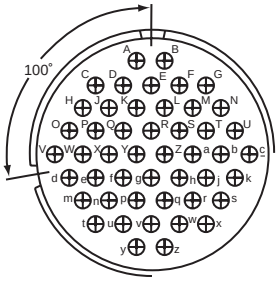


| | | | | |
|---|---|---|---|---|
| **Insert Arrangement** | **36-3** | **36-5** | **36-6** | **36-7** |
| **Service Rating** | **D** | **A** | **A** | **A** |
| **Number of Contacts** | **3 3** | **4** | **2 4** | **7 40** |
| **Contact Size** | **0 12** | **0** | **0 4** | **12 16** |










100° Rotation
of 36-10

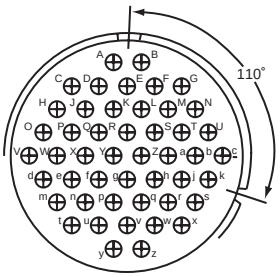
| | | | | |
|---|---|---|---|---|
| **Insert Arrangement** | **36-8** | **36-9** | **36-10** | **36-11** |
| **Service Rating** | **A** | **A** | **A** | **A** |
| **Number of Contacts** | **1 46** | **1 2 14 14** | **48** | **48** |
| **Contact Size** | **12 16** | **4 8 12 16** | **16** | **16** |

* Consult Amphenol, Sidney, NY for availability.

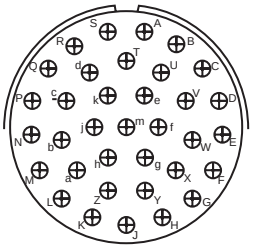
**CONTACT LEGEND** **16 12 8 4 0**

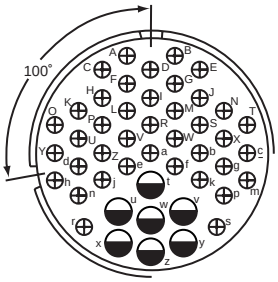
# MS/Standard
# contact arrangements

**front face of pin insert or rear face of socket insert illustrated**

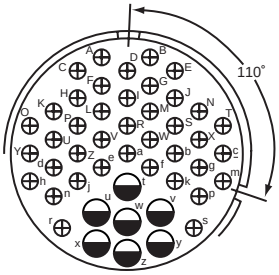



110° Rotation
of 36-10



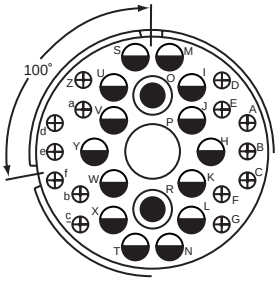



100° Rotation
of 36-7

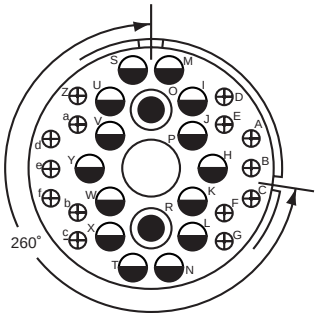



110° Rotation
of 36-7

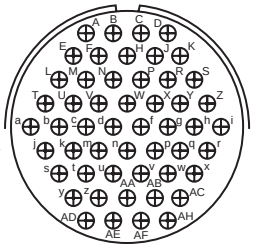
| | | | | |
|---|---|---|---|---|
| **Insert Arrangement** | **36-12** | **36-15** | **36-16** | **36-17** |
| **Service Rating** | **A** | **M = D, Bal. = A** | **A** | **A** |
| **Number of Contacts** | **48** | **35** | **7 40** | **7 40** |
| **Contact Size** | **16** | **16** | **12 16** | **12 16** |

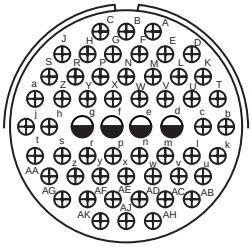



100° Rotation
of 36-9

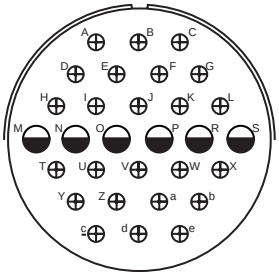


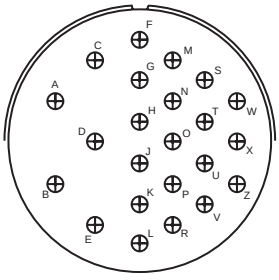

260° Rotation
of 36-9

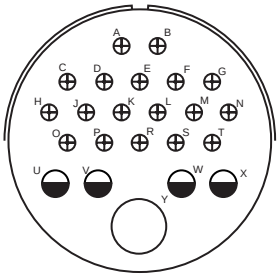




| | | | | |
|---|---|---|---|---|
| **Insert Arrangement** | **36-18** | **36-21** | **36-52** | **36-66*** |
| **Service Rating** | **A** | **A** | **A** | **A** |
| **Number of Contacts** | **1 2 14 14** | **1 2 14 14** | **52** | **4 52** |
| **Contact Size** | **4 8 12 16** | **4 8 12 16** | **16** | **12 16** |







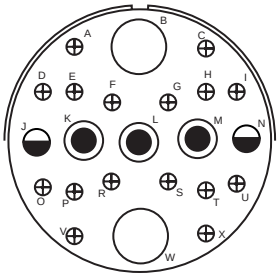
| | | | |
|---|---|---|---|
| **Insert Arrangement** | **40-1** | **40-2*** | **40-3*** |
| **Service Rating** | **D** | **D** | **D** |
| **Number of Contacts** | **6 24** | **23** | **1 4 18** |
| **Contact Size** | **12 16** | **16** | **4 12 16** |

* Consult Amphenol, Sidney, NY for availability.

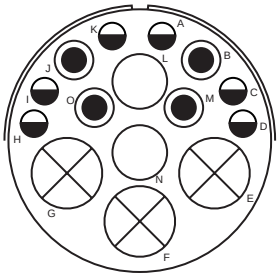
**CONTACT LEGEND** **16 12 8 4 0**

# MS/Standard
# contact arrangements

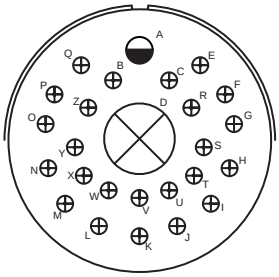
**front face of pin insert or rear face of socket insert illustrated**



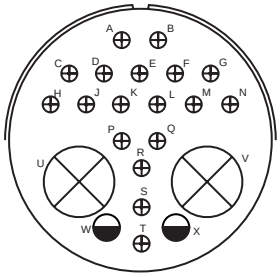
| | |
|---|---|
| **Insert Arrangement** | **40-4*** |
| **Service Rating** | **D** |
| **Number of Contacts** | **2 3 2 16** |
| **Contact Size** | **4 8 12 16** |



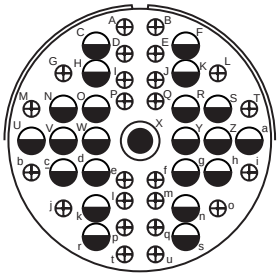
| | |
|---|---|
| **Insert Arrangement** | **40-5*** |
| **Service Rating** | **A** |
| **Number of Contacts** | **3 2 4 6** |
| **Contact Size** | **0 4 8 12** |



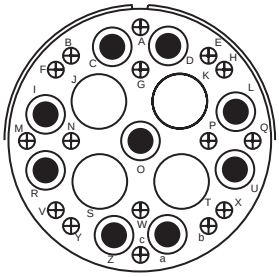
| | |
|---|---|
| **Insert Arrangement** | **40-6*** |
| **Service Rating** | **D** |
| **Number of Contacts** | **1 1 24** |
| **Contact Size** | **0 12 16** |



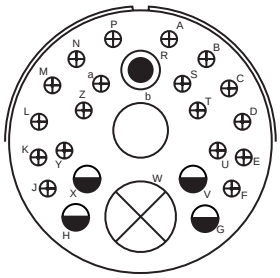
| | |
|---|---|
| **Insert Arrangement** | **40-7*** |
| **Service Rating** | **P, Q, U, V, W, X = A; Bal. = D** |
| **Number of Contacts** | **2 2 18** |
| **Contact Size** | **0 12 16** |



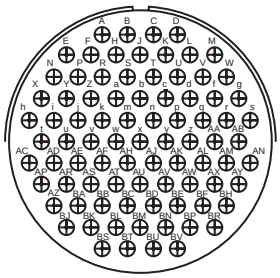
| | |
|---|---|
| **Insert Arrangement** | **40-9** |
| **Service Rating** | **A** |
| **Number of Contacts** | **1 22 24** |
| **Contact Size** | **8 12 16** |



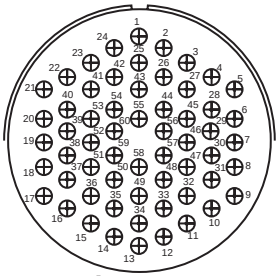
| | |
|---|---|
| **Insert Arrangement** | **40-10*** |
| **Service Rating** | **A** |
| **Number of Contacts** | **4 9 16** |
| **Contact Size** | **4 8 16** |



| | |
|---|---|
| **Insert Arrangement** | **40-11*** |
| **Service Rating** | **D** |
| **Number of Contacts** | **1 1 1 4 18** |
| **Contact Size** | **0 4 8 12 16** |



| | |
|---|---|
| **Insert Arrangement** | **40-56*** |
| **Service Rating** | **A** |
| **Number of Contacts** | **85** |
| **Contact Size** | **16** |



| | |
|---|---|
| **Insert Arrangement** | **40-62*** |
| **Service Rating** | **A** |
| **Number of Contacts** | **60** |
| **Contact Size** | **16** |

* Consult Amphenol, Sidney, NY for availability.

# MS/Standard
# contact information, sealing plugs, crimping and insertion/removal tools

## MS/STANDARD
## CRIMP REAR RELEASE CONTACTS

| Contact Size | Wire Range | | Socket Contacts | | Pin Contacts | |
|---|---|---|---|---|---|---|
| | AWG | $mm^2$ | Military Part Number | Amphenol/Matrix Part Number | Military Part Number | Amphenol/Matrix Part Number |
| 16S* | 20–16 | 0.5–1.4 | M39029/30-217 | M5100-033-1601L | M39029/29-212 | M5000-029-0016L |
| 16 | 20–16 | 0.5–1.4 | M39029/30-218 | M5100-033-1602L | M39029/29-212 | M5000-029-0016L |
| 12 | 14–12 | 2–3 | M39029/30-219 | M5100-033-0012 | M39029/29-213 | M5000-029-0012 |
| 8 | 10–8† | 5–8.5 | M39029/30-220 | M5100-033-0008 | M39029/29-214 | M5000-029-0008 |
| 4 | 6–4† | 13–21 | M39029/30-221 | M5100-033-0004 | M39029/29-215 | M5000-029-0004 |
| 0 | 2–0† | 34–60 | M39029/30-222 | M5100-033-0000 | M39029/29-216 | M5000-029-0000 |

* Shorter wire barrel

† Use MS3348 bushing kit to accommodate smaller wire.

Note: For information on thermocouple contacts, consult Amphenol, Sidney, NY.

### CONTACT CURRENT RATING AND RETENTION

| Contact Size** | Current Rating | | Contact Retention | |
|---|---|---|---|---|
| | Amperes Max. | Voltage Crop Millivolts | Axial Load | |
| | | | lb. | N |
| 16 | 13 | 50 | 25 | 111.2 |
| 12 | 23 | 50 | 30 | 133.4 |
| 8 | 46 | 25 | 50 | 222.4 |
| 4 | 80 | 14 | 60 | 266.9 |
| 0 | 150 | 12 | 75 | 333.6 |

** Organize individual circuits to maintain heat rise within operating temperature requirements.

### SEALING PLUGS

| Contact Size | Sealing Plugs | |
|---|---|---|
| | Military Part Number | Amphenol/Matrix Part Number |
| 16S | MS27488-16-1 | 10-405996-161 |
| 16 | MS27488-16-1 | 10-405996-161 |
| 12 | MS27488-12-1 | 10-405996-121 |
| 8 | MS27488-8-1 | 10-405996-081 |
| 4 | MS27488-4-1 | 10-405996-041 |
| 0 | MS27488-0-1 | 10-405996-001 |

### CRIMPING TOOLS

| Contact Size | Wire Range | | Finished Wire Dia. Range | | Color Code | Crimping Tool Part Number | Turret or Positioner Part Number |
|---|---|---|---|---|---|---|---|
| | AWG | $mm^2$ | Inch | mm | | | |
| 16S | 20–16 | 0.5–1.4 | .053–.103 | 1.34–2.62 | Red/White | M22520/1-01 | M22520/1-02 |
| 16 | 20–16 | 0.5–1.4 | .053–.103 | 1.34–2.62 | Blue/White | M22520/1-01 | M22520/1-02 |
| 12 | 14–12 | 2–3 | .085–.158 | 2.15–4.01 | Yell./White | M22520/1-01 | M22520/1-02 |
| 8 | 10–8 | 5–8.5 | .132–.255 | 3.35–6.48 | White/Red | M22520/23-01 | M22520/23-02 |
| 4 | 6–4 | 13–21 | .237–.370 | 6.01–9.40 | White/Blue | M22520/23-01 | M22520/23-04 |
| 0 | 2–0 | 34–60 | .360–.550 | 9.14–13.97 | White/Yell. | M22520/23-01 | M22520/23-05 |

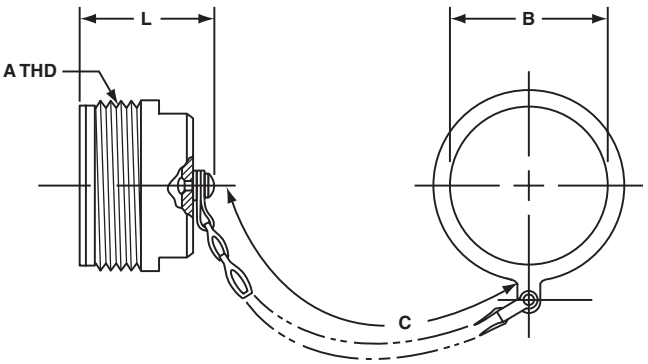
### INSERTION/REMOVAL TOOLS

| Contact Size | Color Code | Military Part Number | Amphenol/Matrix Part Number |
|---|---|---|---|
| 16 | Blue/White | M81969/14-03 | 10-538988-016 |
| 12 | Yell./White | M81969/14-04 | 10-538988-012 |
| 8 | White/Red | M81969/14-06 | 6500-018-0008 |
| 4 | White/Blue | M81969/14-07 | 6500-018-0004 |
| 0 | White/Yell. | M81969/14-08 | 6500-018-0000 |

Amphenol installation instructions, L-2106, gives information on insertion, removal and crimping of contacts for Matrix MIL-DTL-5015 connectors.

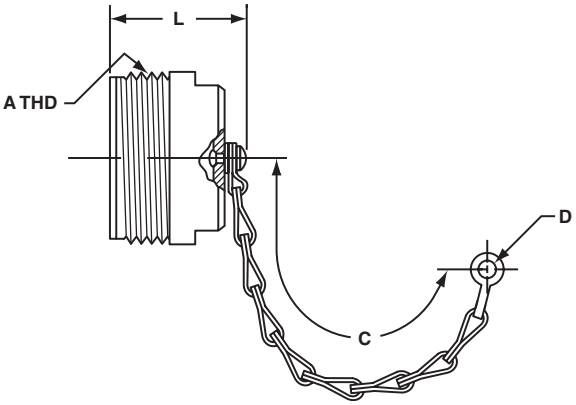
# MS/Standard Accessories
## protection caps – plug

### PLUG PROTECTION CAP 10-329391-XX*



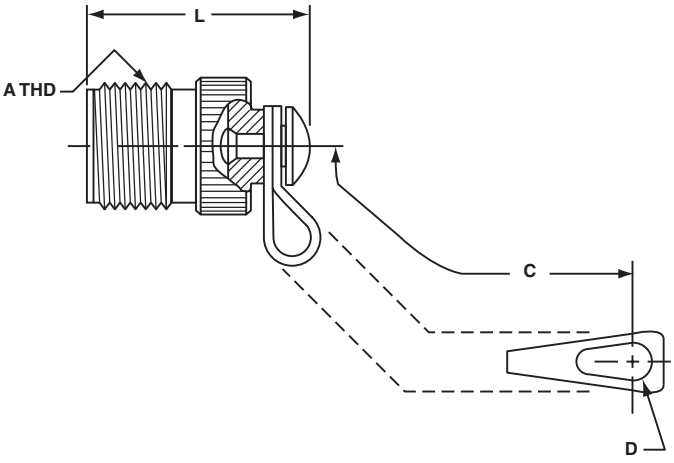

| Assembly Number | A Thread Class 2A | B Dia. +.010 –.000 | C Approx. | L Max. |
|---|---|---|---|---|
| 10-329391-10 | .625-24UNEF | .516 | 3.5 | 1.312 |
| 10-329391-11 | .625-24UNEF | .641 | 3.5 | 1.312 |
| 10-329391-12 | .750-20UNEF | .641 | 3.5 | 1.500 |
| 10-329391-14 | .875-20UNEF | .766 | 3.5 | 1.500 |
| 10-329391-16 | 1.000-20UNEF | .891 | 3.5 | 1.500 |
| 10-329391-18 | 1.125-18UNEF | 1.016 | 3.5 | 1.500 |
| 10-329391-20 | 1.250-18UNEF | 1.141 | 4.0 | 1.500 |
| 10-329391-22 | 1.375-18UNEF | 1.266 | 4.0 | 1.500 |
| 10-329391-24 | 1.500-18UNEF | 1.391 | 4.5 | 1.500 |
| 10-329391-28 | 1.750-18UNS | 1.641 | 4.5 | 1.500 |
| 10-329391-32 | 2.000-18UNS | 1.891 | 5.0 | 1.500 |
| 10-329391-36 | 2.250-16UN | 2.078 | 5.0 | 1.500 |
| 10-329391-40 | 2.500-16UN | 2.328 | 5.0 | 1.500 |
| 10-329391-44 | 2.750-16UN | 2.641 | 6.0 | 1.500 |

### PLUG PROTECTION CAP 10-229125-XX*




| Assembly Number | A Thread Class 2A | C Approx. | D Ref. | L Max. |
|---|---|---|---|---|
| 10-229125-10 | .625-24NEF | 3.0 | .140 | 1.233 |
| 10-229125-12 | .750-20UNEF | 3.5 | .140 | 1.421 |
| 10-229125-14 | .875-20UNEF | 3.5 | .140 | 1.421 |
| 10-229125-16 | 1.000-20UNEF | 3.5 | .140 | 1.421 |
| 10-229125-18 | 1.125-18NEF | 3.5 | .140 | 1.421 |
| 10-229125-20 | 1.250-18NEF | 3.5 | .193 | 1.421 |
| 10-229125-22 | 1.375-18NEF | 3.5 | .193 | 1.421 |
| 10-229125-24 | 1.500-18NEF | 4.5 | .193 | 1.421 |
| 10-229125-28 | 1.750-18NS | 4.5 | .193 | 1.421 |
| 10-229125-32 | 2.000-18NS | 5.0 | .193 | 1.421 |
| 10-229125-36 | 2.250-16UN | 5.0 | .193 | 1.421 |
| 10-229125-40 | 2.500-16UN | 5.0 | .193 | 1.421 |

### PLUG PROTECTION CAP MS25042-XXDA*

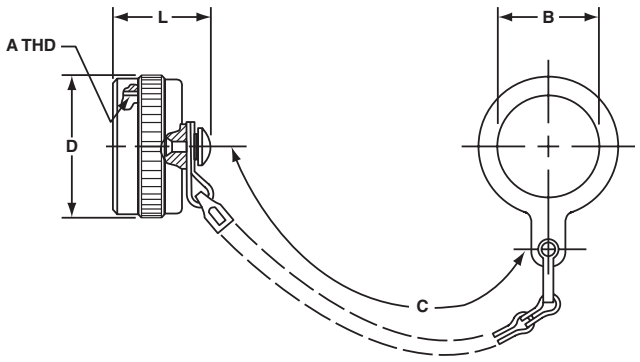



| MS Number | A Thread Class 2A | B Dia. +.010 –.005 | C Approx. | L Max. |
|---|---|---|---|---|
| MS25042-8DA | .500-28UNEF | .156 | 4.00 | .969 |
| MS25042-10DA | .625-24UNEF | .156 | 4.00 | .969 |
| MS25042-12DA | .750-20UNEF | .156 | 4.50 | 1.156 |
| MS25042-14DA | .875-20UNEF | .156 | 4.50 | 1.156 |
| MS25042-16DA | 1.000-20UNEF | .156 | 4.50 | 1.156 |
| MS25042-18DA | 1.125-18UNEF | .156 | 4.50 | 1.156 |
| MS25042-20DA | 1.250-18UNEF | .187 | 5.00 | 1.156 |
| MS25042-22DA | 1.375-18UNEF | .187 | 5.00 | 1.156 |
| MS25042-24DA | 1.500-18UNEF | .187 | 5.50 | 1.156 |
| MS25042-28DA | 1.750-18UNS | .187 | 7.75 | 1.156 |
| MS25042-32DA | 2.000-18UNS | .218 | 7.75 | 1.156 |
| MS25042-36DA | 2.250-16UN | .218 | 7.75 | 1.156 |
| MS25042-40DA | 2.500-16UN | .218 | 7.75 | 1.156 |

* Protective caps are illustrated with sash chains and are available with beaded chains or without chains. Optional terminations are also available. Consult Amphenol, Sidney, NY when ordering.

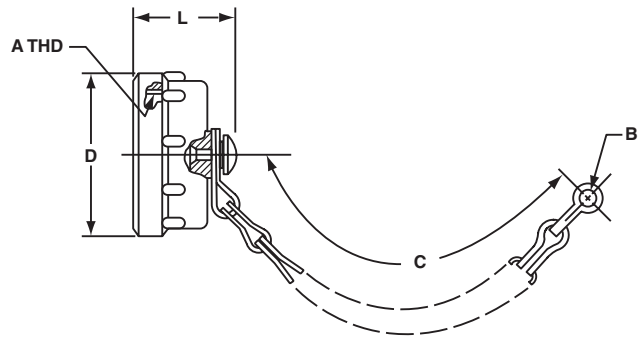
# MS/Standard Accessories
## protection caps – receptacle

### RECEPTACLE PROTECTION CAP 10-329392-XX*



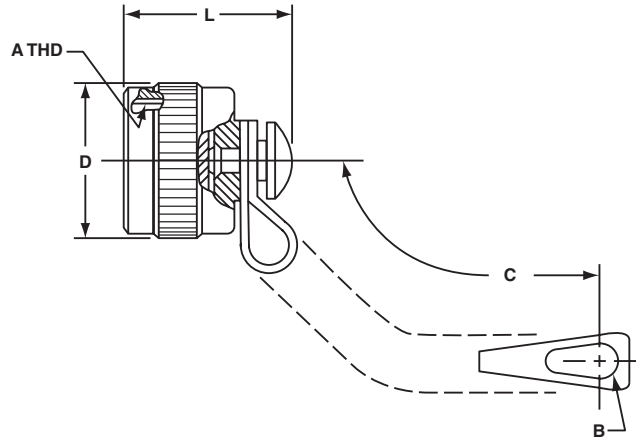

| Assembly Number | A Thread Class 2B | B Dia. Min. | C Approx. | D Dia. Max. | L Max. |
|---|---|---|---|---|---|
| 10-329392-10 | .625-24UNEF | .516 | 3.5 | .875 | .793 |
| 10-329392-12 | .750-20UNEF | .641 | 3.5 | 1.000 | .793 |
| 10-329392-14 | .875-20UNEF | .766 | 3.5 | 1.125 | .793 |
| 10-329392-16 | 1.000-20UNEF | .891 | 3.5 | 1.250 | .793 |
| 10-329392-18 | 1.125-18UNEF | 1.016 | 3.5 | 1.375 | 1.024 |
| 10-329392-20 | 1.250-18UNEF | 1.141 | 4.0 | 1.500 | 1.024 |
| 10-329392-22 | 1.375-18UNEF | 1.266 | 4.0 | 1.625 | 1.024 |
| 10-329392-24 | 1.500-18UNEF | 1.391 | 4.5 | 1.750 | 1.024 |
| 10-329392-28 | 1.750-18UNS | 1.641 | 4.5 | 2.000 | 1.024 |
| 10-329392-32 | 2.000-18UNS | 1.891 | 5.0 | 2.250 | 1.024 |
| 10-329392-36 | 2.250-16UN | 2.078 | 5.0 | 2.500 | 1.024 |
| 10-329392-40 | 2.500-16UN | 2.328 | 5.0 | 2.656 | 1.024 |
| 10-329392-44 | 2.750-16UN | 2.641 | 6.0 | 2.938 | 1.024 |

### RECEPTACLE PROTECTION CAP 10-422905-XXX*




| Assembly Number | A Thread Class 2B | B Ref. | C Approx. | D Dia. Max. | L Max. |
|---|---|---|---|---|---|
| 10-422905-103 | .625-24UNEF | .140 | 3.0 | .875 | .812 |
| 10-422905-123 | .750-20UNEF | .140 | 3.5 | 1.000 | .812 |
| 10-422905-143 | .875-20UNEF | .140 | 3.5 | 1.125 | .812 |
| 10-422905-163 | 1.000-20UNEF | .140 | 3.5 | 1.250 | .812 |
| 10-422905-183 | 1.125-18UNEF | .193 | 3.5 | 1.375 | 1.031 |
| 10-422905-203 | 1.250-18UNEF | .193 | 4.0 | 1.500 | 1.031 |
| 10-422905-223 | 1.375-18UNEF | .193 | 4.0 | 1.625 | 1.031 |
| 10-422905-243 | 1.500-18UNEF | .193 | 4.5 | 1.750 | 1.031 |
| 10-422905-283 | 1.750-18UNS | .193 | 4.5 | 2.000 | 1.031 |
| 10-422905-323 | 2.000-18UNS | .193 | 5.0 | 2.250 | 1.031 |
| 10-422905-363 | 2.250-16UN | .193 | 5.0 | 2.500 | 1.031 |
| 10-422905-403 | 2.500-16UN | .193 | 5.0 | 2.656 | 1.031 |

### RECEPTACLE PROTECTION CAP MS25043-XXDA*

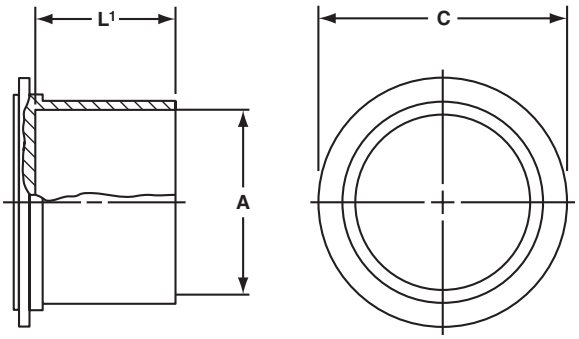



| MS Number | A Thread Class 2B | B +.010 –.005 | C Approx. | D Dia. Max. | L Max. |
|---|---|---|---|---|---|
| MS25043-8DA | .500-28UNEF | .140 | 4.00 | .688 | .750 |
| MS25043-10DA | .625-24UNEF | .140 | 4.00 | .815 | .750 |
| MS25043-12DA | .750-20UNEF | .140 | 4.50 | 1.000 | .750 |
| MS25043-14DA | .875-20UNEF | .140 | 4.50 | 1.125 | .750 |
| MS25043-16DA | 1.000-20UNEF | .140 | 4.50 | 1.188 | .750 |
| MS25043-18DA | 1.125-18UNEF | .140 | 4.50 | 1.344 | .750 |
| MS25043-20DA | 1.250-18UNEF | .140 | 5.00 | 1.469 | .750 |
| MS25043-22DA | 1.375-18UNEF | .140 | 5.00 | 1.594 | .750 |
| MS25043-24DA | 1.500-18UNEF | .171 | 5.50 | 1.719 | .750 |
| MS25043-28DA | 1.750-18UNS | .171 | 7.75 | 1.969 | .812 |
| MS25043-32DA | 2.000-18UNS | .187 | 7.75 | 2.219 | .812 |
| MS25043-36DA | 2.250-16UN | .187 | 7.75 | 2.469 | .812 |
| MS25043-40DA | 2.500-16UN | .187 | 7.75 | 2.719 | .812 |

* Protective caps are illustrated with sash chains and are available with beaded chains or without chains. Optional terminations are also available. Consult Amphenol, Sidney, NY when ordering.

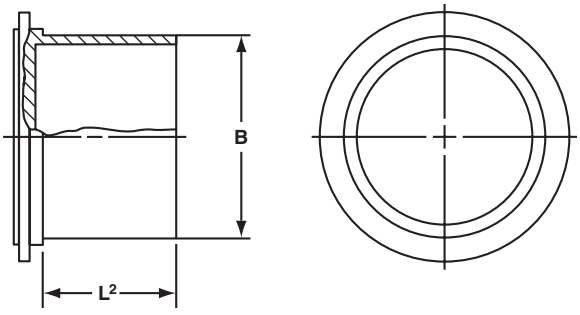
# MS/Standard Accessories
## dust caps

### 10-70500 RECEPTACLE DUST CAP
for external threads




| MS Shell Size | Order Number | A Dia. Nominal Thread | C Dia. ±.031 | L1 ±.062 |
|---|---|---|---|---|
| 8S | 10-70500-8 | .500 | .750 | .500 |
| 10S | 10-70500-10 | .625 | .875 | .500 |
| 10SL | 10-70500-10 | .625 | .875 | .500 |
| 12S | 10-70500-12 | .750 | 1.000 | .500 |
| 12 | 10-70500-12 | .750 | 1.000 | .500 |
| 14S | 10-70500-14 | .875 | 1.125 | .500 |
| 14 | 10-70500-14 | .875 | 1.125 | .500 |
| 16S | 10-70500-16 | 1.000 | 1.250 | .500 |
| 16 | 10-70500-16 | 1.000 | 1.250 | .500 |
| 18 | 10-70500-18 | 1.125 | 1.375 | .562 |
| 20 | 10-70500-20 | 1.250 | 1.500 | .562 |
| 22 | 10-70500-22 | 1.375 | 1.625 | .562 |
| 24 | 10-70500-24 | 1.500 | 1.750 | .562 |
| 28 | 10-70500-28 | 1.750 | 1.938 | .562 |
| 32 | 10-70500-32 | 2.000 | 2.250 | .562 |
| 36 | 10-70500-36 | 2.250 | 2.500 | .625 |
| 40 | 10-70500-40 | 2.500 | 2.750 | .625 |

### 10-70506 PLUG DUST CAP
for internal threads




| MS Shell Size | Order Number | B Dia. Min. | L2 ±.125 |
|---|---|---|---|
| 8S | 10-70506-8S | .469 | .625 |
| 10S | 10-70506-10S | .587 | .625 |
| 10SL | 10-70506-10S | .587 | .625 |
| 12S | 10-70506-12 | .704 | .625 |
| 12 | 10-70506-12 | .704 | .625 |
| 14S | 10-70506-14 | .828 | .625 |
| 14 | 10-70506-14 | .828 | .625 |
| 16S | 10-70506-16 | .953 | .625 |
| 16 | 10-70506-16 | .953 | .625 |
| 18 | 10-70506-18 | 1.072 | .625 |
| 20 | 10-70506-20 | 1.197 | .625 |
| 22 | 10-70506-22 | 1.322 | .625 |
| 24 | 10-70506-24 | 1.447 | .625 |
| 28 | 10-70506-28 | 1.697 | .625 |
| 32 | 10-70506-32 | 1.947 | .625 |
| 36 | 10-70506-36 | 2.190 | .625 |
| 40 | 10-70506-40 | 2.440 | .625 |

# MS/Standard
# how to order

**HOW TO ORDER BY MILITARY PART NUMBER**
**MIL-DTL-5015 CONNECTORS**
**WITH REAR RELEASE CRIMP CONTACTS**

| MS | 3456 | L | 16S | – | 8 | P | W |
|---|---|---|---|---|---|---|---|
| **1** | **2** | **3** | **4** | | **5** | **6** | **7** |

**1.** Connector Type
MS designates Military Standard

**2.** Connector Style
THREADED COUPLING CONNECTORS
- 3450 wall mounting receptacle
- 3451 cable connecting receptacle
- 3452 box mounting receptacle
- 3454 jam nut receptacle
- 3456 straight plug
- 3459 straight plug with self-locking coupling nut

**3.** Service Class
- L aluminum shell, electroless nickel finish, fluid resistant insert
- W aluminum shell, cadmium olive drab finish, fluid resistant insert
- LS stainless steel shell, passivated, fluid resistant insert
- KT firewall, steel shell, cadmium olive drab finish, non-flammable hard dielectric and fluid resistant insert
- KS firewall, stainless steel shell, passivated, non-flammable hard dielectric and fluid resistant insert

Note: Class L inactivates older Class U.
Class K is inactive and has been replaced by Class KT for all applications.

**4., 5.** Shell size and insert arrangement - See tables on pages 11 and 12 and pattern drawings that follow.

**6.** Contact Types
- P designates pin
- S designates socket
- A designates less pins
- B designates less sockets

Note: Use A & B only when other than a full complement of power contacts is to be installed.

**7.** Insert Rotation
"W", "X", "Y", "Z" designate that insert is rotated in its shell from normal position. No letter required for normal (no rotation) position. See page 13 for description of alternate positions.

**HOW TO ORDER BY PROPRIETARY PART NUMBER**
**MIL-DTL-5015 CONNECTORS**
**WITH REAR RELEASE CRIMP CONTACTS**

| 944 | 6 | F | 16S | – | 8 | P | W | *** |
|---|---|---|---|---|---|---|---|---|
| **1** | **2** | **3** | **4** | | **5** | **6** | **7** | **8** |

**1.** Connector Type
944 designates Amphenol®/Matrix® Series Number

**2.** Connector Style
THREADED COUPLING CONNECTORS
- 9440 wall mounting receptacle
- 9441 cable connecting receptacle
- 9442 box mounting receptacle
- 9444 jam nut receptacle
- 9446 straight plug
- 9816 straight plug with self-locking coupling nut
- 9817 quick disconnect plug with lanyard
- 9818 quick disconnect plug without lanyard

**3.** Service Class
- A aluminum shell, black anodize finish, fluid resistant insert (not MIL-Spec)
- F aluminum shell, electroless nickel finish, fluid resistant insert
- W aluminum shell, cadmium olive drab finish, fluid resistant insert
- FS stainless steel shell, passivated, fluid resistant insert
- RS fluid resistant insert
- KT firewall, steel shell, cadmium/olive drab finish, non-flammable hard dielectric and fluid resistant insert
- KS firewall, stainless steel shell, passivated, non-flammable hard dielectric and fluid resistant insert

**4., 5.** Shell size and insert arrangement - See tables on pages 11 and 12 and pattern drawings that follow.

**6.** Contact Types
- P designates pin
- S designates socket

**7.** Insert Rotation
"W", "X", "Y", "Z" designate that insert is rotated in its shell from normal position. No letter required for normal (no rotation) position. See page 13 for description of alternate positions.

**8.** Modification Number
Consult Amphenol, Sidney, NY for information.
For strain reliefs use the following modification codes:
- (189) E-nut M85049/31 configuration
- (190) Straight strain relief M85049/52 configuration
- (191) 90° strain relief M85049/51 configuration

# Additional MS/Standard Connectors offered by Amphenol

**MS/Standard 3100 Series, MIL-5015 Type Connectors**

### MIL-DTL-5015 and MIL-5015 Type Standard Cylindrical Connectors with solder or crimp (non-rear release) contacts

Amphenol has long been the accepted leader in providing MS/Standard MIL-5015 type connectors. These connectors represent well-proven electrical capability at an economical cost for most equipment where durability is important.

The MS/Standard family of connectors (3100 Series) is a very broad range of product with the following features:

- medium to heavy weight cylindrical with resilient inserts
- environmental resistant
- threaded couplings, single key/keyway shell polarization
- operating voltage to 3000 VAC (RMS) at sea level
- 5 shell styles, 19 shell sizes, 280 contact arrangements
- solder or crimp contacts (non-rear-release type), sizes 16–0 accepting 22–0 AWG
- coaxial or thermocouple contact options
- alternate insert positioning
- hermetic configurations available
- zinc alloy plating (cadmium-free) available

The 3100 Series has five classes of connectors to meet different requirements. Within these connector styles, MIL-C-5015 has been replaced as follows: Environmental classes F and R are updated to and produced in strict accordance to MIL-DTL-5015. Classes A, C and E are still produced, but are no longer listed on the qualified products listing (QPL).
Class designations and brief descriptions are as follows:

A – Solid Shell – for general, non-environmental applications.

C – Pressurized – for use on pressurized bulkheads or pressure barriers; limits air leakage regardless of type and class of plug mated with them.

E/F – Environmental Resisting with Strain Relief – designed for applications where the connector will be exposed to moisture, vibration, and rapid changes in pressure and temperature.

R – Lightweight Environmental Resisting – shorter in length, lighter in weight than the E & F classes, the MS-R offers a high degree of reliability under adverse conditions: recommended for new design applications.

Ask for Amphenol catalog 12-020 which gives detailed information on this family of connectors.

### MIL-5015 Modifications

In order to supplement standard MS shell styles and provide a greater variety of styles for the electrical connector user, there are several MS and MS Modified cylindrical connectors offered by Amphenol. These types include flange mount plugs, thru bulkhead receptacles, jam nut receptacles, connectors for potting and connectors designed specifically to terminate jacketed cable.

Ask for Amphenol catalog 12-021 for detailed information.

### 97 Series, MIL-5015 Type Connectors

The low cost, general duty connector used extensively in the machine tool industry, welding industry and numerous other industrial applications, is the Amphenol® 97 Series. Offered in non-environmental styles, these connectors have hard dielectric inserts and threaded coupling. They are Underwriters Laboratories Recognized and Canadian Standards Association Certified.

Recent addition to this family is the 97E environmental styles, still an economical choice. The 97E can be used in a variety of industrial applications where environmental sealing is required, such as automotive and robotics.

Ask for Amphenol catalog 12-022 for detailed information.

**97 Series, MIL-5015 Type Connectors**