



MIL-PRF-28876 QPL and MIL-DTL-28840 QPL

# U.S. Navy Approved Connectors and Accessories

United States ■ United Kingdom ■ Germany ■ France ■ Nordic ■ Italy ■ Spain ■ Japan

First Edition • September 2011

# All Dressed Up with Nowhere To Go? *Glenair Rapid-Response Manufacturing and Same-Day Stocking Gets You Underway On-Time*



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**Introduction to MIL-PRF-28876 QPL  
Shipboard Fiber Optic Connectors**



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**M29504 Fiber Optic Termini and Tools for  
MIL-PRF-28876 Connectors**



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**MIL-PRF-28876 QPL Fiber Optic  
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Introduction, Tools, and Contacts**



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**Glenair Commercial Equivalent  
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**Qualified military specification slash sheets covered in this catalog include the following:**

M22520/34 and /35	M29504/3,
M28840/1 through /30	M29504/14 and /15
M28876/1, /2, /3, /4, /6, /7, /8, /9, /10, /11, /12, /13, /14 and /15	M39029/83 and /84
	M81969/33 and /34



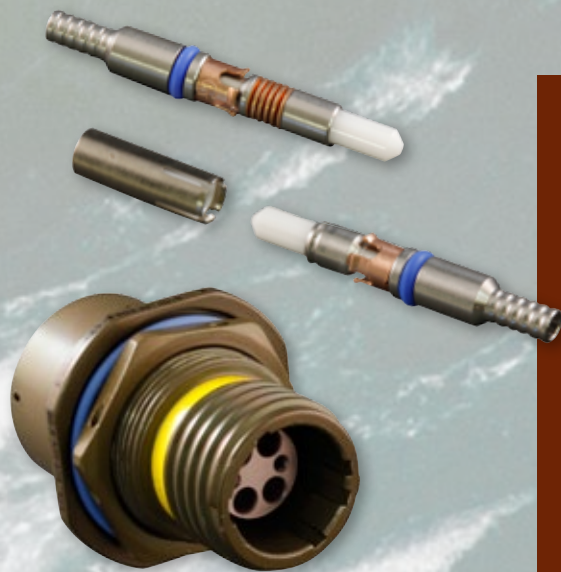
## MIL-PRF-28876 QPL Introduction

A

# Qualified MIL-PRF-28876 Fiber Optic Connectors and MIL-PRF-29504 Termini

## Navy Approved, In Stock, and Ready for Immediate Shipment

The use of fiber optics in shipboard and ship-to-shore data transmissions is growing rapidly, and the tight-tolerance MIL-PRF-28876 interconnect has become the universal standard for Navy shipboard applications. Glenair's qualified offering—including QPL'd MIL-PRF-29504/14 and /15 termini and the broad range of connectors, backshells, and dust cap accessories—delivers all the necessary performance from precise optical alignment to environmental protection and corrosion resistance. Glenair MIL-PRF-28876 QPL connectors and termini are ready for deployment in shipboard, surface and submarine applications, as well as mission-critical combat communication systems such as mobile tactical shelters. They are specifically geared for upgrade and retrofit applications where extending system life-cycles and reducing cost of ownership are principal requirements. For more information, or for product samples, please consult the factory or visit us at [www.glenair.com](http://www.glenair.com).



### PRODUCT FEATURES

- Connectors and Dust Covers Qualified to the Complete Requirements of MIL-PRF-28876 including Plugs, Wall-Mount Receptacles, Jam-Nut Mount Receptacles and In-Line Receptacles
- Multiple Shell Sizes and Insert Arrangements, Including 2, 4, 6, 8, 18 and 31 Channel Layouts
- Backshells in Straight, 45° and 90° Configurations
- Corrosion-Resistant and Environmentally Sealed
- Qualified MIL-PRF-29504/14 and /15 Pin and Socket Termini and /3 Dummy Terminus
- Same-Day Availability

## MIL-PRF-28876 QPL Connector Performance Specifications



Test Description	Performance Requirements/Specifications
Optical Insertion Loss, Multimode	-0.3 dB Typical (62.5/125)
Optical Insertion Loss, Singlemode	-0.3 dB Typical (9/125)
Optical Back Reflection, Singlemode	Better than -40 dB - PC Polish Better than -50 dB - Enhanced PC Polish
Operating Temperature	-28°C to +65°C using MIL-Spec Qualified Epoxy and Cable, or -55°C to +125°C using alternative Epoxy and Cable (consult factory)
Temperature (Thermal) Shock	-40°C to +70°C, 5 Cycles, per TIA/EIA-455-71, Test Schedule C
Temperature Cycling	-28°C to +65°C, 5 Cycles, per TIA/EIA-455-3
Temperature/Humidity Cycling	-10°C to +65°C, 10 Cycles, 240 hours, 98% RH, per TIA/EIA-455-5, Test Method B
Temperature Life Aging	+110°C, 240 hours, Dry Air, per TIA/EIA-455-4
Mating Durability	500 cycles, per TIA/EIA-455-21
Vibration - Sinusoidal	10 g Peak, 5-500 Hz, 12 Cycles (3 hours) per Axis at Ambient Temperature, per TIA/EIA-455-11, Test Condition II
Vibration - Random	10.2 g RMS, 50-2000 Hz, 30 minutes per Axis at Ambient Temperature, per TIA/EIA-455-11, Test Condition VII-C
Mechanical Shock (High Impact)	Per MIL-S-901, Lightweight, Grade A, Class I (Hammer Shock)
Impact	8 Drops from 8 feet, per TIA/EIA-455-2, Test Method B
Crush Resistance	281 lbs, 7 Loading Cycles, per TIA/EIA-455-26
External Bending Moment	300 inch-lbs min for 1 minute
Cable Pull Out Force - Termini	22 lbs min for 1 minute, per TIA/EIA-455-6
Cable Pull Out Force - Connector	162 lbs min for 10 minutes, per TIA/EIA-455-6
Cable Seal Flexing	180° Flex, 200 Cycles, per TIA/EIA-455-1
Cable Twist	360°±180° Twist, 50 Cycles, 11 lbs min Tension, per TIA/EIA-455-36
Ozone Exposure	150 ppm for 2 hours at +70°C, per TIA/EIA-455-189
Fungus Resistance	28 days at +30°C, 95% RH, per TIA/EIA-455-56
Fluid Immersion	Turbine Fuel, Isopropyl Alcohol, Hydraulic Fluid, Lubricating Oil, Coolant, Tap Water, and Seawater, 24 hour immersion duration, per TIA/EIA-455-12
Water Pressure	Equivalent depth of 32 feet for 48 hours at +10°C to +35°C
Freezing Water	1 hour, per TIA/EIA-455-98, Test Method A, Procedure 1
Corrosion Resistance (Salt Spray)	500 hours at +35°C, per TIA/EIA-455-16, Test Condition I
Sand and Dust	12 hours, per TIA/EIA-455-35
Flammability	0.75 inch flame for 10 seconds mated, 1.50 inch flame for 60 seconds unmated, per EIA/ECA-364-81
* Performance Specifications/Requirements based on the use of MIL-PRF-24792 Epoxy and MIL-PRF-85045 Simplex and Breakout Shipboard Optical Fiber.	

# 1000 Hour Grey™

## The Advanced Formula Ni-PTFE Plating Process for EMC Navy Applications



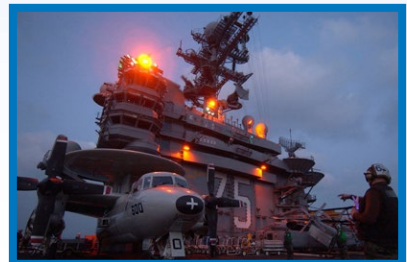
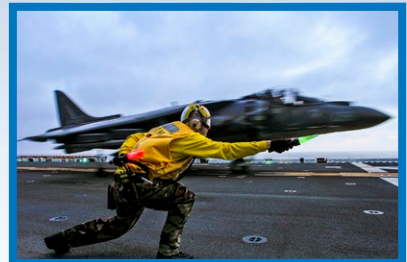
 **Cadmium Free  
RoHS-Compliant  
Plating Process Breaks  
1000 Hour Corrosion  
Protection Barrier!**

The MIL-PRF-28876 specification does not, as of yet, establish any next-generation cadmium-free conductive plating options. But the Glenair advanced Nickel PTFE formula **1000 Hour Grey™** plating process (available in all of our M28876 commercial equivalent 180-040 series parts) meets all key performance requirements including shell-to-shell conductivity and long-term salt spray durability. **1000 Hour Grey™** delivers outstanding performance in a broad range of land, sea, and air interconnect applications. The non-reflective, non-magnetic, gun-metal gray surface finish is an ideal choice for naval applications with severe corrosion protection and EMI/EMC requirements.

### **Advanced Durability, Conductivity, and Lubricity Plus Outstanding Corrosion Resistance!**

The mechanical, electrical and environmental performance of **1000 Hour Grey™** is truly outstanding, far surpassing that of other metal alloy/fluorocarbon polymer plating solutions:

- Salt spray 1000 Hrs. static, 500 hrs. dynamic
- Low shell-to-shell resistance
- -55°C to 175°C temp. Rating
- 336+ hrs. sulfur dioxide resistance
- Non-magnetic
- Cadmium free
- Low coefficient of friction
- Hexavalent chromium free
- Potassium formate resistant
- Max 2.5 Millivolt drop potential
- 500+ Mating cycles
- Low outgassing
- RoHS compliant
- Plating code: MT



**Glenair, Inc.**

M29504/14

181-039

Size 16 Fiber Optic Pin Terminus  
For MIL-PRF-28876 Connectors



M29504  
Fiber Optic Contacts



**Size 16 M29504/14 Fiber Optic Pin Terminus for MIL-PRF-28876 Connectors**

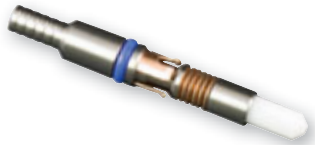


Table I: Part Number				
Mil-Spec Part Number	ØA (Microns)	Fiber Type	Fiber Size Core/Cladding (Microns)	Commercial Part Number
M29504/14-4140C	125.0	Single Mode	9/125	181-039-1250C
Not listed in Mil-Spec	125.5	Single Mode	9/125	181-039-1255C
M29504/14-4141C	126.0	Single Mode	9/125	181-039-1260C
M29504/14-4131C	126.0	Multi Mode	50/125, 62.5/125	181-039-1260C
M29504/14-4132C	127.0	Multi Mode	50/125, 62.5/125	181-039-1270C
M29504/14-4135C	142.0	Multi Mode	100/140	181-039-1420C

Consult factory for additional sizes and QPL status.

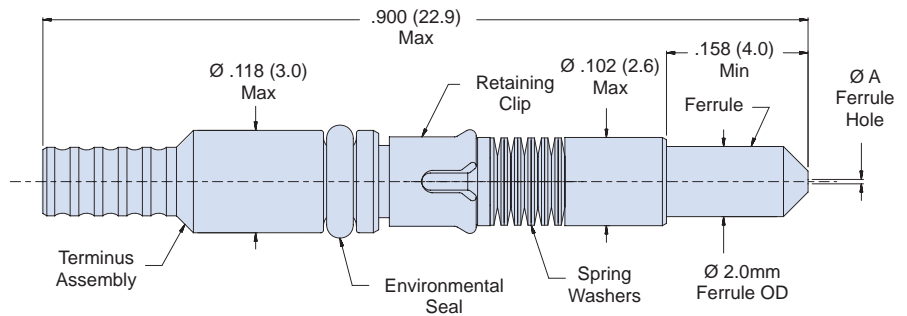
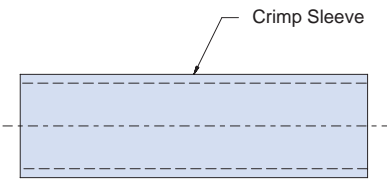


Table II: Tools and Accessories	
Part Number	Description
265-008	Crimp Sleeve Ø2.4mm Max Jacket (Mil-Spec Type)
182-012	Crimp Tool
182-013	Insertion Tool, Straight
182-014	Insertion Tool, 90°
182-015	Removal Tool
182-035	Hand Polishing Tool

**Material and Finish**

Ferrule: Zirconia Ceramic  
Terminus Assembly: Stainless Steel/ Passivate  
Retaining Clip, Spring Washers: Spring Alloy  
Seal: Fluorosilicone  
Crimp Sleeve: Brass Alloy/Nickel

**Notes**

- Crimp sleeve is supplied with terminus assembly and may be ordered separately (see Table II). For terminus less crimp sleeve, omit **C** from end of part number.
- See Glenair GAP-036 for termination procedure and assembly tools.
- Dummy terminus part number: 181-051 or M29504/3-4038.

Dimensions in Inches (millimeters) are subject to change without notice.

B



## Size 16 M29504/15 fiber optic socket terminus for MIL-PRF-28876 connectors



Mil-Spec Part Number	ØA (Microns)	Fiber Type	Fiber Size Core/Cladding (Microns)	Commercial Part Number
M29504/15-4180C	125.0	Single Mode	9/125	<a href="#">181-040-1250C</a>
Not listed in Mil-Spec	125.5	Single Mode	9/125	<a href="#">181-040-1255C</a>
M29504/15-4181C	126.0	Single Mode	9/125	<a href="#">181-040-1260C</a>
M29504/15-4171C	126.0	Multi Mode	50/125, 62.5/125	<a href="#">181-040-1260C</a>
M29504/15-4172C	127.0	Multi Mode	50/125, 62.5/125	<a href="#">181-040-1270C</a>
M29504/15-4175C	142.0	Multi Mode	100/140	<a href="#">181-040-1420C</a>

Consult factory for additional sizes and QPL status.

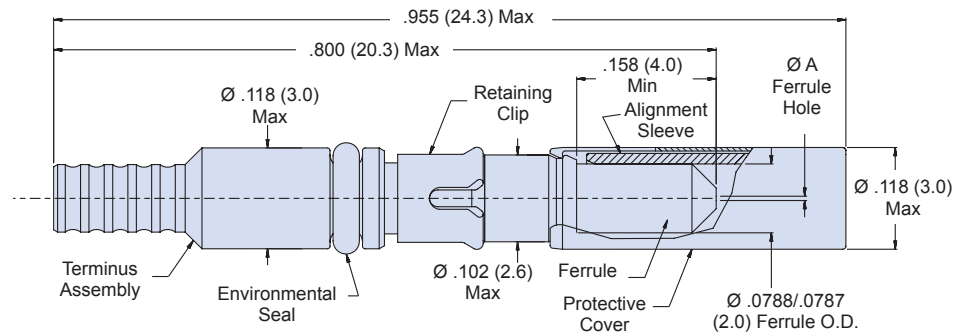
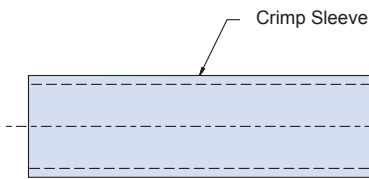


Table II: Tools and Accessories

Part Number	Description
<a href="#">265-008</a>	Crimp Sleeve Ø 2.4mm Max Jacket (Mil-Spec Type)
<a href="#">265-010</a>	Alignment Sleeve Assembly
<a href="#">182-012</a>	Crimp Tool
<a href="#">182-013</a>	Insertion Tool, Straight
<a href="#">182-014</a>	Insertion Tool, 90°
<a href="#">182-015</a>	Removal Tool
<a href="#">182-016</a>	Alignment Sleeve Assembly Insertion/Removal Tool
<a href="#">182-035</a>	Hand Polishing Tool

### Material and Finish

Alignment Sleeve, Ferrule: Zirconia Ceramic  
 Protective cover: Spring Alloy / Nickel  
 Terminus Assembly: Stainless Steel / Passivate  
 Retaining Clip: Spring Alloy  
 Seal: Fluorosilicone  
 Crimp Sleeve: Brass Alloy / Nickel

### Notes

- Crimp sleeve is supplied with terminus assembly and may be ordered separately (see Table II). For terminus less crimp sleeve omit **C** from end of part number.
- Alignment sleeve assembly is supplied with terminus assembly (packaged loose) and may be ordered separately (see Table II). For terminus less alignment sleeve assembly, add **N** to end of part number (e.g. 181-040-1260CN).
- See Glenair GAP-036 for termination procedure and assembly tools.
- Dummy Terminus: Part Number 181-051 or M29504/3-4038.



M29504/3  
181-051  
Size 16 Dummy Terminus  
for MIL-PRF-28876 Connectors

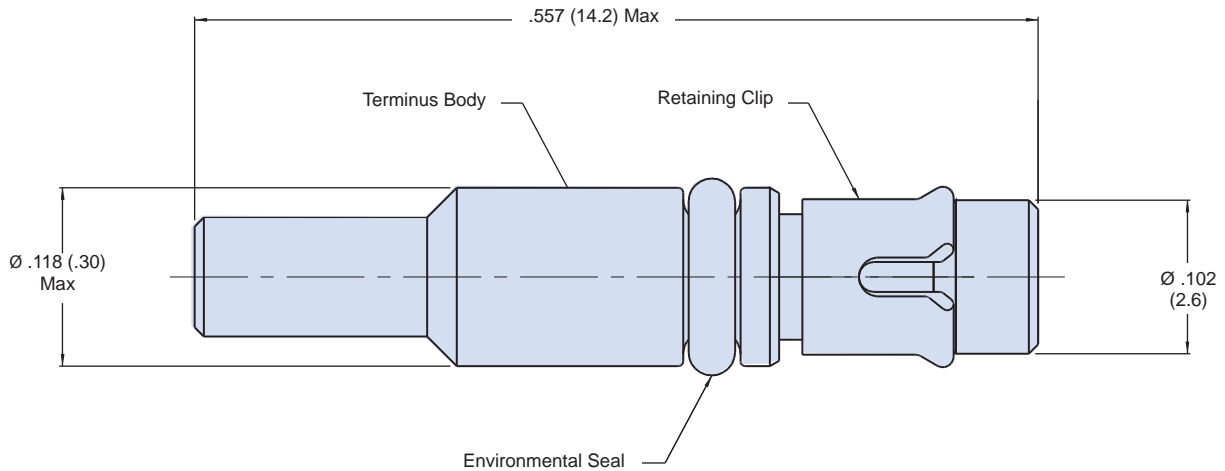


**Size 16 M29504/3 Fiber Optic Dummy Terminus for MIL-PRF-28876 Connectors**



Table I: Part Number	
Mil-Spec Part Number	Commercial Part Number
M29504/3-4038	181-051

Table II: Tools and Accessories	
Part Number	Description
182-013	Insertion Tool, Straight
182-014	Insertion Tool, 90°
182-015	Removal Tool



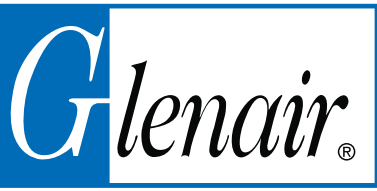
**Material and Finish**

Terminus Body: Stainless Steel/Passivate  
Retaining Clip: Spring Alloy/Nickel  
Seal: Fluorosilicone

**Notes**

See Glenair GAP-036 for assembly tools and procedures.

Dimensions in Inches (millimeters) are subject to change without notice.



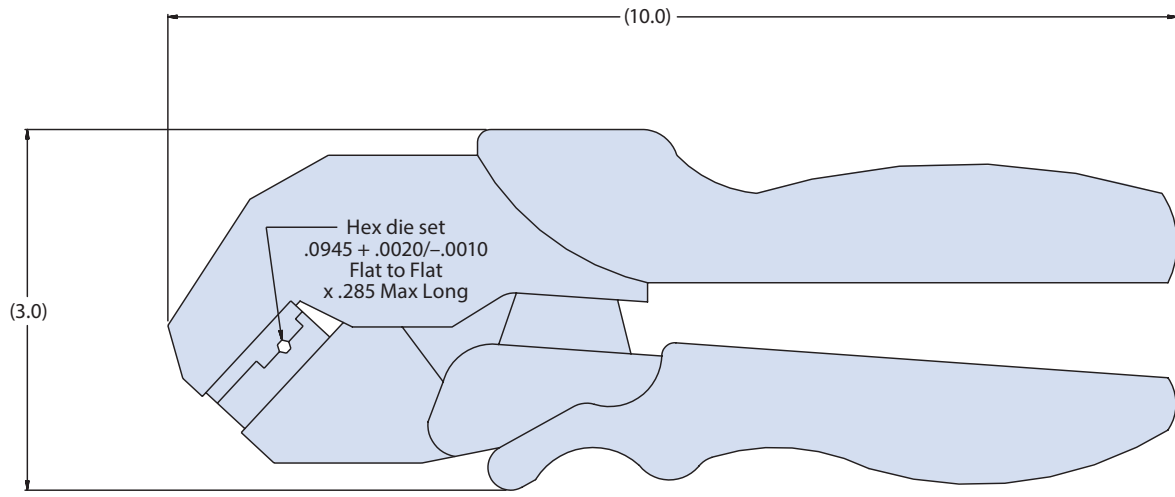
# 182-012 Fiber Optic Crimp Tool

## Crimp Tool for M29504, GHD, GFOCA and NGCON Fiber Optic Termini

B

The Glenair fiber optic crimping tool enables users to quickly and effectively terminate the crimp sleeve to the cable strength member for a secure mechanical junction. The tool is compatible with many common termini styles, including M29504, Glenair High Density (GHD), GFOCA and NGCON.

Part Number	Compatible Termini	
<b>182-012</b>	181-039	M29504/14 Pin
	181-040	M29504/15 Socket
	181-011	Size 16 Socket
	181-012	Size 16 Pin
	181-047	GHD, Keyed
	181-056	GHD, Non-Keyed
	181-050	GFOCA
	181-043	NGCON



Dimensions in Inches (millimeters) are subject to change without notice.

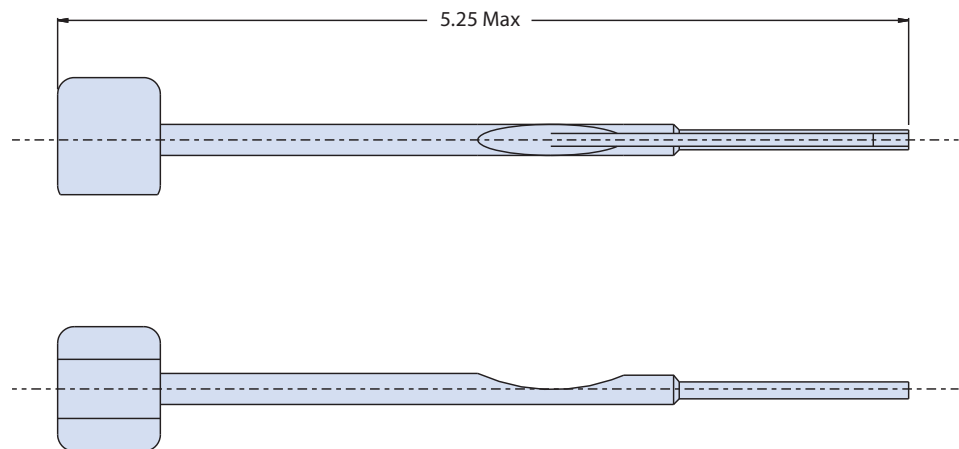
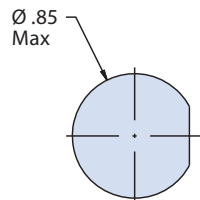
**182-013**  
**Straight Insertion Tool**  
**For Fiber Optic Termini**



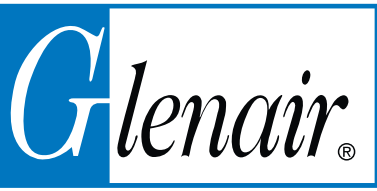
***Straight Insertion Tool for Fiber Optic Termini***

The preferred tool of seasoned fiber optic technicians, the straight insertion tool is designed to aid users in populating connectors with fiber optic termini. Gone are the days of damaged fibers and sore fingers—this convenient tool features a comfortable handle and specially designed insertion tip for use with M29504, GHD and many other termini available from Glenair.

Part Number	Compatible Termini	
<b>182-013</b>	181-039	M29504/14 Pin
	181-040	M29504/15 Socket
	181-051	M29504/3 Dummy
	181-011	Size 16 Socket
	181-012	Size 16 Pin
	181-047	GHD, Keyed
	181-056	GHD, Non-Keyed
	181-043	NGCON



Dimensions in Inches (millimeters) are subject to change without notice.



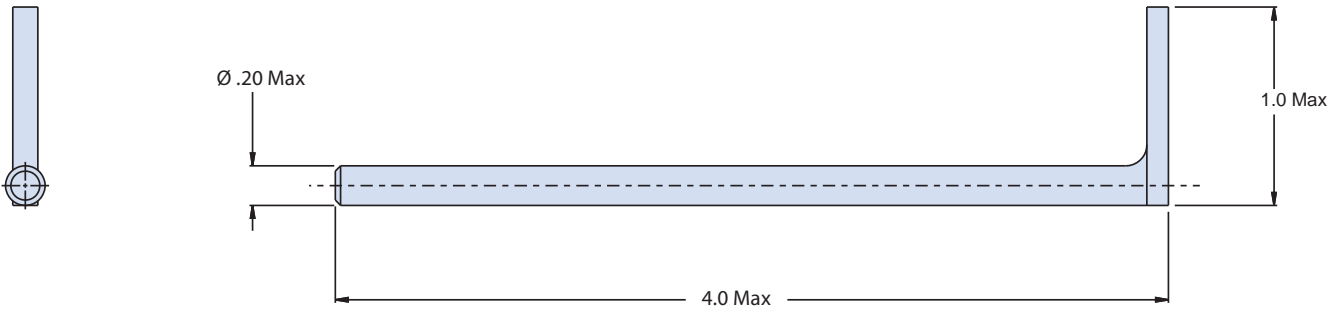
**182-014**  
**90° Insertion Tool**  
**For Fiber Optic Termini**

**B**

**Right Angle (90°) Insertion Tool for Fiber Optic Termini**

The 90° terminus insertion tool is designed to help populate connectors with fiber termini in situations where space is limited—while offering users the same easy insertion as with the straight 182-013 tool. Ideal for use in boxes and on connectors with backshells that inhibit normal rear insertion. Designed for use with M29504, GHD and many other termini available from Glenair.

Part Number	Compatible Termini	
<b>182-014</b>	181-039	M29504/14 Pin
	181-040	M29504/15 Socket
	181-051	M29504/3 Dummy
	181-011	Size 16 Socket
	181-012	Size 16 Pin
	181-047	GHD, Keyed
	181-056	GHD, Non-Keyed
	181-043	NGCON



Dimensions in Inches (millimeters) are subject to change without notice.

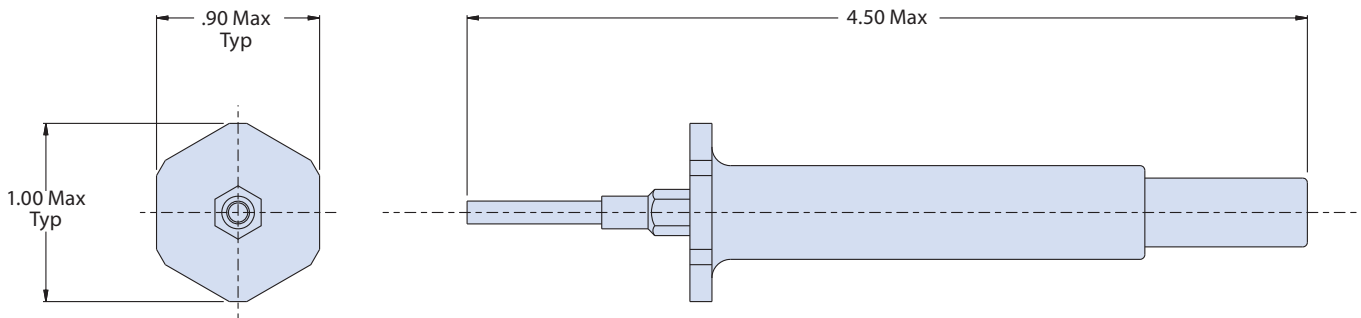
**182-015**  
**Removal Tool**  
**For Fiber Optic Termini**



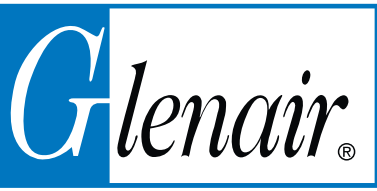
**Removal Tool for Fiber Optic Termini**

The fiber optic terminus removal tool is designed for use with size 16 front release/rear entry termini. Sliding the tool into the face of the insulator and depressing the plunger—after first removing the alignment sleeve from socket termini—enables users to quickly and easily remove the fiber terminus from the rear of the insert. Compatible with Glenair front release fiber optic termini.

Part Number	Compatible Termini	
<b>182-015</b>	181-039	M29504/14 Pin
	181-040	M29504/15 Socket
	181-051	M29504/3 Dummy
	181-011	Size 16 Socket
	181-012	Size 16 Pin
	181-047	GHD, Keyed
	181-056	GHD, Non-Keyed
	181-043	NGCON



Dimensions in Inches (millimeters) are subject to change without notice.



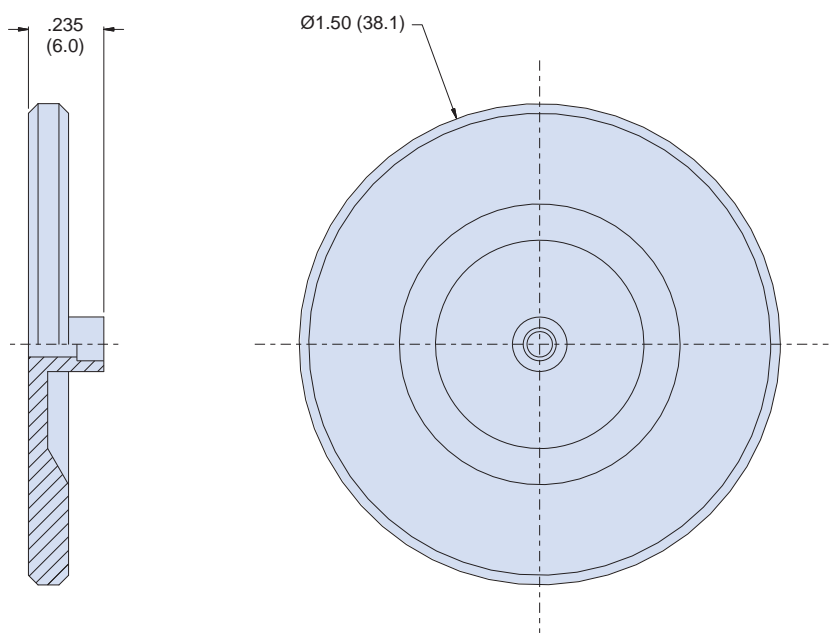
**182-035**  
**Polishing Tool**  
for Fiber Optic Termini

**Polishing Tool for Fiber Optic Termini**

**B**

The Glenair fiber optic termini polishing tool is designed for polishing M29504/14 pin and /15 socket termini. Used with polishing film, this tool makes it easy to polish termini using a figure-8 pattern. Tool is stainless steel with passivate finish.

Part Number	Compatible Termini	
<b>182-035</b>	181-039	M29504/14 Pin
	181-040	M29504/15 Socket



Dimensions in Inches (millimeters) are subject to change without notice.

**GAP-036**  
**Glenair Termini Assembly Procedure**  
**for M29504/14 (181-039) and M29504/15 (181-040)**  
**Sheet 1 of 4**



**1.0 SCOPE**

The following procedure is for termination of Glenair Fiber Optic Termini for use in Glenair front release 180-040 series connectors.

**2.0 SAFETY NOTICE**

Extreme care should be taken when handling optical fiber to avoid penetration of skin. Avoid eye contact with illuminated laser light which can cause eye damage.

**3.0 ASSEMBLY TOOLS:**

- A. P/N 182-012 = Tool, Crimp
- B. P/N 182-035 = Tool, Polishing
- C. P/N 182-013 = Tool, Insertion, Straight
- D. P/N 182-014 = Tool, Insertion, 90 Degree
- E. P/N 182-015 = Tool, Removal
- F. P/N 182-016 = Tool, Insertion/Removal, Alignment Sleeve (socket terminus only)

**4.0 CABLE PREPARATION / TERMINATION**

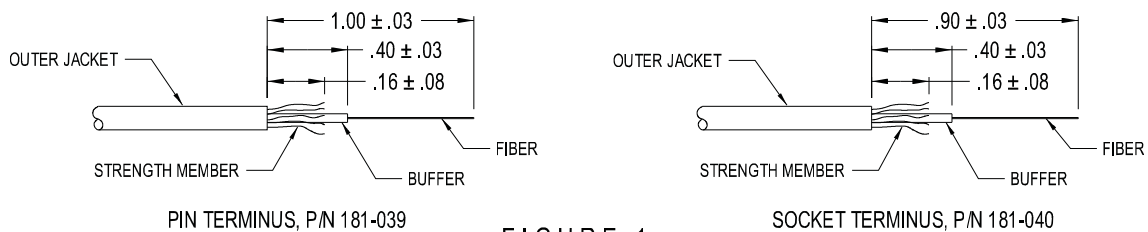
4.1 Verify cable to ensure correct type.

4.2 Select appropriate Terminus

- A. P/N 181-039 = Terminus, Pin
- B. P/N 181-040 = Terminus, Socket

4.3 Load terminus crimp sleeve onto simplex cable. Note - omit for buffered fiber applications.

4.4 Strip cable to the dimensions in inches that are indicated in Figure 1.



4.5 Wipe off bare fiber with Isopropyl alcohol immediately after stripping.

NOTE: Uncoated optical fiber can degrade when exposed to air. Termination must be done immediately within 10 minutes.

4.6 Prepare epoxy according to manufacturer's instructions.

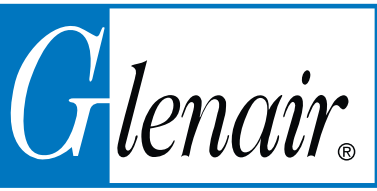
4.7 Fill syringe with epoxy and eliminate all air bubbles.

4.8 Insert syringe into rear of terminus and fill ceramic ferrule with epoxy completely until a small bead of epoxy is present at the tip of ferrule. Retract the syringe while filling the entire terminus with epoxy.

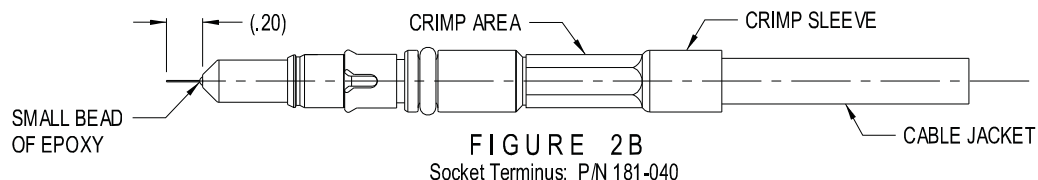
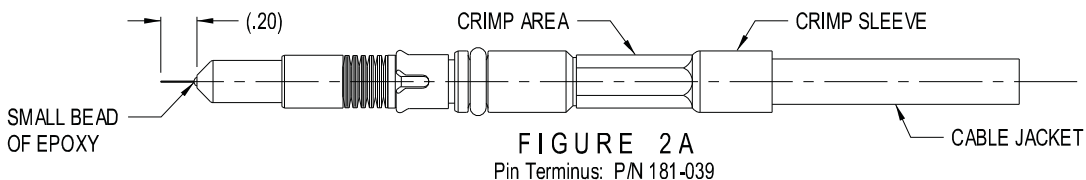
4.9 Fiber insertion

- A. Carefully insert stripped fiber into terminus until it stops.
- B. Wipe off any excess epoxy that may emerge from the rear of the terminus due to insertion of the fiber.
- C. Bare fiber should protrude out the front of terminus approximately .20 inches (see Figure 2).
- D. Ensure that the exterior surfaces of terminus are free of epoxy.
- E. Carefully distribute strength members over rear body of terminus.
- F. Slide crimp sleeve up cable jacket, and position over terminus rear body and strength members.
- G. Crimp the sleeve using crimp tool (see Figure 2).

Dimensions in Inches (millimeters) are subject to change without notice.



**GAP-036**  
**Glenair Termini Assembly Procedure**  
 for M29504/14 (181-039) and M29504/15 (181-040)  
 Sheet 2 of 4



**B**

**5.0 EPOXY:**

There are a variety of epoxy adhesives which maybe used depending on the application. Only 3 different adhesives are listed in this procedure (see 6.2).

**6.0 EPOXY CURING**

6.1 Using curing oven, carefully position terminated fiber into a cavity of curing block.  
 NOTE: Care must be taken not to break protruded fiber.

**6.2 EPOXIES AND ASSOCIATED CURING PROCEDURES / SCHEDULES:**

- A. M24792A per MIL-PRF-24792A or equivalent (FOCI AngstromBond AB-9112, or Tra-Con TRA-BOND F112)  
 Heat cure 1 hour @ 65°C (or 24 hour air cure).
- B. Tra-Con, TRA-BOND F113SC  
 Heat cure 1 hour @ 65°C (or 24 hour air cure).
- C. EPO-TEK 353ND (for high temperature applications)  
 Ramped cure schedule: High temp fiber only
  - 1) 30 minutes @ 80°C, then:
  - 2) 30 minutes @ 100°C, then:
  - 3) 10 minutes @ 150°C

**7.0 FIBER SCRIBING**

- A. Hold terminus with fiber pointing straight up, and lightly score fiber approximately .01 inches above ceramic.
- B. Gently move the blade across fiber to scribe glass using fiber scribe.
- C. Grasp fiber and pull gently upward until fiber breaks.
- D. Carefully discard piece of fiber.

**8.0 POLISHING PROCEDURE**

- A. Clean polishing film, tool, and tip of terminus using Isopropyl alcohol after each step.
- B. Dry all parts using wipes or compressed air.
- C. Wipe distilled water onto back of polishing film and place onto rubber pad.
- D. Insert terminus into polishing tool.
- E. Polish terminus in small figure "8" motion using the following procedure.
- F. Visually inspect terminus tip using microscope to prevent over polishing after each polishing step.
- G. Use light pressure through each polishing step.

Polishing Steps for Domed PC Polish					
Polish Step	Paper Grit Size	# of Figure 8's	Hand Pressure	Polishing Surface	Lubricant
1st Polish on Pad	15 micron Silicon Carbide	9	Light	90 Durometer Pad	Dry
2nd Polish on Pad	6 micron Diamond	9	Light	90 Durometer Pad	Distilled Water
3rd Polish on Pad	3 micron Diamond	10	Light	90 Durometer Pad	Distilled Water
4th Polish on Pad	1 micron Diamond	10	Light	90 Durometer Pad	Distilled Water
5th Polish on Pad	0.5 micron Diamond	5	Light	90 Durometer Pad	Distilled Water
6th Polish on Pad	Ultra Fine	3	Light	90 Durometer Pad	Distilled Water

Dimensions in Inches (millimeters) are subject to change without notice.



8.2 After completing final polishing step, core area must be free of epoxy, scratches, pits and cracks. See Figure 3.  
 NOTE: Do not backlight fiber when inspecting for scratches.

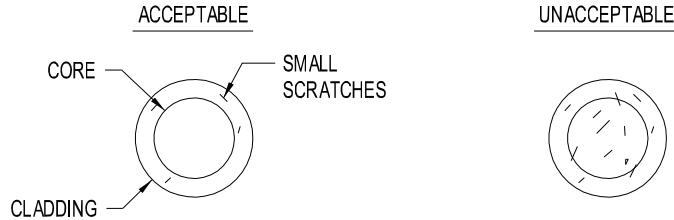


FIGURE 3

9.0 SOCKET TERMINUS ALIGNMENT SLEEVE AND PROTECTIVE COVER INSTALLATION, SEE FIGURES 4 AND 5

9.1 Carefully push alignment sleeve assembly onto terminus ferrule until seated.  
 Note: For proper retention, the fingers of the protective cover must snap into the groove at the front of the terminus metal body.

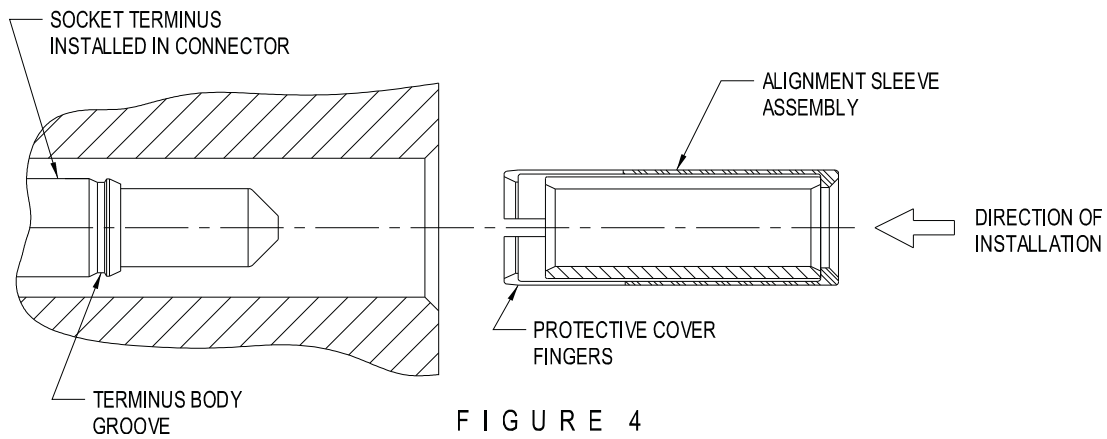


FIGURE 4

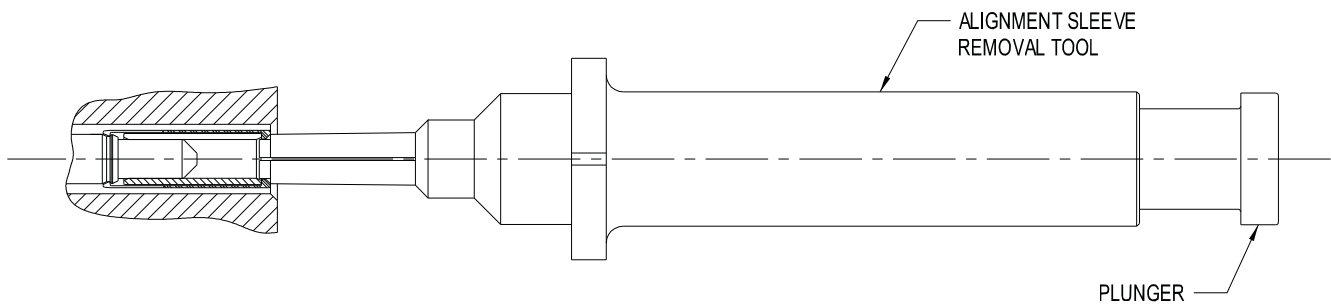
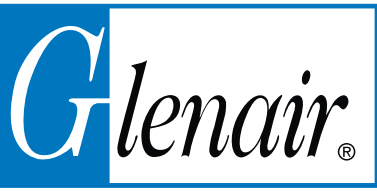


FIGURE 5

- Step 1: Insert tip of alignment sleeve removal tool into alignment sleeve assembly.
- Step 2: Depress the tool plunger and pull away from the connector.
- Step 3: Release plunger to release alignment sleeve assembly from tool.

Dimensions in Inches (millimeters) are subject to change without notice.



10.0 TERMINUS REMOVAL, SEE FIGURE 6.

Step 1: Slide tip of tool over front of terminus until it bottoms inside connector insert.

Step 2: While pushing tool handle forward, simultaneously depress plunger to eject terminus from connector insert.

**B**

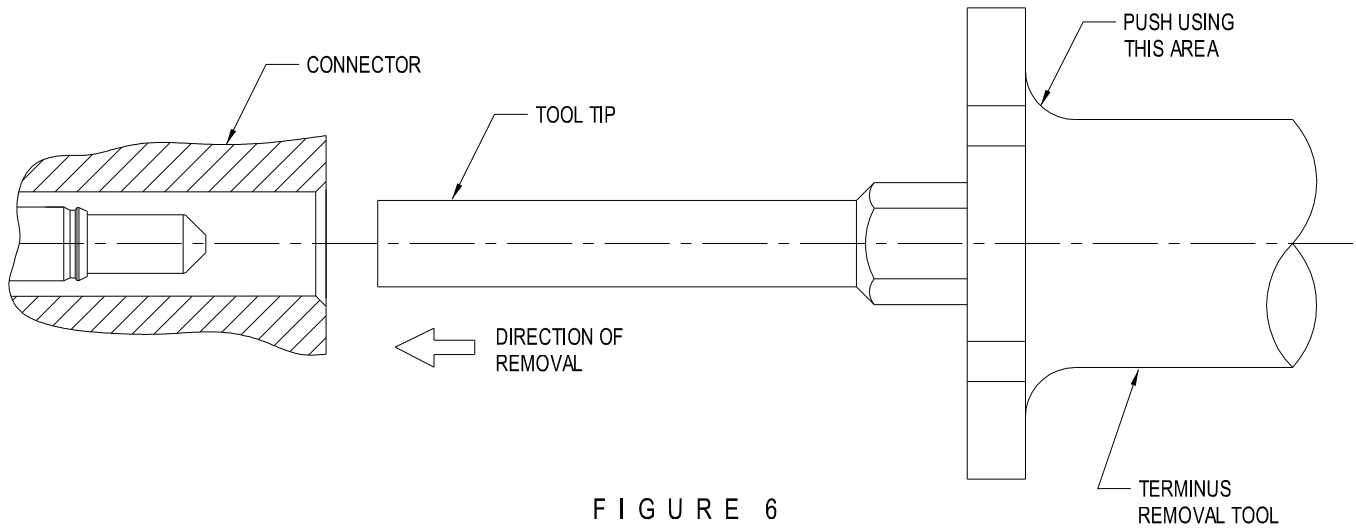


FIGURE 6

Dimensions in Inches (millimeters) are subject to change without notice.

## Series 80 Mighty Mouse Size #16 Fiber Optic Termini



Series 801 Plug with 181-057  
pin terminus



Series 801 receptacle with 181-075  
socket terminus

- Single Mode and Multi Mode
- Snap-in, Rear Release
- Precision Ceramic Ferrules
- 0.5 dB Typical Attenuation
- 1 to 22 Channels

## Reduce Size and Weight with Series 80 Mighty Mouse Fiber Optic Connectors

New size #16 fiber optic termini can be used in any standard Mighty Mouse connector. Available for single mode or multi mode fiber, these termini have low insertion loss and are intended for high-reliability aerospace applications. Series 80 connectors offer substantial reductions in size and weight compared to our D38999 type fiber optic connectors.

Series 80 Contact Arrangements For Use With #16 Fiber Optic Termini									
<b>1 #16</b>	<b>2 #16</b>	<b>4 #16</b>	<b>2 #16, 4 #23</b>	<b>5 #16</b>	<b>2 #16, 8 #23</b>	<b>7 #16</b>	<b>12 #16</b>	<b>14 #16</b>	<b>22 #16</b>
See Series 80 Mighty Mouse catalog for connector ordering information. Order connectors less contacts and order fiber optic termini separately. Cavity numbers are mating face view of pin connectors.									

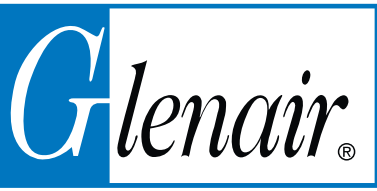
The Series 801 9-4 receptacle is less than half the size of our D38999 type connector.



**Series 801**  
**6 Grams**  
(less contacts)

**D38999 Series III**  
**27 Grams**  
(less contacts)

Dimensions in Inches (millimeters) are subject to change without notice.



## Series 80 Mighty Mouse Contacts and Tools Size #16 Fiber Optic Termini 181-057 and 181-075

### Size #16 Fiber Optic Termini



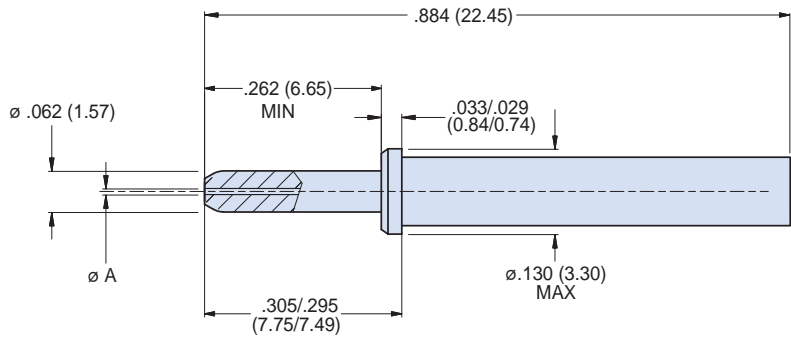
181-057 Pin Terminus



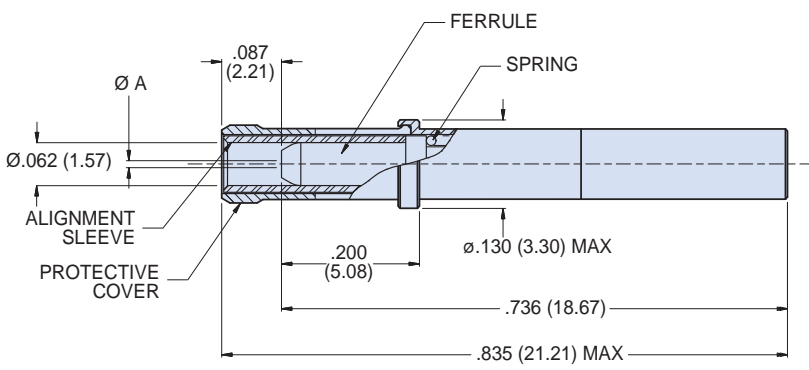
181-075 Socket Terminus

Size #16 fiber optic termini are compatible with all Series 80 Mighty Mouse connectors with size #16 cavities. These snap-in, rear-release termini feature precision ceramic ferrules and sleeves for accurate fiber alignment. Typical insertion loss 0.5 dB. Fits 50/125 and 62.5/125 multi mode and 9/125 single mode fiber. Stainless steel bodies and springs.

Termini Type	Optical Fiber Type	Part Number	A Ferrule I.D.
Pin	Multi Mode	<b>181-057-126</b>	126.0 microns
Pin	Single Mode	<b>181-057-125</b>	125.5 microns
Socket	Multi Mode	<b>181-075-126</b>	126.0 microns
Socket	Single Mode	<b>181-075-125</b>	125.5 microns



181-057 Pin Terminus



181-075 Socket Terminus

**Materials and Finishes**

- Terminus Body: stainless steel, passivated
- Ferrule: zirconia ceramic
- Protective cover: copper alloy, nickel plated
- Spring: stainless steel, passivated
- Alignment sleeve: zirconia ceramic

**Specifications**

- Insertion Loss: 0.5 dB typical
- Operating Temperature: -65° to + 200° C
- Durability: 500 cycles

**Insertion/extraction Tool**

- Standard size #16 plastic tool
- Glenair Part Number 809-131
- Military Part Number M81969/14-03

**Termination Procedure**

The assembly process is similar to industry-standard procedures for MIL-PRF-29504 termini. See following pages for assembly instructions.

**Application Notes**

1. Mighty Mouse fiber optic termini are intended for use in Glenair Series 801, 802 and 805 threaded coupling connectors.
2. Refer to technical manual NAVSEA 01-1A-505-4 "AIRCRAFT FIBER OPTIC CABLING" for installation and maintenance procedures applicable to military aircraft. Available on request from Glenair.
3. Glenair is an industry-leading supplier of factory-terminated fiber optic cable assemblies and molded cordsets. Contact Glenair for more information.

Dimensions in Inches (millimeters) are subject to change without notice.

# Series 80 Mighty Mouse Contacts and Tools Size #16 Fiber Optic Termini Assembly Procedure



## Size #16 Fiber Optic Termini Assembly Instructions

This assembly procedure applies to Glenair fiber optic termini part numbers 181-057 and 181-075. These instructions are to support operators who have had prior training in fiber optic assembly procedures. Operators will have been made aware of all health and safety issues.

### CAUTION

*Assembly of fiber optic termini entails the exposure of operators to fragile glass fibers, solvents and gases. Every precaution is to be taken against harmful effects by the use of protective gloves, safety glasses and good ventilation. All local health and safety regulations should be adhered to and operators should follow designated safe working practices. The use of protective gloves and barrier creams are recommended when using solvents and adhesives. Repeated skin contact should be avoided and care should be taken to wear safety glasses when handling these materials. Attention should be taken of the recommendations of the relevant MSDS sheets for the materials being used. Extreme care should be taken when handling optical fiber to avoid penetration of skin. Avoid eye contact with illuminated laser light which can cause permanent eye damage.*

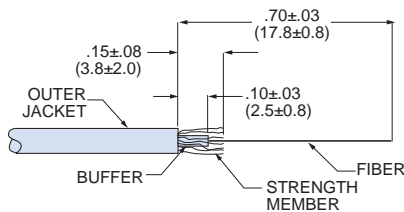
### Assembly Tools and Consumables

Ruler with 6 inch scale	Syringe	Razor blade or exacto knife	Special polishing tools are available from Glenair: 1. Tool for pin terminus <a href="#">182-001P</a> 2. Tool for socket terminus <a href="#">182-045</a>
Cable jacket cutter	Dispensing needle	Microscope (200X)	
Mechanical stripper	Curing fixture	Bundle light source	
Kevlar shears	Cleaving tool	Compressed air	
Buffer stripper	Glass polishing plate		
Isopropyl Alcohol	Polishing films		

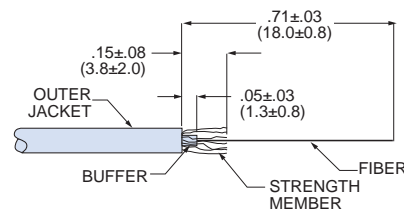
	Recommended Epoxy	Fiber Type	Epoxy Curing Schedule
This assembly instruction lists two epoxies: A standard temperature epoxy and a high temperature epoxy. Ensure that the epoxy curing temperature is compatible with the temperature rating of the cable.	M24792A or equivalent AngstromBond® AB-9112 (Fiber Optic Center, Inc) TRA-BOND™ F112 (Henkel)	Standard	1 Hour @ 650C or 24 Hour Air Cure
	EPO-TEK® 353ND (Epoxy Technology, Inc.)	Standard	2 Hours @ 800C
		High temperature	Stage 1: 30 min. @ 800C Stage 2: 30 min. @ 1000C Stage 3: 10 min. @ 1500C

### Step 1 Cable Prep and Epoxy Filling

- Strip cable to length. Dimensions are in inches (millimeters).
- Wipe off bare fiber with isopropyl alcohol immediately after stripping. **NOTE: uncoated optical fiber can degrade when exposed to air. Termination must be done within 10 minutes of stripping the buffer.**
- Prepare epoxy according to manufacturer's instruction.
- Fill syringe with epoxy and eliminate all air bubbles.
- Insert syringe into rear of terminus and completely fill ceramic ferrule with epoxy. A small bead of epoxy should be visible at the tip of the ferrule. Retract the syringe while filling the entire terminus with epoxy.

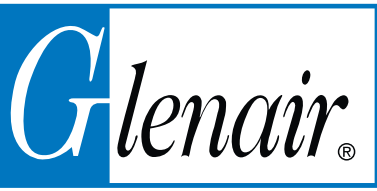


**Pin Terminus 181-057**



**Socket Terminus 181-075**

Dimensions in Inches (millimeters) are subject to change without notice.

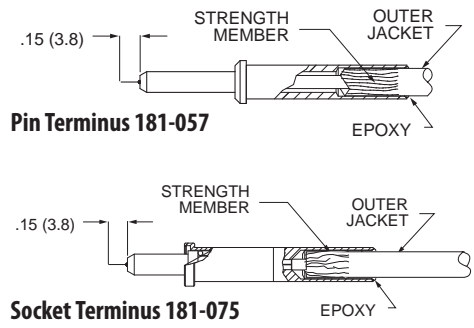


## Series 80 Mighty Mouse Contacts and Tools Size #16 Fiber Optic Termini Assembly Procedure

B

### Step 2 Fiber Insertion

1. Fold back strength members and distribute evenly over outer jacket of cable.
2. Carefully insert stripped fiber into terminus until the cable jacket bottoms inside the terminus body.
3. Wipe off any excess epoxy that may emerge from the rear of the terminus upon insertion of the cable.
4. Bare fiber should protrude approximately .15 inches (3.8mm) from the front of the terminus.
5. Be sure that the exterior surfaces of terminus are free of epoxy.



### Step 3 Epoxy Curing

6. Using curing oven, carefully position terminated fiber into a cavity of curing block. **NOTE** care must be taken to avoid breaking the protruding fiber.
7. See "Recommended Epoxies and Curing Schedules" (previous page) for cure times.

### Step 4 Scribe and Remove Excess Fiber

8. Hold terminus with fiber pointing straight up and lightly score fiber approximately .01 inch (0.3mm) above the ceramic ferrule.
9. Using fiber cleaving tool, gently move the blade across fiber to scribe glass. Do not use a sawing motion.
10. Grasp fiber and pull gently upward until fiber breaks.
11. Carefully discard piece of fiber.

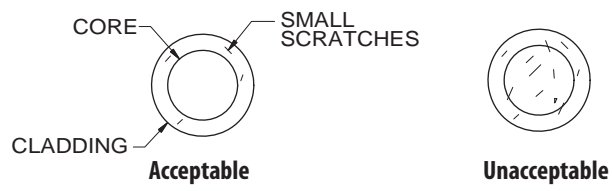
### Step 5 Polishing Procedure

12. Clean polishing film, tool, and tip of terminus using distilled water after each step.
13. Dry all parts using lint-free wipes or compressed air.
14. Wipe distilled water onto back of polishing film and place onto rubber pad.

15. Insert terminus into polishing tool. Polish terminus in small figure 8 motions using the following procedures.
16. Visually inspect terminus tip using microscope to prevent overpolishing after each polishing step.
17. Use light pressure through each polishing step.

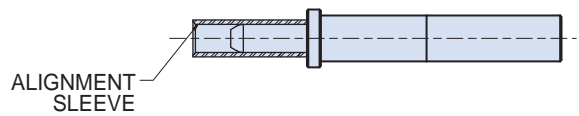
### Step 6 Workmanship Inspection

After completing final polishing step, core area must be free of epoxy, scratches, pits and cracks.  
**NOTE do not backlight fiber when inspecting for scratches.**



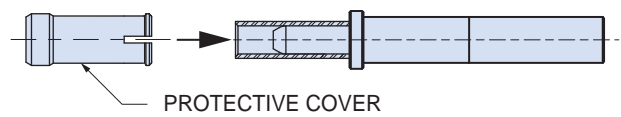
### Step 7 Install Alignment Sleeve on Socket Terminus

Carefully slide alignment sleeve onto terminus ferrule until seated.



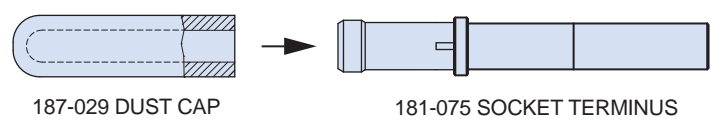
### Step 8 Install Protective Sleeve on Socket Terminus

Push on protective metal sleeve until you feel it snap into place.



### Step 9 Clean and Install Dust Cap on Socket Terminus

Clean end of terminus and install dust cap over protective cover.



Polishing Steps for Domed PC Polish					
Polish Step	Paper Grit Size	# of Figure 8's	Hand Pressure	Polishing Surface	Lubricant
<b>1st Polish</b>	3 micron Silicon Carbide	15-20	Light	90 Durometer Pad	Dry
<b>2nd Polish</b>	3 micron Diamond	10	Light	90 Durometer Pad	Distilled Water
<b>3rd Polish</b>	1 micron Diamond	10	Light	90 Durometer Pad	Distilled Water
<b>4th Polish</b>	0.5 micron Diamond	5	Light	90 Durometer Pad	Distilled Water
<b>5th Polish</b>	Ultra Fine	3	Light	90 Durometer Pad	Distilled Water

Dimensions in Inches (millimeters) are subject to change without notice.

## Dry Action Cleaning Tool for Fiber Optic Termini



### Dry Action Cleaning Tool—The Fast Fiber Optic End Face Cleaner



GCLT-H200

The Glenair Dry Action Cleaning Tool is an easy-to-handle fiber optic terminus cleaning device, highly effective at removing oil and dust contamination from pin and socket termini—either inside or outside connector shells. Traditional wet-swab cleaning methods add drying time and can even introduce new contaminants to the polished terminus end-face. The Dry Action Cleaning Tool's novel dry cleaning strand gently sweeps and lifts away dust and residue from the terminus end-face without the problems associated with wet swab methods. The tool features a convenient single-unit configuration and an extendable tip for easy access to installed fiber optic termini—saving time and avoiding potential additional contamination. Choose part number GCLT-H200 for MIL-PRF-28876 connectors.

Glenair Part number	Used on
<b>GCLT-H200</b>	2.0MM MIL-PRF-28876
<b>GCLT-HC250</b>	GFOCA (MIL-DTL-83526)
<b>GCLT-H160</b>	MIL-DTL-38999
<b>GCLT-H125</b>	Glenair High Density (GHD), LUXCIS
<b>GCLT-C125</b>	LC, MU
<b>GCLT-C250</b>	SC, ST, FC
<b>GCLT-MPO</b>	MTP, MPO, MT (FEMALE AND MALE)
<b>GCLT-MTC</b>	MT MALE
<b>GCLT-MTC-RE</b>	MT MALE refill cartridge

#### Effectively Removes:

- Arizona Road Dust (ISO 12103-1)
- Skin Oil Residue
- Salt Water Residue
- Alcohol Residue
- Vegetable Residue
- Hand Lotion
- Distilled Water Residue
- Graphite
- T-Shirt Lint

#### Features and Benefits

- Simple pushing motion to engage tool
- Audible CLICK to alert the operator when tool is fully engaged
- Repeatable process that eliminates operator error
- No experience required
- Over 525+ cleanings per unit
- Dry cleaning strand eliminates the need for solvents
- Crush resistant to over 250N
- Impact resistant to survive drops over 1.5m

Dimensions in Inches (millimeters) are subject to change without notice.

MIL-PRF-28876

# FIBER OPTIC

CONNECTORS AND ACCESSORIES



The tight-tolerance MIL-PRF-28876 interconnect has become the universal standard for Navy shipboard applications. Glenair's qualified connectors deliver all the necessary performance, from precise optical alignment to environmental protection and corrosion resistance. Glenair MIL-PRF-28876 QPL connectors are ready for deployment in shipboard, surface and submarine applications, as well as mission-critical combat communication systems such as mobile tactical shelters. They are specifically geared for upgrade and retrofit applications where extending system life-cycles and reducing cost of ownership are principal requirements. For more information, or for product samples, please consult the factory or visit us at [www.glenair.com](http://www.glenair.com).



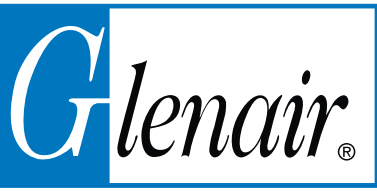


**MIL-PRF-28876  
Fiber Optic Connectors  
Selection Guide**



<p><b>Wall Mount Receptacles</b></p>		
<p><b>MIL-PRF-28876</b></p>	<p>M28876/1 Wall Mount Receptacle without Backshell</p>	<p>M28876/2 Wall Mount Receptacle with Straight Backshell M28876/3 Wall Mount Receptacle with 45° Backshell (not shown) M28876/4 Wall Mount Receptacle with 90° Backshell (not shown)</p>
<p><b>Jam Nut Mount Receptacles</b></p>		
<p><b>MIL-PRF-28876</b></p>	<p>M28876/11 Jam Nut Mount Receptacle without Backshell</p>	<p>M28876/12 Jam Nut Mount Receptacle with Straight Backshell M28876/13 Jam Nut Mount Receptacle with 45° Backshell (not shown) M28876/14 Jam Nut Mount Receptacle with 90° Backshell (not shown)</p>
<p><b>Plug Connectors</b></p>		
<p><b>MIL-PRF-28876</b></p>	<p>M28876/6 Plug without Backshell</p>	<p>M28876/7 Plug with Straight Backshell M28876/8 Plug with 45° Backshell (not shown) M28876/9 Plug with 90° Backshell (not shown)</p>
<p><b>In-Line Receptacles</b></p>	<p><b>Wall Mount Receptacle Mounting Gaskets</b></p>	<p><b>Dust Covers</b></p>
<p><b>MIL-PRF-28876</b> M28876/5 In-Line Receptacle with Straight Backshell</p>	<p><b>M28840 and Commercial</b> M28840/24 Mounting Gasket (Mil-Spec) 930-006 Mounting Gasket (commercial)</p>	<p><b>MIL-PRF-28876</b> M28876/10 Plug Cover M28876/15 Receptacle Cover</p>

Dimensions in Inches (millimeters) are subject to change without notice.

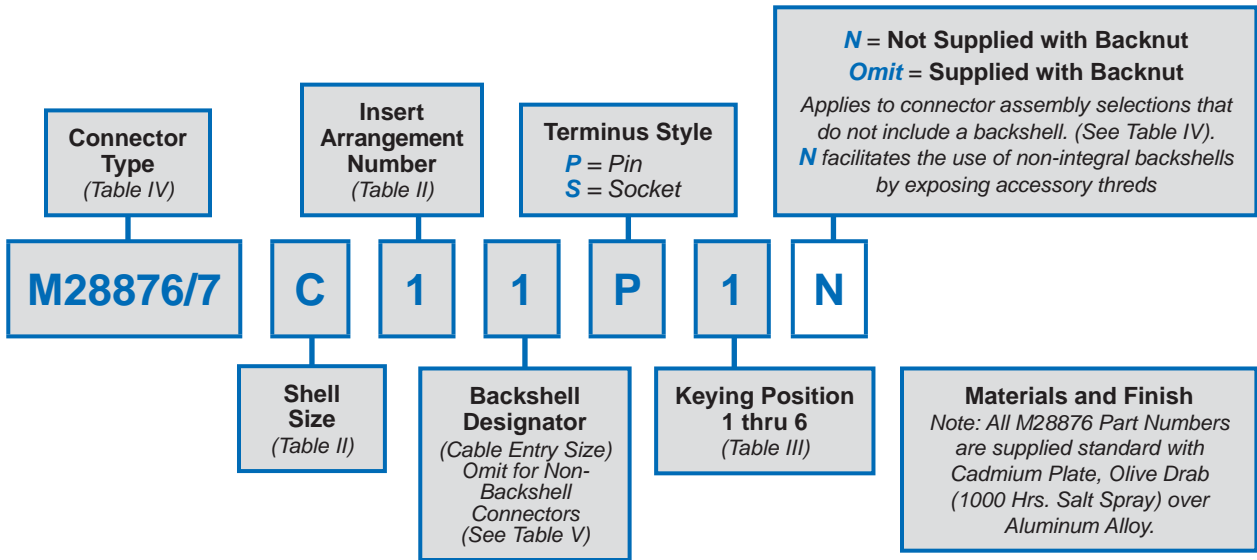


**MIL-PRF-28876 QPL Fiber Optic Connectors**  
**M28876/1 through /14**  
**180-040**  
**How to Order**

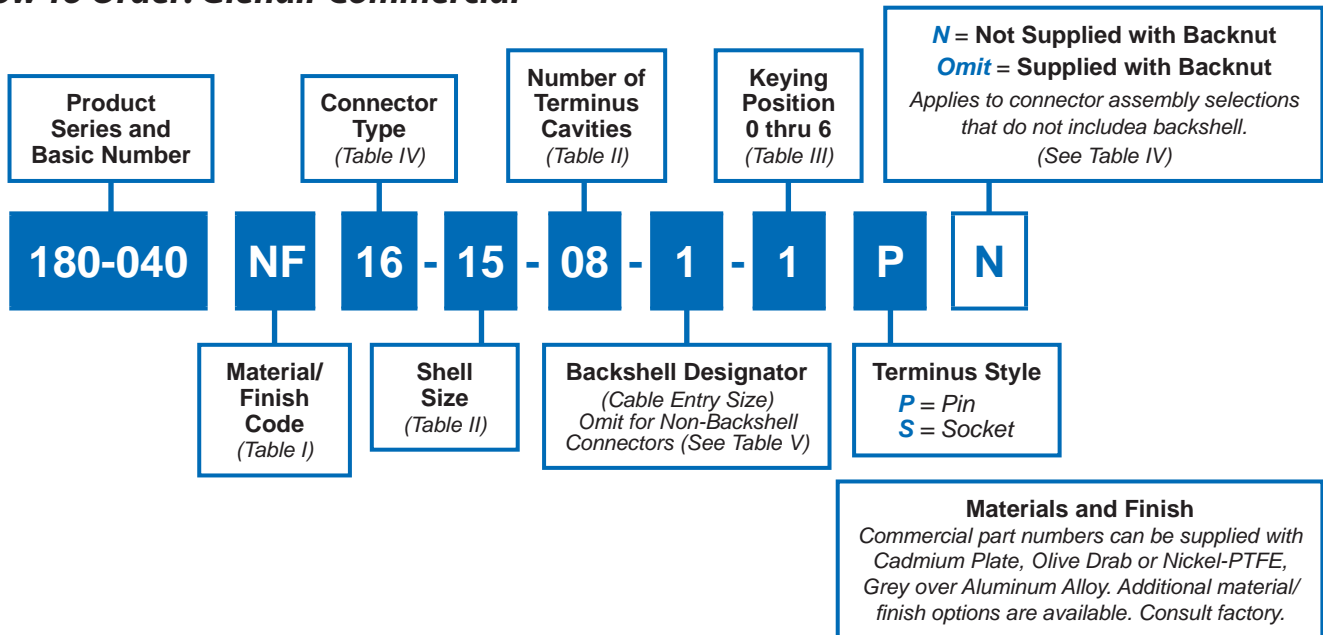


**Fiber Optic Connectors**

**How To Order: Military QPL**



**How To Order: Glenair Commercial**



Dimensions in Inches (millimeters) are subject to change without notice.

**MIL-PRF-28876 QPL Fiber Optic Connectors**  
**M28876/1 through /14**  
**180-040**  
**How to Order**



MIL-PRF-28876 QPL  
Connectors/Accessories

**Table I: Commercial Shell Finish Options**

Code	Material	Finish
NF	Aluminum Alloy	Cadmium Plate, Olive Drab (1000 Hrs. Salt Spray)
MT*	Aluminum Alloy	Nickel-PTFE Grey (1000 Hrs. Salt Spray)

\*MT plating available only with Glenair commercial equivalent part numbers. Consult factory for additional material/finish options.

**Table III: Keying Position**

Shell Size	Keying Position	A°	B°	C°	D°
11 and 13	0*	-	-	-	-
	1	95	141	208	236
	2	113	156	182	292
	3	90	145	195	252
	4	53	156	220	255
	5	119	146	176	298
	6	51	141	184	242
15 and 23	0*	-	-	-	-
	1	80	142	196	293
	2	135	170	200	310
	3	49	169	200	244
	4	66	140	200	257
	5	62	145	180	280
	6	79	153	197	272

\*0 indicates universal keying arrangement and is available on commercial equivalent plug connector only.

**Table V: Backshell Designator**

Backshell Designator	Max Allowable Cable Diameter by Shell Size			
	A (11)	B (13)	C (15)	F (23)
1	.250 (6.4)	.285 (7.2)	.500 (12.7)	.866 (22.0)
2	.346 (8.8)	.346 (8.8)	.250 (6.4)	1.000 (25.4)
3		.453 (11.5)	.375 (9.5)	.600 (15.2)

Dimensions in Inches (millimeters) are subject to change without notice.

**Table II: Shell Size and Insert Arrangement**

Mil-Spec		Commercial	
Shell Size	Insert Arrangement	Shell Size	Number of Cavities
A	1	11	02
B	1	13	04
C	2	15	06
	1		08
F	2	23	18
	1		31

Consult factory for QPL status

**Table IV: Connector Type**

Connector Type	Backshell Type	MIL-Spec	Commercial
Wall Mount Receptacle	None	M28876/1	03
	Straight	M28876/2	13
	45°	M28876/3	23
	90°	M28876/4	33
In-Line Receptacle	Straight	M28876/5	15
Plug	None	M28876/6	06
	Straight	M28876/7	16
	45°	M28876/8	26
	90°	M28876/9	36
Jam Nut Receptacle	None	M28876/11	04
	Straight	M28876/12	14
	45°	M28876/13	24
	90°	M28876/14	34

**Material and Finish**

A. M28876 part numbers supplied standard with Cad plate/olive drab over aluminum alloy. See Table I for commercial plating options.

B. Hardware: Aluminum alloy/chem film, stainless steel/passivate

C. Insert: Aluminum alloy/anodize

D. Seals: Fluorosilicone

**Specifications**

Backnut retained using thread-locking compound.

Operating Temperature Range: -55° to +125°C.

**Tools, Accessories and Assembly Notes**

Termini (Not Supplied with Connector):

M29504/14 - Pin terminus, MIL-Spec

M29504/15 - Socket Terminus, MIL-Spec

M29504/3 - Dummy Terminus, MIL-Spec

181-039 - Pin Terminus, MIL-Spec Style

181-040 - Socket terminus, MIL-Spec Style

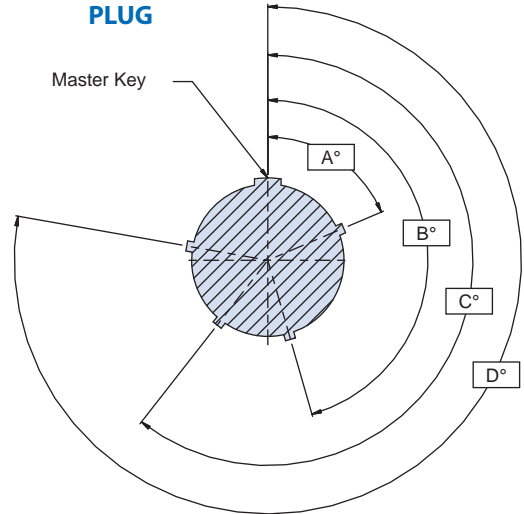
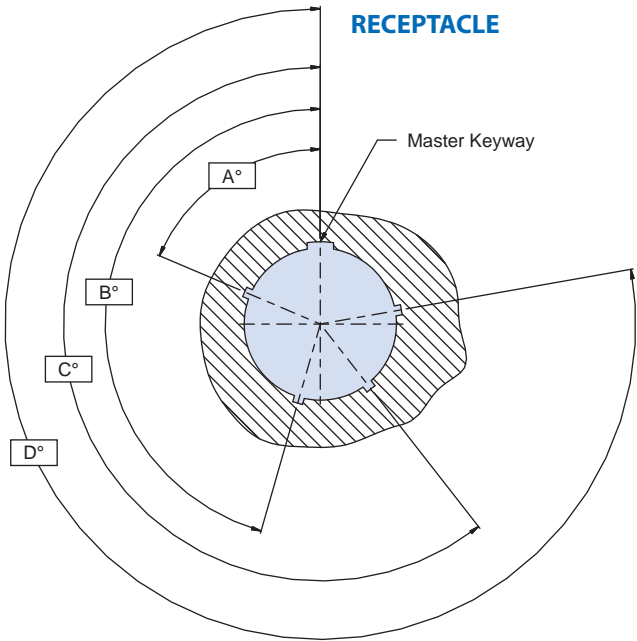
181-051 - Dummy Terminus MIL-Spec Style

Consult factory for appropriate termination and assembly tools/procedures.



**Keying Arrangements for MIL-PRF-28876 (180-040) Fiber Optic Connectors**

C



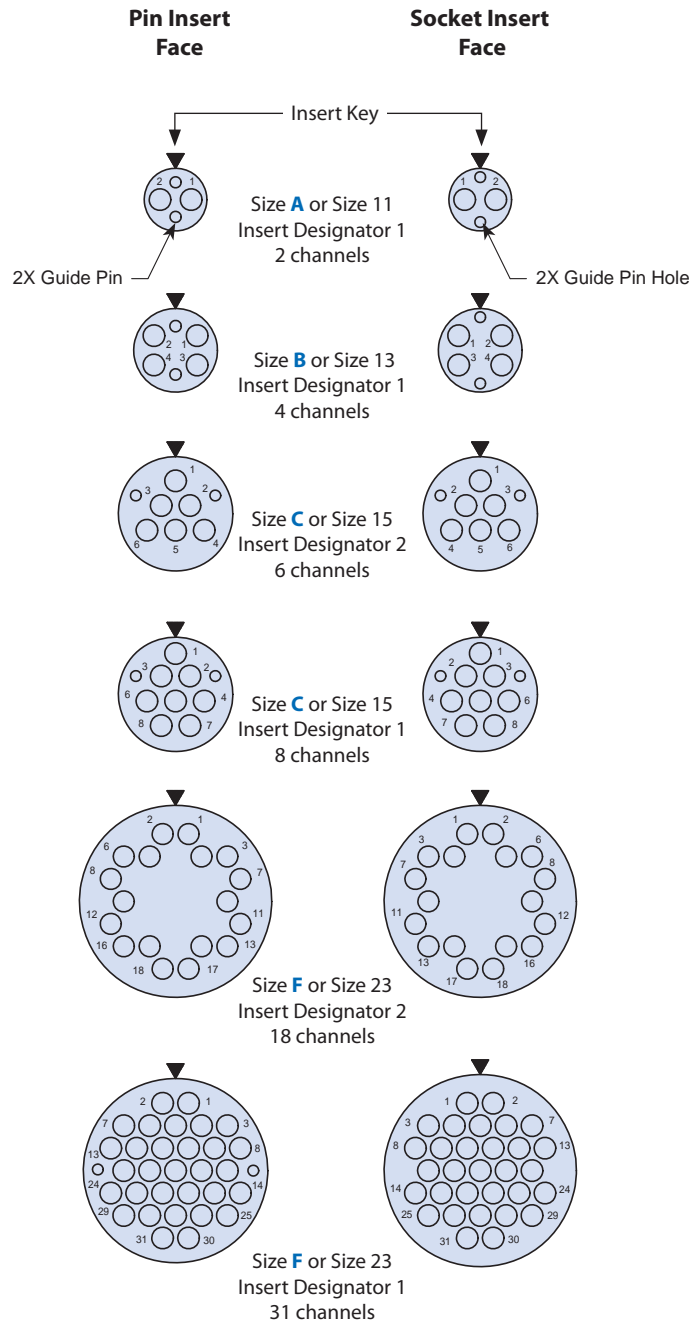
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<b>11 and 13</b>	0*	-	-	-	-
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	2	113	156	182	292
	3	90	145	195	252
	4	53	156	220	255
	5	119	146	176	298
	6	51	141	184	242
<b>15 and 23</b>	0*	-	-	-	-
	1	80	142	196	293
	2	135	170	200	310
	3	49	169	200	244
	4	66	140	200	257
	5	62	145	180	280
	6	79	153	197	272

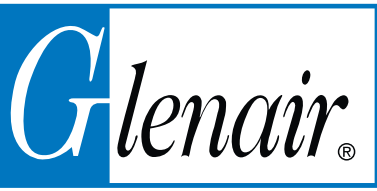
\*0 indicates universal keying arrangement and is available on commercial equivalent plug connector only.

Dimensions in Inches (millimeters) are subject to change without notice.

**Insert Arrangements for MIL-PRF-28876 (180-040) Fiber Optic Connectors**



Dimensions in Inches (millimeters) are subject to change without notice.



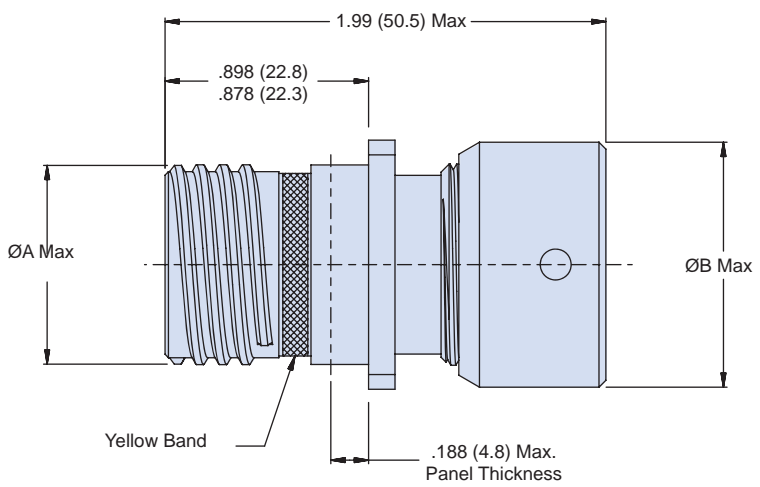
**M28876 (/1, /2, /3, /4)  
180-040 (-03, -13, -23, -33)  
MIL-PRF-28876 Wall Mount Receptacle Connector  
for use with MIL-PRF-29504/14 and /15 Termini**



**Wall Mount Receptacle Connector**



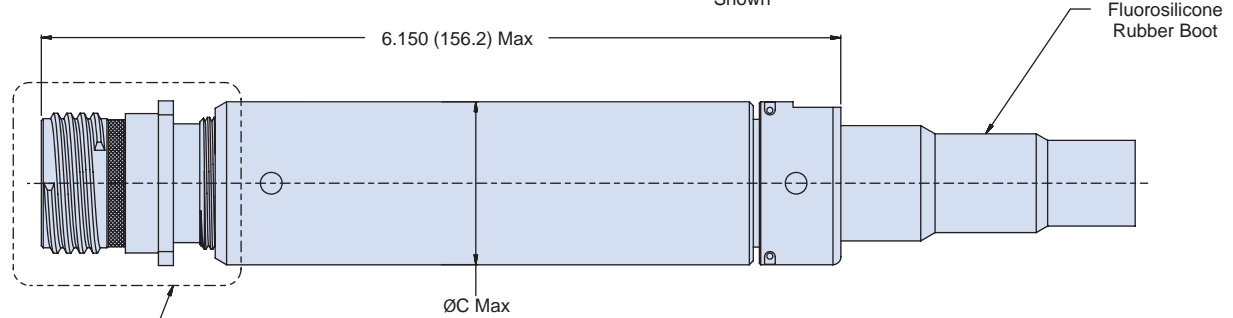
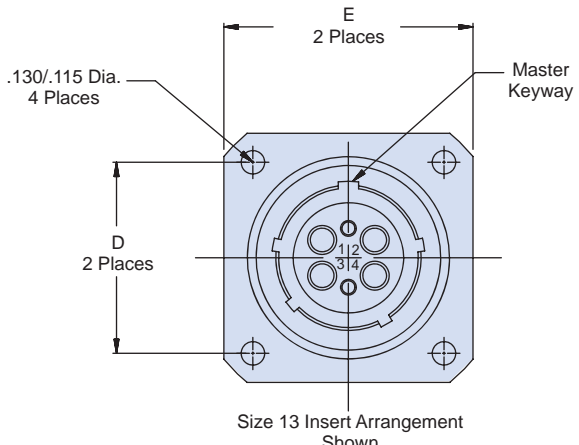
Receptacle without backshell



**M28876/1 • 180-040-03 WALL MOUNT RECEPTACLE WITHOUT BACKSHELL**



Receptacle with straight backshell



All Dimensions Per M28876/1

**M28876/2 • 180-040-13 WALL MOUNT RECEPTACLE WITH STRAIGHT BACKSHELL**

Dimensions in Inches (millimeters) are subject to change without notice.

M28876 (/1, /2, /3, /4)  
 180-040 (-03, -13, -23, -33)  
**MIL-PRF-28876 Wall Mount Receptacle Connector**  
 for use with MIL-PRF-29504/14 and /15 Termini



MIL-PRF-28876 QPL  
 Connectors/Accessories

Table I: Dimensions									
Shell Size	ØA Max	ØB Max	ØC Max	D	E ±.020	F Max.	G Max.	H Max.	J Max.
11	0.750 (19.1)	0.960 (24.4)	0.960 (24.4)	0.750 (19.1)	1.022 (26.0)	6.150 (156.2)	3.540 (89.9)	4.250 (108.0)	4.250 (108.0)
13	0.875 (22.2)	1.085 (27.6)	1.085 (27.6)	0.843 (21.4)	1.137 (28.9)	6.220 (158.0)	3.580 (90.9)	4.250 (108.0)	4.250 (108.0)
15	1.062 (27.0)	1.255 (31.9)	1.257 (31.9)	0.968 (24.6)	1.257 (31.9)	6.500 (165.1)	3.850 (97.8)	4.500 (114.3)	4.500 (114.3)
23	1.500 (38.1)	1.695 (43.1)	1.763 (44.8)	1.281 (32.5)	1.718 (43.6)	7.500 (190.5)	5.000 (127.0)	5.000 (127.0)	5.000 (127.0)

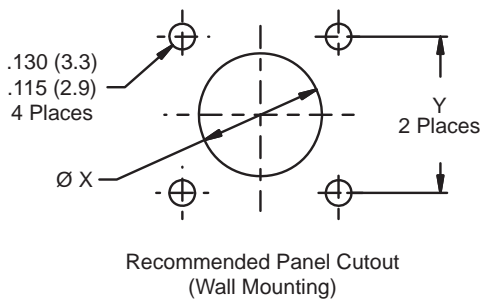
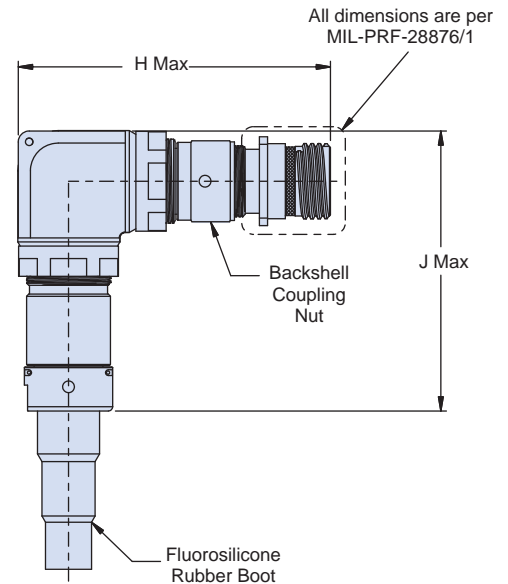
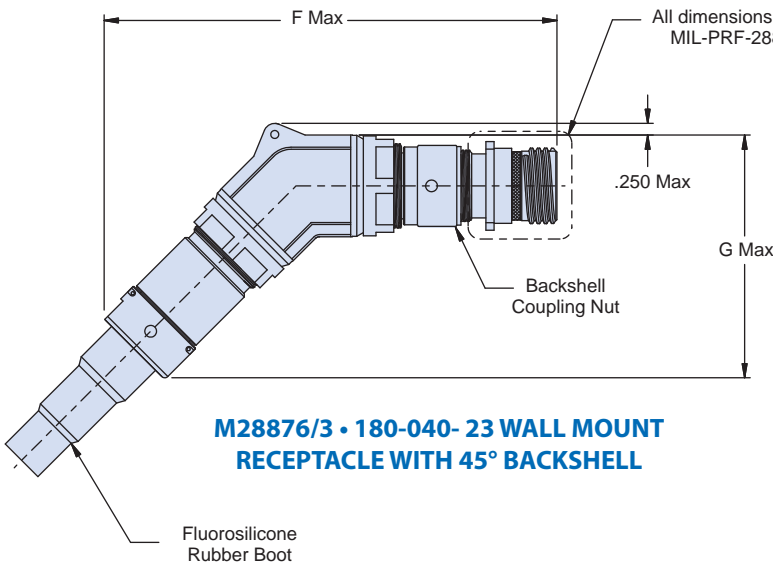


TABLE II: Dimension Panel Cutout, Wall Mount Receptacles		
Shell Size	Ø X ± .005 (0.13)	Y ± .005 (0.13)
11	.812 (20.6)	.750 (19.1)
13	.937 (23.8)	.843 (21.4)
15	1.124 (28.6)	.968 (24.6)
23	1.562 (39.7)	1.281 (32.5)

Dimensions in Inches (millimeters) are subject to change without notice.



180-040 (-04, -14, -24, -34)  
MIL-PRF-28876 Jam Nut Mount Receptacle Connector  
for use with MIL-PRF-29504/14 and /15 Termini

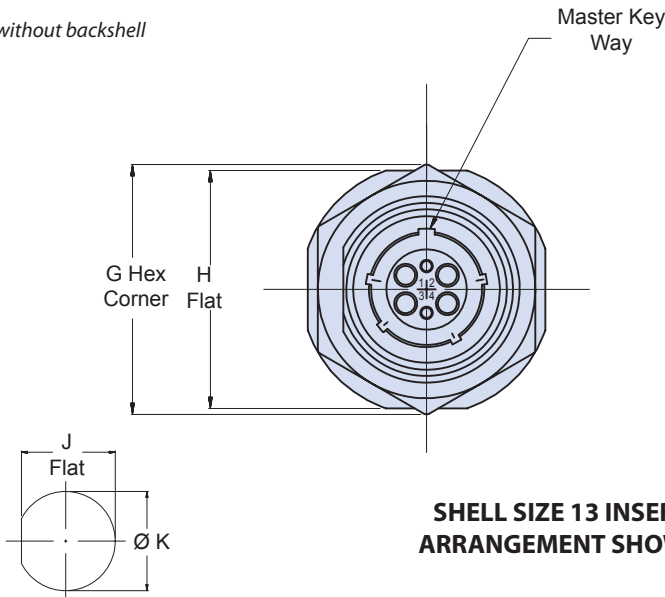
M28876

**MIL-PRF-28876 QPL jam nut receptacle connector**



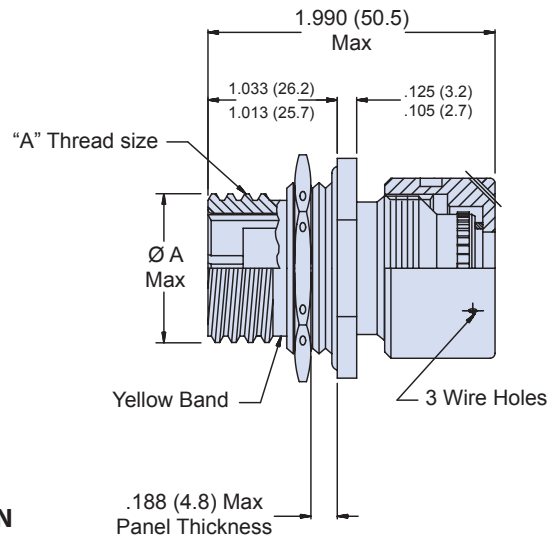
Table I							
Shell Size	G Max	H ± .010 (0.3)	J ± .005 (0.1)	Ø K ± .005 (0.1)	Ø C Max	Ø L Max	Ø A Max
11	1.290 (32.8)	1.264 (32.1)	.848 (21.5)	.885 (22.5)	.960 (24.4)	.960 (24.4)	.750 (19.1)
13	1.435 (35.9)	1.389 (35.3)	.973 (24.7)	1.010 (25.7)	1.085 (27.6)	1.085 (27.6)	.875 (22.2)
15	1.650 (41.9)	1.577 (40.1)	1.160 (29.5)	1.198 (30.4)	1.255 (31.9)	1.255 (31.9)	1.062 (27.0)
23	2.093 (53.2)	2.004 (50.9)	1.593 (40.5)	1.635 (41.5)	1.695 (43.1)	1.763 (44.8)	1.500 (38.1)

Receptacle without backshell

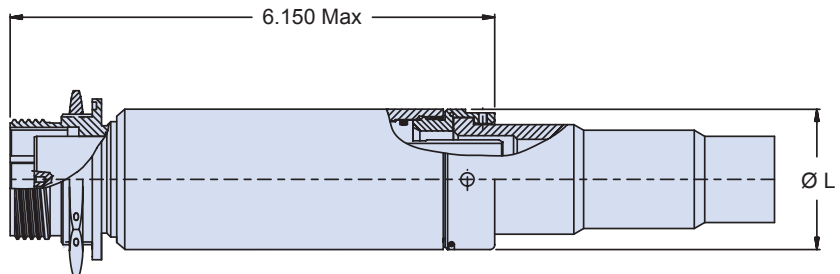


**SHELL SIZE 13 INSERT ARRANGEMENT SHOWN**

Recommended Panel Cutout  
(Jam Nut Mounting)  
As Viewed from Face of Panel



**04 - JAM NUT MOUNT RECEPTACLE WITHOUT BACKSHELL  
M28876/11 • 180-040 (-04)**



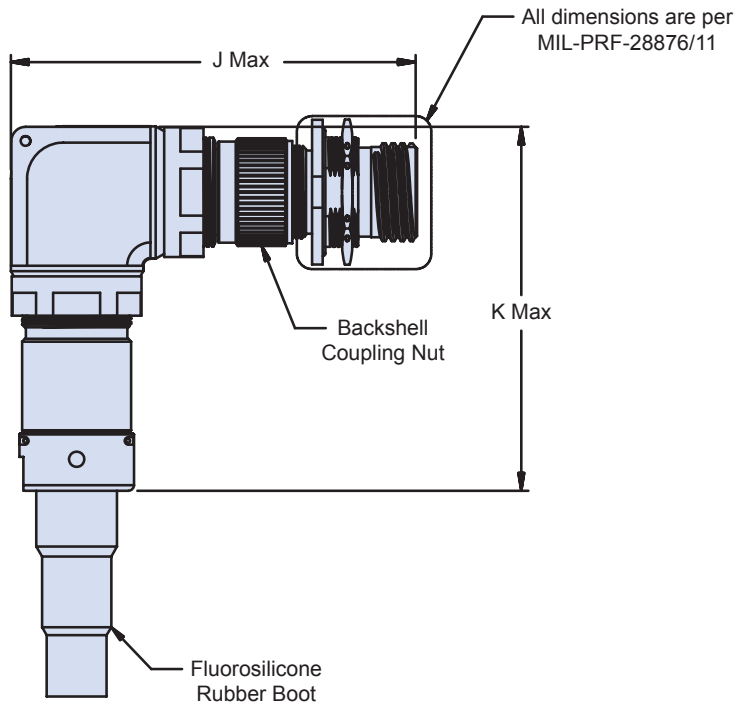
**M28876/12 • 180-040 (-14) JAM NUT MOUNT RECEPTACLE WITH STRAIGHT BACKSHELL**



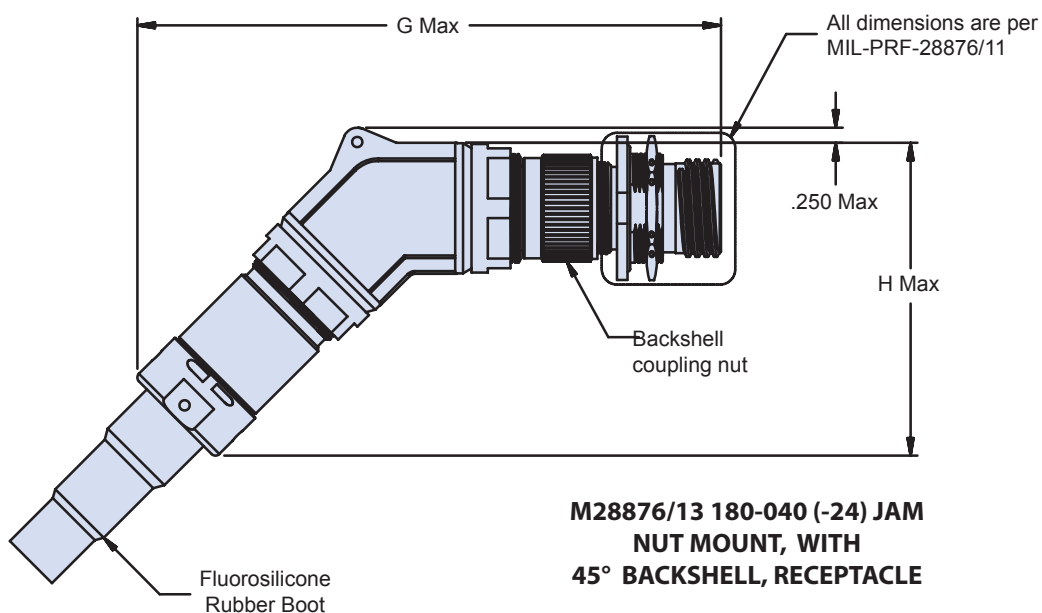
180-040 (-04, -14, -24, -34)  
**MIL-PRF-28876 Jam Nut Mount Receptacle Connector**  
 for use with MIL-PRF-29504/14 and /15 Termini



MIL-PRF-28876  
 Connectors

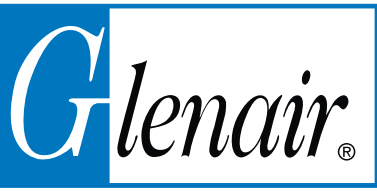


**M28876/14 180-040 (-34) JAM NUT MOUNT, WITH 90° BACKSHELL, RECEPTACLE**



**M28876/13 180-040 (-24) JAM NUT MOUNT, WITH 45° BACKSHELL, RECEPTACLE**

J



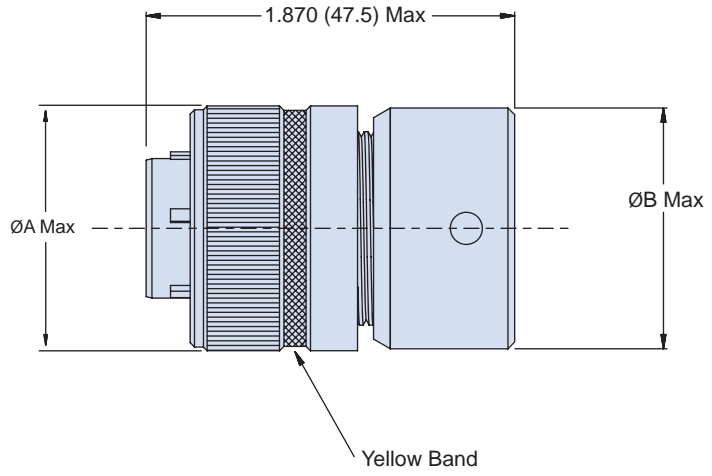
**M28876 (/6, /7, /8, /9)**  
**180-040 (-06, -16, -26, -36)**  
**MIL-PRF-28876 Plug Connector**  
 for use with MIL-PRF-29504/14 and /15 Termini



**Plug Connector**



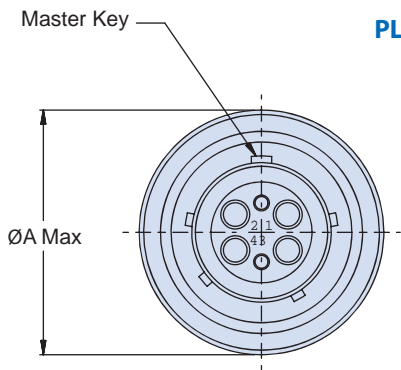
Plug without backshell



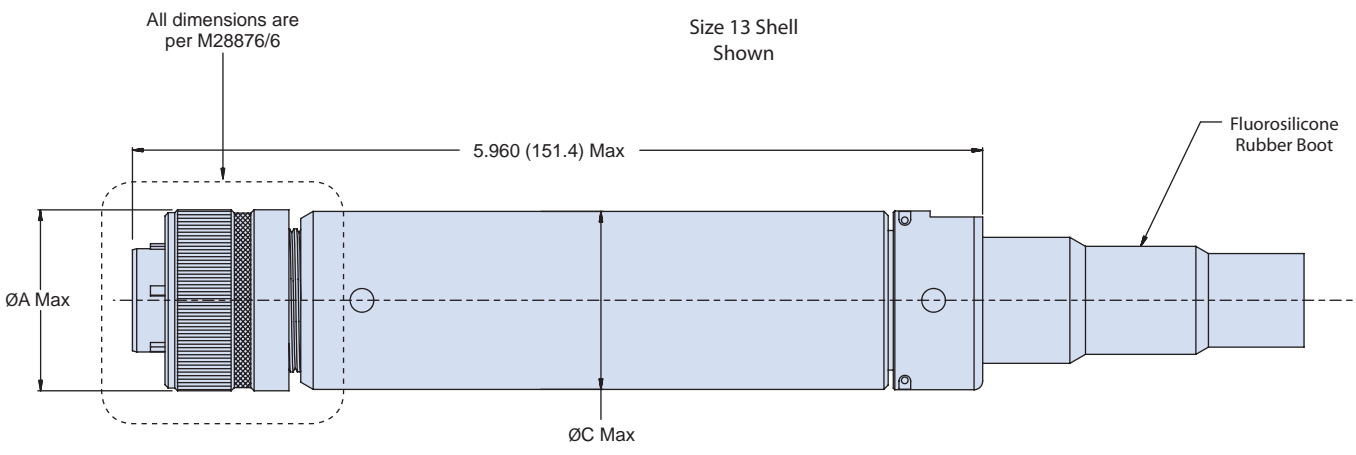
**M28876/6 • 180-040-06**  
**PLUG WITHOUT BACKSHELL**



Plug with straight backshell



Size 13 Shell Shown



**M28876/7 • 180-040-16 PLUG WITH STRAIGHT BACKSHELL**

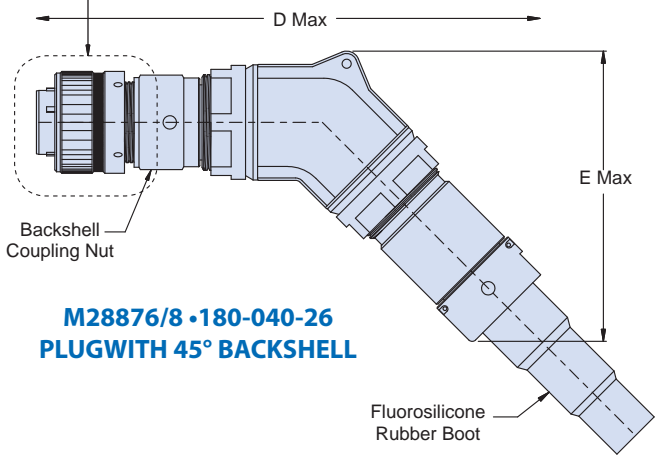
Dimensions in Inches (millimeters) are subject to change without notice.

**M28876 (16, 17, 18, 19)**  
**180-040 (-06, -16, -26, -36)**  
**MIL-PRF-28876 Plug Connector**  
 for use with MIL-PRF-29504/14 and /15 Termini

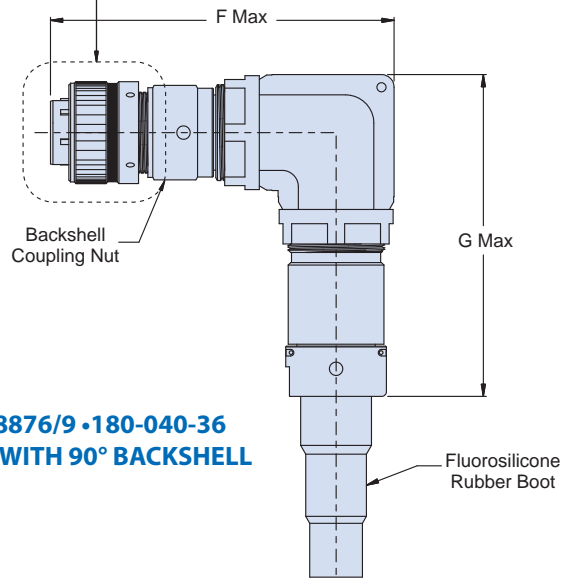


Table I: Dimensions							
Shell Size	ØA Max	ØB Max	ØC Max	D Max	E Max	F Max	G Max.
11	1.028 (26.1)	0.960 (24.4)	0.960 (24.4)	6.090 (154.7)	3.540 (89.9)	4.190 (106.4)	4.250 (108.0)
13	1.141 (29.0)	1.085 (27.6)	1.085 (27.6)	6.160 (156.5)	3.580 (90.9)	4.190 (106.4)	4.250 (108.0)
15	1.263 (32.1)	1.255 (31.9)	1.255 (31.9)	6.440 (163.6)	3.850 (97.8)	4.440 (112.8)	4.500 (114.3)
23	1.705 (43.3)	1.695 (43.1)	1.763 (44.8)	7.350 (186.7)	5.000 (127.0)	4.850 (123.2)	5.000 (127.0)

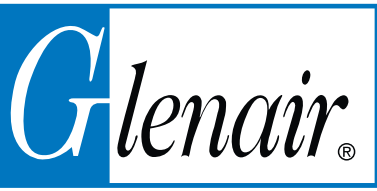
All dimensions are per M28876/6



All dimensions are per M28876/6



Dimensions in Inches (millimeters) are subject to change without notice.



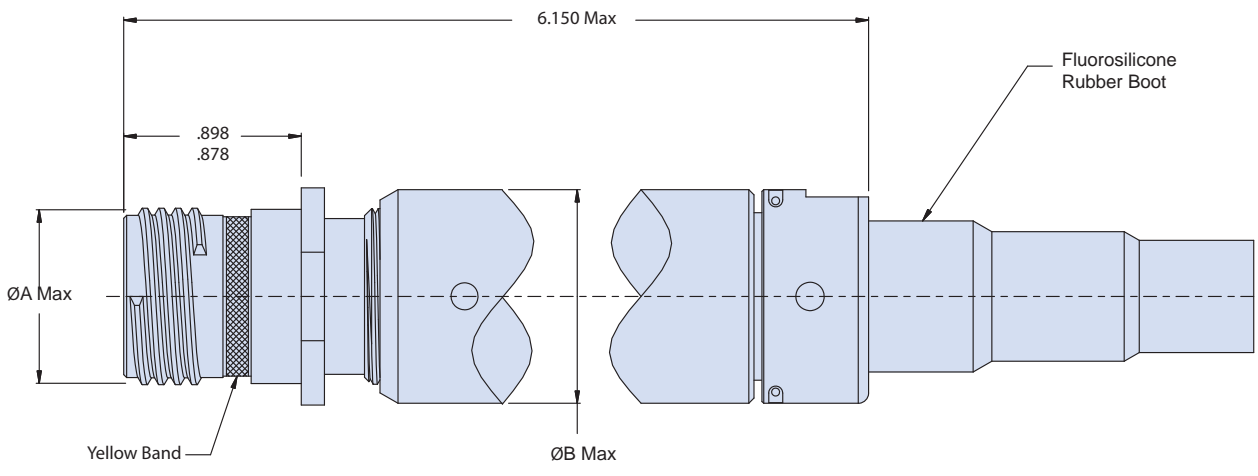
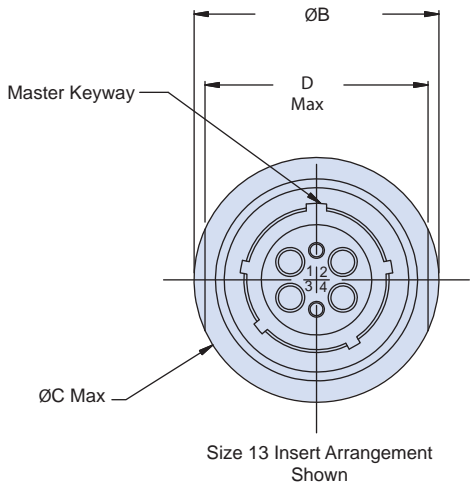
**M28876 (/5)  
In-Line Receptacle**  
for use with MIL-PRF-29504/14 and /15 Termini



**In-Line Receptacle Connector**

**Table I: Dimensions**

Shell Size	ØA Max	ØB Max	ØC Max	D
11	0.750 (19.1)	0.960 (24.4)	0.963 (24.5)	0.768 (19.5)
13	0.875 (22.2)	1.085 (27.6)	1.088 (27.6)	0.893 (22.7)
15	1.062 (27.0)	1.255 (31.9)	1.275 (32.4)	1.080 (27.4)
23	1.500 (38.1)	1.763 (44.8)	1.719 (43.7)	1.518 (38.6)



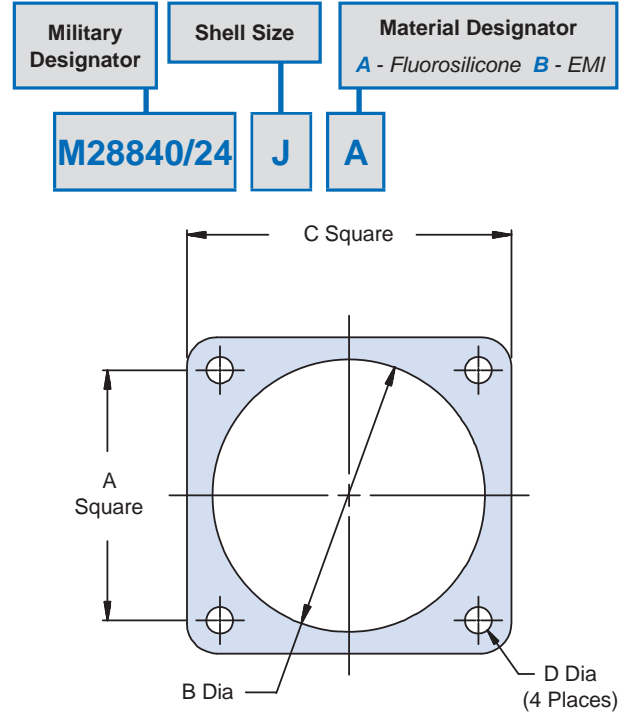
Dimensions in Inches (millimeters) are subject to change without notice.

**M28840 (/24) and 930-006**  
**Wall-Mount Receptacle Mounting Gaskets**  
 for use with MIL-PRF-28876 (/1, /2, /3, /4)  
 and 180-040 (-03, -13, -23, -33) Commercial Connectors



**MIL-PRF Wall-Mount Receptacle Mounting Gasket**

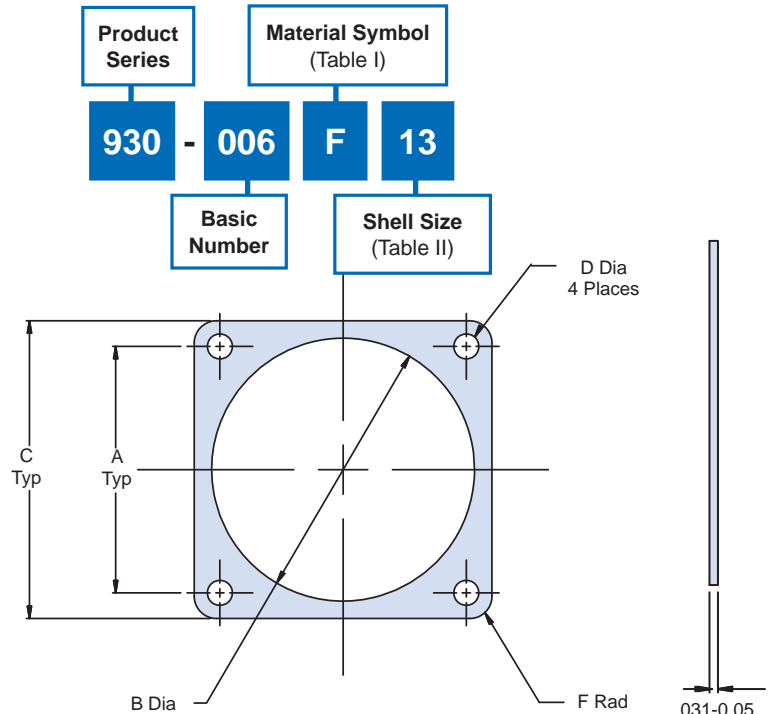
Shell Size	A	B Dia.	C	D Dia.
A (11)	.760 (19.30)	.766 (19.46)	1.039 (26.39)	.130 (3.30) .110 (2.79)
	.740 (18.80)	.750 (19.05)	1.023 (25.98)	
B (13)	.853 (21.67)	.891 (22.63)	1.154 (29.31)	
	.833 (21.16)	.875 (22.22)	1.138 (28.90)	
C (15)	.978 (24.84)	1.078 (27.38)	1.274 (32.36)	
	.958 (24.33)	1.062 (26.97)	1.258 (31.95)	
D (17)	1.025 (26.04)	1.141 (28.98)	1.399 (26.39)	
	1.005 (25.53)	1.125 (28.58)	1.383 (35.13)	
E (19)	1.150 (29.21)	1.338 (33.98)	1.524 (38.71)	
	1.130 (28.70)	1.312 (33.32)	1.508 (38.30)	
F (23)	1.291 (32.79)	1.516 (38.51)	1.734 (44.04)	
	1.271 (32.28)	1.500 (38.10)	1.718 (43.64)	
G (25)	1.402 (35.61)	1.641 (41.68)	1.834 (46.58)	.157 (3.99) .137 (3.48)
	1.382 (35.10)	1.625 (41.28)	1.818 (46.18)	
H (29)	1.578 (40.08)	1.891 (48.03)	2.154 (54.71)	
	1.558 (39.57)	1.875 (47.62)	2.138 (54.30)	
J (33)	1.744 (44.30)	2.078 (52.78)	2.344 (59.54)	.183 (4.65) .163 (4.14)
	1.724 (43.79)	2.062 (52.37)	2.328 (59.13)	



**Commercial Wall-Mount Receptacle Mounting Gasket**

Symbol	Material Description
F	Fluorosilicone
M	Silver Plated Glass Filled Silicone
N	Neoprene

Shell Size	A ± .010	Ø B +.016 / -.000	C .016 / -.000	Ø D ± .010	F Radius ± .010
11	.750	.750	1.023	.120	.141
13	.843	.875	1.138		
15	.968	1.062	1.258		
17	1.015	1.125	1.383		
19	1.140	1.312	1.508		
23	1.281	1.500	1.718		
25	1.392	1.625	1.818	.147	.188
29	1.568	1.875	2.138		
33	1.734	2.062	2.328		
			.173		



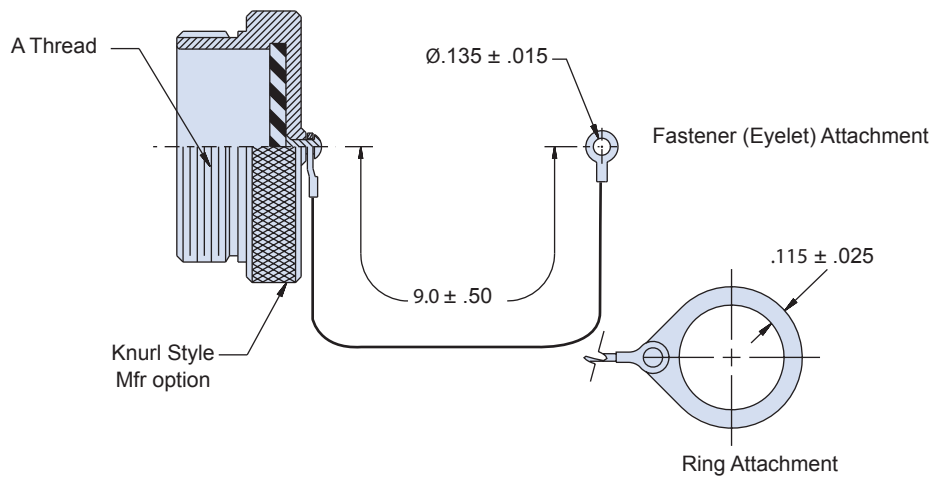
Dimensions in Inches (millimeters) are subject to change without notice.



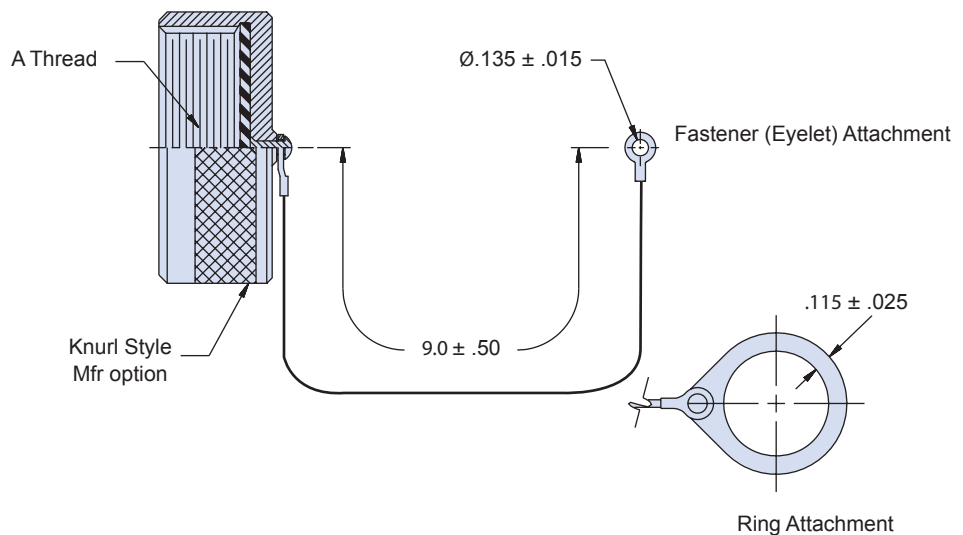
**Plug and receptacle dust covers**

Table I: Cover Type		
Connector	MIL-Spec Basic P/N	Glenair Commercial Basic P/N
Plug	M28876/10	660-072
Receptacle	M28876/15	660-073

**M28876/10 • 660-072  
Plug Cover**



**M28876/15 • 660-073  
Receptacle Cover**

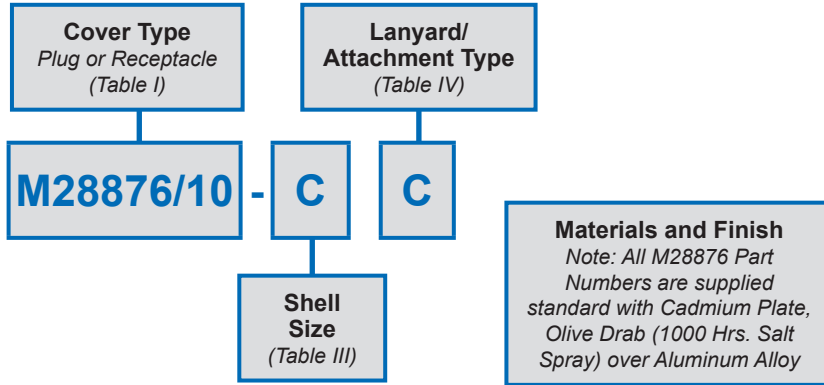


J

M28876/10 and M28876/15  
660-072 and 660-073  
MIL-PRF-28876 Dust Covers



**How to order: Military QPL**



**Table II: Material and Finish (Commercial)**

Code	Material	Finish Description
M	Aluminum Alloy	Electroless Nickel
NF		Cadmium, Olive Drab
MT		Nickel-PTFE, Grey
ZR		Zinc-Nickel, Black
Consult Factory for Additional Options		

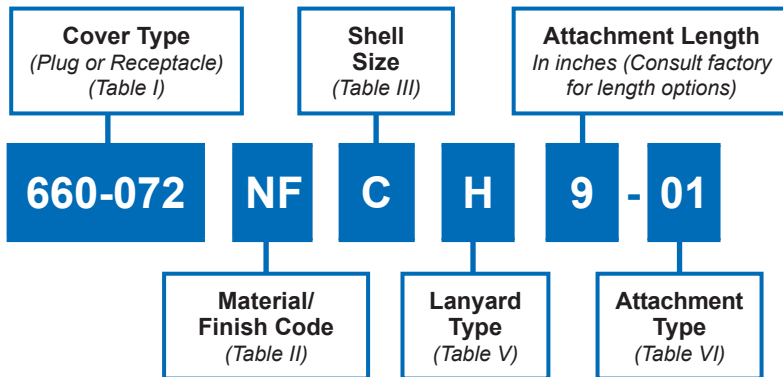
Refer to Appendix for material/finish details

\*MT plating available only with Glenair commercial equivalent part numbers

**Table III: Shell Size**

Symbol	A Thread
A	.750-0.1P-0.2L-D.S.
B	.875-0.1P-0.2L-D.S.
C	1.062-0.1P-0.2L-D.S.
F	1.500-0.1P-0.2L-D.S.

**How To Order: Glenair Commercial**



**Table IV: Lanyard/Attachment (MIL-Spec)**

Symbol	Description
A	Chain (Sash) with Fastener (Eyelet) Attachment
B	Chain (Sash) with Ring Attachment
C	Wire Rope with Fastener (Eyelet) Attachment
D	Wire Rope with Ring Attachment
E	Without Chain (Sash) or Wire Rope

**Table VI: Attachment Type (Commercial)**

Shell Size	Attachment Type	Connector Type	Code
A	Ring	Plug	13
		Recp	15
B	Ring	Plug	15
		Recp	17
C	Ring	Plug	17
		Recp	20
F	Ring	Plug	23
		Recp	27
All	Fastener (Eyelet)	All	01

**Table V: Lanyard Type (Commercial)**





Symbol	Type
H	Wire Rope, Coated
S	Chain (Sash), Passivated
N	No Lanyard
Consult Factory for Additional Options	



# MIL-DTL-28840

# TOOLS · CONTACTS · CONNECTORS AND ACCESSORIES

## NAVY QPL COMPONENT SELECTION GUIDE

 <p><b>Crimping Tools</b></p>		 <p><b>Insertion &amp; Removal Tools</b></p>		 <p><b>Pin Contact</b></p>		 <p><b>Socket Contact</b></p>					
<p>M22520/34-01 Basic Crimp Tool M22520/34-02 Positioner M22520/35 Gage</p>		<p>M81969/33-01 Straight Insertion Tool M81969/33-02 Offset Insertion Tool M81969/34-01 Removal Tool</p>		<p>M39029/83 Standard Duty Electrical Pin Contact</p>		<p>M39029/84 Standard Duty Electrical Socket Contact</p>					
 <p><b>Environmental Backshells</b></p>		 <p><b>EMI/RFI Environmental Backshells</b></p>		 <p><b>Connector Sockets</b></p>		 <p><b>"E" Nuts</b></p>		 <p><b>Strain Reliefs</b></p>			
<p>M28840/6 B Straight M28840/9 B 45° M28840/8 B 90°</p>		<p>M28840/6 A Straight M28840/8 A 90° M28840/9 A 45°</p>		<p>600G005*</p>		<p>M28840/23</p>		<p>M28840/1 Straight M28840/3 45° M28840/2 90°</p>			
 <p><b>Dummy Stowage Receptacles</b></p>		 <p><b>Protective Plug Covers</b></p>		 <p><b>Protective Receptacle Covers</b></p>		 <p><b>Jam Nuts</b></p>		 <p><b>Mounting Flanges and Gaskets</b></p>		 <p><b>MIL-PRF-24758A Conduit Fittings</b></p>	
<p>M28840/7</p>		<p>M28840/15</p>		<p>M28840/13</p>		<p>MS3186</p>		<p>M28840/24 Gasket</p>		<p>M24758-14 Straight (M24758/14 Straight.)* M28840/5 Straight • M28840/25 90° • M28840/27 45° • M28840/30 Coupling</p>	





# Qualified Military Standard Electrical Connectors and Accessories for Shipboard Applications

## Ideal for All Rugged Environmental Applications

The standard connector and backshell series for shipboard use, MIL-DTL-28840 offers high-density insert arrangement and high-shock performance. Glenair's qualified product line is fully tooled and highly available.

The MIL-DTL-28840 features RFI/EMI shielding, scoop-proof shells and corrosion resistant materials and finishes. In addition to all the connector types and styles, Glenair makes all the backshell accessory slash numbers as well. The addition of the MIL-DTL-28840 connector product line is part of Glenair's total commitment to meeting all your shipboard interconnect requirements. So, if a rugged, environmental M28840 solution is in your future, think Glenair—from connectors to accessories.

### PRODUCT FEATURES

- High Density, Scoop Proof Insert Arrangements
- Flange Mount, Box Mount, Jam-Nut and In-Line Receptacles
- Straight, 45° and 90° Strain Reliefs and Backshell Assemblies
- Sav-Con® Connector Savers
- MIL-DTL-28840 Qualified
- Additional Glenair Commercial Part Numbers with Features Not Available in the Mil-Spec

D

### MIL-DTL-28840 In a Nutshell:

*MIL-DTL-28840 connectors were developed for the Navy for use in shipboard applications. They are a high density, environmental, circular connector series utilizing a high shock, threaded coupling system with front release crimped contacts. Note the splined backshell interface and the integrated wire sealing grommet that both add to the environmental and mechanical performance of this ruggedized connector.*



Dimensions in Inches (millimeters) are subject to change without notice.



# MIL-DTL-28840

## Shipboard Electrical Connectors

### Performance Specifications, Class and Finishes

Performance Specifications	
Current Rating (Maximum)	Size #20 Contact; 20AWG 7.5A, 22AWG 5.0A, 28AWG 1.5A, 30AWG 1.0A
Test Voltage (Dielectric Withstanding Voltage)	1000 VAC RMS at sea level. Test per EIA-364-20
Insulation Resistance	5000 megohms minimum (at ambient temperature) per EIA-364-21
Contact Resistance	Per SAE-AS39029
Operating Temperature	-55° C. to +200° C.
Immersion	per test method EIA-364-09
Shock	in accordance with MIL-S-901 grade A
Vibration	per EIA-364-28 test procedure
Magnetic Permeability	2.0 μ (Aluminum), 5.0 μ (Stainless Steel) maximum; ASTM-A342/A342M

Materials and Finishes	
Shells, Coupling Nuts, Jam Nuts	Aluminum alloy per ASTM B211, or stainless steel per AMS-QQ-S-763
Contacts	Copper alloy, 50 μinch gold plated per ASTM B488 Type 3, Code C, Class 1,27 over nickel underplate per QQ-N-290 Class 2. Socket contact hood: stainless steel, passivated.
Insulators	High Grade Engineering Plastic per ASTM D5948
Contact Retention Clip	Beryllium copper
Shells, Coupling Nuts, Jam Nut Plating Finish	Stainless Steel, Black Cadmium plated
Grommet, Seal	Blended elastomer, 30% silicone per ZZ-R-765, 70% fluorosilicone per MIL-R-25988

Contact Code	Type	Contact Spec.	Contact Size	Acceptable Wire Size	Outside Diameter of Finished Wire	
					Minimum	Maximum
F	Pin	SAE-AS39029/83-508	20-20	24	.040 (1.02)	.070 (1.78)
G	Socket	SAE-AS39029/84-509		22		
P	Pin	SAE-AS39029/83-450	20-22	20		
S	Socket	SAE-AS39029/84-452		24		
D	Pin	SAE-AS39029/83-451	20-28	22		
E	Socket	SAE-AS39029/84-453		32		

#### Notes

To achieve sealing, wires must be built up to finished wire diameter. In accordance with MIL-DTL-24643 and MIL-DTL-16878.

Dimensions in Inches (millimeters) are subject to change without notice.

M22520/34-01, M22520/34-02, M22520/35,  
M81969/33-01, M81969/33-02, and M81969/34-01  
Contact Crimping, Insertion and Removal Tools  
for MIL-DTL-28840 Connectors



MIL-DTL-28840  
Introduction

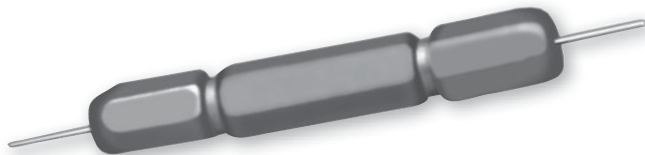
## M22520/34-01 Basic Crimp Tool

Qualified to M22520/34-01, this crimp tool prevents improper crimps and overcrimping and is based on the AFM8 miniature adjustable crimp tool. It performs a modified eight impression crimp with a precision cycle controlled ratcheting mechanism for gas-tight wire terminations and excellent tensile strength. Also featured is a four-step crimp-depth selector knob, and is designed for use with the M22520/34-02 bayonet-type Positioner. Gaging is accomplished with the M22520/35 "go/No-Go" Gage. The adjustment wheel has eight settings. Check calibration with the M22520/35 gage. Length is 6.75 inches, weight is approximately 10 oz.



## M22520/34-02 Positioner

This bayonet-type positioner locates and holds contacts at the correct position for crimping with the M22520/34-01 Basic Crimp Tool. The face plate shows the correct tool settings.



## M22520/35 Gage

Periodic Gaging is recommended to ensure accurate calibration, and is easily accomplished by setting the tool selector knob to the proper position and checking the indenter closure with the M22520/35 "Go/No-Go" Gage. Color coded anodized aluminum with stainless steel probes.

## Insertion and Removal Tools



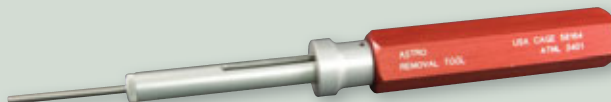
### M81969/33-01 Straight Insertion Tool

The M81969/33-01 Straight Insertion Tool is approved for use on MIL-DTL-28840 connectors and features an anodized aluminum handle and stainless steel insertion tip.



### M81969/33-02 Offset Insertion Tool

Approved for use on MIL-DTL-28840 connectors, the M81969/33-02 Offset Insertion Tool features an anodized aluminum handle and stainless steel offset insertion tip.



### M81969/34-01 Removal Tool

Designed and approved for removal of contacts and in MIL-DTL-28840 connectors, the M81969/34-01 Removal Tool's anodized aluminum handle and stainless steel tip will provide many years of reliable service.

Dimensions in Inches (millimeters) are subject to change without notice.

D



# MIL-DTL-28840 Connector Contact Insertion/Extraction Instructions

## Contact Insertion

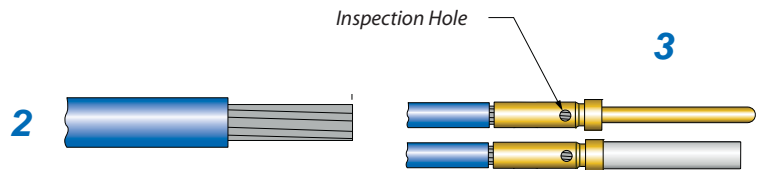
### 1. Tools:

Be sure that all proper assembly tools are on hand and properly calibrated (Figure 1). See previous page for complete descriptions of required tools.



### 2. Stripping:

Strip wire ends to 3/16" for 20-32 AWG, taking care not to nick or cut wire strands (Figure 2). Hold insulation and twist strands to eliminate any splaying.

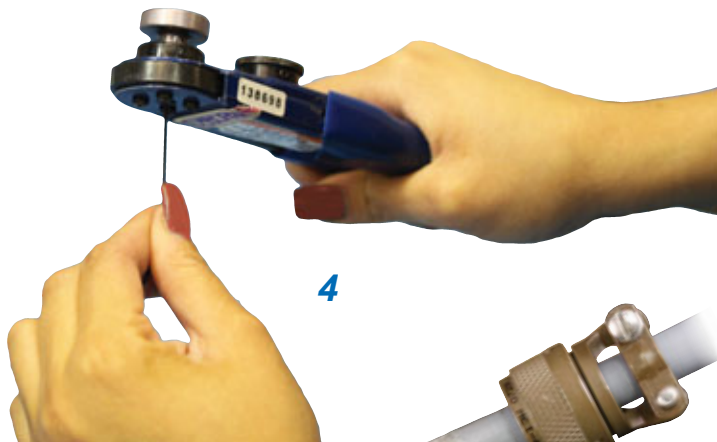


### 3. Wire Insertion:

Insert wire into crimp well of contact. **Do Not Force.** Wire strands must be visible through inspection hole (Figure 3).

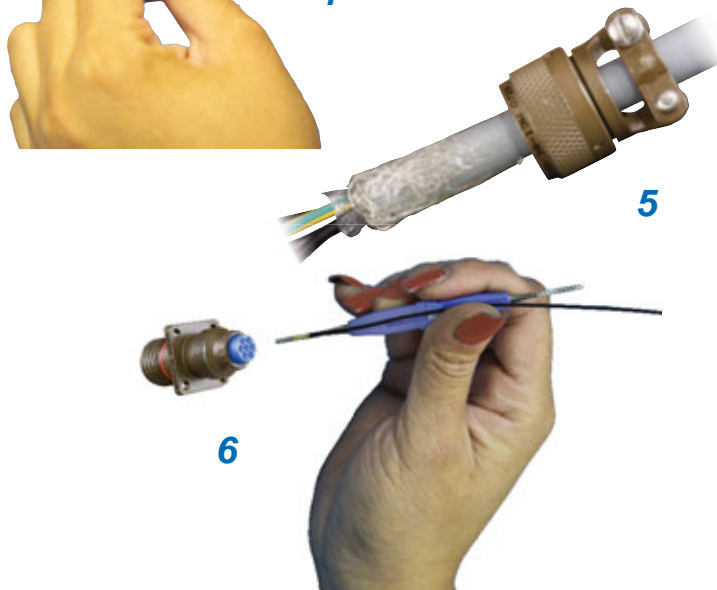
### 4. Crimping:

Using crimp tool and positioner noted above, insert wire and contact into locator jaws. Squeeze tool handle completely until ratchet releases. Remove wired contact from tool (Figure 4).



### 5. Backshell Preparation:

Slide backshell/strain relief over jacketed cable or wires in proper order for re-assembly. Consult Glenair backshell catalog or contact factory for proper jacketed cable assembly (Figure 5).



### 6. Contact Preparation:

Slide wired contact into insertion tool of choice so that the tip of the tool butts against the shoulder of the contact (Figure 6).

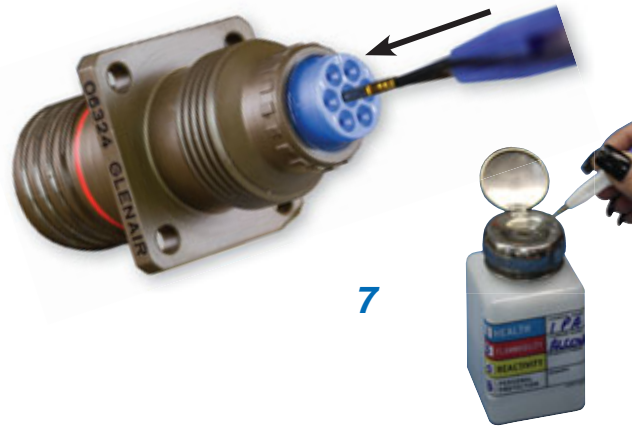
Dimensions in Inches (millimeters) are subject to change without notice.

# MIL-DTL-28840 Connector Contact Insertion/Extraction Instructions



## 7. Insertion of Contacts:

Insert wired contacts and tool into contact cavity until contact “clicks” into retention clip (Figure 7). A straight pull on the wire will assure the contact is properly seated. Note: Isopropyl alcohol may be used as a lubricant. Use sparingly.



## 8. Assembly:

After all contacts are inserted, assemble backshell or strain relief according to Glenair backshell catalog instructions.

## Contact Extraction

### 1. Contact Extraction:

Remove backshell or strain relief from connector.

### 2. Contact Extraction:

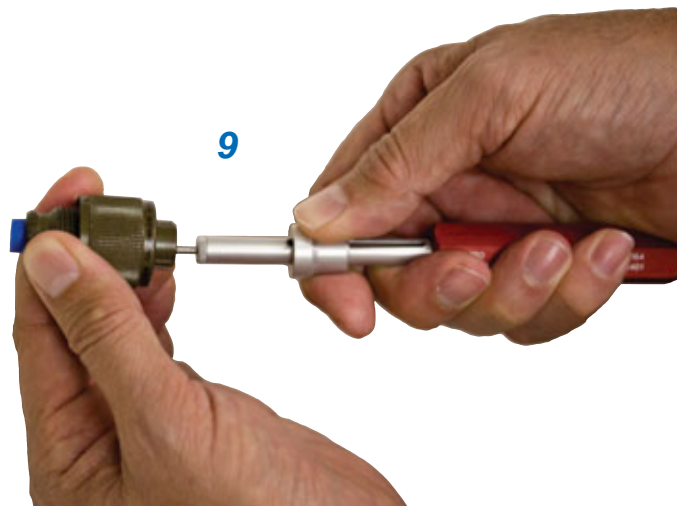
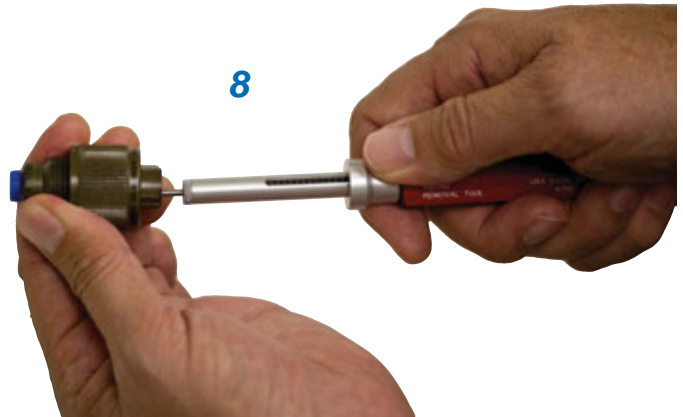
MIL-DTL-28840 connector contacts are extracted from the rear but released from the front of the connector. Using an extraction tool, slide tool tip into front of contact cavity (mating face of connector, figure 8) until tool tip engages against contact retention clip. Push plunger with minimum force to release contact (Figure 9). Note: Isopropyl alcohol may be used as a lubricant. Use sparingly.

### 3. Contact Extraction:

Pull wired contact from rear grommet of connector.

## Contact Replacement:

After replacing contact, re-insert starting with assembly instruction number 7.



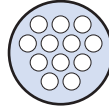
Dimensions in Inches (millimeters) are subject to change without notice.



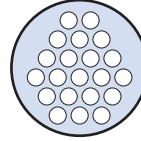
# MIL-DTL-28840 Connectors Standard Insert Arrangements



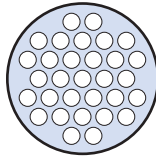
Shell Size 11  
7 Contacts



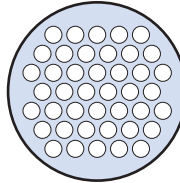
Shell Size 13  
12 Contacts



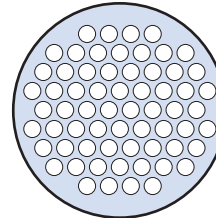
Shell Size 15  
21 Contacts



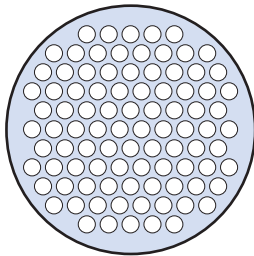
Shell Size 17  
31 Contacts



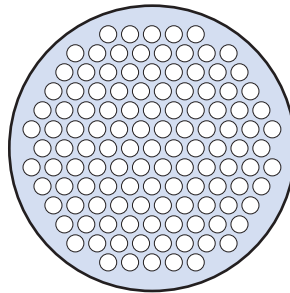
Shell Size 19  
42 Contacts



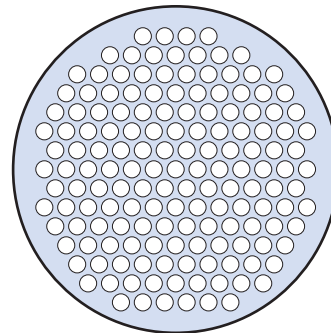
Shell Size 23  
64 Contacts



Shell Size 25  
92 Contacts



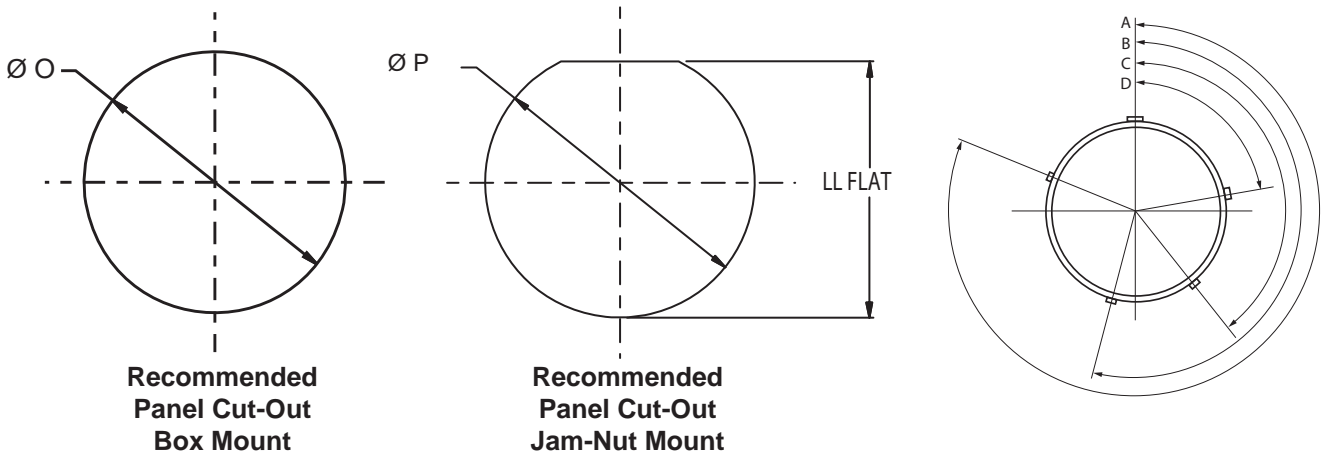
Shell Size 29  
121 Contacts



Shell Size 33  
155 Contacts

Dimensions in Inches (millimeters) are subject to change without notice.

# MIL-DTL-28840 Polarization Keyways



**Table I: Panel Cutout**

Designator	P Dia.	LL Flat	O Ref. Mtg. Hole
A (11)	.890 .880	.853 .843	.812
B (13)	1.015 1.005	.978 .968	.937
C (15)	1.203 1.193	1.165 1.155	1.124
D (17)	1.265 1.255	1.228 1.218	1.187
E (19)	1.453 1.443	1.415 1.405	1.374
F (23)	1.640 1.630	1.603 1.593	1.562
G (25)	1.765 1.755	1.728 1.718	1.687
H (29)	1.953 1.943	1.915 1.905	1.874
J (33)	2.140 2.130	1.103 2.093	2.062

**Table II: Alternate Keyways**

Designator	Key and Keyway Arrangement	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
A (11) B (13)	1	95	141	208	236
	2	113	156	182	292
	3	90	145	195	252
	4	53	156	220	255
	5	119	146	176	298
	6	51	141	184	242
C (15) D (17)	1	80	142	196	293
	2	135	170	200	310
	3	49	169	200	244
	4	66	140	200	257
	5	62	145	180	280
	6	79	153	197	272
E (19) F (23) G (25) H (29) J (33)	1	80	142	196	293
	2	135	170	200	310
	3	49	169	200	244
	4	66	140	200	257
	5	62	145	180	280
	6	79	153	197	272

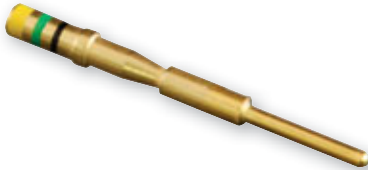
Dimensions in Inches (millimeters) are subject to change without notice.



**M39029/83  
850-004  
Standard Duty Electrical Pin Contact**

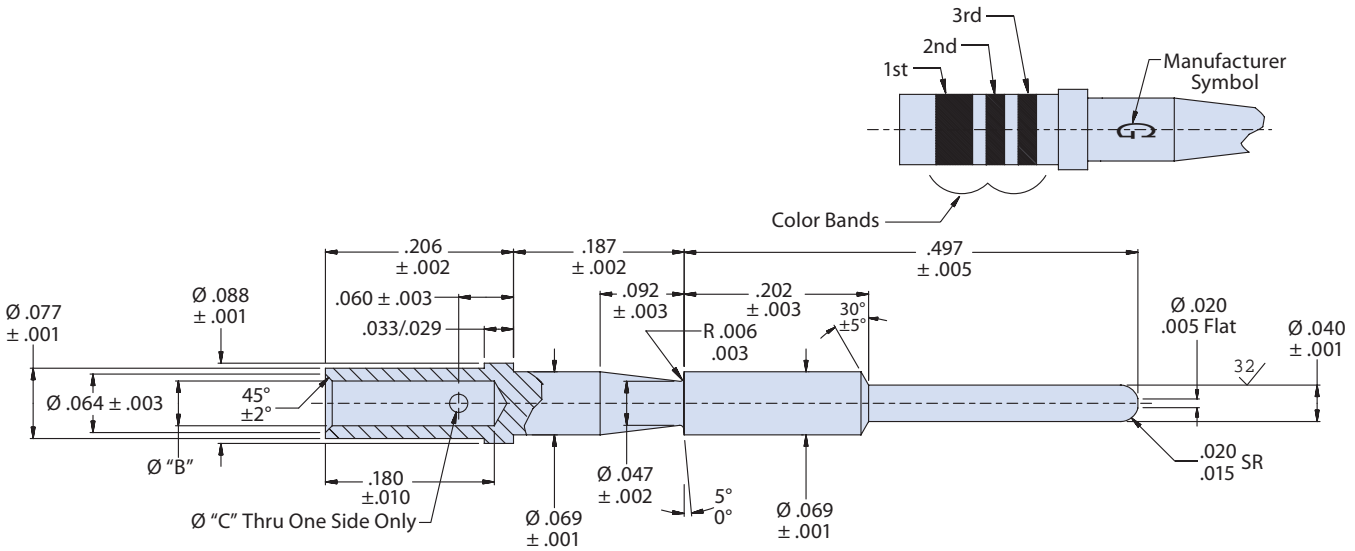
M28840

**Standard Pin Crimp Contact for MIL-DTL-28840 Connectors**



Mating End Size	Wire Accomodation	Military Part Number	Glenair Part Number
20	28-32 AWG	<b>M39029/83-451</b>	<b>850-004-20-451</b>
20	22-26 AWG	<b>M39029/83-450</b>	<b>850-004-20-450</b>
20	20-24 AWG	<b>M39029/83-508</b>	<b>850-004-20-508</b>

D



**Material and Finish**

Pin Contact: copper alloy per ASTM B197, 50 microinches gold plated per ASTM B488 Type II Code C Class 1,27 over nickel plate per QQ-N-290 Class 2, 50-100 microinches. Approved for space flight.

Dimensions in Inches (millimeters) are subject to change without notice.



**M39029/83  
850-004  
Standard Duty Electrical Pin Contact**



MIL-DTL-28840  
Introduction

**Table I: Contact Dimensions**

Size	Part Number	Military Number	Ø B	Ø C	Color Bands		
					1st	2nd	3rd
20	850-004-20-508	M39029/83-508	.050	.032	Green	Black	Grey
			.048	.026			
20	850-004-20-450	M39029/83-450	.0355	.032	Yellow	Green	Black
			.0335	.026			
20	850-004-20-451	M39029/83-451	.0200	.022	Yellow	Green	Brown
			.0180	.018			

**Table II: Tool Compatibility**

Size	Part Number	Military Number	AWG Handling	Crimp Tool	Positioner	Insertion Tool	Extraction Tool
20	850-004-20-508	M39029/83-508	20, 22, 24	M22520/34-01	M22520/34-02	M81969/33-01	M81969/34-01
20	850-004-20-450	M39029/83-450	22, 24, 26	M22520/34-01	M22520/34-02	M81969/33-01	M81969/34-01
20	850-004-20-451	M39029/83-451	28, 30, 32	M22520/34-01	M22520/34-02	M81969/33-01	M81696/34-01

**D**

**Test Performance Specifications**

Durability	(meets SAE-AS39029, paragraph 3.5.9) No electrical or mechanical defects after 500 cycles of engagement and disengagement
Contact Retention	(meets MIL-DTL-38999, paragraph 3.23) The axial displacement of the contact shall not exceed .012 inch (0.30 mm). No damage to contacts or inserts shall result.
Pin Engagement End	(meets SAE-AS39029 paragraph 3.4.1) Unless otherwise specified, the mating end of all contacts (except size 22 and smaller) shall be formed with an approximate spherical radius.
Permeability	(meets SAE-AS39029, paragraph 3.5.1) When tested as specified in paragraph 4.7.2, the relative magnetic permeability of the contact shall be no greater than 2.0.
Vibration	(meets SAE-AS39029, paragraph 3.5.10) When contacts are tested as specified in paragraph 4.7.11, there shall be no electrical discontinuity of 1 microsecond or greater. There shall be no defects detrimental to the mechanical or electrical performance.
Salt Spray (corrosion)	(meets SAE-AS39029, paragraph 3.5.12) When tested as specified in 4.7.13, mated contacts shall withstand 48 hours of salt spray conditioning without defects detrimental to the mechanical or electrical performance.
Temperature life	(meets SAE-AS39029, paragraph 3.5.13) When tested as specified in paragraph 4.7.14, mated contacts shall withstand temperature conditioning for 1,000 hours without defects detrimental to mechanical or electrical performance. There shall be no diffusion/migration of the base metal through the contact outer plating. Class A - Maximum operating temperature +125°C. per paragraph 1.2.2
Dielectric withstanding voltage	(meets SAE-AS39029, paragraph 3.5.19) When tested as specified in paragraph 4.7.20, crimped contacts shall show no evidence of breakdown or flashover.
Workmanship	(meets SAE-AS39029, paragraph 3.7) Contacts shall be processed in such a manner as to be uniform in quality and shall be free from foreign material and burrs or sharp corners that might damage the connector or affect mating of the contacts. Burrs and sharp edges shall be removed 0.005 inch maximum.

Dimensions in Inches (millimeters) are subject to change without notice.



**M39029/84  
850-005  
Standard Duty Electrical Socket Contact**

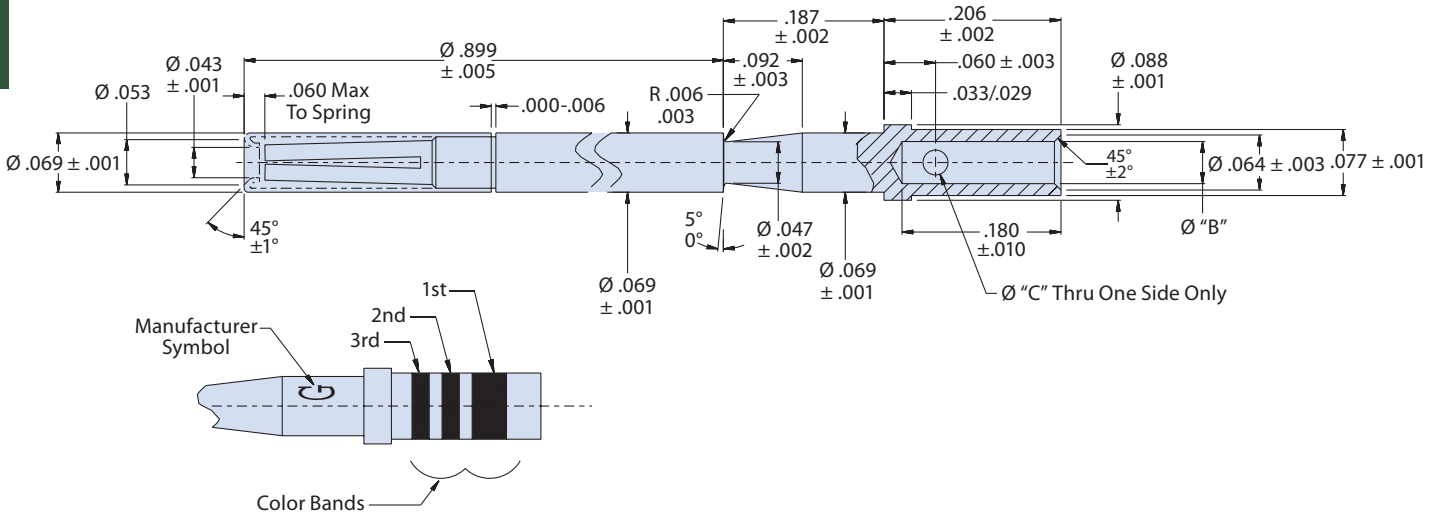
M28840

**Standard Socket Crimp Contact for MIL-DTL-28840 Connectors**



Mating End Size	Wire Accomodation	Military Part Number	Glenair Part Number
20	28-32 AWG	<a href="#">M39029/84-453</a>	<b>850-005-20-453</b>
20	22-26 AWG	<a href="#">M39029/84-452</a>	<b>850-005-20-452</b>
20	20-24 AWG	<a href="#">M39029/84-509</a>	<b>850-005-20-509</b>

**D**



**Material and Finish**

Socket Contact: Copper alloy per ASTM B197, 50 microinches gold plated per ASTM B488 Type II Code C Class 1,27 over nickel plate per QQ-N-290 Class 2, 50-100 microinches. Approved for space flight.  
 Socket Contact Hood: Stainless steel, passivated per AMS-QQ-P-35. Approved for space flight.

Dimensions in Inches (millimeters) are subject to change without notice.

**M39029/84  
850-005  
Standard Duty Electrical Socket Contact**



MIL-DTL-28840  
Introduction

**Table I: Contact Dimensions**

Size	Part Number	Military Number	Ø B	Ø C	Color Bands		
					1st	2nd	3rd
20	850-005-20-509	M39029/84-509	.050 .048	.032 .026	Green	Black	White
20	850-005-20-452	M39029/84-452	.0355 .0335	.032 .026	Yellow	Green	Red
20	850-005-20-453	M39029/84-453	.0200 .0180	.022 .018	Yellow	Green	Orange

**Table II: Tool Compatibility**

Size	Part Number	Military Number	AWG Handling	Crimp Tool	Positioner	Insertion Tool	Extraction Tool
20	850-005-20-509	M39029/84-509	20, 22, 24	M22520/34-01	M22520/34-02	M81969/33-01	M81969/34-01
20	850-005-20-452	M39029/84-452	22, 24, 26	M22520/34-01	M22520/34-02	M81969/33-01	M81969/34-01
20	850-005-20-453	M39029/84-453	28, 30, 32	M22520/34-01	M22520/34-02	M81969/33-01	M81969/34-01

**D**

Test	Performance Specifications
Durability	(meets SAE-AS39029, paragraph 3.5.9) No electrical or mechanical defects after 500 cycles of engagement and disengagement
Contact Retention	(meets MIL-DTL-38999, paragraph 3.23) The axial displacement of the contact shall not exceed .012 inch (0.30 mm). No damage to contacts or inserts shall result.
Pin Engagement End	(meets SAE-AS39029 paragraph 3.4.1) Unless otherwise specified, the mating end of all contacts (except size 22 and smaller) shall be formed with an approximate spherical radius.
Permeability	(meets SAE-AS39029, paragraph 3.5.1) When tested as specified in paragraph 4.7.2, the relative magnetic permeability of the contact shall be no greater than 2.0.
Vibration	(meets SAE-AS39029, paragraph 3.5.10) When contacts are tested as specified in paragraph 4.7.11, there shall be no electrical discontinuity of 1 microsecond or greater. There shall be no defects detrimental to the mechanical or electrical performance.
Salt Spray (corrosion)	(meets SAE-AS39029, paragraph 3.5.12) When tested as specified in 4.7.13, mated contacts shall withstand 48 hours of salt spray conditioning without defects detrimental to the mechanical or electrical performance.
Temperature life	(meets SAE-AS39029, paragraph 3.5.13) When tested as specified in paragraph 4.7.14, mated contacts shall withstand temperature conditioning for 1,000 hours without defects detrimental to mechanical or electrical performance. There shall be no diffusion/migration of the base metal through the contact outer plating. Class A - Maximum operating temperature +125°C. per paragraph 1.2.2
Dielectric withstanding voltage	(meets SAE-AS39029, paragraph 3.5.19) When tested as specified in paragraph 4.7.20, crimped contacts shall show no evidence of breakdown or flashover.
Workmanship	(meets SAE-AS39029, paragraph 3.7) Contacts shall be processed in such a manner as to be uniform in quality and shall be free from foreign material and burrs or sharp corners that might damage the connector or affect mating of the contacts. Burrs and sharp edges shall be removed 0.005 inch maximum.

Dimensions in Inches (millimeters) are subject to change without notice.

MIL-DTL-28840

# SHIPBOARD ELECTRICAL CONNECTORS

THE RUGGEDIZED, ENVIRONMENTAL MIL-DTL-28840 SOLUTION



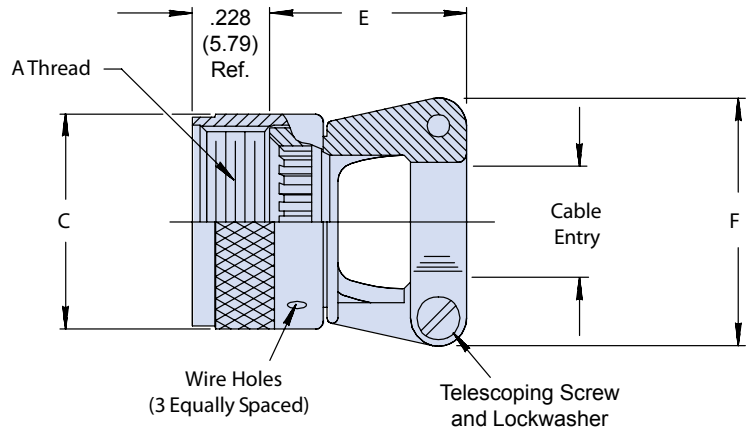
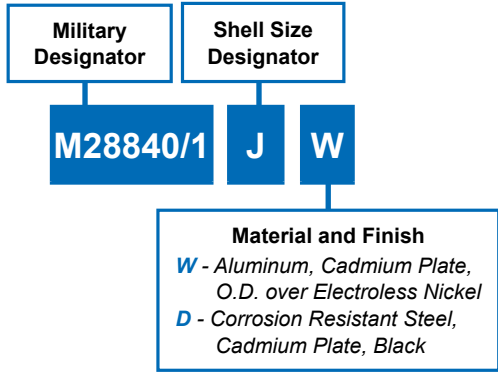
Glenair offers a fully tooled, high availability line of MIL-DTL-28840 shipboard electrical connectors. Developed for Navy shipboard applications, the MIL-DTL-28840 is a high-density environmental circular connector series which utilizes a high shock threaded coupling system, front release crimp contacts, RFI/EMI shielding, scoop-proof shells, and corrosion resistant materials and finishes. Glenair manufactures all of the connector types and styles, as well as all of the backshell accessory slash numbers—the full range of MIL-DTL-28840 QPL connectors and accessories.



# M28840/1 Straight Strain Relief



MIL-DTL-28840  
Electrical Connectors



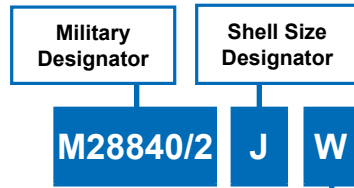
Designator	A Thread Class 2B	B Max. Diameter	C Max.	D Max.	Screw Size Ref.	Cable Entry	
						Min.	Max.
A (11)	.750-20 UNEF	1.028 (26.11)	1.091 (27.71)	.903 (22.94)	.114-40	.177 (4.50)	.286 (7.26)
B (13)	.875-20 UNEF	1.141 (28.98)	1.091 (27.71)	.977 (24.82)	.114-40	.177 (4.50)	.286 (7.26)
C (15)	1.000-20 UNEF	1.263 (32.08)	1.091 (27.71)	1.151 (29.24)	.114-40	.250 (6.35)	.416 (10.57)
D (17)	1.125-18 UNEF	1.387 (35.23)	1.206 (30.63)	1.281 (32.54)	.114-40	.291 (7.39)	.476 (12.09)
E (19)	1.250-18 UNEF	1.513 (38.43)	1.320 (33.53)	1.406 (35.71)	.114-40	.348 (8.84)	.626 (15.90)
F (23)	1.438-18 UNEF	1.703 (43.26)	1.445 (36.70)	1.576 (40.03)	.134-32	.429 (10.90)	.831 (21.11)
G (25)	1.562-18 UNEF	1.825 (46.36)	1.570 (39.88)	1.666 (42.32)	.134-32	.523 (13.28)	.956 (24.28)
H (29)	1.875-16 UN	2.143 (54.43)	1.721 (43.71)	2.046 (51.97)	.134-32	.643 (16.33)	1.081 (27.46)
J (33)	2.062-16 UNS	2.329 (59.16)	1.908 (48.46)	2.209 (56.11)	.162-32	.704 (17.88)	1.187 (30.15)

Dimensions in Inches (millimeters) are subject to change without notice.

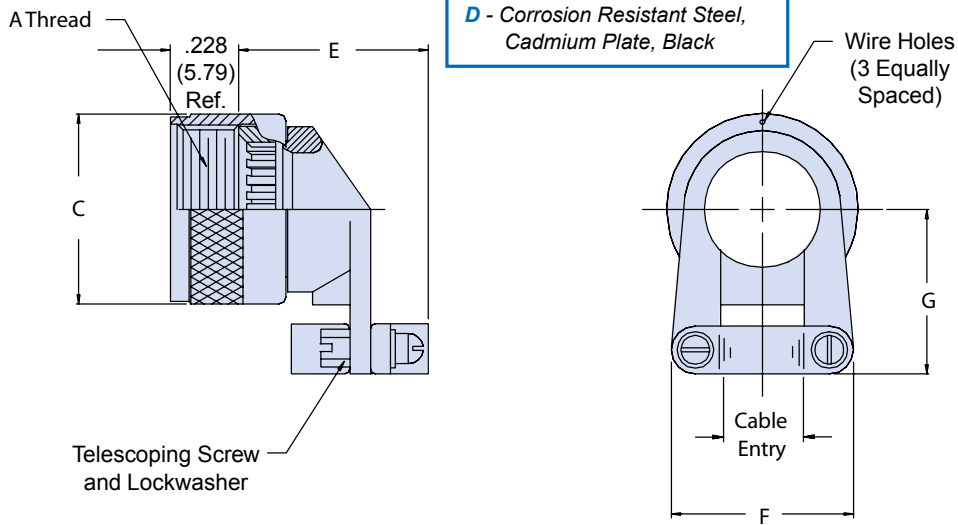




# M28840/2 90° Strain Relief



**Material and Finish**  
*W* - Aluminum, Cadmium Plate,  
 O.D. over Electroless Nickel  
*D* - Corrosion Resistant Steel,  
 Cadmium Plate, Black



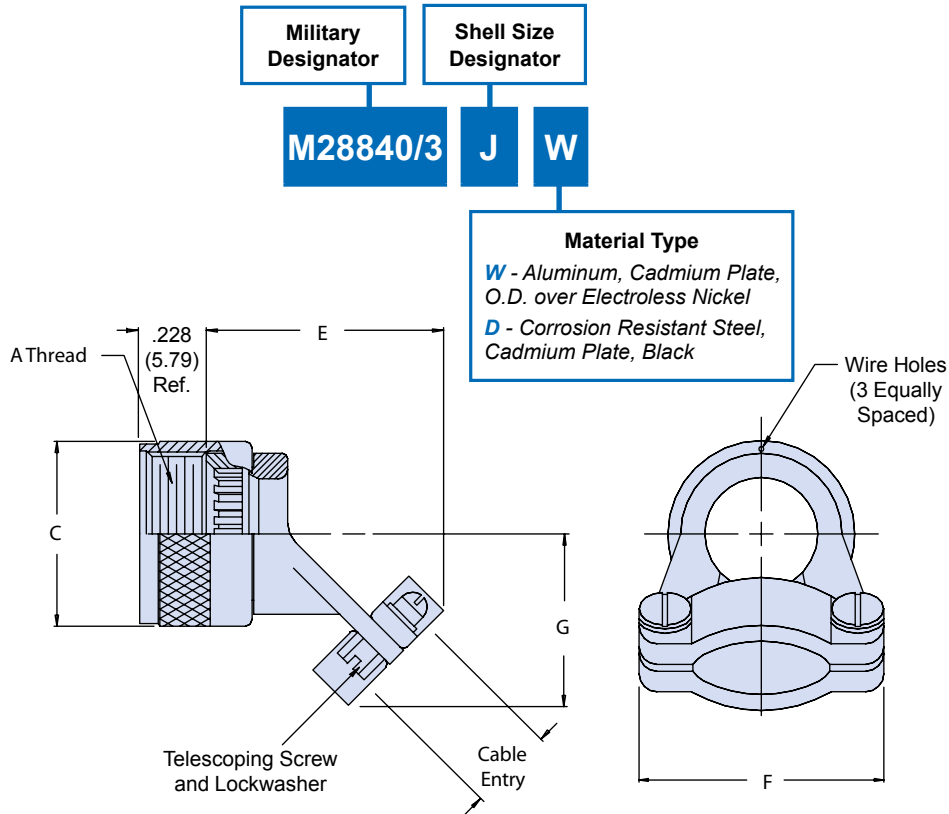
Designator	A Thread Class 2B	B Max. Diameter	C Max.	D Max.	Screw Size Ref.	Cable Entry	
						Min.	Max.
A (11)	.750-20 UNEF	1.028 (26.11)	1.071 (27.20)	.929 (23.60)	.114-40	.177 (4.50)	.286 (7.26)
B (13)	.875-20 UNEF	1.141 (28.98)	1.071 (27.20)	.929 (23.60)	.114-40	.177 (4.50)	.286 (7.26)
C (15)	1.000-20 UNEF	1.263 (32.08)	1.280 (32.51)	1.056 (26.82)	.114-40	.250 (6.35)	.416 (10.57)
D (17)	1.125-18 UNEF	1.387 (35.23)	1.392 (35.36)	1.233 (31.32)	.114-40	.291 (7.39)	.476 (12.09)
E (19)	1.250-18 UNEF	1.513 (38.43)	1.517 (38.53)	1.296 (32.92)	.114-40	.348 (8.84)	.626 (15.90)
F (23)	1.438-18 UNEF	1.703 (43.26)	1.642 (41.71)	1.358 (34.49)	.134-32	.429 (10.90)	.831 (21.11)
G (25)	1.562-18 UNEF	1.825 (46.36)	1.767 (44.88)	1.420 (36.07)	.134-32	.523 (13.28)	.956 (24.28)
H (29)	1.875-16 UN	2.143 (54.43)	1.905 (48.39)	1.634 (41.50)	.134-32	.643 (16.33)	1.081 (27.46)
J (33)	2.062-16 UNS	2.329 (59.16)	1.968 (49.99)	1.859 (47.22)	.162-32	.704 (17.88)	1.187 (30.15)

Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/3 45° Strain Relief



MIL-DTL-28840  
Electrical Connectors



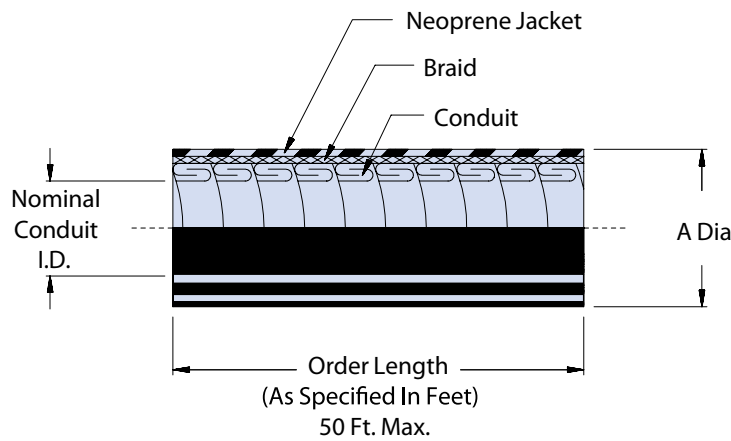
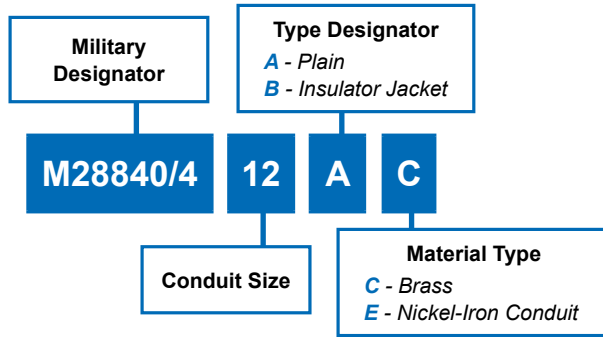
Designator	A Thread Class 2B	B Max. Diameter	C Max.	D Max.	E Max.	Screw Size Ref.	Cable Entry	
							Min.	Max.
A (11)	.750-20 UNEF	1.028 (26.11)	1.091 (27.71)	.929 (23.60)	.903 (22.94)	.114-40	.177 (4.50)	.286 (7.26)
B (13)	.875-20 UNEF	1.141 (28.98)	1.091 (27.71)	.929 (23.60)	.977 (24.82)	.114-40	.177 (4.50)	.286 (7.26)
C (15)	1.000-20 UNEF	1.263 (32.08)	1.091 (27.71)	1.056 (26.82)	1.151 (29.24)	.114-40	.250 (6.35)	.416 (10.57)
D (17)	1.125-18 UNEF	1.387 (35.23)	1.206 (30.63)	1.233 (31.32)	1.281 (32.54)	.114-40	.291 (7.39)	.476 (12.09)
E (19)	1.250-18 UNEF	1.513 (38.43)	1.320 (33.53)	1.296 (32.92)	1.406 (35.71)	.114-40	.348 (8.84)	.626 (15.90)
F (23)	1.438-18 UNEF	1.703 (43.26)	1.445 (36.70)	1.358 (34.49)	1.576 (40.03)	.134-32	.429 (10.90)	.831 (21.11)
G (25)	1.562-18 UNEF	1.825 (46.36)	1.570 (39.88)	1.420 (36.07)	1.666 (42.32)	.134-32	.523 (13.28)	.956 (24.28)
H (29)	1.875-16 UN	2.143 (54.43)	1.721 (43.71)	1.634 (41.50)	2.046 (51.97)	.134-32	.643 (16.33)	1.081 (27.46)
J (33)	2.062-16 UNS	2.329 (59.16)	1.908 (48.46)	1.859 (47.22)	2.209 (56.11)	.162-32	.704 (17.88)	1.187 (30.15)

Dimensions in Inches (millimeters) are subject to change without notice.

E



# M28840/4 Metal Core Conduit

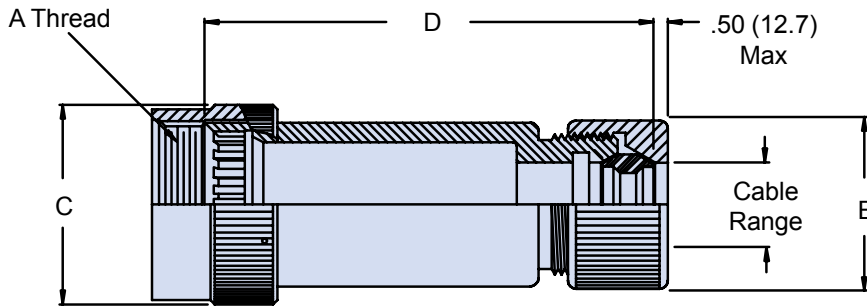
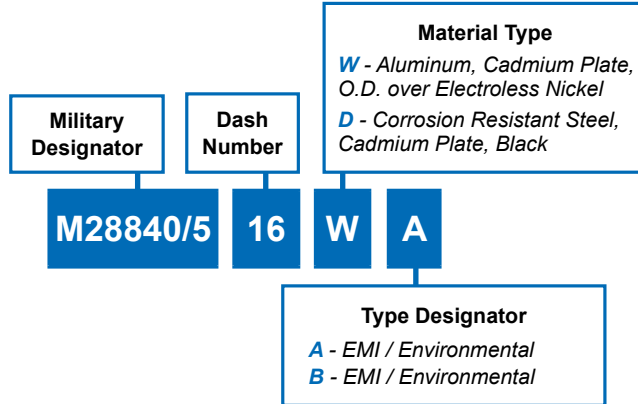


Size	Nominal Conduit Inside Diameter	A Diameter Over Shield ± .010 (0.25)	L	B Diameter Max Over Jacket
03	.375 (9.52)	.525 (13.34)	50 ft. Max.	.688 (17.47)
04	.500 (12.70)	.650 (16.51)		.812 (20.62)
05	.625 (15.87)	.765 (19.43)		.937 (23.79)
06	.750 (19.05)	.925 (23.50)		1.078 (27.38)
08	1.00 (25.40)	1.210 (30.73)		1.437 (36.49)
10	1.25 (31.75)	1.455 (36.96)		1.695 (43.05)
12	1.500 (38.10)	1.725 (43.82)		1.956 (49.68)
16	2.000 (50.80)	2.200 (55.88)		2.469 (62.71)

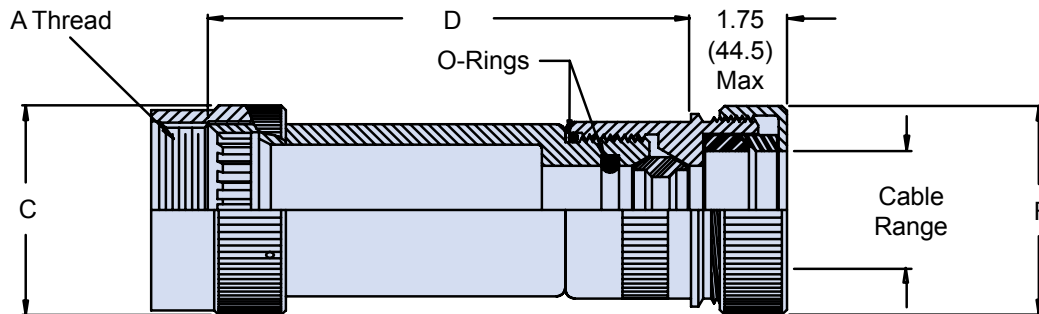
Dimensions in Inches (millimeters) are subject to change without notice.



M28840/5  
Backshell for Metal Core Conduit



STYLE A - EMI/Non-Environmental  
(Plain Conduit)



STYLE B - EMI/Environmental  
(Jacket Conduit)

Dimensions in Inches (millimeters) are subject to change without notice.





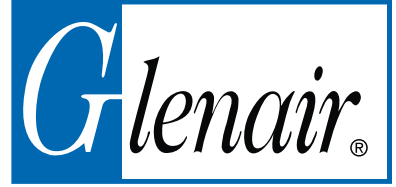
**M28840/5**  
**Backshell for Metal Core Conduit**

Dash Number	Designator	Conduit Size	L ± .12 (± 3.05)	Working Room Ref.	V Thread Class 2*	M Max. Diameter	Y Max. Diameter			
01	A (11)	03	1.75 (44.45)	1.00 (25.4)	1.00-20 UNEF	1.12 (28.45)	1.19 (30.23)			
02	B (13)									
03	C (15)	04			1.188-18 UNEF	1.25 (31.8)	1.38 (35.1)			
04		03			1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)			
05		04			1.188-30 UNEF	1.25 (31.8)	1.38 (35.1)			
06		05			1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)			
07		06			3.00 (76.2)		1.750-18 UNS	1.62 (41.2)	1.94 (49.3)	
08	D (17)	05	2.25 (57.15)	1.50 (38.10)	1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)			
09		06			1.750-18 UNS	1.62 (41.2)	1.94 (49.3)			
10		08		2.00 (50.80)	2.00-18 UNS	1.81 (46.0)	2.19 (55.6)			
11	E (19)	05		1.50 (38.10)	1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)			
12		06						1.750-18 UNEF	1.62 (41.2)	1.94 (49.3)
13		08						2.00-18 UNS	1.81 (46.2)	2.19 (55.6)
14	F (23)	06	2.75 (69.85)	2.00 (50.80)	1.750-18 UNS	1.62 (41.2)	1.94 (49.3)			
15		08			2.00-18 UN	1.81 (46.0)	2.19 (55.6)			
16		10	3.50 (88.90)		2.00-16 UN	2.18 (55.4)	2.44 (62.0)			
17	G (25)	06	2.75 (60.85)		1.750-18 UN	1.62 (41.2)	1.94 (49.3)			
18		08			2.00-18 UN	1.81 (46.0)	2.19 (55.6)			
19		10			2.250-16 UN	2.18 (55.4)	2.44 (62.0)			
20		12	4.00 (101.6)		2.500-16 UN	2.56 (65.0)	2.69 (68.3)			
21	H (29)	10	3.25 (82.55)	2.50 (63.50)	2.250-16 UN	2.18 (55.4)	2.44 (62.0)			
22		12			2.500-16 UN	2.56 (65.0)	2.66 (68.3)			
23	J (33)	12			2.500-16 UN	2.56 (65.0)	2.60 (88.3)			
24		16			3.00-16 UN	3.06 (77.8)	3.18 (81.0)			
25	A (11)	04			1.75 (44.45)	1.00 (25.4)	1.188-18 UNEF	1.75 (31.75)	1.38 (35.0)	

E

Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/5 Backshell for Metal Core Conduit



MIL-DTL-28840  
Electrical Connectors

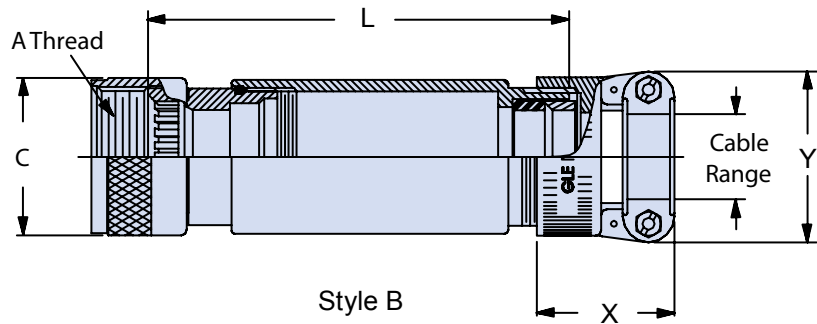
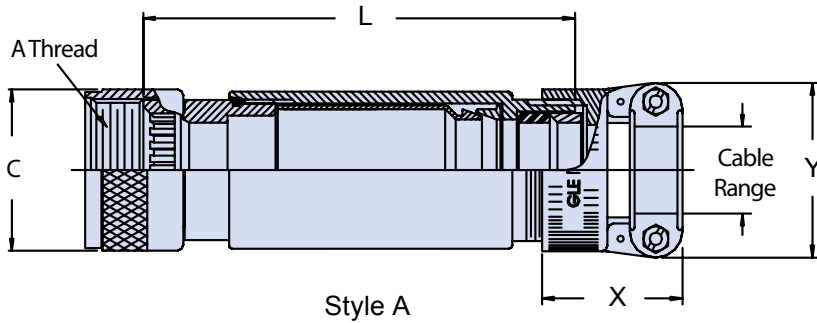
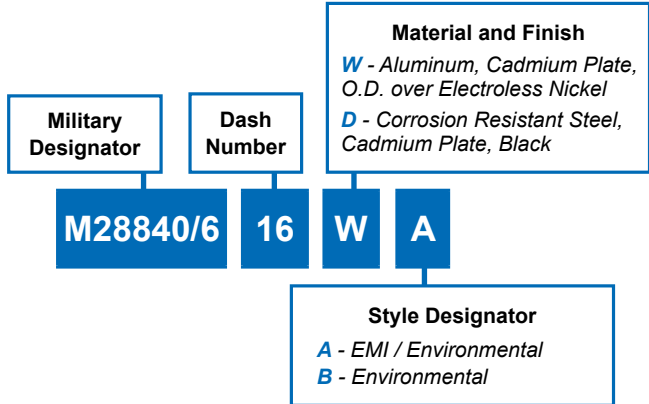
Dash Number	Designator	A Thread Class 2B	B Diameter Max.	C Thread Class 2*	Sealing Range	
					Max.	Min.
01	A (11)	.750-20 UNEF	1.028 (26.11)	.875-20 UNEF	.63 (16.0)	.50 (12.7)
02	B (13)	.875-20 UNEF	1.141 (28.98)			
03				1.000-20 UNEF	.75 (19.1)	.63 (16.0)
04	C (15)	1.000-20 UNEF	1.263 (32.08)	.875-20 UNEF	.63 (16.0)	.50 (12.7)
05				1.000-20 UNEF	.75 (19.1)	.63 (16.0)
06				1.125-18 UNEF	.88 (22.4)	.75 (19.1)
07				1.250-18 UNEF	1.00 (25.4)	.88 (22.4)
08	D (17)	1.125-18 UNEF	1.387 (35.23)	1.125-18 UNEF	.88 (22.4)	.75 (19.1)
09				1.250-18 UNEF	1.00 (25.4)	.88 (22.4)
10				1.625-18 UNEF	1.38 (35.1)	1.19 (30.2)
11	E (19)	1.250-18 UNEF	1.513 (38.43)	1.125-18 UNEF	.88 (22.4)	.75 (19.1)
12				1.250-18 UNEF	1.00 (25.4)	.88 (22.4)
13				1.625-18 UNEF	1.38 (35.1)	1.19 (30.2)
14	F (23)	1.438-18 UNEF	1.703 (45.51)	1.250-18 UNEF	1.00 (25.4)	.88 (22.4)
15				1.625-18 UNEF	1.38 (35.1)	1.19 (30.2)
16				1.875-18 UNS	1.63 (41.4)	1.44 (36.6)
17	G (25)	1.562-18 UNEF	1.825 (46.35)	1.250-18 UNEF	1.00 (25.4)	.88 (22.4)
18				1.625-18 UNEF	1.38 (35.1)	1.19 (30.2)
19				1.875-18 UNS	1.63 (41.4)	1.44 (36.6)
20				2.125-16 UN	1.88 (47.8)	1.63 (41.4)
21	H (29)	1.875-16 UN	2.143 (54.43)	1.875-18 UNS	1.63 (41.4)	1.44 (36.6)
22				2.125-16 UN	1.88 (47.8)	1.63 (41.4)
23	J (33)	2.062-16 UNS	2.329 (59.16)	2.1225-16 UN	1.88 (47.8)	1.63 (41.4)
24				2.750-16 UN	2.38 (60.5)	2.13 (54.1)
25	A (11)	.750-20 UNEF	1.028 (26.11)	.875-20 UNEF	.75 (19.05)	.63 (16.00)

Dimensions in Inches (millimeters) are subject to change without notice.





# M28840/6 EMI/RFI Environmental Backshell



Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/6 EMI/RFI Environmental Backshell



MIL-DTL-28840  
Electrical Connectors

DASH NO.	Designator	A Thread Class 2B	L ± .12	C Max Dia	X Max	Cable Range		Y Ref	
						Max	Min		
01	A (11)	.750-20 UNEF	3.62 (91.95)	1.156 (29.36)	1.281 (32.54)	.312 (7.92)	.188 (4.77)	.938 (23.83)	
02	B (13)	.875-20 UNEF		1.156 (29.36)		.312 (7.92)	.188 (4.77)	.938 (23.83)	
03				.438 (11.12)		.281 (7.14)	1.125 (28.58)		
04	C (15)	1.00-20 UNEF		4.12 (104.65)		1.281 (32.54)	.312 (7.92)	.188 (4.77)	.938 (23.83)
05							.438 (11.12)	.281 (7.14)	1.125 (28.58)
06							.562 (14.27)	.344(8.74)	1.312 (33.32)
07	D (17)	1.125-18UNEF	4.12 (104.65)	1.406 (35.71)	1.312 (33.32)	.750 (19.05)	.438(11.12)	1.593 (40.46)	
08					1.281 (32.54)	.625 (15.87)	.675(15.88)	1.312 (33.32)	
09					1.312 (33.32)	.750(19.05)	.438(11.12)	1.593 (40.46)	
10				1.531 (38.89)	1.406 (35.71)	.938 (23.82)	.625(15.88)	1.750 (44.45)	
11					1.281 (32.54)	.625(15.87)	.375 (9.53)	1.312 (33.32)	
12					1.406 (35.71)	.938(23.82)	.625 15.87)	1.750 (44.45)	
13	F (23)	1.438-18 UNEF	4.62 (117.35)	1.656 (42.06)	1.312 (33.32)	.750 (19.05)	.438(11.12)	1.593 (40.46)	
14					1.406 (35.71)	.938(23.82)	.625(15.87)	1.250 (31.75)	
15				1.593 (40.46)	1.188 (30.17)	.812 (20.62)	2.093 (53.16)		
16	G (25)	1.562-18 UNEF	5.12 (130.01)	1.781 (45.24)	1.406 (35.71)	.938 (23.82)	.625 (15.88)	1.750 (44.45)	
17					1.593 (40.46)	1.188 (30.17)	.812 (20.62)	2.093 (53.16)	
18					1.593 (40.46)	1.250 (31.75)	.875 (22.23)	2.093 (53.16)	
19				2.156 (54.76)	1.625 (41.28)	1.380 (35.05)	1.000(25.4)	2.343 (59.51)	
20					1.593 (40.46)	1.188 (30.17)	.812 (20.62)	2.093 (53.16)	
21					1.625 (41.28)	1.380 (38.05)	1.000(25.4)	2.343 (59.51)	
22	H (29)	1.875-16 UNS	5.12 (130.01)	2.281 (57.94)	1.625 (41.28)	1.380 (35.05)	1.000(25.4)	2.343 (59.51)	
23					1.900 (48.26)	1.625(41.28)	1.250 (25.4)	2.750 (69.85)	
24	A (11)	.750-20 UNEF	3.62 (91.95)	1.156 (29.36)	1.281 (32.54)	.438 (11.12)	.281 (7.14)	1.125 (28.58)	
25						.562 (14.27)	.344 (8.74)	1.312 (33.32)	
26	B (13)	.875-20 UNEF	4.12 (104.65)	1.406 (35.71)		.562 (14.27)	.344 (8.74)	1.312 (33.32)	
27						.625 (15.87)	.375 (9.52)	1.312 (33.32)	
28	C (15)	1.000-20 UNEF	4.12 (104.65)	1.406 (35.71)		.625 (15.87)	.375 (9.52)	1.312 (33.32)	

E

Dimensions in Inches (millimeters) are subject to change without notice.

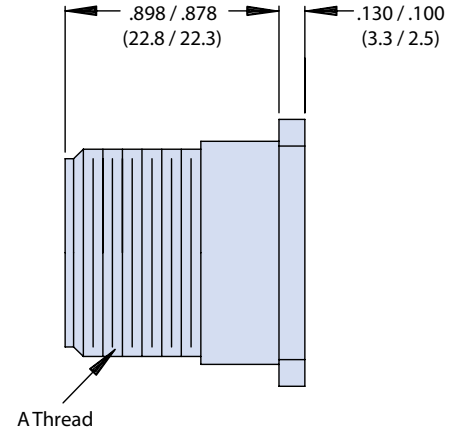
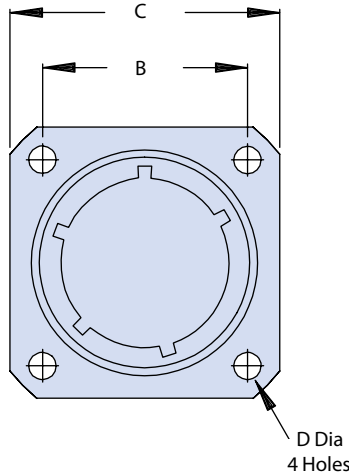
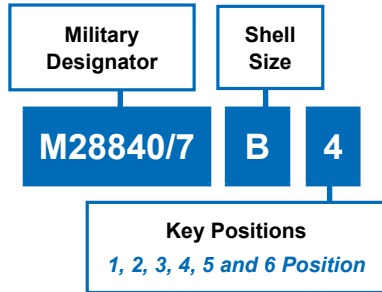


**M28840/6**  
**EMI/RFI Environmental Backshell**

Dash Number	Designator 1/	L ± .12 (± 3.05)	Working Room Ref.	V Thread Class 2*	X Max. Diameter	Y Max. Diameter
01	A (11)	3.62 (91.55)	2.00 (50.80)	.625-24 UNEF	1.281 (32.53)	.038 (23.82)
02	B (13)			.625-24 UNEF		1.125 (23.82)
03				.750-20 UNEF		
04	C (15)			.625-24 UNEF		.938 (23.82)
05				.750-20 UNEF		1.125 (28.57)
06				.875-20 UNEF		1.312 (33.32)
07	D (17)	4.12 (104.65)	2.50 (63.50)	1.188-18 UNEF	1.312 (33.32)	1.593 (40.62)
08				1.000-20 UNEF	1.281 (32.54)	1.312 (33.32)
09				1.188-19 UNEF	1.312 (33.32)	1.593 (40.62)
10				1.438-18 UNEF	1.406 (35.71)	1.750 (44.45)
11	E (19)	4.12 (104.65)	2.50 (63.50)	1.000-20 UNEF	1.281 (32.54)	1.312 (33.32)
12				1.438-18 UNEF	1.406 (35.71)	1.750 (44.45)
13				1.188-18 UNEF	1.312 (33.32)	1.593 (40.62)
14	F (23)	4.62 (117.35)	3.00 (76.20)	1.438-18 UNEF	1.406 (35.71)	1.750 (44.45)
15				1.750-18 UNS	1.593 (40.46)	2.003 (53.16)
16				1.438-18 UNEF	1.406 (35.71)	1.750 (44.45)
17	G (25)	5.12 (130.05)	3.50 (88.90)	1.750-18 UNS	1.593 (40.46)	2.093 (53.16)
18				1.750-18 UNS		2.093 (53.16)
19				2.000-18 UNS	1.625 (41.28)	2.343 (59.51)
20				1.750-18 UNS	1.593 (40.46)	2.093 (53.16)
21	H (29)	5.12 (130.05)	3.50 (88.90)	2.000-18 UNS	1.625 (41.28)	2.343 (59.51)
22				2.000-18 UNS		
23	J (33)	5.12 (130.05)	3.50 (88.90)	2.250-16 UNS	1.900 (48.26)	2.750 (69.85)
24				.750-20 UNEF	1.281 (32.54)	1.125 (28.57)
25	A (11)	3.62 (91.95)	2.00 (50.80)	.875-20 UNEF		1.312 (33.32)
26	B (13)					

Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/7 Dummy Stowage Receptacle

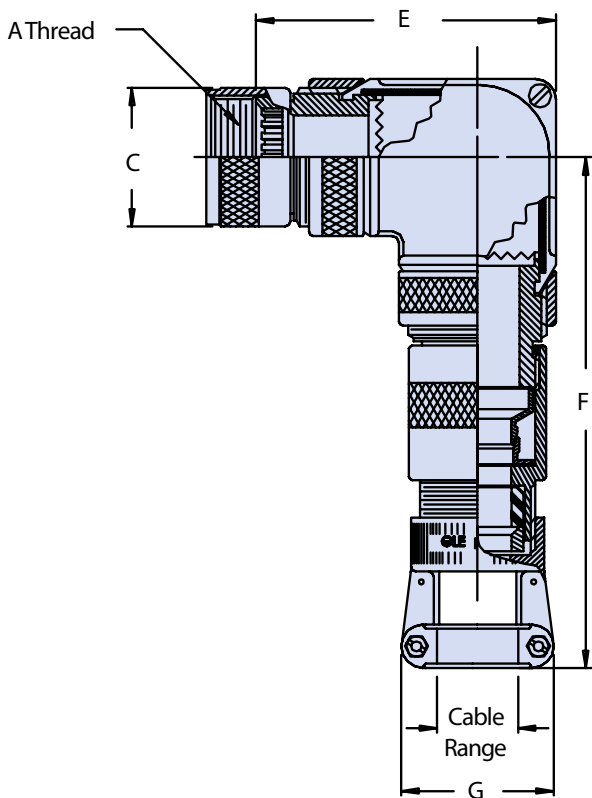
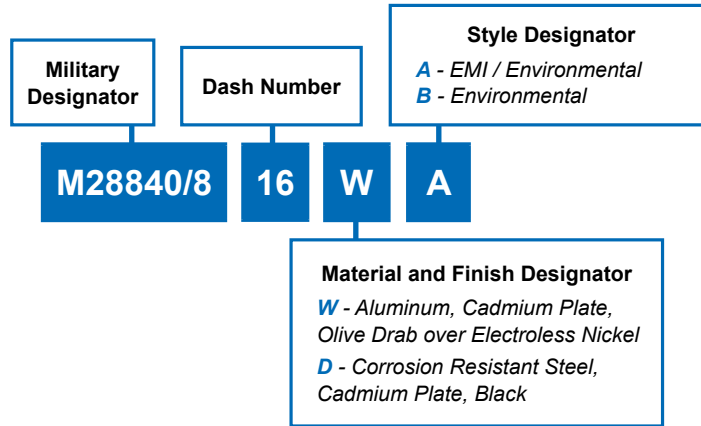


Designator	N Diameter Max.	O Reference Mating Hole	R T.P. Centerline to Centerline	S	T
A (11)	.750 (19.05)	.812 (20.62)	.750 (19.05)	1.043 (26.49) 1.003 (25.48)	.130 (3.30) .115 (2.92)
B (13)	.875 (22.22)	.937 (23.80)	.843 (21.41)	1.158 (29.41) 1.118 (28.40)	
C (15)	1.062 (26.97)	1.124 (28.55)	.968 (24.59)	1.278 (32.46) 1.238 (31.45)	
D (17)	1.125 (28.58)	1.187 (30.15)	1.015 (25.78)	1.403 (35.64) 1.363 (34.62)	
E (19)	1.312 (33.32)	1.374 (34.90)	1.140 (28.96)	1.528 (38.81) 1.488 (37.80)	
F (23)	1.500 (38.10)	1.562 (39.67)	1.281 (32.54)	1.738 (44.15) 1.698 (43.13)	
G (25)	1.625 (41.28)	1.687 (42.85)	1.392 (35.36)	1.838 (46.69) 1.798 (45.67)	.157 (3.99) .142 (3.61)
H (29)	1.812 (46.02)	1.874 (47.60)	1.568 (39.83)	2.158 (54.81) 2.118 (53.80)	
J (33)	2.000 (50.80)	2.062 (52.37)	1.734 (44.04)	2.348 (59.64) 2.308 (58.62)	

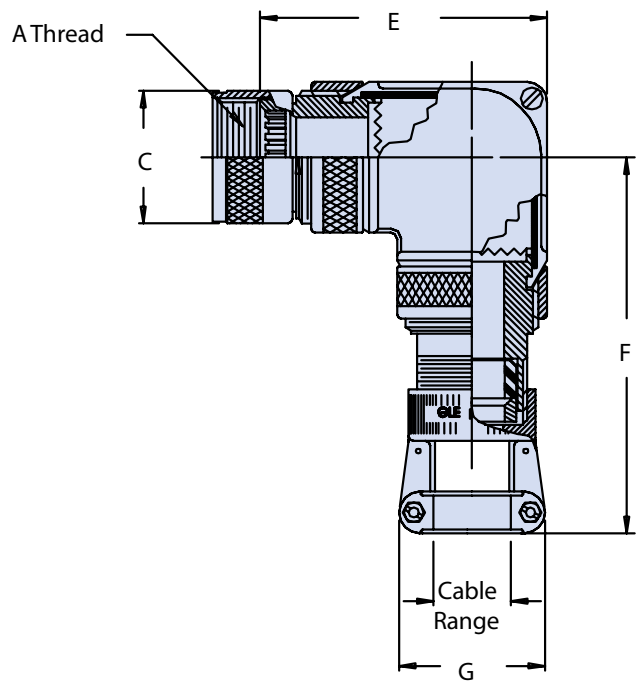
Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/8 90° EMI/RFI Environmental Backshell



**BACKSHELL STYLE A**

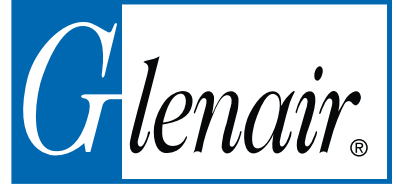


**BACKSHELL STYLE B**

Dimensions in Inches (millimeters) are subject to change without notice.



**M28840/8**  
**90° EMI/RFI Environmental Backshell**



Backshell Size	Dash Number	Designator	A Thread Class 2B	B Max. Diameter	C Max. Diameter	D Max. Diameter
A	01	A (11)	.750-20 UNEF	1.028 (26.11)	1.188 (30.17)	1.031 (26.19)
A	02	B (13)	.875-20 UNEF	1.141 (28.98)		
B	03	B (13)				
A	04	C (15)	1.00-20 UNEF	1.263 (32.08)	1.438 (36.52)	1.156 (29.36)
B	05	C (15)				
C	06	C (15)				
D	07	C (15)				
A	08	D (17)	1.125-18 UNEF	1.387 (35.23)	1.688 (42.87)	1.281 (32.54)
B	09	D (17)				
C	10	D (17)				
A	11	E (19)	1.250-18 UNEF	1.513 (38.43)	1.938 (49.22)	1.406 (35.71)
B	12	E (19)				
A	13	F (23)	1.438-18 UNEF	1.703 (43.51)		
B	14	F (23)				
C	15	F (23)				
A	16	G (25)	1.562-18 UNEF	1.825 (46.35)	2.188 (54.43)	1.531 (38.89)
B	17	G (25)				
C	18	G (25)				
D	19	G (25)				
A	20	H (29)	1.875-16 UN	2.143 (54.43)		
B	21	H (29)				



Dimensions in Inches (millimeters) are subject to change without notice.



**M28840/8**  
**90° EMI/RFI Environmental Backshell**

Backshell Size	Dash Number	Designator	Cable Range		E Max. Dim.	F Max. Dim.	V Thread Class 2
			Max.	Min.			
A	01	A (11)	.312 (7.92)	.188 (4.77)	1.156 (29.36)	2.614 (66.40)	.625-24 UNEF
A	02	B (13)	.312 (7.92)	.188 (4.77)			.625-24 UNEF
B	03	B (13)	.438 (11.12)	.281 (7.14)			.750-20 UNEF
A	04	C (15)	.312 (7.92)	.188 (4.77)	1.281 (32.54)	2.864 (72.75)	.625-24 UNEF
B	05	C (15)	.438 (11.12)	.281 (7.14)			.750-20 UNEF
C	06	C (15)	.562 (14.27)	.344 (8.74)			.875-20 UNEF
D	07	C (15)	.750 (19.05)	.438 (11.12)	1.406 (35.71)	3.114 (79.10)	1.188-18 UNEF
A	08	D (17)	.625 (15.87)	.375 (9.82)			1.000-20 UNEF
B	09	D (17)	.750 (19.05)	.438 (11.12)			1.188-18 UNEF
C	10	D (17)	.938 (23.82)	.625 (15.87)	1.531 (38.89)	3.364 (85.45)	1.438-18 UNEF
A	11	E (19)	.625 (15.87)	.375 (9.52)	1.406 (35.71)		1.00-20 UNEF
B	12	E (19)	.938 (23.82)	.625 (15.87)	1.531 (38.89)		1.438-18 UNEF
A	13	F (23)	.750 (19.05)	.438 (11.12)	1.406 (25.71)	3.614 (91.80)	1.188-18 UNEF
B	14	F (23)	.938 (23.82)	.625 (15.87)	1.531 (38.89)		1.438-18 UNEF
C	15	F (23)	1.188 (30.17)	.812 (20.62)	1.781 (45.24)		1.750-18 UNEF
A	16	G (25)	.938 (23.82)	.625 (15.87)	1.531 (38.89)	1.781 (45.24)	1.438-18 UNEF
B	17	G (25)	1.188 (30.17)	.812 (20.62)	1.750-18 UNS		
C	18	G (25)	1.250 (31.75)	.875 (22.23)	2.000-16 UNS		
D	19	G (25)	1.380 (35.05)	1.000 (25.40)	2.156 (54.76)	1.781 (45.24)	1.750-18 UNS
A	20	H (29)	1.188 (30.17)	.812 (20.62)	1.781 (45.24)		2.000-18 UNS
B	21	H (29)	1.380 (35.05)	1.000 (25.40)	2.156 (54.76)		

Dimensions in Inches (millimeters) are subject to change without notice.

**M28840/8**  
**90° EMI/RFI Environmental Backshell**



Backshell Size	Dash Number	Designator	X Ref. Dimension	Y Ref. Dimension	H Max. Style A	N Max. Style B
A	01	A (11)	1.281 (32.54)	.938 (23.82)	5.332 (134.43)	2.962 (75.23)
A	02	B (13)		.938 (23.82)	5.332 (134.43)	2.962 (75.23)
B	03	B (13)		1.125 (28.57)	5.332 (134.43)	2.962 (75.23)
A	04	C (15)		.938 (23.82)	5.457 (138.61)	3.087 (78.41)
B	05	C (15)		1.125 (28.57)	5.457 (138.61)	3.087 (78.41)
C	06	C (15)		1.312 (33.32)	5.457 (138.61)	3.087 (78.41)
D	07	C (15)		1.593 (40.62)	5.682 (144.32)	3.312 (84.12)
A	08	D (17)		1.312 (33.32)	5.682 (144.32)	3.312 (84.12)
B	09	D (17)	1.312 (33.32)	1.593 (40.62)	5.713 (145.11)	3.343 (84.91)
C	10	D (17)	1.406 (35.71)	1.750 (44.45)	5.807 (147.50)	3.437 (87.30)
A	11	E (19)	1.281 (32.54)	1.312 (33.32)	5.682 (144.32)	3.312 (84.12)
B	12	E (19)	1.406 (35.71)	1.750 (44.45)	5.832 (148.13)	3.462 (87.93)
A	13	F (23)	1.312 (33.32)	1.593 (40.62)	5.738 (145.28)	3.368 (85.55)
B	14	F (23)	1.406 (35.71)	1.750 (44.45)	5.832 (148.13)	3.462 (87.93)
C	15	F (23)	1.593 (40.46)	2.093 (53.16)	6.019 (152.88)	3.649 (92.68)
A	16	G (25)	1.406 (35.71)	1.750 (44.45)	5.832 (148.13)	3.462 (87.93)
B	17	G (25)	1.593 (40.46)	2.093 (53.16)	6.019 (152.88)	3.649 (92.68)
C	18	G (25)	1.593 (40.46)	2.093 (53.16)	6.144 (156.06)	3.774 (95.86)
D	19	G (25)	1.625 (41.28)	2.343 (59.51)	6.176 (156.87)	3.806 (96.62)
A	20	H (29)	1.593 (40.46)	2.093 (53.16)	6.144 (156.06)	3.774 (95.86)
B	21	H (29)	1.625 (41.28)	2.343 (59.51)	6.176 (156.87)	3.806 (96.62)

Dimensions in Inches (millimeters) are subject to change without notice.



**M28840/8**  
**90° EMI/RFI Environmental Backshell**

Backshell Size	Dash Number	Designator	A Thread Class 2B	B Max. Diameter	C Max. Diameter	D Max. Diameter
A	22	J (33)	2.062-16 UNS	2.329 (59.16)	2.688 (68.26)	1.781 (45.24)
A	23	J (33)				
B	24	A (11)	.750-20 UNEF	1.028 (26.11)	1.188 (30.17)	1.031 (26.19)
C	25	A (11)			1.438 (36.52)	1.156 (29.36)
C	26	B (13)	.875-20 UNEF	1.141 (28.98)	1.688 (42.87)	1.281 (32.54)
D	27	B (13)				
E	28	C (15)	1.000-20 UNEF	1.263 (32.08)		

Backshell Size	Dash Number	Designator	Cable Range		E Max. Dimensions	F Max. Dimensions	V Thread Class 2
			Max.	Min.			
A	22	J (33)	1.380 (35.05)	1.000 (25.40)	2.281 (57.94)	4.114 (104.50)	2.000-18 UNS
A	23	J (33)	1.625 (41.26)	1.250 (31.75)			2.250-16 UNS
B	24	A (11)	.438 (11.12)	.281 (7.14)	1.156 (29.36)	2.614 (66.40)	.750-20 UNEF
C	25	A (11)	.562 (14.27)	.344 (8.74)	1.281 (32.54)	2.864 (72.75)	.875-20 UNEF
C	26	B (13)	.562 (14.27)	.344 (8.74)			
D	27	B (13)	.625 (15.87)	.375 (9.52)	1.406 (35.71)	3.114 (79.10)	1.000-20 UNEF
E	28	C (15)	.625 (15.87)	.375 (9.50)			

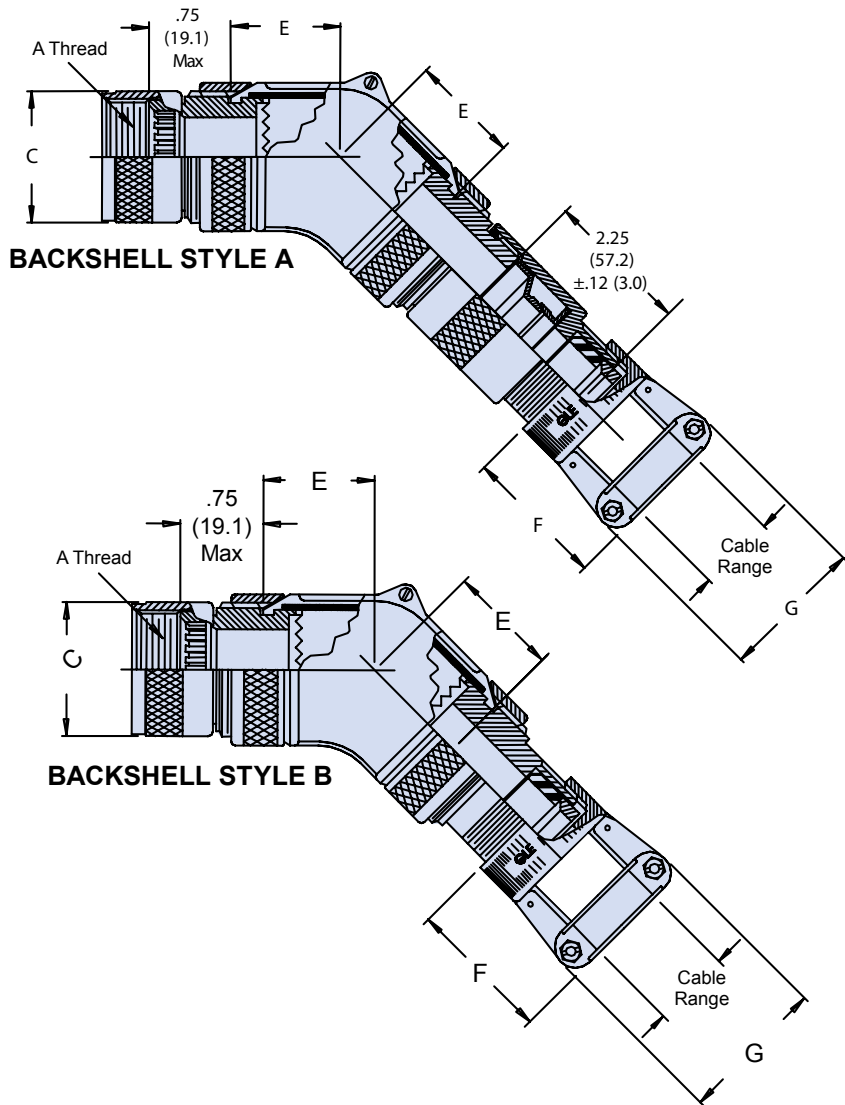
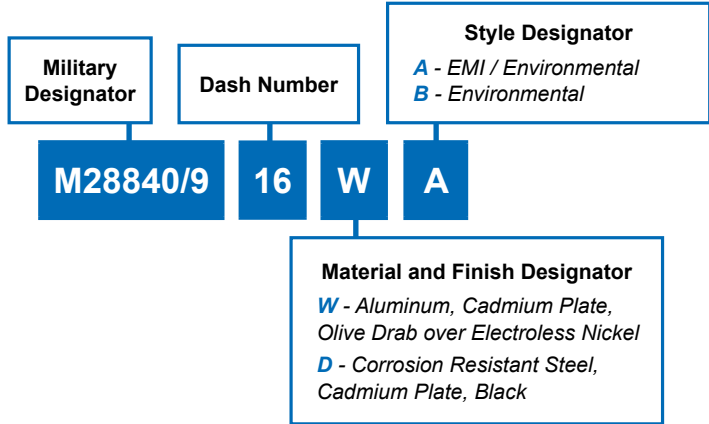
Backshell Size	Dash Number	Designator	X Ref. Dimensions	Y Ref. Dimensions	H Max. Style A	N Max. Style B
A	22	J (33)	1.625 (41.28)	2.343 (59.51)	6.426 (163.22)	4.056 (103.02)
A	23	J (33)	1.900 (48.26)	2.750 (59.85)	6.701 (170.21)	4.33 (110.01)
B	24	A (11)	1.281 (32.54)	1.125 (28.57)	5.332 (135.43)	2.962 (75.23)
C	25	A (11)		1.312 (33.32)	5.457 (138.61)	3.087 (78.41)
C	26	B (13)		5.457 (138.61)	3.087 (78.41)	
C	27	B (13)		5.682 (144.32)	3.312 (84.12)	
B	28	C (15)		5.682 (144.32)	3.312 (84.12)	

Dimensions in Inches (millimeters) are subject to change without notice.

M28840/9  
45° EMI/RFI Environmental Backshell



MIL-DTL-28840  
Electrical Connectors



Dimensions in Inches (millimeters) are subject to change without notice.

E



**M28840/9**  
**45° EMI/RFI Environmental Backshell**

Backshell Size	Dash Number	Designator	A Thread	B Max. Diameter	C Max. Diameter	D Max.
A	01	A (11)	.750-20 UNEF	1.028 (26.11)	1.031 (26.19)	1.031 (26.19)
A	02	B (13)	.875-20 UNEF	1.141 (28.98)		
B	03	B (13)				
A	04	C (15)	1.00-20 UNEF	1.263 (32.08)	1.281 (32.54)	1.156 (29.36)
B	05	C (15)				
C	06	C (15)				
D	07	C (15)				
A	08	D (17)	1.125-18 UNEF	1.387 (35.23)	1.513 (38.89)	1.281 (32.54)
B	09	D (17)				
C	10	D (17)				
A	11	E (19)	1.250-18 UNEF	1.513 (38.43)	1.781 (45.24)	1.406 (35.71)
B	12	E (19)				
A	13	F (23)	1.438-18 UNEF	1.703 (43.51)		
B	14	F (23)				
C	15	F (23)				
A	16	G (25)	1.562-18 UNEF	1.825 (46.35)	2.031 (51.59)	1.531 (38.89)
B	17	G (25)				
C	18	G (25)				
D	19	G (25)				
A	20	H (29)	1.875-16 UN	2.143 (54.43)		
B	21	H (29)				

E

Dimensions in Inches (millimeters) are subject to change without notice.

**M28840/9**  
**45° EMI/RFI Environmental Backshell**



Backshell Size	Dash Number	Designator	Cable Range		E Max. Dim.	F Max. Style A	H Max. Style B
			Max.	Min.			
A	01	A (11)	.312 (7.92)	.188 (4.77)	1.156 (29.36)	5.879 (149.33)	4.199 (106.65)
A	02	B (13)	.312 (7.92)	.188 (4.77)		5.879 (149.33)	4.199 (106.65)
B	03	B (13)	.438 (11.12)	.281 (7.14)		5.932 (150.67)	4.252 (108.00)
A	04	C (15)	.312 (7.92)	.188 (4.77)	1.281 (32.54)	6.092 (154.74)	4.412 (112.06)
B	05	C (15)	.438 (11.12)	.281 (7.14)		6.146 (156.11)	4.466 (113.44)
C	06	C (15)	.562 (14.27)	.344 (8.74)		6.202 (157.53)	4.522 (114.86)
D	07	C (15)	.750 (19.05)	.438 (11.12)	1.406 (35.71)	6.533 (165.94)	4.853 (123.27)
A	08	D (17)	.625 (15.87)	.375 (9.82)		6.413 (162.89)	4.733 (120.22)
B	09	D (17)	.750 (19.05)	.438 (11.12)		6.533 (165.94)	4.853 (123.27)
C	10	D (17)	.938 (23.82)	.625 (15.87)	1.531 (38.89)	6.636 (168.55)	4.956 (125.88)
A	11	E (19)	.625 (15.87)	.375 (9.52)	1.406 (35.71)	6.413 (162.89)	4.733 (120.22)
B	12	E (19)	.938 (23.82)	.625 (15.87)	1.531 (38.89)	6.846 (173.89)	5.166 (131.22)
A	13	F (23)	.750 (19.05)	.438 (11.12)	1.406 (35.71)	6.747 (171.37)	5.067 (128.70)
B	14	F (23)	.938 (23.82)	.625 (15.87)	1.531 (38.89)	6.846 (173.89)	5.166 (131.22)
C	15	F (23)	1.188 (30.17)	.812 (20.62)	1.781 (45.24)	7.103 (180.42)	5.423 (138.23)
A	16	G (25)	.938 (23.82)	.625 (15.87)	1.531 (38.89)	6.846 (173.89)	5.156 (130.96)
B	17	G (25)	1.188 (30.17)	.812 (20.62)	1.781 (45.24)	7.103 (180.42)	5.4239 (138.23)
C	18	G (25)	1.250 (31.75)	.875 (22.23)		7.316 (185.83)	5.636 (143.15)
D	19	G (25)	1.380 (35.05)	1.000 (25.40)	2.156 (54.76)	7.425 (188.60)	5.745 (145.92)
A	20	H (29)	1.188 (30.17)	.812 (20.62)	1.781 (45.24)	7.316 (185.83)	5.636 (143.15)
B	21	H (29)	1.380 (35.05)	1.000 (25.40)	2.156 (54.76)	7.425 (188.60)	5.745 (145.92)

E

Dimensions in Inches (millimeters) are subject to change without notice.



**M28840/9**  
**45° EMI/RFI Environmental Backshell**

Backshell Size	Dash Number	Designator	V Thread Class	X Ref. Dimension	Y Ref. Dimension
A	01	A (11)	.625-24 UNEF	1.281 (32.54)	.938 (23.82)
A	02	B (13)	.625-24 UNEF		.938 (23.82)
B	03	B (13)	.750-20 UNEF		1.125 (28.57)
A	04	C (15)	.625-24 UNEF		.938 (23.82)
B	05	C (15)	.750-20 UNEF		1.125 (28.57)
C	06	C (15)	.875-20 UNEF		1.312 (33.32)
D	07	C (15)	1.188-18 UNEF	1.312 (33.32)	1.593 (40.62)
A	08	D (17)	1.000-20 UNEF	1.281 (32.54)	1.312 (33.32)
B	09	D (17)	1.188-18 UNEF	1.312 (33.32)	1.593 (40.62)
C	10	D (17)	1.438-18 UNEF	1.406 (35.71)	1.750 (44.45)
A	11	E (19)	1.000-20 UNEF	1.281 (32.54)	1.312 (33.32)
B	12	E (19)	1.438-18 UNEF	1.406 (35.71)	1.750 (44.45)
A	13	F (23)	1.188-18 UNEF	1.312 (33.32)	1.593 (40.62)
B	14	F (23)	1.438-18 UNEF	1.406 (35.71)	1.750 (44.45)
C	15	F (23)	1.750-18 UNS	1.593 (40.46)	2.093 (53.16)
A	16	G (25)	1.438-18 UNEF	1.406 (35.71)	1.750 (44.45)
B	17	G (25)	1.750-18 UNS	1.593 (40.46)	2.093 (53.16)
C	18	G (25)	1.750-18 UNS	1.593 (40.46)	2.093 (53.16)
D	19	G (25)	2.000-16 UNS	1.625 (41.28)	2.343 (59.51)
A	20	H (29)	1.750-18 UNS	1.593 (40.46)	2.093 (53.16)
B	21	H (29)	2.000-18 UNS	1.625 (41.28)	2.343 (59.51)

E

Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/9 45° EMI/RFI Environmental Backshell



Backshell Size	Dash Number	Designator	A Thread	B Max. Diameter	C Max. Diameter	D Max.
A	22	J (33)	2.062-16 UNEF	2.329 (59.16)	2.531 (64.29)	1.781 (45.24)
B	23	J (33)				
B	24	A (11)	.750-20 UNEF	1.028 (26.11)	1.031 (26.19)	1.031 (26.19)
C	25	A (11)			1.281 (32.54)	1.156 (29.36)
C	26	B (13)	.875-20 UNEF	1.141 (28.98)	1.281 (32.54)	1.156 (29.36)
D	27	B (13)			1.531 (38.99)	1.281 (32.54)
E	28	C (15)	1.000-20 UNEF	1.263 (32.08)		

Backshell Size	Dash Number	Designator	Cable Range		E Max. Dimension	F Max. Style A	H Max. Style B
			Max.	Min.			
A	22	J (33)	1.380 (35.05)	1.000 (25.40)	2.281 (57.94)	7.852 (199.44)	6.127 (156.77)
B	23	J (33)	1.625 (41.28)	1.250 (31.75)		6.454 (163.93)	6.454 (163.93)
B	24	A (11)	.438 (11.12)	.281 (7.14)	1.156 (29.36)	5.932 (150.67)	4.252 (108.00)
C	25	A (11)	.562 (14.27)	.344 (8.74)	1.281 (32.54)	6.202 (157.53)	4.522 (114.86)
C	26	B (13)	.562 (14.27)	.344 (8.74)	1.281 (32.54)	6.202 (157.53)	4.522 (114.86)
D	27	B (13)	.625 (15.87)	.375 (9.52)	1.406 (35.71)	6.413 (162.89)	4.733 (120.22)
E	28	C (15)	.625 (15.87)	.375 (9.50)		6.413 (162.89)	4.733 (120.22)

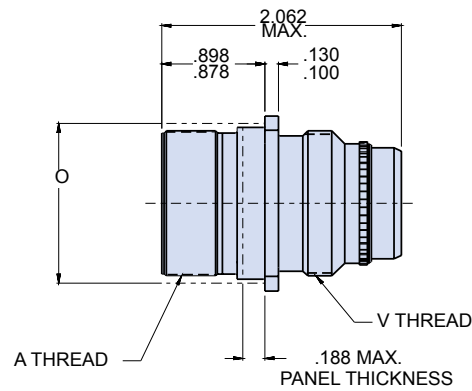
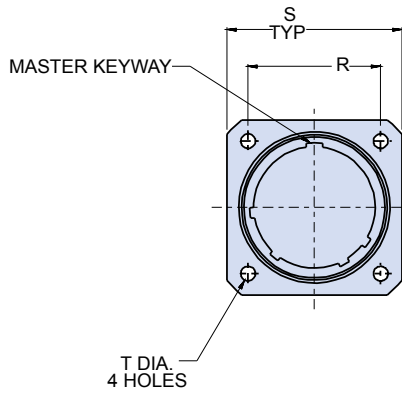
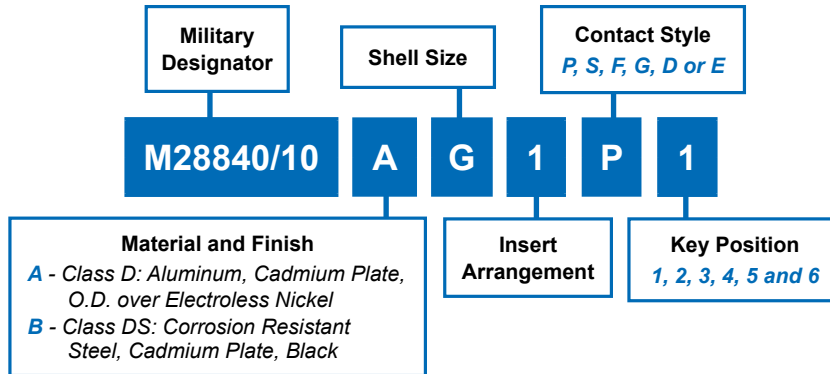
E

Backshell Size	Dash Number	Designator	V Thread Class	X Ref. Dimension	Y Ref. Dimension
A	22	J (33)	2.000-18 UNS	1.625 (41.28)	2.343 (59.51)
B	23	J (33)	2.250-16 UNS	1.900 (48.26)	2.750 (69.85)
B	24	A (11)	.750-20 UNEF	1.281 (32.54)	1.125 (28.57)
C	25	A (11)	.875-20 UNEF		1.312 (33.32)
C	26	B (13)	.875-20 UNEF		
D	27	B (13)	1.000-20 UNEF		
E	28	C (15)	1.000-20 UNEF		

Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/10 Wall Mount Receptacle Connector



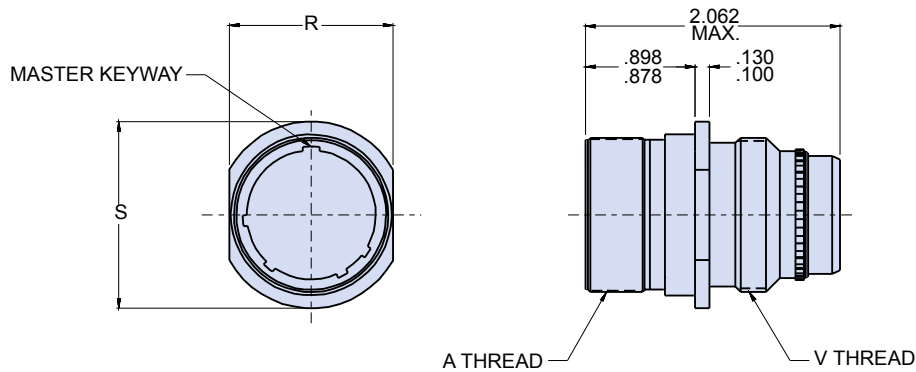
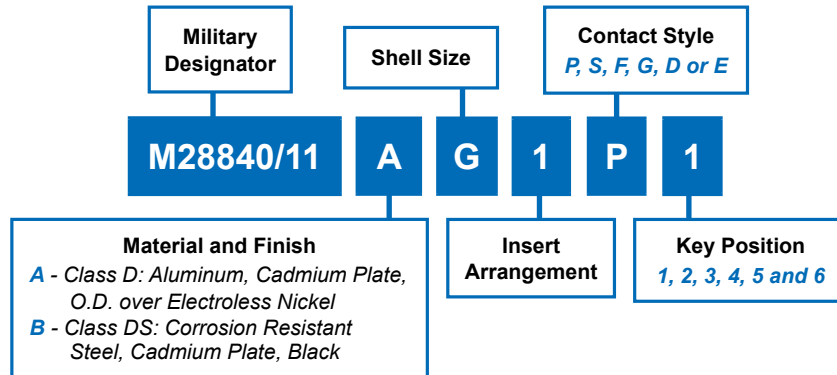
Military Shell Size	Shell Size	A Thread Class 2A	V Thread Class 2A	O Ref. Mtg. Hole	R True Position $\varnothing$ to $\varnothing$	S	T Diameter
A	11	.750-1P-.2L-D.S.	.750-20 UNEF	.812 (20.62)	.750 (19.05)	1.043 (26.49) 1.003 (25.48)	.130 (3.30) .115 (2.92)
B	13	.875-1P-.2L-D.S.	.875-20 UNEF	.937 (23.80)	.843 (21.41)	1.158 (29.41) 1.118 (28.40)	
C	15	1.062-1P-.2L-D.S.	1.000-20 UNEF	1.124 (28.55)	.968 (24.59)	1.278 (32.46) 1.238 (31.45)	
D	17	1.125-1P-.2L-D.S.	1.125-18 UNEF	1.187 (30.15)	1.015 (25.78)	1.403 (35.64) 1.363 (34.62)	
E	19	1.312-1P-.2L-D.S.	1.250-18 UNEF	1.374 (34.90)	1.140 (28.96)	1.528 (38.81) 1.488 (37.80)	
F	23	1.500-1P-.2L-D.S.	1.437-18 UNEF	1.562 (39.67)	1.281 (32.54)	1.738 (44.15) 1.698 (43.13)	
G	25	1.625-1P-.2L-D.S.	1.562-18 UNEF	1.687 (42.85)	1.392 (35.36)	1.838 (46.69) 1.798 (45.67)	.157 (3.99) .142 (3.61)
H	29	1.812-1P-.2L-D.S.	1.875-16 UN	1.874 (47.60)	1.568 (39.83)	2.158 (54.81) 2.118 (53.80)	
J	33	2.000-1P-.2L-D.S.	2.062-16 UNS	2.062 (52.37)	1.734 (44.04)	2.348 (59.64) 2.308 (58.62)	

Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/11 In-Line Receptacle Connector



MIL-DTL-28840  
Electrical Connectors



Military Shell Size	Shell Size	A Thread Class 2A	V Thread Class 2A	R	S Diameter
A	11	.750-.1P-.2L-D.S.	.750-20 UNEF	.768 (19.51) .758 (19.25)	.963 (24.46) .943 (23.95)
B	13	.875-.1P-.2L-D.S.	.875-20 UNEF	.893 (22.68) .883 (22.43)	1.088 (27.63) 1.063 (27.13)
C	15	1.062-.1P-.2L-D.S.	1.000-20 UNEF	1.080 (27.43) 1.070 (27.18)	1.275 (32.38) 1.255 (31.88)
D	17	1.125-.1P-.2L-D.S.	1.125-18 UNEF	1.143 (29.03) 1.133 (28.78)	1.338 (33.98) 1.318 (33.48)
E	19	1.312-.1P-.2L-D.S.	1.250-18 UNEF	1.330 (33.78) 1.320 (33.53)	1.525 (38.74) 1.505 (38.23)
F	23	1.500-.1P-.2L-D.S.	1.437-18 UNEF	1.518 (38.56) 1.508 (38.30)	1.713 (43.51) 1.693 (43.00)
G	25	1.625-.1P-.2L-D.S.	1.562-18 UNEF	1.643 (41.73) 1.633 (41.48)	1.838 (46.09) 1.818 (46.18)
H	29	1.812-.1P-.2L-D.S.	1.875-16 UN	1.893 (48.08) 1.883 (47.83)	2.088 (53.04) 2.068 (52.53)
J	33	2.000-.1P-.2L-D.S.	2.062-16 UNS	2.080 (52.83) 2.070 (52.58)	2.275 (57.78) 2.255 (57.28)

Dimensions in Inches (millimeters) are subject to change without notice.





# M28840/12 Box Mount Receptacle Connector

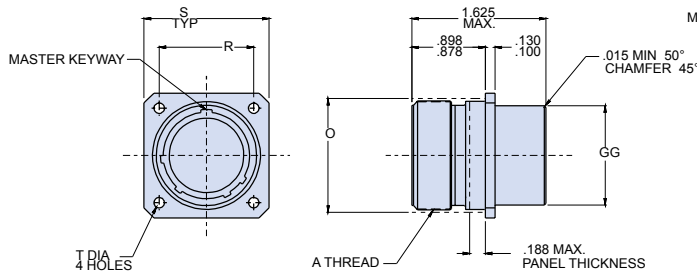
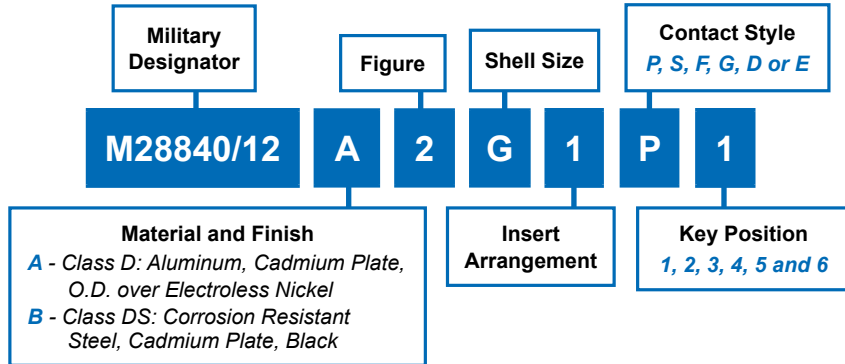


FIGURE 1

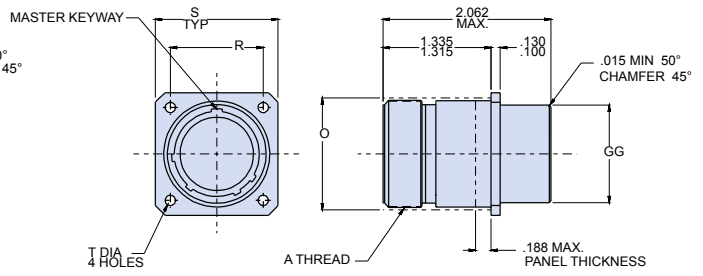


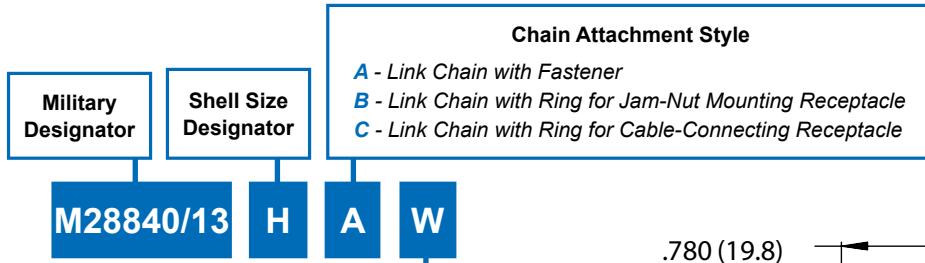
FIGURE 2

E

Designator	N Diameter Max	O Reference Mating Hole	R True Position Centerline to Centerline	S	T	GG Diameter Max.
A (11)	.750 (19.05)	.812 (20.62)	.750 (19.05)	1.043 (26.49) 1.003 (25.48)	.130 (3.30) .115 (2.92)	.758 (19.25)
B (13)	.875 (22.22)	.937 (23.80)	.843 (21.41)	1.158 (29.41) 1.118 (28.40)		.880 (22.35)
C (15)	1.062 (26.97)	1.124 (28.55)	.968 (24.59)	1.278 (32.46) 1.238 (31.45)		1.005 (25.53)
D (17)	1.125 (28.58)	1.187 (30.15)	1.015 (25.78)	1.403 (35.64) 1.363 (34.62)		1.130 (28.70)
E (19)	1.312 (33.32)	1.374 (34.90)	1.140 (28.96)	1.528 (38.81) 1.488 (37.80)		1.255 (31.88)
F (23)	1.500 (38.10)	1.562 (39.67)	1.281 (32.54)	1.738 (44.15) 1.698 (43.13)	.157 (3.99) .142 (3.61)	1.443 (36.65)
G (25)	1.625 (41.28)	1.687 (42.85)	1.392 (35.36)	1.838 (46.69) 1.798 (45.67)		1.567 (39.80)
H (29)	1.812 (46.02)	1.874 (47.60)	1.568 (39.83)	2.158 (54.81) 2.118 (53.80)		1.880 (47.75)
J (33)	2.000 (50.80)	2.062 (52.37)	1.734 (44.04)	2.343 (59.64) 2.308 (58.62)	.183 (4.65) .168 (4.27)	2.067 (52.50)

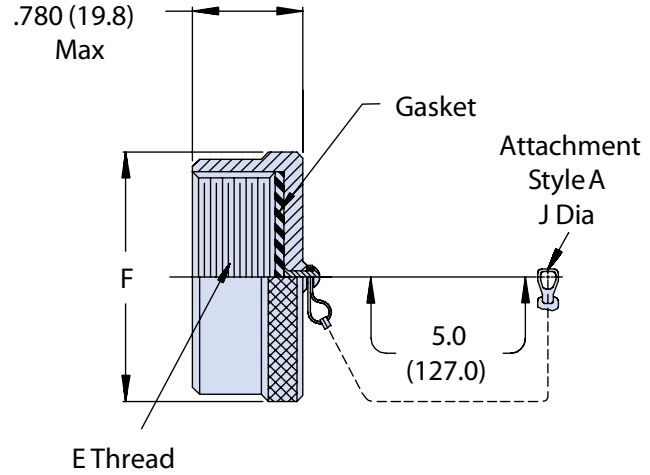
Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/13 Protective Receptacle Cover



**Chain Attachment Style**  
**A** - Link Chain with Fastener  
**B** - Link Chain with Ring for Jam-Nut Mounting Receptacle  
**C** - Link Chain with Ring for Cable-Connecting Receptacle

**Material and Finish**  
**W** - Aluminum, Cadmium Plate, O.D. over Electroless Nickel  
**D** - Corrosion Resistant Steel, Cadmium Plate, Black



M28840/13 Receptacle Cover

Designator	E Thread Class 2A	F Max. Diameter	H ± .010 (± .25)	J Dia ± .005 (± .13)	G ± .005 (± .13)
A (11)	.750-.1P-.2L-D.S.	1.028 (26.21)	.890 (22.61)	.130 (3.30)	.765 (19.43)
B (13)	.875-.1P-.2L-D.S.	1.141 (23.98)	1.015 (25.78)		.890 (22.61)
C (15)	1.062-.1P-.2L-D.S.	1.263 (32.08)	1.203 (30.56)		1.015 (25.78)
D (17)	1.125-.1P-.2L-D.S.	1.387 (35.23)	1.265 (32.13)		1.140 (28.96)
E (19)	1.312-.1P-.2L-D.S.	1.513 (38.43)	1.453 (36.91)		1.265 (32.13)
F (23)	1.500-.1P-.2L-D.S.	1.703 (43.51)	1.640 (41.66)		1.453 (36.91)
G (25)	1.625-.1P-.2L-D.S.	1.825 (46.35)	1.765 (44.83)	.156 (3.96)	1.577 (40.06)
H (29)	1.812-.1P-.2L-D.S.	2.143 (54.43)	1.953 (49.61)		1.890 (48.01)
J (33)	2.000-.1P-.2L-D.S.	2.329 (59.16)	2.140 (54.36)		.193 (4.90)

Dimensions in Inches (millimeters) are subject to change without notice.

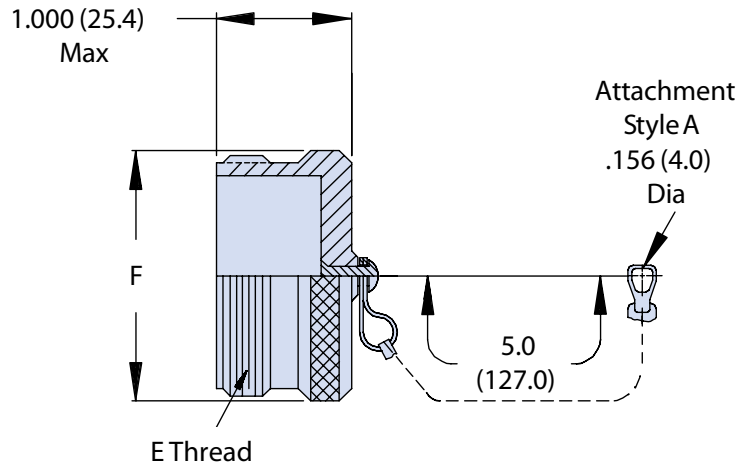
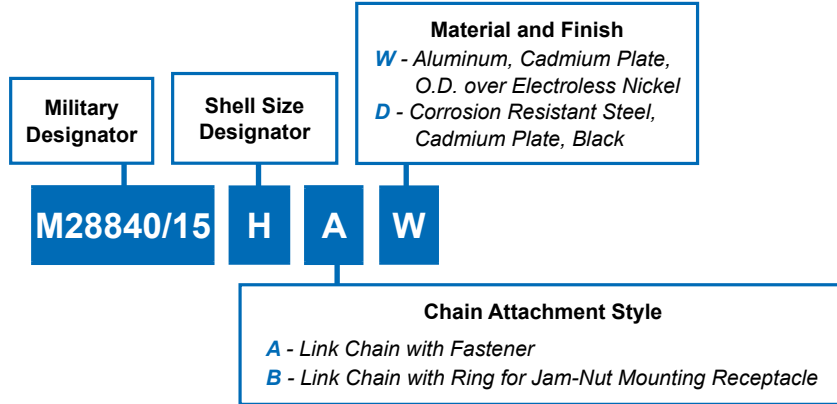




# M28840/15 Protective Plug Cover



MIL-DTL-28840  
Electrical Connectors



M28840/15 Plug Cover

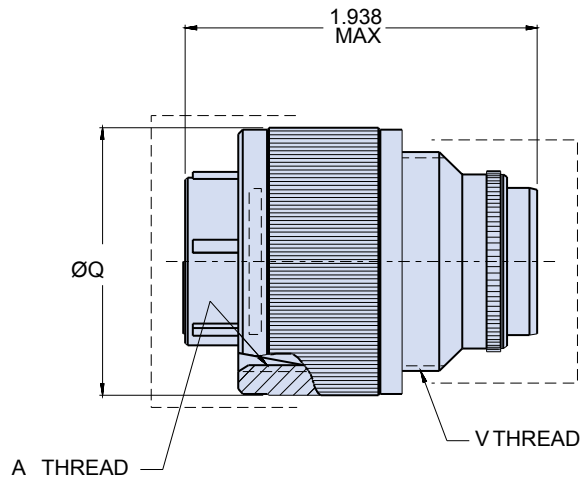
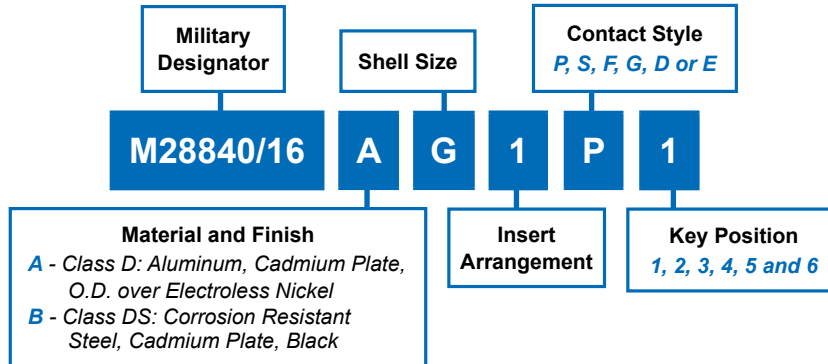
Designator	E Thread Class 2B	F Max. Diameter
A (11)	.750-1P-.2L-DS	1.028 (26.21)
B (13)	.875-1P-.2L-DS	1.141 (28.98)
C (15)	1.062-1P-.2L-DS	1.263 (32.08)
D (17)	1.125-1P-.2L-DS	1.387 (35.23)
E (19)	1.312-1P-.2L-DS	1.108 (28.14)
F (23)	1.500-1P-.2L-DS	1.293 (32.84)
G (25)	1.625-1P-.2L-DS	1.454 (36.93)
H (29)	1.812-1P-.2L-DS	1.620 (41.15)
J (33)	2.000-1P-.2L-DS	1.812 (46.02)

Dimensions in Inches (millimeters) are subject to change without notice.





# M28840/16 Plug Connector



Designator	A Thread Class 2B	V Thread Class 2A	Ø Q Max.
A (11)	.750-1P-.2L-DS	3/4-20 UNEF	1.028 (26.11)
B (13)	.875-1P-.2L-DS	7/8-20 UNEF	1.141 (28.98)
C (15)	1.062-1P-.2L-DS	1-20 UNEF	1.263 (32.08)
D (17)	1.125-1P-.2L-DS	1 1/8-18 UNEF	1.387 (35.23)
E (19)	1.312-1P-.2L-DS	1 1/4-18 UNEF	1.513 (38.43)
F (23)	1.500-1P-.2L-DS	1 7/16-18 UNEF	1.703 (43.26)
G (25)	1.625-1P-.2L-DS	1 9/16-18 UNEF	1.825 (46.36)
H (29)	1.812-1P-.2L-DS	1 7/8-16 UN	2.143 (54.43)
J (33)	2.000-1P-.2L-DS	2 1/16-16 UNS	2.329 (59.16)

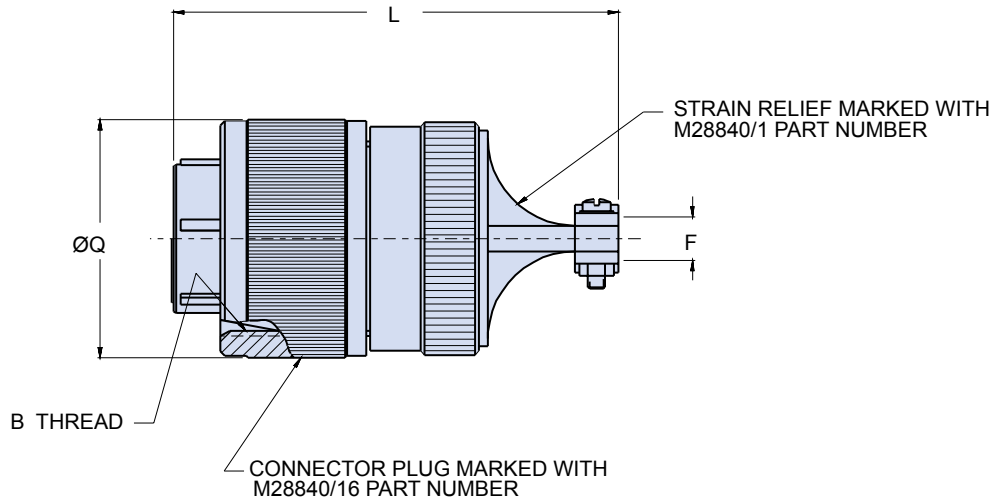
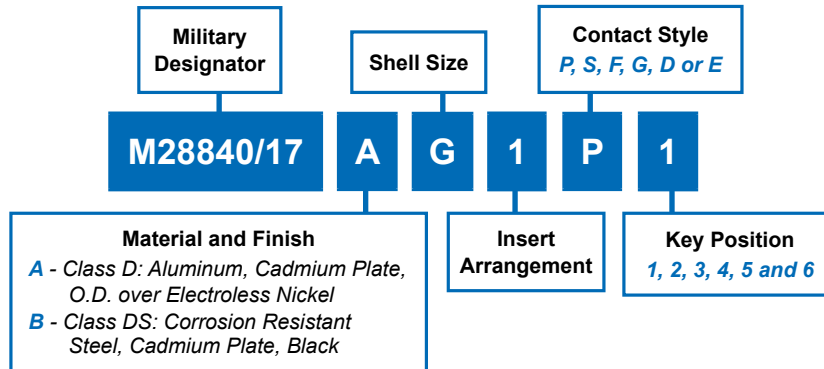
Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/17 Plug Connector with Straight Strain Relief



MIL-DTL-28840  
Electrical Connectors



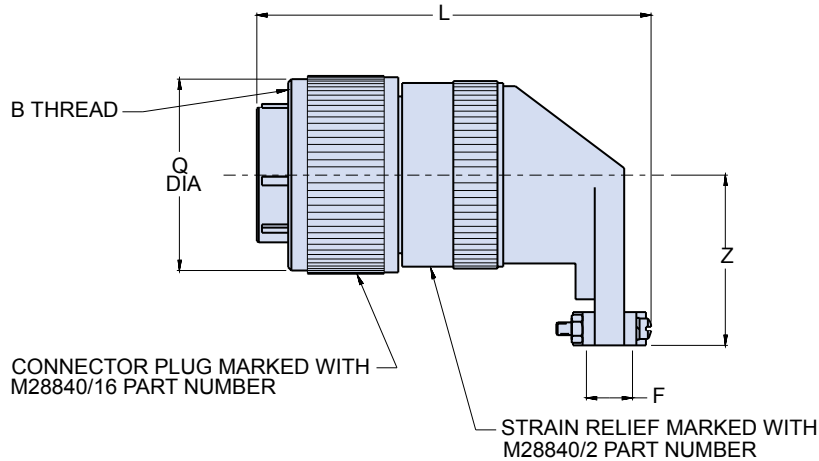
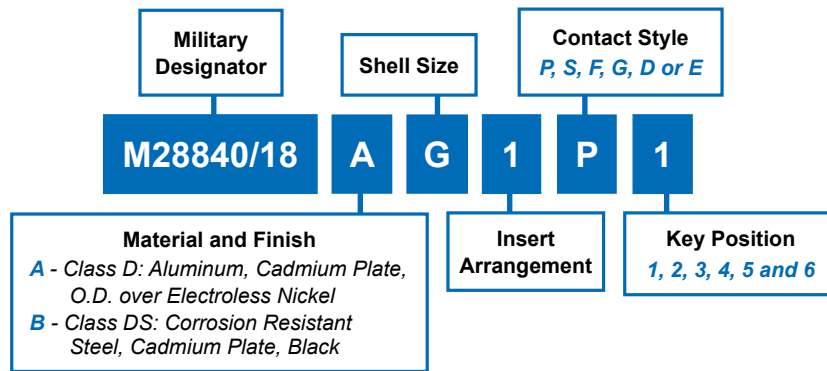
Designator	A Thread Class 2B	F Cable Entry		L Max.	Q Max.	Max. O.D. Over Rear Clamps
		Open	Closed			
A (11)	.750-1P-2L-DS	.286	.177	2.438	1.028	.832
B (13)	.875-1P-2L-DS	.286	.250		1.141	
C (15)	1.062-1P-2L-DS	.416	.291		1.263	
D (17)	1.125-1P-2L-DS	.476	.348	2.688	1.387	1.094
E (19)	1.312-1P-2L-DS	.626	.429	2.812	1.513	1.319
F (23)	1.500-1P-2L-DS	.831	.523	2.938	1.703	1.557
G (25)	1.625-1P-2L-DS	.956	.643	3.062	1.825	1.653
H (29)	1.812-1P-2L-DS	1.081	.704	3.188	2.143	1.819
J (33)	2.000-1P-2L-DS	1.187		3.375	2.329	2.020

Dimensions in Inches (millimeters) are subject to change without notice.





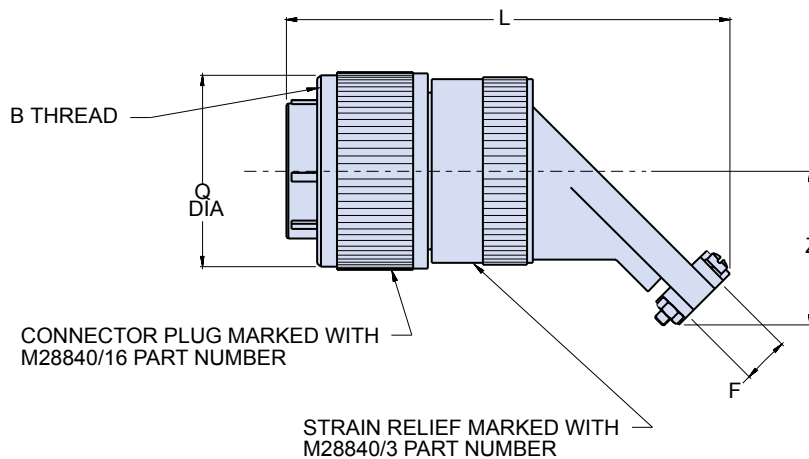
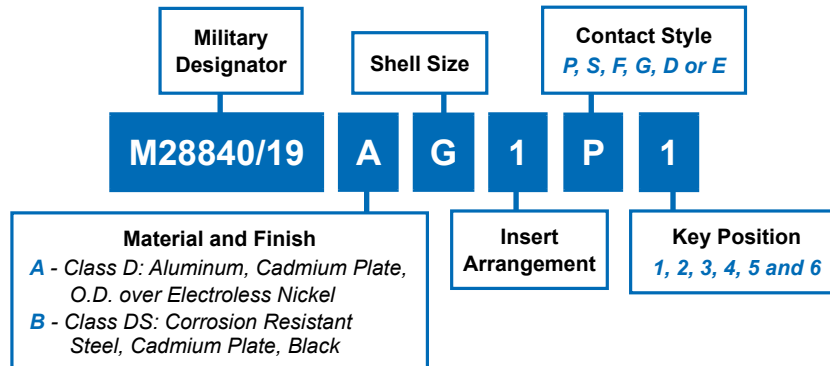
# M28840/18 Plug Connector with 90° Strain Relief



Designator	A Thread Class 2B	F Cable Entry		L Max.	Q Max.	Z Max.	Max. O.D. Over Rear Clamps
		Open	Closed				
A (11)	.750-1P-.2L-DS	.286	.177	2.562	1.028	.929	.832
B (13)	.875-1P-.2L-DS	.286		2.562	1.141	.929	
C (15)	1.062-1P-.2L-DS	.416	.250	2.750	1.263	1.056	.989
D (17)	1.125-1P-.2L-DS	.476	.291	2.875	1.387	1.233	1.094
E (19)	1.312-1P-.2L-DS	.626	.348	3.000	1.513	1.296	1.319
F (23)	1.500-1P-.2L-DS	.831	.429	3.125	1.703	1.358	1.557
G (25)	1.625-1P-.2L-DS	.956	.523	3.250	1.825	1.420	1.653
H (29)	1.812-1P-.2L-DS	1.081	.643	3.375	2.143	1.634	1.819
J (33)	2.000-1P-.2L-DS	1.187	.704	3.438	2.329	1.859	2.020

Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/19 Plug Connector with 45° Strain Relief



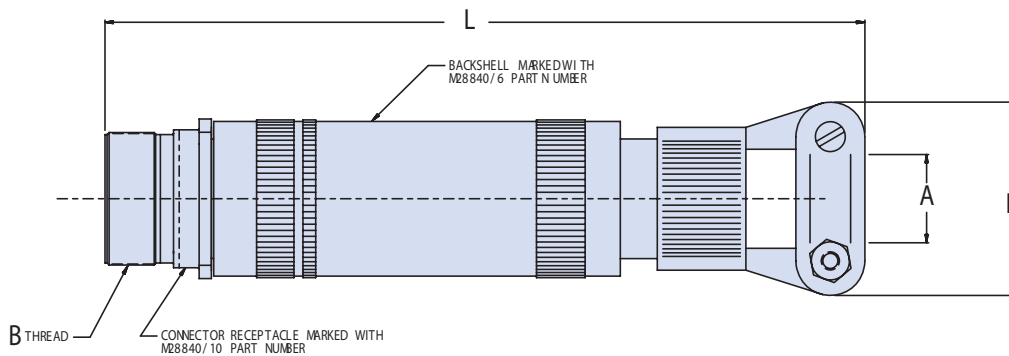
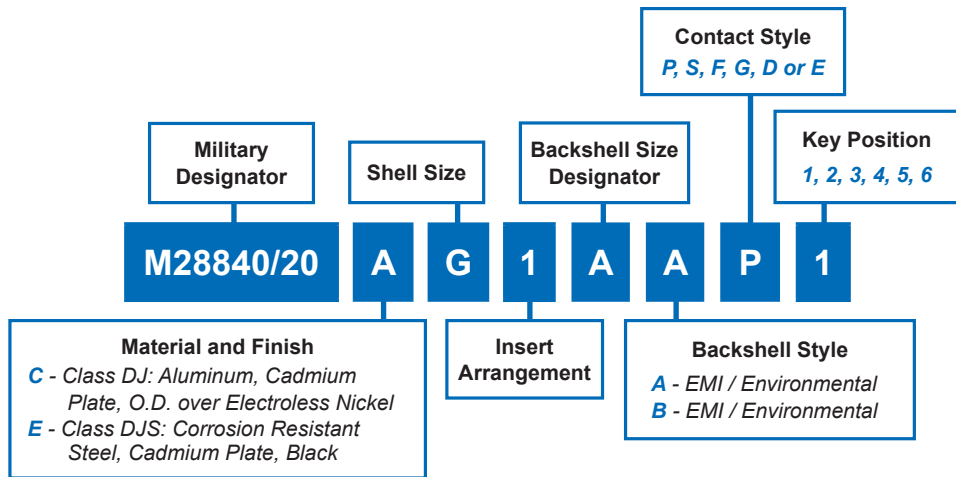
Designator	A Thread Class 2B	F Cable Entry		L Max.	Q Max.	Z Max.	Max. O.D. Over Rear Clamps
		Open	Closed				
A (11)	.750-1P-2L-DS	.286	.177	3.125	1.028	.928	.832
B (13)	.875-1P-2L-DS	.286		3.125	1.141	.928	
C (15)	1.062-1P-2L-DS	.416	.250	3.250	1.263	.991	.989
D (17)	1.125-1P-2L-DS	.476	.291	3.312	1.387	1.110	1.094
E (19)	1.312-1P-2L-DS	.626	.348	3.375	1.513	1.172	1.319
F (23)	1.500-1P-2L-DS	.831	.429	3.438	1.703	1.235	1.557
G (25)	1.625-1P-2L-DS	.956	.523	3.500	1.825	1.297	1.653
H (29)	1.812-1P-2L-DS	1.081	.643	3.750	2.143	1.543	1.819
J (33)	2.000-1P-2L-DS	1.187	.704	3.875	2.329	1.668	2.020

Dimensions in Inches (millimeters) are subject to change without notice.





# M28840/20 Receptacle Connector with Straight EMI/RFI Backshell



Dimensions in Inches (millimeters) are subject to change without notice.

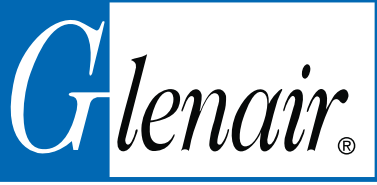
**M28840/20**  
**Receptacle Connector**  
**with Straight EMI/RFI Backshell**



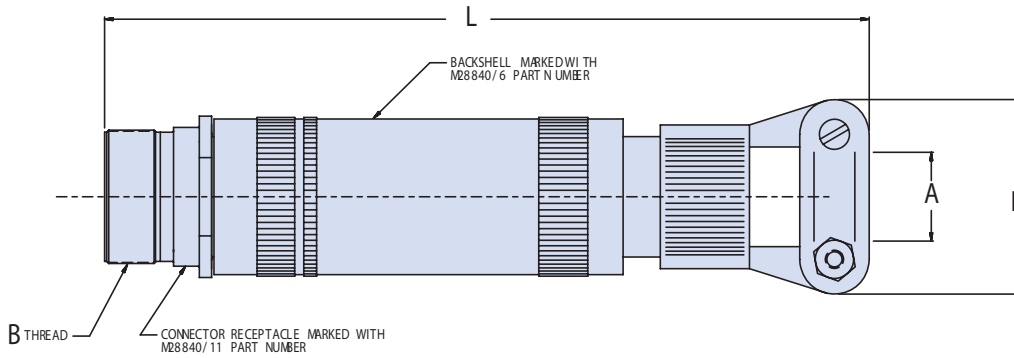
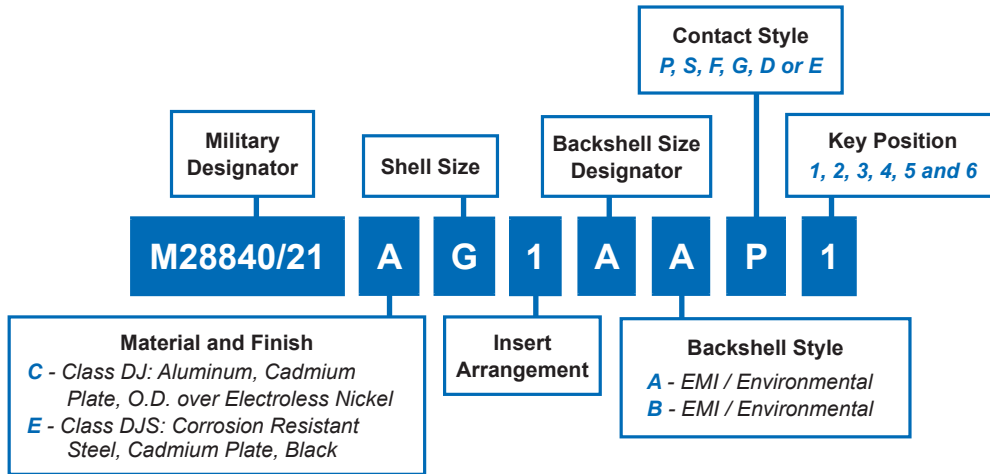
J Military Shell Size	Shell Size	Backshell Size Designator	A Cable Entry		A Thread Class 2B	E Max.	L Max.
			Open	Closed			
A	11	A	.312	.188	.750-1P-.2L-DS	.938	6.625
A	11	B	.438	.281		1.125	6.625
A	11	C	.562	.344		1.312	6.625
B	13	A	.312	.188	.875-1P-.2L-DS	.938	6.625
B	13	B	.438	.281		1.125	6.625
B	13	C	.562	.344		1.312	6.625
B	13	D	.652	.375		1.312	7.125
C	15	A	.438	.281	1.062-1P-.2L-DS	1.125	6.625
C	15	B	.562	.344		1.312	6.625
C	15	C	.625	.375		1.312	7.125
C	15	D	.750	.438		1.593	7.188
C	15	E	.312	.188		.938	6.625
D	17	A	.625	.375	1.125-1P-.2L-DS	1.312	7.125
D	17	B	.750	.438		1.593	7.188
D	17	C	.938	.625		1.750	7.188
E	19	A	.625	.375	1.312-1P-.2L-DS	1.312	7.125
E	19	B	.938	.625		1.750	7.250
F	23	A	.750	.438	1.500-1P-.2L-DS	1.593	7.688
F	23	B	.938	.625		1.750	7.812
F	23	C	1.188	.812		2.093	7.938
G	25	A	.938	.625	1.625-1P-.2L-DS	1.750	7.750
G	25	B	1.188	.812		2.093	8.438
G	25	C	1.250	.875		2.093	8.438
G	25	D	1.380	1.000		2.343	8.500
H	29	A	1.188	.812	1.812-1P-.2L-DS	2.093	8.438
H	29	B	1.380	1.000		2.343	8.500
J	33	A	1.380	1.000	2.000-1P-.2L-DS	2.343	8.500
J	33	B	1.625	1.250		2.750	8.750



Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/21 In-Line Receptacle Connector with Straight EMI/RFI Backshell



E

Dimensions in Inches (millimeters) are subject to change without notice.

**M28840/21**  
**In-Line Receptacle Connector**  
**with Straight EMI/RFI Backshell**



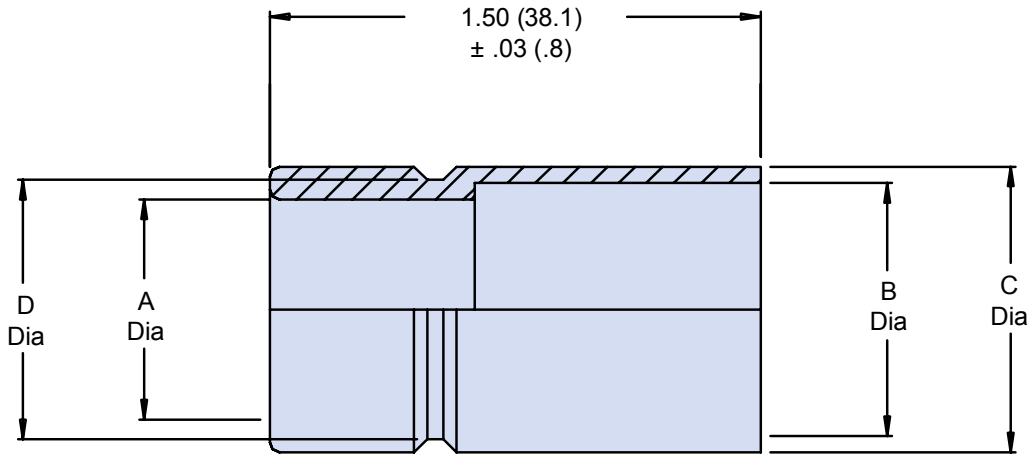
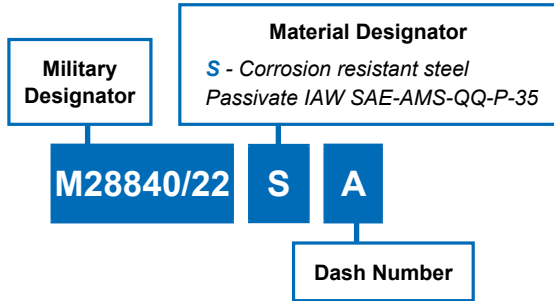
JMilitary Shell Size	Shell Size	Backshell Size Designator	A Cable Entry		A Thread Class 2B	E Max.	L Max.
			Open	Closed			
A	11	A	.312	.188	.750-1P-.2L-DS	.938	6.625
A	11	B	.438	.281		1.125	6.625
A	11	C	.562	.344		1.312	6.625
B	13	A	.312	.188	.875-1P-.2L-DS	.938	6.625
B	13	B	.438	.281		1.125	6.625
B	13	C	.562	.344		1.312	6.625
B	13	D	.652	.375		1.312	7.125
C	15	A	.438	.281	1.062-1P-.2L-DS	1.125	6.625
C	15	B	.562	.344		1.312	6.625
C	15	C	.625	.375		1.312	7.125
C	15	D	.750	.438		1.593	7.188
C	15	E	.312	.188		.938	6.625
D	17	A	.625	.375	1.125-1P-.2L-DS	1.312	7.125
D	17	B	.750	.438		1.593	7.188
D	17	C	.938	.625		1.750	7.188
E	19	A	.625	.375	1.312-1P-.2L-DS	1.312	7.125
E	19	B	.938	.625		1.750	7.250
F	23	A	.750	.438	1.500-1P-.2L-DS	1.593	7.688
F	23	B	.938	.625		1.750	7.812
F	23	C	1.188	.812		2.093	7.938
G	25	A	.938	.625	1.625-1P-.2L-DS	1.750	7.750
G	25	B	1.188	.812		2.093	8.438
G	25	C	1.250	.875		2.093	8.438
G	25	D	1.380	1.000		2.343	8.500
H	29	A	1.188	.812	1.812-1P-.2L-DS	2.093	8.438
H	29	B	1.380	1.000		2.343	8.500
J	33	A	1.380	1.000	2.000-1P-.2L-DS	2.343	8.500
J	33	B	1.625	1.250		2.750	8.750



Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/22 Metal Conduit Bushing

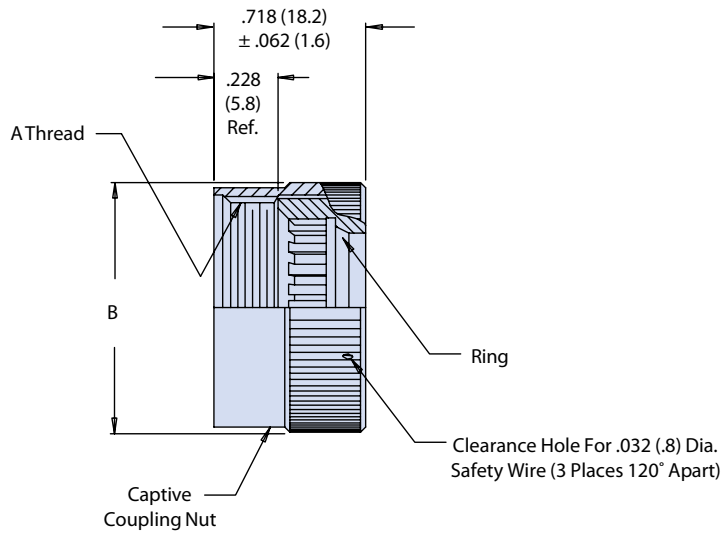
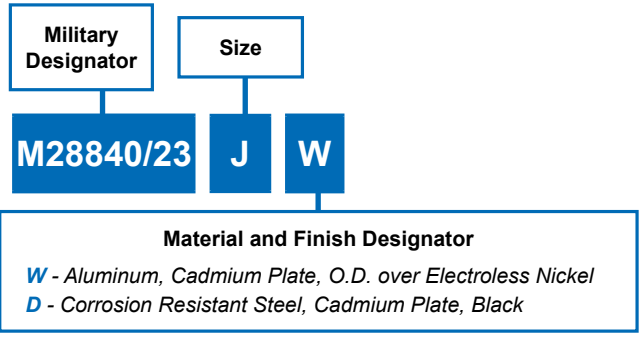


Size	MIL- DTL-28840/04 Size Ref.	A +.020 (.50) -.000 (.000)	B +.005 (.12) -.000 (.000)	C +.000 (.000) -.005 (.12)	D +.000 (.000) -.005 (.12)
03	03	.375 (9.53)	.540 (13.71)	.625 (15.87)	.525 (13.34)
04	04	.500 (12.70)	.665 (16.89)	.750 (19.05)	.650 (16.51)
05	05	.625 (15.87)	.780 (19.81)	.875 (22.23)	.775 (19.69)
06	06	.750 (19.05)	.940 (23.88)	1.000 (25.40)	.900 (22.86)
08	08	1.000 (25.40)	1.225 (31.12)	1.375 (34.93)	1.275 (32.39)
10	10	1.250 (31.75)	1.470 (37.34)	1.625 (41.28)	1.525 (38.74)
12	12	1.500 (38.10)	1.740 (44.20)	1.875 (47.65)	1.775 (45.09)
16	16	2.000 (50.80)	2.215 (56.26)	2.375 (60.33)	2.275 (57.79)

Dimensions in Inches (millimeters) are subject to change without notice.



M28840/23  
"E Nut"



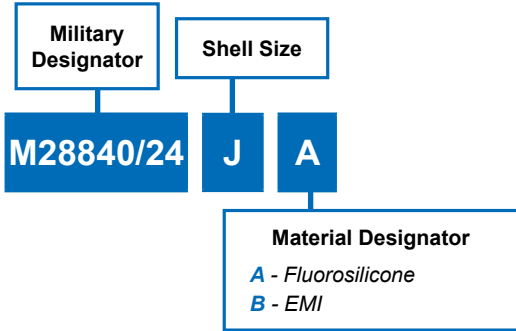
Designator	A Thread Class 2B	B Max. Diameter
A (11)	.750-20 UNEF	1.028 (26.11)
B (13)	.875-20 UNEF	1.14 (26.11)
C (15)	1.000-20 UNEF	2.263 (32.08)
D (17)	1.125-18 UNEF	1.387 (35.23)
E (19)	1.250-18 UNEF	1.513 (38.43)
F (23)	1.438-18 UNEF	1.703 (43.51)
G (25)	1.562-18 UNEF	1.825 (46.35)
H (29)	1.876-16 UN	2.143 (54.43)
J (33)	2.062-16 UNS	2.329 (59.16)

Dimensions in Inches (millimeters) are subject to change without notice.

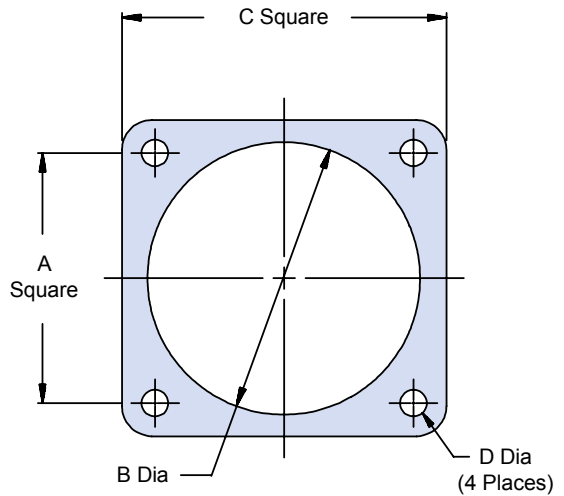




# M28840/24 Wall Mount Receptacle Mounting Gasket for MIL-DTL-28840 Connectors



Also for use with  
M28876/180-040 connectors

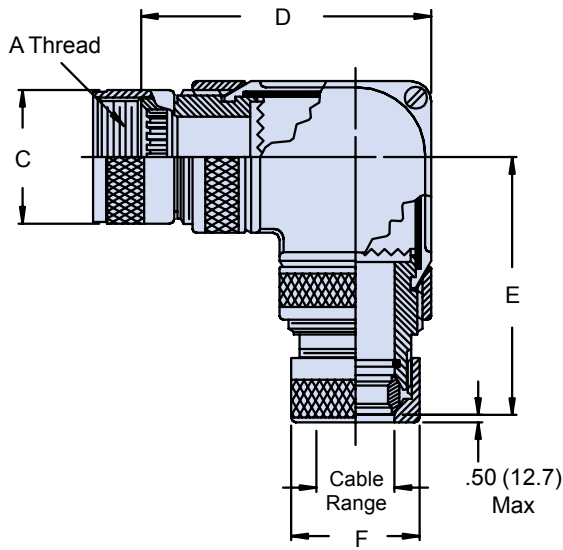
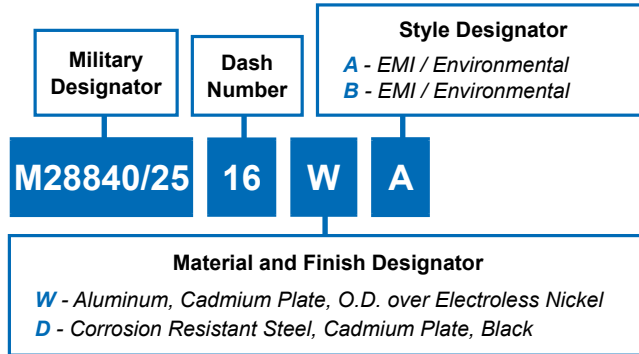


E

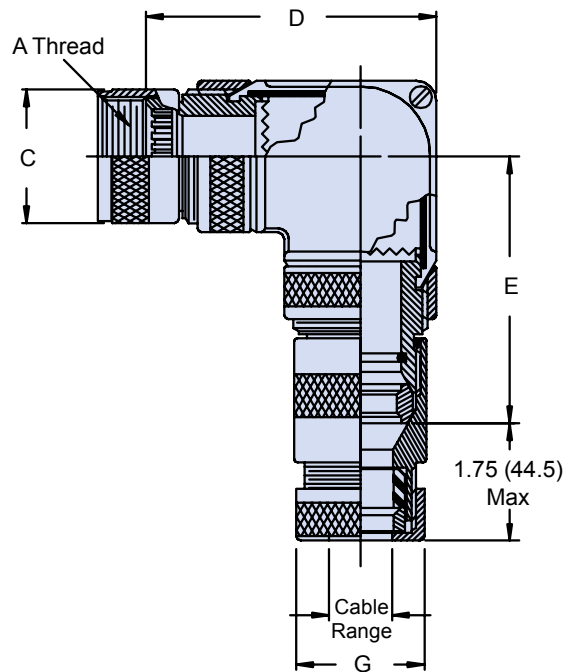
Shell Size	A	B Dia.	C	D Dia.
A (11)	.760 (19.30)	.766 (19.46)	1.039 (26.39)	.130 (3.30) .110 (2.79)
	.740 (18.80)	.750 (19.05)	1.023 (25.98)	
B (13)	.853 (21.67)	.891 (22.63)	1.154 (29.31)	
	.833 (21.16)	.875 (22.22)	1.138 (28.90)	
C (15)	.978 (24.84)	1.078 (27.38)	1.274 (32.36)	
	.958 (24.33)	1.062 (26.97)	1.258 (31.95)	
D (17)	1.025 (26.04)	1.141 (28.98)	1.399 (26.39)	
	1.005 (25.53)	1.125 (28.58)	1.383 (35.13)	
E (19)	1.150 (29.21)	1.338 (33.98)	1.524 (38.71)	
	1.130 (28.70)	1.312 (33.32)	1.508 (38.30)	
F (23)	1.291 (32.79)	1.516 (38.51)	1.734 (44.04)	
	1.271 (32.28)	1.500 (38.10)	1.718 (43.64)	
G (25)	1.402 (35.61)	1.641 (41.68)	1.834 (46.58)	.157 (3.99) .137 (3.48)
	1.382 (35.10)	1.625 (41.28)	1.818 (46.18)	
H (29)	1.578 (40.08)	1.891 (48.03)	2.154 (54.71)	
	1.558 (39.57)	1.875 (47.62)	2.138 (54.30)	
J (33)	1.744 (44.30)	2.078 (52.78)	2.344 (59.54)	.183 (4.65) .163 (4.14)
	1.724 (43.79)	2.062 (52.37)	2.328 (59.13)	

Dimensions in Inches (millimeters) are subject to change without notice.

M28840/25  
90° EMI Conduit Adapter



STYLE A - EMI/Non-Environmental  
(Plain Conduit)



STYLE B - EMI/Environmental  
(Jacket Conduit)

Dimensions in Inches (millimeters) are subject to change without notice.





**M28840/25**  
**90° EMI Conduit Adapter**

Dash Number	Designator	A Thread Class 2B	B Diameter Max.	C Thread Class 1	D Max Diameter	Sealing Range	
						Max.	Min.
01	A (11)	.750-20 UNEF	1.028 (26.11)	.875-20 UNEF	1.031 (26.19)	.63 (16.0)	.50 (12.7)
02	B (13)	.875-20 UNEF	1.141 (28.98)	.875-20 UNEF		.63 (16.0)	.50 (12.7)
03				1.000-20 UNEF		.75 (19.1)	.63 (16.0)
04	C (15)	1.000-20 UNEF	1.263 (32.08)	.875-20 UNEF	1.281 (32.58)	.63 (16.0)	.50 (12.7)
05				1.000-20 UNEF		.75 (19.1)	.63 (16.0)
06				1.125-18 UNEF		.88 (22.4)	.75 (19.1)
07				1.250-18 UNEF	1.531 (38.89)	1.00 (25.4)	.88 (22.4)
08	D (17)	1.125-18 UNEF	1.387 (35.23)	1.125-18 UNEF		.88 (22.4)	.75 (19.1)
09				1.250-18 UNEF		1.00 (25.4)	.88 (22.4)
10				1.625-18 UNEF	1.38 (35.1)	1.19 (30.2)	
11	E (19)	1.250-18 UNEF	1.513 (38.43)	1.125-18 UNEF	1.781 (45.24)	.88 (22.4)	.75 (19.1)
12				1.250-18 UNEF		1.00 (25.4)	.88 (22.4)
13				1.625-18 UNEF		1.38 (35.1)	1.19 (30.2)
14	F (23)	1.438-18 UNEF	1.703 (45.51)	1.250-18 UNEF	2.031 (51.59)	1.00 (25.4)	.88 (22.4)
15				1.625-18 UNEF		1.38 (35.1)	1.18 (30.2)
16				1.875-18 UNS		1.63 (41.4)	1.44 (36.6)
17	G (25)	1.562-18 UNEF	1.825 (46.35)	1.250-18 UNEF	2.031 (51.59)	1.00 (25.4)	.88 (22.4)
18				1.625-18 UNEF		1.38 (35.1)	1.19 (30.2)
19				1.875-18 UNS		1.63 (41.4)	1.44 (36.5)
20				2.125-16 UN	2.531 (64.29)	1.88 (47.8)	1.63 (41.4)
21	H (29)	1.875-16 UN	2.143 (54.43)	1.875-18 UNS		1.63 (41.4)	1.44 (36.6)
22				2.125-16 UN	1.33 (47.8)	1.63 (41.4)	
23	J (33)	2.062-16 UNS	2.329 (59.16)	2.125-16 UN	2.531 (64.29)	1.88 (47.8)	1.63 (41.4)
24				2.750-16 UN		2.38 (60.5)	2.13 (54.1)
25	A (11)	.750-20 UNEF	1.028 (26.11)	.875-20 UNEF	1.031 (25.19)	.75 (19.5)	.63 (16.0)

Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/25 90° EMI Conduit Adapter



MIL-DTL-28840  
Electrical Connectors

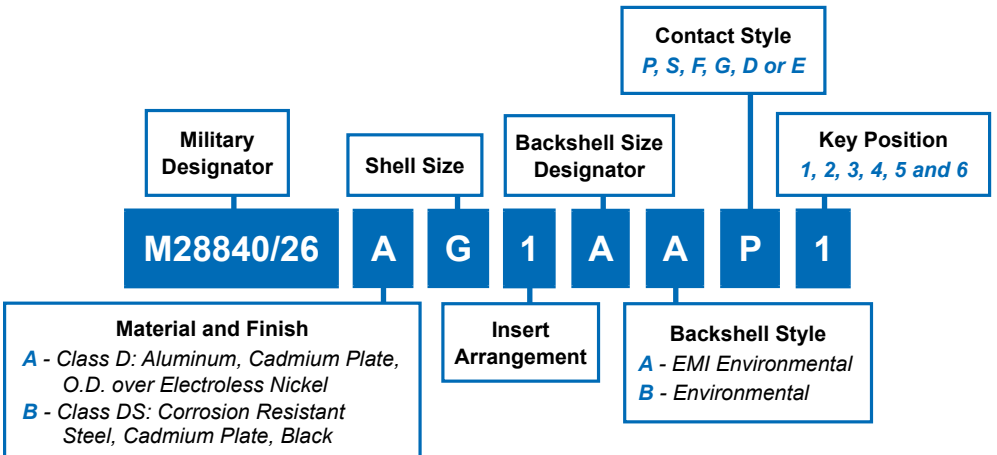
Dash Number	Designator	Conduit Size M 04	E Max. Dim.	F Max. Dim.	V Thread Class 2	M Max. Dia.	Y Max. Dia.
01	A (11)	03	2.36 (59.9)	3.50 (92.8)	1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)
02	B (13)	03			1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)
03		04			1.188-18 UNEF	1.25 (31.8)	1.38 (35.1)
04	C (15)	03	2.56 (65.0)	3.69 (9.79)	1.000-20 UNEF	1.12 (28.5)	1.39 (35.3)
05		04			1.118-18 UNEF	1.25 (31.8)	1.38 (35.1)
06		05			1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)
07		06			2.67 (67.8)	3.81 (101.0)	1.750-18 UNS
08	D (17)	05	1.438-18 UNEF	1.43 (36.3)			1.63 (41.4)
09		06	1.750-18 UNS	1.62 (42.2)			1.94 (49.3)
10		08	2.00-18 UNS	1.81 (46.0)			2.19 (55.6)
11	E (19)	05	3.05 (77.5)	4.19 (111.1)	1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)
12		06			1.750-18 UNS	1.62 (41.2)	1.94 (49.3)
13		08			2.00-18 UNS	1.81 (46.0)	2.19 (55.6)
14	F (23)	06	3.05 (77.5)	4.19 (111.1)	1.750-18 UNS	1.62 (41.2)	1.94 (49.3)
15		08			2.00-18 UNS	1.81 (46.0)	2.19 (55.6)
16		10			2.250-18 UN	2.18 (55.4)	2.44 (62.0)
17		G (25)			06	1.750-18 UNS	1.62 (41.2)
18	08		2.00-18 UN	1.81 (46.0)	2.19 (55.6)		
19	10		2.250-18 UN	2.18 (55.4)	2.44 (62.0)		
20	H (29)	12	3.33 (84.6)	4.50 (119.4)	2.500-16 UN	2.56 (65.0)	2.69 (68.5)
21		10			2.250-16 UN	2.18 (55.4)	2.18 (55.4)
22		12			1.500-16 UN	2.56 (65.0)	2.44 (62.0)
23	J (33)	12	3.70 (94.0)	4.43 (128.1)	2.500-16 UN	2.56 (65.0)	2.69 (68.3)
24		16			3.00-16 UN	3.06 (77.8)	3.19 (81.0)
25	A (11)	04	2.36 (59.9)	3.50 (92.8)	1.133-18 UNF	1.25 (31.8)	1.38 (35.1)

Dimensions in Inches (millimeters) are subject to change without notice.





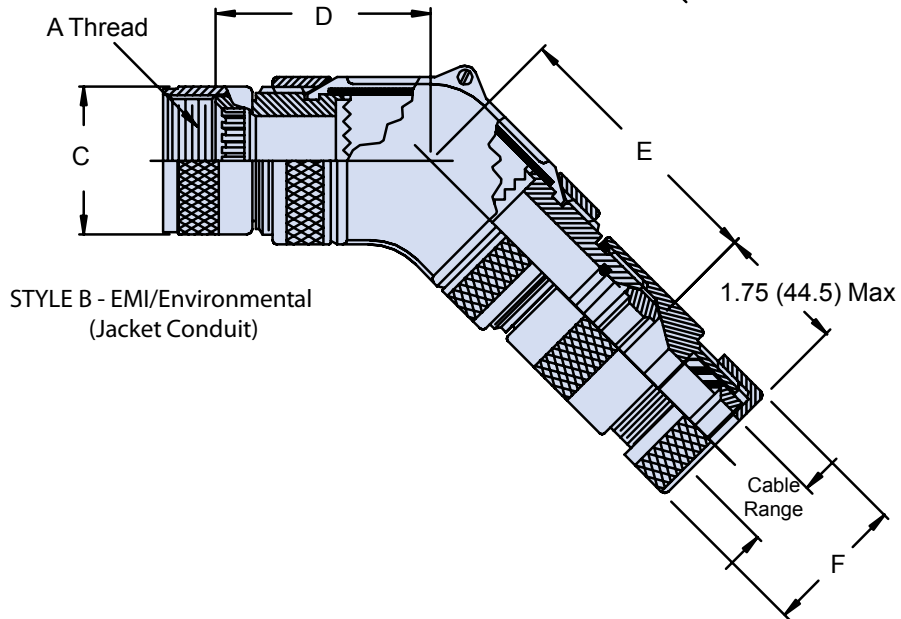
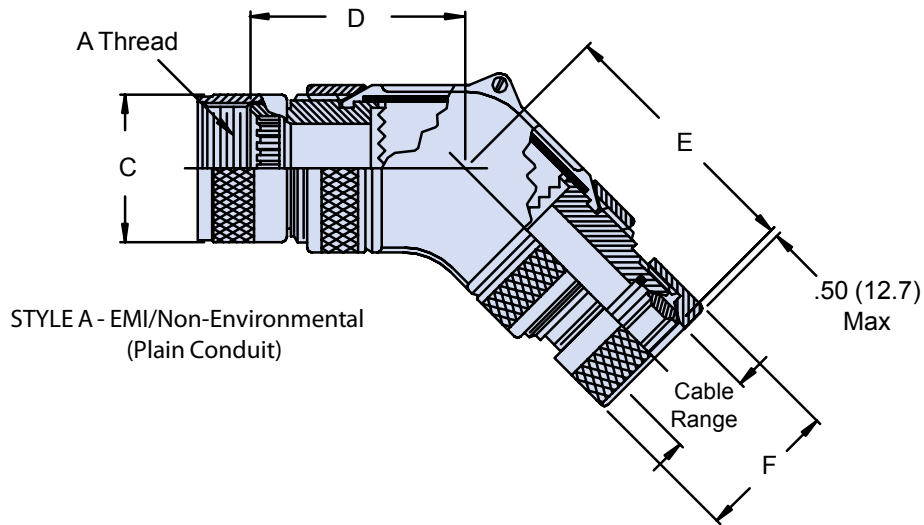
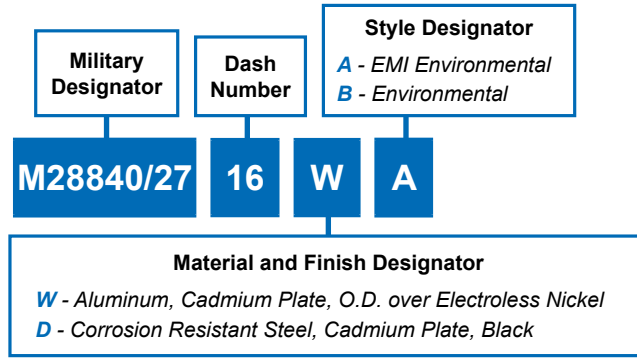
# M28840/26 Plug Connector with Straight EMI/RFI Backshell



Military Shell Size	Shell Size	A Thread Class 2B	Backshell Size Designator	A Cable Entry		E Max.	L Max.
				Open	Closed		
A	11	.750-1P-.2L-DS	A	.312	.188	.938	6.500
			B	.438	.281	1.125	
			C	.562	.344	1.312	
B	13	.875-1P-.2L-DS	A	.312	.188	.938	7.000
			B	.438	.281	1.125	
			C	.562	.344	1.312	7.000
			D	.652	.375	1.312	
C	15	1.062-1P-.2L-DS	A	.438	.281	1.125	6.500
			B	.562	.344	1.312	
			C	.625	.375	1.312	7.000
			D	.750	.438	1.593	
D	17	1.125-1P-.2L-DS	A	.625	.375	1.312	7.500
			B	.750	.438	1.593	
			C	.938	.625	1.750	
E	19	1.312-1P-.2L-DS	A	.625	.375	1.312	7.625
			B	.938	.625	1.750	
F	23	1.500-1P-.2L-DS	A	.750	.438	1.593	7.812
			B	.938	.625	1.750	
			C	1.188	.812	2.093	
G	25	1.625-1P-.2L-DS	A	.938	.625	1.750	8.312
			B	1.188	.812	2.093	
			C	1.250	.875	2.093	
			D	1.380	1.000	2.343	
H	29	1.812-1P-.2L-DS	A	1.188	.812	2.093	8.625
			B	1.380	1.000	2.343	
J	33	2.000-1P-.2L-DS	A	1.380	1.000	2.343	8.625
			B	1.625	1.250	2.750	

Dimensions in inches (millimeters) are subject to change without notice.

M28840/27  
45° EMI Conduit Adapter



Dimensions in Inches (millimeters) are subject to change without notice.





**M28840/27**  
**45° EMI Conduit Adapter**

Dash No.	Designator	A Thread Class 2B	B Max Diameter	C Thread Class 2	D Max. Diameter	Sealing Range		Conduit Size M 04	E Max. Dim.
						Max.	Min.		
01	A (11)	.750-20 UNEF	1.028 (26.11)	.875-20 UNEF	1.031 (26.19)	.63 (16.0)	.50 (12.7)	03	2.36 (59.9)
02	B (13)	.875-20 UNEF	1.141 (28.98)	.875-20 UNEF		.63 (16.0)	.50 (12.7)	03	
03				1.000-20 UNEF		.75 (19.1)	.63 (16.0)	04	
04	C (15)	1.000-20 UNEF	1.263 (32.08)	.875-20 UNEF	1.281 (32.50)	.63 (16.0)	.50 (12.7)	03	2.56 (65.0)
05				1.000-20 UNEF		.75 (19.1)	.63 (16.0)	04	
06				1.125-18 UNEF		.88 (22.4)	.75 (19.1)	05	
07				1.250-18 UNEF	1.00 (25.4)	.88 (22.4)	06		
08	D (17)	1.125-18 UNEF	1.387 (38.23)	1.125-18 UNEF	1.531 (38.80)	.88 (22.4)	.75 (19.1)	05	2.67 (67.8)
09				1.250-18 UNEF		1.00 (25.4)	.88 (22.4)	06	
10				1.625-18 UNEF		1.38 (35.1)	1.19 (22)	08	
11	E (19)	1.250-18 UNEF	1.513 (38.43)	1.125-18 UNEF		.88 (22.4)	.75 (19.1)	05	
12				1.250-18 UNEF		1.00 (25.4)	.88 (22.4)	06	
13				1.625-18 UNEF	1.38 (35.1)	1.19 (30.2)	08		
14	F (23)	1.438-18 UNEF	1.703 (45.51)	1.250-18 UNEF	1.781 (45.24)	1.000 (25.4)	.88 (22.4)	06	3.05 (77.5)
15				1.625-18 UNEF		1.38 (35.1)	1.19 (30.2)	08	
16				1.875-18 UNS		1.63 (41.4)	1.44 (36.6)	10	
17	G (25)	1.562-18 UNEF	1.825 (46.35)	1.250-18 UNEF		1.00 (25.4)	.88 (22.4)	06	
18				1.625-18 UNEF		1.38 (41.4)	1.19 (30.2)	08	
19				1.875-18 UNS	1.43 (41.4)	1.44 (36.6)	10		
20				2.125-16 UN	1.88 (47.8)	1.63 (41.4)	12		
21	H (29)	1.875-16 UNS	2.143 (54.43)	1.875-18 UNS	2.031 (51.59)	1.63 (41.4)	1.44 (36.6)	10	3.33 (84.6)
22				2.125-16 UN		1.88 (47.8)	1.63 (41.4)	12	
23	J (33)	2.062-16 UNS	2.329 (50.16)	2.125-16 UN	2.531 (64.29)	1.88 (47.8)	1.63 (41.4)	12	3.70 (94.0)
24				2.750-16 UN		2.38 (60.5)	2.13 (54.1)	16	
25	A (11)	.750-20 UNEF	1.028 (16.11)	.875-20 UNEF	1.031 (26.19)	.75 (19.1)	.63 (16.0)	04	2.36 (59.9)

Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/27 45° EMI Conduit Adapter



MIL-DTL-28840  
Electrical Connectors

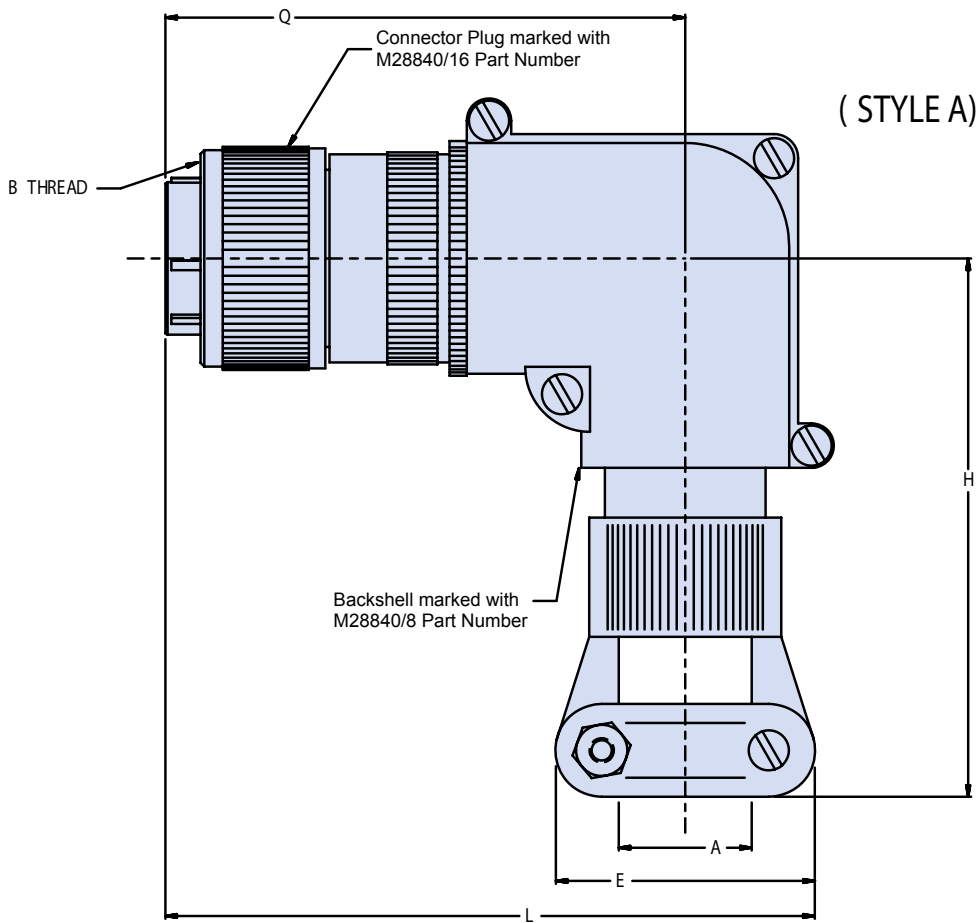
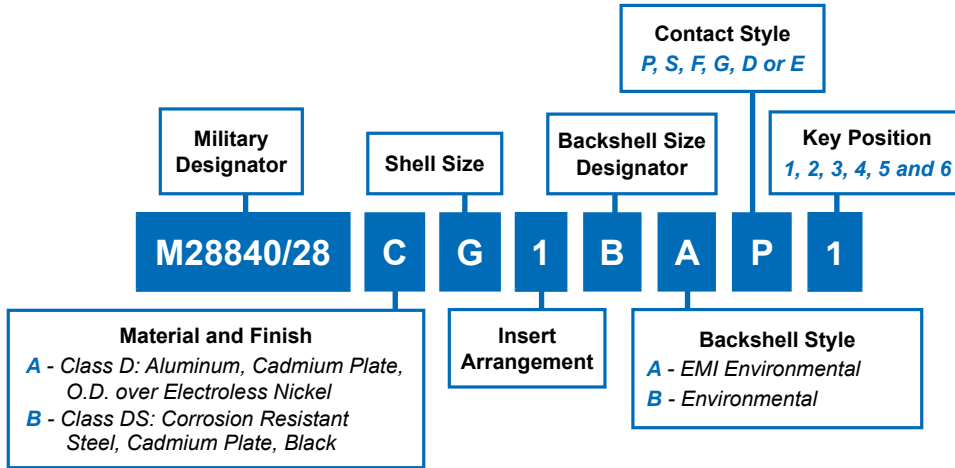
Dash Number	Designator	F Max. Dim.	V Thread Class 2	M Max. Diameter	Y Max. Diameter
1	A (11)	3.50 (88.9)	1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)
2	B (13)		1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)
3			1.188-18 UNEF	1.25 (31.8)	1.38 (35.1)
4	C (15)	3.69 (93.7)	1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)
5			1.188-18 UNEF	1.25 (31.8)	1.38 (35.1)
6			1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)
7			3.81 (96.7)	1.750-18 UNS	1.62 (41.2)
8	1.438-18 UNEF	1.43 (36.3)		1.63 (41.4)	
9	D (17)	1.750-18 UNS		1.62 (41.2)	1.94 (49.3)
10		2.00-18 UNS		1.81 (46.0)	2.19 (55.6)
11	E (19)	3.81 (96.7)	1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)
12			1.750-18 UNS	1.62 (41.2)	1.94 (49.3)
13			4.19 (106.4)	2.00-18 UNS	1.81 (46.0)
14	F (23)	1.750-18 UNS		1.62 (41.2)	1.94 (49.3)
15		2.00-18 UN		1.81 (46.0)	2.19 (55.6)
16		2.250-16 UN		2.18 (55.4)	2.44 (62.0)
17		G (25)	1.750-18 UNS	1.62 (41.2)	1.94 (49.3)
18	2.00-18 UN		1.81 (46.0)	2.19 (55.6)	
19	2.250-16 UN		2.18 (55.4)	2.44 (62.0)	
20	4.50 (114.3)		2.500-16 UN	2.56 (65.0)	2.69 (68.3)
21		H (29)	2.250-16 UN	2.18 (55.4)	2.44 (62.0)
22			2.500-16 UN	2.56 (65.0)	2.69 (68.3)
23	J (33)	4.83 (122.6)	2.500-16 UN	2.56 (65.0)	2.69 (68.3)
24			3.00-16 UN	3.06 (77.8)	3.19 (81.0)
25	A (11)	3.50 (88.9)	1.188-18 UNEF	1.25 (31.8)	1.38 (35.1)



Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/28 90° Adapter Assembly Plug



Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/28 90° Adapter Assembly Plug



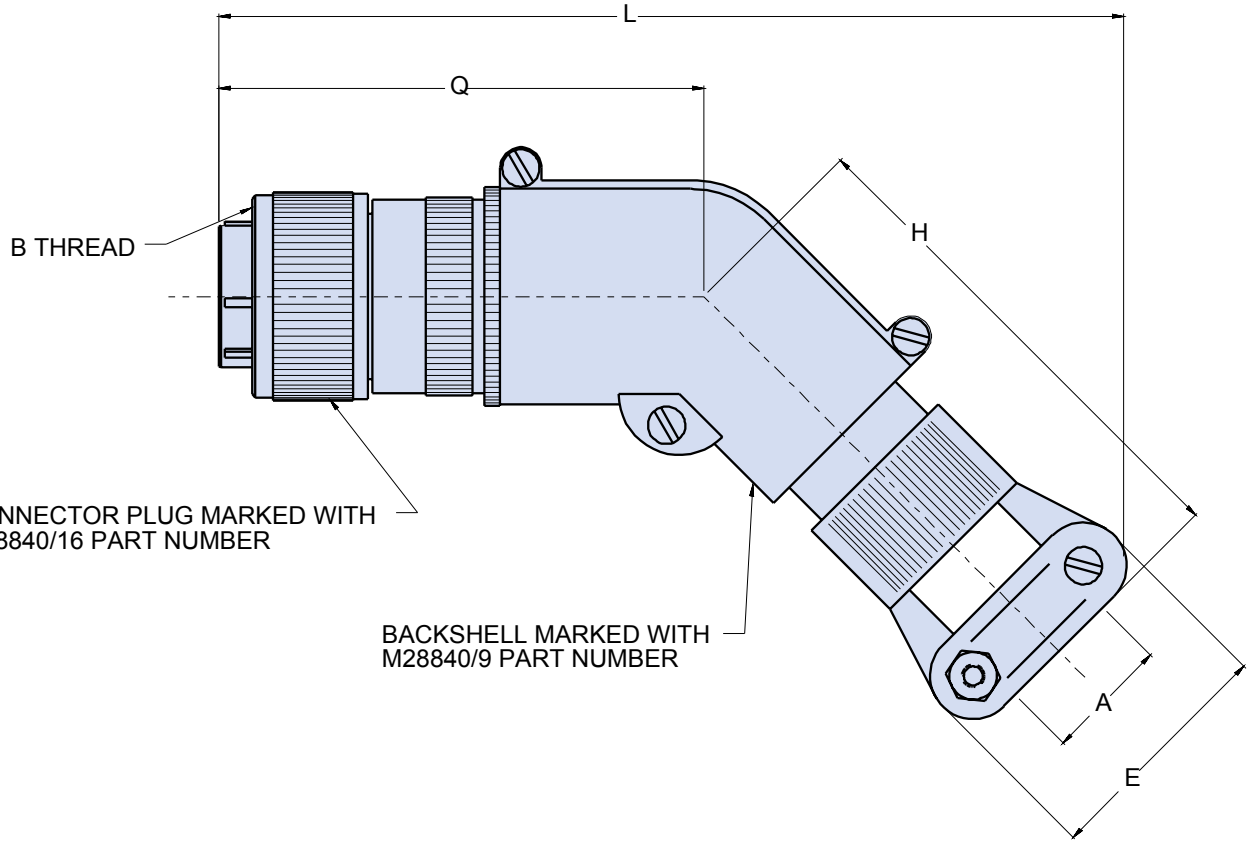
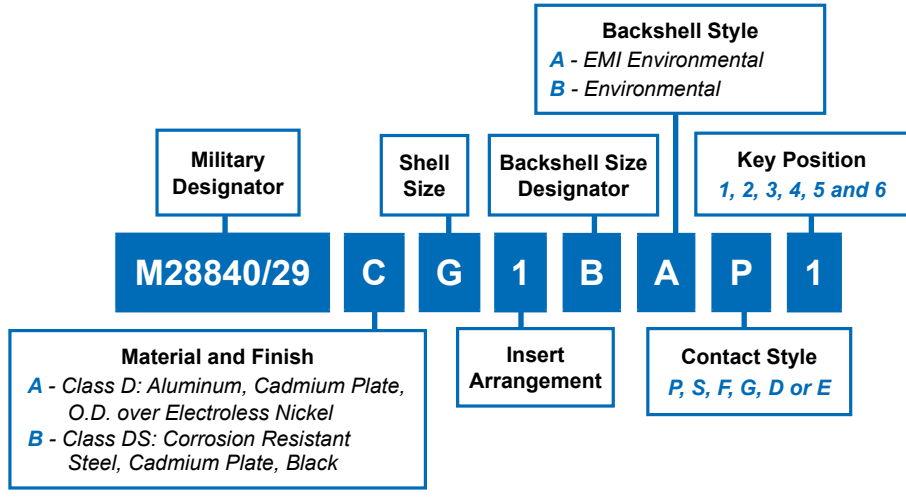
J Military Shell Size	Shell Size	Backshell Size Designator	A Cable Entry		A Thread Class 2B	E Max.	H Max.	L Max.	Q Max.
			Open	Closed					
A	11	A	.312	.188	.750-1P-.2L-DS	.938	5.332	3.812	3.250
A	11	B	.438	.281		1.125	5.332	3.812	3.250
A	11	C	.562	.344		1.312	5.457	4.000	3.375
B	13	A	.438	.281	.875-1P-.2L-DS	1.125	5.332	3.812	3.250
B	13	B	.562	.344		1.312	5.457	4.000	3.375
B	13	C	.625	.375		1.312	5.682	4.250	3.500
C	15	A	.438	.281	1.062-1P-.2L-DS	1.125	5.457	4.000	3.375
C	15	B	.562	.344		1.312	5.457	4.000	3.375
C	15	C	.625	.375		1.312	5.682	4.250	3.500
C	15	D	.750	.438		1.593	5.713	4.125	3.500
D	17	A	.625	.375	1.125-1P-.2L-DS	1.312	5.682	4.250	3.500
D	17	B	.750	.438		1.593	5.713	4.250	3.500
E	19	A	.625	.375	1.312-1P-.2L-DS	1.312	5.682	4.250	3.500
E	19	B	.938	.625		1.750	5.832	4.375	3.625
F	23	A	.750	.438	1.500-1P-.2L-DS	1.593	5.738	4.500	3.625
F	23	B	.938	.625		1.750	5.832	4.500	3.625
F	23	C	1.188	.812		2.093	6.019	4.688	3.625
G	25	A	.938	.625	1.625-1P-.2L-DS	1.750	5.832	4.500	3.625
G	25	B	1.188	.812		2.093	6.019	4.688	3.625
G	25	C	1.250	.875		2.093	6.144	4.688	3.750
G	25	D	1.380	1.000		2.343	6.176	4.938	3.750
H	29	A	1.188	.812	1.812-1P-.2L-DS	2.093	6.144	4.812	3.750
H	29	B	1.380	1.000		2.343	6.176	4.938	3.750
J	33	A	1.380	1.000	2.000-1P-.2L-DS	2.343	6.426	5.188	4.000
J	33	B	1.625	1.250		2.750	6.701	5.375	4.000



Dimensions in Inches (millimeters) are subject to change without notice.



**M28840/29**  
**Plug Connector**  
**with 45° EMI/RFI Backshell**



Dimensions in Inches (millimeters) are subject to change without notice.

**M28840/29  
Plug Connector  
with 45° EMI/RFI Backshell**



MIL-DTL-28840  
Electrical Connectors

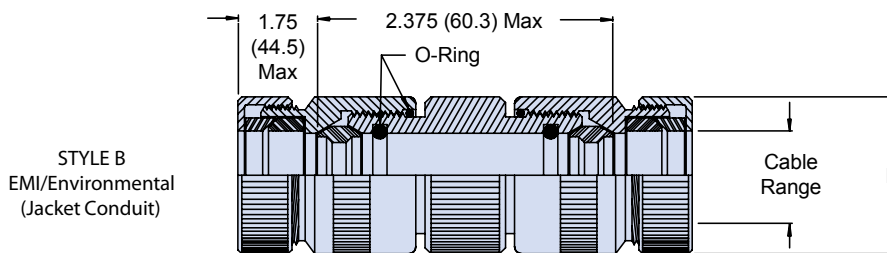
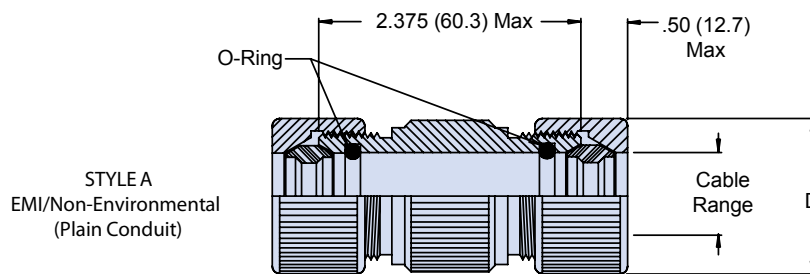
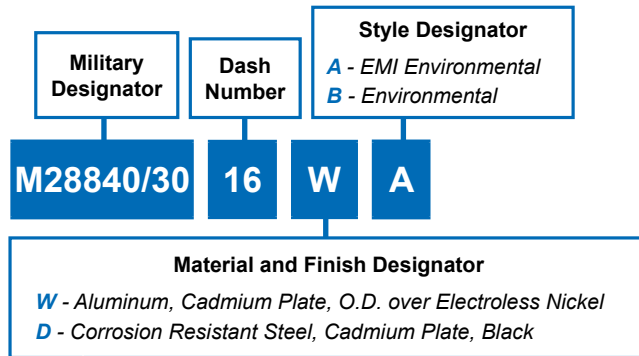
J Military Shell Size	Shell Size	Backshell Size Designator	A Cable Entry		A Thread Class 2B	E Max.	H Max.	L Max.	Q Max.
			Open	Closed					
A	11	A	.312	.188	.750-1P-.2L-DS	.938	5.432	7.404	3.250
A	11	B	.438	.281		1.125	5.432	7.457	3.250
A	11	C	.562	.344		1.312	5.557	7.727	3.375
B	13	A	.438	.281	.875-1P-.2L-DS	1.125	5.432	7.457	3.250
B	13	B	.562	.344		1.312	5.557	7.727	3.375
B	13	C	.625	.375		1.312	5.682	7.938	3.500
C	15	A	.438	.281	1.062-1P-.2L-DS	1.125	5.557	7.671	3.375
C	15	B	.562	.344		1.312	5.557	7.727	3.375
C	15	C	.625	.375		1.312	5.682	7.938	3.500
C	15	D	.750	.438		1.593	5.713	8.058	3.500
D	17	A	.625	.375	1.125-1P-.2L-DS	1.312	5.682	7.938	3.500
D	17	B	.750	.438		1.593	5.713	8.058	3.500
E	19	A	.625	.375	1.312-1P-.2L-DS	1.312	5.682	7.938	3.500
E	19	B	.938	.625		1.750	5.932	8.371	3.625
F	23	A	.750	.438	1.500-1P-.2L-DS	1.593	5.838	8.272	3.625
F	23	B	.938	.625		1.750	5.932	8.371	3.625
F	23	C	1.188	.812		2.093	6.119	8.628	3.625
G	25	A	.938	.625	1.625-1P-.2L-DS	1.750	5.932	8.371	3.625
G	25	B	1.188	.812		2.093	6.119	8.628	3.625
G	25	C	1.250	.875		2.093	6.244	8.841	3.750
G	25	D	1.380	1.000		2.343	6.276	8.950	3.750
H	29	A	1.188	.812	1.812-1P-.2L-DS	2.093	6.244	8.841	3.750
H	29	B	1.380	1.000		2.343	6.276	8.950	3.750
J	33	A	1.380	1.000	2.000-1P-.2L-DS	2.343	6.526	9.377	4.000
J	33	B	1.625	1.250		2.750	6.801	9.659	4.000



Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/30 Metal Conduit Coupler Styles A and B



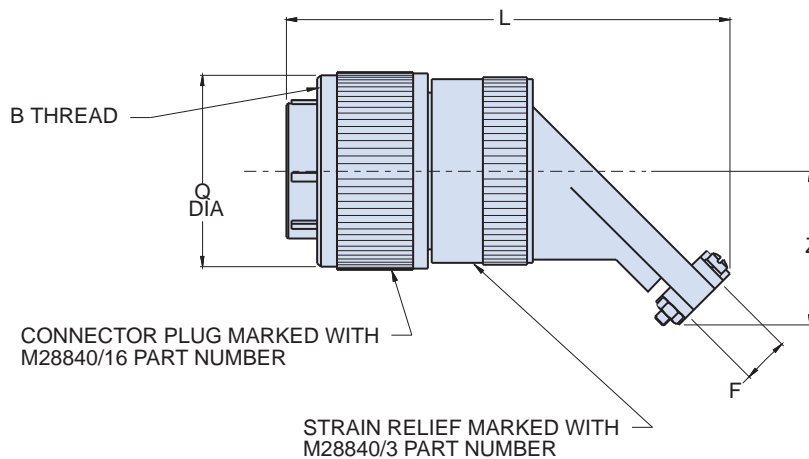
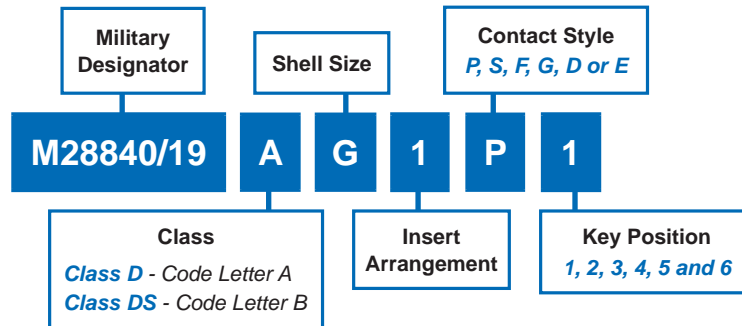
Dash Number	Conduit Size	Sealing Range		C Thread	M Max Diameter	V Thread Class 2	Y Max Diameter
		Max.	Min.				
03	03	.63 (16.0)	.50 (12.7)	.875-20 UNEF	1.12 (28.5)	1.00-20 UNEF	1.19 (30.23)
04	04	.75 (19.1)	.63 (16.0)	1.000-20 UNEF	1.25 (31.8)	1.188-18 UNEF	1.38 (35.1)
05	05	.88 (22.4)	.75 (18.1)	1.125-18 UNEF	1.43 (36.3)	1.438-18 UNEF	1.63 (41.4)
06	06	1.00 (25.4)	.88 (22.4)	1.250-18 UNEF	1.62 (41.2)	1.750-18 UNS	1.94 (49.3)
08	08	1.38 (35.1)	1.19 (30.2)	1.625-18 UNEF	1.81 (46.0)	2.00-18 UNS	2.19 (55.6)
10	10	1.63 (41.4)	1.44 (36.6)	1.875-18 UNS	2.18 (55.4)	2.250-16 UN	2.44 (62.0)
12	12	1.88 (47.8)	1.63 (41.4)	2.125-16 UN	2.56 (65.0)	2.50-16 UN	2.69 (68.3)
16	16	2.38 (60.5)	2.13 (54.1)	2.750-16 UN	3.06 (77.8)	3.00-16 UN	3.19 (81.0)

Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/19 Plug Connector with 45° Strain Relief



MIL-DTL-28840  
Electrical Connectors

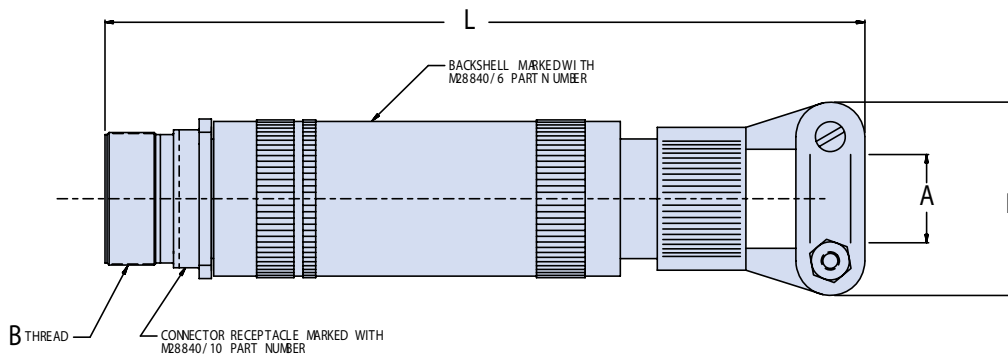
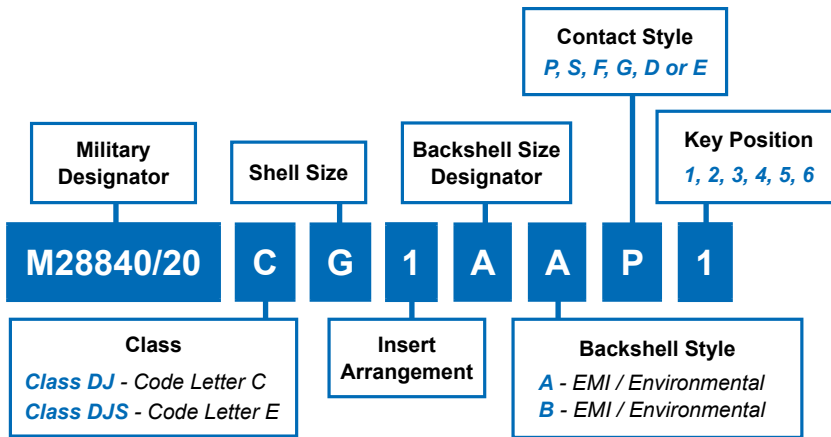


Designator	A Thread Class 2B	F Cable Entry		L Max.	Q Max.	Z Max.	Max. O.D. Over Rear Clamps
		Open	Closed				
A (11)	.750-1P-.2L-DS	.286	.177	3.125	1.028	.928	.832
B (13)	.875-1P-.2L-DS	.286		3.125	1.141	.928	
C (15)	1.062-1P-.2L-DS	.416	.250	3.250	1.263	.991	.989
D (17)	1.125-1P-.2L-DS	.476	.291	3.312	1.387	1.110	1.094
E (19)	1.312-1P-.2L-DS	.626	.348	3.375	1.513	1.172	1.319
F (23)	1.500-1P-.2L-DS	.831	.429	3.438	1.703	1.235	1.557
G (25)	1.625-1P-.2L-DS	.956	.523	3.500	1.825	1.297	1.653
H (29)	1.812-1P-.2L-DS	1.081	.643	3.750	2.143	1.543	1.819
J (33)	2.000-1P-.2L-DS	1.187	.704	3.875	2.329	1.668	2.020

Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/20 Receptacle Connector with Straight EMI/RFI Backshell



Dimensions in Inches (millimeters) are subject to change without notice.



**M28840/20**  
**Receptacle Connector**  
**with Straight EMI/RFI Backshell**



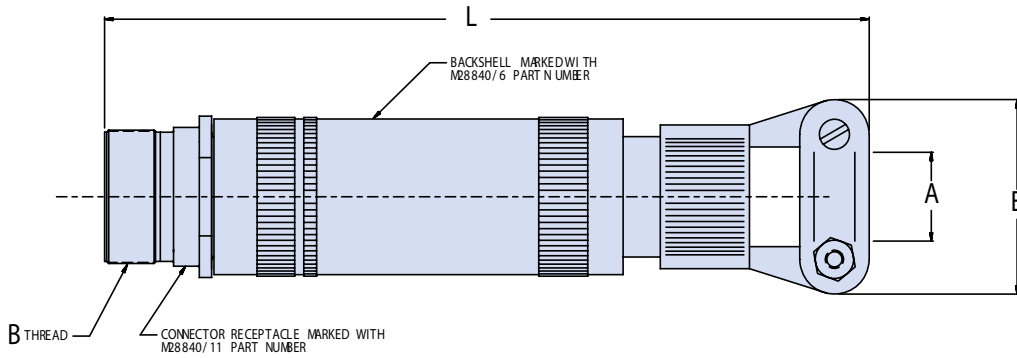
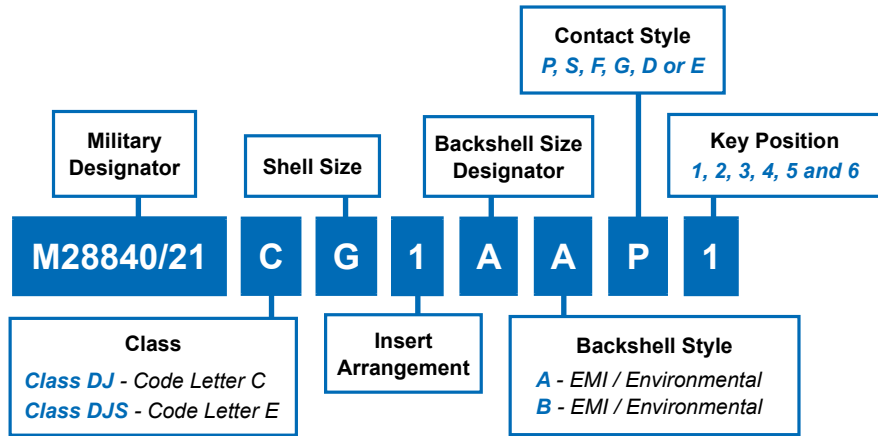
J Military Shell Size	Shell Size	Backshell Size Designator	A Cable Entry		A Thread Class 2B	E Max.	L Max.
			Open	Closed			
A	11	A	.312	.188	.750-1P-.2L-DS	.938	6.625
A	11	B	.438	.281		1.125	6.625
A	11	C	.562	.344		1.312	6.625
B	13	A	.312	.188	.875-1P-.2L-DS	.938	6.625
B	13	B	.438	.281		1.125	6.625
B	13	C	.562	.344		1.312	6.625
B	13	D	.652	.375		1.312	7.125
C	15	A	.438	.281	1.062-1P-.2L-DS	1.125	6.625
C	15	B	.562	.344		1.312	6.625
C	15	C	.625	.375		1.312	7.125
C	15	D	.750	.438		1.593	7.188
C	15	E	.312	.188		.938	6.625
D	17	A	.625	.375	1.125-1P-.2L-DS	1.312	7.125
D	17	B	.750	.438		1.593	7.188
D	17	C	.938	.625		1.750	7.188
E	19	A	.625	.375	1.312-1P-.2L-DS	1.312	7.125
E	19	B	.938	.625		1.750	7.250
F	23	A	.750	.438	1.500-1P-.2L-DS	1.593	7.688
F	23	B	.938	.625		1.750	7.812
F	23	C	1.188	.812		2.093	7.938
G	25	A	.938	.625	1.625-1P-.2L-DS	1.750	7.750
G	25	B	1.188	.812		2.093	8.438
G	25	C	1.250	.875		2.093	8.438
G	25	D	1.380	1.000		2.343	8.500
H	29	A	1.188	.812	1.812-1P-.2L-DS	2.093	8.438
H	29	B	1.380	1.000		2.343	8.500
J	33	A	1.380	1.000	2.000-1P-.2L-DS	2.343	8.500
J	33	B	1.625	1.250		2.750	8.750



Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/21 In-Line Receptacle Connector with Straight EMI/RFI Backshell



E

Dimensions in Inches (millimeters) are subject to change without notice.

**M28840/21**  
**In-Line Receptacle Connector**  
**with Straight EMI/RFI Backshell**



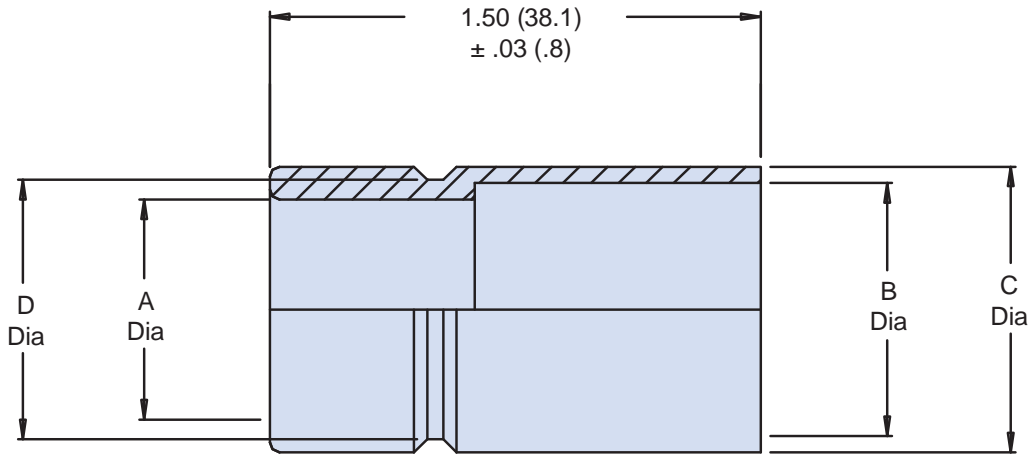
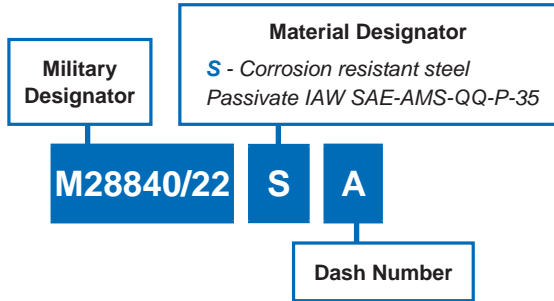
JMilitary Shell Size	Shell Size	Backshell Size Designator	A Cable Entry		A Thread Class 2B	E Max.	L Max.
			Open	Closed			
A	11	A	.312	.188	.750-1P-.2L-DS	.938	6.625
A	11	B	.438	.281		1.125	6.625
A	11	C	.562	.344		1.312	6.625
B	13	A	.312	.188	.875-1P-.2L-DS	.938	6.625
B	13	B	.438	.281		1.125	6.625
B	13	C	.562	.344		1.312	6.625
B	13	D	.652	.375		1.312	7.125
C	15	A	.438	.281	1.062-1P-.2L-DS	1.125	6.625
C	15	B	.562	.344		1.312	6.625
C	15	C	.625	.375		1.312	7.125
C	15	D	.750	.438		1.593	7.188
C	15	E	.312	.188		.938	6.625
D	17	A	.625	.375	1.125-1P-.2L-DS	1.312	7.125
D	17	B	.750	.438		1.593	7.188
D	17	C	.938	.625		1.750	7.188
E	19	A	.625	.375	1.312-1P-.2L-DS	1.312	7.125
E	19	B	.938	.625		1.750	7.250
F	23	A	.750	.438	1.500-1P-.2L-DS	1.593	7.688
F	23	B	.938	.625		1.750	7.812
F	23	C	1.188	.812		2.093	7.938
G	25	A	.938	.625	1.625-1P-.2L-DS	1.750	7.750
G	25	B	1.188	.812		2.093	8.438
G	25	C	1.250	.875		2.093	8.438
G	25	D	1.380	1.000		2.343	8.500
H	29	A	1.188	.812	1.812-1P-.2L-DS	2.093	8.438
H	29	B	1.380	1.000		2.343	8.500
J	33	A	1.380	1.000	2.000-1P-.2L-DS	2.343	8.500
J	33	B	1.625	1.250		2.750	8.750



Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/22 Metal Conduit Bushing



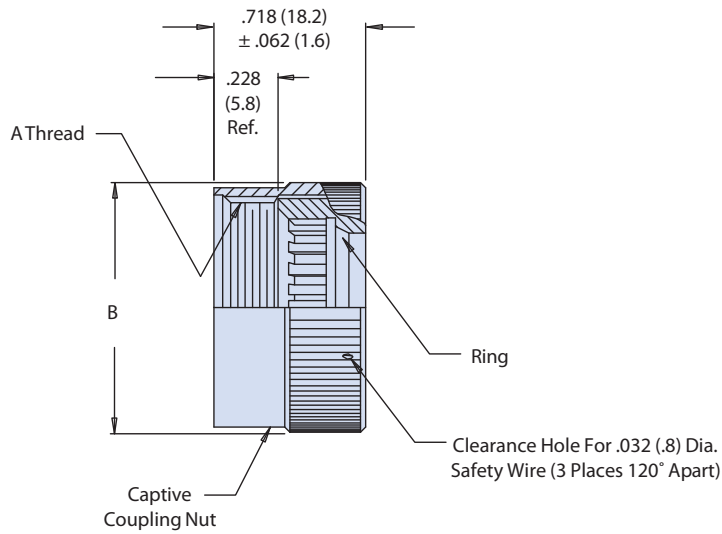
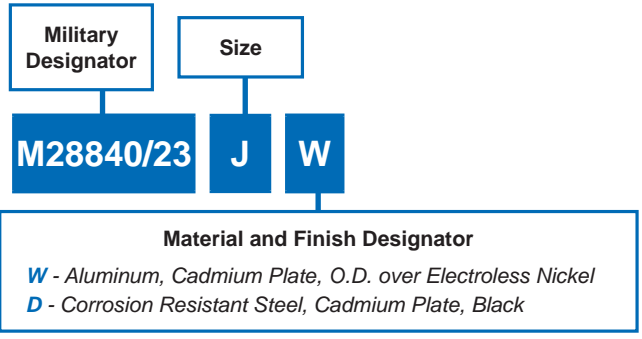
Size	MIL- DTL-28840/04 Size Ref.	A +.020 (.50) -.000 (.000)	B +.005 (.12) -.000 (.000)	C +.000 (.000) -.005 (.12)	D +.000 (.000) -.005 (.12)
03	03	.375 (9.53)	.540 (13.71)	.625 (15.87)	.525 (13.34)
04	04	.500 (12.70)	.665 (16.89)	.750 (19.05)	.650 (16.51)
05	05	.625 (15.87)	.780 (19.81)	.875 (22.23)	.775 (19.69)
06	06	.750 (19.05)	.940 (23.88)	1.000 (25.40)	.900 (22.86)
08	08	1.000 (25.40)	1.225 (31.12)	1.375 (34.93)	1.275 (32.39)
10	10	1.250 (31.75)	1.470 (37.34)	1.625 (41.28)	1.525 (38.74)
12	12	1.500 (38.10)	1.740 (44.20)	1.875 (47.65)	1.775 (45.09)
16	16	2.000 (50.80)	2.215 (56.26)	2.375 (60.33)	2.275 (57.79)

Dimensions in Inches (millimeters) are subject to change without notice.

M28840/23  
"E Nut"



MIL-DTL-28840  
Electrical Connectors



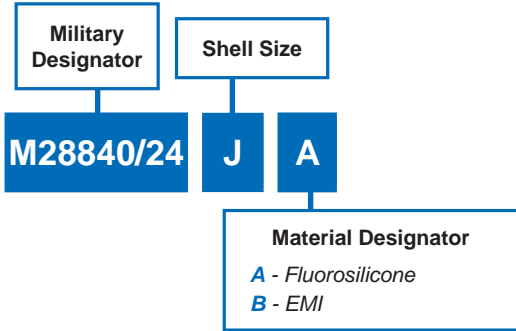
Designator	A Thread Class 2B	B Max. Diameter
A (11)	.750-20 UNEF	1.028 (26.11)
B (13)	.875-20 UNEF	1.14 (26.11)
C (15)	1.000-20 UNEF	2.263 (32.08)
D (17)	1.125-18 UNEF	1.387 (35.23)
E (19)	1.250-18 UNEF	1.513 (38.43)
F (23)	1.438-18 UNEF	1.703 (43.51)
G (25)	1.562-18 UNEF	1.825 (46.35)
H (29)	1.876-16 UN	2.143 (54.43)
J (33)	2.062-16 UNS	2.329 (59.16)

Dimensions in Inches (millimeters) are subject to change without notice.

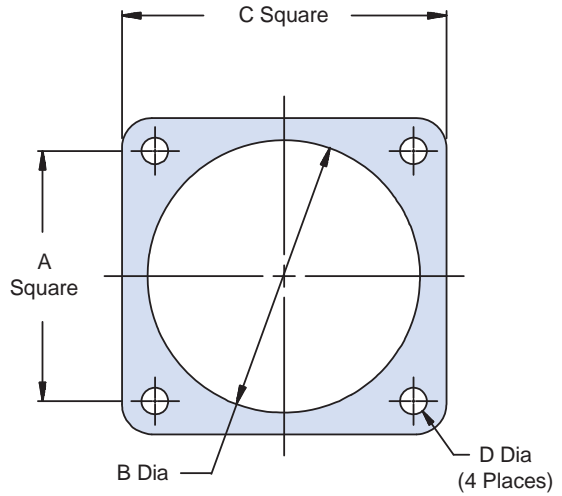




# M28840/24 Wall Mount Receptacle Mounting Gasket for MIL-DTL-28840 Connectors



Also for use with  
M28876/180-040 connectors



E

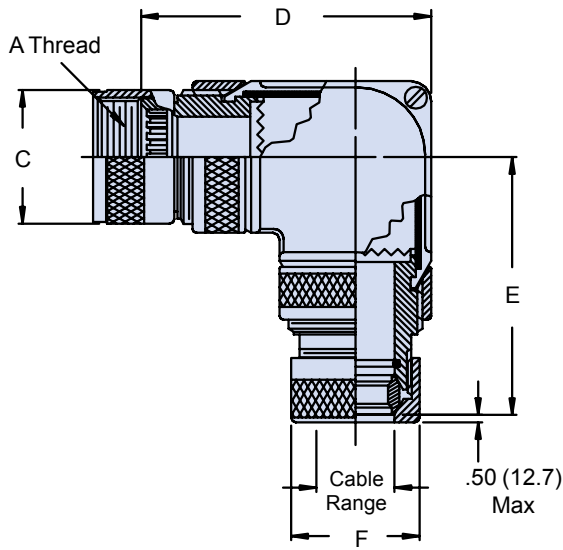
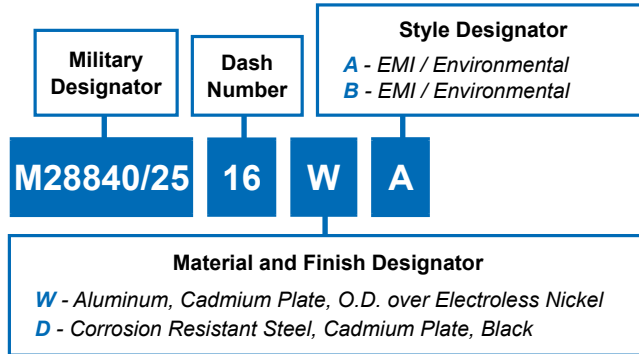
Shell Size	A	B Dia.	C	D Dia.
A (11)	.760 (19.30)	.766 (19.46)	1.039 (26.39)	.130 (3.30) .110 (2.79)
	.740 (18.80)	.750 (19.05)	1.023 (25.98)	
B (13)	.853 (21.67)	.891 (22.63)	1.154 (29.31)	
	.833 (21.16)	.875 (22.22)	1.138 (28.90)	
C (15)	.978 (24.84)	1.078 (27.38)	1.274 (32.36)	
	.958 (24.33)	1.062 (26.97)	1.258 (31.95)	
D (17)	1.025 (26.04)	1.141 (28.98)	1.399 (26.39)	
	1.005 (25.53)	1.125 (28.58)	1.383 (35.13)	
E (19)	1.150 (29.21)	1.338 (33.98)	1.524 (38.71)	
	1.130 (28.70)	1.312 (33.32)	1.508 (38.30)	
F (23)	1.291 (32.79)	1.516 (38.51)	1.734 (44.04)	
	1.271 (32.28)	1.500 (38.10)	1.718 (43.64)	
G (25)	1.402 (35.61)	1.641 (41.68)	1.834 (46.58)	.157 (3.99) .137 (3.48)
	1.382 (35.10)	1.625 (41.28)	1.818 (46.18)	
H (29)	1.578 (40.08)	1.891 (48.03)	2.154 (54.71)	
	1.558 (39.57)	1.875 (47.62)	2.138 (54.30)	
J (33)	1.744 (44.30)	2.078 (52.78)	2.344 (59.54)	.183 (4.65) .163 (4.14)
	1.724 (43.79)	2.062 (52.37)	2.328 (59.13)	

Dimensions in Inches (millimeters) are subject to change without notice.

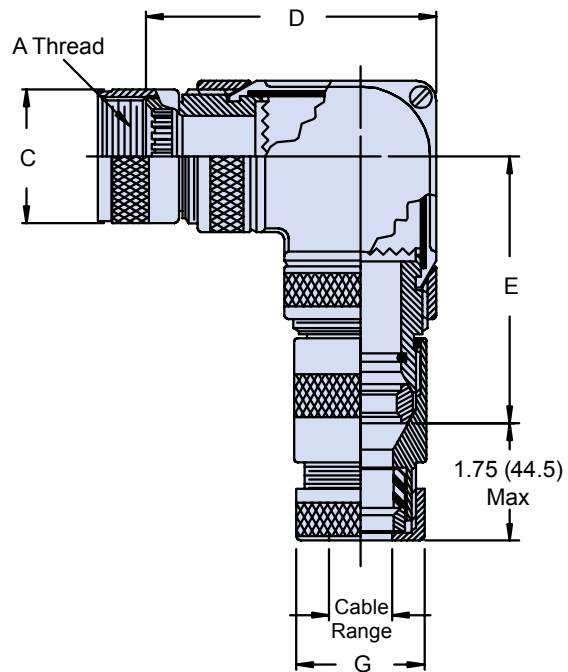
# M28840/25 90° EMI Conduit Adapter



MIL-DTL-28840  
Electrical Connectors



STYLE A - EMI/Non-Environmental  
(Plain Conduit)



STYLE B - EMI/Environmental  
(Jacket Conduit)

Dimensions in Inches (millimeters) are subject to change without notice.

E



**M28840/25**  
**90° EMI Conduit Adapter**

Dash Number	Designator	A Thread Class 2B	B Diameter Max.	C Thread Class 1	D Max Diameter	Sealing Range	
						Max.	Min.
01	A (11)	.750-20 UNEF	1.028 (26.11)	.875-20 UNEF	1.031 (26.19)	.63 (16.0)	.50 (12.7)
02	B (13)	.875-20 UNEF	1.141 (28.98)	.875-20 UNEF		.63 (16.0)	.50 (12.7)
03				1.000-20 UNEF		.75 (19.1)	.63 (16.0)
04	C (15)	1.000-20 UNEF	1.263 (32.08)	.875-20 UNEF	1.281 (32.58)	.63 (16.0)	.50 (12.7)
05				1.000-20 UNEF		.75 (19.1)	.63 (16.0)
06				1.125-18 UNEF		.88 (22.4)	.75 (19.1)
07				1.250-18 UNEF	1.531 (38.89)	1.00 (25.4)	.88 (22.4)
08	D (17)	1.125-18 UNEF	1.387 (35.23)	1.125-18 UNEF		.88 (22.4)	.75 (19.1)
09				1.250-18 UNEF		1.00 (25.4)	.88 (22.4)
10				1.625-18 UNEF	1.38 (35.1)	1.19 (30.2)	
11	E (19)	1.250-18 UNEF	1.513 (38.43)	1.125-18 UNEF	1.531 (38.89)	.88 (22.4)	.75 (19.1)
12				1.250-18 UNEF		1.00 (25.4)	.88 (22.4)
13				1.625-18 UNEF		1.38 (35.1)	1.19 (30.2)
14				F (23)	1.438-18 UNEF	1.703 (45.51)	1.250-18 UNEF
15	1.625-18 UNEF	1.38 (35.1)	1.18 (30.2)				
16	1.875-18 UNS	1.63 (41.4)	1.44 (36.6)				
17	G (25)	1.562-18 UNEF	1.825 (46.35)	1.250-18 UNEF	1.781 (45.24)	1.00 (25.4)	.88 (22.4)
18				1.625-18 UNEF		1.38 (35.1)	1.19 (30.2)
19				1.875-18 UNS		1.63 (41.4)	1.44 (36.5)
20				2.125-16 UN	2.031 (51.59)	1.88 (47.8)	1.63 (41.4)
21	H (29)	1.875-16 UN	2.143 (54.43)	1.875-18 UNS		1.63 (41.4)	1.44 (36.6)
22				2.125-16 UN	1.33 (47.8)	1.63 (41.4)	
23	J (33)	2.062-16 UNS	2.329 (59.16)	2.125-16 UN	2.531 (64.29)	1.88 (47.8)	1.63 (41.4)
24				2.750-16 UN		2.38 (60.5)	2.13 (54.1)
25	A (11)	.750-20 UNEF	1.028 (26.11)	.875-20 UNEF	1.031 (25.19)	.75 (19.5)	.63 (16.0)

Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/25 90° EMI Conduit Adapter



MIL-DTL-28840  
Electrical Connectors

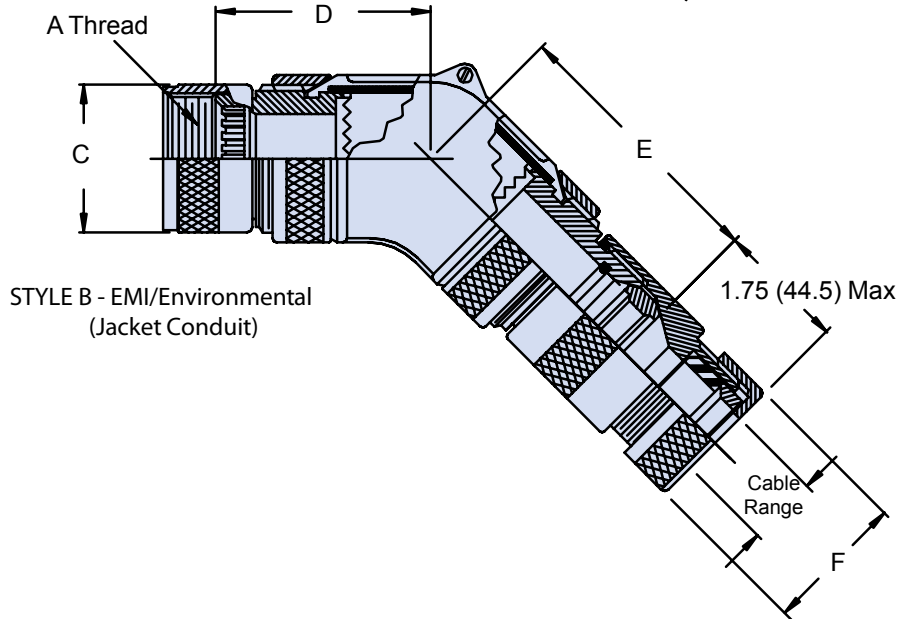
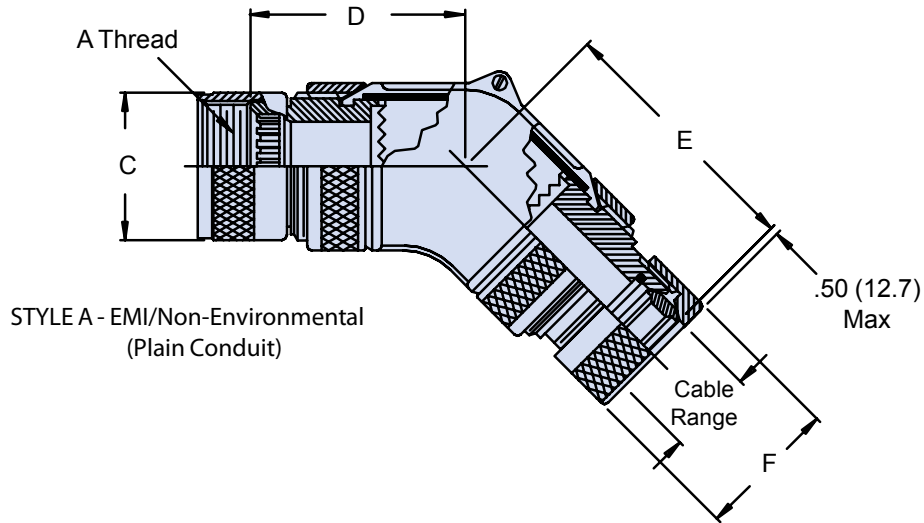
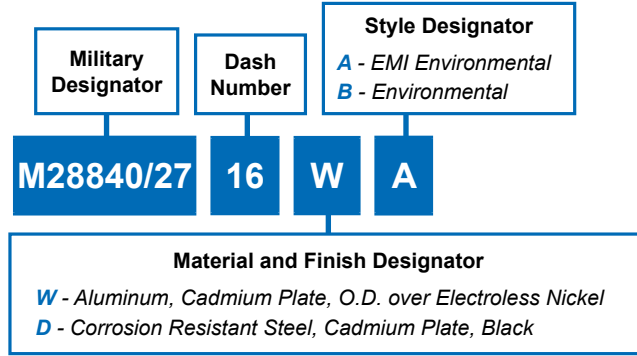
Dash Number	Designator	Conduit Size M 04	E Max. Dim.	F Max. Dim.	V Thread Class 2	M Max. Dia.	Y Max. Dia.
01	A (11)	03	2.36 (59.9)	3.50 (92.8)	1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)
02	B (13)	03			1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)
03		04			1.188-18 UNEF	1.25 (31.8)	1.38 (35.1)
04	C (15)	03	2.56 (65.0)	3.69 (9.79)	1.000-20 UNEF	1.12 (28.5)	1.39 (35.3)
05		04			1.118-18 UNEF	1.25 (31.8)	1.38 (35.1)
06		05			1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)
07		06			2.67 (67.8)	3.81 (101.0)	1.750-18 UNS
08	D (17)	05	1.438-18 UNEF	1.43 (36.3)			1.63 (41.4)
09		06	1.750-18 UNS	1.62 (42.2)			1.94 (49.3)
10		08	2.00-18 UNS	1.81 (46.0)			2.19 (55.6)
11	E (19)	05	3.05 (77.5)	4.19 (111.1)	1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)
12		06			1.750-18 UNS	1.62 (41.2)	1.94 (49.3)
13		08			2.00-18 UNS	1.81 (46.0)	2.19 (55.6)
14	F (23)	06	3.05 (77.5)	4.19 (111.1)	1.750-18 UNS	1.62 (41.2)	1.94 (49.3)
15		08			2.00-18 UNS	1.81 (46.0)	2.19 (55.6)
16		10			2.250-18 UN	2.18 (55.4)	2.44 (62.0)
17		G (25)			06	1.750-18 UNS	1.62 (41.2)
18	08		2.00-18 UN	1.81 (46.0)	2.19 (55.6)		
19	10		2.250-18 UN	2.18 (55.4)	2.44 (62.0)		
20	12		2.500-16 UN	2.56 (65.0)	2.69 (68.5)		
21	H (29)	10	3.33 (84.6)	4.50 (119.4)	2.250-16 UN	2.18 (55.4)	2.18 (55.4)
22		12	1.500-16 UN	2.56 (65.0)	2.44 (62.0)		
23	J (33)	12	3.70 (94.0)	4.43 (128.1)	2.500-16 UN	2.56 (65.0)	2.69 (68.3)
24		16			3.00-16 UN	3.06 (77.8)	3.19 (81.0)
25	A (11)	04	2.36 (59.9)	3.50 (92.8)	1.133-18 UNF	1.25 (31.8)	1.38 (35.1)



Dimensions in Inches (millimeters) are subject to change without notice.



M28840/27  
45° EMI Conduit Adapter



Dimensions in Inches (millimeters) are subject to change without notice.





**M28840/27**  
**45° EMI Conduit Adapter**

Dash No.	Designator	A Thread Class 2B	B Max Diameter	C Thread Class 2	D Max. Diameter	Sealing Range		Conduit Size M 04	E Max. Dim.
						Max.	Min.		
01	A (11)	.750-20 UNEF	1.028 (26.11)	.875-20 UNEF	1.031 (26.19)	.63 (16.0)	.50 (12.7)	03	2.36 (59.9)
02	B (13)	.875-20 UNEF	1.141 (28.98)	.875-20 UNEF		.63 (16.0)	.50 (12.7)	03	
03				1.000-20 UNEF		.75 (19.1)	.63 (16.0)	04	
04	C (15)	1.000-20 UNEF	1.263 (32.08)	.875-20 UNEF	1.281 (32.50)	.63 (16.0)	.50 (12.7)	03	2.56 (65.0)
05				1.000-20 UNEF		.75 (19.1)	.63 (16.0)	04	
06				1.125-18 UNEF		.88 (22.4)	.75 (19.1)	05	
07				1.250-18 UNEF	1.00 (25.4)	.88 (22.4)	06		
08	D (17)	1.125-18 UNEF	1.387 (38.23)	1.125-18 UNEF	1.531 (38.80)	.88 (22.4)	.75 (19.1)	05	2.67 (67.8)
09				1.250-18 UNEF		1.00 (25.4)	.88 (22.4)	06	
10				1.625-18 UNEF		1.38 (35.1)	1.19 (22)	08	
11	E (19)	1.250-18 UNEF	1.513 (38.43)	1.125-18 UNEF		.88 (22.4)	.75 (19.1)	05	
12				1.250-18 UNEF	1.00 (25.4)	.88 (22.4)	06		
13				1.625-18 UNEF	1.38 (35.1)	1.19 (30.2)	08		
14	F (23)	1.438-18 UNEF	1.703 (45.51)	1.250-18 UNEF	1.781 (45.24)	1.000 (25.4)	.88 (22.4)	06	3.05 (77.5)
15				1.625-18 UNEF		1.38 (35.1)	1.19 (30.2)	08	
16				1.875-18 UNS		1.63 (41.4)	1.44 (36.6)	10	
17	G (25)	1.562-18 UNEF	1.825 (46.35)	1.250-18 UNEF		1.00 (25.4)	.88 (22.4)	06	
18				1.625-18 UNEF	1.38 (41.4)	1.19 (30.2)	08		
19				1.875-18 UNS	1.43 (41.4)	1.44 (36.6)	10		
20				2.125-16 UN	1.88 (47.8)	1.63 (41.4)	12		
21	H (29)	1.875-16 UNS	2.143 (54.43)	1.875-18 UNS	2.031 (51.59)	1.63 (41.4)	1.44 (36.6)	10	3.33 (84.6)
22				2.125-16 UN		1.88 (47.8)	1.63 (41.4)	12	
23	J (33)	2.062-16 UNS	2.329 (50.16)	2.125-16 UN	2.531 (64.29)	1.88 (47.8)	1.63 (41.4)	12	3.70 (94.0)
24				2.750-16 UN		2.38 (60.5)	2.13 (54.1)	16	
25	A (11)	.750-20 UNEF	1.028 (16.11)	.875-20 UNEF	1.031 (26.19)	.75 (19.1)	.63 (16.0)	04	2.36 (59.9)

Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/27 45° EMI Conduit Adapter



MIL-DTL-28840  
Electrical Connectors

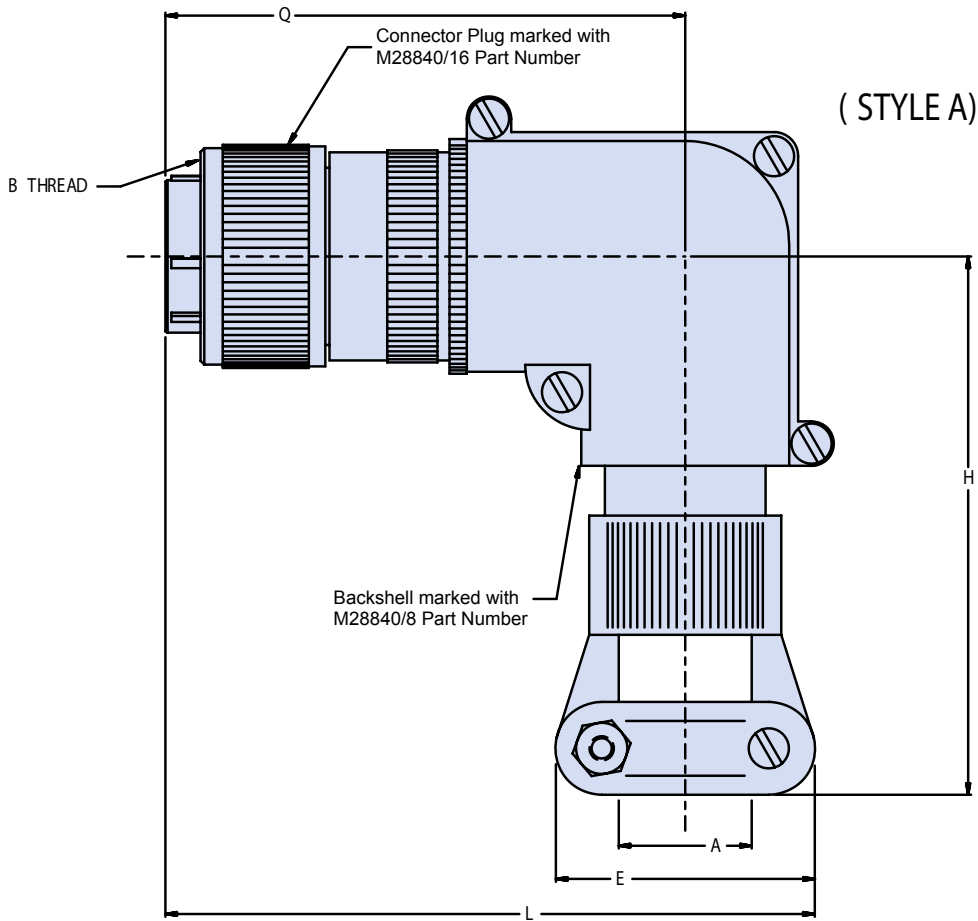
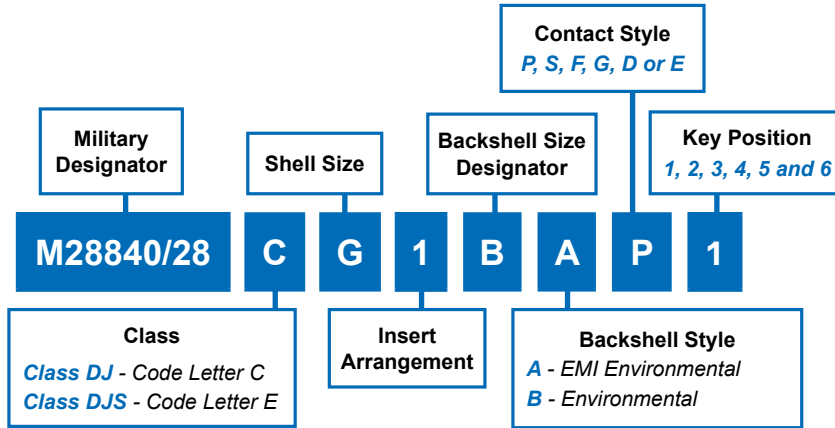
Dash Number	Designator	F Max. Dim.	V Thread Class 2	M Max. Diameter	Y Max. Diameter	
1	A (11)	3.50 (88.9)	1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)	
2	B (13)		1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)	
3			1.188-18 UNEF	1.25 (31.8)	1.38 (35.1)	
4	C (15)	3.69 (93.7)	1.000-20 UNEF	1.12 (28.5)	1.19 (30.23)	
5			1.188-18 UNEF	1.25 (31.8)	1.38 (35.1)	
6			1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)	
7			3.81 (96.7)	1.750-18 UNS	1.62 (41.2)	1.94 (49.3)
8	1.438-18 UNEF	1.43 (36.3)		1.63 (41.4)		
9	D (17)	1.750-18 UNS		1.62 (41.2)	1.94 (49.3)	
10		2.00-18 UNS		1.81 (46.0)	2.19 (55.6)	
11	E (19)	3.81 (96.7)	1.438-18 UNEF	1.43 (36.3)	1.63 (41.4)	
12			1.750-18 UNS	1.62 (41.2)	1.94 (49.3)	
13			2.00-18 UNS	1.81 (46.0)	2.19 (55.6)	
14	F (23)	4.19 (106.4)	1.750-18 UNS	1.62 (41.2)	1.94 (49.3)	
15			2.00-18 UN	1.81 (46.0)	2.19 (55.6)	
16			2.250-16 UN	2.18 (55.4)	2.44 (62.0)	
17			4.50 (114.3)	1.750-18 UNS	1.62 (41.2)	1.94 (49.3)
18				2.00-18 UN	1.81 (46.0)	2.19 (55.6)
19	2.250-16 UN	2.18 (55.4)		2.44 (62.0)		
20	G (25)	4.19 (106.4)	2.500-16 UN	2.56 (65.0)	2.69 (68.3)	
21			H (29)	2.250-16 UN	2.18 (55.4)	2.44 (62.0)
22				2.500-16 UN	2.56 (65.0)	2.69 (68.3)
23	J (33)	4.83 (122.6)	2.500-16 UN	2.56 (65.0)	2.69 (68.3)	
24			3.00-16 UN	3.06 (77.8)	3.19 (81.0)	
25	A (11)	3.50 (88.9)	1.188-18 UNEF	1.25 (31.8)	1.38 (35.1)	



Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/28 90° Adapter Assembly Plug



Dimensions in Inches (millimeters) are subject to change without notice.

# M28840/28 90° Adapter Assembly Plug



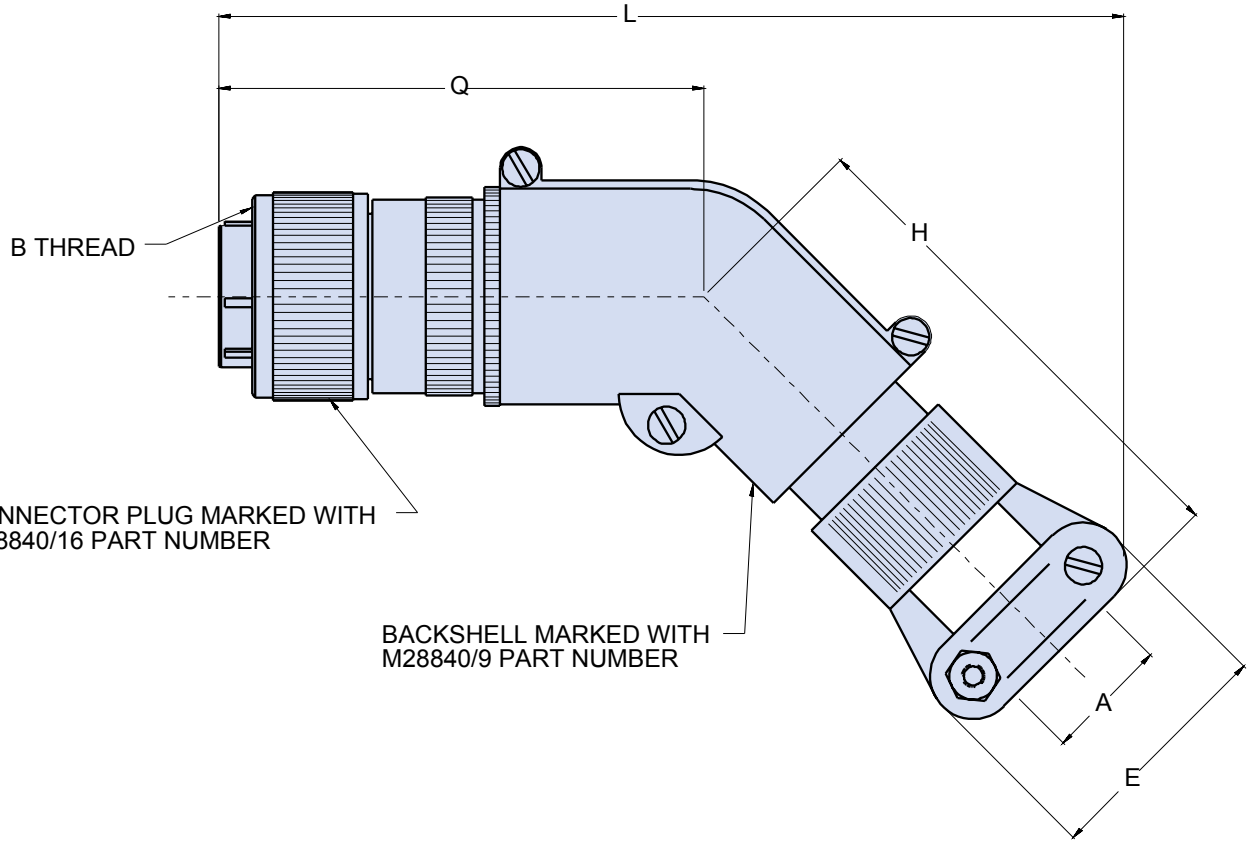
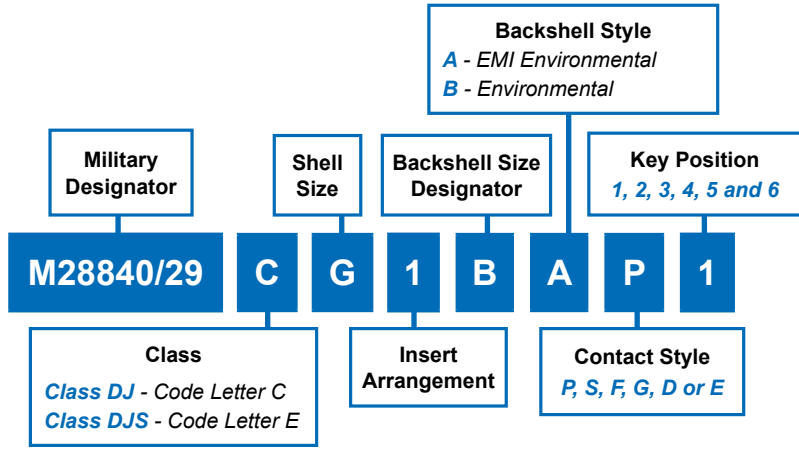
J Military Shell Size	Shell Size	Backshell Size Designator	A Cable Entry		A Thread Class 2B	E Max.	H Max.	L Max.	Q Max.
			Open	Closed					
A	11	A	.312	.188	.750-1P-.2L-DS	.938	5.332	3.812	3.250
A	11	B	.438	.281		1.125	5.332	3.812	3.250
A	11	C	.562	.344		1.312	5.457	4.000	3.375
B	13	A	.438	.281	.875-1P-.2L-DS	1.125	5.332	3.812	3.250
B	13	B	.562	.344		1.312	5.457	4.000	3.375
B	13	C	.625	.375		1.312	5.682	4.250	3.500
C	15	A	.438	.281	1.062-1P-.2L-DS	1.125	5.457	4.000	3.375
C	15	B	.562	.344		1.312	5.457	4.000	3.375
C	15	C	.625	.375		1.312	5.682	4.250	3.500
C	15	D	.750	.438		1.593	5.713	4.125	3.500
D	17	A	.625	.375	1.125-1P-.2L-DS	1.312	5.682	4.250	3.500
D	17	B	.750	.438		1.593	5.713	4.250	3.500
E	19	A	.625	.375	1.312-1P-.2L-DS	1.312	5.682	4.250	3.500
E	19	B	.938	.625		1.750	5.832	4.375	3.625
F	23	A	.750	.438	1.500-1P-.2L-DS	1.593	5.738	4.500	3.625
F	23	B	.938	.625		1.750	5.832	4.500	3.625
F	23	C	1.188	.812		2.093	6.019	4.688	3.625
G	25	A	.938	.625	1.625-1P-.2L-DS	1.750	5.832	4.500	3.625
G	25	B	1.188	.812		2.093	6.019	4.688	3.625
G	25	C	1.250	.875		2.093	6.144	4.688	3.750
G	25	D	1.380	1.000		2.343	6.176	4.938	3.750
H	29	A	1.188	.812	1.812-1P-.2L-DS	2.093	6.144	4.812	3.750
H	29	B	1.380	1.000		2.343	6.176	4.938	3.750
J	33	A	1.380	1.000	2.000-1P-.2L-DS	2.343	6.426	5.188	4.000
J	33	B	1.625	1.250		2.750	6.701	5.375	4.000



Dimensions in Inches (millimeters) are subject to change without notice.



# M28840/29 Plug Connector with 45° EMI/RFI Backshell



Dimensions in Inches (millimeters) are subject to change without notice.



**M28840/29  
Plug Connector  
with 45° EMI/RFI Backshell**



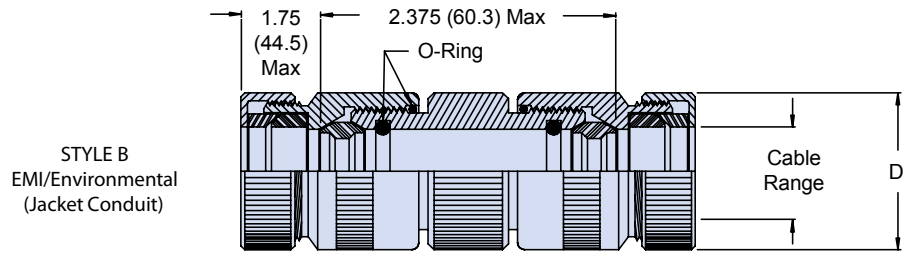
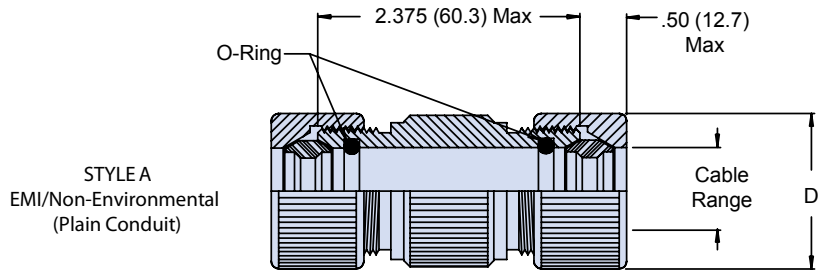
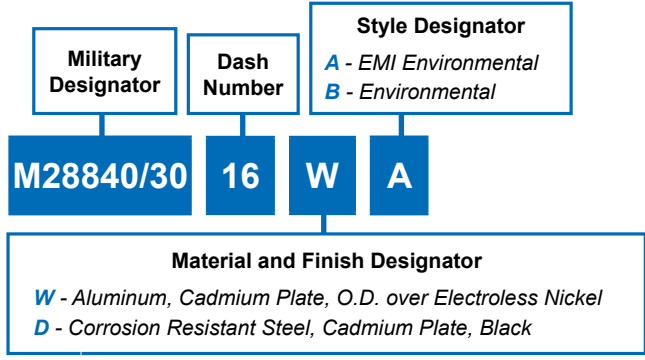
J Military Shell Size	Shell Size	Backshell Size Designator	A Cable Entry		A Thread Class 2B	E Max.	H Max.	L Max.	Q Max.
			Open	Closed					
A	11	A	.312	.188	.750-1P-.2L-DS	.938	5.432	7.404	3.250
A	11	B	.438	.281		1.125	5.432	7.457	3.250
A	11	C	.562	.344		1.312	5.557	7.727	3.375
B	13	A	.438	.281	.875-1P-.2L-DS	1.125	5.432	7.457	3.250
B	13	B	.562	.344		1.312	5.557	7.727	3.375
B	13	C	.625	.375		1.312	5.682	7.938	3.500
C	15	A	.438	.281	1.062-1P-.2L-DS	1.125	5.557	7.671	3.375
C	15	B	.562	.344		1.312	5.557	7.727	3.375
C	15	C	.625	.375		1.312	5.682	7.938	3.500
C	15	D	.750	.438		1.593	5.713	8.058	3.500
D	17	A	.625	.375	1.125-1P-.2L-DS	1.312	5.682	7.938	3.500
D	17	B	.750	.438		1.593	5.713	8.058	3.500
E	19	A	.625	.375	1.312-1P-.2L-DS	1.312	5.682	7.938	3.500
E	19	B	.938	.625		1.750	5.932	8.371	3.625
F	23	A	.750	.438	1.500-1P-.2L-DS	1.593	5.838	8.272	3.625
F	23	B	.938	.625		1.750	5.932	8.371	3.625
F	23	C	1.188	.812		2.093	6.119	8.628	3.625
G	25	A	.938	.625	1.625-1P-.2L-DS	1.750	5.932	8.371	3.625
G	25	B	1.188	.812		2.093	6.119	8.628	3.625
G	25	C	1.250	.875		2.093	6.244	8.841	3.750
G	25	D	1.380	1.000		2.343	6.276	8.950	3.750
H	29	A	1.188	.812	1.812-1P-.2L-DS	2.093	6.244	8.841	3.750
H	29	B	1.380	1.000		2.343	6.276	8.950	3.750
J	33	A	1.380	1.000	2.000-1P-.2L-DS	2.343	6.526	9.377	4.000
J	33	B	1.625	1.250		2.750	6.801	9.659	4.000



Dimensions in Inches (millimeters) are subject to change without notice.



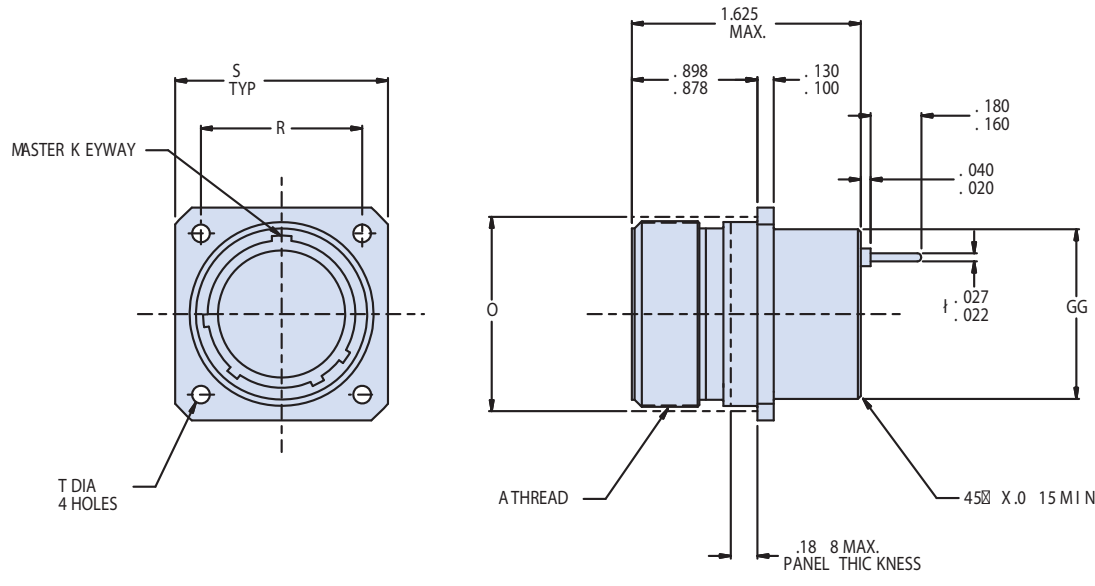
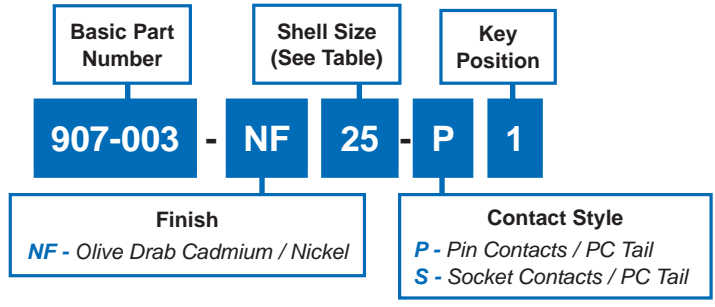
# M28840/30 Metal Conduit Coupler Styles A and B



Dash Number	Conduit Size	Sealing Range		C Thread	M Max Diameter	V Thread Class 2	Y Max Diameter
		Max.	Min.				
03	03	.63 (16.0)	.50 (12.7)	.875-20 UNEF	1.12 (28.5)	1.00-20 UNEF	1.19 (30.23)
04	04	.75 (19.1)	.63 (16.0)	1.000-20 UNEF	1.25 (31.8)	1.188-18 UNEF	1.38 (35.1)
05	05	.88 (22.4)	.75 (18.1)	1.125-18 UNEF	1.43 (36.3)	1.438-18 UNEF	1.63 (41.4)
06	06	1.00 (25.4)	.88 (22.4)	1.250-18 UNEF	1.62 (41.2)	1.750-18 UNS	1.94 (49.3)
08	08	1.38 (35.1)	1.19 (30.2)	1.625-18 UNEF	1.81 (46.0)	2.00-18 UNS	2.19 (55.6)
10	10	1.63 (41.4)	1.44 (36.6)	1.875-18 UNS	2.18 (55.4)	2.250-16 UN	2.44 (62.0)
12	12	1.88 (47.8)	1.63 (41.4)	2.125-16 UN	2.56 (65.0)	2.50-16 UN	2.69 (68.3)
16	16	2.38 (60.5)	2.13 (54.1)	2.750-16 UN	3.06 (77.8)	3.00-16 UN	3.19 (81.0)

Dimensions in Inches (millimeters) are subject to change without notice.

**907-003**  
**Glenair MIL-DTL-28840 Commercial Equivalent**  
**Box Mount Receptacle with PC Tail Contacts**



Symbol	Material	Finish Description
NF	Aluminum	Cadmium O.D. over Electroless Nickel
ZN		Zinc Nickel
MT		Nickel-PTFE, 1000 Hour Grey™
Z1	316 Type Stainless Steel	Passivate
ZU		Black Cadmium Olive Drab over Nickel

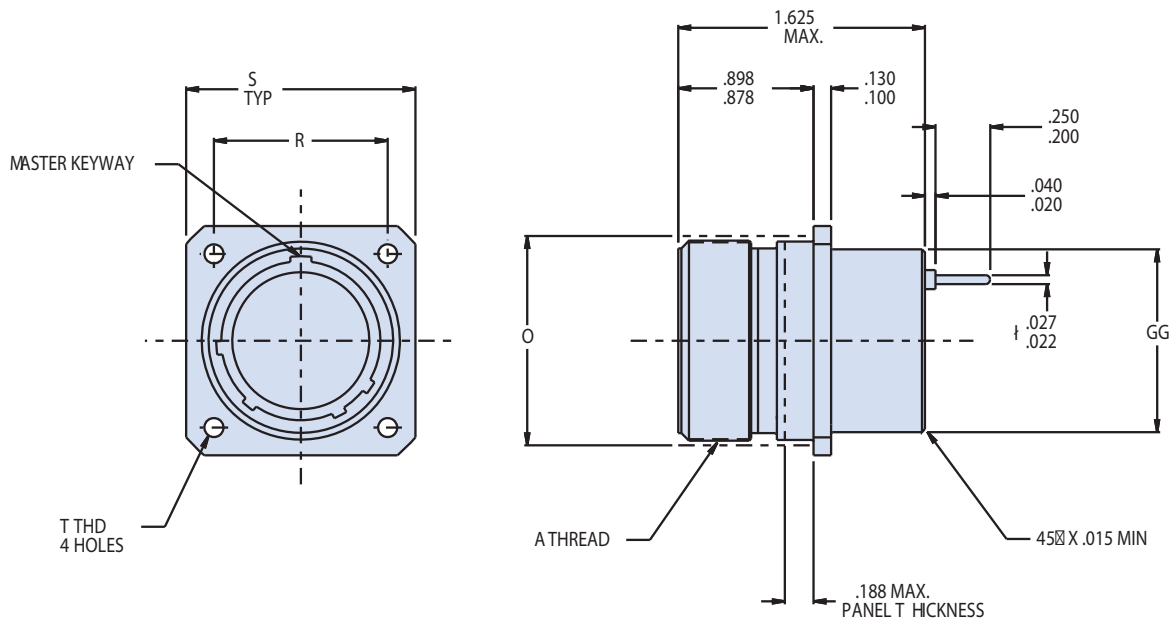
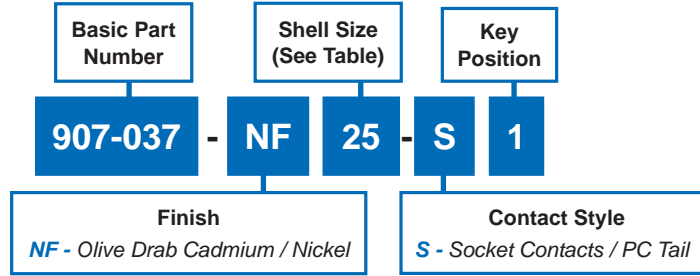
Military Shell Size	Shell Size	A Thread Class 2A	O Ref. Mtg. Max.	R True Position $\varnothing$ to $\varnothing$	S	T	GG Diameter Max.
A	11	.750-1P-2L-D.S.	.812	.750	1.043 1.003	.130 .115	.758
B	13	.875-1P-2L-D.S.	.937	.843	1.158 1.118		.880
C	15	1.062-1P-2L-D.S.	1.124	.968	1.278 1.238		1.005
D	17	1.125-1P-2L-D.S.	1.187	1.015	1.403 1.363		1.130
E	19	1.312-1P-2L-D.S.	1.374	1.140	1.528 1.488		1.255
F	23	1.500-1P-2L-D.S.	1.562	1.281	1.738 1.698		1.443
G	25	1.625-1P-2L-D.S.	1.687	1.392	1.838 1.798	.157 .142	1.567
H	29	1.812-1P-2L-D.S.	1.937	1.568	2.158 2.118		1.880
J	33	2.000-1P-2L-D.S.	2.124	1.734	2.348 2.308		.183 .168

Dimensions in Inches (millimeters) are subject to change without notice.





**907-037**  
**Glenair MIL-DTL-28840 Commercial Equivalent**  
**Box Mount Receptacle with PC Tail Contacts**



Dimensions in Inches (millimeters) are subject to change without notice.

**907-037**  
**Glenair MIL-DTL-28840 Commercial Equivalent**  
**Box Mount Receptacle with PC Tail Contacts**



Symbol	Material	Finish Description
NF	Aluminum	Cadmium O.D. over Electroless Nickel
ZN		Zinc Nickel
MT		Nickel-PTFE, 1000 Hour Grey™
Z1	316 Type Stainless Steel	Passivate
ZU		Black Cadmium Olive Drab over Nickel

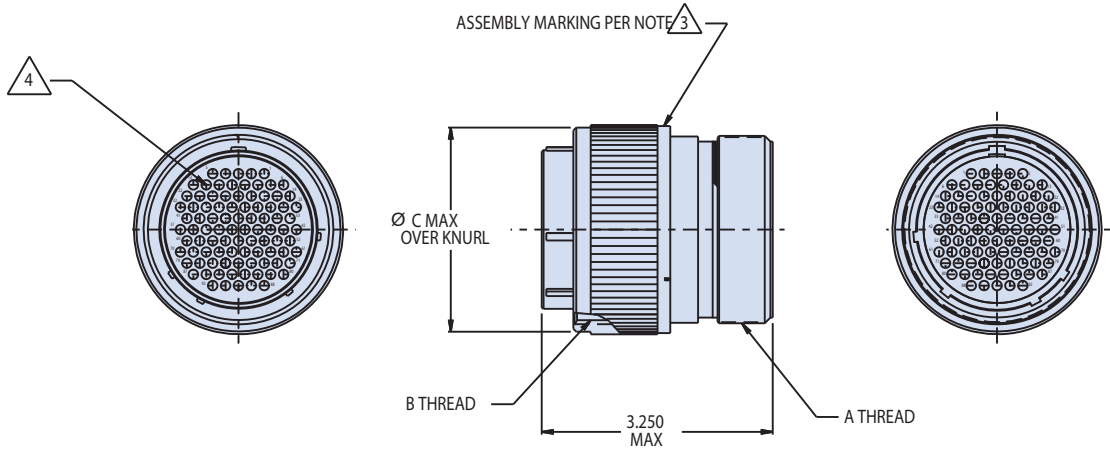
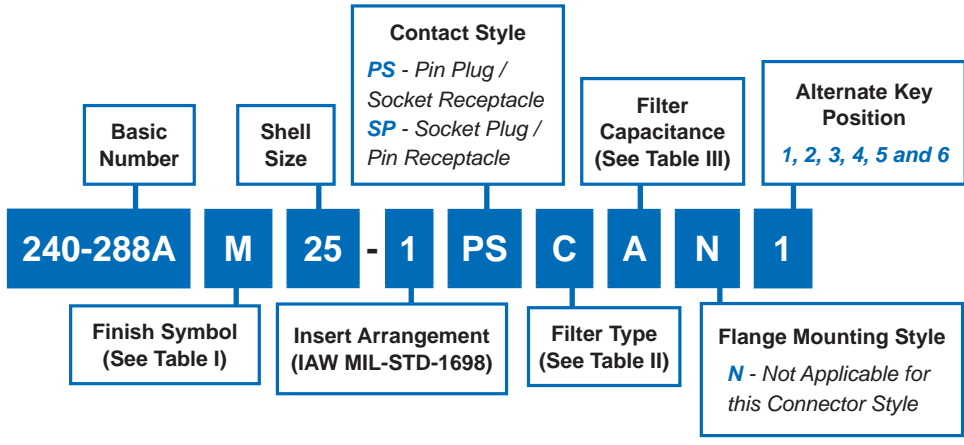
Military Shell Size	Shell Size	A Thread Class 2A	O Ref. Mtg. Max.	R True Position $\varnothing$ to $\varnothing$	S	T	GG Diameter Max.
A	11	.750-.1P-.2L-D.S.	.812	.750	1.043 1.003	#4-40	.758
B	13	.875-.1P-.2L-D.S.	.937	.843	1.158 1.118	#4-40	.880
C	15	1.062-.1P-.2L-D.S.	1.124	.968	1.278 1.238	#4-40	1.005
D	17	1.125-.1P-.2L-D.S.	1.187	1.015	1.403 1.363	#4-40	1.130
E	19	1.312-.1P-.2L-D.S.	1.374	1.140	1.528 1.488	#4-40	1.255
F	23	1.500-.1P-.2L-D.S.	1.562	1.281	1.738 1.698	#4-40	1.443
G	25	1.625-.1P-.2L-D.S.	1.687	1.392	1.838 1.798	#6-32	1.567
H	29	1.812-.1P-.2L-D.S.	1.937	1.568	2.158 2.118	#6-32	1.880
J	33	2.000-.1P-.2L-D.S.	2.124	1.734	2.348 2.308	#6-32	2.067



Dimensions in Inches (millimeters) are subject to change without notice.



# 240-288A Sav-Con® Filtered Connector Saver for MIL-DTL-28840 Connectors



Military Shell Size	Shell Size	A Thread Class 2A	B Thread Class 2B	Ø C Max
A	11	.750-1P-2L-D.S.	.750-1P-2L-D.S.	1.028
B	13	.875-1P-2L-D.S.	.875-1P-2L-D.S.	1.141
C	15	1.062-1P-2L-D.S.	1.062-1P-2L-D.S.	1.263
D	17	1.125-1P-2L-D.S.	1.125-1P-2L-D.S.	1.387
E	19	1.312-1P-2L-D.S.	1.312-1P-2L-D.S.	1.513
F	23	1.500-1P-2L-D.S.	1.500-1P-2L-D.S.	1.703
G	25	1.625-1P-2L-D.S.	1.625-1P-2L-D.S.	1.825
H	29	1.812-1P-2L-D.S.	1.812-1P-2L-D.S.	2.143
J	33	2.000-1P-2L-D.S.	2.000-1P-2L-D.S.	2.329

Dimensions in Inches (millimeters) are subject to change without notice.

**240-288A**  
**Sav-Con® Filtered Connector Saver**  
**for MIL-DTL-28840 Connectors**



Symbol	Material	Finish Description
M	Aluminum	Electroless Nickel
MT	Aluminum	Nickel-PTFE, 1000 Hour Grey™
NF	Aluminum	Cadmium O.D. over Electroless Nickel
P	Stainless Steel	Electrodeposited Nickel

Filter Type	
P	PI-Section
C	C-Section

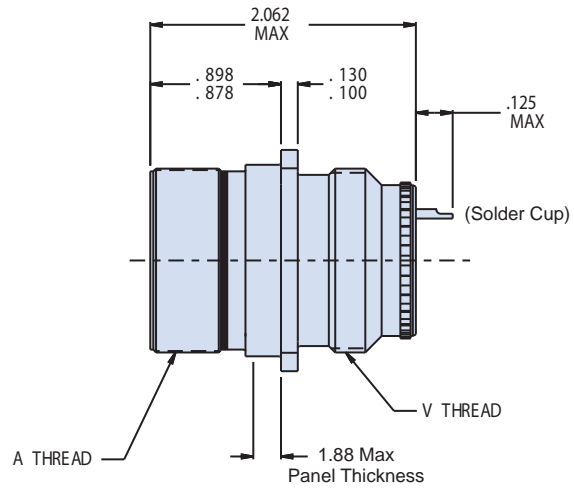
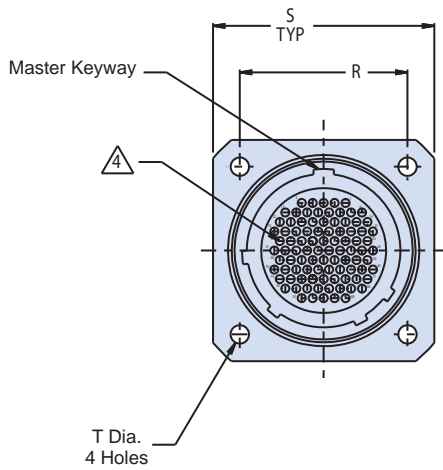
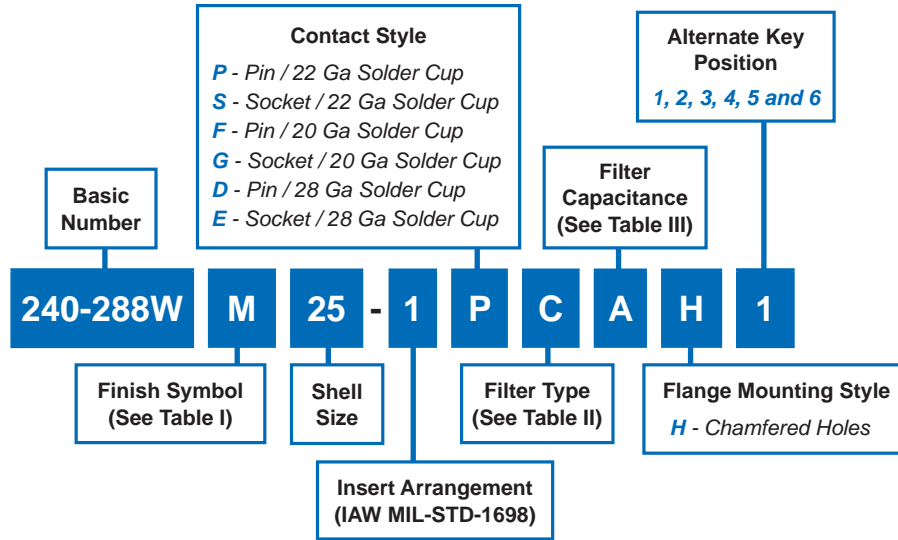
Class	PI-Section (pF)	C-Section (pF)
X	160,000 - 240,000	80,000 - 120,000
Y	80,000 - 120,000	40,000 - 60,000
Z	60,000 - 91,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300



Dimensions in Inches (millimeters) are subject to change without notice.



## 240-288W Filtered Wall Mount Receptacle MIL-DTL-28840 Type



Symbol	Material	Finish Description
M	Aluminum	Electroless Nickel
MT	Aluminum	Nickel-PTFE, 1000 Hour Grey™
NF	Aluminum	Cadmium O.D. over Electroless Nickel
P	Stainless Steel	Electrodeposited Nickel

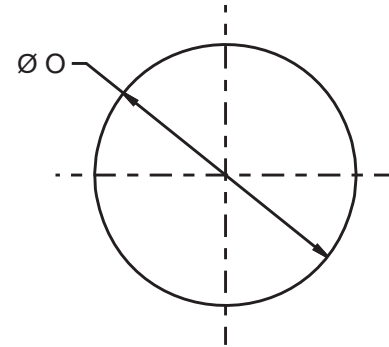
Dimensions in Inches (millimeters) are subject to change without notice.



# 240-288W Filtered Wall Mount Receptacle MIL-DTL-28840 Type



Class	PI-Section (pF)	C-Section (pF)
X	160,000 - 240,000	80,000 - 120,000
Y	80,000 - 120,000	40,000 - 60,000
Z	60,000 - 91,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300



RECOMMENDED PANEL CUT OUT

Filter Type	
P	PI-Section
C	C-Section

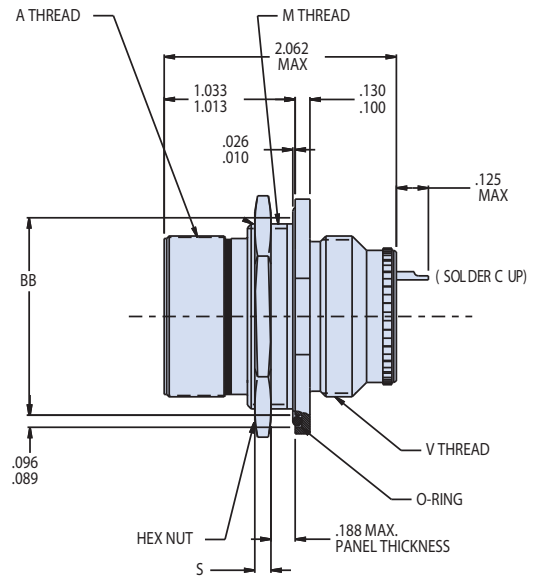
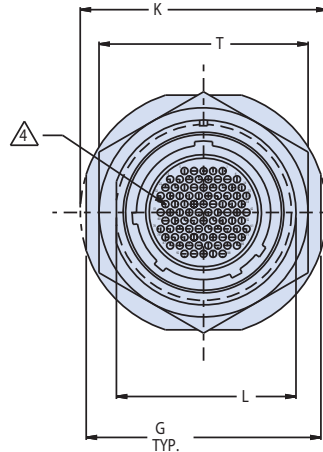
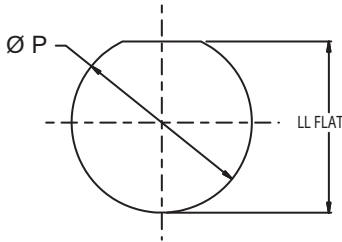
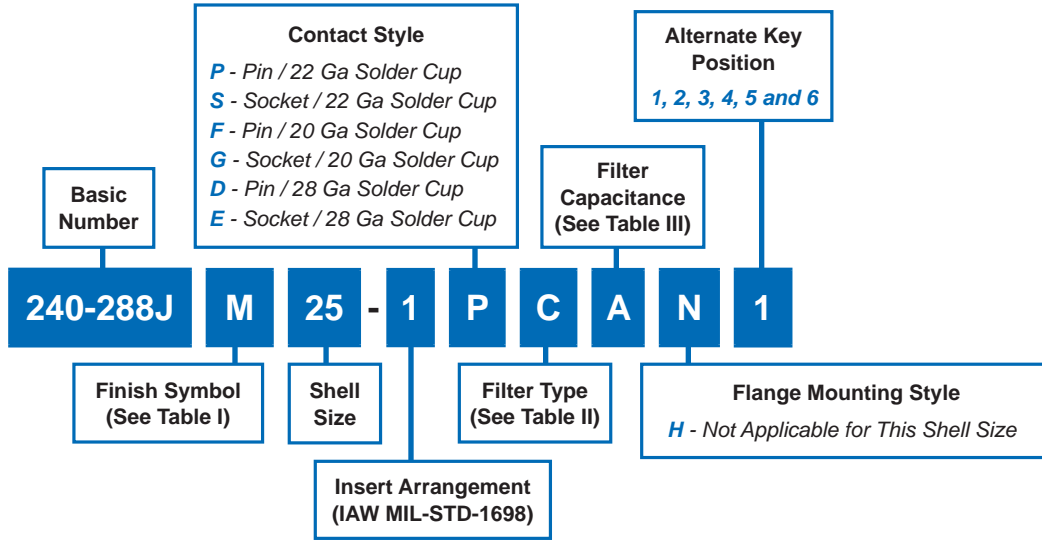
Military Shell Size	Shell Size	A Thread Class 2A	V Thread Class 2A	O Ref. Mtg. Hole	R True Position $\varnothing$ to $\varnothing$	S	T Diameter
A	11	.750-.1P-.2L-D.S.	.750-20 UNEF	.812	.750	1.043 1.003	.130 .115
B	13	.875-.1P-.2L-D.S.	.875-20 UNEF	.937	.843	1.158 1.118	
C	15	1.062-.1P-.2L-D.S.	1.000-20 UNEF	1.124	.968	1.278 1.238	
D	17	1.125-.1P-.2L-D.S.	1.125-18 UNEF	1.187	1.015	1.403 1.363	
E	19	1.312-.1P-.2L-D.S.	1.250-18 UNEF	1.374	1.140	1.528 1.488	
F	23	1.500-.1P-.2L-D.S.	1.437-18 UNEF	1.562	1.281	1.738 1.698	
G	25	1.625-.1P-.2L-D.S.	1.562-18 UNEF	1.687	1.392	1.838 1.798	.157 .142
H	29	1.812-.1P-.2L-D.S.	1.875-16 UN	1.874	1.568	2.158 2.118	
J	33	2.000-.1P-.2L-D.S.	2.062-16 UNS	2.062	1.734	2.348 2.308	

Dimensions in Inches (millimeters) are subject to change without notice.





# 240-288J Filtered Jam Nut Mount Receptacle MIL-DTL-28840 Type



Filter Type	
P	PI-Section
C	C-Section

Class	PI-Section (pF)	C-Section (pF)
X	160,000 - 240,000	80,000 - 120,000
Y	80,000 - 120,000	40,000 - 60,000
Z	60,000 - 91,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300

Symbol	Material	Finish Description
M	Aluminum	Electroless Nickel
MT	Aluminum	Nickel-PTFE, 1000 Hour Grey™
NF	Aluminum	Cadmium O.D. over Electroless Nickel
P	Stainless Steel	Electrodeposited Nickel

Dimensions in Inches (millimeters) are subject to change without notice.

**240-288J**  
**Filtered Jam Nut Mount Receptacle**  
**MIL-DTL-28840 Type**



Military Shell Size	Shell Size	A Thread Class 2A	G	K Dia.	L Across Flat	M Thread Class 2A
A	11	.750-1P-.2L-D.S.	1.274 1.254	1.368 1.348	.841 .832	.875-20 UNEF
B	13	.875-1P-.2L-D.S.	1.399 1.379	1.508 1.488	.966 .957	1.000-20 UNEF
C	15	1.062-1P-.2L-D.S.	1.587 1.567	1.681 1.661	1.153 1.144	1.187-18 UNEF
D	17	1.125-1P-.2L-D.S.	1.649 1.629	1.743 1.723	1.216 1.207	1.250-18 UNEF
E	19	1.312-1P-.2L-D.S.	1.837 1.817	1.931 1.911	1.403 1.394	1.437-18 UNEF
F	23	1.500-1P-.2L-D.S.	2.024 2.004	2.118 2.098	1.591 1.582	1.625-18 UNEF
G	25	1.625-1P-.2L-D.S.	2.149 2.129	2.243 2.223	1.716 1.707	1.750-18 UNS
H	29	1.812-1P-.2L-D.S.	2.337 2.317	2.435 2.415	1.903 1.894	1.937-16 UN
J	33	2.000-1P-.2L-D.S.	2.524 2.504	2.618 2.598	2.091 2.082	2.125-16 UN

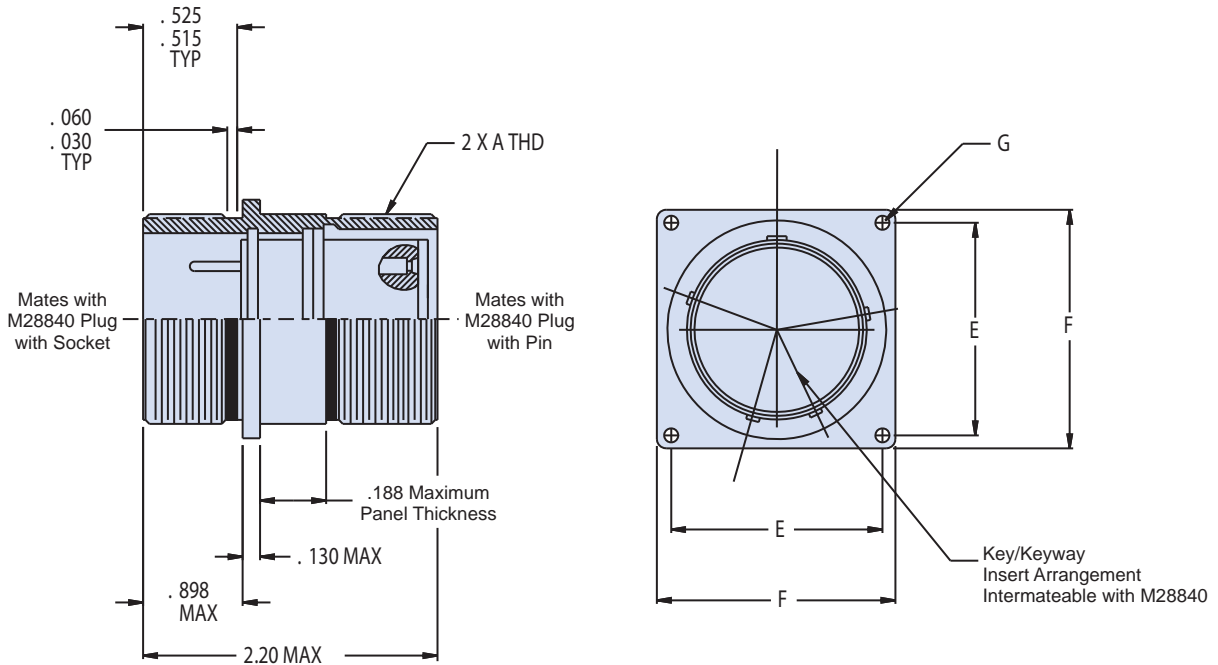
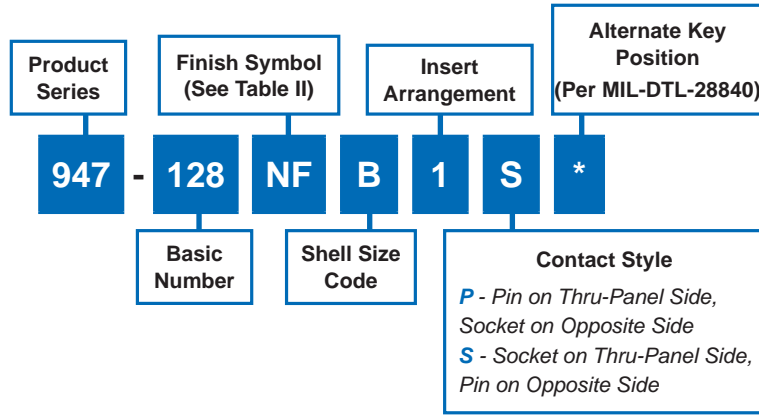
Military Shell Size	Shell Size	V Thread Class 2A	BB Dia.	S Nominal	T ± .017	P Dia.	LL Flat
A	11	.750-20 UNEF	.979 .969	.125	1.062	.890 .880	.853 .843
B	13	.875-20 UNEF	1.104 1.094		1.188	1.015 1.005	.978 .968
C	15	1.000-20 UNEF	1.292 1.282		1.375	1.203 1.193	1.165 1.155
D	17	1.125-18 UNEF	1.354 1.344		1.438	1.265 1.255	1.228 1.218
E	19	1.250-18 UNEF	1.542 1.532		1.625	1.453 1.443	1.415 1.405
F	23	1.437-18 UNEF	1.729 1.719		1.812	1.640 1.630	1.603 1.593
G	25	1.562-18 UNEF	1.854 1.844		.189	2.000	1.765 1.755
H	29	1.875-16 UN	2.042 2.032	2.188		1.953 1.943	1.915 1.905
J	33	2.062-16 UNS	2.229 2.219	2.375		2.140	1.103
						2.130	2.093

Dimensions in Inches (millimeters) are subject to change without notice.





**947-128**  
**Bulkhead Feedthrough Receptacle**  
**Wall Mount**  
**MIL-DTL-28840 Type**



Dimensions in Inches (millimeters) are subject to change without notice.

**947-128**  
**Bulkhead Feedthrough Receptacle**  
**Wall Mount**  
**MIL-DTL-28840 Type**



Symbol	Material	Finish Description
NF	Aluminum	Cadmium O.D. over Electroless Nickel
ZN		Zinc Nickel
MT		Nickel-PTFE, 1000 Hour Grey™
Z1	316 Type Stainless Steel	Passivate
ZU		Black Cadmium Olive Drab over Nickel

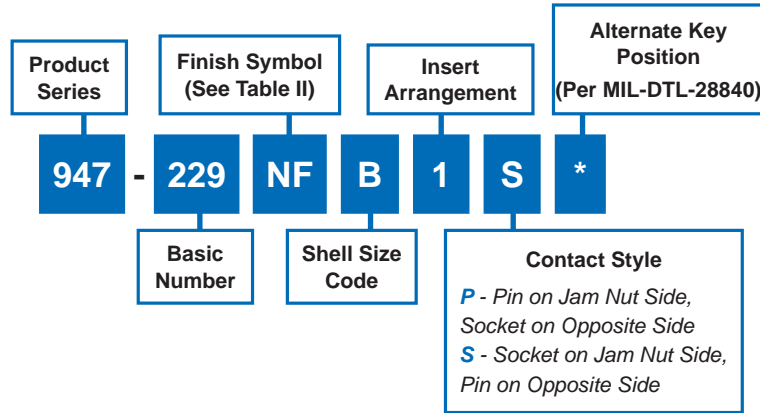
Military Shell Size	Shell Size	Insert Arrangement Dash Number	A Thread Class 2A	E BSC	F Max.	G Dia. Max.
A	11	A-1	.750-.1P-.2L-D.S.	.750	1.039	.130
B	13	B-1	.875-.1P-.2L-D.S.	.843	1.154	
C	15	C-1	1.062-.1P-.2L-D.S.	.968	1.274	
D	17	D-1	1.125-.1P-.2L-D.S.	1.015	1.399	
E	19	E-1	1.312-.1P-.2L-D.S.	1.140	1.524	
F	23	F-1	1.500-.1P-.2L-D.S.	1.281	1.734	
G	25	G-1	1.625-.1P-.2L-D.S.	1.392	1.834	.157
H	29	H-1	1.812-.1P-.2L-D.S.	1.568	2.154	
J	33	J-1	2.000-.1P-.2L-D.S.	1.734	2.344	

Dimensions in Inches (millimeters) are subject to change without notice.

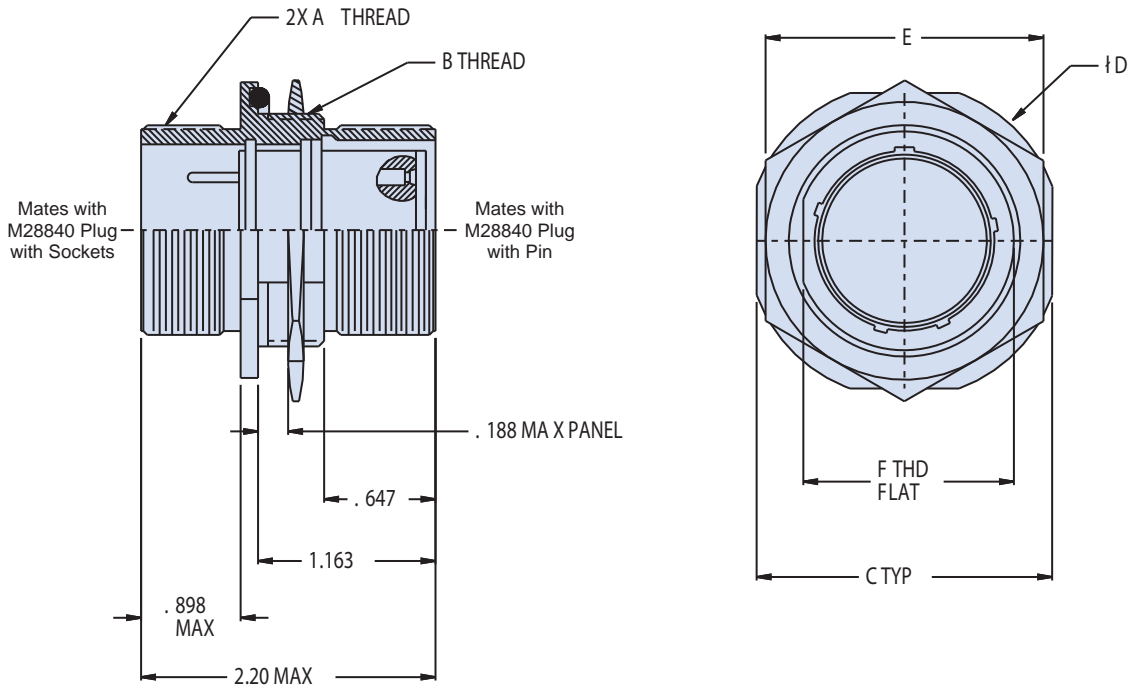




**947-229**  
**Bulkhead Feedthrough Receptacle**  
**Jam Nut Mount**  
**MIL-DTL-28840 Type**



F



Dimensions in Inches (millimeters) are subject to change without notice.

947-229  
**Bulkhead Feedthrough Receptacle**  
**Jam Nut Mount**  
**MIL-DTL-28840 Type**



Symbol	Material	Finish Description
NF	Aluminum	Cadmium O.D. over Electroless Nickel
ZN		Zinc Nickel
MT		Nickel-PTFE, 1000 Hour Grey™
ZI	316 Type Stainless Steel	Passivate
ZU		Black Cadmium Olive Drab over Nickel

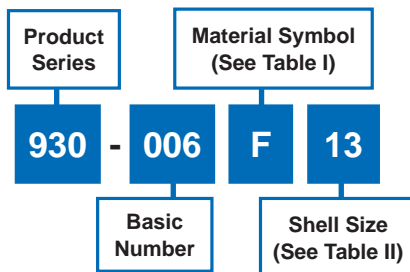
Military Shell Size	Shell Size	Insert Arrangement Dash Number	A Thread Class 2A	B Thread Class 2A	C Flats	D Dia.	E Hex	F Thread Flat
A	11	A-1	.750-.1P-.2L-D.S.	.875-20 UNEF	1.264	1.358	1.062	.836
B	13	B-1	.875-.1P-.2L-D.S.	1.000-20 UNEF	1.389	1.498	1.188	.962
C	15	C-1	1.062-.1P-.2L-D.S.	1.187-18 UNEF	1.577	1.671	1.375	1.149
D	17	D-1	1.125-.1P-.2L-D.S.	1.250-18 UNEF	1.639	1.733	1.438	1.212
E	19	E-1	1.312-.1P-.2L-D.S.	1.437-18 UNEF	1.827	1.921	1.625	1.399
F	23	F-1	1.500-.1P-.2L-D.S.	1.625-18 UNF	2.014	2.108	1.812	1.587
G	25	G-1	1.625-.1P-.2L-D.S.	1.750-18 UNS	2.139	2.233	2.000	1.708
H	29	H-1	1.812-.1P-.2L-D.S.	1.937-16 UN	2.327	2.425	2.188	1.898
J	33	J-1	2.000-.1P-.2L-D.S.	2.125-16 UN	2.514	2.608	2.375	2.086



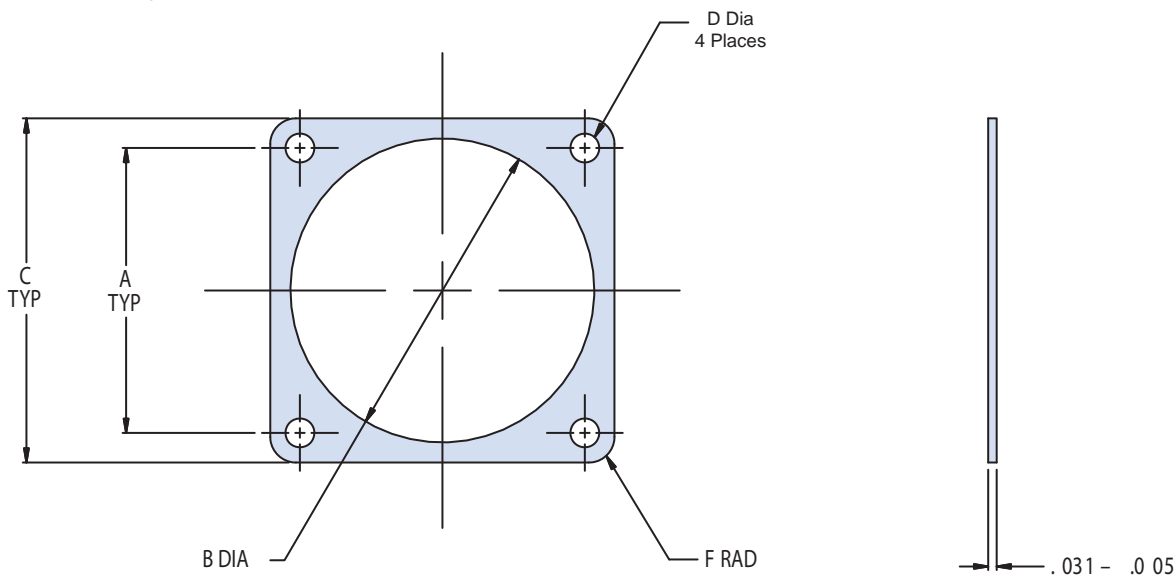
Dimensions in Inches (millimeters) are subject to change without notice.



# 930-006 Wall Mount Receptacle Mounting Gasket for MIL-DTL-28840 Connectors



Also for use with  
M28876/180-040 connectors



F

Table I: Material

Symbol	Material Description
F	Fluorosilicone
M	Silver Plated Glass Filled Silicone
N	Neoprene

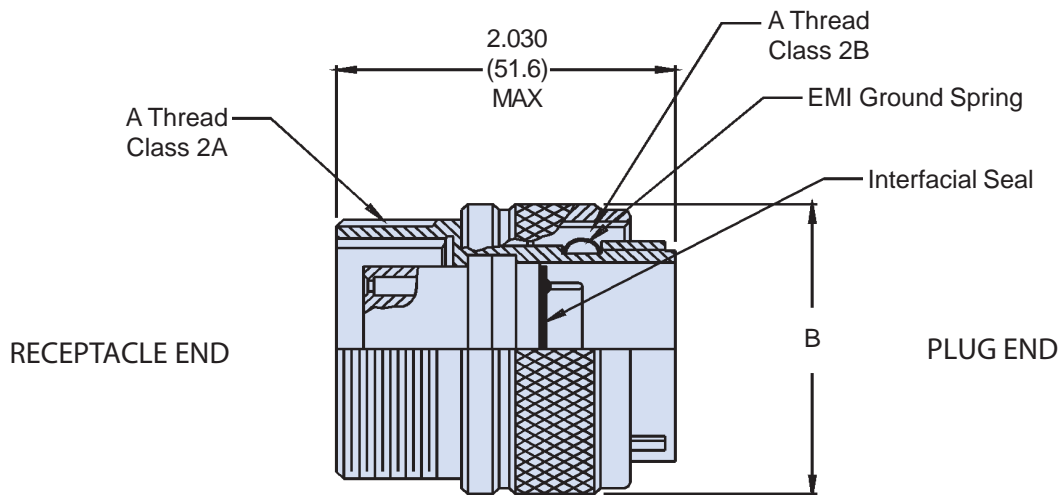
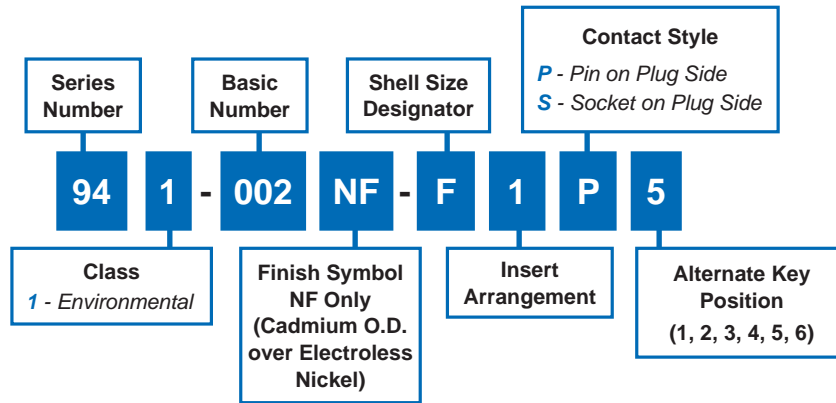
Table II: Material

Shell Size	A ± .010	Ø B +.016 -.000	C .016 -.000	Ø D ± .010	F Radius ± .010
11	.750	.750	1.023	.120	.141
13	.843	.875	1.138		
15	.968	1.062	1.258		
17	1.015	1.125	1.383		
19	1.140	1.312	1.508	.147	.172
23	1.281	1.500	1.718		
25	1.392	1.625	1.818		
29	1.568	1.875	2.138	.173	.188
33	1.734	2.062	2.328		
					.219

Dimensions in Inches (millimeters) are subject to change without notice.



**941-002**  
**Sav-Con® Environmental Connector Saver**  
 for MIL-DTL-28840 Connectors



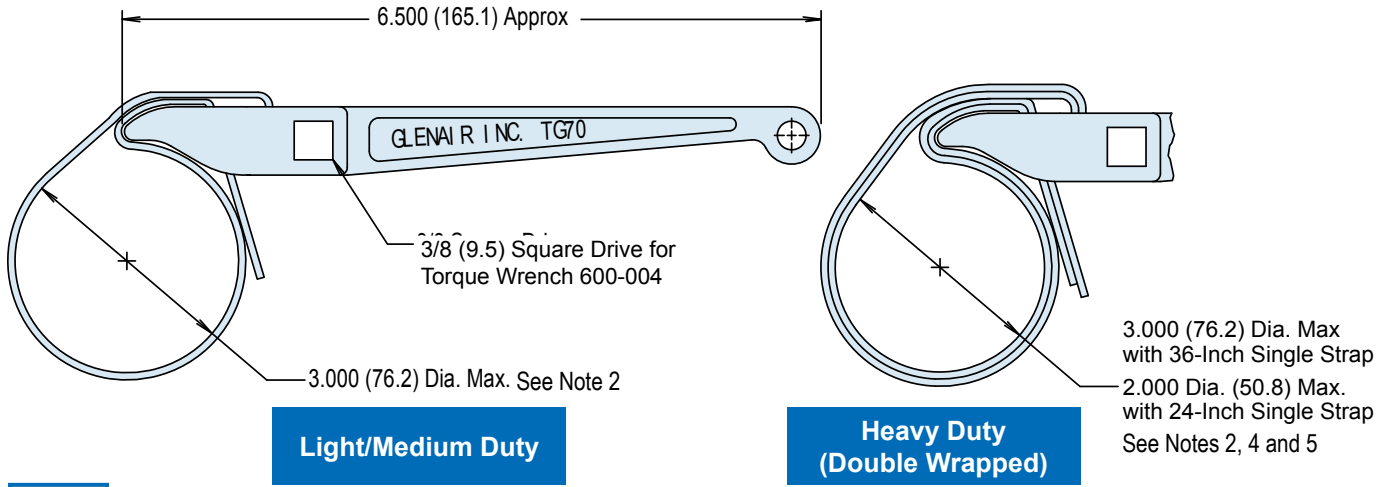
Insert Arrangement Dash Number	Shell Size	A Thread Class 2*	B Max	Contact Size 20 Quantity
A-1	11	.750-.1P-.2L-D.S.	1.028 (26.1)	7
B-1	13	.875-.1P-.2L-D.S.	1.141 (29.0)	12
C-1	15	1.062-.1P-.2L-D.S.	1.263 (32.1)	21
D-1	17	1.125-.1P-.2L-D.S.	1.387 (35.2)	31
E-1	19	1.312-.1P-.2L-D.S.	1.513 (38.4)	42
F-1	23	1.500-.1P-.2L-D.S.	1.703 (43.3)	64
G-1	25	1.625-.1P-.2L-D.S.	1.825 (46.4)	92
H-1	29	1.812-.1P-.2L-D.S.	2.143 (54.4)	121
J-1	33	2.000-.1P-.2L-D.S.	2.329 (59.2)	155

Dimensions in Inches (millimeters) are subject to change without notice.





# TG70 Strap Wrench Assembly Tool for Use with MIL-DTL-28840 Connectors



<b>Basic Part Number</b>	<b>Torque Wrench (Omit for None)</b>
<b>TG70 - 1 - 18</b>	

**Strap Length in Inches (See Notes 2 and 4)**  
 Lengths Available: 12, 18, 24 and 36-Inch Only  
 Standard length is 12 Inches,  
 Omit Dash Number for Standard

- ### APPLICATION NOTES
- These wrenches are made of the following materials:  
 Wrench Handle - Aluminum Alloy/Nickel Plate.  
 Wedge - Stainless Steel/Passivated.  
 Strap - Impregnated Fabric. Straps are 1/2 inch (12.7) in width.
  - Replacement straps are available. Specify part number G70515-xx for 12, 18, 24 or 36-inch strap. 24 and 36 inch for double wrap.
  - Metric dimensions (mm) are indicated in parentheses.
  - Double wrap as shown for heavy duty range.
  - Not recommended for composite coupling nuts (use 600-091 or 600-157).

### VARIANCE CHART

#### TG-70 Strap Wrench Used with Glenair Torque Wrenches

Accessory Shell Size	Recommended Installation Torque			
	Light/Medium Duty ± 5 Inch Pounds		Heavy Duty ± 5 Inch Pounds	
	TG70 Torque	Part Torque	TG70 Torque	Part Torque
08/09	28	35	45	60
10/11	28	35	70	80
12/13	30	40	75	110 [80]
14/15	30	40	75	120 [80]
16/17	30	40	75	120 [80]
18/19	30	40	75	120 [80]
20/21	75	80	95	140 [100]
22/23	75	80	120*	140
24/25	75	80	120*	140
28			135*	150
32			150*	150
36			150*	150

\* TG70 Not Recommended For Values of 120 Inch Lbs. or Greater.

- ### VARIANCE CHART NOTES
- Recommended installation torque is approximately 80% of MIL-C-85049 accessory thread strength values.
  - Heavy duty installation torque values may be difficult to attain with the TG70 Strap Wrench; the values shown in brackets [ ] are the maximum attainable with the TG70 Strap Wrench using a single wrap.
  - Glenair recommends using 600 series torque tools whenever possible. When torque loading exceeds 75 inch pounds, or to attain the heavy duty torque values shown, a double wrap strap provides suitable friction to achieve torque values.
  - Glenair recommends that heavy duty torque values be directly read through the connector shell body with the use of 600-005 connectors holding tools.

Dimensions in Inches (millimeters) are subject to change without notice.

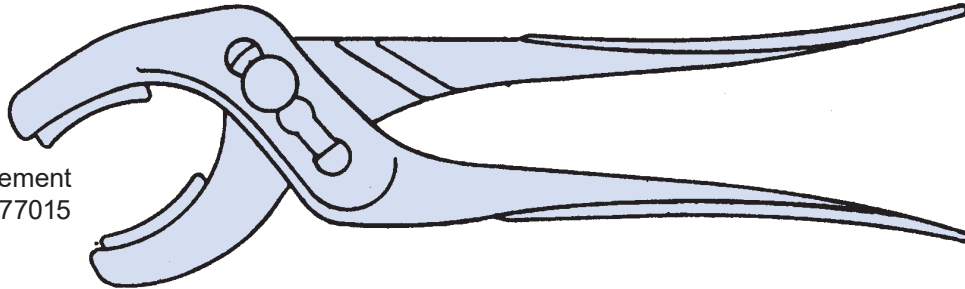
TG69 and TG82  
Soft Jaw Pliers and Strap Wrench Assembly Tool  
for Use with MIL-DTL-28840 Connectors



TG69

Basic  
Number

Nylon Replacement  
Inserts P/N G77015

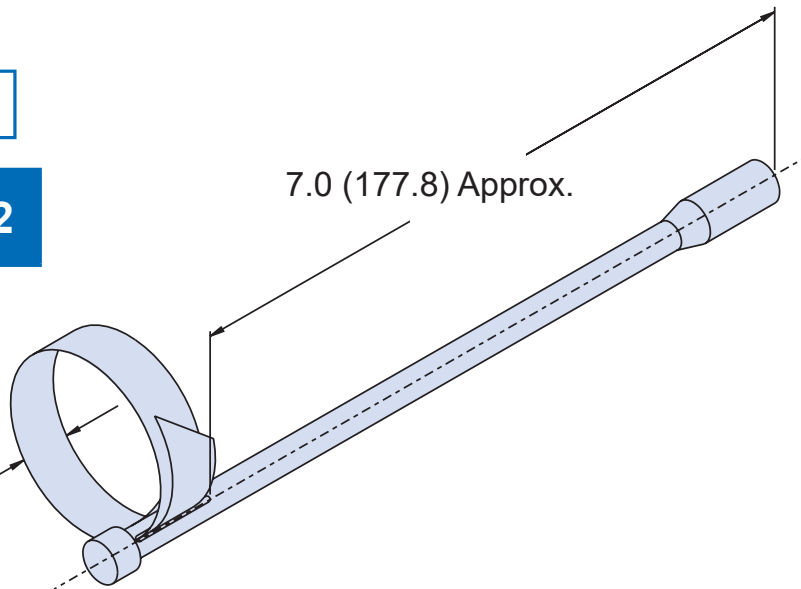


Basic  
Number

TG82

7.0 (177.8) Approx.

7/16 (11.1)



F

**Notes**

2.50 (63.5) Max Capacity; Not recommended for composite coupling nuts (use 600-091 or 600-157)  
1/4 Inch Drive  
The replacement strap part number is G62748-11. Consult Factory for other lengths.

Dimensions in Inches (millimeters) are subject to change without notice.

MIL-QPL'D AND COMMERCIAL EQUIVALENT

# NAVY CONNECTORS, TERMINI, ACCESSORIES AND TOOLS

RUGGEDIZED, ENVIRONMENTAL INTERCONNECT SOLUTIONS



**G**lenair offers a complete line of Navy connector solutions: From QPL'd MIL-PRF-28876 fiber optic connectors for today's high-speed ship-to-shore communications, to qualified MIL-DTL-28840 shipboard electrical connectors and accessories for ruggedized environmental shipboard interconnect systems, to precision tools for crimping and termination. The products are fully tooled and many are ready for immediate, same-day shipment.



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Dimensions in Inches (millimeters) are subject to change without notice.



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M29504/3-4038	B-3
M29504/14-4131C	B-1
M29504/14-4132C	B-1
M29504/14-4135C	B-1
M29504/14-4140C	B-1
M29504/14-4141C	B-1
M29504/15-4171C	B-2
M29504/15-4172C	B-2
M29504/15-4175C	B-2
M29504/15-4180C	B-2
M29504/15-4181C	B-2
M39029/83	D-8
M39029/83-450	D-8
M39029/83-451	D-8
M39029/83-508	D-8
M39029/84	D-10
M39029/84-452	D-10
M39029/84-453	D-10
M39029/84-509	D-10
M81969/33-01	D-3
M81969/33-02	D-3
M81969/34-01	D-3
TG69	F-17
TG70	F-16
TG82	F-17

Dimensions in Inches (millimeters) are subject to change without notice.

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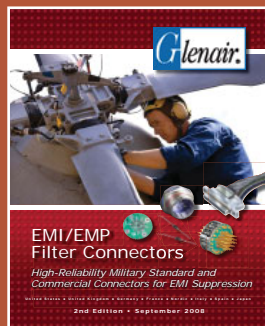
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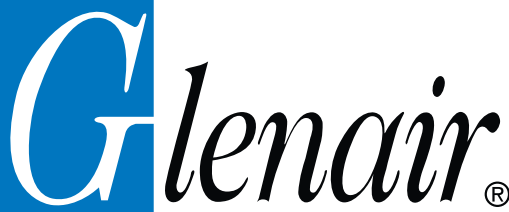


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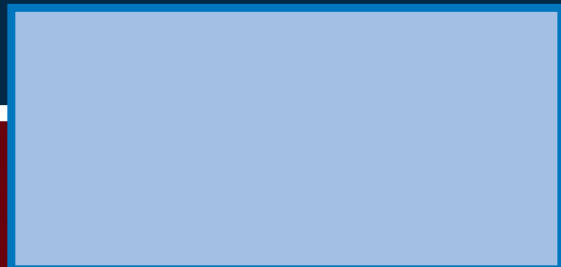
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