48 HOUR TURNAROUND ON CONNECTORS

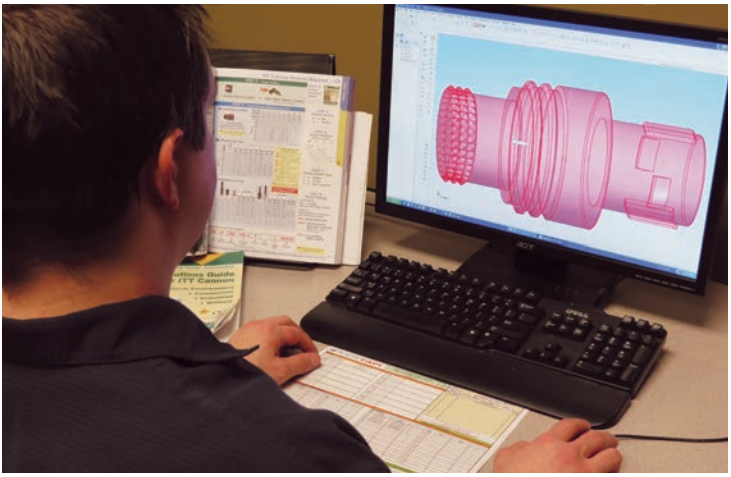
PEI-Genesis™

Amphenol®
CONNECTOR SOLUTIONS GUIDE

HARSH ENVIRONMENTS • COMMERCIAL • INDUSTRIAL • MILITARY

PEI-Genesis™

YOUR GLOBAL AMPHENOL DISTRIBUTOR



PEI-Genesis is one of the world's fastest assemblers of precision connectors and power supplies. From one of the largest component inventories, we delivery on time and to your requirements. Our global technical support staff is available to help solve your design challenges. PEI-Genesis can build over twelve million unique connectors from stock at a rate of more than 5,000 per hour. Using proprietary automation for speed, consistency, and quality, we can build just one piece or 10,000 pieces with equal ease; built to any standard or customized specification.

PEI-Genesis is the only partner that offers assembly and shipment of connectors in forty-eight hours and power supplies in a week. Headquartered in Philadelphia, PA, we have production facilities in South Bend, IN; Bensalem, PA; and Southampton, UK; as well as 27 sales offices in eight countries. Visit us online at www.peigenesis.com to learn more.

When it comes to the world of connectors and power supplies, there is a vast array of manufacturing options. Because these products are not the primary driver in a design, they are typically considered late in the design cycle. That tendency, when coupled with long lead times, can cause a disproportionate share of delays and aggravation.

PEI-Genesis will solve your design challenges. We will save you time by allowing your engineering team to focus solely on critical design elements. We will engage with you early in the design cycle, give you access to engineers around the world, provide design tools and methodology, and bring world-class expertise to your application requirements in order to accelerate your design cycle and offload a significant portion of the design effort.

COMPREHENSIVE TECHNICAL SUPPORT

Our engineers are ready to assist you online, by phone, or at your site.

North America: +1 800.642.8750

Europe: +44 (0) 844 871 6060

Email: techsupport@peigenesis.com

Online: visit www.peigenesis.com to complete a tech support request form – responses guaranteed in 24 hours or less

An Authorized Source

PEI-Genesis sells and assembles only fully-authorized products. Our product capabilities meet the highest military and industrial standards for consistent quality, inspection, marketing & packaging.

RoHS CALL FOR DETAILS

ISO 9001:2008 CERTIFICATION

LIMITED WARRANTY

Amphenol manufactures some of the highest quality products available; however, these products are intended for use in strict accordance with the specifications in this catalog.

A. If any of the products in this catalog are electrical components, components thereof, or electrical connectors accessories, then the warranty terms set forth in this subparagraph (a) apply to them. Amphenol Corporation, Amphenol Aerospace and PEI-Genesis warrant each new product sold by Amphenol or PEI-Genesis to be free from defects in materials and workmanship under normal use and service. The obligation and liability of Amphenol and PEI-Genesis under this warranty is limited to the repair or replacement at its factory, at the option of Amphenol or PEI-Genesis, of any such product which proves defective within ninety (90) days after delivery to the first end user, and is found to be defective in materials and workmanship by Amphenol inspection. Neither Amphenol nor PEI-Genesis shall be obligated or liable under this warranty for apparent defects which examination discloses are due to tampering, misuse, abuse, neglect, improper storage, normal wear and tear and all cases where the products are disassembled by other than authorized Amphenol or PEI-Genesis representatives. In addition, neither Amphenol nor PEI-Genesis shall be obligated or liable under this warranty unless the date of delivery to the first end user is within six (6) months of the date of delivery to the original purchaser, if different from the first end user, and further provided that written notice of any defect must be given to Amphenol or PEI-Genesis within thirty (30) days from the date such defect is first discovered.

Products covered by this warranty must be returned with all transportation charges prepaid to Amphenol Corporation, Amphenol Aerospace or PEI-Genesis in shipping containers that are adequate to prevent loss or damage in shipment. Products repaired or replaced under this warranty are warranted for the unexpired portion of the original warranty or for thirty (30) days, whichever is greater.

B. The purchaser's SOLE AND EXCLUSIVE REMEDY, and the SOLE OBLIGATION of Amphenol and PEI-Genesis, under the foregoing warranty shall be to repair or replace any defective or nonconforming products, provided that Amphenol or PEI-Genesis may, in their sole discretion, elect instead to refund the purchase price of the affected products. All replaced products shall become the property of Amphenol or PEI-Genesis.

C. AMPHENOL AND PEI-GENESIS EXPRESSLY DISCLAIM ANY LIABILITY, WHETHER UNDER THIS WARRANTY OR OTHERWISE, FOR ANY FAILURE OF ANY PRODUCT WHICH IS CAUSED, IN WHOLE OR IN PART, BY THE USE OF THAT PRODUCT WITH OR IN ANY COMPONENT PARTS THAT WERE NOT MANUFACTURED BY AMPHENOL.

D. THE ABOVE WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF
MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, USE OR APPLICATION, AND ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF AMPHENOL OR
PEI-GENESIS.

E. THE AGGREGATE LIABILITY OF AMPHENOL AND PEI-GENESIS TO ANY PURCHASER IN DAMAGES OR OTHERWISE SHALL NOT EXCEED THE AGGREGATE PURCHASE PRICE OF THE PRODUCTS THAT ARE THE SUBJECT OF THE CLAIM OR DISPUTE. IN NO EVENT SHALL AMPHENOL OR PEI-GENESIS BE LIABLE FOR ANY INCIDENTAL, INDIRECT, CONSEQUENTIAL, PUNITIVE OR SPECIAL LOSSES OR DAMAGES OF ANY KIND,
HOWSOEVER CAUSED. All such damages are expressly excluded and disclaimed, it being understood that the products sold to the purchaser are not consumer products. No action, regardless of form, arising out of, or in any way connected with any products furnished by PEI-Genesis may be brought by a purchaser more than one (1) year after the cause of action accrued.

PRODUCT SAFETY INFORMATION

This information sheet should be read in conjunction with the Product Data Sheet/ Catalog distributed by PEI-Genesis. Failure to observe the advice in this information sheet and the operating conditions specified in the Product Data Sheet/ Catalog could result in hazardous situations. None of the connectors in this catalog are meant to be mated or unmated under load.

1. MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and nonconducting materials and can be divided into two groups:

a) Printed circuit types and low cost audio types which employ all plastic insulators and casings; and

b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials.

Contact materials vary with type of connector and application and are usually manufactured from copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

2. FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters.

Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionization and burning.

Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g., cracked or deformed contacts, or broken strands of wire. Local overheating may also result from the use of incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the Product Data Sheet/Catalog are exceeded and can cause breakdown of insulation and, hence, electric shock.

If heating is allowed to continue, it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires, and leakage currents through carbonization of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

3. HANDLING

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers.

Electrical connectors may be damaged in transit to customers and such damage may result in creation of hazards. Products should therefore be examined prior to installation or use and rejected if found to be damaged in any respect.

4. DISPOSAL

Dispose of all products properly. The incineration of some products may release noxious or even toxic fumes.

5. APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector. Voltages in excess of 30 Vac or 42.5 Vdc are potentially hazardous and care should be taken to ensure that such voltages can not be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be inspected, before making live, to ensure there is no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other
undesired conducting particles. Circuit resistance and continuity checks should be made to make certain that there are no low resistance joints or spurious conducting paths. Always use the correct application tools as specified in the Data Sheet/Catalog.

Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

IMPORTANT GENERAL INFORMATION

1. AIR AND CREEPAGE PATHS/OPERATING VOLTAGE

The admissible operating voltages depend on the individual applications, and the valid national and other applicable safety regulations. For this reason, the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

2. TEMPERATURE

All information given are temperature limits. The operating temperature depends on the individual application.

3. OTHER IMPORTANT INFORMATION

Amphenol and PEI-Genesis continuously endeavor to improve products. Therefore, products may deviate from the description, technical data or specifications and/or shape as shown in this catalog. Amphenol and PEI-Genesis reserve the right to change the description, technical data or specifications and/or shape of any products at any time.

4. HARNESSING AND ASSEMBLY INSTRUCTIONS

If applicable, our special harnessing and/or assembly instruction must be adhered to. - This information can be provided on request.

SELECTING THE SERIES TO MEET YOUR NEEDS

97 SERIES

The 97 series is a durable, cost-effective MIL-DTL-5015 available in a variety of shell styles, sizes, contacts, and layouts. Contacts are silver-plated with pre-tinned solder cups. These circular connectors are excellent for industrial applications including robotics, machine tools and welding.

Features include: Low cost • Solder termination • Wide selection of shell styles and insert patterns • Solid or split shell construction.

AIT/MS SERIES

The MIL-DTL-5015 AIT/MS series is a cost-effective threaded circular connector for use in harsh environments. These Amphenol connectors are sealed to withstand moisture, condensation, vibration and flash-over. Over 286 contact layouts are available, in variations that allow for just power, just signal, or a mix of both contact types. Available in five mounting styles, nineteen shell sizes, and solder or crimp termination.

Features include: Broad temperature range from -67°F to +257°F (-55°C to +125°C) under extremely harsh conditions. • Rugged aluminum alloy shell • Solder, crimp, PC, Coax and thermocouple contacts available.

MS3450 (944*) SERIES

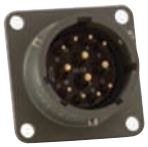
The MIL-DTL-5015 Rear-Release Threaded MS3450 Matrix® series uses rear-release crimp contacts with retention clip. These Amphenol connectors fill the gap between older MIL-DTL-5015s and the environmental and higher-performance needs of new technologies. They are sealed to withstand moisture, condensation, vibration and flash-over. Over 165 contact layouts are available, in variations that allow for just power, just signal, or a mix of both contact types.

Features include: Broad operating temperatures • Recommended for extreme conditions • Rugged shell is highly resistant to damage and corrosion • Wide range of wire gauges and current carrying capacity.

AIB/GT SERIES

The AIB/GT Series replaces the threaded coupling used in MIL-DTL-5015 with a positive, quick-mating, three-point reverse bayonet lock for improved performance. These Amphenol connectors are an ideal cost-effective option for applications requiring reliability in harsh environments, and is the world-standard for rail, mass transit, and military ground vehicle applications. This series has the same shell dimensions, contact layouts, contacts, and performance characteristics as the MIL-DTL-5015 threaded connectors; however, the two series do not intermate. They are sealed to withstand moisture, condensation, vibration and flash-over. Over 180 contact layouts are available, in variations that allow for just power, just signal, or a mix of both contact types.

Features include: Simple and fast mating and unmating. • Shock and vibration resistant • Proven reliability • Lightweight yet highly resistant to damage.



PT MIL-DTL-26482 SERIES I

The Amphenol MIL-DTL-26482 Series I PT/PT-SE offers high-density contact arrangements in a circular shell. PT offers solder contacts, PT-SE offers high-performance crimp contacts, and PT-CE offers a commercial crimp option. These circular connectors provide quick-disconnect bayonet coupling for rapid mating and unmating, and several mounting styles and shell sizes.

Features include: Rugged shell • Environmentally sealed • Resistant to military environments • Wide range of wire gauges and current carrying capability.

62GB SERIES

Amphenol's 62GB series connectors are similar to MIL-DTL-26482 but with the advantage of keyway orientation to reduce mis-mating among multiple connectors. They feature aluminum shells with brass or stainless steel options available. PEI-Genesis is the largest assembler of 62GB connectors in the world.

Features include: Rugged, machined connector shell • Environmentally sealed • Resistant to harsh environments • Wide variety of endbell styles.

MB SERIES-DTL-26482 SERIES II

Amphenol's Matrix® MIL-DTL-26482 series II miniature cylindrical connectors have a quick-mating, three-point bayonet coupling system. Given their small size and high-quality contact retention and seal, the MB series is excellent for high-reliability applications in the harshest conditions, including the aerospace industry.

Features include: Total environmental sealing • Wide operating temperature range -85°F to +392°F (-65°C to +200°C) • Quick mating, three point bayonet coupling •100% scoop proof shell design • EMI-RFI shielding, • Available in a rugged 500 hour salt spray plating.

LJT MIL-DTL-38999 SERIES I/HE-308

Amphenol's MIL-DTL-38999 series I LJT miniature connectors offer high-density contact arrangements and are suitable for extremely high-reliability connections, including use in military and commercial aviation. They are environmentally-sealed and have a wide operating temperature range.

Features include: Very small area for mating the connectors • Total environmental sealing • Wide operating temperature range • Extremely light weight connector design • Quick mating three point bayonet coupling • Wide range of receptacle styles • Available in a rugged 500 hour salt spray plating.

JT MIL-DTL-38999 SERIES I/HE-308

Amphenol's MIL-DTL-38999 series I LJT miniature connectors offer high-density contact arrangements and are suitable for extremely high-reliability connections, including use in military and commercial aviation. They are environmentally-sealed and have a wide operating temperature range.

Features include: Very small area for mating the connectors • Total environmental sealing • Wide operating temperature range • Extremely light weight connector design • Quick mating three point bayonet coupling • Wide range of receptacle styles • Available in a rugged 500 hour salt spray plating.

TV-CTV MIL-DTL-38999 SERIES III

TV-CTV Tri-Start MIL-DTL-38999 Series III connectors have high-density contact arrangements in a miniature circular shell. Originally designed for the high-performance requirements of military and commercial aircraft, these circular connectors are perfect for applications requiring extremely reliable interconnections. TV's are quick-mating and environmentally-sealed.

Features include: Total environmental sealing • Wide operating temperature range • quick mating, triple lead threaded, self-locking coupling •100% scoop proof shell design • EMI-RFI shielding, • Available in a rugged 500 hour salt spray plating or 1000 hour salt spray material.

AMPHE-LITE

Amphenol's MIL-DTL-38999 series III Amphe-Lite™ connectors are light-weight commercial 38999s that offer the highest performance capabilities for harsh environments, including communication towers and equipment, manufacturing process control and medical equipment.

Features include: Amphelite connectors perform flawlessly under wide temerature ranges, high vibrations and are resistant to a vast array of contaminants. • Outstanding EMI Sheilding Protection – up to 50dB minimum-100Mhz to 10GHz • Operates at extreme temperatures (from -67°F up to 320°F (-55°C up to +150°C)

SJT/JN1003 SERIES

Amphenol's SJT series of miniature MIL-DTL-38999 series II circular connectors offer high-density contact arrangements. They are environmentally-sealed and have a wide operating temperature range.

Features include: Total environmental sealing • Wide operating temperature range • quick mating, three point bayonet coupling • Scoop proof shell design • EMI-RFI shielding available • Available in a rugged 500 hour salt spray plating.

AMPHE-EX

Amphenol Industrial's explosion-proof connector series Amphe-EX is ATEX and IECex-approved for Zone 1-rated (Europe) and Class I, Division II (USA) hazardous applications (IECex 60079). Amphe-EX is the only explosion-proof connector that allows the use of copper, coax and fibre optic contacts in one product. PEI-Genesis is the only approved worldwide assembling distributor.

Features include: Equipped to handle signal, power, RF or fiber optic requirements • Insert patterns ranging from 2#20 contacts up to 79#22D contacts • High tensile strength aluminum plated in a hard anodic plating scratch resistant coating to MII-A-8625, Type III.

SCE2 TERAPIN SERIES

Amphenol's SCE2 Terrapin series of miniature push-pull connectors are environmentally-sealed for use in harsh environments. They offer silent mating with high mating cycles and a lockable coupling ring to prevent connector break-away. For more product details, please see full specifications below.

Features include: Non-magnetic • RoHS compliant • Copper Alloy contact material

2M SERIES

Amphenol 2M micro-miniature connectors are a small, light-weight option for mil-spec performance that can withstand harsh environments. They are quick-mating and a variety of styles and options are available. For full product details, please see our specifications below.

Features include: Smaller, lighter-weight alternative for D38999 performance

RJ FIELD SERIES

The Amphenol RJ Field series allows the use of an Ethernet Class D/Cat5e and Class E/Cat6 connection for Ethernet over twisted-pair networks in harsh environments. The RJStop® connection system protects from shock, dust and fluid. No hazardous on-field cabling and grounding required!

Features include: Full environmental sealing • Easy to assemble • Vibration resistant mating system

44 SERIES

Amphenol Tuchel 44 series connectors offer cost-effective performance for applications requiring environmental sealing. The connector's single-piece structure is resistant to water, fuel, lubricants, ozone, road salt and vibration.

Features include: Protection against mismating • 3 liquid proof seals (primary, secondary, and wire) • Quck and easy assembly • Discrete wire interconnection

C 091 SERIES

The Amphenol-Tuchel C091 series connectors are available in a variety of contact arrangements and have a metal integral strain relief. They are available in straight or right-angle configurations.

Features include: Available with crimp solder or PCB terminals • Front or rear mounting receptacles • EMI shielded fully mated on A&D types • Internal strain relief

ECO-MATE

Amphenol Ecomate connectors are rugged and offer environmental protection under event extreme conditions. They are excellent for plant construction, machine building, control technology and medical applications. A wide selection of housings and shapes are available.

Features include: Quick and easy to assemble • Housing material made from premium molding material • Screwed cable gland with clamping ring • Cable housing straight or angled

ALDEN PRODUCTS

Amphenol Alden Pulse-Lok® connectors have a unique locking coupling system with both tactile and audible confirmation for secure connections as well as quick-release action. These connectors are excellent for medical, factory automation, and instrumentation field applications. Many contact types are available, including signal, power, high-voltage, and Ethernet.

Features include: Quick release action • Small package (.500 — 1.2" diameter) • Tactile confirmation • 1 to 78 conductiors

CONNECTOR SERIES COMPARISON CHART

Connector cost generally increases across the table from left to right.

REVIEW THE BASIC TYPES

- Industrial/commercial connectors generally do not need to operate in extreme conditions
- Harsh environment connectors are generally used in harsh and/or outdoor applications.
- Military connectors will meet different mil specifications.

START WITH THESE FOUR VARIABLES:

1. Determine wire gauge range
   -Will indicate connector size
2. Determine required number of circuits
   -Generally, more circuits means a larger and more expensive connector
3. Determine if water-jet sealing is necessary
   -Choices include submersible, individual wire sealing and cable jacket sealing
4. Determine if EMI-RFI Shielding is required
   -Does your connection need protection from interfering signals? Generally, this requirement sparates economical connectors from mid-range cost

By answering these questions and using the information on this chart, you should identify the series that will fit your needs.

Please visit our Web site for an interactive comparison and selection guide featuring our entire line of Amphenol connectors.

	5015 Series			
	97	AIT/MS	MS3450	AIB/GT
Industrial/Commercial	■	■	■	■
Harsh Environment		■	■	■
Military		■	■	
Wire Gauge Range (AWG)	26 to 0	26 to 0	20-0	26 to 0
Number of Circuits	1 to 52	1 to 85	1 to 85	1 to 85
Sealed Against Water Jets	No	Yes	Yes	Yes
EMI/RFI-Shielding	Yes	Yes	Yes	Yes
Style	Circular	Circular	Circular	Circular
Operating Voltage/ DWV	1,750 Vac	3,000 Vac	3,000 Vac	3,000 Vac
Current Rating (Amps)	150	150/245	150/245	150/245
Power & Signal on Same Layout	Yes	Yes	Yes	Yes
Operating Temperature	-67°F to 257°F -55°C to125°C	-67°F to 257°F -55°C to125°C	-75°F to 392°F -55°C to 200°C	-67°F to 257°F -55°C to125°C
Submersible	No	Yes	Yes	Yes
Individual Wire Sealing	No	Yes	Yes	Yes
Cable Jacket Sealing	Yes	Yes	No	Yes
Type of Coupling	Threaded	Threaded	Threaded	Reverse Bayonet
Life in Mating Cycles (min.)	100	100	100	500/2,000
Shock Test (g's)	50	50	50	50
Vibration Test (grms)	15	15	15	15
Susceptibility to Damage	Very Low	Very Low	Very Low	Very Low
Shell Material	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy
Shell Plating	Anodized Electroless Nickel, or Zinc Alloy	Cadmium, Anodized, Electroless Nickel, or Zinc Alloy	Cadmium, Anodized, Electroless Nickel, or Zinc Alloy	Black Anodize, Electroless Nickel, Cadmium, or Passivated Cadmium,
Shell Color	Olive Drab, Silver, or Black	Olive Drab, Silver, or Black	Olive Drab, Silver, or Black	Olive Drab, Silver, or Black
Positive Shell Polarization	Yes	Yes	Yes	Yes
Insert Polarization Options	Yes	Yes	Yes	Yes
User Polarization	Yes	No	No	No
Standards/Associated Specs.	MIL-DTL-5015 UL #E115497 CSA LR 69183	MIL-DTL-5015	MIL-DTL-5015	MIL-DTL-5015 UL #E115497 VG95234
Contact Plating	Silver or Gold	Silver or Gold	Silver or Gold	Silver or Gold
Contact Styles				
Crimp		■	■	■
Solder	■	■		■
Printed Circuit Solder		■	■	■
Printed Circuit Press fit				
Thermocouple				
Wire Wrap				
Co-Ax				
Insulation Displacement or Screw				
Pre Terminated				
Fiber Optic				
High Voltage				
First-Mate Last-Break				

26482 Series			38999 Series				
PT/PTSE	62GB	MB	LJT/HE308	JT	TV-CTV	Amphe-Lite	SJT/JN1003
■	■						
■	■	■	■	■	■	■	■
■		■	■	■	■	■	■
24 to 12	24 to 8	24 to 12	24 to 12	28 to 12	28 to 12	28 to 8	28 to 12
1 to 61	2 to 61	3 to 61	3 to 128	3 to 128	3 to 128	2 to 128	3 to 128
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Circular	Circular	Circular	Circular	Circular	Circular	Circular	Circular
1,000 Vac/5kv	1,500 Vac	2,300 Vac	2,300 Vac	2,300 Vac	2,300 Vac	2,300 Vac	2,300 Vac
23	22	23	1.5 to 23	1.5 to 23	1.5 to 46	1.5 to 46	1.5 to 23
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
-67°F to 257°F -55°C to125°C	-67°F to 257°F -55°C to125°C	-67°F to 392°F -55°C to200°C	-67°F to 392°F -55°C to200°C	-67°F to 392°F -55°C to200°C	-67°F to 392°F -55°C to200°C	-67°F to 248°F -55°C to 125°C	-67°F to 392°F -65°C to 200°C
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bayonet	Bayonet	Bayonet	Bayonet	Bayonet	Threaded	Threaded	Bayonet
500	500	500	500	500	500/1500	500	500
50	100	150	300	300	300	-	300
15	10	20	49.5	43.7	60	-	49.5
Very Low	Very Low	Extra Low	Extra Low	Extra Low	Extra Low	Very Low	Extra Low
Aluminum Alloy	Aluminum Alloy, Marine Alloy, Stainless Steel	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy, Stainless Steel, Marine Nickel Alum. Bronze or Composite	Composite	Aluminium Alloy
Cadmium, Anodized, Electroless Nickel, or Zinc Alloy	Cadmium, Anodized, Electroless Nickel, or Zinc Alloy	Cadmium, or Electroless Nickel	Cadmium, Electroless Nickel, or Anodized	Cadmium, Electroless Nickel, or Anodized	Cadmium, Electroless Nickel, Anodized, or Aluminum Bronze	Cadmium, or Electroless Nickel	Cadmium, Electroless Nickel, Anodized or Zinc Cobalt
Olive Drab, Silver, or Black	Olive Drab, Silver, or Black	Olive Drab, or Silver	Olive Drab, Silver, or Bronze	Olive Drab, Silver, or Bronze	Olive Drab, Silver, or Bronze	Olive Drab, Silver, or Black	Olive Drab, Silver, or Bronze
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No	No	No	No	No	No	No	No
MIL-DTL-26482 Series I UL #E115497	BS9522 F00 17	MIL-DTL-26482 Series II	MIL-DTL-38999 Series I	MIL-DTL-38999 Series I	MIL-DTL-38999 Series III	UL E115497	-
Gold	Gold	Gold	Gold	Gold	Gold	Gold	Gold
■	■	■	■	■	■	■	■
■	■						
■	■	■	■	■	■	■	■
■		■	■	■	■	■	■
■		■	■	■	■	■	■
		■	■	■	■	■	■
■							

Amphe-EX	RJ Field	SCE2	2M	44 Series	Eco-Mate	C091	Alden
■	■	■	■	■	■	■	■
■	■	■	■				■
		■	■				
28 to 8	CAT5/SE	24 to 30	20 to 12	14 to 18	26 to 14	18 to 26	26 to 12
2 to 79	2 to 79	7 to 37	1 to 130	1 to 6	4 to 7	3 to 14	1 to 78
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	No	No	Yes	Yes
Circular	Circular	Circular	Circular	Circular	Circular	Circular	Circular
2,300 Vac	-	400 Vac	1800 Vac	250 Vac	400V/250 Vac	250 Vac/60 Vac	300 Vac
1.5 to 46	-	23	20	8A	10 to 16	3 to 5	2 to 20
Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
-47°F to 104°F -20°C to 40°C	-40°F to 185°F -40°C to 85°C	-67°F to 248°F -55°C to 125°C	-67°F to 392°F -55°C to 200°C	-40°F to 221°F -40°C to 105°C	-40°F to 212°F -40°C to 100°C	-40°F to 185°F -40°C to 85°C	-20°C to 150°C
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Yes	No	No	Yes	Yes	No	No	No
Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Threaded	Push-Pull, Bayonet, Triple-Lead Threaded	Push-Pull	Push-Pull Bayonet Triple & Dual-Lead Threaded	Friction-Fit	Threaded	Threaded or Bayonet	Pulse-Lok
500	500	200	250/2000	25 (Max)	500	1000	5000
300	250	100	300	-	-	-	-
60	10	10	37	-	-	-	-
Extra Low	Very Low	Very Low	Extra Low	Medium	Very Low	Very Low	Low
Aluminium Alloy, Brass, or Stainless Steel	Thermoplastic, Aluminium	Aluminum Alloy	Aluminum Alloy	Stanoprene. thermpastic rubber	PA6.6/PA6	Die Cast	Thermoplastic or Brass
Anodized	Cadmium, Anodized, or Electroless Nickel	Black-Silver	Black Anodized, Electroless Nickel, Cadium, Passivated Black, Olive Drab, Zinc, Nickel	None	None	Nickel	Nickel-Plated
Black	Olive Drab, Silver, or Black	Black Matte	Olive Drab, Silver, or Bronze	Black	Black & Blue	Silver	Black or Silver
Yes	Yes	Yes	Yes	No	No	No	Yes
Yes	Yes	Yes	Yes	No	No	No	No
No	Yes	No	No	No	No	No	No
-	-	-	-	-	VDE1781, 1780: SEV00.00394: UL E63093: CSA 48932: German Lloyd 14108/84	UL E63093	-
Gold	Gold	Gold	Gold	Tinned	Silver or Gold	Silver	Gold
■			■	■	■	■	■
		■			■	■	■
	■	■				■	
■							
							■
■							
					■		■
■	■	■					
	■						■

For assistance in Europe, please see the back cover for a complete listing of our branch offices and contact numbers.
Specifications subject to change.

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For assistance in Europe, please see the back cover for a complete listing of our branch offices and contact numbers.
Specifications subject to change.

Amphenol 97 Series MIL-DTL-5015

MATES WITH ALL THREADED MIL-DTL-5015 CONNECTORS

The 97 series is a durable, cost-effective MIL-DTL-5015 available in a variety of shell styles, sizes, contacts, and layouts. Contacts are silver-plated with pre-tinned solder cups. These circular connectors are excellent for industrial applications including robotics, machine tools and welding.

- UL-approved & CSA-certified
- Also called MIL-C-5015 or MS

Note: MS-A version (blue insulator) is inactive for new military designs. The 97 series can be purchased under inactive military part numbers, so use caution. MIL-DTL-5015 uses a gray insulator. Obsolete MS-A connectors can be purchased with the original hard blue insulator or the newer sealed construction, using a soft neoprene insulator. For the neoprene insulator, add "-RES" as a suffix to the part number.

APPLICATIONS

Industrial, commercial and medical applications where cost-effective, general-duty connectors are required.

- Communications systems
- Conveyors
- Factory automation
- Industrial machinery
- Medical instrumentation
- Motors
- Mobile equipment
- Sensors
- Ships
- Trucks
- Trailers

FEATURES

- Cost-effective
- Solder termination
- UL-recognized and CSA-certified
- Wide selection of shell styles and insert patterns
- Wide variety of connector finishes
- Threaded coupling, hard dielectric inserts
- Solid or split-shell construction

TECHNICAL SPECIFICATIONS

MATERIALS & FINISHES

Shell	Aluminum alloy
Plating	Olive drab chromate or clear chromate coating over cadmium plating to QQ-P-416, Black zinc cobalt, electroless nickel or green zinc
Contacts	Brass or copper alloy
Platings	Silver plating to QQ-S-365 (solder contacts have tinned solder pot) Gold plating to MIL-G-45204
Insulator	Diallyl phthalate (Blue color)

TECHNICAL SPECIFICATIONS

ELECTRICAL DATA

Operating Voltage/Test Voltage

SERVICE RATING*	TEST VOLTAGE (RMS 60 cps)	SUGGESTED* OPERATING VOLTAGE		AIR SPACING NOM. (INCHES)	CREEPAGE DISTANCE NOM. (INCHES)
		DC	AC (rms)		
I	1,000	250	200	1/32	1/16
A	2,000	700	500	1/16	1/8
D	2,800	1,250	900	1/8	3/16
E	3,500	1,750	1,250	3/16	1/4
B	4,500	2,450	1,750	1/4	5/16

* Each insulator has a specific service rating. These numbers should be used by the designer only as a guide. The Service Ratings for each layout are listed on pages 64-85.

97 series connectors show no evidence of breakdown when the given test voltages are applied between the two closest contacts and between the shell and the contacts closest to the shell for a period of one minute, per MIL-STD-1344 Method 3001.

Current Rating & Contact Resistance

CONTACT SIZE	TEST CURRENT (AMPS)	POTENTIAL DROP (MILLIVOLTS)
16	13	49
12	23	42
8	46	26
4	80	23
0	150	21

Maximum total current to be carried per connector in wire bundles as specified in MIL-W-5088.
Contact resistance when tested to MIL-C-39029 will not exceed voltage drops listed in above table.

MECHANICAL

Wire Range Sizes	24 to 0 AWG
Contact Resistance	(See table above)
Insulation Resistance	> 5,000 megohms at 77°F (25°C) per MIL-DTL-5015, 3.18
Mating Life	100 cycles minimum per MIL-DTL-5015, 3.16
Salt Spray	MIL-STD-1344 Method 1001 Condition B minimum (Cadmium) 48 hour
Heat	+257°F (+125°C) for 60 hours, +185°F (+85°C) for 1,000 hours per MIL-DTL-5015, 4.6.14, minimum
Chemical Resistance	20 hour full immersion (unmated) in hydraulic fluid and lubricating oil per MIL-DTL-5015 minimum
Vibration	10 to 2,000Hz (15g's) 10 microseconds maximum discontinuity to MIL-STD-1344 Method 2005 per MIL-DTL-5015
Shock	50g 11 millisecond duration, three major axes 10 microseconds maximum discontinuity to MIL-DTL-5015, 3.13
Contact Type	Solder (hard silver or gold plating)
Number of Circuits	1 to 52 (See pages 64-85)

TECHNICAL SPECIFICATIONS

Contact retention and separation forces to MIL-DTL-5015, 4.6.6 & 3.26 minimum.

	RETENTION AXIAL LOAD		SEPARATION FORCE MINIMUM	
CONTACT SIZE	NEWTONS	LB	NEWTONS	LB
16	44	10	1	0.25
12	67	15	2	0.50
8	89	20	3	0.75
4	89	20	4	1.00
0	111	25	9	2.00

Polarization	Integral key and keyway plus optional rotational polarization. See pages 75-85 for valid rotations
Approvals/Agency Listing	UL# EII5497; CSA LR69183 for 97 Series

COMPONENTS

	PLUGS	RECEPTACLES
Barrel/Shell		
Coupling Nut/Spring		
Insert Assembly		
Insert Retainer Spring		
Endbell		

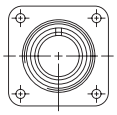
CREATE YOUR PART NUMBER USING THESE FIVE STEPS

STEP	1	2	3	4	5
97	3106A	18-1	P		-946
SERIES PREFIX	SHELL STYLE	LAYOUT	CONTACT	ROTATION	PLATING

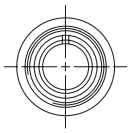
(example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

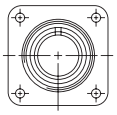
RECEPTACLES ← Mates with → **PLUGS**



97-3100A
Wall Mount with Accessory Threads, Solid Endbell



97-3101A
Cable Mount with Accessory Threads, Solid Endbell



97-3102A
Box Mount with No Accessory Threads

97-3106A
Straight with Accessory Threads, Solid Endbell

97-3106B
Straight with Accessory Threads, Split Endbell

97-3107A
Friction Fit Straight with Accessory Threads, Solid Endbell

97-3107B
Friction Fit Straight with Accessory Threads, Split Endbell

97-3108A
Right Angle with Accessory Threads, Solid Endbell

97-3108B
Right Angle with Accessory Threads, Split Endbell

STEP 2: SELECT LAYOUT

See pages 64-85 for more information

8S-1	16S-1	18-3	18-29	20-25	22-20	24-22	28-20
10SL-3*	16S-4	18-4	18-30	20-27	22-22	24-24	28-21
10SL-4*	16S-5	18-5	18-31	20-29	22-23	24-25	32-5
12-5	16S-6	18-8	18-420	20-30	22-27	24-26	32-6
12S-1	16S-8	18-9	20A16	20-32	22-28	24-27	32-7
12S-2	16S-14	18-10	20A37	20-33	22-30	24-28	32-8
12S-3	16S-15	18-11	20-3	22-1	22-31	28-1	32-17
12SL-844	16S-16	18-12	20-4	22-2	22-32	28-2	32-414
12-5	16S-17	18-13	20-6	22-4	22-34	28-3	36-1
14S-1	16SA18	18-16	20-7	22-5	24-2	28-6	36-5
14S-2	16SA19	18-17	20-8	22-8	24-5	28-8	36-6
14S-4	16SA20	18-18	20-11	22-9	24-6	28-9	36-7
14S-5	16SA21	18-19	20-14	22-10	24-7	28-10	36-8
14S-6	16-7	18-20	20-15	22-11	24-9	28-11	36-9
14S-7	16-9	18-22	20-16	22-12	24-10	28-12	36-10
14S-9	16-10	18-23	20-17	22-13	24-11	28-13	36-11
14S-10	16-11	18-24	20-18	22-14	24-12	28-15	36-12
14S-11	16-12	18-25	20-19	22-15	24-16	28-16	36-15
14S-12	16-13	18-26	20-21	22-16	24-19	28-17	36-403
14S-13	18A31	18-27	20-23	22-18	24-20	28-18	
14S-14	18-1	18-28	20-24	22-19	24-21	28-19	

* Socket for plug only. Pin for receptacle only.

STEP 3: SELECT CONTACT

P = Pin **S** = Socket

STEP 4: SELECT ROTATION

See pages 75-85 (Omit for normal)

W, X, Y, Z

STEP 5: SELECT PLATING

CONTACTS
(Omit for silver plating)

426 = Gold over Silver
431 = Less Pre-filled Solder Cups

SHELL PLATING
(Omit for olive drab chromate over cadmium)

604 = Gray Anodized
608 = Black Anodized
621 = Non-conductive Black Alloy
624 = Olive Drab Zinc Alloy
639 = Clear Chromate over Cadmium
640 = Conductive Black Alloy
689 = Electroless Nickel

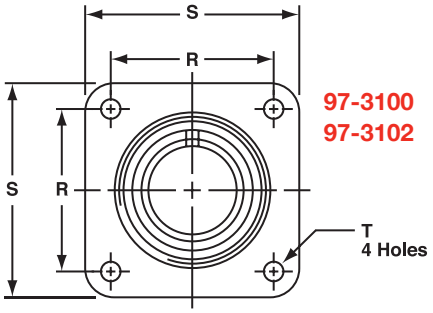
OTHER MODIFIERS

417 = Plug Seal O-Ring
438 = Plug Seal O-Ring and Potting Cup
940 = Add Cable Clamp and Bushing
946 = 431 + 621 Mod Codes Combined *(RoHS)*
947 = 431 + 689 Mod Codes Combined *(RoHS)*
955 = 431 + 640 Mod Codes Combined *(RoHS)*

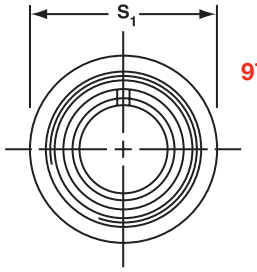
NEED HELP? PEI engineers will help you solve your design challenges and build the perfect part for your application. Email us at sales@peigenesis.com or complete our online Technical Request at www.peigenesis.com/technical-support. To contact us by phone, please see the back cover for a complete listing of our branch offices and contact numbers.

DIMENSIONS

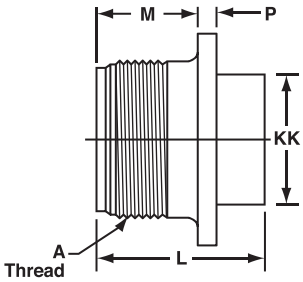
RECEPTACLE STYLES



97-3100
97-3102



97-3101



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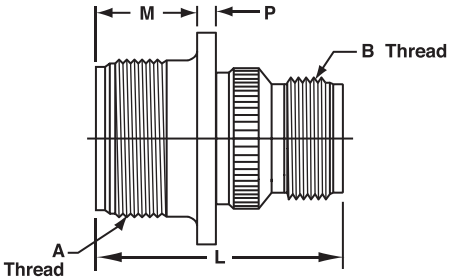

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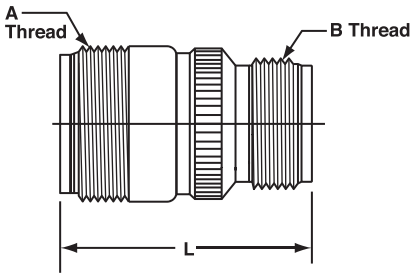


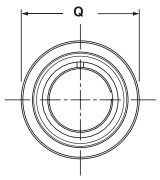
97-3101

SHELL SIZE	97-3100A/97-3102A					A THREAD 2A	97-3102A		97-3100A	97-3101A		97-3100A/97-3101A
	M	P	R	S	T		L	KK	L	S_1	L	B THREAD 2A
8S	0.56 (14.3)	0.078 (2.0)	0.59 (15.1)	0.88 (22.2)	0.120 (3.0)	1/2-28 UNEF	0.859 (21.8)	0.438 (11.1)	1.25 (31.8)	0.88 (22.2)	1.25 (31.8)	.5000-28 UNEF
10S	0.56 (14.3)	0.078 (2.0)	0.72 (18.3)	1.00 (25.4)	0.120 (3.0)	5/8-24 NEF	0.859 (21.8)	0.500 (12.7)	1.313 (33.3)	1.00 (25.4)	1.313 (33.3)	.5000-28 UNEF
10SL	0.56 (14.3)	0.078 (2.0)	0.72 (18.3)	1.00 (25.4)	0.120 (3.0)	5/8-24 NEF	0.953 (24.2)	0.688 (17.5)	1.281 (32.5)	1.00 (25.4)	1.281 (32.5)	.6250-24 UNEF
12S	0.56 (14.3)	0.078 (2.0)	0.81 (20.6)	1.09 (27.8)	0.120 (3.0)	3/4-20 UNEF	0.969 (24.6)	0.688 (17.5)	1.469 (37.3)	1.09 (27.8)	1.469 (37.3)	.6250-24 UNEF
12	0.75 (19.1)	0.078 (2.0)	0.81 (20.6)	1.09 (27.8)	0.120 (3.0)	3/4-20 UNEF	1.328 (33.7)	0.688 (17.5)	1.84 (46.8)	1.09 (27.8)	1.84 (46.8)	.6250-24 UNEF
12SL	0.56 (14.3)	0.078 (2.0)	0.81 (20.6)	1.09 (27.8)	0.120 (3.0)	3/4-20 UNEF	0.844 (21.4)	0.688 (17.5)	- -	1.09 (27.8)	- -	.6250-24 UNEF
14S	0.56 (14.3)	0.078 (2.0)	0.91 (23.0)	1.185 (30.1)	0.120 (3.0)	7/8-20 UNEF	0.953 (24.2)	0.750 (19.1)	1.469 (37.3)	1.16 (29.5)	1.469 (37.3)	.7500-20 UNEF
16S	0.56 (14.3)	0.078 (2.0)	0.97 (24.6)	1.28 (32.5)	0.120 (3.0)	1-20 UNEF	0.953 (24.2)	0.875 (22.2)	1.469 (37.3)	1.28 (32.5)	1.469 (37.3)	.8750-20 UNEF
16	0.75 (19.1)	0.125 (3.2)	0.97 (24.6)	1.28 (32.5)	0.120 (3.0)	1-20 UNEF	1.375 (34.9)	0.875 (22.2)	1.891 (48.0)	1.28 (32.5)	1.891 (48.0)	.8750-20 UNEF
18	0.75 (19.1)	0.125 (3.2)	1.06 (27.0)	1.38 (34.9)	0.120 (3.0)	1 1/8-18 NEF	1.375 (34.9)	1.000 (25.4)	1.984 (50.4)	1.38 (34.9)	1.984 (50.4)	1.0000-20 UNEF
20	0.75 (19.1)	0.125 (3.2)	1.16 (29.4)	1.50 (38.1)	0.120 (3.0)	1 1/4-18 NEF	1.375 (34.9)	1.125 (28.6)	1.891 (48.0)	1.50 (38.1)	1.891 (48.0)	1.1875-18 UNEF
22	0.75 (19.1)	0.125 (3.2)	1.25 (31.8)	1.63 (41.3)	0.120 (3.0)	1 3/8-18 NEF	1.375 (34.9)	1.250 (31.8)	1.984 (50.4)	1.63 (41.3)	1.984 (50.4)	1.1875-18 UNEF
24	0.81 (20.6)	0.125 (3.2)	1.38 (34.9)	1.75 (44.5)	0.147 (3.7)	1 1/2-18 NEF	1.375 (34.9)	1.375 (34.9)	2.25 (57.2)	1.75 (44.5)	2.25 (57.2)	1.4375-18 UNEF
28	0.81 (20.6)	0.125 (3.2)	1.56 (39.7)	2.00 (50.8)	0.147 (3.7)	1 3/4-18 NS	1.375 (34.9)	1.625 (41.3)	2.25 (57.2)	2.00 (50.8)	2.25 (57.2)	1.4375-18 UNEF
32	0.88 (22.2)	0.125 (3.2)	1.75 (44.5)	2.25 (57.2)	0.173 (4.4)	2-18 NS	1.469 (37.3)	1.906 (48.4)	2.375 (60.3)	2.25 (57.2)	2.375 (60.3)	1.7500-18 UNS
36	0.88 (22.2)	0.125 (3.2)	1.94 (49.2)	2.50 (63.5)	0.173 (4.4)	2 1/4-16 UN	1.469 (37.3)	2.125 (54.0)	2.375 (60.3)	2.50 (63.5)	2.375 (60.3)	2.0000-18 UNS

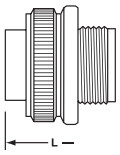
All dimensions in inches (millimeters in parenthesis)

DIMENSIONS

PLUG STYLES (BARREL ASSEMBLIES)



97-3106
97-3107
97-3108



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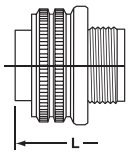
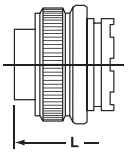
97-3108A



97-3107A



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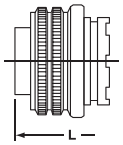
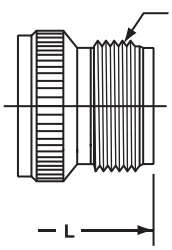


97-3107B

ENDBELL STYLES



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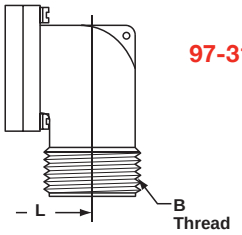

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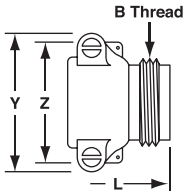

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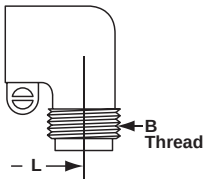

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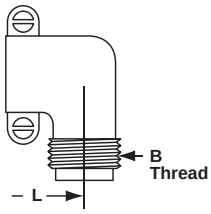


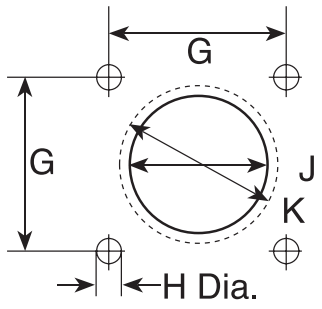
10SL-14S 16S-36

SHELL SIZE	97-3106 97-3107 97-3108 Q	97-3106A 97-3107A L	97-3106B/97-3107B L	97-3106B/97-3107B Y	97-3106B/97-3107B Z	97-3108A L	97-3108B L	B Thread 2A
8S	0.75 (19.1)	1.25 (31.8)	- -	- -	- -	- -	- -	.5000-28 UNEF
10S	0.88 (22.2)	1.31 (33.3)	- -	- -	- -	1.25 (31.8)	1.38 (34.9)	.5000-28 UNEF
10SL	0.88 (22.2)	1.38 (35.1)	- -	- -	- -	1.31 (33.3)	1.50 (38.1)	.6250-24 UNEF
12S	1.00 (25.4)	1.47 (37.3)	- -	- -	- -	1.38 (34.9)	1.56 (39.7)	.6250-24 UNEF
12	1.00 (25.4)	1.84 (46.8)	- -	- -	- -	1.22 (31.0)	1.88 (47.6)	.6250-24 UNEF
12SL	1.00 (25.4)	- -	- -	- -	- -	1.38 (34.9)	- -	.7500-20 UNEF
14S	1.13 (28.6)	1.47 (37.3)	1.69 (42.9)	1.16 (29.4)	1.13 (28.6)	1.22 (31.0)	1.72 (43.7)	.7500-20 UNEF
16S	1.25 (31.8)	1.47 (37.3)	1.69 (42.9)	1.25 (31.8)	1.25 (31.8)	1.50 (38.1)	1.75 (44.5)	.8750-20 UNEF
16	1.25 (31.8)	1.89 (48.0)	- -	- -	- -	1.94 (49.2)	2.13 (54.0)	.8750-20 UNEF
18	1.34 (34.1)	1.98 (50.4)	2.19 (55.6)	1.64 (41.7)	1.34 (34.1)	1.94 (49.2)	2.16 (54.8)	1.0000-20 UNEF
20	1.47 (37.3)	1.89 (48.0)	2.13 (54.0)	1.81 (46.0)	1.47 (37.3)	2.06 (52.4)	2.38 (60.3)	1.1875-18 UNEF
22	1.59 (40.5)	1.98 (50.3)	2.13 (54.0)	1.94 (49.2)	1.59 (40.5)	2.06 (52.4)	2.41 (61.1)	1.1875-18 UNEF
24	1.72 (43.7)	2.25 (57.2)	2.28 (57.9)	2.06 (52.4)	1.72 (43.7)	2.47 (62.7)	2.63 (66.7)	1.4375-18 UNEF
28	1.97 (50.0)	2.25 (57.2)	2.28 (57.9)	2.31 (58.8)	1.97 (50.0)	2.47 (62.7)	2.63 (66.7)	1.4375-18 UNEF
32	2.22 (56.4)	2.38 (60.3)	2.31 (58.8)	2.59 (65.9)	2.22 (56.4)	- -	2.81 (71.4)	1.7500-18 UNS
36	2.47 (62.7)	2.38 (60.3)	2.34 (59.5)	2.84 (72.2)	2.47 (62.7)	- -	2.84 (72.2)	2.0000-18 UNS

All dimensions in inches (millimeters in parenthesis)

DIMENSIONS

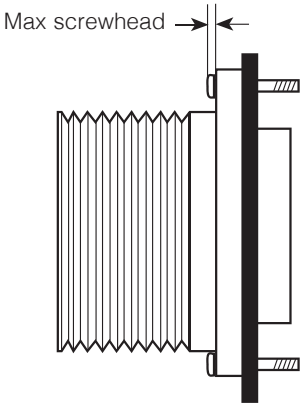
PANEL CUTOUTS



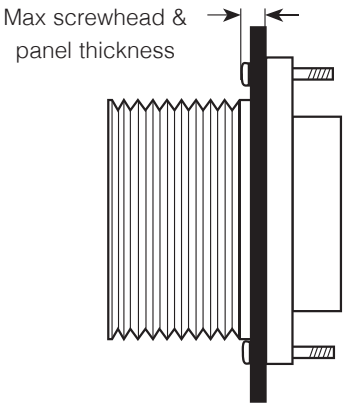
Dimension J is flange in front of panel.
Dimension K is flange at rear of panel.
See sealing screws on page 366.

SHELL SIZE	FLANGE STYLE 0-2-6B			
		MOUNTING HOLE DIAMETER	FRONT MOUNT	REAR MOUNT
	G	H	J	K
8S	0.594 (15.1)	0.134 (3.4)	0.396 (10.1)	0.603 (15.4)
10S/10SL	0.717 (18.2)	0.134 (3.4)	0.646 (16.4)	0.728 (18.5)
12S/12SL/12	0.811 (20.6)	0.134 (3.4)	0.646 (16.4)	0.854 (21.7)
14S	0.906 (23.0)	0.134 (3.4)	0.776 (19.7)	0.980 (24.9)
16S/16	0.969 (24.6)	0.134 (3.4)	0.902 (22.9)	1.091 (27.7)
18	1.063 (27.0)	0.134 (3.4)	1.028 (26.1)	1.224 (31.1)
20	1.157 (29.4)	0.134 (3.4)	1.161 (29.5)	1.358 (34.5)
22	1.252 (31.8)	0.134 (3.4)	1.287 (32.7)	1.488 (37.8)
24	1.374 (34.9)	0.154 (3.9)	1.417 (36.0)	1.626 (41.3)
28	1.563 (39.7)	0.154 (3.9)	1.654 (42.0)	1.854 (47.1)
32	1.752 (44.5)	0.177 (4.5)	1.902 (48.3)	2.118 (53.8)
36	1.937 (49.2)	0.177 (4.5)	2.150 (54.6)	2.362 (60.0)
40	2.185 (55.5)	0.177 (4.5)	2.409 (61.2)	2.610 (66.3)

PANEL THICKNESS



Front Mount

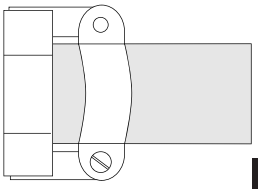


Rear Mount

SHELL SIZE	FRONT MOUNT	REAR MOUNT
8SL	.125 (3.18)	.187 (4.75)
10S		.187 (4.75)
10SL		.187 (4.75)
12S/12SL		.187 (4.75)
12		.125 (3.18)
14S		.187 (4.75)
16S		.187 (4.75)
16		.125 (3.18)
18		.125 (3.18)
20		.125 (3.18)
22		.125 (3.18)
24		.187 (4.75)
28		.187 (4.75)
32		.250 (6.35)
36		.250 (6.35)
40		.250 (6.35)

All dimensions in inches (millimeters in parenthesis)

MS3057-A CABLE CLAMP



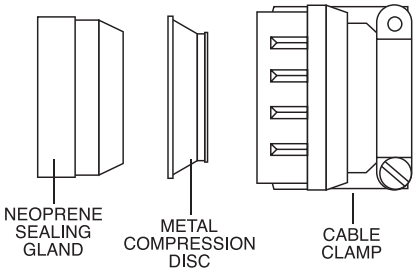
Standard MS3057 cable clamps have dual-clamping action to provide a balanced, positive hold on the wires and greatly reduce moisture transmission. This cable clamp accepts MS3420 bushings. MS3420 bushings can be nested to reduce the inside diameter to more closely match the diameter of the cable or wire bundle.

		STANDARD CLAMP				STANDARD CLAMP AND TELESCOPIC BUSHING		
SHELL SIZE	THREAD CLASS 2B	LOW-COST CAST ZINC	ALUMINUM W/ BRASS SCREWS	ALUMINUM W/ STAINLESS STEEL SCREWS	MAXIMUM CABLE DIAMETER INCH (MM)	LOW-COST ZINC WITH BUSHING	BUSHING INCLUDED	BUSHING ID INCH (MM)
8S/10S	1/2-28UNEF	-	MS3057-3A	M85049/41-3A	0.250 (6.35)	-	MS3420-3	0.130 (3.3)
12/12S/10SL	5/8-24UNEF	97-3057-1004**	MS3057-4A	M85049/41-4A	0.312 (7.92)	97-3057-1004-1	MS3420-4	0.220 (5.6)
12SL/14S	3/4-20UNEF	97-3057-1007**	MS3057-6A	M85049/41-6A	0.438 (11.10)	97-3057-1007-1	MS3420-6	0.312 (7.9)
16/16S	7/8-20UNEF	97-3057-1008**	MS3057-8A	M85049/41-8A	0.562 (14.27)	97-3057-1008-1	MS3420-8	0.437 (11.1)
18	1-20UNEF	97-3057-1010**	MS3057-10A	M85049/41-10A	0.625 (15.88)	97-3057-1010-1	MS3420-10	0.562 (14.3)
20/22	1 3/16-18UNEF	97-3057-1012**	MS3057-12A	M85049/41-12A	0.750 (19.0)	97-3057-1012-1	MS3420-12	0.625 (15.9)
24/28	1 7/16-18UNEF	97-3057-1016**	MS3057-16A	M85049/41-16A	0.938 (23.80)	97-3057-1016-1	MS3420-16, -12	0.625 (15.9)
32	1 3/4-18UNS	97-3057-1020**	MS3057-20A	M85049/41-20A	1.250 (31.75)	97-3057-1020-1	MS3420-20, -16	0.750 (19.0)
36	2-18UNS	97-3057-1024**	MS3057-24A	M85049/41-24A	1.375 (34.92)	97-3057-1024-1	MS3420-24, -20	0.937 (23.8)
40	2 1/4-16UNS	-	MS3057-28A	M85049/41-28A	1.625 (41.28)	-	-	-

Default is CAD OD.

** Other platings are available. See page 13 for alternate platings.

MS3057-C WATERPROOF CABLE CLAMP

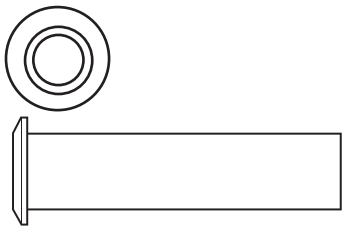


Standard MS3057-C waterproof cable clamp with mechanical strain relief for use with threaded endbells. Internal neoprene gland and compression ring will seal a broad range of round cable diameters as listed below. For reduction of cable diameters, order the appropriate MS3420A bushing in table.

SHELL SIZE	PART NUMBER	WIRE DIAMETER INCHES (MM)		OPTIONAL BUSHINGS	
		MAX.	MIN.	PART NUMBER	MAX. WIRE DIA. (MM)
8S/10S	MS3057-3C	0.219 (5.56)	0.095 (2.41)	MS3420-3A	0.125 (3.17)
10SL/12/12S	MS3057-4C	0.312 (7.93)	0.188 (4.80)	MS3420-4A	0.219 (5.56)
12SL/14S	MS3057-6C	0.438 (11.12)	0.281 (7.10)	MS3420-6A	0.312 (7.93)
				MS3420-4A	0.219 (5.56)
16/16S	MS3057-8C	0.530 (13.48)	0.312 (7.90)	MS3420-8A	0.438 (11.10)
				MS3420-6A	0.312 (7.93)
18	MS3057-10C	0.625 (15.87)	0.375 (9.50)	MS3420-10A	0.438 (11.10)
				MS3420-6A	0.312 (7.93)
20/22	MS3057-12C	0.750 (19.00)	0.500 (12.70)	MS3420-12A	0.540 (13.74)
				MS3420-8A	0.438 (11.10)
24/28	MS3057-16C	0.940 (23.80)	0.625 (15.90)	MS3420-16A	0.750 (19.00)
				MS3420-12A	0.540 (13.74)
				MS3420-8A	0.438 (11.10)
32	MS3057-20C	1.25 (31.75)	0.921 (23.40)	MS3420-20A	0.938 (23.80)
				MS3420-16A	0.750 (19.00)
				MS3420-12A	0.540 (13.74)
36	MS3057-24C	1.38 (35.00)	1.00 (25.40)	MS3420-24A	1.12 (28.50)
				MS3420-18A	0.938 (23.80)
				MS3420-16A	0.750 (19.00)
40	MS3057-28C	1.62 (41.25)	1.25 (31.80)	MS3420-28A	1.25 (31.75)
				MS3420-20A	0.940 (23.80)
				MS3420-16A	0.750 (19.00)

All dimensions in inches (millimeters in parenthesis)

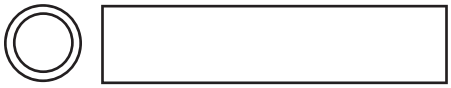
MS3420 TELESCOPING BUSHINGS



For use with style-A cable clamps and AIT/MS style-E/F endbells to resist dust, dirt, and oil. Bushings can be nested, one inside the other, to reduce the inside diameter to better seal against the cable jacket. Each bushing will accept the next smallest bushing.

SHELL SIZE	1ST BUSHING PART NUMBER	INSIDE DIAMETER	2ND NESTED BUSHING	INSIDE DIAMETER	FITS IN CABLE CLAMP
8S/10S	MS3420-3	.130 (3.30)	NONE	-	MS3057-3A
10SL	MS3420-4	.220 (5.59)	NONE	-	MS3057-4A
12/12S	MS3420-4	.220 (5.59)	NONE	-	MS3057-4A
14S	MS3420-6	.312 (7.92)	NONE	-	MS3057-6A
16S	MS3420-8	.437 (11.10)	NONE	-	MS3057-8A
16	MS3420-8	.437 (11.10)	NONE	-	MS3057-8A
18	MS3420-10	.562 (14.30)	NONE	-	MS3057-10A
20	MS3420-12	.625 (15.90)	NONE	-	MS3057-12A
22	MS3420-12	.625 (15.90)	NONE	-	MS3057-12A
24	MS3420-16	.750 (19.05)	MS3420-12	.625 (15.90)	MS3057-16A
28	MS3420-16	.750 (19.05)	MS3420-12	.625 (15.90)	MS3057-16A
32	MS3420-20	.937 (23.80)	MS3420-16	.750 (19.05)	MS3057-20A
36	MS3420-24	1.250 (31.75)	MS3420-20	.937 (23.80)	MS3057-24A
40	MS3420-28	1.375 (34.92)	MS3420-24	1.250 (31.75)	SE96-28A4

MS3420-A REDUCTION BUSHINGS



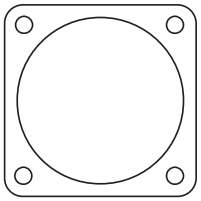
For use with MS3057-C cable clamps (style-C) to reduce the wire sealing diameter. Bushings can be nested, one inside the other, to progressively reduce the inside diameter of the cable clamp. The column labeled “reduction bushings” shows the acceptable nesting options for each clamp. See page 17

9767 CABLE CLAMPS

9767 waterproof cable clamp with mechanical strain relief. An internal neoprene gland seal bushing and compression washer will seal a broad range of round cable diameters as listed below.

SHELL SIZE	CABLE CLAMP PART NUMBER	MAX. CABLE OUTSIDE DIAMETER		MIN. CABLE OUTSIDE DIAMETER		THREAD CLASS 2B UNEF
		INCHES	MM	INCHES	MM	
10SL/12S/12	9767-12-4	0.219	5.55	0.100	2.54	5/8-24
12SL/14S	9767-14-4	0.219	5.55	0.100	2.54	3/4-20
12SL/14S	9767-14-6	0.344	8.73	0.176	4.47	3/4-20
16S/16	9767-16-4	0.219	5.55	0.100	2.54	7/8-20
16S/16	9767-16-6	0.344	8.73	0.176	4.47	7/8-20
16S/16	9767-16-8	0.438	11.12	0.177	4.50	7/8-20
18	9767-18-6	0.344	8.73	0.176	4.47	1-20
18	9767-18-8	0.438	11.12	0.177	4.50	1-20
18	9767-18-10	0.563	14.29	0.292	7.42	1-20
20/22	9767-22-8	0.438	11.12	0.177	4.50	1-3/16-18
20/22	9767-22-10	0.563	14.29	0.292	7.42	1-3/16-18
20/22	9767-22-12	0.688	17.46	0.370	9.40	1-3/16-18
24/28	9767-28-10	0.563	14.29	0.292	7.42	1-7/16-18
24/28	9767-28-12	0.688	17.46	0.370	9.40	1-7/16-18
24/28	9767-28-16	0.844	21.43	0.536	13.61	1-7/16-18
32	9767-32-20	1.031	26.19	0.590	14.99	1-3/4-18UNS
36	9767-36-16	0.844	21.43	0.536	13.61	2-18UNS

GASKETS



Synthetic rubber gaskets are used to ensure a moisture-tight seal between a receptacle and the panel. Gaskets are available for front or rear panel mounting of style 3100 and 3102 connectors. Gasket thickness is approximately .031 inches (1 mm) for nonconductive and low-temperature types.

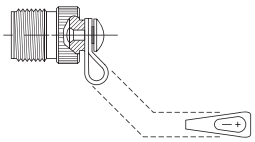
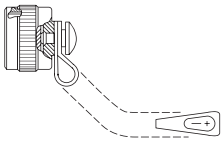
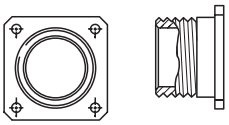
Conductive shielding gaskets contain an imbedded metal screen for EMI/RFI shielding in addition to moisture sealing. Gaskets are available for front or rear panel mounting of connectors. Gasket thickness is .020 inches (.5 mm).

SHELL SIZE	NON-CONDUCTIVE	CONDUCTIVE	LOW-TEMPERATURE -67ºF (-55ºC)
8S	10-040450-008	10-040450-08S	10-036675-008
10S/10SL	10-040450-010	10-040450-10S	10-036675-010
12/12S	10-040450-012	10-040450-12S	10-036675-012
14S	10-040450-014	10-040450-14S	10-036675-014
16S	10-040450-016	10-040450-16S	10-036675-016
16	10-040450-016	10-040450-16S	10-036675-016
18	10-040450-018	10-040450-18S	10-036675-018
20	10-040450-020	10-040450-20S	10-036675-020
22	10-040450-022	10-040450-22S	10-036675-022
24	10-040450-024	10-040450-24S	10-036675-024
28	10-040450-028	10-040450-28S	10-036675-028
32	10-040450-032	10-040450-32S	10-036675-032
36	10-040450-036	10-040450-36S	10-036675-036
40	10-040450-040	10-040450-40S	10-036675-040

METAL DUST CAPS WITH SASH CHAIN & DUMMY RECEPTACLES

Metal dust caps are used to protect the contacts when the connectors are left unmated. Dust caps come with metal chain lanyards.

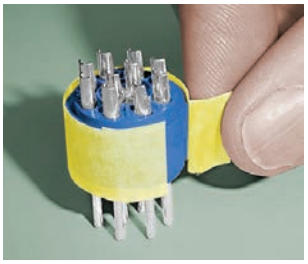
Dummy receptacles are for front or rear panel mounting. The center of the dummy receptacle is closed. Dummy receptacles mount on the same centers and have the same outside dimensions as a 97-3102A receptacle. A version with a clearance hole through the middle of the connector is also available. Call for ordering information.

	DUST CAPS		
	PLUG CAP	RECEPTACLE	DUMMY RECEPTACLES
SHELL SIZE			
8S	MS25042-8*	MS25043-8*	MS3105-8S
10S/10SL	MS25042-10*	MS25043-10*	MS3105-10S
12/12S/12SL	MS25042-12*	MS25043-12*	MS3105-12S
14S	MS25042-14*	MS25043-14*	MS3105-14S
16S	MS25042-16*	MS25043-16*	MS3105-16S
16	MS25042-16*	MS25043-16*	MS3105-16
18	MS25042-18*	MS25043-18*	MS3105-18
20	MS25042-20*	MS25043-20*	MS3105-20
22	MS25042-22*	MS25043-22*	MS3105-22
24	MS25042-24*	MS25043-24*	MS3105-24
28	MS25042-28*	MS25043-28*	MS3105-28
32	MS25042-32*	MS25043-32*	MS3105-32
36	MS25042-36*	MS25043-36*	MS3105-36
40	MS25042-40*	MS25043-40*	MS3105-40

*Contact us for other platings. *D = Olive drab chromate over cadmium DA = Anodized
See contact information below.

ASSEMBLY INSTRUCTIONS

READ THESE INSTRUCTIONS PRIOR TO ASSEMBLY.



STEP 1: Open both shell kit and insert kit.

STEP 2: Remove yellow tape from insert, being careful not to allow front and rear insulators to come apart.

STEP 3: Insert insulator assembly into shell or barrel, aligning the key and keyway until rear of the insert is positioned just below the retaining spring ring ridge.

STEP 4: Insert the retainer spring ring into the ridge by working one end in first, then working around the ring until it snaps into place.

STEP 5: For barrels, add coupling nut to barrel and slide rear accessories on to cable.

STEP 6: Solder wires onto proper contacts.

STEP 7: Thread endbell onto barrel/shell. Slide cable clamp down the cable and thread onto the endbell. Tighten endbell and cable clamp using endbell accessory tools ⇨ See page 114.

STEP 8: Tighten cable clamp screws appropriately for the specific wire/cable in use.

Amphenol AIT/MS Series MIL-DTL-5015

ENVIRONMENTALLY-SEALED FOR CHALLENGING ENVIRONMENTS

The MIL-DTL-5015 AIT/MS series is a cost-effective threaded circular connector for use in harsh environments. These Amphenol connectors are sealed to withstand moisture, condensation, vibration and flash-over. Over 286 contact layouts are available, in variations that allow for just power, just signal, or a mix of both contact types. Available in five mounting styles, nineteen shell sizes, and solder or crimp termination.

- Formerly MIL-C-5015

APPLICATIONS

Military, industrial and commercial environments requiring extreme reliability, high-power handling and cost efficiency.

- Power generators
- Engines
- Sensors
- Motion control
- Off-road vehicles
- Earth-moving equipment
- Ships
- Mobile equipment
- Industrial machinery
- Telecommunications

FEATURES

AGENCY APPROVALS

MIL-DTL-5015 (Formerly MIL-C-5015)

BROAD TEMPERATURE RANGE

These connectors will operate in temperatures ranging from -67°F to +257°F (-55°C to +125°C).

ENVIRONMENTAL

These connectors will perform in the full range of operating conditions as defined in MIL-DTL-5015 and are recommended for conditions where vibration, moisture, pressure and/or temperature are extreme.

RESILIENT INSULATOR AND GROMMET

A resilient neoprene insulator and rear-seal grommet provide a liquid-tight assembly.

RUGGED SHELL

The rugged aluminum alloy shell and hardware are light in weight yet highly resistant to damage and corrosion. Shells are available in five different styles and in 19 sizes.

WIDE RANGE OF WIRE GAUGES AND CURRENT CARRYING CAPACITY

Up to 150 amps for standard military contacts and up to 255 amps using Radsok® contacts. Wire gauges from 24 to size 0 AWG.

WIDE VARIETY OF CONTACTS

Machined contacts with silver or gold plating are available in sizes from 16 through 0. Solder, Crimp, PC, and thermocouple contacts are available.

TECHNICAL SPECIFICATIONS

MATERIALS & FINISHES

Shell	Aluminum alloy
Plating	Olive drab chromate coating over cadmium plating to QQ-P-416; black alloy, electroless nickel, anodized or green zinc
Contacts	Brass or copper alloy
Platings	Silver plating to QQ-S-365 (solder contacts have tinned solder pot) Gold plating to MIL-G-45204
Insulator	Resilient Neoprene®, Viton®*, low-smoke, zero-halogen (LSZH)

ELECTRICAL DATA

Operating Voltage/Test Voltage

	NOMINAL DISTANCE (IN.)		OPERATING VOLTAGE*		STANDARD SEA LEVEL CONDITIONS		PRESSURE ALTITUDE† 50,000 FEET		PRESSURE ALTITUDE† 70,000 FEET	
MS SERVICE RATING	AIRSPACE	CREEPAGE	DC V	AC VRMS	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)
I	1/32	1/16	250	200	1,400	1,000	550	400	325	260
A	1/16	1/8	700	500	2,800	2,000	800	600	450	360
D	1/8	3/16	1,250	900	3,600	2,800	900	675	500	400
E	3/16	1/4	1,750	1,250	4,500	3,500	1,000	750	550	440
B	1/4	5/16	2,450	1,750	5,700	4,500	1,100	825	600	480
C	5/16	1	4,200	3,000	8,500	7,000	1,300	975	700	560

* Each insulator has a specific service rating. These should be used by the designer only as a guide. The Service Ratings for each layout are listed on pages 64-85.

† Not corrected for change in density resulting from variations in temperature

MS connectors show no evidence of breakdown when the given test voltages are applied between the two closest contacts and between the shell and the contacts closest to the shell for a period of one minute, per MIL-STD-1344 Method 3001.

Current Rating & Contact Resistance

CONTACT SIZE	TEST CURRENT (AMPS)	POTENTIAL DROP (MILLIVOLTS)	CONTACT RESISTANCE (MILLIOHM) MAX.
16	13	49	6
12	23 (50*)	42	3
8	46 (69*)	26 (20*)	1 (0.44*)
4	80 (80*)	23 (18*)	0.5 (0.23*)
0	150 (225*)	21 (27*)	0.2 (0.18*)

*Using non-military crimp Radsok contact

Maximum total current to be carried per connector in wire bundles as specified in MIL-W-5088.
Contact resistance when tested to MIL-C-39029 will not exceed voltage drops listed in above table.

Viton® is a registered trademark of Dupont Dow Elastomers

MECHANICAL

Wire Range Sizes	24 to 0 AWG (⇨ crimp contacts on pages 26-27)
Insulation Resistance	>5000 megohms at 77°F (25°C) per MIL-DTL-5015, 3.18

Wire Sealing Range

CONTACT SIZE	WIRE SIZE (MIL-W-5086)	INSULATION OUTSIDE DIAMETER LIMIT			
		MIN.		MAX.	
		IN.	MM.	IN.	MM.
16	16 thru 20	.064	1.63	.130	3.30
12	12 thru 14	.114	2.90	.170	4.32
8	8 thru 10	.164	4.17	.255	6.48
4	4 thru 6	.275	6.98	.370	9.40
0	0 thru 2	.415	10.54	.550	13.97

The connector is designed for individual wire sealing. Sealing of an outer cable jacket on multiconductor cables must be accomplished with an appropriate endbell. Sealing is only guaranteed if wires according to MIL-W-5086 or within the listed ranges are used.

Insulation Strip Lengths	(⇨ see page 26)
Mating Life	100 cycles minimum, to MIL-DTL-5015, 3.16
Salt Spray	MIL-STD-1344 Method 1001 condition B minimum (cadmium), 48 hour, olive drab chromate over cadmium, non-conductive black alloy, conductive black alloy, green zinc, black anodized, electroless nickel
Heat	+257˚F (+125˚C) for 60 hours, +185˚F (+85˚C) for 1,000 hours per MIL-DTL-5015, 4.6.14, minimum
Chemical Resistance	20-hour full-immersion unmated in hydraulic fluid and lubricating oil per MIL-DTL-5015 minimum
Vibration	10 to 2,000Hz (10g's) 10 microseconds maximum discontinuity to MIL-STD-1344 Method 2005, condition II per MIL-DTL-5015
Shock	50g 11 millisecond duration, three major axes. 10 microseconds maximum discontinuity to MIL-DTL-5015 per MIL-STD-1344 method 2004, condition A, 3.13
Contact Type	Solder, crimp, PC, or thermocouple (hard silver or gold plating)
Number of Circuits	1 to 85 (⇨ See pages 64-85)
Contact Insertion	Insertion from rear with simple hand tool. Removable, five cycles minimum. (Solder, PC and coax outer housings are bonded into the insulator.)
Contact Retention	To MIL-DTL-5015, 4.6.6 & 3.26 and separation forces

CONTACT SIZE	AXIAL LOAD		SEPARATION FORCE MINIMUM	
	NEWTONS	LBS.	NEWTONS	LBS.
16	44	10	1	0.25
12	67	15	2	0.50
8	89	20	3	0.75
4	89	20	4	1.00
0	111	25	9	2.00

Polarization	Integral key and keyway plus optional rotational polarization. ⇨ See pages 75-85 for valid rotations.
Approvals	MIL-DTL-5015

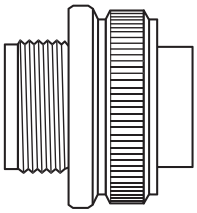
CREATE YOUR PART NUMBER USING THESE EIGHT STEPS

STEP	1	2	3	4	5	6	7	8
AIT	6	A	A	24-21	S		S	-472
SERIES PREFIX	SHELL STYLE	ENDBELLS (If omtting endbell, enter -)	CABLE CLAMP/BOOT (leave blank if not needed)	LAYOUT	CONTACT	ROTATION	CONTACT TYPE	PLATING

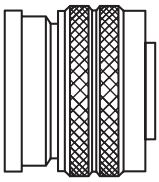
(example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

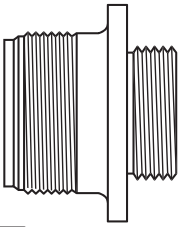
PLUGS ← Mates with → **RECEPTACLES**



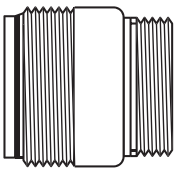
6 Standard (MS3106)



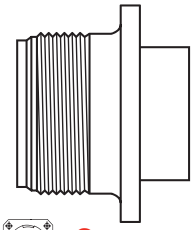
6B Box Mount



0 Wall Mount with Accessory Threads (MS3100)



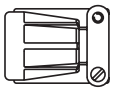
1 Cable Mount with Accessory Threads (MS3101)



2 Box Mount No Accessory Threads (MS3102)

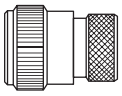
STEP 2: SELECT ENDBELL

TIP: Order connector, backshell and all accessories as one part number! See www.peigenesis.com/en/solution-guides.html

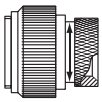


E MS Style (E/F) Standard Clamp

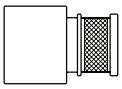
RV No Clamp



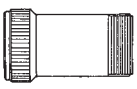
G Heat Shrink



G2 Spin Coupling Heat Shrink



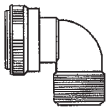
U Low Cost Shielded/Unshielded



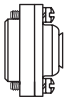
L Long Extender

A Unsealed *(no grommet seal)*

F Sealed *(with grommet seal)*



T MS Style (MS3108) 90°



R MS Style Low Profile

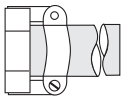
P Potting *Potting Compound

⇨ See Page 358

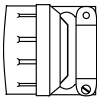
STEP 3: SELECT CABLE CLAMP OR BOOT (IF APPLICABLE)

Heat Shrink Boot

⇨ See pages 367-368

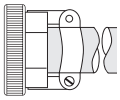


A MS3057-A Standard Cable Clamp



C MS3057-C Gland Seal

⇨ See Page 37



9767 9767 Gland Seal for Smaller Cable Range

⇨ See Page 38

STEP 4: SELECT LAYOUT

See pages 64-85

STEP 5: SELECT CONTACT

P = Pin **S** = Socket

STEP 6: SELECT ROTATION

See pages 75-85 (Omit for normal)

W, X, Y, Z

STEP 7: SELECT CONTACT TPYE

S = Solder **C** = Crimp*
H = PC** **0** = Less Contacts

* When using a "C" in part number, the connector is supplied with the standard size crimp contacts for its layout. Bolded part numbers on page 26 indicate crimp contact. Please contact us for connectors with reduced or enlarged crimp barrel contacts.
** See page 32 for post diameters and lengths.

STEP 8: SELECT PLATING

CONTACTS
(Omit for silver contacts)

B30 = Gold 50µ Gold over Nickel
T = Thermocouple *(solder only)*
Need types with cavities and installed and uninstalled
RDS = RADSOK (Crimp socket only) sizes 12,8,4,0
116 = Less pre-tinned solder cups

SHELL PLATING
(Omit for olive drab chromate over cadmium)
(MS style)

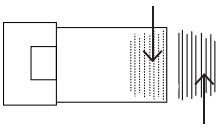
023 = Electroless Nickel
(RoHS with crimp or 116 contacts)
024 = Green Zinc Cobalt
025 = Black Zinc Cobalt
(RoHS with crimp or 116 contacts)
027 = Conductive Black Zinc Cobalt
(RoHS with crimp or 116 contacts)
G96 = Black Anodized
472 = 116&025 mod codes *(RoHS)*
548 = 116&023 mod codes *(RoHS)*
553 = 116&027 mod codes *(RoHS)*

MATERIALS
(Omit for standard neoprene)

L = Low-smoke, zero-halogen
V = High-temperature Viton®

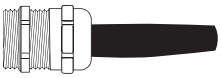
STANDARD SPECIALS — CONTACT US WITH NPT THREAD SIZE, SEAL TITE CONDUIT DIAMETER, OR CABLE OUTSIDE DIAMETER.

INTERNAL THREAD VERSION

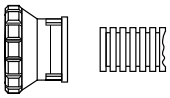


EXTERNAL THREAD VERSION

LOW COST GLAND SEAL

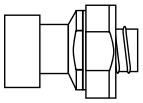


CONDUIT PLASTIC

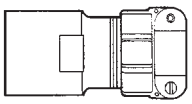


See pages 371-372

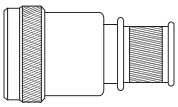
CONDUIT METAL



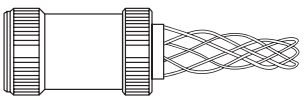
GLAND SEAL



SHIELDED CABLE

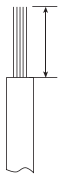


MESH GRIP



NEED HELP? PEI engineers will help you solve your design challenges and build the perfect part for your application. Email us at sales@peigenesis.com or complete our online Technical Request at www.peigenesis.com/technical-support. To contact us by phone, please see the back cover for a complete listing of our branch offices and contact numbers.

PIN & SOCKET CRIMP CONTACTS

PIN CONTACT	SOCKET CONTACT	WIRE STRIP LENGTH	WIRE RANGE
			

CONTACT SIZE	WIRE SIZE AWG	PART NUMBER					WIRE STRIP LENGTHS INCHES (MM)	WIRE SEALING RANGE INCHES (MM)
		PIN CONTACT		SOCKET CONTACT				
		SILVER	GOLD	SILVER	GOLD			
16S†	16-18-20	**AIC16S-16P***	**AIC16S-16PG***	**AIC16S-16S***	**AIC16S-16SG***		0.312 (7.9)	.090-.118 (2.3-3.0)
	12-14	AIC16S-12P	AIC16S-12PG	AIC16S-12S	AIC16S-12SG	C4		
	14-16	AIC16S-14P	AIC16S-14PG	AIC16S-14S	AIC16S-14SG	C3		
	18-20	AIC16S-20P	AIC16S-20PG	AIC16S-20S	AIC16S-20SG	C13		
	20-22	AIC16S-22P	AIC16S-22PG	AIC16S-22S	AIC16S-22SG	C14		
	22-24	AIC16S-24P	AIC16S-24PG	AIC16S-24S	AIC16S-24SG	C2		
16	16-18-20	**AIC16-16P***	**AIC16-16PG***	**AIC16-16S***	**AIC16-16SG***			
	12-14	AIC16-12P	AIC16-12PG	AIC16-12S	AIC16-12SG	C4		
	14-16	AIC16-14P	AIC16-14PG	AIC16-14S	AIC16-14SG	C3		
	18-20	AIC16-18P	AIC16-18PG	AIC16-18S	AIC16-18SG	C13		
	20-22	AIC16-20P	AIC16-20PG	AIC16-20S	AIC16-20SG	C14		
	20-24	AIC16-2024P	AIC16-2024PG	AIC16-2024S	AIC16-2024SG	C36		
	22-24	AIC16-22P	AIC16-22PG	AIC16-22S	AIC16-22SG	C2		
12	12-14	**AIC12-12P***	**AIC12-12PG***	**AIC12-12S***	**AIC12-12SG***		0.312 (7.9)	.126-.177 (3.2-4.5)
	12 High-Power	-	-	AIC12-12SRAD	-			
	8-10	AIC12-8P	AIC12-8PG	AIC12-8S	AIC12-8SG	C5		
	10-12	AIC12-10P	AIC12-10PG	AIC12-10S	AIC12-10SG	C8		
	14-16	AIC12-14P	AIC12-14PG	AIC12-14S	AIC12-14SG	C9		
	16-18	AIC12-16P	AIC12-16PG	AIC12-16S	AIC12-16SG	C7		
	18-20	AIC12-18P	AIC12-18PG	AIC12-18S	AIC12-18SG	C6		
	20-22	AIC12-20P	AIC12-20PG	AIC12-20S	AIC12-20SG	C40		
8	8	**AIC8-8P***	**AIC8-8PG***	**AIC8-8S***	**AIC8-8SG***		0.563 (14.3)	.150-.256 (3.8-6.5)
	8 High-Power	-	-	AIC8-8SRAD	-			
	10-12	AIC8-10P	AIC8-10PG	AIC8-10S	AIC8-10SG	C10		
	12-14	AIC8-12P	AIC8-12PG	AIC8-12S	AIC8-12SG	C38		
4	4	**AIC4-4P***	**AIC4-4PG***	**AIC4-4S***	**AIC4-4SG***		0.500 (12.7)	.279-.366 (7.1-9.3)
	4 High-Power	-	-	AIC4-4SRAD	-			
	8	AIC4-8P	AIC4-8PG	AIC4-8S	AIC4-8SG	C15		
0	0	**AIC0-0P***	**AIC0-0PG***	**AIC0-0S***	**AIC0-0SG***		0.750 (19.0)	.394-.539 (10.0-13.7)
	0 High-Power	-	-	AIC0-0SRAD	-			
	0-2	AIC0-2P	AIC0-2PG	AIC0-2S	AIC0-2SG	C11		
	4	AIC0-4P	AIC0-4PG	AIC0-4S	AIC0-4SG	C12		

***Bolded items are standard crimp contacts.**

SOLDER THERMOCOUPLE CONTACTS

	TYPE	PINS	SOCKETS
16S†	Alumel	10-040799-02P*	10-040799-02S*
	Chromel	10-040799-01P*	10-040799-01S*
	Iron	10-040799-03P*	10-040799-03S*
	Constantan	10-040799-04P*	10-040799-04S*
16	Alumel	10-040799-12P*	10-040799-12S*
	Chromel	10-040799-11P*	10-040799-11S*
	Iron	10-040799-13P*	10-040799-13S*
	Constantan	10-040799-14P*	10-040799-14S*

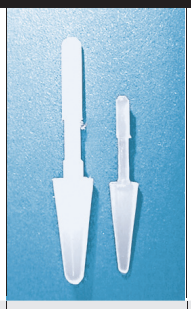
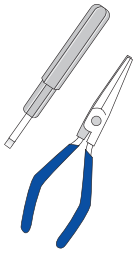
SOLDER THERMOCOUPLE CONTACTS

	TYPE	PINS	SOCKETS
12	Alumel	10-040799-42P*	10-040799-42S*
	Chromel	10-040799-41P*	10-040799-41S*
	Iron	10-040799-43P*	10-040799-43S*
	Constantan	10-040799-44P*	10-040799-44S*

Thermocouple Types: **J** = Iron-Constantan **K** = Alumel-Chromel **T** = Copper-Constantan **E** = Chromel-Constantan

*Contact us for availability. Contact information is below.

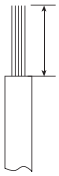
† 16S contacts are used in 8S, 10S, 10SL, 12S, 14S & 16S connector sizes only.

ACCESSORIES	TOOLS						
Insert head first. Trim excess	AF8 WA27F 400BHD TH29-1 Die set, locator and Go-No-Go gauge						
CONTACT SIZE	WIRE HOLE FILLER COLOR	CRIMP TOOLS	CRIMP LOCATOR & DIE SETS	LOCATOR COLOR	PILOT PIN/INSERTION GUIDE FOR SOCKETS	INSERTION TOOL	EXTRACTION TOOL
16S†	Blue MS27488-16-3	AF8-(hand) WA27F-(pneumatic) ††	TH29-1	Red	10-242758-016	DAK168-16	DRK59 Kit with Multiple Tips
16				Pin-Blue Socket-Green			
12	Yellow MS27488-12-3			Green	10-242758-012	DAK168-12	
8	Red MS27488-8-3	400BHD	**Die Set** 414DA-8N **Locator** 4025-Pin 4026-Socket	-	10-242758-008	DAK282	
4	Blue MS27488-4-3		**Die Set** 414DA-4N **Locator** 4043-2	-	-	AIC4INS	AIC4EXT
0	Yellow MS27488-0-3		**Die Set** 414DA-0N **Locator** 4042	-	-	AIC0INS	AIC0EXT

†† Contact us for additional tool accessories. Contact information is below.

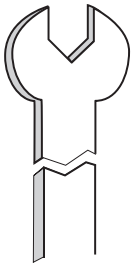
All dimensions in inches (millimeters in parenthesis)

PIN & SOCKET COAX CONTACTS

	PIN CONTACT	SOCKET CONTACT	WIRE STRIP LENGTH	WIRE RANGE	ACCESS-ORIES
					Insert head first. Trim excess.

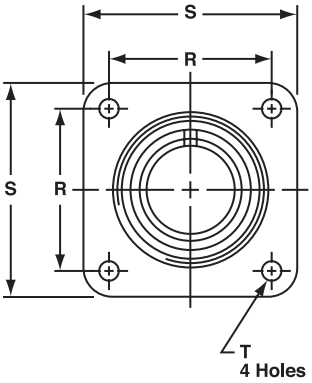
COAX CONTACT SIZE	COAX WIRE SIZE	PART NUMBER				WIRE STRIP LENGTHS INCHES (mm)	WIRE SEALING RANGE INCHES (mm)		WIRE HOLE FILLER
		PINS		SOCKETS					
		SILVER	GOLD	SILVER	GOLD		MIN.	MAX.	
12	RG161/U RG174A/U RG179B/U RG187A/U RG188A/U RG316/U	21-33034-1	21-33014-21 21-33048-1() 21-33130-1()	21-33033-1	21-33013-21 21-33047-1() 21-33129-1 ()	Contact us for details.	0.126 (3.2 mm)	0.177 (4.5 mm)	Yellow 10-405996-12
	RG178B/U RG196A/U	-	21-33014-22	-	21-33013-22				
8	RG58C/U RG141A/U RG303/U	21-33034-2(1)	21-33014-1(5) 21-33016-5(3) 21-33130-2()	21-33033-2(1) 21-33048-2()	21-33013-1(5) 21-33047-2() 21-33015-5(3) 21-33129-2()	Contact us for details.	0.150 (3.8 mm)	0.256 (6.5 mm)	White 10-405996-8
	RG59B/U RG62A/U RG62B/U RG210/U	31-33034-5(1)	21-33014-5(5) 21-33016-2(3) 21-33130-5() 21-33064-21()	21-33033-3(1)	21-33013-5(5) 21-33015-2(3) 21-33129-3() 21-33063-21()				
	RG161/U RG174A/U RG179B/U RG187A/U RG188A/U RG316/U	21-33034-3(1)	21-33014-3(5) 21-33016-1(3) 21-33130-3 () 21-33064-20()	21-33033-3(1)	21-33013-3(5) 21-33015-1(3) 21-33129-3() 21-33063-20()				
	RG180B/U RG195A/U	21-33034-6	21-33014-6(5) 21-33048-3() 21-33130-6()	21-33033-6	21-33013-(6) 21-33047-3() 21-33129-6()				
	RG140/U RG302/U	21-33034-8	21-33014-8(5) 21-33033-8 21-33130-8()	-	21-33013-8(5) 21-33129-8()				
	RG55B/U RG142A/U RG142B/U RG223/U	21-33034-4	21-33014-5(5) 21-33130-4()	21-33033-4	21-33013-5(5) 21-33129-4()				
4	RG59B/U RG62A/U RG62B/U RG210/U		21-33060-10()		21-33059-10()	Contact us for details.	0.279 (7.1 mm)	0.366 (9.3 mm)	Blue 10-405996-4
	RG212/U	-	21-33060-11()	-	21-33059-11()				
	RG55B/U RG142A/U RG142B/U RG223/U		31-33060-12()		21-33059-12()				

( ) Various platings available. Availability of coax contacts varies widely. Contact us for details. Contact information is below.
All dimensions in inches (millimeters in parenthesis)

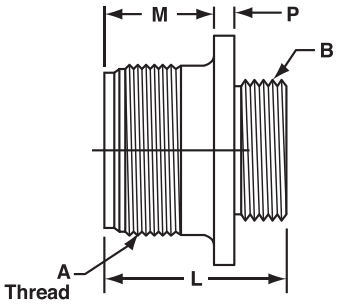
		TOOLS			
		M22520/10-01	**M22520/5-01**	**Crimp Dies**	
COAX CONTACT SIZE	COAX WIRE SIZE	HAND CRIMP TOOL	HAND CRIMP TOOL	USE LOCATOR	COAX CLAMP NUT WRENCH
12	RG161/U RG174A/U RG179B/U RG187A/U RG188A/U RG316/U	M22520/10-01	M22520/10-05	A	11-8676-1
	RG178B/U RG196A/U			B	
8	RG58C/U RG141A/U RG303/U	M22520/10-01	M22520/10-07	B	11-8676-2
	RG59B/U RG62A/U RG62B/U RG210/U	M22520/5-01	M22520/5-45	B	11-8676-3
	RG161/U RG174A/U RG179B/U RG187A/U RG188A/U RG316/U	M22520/10-01	M22520/10-05	A	11-8676-2
	RG180B/U RG195A/U		M22520/10-07	B	
	RG140/U RG302/U			A	
	RG55B/U RG142A/U RG142B/U RG223/U				
4	RG59B/U RG62A/U RG62B/U RG210/U	M22520/5-01	M22520/5-45	B	-
	RG212/U	M22520/5-01	M22520/5-34	A	11-8676-4
	RG55B/U RG142A/U RG142B/U RG223/U	M22520/10-01	M22520/10-07	A	-

All dimensions in inches (millimeters in parenthesis)

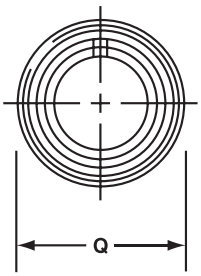
RECEPTACLE STYLES



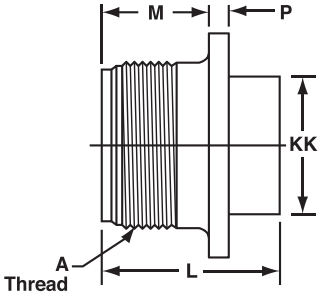
AIT0-MS3100
AIT2-MS3102



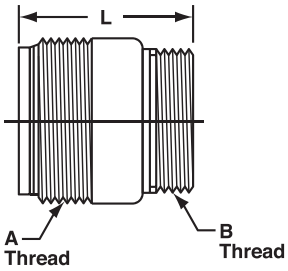
AIT0-MS3100



AIT1-MS3101



AIT2-MS3102

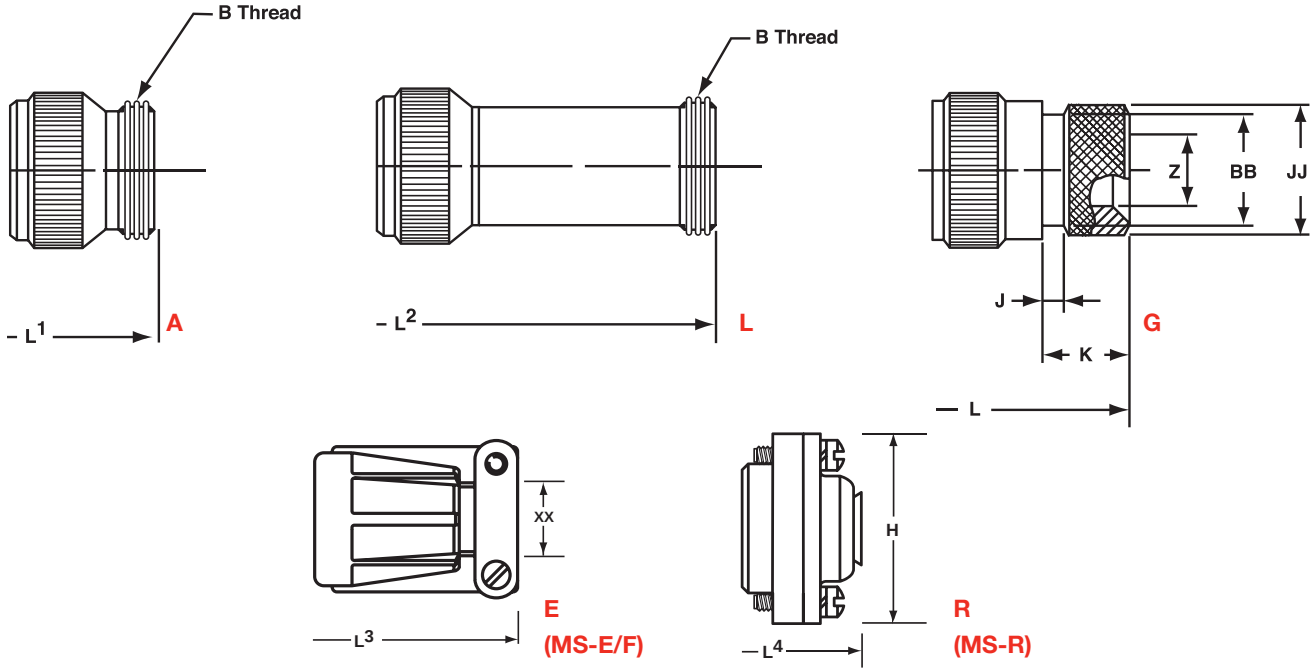


AIT1-MS3101

		AIT0-MS3100/AIT2-MS3102					AIT2-MS3102		AIT0/AIT1	AIT1	AIT0/AIT1
SHELL SIZE	A THREAD CLASS 2A	M +.010 -.000	P REF.	R +/-.005	S +/-.031	T DIA. +.004 -.002	L REF LENGTH	KK DIA. +.010 -.000	LENGTH 3100 3101	Q DIA.	B THREAD CLASS 2A
8S	.5000-28UNEF	0.562 (14.3)	0.110 (2.8)	0.594 (15.1)	0.875 (22.2)	0.120 (3.0)	0.969 (24.6)	0.375 (9.5)	1.087 (27.6)	0.532 (13.5)	.5000-28UNEF
10S	.6250-24NEF	0.562 (14.3)	0.110 (2.8)	0.719 (18.3)	1.000 (25.4)	0.120 (3.0)	0.969 (24.6)	0.500 (12.7)	1.087 (27.6)	0.628 (16.0)	.5000-28UNEF
10SL	.6250-24NEF	0.562 (14.3)	0.110 (2.8)	0.719 (18.3)	1.000 (25.4)	0.120 (3.0)	0.969 (24.6)	0.625 (15.9)	1.087 (27.6)	0.755 (19.2)	.6250-24UNEF
12S	.7500-20UNEF	0.562 (14.3)	0.110 (2.8)	0.812 (20.6)	1.094 (27.8)	0.120 (3.0)	0.969 (24.6)	0.625 (15.9)	1.087 (27.6)	0.755 (19.2)	.6250-24UNEF
12	.7500-20UNEF	0.750 (19.1)	0.110 (2.8)	0.812 (20.6)	1.094 (27.8)	0.120 (3.0)	1.344 (34.1)	0.625 (15.9)	1.334 (33.9)	0.755 (19.2)	.6250-24UNEF
14S	.8750-20UNEF	0.562 (14.3)	0.110 (2.8)	0.906 (23.0)	1.188 (30.2)	0.120 (3.0)	0.969 (24.6)	0.750 (19.1)	1.087 (27.6)	0.882 (22.4)	.7500-20UNEF
14	.8750-20UNEF	0.750 (19.1)	0.110 (2.8)	0.906 (23.0)	1.188 (30.2)	0.120 (3.0)	1.344 (34.1)	0.750 (19.1)	1.334 (33.9)	0.882 (22.4)	.7500-20UNEF
16S	1.0000-20UNEF	0.562 (14.3)	0.110 (2.8)	0.969 (24.6)	1.281 (32.5)	0.120 (3.0)	0.969 (24.6)	0.875 (22.2)	1.087 (27.6)	1.010 (25.7)	.8750-20UNEF
16	1.0000-20UNEF	0.750 (19.1)	0.110 (2.8)	0.969 (24.6)	1.281 (32.5)	0.120 (3.0)	1.344 (34.1)	0.875 (22.2)	1.334 (33.9)	1.010 (25.7)	.8750-20UNEF
18	1.1250-18NEF	0.750 (19.1)	0.141 (3.6)	1.062 (27.0)	1.375 (34.9)	0.120 (3.0)	1.344 (34.1)	1.000 (25.4)	1.334 (33.9)	1.137 (28.9)	1.0000-20UNEF
20	1.2500-18NEF	0.750 (19.1)	0.141 (3.6)	1.156 (29.4)	1.500 (38.1)	0.120 (3.0)	1.344 (34.1)	1.125 (28.6)	1.334 (33.9)	1.264 (32.1)	1.1250-18UNEF
22	1.3750-18NEF	0.750 (19.1)	0.141 (3.6)	1.250 (31.8)	1.625 (41.3)	0.120 (3.0)	1.344 (34.1)	1.250 (31.8)	1.334 (33.9)	1.392 (35.4)	1.2500-18UNEF
24	1.5000-18NEF	0.812 (20.6)	0.141 (3.6)	1.375 (34.9)	1.750 (44.5)	0.147 (3.7)	1.406 (35.7)	1.375 (34.9)	1.406 (35.7)	1.519 (38.6)	1.3750-18UNEF
28	1.7500-18NS	0.812 (20.6)	0.141 (3.6)	1.562 (39.7)	2.000 (50.8)	0.147 (3.7)	1.406 (35.7)	1.625 (41.3)	1.406 (35.7)	1.774 (45.1)	1.6250-18UNEF
32	2.0000-18NS	0.875 (22.2)	0.156 (4.0)	1.750 (44.5)	2.250 (57.2)	0.173 (4.4)	1.469 (37.3)	1.875 (47.6)	1.469 (37.3)	1.996 (50.7)	1.8750-16UN
36	2.2500-16UN	0.875 (22.2)	0.156 (4.0)	1.938 (49.2)	2.500 (63.5)	0.173 (4.4)	1.469 (37.3)	2.062 (52.4)	1.469 (37.3)	2.251 (57.2)	2.0625-16UN
40	2.5000-16UN	0.875 (22.2)	0.156 (4.0)	2.188 (55.6)	2.750 (69.9)	0.173 (4.4)	1.469 (37.3)	2.312 (58.7)	1.469 (37.3)	2.506 (63.7)	2.3125-16UN

All dimensions in inches (millimeters in parenthesis)

ENDBELL STYLES

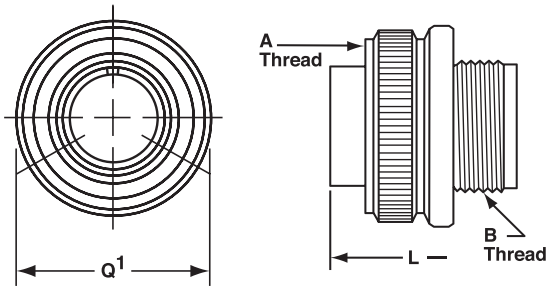


SHELL SIZE	AIT0-MS3100/AIT1-MS3101							AIT0/AIT1 G					
	A & L ENDBELL			E ENDBELL		R ENDBELL							
	L1	L2 MAX.	B THREAD CLASS 2A	L	XX CABLE MIN.	L	H DIA MAX.	L MAX.	J ± .008 (±0.2)	K ± .020 (+0.5)	Z MIN.	BB MAX.	JJ +.008 (+.02)
8S	1.390	3.20	.5000-28UNEF	-	-	1.588	0.959	-	-	-	-	-	-
	(35.3)	(81.20)		-	-	(40.3)	(24.4)	-	-	-	-	-	-
10S	1.468	3.20	.5000-28UNEF	-	-	1.588	1.026	-	-	-	-	-	-
	(37.3)	(81.20)		-	-	(40.3)	(26.1)	-	-	-	-	-	-
10SL	1.468	3.23	.6250-24NEF	2.129	0.281	1.588	1.120	1.969	0.138	0.461	0.303	0.524	0.610
	(37.3)	(93.6)		(54.1)	(7.1)	(40.3)	(28.4)	(50.0)	(3.5)	(11.7)	(7.7)	(13.3)	(15.5)
12S	1.468	3.58	.6250-24NEF	2.129	0.281	1.588	1.120	-	-	-	-	-	-
	(37.3)	-		(54.1)	(7.1)	(40.3)	(28.4)	-	-	-	-	-	-
12	1.843	3.66	.6250-24NEF	2.129	0.281	1.931	1.120	-	-	-	-	-	-
	(46.8)	-		(54.1)	(7.1)	(49.0)	(28.4)	-	-	-	-	-	-
14S	1.468	3.23	.7500-20UNEF	2.201	0.406	1.588	1.307	1.969	0.138	0.461	0.417	0.669	0.752
	(37.3)	(82.09)		(55.9)	(10.3)	(40.3)	(33.2)	(50.0)	(3.5)	(11.7)	(10.6)	(17.0)	(19.1)
14	1.843	3.64	.7500-20UNEF	2.524	0.406	1.931	1.307	-	-	-	-	-	-
	(46.8)	-		(62.1)	(10.3)	(49.0)	(33.2)	-	-	-	-	-	-
16S	1.468	3.23	.8750-20UNEF	2.201	0.500	1.588	1.432	1.969	0.138	0.461	0.531	0.862	0.941
	(37.3)	(82.09)		(55.9)	(12.7)	(40.3)	(36.4)	(50.0)	(3.5)	(11.7)	(13.5)	(21.9)	(23.9)
16	1.843	3.58	.8750-20UNEF	2.524	0.500	1.931	1.432	2.362	0.138	0.453	0.531	0.862	0.941
	(46.8)	(91.03)		(62.1)	(12.7)	(49.0)	(36.4)	(60.0)	(3.5)	(11.5)	(13.5)	(21.9)	(23.9)
18	1.938	3.66	1.000-20UNEF	2.596	0.531	1.931	1.557	2.362	0.138	0.453	0.575	0.862	0.941
	(49.2)	(92.94)		(65.9)	(13.5)	(49.0)	(39.5)	(60.0)	(3.5)	(11.5)	(14.5)	(21.9)	(23.9)
20	1.844	3.64	1.1875-18NEF	2.654	0.656	1.931	1.744	2.559	0.138	0.500	0.736	1.031	1.165
	(46.8)	(92.56)		(67.4)	(16.7)	(49.0)	(44.3)	(65.0)	(3.5)	(12.7)	(18.7)	(26.2)	(29.6)
22	1.938	3.65	1.1875-18NEF	2.654	0.740	1.931	1.869	2.559	0.138	0.500	0.819	1.031	1.165
	(49.2)	(92.68)		(67.4)	(18.8)	(49.0)	(47.5)	(65.0)	(3.5)	(12.7)	(20.8)	(26.2)	(29.6)
24	1.969	3.73	1.4375-18NEF	2.885	0.781	2.009	1.994	2.559	0.138	0.500	0.969	1.358	1.488
	(50.0)	(94.64)		(73.3)	(19.8)	(51.0)	(50.6)	(65.0)	(3.5)	(12.7)	(24.6)	(34.5)	(37.8)
28	2.188	3.90	1.4375-18NEF	2.885	0.922	2.009	2.166	2.559	0.138	0.500	1.063	1.358	1.488
	(55.6)	(98.96)		(73.3)	(23.4)	(51.0)	(55.0)	(65.0)	(3.5)	(12.7)	(27.0)	(34.5)	(37.8)
32	2.157	4.10	1.7500-18NS	2.943	1.156	2.072	2.541	2.756	0.138	0.598	1.311	1.717	1.882
	(54.8)	(104.24)		(74.8)	(29.4)	(52.6)	(64.5)	(70.0)	(3.5)	(15.2)	(33.3)	(43.6)	(47.8)
36	2.219	4.15	2.0000-18NS	2.943	1.250	2.072	2.729	3.150	0.138	0.598	1.516	1.717	1.882
	(56.4)	(105.38)		(74.8)	(31.8)	(52.6)	(69.3)	(80.0)	(3.5)	(15.2)	(38.5)	(43.6)	(47.8)
40	2.188	4.15	2.2500-16UN	3.068	1.562	2.072	2.979	3.150	0.138	0.610	1.898	2.070	2.276
	(55.6)	(105.38)		(77.9)	(39.7)	(52.6)	(75.7)	(80.0)	(3.5)	(15.5)	(48.2)	(52.6)	(57.8)

All dimensions in inches (millimeters in parenthesis)

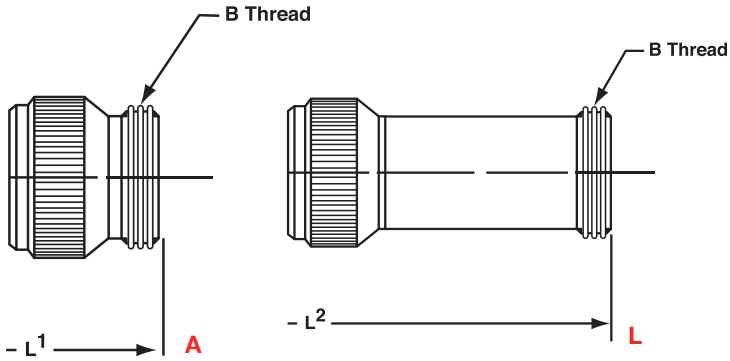
DIMENSIONS

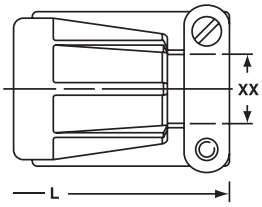
STYLE 6 PLUGS (BARREL ASSEMBLY)



AIT6-MS3106
MS3108

STYLE 6 ENDBELLS



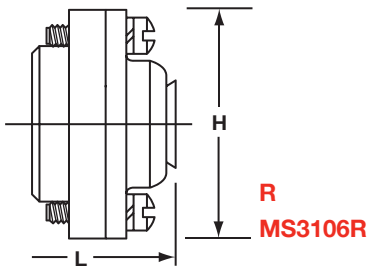


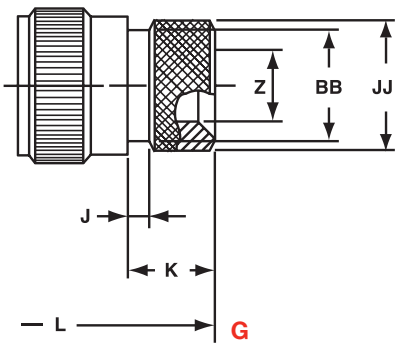
E
MS3106E
MS3106F

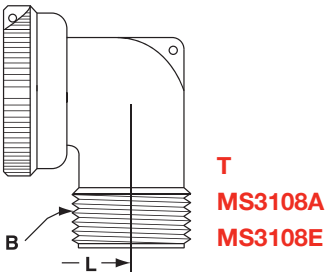
SHELL SIZE	A THREAD CLASS 2B	Q1 DIA. MAX.	BARREL B THREAD CLASS 2A	A & L			MS3106E/MS3106F	
				L^1	L^2	B THREAD CLASS 2A	L MAX.	CABLE MIN. XX
8S	.5000-28UNEF	0.741 (18.8)	.5000-28UNEF	1.390 (35.3)	- -	.5000-28UNEF	--- ---	--- ---
10S	.6250-24NEF	0.869 (22.1)	.5000-28UNEF	1.468 (37.3)	- -	.5000-28UNEF	--- ---	--- ---
10SL	.6250-24NEF	0.946 (24.0)	.6250-24UNEF	1.468 (37.3)	3.684 (93.6)	.6250-24NEF	2.129 (54.1)	0.281 (7.1)
12S	.7500-20UNEF	0.995 (25.3)	.6250-24UNEF	1.468 (37.3)	- -	.6250-24NEF	2.129 (54.1)	0.281 (7.1)
12	.7500-20UNEF	0.995 (25.3)	.6250-24UNEF	1.843 (46.8)	- -	.6250-24NEF	2.129 (54.1)	0.281 (7.1)
14S	.8750-20UNEF	1.123 (28.5)	.7500-20UNEF	1.468 (37.3)	3.748 (95.2)	.7500-20UNEF	2.201 (55.9)	0.406 (10.3)
14	.8750-20UNEF	1.123 (28.5)	.7500-20UNEF	1.843 (46.8)	- -	.7500-20UNEF	2.524 (64.1)	0.406 (10.3)
16S	1.0000-20UNEF	1.250 (31.8)	.8750-20UNEF	1.468 (37.3)	3.748 (95.2)	.8750-20UNEF	2.201 (55.9)	0.500 (12.7)
16	1.0000-20UNEF	1.250 (31.8)	.8750-20UNEF	1.843 (46.8)	3.710 (94.2)	.8750-20UNEF	2.524 (64.1)	0.500 (12.7)
18	1.1250-18NEF	1.333 (33.9)	1.0000-20UNEF	1.938 (49.2)	4.094 (104.0)	1.0000-20UNEF	2.596 (65.9)	0.531 (13.5)
20	1.2500-18NEF	1.461 (37.1)	1.1250-18UNEF	1.844 (46.8)	4.094 (104.0)	1.1875-18NEF	2.654 (67.4)	0.656 (16.7)
22	1.3750-18NEF	1.588 (40.3)	1.2500-18UNEF	1.938 (49.2)	4.102 (104.2)	1.1875-18NEF	2.654 (67.4)	0.740 (18.8)
24	1.5000-18NEF	1.715 (43.6)	1.3750-18UNEF	1.970 (50.0)	3.950 (100.4)	1.4375-18NEF	2.885 (73.3)	0.781 (19.8)
28	1.7500-18NS	1.968 (50.0)	1.6250-18UNEF	2.189 (55.6)	4.392 (111.6)	1.4375-18NEF	2.885 (73.3)	0.922 (23.4)
32	2.0000-18NS	2.209 (56.1)	1.8750-16UN	2.158 (54.8)	5.038 (128.0)	1.7500-18NS	2.943 (74.8)	1.156 (29.4)
36	2.2500-16UN	2.463 (62.6)	2.0625-16UN	2.219 (56.4)	4.354 (100.6)	2.0000-18NS	2.943 (74.8)	1.250 (31.8)
40	2.5000-16UN	2.719 (69.1)	2.3125-16UN	2.188 (55.6)	4.354 (110.6)	2.2500-16UN	3.068 (77.9)	1.562 (39.7)

All dimensions in inches (millimeters in parenthesis)

STYLE 6 RIGHT ANGLE ENDBELLS



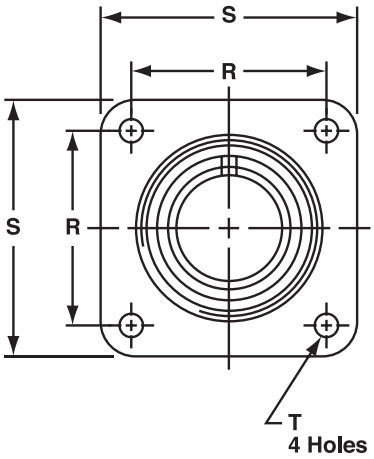


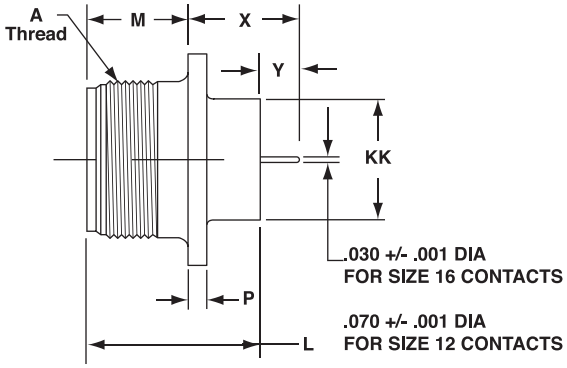


SHELL SIZE	R		G						3108	
	L MAX.	H DIA. MAX.	L MAX.	J ± .008 (±0.2)	K +.020 (+0.5)	Z MIN.	BB MAX.	JJ +.008 (+0.2)	L MAX.	B THREAD CLASS 2A
8S	1.588 (40.3)	0.959 (24.4)	- -	- -	- -	- -	- -	- -	1.427 (36.2)	.5000-28UNEF
10S	1.588 (40.3)	1.026 (26.1)	- -	- -	- -	- -	- -	- -	1.458 (37.0)	.5000-28UNEF
10SL	1.588 (40.3)	1.120 (28.4)	1.969 (50.0)	0.138 (3.5)	0.461 (11.7)	0.303 (7.7)	0.524 (13.3)	0.610 (15.5)	1.482 (37.6)	.6250-24NEF
12S	1.588 (40.3)	1.120 (28.4)	- -	- -	- -	- -	- -	- -	1.487 (37.8)	.6250-24NEF
12	1.931 (49.0)	1.120 (28.4)	- -	- -	- -	- -	- -	- -	1.862 (47.3)	.6250-24NEF
14S	1.588 (40.3)	1.307 (33.2)	1.969 (50.0)	0.138 (3.5)	0.461 (11.7)	0.417 (10.6)	0.669 (17.0)	0.752 (19.1)	1.651 (41.9)	.7500-20UNEF
14	1.931 (49.0)	1.307 (33.2)	- -	- -	- -	- -	- -	- -	1.926 (48.9)	.7500-20UNEF
16S	1.588 (40.3)	1.432 (36.4)	1.969 (50.0)	0.138 (3.5)	0.461 (11.7)	0.531 (13.5)	0.862 (21.9)	0.941 (23.9)	1.677 (42.6)	.8750-20UNEF
16	1.931 (49.0)	1.432 (36.4)	2.362 (60.0)	0.138 (3.5)	0.453 (11.5)	0.531 (13.5)	0.862 (21.9)	0.941 (23.9)	2.051 (52.1)	.8750-20UNEF
18	1.931 (49.0)	1.557 (39.5)	2.362 (60.0)	0.138 (3.5)	0.453 (11.5)	0.575 (14.5)	0.862 (21.9)	0.941 (23.9)	2.114 (53.7)	1.0000-20UNEF
20	1.931 (49.0)	1.744 (44.3)	2.559 (65.0)	0.138 (3.5)	0.500 (12.7)	0.736 (18.7)	1.031 (26.2)	1.165 (29.6)	2.364 (60.0)	1.1875-18NEF
22	1.931 (49.0)	1.869 (47.5)	2.559 (65.0)	0.138 (3.5)	0.500 (12.7)	0.819 (20.8)	1.031 (26.2)	1.165 (29.6)	2.364 (60.0)	1.1875-18NEF
24	2.009 (51.0)	1.994 (50.6)	2.559 (65.0)	0.138 (3.5)	0.500 (12.7)	0.969 (24.6)	1.358 (34.5)	1.488 (37.8)	2.615 (66.4)	1.4375-18NEF
28	2.009 (51.0)	2.166 (55.0)	2.559 (65.0)	0.138 (3.5)	0.500 (12.7)	1.063 (27.0)	1.358 (34.5)	1.488 (37.8)	2.615 (66.4)	1.4375-18NEF
32	2.072 (52.6)	2.541 (64.5)	2.756 (70.0)	0.138 (3.5)	0.598 (15.2)	1.311 (33.3)	1.717 (43.6)	1.882 (47.8)	2.837 (72.1)	1.7500-18NS
36	2.072 (52.6)	2.729 (69.3)	3.150 (80.0)	0.138 (3.5)	0.598 (15.2)	1.516 (38.5)	1.717 (43.6)	1.882 (47.8)	2.895 (73.5)	2.0000-18NS
40	2.072 (52.6)	2.979 (75.7)	3.150 (80.0)	0.138 (3.5)	0.610 (15.5)	1.898 (48.2)	2.070 (52.6)	2.276 (57.8)	3.020 (76.7)	2.2500-16UN

All dimensions in inches (millimeters in parenthesis)

PRINTED CIRCUIT CONTACTS



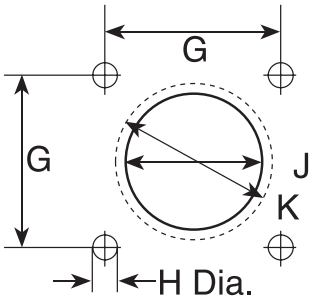


SHELL SIZE	USE AIT OR AMPHENOL PART NUMBER	A THREAD CLASS 2A	M +.010 -.000	P REF.	R (TP) +/-.005	S +/- .031	T DIA. +.004 -.002	3102 REF. L	KK DIA. +.010 -.000	X REF.	Y REF. +/-.045
8S	10-602460-XXX	.5000-28UNEF	0.562 (14.3)	0.110 (2.8)	0.594 (15.1)	0.875 (22.2)	0.120 (3.0)	0.969 (24.6)	0.375 (9.5)	0.595 (15.1)	0.188 (4.8)
10S	10-602461-XXX	.6250-24NEF	0.562 (14.3)	0.110 (2.8)	0.719 (18.3)	1.000 (25.4)	0.120 (3.0)	0.969 (24.6)	0.500 (12.7)	0.595 (15.1)	0.188 (4.8)
10SL	10-602462-XXX	.6250-24NEF	0.562 (14.3)	0.110 (2.8)	0.719 (18.3)	1.000 (25.4)	0.120 (3.0)	0.969 (24.6)	0.625 (15.9)	0.595 (15.1)	0.188 (4.8)
12S	10-602463-XXX	.7500-20UNEF	0.562 (14.3)	0.110 (2.8)	0.812 (20.6)	1.094 (27.8)	0.120 (3.0)	0.969 (24.6)	0.625 (15.9)	0.595 (15.1)	0.188 (4.8)
12	10-602464-XXX	.7500-20UNEF	0.750 (19.1)	0.110 (2.8)	0.812 (20.6)	1.094 (27.8)	0.120 (3.0)	1.344 (34.1)	0.625 (15.9)	0.782 (19.9)	0.188 (4.8)
14S	10-602465-XXX	.8750-20UNEF	0.562 (14.3)	0.110 (2.8)	0.906 (23.0)	1.188 (30.2)	0.120 (3.0)	0.969 (24.6)	0.750 (19.1)	0.595 (15.1)	0.188 (4.8)
14	10-602466-XXX	.8750-20UNEF	0.750 (19.1)	0.110 (2.8)	0.906 (23.0)	1.188 (30.2)	0.120 (3.0)	1.344 (34.1)	0.750 (19.1)	0.782 (19.9)	0.188 (4.8)
16S	10-602467-XXX	1.0000-20UNEF	0.562 (14.3)	0.110 (2.8)	0.969 (24.6)	1.281 (32.5)	0.120 (3.0)	0.969 (24.6)	0.875 (22.2)	0.595 (15.1)	0.188 (4.8)
16	10-602468-XXX	1.0000-20UNEF	0.750 (19.1)	0.110 (2.8)	0.969 (24.6)	1.281 (32.5)	0.120 (3.0)	1.344 (34.1)	0.875 (22.2)	0.782 (19.9)	0.188 (4.8)
18	10-602469-XXX	1.1250-18NEF	0.750 (19.1)	0.141 (3.6)	1.062 (27.0)	1.375 (34.9)	0.120 (3.0)	1.344 (34.1)	1.000 (25.4)	0.782 (19.9)	0.188 (4.8)
20	10-602470-XXX	1.2500-18NEF	0.750 (19.1)	0.141 (3.6)	1.156 (29.4)	1.500 (38.1)	0.120 (3.0)	1.344 (34.1)	1.125 (28.6)	0.782 (19.9)	0.188 (4.8)
22	10-602471-XXX	1.3750-18NEF	0.750 (19.1)	0.141 (3.6)	1.250 (31.8)	1.625 (41.3)	0.120 (3.0)	1.344 (34.1)	1.250 (31.8)	0.782 (19.9)	0.188 (4.8)
24	10-602472-XXX	1.5000-18NEF	0.812 (20.6)	0.141 (3.6)	1.375 (34.9)	1.750 (44.5)	0.147 (3.7)	1.406 (35.7)	1.375 (34.9)	0.782 (19.9)	0.188 (4.8)
28	10-602473-XXX	1.7500-18NS	0.812 (20.6)	0.141 (3.6)	1.562 (39.7)	2.000 (50.8)	0.147 (3.7)	1.406 (35.7)	1.625 (41.3)	0.782 (19.9)	0.188 (4.8)
32	10-602474-XXX	2.0000-18NS	0.875 (22.2)	0.156 (4.0)	1.750 (44.5)	2.250 (57.2)	0.173 (4.4)	1.469 (37.3)	1.875 (47.6)	0.782 (19.9)	0.188 (4.8)
36	10-602475-XXX	2.2500-16UN	0.875 (22.2)	0.156 (4.0)	1.938 (49.2)	2.500 (63.5)	0.173 (4.4)	1.469 (37.3)	2.062 (52.4)	0.782 (19.9)	0.188 (4.8)
40	10-602476-XXX	2.5000-16UN	0.875 (22.2)	0.156 (4.0)	2.188 (55.6)	2.750 (69.9)	0.173 (4.4)	1.469 (37.3)	2.312 (58.7)	0.782 (19.9)	0.188 (4.8)

XXX = Insert layout code. Contact us for correct code. Contact information is below.

All dimensions in inches (millimeters in parenthesis)

PANEL CUTOUTS

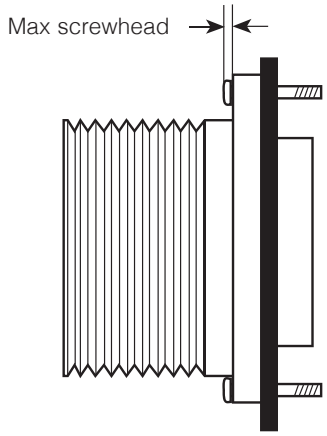


Dimension J is flange in front of panel. Dimension K is flange at rear of panel. See sealing screws on page 366.

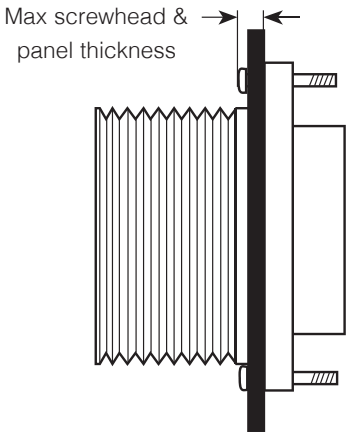
SHELL SIZE	FLANGE STYLE 0-2-6B			
		MOUNTING HOLE	FRONT MOUNT DIAMETER	REAR MOUNT
	G	H	J	K
8S	0.594 (15.1)	0.134 (3.4)	0.396 (10.1)	0.603 (15.4)
10S	0.717 (18.2)	0.134 (3.4)	0.525 (13.3)	0.728 (18.5)
10SL	0.717 (18.2)	0.134 (3.4)	0.646 (16.4)	0.728 (18.5)
12S/12	0.811 (20.6)	0.134 (3.4)	0.646 (16.4)	0.854 (21.7)
14S/14	0.906 (23.0)	0.134 (3.4)	0.776 (19.7)	0.980 (24.9)
16S/16	0.969 (24.6)	0.134 (3.4)	0.902 (22.9)	1.091 (27.7)
18	1.063 (27.0)	0.134 (3.4)	1.028 (26.1)	1.224 (31.1)
20	1.157 (29.4)	0.134 (3.4)	1.161 (29.5)	1.358 (34.5)
22	1.252 (31.8)	0.134 (3.4)	1.287 (32.7)	1.488 (37.8)
24	1.374 (34.9)	0.154 (3.9)	1.417 (36.0)	1.626 (41.3)
28	1.563 (39.7)	0.154 (3.9)	1.654 (42.0)	1.854 (47.1)
32	1.752 (44.5)	0.177 (4.5)	1.902 (48.3)	2.118 (53.8)
36	1.937 (49.2)	0.177 (4.5)	2.150 (54.6)	2.362 (60.0)
40	2.185 (55.5)	0.177 (4.5)	2.409 (61.2)	2.610 (66.3)

++ 6B panel plug is front mount only.

PANEL THICKNESS



Front Mount



Rear Mount

SHELL SIZE	FRONT MOUNT	REAR MOUNT
8SL	0.125 (3.18)	0.187 (4.75)
10S		0.187 (4.75)
10SL		0.187 (4.75)
12S		0.187 (4.75)
12		0.125 (3.18)
14S		0.187 (4.75)
16S		0.187 (4.75)
16		0.125 (3.18)
18		0.125 (3.18)
20		0.125 (3.18)
22		0.125 (3.18)
24		0.187 (4.75)
28		0.187 (4.75)
32		0.250 (6.35)
36		0.250 (6.35)
40		0.250 (6.35)

All dimensions in inches (millimeters in parenthesis)

Pre-Earth Series/FMLB

FIRST-MATE, LAST-BREAK (FMLB) CONNECTOR THAT INTERMATES WITH MIL-DTL-5015

Amphenol's DL Pre-Earth /FMLB (first-mate, last-break) connectors are designed for applications where a protective circuit from the ground contact to the shell is a safety requirement. These connectors provide a path for stray voltage to be shunted to a safe ground to avoid damage to sensitive equipment or harm to operators.

- Intermateable with AIT, MIL-DTL-5015 & 97 series
- UL-listed

APPLICATIONS

- Power generators
- Engines
- Sensors
- Motion control
- Off-road vehicles
- Earth-moving equipment
- Ships
- Mobile equipment
- Industrial machinery
- Telecommunications

FEATURES

- Conformity with European (CE) safety standards (DIN VDE 0627 and certified through TUV Product Service GmbH) in the approved insert arrangement
- Offered in shell styles: 3102A box mount and 3106A straight plug
- Intermateable with AIT, MIL-DTL-5015 and 97 styles
- Class IP67 protection when mated
- UL-listed file # E202200
- Pre-earth (ground contact) design
- First-mate/last-break capability

CREATE YOUR PART NUMBER USING THESE THREE STEPS

1	2	3
DL3106A	18-10	S
CONNECTOR TYPE	LAYOUT	CONTACT

(example)

STEP 1: SELECT SHELL STYLE

PLUGS

DL3106A
Plug

RECEPTACLES

DL3102A
Box Mount Receptacle

STEP 2: SELECT LAYOUT

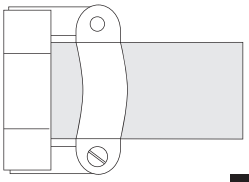
LAYOUT	MATING VIEW OF PIN INSERT	TOTAL CONTACTS	CURRENT RATING (AMPS) 13A	23A	46A
			CONTACT SIZE 16	12	8
10SL-3		3	3	-	-
18-10		4	-	4	-
18-12		6	6	-	-
20-15		7	-	7	-
22-22		4	-	-	4
24-106*		7	-	-	7
24-10		7	-	-	7

• Indicates Pre-Earth contact only *Pre-Earth contact in plug

STEP 3: SELECT CONTACT

→ ☐ **P = Pin S = Socket**

MS3057-A CABLE CLAMP

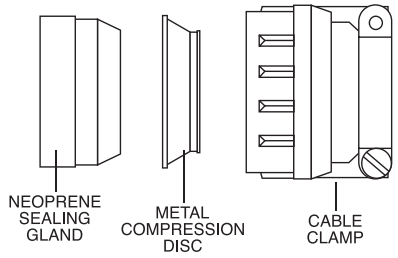


Standard MS3057 cable clamps have dual-clamping action to provide a balanced, positive hold on the wires and greatly reduce moisture transmission. This cable clamp accepts MS3420 bushings. MS3420 bushings can be nested to reduce the inside diameter (ID) to more closely match the diameter of the cable or wire bundle.

		STANDARD CLAMP				STANDARD CLAMP & TELESCOPIC BUSHING		
SHELL SIZE	THREAD CLASS 2B	LOW-COST CAST ZINC	ALUMINUM W/ BRASS SCREWS	ALUMINUM W/ STAINLESS STEEL SCREWS	MAXIMUM CABLE DIAMETER INCH (MM)	LOW-COST ZINC WITH BUSHING	BUSHING INCLUDED	BUSHING ID INCH (MM)
8S/10S	1/2-28UNEF	-	MS3057-3A	M85049/41-3A	0.250 (6.35)	-	MS3420-3	0.130 (3.3)
10SL	5/8-24UNEF	97-3057-1004**	MS3057-4A	M85049/41-4A	0.312 (7.92)	97-3057-1004-1	MS3420-4	0.220 (5.6)
12/12S	5/8-24UNEF	97-3057-1004**	MS3057-4A	M85049/41-4A	0.312 (7.92)	97-3057-1004-1	MS3420-4	0.220 (5.6)
12SL/14S	3/4-20UNEF	97-3057-1007**	MS3057-6A	M85049/41-6A	0.438 (11.10)	97-3057-1007-1	MS3420-6	0.312 (7.9)
16/16S	7/8-20UNEF	97-3057-1008**	MS3057-8A	M85049/41-8A	0.562 (14.27)	97-3057-1008-1	MS3420-8	0.437 (11.1)
18	1-20UNEF	97-3057-1010**	MS3057-10A	M85049/41-10A	0.625 (15.88)	97-3057-1010-1	MS3420-10	0.562 (14.3)
20/22	1 3/16-18UNEF	97-3057-1012**	MS3057-12A	M85049/41-12A	0.750 (19.05)	97-3057-1012-1	MS3420-12	0.625 (15.9)
24/28	1 7/16-18UNEF	97-3057-1016**	MS3057-16A	M85049/41-16A	0.938 (23.80)	97-3057-1016-1	MS3420-16, -12	0.625 (15.9)
32	1 3/4-18UNS	97-3057-1020**	MS3057-20A	M85049/41-20A	1.250 (31.75)	97-3057-1020-1	MS3420-20, -16	0.750 (19.1)
36	2-18UNS	97-3057-1024**	MS3057-24A	M85049/41-24A	1.375 (34.92)	97-3057-1024-1	MS3420-24, -20	0.937 (23.8)
40	2 1/4UNS-16	-	MS3057-28A	M85049/41-28A	1.625 (41.28)	-	-	-

Default plating is CAD OD.
** Other platings are available. See page 13.

MS3057-C WATERPROOF CABLE CLAMP

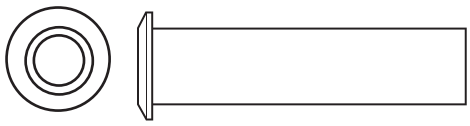


Standard MS3057-C waterproof cable clamp with mechanical strain relief for use with threaded endbells. Internal neoprene gland and compression ring will seal a broad range of round cable diameters, as listed below. For reduction of cable diameters, order the appropriate MS3420A bushing in table.

SHELL SIZE	PART NUMBER	WIRE DIAMETER INCHES (MM)		OPTIONAL BUSHINGS	
		MAX.	MIN.	PART NUMBER	MAX. WIRE DIA. (MM)
8S/10S	MS3057-3C	0.219 (5.56)	0.095 (2.41)	MS3420-3A	0.125 (3.17)
10SL/12S/12	MS3057-4C	0.312 (7.93)	0.188 (4.80)	MS3420-4A	0.219 (5.56)
12SL/14S	MS3057-6C	0.438 (11.12)	0.281 (7.10)	MS3420-6A	0.312 (7.93)
				MS3420-4A	0.219 (5.56)
16/16S	MS3057-8C	0.530 (13.48)	0.312 (7.90)	MS3420-8A	0.438 (11.1)
				MS3420-6A	0.312 (7.93)
18	MS3057-10C	0.625 (15.87)	0.375 (9.50)	MS3420-10A	0.438 (11.1)
				MS3420-6A	0.312 (7.93)
20/22	MS3057-12C	0.750 (19.00)	0.500 (12.70)	MS3420-12A	0.540 (13.74)
				MS3420-8A	0.438 (11.10)
24/28	MS3057-16C	0.940 (23.80)	0.625 (15.90)	MS3420-16A	0.750 (19.00)
				MS3420-12A	0.540 (13.74)
				MS3420-8A	0.438 (11.10)
32	MS3057-20C	1.250 (31.75)	0.921 (23.40)	MS3420-20A	0.938 (23.8)
				MS3420-16A	0.750 (19.00)
				MS3420-12A	0.540 (13.74)
36	MS3057-24C	1.380 (35.00)	1.00 (25.40)	MS3420-24A	1.12 (28.50)
				MS3420-18A	0.938 (23.80)
				MS3420-16A	0.750 (19.00)
40	MS3057-28C	1.620 (41.25)	1.25 (31.80)	MS3420-28A	1.25 (31.75)
				MS3420-20A	0.940 (23.80)
				MS3420-16A	0.750 (19.00)

All dimensions in inches (millimeters in parenthesis)

MS3420 TELESCOPING BUSHINGS



For use with style-A cable clamps and AIT/MS style-E/F endbells to resist dust, dirt, and oil. Bushings can be nested, one inside the other, to reduce the inside diameter to better seal against the cable jacket. Each bushing will accept the next smallest bushing.

SHELL SIZE	1ST BUSHING PART NUMBER	INSIDE DIAMETER	2ND NESTED BUSHING INSIDE	DIAMETER	FITS IN CABLE CLAMP
8S/10S	MS3420-3	0.130 (3.30)	NONE	-	MS3057-3A
10SL/12/12S	MS3420-4	0.220 (5.59)	NONE	-	MS3057-4A
14/14S	MS3420-6	0.312 (7.92)	NONE	-	MS3057-6A
16S	MS3420-8	0.437 (11.10)	NONE	-	MS3057-8A
16	MS3420-8	0.437 (11.10)	NONE	-	MS3057-8A
18	MS3420-10	0.562 (14.30)	NONE	-	MS3057-10A
20	MS3420-12	0.625 (15.90)	NONE	-	MS3057-12A
22	MS3420-12	0.625 (15.90)	NONE	-	MS3057-12A
24	MS3420-16	0.750 (19.05)	MS3420-12	0.625 (15.90)	MS3057-16A
28	MS3420-16	0.750 (19.05)	MS3420-12	0.625 (15.90)	MS3057-16A
32	MS3420-20	0.937 (23.80)	MS3420-16	0.750 (19.05)	MS3057-20A
36	MS3420-24	1.250 (31.75)	MS3420-20	0.937 (23.80)	MS3057-24A
40	MS3420-28	1.375 (34.92)	MS3420-24	1.250 (31.75)	SE96-28A4

MS3420-A REDUCTION BUSHINGS

For use with MS3057-C cable clamps (style-C) to reduce the wire-sealing diameter. Bushings can be nested, one inside the other, to progressively reduce the inside diameter of the cable clamp. The column labeled “reduction bushings” shows the acceptable nesting options for each clamp.

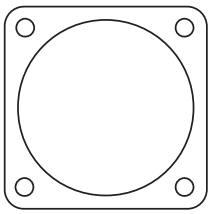
9767 CABLE CLAMPS

9767 waterproof cable clamp with mechanical strain relief. An internal Neoprene gland seal bushing and compression washer will seal a broad range of round cable diameters as listed below.

SHELL SIZE	CABLE CLAMP PART NUMBER	MAX. CABLE OUTSIDE DIAMETER		MIN. CABLE OUTSIDE DIAMETER		THREAD CLASS 2B UNEF
		INCHES	MM	INCHES	MM	
10SL/12S/12	9767-12-4	0.219	5.55	0.100	0.51	5/8-24
14S	9767-14-4	0.219	5.55	0.100	0.51	3/4-20
14S	9767-14-6	0.344	8.73	0.176	4.47	3/4-20
16S/16	9767-16-4	0.219	5.55	0.100	0.51	7/8-20
16S/16	9767-16-6	0.344	8.73	0.176	4.47	7/8-20
16S/16	9767-16-8	0.438	11.12	0.177	4.50	7/8-20
18	9767-18-6	0.344	8.73	0.176	4.47	1-20
18	9767-18-8	0.438	11.12	0.177	4.50	1-20
18	9767-18-10	0.563	14.29	0.292	7.42	1-20
20/22	9767-22-8	0.438	11.12	0.177	4.50	1-3/16-18
20/22	9767-22-10	0.563	14.29	0.292	7.42	1-3/16-18
20/22	9767-22-12	0.688	17.46	0.370	9.40	1-3/16-18
24/28	9767-28-10	0.563	14.29	0.292	7.42	1-7/16-18
24/28	9767-28-12	0.688	17.46	0.370	9.40	1-7/16-18
24/28	9767-28-16	0.844	21.43	0.536	13.61	1-7/16-18
32	9767-32-20	1.031	26.19	0.590	14.99	1-3/4-18UNS
36	9767-36-16	0.844	21.43	0.536	13.61	2-18UNS

All dimensions in inches (millimeters in parenthesis)

GASKETS

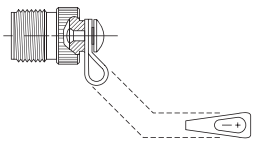
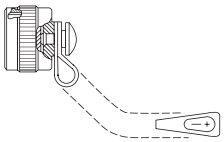
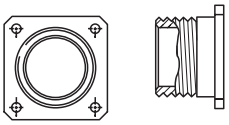


Synthetic rubber gaskets are used to ensure a moisture-tight seal between a receptacle and the panel. Gaskets are available for front or rear panel mounting of style-0, 2, and 6B connectors. Gasket thickness is approximately .031 inches (1 mm), for nonconductive and low-temperature types.
Conductive shielding gaskets contain an imbedded metal screen for EMI/RFI shielding in addition to moisture sealing. Gaskets are available for front or rear panel mounting of connectors. Gasket thickness is .020 inches (.5 mm).

SHELL SIZE	NON-CONDUCTIVE	CONDUCTIVE	LOW-TEMPERATURE -67ºF (-55ºC)
8S	10-040450-008	10-040450-08S	10-036675-008
10S/10SL	10-040450-010	10-040450-10S	10-036675-010
12/12S	10-040450-012	10-040450-12S	10-036675-012
14/14S	10-040450-014	10-040450-14S	10-036675-014
16S	10-040450-016	10-040450-16S	10-036675-016
16	10-040450-016	10-040450-16S	10-036675-016
18	10-040450-018	10-040450-18S	10-036675-018
20	10-040450-020	10-040450-20S	10-036675-020
22	10-040450-022	10-040450-22S	10-036675-022
24	10-040450-024	10-040450-24S	10-036675-024
28	10-040450-028	10-040450-28S	10-036675-028
32	10-040450-032	10-040450-32S	10-036675-032
36	10-040450-036	10-040450-36S	10-036675-036
40	10-040450-040	10-040450-40S	10-036675-040

METAL DUST CAPS WITH SASH CHAIN & DUMMY RECEPTACLES

Metal dust caps are used to protect the contacts when the connectors are left unmated. Dust caps come with metal chain lanyards. Dummy receptacles are for front or rear panel mounting. The center of the dummy receptacle is closed. Dummy receptacles mount on the same centers and have the same outside dimensions as MS3102 receptacles. A version with a clearance hole through the middle of the connector is also available. Call for ordering information; contact information is below.

	DUST CAPS		
	PLUG CAP	RECEPTACLE	DUMMY RECEPTACLES
SHELL SIZE			
8S	MS25042-8*	MS25043-8*	MS3105-8S
10S/10SL	MS25042-10*	MS25043-10*	MS3105-10S
12/12S/12SL	MS25042-12*	MS25043-12*	MS3105-12S
14S	MS25042-14*	MS25043-14*	MS3105-14S
16S	MS25042-16*	MS25043-16*	MS3105-16S
16	MS25042-16*	MS25043-16*	MS3105-16
18	MS25042-18*	MS25043-18*	MS3105-18
20	MS25042-20*	MS25043-20*	MS3105-20
22	MS25042-22*	MS25043-22*	MS3105-22
24	MS25042-24*	MS25043-24*	MS3105-24
28	MS25042-28*	MS25043-28*	MS3105-28
32	MS25042-32*	MS25043-32*	MS3105-32
36	MS25042-36*	MS25043-36*	MS3105-36
40	MS25042-40*	MS25043-40*	MS3105-40

*Contact us for other platings. *D = Olive drab chromate over cadmium DA = Anodized

SOLDER CONTACTS

STEP 1: Slide the rear accessories over the wire bundle in the proper sequence for re-assembly: cable clamp and/or endbell first, then ferrule and (if used) coupling nut.

STEP 2: Insert individual wires through the proper holes in the grommet. Use isopropyl alcohol as a lubricant.

STEP 3: Solder wires to appropriate contacts on the rear of the connector. Information on standard soldering practices is available upon request. Please contact us.

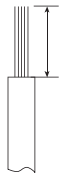
STEP 4: Fixture the connector for reassembly using the endbell assembly tools on ⇨ page 138.

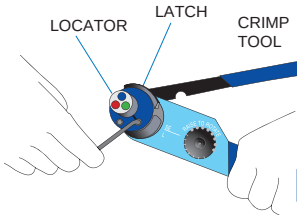
STEP 5: Slide the grommet down the wires (lubricating the grommet with isopropyl alcohol will help).

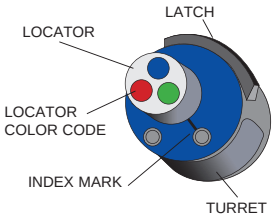
STEP 6: Fill all unused grommet cavities with a wire hole filler to maintain the sealing integrity of the connector.

STEP 7: Slide coupling nut, ferrule, and endbell accessories over rear of the connector and tighten. For tooling, ⇨ see page 138.

CRIMP TOOL OPERATION







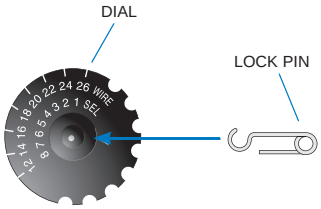
STEP 1: Strip the wires to the appropriate length. See strip lengths on the Contact Selection Guide, ⇨ page 26.

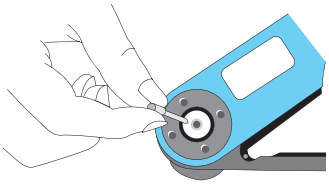
STEP 2: Open the crimp tool by squeezing the handles. Push the latch on the turret to release the locator. Attach the turret to the crimp tool using the two captive hex bolts in the turret.

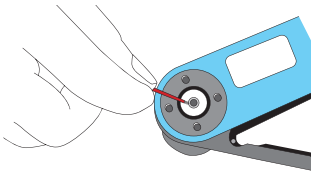
NOTE: Hand-crimp tools can be used with size 16S, 16 & 12 contacts. Size 8, 4 and 0 contacts require the use of air-powered crimp tools. Contact us for assistance in the use of these tools.

STEP 3: Select the proper locator position for your contact by rotating the locator until the proper color is aligned with the index mark. Push locator back down until it snaps into position.

CONTACT SIZE	PIN LOCATOR COLOR	SOCKET LOCATOR COLOR
16S	Blue	Blue
16	Green	Red
12	Red	Red





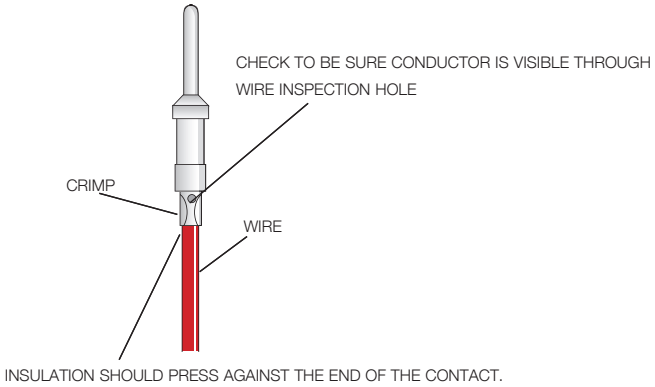


STEP 4: Adjust dial for proper wire gauge. To change the dial setting, remove the lock pin and lift center of dial. Turn to the desired wire gauge. Replace lock pin on dial.

STEP 5: Cycle the tool before inserting the contact to be sure the tool is in the open position. Drop the contact, mating end first, into the crimp cavity of the tool. Squeeze the tool handle just enough to grip the contact without actually crimping it.

STEP 6: Insert the stripped wire into the contact with a slight twisting motion. Be sure all wire strands are inside the contact. Squeeze the handle to cycle the tool. The handle will not release until the contact is completely crimped.

CRIMP TOOL OPERATION (CONTINUED)



STEP 7: Remove the crimped contact. Pull on the wire slightly to be sure it is properly crimped. Be sure the contact is not bent or damaged in any way. Visually inspect the crimp.

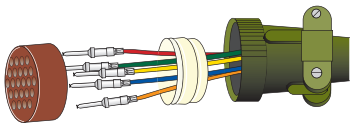
MICRO-SECTIONS: Enlargement of micro-section permits a final inspection of crimp quality. This test is recommended whenever new tools or new types of wire or contacts are used.

CRIMP TENSILE STRENGTH

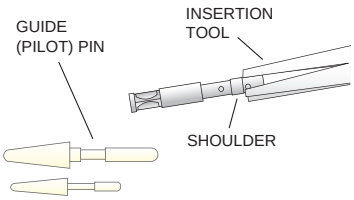
Initial minimum pullout force in lbs. (before conditioning)

SIZE	WIRE GAUGE (AWG)	LB.
16	20	20
	18	40
	16	50
12	14	70
	12	110
8	8	185
4	4	450
0	0	800

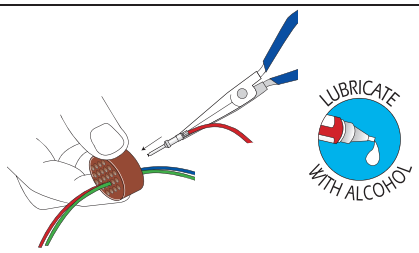
INSERTION OF CONTACTS



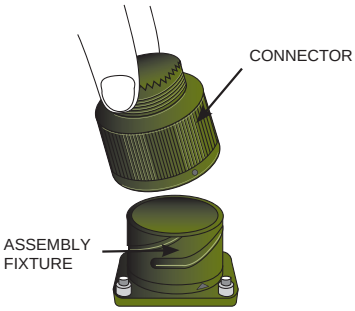
STEP 1: Slide the rear accessories over the wire bundle in the proper sequence for re-assembly: cable clamp and/or endbell first, then ferrule, and coupling nut.



STEP 2: Use the proper insertion tool from the Contact Selection Chart on page 27. Place the contact in the tool. The tool should push against the shoulder of the contact. Contact sizes 16S, 16, and 12 use a pliers-style tool. Contact sizes 8, 4 and 0 use a tool with a C-shaped shaft.

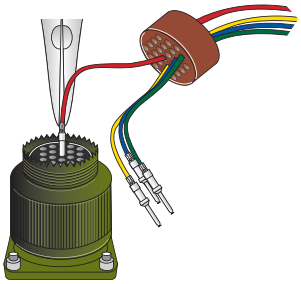


STEP 3: Lubricate the grommet with isopropyl alcohol (do not use any other type of lubricant). Insert the contact through the appropriate cavity in the grommet. Sizes 16S, 16 and 12 socket contacts must be installed using guide (pilot) pins. See the Contact Selection Guide on page 27 for Insertion Guide (Pilot) Pin part numbers.



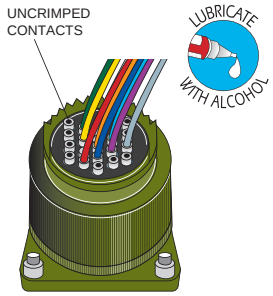
STEP 4: Place the connector into an assembly fixture. Fixtures are available for production use; contact us using the information below. If you are not using a fixture, be sure to allow clearance on the mating face of the connector for the guide pins to come through the connector during insertion.

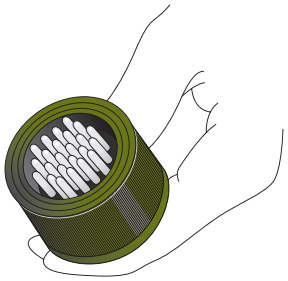
STEP 5: Lubricate the contact cavities of the connector insulator with isopropyl alcohol (do not use any other type of lubricant).

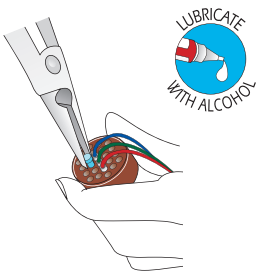


STEP 6: Using guide pins where necessary, push straight down with a firm, even pressure until the contact snaps into position in the proper cavity. Start at the center of the pattern and work toward the outer edges.

INSERTION OF CONTACTS (CONTINUED)







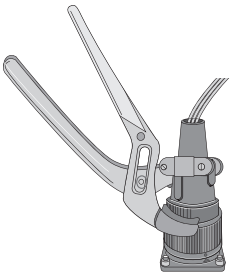
STEP 7: Fill any unused cavities with contacts.

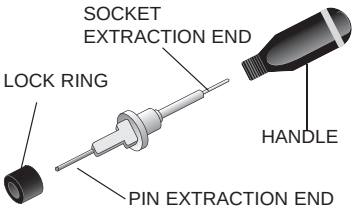
STEP 8: Check the mating face of the connector to ensure that all of the same size contacts are on the same plane (fully inserted). If not, the contact is not fully inserted. Remove the contact using the proper extraction tool and procedure, and reinsert. Do not attempt to reinsert the insertion tool to correct the problem.

STEP 9: A wire hole filler must be inserted into the grommet behind the unused contacts to maintain the sealing integrity of the connector. See the Contact Selection Chart on page 27 for wire hole fillers.

STEP 10: Place the connector back in the fixture for re-assembly. Slide the connector accessories back down the cable over the rear of the connector and tighten. Use the appropriate endbell tools as shown on page 138.

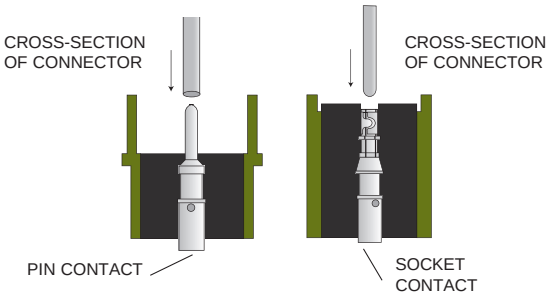
EXTRACTION OF CONTACTS





STEP 1: Remove the endbell accessories and slide them back over the wires. Use the appropriate endbell tools as shown on page 138.

STEP 2: Use the proper extraction tool from the Contact Selection Chart on page 27. The extraction tool can be used for both pin and socket contacts by removing the shaft from the handle and reversing it for pin or socket extraction.



STEP 3: On the mating face of the connector, insert the tool over the pin contact or into the socket contact until the tool touches bottom. Apply a slow, continuous pressure to push the contact out through the rear of the connector. When the shoulder of the tool "thunks" against the insulator, the contact is extracted.

STEP 4: Carefully remove the extraction tool from the connector to avoid damage to the insulator.

AIT/MS SERIES CONNECTORS

J MS 3102 R 18-3 P W -RES

CONNECTOR TYPE

J Prefix*
MS Military Standard

SHELL STYLE

Mates with:
- 3100 = Wall-mounting receptacle
- 3101 = Cable-connecting receptacle *(plug†)*
- 3102 = Box-mounting receptacle

Mates with:
- 3106 = Straight plug
- 3108 = 90° plug

SERVICE CLASS

A Solid shell, not MS qualified
C Solid shell for pressurized applications
E Environmentally-resistant
F Environmentally-resistant with strain relief *(J MS part number only)*
R Lightweight, environmentally-resistant *(J MS part number only; not available for 3108)*

SHELL SIZE & INSERT ARRANGEMENT

See tables on ⇨ pages 64-85.

√ Parts are the only MS-approved inserts.

(NOT J MS)

Modification for A-style service class only

RESilient insert *(neoprene)*

INSERT ROTATION

W, X, Y, and Z designate that the insert is rotated in its shell from normal position. No letter is required for normal *(no rotation)* position. See tables on ⇨ pages 75-85.

CONTACT TYPES

P Pin contact
S Socket contact

† Note: The US military changed the designation from cable receptacle to plug in the MIL-DTL-5015 specifications.

For insert arrangements over 50 and shell size 40 and above. Exceptions: 36-52, 40-1, 40-9 and 40-56 are approved.

*The March 30, 2003 revision of MIL-DTL-5015H requires that the letters JAN or J be physically marked on the connector preceding the MS designator. This mark certifies that the connector meets specification. The United States Government has obtained Certificate and Registration Number 504,860 for the certification mark "JAN" and Registration Number 1,586,261 for the certification mark "J."

HAVE A UNIQUE REQUIREMENT?

Quick assembly of custom products is our specialty! Email us at sales@peigenesis.com or complete our online Technical Request at www.peigenesis.com/technical-support. To contact us by phone, please see the back cover for a complete listing of our branch offices and contact numbers.

AC SERIES CONNECTORS

Ordering example part number ACC06AF18-1SX-025 is shown as follows:
If part number incorporates a "B," see AIB/GT page 111.

AC C 06 AF 18-1 S X - 025

SERIES

- AC — Designates Amphenol Industrial Series
- ACL — AC Series with low-smoke, zero-halogen inserts and grommets

CONTACT STYLE

- C — Designates crimp contacts
- S — Designates solder contacts

SHELL STYLE

Mates with

- 00 — Wall-mounting receptacle
- 01 — In-line receptacle
- 02 — Box-mounting receptacle
- 06 — Straight plug
- 08 — 90° plug

CONNECTOR CLASS

- A — General-duty, threaded backshell, cable clamp, no grommet
- AF — General-duty, threaded backshell, cable clamp, no grommet
- CF — General-duty, threaded backshell, gland-sealed cable clamp, no grommet *(08 only)*
- E — General-duty, integral endbell with cable clamp, with grommet *(08 not integral endbell)*
- F — General-duty, threaded backshell, cable clamp, with grommet
- LCFZ — Long-threaded endbell, gland-sealed cable clamp, with grommet *(06 only)*
- PGA — Environmental connector for jacketed cable
- PGR — Environmental connector for jacketed cable
- R — General-duty, threaded backshell, no cable clamp, with grommet *(06 only)*
- SB — Shielded shrink boot endbell with grommet *(06 only)*

SHELL SIZE & LAYOUT

See layout availability on pages 64-85.

PLATING MODIFICATION CODES

- 003 — Olive drab cadmium plate finish
- 023 — Electroless nickel finish *(RoHS with crimp only)*
- 024 — Green zinc alloy finish
- 025 — Non-conductive black alloy finish *(RoHS with crimp)*
- 027 — Conductive black alloy finish *(RoHS with crimp)*
- G96 — Black hard-coat anodize
- A24 — .000035 gold/nickel on contacts
- 116 — Less pre-tinned solder cups *(solder only)*
- 472 — 116 & 025 mod codes *(RoHS)*
- 548 — 116 & 023 mod codes *(RoHS)*
- 553 — 116 & 027 mod codes *(RoHS)*

ALTERNATE INSERT ROTATION

W, X, Y, and Z designate that the insert is rotated in its shell from a normal position. No letter required for normal *(no rotation)* position. See pages 75-85.

CONTACT TYPE

- P — Pin contacts
- S — Socket contacts
- R — RADSOK *(high-amperage)* crimp socket contacts only for sizes 12, 8, 4, and 0

Amphenol MS3450 (Matrix®) Series MIL-DTL-5015

MIL-DTL-5015 Rear Release Crimp

HIGH-PERFORMANCE ALTERNATIVE TO OLDER MIL-DTL-5015 SOLDER TYPES

The MIL-DTL-5015 Rear-Release Threaded MS3450 Matrix® series uses rear-release crimp contacts with retention clip. These Amphenol connectors fill the gap between older MIL-DTL-5015s and the environmental and higher-performance needs of new technologies. They are sealed to withstand moisture, condensation, vibration and flash-over. Over 165 contact layouts are available, in variations that allow for just power, just signal, or a mix of both contact types.

- Formerly MIL-C-5015

APPLICATIONS

Military, industrial and commercial environments requiring extreme reliability, high-power handling and cost efficiency.

- Power generators
- Engines
- Sensors
- Motion control
- Off-road vehicles
- Earth-moving equipment
- Ships
- Mobile equipment
- Industrial machinery
- Telecommunications

FEATURES

BROAD OPERATING TEMPERATURES

The electroless nickel plating and stainless steel shell connectors will operate in temperature ranges from -75°F to +392°F (-55°C to 200°C). The cadmium olive drab plating connectors will operate in temperatures ranging from -75°F to +347°F (-55°C to 175°C).

ENVIRONMENTAL

These connectors will perform in the full range of operating conditions defined in MIL-DTL-5015 and are recommended for conditions where vibration, moisture, pressure, and/or temperatures are extreme.

RUGGED SHELL

The rugged aluminum alloy or steel shell are highly resistant to damage and corrosion with firewall capabilities. Shells are available in four different styles, like a self-locking coupling nut in seventeen different sizes.

WIDE RANGE OF WIRE GAUGES AND CURRENT-CARRYING CAPACITIY

Up to 150 amps for standard military contacts and wire gauges from size 20 to size 0 AWG.

TECHNICAL SPECIFICATIONS

MATERIALS & FINISHES

Shell	Aluminum alloy, steel and stainless steel
Plating	Olive drab chromate over cadmium per QQ-P-416, electroless nickel per ASTM B73 or black anodize for aluminum; olive drab chromate over cadmium or passivated steel
Contacts	Copper alloy
Plating	Gold-plated
Insulator	Neoprene
Seals	Silicone

ELECTRICAL DATA

Operating Voltage/Test Voltage

	NOMINAL DISTANCE		OPERATING VOLTAGE*		STANDARD SEA LEVEL CONDITIONS		PRESSURE ALTITUDE† 50,000 FEET		PRESSURE ALTITUDE† 70,000 FEET	
MS SERVICE RATING	AIRSPACE	CREEPAGE	DC V	AC VRMS	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)
I	1/32	1/16	250	200	1,400	1,000	550	400	325	260
A	1/16	1/8	700	500	2,800	2,000	800	600	450	360
D	1/8	3/16	1,250	900	3,600	2,800	900	675	500	400
E	3/16	1/4	1,750	1,250	4,500	3,500	1,000	750	550	440
B	1/4	5/16	2,450	1,750	5,700	4,500	1,100	825	600	480
C	5/16	1	4,200	3,000	8,500	7,000	1,300	975	700	560

* Each insulator has a specific service rating. These numbers should be used by the designer only as a guide. The Service Ratings for each layout are listed on pages 64-85.

† Not corrected for change in density resulting from variations in temperature.

MS connectors show no evidence of breakdown when the given test voltages are applied between the two closest contacts and between the shell and the contacts closest to the shell for a period of one minute, per MIL-STD-1344 Method 3001.

Current Rating & Contact Resistance

CONTACT SIZE	TEST CURRENT (AMPS)	POTENTIAL DROP (MILLIVOLTS)	CONTACT RESISTANCE (MILLIOHM) MAX.
16	13	50	6
12	23	50	3
8	46	29	1 (0.44*)
4	80	14	0.5 (0.23*)
0	150	12	0.2 (0.18*)

*Using non-military crimp Radsok contact

Maximum total current to be carried per connector in wire bundles as specified in MIL-W-5088. Contact resistance when tested to MIL-C-39029 will not exceed voltage drops listed in above table.

Wire Range Sizes	20 AWG – 0 AWG
Insulation Resistance	50,000 megohms minimum at 77°F (25°C) 1,000 megohm minimum at 392°F (200°C) Class L and 347°F (175°C) Class W

MECHANICAL

Operating	Classes L, LS and KS -75°F to 392°F (-55°C to +200°C) Temperature classes W and KT -75°F to 347°F (-55°C to 175°C)

Wire Sealing Range

CONTACT SIZE	WIRE SEALING RANGE MIN.	WIRE SEALING RANGE MAX.
16/16S	0.053 (1.35)	0.103 (2.62)
12	0.085 (2.16)	0.158 (4.01)
8	0.132 (3.35)	0.255 (6.48)
4	0.237 (6.02)	0.370 (9.40)
0	0.360 (9.14)	0.550 (13.97)

TECHNICAL SPECIFICATIONS

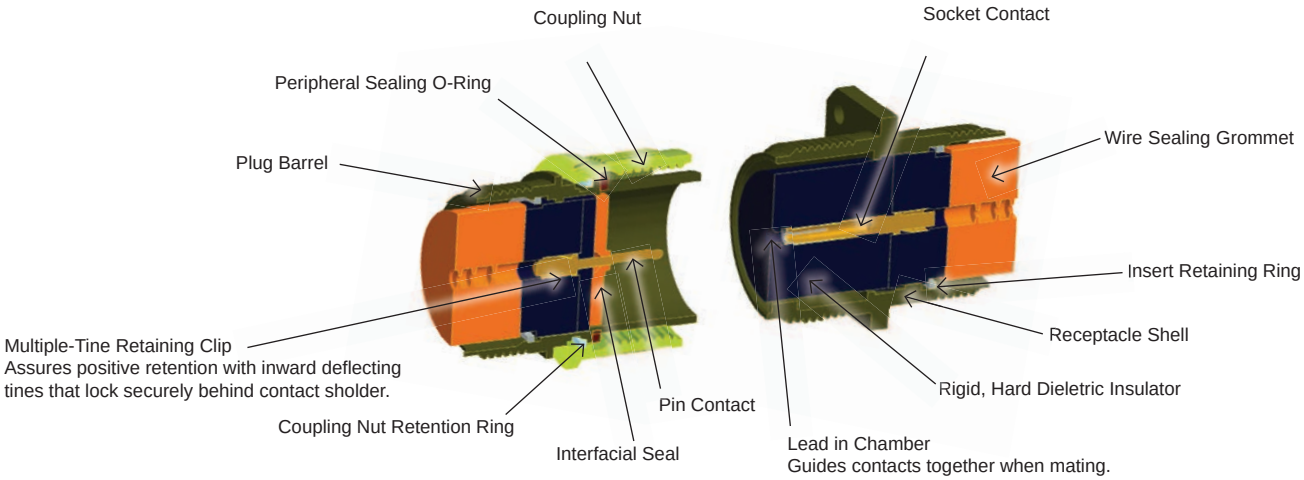
Insulation Strip Length

CONTACT SIZE	STRIP LENGTH
16/16S	.245 (6.2)
12	.245 (6.2)
8	.465 (11.8)
4	.465 (11.8)
0	.540 (13.7)

Mating Life	100 cycles minimum
Salt Spray	Class L & W 48 hours unmated; 48 hours mated per MIL-STD-1344 method 1001 condition letter A, paragraph 4.6.13.2 of MIL-DTL-5015, Class LS, KT, KS 952 hours mated, 48 hours unmated per MIL-STD-1344, method 1001 condition letter D, paragraph 4.6.13.3 of MIL-DTL5015
Heat	Class L, LS & KS, +392°F (+200°C); Class W, KT, +347°F (+175°C)
Chemical Resistance	20-hour full-immersion unmated in hydraulic fluid and lubricating oil per MIL-DTL-5015 minimum
Vibration	10 to 2,000Hz (10g's) 10 microseconds maximum discontinuity to MIL-STD-1344 Method 2005, condition II per MIL-DTL-5015
Shock	50g 11millisecond duration, three major axes. 10 microseconds maximum discontinuity to MIL-DTL-5015 per MIL-STD-1344 method 2004, condition A, 3.13.
Contact Type	Rear-release crimp
Number of Circuits	1 to 85
Contact Insertion & Extraction	Insertion from rear of connector with simple plastic or high-quality metal hand tool. Extraction from rear with plastic or high-quality metal hand tools.
Contact Retention	Per MIL-DTL-5015, 3.10 & 4.6.6.

CONTACT SIZE	AXIAL LOAD LBS. MIN.
16	25
12	30
8	50
4	60
0	75

Polarization	Integral key and keyway plus optional rotational polarization. ⇨ See pages 75-85 for valid rotations.
Approvals	MIL-DTL-5015 (MIL-C-5015)



All dimensions in inches (millimeters in parenthesis)

CREATE YOUR PART NUMBER USING THESE SIX STEPS

1	2	3	4	5	6
MS3450	L	18-11	P	W	-LC
SHELL STYLE	FINISH	LAYOUT	CONTACT	POLARIZATION (OMIT FOR NORMAL)	MODIFIER

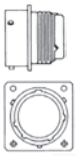
(military part number example)

1	2	3	4	5	6
9440	F	18-11	P	W	-190
SHELL STYLE	FINISH	LAYOUT	CONTACT	POLARIZATION (OMIT FOR NORMAL)	MODIFIER

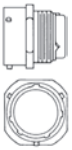
(commercial part number example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → **PLUGS**



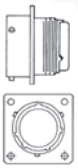
Wall Mount Receptacle +
MS3450 (9440)



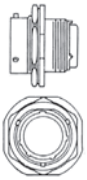
Cable Mount Receptacle
MS3451 (9441)

Standard Plug +
MS3456 (9446)

Plug with Self-locking Coupling Nut +
MS3459 (9816)



Box Mount Receptacle
MS3452 (9442)



Jam Nut Receptacle +
MS3454 (9444)

\+ Most popular

STEP 2: SELECT FINISH

MILITARY

- **L** = Electroless Nickel
- **W** = Olive Drab Chromate over Cadmium
- **LS** = Stainless Steel Shell, Passivated
- **KT**** = Steel Shell, Olive Drab Chromate over Cadmium, Firewall
- **KS**** = Stainless Steel Shell, Passivated, Firewall

** KT and KS finishes are not QPLD for styles MS3451, MS3452 and MS3454.

COMMERCIAL

- **A** = Black Anodize
- **F** = Electroless Nickel
- **W** = Olive Drab Chromate over Cadmium
- **FS** = Stainless Steel Shell, Passivated
- **KT** = Steel Shell, Olive Drab Chromate over Cadmium, Firewall
- **KS** = Stainless Steel Shell, Passivated, Firewall

STEP 3: SELECT LAYOUT (LISTED BY SHELL SIZE)

For listing by # of contacts, ⇨ see page 64-74.

8S-1	16-12	20-14	**22-27***	28-11	36-7
10S-2	16-13	20-15	**22-30***	28-12	36-8
10SL-3	18-1	20-16	**22-32***	**28-13***	36-9
10SL-4	18-4	20-17	**22-36***	28-15	36-10
12S-1*	18-5 S	20-18	24-2	**28-16***	**36-11***
12S-2*	18-6 S	20-19	**24-4***	28-17	**36-12***
12S-3	**18-7***	20-21	24-5	**28-18***	36-15
12S-4	18-8	20-22	**24-6***	**28-19***	**36-16***
12-5	18-9	20-24	24-7	28-20	**36-17***
14S-1	18-10	20-27	24-10	28-21	**36-18***
14S-2	18-11	20-29	24-11	28-22	**36-21***
14S-5	18-12	**20-32***	24-12	32-1	36-52
14S-6	18-13	20-33	**24-15***	**32-2***	**36-66***
14S-7	**18-14***	22-2	**24-16***	**32-3***	40-1
14S-9	18-15 Δ	22-4 S	24-20	32-6	**40-2***
14S-10*	**18-16***	22-5	**24-21***	32-7	**40-3***
14S-11*	**18-17***	22-6	24-22	32-9	**40-4***
14S-12*	**18-18***	22-7 P	**24-24***	32-13	**40-6***
14S-13*	**18-19***	**22-9***	**24-27***	32-15	**40-7***
14-3	18-22	**22-10***	24-28	**32-16***	40-9
16S-1	**18-23***	**22-11***	**24-80***	32-17	40-56
16S-3*	**18-24***	22-14	28-1	**32-19***	**40-62***
16S-4*	**18-27*** S	**22-15***	28-2	**32-20***	
16S-8	**18-28*** S	**22-17***	**28-3***	**32-22***	
16-2*	20-2	**22-18***	**28-4***	32-63	
16-7*	20-4	22-19	**28-5***	32-73	
16-9	20-7	22-21	**28-8***	36-3	
16-10	20-8	22-22	28-9	36-5	
16-11	**20-9***	22-23	28-10	36-6	

***non-QPL, commercial only** S = Tooled for sockets only P = Tooled for pins only Δ = QPL for pins only, sockets commercial only

STEP 4: SELECT CONTACT

P = Pin
S = Socket
A = Less Pin Contacts *(military only)*
B = Less Socket Contact *(military only)*
The "A" and "B" designators are used only for non-power contacts *(PCB, coax, thermocouple, or fibre optic contacts)*

STEP 5: SELECT POLARIZATION

(Omit for normal)
W, X, Y, Z
See ⇨ pages 75-85 for valid polarization.

STEP 6: SELECT MODIFIER

MILITARY & COMMERCIAL

LC = Less Contacts *(not marked on parts)*

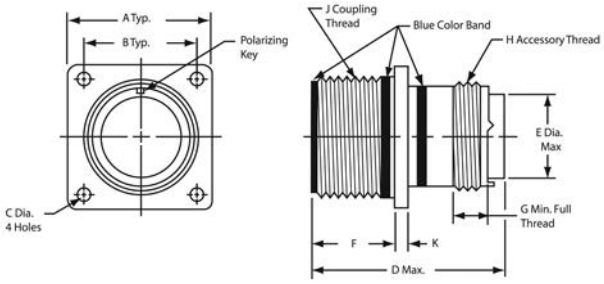
COMMERCIAL ONLY

189 = E-nut M85049/31
190 = Straight strain relief
191 = 90 degree strain relief

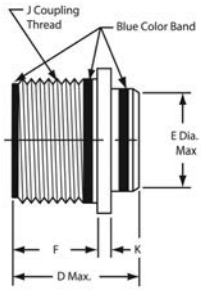
TIP: Make it easy! Order your connector, backshell and accessories with just one part number using our Cable Assembly Cookbook. See www.peigenesis.com/en/solution-guides.html

DIMENSIONS

RECEPTACLES



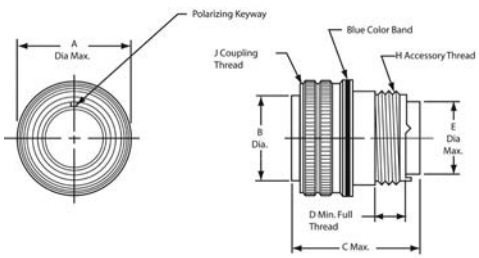
MS3450 (9440)



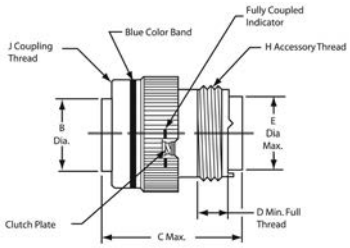
MS3452 (9442)

SHELL SIZE	MS3450, MS3451, MS3452, MS3454	MS3450	MS3450, MS3452				MS3452				MS3450, MS3451, MS3452
	J THREAD CLASS 2A	F MAX./ MIN.	A +/-.031	B	C +.010 / -.005 CLASSES A, F, L, W	C +.010 / -.005 CLASSES KT, KS	F MAX./MIN.	D MAX. SIZE 16&12 CONTACTS	D MAX. SIZE 8,4,0 CONTACTS	E DIA. +/-.016	K
8S	.5000-28 UNEF	.593/.562	0.875	0.594	0.120 (3.0)	0.150 (3.8)	.578/.562	1.662	-	0.500	0.083
10S	.6250-24 UNEF	.593/.562	1.000	0.719	0.120 (3.0)	0.150 (3.8)	.578/.562	1.662	-	0.625	0.083
10SL	.6250-24 UNEF	.593/.562	1.000	0.719	0.120 (3.0)	0.150 (3.8)	.578/.562	1.662	-	0.625	0.083
12	.7500-20 UNEF	.781/.750	1.094	0.812	0.120 (3.0)	0.150 (3.8)	.765/.750	1.662	-	0.750	0.083
12S	.7500-20 UNEF	.593/.562	1.094	0.812	0.120 (3.0)	0.150 (3.8)	.578/.562	1.662	-	0.750	0.083
14	.8750-20 UNEF	.781/.750	1.188	0.906	0.120 (3.0)	0.150 (3.8)	.765/.750	1.662	-	0.875	0.083
14S	.8750-20 UNEF	.593/.562	1.188	0.906	0.120 (3.0)	0.150 (3.8)	.578/.562	1.662	-	0.875	0.083
16	1.0000-20 UNEF	.781/.750	1.281	0.969	0.120 (3.0)	0.150 (3.8)	.765/.750	1.662	1.937	1.000	0.083
16S	1.0000-20 UNEF	.593/.562	1.281	0.969	0.120 (3.0)	0.150 (3.8)	.578/.562	1.662	-	1.000	0.083
18	1.1250-18 UNEF	.781/.750	1.375	1.062	0.120 (3.0)	0.177 (4.5)	.765/.750	1.662	1.937	1.062	0.125
20	1.2500-18 UNEF	.781/.750	1.500	1.156	0.120 (3.0)	0.177 (4.5)	.765/.750	1.662	1.937	1.187	0.125
22	1.3750-18 UNEF	.781/.750	1.625	1.250	0.120 (3.0)	0.177 (4.5)	.765/.750	1.662	1.937	1.312	0.125
24	1.5000-18 UNEF	.843/.812	1.750	1.375	0.147 (3.7)	0.177 (4.5)	.827/.812	1.662	1.937	1.437	0.125
28	1.7500-18 UNS	.843/.812	2.000	1.562	0.147 (3.7)	0.177 (4.5)	.827/.812	1.662	1.937	1.750	0.125
32	2.0000-18 UNS	.906/.875	2.250	1.750	0.173 (4.4)	0.209 (5.3)	.988/.875	1.662	1.937	2.000	0.125
36	2.2500-16 UN	.906/.875	2.500	1.938	0.173 (4.4)	0.209 (5.3)	.988/.875	1.662	1.937	2.250	0.125
40	2.5000-16 UN	.906/.875	2.750	2.188	0.173 (4.4)	0.209 (5.3)	.988/.875	1.662	1.937	2.500	0.125

PLUG SHELL SIZES 8S-16S



MS3456 (9446)

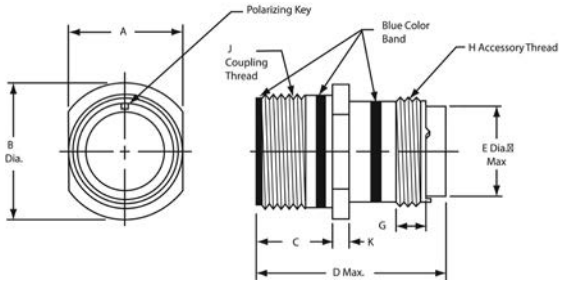


MS3459 (9816)

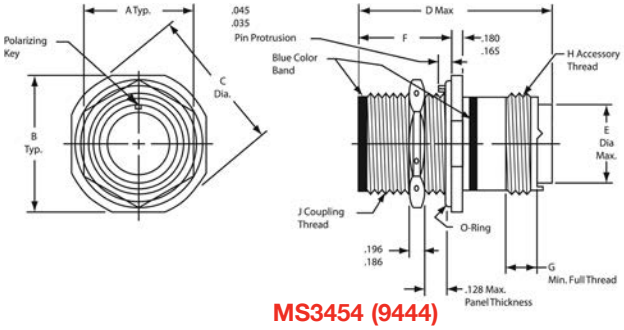
SHELL SIZE	MS3456, MS3459					MS3456			MS3459		
	B DIA. +/-.005	D MIN.	E DIA. MAX.	H THREAD CLASS 2A	J THREAD CLASS 2A	C MAX. SIZE 16&12 CONTACTS	C MAX. SIZE 8,4,0 CONTACTS	A DIA. MAX.	C MAX. SIZE 16&12 CONTACTS	C MAX. SIZE 8,4,0 CONTACTS	A DIA. MAX.
8S	0.360	0.290	0.305	.5000-20 UNEF	.5000-20 UNEF	2.031	-	0.844	1.510	-	0.963
10S	0.435	0.290	0.405	.6250-24 UNEF	.6250-24 UNEF	2.031	-	0.969	1.510	-	1.088
10SL	0.441**	0.290	0.405	.6250-24 UNEF	.6250-24 UNEF	2.031	-	0.969	1.510	-	1.088
12	0.550	0.290	0.549	.7500-20 UNEF	.7500-20 UNEF	2.125	-	1.062	1.780	-	1.213
12S	0.550	0.290	0.549	.7500-20 UNEF	.7500-20 UNEF	2.031	-	1.062	1.510	-	1.213
14	0.670	0.290	0.665	.8750-20 UNEF	.8750-20 UNEF	2.125	-	1.156	1.780	-	1.358
14S	0.670	0.290	0.665	.8750-20 UNEF	.8750-20 UNEF	2.031	-	1.156	1.510	-	1.358
16	0.800	0.290	0.790	1.0000-20 UNEF	1.0000-20 UNEF	2.125	2.500	1.250	1.780	2.500	1.463
16S	0.800	0.290	0.790	1.0000-20 UNEF	1.0000-20 UNEF	2.031	-	1.250	1.510	-	1.463

All dimensions in inches ** Tolerance on this dimension is +.000/-.006

RECEPTACLES



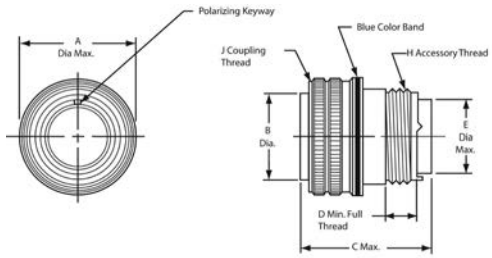
MS3451 (9441)



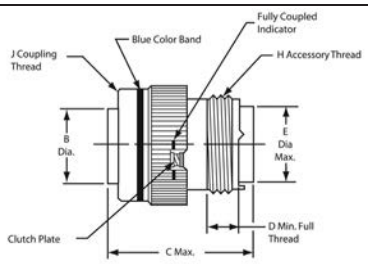
MS3454 (9444)

SHELL SIZE	MS3450, MS3451, MS3454					MS3451			MS3454			
	D MAX.		H THREAD CLASS 2A	E DIA. MAX.	G MIN.	A MAX./MIN.	B DIA. +/-.031	C MAX./ MIN.	A +/-.010	B +/-.005	C DIA. +/-.005	F +/-.005
	SIZE 16&12 CONTACTS	SIZE 8,4,0 CONTACTS										
8S	2.031	-	.5000-20 UNEF	0.305	0.290	.504/.496	0.729	.577/.562	0.687	1.187	1.272	0.720
10S	2.031	-	.6250-24 UNEF	0.405	0.290	.629/.621	0.854	.577/.562	0.812	1.312	1.397	0.720
10SL	2.031	-	.6250-24 UNEF	0.405	0.290	.629/.621	0.854	.577/.562	0.812	1.312	1.397	0.720
12	2.125	-	.7500-20 UNEF	0.549	0.290	.754/.746	0.974	.765/.750	0.937	1.437	1.522	0.970
12S	2.031	-	.7500-20 UNEF	0.549	0.290	.754/.746	0.974	.577/.562	0.937	1.437	1.522	0.720
14	2.125	-	.8750-20 UNEF	0.665	0.290	.879/.871	1.099	.765/.750	1.125	1.562	1.647	0.970
14S	2.031	-	.8750-20 UNEF	0.665	0.290	.879/.871	1.099	.577/.562	1.125	1.562	1.647	0.720
16	2.125	2.500	1.0000-20 UNEF	0.790	0.290	1.005/.996	1.224	.765/.750	1.250	1.687	1.772	0.970
16S	2.031	-	1.0000-20 UNEF	0.790	0.290	1.005/.996	1.224	.577/.562	1.250	1.687	1.772	0.720
18	2.125	2.500	1.0625-18 UNEF	0.869	0.290	1.131/1.121	1.349	.765/.750	1.375	1.812	1.897	0.970
20	2.125	2.500	1.1875-18 UNEF	0.994	0.290	1.256/1.246	1.474	.765/.750	1.500	1.937	2.022	0.970
22	2.125	2.500	1.3125-18 UNEF	1.119	0.290	1.381/1.371	1.599	.765/.750	1.625	2.156	2.241	0.970
24	2.125	2.500	1.4375-18 UNEF	1.244	0.290	1.506/1.496	1.715	.827/.812	1.750	2.281	2.366	0.970
28	2.125	2.500	1.7500-18 UNS	1.465	0.467	1.756/1.746	1.974	.827/.812	2.000	2.531	2.616	0.970
32	2.125	2.500	2.0000-18 UNS	1.715	0.467	2.007/1.996	2.224	.890/.870	2.375	2.781	2.866	0.970
36	2.125	2.500	2.2500-16 UN	1.930	0.467	2.257/2.246	2.474	.890/.870	2.625	3.031	3.116	0.970
40	2.125	2.500	2.5000-16 UN	2.145	0.467	2.511/2.456	2.724	.890/.870	2.875	3.281	3.366	0.970

PLUG SHELL SIZES 18-40



MS3456 (9446)



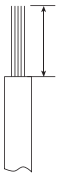
MS3459 (9816)

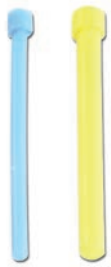
SHELL SIZE	MS3456, MS3459					MS3456			MS3459		
	B DIA. +/-.005	D MIN.	E DIA. MAX.	H THREAD CLASS 2A	J THREAD CLASS 2A	C MAX.		A DIA. MAX.	C MAX.		A DIA. MAX.
						SIZE 16&12 CONTACTS	SIZE 8,4,0 CONTACTS		SIZE 16&12 CONTACTS	SIZE 8,4,0 CONTACTS	
18	0.925	0.290	0.869	1.0625-18 UNEF	1.1250-18 UNEF	2.125	2.500	1.344	1.850	2.500	1.588
20	1.045	0.290	0.994	1.1875-18 UNEF	1.2500-18 UNEF	2.125	2.500	1.469	1.850	2.500	1.713
22	1.170	0.290	1.119	1.3125-18 UNEF	1.3750-18 UNEF	2.125	2.500	1.594	1.850	2.500	1.788
24	1.295	0.467	1.244	1.4375-18 UNEF	1.5000-18 UNEF	2.125	2.500	1.719	1.850	2.500	1.963
28	1.515	0.467	1.465	1.7500-18 UNS	1.7500-18 UNS	2.125	2.500	1.969	1.850	2.500	2.213
32	1.765	0.467	1.715	2.0000-18 UNS	2.0000-18 UNS	2.125	2.500	2.219	1.850	2.500	2.463
36	1.975	0.467	1.930	2.2500-16 UN	2.2500-16 UN	2.125	2.500	2.469	1.850	2.500	2.713
40	2.225	0.467	2.145	2.5000-16 UN	2.5000-16 UN	2.125	2.500	2.719	1.850	2.500	2.963

All dimensions in inches (millimeters in parenthesis)

CONTACTS

PINS



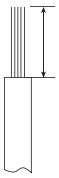


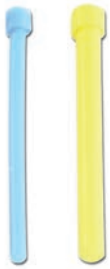
Head goes in first, trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS			WIRE STRIP LENGTHS	WIRE INSULATION RANGE		WIRE HOLE FILLER	COLOR
			1	2	3		MIN.	MAX.		
16S	16, 18 & 20	M39029/29-212	Red	Brown	Red	.245 (6.2)	.053 (1.35)	.103 (2.62)	MS27488-16-3	Blue
16	16, 18 & 20	M39029/29-212	Red	Brown	Red	.245 (6.2)	.053 (1.35)	.103 (2.62)	MS27488-16-3	Blue
12	12 & 14	M39029/29-213	Red	Brown	Orange	.245 (6.2)	.085 (2.16)	.158 (4.01)	MS27488-12-3	Yellow
8	8 & 10	M39029/29-214	Red	Brown	Yellow	.465 (11.8)	.132 (3.35)	.255 (6.48)	MS27488-8-3	Red
4	4 & 6	M39029/29-215	Red	Brown	Green	.465 (11.8)	.237 (6.02)	.370 (9.40)	MS27488-4-3	Blue
0	0 & 2	M39029/29-216	Red	Brown	Blue	.540 (13.7)	.360 (9.14)	.550 (13.97)	MS27488-0-3	Yellow

Thermocouples available, please contact us using the contact information below.

SOCKETS





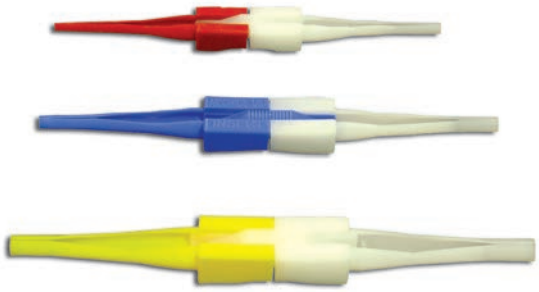
Head goes in first, trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS			WIRE STRIP LENGTHS	WIRE INSULATION RANGE		WIRE HOLE FILLER	COLOR
			1	2	3		MIN.	MAX.		
16S	16, 18 & 20	M39029/30-217	Red	Brown	Violet	.245 (6.2)	.053 (1.35)	.103 (2.62)	MS27488-16-3	Blue
16	16, 18 & 20	M39029/30-218	Red	Brown	Gray	.245 (6.2)	.053 (1.35)	.103 (2.62)	MS27488-16-3	Blue
12	12 & 14	M39029/30-219	Red	Brown	White	.245 (6.2)	.085 (2.16)	.158 (4.01)	MS27488-12-3	Yellow
8	8 & 10	M39029/30-220	Red	Red	Black	.465 (11.8)	.132 (3.35)	.255 (6.48)	MS27488-8-3	Red
4	4 & 6	M39029/30-221	Red	Red	Brown	.465 (11.8)	.237 (6.02)	.370 (9.40)	MS27488-4-3	Blue
0	0 & 2	M39029/30-222	Red	Red	Red	.540 (13.7)	.360 (9.14)	.550(13.97)	MS27488-0-3	Yellow

All dimensions in inches (millimeters in parenthesis)

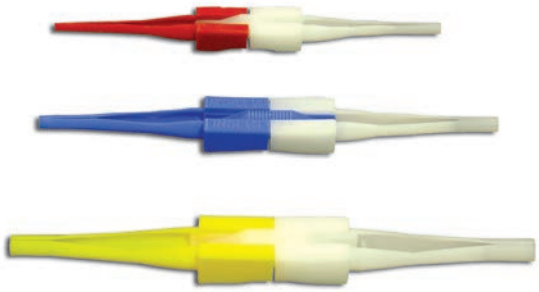
Thermocouples available, please contact us using the contact information below.

PINS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	METAL		PLASTIC		
					INSERTION TOOL	EXTRACTION TOOL	INSERTION/ EXTRACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR
16S	M22520/1-01	WA27F	M22520/1-02	Blue	DAK83-16B	DRK83-16B	M81969/14-03	Blue	White
16	M22520/1-01	WA27F	M22520/1-02	Blue	DAK83-16B	DRK83-16B	M81969/14-03	Blue	White
12	M22520/1-01	WA27F	M22520/1-02	Yellow	DAK83-12B	DRK83-12B	M81969/14-04	Yellow	White
8	-	M22520/23-01	M22520/23-02 die w/ M22520/23-09 locator	-	-	-	M81969/29-02	-	Red
4	-	M22520/23-01	M22520/23-04 die w/ M22520/23-11 locator	-	-	-	M81969/29-03	-	Blue
0	-	M22520/23-01	M22520/23-05 die w/ M22520/23-13 locator	-	-	-	M81969/29-04	-	Yellow

SOCKETS

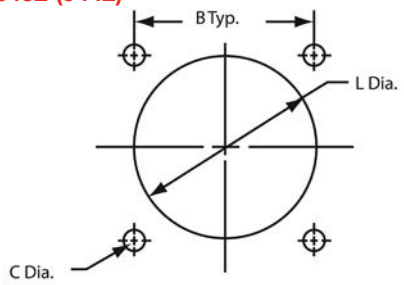


CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	METAL		PLASTIC		
					INSERTION TOOL	EXTRACTION TOOL	INSERTION/ EXTRACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR
16S	M22520/1-01	WA27F	M22520/1-02	Blue	DAK83-16B	RK83-16B	M81969/14-03	Blue	White
16	M22520/1-01	WA27F	M22520/1-02	Blue	DAK83-16B	DRK83-16B	M81969/14-03	Blue	White
12	M22520/1-01	WA27F	M22520/1-02	Yellow	DAK83-12B	DRK83-12B	M81969/14-04	Yellow	White
8	-	M22520/23-01	M22520/23-02 die w/ M22520/23-09 locator	-	-	-	M81969/29-02	-	Red
4	-	M22520/23-01	M22520/23-04 die w/ M22520/23-11 locator	-	-	-	M81969/29-03	-	Blue
0	-	M22520/23-01	M22520/23-05 die w/ M22520/23-13 locator	-	-	-	M81969/29-04	-	Yellow

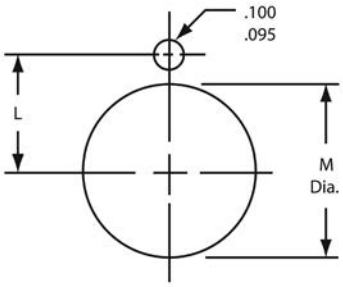
All dimensions in inches (millimeters in parenthesis)

PANEL CUTOUTS

MS3450 (9440)
MS3452 (9442)



MS3454 (9444)

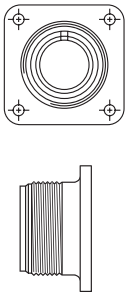


SHELL SIZE	MS3450/MS3452 B	MS3450/MS3452 L DIA. +/-.010	MS3450/MS3452 C DIA. +.010/-.005	MS3450 CLASS K C DIA. +.010/-.005	MS3454 L +/-.005	MS3454 M DIA. +.015/-.000
8S	0.594	0.562	0.120	0.150	0.323	0.505
10S	0.719	0.688	0.120	0.150	0.385	0.630
10SL	0.719	0.688	0.120	0.150	0.385	0.630
12	0.812	0.812	0.120	0.150	0.448	0.755
12S	0.812	0.812	0.120	0.150	0.448	0.755
14	0.906	0.938	0.120	0.150	0.510	0.880
14S	0.906	0.938	0.120	0.150	0.510	0.880
16	0.969	1.062	0.120	0.150	0.573	1.005
16S	0.969	1.062	0.120	0.150	0.573	1.005
18	1.062	1.188	0.120	0.177	0.635	1.130
20	1.156	1.312	0.120	0.177	0.698	1.255
22	1.250	1.438	0.120	0.177	0.760	1.380
24	1.375	1.562	0.147	0.177	0.823	1.505
28	1.562	1.812	0.147	0.177	0.948	1.755
32	1.750	2.062	0.173	0.209	1.073	2.005
36	1.938	2.312	0.173	0.209	1.198	2.255
40	2.188	2.562	0.173	0.209	1.323	2.505

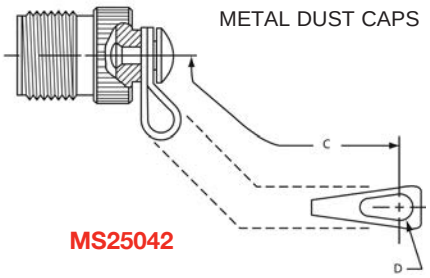
⇨See page 106 for gaskets. ⇨See page 366 for nut plates and seal screws.

DUMMY RECEPTACLES & METAL DUST CAPS

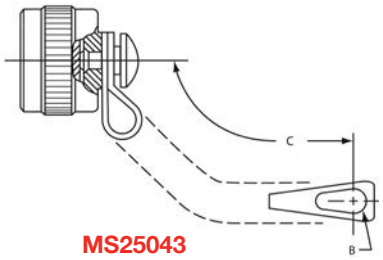
DUMMY RECEPTACLES



METAL DUST CAPS



MS25042



MS25043

SHELL SIZE	DUMMY RECEPTACLES	METAL DUST CAPS PLUG	METAL DUST CAPS RECEPTACLE	C APPROX.	D DIA. +.010/-.005	B DIA. +.010/-.005
8S	MS3105-8	MS25042-8DA	MS25043-8DA	4.000	0.156	0.140
10S, 10SL	MS3105-10	MS25042-10DA	MS25043-10DA	4.000	0.156	0.140
12, 12S	MS3105-12	MS25042-12DA	MS25043-12DA	4.500	0.156	0.140
14, 14S	MS3105-14	MS25042-14DA	MS25043-14DA	4.500	0.156	0.140
16S	MS3105-16	MS25042-16DA	MS25043-16DA	4.500	0.156	0.140
16	MS3105-17	MS25042-16DA	MS25043-16DA	4.500	0.156	0.140
18	MS3105-18	MS25042-18DA	MS25043-18DA	4.500	0.156	0.140
20	MS3105-20	MS25042-20DA	MS25043-20DA	5.000	0.187	0.140
22	MS3105-22	MS25042-22DA	MS25043-22DA	5.000	0.187	0.140
24	MS3105-24	MS25042-24DA	MS25043-24DA	5.500	0.187	0.171
28	MS3105-28	MS25042-28DA	MS25043-28DA	7.750	0.187	0.171
32	MS3105-32	MS25042-32DA	MS25043-32DA	7.750	0.218	0.187
36	MS3105-36	MS25042-36DA	MS25043-36DA	7.750	0.218	0.187
40	MS3105-40	MS25042-40DA	MS25043-40DA	7.750	0.218	0.187

Note: Stainless steel dust caps and other lanyards available, please contact us.
Aluminum alloy with anodized plating is shown. Contact us for other available dust cap materials and platings.

All dimensions in inches (millimeters in parenthesis)

STANDARD CABLE CLAMPS

Light-weight, open-rear design

	STRAIGHT CLAMP		90°		CABLE ENTRY	
SHELL SIZE	LOW-COST	SELF-LOCKING	LOW-COST	SELF-LOCKING	MAX.	MIN.
8	M85049/52-1-8*	M85049/52S8*	M85049/51-1-8*	M85049/51S8*	.204 (5.18)	.125 (3.18)
10S, 10SL	M85049/52-1-10*	M85049/52S10*	M85049/51-1-10*	M85049/51S10*	.286 (7.26)	.187 (4.75)
12, 12S	M85049/52-1-12*	M85049/52S12*	M85049/51-1-12*	M85049/51S12*	.416 (10.57)	.291 (7.39)
14, 14S	M85049/52-1-14*	M85049/52S14*	M85049/51-1-14*	M85049/51S14*	.476 (12.09)	.351 (8.92)
16, 16S	M85049/52-1-16*	M85049/52S16*	M85049/51-1-16*	M85049/51S16*	.626 (15.88)	.501 (12.72)
18	M85049/52-1-18*	M85049/52S18*	M85049/51-1-18*	M85049/51S18*	.706 (17.93)	.518 (13.16)
20	M85049/52-1-20*	M85049/52S20*	M85049/51-1-20*	M85049/51S20*	.831 (21.11)	.581 (14.76)
22	M85049/52-1-22*	M85049/52S22*	M85049/51-1-22*	M85049/51S22*	.956 (24.28)	.644 (16.36)
24	M85049/52-1-24*	M85049/52S24*	M85049/51-1-24*	M85049/51S24*	1.081 (27.46)	.706 (17.93)
28	M85049/52-1-28*	M85049/52S28*	M85049/51-1-28*	M85049/51S28*	1.187 (30.15)	.750 (19.05)
32	M85049/52-1-32*	M85049/52S32*	M85049/51-1-32*	M85049/51S32*	1.250 (31.75)	.875 (22.23)
36	M85049/52-1-36*	M85049/52S36*	M85049/51-1-36*	M85049/51S36*	1.375 (34.93)	.938 (23.83)
40	M85049/52-1-40*	M85049/52S40*	M85049/51-1-40*	M85049/51S40*	1.500 (38.10)	.938 (23.83)

* Select plating code to match connector plating.
N = Electroless Nickel-Plated Aluminum Alloy
W = Olive Drab Chromate over Cadmium over Electroless Nickel-Plated Aluminum Alloy
S = Stainless Steel

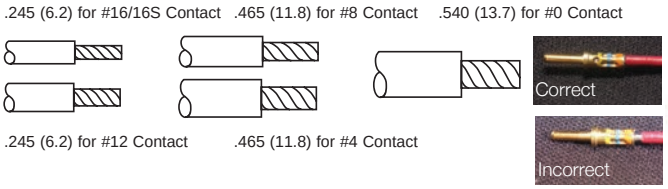
	DESCRIPTION	PART NUMBER PREFIX	STRAIGHT	90°	45°
	Heat Shrink Boot Adapter ⇨ See pages 355-356	M85049/60	X		
	Environmental	M85049/7			X
		M85049/9		X	
		M85049/11	X		
	EMI/RFI Non-Environmental	M85049/23			X
		M85049/24		X	
		M85049/25	X		
	EMI/RFI Environmental	M85049/6			X
		M85049/8		X	
		M85049/10	X		
	EMI/RFI Crimp Ring	M85049/26	X		
	EMI/RFI Banding	M85049/82	X		
		M85049/83			X
		M85049/84		X	
	Cable Tie	M85049/55		X	
		M85049/53	X		
		M85049/54			X
	Wire Seal Compression Nuts “E”	M85049/31	X		

Note: If military standard versions won’t fit your applications, please contact us with your requirements.

All dimensions in inches (millimeters in parenthesis)

ASSEMBLY INSTRUCTIONS

WIRE-STRIPPING AND CONTACT-CRIMPING



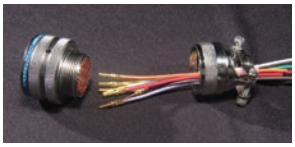
STEP 1: Strip wires. (See above for correct strip length by contact.) Insert wire into rear of contact. Wire insulation must push against rear of contact. Wire must be visible through inspection hole.

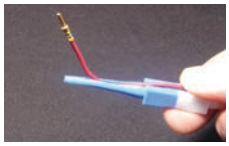
STEP 2: Use M22520/1-01 crimp tool with proper crimp locator M22520/1-02. See pages 52-53 for additional tooling.

CONTACT SIZE	COLOR
16/16S	Blue
12	Yellow

STEP 3: Insert contact and wire into tool jaws. To crimp, squeeze handles together fully until ratchet releases and allows handles to expand, otherwise contact cannot be extracted from tool jaws. Maintain slight insertion pressure on wire while crimping contact to wire.*

CONTACT INSERTION

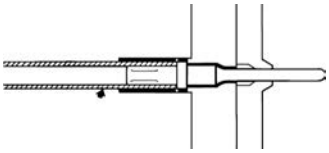


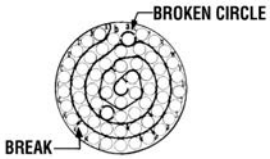


STEP 1: Remove backshell and put wired contacts through cable clamp opening.

STEP 2: Use colored end of CIET tool for insertion. Place wire into tool at large opening. To facilitate contact insertion, a six-inch minimum of free wire is recommended.

STEP 3: Slide back tool on wire while holding thumb against wire at opening. Wire will slip into tool.





STEP 4: With tool pressed against shoulder of contact, starting at the center cavity, insert wired contact and tool into properly-identified cavity at rear of plug with firm, even pressure. Do not use excessive pressure.

STEP 5: When contact touches bottom, a slight click can be heard as tines of metal retaining clip snap into place behind contact shoulder.

STEP 6: Check face of plug or receptacle for proper contact installation. In socket inserts with a large number of contacts, cavities are identified in a spiral pattern. A projecting line from the spiral indicates omission of a letter; a broken circle around a cavity indicates transition between capitals, and lower case and double letters.

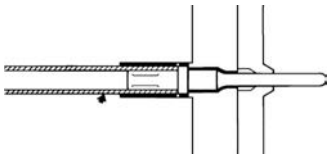
SEE PAGE 114 for endbell tightening tools.

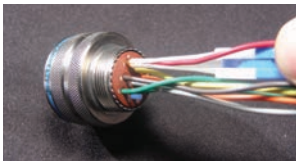
STEP 7: Withdraw tool from rear of plug. To be sure that contact is locked, pull back lightly on wire. Remove tool from wire and proceed with other contacts.

STEP 8: After all contacts are inserted, fill unwired cavities with sealing plugs (insert head first and leave end protruding for ease of removal), assemble backshell on rear of connector.

* **IMPORTANT NOTE:** Microsection the contact to verify crimp quality.

CONTACT EXTRACTION





STEP 1: Remove backshell and slide back along wires to allow access. To extract a contact, use white end of CIET tool. Place wire into tool at large opening. Slide back tool on wire while holding thumb against wire at opening. Wire will slip into tool.

STEP 2: Push tool into rear of plug until it touches bottom. At this point, tool releases tines on retaining clip so that contact can be extracted.

STEP 3: While maintaining slight insertion force on tool, firmly hold wire against serrated shoulder at center of tool and extract both wired contact and tool from plug.

Note: LJT Series shown.

Amphenol AIB/GT Series MIL-DTL-5015

IMPROVED COUPLING OVER THREADED MIL-DTL-5015

The AIB/GT Series replaces the threaded coupling used in MIL-DTL-5015 with a positive, quick-mating, three-point reverse bayonet lock for improved performance. These Amphenol connectors are an ideal cost-effective option for applications requiring reliability in harsh environments, and is the world-standard for rail, mass transit, and military ground vehicle applications. This series has the same shell dimensions, contact layouts, contacts, and performance characteristics as the MIL-DTL-5015 threaded connectors; however, the two series do not intermate. They are sealed to withstand moisture, condensation, vibration and flash-over. Over 180 contact layouts are available, in variations that allow for just power, just signal, or a mix of both contact types.

- Meets NATO specification VG95234

COMMERCIAL & MILITARY

AIB/GT series connectors are made in accordance with German military specification VG95234 and MIL-DTL-5015. Originally designed for NATO combat vehicles, aircraft, and airborne equipment, these rugged connectors are now in a broad range of demanding commercial applications from trucks to industrial robots.

APPLICATIONS

Industrial environments requiring extreme environmental reliability and ease of mating and unmating, such as:

- Power generators
- Battery systems
- Engines
- Sensors
- Motion control
- Off-road vehicles
- Earth-moving equipment
- Ships
- Railroad equipment
- Mobile equipment
- Industrial machinery
- Telecommunications
- Mass transit

FEATURES

SIMPLE AND FAST MATING AND UN-MATING

AIB/GT series connectors use a unique “reverse bayonet” coupling system that allows for mating and un-mating with a simple 120° rotation without compromising shock, vibration, or moisture resistance. The large, open ramps are easily cleaned of mud or other contaminants. The ramp coupling system eliminates the possibility of cross-threading and thread damage possible with standard MIL-DTL-5015 threaded connectors. This design is easier to mate in cold weather, tight spaces, or on equipment which must be disassembled frequently.

SHOCK AND VIBRATION RESISTANCE

AIB/GT series connectors are supplied with military-standard resistant sealing and a three-point bayonet coupling nut. The three-point bayonet coupling incorporates a wave spring and washer specified by the rail industry. AIB/GT series connectors pass the most stringent tests of shock and vibration performance while maintaining proper continuity and water tightness. Rugged aluminum alloy shell and hardware are light in weight yet highly resistant to damage.

FEATURES

AUDIBLE, VISUAL, AND TACTILE CONFIRMATION OF MATING

AIB/GT series connectors provide three independent checks that the connector halves are mated. When the coupling nut is fully rotated, the three studs snap into the end of the ramps with a loud “click” (audible). The user can feel the bolts click into the grooves (tactile). Blue dots on the receptacle and coupling nut are aligned when the connector is properly mated (visual).

ENVIRONMENTAL

The sealing is not compromised by any of the operating conditions defined in MIL-DTL-5015 and is completely watertight when mated.

BROAD TEMPERATURE RANGE

These connectors will operate in temperatures from -67° to +257°F (-55° to +125°C). High-temperature and zero-halogen insulators are also available. Contact us for ordering information.

WIDE RANGE OF WIRE GAUGES AND CURRENT-CARRYING CAPABILITY

Up to 150 amps with accommodations for wire gauges from size 26 to size 0 AWG.

WIDE VARIETY OF CONTACTS

High-reliability screw machine contacts with silver or gold plating are available in sizes from 20 to 0 to accommodate wire gauges from 26 to 0 AWG. Solder, crimp, PC, coax, and thermocouple contacts are available.

AIB/GT connectors use rail industry-standard crimp contacts that are completely interchangeable with other rail connectors such as Litton/Veam CIR series.

INTERMATEABLE AND INTERMOUNTABLE WITH ALL VG95234 CONNECTORS

The standard MIL-DTL-5015 layouts and dimensions ensure intermateability and intermountability with all connectors made in accordance with VG95234.

All AIB/GT connectors are intermountable with standard threaded MIL-DTL-5015 connectors, often making it possible to upgrade without changing panel cutouts or clearances.

TECHNICAL SPECIFICATIONS

MATERIALS & FINISHES

Shell	Aluminum alloy. (Can be grounded)
Plating	Olive drab chromate coating over cadmium plating, conductive black alloy, non-conductive black alloy, electroless nickel, green zinc, and black anodized
Contacts	Copper alloy
Platings	Hard silver plating or gold plating
Insulator*	Neoprene
Seals	Silicone, Neoprene, or Viton®**

*Optional zero-halogen and high-temperature insulators are available. Contact us for information.
**Viton® is a registered trademark of DuPont DOW Elastomers

ELECTRICAL DATA

Operating Voltage/Test Voltage according to MIL-DTL-5015H

The indicated values for the operating voltage are limits concerning the electrical function. When the working voltage exceeds 50V, safety precautions must be in accordance with the following standards: VDE 0100, IEC 309-1 or applicable national standards.

Current Rating

CONTACT SIZE	TEST CURRENT (AMPS)
16/16S	13
12	23 (60)*
8	46 (69)*
4	80 (120)*
0	150 (225)*

*Test amps, multiconductor using Radsok contact

Altitude Voltage Derating* Chart

	NOMINAL DISTANCE		OPERATING VOLTAGE*		STANDARD SEA LEVEL CONDITIONS		PRESSURE ALTITUDE† 50,000 FEET		PRESSURE ALTITUDE† 70,000 FEET	
MS SERVICE RATING	AIRSPACE	CREEPAGE	DC V	AC VRMS	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)	MINIMUM FLASHOVER VOLTAGE AC (RMS)	TEST VOLTAGE AC (RMS)
I	1/32	1/16	250	200	1,400	1,000	550	400	325	260
A	1/16	1/8	700	500	2,800	2,000	800	600	450	360
D	1/8	3/16	1,250	900	3,600	2,800	900	675	500	400
E	3/16	1/4	1,750	1,250	4,500	3,500	1,000	750	550	440
B	1/4	5/16	2,450	1,750	5,700	4,500	1,100	825	600	480
C	5/16	1	4,200	3,000	8,500	7,000	1,300	975	700	560

* No attempt has been made to recommend operating voltages. The designer must determine own operating voltage by the application of a safety factor to the above derating chart to compensate for circuit transients, surges, etc.

† Not corrected for changes in density due to variations in temperature.

Wire Range Sizes — 26 AWG to 0 AWG (See contact selection on pages 86-89)

Contact Resistance per MIL-DTL-5015H p 3.15

CONTACT SIZE	CONTACT RESISTANCE MILLIOHM MAX.	POTENTIAL VOLTAGE DROP IN MILLIVOLTS MAX.
16/16S	6	21
12	3	20
8	1/(0.44)*	12 (20)*
4	0.5/(0.23)*	10 (18)*
0	0.2/(0.18)*	10 (27)*

*Using Radsok contact

Insulation Resistance — @77°F (25°C) > 5,000 Megohms

MECHANICAL

Operating Temperature — -67° to +257°F (-55° to +125°C) Neoprene

Sealing — 33-foot submersible

Sealed when mated. ≈ IP 67 and NEMA 4P

TECHNICAL SPECIFICATIONS

Wire Sealing Range

The connector is designed for individual wire sealing. Sealing of an outer cable jacket on multiconductor cables must be accomplished with an appropriate endbell. Sealing is only guaranteed if wires used are according to MIL-W-5086 or within the listed ranges.

CONTACT SIZE	SEALING RANGE	
	INCHES	MM
16	.064 - .130	1.62 - 3.30
12	.114 - .170	2.89 - 4.31
8	.164 - .255	4.16 - 6.47
4	.272 - .370	6.90 - 9.30
0	.415 - .550	10.50 - 13.97

Insulation Strip Lengths

See Contact Selection Chart on page 86

Mating Life

2,000 cycles minimum (commercial) 500 cycles minimum (military)

Salt Spray

Olive drab chromate over cadmium - 500 hours
Non-conductive black alloy - 48 to 200 hours
Conductive black alloy - 48 to 200 hours
Black anodized - 500+ hours
Electroless nickel - 48 hours

Heat

Neoprene 257˚F (+125˚C); Low-smoke, zero-halogen (LSZH) 347˚F (+175˚C); Viton 392˚F (+200˚C)

Chemical Resistance

Diesel Fuel
JP-4
Hydraulic Fluid
Gasoline

48-hour intermittent spray for each chemical with no deterioration, followed by Contact Retention (CR), Insulation Resistance (IR), Dielectric Withstanding Voltage tests (DWV)

Corrosion Resistance

Olive Drab Cadmium-Plated 48 hours per MIL-DTL-5015 (3.17/4.6.13)

Fluid Immersion

Hydraulic Fluid 20 hours per MIL-DTL-5015 (3.19/4.6.15)
Lubrication Oil 20 hours per MIL-DTL-5015 (3.19/4.6.15)

Vibration

Per MIL-STD-810C, method 516.2, procedure VIII
1.0 g peak from 5 to 25 Hz
.030" double amplitude from 25 to 57 Hz
5g peak from 57 to 500 Hz

Basic Shock

Per MIL-STD-810C, method 516.2, procedure I pulse at half-sine wave of 30g for 11 seconds

Gun fire Shock

Per MIL-STD-810C, method 516.2, procedure IV pulse at half-sine wave of 100g for 1.5 seconds

Ballistic Shock

Per MIL-STD-810C, method 516.2, procedure IV pulse at half sine wave of 200g for .5 seconds

Contact Type

Solder, crimp, PC, coax, or thermocouple. Hard silver or gold plating.

Contact Insertion

From rear with simple hand-tool. Removable, 5 cycles minimum.

Contact Retention

Pin and socket contacts are designed to resist severe vibration and repeated connection and disconnection. Contact retention and separation is tested according to MIL-DTL-5015H (4.6.6.1)

CONTACT SIZE	RETENTION FORCE MIN.
16	10
12	15
8	20
4	20
0	25

TECHNICAL SPECIFICATIONS

Number of Circuits	1 to 85
Polarization	Key and keyway plus three point bayonet with optional rotational polarization. See pages 75-85.
Rear Accessories	Maximum Torque

SIZE	IN./LB. MAX.
10SL	26
14S	44
16	50
16S	50
18	55
20	65
22	85
24	90
28	114
32	120
36	153
40	170

THERMOCOUPLE CODES		
MATERIAL	COLOR CODE	CODE
Iron	Black	IR
Constantan	Yellow	CON
Copper Alloy	–	Cu
Chromel	White	CH
Alumel	Green	AL

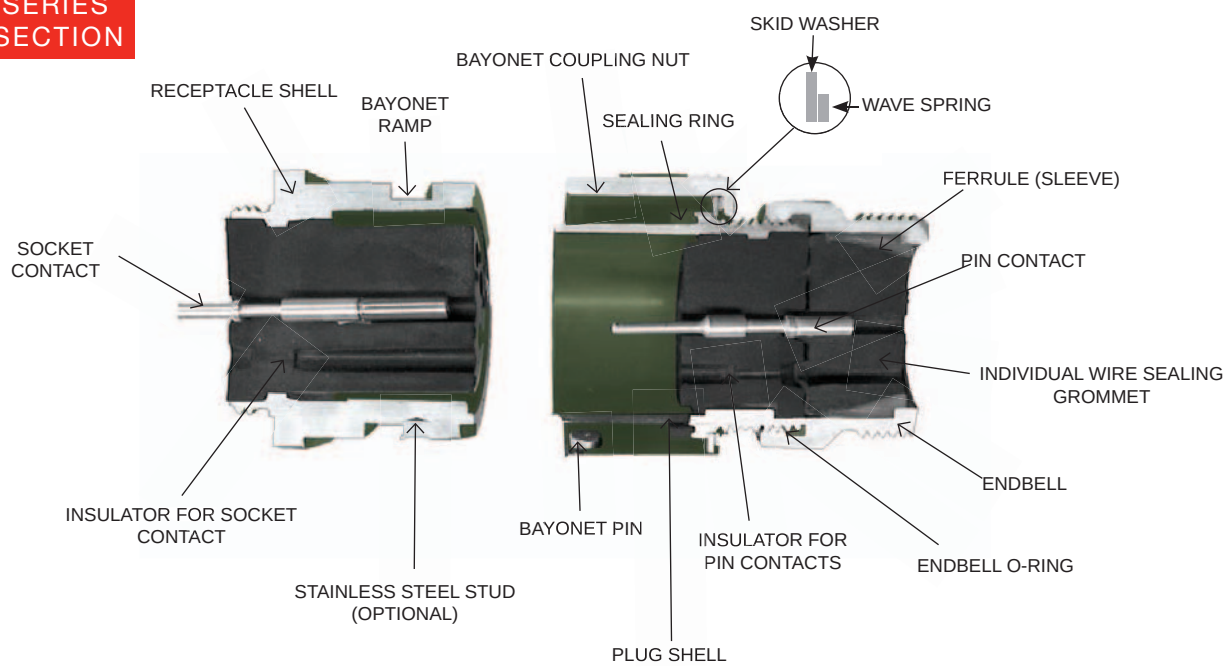
Color code is identified by small dot on wire well end of contact.

Thermocouple Types:

J = Iron-Constantan
K = Alumel-Chromel
T = Copper-Constantan
E = Chromel-Constantan

Approvals/Agency Listing	UL File# E115497

AIB/GT SERIES CROSS-SECTION



AIB/GT SERIES HOW TO ORDER

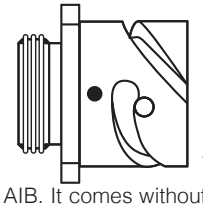
The next page shows all of the standard possibilities for AIB/GT series connectors. Follow the nine steps to create a description of the connector best suited to your application. This is not an Amphenol part number, but gives you a convenient way to select your connector. Contact us with the description for a valid Amphenol part number. If you prefer to select the Amphenol part number, see the How-To-Order Guide on pages 62-63.

Many additional options not shown are available. Contact us if your needs are not met by the options on the next page.

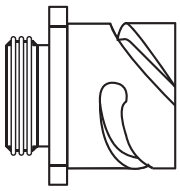
CREATE YOUR PART NUMBER USING THESE NINE STEPS

1	2	3	4	5	6	7	8	9
AIB	6HD	F	A	24-28	P	W	S	-472
CONNECTOR TYPE	SHELL STYLE	END BELLS (If omtting endbell, enter -)	CABLE CLAMP/BOOT (If needed)	LAYOUT	CONTACT	ROTATION (omit for normal)	CONTACT TYPE	PLATING/ MODIFICATION

STEP 1: SELECT CONNECTOR TYPE



AIB*

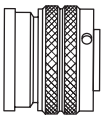


AIBC*

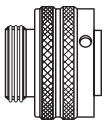
* AIBC is the commercial version of the AIB. It comes without wear pins in the receptacles and without wave springs in the coupling nuts.
Note: AIBC are fully intermateable with all reverse bayonet connectors.

STEP 2: SELECT SHELL STYLE, PLUG OR RECEPTACLE

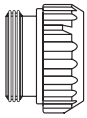
PLUGS ← Mates with → **RECEPTACLES**



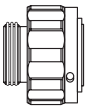
6B Box Mount



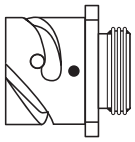
6 Shielded Plug



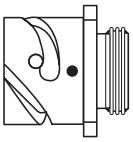
4 Rubber-Covered



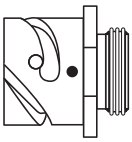
6HD Heavy-Duty



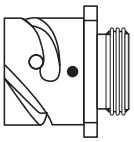
0 Front Wall Mount with Accessory Threads



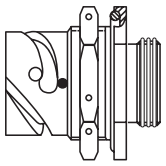
30 Rear Wall Mount with Accessory Threads (Most Popular)



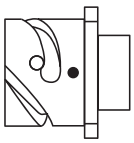
1 Cable Mount with Accessory Threads



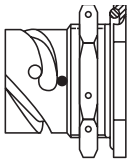
20 Front Box Mount with Rear Accessory Threads



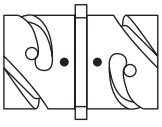
70 Rear Mount Jam Nut with Accessory Threads



2 Front Box Mount No Accessory Threads



7 Rear Mount Jam Nut No Accessory Threads

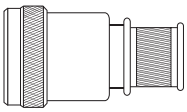


TB Thru Bulkhead

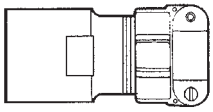
STANDARD SPECIALS — CALL WITH NPT THREAD SIZE, SEALTITE CONDUIT DIAMETER, OR CABLE OUTSIDE DIAMETER.

SHIELDED CABLE/HEAT SHRINK

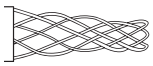
SHIELDED CABLE BANDING



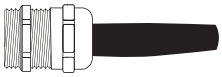
GLAND SEAL



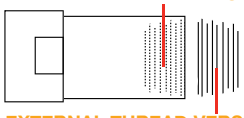
MESH GRIP



LOW COST GLAND SEAL

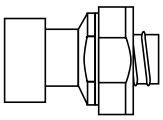


INTERNAL THREAD VERSION



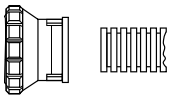
EXTERNAL THREAD VERSION

CONDUIT METAL



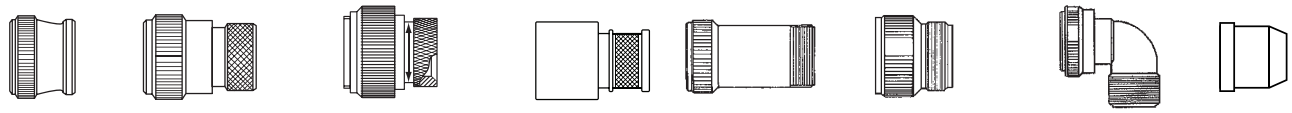
CONDUIT PLASTIC

See pages 371-372



STEP 3: SELECT CABLE CLAMP OR BOOT (IF APPLICABLE)

TIP: Order connector, backshell and all accessories as one part number! See www.peigenesis.com/en/solution-guides.html



RV No Clamp

G Heat Shrink

G2 Spin Coupling Heat Shrink

U Low-Cost Shielded

L Long Extender

A Unsealed *(no grommet seal)*

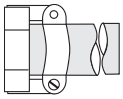
F Sealed *(with grommet seal)*

T MS Style (MS3108) 90°

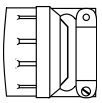
P Potting *Potting Compound ⇨ See Page 357

STEP 4: SELECT CABLE CLAMP OR BOOT (IF APPLICABLE)

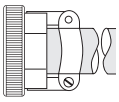
Heat Shrink Boot
Call with cable outisde diameter ⇨ See pages 354-355.



A MS3057-A
Standard Cable Clamp



C MS3057-C
Gland Seal ⇨ See Page 104



9767 9767
Gland Seal for smaller cable range. ⇨ See Page105

STEP 5: SELECT LAYOUT

⇨ See pages 64-85

STEP 6: SELECT CONTACT

P = Pin **S** = Socket **PS** =Style TB Only

STEP 7: SELECT ROTATION

⇨ See pages 75-85 (Omit for normal)
W, X, Y, Z

STEP 8: SELECT CONTACT TYPE

S = Solder
H = PC**
C = Crimp*
0 = Less Contacts

* When using a "C" in part number, the connector is supplied with the standard size crimp contacts for its layout. Bolded part numbers on ⇨ page 86-89 indicate crimp contact. Please call for connectors with reduced or enlarged crimp barrel contacts.
⇨ ** See page 91 for post diameters and lengths.

STEP 9: SELECT PLATING

CONTACTS

(Omit for silver contacts)

B30 = Gold 30µ" Gold over Nickel
T = Thermocouple *(Solder only)*
RDS = RADSOK *(Socket only)* 12, 8, 4, 0

SHELL PLATING

(Omit for olive drab chromate over cadmium)

023 = Nickel *(RoHS with crimp or 116 contacts)*
024 = Green Zinc Cobalt
025 = Non-Conductive Black Alloy *(RoHS with crimp or 116 contacts)*
027 = Conductive Black Alloy *(RoHS with crimp or 116 contacts)*
G96 = Black Anodized
116 = Less Pre-tinned Solder Cups
472 = 116 & 025 mod codes *(RoHS)*
548 = 116 & 023 mod codes *(RoHS)*
553 = 116 & 027 mod codes *(RoHS)*

MATERIALS

L = Low-smoke, zero-halogen
V = High-temperature Viton®*

**Viton® is a registered trademark of DuPont Dow Elastomers*

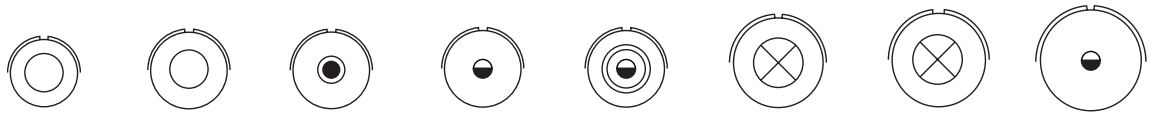
LAYOUTS BY NUMBER OF CONTACTS

CONTACT LEGEND ⊕ =16 ◒ =12 ◉ =8 ○ =4 ⊗ =0
Mating face view of pin inserts

SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97)
VG95234 (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

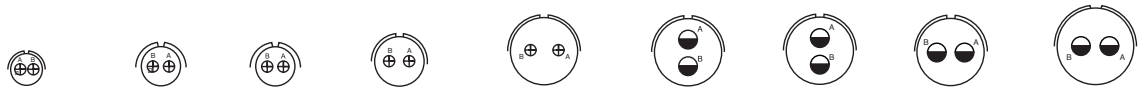
1 CONTACT

LAYOUT	8S-1	10S-2	12S-4	12-5	14S-4	14-3	16S-3	16-2
# OF CONTACTS	1-#16	1-#16	1-#16	1-#12	1-#16	1#8	1#16	1-#12
SERIES	✚✦▼	✚▼	✚▼	✚✦▼	●✚✦	✚▼	▽✚	●✚▽
SERVICE RATING	A	A	D	D	D	A	B	E

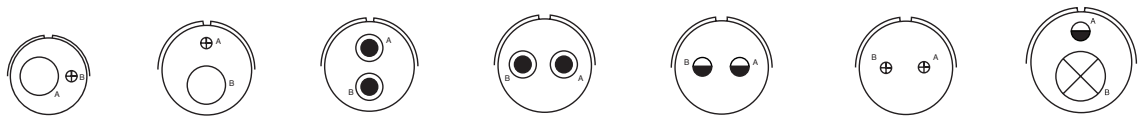


LAYOUT	16-12	18-6	18-7	18-16	18-420	20-2	22-7	24-52
# OF CONTACTS	1-#4	1-#4	1-#8	1-#12	1-#12	1-#0	1-#0	1-#12
SERIES	●✚✦■▼	●✚▼	✚●▽	●✚✦▽	✦	●❖■▼	●✚▼	●❖
SERVICE RATING	A	D	B	C	17 KVac 24 KVdc	D	E	21 KVac 30 KVdc

2 CONTACTS

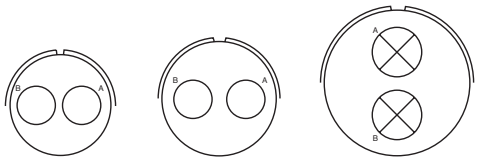


LAYOUT	10SL-4*★	12S-3*	12S-6	14S-9*	16S-4	16A11	16-11	16-13	18-3
# OF CONTACTS	2-#16	2-#16	2-#16	2-#16	2-#16	2-#12	2-#12	2-#12	2-#12
SERIES	●✚✦■▼🌡	✚✦▼🌡	✦	●✚✦▼🌡	●✚✦■▽🌡	■	●✚✦▼🌡	✚▼🌡	●✚✦
SERVICE RATING	A	A	Thermocouple	A	D	A	A	Thermocouple	D



LAYOUT	18-14	20-12	20-23	22-1	22-8	22-11	24-1
# OF CONTACTS	1-#16; 1-#4	1-#16; 1-#4	2-#8	2-#8	2-#12	2-#16	1-#12; 1-#0
SERIES	✚▽	✚	●✚✦	●✦✚	●✚✦	●✚✦▽	▼
SERVICE RATING	A	A	A	D	E	B	D

3 CONTACTS



LAYOUT	24-9	28-7	32-5	10SL-3★	14S-1	14S-7	14S-12	16S-5
# OF CONTACTS	2-#4	2-#4	2-#0	3-#16	3-#16	3-#16	3-#16	3-#16
SERIES	●✚✦■	●❖	●✚✦	●✚✦■▼	✚✦▼●	●✚✦▼🌡	●❖✦▽	●✚✦
SERVICE RATING	A	D	D	A	A	A	A	A

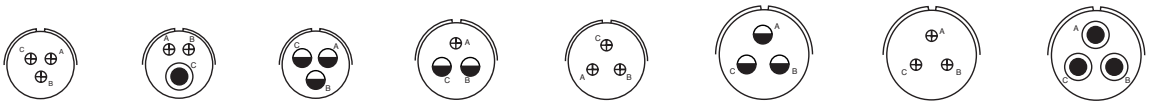
* most popular ★Pins in receptacle, sockets in plug only for 97/AIT/MS series

LAYOUTS BY NUMBER OF CONTACTS

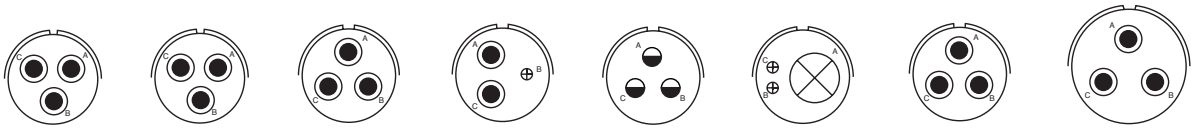
CONTACT LEGEND ⊕ =16 ◒ =12 ◉ =8 ○ =4 ⊗ =0 ◐ =2/0
Mating face view of pin inserts

SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

3 CONTACTS (CONT.)

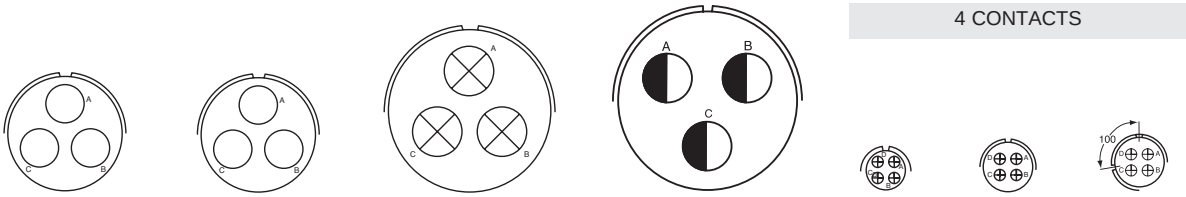


LAYOUT	16S-6	16-7	16-10	18-5	18-22	20-3	20-6	20-19
# OF CONTACTS	3-#16	2-#16; 1-#8	3-#12	1-#16; 2-#12	3-#16	3-#12	3-#16	3-#8
SERIES	● ✚ ✦	● ✚ ✦ ■ ▽	● ✚ ✦ ■ ▼ 🌡	● ✚ ✦ ▼	● ✚ ✦ ▼	● ✚ ✦	● ✚ ✦	● ✚ ✦ ▼
SERVICE RATING	A	A	A	D	D	D	D	A



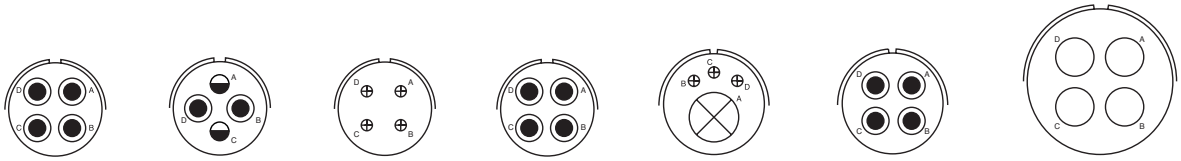
LAYOUT	20-51	20-59	22-2	22-6	22-9	22-21	22-80	28-3
# OF CONTACTS	3-#8	3-#8 for #10 or #12 wire	3-#8	1-#16; 2-#8	3-#12	2-#16;1-#0	3-#8 for #10 or 12 wire	3-#8
SERIES	● ❖	● ❖	● ✚ ✦ ■ ▼	● ✚ ▼	● ✚ ✦ ▽	● ✚ ▼	● ❖	● ✚ ✦ ▽
SERVICE RATING	A	A	D	D	E	A	A	E

4 CONTACTS



LAYOUT	28-6	28-72	36-4	40-AV	12SL-844	14S-2*	14S-10
# OF CONTACTS	3-#4	3-#4 (coax) RG-59A/U or RG-62A/U	3-#0	3-#2/0	4-#16	4-#16	4-#16
SERIES	● ✚ ✦	● ❖	● 🌡	● ❖	✦	● ✚ ✦ ▼ 🌡	● ❖ ✦ ▽
SERVICE RATING	D	(coax)	D(A); A(B,C)	D	I	I	I

LAYOUT	16-9	16-59	18-4*	18-10*	18-13	18-15	20-4*	20-20	20-24
# OF CONTACTS	2-#16; 2-#12	4-#12	4-#16	4-#12	3-#12; 1-#8	4-#12	4-#12	3-#12; 1-#4	2-#16; 2-#8
SERIES	● ✚ ✦ ▼ 🌡	● ❖	● ✚ ✦ ▼	● ✚ ✦ ▼	● ✚ ✚ ■ ▼	● ✚ ✦ ▼ 🌡	● ✚ ✦ ▼ 🌡	● ✚	● ✚ ✦ ▼
SERVICE RATING	A	A	D	A	A	Thermocouple	D	A	A



LAYOUT	22B22	22-4	22-10	22-22*	24-4	24-22*	32-17
# OF CONTACTS	4-#8	2-#12; 2-#8	4-#16	4-#8	3-#16; 1-#0	4-#8	4-#4
SERIES	■	● ✚ ✦ ▼	● ✚ ✦ ▽ 🌡	● ✚ ✦ ■ ▼	▽	● ✚ ✦ ▼	● ✚ ✦ ▼
SERVICE RATING	A	A	E	A	D	D	D

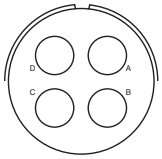
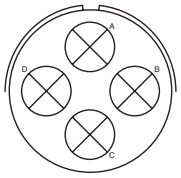
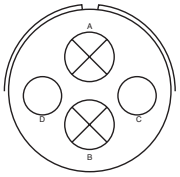
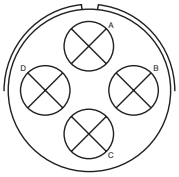
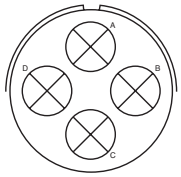
* most popular

LAYOUTS BY NUMBER OF CONTACTS

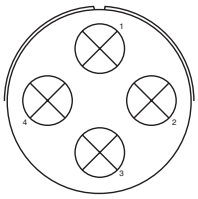
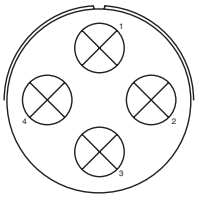
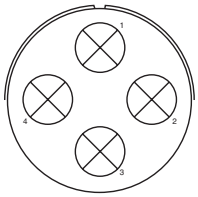
CONTACT LEGEND ⊕ =16 ◒ =12 ◉ =8 ○ =4 ⊗ =0
Mating face view of pin inserts

SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97)
VG95234 (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

4 CONTACTS (CONT.)

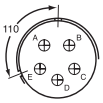






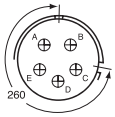
LAYOUT	32-58	36-5	36-51	36-64	36-65
# OF CONTACTS	4-#4 (coax) RG-161/U or RG-179/U	4-#0	2-#4; 2-#0	4-#0 (coax) RG-11/U; RG-12/U or RG-13/U	4-#0 (coax) RG-59/U; RG-62/U or RG-71/U
SERIES	● ❖	● ✚ ✦ ■ ▼	● ❖	● ❖	● ❖
SERVICE RATING	(coax)	A	D	(coax)	(coax)

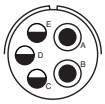
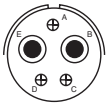
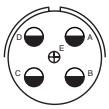
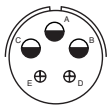
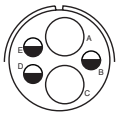




5 CONTACTS

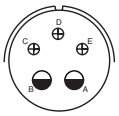
LAYOUT	40-57	40-66	40-86	14S-5*	16S-8*	18-11*	18-20
# OF CONTACTS	4-#0	4-#0 (coax) RG-63B/U	4-#0 (coax) RG-115A/U	5-#16	5-#16	5-#12	5-#16
SERIES	● ❖	● ❖	● ❖	● ✚ ✦ ▼	● ✚ ✦ ▼	● ✚ ✦ ■ ▼ 🌡	● ✚ ✦
SERVICE RATING	E	(coax)	E/ (coax)	I	A	A	A

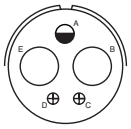
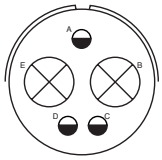
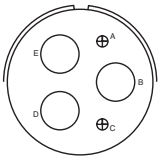




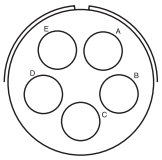
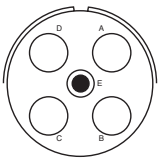
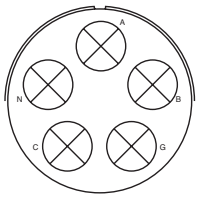
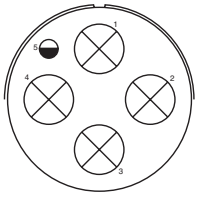






LAYOUT	18-29	18-30	18-31	20-14	22-12	22-13	22-34	24-12
# OF CONTACTS	5-#16	5-#16	5-#16	3-#12; 2-#8	3-#16; 2-#8	1-#16; 4-#12	2-#16; 3-#12	3-#12; 2-#4
SERIES	● ✚ ✦	● ❖ ✦	● ❖ ✦	● ✚ ✦ ▼	● ✚✦ ■	● ✚ ✦	✚ ✦	● ✚ ✦ ■ ▼
SERVICE RATING	A	A	A	A	A	D(E) A(A,B,C,D)	D	A

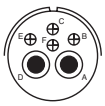


LAYOUT	24-17	24-51	24-53	24-79	28-5	32-1	32-2
# OF CONTACTS	3-#16; 2-#12	5-#8	5-#8	5-#8	2-#16; 1-#12; 2-#4	3-#12; 2-#0	2-#16; 3-#4
SERIES	● 🌡	● ❖	● ❖	● ❖	● ✚ 🌡 ▽	✚ ■ ▼	● ✚ ▽
SERVICE RATING	D	A	A	A	D	E(A); D(All others)	E

6 CONTACTS



LAYOUT	32-63	32-79	40-5	40-75	14S-6*	18-12	20-8
# OF CONTACTS	5-#4	1-#8; 4-#4	5-#0	4-#0; 1-#12	6-#16	6-#16	4-#16; 2-#8
SERIES	▼	● ❖	● ❖	● ❖	● ✚ ✦ ■ ▼ 🌡	✦ ● ✚ ▼ 🌡	● ✚ ✦ ■ ▼
SERVICE RATING	D	D	A	E	I	A	I

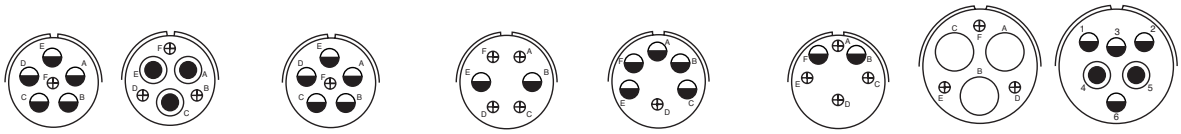
* most popular

LAYOUTS BY NUMBER OF CONTACTS

CONTACT LEGEND ⊕ =16 ◒ =12 ◉ =8 ◯ =4 ⊗ =0
Mating face view of pin inserts

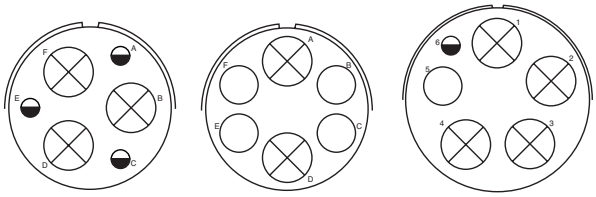
SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97)
VG95234 (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

6 CONTACTS (CONT.)



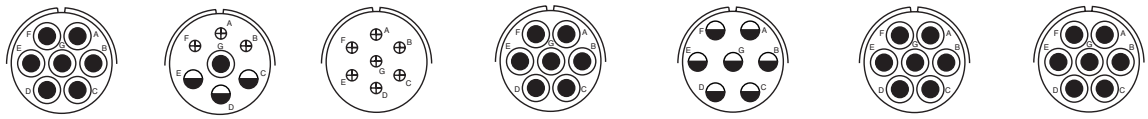
LAYOUT	20-17	20-22	20-66	22-5	22-15	22-24	28-22	28-82
# OF CONTACTS	1-#16; 5-#12	3-#16; 3-#8	1-#16; 5-#12 for #10 wire	4-#16; 2-#12	1-#16; 5-#12	4-#16; 2-#12	3-#16; 3-#4	4-#12; 2-#8
SERIES	● ✚ ✦ ▼	● ✚ ▼	● ❖	● ✚ ✦ ▼🌡	● ✚ ✦ ■▽	● ✚	● ✚ ■ ▼	● ❖
SERVICE RATING	A	A	A	D	A(A, B, C, E, F); E(D)	D(C, D, E)A(A, B, F)	D	D

7 CONTACTS

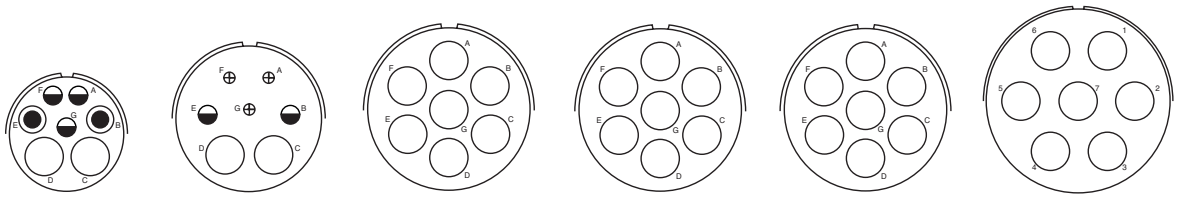


LAYOUT	36-3	36-6	40-74	14SA7	16S-1*	18-9	18-17
# OF CONTACTS	3-#12; 3-#0	4-#4; 2-#0	1-#12; 1-#4 (coax) RG-62/U; 4-#0 (coax) RG-9B/U or RG-214/U	7-#16	7-#16	5-#16; 2-#12	5-#16; 2-#12
SERIES	● ✚ ■ ▼	● ✚ ✦ ■ ▼	● ❖	● ❖	● ✚ ✦■ ▼🌡	● ✚ ✦■ ▼🌡	● ❖ ✦ ▽
SERVICE RATING	D	A	A / coax	A	A	I	I

LAYOUT	20-15*	20-57	22-26	22-28	22-33	24-2	24-3
# OF CONTACTS	7-#12	7-#12 for #14 or 16 wire	5-#16; 2-#12	7-#12	7-#16	7-#12	5-#16; 2-#12
SERIES	● ✚ ✦▼🌡	● ❖	✦	● ✚	● ✚	● ✚ ✦ ▼	● ✚
SERVICE RATING	A	A	1/8" spacing	D/A	D(A, B, C, D); A(E, F, G)	D	D



LAYOUT	24-10	24-16	24-27	24-60	24-66	24-71	24-75
# OF CONTACTS	7-#8	3-#16; 3-#12; 1-#8	7-#16	7-#8 or 12 wire	7-#12	5-#8 for #10 or 12 wire, 2-#8	2-#8 for #16 wire; 5-#8
SERIES	● ✚ ✦ ■ ▼	● ✚ ✦ ▽	● ✚ ✦ ▽	● ❖	● ❖	● ❖	● ❖
SERVICE RATING	A	D(A, B, F, G) A(C, D, E)	E	A	D	A	A



LAYOUT	28-10	32-10	36-73	36-77	36-83	40-87
# OF CONTACTS	3-#12; 2-#8; 2-#4	3-#16; 2-#8; 2-#4	7-#4 (coax) RG-62B/U	7-#4	7-#4 (coax) RG-58/U	7-#4
SERIES	● ✚ ✦ ▼	● ✚	● ❖	● ❖	● ❖	● ❖
SERVICE RATING	D(G); A(All others)	E(A, F); B(G); D(B, E); A(C, D)	(coax)	D	(coax)	D

* most popular

LAYOUTS BY NUMBER OF CONTACTS

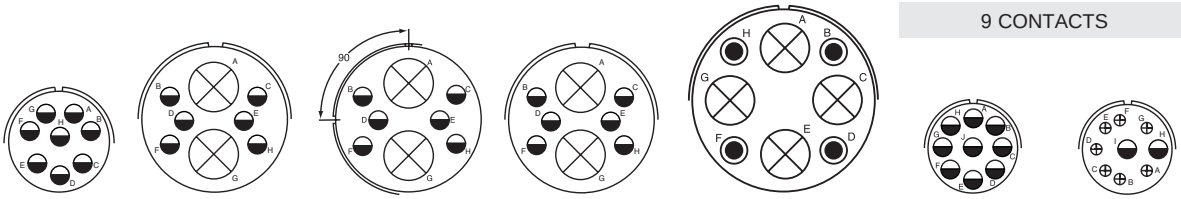
CONTACT LEGEND ⊕ =16 ◒ =12 ◉ =8 ○ =4 ⊗ =0
Mating face view of pin inserts

SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

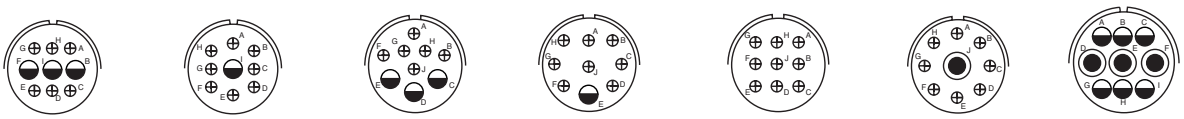
8 CONTACTS

LAYOUT	18-8*	20-7*	20-9	20-79	22-18	22-23	22-36	22-65
# OF CONTACTS	7-#16; 1-#12	8-#16	7-#16; 1-#12	7-#16; 1-#12 for #16 wire	8-#16	8-#12	8-#12	8-#12 for #14 or 16 wire
SERIES	● ✚ ✦ ▼	● ✚ ✦▼🌡	✚ ❖ ▽	● ❖	● ✚ ✦ ▽	● ✚ ✦▼🌡	▽	● ❖
SERVICE RATING	A	ACB,C,F,G I(all others)	DCH; A(all others)	DCH; A(all others)	D(A, B, F, G, H); A(C, D, E)	D(H); A(all others)	D(H) A(all others)	D(H); A(all others)

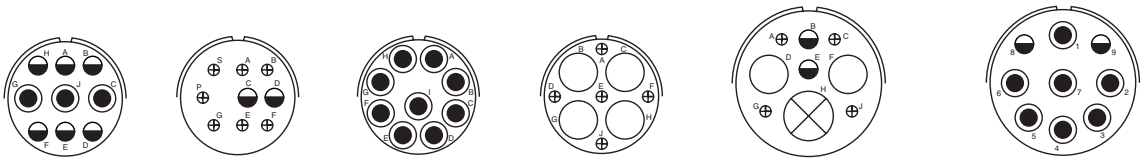
9 CONTACTS



LAYOUT	24-6	32-15	32-52	32-57	40-AD	20A9	20-16
# OF CONTACTS	8-#12	6-#12; 2-#0	6-#12; 2-#0	6-#12; 2-#0 (coax) RG-7/U	4-#8; 4-#0	9-#12	7-#16; 2-#12
SERIES	● ✚ ✦ ▽	● ✚ ▼	● ❖	● ❖	● ❖	■	● ✚ ✦▼
SERVICE RATING	D(A, G, H); A(all others)	D	D	(coax)	A	D(J), I(all others)	A

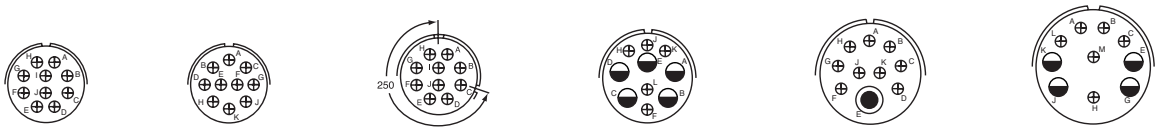


LAYOUT	20-18*	20-21	22-16	22-17	22-20	22-27	24-11
# OF CONTACTS	6-#16; 3-#12	8-#16; 1-#12	6-#16; 3-#12	8-#16; 1-#12	9-#16	8-#16; 1-#8	6-#12; 3-#8
SERIES	● ✚ ✦ ▼	● ✚ ✦ ▼	● ✚ ✦ 🌡	● ✚ ▽	● ✚ ✦	● ✚ ✦ ■ ▽	● ✚ ✦ ■ ▼
SERVICE RATING	A	A	A	D(A); A(all others)	A	D(J); A(all others)	A



LAYOUT	28-1	28-4	28-84	28AY	32-3	32-75
# OF CONTACTS	6-#12; 3-#8	7-#16; 2-#12	9-#8	5-#16; 4-#4	4-#16; 2-#12; 2-#4; 1-#0	2-#12; 7-#8 (coax) RG-180B/U
SERIES	● ✚ ✦ ▼	● ✚ ▽	● ❖	● ❖	● ✚ ■ ▽	● ❖
SERVICE RATING	D(A, J, E); A(all others)	E(G, P, S); D(all others)	A	A	D	(coax)

10 CONTACTS



LAYOUT	18-1*	18-19	18-24	20-58	24-21	28-19
# OF CONTACTS	10-#16	10-#16	10-#16	5-#16; 5-#12	9-#16; 1-#8	6-#16; 4-#12
SERIES	● ✚ ✦ ■ ▼🌡	● ❖ ✦ ▽	● ❖ ✦▽	● ❖	● ✚ ✦ ▽	● ✚ ✦ ▽
SERVICE RATING	A (B, C, F, G) I(all others)	A	A(B, C, F, G); I(balance)	A	D	B(H, M); D(A, B) A(C,E,G,J,K,L)

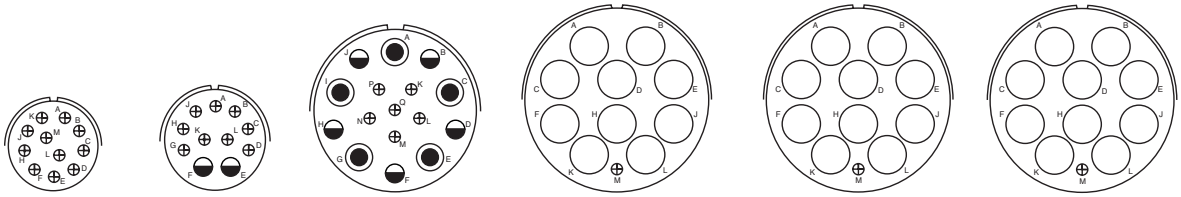
* most popular

LAYOUTS BY NUMBER OF CONTACTS

CONTACT LEGEND ⊕ =16 ◒ =12 ◉ =8 ○ =4 ⊗ =0
Mating face view of pin inserts

SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97)
VG95234 (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

11 CONTACTS

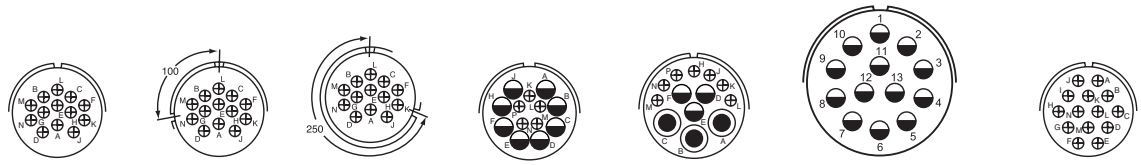


LAYOUT	20-33	24-20	36-14	40-67	40-72	40-80
# OF CONTACTS	11-#16	9-#16; 2-#12	6-#16; 5-#12; 5-#8	1-#16; 10-#4 (coax) RG-59/U	1-#16; 10-#4 (coax) RG-9B/U	10-#4; 1-#16
SERIES	● ✚ ✦ ▼	● ✚ ✦ ▼ 🌡	● ✚	● ❖	● ❖	● ❖
SERVICE RATING	A	D	D	A (coax)	A (coax)	A

12 CONTACTS

LAYOUT	22-63	24-19	28-8	28-9	28-18	28-51
# OF CONTACTS	8-#16; 4-#12	12-#16	10-#16; 2-#12	6-#16; 6-#12	12-#16	12-#12
SERIES	● ❖	●✦	● ✚ ✦ ▽	● ✚ ✦ ▼	● ✚ ✦ ▽	● ❖
SERVICE RATING	A	A	E(L,M,); D(B) A(balance)	D	C(M); D(G, H, J, K, L) A(A, B); I(C,D,E,F)	A

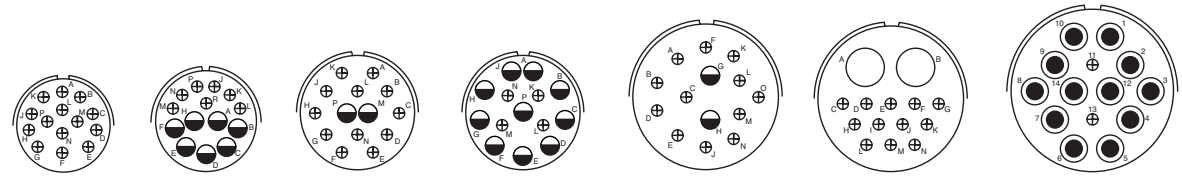
13 CONTACTS



LAYOUT	20-11	20-25	20-30	22-70	24-58	32-14•
# OF CONTACTS	13-#16	13-#16	13-#16	5-#16; 8-#12	7-#16; 3-#12; 3-#8	13-#12
SERIES	● ✚ ✦	● ❖ ✦	● ❖ ✦	● ❖	● ❖	❖
SERVICE RATING	I	I	I	A	A	D

14 CONTACTS

LAYOUT	20-27*
# OF CONTACTS	14-#16
SERIES	● ✚ ✦ ▼ 🌡
SERVICE RATING	A



LAYOUT	22-19*	24-59	28-2	28-20	32-4	32-9	36-78
# OF CONTACTS	14-#16	7-#16; 7-#12	12-#16; 2-#12	4-#16; 10-#12	12-#16; 2-#12	12-#16; 2-#4	12-#8; 2-#16
SERIES	● ✚ ✦ ▼ 🌡	● ❖	● ✚ ✦ ▼	● ✚ ✦ ■ ▼ 🌡	● ✚	● ✚ ▼	● ❖
SERVICE RATING	A	A	D	A	A(F, J, K, N); D(all others)	D	A

• different per 1651 STD: 5-#12; 2-#4 * most popular

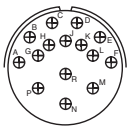
LAYOUTS BY NUMBER OF CONTACTS

CONTACT LEGEND ⊕ =16 ◒ =12 ● =8 ○ =4 ⊗ =0
Mating face view of pin inserts

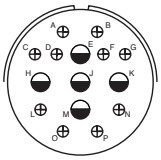
SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97)
VG95234 (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

15 CONTACTS

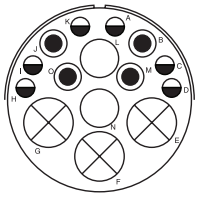
LAYOUT	24-65
# OF CONTACTS	4-#16; 11-#12
SERIES	● ❖
SERVICE RATING	A



LAYOUT	28-17*
# OF CONTACTS	15-#16
SERIES	● ✚ ✦ ▼
SERVICE RATING	B(R); D(U-P); A(A-L)

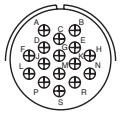


LAYOUT	32-12
# OF CONTACTS	10-#16; 5-#12
SERIES	● ✚
SERVICE RATING	A(C, D, E, F, G); D(all others)

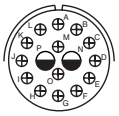


LAYOUT	40-5¤
# OF CONTACTS	6-#12; 4-#8; 2-#4; 3-#0
SERIES	▽
SERVICE RATING	A

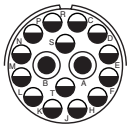
16 CONTACTS



LAYOUT	24-5
# OF CONTACTS	16-#16
SERIES	● ✚ ✦ ▼ 🌡
SERVICE RATING	A



LAYOUT	24-7*
# OF CONTACTS	14-#16; 2-#12
SERIES	● ✚ ✦ ▼ 🌡
SERVICE RATING	A

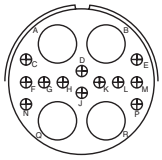


LAYOUT	28-66
# OF CONTACTS	14-#12; 2-#8
SERIES	● ❖
SERVICE RATING	A

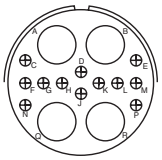
LAYOUT	28-74
# OF CONTACTS	9-#16; 4-#8; 3-#8 for #10 wire
SERIES	● ❖
SERVICE RATING	A

LAYOUT	28-75
# OF CONTACTS	9-#16; 7-#8 for #10 wire
SERIES	● ❖
SERVICE RATING	A

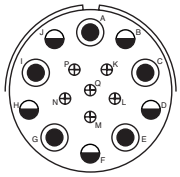
LAYOUT	28-79
# OF CONTACTS	7-#8; 9-#16
SERIES	● ❖
SERVICE RATING	A



LAYOUT	32-68
# OF CONTACTS	12-#12; 4-#4 (coax) RG-58C/U
SERIES	● ❖
SERVICE RATING	A (coax)



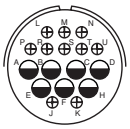
LAYOUT	32-82
# OF CONTACTS	12-#16; 4-#4
SERIES	● ❖
SERVICE RATING	A



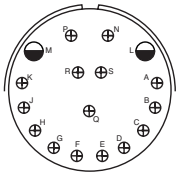
LAYOUT	36-14
# OF CONTACTS	6-#16; 5-#12; 5-#8
SERIES	● ✚
SERVICE RATING	D

17 CONTACTS

LAYOUT	20-29*
# OF CONTACTS	17-#16
SERIES	● ✚ ✦ ▼ 🌡
SERVICE RATING	A



LAYOUT	28-59
# OF CONTACTS	10-#16; 7-#12
SERIES	● ❖
SERVICE RATING	A



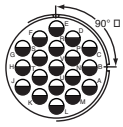
LAYOUT	36-13
# OF CONTACTS	15-#16; 2-#12
SERIES	● ❖
SERVICE RATING	E(N, P, Q); A(all others)

19 CONTACTS

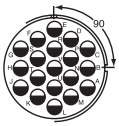
LAYOUT	20A48
# OF CONTACTS	19-#16
SERIES	■
SERVICE RATING	I

LAYOUT	20-26
# OF CONTACTS	19-#16
SERIES	❖●
SERVICE RATING	A

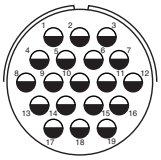
LAYOUT	22-14*
# OF CONTACTS	19-#16
SERIES	● ✚ ✦ ■ ▼ 🌡
SERVICE RATING	A



LAYOUT	24-67
# OF CONTACTS	19-#12
SERIES	● ❖
SERVICE RATING	I

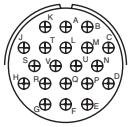


LAYOUT	24-84
# OF CONTACTS	1-#12; 18-#12 (coax) RG-188/U or RG-174/U
SERIES	● ❖
SERVICE RATING	A (coax)

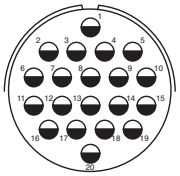


LAYOUT	32-76
# OF CONTACTS	19-#12,
SERIES	● ❖
SERVICE RATING	A

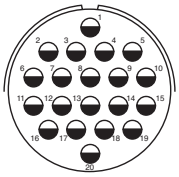
20 CONTACTS



LAYOUT	28-16
# OF CONTACTS	20-#16
SERIES	● ✚ ✦ ▽ 🌡
SERVICE RATING	A

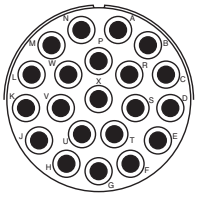


LAYOUT	36-79
# OF CONTACTS	20-#12
SERIES	● ❖
SERVICE RATING	A



LAYOUT	36-80
# OF CONTACTS	20-#12 for #10 wire
SERIES	● ❖
SERVICE RATING	A

21 CONTACTS



LAYOUT	40-68
# OF CONTACTS	21-#8
SERIES	● ❖
SERVICE RATING	A

* most popular ¤ Special arrangement for MS3450 Series

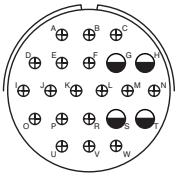
LAYOUTS BY NUMBER OF CONTACTS

CONTACT LEGEND ⊕ =16 ◒ =12 ◉ =8 ◯ =4 ⊗ =0
Mating face view of pin inserts

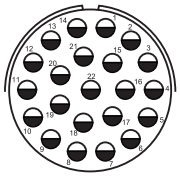
SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97)
VG95234 (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

22 CONTACTS

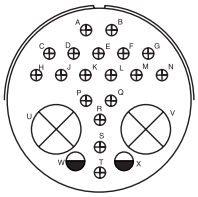
LAYOUT	**28-11***
# OF CONTACTS	18-#16; 4-#12
SERIES	● ✚ ✦ ■ ▼ 🌡
SERVICE RATING	A



LAYOUT	**36-1**
# OF CONTACTS	18-#16, 4-#12
SERIES	● ✚ ✦
SERVICE RATING	D

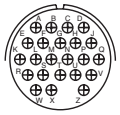


LAYOUT	**36-22**
# OF CONTACTS	22-#12
SERIES	● ❖
SERVICE RATING	D

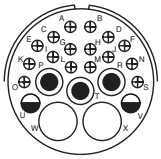


LAYOUT	**40-7**
# OF CONTACTS	18-#16; 2-#12; 2-#0
SERIES	▽
SERVICE RATING	P, Q, U, V, W, X=A; D(balance)

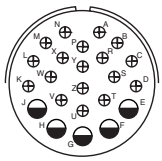
23 CONTACTS



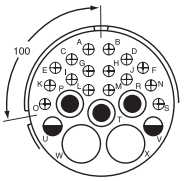
LAYOUT	**24-80**
# OF CONTACTS	23-#16
SERIES	● ❖ ▽
SERVICE RATING	I



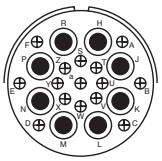
LAYOUT	**32-6**
# OF CONTACTS	16-#16; 2-#12; 3-#8; 2-#4
SERIES	● ✚ ✦ ■ ▼
SERVICE RATING	A



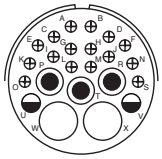
LAYOUT	**32-13**
# OF CONTACTS	18-#16; 5-#12
SERIES	● ✚ ✦ ▼
SERVICE RATING	D



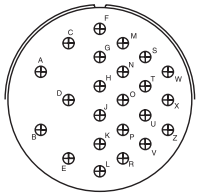
LAYOUT	**32-16**
# OF CONTACTS	16-#16; 2-#12; 3-#8; 2-#4
SERIES	● ❖ ▽
SERVICE RATING	A



LAYOUT	**32-60**
# OF CONTACTS	15-#16; 8-#8 (coax) RG-124/U
SERIES	● ❖
SERVICE RATING	A (coax)

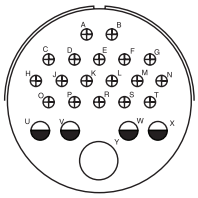


LAYOUT	**32-62**
# OF CONTACTS	16-#16; 2-#12; 1-#8; 2-#8 (coax) RG-124/U; 2-#4
SERIES	● ❖
SERVICE RATING	A (coax)

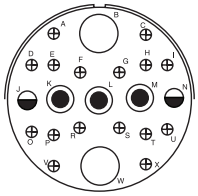


LAYOUT	**40-2**
# OF CONTACTS	23-#16
SERIES	▽
SERVICE RATING	D

23 CONTACTS (CONT.)

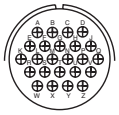


LAYOUT	**40-3**
# OF CONTACTS	18-#16; 4-#12; 1-#4
SERIES	▽
SERVICE RATING	D



LAYOUT	**40-4**
# OF CONTACTS	16-#16; 2-#12; 3-#8; 2-#4
SERIES	▽
SERVICE RATING	D

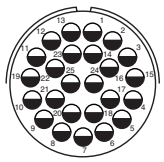
24 CONTACTS



LAYOUT	**24-28***
# OF CONTACTS	24-#16
SERIES	● ✚ ✦ ■ ▼ 🌡
SERVICE RATING	I

25 CONTACTS

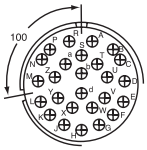
LAYOUT	**24-AJ**
# OF CONTACTS	25-#16
SERIES	● ❖
SERVICE RATING	A



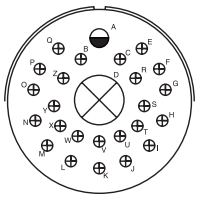
LAYOUT	**32-25**
# OF CONTACTS	25-#12
SERIES	● ❖
SERVICE RATING	A

26 CONTACTS

LAYOUT	**28-12***
# OF CONTACTS	26-#16
SERIES	● ✚ ✦ ▼ 🌡
SERVICE RATING	A



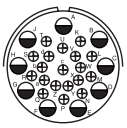
LAYOUT	**28-13**
# OF CONTACTS	26-#16
SERIES	● ❖ ✦ ▽
SERVICE RATING	A



LAYOUT	**40-6**
# OF CONTACTS	24-#16; 1-#12; 1-#0
SERIES	▽
SERVICE RATING	D

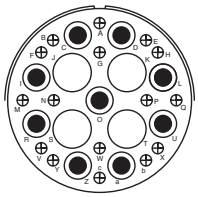
28 CONTACTS

LAYOUT	**24-96**
# OF CONTACTS	28-#16
SERIES	● ❖
SERVICE RATING	I



LAYOUT	**28A63**
# OF CONTACTS	19-#16; 9-#12
SERIES	■
SERVICE RATING	A

29 CONTACTS



LAYOUT	**40-10**
# OF CONTACTS	16-#16; 9-#8; 4-#4
SERIES	● ✚
SERVICE RATING	A

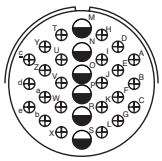
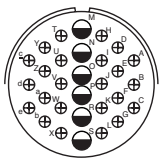
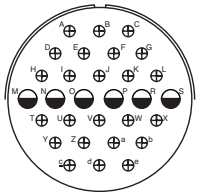
* most popular

LAYOUTS BY NUMBER OF CONTACTS

CONTACT LEGEND ⊕ =16 ◒ =12 ● =8 ○ =4 ⊗ =0
Mating face view of pin inserts

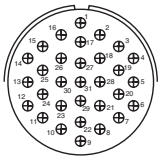
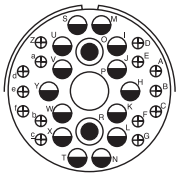
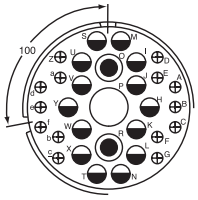
SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97)
VG95234 (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

30 CONTACTS

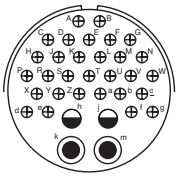
LAYOUT	32-8	32-56	40-1
# OF CONTACTS	24-#16; 6-#12	24-#16; 6-#12 for #10 wire	24-#16; 6-#12
SERIES	● ✚ ✦ 🌡	● ❖	● ✚ ▼
SERVICE RATING	A	A	D

31 CONTACTS

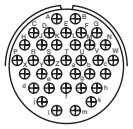
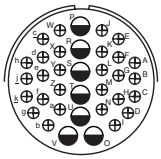
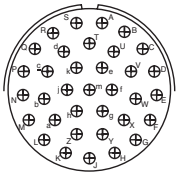
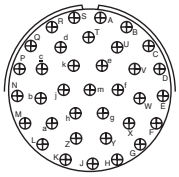
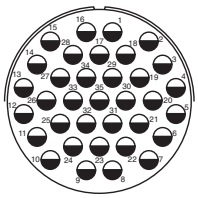
LAYOUT	32-31	36-9	36-18
# OF CONTACTS	31-#16	14-#16; 14-#12; 2-#8; 1-#4	14-#16; 14-#12; 2-#8; 1-#4
SERIES	● ❖	● ✚ ✦ ▼	● ❖ ▽
SERVICE RATING	A	A	A

34 CONTACTS



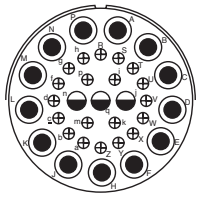
LAYOUT	36-20
# OF CONTACTS	30-#16; 2-#12; 2-#8
SERIES	● ❖
SERVICE RATING	A

35 CONTACTS

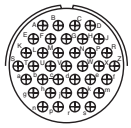
LAYOUT	28-15*	32-7*	36-15	36-85	40-35
# OF CONTACTS	35-#16	28-#16; 7-#12	35-#16	35-#16 for #12 wire	35-#12
SERIES	● ✚ ✦ ▼ 🌡	● ✚ ✦ ■ ▼	● ✚ ✦ ▼ 🌡	● ❖	● ❖
SERVICE RATING	A	I(A, B, H, J); A(all others)	D(M); A(balance)	A/D	D

36 CONTACTS



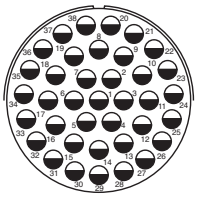
LAYOUT	40-64
# OF CONTACTS	20-#16; 3-#12; 13-#8 (coax) RG-124/U
SERIES	● ❖
SERVICE RATING	(coax)

37 CONTACTS



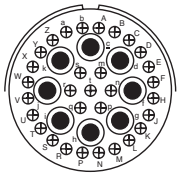
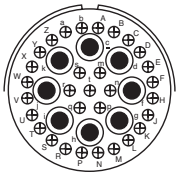
LAYOUT	28-21*
# OF CONTACTS	37-#16
SERIES	● ✚ ✦ ■ ▼ 🌡
SERVICE RATING	A

38 CONTACTS



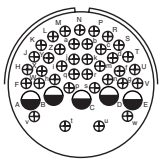
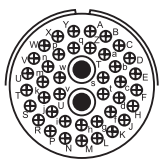
LAYOUT	40-AG
# OF CONTACTS	38-#12
SERIES	● ❖
SERVICE RATING	A

39 CONTACTS

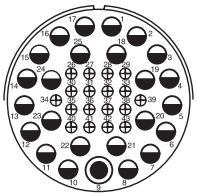
LAYOUT	36-54	36-55
# OF CONTACTS	31-#16; 8-#8	31-#16; 8-#8 for #6 wire
SERIES	● ❖	● ❖
SERVICE RATING	A	A

42 CONTACTS

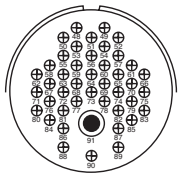
LAYOUT	32-53	32-59
# OF CONTACTS	37-#16; 5-#12	40-#16; 2-#8 (coax) RG-161/U
SERIES	● ❖	● ❖
SERVICE RATING	I/E	A (coax)

43 CONTACTS



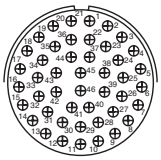
LAYOUT	40-AT
# OF CONTACTS	18-#16; 24-#12; 1-#8
SERIES	● ❖
SERVICE RATING	A

44 CONTACTS



LAYOUT	36-74
# OF CONTACTS	43-#16; 1-#8 (coax); RG-187B/U
SERIES	● ❖
SERVICE RATING	A (coax)

46 CONTACTS



LAYOUT	32-73
# OF CONTACTS	46-#16
SERIES	● ❖ ▼
SERVICE RATING	A

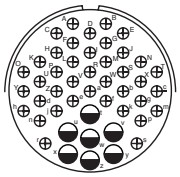
* most popular

LAYOUTS BY NUMBER OF CONTACTS

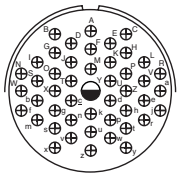
CONTACT LEGEND ⊕ =16 ◒ =12 ◉ =8 ◯ =4 ⊗ =0
Mating face view of pin inserts

SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97)
VG95234 (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

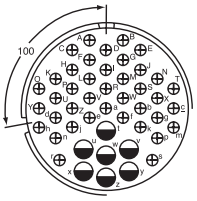
47 CONTACTS



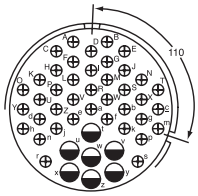
LAYOUT	**36-7***
# OF CONTACTS	40-#16; 7-#12
SERIES	● ✚ ✦ ▼ 🌡
SERVICE RATING	A



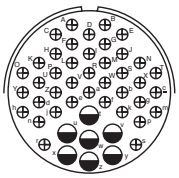
LAYOUT	**36-8**
# OF CONTACTS	46-#16; 1-#12
SERIES	● ✚ ✦ ▼ 🌡
SERVICE RATING	A



LAYOUT	**36-16**
# OF CONTACTS	40-#16; 7-#12
SERIES	● ❖ ▽
SERVICE RATING	A

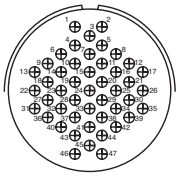


LAYOUT	**36-17**
# OF CONTACTS	40-#16; 7-#12
SERIES	● ❖ ▽
SERVICE RATING	A

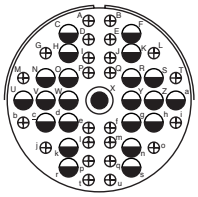


LAYOUT	**36-60**
# OF CONTACTS	40-#16; 7-#12 for #10 wire
SERIES	● ❖
SERVICE RATING	A

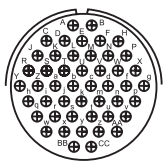
48 CONTACTS



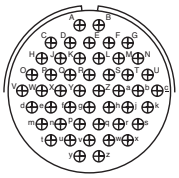
LAYOUT	**36-76**
# OF CONTACTS	47-#16
SERIES	● ❖
SERVICE RATING	A



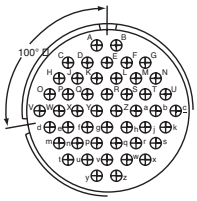
LAYOUT	**40-9**
# OF CONTACTS	24-#16; 22-#12; 1-#8
SERIES	●✚ ▼
SERVICE RATING	A



LAYOUT	**32-48**
# OF CONTACTS	48-#16
SERIES	● ❖
SERVICE RATING	I

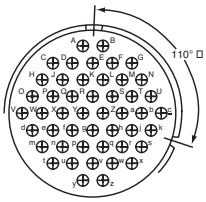


LAYOUT	**36-10***
# OF CONTACTS	48-#16
SERIES	● ✚ ✦ ■ ▼ 🌡
SERVICE RATING	A

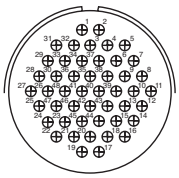


LAYOUT	**36-11**
# OF CONTACTS	48-#16
SERIES	● ✚ ✦ ▽
SERVICE RATING	A

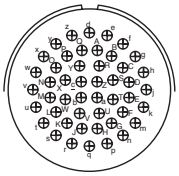
52 CONTACTS



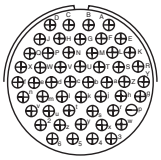
LAYOUT	**36-12**
# OF CONTACTS	48-#16
SERIES	● ✚ ✦ ▽
SERVICE RATING	A



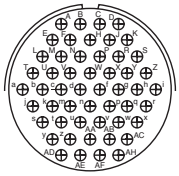
LAYOUT	**36-75**
# OF CONTACTS	48-#16 for #14 wire
SERIES	● ❖
SERVICE RATING	A



LAYOUT	**36-AF**
# OF CONTACTS	48-#16
SERIES	● ❖
SERVICE RATING	A

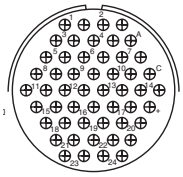


LAYOUT	**32-414**
# OF CONTACTS	52-#16
SERIES	✦
SERVICE RATING	A

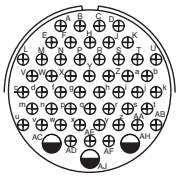


LAYOUT	**36-52**
# OF CONTACTS	52-#16
SERIES	● ✚ ▼ 🌡
SERVICE RATING	A

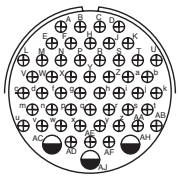
53 CONTACTS



LAYOUT	**36-403**
# OF CONTACTS	52-#16
SERIES	✦
SERVICE RATING	A



LAYOUT	**36-59**
# OF CONTACTS	50-#16; 3-#12 for #10 wire
SERIES	● ❖
SERVICE RATING	A



LAYOUT	**36-71**
# OF CONTACTS	50-#16; 3-#12
SERIES	● ❖
SERVICE RATING	A

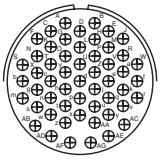
* most popular

LAYOUTS BY NUMBER OF CONTACTS

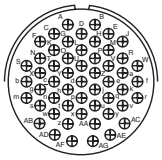
CONTACT LEGEND =20 =16 =12 =8 =4 =0
Mating face view of pin inserts

SERIES KEY: **AIB** (●=GT) **AIT** (✚=MS; ❖=non QPL) **97** (✦=97)
VG95234 (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** ( )

54 CONTACTS

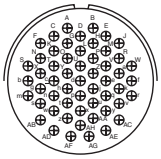


LAYOUT	32-22
# OF CONTACTS	54-#16
SERIES	● ❖ ▽
SERVICE RATING	A



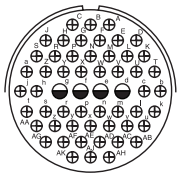
LAYOUT	32-64
# OF CONTACTS	54-#16
SERIES	● ❖
SERVICE RATING	I

55 CONTACTS



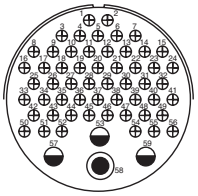
LAYOUT	32-AF
# OF CONTACTS	55-#16
SERIES	● ❖
SERVICE RATING	A

56 CONTACTS



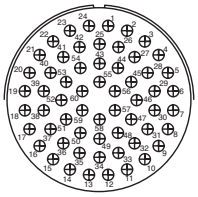
LAYOUT	36-66
# OF CONTACTS	52-#16; 4-#12
SERIES	▽
SERVICE RATING	A

59 CONTACTS

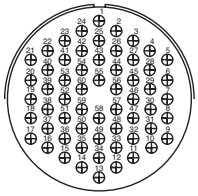


LAYOUT	40-61
# OF CONTACTS	55-#16; 3-#12; 1-8
SERIES	● ❖
SERVICE RATING	A

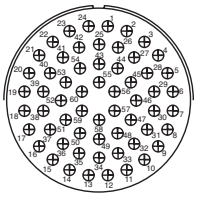
60 CONTACTS



LAYOUT	40-53
# OF CONTACTS	60-#16
SERIES	● ❖
SERVICE RATING	A

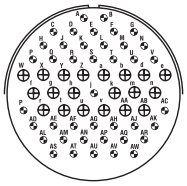


LAYOUT	40-62
# OF CONTACTS	60-#16
SERIES	● ✚ ▽
SERVICE RATING	A

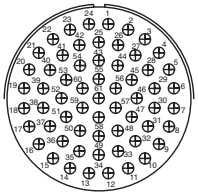


LAYOUT	40-85
# OF CONTACTS	60-#16 for #14 wire
SERIES	● ❖
SERVICE RATING	A

61 CONTACTS

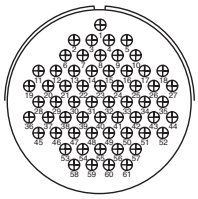


LAYOUT	32A69
# OF CONTACTS	41-#20; 20-#16
SERIES	■
SERVICE RATING	I

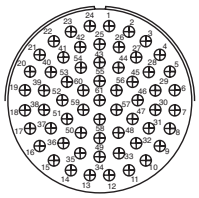


LAYOUT	40-63
# OF CONTACTS	61-#16 for #14 wire
SERIES	● ❖
SERVICE RATING	A

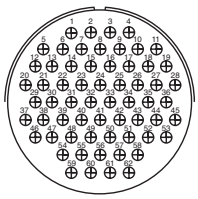
62 CONTACTS



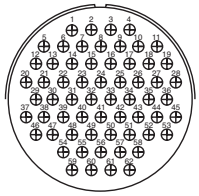
LAYOUT	40-70
# OF CONTACTS	61-#16
SERIES	● ❖
SERVICE RATING	A



LAYOUT	40-73
# OF CONTACTS	61-#16
SERIES	● ❖
SERVICE RATING	A

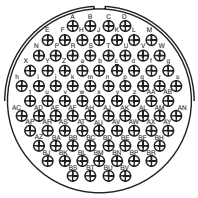


LAYOUT	40-81
# OF CONTACTS	62-#16 for #14 wire
SERIES	● ❖
SERVICE RATING	A



LAYOUT	40-82
# OF CONTACTS	62-#16
SERIES	● ❖
SERVICE RATING	A

85 CONTACTS

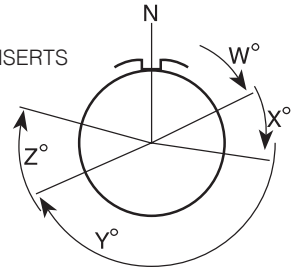


LAYOUT	40-56
# OF CONTACTS	85-#16
SERIES	● ✚ ▼
SERVICE RATING	A

* most popular

LAYOUTS BY SHELL SIZE

MATING-FACE VIEW OF PIN INSERTS



ALTERNATE INSERT POSITION (ROTATION)

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES 20	16	12	8	4	0	🌡	DEGREES OF ROTATION W	X	Y	Z	SERVICE RATING
8S-1	✦	✚			▼	1		1						-	-	-	-	A
10S-2		✚^			▼	1		1						-	-	-	-	A
10SL-3	✦★	✚★	●★	■	▼	3		3						-	-	-	-	A
10SL-4	✦★	✚^★	●	■	▼	2		2						63#	-	-	-	A
10SL-51		❖★	●		▽	2		2					🌡	10SL-4 45° A=Ir.; B=Con.				
10SL-52		❖★	●		▽	2		2					🌡	10SL-4 45° A=Cu; B=Con.				
10SL-53		❖★	●		▽	2		2					🌡	10SL-4 45° A=Al.; B=Ch.				
10SL-54		❖★	●		▽	3		3					🌡	10SL-3 A=Ir.; B=Con.; C=Cu				
10SL-55		❖★	●		▽	3		3					🌡	10SL-3 A=Al.; B=Ch.; C=Cu				
10SL-56		❖★	●		▽	2		2					🌡	10SL-4 A=Al.; B=Ch.				
10SL-57		❖★	●		▽	2		2					🌡	10SL-4 A=Ch.; B=Con.				
10SL-58		❖★	●		▽	3		3					🌡	10SL-3 A=Ch.; B=Al.; C=Cu				
10SL-59		❖★	●		▽	2		2					🌡	10SL-4 A=Ch.; B=Al.				
10SL-60		❖★	●		▽	2		2					🌡	10SL-4 A=Ir.; B=Con.				
10SL-61		❖★	●		▽	2		2					🌡	10SL-4 A=Cu; B=Con.				
10SL-62		❖★	●		▽	3		3					🌡	10SL-3 A=Cu; B=Al.; C=Ir.				
10SL-63		❖★	●		▽	3		3					🌡	10SL-3 A, C=Con.; B=Ch.				
10SL-64		❖★	●		▽	3		3					🌡	10SL-3 A, C=Ch.; B=Al.				
12S-1	✦	❖			▽	2		2						12S-3 100°				A
12S-2	✦	❖			▽	2		2						12S-3 250°				A
12S-3	✦	✚			▼	2		2						70	145	215	290	A
12S-4		✚			▼	1		1						-	-	-	-	D
12S-6	✦					2		2					🌡	12S-3 A=Con.; B=Ir.				
12S-51		❖			▽	2		2					🌡	12S-3 315° A=Ch.; B=Al.				
12S-54		❖			▽	2		2					🌡	12S-3 315° A = Ir.; B=Con.				
12S-55		❖			▽	2		2					🌡	12S-3 45° A=Cu; B=Con.				
12S-56		❖			▽	2		2					🌡	12S-3 A=Al.; B=Ch.				
12S-57		❖			▽	2		2					🌡	12S-3 60° A=Ch.; B=Al.				
12S-58		❖			▽	2		2					🌡	12S-3 120° A=Ir.; B=Con.				
12S-59		❖			▽	2		2					🌡	12S-3 A=Ir.; B=Con.				
12S-60		❖			▽	2		2					🌡	12S-3 A=Cu; B=Con.				
12S-61		❖			▽	2		2					🌡	12S-3 A=Ch.; B=Con.				
12S-62		❖			▽	2		2					🌡	12S-3 A=Ch.; B=Al.				
12SL844	✦					4		4						-	-	-	-	I
12-5	✦	✚			▼	1			1					-	-	-	-	D
14S-1	✦	✚	●		▼	3		3						-	-	-	-	A
14S-2	✦	✚	●		▼	4		4						-	120	240	-	I
14S-4	✦	✚^	●			1		1						-	-	-		D
14S-5	✦	✚	●		▼	5		5						-	110	-	-	I

★Pins in receptacle, sockets in plug only ^ 5015 QPL not all configurations #Rotation commercial only, not MS-approved

NOTE: 16S contacts are used in shell sizes 8S, 10S, 10SL, 12S, 14S, & 16S

LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)
CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES 20	16	12	8	4	0	🌡	DEGREES OF ROTATION W	X	Y	Z	SERVICE RATING
14S-6	✦	✚	●	■	▼	6		6						90#	-	-	-	I
14S-7	✦	✚	●		▼	3		3						90	180	270	-	A
14S-9	✦	✚	●		▼	2		2						70	145	215	290	A
14S-10	✦	❖	●		▽	4		4						14S-2 100°				I
14S-11	✦	❖	●		▽	4		4						14S-2 250°				I
14S-12	✦	❖	●		▽	3		3						14S-1 100°				A
14S-13	✦	❖	●		▽	3		3						14S-1 260°				A
14S-14	✦	❖	●			4		4						14S-2 100°				I
14S-51		❖	●		▽	2		2					🌡	14S-9 90° A=Al.; B=Ch.				
14S-52		❖	●		▽	4		4					🌡	14S-2 45° A, B=Cu; C=Al.; D=Ch.				
14S-53		❖	●		▽	2		2					🌡	14S-9 90° A=Ir.; B=Con.				
14S-54		❖	●		▽	6		6					🌡	14S-6 45° A, C, E=Ir.; B, D, F=Con.				
14S-55		❖	●		▽	4		4					🌡	14S-2 45° A, C=Ir.; B, D=Con.				
14S-56		❖	●		▽	4		4					🌡	14S-2 45° A=Ir.; B=Con.; C, D=Cu				
14S-57		❖	●		▽	4		4					🌡	14S-2 45° A, C=Al.; B, D=Ch.				
14S-58		❖	●		▽	3		3					🌡	14S-7 45° A=Al.; B=Ch.; C=Cu				
14S-59		❖	●		▽	2		2					🌡	14S-9 90° A=Cu; B=Con.				
14S-60		❖	●		▽	2		2					🌡	14S-9 A=Al.; B=Ch.				
14S-61		❖	●		▽	6		6					🌡	14S-6 45° A=Al.; B=Ch.; C=Ir.; D=Con.; E, F=Cu				
14S-63		❖	●		▽	6		6					🌡	14S-6 A, C= Al.; B, D=Ch.; E=Ir.; F=Con.				
14S-64		❖	●		▽	4		4					🌡	14S-2 A, C=Con.; B, D=Cu				
14S-65		❖	●		▽	6		6					🌡	14S-6 A, C, E= Cu; B, D, F=Con.				
14S-67		❖	●		▽	6		6					🌡	14S-6 A=Al.; B=Ch.; Balance=Cu				
14S-68		❖	●		▽	4		4					🌡	14S-2 45° A=Ch.; B=Con.; C, D=Cu				
14S-69		❖	●		▽	3		3					🌡	14S-7 A=Con.; B=Ch.; C=Cu				
14S-70		❖	●		▽	4		4					🌡	14S-2 A, D=Ch.; B, C=Al.				
14S-71		❖	●		▽	4		4					🌡	14S-2 A, B, D=Cu; C=Con.				
14S-72		❖	●		▽	2		2					🌡	14S-9 A=Con.; B=Cu				
14S-73		❖	●		▽	4		4					🌡	14S-2 A, B=Cu; C=Al.; D=Ch.				
14S-74		❖	●		▽	4		4					🌡	14S-2 A, B=Ch.; C, D=Al.				
14S-75		❖	●		▽	4		4					🌡	14S-2 A, B=Cu; C, D=Con.				
14S-76		❖	●		▽	4		4					🌡	14S-2 A, C=Al.; B, D=Ch.				
14S-77		❖	●		▽	4		4					🌡	14S-2 A, D=Al.; B, C=Ch.				
14S-78		❖	●		▽	2		2					🌡	14S-9 A=Ch.; B=Al.				
14SA7		❖	●			7		7						-	-	-	-	A
14-3		✚			▼	1				1				-	-	-	-	A
16S-1	✦	✚	●	■	▼	7		7						80	-	-	280	A
16S-3		✚			▽	1		1						-	-	-	-	B
16S-4	✦	✚	●	■	▽	2		2						35	110	250	325	D
16S-5	✦	✚	●			3		3						70	145	215	290	A
16S-6	✦	✚	●			3		3						90	180	270	-	A
16S-8	✦	✚	●		▼	5		5						-	170	265	-	A
16S-14	✦	❖	●			3		3						16S-5 110°				A
16S-15	✦	❖	●			2		2						16S-4 100°				D
16S-16	✦	❖	●			2		2						16S-4 250°				D
16S-17	✦	❖	●			3		3						16S-5 250°				A
16S-52		❖	●		▽	2		2					🌡	16S-4 A=Ch.; B= Al.				
16S-54		❖	●		▽	7		7					🌡	16S-1 A=Al.; B=C; Balance=Cu				

NOTE: 16S contacts are used in shell sizes 8S, 10S, 10SL, 12S, 14S, & 16S. #Rotation commercial only. Not MS-approved. Not used for 97 series.

LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)
CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES 20	16	12	8	4	0	🌡	DEGREES OF ROTATION W	X	Y	Z	SERVICE RATING
16S-55		❖	●		▽	7		7					🌡	16S-1	A=Con.; Balance=Cu			
16A11				■		2			2					35	110	250	125	A
16SA18	✦	❖	●			7		7						16S-1	100°			A
16SA19	✦	❖	●			7		7						16S-1	260°			A
16SA20	✦	❖	●			7		7						16S-1	110°			A
16SA21	✦	❖	●			7		7						16S-1	250°			A
16-2		✚	●		▽	1			1					-	-	-	-	E
16-7	✦	✚	●	■	▽	3		2		1				80	110	250	280	A
16-9	✦	✚	●		▼	4		2	2					35	110	250	325	A
16-10	✦	✚	●	■	▼	3			3					90	180	270	-	A
16-11	✦	✚	●		▼	2			2					35	110	250	325	A
16-12	✦	✚	●	■	▼	1					1			-	--	-		A
16-13	✦	✚	●		▼	2			2				🌡	35	110	250	325	A = Ir.; B = Con.
16-52		❖	●		▽	2			2				🌡	16-11	90° A=Al.; B=Ch.			
16-53		❖	●		▽	4		2	2				🌡	16-9	70° A=Al.; C=Ch.; B, D=Cu			
16-55		❖	●		▽	3			3				🌡	16-10	45° A=Al.; B=Ch.; C=Cu			
16-56		❖	●		▽	2			2				🌡	16-13	90° A=Con.; B=Cu			
16-57		❖	●		▽	3			3				🌡	16-10	A=Al.; B=Cu; C=Ch.			
16-58		❖	●		▽	3			3				🌡	16-10	A=Con.; B, C=Cu			
16-59		❖	●			4			4					80	-	-	280	A
16-60		❖	●		▽	2			2				🌡	16-13	A=Al.; B=Ch.			
16-62		❖	●		▽	2			2				🌡	16-11	A=Con.; B=Cu			
18A31	✦	❖	●			10		10						18-1	110°			A (B,C,F,G) I *(all others)*
18-1	✦	✚	●	■	▼	10		10						70	145	215	290	A (B,C,F,G) I *(all others)*
18-3	✦	✚	●			2			2					35	110	250	325	D
18-4	✦	✚	●		▼	4		4						35	110	250	325	D
18-5	✦	✚	●		▼**	3		1	2					80	110	250	280	D
18-6		✚	●		▼**	1					1			-	-	-	-	D
18-7		✚ ^	●		▽	1				1				-	-	-	-	B
18-8	✦	✚	●		▼	8		7	1					70	-	-	290	A
18-9	✦	✚	●	■	▼	7		5	2					80	110	250	280	I
18-10	✦	✚	●		▼	4			4					-	120	240	-	A
18-11	✦	✚	●	■	▼	5			5					-	170	265	-	A
18-12	✦	✚	●		▼	6		6						80	-	-	280	A
18-13	✦	✚	●	■	▼	4			3	1				80	110	250	280	A
18-14		✚ ^			▽	2		1			1			80	110	250	280	A
18-15	✦†	✚	●		▼***	4			4				🌡	-	120	240	-	A, C=Ir. B, D=Con.
18-16	✦	✚ ^	●		▽	1			1					-	-	-	-	C
18-17	✦	❖	●		▽	7		5	2					18-9	100°			I
18-18	✦	❖	●		▽	7		5	2					18-9	250°			I
18-19	✦	❖	●		▽	10		10						80	120	240	-	A
18-20	✦	✚ ^	●			5		5						90	180	270	-	A
18-22	✦	✚ ^	●		▼	3		3						70	145	215	290	D
18-23	✦	❖	●		▽	10		10						18-1	100°			A(B,C,F,G) I *(all others)*
18-24	✦	❖	●		▽	10		10						18-1	250°			A(B,C,F,G) I *(all others)*
18-25	✦	❖	●			2			2					18-3	100°			D
18-26	✦	❖	●			2			2					18-3	250°			D

† Socket only for 97 Series ^ 5015 QPL not all configurations **Socket only for MS3450 series ***Pin only for MS3450

NOTE: 16S contacts are used in shell sizes 8S, 10S, 10SL, 12S, 14S, & 16S

LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)
CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES 20	16	12	8	4	0	🌡	DEGREES OF ROTATION W	X	Y	Z	SERVICE RATING
18-27	✦	❖	●		▽**	3		1	2					18-5 100°				D
18-28	✦	❖	●		▽**	3		1	2					18-5 250°				D
18-29	✦	✚^	●			5		5						90	180	270	-	A
18-30	✦	❖	●			5		5						18-20 110°				A
18-31	✦	❖	●			5		5						18-20 260°				A
18-420	✦					1 HV			1 HV					24 KVdc, 17 KVac				
18-51		❖	●		▽	6		6					🌡	18-12 A=Ir.; B, E=Con.; D=Cu; C, F=Dummy				
18-52		❖	●		▽	5			5				🌡	18-11 A=Ir.; B=Con.; C=Ch.; D=Al.; E=Dummy				
18-53		❖	●		▽	6		6					🌡	18-12 A, D=Ir.; B, E=Con.; C, F=Dummy				
18-54		❖	●		▽	4			4				🌡	18-15 A, C=Al.; B, D=Ch.				
18-56		❖	●		▽	10		10					🌡	18-1 45° A, C, E, G, I=Ir.; B, D, F, H, J=Con.				
18-57		❖	●		▽	6		6					🌡	18-12 45° A, C, E=Al.; B, D, F=Ch.				
18-59		❖	●		▽	6		6					🌡	18-12 45° A, C=Ir.; B, E, F=Con.; D=Cu				
18-60		❖	●		▽	5			5				🌡	18-11 45° A, D=Al.; B, C,=Ch.; E=Cu				
18-61		❖	●		▽	6		6					🌡	18-12 A, C=Ir.; B, D=Con.; E=Ch.; F=Al.				
18-62		❖	●		▽	6		6					🌡	18-12 A, B, C=Ir.; D, E, F=Con.				
18-63		❖	●		▽	4			4				🌡	18-15 A, C=Con.; B, D=Cu				
18-65		❖	●		▽	6		6					🌡	18-12 A=Ir.; B=Con.; Balance=Cu				
18-66		❖	●		▽	10		10					🌡	18-1 A, C, E, G, I=Cu; B, D, F, H, J=Con.				
18-67		❖	●		▽	6		6					🌡	18-12 A, C, E=Cu; B, D, F=Con.				
18-68		❖	●		▽	5			5				🌡	18-11 A, D=Al.; B, C=Ch.; E=Cu				
18-69		❖	●		▽	10		10					🌡	18-1 A=Al.; B=Ch.; Balance=Cu				
18-70		❖	●		▽	5			5				🌡	18-11 A=Ir.; B=Con.; C=Ch.; D=Al.; E=Cu				
18-71		❖	●		▽	4			4				🌡	18-15 A=Con.; Balance=Cu				
18-72		❖	●		▽	4			4				🌡	18-15 D=Con.; Balance=Cu				
18-73		❖	●		▽	7		5	2				🌡	18-9 A=Al.; D=Ch.; Balance=Cu				
18-74		❖	●		▽	6		6					🌡	18-12 A=Ch.; B=Al.; D=Ir.; E=Cu; C, F=Con.				
20A9				■		9			9					-	110	250	-	D(J), I(all others)
20A16	✦	❖	●			13		13						20-11 182°				I
20A37	✦	❖	●			4			4					20-4 250°				D
20A48				■		19		19						80	280	-	-	I
20-2		❖	●	■	▼	1						1		-	-	-	-	D
20-3	✦	✚^	●			3			3					70	145	215	290	D
20-4	✦	✚	●		▼	4			4					45	110	250	-	D
20-6	✦	✚^	●			3		3						70	145	215	290	D
20-7	✦	✚	●		▼	8		8						80	110	250	280	A(B,C.F,G) I*(all others)*
20-8	✦	✚	●	■	▼	6		4		2				80	110	250	280	I
20-9		✚			▽	8		7	1					80	110	250	280	D(H), A*(all others)*
20-11	✦	✚	●			13		13						-	-	-	-	I
20-12		✚^				2		1			1			80	110	250	280	A
20-14	✦	✚	●		▼	5			3	2				80	110	250	280	A
20-15	✦	✚	●		▼	7			7					80	-	-	280	A
20-16	✦	✚	●		▼	9		7	2					80	110	250	280	A
20-17	✦	✚^	●		▼	6		1	5					90	180	270	-	A
20-18	✦	✚	●		▼	9		6	3					35	110	250	325	A
20-19	✦	✚	●		▼	3				3				90	180	270	-	A
20-20		✚^	●			4			3		1			80	110	250	280	A
20-21	✦	✚	●		▼	9		8	1					35	110	250	325	A

** Socket only for MS3450 series ^ 5015 QPL not all configurations

NOTE: 16S contacts are used in shell sizes 8S, 10S, 10SL, 12S, 14S, & 16S

LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)
CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES						🌡	DEGREES OF ROTATION				SERVICE RATING
							20	16	12	8	4	0		W	X	Y	Z	
20-22		✚	●		▼	6		3		3				80	110	250	280	A
20-23	✦	✚	●			2				2				35	110	250	325	A
20-24	✦	✚	●		▼	4		2		2				35	110	250	325	A
20-25	✦	❖	●			13		13						20-11	100°			I
20-26		❖	●			19		19						-	90	280	-	A
20-27	✦	✚	●		▼	14		14						35	110	250	325	A
20-29	✦	✚	●		▼	17		17						80	-	-	280	A
20-30	✦	❖	●			13		13						20-11	250°			I
20-32	✦	❖	●		▽	8		8						20-7	260°			A(B,C,F,G) I*(all others)*
20-33	✦	✚	●		▼	11		11						-	-	-	280#	A
20-51		❖	●			3				3				-	-	-	-	A
20-52		❖	●		▽	4			4				🌡	20-4	315°	A=Ir.; B=Con.; C=Ch.; D=Al.		
20-56		❖	●		▽	8		8					🌡	20-7	45°	A, B, G, H=Ir.; C, D, E, F=Con.		
20-57		❖	●			7‡			7‡					-	-	-	-	A
20-58		❖	●			10		5	5					-	-	-	-	A
20-59		❖	●			3‡				3‡				-	-	-	-	A
20-60		❖	●		▽	8		8					🌡	20-7	45°	D=Ch.; E=Al.; Balance=Cu		
20-61		❖	●		▽	17		17					🌡	20-29	45°	A, B, M=Cu; Balance=Con.		
20-62		❖	●		▽	7			7				🌡	20-15	80°	A, C, E=Al.; B, D, F=Ch.; G=Cu		
20-64		❖	●		▽	14		14					🌡	20-27		A=Al.; C=Ch.; Balance=Cu		
20-65		❖	●		▽	14		14					🌡	20-27		A, B, C, D, E, F, G=Ir.; H, I, J, K, L, M, N=Con.		
20-66		❖	●			6‡		1	5‡					-	-	-	-	A
20-67		❖	●		▽	9		7	2				🌡	20-16		H=Al.; I=Ch.; Balance=Cu		
20-68		❖	●		▽	8		8					🌡	20-7		A, B, G, H=Con.; C, D, E, F=Cu		
20-69		❖	●		▽	14		14					🌡	20-27		A, B, C, D, E, F, G=Cu; H, I, J, K, L, M, N=Con.		
20-70		❖	●		▽	17		17					🌡	20-29		A, C, E, G, J, L, N, R, T=Ir.; B, D, F, H, K, M, P, S=Con.		
20-71		❖	●		▽	17		17					🌡	20-29		S=Al.; R=Ch.; Balance=Cu		
20-74		❖	●		▽	17		17					🌡	20-29		A, C, E, G, J, L, N, R=Ir.; B, D, F, H, K, M, P, S=Con.;T=Cu		
20-75		❖	●		▽	7			7				🌡	20-15		G=Al.; Balance=Ch.		
20-77		❖	●		▽	9		7	2				🌡	20-16		A=Con.; Balance=Cu		
20-79		❖	●			8‡		7	1‡					-	-	-	-	D(H); A *(all others)*
20-80		❖	●		▽	14		14					🌡	20-27		A, C, E, G, I, K, M=Cu; B, D, F, H, J, L, N=Con.		
20-81		❖	●		▽	14		14					🌡	20-27		A, C, E, G, I, K, M=Ch.; B, D, F, H, J, L, N=Al.		
20-82		❖	●		▽	17		17					🌡	20-29		A, C, E, G, J, L, N, R=Al.; B, D, F, H, K, M, P, S=Ch.; T=Cu		
22B22				■		4				4				-	110	250	-	A
22-1	✦	✚	●			2				2				35	110	250	325	D
22-2	✦	✚	●	■	▼	3				3				70	145	215	290	D
22-4	✦	✚	●		▼**	4			2	2				35	110	250	325	A
22-5	✦	✚	●		▼**	6		4	2					35	110	250	325	D
22-6		✚	●		▼**	3		1		2				80	110	250	280	D
22-7		✚	●		▼***	1						1		-	-	-	-	E
22-8	✦	✚^	●			2			2					35	110	250	325	E
22-9	✦	✚	●		▽	3			3					70	145	215	290	E
22-10	✦	✚	●		▽	4		4						35	110	250	325	E
22-11	✦	✚	●		▽	2		2						35	110	250	325	B
22-12	✦	✚^	●	■		5		3		2				80	110	250	280	A
22-13	✦	✚^	●			5		1	4					35	110	250	325	A(A-D) D(E)

#Rotation commercial only, not MS-approved ‡ Reduced contact crimp pot ^ 5015 QPL not all configurations
** Socket only for MS3450 series ***Pin only for MS3450 series

LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)
CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES						🌡	DEGREES OF ROTATION				SERVICE RATING
							20	16	12	8	4	0		W	X	Y	Z	
22-14	✦	✚	●	■	▼	19		19						80	110	250	280	A
22-15	✦	✚	●		▽	6		1	5					80	110	250	280	A(A-C, E, F) E(D)
22-16	✦	✚	●			9		6	3					80	110	250	280	A
22-17		✚^	●		▽	9		8	1					80	110	250	280	D(A) A*(all others)*
22-18	✦	✚	●		▽	8		8						80	110	250	280	A(C-E) D*(all others)*
22-19	✦	✚	●		▼	14		14						80	110	250	280	A
22-20	✦	✚^	●			9		9						35	110	250	325	A
22-21		✚^	●		▼	3		2				1		80	110	250	280	A
22-22	✦	✚	●	■	▼	4				4				-	110	250	-	A
22-23	✦	✚	●		▼	8			8					35	-	250	-	D(A-D): A(E-G)
22-24		✚	●			6		4	2					80	110	250	280	D(C, D, E) A(A, B, F)
22-26	✦					7		5	2					-	-	-	-	1/8" spacing
22-27	✦	✚	●	■	▽	9		8		1				80	-	250	280	D(J) A*(all others)*
22-28	✦	✚^	●			7			7					80	-	-	280	A
22-30	✦	❖	●		▽	19		19						22-14	100°			A
22-31	✦	❖	●			2		2						22-11	100°			B
22-32	✦	❖	●		▽	6		4	2					22-5	260°			D
22-33		✚^	●			7		7						80	110	250	280	D(A-D) A(E-G)
22-34	✦	✚				5		2	3					80	110	250	280	D
22-36					▽	8			8					90	-	270	-	D(H); A*(all others)*
22-57		❖	●		▽	19		19					🌡	22-14	45°	A, C, E, G, J, L, N, R=Ir.; B, D, F, H, K, M, P, S=Con.; T, U, V=Cu			
22-60		❖	●		▽	19		19					🌡	22-14	45°	U=Al.; N=Ch.; Balance=Cu		
22-62		❖	●		▽	8			8				🌡	22-23	60°	A, B, F, G=Al.; C, D, E, H=Ch.		
22-63		❖	●			12		8	4					20	-	-	-	A
22-65		❖	●			8‡			8‡						-	-	-	D(H); A*(all others)*
22-68		❖	●		▽	14		14					🌡	22-19	45°	A, C, E, G, J, L, M=Ir.; B, D, F, H, K, P, N=Con.		
22-69		❖	●		▽	14		14					🌡	22-19	45°	A, C, E, G, J, L, M=Cu; B, D, F, H, K, P, N=Con.		
22-70		❖	●			13		5	8					-	-	-	-	A
22-71		❖	●		▽	19		19					🌡	22-14	V=Al.; U=Ch.; Balance=Cu			
22-72		❖	●		▽	6		4	2				🌡	22-5	B=Al.; E=Ch.; Balance=Cu			
22-73		❖	●		▽	6		4	2				🌡	22-5	E=Al.; B=Ch.; Balance=Cu			
22-74		❖	●		▽	8			8				🌡	22-23	A, C, E, G=Ir.; B, D, F, H=Con.			
22-75		❖	●		▽	8			8				🌡	22-23	A=Al.; B, D, G, H=Cu; C=Ch.; E=Ir.; F=Con.			
22-76		❖	●			21		21					🌡		W=Con.; Balance=Cu			
22-77		❖	●		▽	14		14					🌡	22-19	B, D, F, H, J, K, M, P=Cu; A, E, L=Ir.; C, G, N=Con.			
22-78		❖	●		▽	19		19					🌡	22-14	A, C, E, G, H, K, M, P, R, T=Con.; Balance=Cu			
22-79		❖	●		▽	4		4					🌡	22-10	A, C,=Con.; B, D=Cu			
22-80		❖	●			3‡				3‡				-	-	-	-	A
24A35		❖	●			16		14	2					24-7	100°			A
24-2	✦	✚	●		▼	7			7					80	-	-	280	D
24-3		✚^	●			7		5	2					80	110	250	280	D
24-4					▽	4		3				1		80	110	250	280	D
24-5	✦	✚	●		▼	16		16						80	110	250	280	A
24-6	✦	✚^	●		▽	8			8					80	110	250	280	D(A,G,H) A*(all others)*
24-7	✦	✚	●		▼	16		14	2					80	110	250	280	A

^ 5015 QPL not all configurations

LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)
CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES							DEGREES OF ROTATION				SERVICE RATING
							20	16	12	8	4	0	🌡	W	X	Y	Z	
24-9	✦	✚	●	■		2					2			35	110	250	325	A
24-10	✦	✚	●	■	▼	7				7				80	-	-	280	A
24-11	✦	✚	●	■	▼	9			6	3				35	110	250	325	A
24-12	✦	✚	●	■	▼	5			3		2			80	110	250	280	A
24-15		❖	●		▽	16		16						24-5	100°			A
24-16	✦	✚^	●		▽	7		3	3	1				80	110	250	280	D(A, B, F, G) A(C, D, E)
24-17		✚^	●			5		3	2					80	110	250	280	D
24-19	✦	❖	●			12		12						-	-	-	-	A
24-20	✦	✚	●		▼	11		9	2					80	110	250	280	D
24-21	✦	✚	●		▽	10		9		1				80	110	250	280	D
24-22	✦	✚	●		▼	4				4				45	110	250	-	D
24-24					▽	16		16						24-5	250°			A
24-25	✦	❖	●			8			8					24-6	100°			D(A, G, H) A*(all others)*
24-26	✦	❖	●			8			8					24-6	250°			D(A, G, H) A*(all others)*
24-27	✦	✚	●		▽	7		7						80	-	-	280	E
24-28	✦	✚	●	■	▼	24		24						80	110	250	280	I
24-51		❖	●			5				5				-	108	-	-	A
24-52		❖	●			1 HV			1HV					30 KVdc, 21 KVac				
24-53		❖	●			5‡				5‡				-	108	-	-	A
24-56		❖	●		▽	11		9	2				🌡	24-20	45°	E=Al.; F=Ch.; Balance=Cu		
24-57		❖	●		▽	24		24					🌡	24-28	45°	A, C, J, V, Y, W, K, E, H, U, S, M=Ch.; Balance=Al.		
24-58		❖	●			13		7	3	3				-	-	-	-	A
24-59		❖	●			14		7	7					-	-	-	-	A
24-60		❖	●			7‡				7‡				-	-	-	-	A
24-62		❖	●		▽	24		24					🌡	24-28	A, C, E, G=Ir.; B, D, F, H=Con.; R, T=Ch.; S, U=Al.; Balance=Cu			
24-63		❖	●		▽	24		24					🌡	24-28	A, C, E, G, J, L, K, N, S, U, W, Y=Cu; B, D, F, H, Q, R, M, P, T, V, X, Z=Con.			
24-64		❖	●		▽	16		16					🌡	24-5	A, B, C, D, E, F, G, H=Ir.; J, K, L, M, N, P, R, S=Con.			
24-65		❖	●			15		4	11					-	-	-	-	A
24-66		❖	●			7			7					-	-	-	-	D
24-67		❖	●			19			19					16	-	-	-	I
24-68		❖	●		▽	24		24					🌡	24-28	D=Con.; Balance=Cu			
24-71		❖	●			7‡				7‡				-	-	-	-	A
24-75		❖	●			7‡				7‡				-	-	-	-	A
24-79		❖	●			5				5				-	108	-	-	A
24-80		❖	●		▽	23		23						35	145	240	300	I
24-81		❖	●			16		14	2				🌡	24-7	A, C, E, G, I, K, M, N, P=Cu; B, D, F, H, J, L, O=Con.			
24-84		❖	●			19			19 (18)					-	-	-	-	A/Coax
24-96		❖	●			28		28						65	-	-	-	I
24-AJ		❖	●			25		25						80	110	250	280	A
28A63				■		28		19	9					-	110	260	-	A
28-1	✦	✚	●		▼	9			6	3				80	110	250	280	D(A, E, J) A*(all others)*
28-2	✦	✚	●		▼	14		12	2					35	110	250	325	D
28-3	✦	✚	●		▽	3				3				70	145	215	290	E
28-4		✚^	●		▽	9		7	2					80	110	250	280	E(G, P, S) D*(all others)*
28-5		✚^	●		▽	5		2	1		2			35	110	250	325	D
28-6	✦	✚^	●			3					3			70	145	215	290	D
28-7		❖	●			2					2			35	110	250	325	D

‡ Reduced contact crimp pot ^ 5015 QPL not all configurations ( ) Number of contacts that are coax

LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)
CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES 20	16	12	8	4	0	🌡	DEGREES OF ROTATION W	X	Y	Z	SERVICE RATING
28-8	✦	✚^	●		▽	12		10	2					80	110	250	280	E (L, M) D(B) A *(all others)*
28-9	✦	✚	●		▼	12		6	6					80	110	250	280	D
28-10	✦	✚	●		▼	7			3	2	2			80	110	250	280	D(G) A(all others)
28-11	✦	✚	●	■	▼	22		18	4					80	110	250	280	A
28-12	✦	✚	●		▼	26		26						90	180	270	-	A
28-13	✦	❖	●		▽	26		26						28-12 100°				A
28-15	✦	✚	●		▼	35		35						80	110	250	280	A
28-16	✦	✚	●		▽	20		20						80	110	250	280	A
28-17	✦	✚	●		▼	15		15						80	110	250	280	A(A-L) B(R) D(M-P)
28-18	✦	✚	●		▽	12		12						70	145	215	290	C(M) D(G, H, J, K, L) A(A, B) I(C, D, E, F)
28-19	✦	✚	●		▽	10		6	4					80	110	250	280	A(C, E, G, J, K, L) B(H, M) D(A, B)
28-20	✦	✚^	●	■	▼	14		4	10					80	110	250	280	A
28-21	✦	✚	●	■	▼	37		37						80	110	250	280	A
28-22		✚^	●	■	▼	6		3			3			70	145	215	290	D
28-51		❖	●			12			12					80	135	195	-	A
28-53		❖	●		▽	22		18	4				🌡	28-11 45° J, L=Al.; K, M=Ch.; Balance=Cu				
28-58		❖	●		▽	14		4	10				🌡	28-20 45° A, C, E, G, K, M=Al.; B, D, F, H, L, N=Ch.; J, P=Cu				
28-59		❖	●			17		10	7					-	-	-	-	A
28-61		❖	●		▽	37		37					🌡	28-21 45° A, C, J, Z, m, r, n, a, K, F, H, X, k, h, T, M, N, d=Ir.; Balance=Con.				
28-63		❖	●		▽	14		4	10				🌡	28-20 45° A, C, E, G, J=Al.; B, D, F, H, P=Ch.; Balance=Cu				
28-64		❖	●		▽	35		35					🌡	28-15 A, d=Al.; B, j=Ch.; C, D, E, F, G, N, P, R, S, H, J, K, L, M, W, X, Y, Z=Con.;Balance=Cu				
28-65		❖	●		▽	26		26					🌡	28-12 A, C, E, G, J, L, N, R, T, V=Ir.; X, Z=Al.; B, D, F, H, K, M, P, S, U, W=Con.;Y, a=Ch.; b, d=Cu				
28-66		❖	●			16			14	2				50	100	165	-	A
28-67		❖	●		▽	20		20					🌡	28-16 U=Con.; Balance=Cu				
28-68		❖	●		▽	35		35					🌡	28-15 45° T=Al.; U=Ch.; Balance=Cu				
28-69		❖	●		▽	22		18	4				🌡	28-11 G=Al.; R=Ch.; Balance=Cu				
28-70		❖	●		▽	22		18	4				🌡	28-11 A=Al.; B=Ch.; Balance=Cu				
28-72		❖	●			3					3(3)			-	-	-	-	Coax
28-74		❖	●			16‡		9		7‡				70	133	227	290	A
28-75		❖	●			16‡		9		7‡				70	133	227	290	A
28-79		❖	●			16		9		7				70	133	227	290	A
28-82		❖	●			6			4	2				-	-	-	-	D
28-84		❖	●			9				9				45	157	90	135	A
28-77		❖	●		▽	22		18	4				🌡	28-11 J=Con.; Balance=Cu				
28-81		❖	●		▽	37		37					🌡	28-21 A, D, S, Z, n, s=Ir.; B, J, K, f, g, r=Con.; G, L, P, b, e, j=Al.; F, H, T, X, h, k=Ch.; Balance=Cu				
28-AY		❖	●			9		5			4			80	110	250	280	A
32A29		❖	●			23		16	2	3	2			32-6 250°				A
32A30		❖	●			5			3			2		32-1 100°				E(A) D *(all others)*
32A69				■		61	41	20						-	110	250	-	I
32-1		✚		■	▼	5			3			2		80	110	250	280	E(A) D *(all others)*
32-2		✚	●		▽	5		2			3			70	145	215	290	E

‡ Reduced contact crimp pot ^ 5015 QPL not all configurations ( ) Number of contacts that are coax

LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)

CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES 20	16	12	8	4	0	🌡	DEGREES OF ROTATION W	X	Y	Z	SERVICE RATING
32-3		✚	●	■	▽	9		4	2		2	1		80	110	250	280	D
32-4		✚^	●			14		12	2					80	110	250	280	A (F, J, K, N) D(*all others*)
32-5	✦	✚	●			2						2		35	110	250	325	D
32-6	✦	✚	●	■	▼	23		16	2	3	2			80	110	250	280	A
32-7	✦	✚	●	■	▼	35		28	7					80	125	235	280	I (A, B, H, J) A (*all others*)
32-8	✦	✚	●			30		24	6					80	125	235	280	A
32-9		✚^	●		▼	14		12			2			80	110	250	280	D
32-10		✚^	●			7		3		2	2			80	110	250	280	E (A, F) B (G) D(E) A(D)
32-12		✚^	●			15		10	5					80	110	250	280	A (C, D, E, F, G) D(*all others*)
32-13	✦	✚	●		▼	23		18	5					80	110	250	280	D
32-14		❖				13			13					65	130	230	295	D
32-15		✚^	●		▼	8			6			2		35	110	250	280	D
32-16		❖	●		▽	23		16	2	3	2			32-6	100°			A
32-17	✦	✚	●		▼	4					4			45	110	250	-	D
32-19		❖	●		▽	5			3			2		32-1	260°			E(A) D(*all others*)
32-20		❖	●		▽	23		16	2	3	2			32-6	260°			A
32-22		❖	●		▽	54		54						80	110	250	280	A
32-25		❖	●			25			25					60	125	-	-	A
32-31		❖	●			31		31						80	125	215	280	A
32-48		❖	●			48		48						80	-	-	-	I
32-51		❖	●			30		24	6				🌡	32-8	90°M=Ch.; N= Al.; Balance=Cu			
32-52		❖	●			8			6			2		32-15	90°			D
32-53		❖	●			42		37	5					-	-	-	-	I/E
32-55		❖	●			30		24	6				🌡	32-8	125°M, N=Ch.; O, P=Al.; Balance=Cu			
32-56		❖	●			30‡		24	6‡					-	-	-	-	A
32-57		❖	●			8			6			2(2)		-	-	-	-	Coax
32-58		❖	●			.4					4(4)			-	-	-	-	Coax
32-59		❖	●			42		40		2(2)				-	-	-	-	Coax
32-60		❖	●			23			15	8(8)				72	145	215	200	A/Coax
32-62		❖	●			23		16	2	3(2)	2			-	-	-	-	A/Coax
32-63					▼	5					5			-	-	-	-	D
32-64		❖	●			54		54						80	100	110	250	I
32-68		❖	●			16		12			4(4)			30	-	-	-	A/Coax
32-73		❖	●		▼	46		46						36	-	-	-	A
32-75		❖	●			9			2	7(7)				-	-	-	-	Coax
32-76		❖	●			19			19					44	147	254	-	A
32-79		❖	●			5				1	4			-	-	-	-	D
32-82		❖	●			16		12			4			30	-	-	-	A
32-414	✦					52		52						-	-	-	-	A
32-AF		❖	●			55		55						80	110	250	280	A
36-1	✦	✚^	●			22		18	4					80	110	250	280	D
36-3		✚^	●	■	▼	6			3			3		70	145	215	290	D
36-4		✚^	●			3						3		70	145	215	290	A(B, C) D(A)
36-5	✦	✚	●	■	▼	4						4		-	120	240	-	A
36-6	✦	✚	●	■	▼	6					4	2		35	110	250	325	A
36-7	✦	✚	●		▼	47		40	7					80	110	250	280	A
36-8	✦	✚	●		▼	47		46	1					80	110	250	280	A

‡ Reduced contact crimp pot ^ 5015 QPL not all configurations ( ) Number of contacts that are coax

LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)
CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES 20	16	12	8	4	0	🌡	DEGREES OF ROTATION W	X	Y	Z	SERVICE RATING
36-9	✦	✚	●		▼	31		14	14	2	1			80	125	235	280	A
36-10	✦	✚	●	■	▼	48		48						80	125	235	280	A
36-11	✦	❖	●		▽	48		48						36-10	100°			A
36-12	✦	❖	●		▽	48		48						36-10	250°			A
36-13		✚^	●			17		15	2					80	110	250	280	E(N,P,Q) A *(all others)*
36-14		✚^	●			16		6	5	5				90	180	270	-	D
36-15	✦	✚	●		▼	35		35						60	125	245	305	D(M) A *(all others)*
36-16		❖	●		▽	47		40	7					36-7	100°			A
36-17		❖	●		▽	47		40	7					36-7	250°			A
36-18		❖	●		▽	31		14	14	2	1			36-9	100°			A
36-20		❖	●			34		30	2	2				-	-	-	-	A
36-21		❖	●		▽	31		14	14	2	1			36-9	260°			A
36-22		❖	●			22			22					-	-	-	-	D
36-51		❖	●			4					2	2		-	127	-	-	D
36-52		✚^	●		▼	52		52						72	144	216	288	A
36-53		❖	●		▽	47		40	7				🌡	36-7	45° u, v, w=Al.; x, y, z=Ch.; Balance=Cu			
36-54		❖	●			39		31		8				-	-	-	-	A
36-55		❖	●			39‡		31		8‡				-	-	-	-	A
36-56		❖	●		▽	48		48					🌡	36-10 A, C, E, G, L, J, H, P, R, T, V, X, Z, b, d, f, h, k, q, n, m, u, w, y=Con.; Balance=Cu				
36-59		❖	●			53‡		50	3‡					-	-	-	-	A
36-60		❖	●			47‡		40	7‡					-	-	-	-	A
36-61		❖	●		▽	35		35					🌡	36-15 A, C, E, J, K, L, M, N, P, R, T, V, f, X, Y, h, j, c=Con.; Balance=Cu				
36-62		❖	●		▽	48		48					🌡	36-10 A, C, E=Al.; B, D, F=Ch.; Balance=Cu				
36-64		❖	●			4						4(4)		-	-	-	-	Coax
36-65		❖	●			4						4(4)		-	-	-	-	Coax
36-66					▽	56		52	4					110	250	260	280	A
36-71		❖	●			53		50	3					-	-	-	-	A
36-73		❖	●			7					7(7)			81	279	-	-	Coax
36-74		❖	●			44		43	1(1)					-	-	-	-	A
36-75		❖	●			48‡		48‡						-	-	-	-	A
36-76		❖	●			47		47						-	-	-	-	A
36-77		❖	●			7					7			81	279	-	-	D
36-78		❖	●			14		2		12				35	106	254	325	A
36-79		❖	●			20			20					30	110	250	330	A
36-80		❖	●			20‡			20‡					30	110	250	330	A
36-82		❖	●		▽	52		52					🌡	36-52 v, g=Ir.; p, y, c=Con. x=Ch.; Balance=Cu				
36-83		❖	●			7					7(7)			81	279	-	-	Coax
36-85		❖	●			35‡		35‡						-	-	-	-	A/D
36-403	✦					52		52						-	-	-	-	A
36-57		❖	●		▽	47		46	1				🌡	36-8 W=Al.; f=Ch.; Balance=Cu				
36-58		❖	●		▽	35		35					🌡	36-15 H=Al.; G=Ch.; Balance=Cu				
36-AF		❖	●			48		48						65	-	-	-	A
40-1		✚	●		▼	30		24	6					65	130	235	300	D
40-2					▽	23		23						80	110	250	280	D
40-3					▽	23		18	4		1			80	110	250	280	D

‡ Reduced contact crimp pot ^ 5015 QPL not all configurations ( ) Number of contacts that are coax

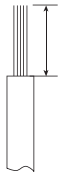
LAYOUTS BY SHELL SIZE

SERIES KEY: **97** (✦=97) **AIT** (✚=MS; ❖=non QPL) **AIB** (●=GT) **VG95234** (■) **MS3450** (▼=MS; ▽=non QPL) **Thermocouple** (🌡)
CONTACT METALLURGY KEY: Alumel (Al.) Chromel (Ch.) Constantan (Con.) Copper (Cu) Iron (Ir.)

LAYOUT	97 Series	AIT Series	AIB/GT	VG95234	MS3450	TOTAL	CONTACTS SIZES						🌡	DEGREES OF ROTATION				SERVICE RATING
							20	16	12	8	4	0		W	X	Y	Z	
40-4					▽	23		16	2	3	2			80	110	250	280	D
40-5##					▽	15			6	4	2	3		80	110	250	280	A
40-5		❖	●			5						5		33	-	-	270	A
40-6					▽	26		24	1			1		80	110	250	280	D
40-7					▽	22		18	2			2		80	110	250	280	P,Q,U,V,W,X=A; Bal.=D
40-9		✚	●		▼	47		24	22	1				65	125	225	310	A
40-10		✚^	●			29		16		9	4			65	125	225	310	A
40-35		❖	●			35			35					70	130	230	290	D
40-53		❖	●			60		60						80	110	250	280	A
40-56		✚	●		▼	85		85						72	144	216	288	A
40-57		❖	●			4						4		30	150	-	-	E
40-58		❖	●		▽	85		85					🌡	40-56 A, C, E, H, K, M, P, S, U, W, Y, a, c, f, h, j, m, p, r, t, v, x, z, AB, AD, AF, AJ, AL,AN, AP, AS, AU, AW, AY, BA, BC, BE, BH, BK, BM, BP, BS, BU=Ir.; Balance=Con.				
40-59		❖	●		▽	85		85					🌡	40-56 B=Ch.; C=Con.; Balance=Cu				
40-61		❖	●			59		55	3	1				-	-	-	-	A
40-62		✚	●		▽	60		60						30	130	220	290	A
40-63		❖	●			61‡		61‡						-	-	-	-	A
40-64		❖	●			36		20	3	13(13)				-	-	-	-	Coax
40-66		❖	●			4						4(4)		-	-	-	-	Coax
40-67		❖	●			11		1			10(10)			-	-	-	-	A/Coax
40-68		❖	●			21				21				-	-	-	-	A
40-70		❖	●			61		61						-	-	-	-	A
40-72		❖	●			11		1			10(10)			-	-	-	-	A/Coax
40-73		❖	●			61		61						-	-	-	-	A
40-74		❖	●			6			1		1(1)	4(4)		-	-	-	-	A/Coax
40-75		❖	●			5			1			4		-	-	-	-	E
40-77		❖	●			60		60					🌡	40-56 55, 60=Ir.; 57, 58, 59=Con.; 56=Ch.; Balance=Cu				
40-78		❖	●			60			60				🌡	40-53 50 51=Ir.; 27, 28, 29, 31, 32, 34, 36, 37=Con.; 25, 39, 40, 41=Al 43,44,45, 46, 47, 48, 49, 52, 53, 54=Ch.; Balance=Cu				
40-80		❖	●			11		1			10			72	144	210	288	A
40-81		❖	●			62‡		62‡						-	-	-	-	A
40-82		❖	●			62		62						-	-	-	-	A
40-85		❖	●			60‡		60‡						-	-	-	-	A
40-86		❖	●			4						4(4)		-	-	-	-	E/Coax
40-87		❖	●			7					7			37	74	285	322	D
40-AD		❖	●			8				4		4		45	-	-	-	A
40-AG		❖	●			38			38					37	74	285	322	A
40-AT		❖	●			43		18	24	1				80	110	250	280	A
40-AV		❖	●			3						3#2/0		90	180	270	-	D

‡ Reduced contact crimp pot ^ 5015 QPL not all configurations ( ) Number of contacts that are coax ## Different per 1651 STD; 5-#12,2-#4

PIN & SOCKET CRIMP CONTACTS

	PIN CONTACT	SOCKET CONTACT	WIRE STRIP LENGTHS	WIRE RANGE
				

CONTACT SIZE	WIRE SIZE	PART NUMBER					WIRE STRIP LENGTHS INCHES (MM)	WIRE SEALING LENGTHS INCHES (MM)
		PIN CONTACT		SOCKET CONTACT				
		SILVER	GOLD	SILVER	GOLD			
16S†	16-18-20	**AIC16S-16P**	**AIC16S-16PG**	**AIC16S-16S**	**AIC16S-16SG**	-	.312 (7.9)	.090 -.118 (2.3-3.0)
	12-14	AIC16S-12P	AIC16S-12PG	AIC16S-12S	AIC16S-12SG	C4		
	14-16	AIC16S-14P	AIC16S-14PG	AIC16S-14S	AIC16S-14SG	C3		
	18-20	AIC16S-20P	AIC16S-20PG	AIC16S-20S	AIC16S-20SG	C13		
	20-22	AIC16S-22P	AIC16S-22PG	AIC16S-22S	AIC16S-22SG	C14		
	22-24	AIC16S-24P	AIC16S-24PG	AIC16S-24S	AIC16S-24SG	C2		
16	16-18-20	**AIC16-16P**	**AIC16-16PG**	**AIC16-16S**	**AIC16-16SG**	-		
	12-14	AIC16-12P	AIC16-12PG	AIC16-12S	AIC16-12SG	C4		
	14-16	AIC16-14P	AIC16-14PG	AIC16-14S	AIC16-14SG	C3		
	18-20	AIC16-18P	AIC16-18PG	AIC16-18S	AIC16-18SG	C13		
	20-22	AIC16-20P	AIC16-20PG	AIC16-20S	AIC16-20SG	C14		
	20-24	AIC16-2024P	AIC16-2024PG	AIC16-2024S	AIC16-2024SG	C36		
	22-24	AIC16-22P	AIC16-22PG	AIC16-22S	AIC16-22SG	C2		
12	12-14	**AIC12-12P**	**AIC12-12PG**	**AIC12-12S**	**AIC12-12SG**	-	.312 (7.9)	.126 - .177 (3.2-4.5)
	12 High-Power	-	-	AIC12-12SRAD	-	-		
	8-10	AIC12-8P	AIC12-8PG	AIC12-8S	AIC12-8SG	C5		
	10-12	AIC12-10P	AIC12-10PG	AIC12-10S	AIC12-10SG	C8		
	14-16	AIC12-14P	AIC12-14PG	AIC12-14S	AIC12-14SG	C9		
	16-18	AIC12-16P	AIC12-16PG	AIC12-16S	AIC12-16SG	C7		
	18-20	AIC12-18P	AIC12-18PG	AIC12-18S	AIC12-18SG	C6		
	20-22	AIC12-20P	AIC12-20PG	AIC12-20S	AIC12-20SG	C40		
8	8	**AIC8-8P**	**AIC8-8PG**	**AIC8-8S**	**AIC8-8SG**	-	.563 (14.3)	.150 - .256 (3.8-6.5)
	8 High-Power	-	-	AIC8-8SRAD	-	-		
	10-12	AIC8-10P	AIC8-10PG	AIC8-10S	AIC8-10SG	C10		
	12-14	AIC8-12P	AIC8-12PG	AIC8-12S	AIC8-12SG	C38		
4	4	**AIC4-4P**	**AIC4-4PG**	**AIC4-4S**	**AIC4-4SG**	-	.500 (12.7)	.279 - .366 (7.1 - 9.3)
	4 High-Power	-	-	AIC4-4SRAD	-	-		
	8	AIC4-8P	AIC4-8PG	AIC4-8S	AIC4-8SG	C15		
0	0	**AIC0-0P**	**AIC0-0PG**	**AIC0-0S**	**AIC0-0SG**	-	.750 (19.0)	.394 - .539 (10.0 - 13.7)
	0 High-Power	-	-	AIC0-0SRAD	-	-		
	0-2	AIC0-2P	AIC0-2PG	AIC0-2S	AIC0-2SG	C11		
	4	AIC0-4P	AIC0-4PG	AIC0-4S	AIC0-4SG	C12		

Bolded items are standard crimp contacts.

SOLDER THERMOCOUPLE CONTACTS

	TYPE	PINS	SOCKETS
16S†	Alumel	10-040799-02P*	10-040799-02S*
	Chromel	10-040799-01P*	10-040799-01S*
	Iron	10-040799-03P*	10-040799-03S*
	Constantan	10-040799-04P*	10-040799-04S*
16	Alumel	10-040799-12P*	10-040799-12S*
	Chromel	10-040799-11P*	10-040799-11S*
	Iron	10-040799-13P*	10-040799-13S*
	Constantan	10-040799-14P*	10-040799-14S*

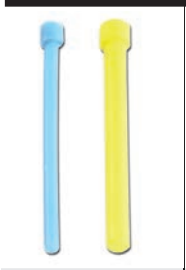
SOLDER THERMOCOUPLE CONTACTS

	TYPE	PINS	SOCKETS
12	Alumel	10-040799-42P*	10-040799-42S*
	Chromel	10-040799-41P*	10-040799-41S*
	Iron	10-040799-43P*	10-040799-43S*
	Constantan	10-040799-44P*	10-040799-44S*

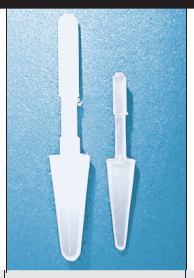
Thermocouple Types: **J** = Iron-Constantan **K** = Alumel-Chromel
T = Copper-Constantan **E** = Chromel-Constantan

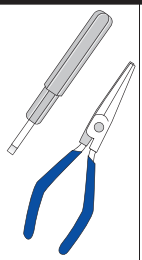
*Contact us for availability
† 16S contacts are used in 8S, 10S, 10SL, 12S, 14S and 16S connector sizes only.

ACCESSORIES



TOOLS

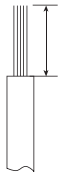




CONTACT SIZE	WIRE HOLE FILLER COLOR	CRIMP TOOLS	CRIMP LOCATOR & DIE SETS	LOCATOR COLOR	PILOT PIN/INSERTION GUIDE FOR SOCKETS	INSERTION TOOL	EXTRACTION TOOL
16S†	MS27488-16-3 (Blue)	AF8-(hand) WA27F-(pneumatic) ††	TH29-1	Red	10-242758-016	DAK168-16	DRK59 Kit with Multiple Tips
16				Pin-Blue Socket-Green			
12	MS27488-12-3 (Yellow)			Green	10-242758-012	DAK168-12	
8	MS27488-8-3 (Red)	400BHD	**Die Set** 414DA-8N **Locator** 4025-Pin 4026-Socket	-	10-242758-008	DAK282	
4	MS27488-4-3 (Blue)		**Die Set** 414DA-4N **Locator** 4043-2	-	-	AIC4INS	AIC4EXT
0	MS27488-0-3 (Yellow)		**Die Set** 414DA-0N **Locator** 4042	-	-	AIC0INS	AIC0EXT

†† Contact us for additional tool accessories.

PIN & SOCKET COAX CONTACTS

		PIN CONTACT		SOCKET CONTACT		WIRE STRIP LENGTH	WIRE RANGE		ACCESS-ORIES
									
COAX CONTACT SIZE	COAX WIRE SIZE	PART NUMBER				WIRE STRIP LENGTHS INCHES (mm)	WIRE SEALING RANGE INCHES (mm)		WIRE HOLE FILLER
		PINS		SOCKETS					
		SILVER	GOLD	SILVER	GOLD		MIN.	MAX.	
12	RG161/U RG174A/U RG179B/U RG187A/U RG188A/U RG316/U	21-33034-1	21-33014-21 21-33048-1() 21-33130-1()	21-33033-1	21-33013-21 21-33047-1() 21-33129-1 ()	Contact us for details	0.126 (3.2)	0.177 (4.5)	Yellow 10-405996-12
	RG178B/U RG196A/U	-	21-33014-22	-	21-33013-22				
8	RG58C/U RG141A/U RG303/U	21-33034-2(1)	21-33014-1(5) 21-33016-5(3) 21-33130-2()	21-33033-2(1) 21-33048-2()	21-33013-1(5) 21-33047-2() 21-33015-5(3) 21-33129-2()	Contact us for details	0.150 (3.8)	0.256 (6.5)	White 10-405996-8
	RG59B/U RG62A/U RG62B/U RG210/U	31-33034-5(1)	21-33014-5(5) 21-33016-2(3) 21-33130-5() 21-33064-21()	21-33033-5(1)	21-33013-5(5) 21-33015-2(3) 21-33129-3() 21-33063-21()				
	RG161/U RG174A/U RG179B/U RG187A/U RG188A/U RG316/U	21-33034-3(1)	21-33014-3(5) 21-33016-1(3) 21-33130-3 () 21-33064-20()	21-33033-3(1)	21-33013-3(5) 21-33015-1(3) 21-33129-3() 21-33063-20()				
	RG180B/U RG195A/U	21-33034-6	21-33014-6(5) 21-33048-3() 21-33130-6()	21-33033-6	21-33013-(6) 21-33047-3() 21-33129-6()				
	RG140/U RG302/U	21-33034-8	21-33014-8(5) 21-33033-8 21-33130-8()	21-33033-8	21-33013-8(5) 21-33129-8()				
	RG55B/U RG142A/U RG142B/U RG223/U	21-33034-4	21-33014-5(5) 21-33130-4()	21-33033-4	21-33013-5(5) 21-33129-4()				
4	RG59B/U RG62A/U RG62B/U RG210/U		21-33060-10()		21-33059-10()	Contact us for details	0.279 (7.1)	0.366 (9.3)	Blue 10-405996-4
	RG212/U	-	21-33060-11()	-	21-33059-11()				
	RG55B/U RG142A/U RG142B/U RG223/U		31-33060-12()		21-33059-12()				

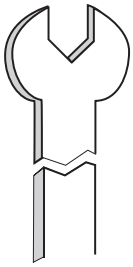
( ) Various platings available. Availability of coax contacts varies widely. Contact us for details.
All dimensions in inches (millimeters in parenthesis)

TOOLS

M22520/10-01

M22520/5-01

Crimp Dies

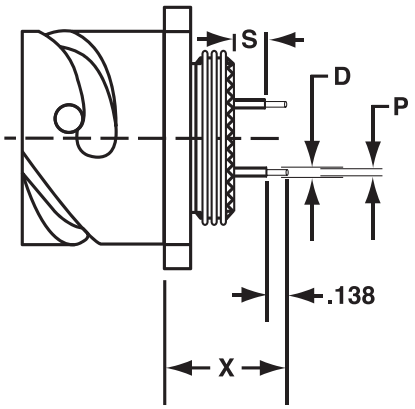


COAX CONTACT SIZE	COAX WIRE SIZE	HAND-CRIMP TOOL	HAND-CRIMP TOOL	USE LOCATOR	COAX CLAMP NUT WRENCH
12	RG161/U RG174A/U RG179B/U RG187A/U RG188A/U RG316/U	M22520/10-01	M22520/10-05	A	11-8676-1
	RG178B/U RG196A/U			B	
8	RG58C/U RG141A/U RG303/U	M22520/10-01	M22520/10-07	B	11-8676-2
	RG59B/U RG62A/U RG62B/U RG210/U	M22520/5-01	M22520/5-45	B	11-8676-3
	RG161/U RG174A/U RG179B/U RG187A/U RG188A/U RG316/U	M22520/10-01	M22520/10-05	A	11-8676-2
	RG180B/U RG195A/U		M22520/10-07	B	
	RG140/U RG302/U			A	
	RG55B/U RG142A/U RG142B/U RG223/U				
4	RG59B/U RG62A/U RG62B/U RG210/U	M22520/5-01	M22520/5-45	B	11-8676-4
	RG212/U	M22520/5-01	M22520/5-39	A	
	RG55B/U RG142A/U RG142B/U RG223/U	M22520/10-01	M22520/10-07	A	

All dimensions in inches (millimeters in parenthesis)

	COMPONENTS			
	PLUGS		**RECEPTACLES**	
	AIB/GT	AIBC/ACA-B	AIB/GT	AIBC/ACA-B
O-Ring				
Barrel/Shell				
Insert/ Insulator				
Contacts				
Wave Spring and Skid Washer (Optional)				
Coupling Nut				
Individual Wire Sealing Grommet				
Ferrule/Sleeve Compression Ring				
Endbell/ Backshell/ Cable Clamp				

PRINTED CIRCUIT CONTACTS



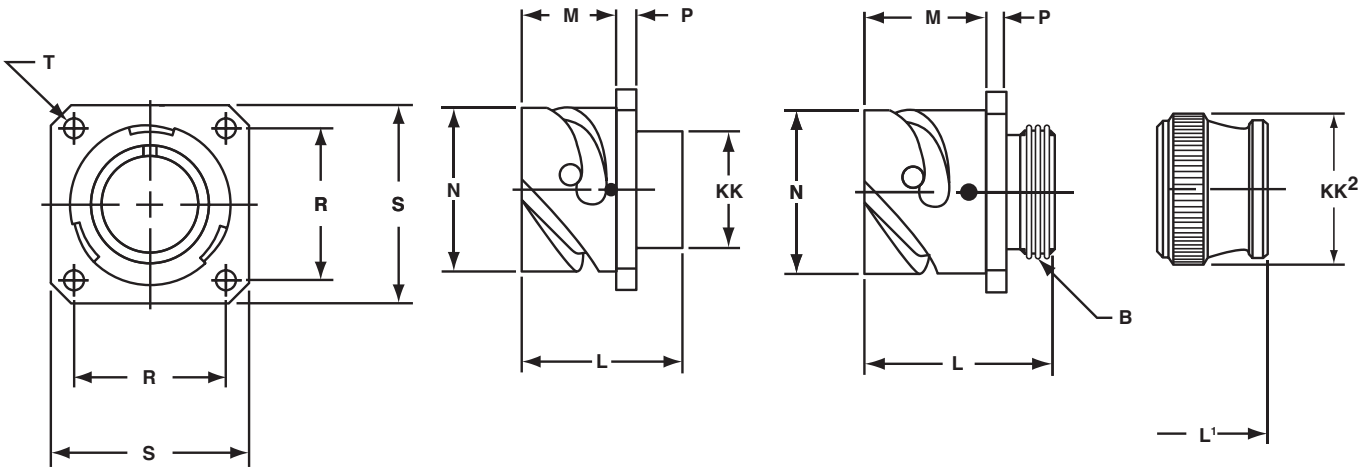
SHELL SIZE	H SERIES	
	S	X
10SL	.188 (4.78)	.567 (14.40)
14S	.188 (4.78)	.567 (14.40)
16S	.188 (4.78)	.567 (14.40)
16	.188 (4.78)	.622 (15.80)
18	.188 (4.78)	.622 (15.80)
20	.188 (4.78)	.622 (15.80)
22	.188 (4.78)	.622 (15.80)
24	.188 (4.78)	.622 (15.80)
28	.188 (4.78)	.657 (16.69)
32	.188 (4.78)	.720 (18.29)
36	.188 (4.78)	.720 (18.29)
40	.188 (4.78)	.720 (18.29)

CONTACT SIZE	D	P
12	.134 (3.4)	.070 (1.78)
16	.063 (1.6)	.030 (0.76)

All dimensions in inches (millimeters in parenthesis)

DIMENSIONS

STYLE 0, 2, 20, 30 RECEPTACLES

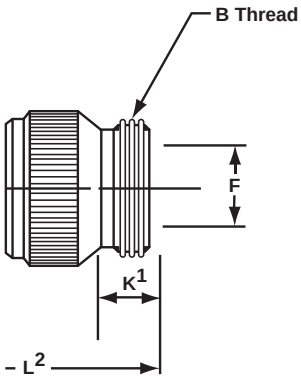


2 | 0, 20, 30 | 0, 20, 30 RV

SHELL SIZE	M +.016-.000 (+0.4-0.0)	N +.000-.006 (+0.00-0.15)	P ± .008 (±0.2)	R ± .004 (±0.1)	S ± .012 (±0.3)	T +.004-.000 (+0.1-0.0)	KK MAX.	B THREAD CLASS 2A	L + .012 (+ 0.3)	L[1] MAX.	KK[2] MAX.
10SL	.717	.717	.110	.717	1.000	.126	.626	.6250-24 UNEF	1.087	1.890	.787
	(18.2)	(18.2)	(2.8)	(18.2)	(25.4)	(3.2)	(15.9)		(27.6)	(48.0)	(20.0)
14S	.717	.969	.126	.906	1.181	.126	.756	.7500-20 UNEF	1.087	1.890	.945
	(18.2)	(24.6)	(3.2)	(23.0)	(30.0)	(3.2)	(19.2)		(27.6)	(48.0)	(24.0)
16S	.717	1.079	.126	.969	1.280	.126	.882	.8750-20 UNEF	1.087	1.890	1.024
	(18.2)	(27.4)	(3.2)	(24.6)	(32.5)	(3.2)	(22.4)		(27.6)	(48.0)	(26.0)
16	.846	1.079	.126	.969	1.280	.126	.882	.8750-20 UNEF	1.331	2.205	1.024
	(21.5)	(27.4)	(3.2)	(24.6)	(32.5)	(3.2)	(22.4)		(33.8)	(56.0)	(26.0)
18	.907	1.213	.157	1.063	1.378	.126	1.008	1.0000-20 UNEF	1.331	2.244	1.161
	(23.1)	(30.8)	(4.0)	(27.0)	(35.0)	(3.2)	(25.6)		(33.8)	(57.0)	(29.5)
20	.907	1.346	.157	1.157	1.496	.126	1.142	1.1250-18 UNEF	1.331	2.244	1.299
	(23.1)	(34.2)	(4.0)	(29.4)	(38.0)	(3.2)	(29.0)		(33.8)	(57.0)	(33.0)
22	.907	1.472	.157	1.252	1.614	.126	1.268	1.2500-18 UNEF	1.331	2.244	1.417
	(23.1)	(37.4)	(4.0)	(31.8)	(41.0)	(3.2)	(32.2)		(33.8)	(57.0)	(36.0)
24	.907	1.610	.157	1.374	1.752	.146	1.390	1.3750-18 UNEF	1.331	2.244	1.575
	(23.1)	(40.9)	(4.0)	(34.9)	(44.5)	(3.7)	(35.3)		(33.8)	(57.0)	(40.0)
28	.947	1.839	.157	1.563	2.000	.146	1.630	1.6250-18 UNEF	1.406	2.244	1.811
	(24.1)	(46.7)	(4.0)	(39.7)	(50.8)	(3.7)	(41.4)		(35.7)	(57.0)	(46.0)
32	.947	2.102	.157	1.752	2.244	.169	1.882	1.8750-16 UN	1.469	2.362	2.028
	(24.1)	(53.4)	(4.0)	(44.5)	(57.0)	(4.3)	(47.8)		(37.3)	(60.0)	(51.5)
36	.947	2.346	.157	1.937	2.500	.169	2.063	2.0625-16 UN	1.469	2.362	2.283
	(24.1)	(59.6)	(4.0)	(49.2)	(63.5)	(4.3)	(52.4)		(37.3)	(60.0)	(58.0)
40	.947	2.579	.157	2.185	2.752	.169	2.323	2.3125-16 UN	1.469	2.362	2.539
	(24.1)	(65.5)	(4.0)	(55.5)	(69.9)	(4.3)	(59.0)		(37.3)	(60.0)	(64.5)

All dimensions in inches (millimeters in parenthesis)

STYLE 0, 20, 30 RECEPTACLES



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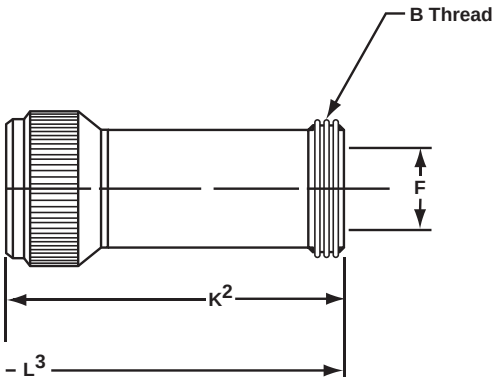

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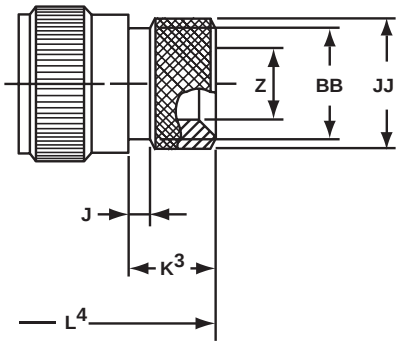


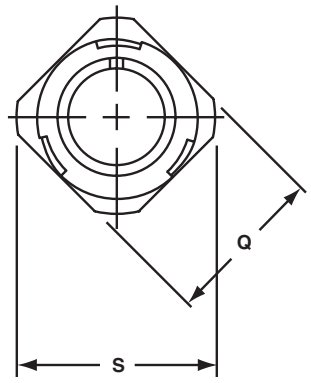
G

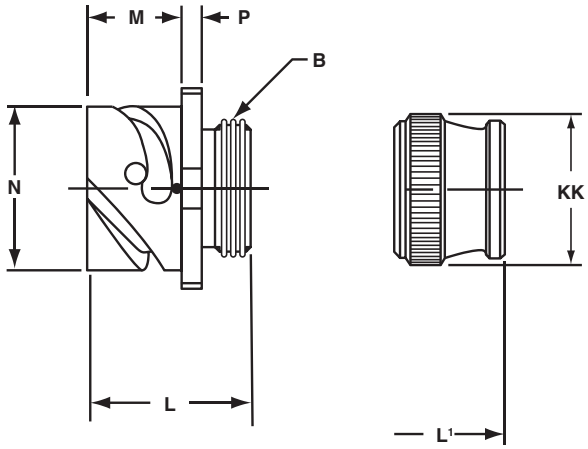
B THREAD CLASS 2A	F MIN.	K^1 MIN.	K^2 MIN.	L^2 MAX.	L^3 MAX.	J ± .008 (±0.2)	K^3 + .020 (±0.5)	L^4 MAX.	Z MIN.	BB MAX.	JJ + .008 (+0.2)
.6250-24 UNEF	.409	.374	2.110	1.969	3.197	.138	.461	1.969	.303	.524	.610
	(10.4)	(9.5)	(53.6)	(50.0)	(81.2)	(3.5)	(11.7)	(50.0)	(7.7)	(13.3)	(15.5)
.7500-20 UNEF	.520	.374	2.145	1.969	3.232	.138	.461	1.969	.417	.669	.752
	(13.2)	(9.5)	(54.5)	(50.0)	(82.1)	(3.5)	(11.7)	(50.0)	(10.6)	(17.0)	(19.1)
.8750-20 UNEF	.638	.374	2.145	1.969	3.232	.138	.461	1.969	.531	.862	.941
	(16.2)	(9.5)	(54.5)	(50.0)	(82.1)	(3.5)	(11.7)	(50.0)	(13.5)	(21.9)	(23.9)
.8750-20 UNEF	.638	.374	2.240	2.362	3.571	.138	.453	2.362	.531	.862	.941
	(16.2)	(9.5)	(56.9)	(60.0)	(90.7)	(3.5)	(11.5)	(60.0)	(13.5)	(21.9)	(23.9)
1.0000-20 UNEF	.756	.374	2.315	2.362	3.646	.138	.453	2.362	.575	.862	.941
	(19.2)	(9.5)	(58.8)	(60.0)	(92.6)	(3.5)	(11.5)	(60.0)	(14.6)	(21.9)	(23.9)
1.1875-18 UNEF	.867	.374	2.300	2.362	3.631	.138	.500	2.559	.736	1.031	1.165
	(22.0)	(9.5)	(58.4)	(60.0)	(92.2)	(3.5)	(12.7)	(65.0)	(18.7)	(26.2)	(29.6)
1.1875-18 UNEF	.965	.374	2.305	2.362	3.636	.138	.500	2.559	.819	1.031	1.165
	(24.5)	(9.5)	(58.5)	(60.0)	(92.4)	(3.5)	(12.7)	(65.0)	(20.8)	(26.2)	(29.6)
1.4375-18 UNEF	1.094	.374	2.320	2.560	3.651	.138	.500	2.559	.969	1.358	1.488
	(27.8)	(9.5)	(58.9)	(65.0)	(92.7)	(3.5)	(12.7)	(65.0)	(24.6)	(34.5)	(37.8)
1.4375-18 UNEF	1.228	.374	2.490	2.560	3.896	.138	.500	2.559	1.063	1.358	1.488
	(31.2)	(9.5)	(63.2)	(65.0)	(99.0)	(3.5)	(12.7)	(65.0)	(27.0)	(34.5)	(37.8)
1.7500-18 UNS	1.488	.433	2.635	2.560	4.104	.138	.598	2.756	1.311	1.717	1.882
	(37.8)	(11.0)	(66.9)	(65.0)	(104.2)	(3.5)	(15.2)	(70.0)	(33.3)	(43.6)	(47.8)
2.0000-18 UNS	1.780	.465	2.680	3.150	4.149	.138	.598	3.150	1.516	1.717	1.882
	(45.2)	(11.8)	(68.1)	(80.0)	(105.4)	(3.5)	(15.2)	(80.0)	(38.5)	(43.6)	(47.8)
2.2500-16 UN	2.016	.465	2.680	3.150	4.149	.138	.610	3.150	1.898	2.071	2.276
	(51.2)	(11.8)	(68.1)	(80.0)	(105.4)	(3.5)	(15.5)	(80.0)	(48.2)	(52.6)	(57.8)

All dimensions in inches (millimeters in parenthesis)

DIMENSIONS

STYLE 1 CABLE RECEPTACLE



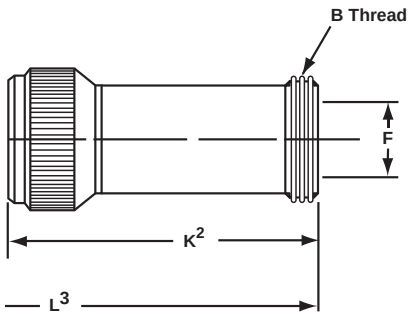


RV

SHELL SIZE	M +.016 -.000 (+0.4 - 0.0)	N +.000 -.006 (+0.00-0.15)	P ± .008 (±0.2)	Q ± .008 (±0.2)	S MAX.	B THREAD CLASS 2A	L + .012 (+ 0.3)	L[1] MAX.	KK MAX.
10SL	.717	.717	.110	.811	.992	.6250-24 UNEF	1.087	1.890	.787
	(18.2)	(18.2)	(2.8)	(20.6)	(25.2)		(27.6)	(48.0)	(20.0)
14S	.717	.969	.126	1.000	1.173	.7500-20 UNEF	1.087	1.890	.945
	(18.2)	(24.6)	(3.2)	(25.4)	(29.8)		(27.6)	(48.0)	(24.0)
16S	.717	1.079	.126	1.126	1.272	.8750-20 UNEF	1.087	1.890	1.024
	(18.2)	(27.4)	(3.2)	(28.6)	(32.3)		(27.6)	(48.0)	(26.0)
16	.846	1.079	.126	1.126	1.272	.8750-20 UNEF	1.331	2.205	1.024
	(21.5)	(27.4)	(3.2)	(28.6)	(32.3)		(33.8)	(56.0)	(26.0)
18	.907	1.213	.157	1.248	1.370	1.0000-20 UNEF	1.331	2.244	1.161
	(23.0)	(30.8)	(4.0)	(31.7)	(34.8)		(33.8)	(57.0)	(29.5)
20	.907	1.346	.157	1.374	1.488	1.1250-18 UNEF	1.331	2.244	1.299
	(23.0)	(34.2)	(4.0)	(34.9)	(37.8)		(33.8)	(57.0)	(33.0)
22	.907	1.472	.157	1.500	1.618	1.2500-18 UNEF	1.331	2.244	1.417
	(23.0)	(37.4)	(4.0)	(38.1)	(41.1)		(33.8)	(57.0)	(36.0)
24	.907	1.610	.157	1.626	1.756	1.3750-18 UNEF	1.331	2.244	1.575
	(23.0)	(40.9)	(4.0)	(41.3)	(44.6)		(33.8)	(57.0)	(40.0)
28	.947	1.839	.157	1.874	2.004	1.6250-18 UNEF	1.406	2.244	1.811
	(24.1)	(46.7)	(4.0)	(47.6)	(50.9)		(35.7)	(57.0)	(46.0)
32	.947	2.102	.157	2.126	2.248	1.8750-16 UN	1.469	2.362	2.028
	(24.1)	(53.4)	(4.0)	(54.0)	(57.1)		(37.3)	(60.0)	(51.5)
36	.947	2.346	.157	2.386	2.504	2.0625-16 UN	1.469	2.362	2.283
	(24.1)	(59.6)	(4.0)	(60.6)	(63.6)		(37.3)	(60.0)	(58.0)
40	.947	2.579	.157	2.618	2.756	2.3125-16 UN	1.469	2.362	2.539
	(24.1)	(65.5)	(4.0)	(66.5)	(70.0)		(37.3)	(60.0)	(64.5)

All dimensions in inches (millimeters in parenthesis)

STYLE 1 CABLE RECEPTACLE



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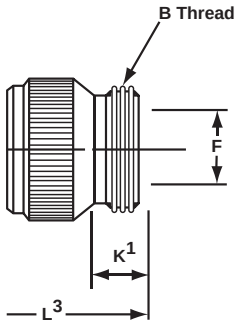

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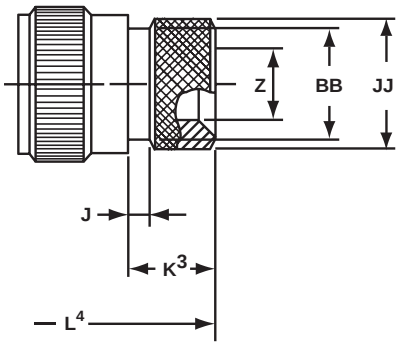


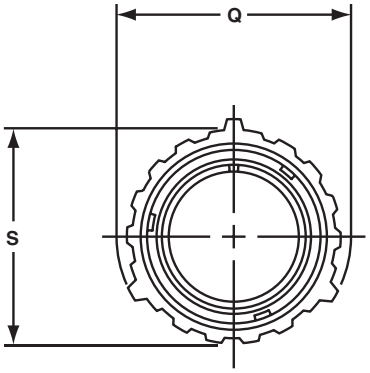
G

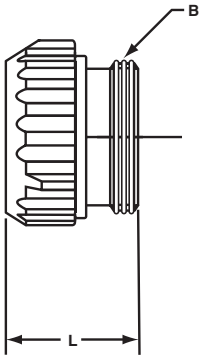
B THREAD CLASS 2A	F MIN.	K^1 MIN.	K^2 MAX.	L^3 MAX.	L^2 MAX.	J ± .008 (±0.2)	K^3 + .020 (±0.5)	L^4 MAX.	Z MIN.	BB MAX.	JJ + .008 (+0.2)
.6250-24 UNEF	.409	.374	2.110	1.969	3.197	.138	.461	1.969	.303	.524	.610
	(10.4)	(9.5)	(53.6)	(50.0)	(81.2)	(3.5)	(11.7)	(50.0)	(7.7)	(13.3)	(15.5)
.7500-20 UNEF	.520	.374	2.145	1.969	3.232	.138	.461	1.969	.417	.669	.752
	(13.2)	(9.5)	(54.5)	(50.0)	(82.1)	(3.5)	(11.7)	(50.0)	(10.6)	(17.0)	(19.1)
.8750-20 UNEF	.638	.374	2.145	1.969	3.232	.138	.461	1.969	.531	.862	.941
	(16.2)	(9.5)	(54.5)	(50.0)	(82.1)	(3.5)	(11.7)	(50.0)	(13.5)	(21.9)	(23.9)
.8750-20 UNEF	.638	.374	2.240	2.362	3.571	.138	.453	2.362	.531	.862	.941
	(16.2)	(9.5)	(56.9)	(60.0)	(90.7)	(3.5)	(11.5)	(60.0)	(13.5)	(21.9)	(23.9)
1.0000-20 UNEF	.756	.374	2.315	2.362	3.646	.138	.453	2.362	.575	.862	.941
	(19.2)	(9.5)	(58.8)	(60.0)	(92.6)	(3.5)	(11.5)	(60.0)	(14.6)	(21.9)	(23.9)
1.1875-18 UNEF	.867	.374	2.300	2.362	3.631	.138	.500	2.559	.736	1.031	1.165
	(22.0)	(9.5)	(58.4)	(60.0)	(92.2)	(3.5)	(12.7)	(65.0)	(18.7)	(26.2)	(29.6)
1.1875-18 UNEF	.965	.374	2.305	2.362	3.636	.138	.500	2.559	.819	1.031	1.165
	(24.5)	(9.5)	(58.5)	(60.0)	(92.4)	(3.5)	(12.7)	(65.0)	(20.8)	(26.2)	(29.6)
1.4375-18 UNEF	1.094	.374	2.320	2.560	3.651	.138	.500	2.559	.969	1.358	1.488
	(27.8)	(9.5)	(58.9)	(65.0)	(92.7)	(3.5)	(12.7)	(65.0)	(24.6)	(34.5)	(37.8)
1.4375-18 UNEF	1.228	.374	2.490	2.560	3.896	.138	.500	2.559	1.063	1.358	1.488
	(31.2)	(9.5)	(63.2)	(65.0)	(99.0)	(3.5)	(12.7)	(65.0)	(27.0)	(34.5)	(37.8)
1.7500-18 UNS	1.488	.433	2.635	2.560	4.104	.138	.598	2.756	1.311	1.717	1.882
	(37.8)	(11.0)	(66.9)	(65.0)	(104.2)	(3.5)	(15.2)	(70.0)	(33.3)	(43.6)	(47.8)
2.0000-18 UNS	1.780	.465	2.680	3.150	4.149	.138	.598	3.150	1.516	1.717	1.882
	(45.2)	(11.8)	(68.1)	(80.0)	(105.4)	(3.5)	(15.2)	(80.0)	(38.5)	(43.6)	(47.8)
2.2500-16 UN	2.016	.465	2.680	3.150	4.149	.138	.610	3.150	1.898	2.071	2.276
	(51.2)	(11.8)	(68.1)	(80.0)	(105.4)	(3.5)	(15.5)	(80.0)	(48.2)	(52.6)	(57.8)

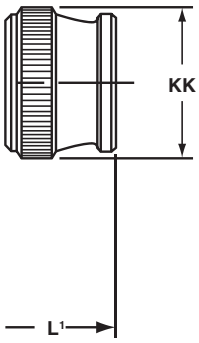
All dimensions in inches (millimeters in parenthesis)

DIMENSIONS

STYLE 4 RUBBER-COVERED PLUGS







RV

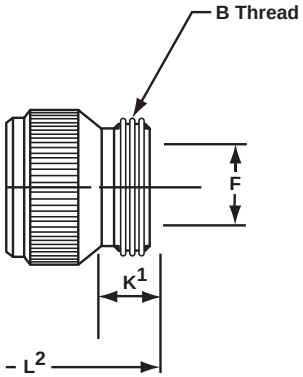
SHELL SIZE	Q MAX.	S MAX.
10SL	1.319 (33.5)	1.122 (28.5)
18	1.929 (49.0)	1.713 (43.5)
20	2.028 (51.5)	1.811 (46.0)
22	2.224 (56.5)	1.988 (50.5)
24	2.362 (60.0)	2.126 (54.0)
28	2.638 (67.0)	2.402 (61.0)
32	2.992 (76.0)	2.661 (67.6)
36	3.240 (82.3)	2.925 (74.3)
40	3.465 (88.0)	3.150 (80.0)

B THREAD CLASS 2A	L + .012 (+ 0.3)
.6250-24 UNEF	1.087 (27.6)
1.0000-20 UNEF	1.331 (33.8)
1.1250-18 UNEF	1.331 (33.8)
1.2500-18 UNEF	1.331 (33.8)
1.3750-18 UNEF	1.331 (33.8)
1.6250-18 UNEF	1.406 (35.7)
1.8750-16 UN	1.469 (37.3)
2.0625-16 UN	1.469 (37.3)
2.3125-16 UN	1.469 (37.3)

L^1 MAX.	KK MAX.
1.417 (36.0)	.787 (20.0)
1.929 (49.0)	1.161 (29.5)
1.969 (50.0)	1.299 (33.0)
1.969 (50.0)	1.417 (36.0)
2.008 (51.0)	1.575 (40.0)
2.008 (51.0)	1.811 (46.0)
2.087 (53.0)	2.028 (51.5)
2.106 (53.5)	2.283 (58.0)
2.126 (54.0)	2.539 (64.5)

All dimensions in inches (millimeters in parenthesis)

STYLE 4 RUBBER-COVERED PLUGS



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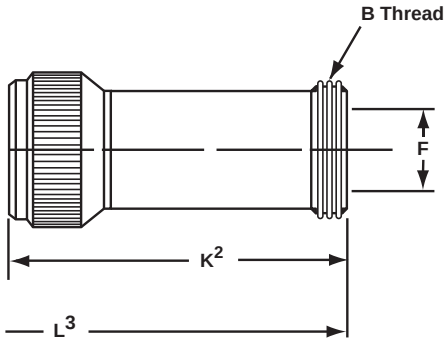

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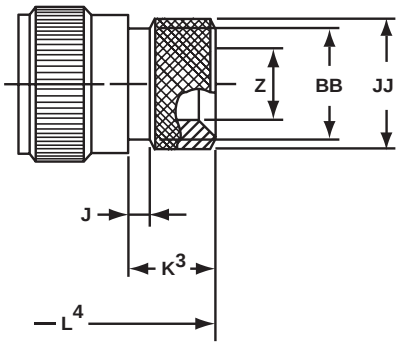


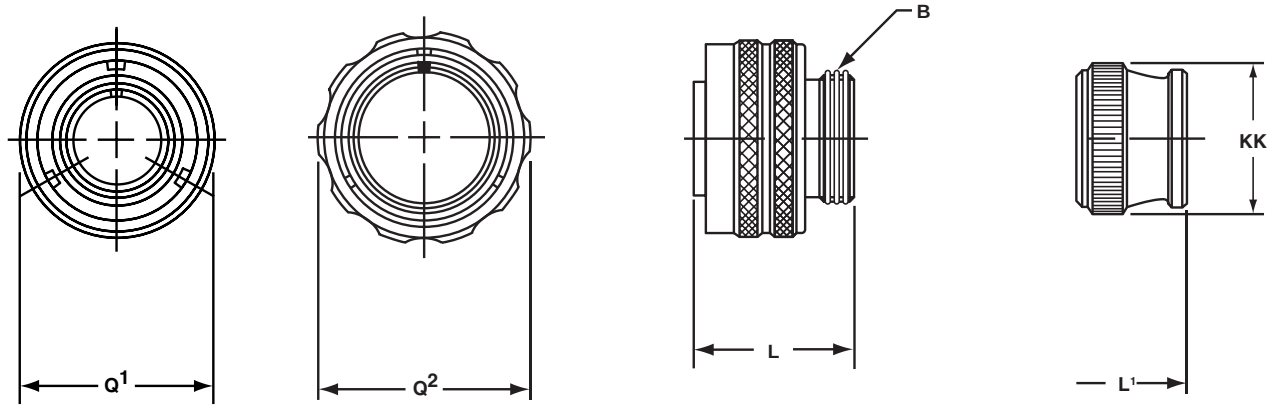
G

B THREAD CLASS 2A	F MIN.	K^1 MIN.	K^2 MIN.	L^2 MAX.	L^3 MAX.
.6250-24 UNEF	.409	.374	2.110	1.969	3.197
	(10.4)	(9.5)	(53.6)	(50.0)	(81.2)
1.0000-20 UNEF	.756	.374	2.315	2.362	3.646
	(19.2)	(9.5)	(58.8)	(60.0)	(92.6)
1.1875-18 UNEF	.867	.374	2.300	2.362	3.631
	(22.0)	(9.5)	(58.4)	(60.0)	(92.2)
1.1875-18 UNEF	.965	.374	2.305	2.362	3.636
	(24.5)	(9.5)	(58.5)	(60.0)	(92.4)
1.4375-18 UNEF	1.094	.374	2.320	2.560	3.651
	(27.8)	(9.5)	(58.9)	(65.0)	(92.7)
1.4375-18 UNEF	1.228	.374	2.490	2.560	3.896
	(31.2)	(9.5)	(63.2)	(65.0)	(99.0)
1.7500-18 UNS	1.488	.433	2.635	2.560	4.104
	(37.8)	(11.0)	(66.9)	(65.0)	(104.2)
2.0000-18 UNS	1.780	.465	2.680	3.150	4.149
	(45.2)	(11.8)	(68.1)	(80.0)	(105.4)
2.2500-16 UN	2.016	.465	2.680	3.150	4.149
	(51.2)	(11.8)	(68.1)	(80.0)	(105.4)

J ± .008 (±0.2)	K^3 + .020 (±0.5)	L^4 MAX.	Z MIN.	BB MAX.	JJ + .008 (+0.2)
.138	.461	1.969	.303	.524	.610
(3.5)	(11.7)	(50.0)	(7.7)	(13.3)	(15.5)
.138	.453	2.362	.575	.862	.941
(3.5)	(11.5)	(60.0)	(14.6)	(21.9)	(23.9)
.138	.500	2.559	.736	1.031	1.165
(3.5)	(12.7)	(65.0)	(18.7)	(26.2)	(29.6)
.138	.500	2.559	.819	1.031	1.165
(3.5)	(12.7)	(65.0)	(20.8)	(26.2)	(29.6)
.138	.500	2.559	.969	1.358	1.488
(3.5)	(12.7)	(65.0)	(24.6)	(34.5)	(37.8)
.138	.500	2.559	1.063	1.358	1.488
(3.5)	(12.7)	(65.0)	(27.0)	(34.5)	(37.8)
.138	.598	2.756	1.311	1.717	1.882
(3.5)	(15.2)	(70.0)	(33.3)	(43.6)	(47.8)
.138	.598	3.150	1.516	1.717	1.882
(3.5)	(15.2)	(80.0)	(38.5)	(43.6)	(47.8)
.138	.610	3.150	1.898	2.071	2.276
(3.5)	(15.5)	(80.0)	(48.2)	(52.6)	(57.8)

All dimensions in inches (millimeters in parenthesis)

STYLE 6, 6HD PLUGS



6 6HD RV

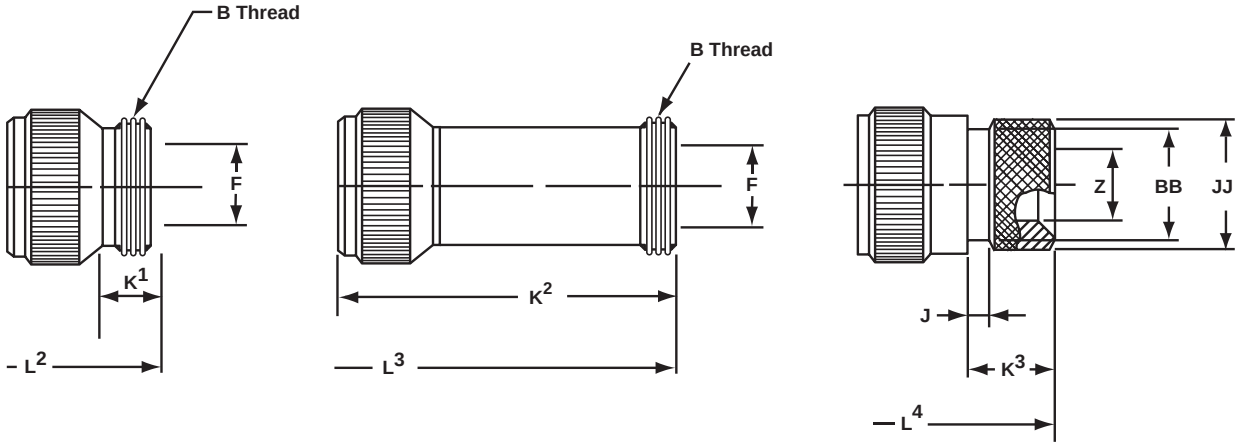
SHELL SIZE	Q^1 MAX.	Q^2 MAX.
10SL	.898 (22.8)	1.007 (25.5)
14S	1.150 (29.2)	1.259 (31.9)
16S	1.260 (32.0)	1.410 (35.8)
16	1.260 (32.0)	1.410 (35.8)
18	1.437 (36.5)	1.547 (39.2)
20	1.571 (39.9)	1.681 (42.6)
22	1.697 (43.1)	1.847 (46.9)
24	1.835 (46.6)	1.965 (49.9)
28	2.102 (53.4)	2.222 (56.4)
32	2.366 (60.1)	2.482 (63.0)
36	2.610 (66.3)	2.721 (69.1)
40	2.850 (72.4)	2.953 (75.0)

B THREAD CLASS 2A	L + .012 (+ 0.3)
.6250-24 UNEF	1.087 (27.6)
.7500-20 UNEF	1.087 (27.6)
.8750-20 UNEF	1.087 (27.6)
.8750-20 UNEF	1.331 (33.8)
1.0000-20 UNEF	1.331 (33.8)
1.1250-18 UNEF	1.331 (33.8)
1.2500-18 UNEF	1.331 (33.8)
1.3750-18 UNEF	1.331 (33.8)
1.6250-18 UNEF	1.406 (35.7)
1.8750-16 UN	1.469 (37.3)
2.0625-16 UN	1.469 (37.3)
2.3125-16 UN	1.469 (37.3)

L^1 MAX.	KK MAX.
1.417 (36.0)	.787 (20.0)
1.437 (36.5)	.945 (24.0)
1.437 (36.5)	1.024 (26.0)
1.929 (49.0)	1.024 (26.0)
1.929 (49.0)	1.161 (29.5)
1.969 (50.0)	1.299 (33.0)
1.969 (50.0)	1.417 (36.0)
2.008 (51.0)	1.543 (39.2)
2.008 (51.0)	1.811 (46.0)
2.087 (53.0)	2.028 (51.5)
2.106 (53.5)	2.283 (58.0)
2.126 (54.0)	2.539 (64.5)

All dimensions in inches (millimeters in parenthesis)

STYLE 6, 6HD PLUGS

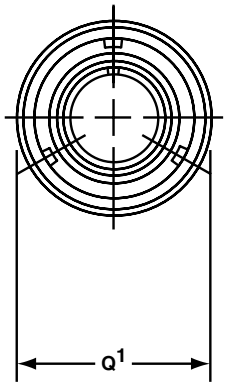


F L G

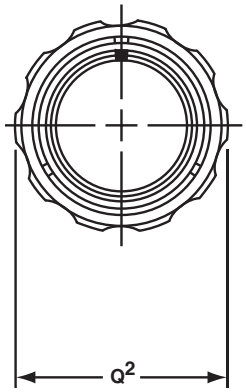
B THREAD CLASS 2A	F MIN.	K^1 MIN.	K^2 MIN.	L^2 MAX.	L^3 MAX.	J ± .008 (±0.2)	K^3 + .020 (±0.5)	L^4 MAX.	Z MIN.	BB MAX.	JJ + .008 (+0.2)
.6250-24 UNEF	.409	.374	2.110	1.969	3.197	.138	.461	1.969	.303	.524	.610
	(10.4)	(9.5)	(53.6)	(50.0)	(81.2)	(3.5)	(11.7)	(50.0)	(7.7)	(13.3)	(15.5)
.7500-20 UNEF	.520	.374	2.145	1.969	3.232	.138	.461	1.969	.417	.669	.752
	(13.2)	(9.5)	(54.5)	(50.0)	(82.1)	(3.5)	(11.7)	(50.0)	(10.6)	(17.0)	(19.1)
.8750-20 UNEF	.638	.374	2.145	1.969	3.232	.138	.461	1.969	.531	.862	.941
	(16.2)	(9.5)	(54.5)	(50.0)	(82.1)	(3.5)	(11.7)	(50.0)	(13.5)	(21.9)	(23.9)
.8750-20 UNEF	.638	.374	2.240	2.362	3.571	.138	.453	2.362	.531	.862	.941
	(16.2)	(9.5)	(56.9)	(60.0)	(90.7)	(3.5)	(11.5)	(60.0)	(13.5)	(21.9)	(23.9)
1.0000-20 UNEF	.756	.374	2.315	2.362	3.646	.138	.453	2.362	.575	.862	.941
	(19.2)	(9.5)	(58.8)	(60.0)	(92.6)	(3.5)	(11.5)	(60.0)	(14.6)	(21.9)	(23.9)
1.1875-18 UNEF	.867	.374	2.300	2.362	3.631	.138	.500	2.559	.736	1.031	1.165
	(22.0)	(9.5)	(58.4)	(60.0)	(92.2)	(3.5)	(12.7)	(65.0)	(18.7)	(26.2)	(29.6)
1.1875-18 UNEF	.965	.374	2.305	2.362	3.636	.138	.500	2.559	.819	1.031	1.165
	(24.5)	(9.5)	(58.5)	(60.0)	(92.4)	(3.5)	(12.7)	(65.0)	(20.8)	(26.2)	(29.6)
1.4375-18 UNEF	1.094	.374	2.320	2.560	3.651	.138	.500	2.559	.969	1.358	1.488
	(27.8)	(9.5)	(58.9)	(65.0)	(92.7)	(3.5)	(12.7)	(65.0)	(24.6)	(34.5)	(37.8)
1.4375-18 UNEF	1.228	.374	2.490	2.560	3.896	.138	.500	2.559	1.063	1.358	1.488
	(31.2)	(9.5)	(63.2)	(65.0)	(99.0)	(3.5)	(12.7)	(65.0)	(27.0)	(34.5)	(37.8)
1.7500-18 UNS	1.488	.433	2.635	2.560	4.104	.138	.598	2.756	1.311	1.717	1.882
	(37.8)	(11.0)	(66.9)	(65.0)	(104.2)	(3.5)	(15.2)	(70.0)	(33.3)	(43.6)	(47.8)
2.0000-18 UNS	1.780	.465	2.680	3.150	4.149	.138	.598	3.150	1.516	1.717	1.882
	(45.2)	(11.8)	(68.1)	(80.0)	(105.4)	(3.5)	(15.2)	(80.0)	(38.5)	(43.6)	(47.8)
2.2500-16 UN	2.016	.465	2.680	3.150	4.149	.138	.610	3.150	1.898	2.071	2.276
	(51.2)	(11.8)	(68.1)	(80.0)	(105.4)	(3.5)	(15.5)	(80.0)	(48.2)	(52.6)	(57.8)

All dimensions in inches (millimeters in parenthesis)

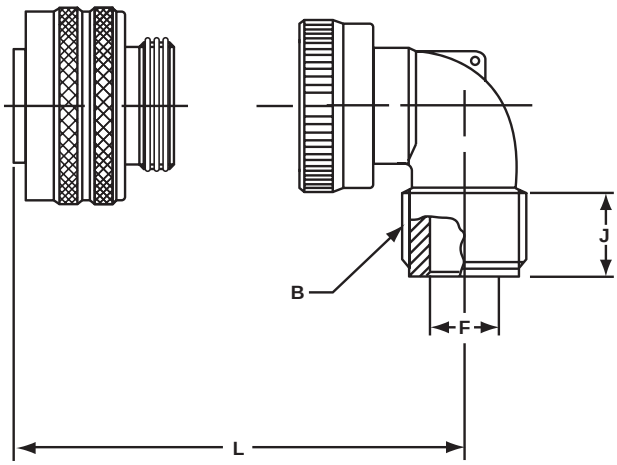
PLUG STYLE 6, 6HD RIGHT ANGLE



6



6HD



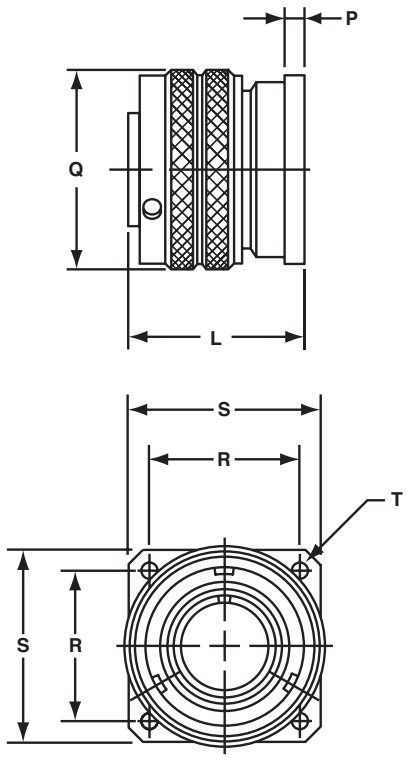
T

SHELL SIZE	Q1 MAX.	Q2 MAX.
10SL	.898	1.007
	(22.8)	(25.5)
14S	1.150	1.259
	(29.2)	(31.9)
16S	1.260	1.410
	(32.0)	(35.8)
16	1.260	1.410
	(32.0)	(35.8)
18	1.437	1.547
	(36.5)	(39.2)
20	1.571	1.681
	(39.9)	(42.6)
22	1.697	1.847
	(43.1)	(46.9)
24	1.835	1.965
	(46.6)	(49.9)
28	2.102	2.222
	(53.4)	(56.4)
32	2.366	2.482
	(60.1)	(63.0)
36	2.610	2.721
	(66.3)	(69.1)
40	2.850	2.953
	(72.4)	(75.0)

B THREAD CLASS 2A	F MAX.	J MIN.	K MAX.	L MAX.
.6250-24 UNEF	.337	.370	1.181	1.772
	(8.5)	(9.4)	(30.0)	(45.0)
.7500-20 UNEF	.462	.370	1.181	1.850
	(11.7)	(9.4)	(30.0)	(47.0)
.8750-20 UNEF	.587	.370	1.181	1.890
	(14.9)	(9.4)	(30.0)	(48.0)
.8750-20 UNEF	.587	.370	1.181	2.244
	(14.9)	(9.4)	(30.0)	(57.0)
1.0000-20 UNEF	.685	.370	1.378	2.283
	(17.4)	(9.4)	(35.0)	(58.0)
1.1875-18 UNEF	.810	.370	1.378	2.402
	(20.5)	(9.4)	(35.0)	(61.0)
1.1875-18 UNEF	.915	.370	1.378	2.402
	(23.2)	(9.4)	(35.0)	(61.0)
1.4375-18 UNEF	1.025	.370	1.575	2.598
	(26.0)	(9.4)	(40.0)	(66.0)
1.4375-18 UNEF	1.139	.370	1.575	2.598
	(28.9)	(9.4)	(40.0)	(53.4)
1.7500-18 UNS	1.447	.433	1.772	2.835
	(36.7)	(11.0)	(45.0)	(72.0)
2.0000-18 UNS	1.687	.496	1.969	2.953
	(42.8)	(12.6)	(50.0)	(75.0)
2.2500-16 UN	1.923	.496	2.165	3.071
	(48.8)	(12.6)	(55.1)	(78.0)

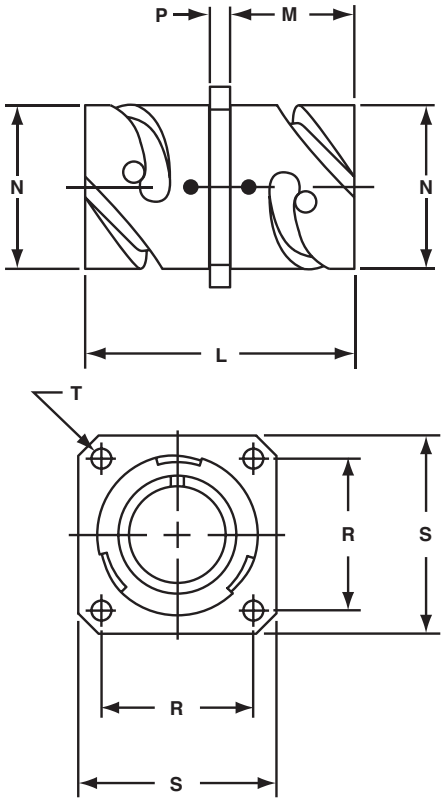
All dimensions in inches (millimeters in parenthesis)

6B PANEL PLUG



6B

STYLE TB THRU-BULKHEAD RECEPTACLE



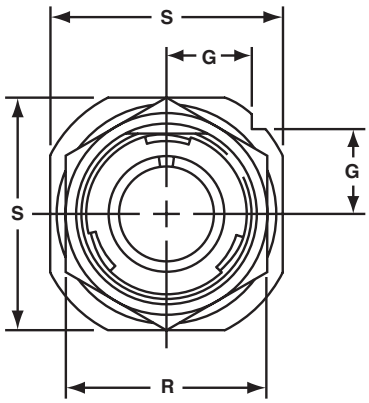
TB

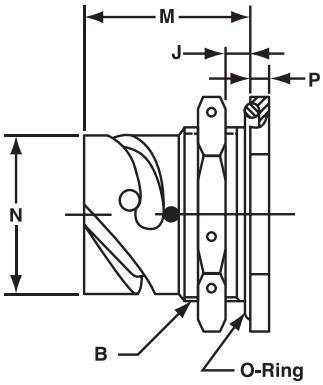
SHELL SIZE	L APPROX.	Q MAX.	P ±.008 (±0.2)	R ±.004 (±0.1)	S ± .012 (±0.3)	T +.004-.000 (+0.1-0.0)
10SL	1.087	.898	.110	.717	1.000	.126
	(27.6)	(22.8)	(2.8)	(18.2)	(25.4)	(3.2)
14S	1.091	1.150	.126	.906	1.181	.126
	(27.7)	(29.2)	(3.2)	(23.0)	(30.0)	(3.2)
16S	1.091	1.260	.126	.969	1.280	.126
	(27.7)	(32.0)	(3.2)	(24.6)	(32.5)	(3.2)
16	1.469	1.260	.126	.969	1.280	.126
	(37.3)	(32.0)	(3.2)	(24.6)	(32.5)	(3.2)
18	1.500	1.437	.157	1.063	1.378	.126
	(38.1)	(36.5)	(4.0)	(27.0)	(35.0)	(3.2)
20	1.500	1.571	.157	1.157	1.496	.126
	(38.1)	(39.9)	(4.0)	(29.4)	(38.0)	(3.2)
22	1.500	1.697	.157	1.252	1.614	.126
	(38.1)	(43.1)	(4.0)	(31.8)	(41.0)	(3.2)
24	1.598	1.835	.157	1.374	1.752	.146
	(40.6)	(46.6)	(4.0)	(34.9)	(44.5)	(3.7)
28	1.626	2.102	.157	1.563	2.000	.146
	(41.3)	(53.4)	(4.0)	(39.7)	(50.8)	(3.7)
32	1.764	2.366	.157	1.752	2.244	.169
	(44.8)	(60.1)	(4.0)	(44.5)	(57.0)	(4.3)
36	1.764	2.610	.157	1.937	2.500	.169
	(44.8)	(66.3)	(4.0)	(49.2)	(63.5)	(4.3)
40	1.764	2.850	.157	2.185	2.752	.169
	(44.8)	(72.4)	(4.0)	(55.5)	(69.9)	(4.3)

L MAX.	M +.016-.000 (+0.4-0.0)	N +.000-.006 (+0.00-0.15)	P ±.008 (±0.2)	R ±.004 (±0.1)	S ±.012 (±0.3)	T +.004 -.000 (+0.1-0.0)
1.488	.717	.717	.110	.717	1.000	.126
(37.7)	(18.2)	(18.2)	(2.8)	(18.2)	(25.4)	(3.2)
1.488	.717	.969	.126	.906	1.181	.126
(37.7)	(18.2)	(24.6)	(3.2)	(23.0)	(30.0)	(3.2)
1.488	.717	1.079	.126	.969	1.280	.126
(37.7)	(18.2)	(24.6)	(3.2)	(23.0)	(30.0)	(3.2)
2.049	.846	1.079	.126	.969	1.280	.126
(52.0)	(21.5)	(27.4)	(3.2)	(24.6)	(32.5)	(3.2)
2.049	.907	1.213	.157	1.063	1.378	.126
(52.0)	(23.0)	(30.8)	(4.0)	(27.0)	(35.0)	(3.2)
2.049	.907	1.346	.157	1.157	1.496	.126
(52.0)	(23.0)	(34.2)	(4.0)	(29.4)	(38.0)	(3.2)
2.049	.907	1.472	.157	1.252	1.614	.126
(52.0)	(23.0)	(37.4)	(4.0)	(31.8)	(41.0)	(3.2)
2.049	.907	1.610	.157	1.374	1.752	.146
(52.0)	(23.0)	(40.9)	(4.0)	(34.9)	(44.5)	(3.7)
2.049	.947	1.839	.157	1.563	2.000	.146
(52.0)	(24.0)	(46.7)	(4.0)	(39.7)	(50.8)	(3.7)
2.049	.947	2.102	.157	1.752	2.244	.169
(52.0)	(24.0)	(53.4)	(4.0)	(44.5)	(57.0)	(4.3)
2.049	.947	2.346	.157	1.937	2.500	.169
(52.0)	(24.0)	(59.6)	(4.0)	(49.2)	(63.5)	(4.3)
2.049	.947	2.579	.157	2.185	2.752	.169
(52.0)	(24.0)	(65.5)	(4.0)	(55.5)	(69.9)	(4.3)

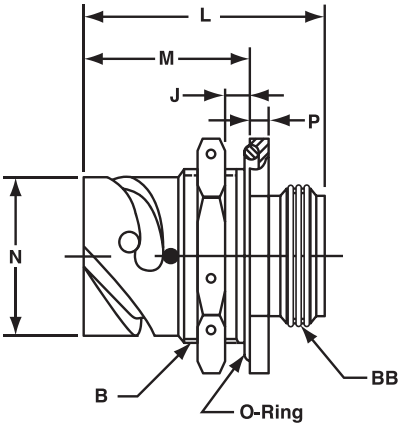
All dimensions in inches (millimeters in parenthesis)

STYLE 7, 70 JAM NUT RECEPTACLES





7

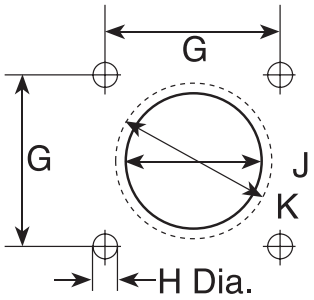


70

SHELL SIZE	B THREAD CLASS 2A	G ±.012 (±0.3)	J WALL THICKNESS MIN.	J WALL THICKNESS MAX.	L ± .010 (±0.3)	M ± .012 (±0.3)	N +.000-.1006 (+0.00-0.15)	P ± .007 (±0.2)	R ± .016 (±0.4)	S ± .12 (±0.3)	BB THREAD CLASS 2A
10SL	.8750-20 UNEF	.441 (11.2)	.094 (2.4)	.205 (5.2)	1.425 (36.2)	.965 (24.5)	.717 (18.2)	.157 (4.0)	1.062 (27.0)	1.252 (31.8)	.6250-24 UNEF
14S	1.1250-18 UNEF	.575 (14.6)	.094 (2.4)	.295 (7.5)	1.531 (38.9)	1.055 (26.8)	.969 (24.6)	.189 (4.8)	1.312 (33.3)	1.626 (41.3)	.7500-20 UNEF
16S	1.2500-18 UNEF	.618 (15.7)	.094 (2.4)	.295 (7.5)	1.531 (38.9)	1.055 (26.8)	1.079 (27.4)	.189 (4.8)	1.500 (38.1)	1.748 (44.4)	.8750-20 UNEF
16	1.2500-18 UNEF	.618 (15.7)	.094 (2.4)	.295 (7.5)	1.909 (48.5)	1.264 (32.1)	1.079 (27.4)	.189 (4.8)	1.500 (38.1)	1.748 (44.4)	.8750-20 UNEF
18	1.3750-18 UNEF	.661 (16.8)	.094 (2.4)	.354 (9.0)	1.941 (49.3)	1.327 (33.7)	1.213 (30.8)	.189 (4.8)	1.562 (39.7)	1.874 (47.6)	1.0000-20 UNEF
20	1.5000-18 UNEF	.709 (18.0)	.094 (2.4)	.358 (9.1)	1.941 (49.3)	1.327 (33.7)	1.346 (34.2)	.189 (4.8)	1.750 (44.5)	2.000 (50.8)	1.1250-18 UNEF
22	1.6250-18 UNEF	.795 (20.2)	.094 (2.4)	.358 (9.1)	1.941 (49.3)	1.327 (33.7)	1.472 (37.4)	.189 (4.8)	2.000 (50.8)	2.134 (54.2)	1.2500-18 UNEF
24	1.7500-18 UNEF	.795 (20.2)	.094 (2.4)	.358 (9.1)	1.953 (49.6)	1.327 (33.7)	1.610 (40.9)	.189 (4.8)	2.000 (50.8)	2.252 (57.2)	1.3750-18 UNEF
28	2.0000-18 UNS	.886 (22.5)	.094 (2.4)	.394 (10.0)	2.043 (51.9)	1.386 (35.2)	1.839 (46.7)	.220 (5.6)	2.188 (55.6)	2.500 (63.5)	1.6250-18 UNEF
32	2.2500-16 UN	.972 (24.7)	.094 (2.4)	.394 (10.0)	2.043 (51.9)	1.386 (35.2)	2.102 (53.4)	.220 (5.6)	2.438 (61.9)	2.748 (69.8)	1.8750-16 UN
36	2.5000-16 UN	1.059 (26.9)	.094 (2.4)	.327 (8.3)	2.043 (51.9)	1.386 (35.2)	2.346 (59.6)	.220 (5.6)	2.812 (71.4)	3.000 (76.2)	2.0625-16 UN
40	2.7500-16 UN	1.165 (29.6)	.094 (2.4)	.327 (8.3)	2.043 (51.9)	1.386 (35.2)	2.579 (65.5)	.220 (5.6)	2.953 (75.0)	3.248 (82.5)	2.3125-16 UN

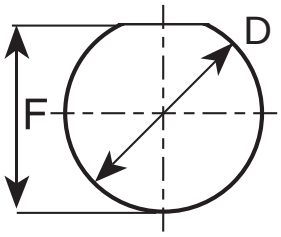
All dimensions in inches (millimeters in parenthesis)

PANEL CUTOUTS



Dim. J-flange in front of panel
Dim. K-flange at rear of panel
See sealing screws on ⇨ page 366.

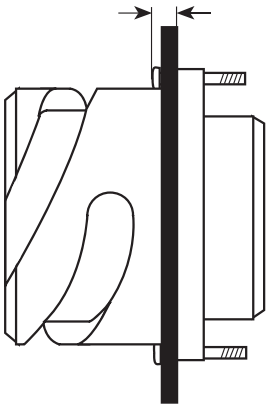
SHELL SIZE	STYLE 0, 2, 20, 30, TB FLANGE			
	G (TP)	MOUNTING HOLE DIAMETER H	J FRONT	K REAR
10SL	0.717 (18.2)	0.126 (3.2)	0.688 (17.5)	0.750 (19.1)
14S	0.906 (23.0)	0.126 (3.2)	0.813 (20.7)	1.000 (25.4)
16S	0.969 (24.6)	0.126 (3.2)	0.938 (23.8)	1.125 (28.6)
16	0.969 (24.6)	0.126 (3.2)	0.938 (23.8)	1.125 (28.6)
18	1.063 (27.0)	0.126 (3.2)	1.063 (27.0)	1.250 (26.7)
20	1.157 (29.4)	0.126 (3.2)	1.188 (30.2)	1.375 (35.0)
22	1.252 (31.8)	0.126 (3.2)	1.313 (33.4)	1.500 (38.1)
24	1.374 (34.9)	0.146 (3.7)	1.438 (36.5)	1.625 (41.3)
28	1.563 (39.7)	0.146 (3.7)	1.688 (42.9)	1.875 (47.6)
32	1.752 (44.5)	0.169 (4.3)	1.938 (49.2)	2.125 (54.0)
36	1.937 (49.2)	0.169 (4.3)	2.125 (54.0)	2.375 (60.3)
40	2.185 (55.5)	0.169 (4.3)	2.375 (60.3)	2.625 (66.7)



SHELL SIZE	7/70 PANEL CUTOUT	
	F - FLAT	D - DIAMETER
10SL	0.830 (21.1)	0.875 (22.2)
14S	1.080 (27.4)	1.125 (28.6)
16S/16	1.210 (30.7)	1.250 (31.7)
18	1.320 (33.5)	1.375 (34.9)
20	1.450 (36.8)	1.500 (38.1)
22	1.570 (39.9)	1.625 (41.3)
24	1.700 (43.2)	1.750 (44.5)
28	1.950 (49.5)	2.000 (50.8)
32	2.200 (55.9)	2.250 (57.2)
36	2.450 (62.2)	2.500 (63.5)
40	2.700 (68.6)	2.750 (69.9)

PANEL THICKNESS

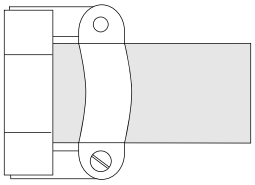
Rear Mount



SHELL SIZE	REAR MOUNT
10SL	.303 (7.70)
14S	.303 (7.70)
16S	.303 (7.70)
16	.242 (6.15)
18	.303 (7.70)
20	.303 (7.70)
22	.303 (7.70)
24	.303 (7.70)
28	.343 (8.70)
32	.309 (7.85)
36	.309 (7.85)
40	.309 (7.85)

All dimensions in inches (millimeters in parenthesis)

MS3057-A CABLE CLAMP

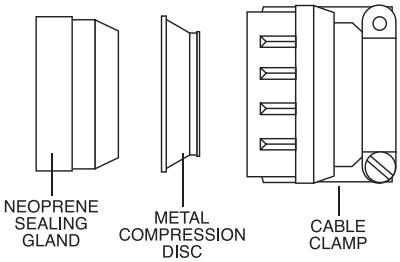


Standard MS3057 cable clamps have dual-clamping action to provide a balanced, positive hold on the wires and greatly reduce moisture transmission. This cable clamp accepts MS3420 bushings. MS3420 bushings can be nested to reduce the inside diameter to more closely match the diameter of the cable or wire bundle.

		STANDARD CLAMP				STANDARD CLAMP AND TELESCOPIC BUSHING		
SHELL SIZE	THREAD CLASS 2B	LOW-COST CAST ZINC	ALUMINUM W/ BRASS SCREWS	ALUMINUM W/ STAINLESS STEEL SCREWS	MAXIMUM CABLE DIAMETER INCH (MM)	ZINC WITH BUSHING	LOW-COST BUSHING INCLUDED	BUSHING ID INCH (MM)
10SL	5/8-24UNEF	97-3057-1004**	MS3057-4A	M85049/41-4A	0.312 (7.92)	97-3057-1004-1	MS3420-4	0.220 (5.6)
14S	3/4-20UNEF	97-3057-1007**	MS3057-6A	M85049/41-6A	0.438 (11.10)	97-3057-1007-1	MS3420-6	0.312 (7.9)
16/16S	7/8-20UNEF	97-3057-1008**	MS3057-8A	M85049/41-8A	0.562 (14.27)	97-3057-1008-1	MS3420-8	0.437 (11.1)
18	1-20UNEF	97-3057-1010**	MS3057-10A	M85049/41-10A	0.625 (15.88)	97-3057-1010-1	MS3420-10	0.562 (14.3)
20/22	1 3/16-18UNEF	97-3057-1012**	MS3057-12A	M85049/41-12A	0.750 (19.05)	97-3057-1012-1	MS3420-12	0.625 (15.9)
24/28	1 7/16-18UNEF	97-3057-1016**	MS3057-16A	M85049/41-16A	0.938 (23.80)	97-3057-1016-1	MS3420-16, -12	0.625 (15.9)
32	1 3/4-18UNS	97-3057-1020**	MS3057-20A	M85049/41-20A	1.250 (31.75)	97-3057-1020-1	MS3420-20, -16	0.750 (19.1)
36	2-18UNS	97-3057-1024**	MS3057-24A	M85049/41-24A	1.375 (34.92)	97-3057-1024-1	MS3420-24, -20	0.937 (23.8)
40	2 1/4-16UNS	-	MS3057-28A	M85049/41-28A	1.625 (41.28)	-	-	-

** Other platings are available. See page 13 for alternate platings.

MS3057-C WATERPROOF CABLE CLAMP

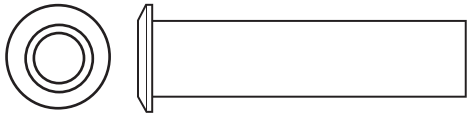


Standard MS3057-C waterproof cable clamp with mechanical strain relief for use with styles F, L and T endbells. Internal neoprene gland and compression ring will seal a broad range of round cable diameters as listed below. For reduction of cable diameters, order the appropriate MS3420A bushing in table.

SHELL SIZE	PART NUMBER	WIRE DIAMETER INCHES (MM)		OPTIONAL BUSHINGS	
		MAX.	MIN.	PART NUMBER	MAX. WIRE DIA. (MM)
10SL	MS3057-4C	0.312 (7.93)	0.188 (4.80)	MS3420-4A	0.219 (5.56)
14S	MS3057-6C	0.438 (11.12)	0.281 (7.10)	MS3420-6A	0.312 (7.93)
				MS3420-4A	0.219 (5.56)
16/16S	MS3057-8C	0.530 (13.48)	0.312 (7.90)	MS3420-8A	0.438 (11.10)
				MS3420-6A	0.312 (7.93)
18	MS3057-10C	0.625 (15.87)	0.375 (9.50)	MS3420-10A	0.438 (11.10)
				MS3420-6A	0.312 (7.93)
20/22	MS3057-12C	0.750 (19.00)	0.500 (12.70)	MS3420-12A	0.540 (13.74)
				MS3420-8A	0.438 (11.10)
24/28	MS3057-16C	0.940 (23.8)	0.625 (15.90)	MS3420-16A	0.750 (19.00)
				MS3420-12A	0.540 (13.74)
				MS3420-8A	0.438 (11.10)
32	MS3057-20C	1.25 (31.75)	0.921 (23.40)	MS3420-20A	0.938 (23.80)
				MS3420-16A	0.750 (19.00)
				MS3420-12A	0.540 (13.74)
36	MS3057-24C	1.38 (35.00)	1.00 (25.40)	MS3420-24A	1.12 (28.5)
				MS3420-18A	0.938 (23.80)
				MS3420-16A	0.750 (19.00)
40	MS3057-28C	1.62 (41.25)	1.25 (31.80)	MS3420-28A	1.25 (31.75)
				MS3420-20A	0.940 (23.80)
				MS3420-16A	0.750 (19.00)

All dimensions in inches (millimeters in parenthesis)

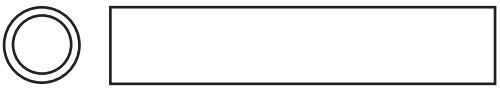
MS3420 TELESCOPING BUSHINGS



For use with style-A cable clamps and AIT/MS style-E/F endbells to resist dust, dirt and oil. Bushings can be nested, one inside the other, to reduce the inside diameter and form a better seal against the cable jacket. Each bushing will accept the next smallest bushing.

SIZE	1ST BUSHING PART NUMBER	INSIDE DIAMETER	2ND NESTED BUSHING	INSIDE DIAMETER	FITS IN CABLE CLAMP
10SL	MS3420-4	.220 (5.59)	NONE	-	MS3057-4A
14S	MS3420-6	.312 (7.92)	NONE	-	MS3057-6A
16S	MS3420-8	.437 (11.10)	NONE	-	MS3057-8A
16	MS3420-8	.437 (11.10)	NONE	-	MS3057-8A
18	MS3420-10	.562 (14.30)	NONE	-	MS3057-10A
20	MS3420-12	.625 (15.90)	NONE	-	MS3057-12A
22	MS3420-12	.625 (15.90)	NONE	-	MS3057-12A
24	MS3420-16	.750 (19.05)	MS3420-12	.625 (15.90)	MS3057-16A
28	MS3420-16	.750 (19.05)	MS3420-12	.625 (15.90)	MS3057-16A
32	MS3420-20	.937 (23.80)	MS3420-16	.750 (19.05)	MS3057-20A
36	MS3420-24	1.250 (31.75)	MS3420-20	.937 (23.80)	MS3057-24A
40	MS3420-28	1.375 (34.92)	MS3420-24	1.250 (31.75)	SE96-28A4

MS3420-A REDUCTION BUSHINGS



For use with MS3057-C cable clamps (style-C) to reduce the wire sealing diameter. Bushings can be nested, one inside the other, to progressively reduce the inside diameter of the cable clamp. The column labeled “reduction bushings” shows the acceptable nesting options for each clamp.

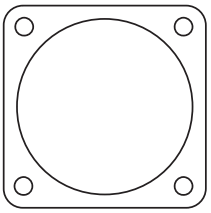
9767 CABLE CLAMPS

9767 waterproof cable clamp with mechanical strain relief. An internal neoprene gland seal bushing and compression washer will seal a broad range of round cable diameters, as listed below.

SHELL SIZE	CABLE CLAMP PART NUMBER	MAX. CABLE OD		MIN. CABLE OD		THREAD CLASS 2B
		INCHES	(mm)	INCHES	(mm)	
10SL	9767-12-4	0.219	(5.55)	0.020	(0.51)	5/8-24 UNEF
14S	9767-14-4	0.219	(5.55)	0.020	(0.51)	3/4-20 UNEF
14S	9767-14-6	0.344	(8.73)	0.176	(4.47)	3/4-20 UNEF
16S/16	9767-16-4	0.219	(5.55)	0.020	(0.51)	7/8-20 UNEF
16S/16	9767-16-6	0.344	(8.73)	0.176	(4.47)	7/8-20 UNEF
16S/16	9767-16-8	0.438	(11.12)	0.177	(4.50)	7/8-20 UNEF
18	9767-18-6	0.344	(8.73)	0.176	(4.47)	1-20 UNEF
18	9767-18-8	0.438	(11.12)	0.177	(4.50)	1-20 UNEF
18	9767-18-10	0.563	(14.29)	0.292	(7.42)	1-20 UNEF
20/22	9767-22-8	0.438	(11.12)	0.177	(4.50)	1-3/16-18 UNEF
20/22	9767-22-10	0.563	(14.29)	0.292	(7.42)	1-3/16-18 UNEF
20/22	9767-22-12	0.688	(17.46)	0.370	(9.40)	1-3/16-18 UNEF
24/28	9767-28-10	0.563	(14.29)	0.292	(7.42)	1-7/16-18 UNEF
24/28	9767-28-12	0.688	(17.46)	0.370	(9.40)	1-7/16-18 UNEF
24/28	9767-28-16	0.844	(21.43)	0.536	(13.61)	1-7/16-18 UNEF
32	9767-32-20	1.031	(26.19)	0.590	(14.99)	1-3/4-18 UNS
36	9767-36-16	0.844	(21.43)	0.536	(13.61)	2-18 UNS

All dimensions in inches (millimeters in parenthesis)

GASKETS



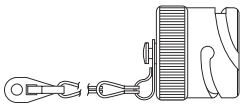
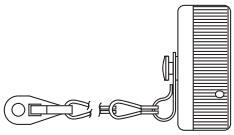
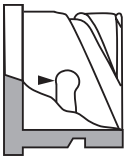
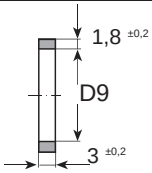
Synthetic rubber gaskets are used to ensure a moisture-tight seal between a receptacle and the panel. Gaskets are available for front or rear-panel mounting of styles 0, 2, 20, 30 and TB connectors. Gasket thickness is approximately .031 inches (1 mm), for nonconductive and low-temperature types.

Conductive shielding gaskets contain an embedded metal screen for EMI/RFI shielding in addition to moisture sealing. Gaskets are available for front or rear-panel mounting of styles 30 and TB connectors. Gasket thickness is .020 inches (.5 mm).

	FRONT MOUNT			REAR MOUNT
SHELL SIZE	NON-CONDUCTIVE	CONDUCTIVE	LOW-TEMPERATURE	NON-CONDUCTIVE
10SL	10-040450-010	10-040450-10S	10-036675-010	10-580649-011
14S	10-040450-014	10-040450-14S	10-036675-014	10-580649-014
16S	10-040450-016	10-040450-16S	10-036675-016	10-580649-016
16	10-040450-016	10-040450-16S	10-036675-016	10-580649-016
18	10-040450-018	10-040450-18S	10-036675-018	10-580649-018
20	10-040450-020	10-040450-20S	10-036675-020	10-580649-020
22	10-040450-022	10-040450-22S	10-036675-022	10-580649-022
24	10-040450-024	10-040450-24S	10-036675-024	10-580649-024
28	10-040450-028	10-040450-28S	10-036675-028	10-580649-028
32	10-040450-032	10-040450-32S	10-036675-032	10-580649-032
36	10-040450-036	10-040450-36S	10-036675-036	10-580649-036
40	10-040450-040	10-040450-40S	10-036675-040	10-580649-040

METAL DUST CAPS WITH SASH CHAIN

Metal dust caps are used to protect the contacts when the connectors are left unmated. Dust caps come with metal chain lanyards. Dummy Receptacles are for front or rear-panel mounting. AIB/GT Series connectors have bayonet ramps. The center of the connector is closed. Dummy receptacles mount on the same centers and have the same outside dimensions as a STYLE 2 receptacle. A version with a clearance hole through the middle of the connector is also available. Contact us for ordering information.

	DUST CAPS			
	PLUG CAP	RECEPTACLE	DUMMY RECEPTACLES	PLUG SEAL RING
SHELL SIZE				
10SL	10-580903-11*	10-580902-11*	10-580595-11*	10-564843-101
14S	10-580903-14*	10-580902-14*	10-580595-14*	10-564843-141
16S	10-580903-16*	10-580902-16*	10-580595-16*	10-564843-161
16	10-580903-17*	10-580902-17*	10-580595-17*	10-564843-161
18	10-580903-18*	10-580902-18*	10-580595-18*	10-564843-181
20	10-580903-20*	10-580902-20*	10-580595-20*	10-564843-201
22	10-580903-22*	10-580902-22*	10-580595-22*	10-564843-221
24	10-580903-24*	10-580902-24*	10-580595-24*	10-564843-241
28	10-580903-28*	10-580902-28*	10-580595-28*	10-564843-281
32	10-580903-32*	10-580902-32*	10-580595-32*	10-564843-321
36	10-580903-36*	10-580902-36*	10-580595-36*	10-564843-161
40	10-580903-40*	10-580902-40*	10-580595-40*	10-564843-401

*Select code for plating:

Z = Black anodize
3 = Olive drab cadmium plate
9 = Olive drab cadmium nickel base
G = Electroless nickel
U = Green zinc
Y = Black alloy

SOLDER CONTACTS

STEP 1: Slide the rear accessories over the wire bundle in the proper sequence for re-assembly: cable clamp and/or endbell first, then ferrule and (if used) coupling nut.

STEP 2: Insert individual wires through the proper holes in the grommet. Use isopropyl alcohol as a lubricant.

STEP 3: Solder wires to appropriate contacts on the rear of the connector. Information on standard soldering practices is available upon request. Please contact us.

STEP 4: Fixture the connector for reassembly using the endbell assembly tools on page 114

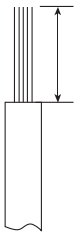
STEP 5: Slide the grommet down the wires (lubricating the grommet with isopropyl alcohol will help).

STEP 6: Fill all unused grommet cavities with a wire hole filler to maintain the sealing integrity of the connector.

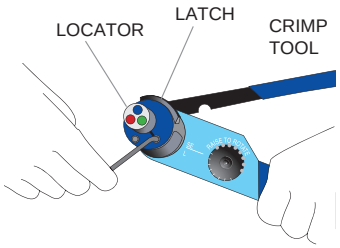
STEP 7: Slide coupling nut, ferrule, and endbell accessories over rear of the connector and tighten. For tooling, see page 114.

CRIMP TOOL OPERATION

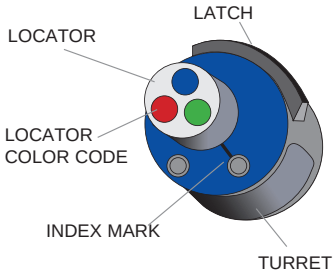
NOTE: Hand-crimp tools can be used with size 16S, 16 & 12 contacts. Size 8, 4 and 0 contacts require the use of air-powered crimp tools. Contact us for assistance in the use of these tools.



STEP 1: Strip the wires to the appropriate length. See strip lengths on the Contact Selection Guide, see page 86.

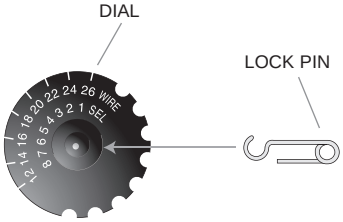


STEP 2: Open the crimp tool by squeezing the handles. Push the latch on the turret to pop up the locator. Attach the turret to the crimp tool using the two captive hex bolts in the turret.

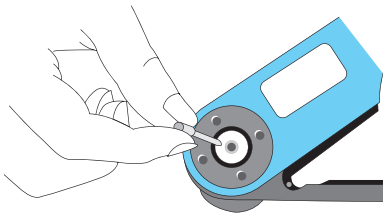


STEP 3: Select the proper locator position for your contact by rotating the locator until the proper color is aligned with the index mark. Push locator back down until it snaps into position.

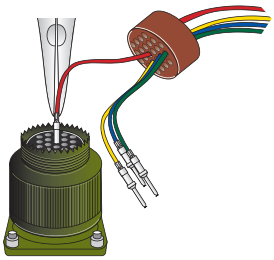
CONTACT SIZE	PIN LOCATOR COLOR	SOCKET LOCATOR COLOR
16S	Red	Red
16	Blue	Green
12	Green	Green



STEP 4: Adjust dial for proper wire gauge. To change the dial setting, remove the lock pin and lift center of dial. Turn to the desired wire gauge. Replace lock pin on dial.

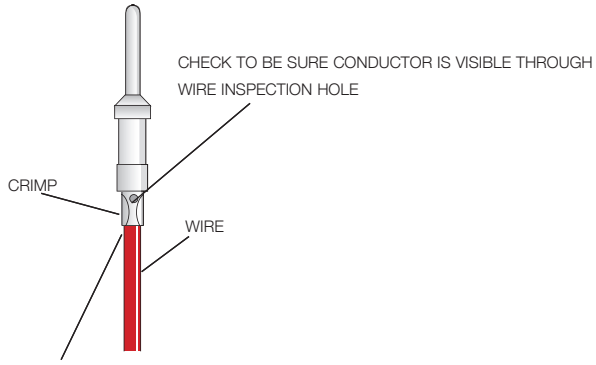


STEP 5: Cycle the tool before inserting the contact to be sure the tool is in the open position. Drop the contact, mating end first, into the crimp cavity of the tool. Squeeze the tool handle just enough to grip the contact without actually crimping it.



STEP 6: Insert the stripped wire into the contact with a slight twisting motion. Be sure all wire strands are inside the contact. Squeeze the handle to cycle the tool. The handle will not release until the contact is completely crimped.

CRIMP TOOL OPERATION (CONTINUED)



STEP 7: Remove the crimped contact. Pull on the wire slightly to be sure it is properly crimped. Be sure the contact is not bent or damaged in any way. Visually inspect the crimp.

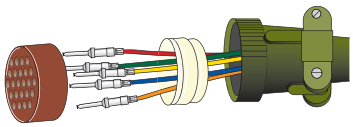
MICRO-SECTIONS: Enlargement of micro-section permits a final inspection of crimp quality. This test is recommended whenever new tools or new types of wire or contacts are used.

CRIMP TENSILE STRENGTH

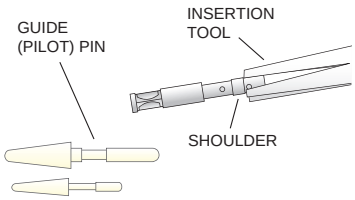
Initial minimum pullout force in lbs. (before conditioning)

SIZE	WIRE GAUGE	LB.
16	20	20
	18	40
	16	50
12	14	70
	12	110
8	8	185
4	4	450
0	0	800

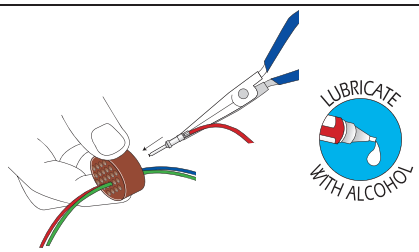
INSERTION OF CONTACTS



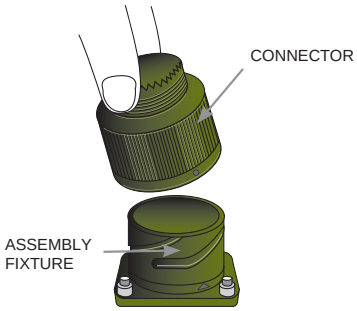
STEP 1: Slide the rear accessories over the wire bundle in the proper sequence for re-assembly: cable clamp and/or endbell first, then ferrule, and coupling nut.



STEP 2: Use the proper insertion tool from the Contact Selection Chart on page 87 Place the contact in the tool. The tool should press against the shoulder of the contact. Contact sizes 16S, 16, and 12 use a pliers-style tool. Contact sizes 8, 4 and 0 use a tool with a C-shaped shaft.

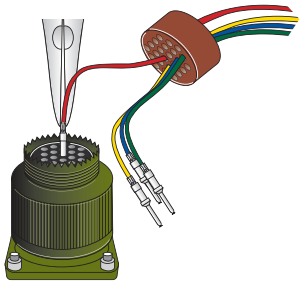


STEP 3: Lubricate the grommet with isopropyl alcohol (do not use any lubricant other than isopropyl alcohol). Insert the contact through the appropriate cavity in the grommet. Sizes 16S, 16 and 12 socket contacts must be installed using guide (pilot) pins. See the Contact Selection Guide on page 87 for Insertion Guide (Pilot) Pin part numbers.



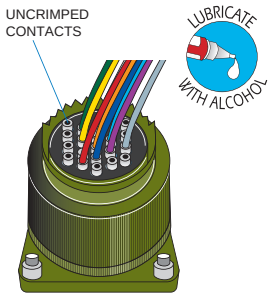
STEP 4: Place the connector into an assembly fixture (fixtures are available for production use, contact us.) If you are not using a fixture, be sure to allow clearance on the mating face of the connector for the guide pins to come through the connector during insertion.

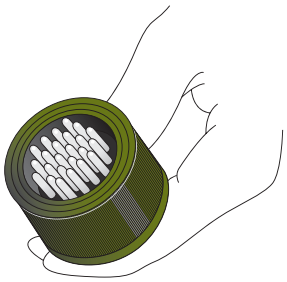
STEP 5: Lubricate the contact cavities of the connector insulator with isopropyl alcohol (do not use any other type of lubricant).

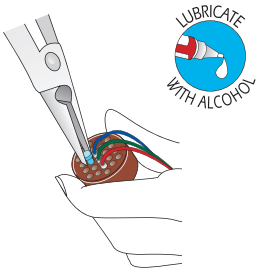


STEP 6: Using guide pins where necessary, push straight down with a firm even pressure until the contact snaps into position in the proper cavity. Start at the center of the pattern and work toward the outer edges.

INSERTION OF CONTACTS (CONTINUED)







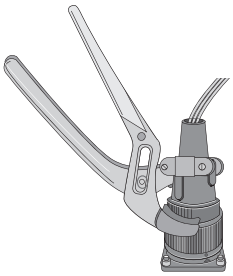
STEP 7: Fill any unused cavities with contacts.

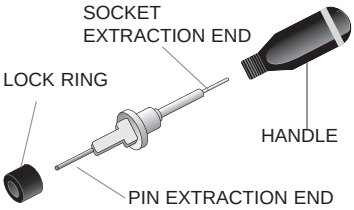
STEP 8: Check the mating face of the connector to ensure that all the same size contacts are on the same plane (fully inserted). If not, the contact is not fully inserted. Remove the contact using the proper extraction tool and procedure and reinsert. Do not attempt to reinsert the insertion tool to correct the problem.

STEP 9: A wire hole filler must be inserted into the grommet behind the unused contacts to maintain the sealing integrity of the connector. See the Contact Selection Chart on ⇨ page 87 for wire hole fillers.

STEP 10: Place the connector back in the fixture for re-assembly. Slide the connector accessories back down the cable over the rear of the connector and tighten. Use the appropriate endbell tools as shown on ⇨ page 114.

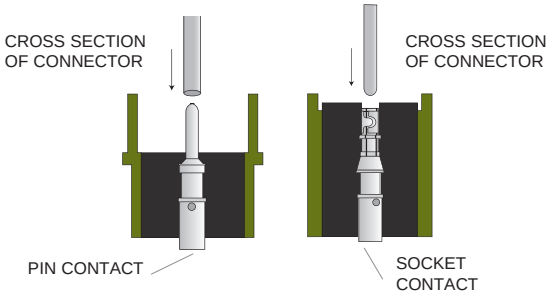
EXTRACTION OF CONTACTS





STEP 1: Remove the endbell accessories and slide them back over the wires. Use the appropriate endbell tools as shown on ⇨ page 114.

STEP 2: Use the proper extraction tool from the Contact Selection Chart on ⇨ page 87. The extraction tool can be used for both pin and socket contacts by removing the shaft from the handle and reversing it for pin or socket extraction.



STEP 3: On the mating face of the connector, insert the tool over the pin contact or into the socket contact until the tool bottoms. Apply a slow continuous pressure to push the contact out the rear of the connector. When the shoulder of the tool "thunks" against the insulator, the contact is extracted.

STEP 4: Carefully remove the extraction tool from the connector to avoid damage to the insulator.

AIB/GT SERIES CONNECTORS

GT C 00 A 36-5 P W- (002)

SERIES

GT Circular connectors with bayonet coupling

CONTACT STYLE/INSERT

C = Crimp
S = Solder
CY = Crimp with Viton®*
SY = Solder with Viton®*
CL = Crimp with low-smoke/flame-retardant inserts
SL = Solder with low-smoke/flame-retardant inserts

SHELL STYLE

00 Wall-mount receptacle
01 Inline receptacle
02 Box-mount receptacle
020 Box-mount receptacle with accessory threads
030 Square flange receptacle - rear panel mount *(most popular)*
05 Dummy receptacle
06 Straight plug *(most popular)*
062 Straight plug with deep-serrated coupling nut
064 Panel-mounted plug with heavy-duty coupling nut
065 Straight plug with long heavy-duty coupling nut
07 Jam nut receptacle - rear panel mount
070 Jam nut receptacle with accessory threads
08 90° angle plug
TB Thru-bulkhead

CONNECTOR SHELL VARIATIONS

Omit for standard olive drab with silver plated contacts
G96 Black anodized
014 Olive drab cadmium plate, nickel base
A24 Gold/nickel-plated contacts
023 Electroless nickel *(RoHS with crimp only)*
025 Black alloy *(RoHS with crimp only)*
027 Conductive black alloy *(RoHS with crimp only)*
024 Green zinc
B30 Gold
RDS Radsok power contacts 8, 4 & 0 socket contact only
116 Less pre-tinned solder cups
472 116 & 025 mod codes *(RoHS)*
548 116 & 023 mod codes *(RoHS)*
553 116 & 027 mod codes *(RoHS)*

ALTERNATE INSERT ROTATION

W, X, Y, and Z designate that the insert is rotated in its shell from a normal position. No letter required for normal (no rotation) position.

See ⇨ pages 75-85.

CONTACT STYLE

P pin contacts
S socket contacts

SHELL SIZE & LAYOUT

See ⇨ pages 64-85.

CONNECTOR CLASS

A General-duty, threaded backshell, no cable clamp, no grommet
AF General-duty, threaded backshell, cable clamp, no grommet
F General-duty, threaded backshell, cable clamp, with grommet
CF General-duty, threaded endbell, gland-seal cable clamp, no grommet
CFZ General-duty, threaded endbell, gland-seal cable clamp, with grommet
G One-piece, heat shrink endbell adaptor, with grommet *(use with heat shrink boot – see Accessories).* ⇨ pages 355-356
G2 Two-piece, heat shrink endbell adaptor, with grommet *(use with heat shrink boot – see Accessories).* ⇨ pages 355-356
LC Long-threaded backshell, gland-seal cable clamp, with grommet, and basket-weave cord grip *(please call with cable O.D.)*
LCF Long-threaded endbell, gland-seal cable clamp, no grommet
LCFZ Long-threaded endbell, gland-seal cable clamp, with grommet
R General-duty, threaded backshell, no cable clamp, with grommet
RV General-duty, short backshell, with grommet *(may be used with heat shrink boot – see Accessories).* ⇨ pages 355-356
CFGG General-duty, threaded endbell, gland-seal cable clamp, no grommet, rubber-covered coupling nut *(shell styles 06 and 08 only)*
PP Panel plug, only for shell styles 06 and 064
LT Long back shell for metal core conduit, with grommet *(please call with conduit O.D.)*
PFC For plastic, flexible conduit *(please call with conduit O.D.)* ⇨ see pages 359-360
SL Long backshell for use with PG gland-seal style cord grip *(please call with cable O.D.)*

MATEABILITY WITH IDENTICAL CONTACT ARRANGEMENTS

CONNECTOR STYLE	MATEABLE WITH STYLE
GT00	GT06/062/064/065/08
GT01	GT06/062/064/065/08
GT02	GT06/062/064/065/08
GT020	GT06/062/064/065/08
GT030	GT06/062/064/065/08
GT06/062/064/065	GT00/01/02/020/03/030/05/070/TB
GT07/070	GT06/062/064/065/08
GT08	GT00/01/02/020/03/030/05/070/TB
GTTB	GT06/062/064/065/08

*Viton® is a registered trademark of DuPont DOW Elastomers

AIBC/ACA-B SERIES CONNECTORS

To more easily illustrate ordering procedure, part number ACA3106E181SXB-F80 is shown as follows:

ACA 3106 E 18 1 S X B - F80

SERIES

ACA Circular Connector Family

SHELL STYLES

3100 - Wall-mount receptacle with rear accessory threads for front mounting through holes in flange
3101 - Cable-connecting receptacle with rear accessory threads
3102 - Front-mount box receptacle no rear accessory threads through holes in flange
3103 - Rear-mount box receptacle with rear accessory threads through holes in flange
3106 - Plug straight
3107A - Jam nut receptacle rear mount, no rear accessory threads
3108 - Plug with 90 degree endbell

CONNECTOR CLASS

E Environmental with resilient insulator and endbell with clamp and bushing
F Environmental with resilient insulator and endbell with rear accessory threads
G Two-piece backshell for heat shrink boots
R Environmental with resilient insulator and shortened lightweight endbell without cable clamp

SHELL SIZE

10SL, 14S, 16S, 16, 18, 20, 22, 24, 28, 32, and 36

CONNECTOR MODIFICATION

01 - Metric crimp contacts
116 - Less solder filled contacts
F80 - AWG crimp contacts
A176 - Gold-plated contacts
A23 - Electroless nickel plating shells
A232 - Black zinc cobalt-plated shells
F42 - Less grommet, endbell & sleeve *(ferrule)*
F0 - Less contacts *(ordered separately)*
RFI - Grounding spring on barrel *(3106 & 3108)*
T00 - Metric threaded holes in flange *(3100, 3102, 3103 only)*
Contact us for other modifications

REVERSE BAYONET COUPLING

ALTERNATE ROTATION

W, X, Y, and Z
No suffix required for normal position
⇨ See pages 75-85 for valid alternate insert position *(rotation)*

CONTACT TYPE

P - Pin
S - Socket

CONNECTOR ARRANGEMENT

⇨ See pages 64-74 for layouts by number of contacts

MATEABILITY WITH IDENTICAL CONTACT ARRANGEMENTS

CONNECTOR STYLE	MATEABLE WITH STYLE
ACA 3100	ACA3106/ ACA3108
ACA 3101	ACA3106/ ACA3108
ACA 3102	ACA3106/ ACA3108
ACA 3103	ACA3106/ ACA3108
ACA 3105	ACA3106/ ACA3108
ACA 3106	ACA3101/ ACA3102/ ACA3103
ACA 3108	ACA3101/ ACA3102/ ACA3103

Use the AIB/GT Series part numbering system on ⇨ pages 62-63 whenever possible.

VG95234 NATO SPECIFICATIONS

VG95234- A 20-29 P 1 N

VG SPEC PREFIX

SHELL STYLE

See chart below

SHELL SIZE - LAYOUT

See pages 64-74.

CONTACT STYLE

P = Pin contacts
S = Socket contacts

TERMINATION

1 = AWG crimp
Blank = metric crimp

POLARIZATION

See pages 75-85.

SHELL STYLE

Mates with

PLUGS

D	Straight plug with cable clamp
E	Right angle plug with cable clamp
E1	Right angle plug for conduit termination
G	Straight plug with heat shrink endbell
H	Straight plug for conduit termination
K	Right angle plug for conduit termination with grounding fingers
L	Straight plug for conduit termination with grounding fingers
M	Straight plug with shielded heat shrink endbell and grounding fingers
R1	Straight plug with shielded heat shrink endbell and grounding fingers
T	Straight plug with heat shrink endbell and grounding fingers

RECEPTACLES

A	Front panel mount box receptacle
B1	Rear panel mount box receptacle, metric mounting holes
B2	Rear panel mount box receptacle, through mounting holes
F	In-line receptacle with cable clamp
J1	Rear panel mount wall receptacle with cable clamp, metric mounting holes
J2	Rear panel mount wall receptacle with cable clamp, through mounting holes
N1	Rear panel mount wall receptacle with shielded heat shrink endbell, metric mounting holes
N2	Rear panel mount wall receptacle with shielded heat shrink endbell, through mounting holes
S1	Rear panel mount wall receptacle with heat shrink endbell, metric mounting holes
S2	Rear panel mount wall receptacle with heat shrink endbell, through mounting holes
U1	Rear panel mount wall receptacle with heat shrink endbell, metric mounting holes
U2	Rear panel mount wall receptacle with heat shrink endbell, through mounting holes
V	In-Line receptacle with conduit termination

VG95234 SHELL STYLES

VG95234 STYLE A	VG95234 STYLE B1/B2	VG95234 STYLE D	VG95234 STYLE E
VG95234 STYLE F	**VG95234 STYLE G**	**VG95234 STYLE H**	**VG95234 STYLE J1/J2**
VG95234 STYLE K	**VG95234 STYLE L**	**VG95234 STYLE M**	**VG95234 STYLE N1/N2**
VG95234 STYLE R1	**VG95234 STYLE S1/S2**	**VG95234 STYLE T**	**VG95234 STYLE U1/U2**

TG70 STRAP WRENCH

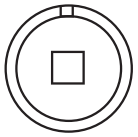
The strap wrench is used to connect or disconnect coupling nuts in a confined space, or to tighten or loosen endbells without damaging the connector plating. A strap wrench also increases torque, allowing you to more easily mate or unmate a connector pair. Substitute tools, such as a pipe wrench or pliers, should never be used because of the high probability of severe damage to the connector plating or the coupling mechanism.

TG69P NON-MARRING ADJUSTABLE ENDBELL PLIERS FOR FIELD SERVICE

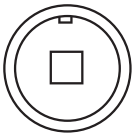
The TG69P pliers have resilient jaws and are used to tighten or remove endbells without damaging the connector plating. The pliers are adjustable and will accommodate all of the connector sizes in this catalog. Substitute tools, such as a pipe wrench or metal jaw pliers, should never be used due to the high probability of severe damage to the connector plating. Replacement jaws, Part No. G77015, are available.

The 600 Series is a complete system for the proper assembly and torquing of connector endbells. The system includes a bench-mounted or hand-held torque wrench, plug and receptacle holders, and a range of endbell tightening tools. When used together, these tools provide the user with consistent endbell installations. Each item is shipped with detailed assembly instructions.

Plug and Receptacle Holders



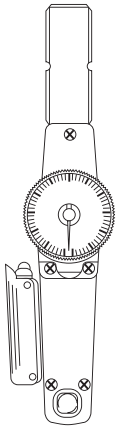
600B005-R



600B005-P

SIZE	MIL-DTL-5015 FOR AIT/MS & AIB/GT	
	RECEPTACLES	PLUGS
8/8S	600B005-8R	600B005-8P
10S/SL	600B005-10R	600B005-10P
12/12S	600B005-12R	600B005-12P
14/14S	600B005-14R	600B005-14P
16/16S	600B005-16R	600B005-16P
18	600B005-18R	600B005-18P
20	600B005-20R	600B005-20P
22	600B005-22R	600B005-22P
24	600B005-24R	600B005-24P
28	600B005-28R	600B005-28P
32	600B005-32R	600B005-32P
36	600B005-36R	600B005-36P

600-007
Bench-mounted torque wrench



600-004
Hand-held torque wrench

TORQUE VALUES

IMPORTANT NOTE:
If barrel/shell has three threads or less, torque to 30 to 35 inch/Lbs (3.4 to 4.0 NM) per L-725-2.

SIZE	IN./LB. MAX.
10SL	26
14S	44
16	50
16S	50
18	55
20	65
22	85
24	90
28	114
32	120
36	153
40	170

ROTATIONS	
PIN	SOCKET
W = G	W = H
X = I	X = J
Y = K	Y = L
Z = M	Z = N

Amphenol PT/PT-SE MIL-DTL-26482 Series I

MATES WITH ITT CANNON AND SOURIAU MIL-DTL-26482

The Amphenol MIL-DTL-26482 Series I PT/PT-SE offers high-density contact arrangements in a circular shell. PT offers solder contacts, PT-SE offers high-performance crimp contacts, and PT-CE offers a commercial crimp option. These circular connectors provide quick-disconnect bayonet coupling for rapid mating and unmating, and several mounting styles and shell sizes.

- Intermateable, intermountable and interchangeable with all MIL-DTL-26482 connectors

APPLICATIONS

- Power generators
- Engines
- Sensors
- Motion control
- Off-road vehicles
- Earth-moving equipment
- Ships
- Mobile equipment
- Industrial machinery
- Telecommunications
- Traffic control

FEATURES

RUGGED SHELL

Aluminum alloy shell and hardware create a rugged connector with minimal weight. These connectors have been used extensively in commercial, military, and aerospace environments. Standard shells accept all MIL-DTL-26482 accessories.

ENVIRONMENTALLY-SEALED

Complete moisture sealing is achieved by combining four seals: shell, peripheral, interfacial, and wire. Wire seal is accomplished by multiple ripple design, exceeding the wire sealing requirements of MIL-DTL-26482.

RESISTANT TO MILITARY ENVIRONMENTS

These connectors will operate in temperatures from -67˚F to +257˚F (-55˚C to +125˚C) under the harshest possible conditions.

WIDE RANGE OF WIRE GAUGES AND CURRENT-CARRYING CAPACITY

Up to 23 amps with wire gauges from 24 to 12 AWG wire.

RESILIENT INSULATOR & GROMMET

A resilient neoprene insulator and integrated rear wire sealing grommet guarantees a liquid-tight assembly. Crimp contacts that can be inserted from the rear of the connector are available. Solder contacts are permanently bonded into the insulator.

SOLDER OR CRIMP GOLD-PLATED CONTACTS

PT connector contacts are gold-plated per MIL-G-45204 type II. PT-CE commercial crimp contacts are not military-approved, but the PT-SE crimp contacts are built in accordance to MIL-C-39029. Both types of contacts are crimped with the standard M22520/1 crimp tool. Socket contacts are closed to eliminate damage from test probes and to help prevent misaligned pins during engagement. Contact insertion is from the rear of the connector. When the contact is fully inserted, it snaps securely into retention tines embedded in the insulator. Contact extraction is accomplished from the front with the proper extraction tool. Pressing the tool plunger pushes the contact out through the rear of the connector.

AGENCY APPROVALS

- MIL-DTL-26482
- UL#E115497, for solder contacts only

TECHNICAL SPECIFICATIONS

MATERIALS & FINISHES

Shell	Aluminum alloy
Plating	Anodic coating (alumilite), olive drab chromate over cadmium over nickel, electroless nickel, olive drab zinc, non-conductive black zinc, conductive black zinc
Contacts	Copper alloy
Platings	Gold-plated, 50 microinches minimum per MIL-G-45204 type II.
Insulator	Resilient neoprene. PT-SE and PT-CE insulators encase a tough plastic wafer with contact retention tines for high-reliability retention of crimp contacts.

ELECTRICAL DATA

Operating Voltage & Test Voltage

SERVICE RATING*	TEST ALTITUDE	MAXIMUM OPERATING VOLTAGE		TEST VOLTAGE	
		DC	AC (RMS)	DC	AC (RMS)
1	Sea Level	850	600	2,100	1,500
2		1,400	1,000	3,200	2,300
1	70,000 feet	400	300	535	375
2		600	450	700	500

*Each insulator layout has a specific “service rating.” The service ratings for each layout are listed on pages 119, 121-123.

Current Rating

CONTACT SIZE	RATED CURRENT AMPS (MAX.)	TEST CURRENT AMPS (WORKING)	POTENTIAL DROP (MILLIVOLTS) INITIAL
20	13	7.5	< 55
16	22	13	< 50
12	41	23	< 42

Wire Range Sizes	24 to 12 AWG (and coax)
Contact Resistance	When tested to MIL-STD-1344 Method 3004, will not exceed voltage drops listed in table. Consult MIL-DTL-26482, 3.6.4 for details.
Insulation Resistance	5,000 megohms minimum at 77˚F (25˚C)

MECHANICAL

Operating Temperature	-67˚F to +257˚F (-55˚C to +125˚C)
Sealing	48 hours in 6 feet of water per MIL-DTL-26482 4.6.14. Meets 10- and 20-day 50-95% humidity testing per MIL-STD-1344 Method 1002.2 per MIL-DTL-26482.
Wire Sealing Range:	Per MIL-DTL-26482 1.4

CONTACT SIZE	AWG WIRE SIZE	INSULATION OUTSIDE DIAMETER LIMITS: INCHES (MM)		
		MIN. (PT)	MIN. (PT-SE/PT-CE)	MAX. (PT/PT-SE/PT-CE)
20	24, 22, and 20	.047 (1.19)	.047 (1.19)	.083 (2.11)
16	20, 18, and 16	.066 (1.68)	.066 (1.68)	.109 (2.77)
12	12 and 14	.097 (2.46)	.097 (2.46)	.142 (3.61)

Insulation Strip Lengths

CONTACT SIZE	WIRE SIZE (AWG)	STRIP LENGTH INCHES (MM)
20	20-24	.275 (7.0)
16	16-20	.250 (6.4)
12	12-14	.250 (6.4)

Mating Life	500 cycles minimum per MIL-DTL-26482 3.6.17
Salt Spray	Unmated connectors and protective covers meet 48-hour exposure to MIL-STD-1344 Method 1001 per MIL-DTL-26482. (Cadmium plating) Olive drab/black zinc, electroless nickel meets 48-hour salt spray test.
Heat	+221°F (+105°C) for 1,000 hours per MIL-DTL-26482
Chemical Resistance	20-hour full-immersion unmated in hydraulic fluid and lubricating oil per MIL-DTL-26482.
Vibration	10 to 2,000Hz (15g's) 10 microseconds maximum discontinuity. To MIL-STD-1344 Method 2005 per MIL-DTL-26482.
Shock	50g's, 11ms duration, three major axes. 10 microseconds maximum discontinuity. To MIL-STD-1344 Method 2004 per MIL-DTL-26482.
Contact Type	Solder, crimp, printed circuit, thermocouple, coax
Number of Circuits	PT: 1 to 61; PT-SE & PT-CE: 2 to 61
Contact Insertion (Crimp)	Insertion from the rear of connector with simple hand-tool. Front release with appropriate extraction tool.
Contact Retention	To MIL-STD-1344 Method 2007 per MIL-DTL-26482.

CONTACT SIZE	AXIAL LOAD MIN. LBS (NEWTONS)
20	15 (66.7)
12 and 16	25 (111.2)

Polarization	Five keyway, three-point bayonet with optional rotational polarization. ⇨ See pages 119, 121.
Approvals	• MIL-DTL-26482H • UL#E115497 (PT solder only)

EXERPT FROM MIL-DTL-26482H

3.7.4 JAN and J marking. The United States Government has adopted and is exercising legitimate control over the certification marks "JAN" and "J", respectively, to indicate that items so marked or identified are manufactured to, and meet all the requirements of specifications. Accordingly, items acquired to, and meeting all of the criteria specified herein and in applicable specifications shall bear the certification mark "JAN" except that items too small to bear the certification mark "JAN" shall bear the letter "J". The "JAN" or "J" shall be placed immediately before the PIN except that if such location would place a hardship on the manufacturer in connection with such marking, the "JAN" or "J" may be located on the first line above or below the PIN. Items furnished under contracts or orders which either permit or require deviation from the conditions or requirements specified herein or in applicable specifications shall not bear "JAN" or "J". In the event an item fails to meet the requirements of this specification and the applicable specification sheets, the manufacturer shall remove completely the military PIN and the "JAN" or the "J" from the sample tested and also from all items represented by the sample. The "JAN" or "J" certification mark shall not be used on products acquired to contractor drawings or specification. The United States Government has obtained Certificate of Registration Number 504,860 for the certification mark "JAN" and Registration Number 1,586,261 for the certification mark "J".

PIN = Part Identification Number

CREATE YOUR **SOLDER** PART NUMBER USING THESE SIX STEPS

1	2	3	4	5
MS3116°	F°	16-26	P	W
SHELL STYLE	ENDBELL	LAYOUT	CONTACT	ROTATION

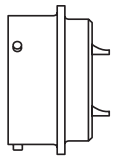
(military part number example)

1	2	3	4	5	6
PT06*	E*	16-26	P	W	-SR
SHELL STYLE	ENDBELLS	LAYOUT	CONTACT	ROTATION	MODIFIER

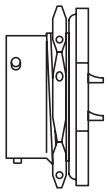
(commercial part number example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

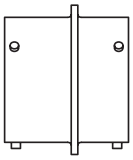
RECEPTACLES ← Mates with → **PLUGS**



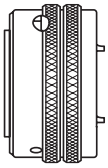
PT02E* **MS3112E°**
Box Mount Receptacle



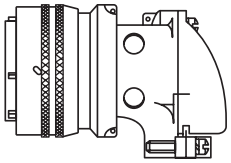
PT07A*
Jam Nut Receptacle



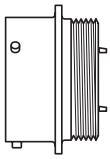
PTB*
Through Bulkhead Receptacle



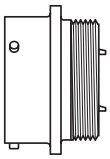
PT06* **MS3116°**
PT05A = PT06
(less rear accessories)
Cable Plug



PT08E-SR*
Right Angle Cable Plug

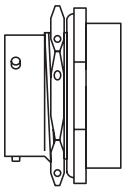


PT00* **MS3110°**
PT03A = PT00
(less rear accessories)
Wall Mount Receptacle



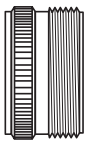
less rear accessories

PT01* **MS3111°**
PT04A = PT01
(less rear accessories)
Cable Mount Receptacle

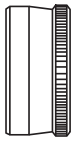


PT07* **MS3114°**
Jam Nut Receptacle

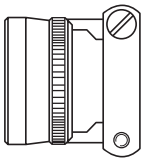
STEP 2: SELECT ENDBELL



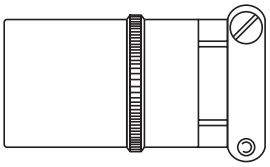
A*
General-Duty Threaded



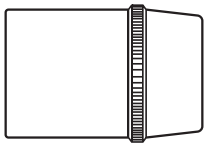
E††
Environmental, No Clamp



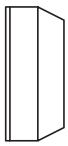
A-(SR)*
Non-Environmental with Clamp
E-(SR)*
F-military°
Environmental with Clamp



J††
Environmental with Clamp and Cable Jacket Gland Seal
(Not available for PT07 shell style)



W*
Environmental without Clamp
(Not available for PT07 Shell Style)



Right Angle (for PT08P)

P††
Environmental Potting

See page 370
for epoxy potting compound.

PART NUMBER KEY:
Commercial=(*) Commercial & Military=(††)
Military Only=(°)

STEP 3: SELECT LAYOUT

LAYOUT	SERVICE RATING	CONTACTS					ROTATIONS			
		TOTAL	20	16	12	COAX	W	X	Y	Z
6-1*	I	1	1				-	-	-	-
8-2††	I	2	2				58	122	-	-
8-3††	I	3	3				60	210	-	-
8-4††	I	4	4				45	97#	184#	-
8-33*	I	3	3				90	-	-	-
8-98*	I	3	3				-	-	-	-
10-2*	I	2		2			45	90	315	-
10-5*	I	5	5				45	151	180	270
10-6††	I	6	6				90	-	-	-
10-98††	I	6	6				90	180	240	270
12-3††	II	3		3			-	-	180	-
12-4*	I	4		4			38	-	-	-
12-8††	I	8	8				90	112	203	292
12-10††	I	10	10				60	155	270	295
12-14 A*	I	14	14				-	-	-	-
14-4 AS*	I	4			4		45	-	-	-
14-AA*u	I	4			4		45	-	-	-
14-5††	II	5		5			40	92	184	273
14-12††	I	12	8	4			43	90	-	-
14-15††	I	15	14	1			17	110	155	234
14-18††	I	18	18				15	90	180	270
14-19††	I	19	19				30	165	315	-
14-91*	HV 5k	3	3				-	60	-	-
16-8††	II	8		8			54	152	180	331
16-23††	I	23	22	1			158	270	-	-
16-26††	I	26	26				60	-	275	338
16-70	Coax	15	14			1	-	-	-	-
16-99††	I	23	21	2			66	156	223	340
18-5*	II	5			5		55	97	263	315
18-11††	II	11		11			62	119	241	340
18-30††	I	30	29	1			180	193	285	350
18-32††	I	32	32				85	138	222	265
20-16††	II	16		16			238	318	333	347
20-24††	I	24	24				70	145	215	290
20-25*	I	25	25				72	144	216	288
20-27††	I	27	27				72	144	216	288
20-39††	I	39	37	2			63	144	252	333
20-41††	I	41	41				45	126	225	-
20-90*	HV	7	7				45	135	225	315
22-21††	II	21		21			16	135	175	349
22-32††	I	32	32				72	145	215	288
22-34*	I	34	34				62	142	218	298
22-36*	I	36	36				72	144	216	288
22-41††	I	41	27	14			39	135	264	-
22-55††	I	55	55				30	142	226	314
24-31A*	I	31		31			90	225	255	-
24-61††	I	61	61				90	180	270	324

PART NUMBER KEY:

Commercial=(*) Commercial & Military=(††)

= Commercial Rotation Only (Not Military)

A = A-Class Only

S = Socket Insert Only

u = 14-AA Insert Follows 14-4 MIL-STD-1669A contact spacing

STEP 4: SELECT CONTACT

P = Pin **S** = Socket

STEP 5: SELECT ROTATION

See chart at left (Omit for normal)

W, X, Y, Z

STEP 6: SELECT MODIFIER

Default plating: Olive drab cadmium

SR* = F-Style Strain Relief *(not military)*
002* = Black Anodized
005* = Anodic Coating *(Alumilite)*
014* = Olive Drab Chromate over Cadmium over Nickel *(500-hour salt spray)*
023* = Electroless Nickel *(RoHS)*
024* = Olive Drab Zinc Alloy
025* = Non-Conductive Black Zinc Alloy *(RoHS)*
027* = Conductive Black Zinc Alloy *(RoHS)*
424* = Electroless Nickel and Strain Relief *(SR & 023) (RoHS)*
466* = Olive Drab Zinc Alloy with Strain Relief *(SR & 024)*
470* = Non-conductive Black Zinc Alloy with Strain Relief *(SR & 025) (RoHS)*
476* = Conductive Black Zinc Alloy Alloy with Strain Relief *(SR & 027) (RoHS)*
SCC* = Self-Closing Cap Box Mount *(02)* Shell sizes 8,10, 12 & 18 only

CREATE YOUR **CRIMP** PART NUMBER USING THESE SIX STEPS

1	2	3	4	5
MS3126°	F°	16-26	P	W
SHELL STYLE	FINISH	LAYOUT	CONTACT	ROTATION

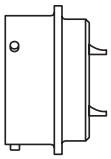
(military part number example)

1	2	3	4	5	6
PT06*	E*	16-26	P	W	-SR
SHELL STYLE	ENDBELLS	LAYOUT	CONTACT	ROTATION	MODIFIER

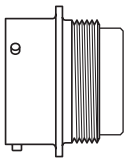
(commercial part number example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

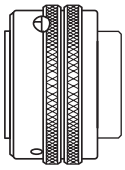
RECEPTACLES ← Mates with → **PLUGS**



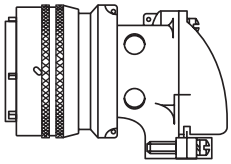
PT02SE* **PT02CE** **MS3112E°**
Box Mount Receptacle



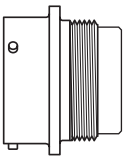
PT00* **MS3120°**
PT03SE = PT00SE
(less rear accessories)
Wall Mount Receptacle



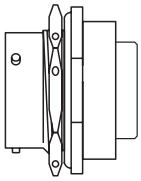
PT06* **MS3126°**
PT05SE = PT06SE
(less rear accessories)
Cable Plug



PT08SE-SR*
Right Angle Cable Plug

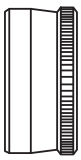


PT01* **MS3121°**
PT04SE = PT01SE
(less rear accessories)
Cable Mount Receptacle

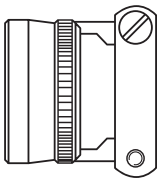


PT07* **MS3124°**
Jam Nut Receptacle

STEP 2: SELECT ENDBELL



SE* **E°**
Environmental
No Clamp
CE††
Proprietary



SE-(SR)* **CE-(SR)††**
Add SR modifier to end of part number to call out the F-style endbell

F°
Environmental with Clamp

SP* **CP††** **P°**
Environmental Potting See page 358 for epoxy potting compound.

Right Angle (for PT08SP)

PART NUMBER KEY:
Commercial=(*) Commercial & Military=(††) Military Only=(°)

STEP 3: SELECT LAYOUT

LAYOUT	SERVICE RATING	TOTAL	CONTACTS 20	16	12	12 COAX	8 COAX	INSERT ROTATIONS W	X	Y	Z
8-2*	I	2	2					58	122	-	-
8-3*	I	3	3					60	210	-	-
8-4*	I	4	4					45	97#	184#	-
8-33††	I	3	3					90	-	-	-
10-6††	I	6	6					90	-	-	-
10-98*	I	6	6					90	180	240	270
12-3††	II	3		3				-	-	180	-
12-8††	I	8	8					90	112	203	292
12-10††	I	10	10					60	155	270	295
14-5††	II	5		5				40	92	184	273
14-12††	I	12	8	4				43	90	-	-
14-15††	I	15	14	1				17	110	155	234
14-18††	I	18	18					15	90	180	270
14-19††	I	19	19					30	165	315	-
14-22*	I	5	1		4			45	-	-	-
14-91*	HV 5k	3	3					-	60	-	-
16-8††	II	8		8				54	152	180	331
16-23††	I	23	22	1				158	270	-	-
16-26††	I	26	26					60	-	275	338
16-76*	Coax	14	8		1	5		-	-	-	-
16-99††	I	23	21	2				66	156	223	340
18-5*	II	5			5			55	97	263	315
18-11††	II	11		11				62	119	241	340
18-30††	I	30	29	1				180	193	285	350
18-32††	I	32	32					85	138	222	265
18-80*	I/Coax	8	6				2	45	90	135	160
18-91*	HV 5k	6	6					90	180	240	270
20-16††	II	16		16				238	318	333	347
20-27*	I	27	27					72	144	216	288
20-39††	I	39	37	2				63	144	252	333
20-41††	I	41	41					45	126	225	-
22-7*	Coax	7					7	19	41	-	-
22-21††	II	21		21				16	135	175	349
22-25*	I	25		25				60	125	211	336
22-32††	I	32	32					72	145	215	288
22-34*	I	34	34					62	142	218	298
22-36*	I	36	36					72	144	216	288
22-41††	I	41	27	14				39	135	264	-
22-55††	I	55	55					30	142	226	314
22-78*	Coax	7					7	19	41	-	-
22-96*	II	7			7✦			19	41	-	-
24-31*	I	31		31				90	225	255	-
24-51*	I/Coax	51	47		4			22	171	313	-
24-61††	I	61	61					90	180	270	324

PART NUMBER KEY:

Commercial=(*) Commercial & Military=(††)

= Commercial Rotation Only (Not Military)

STEP 4: SELECT CONTACT

P = Pin **S** = Socket

STEP 5: SELECT ROTATION

See chart at left (Omit for normal)

W, X, Y, Z

STEP 6: SELECT MODIFIER

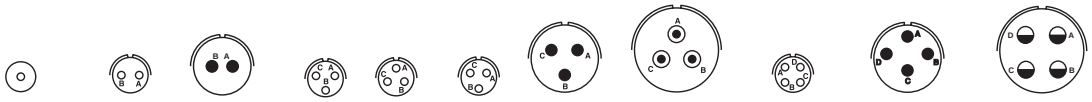
Default plating: Olive Drab Cadmium

SR* = F-Style Strain Relief *(not military)*
002* = Black Anodized
005* = Anodic Coating *(Alumilite)*
014* = Olive Drab Chromate over Cadmium over Nickel *(500-hour salt spray, call for details)*
023* = Electroless Nickel *(RoHS)*
024* = Olive Drab Zinc Alloy
025* = Non-Conductive Black Zinc Alloy *(RoHS)*
027* = Conductive Black Zinc Alloy *(RoHS)*
424* = Electroless Nickel and Strain Relief *(SR & 023) (RoHS)*
466* = Olive Drab Alloy with Strain Relief *(SR & 024)*
470* = Non-conductive Black Zinc Alloy with Strain Relief *(SR & 025) (RoHS)*
476* = Conductive Black Zinc Alloy with Strain Relief *(SR & 027) (RoHS)*
SCC* = Self-Closing Cap Box Mount *(02)* Shell sizes 8,10, 12 & 18 only
LC = Less Contacts

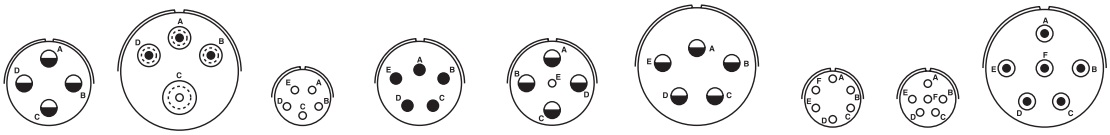
LAYOUTS BY NUMBER OF CONTACTS

CONTACT LEGEND ○ = 20 ● = 16 ◉ = HV ◒ = 12 ◎ = coax
Mating face view of pin inserts

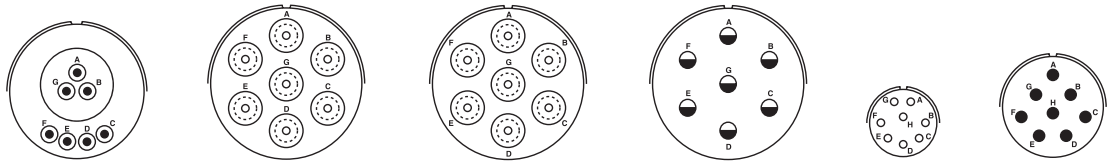
SERIES LEGEND ▲ = PT-Solder ✦ = PT-SE Crimp U = 14-44 △ = Solder: Military & PT ✧ = Crimp: Military & PT-SE ■ = PT-CE **S** = Socket only



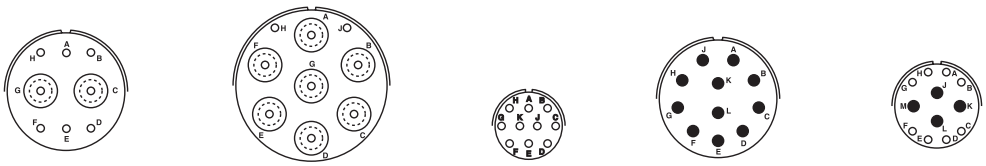
CONTACTS	1	2		3					4		
SHELL SIZE/LAYOUT	**6-1**	**8-2**	**10-2**	**8-3**	**8-33**	**8-98**	**12-3**	**14-91**	**8-4**	**12-4**	**14-4S**
# OF CONTACTS	1-#20	2-#20	2 #16	3-#20	3-#20	3-#20	3-#16	3-HV	4-#20	4-#16	4-#12
SERIES	▲	■ △	▲	■ △	✧ ▲	▲	■ ✧ △	▲	■ △	▲	▲
SERVICE RATING	I	I	I	I	I	I	II	HV5k	I	I	I



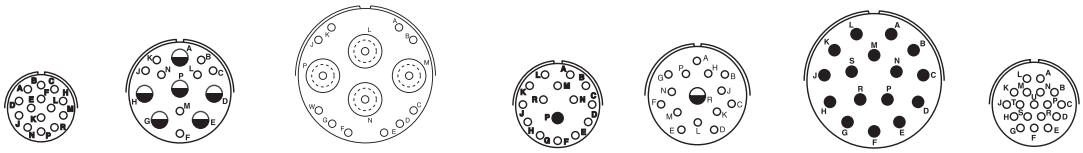
CONTACTS	4		5				6		
SHELL SIZE/LAYOUT	**14-AAU**	**18-76**	**10-5**	**14-5**	**14-22**	**18-5**	**10-6**	**10-98**	**18-91**
# OF CONTACTS	4-#12	4(coax)	5-#20	5-#16	4-#12; 1-#20	5-#12	6-#20	6-#20	6-HV
SERIES	▲	■	▲	■ △ ✧	✦	■ ✦ ▲	■ ✧ △	■ △	■ ✦
SERVICE RATING	I	(coax)	I	II	I	II	I	I	HV5k



CONTACTS	7				8	
SHELL SIZE/LAYOUT	**20-90**	**22-7**	**22-78**	**22-96**	**12-8**	**16-8**
# OF CONTACTS	7-HV	7(coax)	7(coax)	7-#12	8-#20	8-#16
SERIES	▲	✦	✦	✦	■ ✧ △	■ ✧ △
SERVICE RATING	I	II	HV5k	I	I	I



CONTACTS	8	9	10	11	12
SHELL SIZE/LAYOUT	**18-80**	**22-71**	**12-10**	**18-11**	**14-12**
# OF CONTACTS	6-#20; 2(coax)	2-#20; 7(coax)	10-#20	11-#16	4-#16; 8-#20
SERIES	■	■	■ ✧ △	■ ✧ △	■ ✧ △
SERVICE RATING	II/(coax)	(coax)	I	II	I

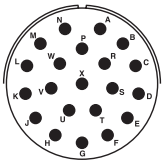
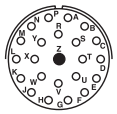
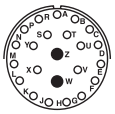
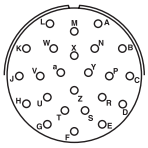
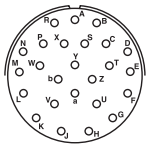


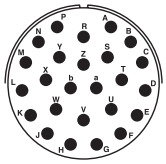
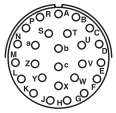
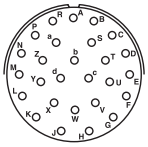
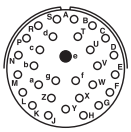
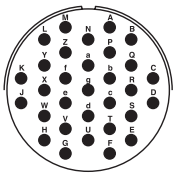
CONTACTS	14			15		16	18
SHELL SIZE/LAYOUT	**12-14**	**16-76**	**20-70**	**14-15**	**16-70**	**20-16**	**14-18**
# OF CONTACTS	14-#20	5-#12; 8-#20; 1(coax)	10-#20; 4(coax)	1-#16; 14-#20	1-#12(coax); 14-#20	16-#16	18-#20
SERIES	▲	✦	■	■ ✧ △	■ ▲	■ ✧ △	■ ✧ △
SERVICE RATING	I	Size 12 (coax) User-Defined	I	II	not rated	I	I

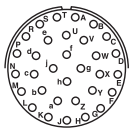
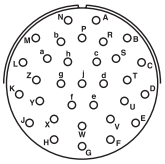
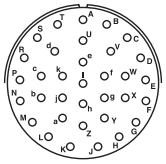
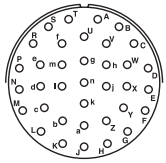
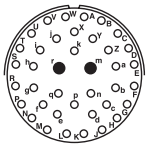
LAYOUTS BY NUMBER OF CONTACTS

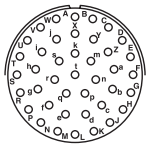
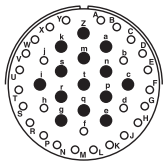
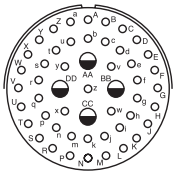
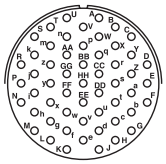
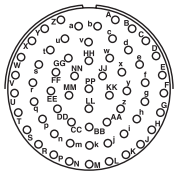
CONTACT LEGEND ○ =20 ● =16 ◉ =HV ◒ =12 ⊙ =coax
Mating face view of pin inserts

SERIES LEGEND ▲ = PT-Solder △ = Solder: Military & PT
■ = PT-CE ✦ = PT-SE Crimp ✧ = Crimp: Military & PT-SE

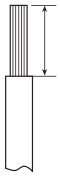
CONTACTS	19	21	23		24	25
						
SHELL SIZE/LAYOUT	**14-19**	**22-21**	**16-23**	**16-99**	**20-24**	**20-25**
# OF CONTACTS	19-#20	21-#16	1-#16; 22-#20	2-#16; 21-#20	24-#20	25-#20
SERIES	■ ✧ △	■ ✧ △	■ ✧ △	✧ △	△	▲
SERVICE RATING	I	II	I	I	I	I

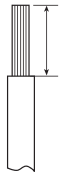
CONTACTS	25	26	27	30	31
					
SHELL SIZE/LAYOUT	**22-25**	**16-26**	**20-27**	**18-30**	**24-31**
# OF CONTACTS	25-#16	26-#20	27-#20	1-#16; 29-#20	31-#16
SERIES	✦	■ ✧ △	■ ✦ △	■ ✧ △	■ ▲
SERVICE RATING	I	I	I	I	I

CONTACTS	32		34	36	39
					
SHELL SIZE/LAYOUT	**18-32**	**22-32**	**22-34**	**22-36**	**20-39**
# OF CONTACTS	32-#20	32-#20	34-#20	36-#20	2-#16 37-#20
SERIES	■ ✧ △	■ △	■ ▲	■ ▲	■ ✧ △
SERVICE RATING	I	I	I	I	I

CONTACTS	41		51	55	61
					
SHELL SIZE/LAYOUT	**20-41**	**22-41**	**24-51**	**22-55**	**24-61**
# OF CONTACTS	41-#20	14-#16; 27-#20	4-#12(coax); 47-#20	55-#20	61-#20
SERIES	■ ✧ △	■ ✧ △	✦	■ ✧ △	■ ✧ △
SERVICE RATING	I	I	I	I	I

PIN & SOCKET CRIMP CONTACTS

CONTACT & WIRE SIZE		PIN CONTACT & COLOR BANDS				WIRE STRIP LENGTH	WIRE SEALING RANGE	
								
CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS			WIRE STRIP LENGTH	WIRE SEALING RANGE	
			1	2	3		MIN.	MAX.
SE CRIMP CONTACTS								
20	20-24	M39029/31-240	Red	Yellow	Black	.275 (7.0)	.047 (1.2)	.083 (2.1)
16	16-20	M39029/31-228	Red	Red	Grey	.250 (6.4)	.066 (1.7)	.109 (2.7)
12	12-14	M39029/31-235	Red	Orange	Green	.250 (6.4)	.097 (2.5)	.142 (3.6)
20 Chromel	20-24	10-330940-01P	-	-	-	.250 (6.4)	.047 (1.2)	.083 (2.1)
20 Alumel	20-24	10-330940-02P	-	-	-			
20 Iron	20-24	10-330940-03P	-	-	-			
20 Constantan	20-24	10-330940-04P	-	-	-			
CE CRIMP CONTACTS								
20	20-24	10-189000-20F	-	-	-	.275 (7.0)	.047 (1.2)	.083 (2.1)
20	16-20	10-195962-20F	-	-	-	.275 (7.0)	.047 (1.2)	.083 (2.1)
16	16-20	10-189004-16F	-	-	-	.250 (6.4)	.066 (1.7)	.109 (2.7)
20 Chromel	20-24	10-252900-01P	-	-	-	.275 (7.0)	.047 (1.2)	.083 (2.1)
20 Alumel	20-24	10-252900-02P	-	-	-			
20 Iron	20-24	10-252900-03P	-	-	-			
20 Constantan	20-24	10-252900-04P	-	-	-			

CONTACT & WIRE SIZE		SOCKET CONTACT & COLOR BANDS				WIRE STRIP LENGTH	WIRE SEALING RANGE	
								
CONTACT SIZE	WIRE SIZE AWG	SOCKET CONTACT PART NUMBER	COLOR BANDS			WIRE STRIP LENGTH	WIRE SEALING RANGE	
			1	2	3		MIN.	MAX.
SE CRIMP CONTACTS								
20	20-24	M39029/32-259	Red	Green	White	.275 (7.0)	.047 (1.2)	.083 (2.1)
16	16-20	M39029/32-247	Red	Yellow	Violet	.250 (6.4)	.066 (1.7)	.109 (2.7)
12	12-14	M39029/32-254	Red	Green	Yellow	.250 (6.4)	.097 (2.5)	.142 (3.6)
20 Chromel	20-24	10-330940-01S	-	-	-	.250 (6.4)	.047 (1.2)	.083 (2.1)
20 Alumel	20-24	10-330940-02S	-	-	-			
20 Iron	20-24	10-330940-03S	-	-	-			
20 Constantan	20-24	10-330940-04S	-	-	-			
CE CRIMP CONTACTS								
20	20-24	10-597817-351	-	-	-	.275 (7.0)	.047 (1.2)	.083 (2.1)
20	16-20	10-195963-20F	-	-	-	.275 (7.0)	.047 (1.2)	.083 (2.1)
16	16-20	10-189006-16F	-	-	-	.250 (6.4)	.066 (1.7)	.109 (2.7)
20 Chromel	20-24	10-252900-01S	-	-	-	.275 (7.0)	.047 (1.2)	.083 (2.1)
20 Alumel	20-24	10-252900-02S	-	-	-			
20 Iron	20-24	10-252900-03S	-	-	-			
20 Constantan	20-24	10-252900-04S	-	-	-			

All dimensions in inches (millimeters in parenthesis)

PIN & SOCKET CRIMP CONTACTS

WIRE HOLE FILLER		CRIMP TOOLS				INSERTION TOOL	EXTRACTION TOOL
		M22520/1-01	WA27F	TH1A M22520/1-02			
PART NUMBER	COLOR	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEAD	COLOR USE LOCATOR	INSERTION TOOL	EXTRACTION TOOL
SE CRIMP CONTACTS							
MS27488-20-2	Red	AF8 or M22520/1-01	WA27F*	TH1A or M22520/1-02	Red	M81969/17-03	M81969/19-07
MS27488-16-2	Blue				Blue	M81969/17-04	M81969/19-08
MS27488-12-2	Yellow				Yellow	M81969/17-05	M81969/19-09
MS27488-20-2	Red				Red	M81969/17-03	M81969/19-07
CE CRIMP CONTACTS							
MS27488-20-2	Red	AF8 or M22520/1-01	WA27F*	TH254	Red	11-6782	11-6900
MS27488-20-2	Red				Red	11-6782	
MS27488-16-2	Blue				Blue	11-6781	
MS27488-20-2	Red				Red	11-6782	

WIRE HOLE FILLER		CRIMP TOOLS				INSERTION TOOL	EXTRACTION TOOL
		AF8 M22520/1-01	WA27F	TH1A M22520/1-02			
PART NUMBER	COLOR	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEAD	COLOR USE LOCATOR	INSERTION TOOL	EXTRACTION TOOL
SE CRIMP CONTACTS							
MS27488-20-2	Red	AF8 or M22520/1-01	WA27F*	TH1A or M22520/1-02	Red	M81969/17-03	M81969/19-07
MS27488-16-2	Blue				Blue	M81969/17-04	M81969/19-08
MS27488-12-2	Yellow				Yellow	M81969/17-05	M81969/19-09
MS27488-20-2	Red				Red	M81969/17-03	M81969/19-07
CE CRIMP CONTACTS							
MS27488-20-2	Red	AF8 or M22520/1-01	WA27F*	TH254	Red	11-6782	11-6900
MS27488-20-2	Red				Red	11-6782	
MS27488-16-2	Blue				Blue	11-6781	
MS27488-20-2	Red				Red	11-6782	

*Contact us for more tool accessories.

PIN & SOCKET SOLDER COAX CONTACTS

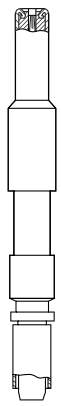
CABLE	CONTACT PART #		FITS IN SHELL SIZE	OUTER SHELL CRIMP FERRULE		CLAMP NUT WRENCH
	PIN	SOCKET		MIL-C_22520/5-01 USE WITH DIE PART # (LOCATOR CAVITY)	MIL-C22520/10-01 USE WITH DIE PART# (LOCATOR CAVITY	
CONTACT SIZE 12						
RG-161/U	21-033020-032	21-033019-032	10-18	M22520/5-03 (A) M22520/5-08 (A) M22520/5-35 (B)	M22520/10-05 (A)	11-8676-1
RG-174A/U						
RG-179B/U						
RG-187A/U						
RG-188A/U						
RG-316/U						
RG-196A/U	21-033020-031+	21-033061-031+		M22520/5-03 (B) M22520/5-33 (B)	M22520/10-05 (B)	
"Thermatics 2929-29"	21-033020-033	21-033061-033		M22520/5-37 (B)		
CONTACT SIZE 8						
RG-58C/U	21-033020-002	21-033019-002	10-18	M22520/5-05 (B) M22520/5-41 (B)	M22520/10-07 (B)	11-8676-2
RG-141A/U						
RG-303/U						
RG-59B/U	21-033020-003	21-033019-003		M22520/5-45 (B)	-	11-8676-3
RG-62A/U						
RG-62B/U						
RG-210/U						
RG-142B/U	21-033020-007*	21-033019-007*		M22520/5-43 (B)	-	11-8676-2
Times MI51115						
RG-178B/U	21-033020-004	21-033019-004		M22520/5-03 (B) M22520/5-33 (B)	M22520/10-05 (B)	11-8676-2
RG-180B/U	21-033020-005*	21-033019-005*		M22520/5-05 (B) M22520/5-41 (B)	M22520/10-07 (B)	11-8676-2
RG-195A/U						
Raychem - 5022D1312-9						
Raychem - 5021D1331-9	21-033020-006*	21-033019-006*		M22520/5-05 (B) M22520/5-41 (B)	M22520/10-07 (B)	11-8676-2
RG-59B/U	21-033020-001	21-033019-001	20-24	M22520/5-45 (B)	-	11-8676-3
RG-62A/U						
RG-62B/U						
RG-210/U						

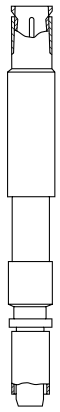
Note: Solder contacts are supplied with outer contact body bonded into the insert (insulator). Contact us for wire strip lengths and assembly instructions

* Please check availability
\+ Only mate with one another

SOLDER (PT)

PIN	SOCKET

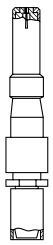


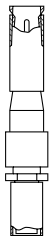


Note: Illustrations are for chart above.

CRIMP (PT-SE)

PIN	SOCKET





Note: Illustrations are for chart on page 127.

PIN & SOCKET SE CRIMP COAX CONTACTS

CABLE	INNER SOLDER CONTACT						CLAMP NUT WRENCH	INSER-TION TOOL	EXTRAC-TION TOOL
	PINS		CONTACTS		HAND-CRIMP TOOL OUTER SHELL				
	.00005 GOLD OVER SILVER	.00010 GOLD OVER COPPER	.00005 GOLD OVER SILVER	.00010 GOLD OVER COPPER	MIL-C22520/5-01 USE WITH DIE PART # (LOCATOR CAVITY)	MIL-C22520/10-01 USE WITH DIE PART # (LOCATOR CAVITY)			
CONTACT SIZE 12									
RG-161/U RG-174A/U RG-179B/U RG-187A/U RG-188A/U RG-316/U	21-033012-001 *21-033012-004*	21-033038-001 *21-033038-004*	21-033011-001 *21-033011-004*	21-033037-001 *21-033037-004*	-	M22520/10-05 (A)	11-8676-1	11-8369-2 11-8660-2	11-7880-12 11-8154-2
RG-178B/U RG-196A/U	21-033012-003* *21-033012-005*	21-033038-003* *21-033038-005*	21-033011-003* *21-033011-005*	21-033037-003* *21-033037-005*	-	M22520/10-05 (A)	11-8676-1	11-8369-1 11-8660-1	11-7880-12 11-8154-2
RG-188 or RG-316 Double Braid	21-033012-006* *21-033012-007*	21-033038-006* *21-033038-007*	21-033011-006* *21-033011-007*	21-033037-006* *21-033037-007*	M22520/5-37 (B)	-	11-8676-1	11-8369-2 11-8660-2	11-7880-12 11-8154-2
Westrex 199-49-1 Tensolite 30850/87T-1	N/A *21-033012-043*	N/A *21-033038-043*	N/A *21-033011-043*	N/A *21-033037-043*	-	M22520/10-05 (B)	11-8676-1	11-8369-1 11-8660-1	11-7880-12 11-8154-2
CONTACT SIZE 8									
RG-55B/U RG-142A/U RG-142B/U RG-223/U	21-033012-21 *21-033012-25*	21-033038-21 *21-033038-25*	21-033011-21 *21-033011-25*	21-033037-21 *21-033037-25*	-	M22520/10-07 (A)	11-8676-2	11-8369-5 11-8660-5	11-7880-8 11-8154-1
RG-58C/U RG-141A/U RG-303/U	21-033012-022 *21-033012-026*	21-033038-022* *21-033038-026**	21-033011-022 *21-033011-026*	21-033037-022 *21-033037-026**	-	M22520/10-07 (B)	11-8676-2	11-8369-4 11-8660-4	11-7880-8 11-8154-1
RG-59B/U RG-62A/U RG-62B/U RG-210/U	N/A *21-033012-036*	N/A *21-033038-036**	N/A *21-033011-036*	N/A *21-033037-036*	M22520/5-45 (B)	-	11-8676-2	11-8369-5 11-8660-5	11-7880-8 11-8154-1
RG-140/U RG-302/U	N/A *21-033012-037**	N/A *21-033038-037**	N/A *21-033011-037**	N/A *21-033037-037**	-	M22520/10-07 (A)	11-8676-2	11-8369-5 11-8660-5	11-7880-8 11-8154-1
RG-161/U RG-174A/U RG-179B/U RG-187A/U RG-188A/U RG-316/U	21-033012-034 *21-033012-030*	21-033038-034 *21-033038-030*	21-033011-034 *21-033011-030*	21-033037-034 *21-033037-030*	-	M22520/10-05 (A)	11-8676-2	11-8369-2 11-8660-2	11-7880-8 11-8154-1
RG-178B/U RG-196A/U	21-033012-035 *N/A*	21-033038-035 *N/A*	21-033011-035 *N/A*	21-033037-035 *N/A*	-	M22520/10-05 (A)	11-8676-2	11-8369-1 11-8660-1	11-7880-8 11-8154-1
RG-180B/U RG-195A/U	N/A *21-033012-046**	N/A *21-033038-046**	21-033011-024 *21-033011-046**	21-033037-024 *21-033037-046**	-	M22520/10-07 (B)	11-8676-2	11-8369-4 11-8660-4	11-7880-8 11-8154-1
Thermax 50C25ADS1	N/A *21-033012-044*	N/A *21-033038-044**	N/A *21-033011-044*	N/A *21-033037-044**	M22520/05-37 (B)	-	11-8676-2	11-8369-5 11-8660-5	11-7880-8 11-8154-1
RG-195 Double Braid	21-033012-028 *N/A*	21-033038-028* *N/A*	21-033011-028 *N/A*	21-033037-028* *N/A*	M22520/05-43 (B)	-	11-8676-2	11-8369-4 11-8660-4	11-7880-8 11-8154-1
RG-122/U Tyco 5022E5111	21-033012-023 *21-033012-027*	21-033038-023* *21-033038-027*	21-033011-023 *21-033011-027*	21-033037-023* *21-033037-027*	-	M22520/10-07 (B)	11-8676-2	11-8369-4 11-8660-4	11-7880-8 11-8154-1
Tyco 9530D5314	21-033012-031 *N/A*	21-033038-031 *N/A*	21-033011-031 *N/A*	21-033037-031 *N/A*	-	M22520/10-07 (B)	11-8676-2	11-8369-4 11-8660-4	11-7880-8 11-8154-1
Tyco 9527A1317	N/A *21-033012-039*	N/A *21-033038-039**	N/A *21-033011-039*	N/A *21-033037-039**	-	M22520/10-07 (B)	11-8676-2	11-8369-4 11-8660-4	11-7880-8 11-8154-1
Tyco 7527A1318	N/A *21-033012-040**	N/A *21-033038-040**	N/A *21-033011-040*	N/A *21-033037-040**	-	M22520/10-05 (A)	11-8676-2	11-8369-2 11-8660-2	11-7880-8 11-8154-1

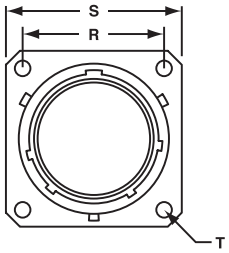
Italicized = Matched impedance contacts. *Contact us for availability.
Availability of coax contacts varies widely. Contact us for strip lengths and assembly instructions.

COMPONENTS

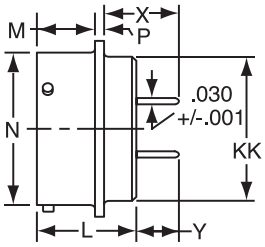
	PLUGS		RECEPTACLES	
	PT	PTSE	PT	PTSE
O-Ring				
Barrel/Shell				
Wave Spring				
Coupling Nut				
Insert/Insulator				
Contacts				
Wire Sealing Grommet				
Ferrule/ Compression Ring				
Endbell/ Cable Clamp				

PRINTED CIRCUIT BOARD

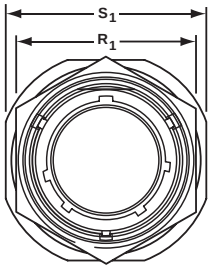
BOX MOUNT
PT02



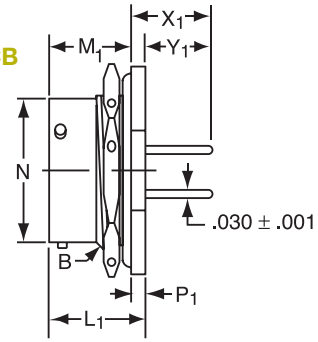
PT02PCB



JAM NUT
PT07



PT07PCB



	BOX MOUNT										
SHELL SIZE	PART NUMBER PT02 WITH PCB CONTACTS	M	N +.001 -.055	P	R	S	T	L MAX.	KK DIA. MAX.	Y +.040 -.050	X +.040 -.050
6	71-570120*	0.431 (10.9)	0.348 (8.8)	0.062 (1.6)	0.469 (11.9)	0.688 (17.5)	0.120 (3.0)	0.774 (19.7)	0.323 (8.2)	0.380 (9.7)	0.661 (16.8)
8	71-570121*	0.431 (10.9)	0.473 (12.0)	0.062 (1.6)	0.594 (15.1)	0.812 (20.6)	0.120 (3.0)	0.774 (19.7)	0.449 (11.4)	0.380 (9.7)	0.661 (16.8)
10	71-570122*	0.431 (10.9)	0.590 (15.0)	0.062 (1.6)	0.719 (18.3)	0.938 (23.8)	0.120 (3.0)	0.774 (19.7)	0.573 (14.6)	0.380 (9.7)	0.661 (16.8)
12	71-570123*	0.431 (10.9)	0.750 (19.1)	0.062 (1.6)	0.812 (20.6)	1.031 (26.2)	0.120 (3.0)	0.774 (19.7)	0.699 (17.8)	0.380 (9.7)	0.661 (16.8)
14	71-570124*	0.431 (10.9)	0.875 (22.2)	0.062 (1.6)	0.906 (23.0)	1.125 (28.6)	0.120 (3.0)	0.774 (19.7)	0.823 (20.9)	0.380 (9.7)	0.661 (16.8)
16	71-570125*	0.431 (10.9)	1.000 (25.4)	0.062 (1.6)	0.969 (24.6)	1.219 (31.0)	0.120 (3.0)	0.774 (19.7)	0.949 (24.1)	0.380 (9.7)	0.661 (16.8)
18	71-570126*	0.431 (10.9)	1.125 (28.6)	0.062 (1.6)	1.062 (27.0)	1.312 (33.3)	0.120 (3.0)	0.774 (19.7)	1.073 (27.3)	0.380 (9.7)	0.661 (16.8)
20	71-570127*	0.556 (14.1)	1.250 (31.8)	0.094 (2.4)	1.156 (29.4)	1.438 (36.5)	0.120 (3.0)	1.025 (26.0)	1.199 (30.5)	0.286 (7.3)	0.661 (16.8)
22	71-570128*	0.556 (14.1)	1.375 (34.9)	0.094 (2.4)	1.250 (31.8)	1.561 (39.6)	0.120 (3.0)	1.025 (26.0)	1.323 (33.6)	0.286 (7.3)	0.661 (16.8)
24	71-570129*	0.589 (14.9)	1.500 (38.1)	0.094 (2.4)	1.375 (34.9)	1.688 (42.9)	0.147 (3.7)	1.058 (26.9)	1.449 (36.8)	0.253 (6.4)	0.628 (16.0)

	JAM NUT											
SHELL SIZE	PART NUMBER PT07 WITH PCB CONTACTS	B THREAD CLASS 2A UNEF	M1	N +.001 -.055	P1	R1	S1	PANEL THICKNESS MIN.	PANEL THICKNESS MAX.	L1	Y1	X1
6	71-533720*	0.4375-28	0.696 (17.7)	0.348 (8.8)	0.125 (3.2)	0.625 (15.9)	0.812 (20.6)	0.062 (1.6)	0.125 (3.2)	0.821 (20.9)	0.376 (9.6)	0.501 (12.7)
8	71-533721*	0.5625-24	0.696 (17.7)	0.473 (12.0)	0.125 (3.2)	0.750 (19.1)	0.938 (23.8)	0.062 (1.6)	0.125 (3.2)	0.821 (20.9)	0.376 (9.6)	0.501 (12.7)
10	71-533722*	0.6875-24	0.696 (17.7)	0.590 (15.0)	0.125 (3.2)	0.875 (22.2)	1.062 (27.0)	0.062 (1.6)	0.125 (3.2)	0.821 (20.9)	0.376 (9.6)	0.501 (12.7)
12	71-533723*	0.8750-20	0.696 (17.7)	0.750 (19.1)	0.125 (3.2)	1.062 (27.0)	1.250 (31.8)	0.062 (1.6)	0.125 (3.2)	0.821 (20.9)	0.376 (9.6)	0.501 (12.7)
14	71-533724*	1.0000-20	0.696 (17.7)	0.875 (22.2)	0.125 (3.2)	1.188 (30.2)	1.375 (34.9)	0.062 (1.6)	0.125 (3.2)	0.821 (20.9)	0.376 (9.6)	0.501 (12.7)
16	71-533725*	1.1250-18	0.696 (17.7)	1.000 (25.4)	0.125 (3.2)	1.312 (33.3)	1.500 (38.1)	0.062 (1.6)	0.125 (3.2)	0.821 (20.9)	0.376 (9.6)	0.501 (12.7)
18	71-533726*	1.2500-18	0.696 (17.7)	1.125 (28.6)	0.125 (3.2)	1.438 (36.5)	1.625 (41.3)	0.062 (1.6)	0.125 (3.2)	0.821 (20.9)	0.376 (9.6)	0.501 (12.7)
20	71-533727*	1.3750-18	0.884 (22.5)	1.250 (31.8)	0.156 (4.0)	1.562 (39.7)	1.812 (46.0)	0.062 (1.6)	0.250 (6.4)	1.040 (26.4)	0.367 (9.3)	0.523 (13.3)
22	71-533728*	1.5000-18	0.884 (22.5)	1.375 (34.9)	0.156 (4.0)	1.688 (42.9)	1.938 (49.2)	0.062 (1.6)	0.250 (6.4)	1.040 (26.4)	0.367 (9.3)	0.523 (13.3)
24	71-533729*	1.6250-18	0.917 (23.3)	1.500 (38.1)	0.156 (4.0)	1.812 (46.1)	2.062 (52.4)	0.062 (1.6)	0.250 (6.4)	1.073 (27.2)	0.334 (8.5)	0.490 (12.4)

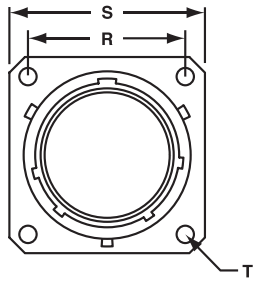
Part number prefix codes:
58 = Conductive Black Alloy (027)
71 = Olive Drab Chromate over Cadmium (typical)
72 = Anodic Coating (005)
91 = Electroless Nickel (023)
93 = Non-Conductive Black Alloy (025)

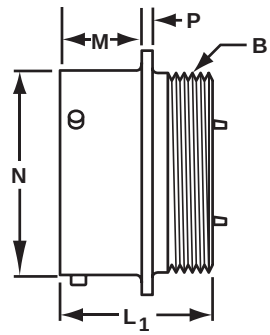
*See ⇨ page 119 for insert arrangement (layout) codes.

DIMENSIONS

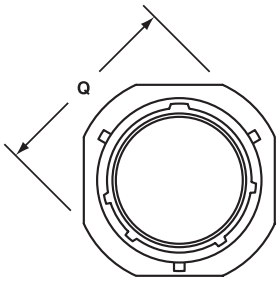
RECEPTACLE STYLES

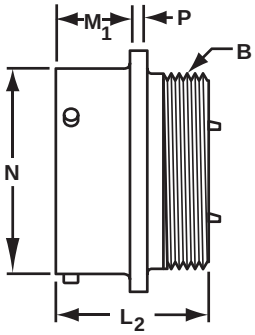
PT00
PT03
MS3110
MS3120



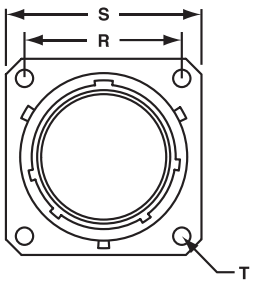


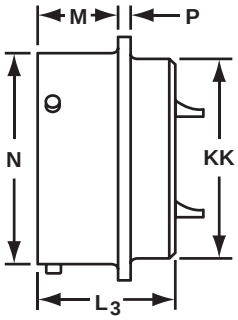
PT01
PT04
MS3111
MS3121



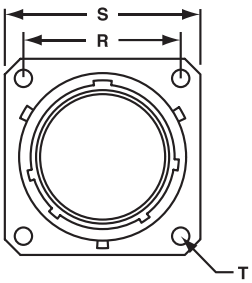


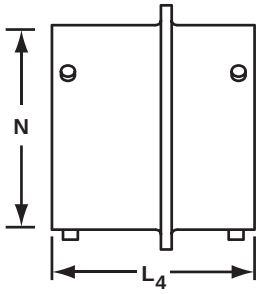
PT02
MS3112
MS3122





PTB



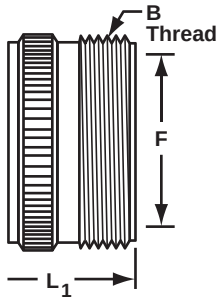


	PT00/PT02/PTB			PT01			PT00/PT02/PTB			PT00	PT02		PTB	PT00/PT01	
SHELL SIZE	M	N +.001 -.055	MS31_0 MS31_2 P	MS31_1 P	M1 MAX.	Q.	R	S	T	L1 MAX.	L3 MAX.	KK DIA. MAX.	L4 MAX.	L_2 MAX.	B THREAD CLASS 2A
6	0.431 (10.9)	0.348 (8.8)	0.062 (1.6)	0.093 (2.4)	0.400 (10.1)	0.812 (20.6)	0.469 (11.9)	0.688 (17.5)	0.120 (3.0)	0.906 (23.0)	0.825 (21.0)	0.323 (8.2)	1.050 (26.7)	0.906 (23.0)	.3125-32 NEF
8	0.431 (10.9)	0.473 (12.0)	0.062 (1.6)	0.093 (2.4)	0.400 (10.1)	0.938 (23.8)	0.594 (15.1)	0.812 (20.6)	0.120 (3.0)	0.906 (23.0)	0.825 (21.0)	0.449 (11.4)	1.050 (26.7)	0.906 (23.0)	.4375-28 UNEF
10	0.431 (10.9)	0.590 (15.0)	0.062 (1.6)	0.093 (2.4)	0.400 (10.1)	1.062 (27.0)	0.719 (18.3)	0.938 (23.8)	0.120 (3.0)	0.906 (23.0)	0.825 (21.0)	0.573 (14.6)	1.050 (26.7)	0.906 (23.0)	.5625-24 NEF
12	0.431 (10.9)	0.750 (19.1)	0.062 (1.6)	0.093 (2.4)	0.400 (10.1)	1.156 (29.4)	0.812 (20.6)	1.031 (26.2)	0.120 (3.0)	0.906 (23.0)	0.825 (21.0)	0.699 (17.8)	1.050 (26.7)	0.906 (23.0)	.6875-24 NEF
14	0.431 (10.9)	0.875 (22.2)	0.062 (1.6)	0.093 (2.4)	0.400 (10.1)	1.250 (31.8)	0.906 (23.0)	1.125 (28.6)	0.120 (3.0)	0.906 (23.0)	0.825 (21.0)	0.823 (20.9)	1.050 (26.7)	0.906 (23.0)	.8125-20 UNEF
16	0.431 (10.9)	1.000 (25.4)	0.062 (1.6)	0.093 (2.4)	0.400 (10.1)	1.344 (34.1)	0.969 (24.6)	1.219 (31.0)	0.120 (3.0)	0.906 (23.0)	0.825 (21.0)	0.949 (24.1)	1.050 (26.7)	0.906 (23.0)	.9375-20 UNEF
18	0.431 (10.9)	1.125 (28.6)	0.062 (1.6)	0.093 (2.4)	0.400 (10.1)	1.438 (36.5)	1.062 (27.0)	1.312 (33.3)	0.120 (3.0)	0.906 (23.0)	0.825 (21.0)	1.073 (27.3)	1.050 (26.7)	0.906 (23.0)	1.0625-18 NEF
20	0.556 (14.1)	1.250 (31.8)	0.094 (2.4)	0.115 (2.9)	0.535 (13.6)	1.562 (39.7)	1.156 (29.4)	1.438 (36.5)	0.120 (3.0)	1.125 (28.6)	1.076 (27.3)	1.199 (30.5)	1.330 (33.8)	1.125 (28.6)	1.1875-18 NEF
22	0.556 (14.1)	1.375 (34.9)	0.094 (2.4)	0.115 (2.9)	0.535 (13.6)	1.688 (42.9)	1.250 (31.8)	1.562 (39.6)	0.120 (3.0)	1.125 (28.6)	1.076 (27.3)	1.323 (33.6)	1.330 (33.8)	1.125 (28.6)	1.3125-18 NEF
24	0.589 (14.9)	1.500 (38.1)	0.094 (2.4)	0.115 (2.9)	0.568 (14.4)	1.812 (46.0)	1.375 (34.9)	1.688 (42.9)	0.147 (3.7)	1.188 (30.2)	1.109 (28.2)	1.449 (36.8)	1.330 (33.8)	1.188 (30.2)	1.4375-18 NEF

All dimensions in inches (millimeters in parenthesis)

ENDBELL STYLES

A



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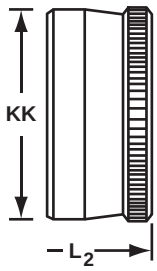
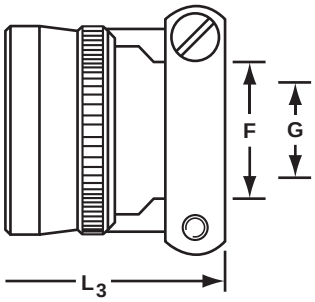
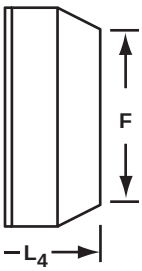


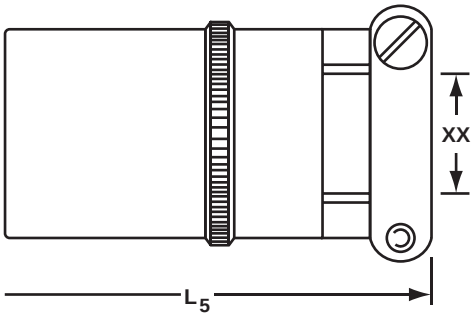
F/SR



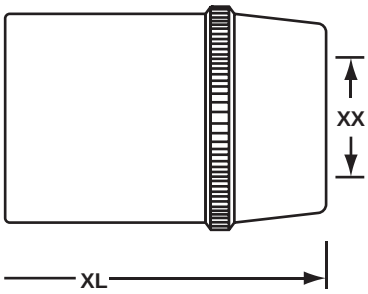
P



J



W

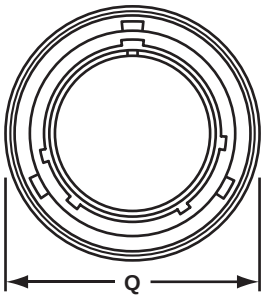


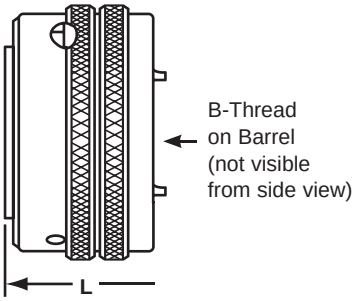
	A ENDBELL			E ENDBELL		F/SR ENDBELL			P ENDBELL		W	J	W/J ENDBELL	
SHELL SIZE	F MAX.	L1	B THREAD CLASS 2A	L2	KK MAX.	F	G	L3 MAX.	F	L4 MAX.	XL	L5 MAX.	XX MIN.	XX MAX.
6	0.175	1.553	.3750-32	1.266	0.440	-	-	-	0.192	1.438	-	-	-	-
	(4.4)	(39.4)	NEF	(32.2)	(11.2)	-	-	-	(4.9)	(36.5)	-	-	-	-
8	0.297	1.553	.5000-28	1.266	0.560	0.240	0.125	1.922	0.317	1.438	1.705	2.271	0.168	0.230
	(7.5)	(39.4)	UNEF	(32.2)	(14.2)	(6.1)	(3.2)	(48.8)	(8.1)	(36.5)	(43.3)	(57.7)	(4.3)	(5.8)
10	0.421	1.553	.6250-24	1.266	0.685	0.302	0.188	1.922	0.434	1.438	1.705	2.271	0.205	0.312
	(10.7)	(39.4)	NEF	(32.2)	(17.3)	(7.7)	(4.8)	(48.8)	(11.0)	(36.5)	(43.3)	(57.7)	(5.2)	(7.9)
12	0.546	1.553	.7500-20	1.266	0.813	0.428	0.312	1.922	0.548	1.438	1.848	2.411	0.338	0.442
	(13.9)	(39.4)	UNEF	(32.2)	(20.7)	(10.9)	(7.9)	(48.8)	(13.9)	(36.5)	(46.9)	(61.2)	(8.6)	(11.2)
14	0.663	1.553	.8750-20	1.266	0.930	0.552	0.375	1.922	0.673	1.438	2.040	2.599	0.416	0.539
	(16.8)	(39.4)	UNEF	(32.2)	(23.6)	(14.0)	(9.5)	(48.8)	(17.1)	(36.5)	(51.8)	(66.0)	(10.6)	(13.7)
16	0.787	1.553	1.0000-20	1.266	1.057	0.615	0.500	2.047	0.798	1.438	2.256	2.943	0.550	0.616
	(20.0)	(39.4)	UNEF	(32.2)	(26.8)	(15.6)	(12.7)	(52.0)	(20.3)	(36.5)	(57.3)	(74.8)	(14.0)	(15.6)
18	0.879	1.553	1.1875-18	1.266	1.175	0.740	0.625	2.078	0.899	1.438	2.486	3.172	0.600	0.672
	(22.3)	(39.4)	NEF	(32.2)	(29.8)	(18.8)	(15.9)	(52.8)	(22.8)	(36.5)	(63.1)	(80.6)	(15.2)	(17.1)
20	1.041	1.703	1.1875-18	1.516	1.301	0.740	0.625	2.344	1.024	1.656	2.922	3.610	0.635	0.747
	(26.4)	(43.3)	NEF	(38.5)	(33.0)	(18.8)	(15.9)	(59.5)	(26.0)	(42.1)	(74.2)	(91.7)	(16.1)	(19.0)
22	1.135	1.703	1.4375-18	1.516	1.430	0.928	0.750	2.344	1.149	1.656	3.086	3.766	0.670	0.846
	(28.8)	(43.3)	NEF	(38.5)	(36.3)	(23.6)	(19.1)	(59.5)	(29.2)	(42.1)	(78.4)	(95.7)	(17.0)	(21.5)
24	1.259	1.765	1.4375-18	1.578	1.555	0.990	0.800	2.406	1.274	1.717	3.310	3.985	0.740	0.894
	(32.0)	(44.8)	NEF	(40.1)	(39.5)	(25.1)	(20.3)	(61.1)	(32.4)	(43.6)	(84.1)	(101.2)	(18.8)	(22.7)

All dimensions in inches (millimeters in parenthesis)

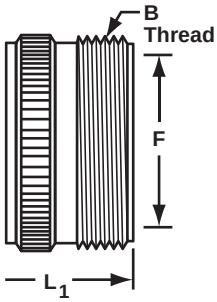
STRAIGHT PLUGS

PT06
PT05
MS3116
MS3126

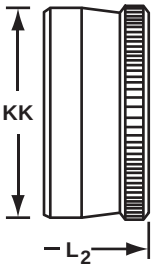




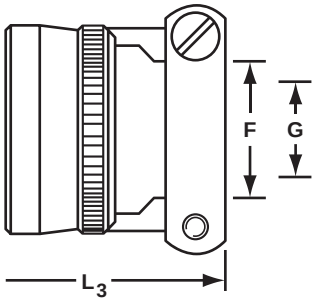
PT06A



PT06E
MS3116E
MS3126E



PT06E-SR
PT06SE-SR
PT06CE-SR
MS3116F
MS3126F



	PT06			PT06A			PT06E		PTSE06E	PT06E/SR			PTSE06/SR
SHELL SIZE	Q	L MAX.	B THREAD CLASS 2A	F	L^1 MAX.	B THREAD CLASS 2A	L^2 MAX.	KK	L^2 MAX.	F	G	L^3 MAX.	L^3 MAX.
6	0.625	0.906	.3125-32	0.175	1.553	.3750-32	1.266	0.440		-	-	-	-
	(15.9)	(23.0)	NEF	(4.4)	(39.4)	NEF	(32.2)	(11.2)	-	-	-	-	-
8	0.750	0.906	.4375-28	0.297	1.553	.5000-28	1.266	0.560	1.328	0.240	0.125	1.906	2.413
	(19.1)	(23.0)	UNEF	(7.5)	(39.4)	UNEF	(32.2)	(14.2)	(33.7)	(6.1)	(3.2)	(48.4)	(61.3)
10	0.859	0.906	.5625-24	0.421	1.553	.6250-24	1.266	0.685	1.328	0.302	0.188	1.906	2.413
	(21.8)	(23.0)	NEF	(10.7)	(39.4)	NEF	(32.2)	(17.3)	(33.7)	(7.7)	(4.8)	(48.4)	(61.3)
12	1.013	0.906	.6875-24	0.546	1.553	.7500-20	1.266	0.813	1.328	0.428	0.312	1.906	2.413
	(25.7)	(23.0)	NEF	(13.9)	(39.4)	UNEF	(32.2)	(20.7)	(33.7)	(10.9)	(7.9)	(48.4)	(61.3)
14	1.156	0.906	.8125-20	0.663	1.553	.8750-20	1.266	0.930	1.328	0.552	0.375	1.906	2.413
	(29.4)	(23.0)	UNEF	(16.8)	(39.4)	UNEF	(32.2)	(23.6)	(33.7)	(14.0)	(9.5)	(48.4)	(61.3)
16	1.281	0.906	.9375-20	0.787	1.553	1.0000-20	1.266	1.057	1.328	0.615	0.500	2.047	2.528
	(32.5)	(23.0)	UNEF	(20.0)	(39.4)	UNEF	(32.2)	(26.8)	(33.7)	(15.6)	(12.7)	(52.0)	(64.2)
18	1.319	0.906	1.0625-18	0.879	1.553	1.1875-18	1.266	1.175	1.328	0.740	0.625	2.078	2.528
	(33.5)	(23.0)	NEF	(22.3)	(39.4)	NEF	(32.2)	(29.8)	(33.7)	(18.8)	(15.9)	(52.8)	(64.2)
20	1.531	1.062	1.1875-18	1.014	1.703	1.1875-18	1.438	1.301	1.297	0.740	0.625	2.250	2.753
	(38.9)	(27.0)	NEF	(25.8)	(43.3)	NEF	(36.5)	(33.0)	(32.9)	(18.8)	(15.9)	(57.2)	(70.0)
22	1.656	1.062	1.3125-18	1.135	1.703	1.4375-18	1.438	1.430	1.297	0.928	0.750	2.250	2.753
	(42.1)	(27.0)	NEF	(28.8)	(43.3)	NEF	(36.5)	(36.3)	(32.9)	(23.6)	(19.1)	(57.2)	(70.0)
24*	1.776	1.125	1.4375-18	1.259	1.765	1.4375-18	1.500	1.555	1.359	0.990	0.800	2.312	2.830
	(45.1)	(28.6)	NEF	(32.0)	(44.8)	NEF	(38.1)	(39.5)	(34.5)	(25.1)	(20.3)	(58.7)	(71.9)

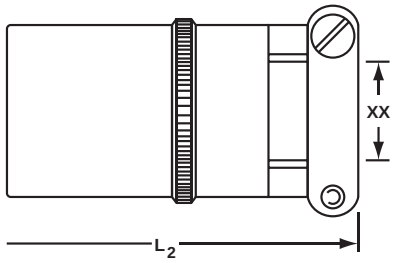
* Commercial

All dimensions in inches (millimeters in parenthesis)

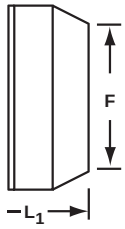
DIMENSIONS

STRAIGHT PLUGS

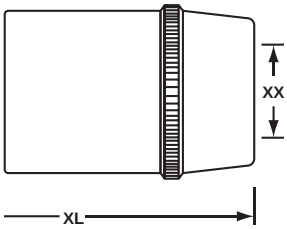
PT06J
MS3116J



PT06P
PT06SP
PT06CP
MS3116P
MS3126P

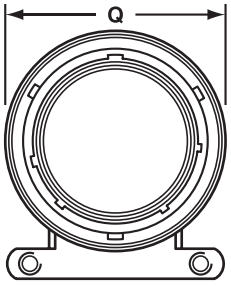


PT06W

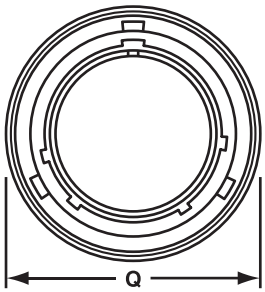


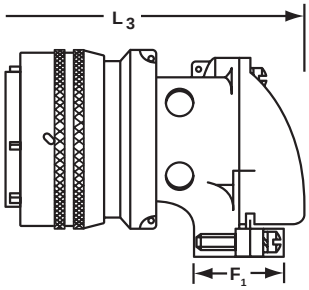
RIGHT ANGLE PLUGS

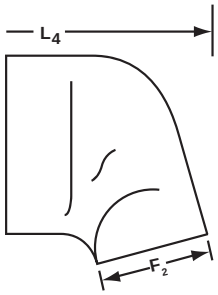
PT08E
PT08SE
PT08CP



PT08P
PT08SP
PT08CP





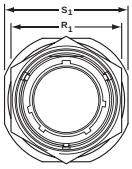


	PT06P		PT06W	PT06J	PT06W/J		PT08E			PTSE08E	PT08P		PTSE08P
SHELL SIZE	F DIA.	L1 MAX.	XL	L2 MAX.	XX MIN.	XX MAX.	Q	F1	L3 MAX.	L3 MAX.	F2	L4 MAX.	L4 MAX.
6	0.192	1.526	-	-	-	-	-	-	-	-	-	-	-
	(4.9)	(38.8)	-	-	-	-	-	-	-	-	-	-	-
8	0.317	1.526	1.705	2.271	0.168	0.230	0.796	0.169	1.786	-	0.312	1.656	-
	(8.1)	(38.8)	(43.3)	(57.7)	(4.3)	(5.8)	(20.2)	(4.3)	(45.4)	-	(7.9)	(42.1)	-
10	0.434	1.526	1.705	2.271	0.205	0.312	0.921	0.170	1.880	2.137	0.438	1.781	2.031
	(11.0)	(38.8)	(43.3)	(57.7)	(5.2)	(7.9)	(23.4)	(4.3)	(47.8)	(54.3)	(11.1)	(45.2)	(51.6)
12	0.548	1.526	1.848	2.411	0.338	0.442	1.046	0.264	1.965	2.222	0.516	1.743	2.093
	(13.9)	(38.8)	(46.9)	(61.2)	(8.6)	(11.2)	(26.6)	(6.7)	(49.9)	(56.4)	(13.1)	(44.3)	(53.2)
14	0.673	1.526	2.040	2.599	0.416	0.539	1.171	0.310	2.113	2.370	0.625	1.953	2.203
	(17.1)	(38.8)	(51.8)	(66.0)	(10.6)	(13.7)	(29.7)	(7.9)	(53.7)	(60.2)	(15.9)	(49.6)	(56.0)
16	0.798	1.526	2.256	2.943	0.550	0.616	1.297	0.330	2.315	2.572	0.656	2.000	2.250
	(20.3)	(38.8)	(57.3)	(74.8)	(14.0)	(15.6)	(32.9)	(8.4)	(58.8)	(65.3)	(16.7)	(50.8)	(57.2)
18	0.899	1.526	2.486	3.172	0.600	0.672	1.422	0.444	2.423	2.680	0.703	2.046	2.296
	(22.8)	(38.8)	(63.1)	(80.6)	(15.2)	(17.1)	(36.1)	(11.3)	(61.5)	(68.1)	(17.9)	(52.0)	(58.3)
20	1.024	1.546	2.844	3.610	0.635	0.747	1.562	0.510	2.695	2.753	0.766	2.218	2.343
	(26.0)	(39.3)	(72.2)	(91.7)	(16.1)	(19.0)	(39.7)	(13.0)	(68.5)	(68.9)	(19.5)	(56.3)	(59.5)
22	1.149	1.546	3.000	3.766	0.670	0.846	1.672	0.515	2.742	2.799	0.812	2.265	2.390
	(29.2)	(39.3)	(76.2)	(95.7)	(17.0)	(21.5)	(42.5)	(13.1)	(69.6)	(71.1)	(20.6)	(57.5)	(60.7)
24	1.274	1.656	3.210	3.985	0.740	0.894	1.797	0.656	2.980	3.037	0.918	2.624	2.624
	(32.4)	(42.1)	(81.5)	(101.2)	(18.8)	(22.7)	(45.6)	(16.7)	(75.7)	(77.1)	(23.3)	(66.6)	(66.6)

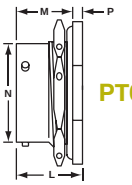
All dimensions in inches (millimeters in parenthesis)

DIMENSIONS

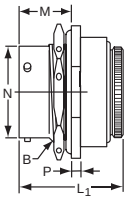
JAM NUT RECEPTACLES



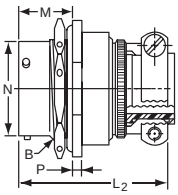
PT07



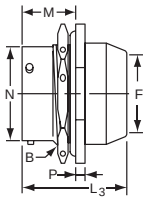
PT07A



PT07E
PT07SE



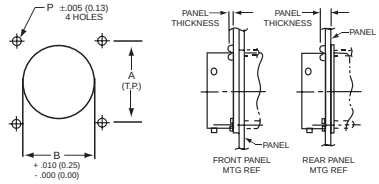
PT07E-SR
PT07SE-SR



PT07P
PT07SP

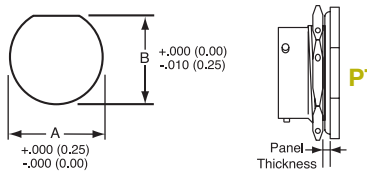
	PT07								PT07A	PT07E-SR		PT07SE-SR		PT07P		PT07SP
SHELL SIZE	B THREAD UNEF-2A	M	N	P	R	S	PANEL THICKNESS MIN.	PANEL THICKNESS MAX.	L	L1 MAX.	L2 MAX.	L1 MAX.	L2 MAX.	F	L3 MAX.	L3 MAX.
6	.4375-28	0.696	0.348	0.125	0.625	0.812	0.062	0.125	0.821	1.282	-	-	-	0.202	1.289	-
		(17.7)	(8.8)	(3.2)	(15.9)	(20.6)	(1.6)	(3.2)	(20.9)	(32.6)	-	-	-	(5.1)	(32.7)	-
8	.5625-24	0.696	0.473	0.125	0.750	0.938	0.062	0.125	0.821	1.282	1.758	1.438	1.922	0.327	1.289	-
		(17.7)	(12.0)	(3.2)	(19.1)	(23.8)	(1.6)	(3.2)	(20.9)	(32.6)	(44.7)	(36.5)	(48.8)	(8.3)	(32.7)	-
10	.6875-24	0.696	0.590	0.125	0.875	1.062	0.062	0.125	0.821	1.282	1.758	1.438	1.922	0.444	1.289	1.656
		(17.7)	(15.0)	(3.2)	(22.2)	(27.0)	(1.6)	(3.2)	(20.9)	(32.6)	(44.7)	(36.5)	(48.8)	(11.3)	(32.7)	(42.1)
12	.8750-20	0.696	0.750	0.125	1.062	1.250	0.062	0.125	0.821	1.282	1.758	1.438	1.922	0.558	1.289	1.656
		(17.7)	(19.1)	(3.2)	(27.0)	(31.8)	(1.6)	(3.2)	(20.9)	(32.6)	(44.7)	(36.5)	(48.8)	(14.2)	(32.7)	(42.1)
14	1.0000-20	0.696	0.875	0.125	1.188	1.375	0.062	0.125	0.821	1.282	1.758	1.438	1.922	0.683	1.289	1.656
		(17.7)	(22.2)	(3.2)	(30.2)	(34.9)	(1.6)	(3.2)	(20.9)	(32.6)	(44.7)	(36.5)	(48.8)	(17.3)	(32.7)	(42.1)
16	1.1250-18	0.696	1.000	0.125	1.312	1.500	0.062	0.125	0.821	1.282	1.884	1.438	2.000	0.808	1.289	1.656
		(17.7)	(25.4)	(3.2)	(33.3)	(38.1)	(1.6)	(3.2)	(20.9)	(32.6)	(47.9)	(36.5)	(50.8)	(20.5)	(32.7)	(42.1)
18	1.2500-18	0.696	1.125	0.125	1.438	1.625	0.062	0.125	0.821	1.282	1.884	1.438	2.000	0.909	1.289	1.656
		(17.7)	(28.6)	(3.2)	(36.5)	(41.3)	(1.6)	(3.2)	(20.9)	(32.6)	(47.9)	(36.5)	(50.8)	(23.1)	(32.7)	(42.1)
20	1.3750-18	0.884	1.250	0.156	1.562	1.812	0.062	0.250	1.040	1.514	2.134	1.625	2.172	1.034	1.602	1.922
		(22.5)	(31.8)	(4.0)	(39.7)	(46.0)	(1.6)	(6.4)	(26.4)	(38.5)	(54.2)	(41.4)	(55.2)	(26.3)	(40.7)	(48.8)
22	1.5000-18	0.884	1.375	0.156	1.688	1.938	0.062	0.250	1.040	1.514	2.134	1.625	2.172	1.159	1.602	1.922
		(22.5)	(34.9)	(4.0)	(42.9)	(49.2)	(1.6)	(6.4)	(26.4)	(38.5)	(54.2)	(41.4)	(55.2)	(29.4)	(40.7)	(48.8)
24	1.6250-18	0.917	1.500	0.156	1.816	2.062	0.062	0.250	1.073	1.547	2.167	1.688	2.234	1.284	1.635	1.951
		(23.3)	(38.1)	(4.0)	(46.1)	(52.4)	(1.6)	(6.4)	(27.2)	(39.3)	(55.0)	(48.8)	(56.7)	(32.6)	(41.5)	(49.6)

PANEL CUTOUTS/THICKNESS



PT00/PT02/PTB

SHELL SIZE	B FRONT MOUNT	A	P ±.005 (±.125)	SCREW SIZE	PANEL THICKNESS B PT00/PT02	PANEL THICKNESS B PTB
6	0.323	0.469	0.125	#4	0.087	0.218
	(8.2)	(11.9)	(3.2)		(2.2)	(5.5)
8	0.449	0.594	0.125	#4	0.087	0.218
	(11.4)	(15.1)	(3.2)		(2.2)	(5.5)
10	0.573	0.719	0.125	#4	0.087	0.218
	(14.6)	(18.3)	(3.2)		(2.2)	(5.5)
12	0.699	0.812	0.125	#4	0.087	0.218
	(17.8)	(20.6)	(3.2)		(2.2)	(5.5)
14	0.823	0.906	0.125	#4	0.087	0.218
	(20.9)	(23.0)	(3.2)		(2.2)	(5.5)
16	0.949	0.969	0.125	#4	0.087	0.218
	(24.1)	(24.6)	(3.2)		(2.2)	(5.5)
18	1.073	1.062	0.125	#4	0.087	0.218
	(27.3)	(27.0)	(3.2)		(2.2)	(5.5)
20	1.199	1.156	0.125	#4	0.212	0.344
	(30.5)	(29.4)	(3.2)		(5.4)	(8.7)
22	1.323	1.250	0.125	#4	0.212	0.344
	(33.6)	(31.8)	(3.2)		(5.4)	(8.7)
24	1.449	1.375	0.155	#6	0.212	0.311
	(36.8)	(34.9)	(3.9)		(5.4)	(7.9)



PT07

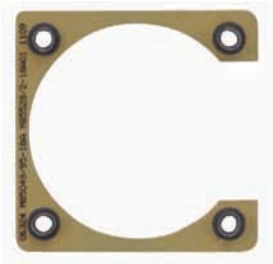
SHELL SIZE	A +010-.000 (+.25-.00)	B +.000-.010 (+.00-.25)	PANEL THICKNESS MIN.	PANEL THICKNESS MAX.
6	0.447	0.420	0.062	0.125
	(11.4)	(10.7)	(1.6)	(3.2)
8	0.572	0.542	0.062	0.125
	(14.5)	(13.8)	(1.6)	(3.2)
10	0.697	0.669	0.062	0.125
	(17.7)	(17.0)	(1.6)	(3.2)
12	0.884	0.830	0.062	0.125
	(22.5)	(21.1)	(1.6)	(3.2)
14	1.007	0.955	0.062	0.125
	(25.6)	(24.3)	(1.6)	(3.2)
16	1.134	1.084	0.062	0.125
	(28.8)	(27.5)	(1.6)	(3.2)
18	1.259	1.208	0.062	0.125
	(32.0)	(30.7)	(1.6)	(3.2)
20	1.384	1.333	0.062	0.250
	(35.2)	(33.9)	(1.6)	(6.4)
22	1.507	1.459	0.062	0.250
	(38.3)	(37.1)	(1.6)	(6.4)
24	1.634	1.575	0.062	0.250
	(41.5)	(40.0)	(1.6)	(6.4)

MS3057-C WATERPROOF CABLE CLAMP

FLANGE MOUNT RECEPTACLE ACCESSORIES

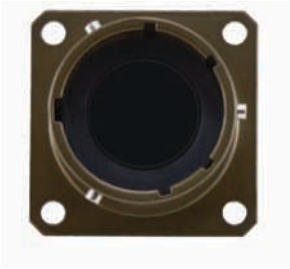
GASKET

NUT PLATE



SEALING SCREWS

DUMMY RECEPTACLE



DUST CAPS

PLUG DUST CAP

RECEPTACLE FLANGE DUST CAP

RECEPTACLE JAM NUT DUST CAP

CABLE CLAMP

	FLANGE MOUNT RECEPTACLE ACCESSORIES				DUST CAPS			
						RECEPTACLES		
SHELL SIZE	GASKET	NUT PLATE	SEALING SCREWS	DUMMY RECEPTACLE	PLUGS	FLANGED	JAM NUT	CABLE CLAMP FOR A ENDBELLS
8	10-101949-008 CMD02-8	M85049/95-8A	S440-1/2	MS3115-8	MS3180-8C*	MS3181-8C*	MS3181-8N*	MS3057-3A
10	10-101949-010 CMD02-10	M85049/95-10A	S440-1/2	MS3115-10	MS3180-10C*	MS3181-10C*	MS3181-10N*	MS3057-4A
12	10-101949-012 CMD02-12	M85049/95-12A	S440-1/2	MS3115-12	MS3180-12C*	MS3181-12C*	MS3181-12N*	MS3057-6A
14	10-101949-014 CMD02-14	M85049/95-14A	S440-1/2	MS3115-14	MS3180-14C*	MS3181-14C*	MS3181-14N*	MS3057-8A
16	10-101949-016 CMD02-16	M85049/95-16A	S440-1/2	MS3115-16	MS3180-16C*	MS3181-16C*	MS3181-16N*	MS3057-10A
18	10-101949-018 CMD02-18	M85049/95-18A	S440-1/2	MS3115-18	MS3180-18C*	MS3181-18C*	MS3181-18N*	MS3057-12A
20	10-101949-020 CMD02-20	M85049/95-20A	S440-1/2	MS3115-20	MS3180-20C*	MS3181-20C*	MS3181-20N*	MS3057-12A
22	10-101949-022 CMD02-22	M85049/95-22A	S440-1/2	MS3115-22	MS3180-22C*	MS3181-22C*	MS3181-22N*	MS3057-16A
24	10-101949-024 CMD02-24	M85049/95-24B	S632-1/2	MS3115-24	MS3180-24C*	MS3181-24C*	MS3181-24N*	MS3057-16A

*A = Anodized plating (omit A for olive drab)

All dimensions in inches (millimeters in parenthesis)

PT SOLDER CONTACTS

STEP 1: Slide the rear accessories over the wire bundle in the proper sequence for re-assembly: cable clamp and/or endbell first, then ferrule and, if used, coupling nut.

STEP 2: Insert individual wires through the proper holes in the grommet. Use isopropyl alcohol as a lubricant.

STEP 3: Solder wires to appropriate contacts on the rear of the connector. Information on standard soldering practices is available upon request. Please contact us.

STEP 4: Fixture the connector for reassembly using the endbell assembly tools on page 138 or a mating connector with contacts installed.

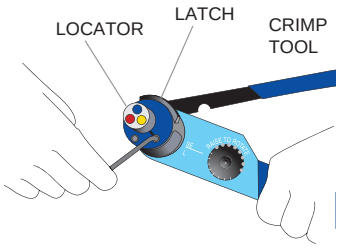
STEP 5: Slide the grommet down the wires (lubricating the grommet with isopropyl alcohol will help).

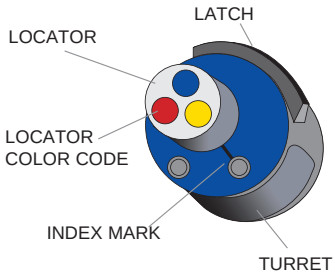
STEP 6: Fill all unused grommet cavities with a wire hole filler to maintain the sealing integrity of the connector.

STEP 7: Slide coupling nut, ferrule, and endbell accessories over rear of the connector and tighten. For more information, see page 138.

PTSE & PTCE CRIMP TOOL OPERATION

CONTACT SIZE	STRIP LENGTH
20	.275 (7.0)
16	.250 (6.4)
12	.250 (6.4)



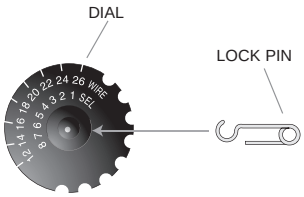


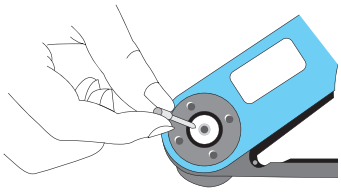
STEP 1: Strip the wires to the appropriate length.

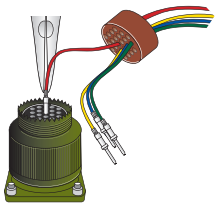
STEP 2: Open the AF8 (M22520/1-01) crimp tool by squeezing the handles. Push the latch on TH1A (M22520/1-02) to pop up the locator on the turret. Attach the turret to the AF8 crimp tool using the two captive hex bolts in the turret.

STEP 3: Select the proper locator position for your contact by rotating the locator until the proper color is aligned with the index mark. Push locator back down until it snaps into position

CONTACT SIZE	LOCATOR COLOR
20	Red
16	Blue
12	Yellow



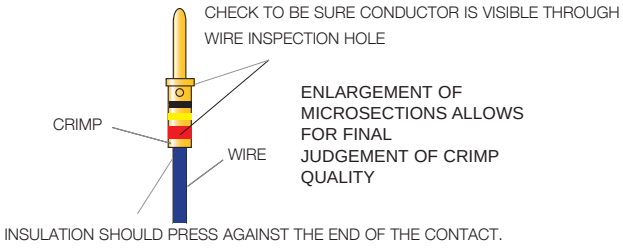




STEP 4: Adjust dial for proper wire gauge. To change the dial setting, remove the lock pin and lift center of dial. Turn to the desired wire gauge. Replace lock pin on dial.

STEP 5: Cycle the tool before inserting the contact to be sure the tool is in the open position. Drop the contact, mating end first, into the crimp cavity of the tool. Squeeze the tool handle just enough to grip the contact without actually crimping it.

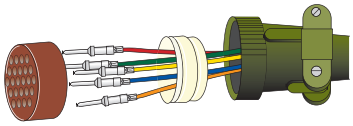
STEP 6: Insert the stripped wire into the contact with a slight twisting motion. Be sure all wire strands are inside the contact. Squeeze the handle to cycle the tool. The handle will not release until the contact is completely crimped.



STEP 7: Remove the crimped contact. Pull on the wire slightly to be sure it is properly crimped. Be sure the contact is not bent or damaged in any way. Visually inspect the crimp.

All dimensions in inches (millimeters in parenthesis)

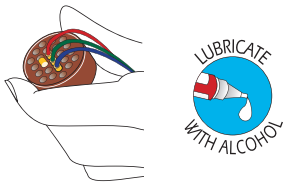
INSERTION OF CONTACTS



STEP 1: Slide the rear accessories over the wire bundle in the proper sequence for re-assembly: cable clamp and/or endbell first, then ferrule, and coupling nut.

STEP 2: Use the proper insertion tool from the Contact Selection Chart on ⇨ page 125, slide the tool over the wire side of the contact until the tool bottoms on the contact.The tool for size 16 contacts presses against the shoulder of the contact. The rear, or insulation support, of the size 20 contacts presses against an internal shoulder in the tool tip.

STEP 3: Dip the contact and tool tip in isopropyl alcohol (do not use any lubricant other than isopropyl alcohol). Hold the tool perpendicular to the rear of the connector. Beginning with the center cavity and working outwards in a circular pattern, insert the wired contact into the rear of the connector until the contact snaps into place. A light pull on the wire will ensure that the contact is locked securely.



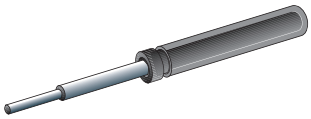
SIZE	TORQUE (INCH/LBS)
8, 10, 12, 14	10 - 15
16, 18	15- 25
20, 22, 24	25 - 35

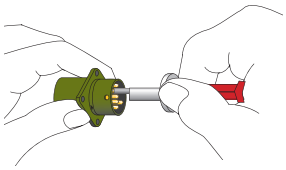
STEP 4: Fill any unused cavities with contacts. A wire hole filler must be inserted into the grommet behind the unused contacts to maintain the sealing integrity of the connector.
⇨ See page 125.

STEP 5: Check the mating face of the connector to ensure that all the same size contacts are on the same plane (fully inserted). If not, the contact is not fully inserted. Remove the contact using the proper extraction tool and procedure and re-insert. Do not attempt to reinsert the insertion tool to correct the problem.

STEP 6: Fixture the connector for re-assembly using the endbell assembly tools on ⇨ page 138 or a mating connector with contacts installed. Slide the connector accessories back down the cable over the rear of the connector and tighten. Torque as shown above.

EXTRACTION OF CONTACTS





STEP 1: Remove the endbell accessories and slide them back over the wires.

STEP 2: Use the proper extraction tool from the chart on ⇨ page 125.

STEP 3: On the mating face of the connector, insert the tool over the contact and into the insulator until the tool bottoms. While keeping an even pressure against the tool, push the plunger on the tool shaft forward with your thumb and index finger. This will release the contact from the retention tine and push it toward the rear of the connector.

STEP 4: Carefully remove the extraction tool from the connector. Pull the wire by hand to completely remove the contact from the rear of the connector.

TG70 STRAP WRENCH

The strap wrench is used to connect or disconnect coupling nuts in a confined space, or to tighten or loosen endbells without damaging the connector plating. A strap wrench also increases torque, allowing you to more easily mate or unmate a connector pair. Substitute tools, such as a pipe wrench or pliers, should never be used because of the high probability of severe damage to the connector plating or the coupling mechanism.

TG69P NON-MARRING ADJUSTABLE ENDBELL PLIERS FOR FIELD SERVICE

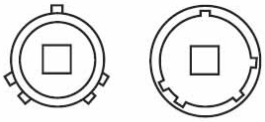
The TG69P pliers have resilient jaws and are used to tighten or remove endbells without damaging the connector plating. The pliers are adjustable and will accommodate all of the connector sizes in this catalog. Substitute tools, such as a pipe wrench or metal jaw pliers, should never be used due to the high probability of severe damage to the connector plating. Replacement jaws, part number G77015, are available.

The 600 series is a complete system for the proper assembly and torquing of connector endbells. The system includes a bench-mounted or hand-held torque wrench, plug and receptacle holders, and a range of endbell-tightening tools. When used together, these tools provide consistent endbell installations. Each item is shipped with detailed assembly instructions.

600-007
Bench-mounted torque wrench

600-004
Hand-held torque wrench

ROTATIONS	
PIN	SOCKET
W = G	W = H
X = I	X = J
Y = K	Y = L
Z = M	Z = N



600D005-R 600D005-P

PLUG & RECEPTACLE HOLDERS		
SHELL SIZE	MIL-DTL-26482	
	FOR PT, PT-SE, MS311_, MS312_	
	RECEPTACLES	PLUGS
8	600D005-8R	600D005-8P
10	600D005-10R	600D005-10P
12	600D005-12R	600D005-12P
14	600D005-14R	600D005-14P
16	600D005-16R	600D005-16P
18	600D005-18R	600D005-18P
20	600D005-20R	600D005-20P
22	600D005-22R	600D005-22P
24	600D005-24R	600D005-24P

TORQUE VALUES

IMPORTANT NOTE:
If barrel/shell has three threads or less, torque to 30 to 35 inch/Lbs (3.4 to 4.0 NM) per L-725-2.

Endbell

SHELL SIZE	INCH-LBS.		N-M	
	MIN	MAX	MIN	MAX
6	20	26	2.3	2.9
8	20	26	2.3	2.9
10	26	32	2.9	3.6
12	30	36	3.4	4.1
14	40	46	4.5	5.2
16	50	55	5.6	6.2
18	60	65	6.8	7.3
20	75	80	8.5	9.0
22	85	90	9.6	10.2
24	100	110	11.3	12.4

Jam Nut

SHELL SIZE	INCH-LBS.		N-M	
	MIN	MAX	MIN	MAX
8	26	32	2.9	3.6
10	30	36	3.4	4.1
12	46	50	5.2	5.6
14	55	60	6.2	6.8
16	70	75	7.9	8.5
18	80	85	9.0	9.6
20	90	95	10.2	10.7
22	100	110	11.3	12.4
24	110	120	12.4	13.6

Amphenol 62GB Series

MIL-DTL-26482 PERFORMANCE WITHOUT MIS-MATING

Amphenol's 62GB series connectors are similar to MIL-DTL-26482 but with the advantage of keyway orientation to reduce mis-mating among multiple connectors. They feature aluminum shells with brass or stainless steel options available. PEI-Genesis is the largest assembler of 62GB connectors in the world.

- Meets British Standard Specification BS 9522 F00 17 & Pattern 105

APPLICATIONS

Industrial, commercial and medical applications where mis-mating or cross-plugging are a concern.

- Aircraft
- Communications systems
- Factory automation
- Industrial machinery
- Medical instrumentation
- Mobile equipment
- Sensors
- Ships

FEATURES

RUGGED SHELL

Machined aluminum alloy shell and hardware create an exceptionally strong connector. These connectors have been used extensively in commercial, military, and aerospace environments. Standard shells accept most MIL-DTL-26482 accessories.

ENVIRONMENTALLY-SEALED

Complete moisture sealing is achieved by combining four seals: shell, peripheral, interfacial, and wire. Wire seal is accomplished by multiple ripple design, exceeding the wire sealing requirements of MIL-DTL-26482.

RESISTANT TO HARSHEST ENVIRONMENTS

These connectors will operate in temperatures from -67°F to +257°F (-55°C to +125°C) under the harshest possible conditions.

WIDE RANGE OF WIRE GAUGES AND CURRENT-CARRYING CAPABILITY

Up to 22 amps with wire gauges from size 24 to 8 AWG wire.

RESILIENT INSULATOR & GROMMET

A resilient neoprene insulator and integrated rear-wire sealing grommet guarantees a liquid-tight assembly. Solder contacts are permanently bonded into the insulator.

SOLDER GOLD-PLATED CONTACTS

62GB connector contacts are gold-plated. Socket contacts are closed to eliminate damage from test probes and to help prevent misaligned pins during engagement.

AGENCY APPROVALS

- Based on MIL-DTL-26482
- BS 9522 F0017

TECHNICAL SPECIFICATIONS

MATERIALS & FINISHES

Shell	Aluminum alloy
Plating	Standard-green zinc; electroless nickel; black-anodized; clear chromate over cadmium; olive drab chromate over cadmium; black zinc cobalt; unplated stainless steel; unplated brass
Contacts	Copper alloy
Platings	Gold plate, 50 microinches minimum per MIL-G-45204 type II
Insulator	Polychlroprene rubber compound

ELECTRICAL DATA

Operating Voltage & Test Voltage per BS9500 F0017, clause 7.1.2

SERVICE RATING	TEST ALITITUDE	NOMINAL WORKING VOLTAGE PEAK DC OR AC	VOLTAGE PROOF DC OR AC - DWV
I	Sea Level	700	2100
II		1200	3000
III		1500	3000
I	70,000 Feet	330	660
II		380	760
III		450	750

*Each insulator layout has a specific "service rating." The service ratings for each layout are listed on ⇨ pages 143 & 144.

Current Rating

CONTACT SIZE	RATED CURRENT AMPS (MAX.)	TEST CURRENT AMPS (WORKING)	POTENTIAL DROP (MILLIVOLTS) INITIAL	CONTACT RESISTANCE MILLIOHMS (MAX)
20	13	7.5	< 55	10
16	22	13	< 50	10
12	41	23	< 50	10
8	45	40	< 50	10

Wire Range Sizes	24 to 8 AWG
Contact Resistance	When tested to MIL-STD-1344 Method 3004, will not exceed voltage drops listed in table above. Consult MIL-DTL-26482, 3.6.4 for details.
Insulation Resistance	5,000 megohms minimum at 77˚F (25˚C)

MECHANICAL

Operating Temperature	-67˚F to +257˚F (-55˚C to +125˚C)
Sealing	48 hours in six feet of water per MIL-DTL-26482 4.6.14. Meets 10- and 20-day 50-95% humidity testing per MIL-STD-1344 Method 1002.2 per MIL-DTL-26482.

Wire Sealing Range

CONTACT SIZE	AWG WIRE SIZE	INSULATION O.D. LIMITS: INCHES (MM)	
		MIN.	MAX.
20	24, 22, 20	.060 (1.52)	.085 (2.16)
16	20, 18, 16	.066 (1.68)	.109 (2.77)
12	12, 14	.097 (2.46)	.142 (3.78)
8	8	.135 (3.43)	.145 (3.68)

Insulation Strip Lengths

CONTACT SIZE	WIRE SIZE (AWG)	STRIP LENGTH INCHES (mm)
20	20-24	.275 (7.0)
16	16-20	.250 (6.4)
12	12-14	.250 (6.4)
8	8-10	.232 (5.9)

Mating Life	500 cycles minimum
Salt Spray	48 hours per BS9522: 1974, clause 1.2.6.17 Severity 1 tested in mated conditions. The salt spray endurance of 62GB connectors with specific plating deviations could potentially be extended (for example, cadmium plating can withstand 500h exposure to salt spray and stainless steel as much as 2000h), but without testing, the plating on a 62GB connector performance cannot be guaranteed. (There is the potential for galvanic corrosion to occur between the plating and other metal components within the connector)
Heat	+347˚F (+175˚C) for 1000 hours to MIL-STD-1344 Method 1005.1 per MIL-DTL-26482.
Chemical Resistance	Immersion in four solvents and nine fluids including aircraft fuels, lubricating oils and hydraulic fluids.
Vibration	10 to 2,000Hz (15g's) 10 microseconds maximum discontinuity. To MIL-STD-1344 Method 2005 per MIL-DTL-26482.
Shock	50g's. 11ms duration, three major axes. 10 microseconds maximum discontinuity. To MIL-STD-1344 Method 2004 per MIL-DTL-26482.
Contact Type	Solder, crimp, PC
Number of Circuits	2 - 61
Contact Retention	To MIL-STD-1344 Method 2007 per MIL-DTL-26482

CONTACT SIZE	AXIAL LOAD MIN. NEWTONS (LBS)
20	66.7 (15)
16	112 (25)
12	112 (25)
8	178 (40)

Polarization	Five-keyway, three-point bayonet with optional rotational polarization and keyway positions. See pages 143-145.
Approvals	BS 9522 F0017

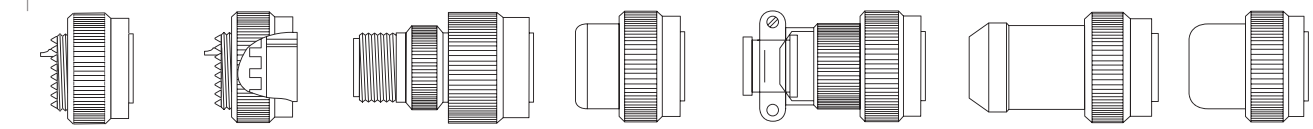
NEED HELP? PEI engineers will help you find the most cost-effective connector for your application. Email us at techsupport@peigenesis.com or fill out our online technical request at www.peigenesis.com/technical-support. To contact us by phone, please see the back cover for a complete listing of our branch offices and contact numbers.

CREATE YOUR SOLDER PART NUMBER USING THESE SIX STEPS

1	2	3	4	5
62GB-56TG	10-06	P	W	-416
SHELL STYLE	LAYOUT	CONTACT	ROTATION OR KEYWAY	MODIFIER

STEP 1: SELECT SHELL STYLE, PLUG, RECEPTACLE & REAR ACCESSORY

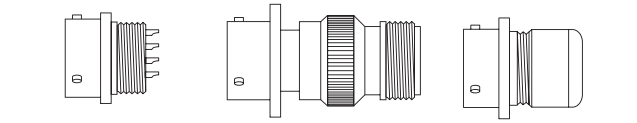
PLUGS



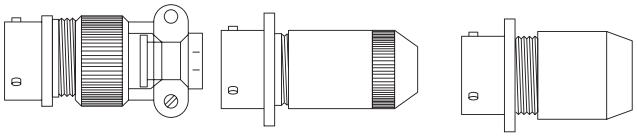
56T 56TG 16A 16E 16F 16J 16P

Mates with

INLINE RECEPTACLES

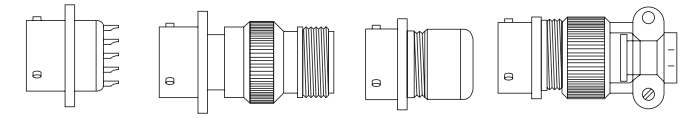


51T 11A 11E

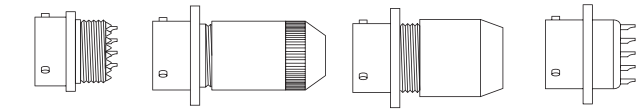


11F 11J 11P

FLANGE RECEPTACLES

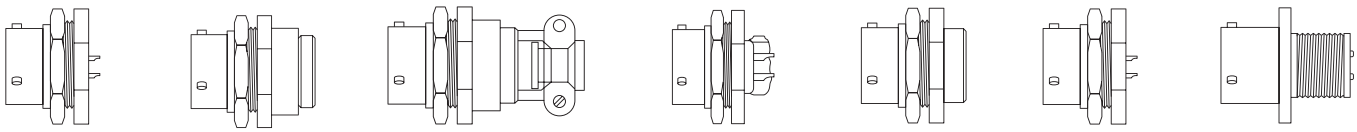


12E 10A 10E 10F



50T 10J 10P 12H Hermetic

JAM NUT RECEPTACLES



57A 14E 14F 57T 17P 17H Hermetic 5030

STYLE CODE

- **A** = General-duty thread
- **E** = Environmentally-sealed
- **F** = Environmentally-sealed with strain relief
- **J** = Environmentally-sealed with cable gland seal
- **P** = Potting cup
- **T** = Barrel/shell assembly with rear threads, no endbell
- **TG** = Plug barrel (56 only) with rear threads, no endbell and EMI/RFI grounding fingers

STEP 2: SELECT LAYOUT

INSERT ARRANGEMENT	GB	SERVICE RATING	TOTAL NUMBER OF CONTACTS	CONTACT SIZE				ORIENTATION ° (DEGREES)				
				20	16	12	8	NORMAL	W	X	Y	Z
08-02	■	I	2	2				0	58	122	-	-
08-03	■	I	3	3				0	60	210	-	-
08-33	□	I	3	3				0	90	-	-	-
08-04	■	I	4	4				0	45	-	-	-
08-98	□	I	3	3				0	-	-	-	-
10-02	□	II	2		2			0	-	-	-	-
10-06	□	I	6	6				0	90	-	-	-
10-07	□	I	7	7				0	-	-	-	-
12-03	□	II	3		3			0	-	-	180	-
12-08	■	I	8	8				0	90	112	203	292
12-10	□	I	10	10				0	60	155	270	295
12-14 †	■	I	14	14				0	-	-	-	-
14-02	■	II	2			2		0	-	-	-	-
14-04 †	■	I	4			4		0	45	-	-	-
14-05	□	II	5		5			0	40	92	184	273
14-12	□	I	12	8	4			0	43	90	-	-
14-15	□	I	15	14	1			0	17	110	155	234
14-19	□	I	19	19				0	30	165	315	-
14-22 †	■	III	5	1		4		0	45	-	-	-
16-04	■	III	4			4		0	-	-	-	-
16-08	□	II	8		8			0	54	152	180	331
16-23	■	I	23	22	1			0	158	270	-	-
16-26	□	I	26	26				0	60	-	275	338
18-11	□	II	11		11			0	62	119	241	340
18-02 †	■	III	2				2*	0	-	-	-	-
18-32	□	I	32	32				0	85	138	222	265
20-16	□	II	16		16			0	238	318	333	347
20-41	□	I	41	41				0	45	126	225	-
22-04 †	■	I	4				4*	0	-	-	-	-
22-55	□	I	55	55				0	30	142	226	314
24-61	□	I	61	61				0	90	180	270	32

*Size 8 crimp contact not available † = Grommet not available □ 62GB and BS9522 F0017 layout ■ 62GB layout only

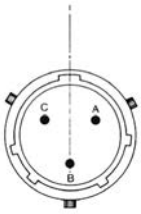
STEP 3: SELECT CONTACT

P = Pin **S** = Socket

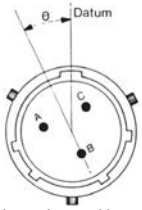
STEP 4: SELECT ROTATION OR KEYWAY

See chart on next page

N, W, X, Y, Z



Normal position with pin conacts

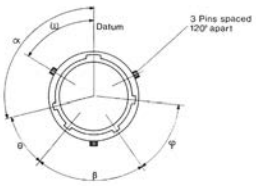


Alternative position of insert with socket contacts (Ø counterclockwise)

Alternative position of insert with pin contacts (Ø clockwise)

See chart on page 145

A†, B, C, D†, E, F



Shell size 8, E & F
†Keying only.
A & D keying inactive for new designs

STEP 5: SELECT MODIFIER (62GB ONLY)

044 = Rough-grip heavy-duty coupling nut *(plugs only)*
046 = Box-mount plug *(for 16 type only)*
214 = F-style endbell without wire-sealing grommet
219 = Printed circuit board *(12E & 57A only)*
297 = Mint-mark date code only
301 = Less contacts
518 = Less coupling nut
760 = Crimp contacts
964 = With grommet, no endbell
SCC = Self-closing cap flanged receptables *(shell sizes 8, 10, 12 & 18)* only.

Shell Plating

(omit for standard green zinc) *(RoHS)*

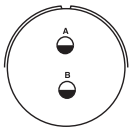
714 = Olive drab chromate over cadmium
416# = Electroless nickel *(RoHS)*
639 = Clear chromate over cadmium
608 = Black-anodized *(RoHS)* Non-conductive
771# = Black zinc cobalt *(RoHS)*
SS = Stainless steel = 62GBSS *(RoHS)*
CU = Brass = 62GBCU *(RoHS)*

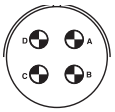
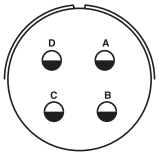
Most Popular

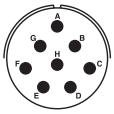
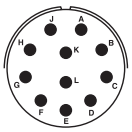
LAYOUTS BY NUMBER OF CONTACTS

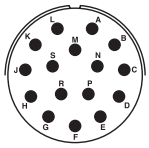
CONTACT LEGEND ○= 20 ●=16 ◐=12 ◒ =8
Mating-face view of pin inserts

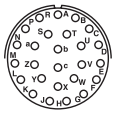
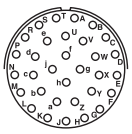
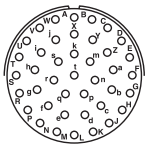
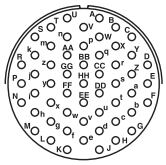
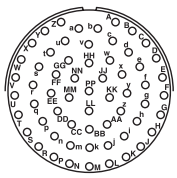
SERIES LEGEND ■ = 62GB □ = 62GB and BS9522 F0017

CONTACTS	2				3			
								
SHELL SIZE/LAYOUT	**08-02**	**10-02**	**14-02**	**18-02†**	**08-03**	**08-33**	**08-98**	**12-03**
# OF CONTACTS	2-#20	2-#16	2-#12	2-#8*	3-#20	3-#20	3-#20	3-#16
SERVICE RATING	I	II	II	III	I	I	I	II
SERIES	■	□	■	■	■	□	□	□

CONTACTS	4				5		6
							
SHELL SIZE/LAYOUT	**08-04**	**14-04†**	**16-04**	**22-04†**	**14-05**	**14-22†**	**10-06**
# OF CONTACTS	4-#20	4-#12	4-#12	4-#8*	5-#16	1-#20, 4-#12	6-#20
SERVICE RATING	I	I	III	I	II	III	I
SERIES	■	■	■	■	□	■	□

CONTACTS	7	8		10	11	12
						
SHELL SIZE/LAYOUT	**10-07**	**12-08**	**16-08**	**12-10**	**18-11**	**14-12**
# OF CONTACTS	7-#20	8-#20	8-#16	10-#20	11-#16	8-#20; 4-#16
SERVICE RATING	I	II	II	I	II	II
SERIES	□	■	□	□	□	□

CONTACTS	14	15	16	19	23
					
SHELL SIZE/LAYOUT	**12-14†**	**14-15**	**20-16**	**14-19**	**16-23**
# OF CONTACTS	14-#20	1-#16; 14-#20	16-#20	18-#20	1-#16; 22-#20
SERVICE RATING	I	II	II	I	I
SERIES	■	□	□	□	■

CONTACTS	26	32	41	55	61
					
SHELL SIZE/LAYOUT	**16-26**	**18-32**	**20-41**	**22-55**	**24-61**
# OF CONTACTS	26-#20	32-#20	41-#20	55-#20	61-#20
SERVICE RATING	I	I	I	I	I
SERIES					

* Size 8 crimp contact not available † = Grommet not available

CHOOSE KEYWAY ORIENTATIONS

SHELL SIZE	† KEYING	VALUES FOR α (DEGREES)	VALUES FOR Θ (DEGREES)	VALUES FOR β (DEGREES)	VALUES FOR Ψ (DEGREES)	VALUES FOR ω (DEGREES)
8	N	105	35	75	50	60
	A	92	35	75	50	47
	B	-	-	-	50	-
	C	-	-	-	50	-
	E	118	30	100	30	73
	F	82	50	75	45	47
10	N	105	35	75	50	60
	A	95	35	75	50	50
	B	85	35	75	50	40
	C	125	35	75	50	80
	D	115	35	75	50	70
	E	115	30	100	30	70
	F	85	50	75	45	50
12	N	105	35	75	50	60
	A	97	35	75	50	52
	B	89	35	75	50	44
	C	121	35	75	50	76
	D	113	35	75	50	68
	E	115	30	100	30	70
	F	85	50	75	45	50
14	N	105	35	75	50	60
	A	98	35	75	50	53
	B	91	35	75	50	46
	C	119	35	75	50	74
	D	112	35	75	50	67
	E	75	30	100	30	30
	F	120	50	75	35	75
16	N	105	35	75	50	60
	A	99	35	75	50	54
	B	93	35	75	50	48
	C	117	35	75	50	72
	D	111	35	75	50	66
	E	75	30	100	30	30
	F	120	50	75	35	75
18	N	105	35	75	50	60
	A	100	35	75	50	55
	B	95	35	75	50	50
	C	115	35	75	50	70
	D	110	35	75	50	65
	E	75	30	100	30	30
	F	120	50	75	35	75
20	N	105	35	75	50	60
	A	100	35	75	50	55
	B	95	35	75	50	50
	C	115	35	75	50	70
	D	110	35	75	50	65
	E	75	30	100	30	30
	F	120	50	75	35	75
22	N	105	35	75	50	60
	A	101	35	75	50	56
	B	97	35	75	50	52
	C	113	35	100	50	68
	D	109	35	75	50	64
	E	75	30	75	30	30
	F	120	50	75	35	75
24	N	105	35	75	50	60
	A	101	35	75	50	56
	B	97	35	75	50	52
	C	113	35	75	50	68
	D	109	35	75	50	64
	E	75	30	100	30	30
	F	120	50	75	35	75

† Keying only. A & D keying inactive for new designs

COMPONENTS

O-Ring

Barrel/ Shell

Wave Spring

Coupling Nut

Lock Ring

Insert/ Insulator

Contacts

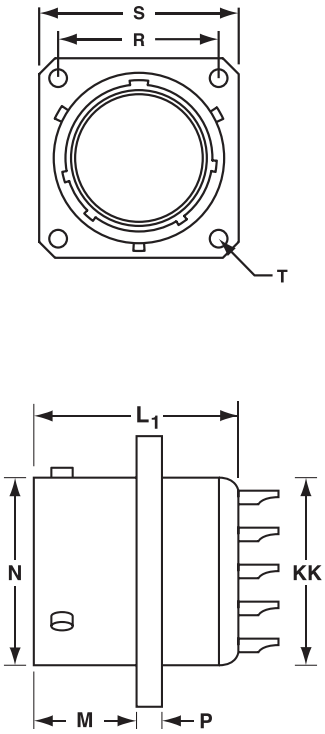
Wire Sealing Grommet

Ferrule/ Compression Ring

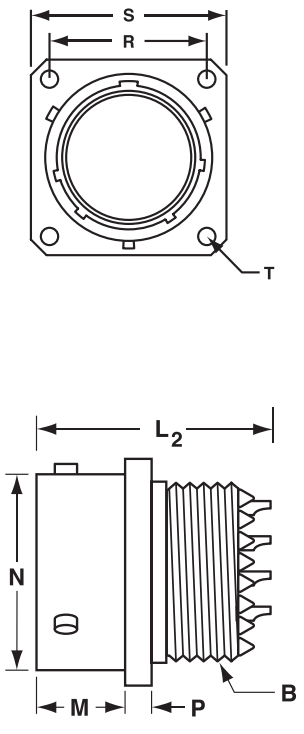
Endbell/ Cable Clamp

RECEPTACLE STYLES

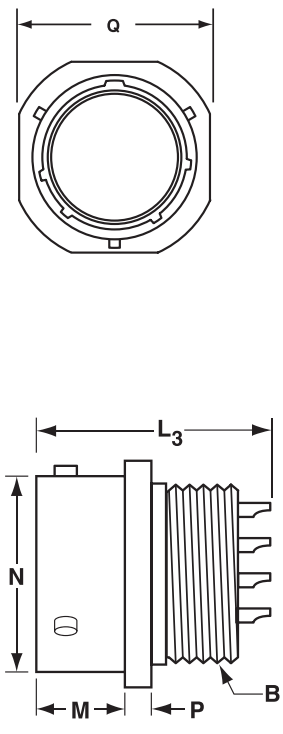
62GB12E



62GB50T



62GB51T



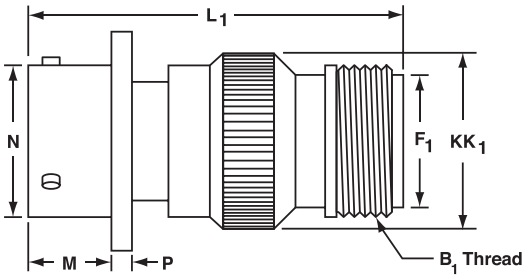
	62GB12/50/51/10/11			62GB12/50			62GB12E		62GB50T/62GB51T			
SHELL SIZE	M ±.005 (±0.13)	N ±.001 (±.055)	P ±.005 ±0.13	R (TP)	S	T	L_1	KK DIA. MAX.	L_2	L_3	B THREAD CLASS 2A	Q MAX. SQ.
8	0.445 (11.3)	0.473 (12.0)	0.062 (1.6)	0.594 (15.1)	0.817 (20.8)	0.120 (3.0)	0.800 (20.3)	.434 (11.0)	0.978 (24.8)	0.978 (24.8)	.4375-28 UNEF	.817 (20.8)
10	0.445 (11.3)	0.590 (15.0)	0.062 (1.6)	0.719 (18.3)	0.942 (23.9)	0.120 (3.0)	0.800 (20.3)	.558 (14.2)	0.978 (24.8)	0.978 (24.8)	.5625-24 UNEF	.942 (23.9)
12	0.445 (11.3)	0.750 (19.1)	0.062 (1.6)	0.812 (20.6)	1.036 (26.3)	0.120 (3.0)	0.800 (20.3)	.683 (17.3)	0.978 (24.8)	0.978 (24.8)	.6875-24 UNEF	1.036 (26.3)
14	0.445 (11.3)	0.875 (22.2)	0.062 (1.6)	0.906 (23.0)	1.130 (28.7)	0.120 (3.0)	0.800 (20.3)	.808 (20.5)	0.978 (24.8)	0.978 (24.8)	.8125-20 UNEF	1.130 (28.7)
16	0.445 (11.3)	1.000 (25.4)	0.062 (1.6)	0.969 (24.6)	1.223 (31.1)	0.120 (3.0)	0.800 (20.3)	.933 (23.7)	0.978 (24.8)	0.978 (24.8)	.9375-20 UNEF	1.223 (31.0)
18	0.445 (11.3)	1.125 (28.6)	0.062 (1.6)	1.062 (27.0)	1.317 (33.5)	0.120 (3.0)	0.800 (20.3)	1.057 (26.8)	0.978 (24.8)	0.978 (24.8)	1.0625-18 UNEF	1.317 (33.4)
20	0.555 (14.1)	1.250 (31.8)	0.080 (2.0)	1.156 (29.4)	1.442 (36.6)	0.120 (3.0)	0.875 (22.2)	1.182 (30.0)	1.048 (26.6)	1.048 (26.6)	1.1875-18 UNEF	1.442 (36.6)
22	0.555 (14.1)	1.375 (34.9)	0.080 (2.0)	1.250 (31.8)	1.567 (39.8)	0.120 (3.0)	0.875 (22.2)	1.307 (33.2)	1.048 (26.6)	1.048 (26.6)	1.3125-18 UNEF	1.567 (39.8)
24	0.590 (15.0)	1.500 (38.1)	0.080 (2.0)	1.375 (34.9)	1.692 (43.0)	0.147 (3.7)	0.875 (22.2)	1.432 (36.4)	1.048 (26.6)	1.048 (26.6)	1.4375-18 UNEF	1.692 (43.0)

NOTE: ⇨ See page 151 for panel cutouts/thickness.

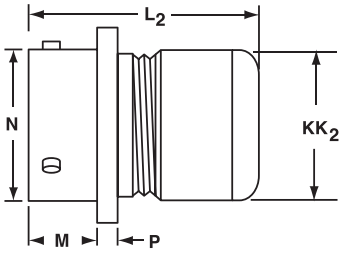
All dimensions in inches (millimeters in parenthesis)

ENDBELL STYLES

62GB10A
62GB11A



62GB10E
62GB11E



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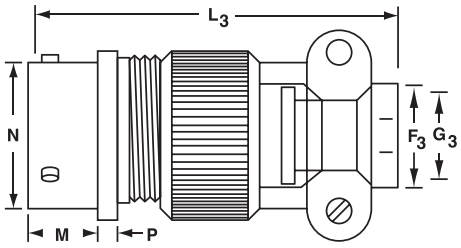
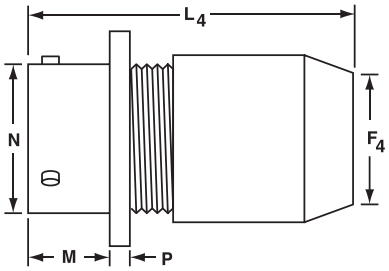
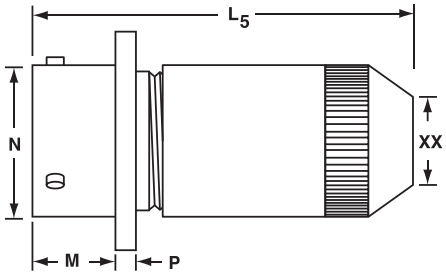
62GB11F



62GB10P
62GB11P



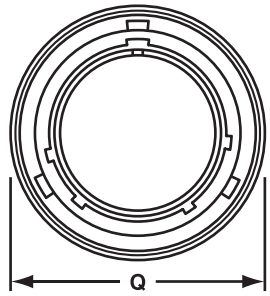
62GB10J
62GB11J



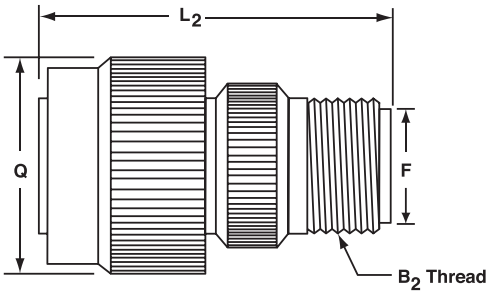
62GB10A/11A				62GB10E/11E		62GB10F/11F			62GB10P/11P		62GB10J/11J		
F_1	L_1	KK1 DIA. MAX.	B1 THREAD CLASS 2A	L_2	KK2 DIA. MAX.	F_3	G_3	L_3	F_4	L_4	L_5	XX MIN.	XX MAX.
0.297	1.624	0.561	.5000-28	1.281	0.561	0.240	0.156	1.762	0.260	1.453	1.846	0.168	0.230
(7.5)	(41.2)	(14.2)	UNEF	(32.5)	(14.2)	(6.1)	(4.0)	(44.8)	(6.6)	(36.9)	(46.9)	(4.3)	(5.8)
0.421	1.624	0.686	.6250-24	1.281	0.686	0.302	0.188	1.762	0.463	1.453	1.846	0.205	0.312
(10.7)	(41.2)	(17.4)	UNEF	(32.5)	(17.4)	(7.7)	(4.8)	(44.8)	(11.8)	(36.9)	(46.9)	(5.2)	(7.9)
0.546	1.624	0.811	.7500-20	1.281	0.811	0.428	0.312	1.762	0.577	1.453	1.947	0.338	0.442
(13.9)	(41.2)	(20.6)	UNEF	(32.5)	(20.6)	(10.9)	(7.9)	(44.8)	(14.7)	(36.9)	(49.5)	(8.6)	(11.2)
0.663	1.624	0.936	.8750-20	1.281	0.936	0.552	0.375	1.736	0.590	1.453	2.147	0.416	0.539
(16.8)	(41.2)	(23.8)	UNEF	(32.5)	(23.8)	(14.0)	(9.5)	(44.1)	(15.0)	(36.9)	(54.5)	(10.6)	(13.7)
0.787	1.624	1.061	1.0000-20	1.281	1.061	0.615	0.500	1.876	0.713	1.453	2.347	0.550	0.616
(20.0)	(41.2)	(26.9)	UNEF	(32.5)	(26.9)	(15.6)	(12.7)	(47.7)	(18.1)	(36.9)	(59.6)	(14.0)	(15.6)
0.879	1.624	1.186	1.1875-18	1.281	1.186	0.740	0.625	1.876	0.835	1.453	2.547	0.600	0.672
(22.3)	(41.2)	(30.1)	UNEF	(32.5)	(30.1)	(18.8)	(15.9)	(47.7)	(21.2)	(36.9)	(64.7)	(15.2)	(17.1)
1.014	1.687	1.311	1.1875-18	1.383	1.311	0.740	0.625	2.118	1.015	1.672	2.831	0.635	0.747
(25.8)	(42.8)	(33.3)	UNEF	(35.1)	(33.3)	(18.8)	(15.9)	(53.8)	(25.8)	(42.5)	(71.9)	(16.1)	(19.0)
1.134	1.687	1.436	1.4375-18	1.383	1.436	0.928	0.750	2.118	1.015	1.672	3.031	0.670	0.846
(28.8)	(42.8)	(36.5)	UNEF	(35.1)	(36.5)	(23.6)	(19.1)	(53.8)	(25.8)	(42.5)	(77.0)	(17.0)	(21.5)
1.259	1.730	1.561	1.4375-18	1.383	1.561	0.990	0.800	2.250	1.265	1.734	3.074	0.740	0.894
(32.0)	(43.9)	(39.6)	UNEF	(35.1)	(39.6)	(25.1)	(20.3)	(57.2)	(32.1)	(44.0)	(78.1)	(18.8)	(22.7)

All dimensions in inches (millimeters in parenthesis)

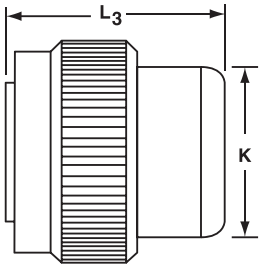
STRAIGHT PLUG



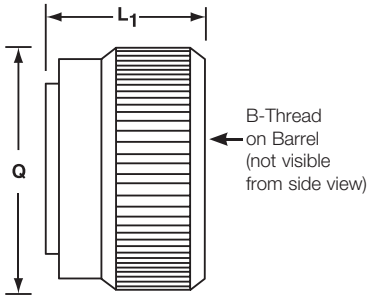
62GB16A



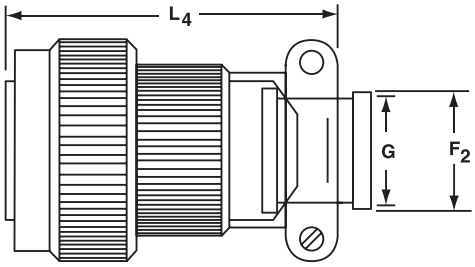
62GB16E



62GB56T/62GB56TG



62GB16F

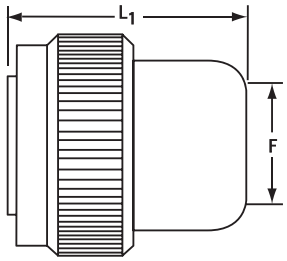


	62GB56T/62GB56TG			62GB16A			62GB16E		62GB16F		
SHELL SIZE	Q MAX.	L_1 MAX.	B THREAD CLASS 2A	F	L_2	B2 THREAD CLASS 2A	L_3	K MAX.	F_2	G	L_4
8	0.750	0.976	.4375-28	0.297	1.614	.5000-28	1.281	0.561	0.240	0.156	1.752
	(19.1)	(24.8)	UNEF	(7.5)	(41.0)	UNEF	(32.5)	(14.2)	(6.1)	(4.0)	(44.5)
10	0.859	0.976	.5625-24	0.421	1.614	.6250-24	1.281	0.686	0.302	0.188	1.752
	(21.8)	(24.8)	UNEF	(10.7)	(41.0)	UNEF	(32.5)	(17.4)	(7.7)	(4.8)	(44.5)
12	1.013	0.976	.6875-24	0.546	1.614	.7500-20	1.281	0.811	0.428	0.312	1.752
	(25.7)	(24.8)	UNEF	(13.9)	(41.0)	UNEF	(32.5)	(20.6)	(10.9)	(7.9)	(44.5)
14	1.156	0.976	.8125-20	0.663	1.614	.8750-20	1.281	0.936	0.552	0.375	1.726
	(29.4)	(24.8)	UNEF	(16.8)	(41.0)	UNEF	(32.5)	(23.8)	(14.0)	(9.5)	(43.8)
16	1.281	0.976	.9375-20	0.787	1.614	1.0000-20	1.281	1.061	0.615	0.500	1.866
	(32.5)	(24.8)	UNEF	(20.0)	(41.0)	UNEF	(32.5)	(26.9)	(15.6)	(12.7)	(47.4)
18	1.319	0.976	1.0625-18	0.879	1.614	1.1875-18	1.281	1.186	0.740	0.625	1.866
	(33.5)	(24.8)	UNEF	(22.3)	(41.0)	UNEF	(32.5)	(30.1)	(18.8)	(15.9)	(47.4)
20	1.531	0.976	1.1875-18	1.014	1.614	1.1875-18	1.281	1.311	0.740	0.625	2.040
	(38.9)	(24.8)	UNEF	(25.8)	(41.0)	UNEF	(32.5)	(33.3)	(18.8)	(15.9)	(51.8)
22	1.656	0.976	1.3125-18	1.134	1.614	1.4375-18	1.281	1.436	0.928	0.750	2.040
	(42.1)	(24.8)	UNEF	(28.8)	(41.0)	UNEF	(32.5)	(36.5)	(23.6)	(19.1)	(51.8)
24	1.777	0.976	1.4375-18	1.259	1.658	1.4375-18	1.281	1.561	0.990	0.800	2.178
	(45.1)	(24.8)	UNEF	(32.0)	(42.1)	UNEF	(32.5)	(39.6)	(25.1)	(20.3)	(55.3)

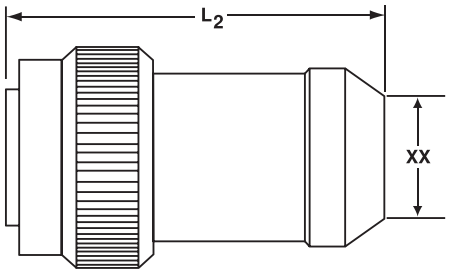
All dimensions in inches (millimeters in parenthesis)

STRAIGHT PLUG STYLES

62GB16P

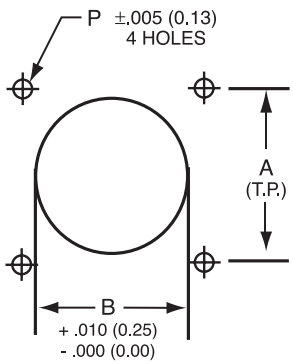


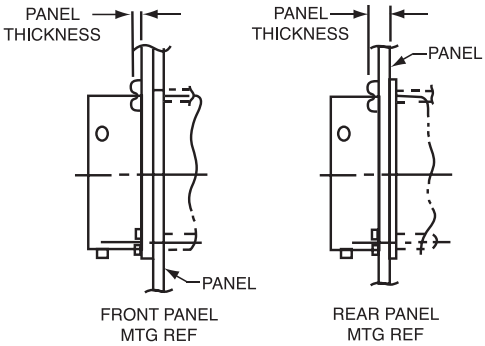
62GB16J



PANEL CUTOUT/THICKNESS

62GB12E
62GB50T
62GB10





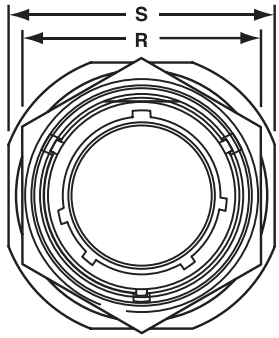
62GB16P		62GB16J		
			CABLE OD	
F	L_1	L_2	XX MIN.	XX MAX.
0.260 (6.6)	1.306 (33.2)	1.836 (46.6)	0.168 (4.3)	0.230 (5.8)
0.463 (11.8)	1.415 (35.9)	1.836 (46.6)	0.205 (5.2)	0.312 (7.9)
0.557 (14.1)	1.384 (35.2)	1.937 (49.2)	0.338 (8.6)	0.442 (11.2)
0.590 (15.0)	1.384 (35.2)	2.137 (54.3)	0.416 (10.6)	0.539 (13.7)
0.713 (18.1)	1.384 (35.2)	2.337 (59.4)	0.550 (14.0)	0.616 (15.6)
0.835 (21.2)	1.384 (35.2)	2.537 (64.4)	0.600 (15.2)	0.672 (17.1)
1.015 (25.8)	1.539 (39.1)	2.758 (70.1)	0.635 (16.1)	0.747 (19.0)
1.015 (25.8)	1.539 (39.1)	2.958 (75.1)	0.670 (17.0)	0.846 (21.5)
1.265 (32.1)	1.602 (40.7)	3.002 (76.3)	0.740 (18.8)	0.894 (22.7)

SHELL SIZE	B FRONT MOUNT	A	P ±.005	SCREW SIZE	PANEL THICKNESS
8	0.449 (11.4)	0.594 (15.1)	0.125 (3.2)	#4	0.087 (2.2)
10	0.573 (14.6)	0.719 (18.3)	0.125 (3.2)	#4	0.087 (2.2)
12	0.699 (17.8)	0.812 (20.6)	0.125 (3.2)	#4	0.087 (2.2)
14	0.823 (20.9)	0.906 (23.0)	0.125 (3.2)	#4	0.087 (2.2)
16	0.949 (24.1)	0.969 (24.6)	0.125 (3.2)	#4	0.087 (2.2)
18	1.073 (27.3)	1.062 (27.0)	0.125 (3.2)	#4	0.087 (2.2)
20	1.199 (30.5)	1.156 (29.4)	0.125 (3.2)	#4	0.212 (5.4)
22	1.323 (33.6)	1.250 (31.8)	0.125 (3.2)	#4	0.212 (5.4)
24	1.449 (36.8)	1.375 (34.9)	0.155 (3.9)	#6	0.212 (5.4)

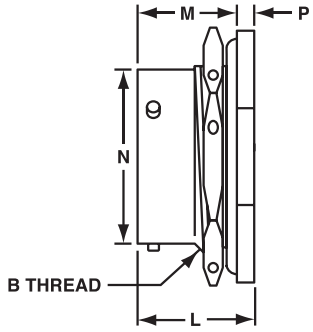
All dimensions in inches (millimeters in parenthesis)

JAM NUT RECEPTACLES

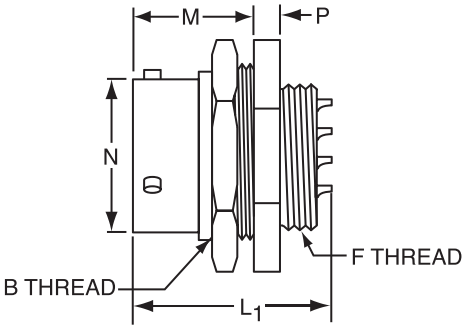
62GB



62GB57A



62GB57T

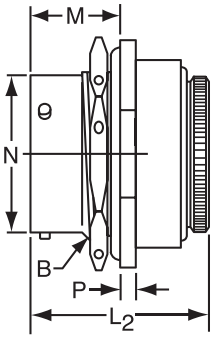


	62GB57/62GB17P								62GB57A	62GB57T	
SHELL SIZE	B THREAD CLASS 2A	M ±.005 (± 0.13)	N	P ±.005 (± 0.13)	R	S	PANEL THICKNESS J MIN.	PANEL THICKNESS J MAX.	L MAX.	L_1 MAX.	F THREAD CLASS 2A
8	.5625-24 UNEF	0.706 (17.9)	0.473 (12.0)	0.117 (3.0)	0.750 (19.1)	0.942 (23.9)	0.062 (1.6)	0.125 (3.2)	0.823 (20.9)	0.978 (24.8)	.4375-28 UNEF
10	.6875-24 UNEF	0.706 (17.9)	0.590 (15.0)	0.117 (3.0)	0.875 (22.2)	1.067 (27.1)	0.062 (1.6)	0.125 (3.2)	0.823 (20.9)	0.978 (24.8)	.5625-24 UNEF
12	.8750-20 UNEF	0.706 (17.9)	0.750 (19.1)	0.117 (3.0)	1.062 (27.0)	1.255 (31.9)	0.062 (1.6)	0.125 (3.2)	0.823 (20.9)	0.978 (24.8)	.6875-24 UNEF
14	1.0000-20 UNEF	0.706 (17.9)	0.875 (22.2)	0.117 (3.0)	1.187 (30.1)	1.380 (35.1)	0.062 (1.6)	0.125 (3.2)	0.823 (20.9)	0.978 (24.8)	.8125-20 UNEF
16	1.1250-18 UNEF	0.706 (17.9)	1.000 (25.4)	0.117 (3.0)	1.312 (33.3)	1.505 (38.2)	0.062 (1.6)	0.125 (3.2)	0.823 (20.9)	0.978 (24.8)	.9375-20 UNEF
18	1.2500-18 UNEF	0.706 (17.9)	1.125 (28.6)	0.117 (3.0)	1.437 (36.5)	1.630 (41.4)	0.062 (1.6)	0.125 (3.2)	0.823 (20.9)	0.978 (24.8)	1.0625-18 UNEF
20	1.3750-18 UNEF	0.894 (22.7)	1.250 (31.8)	0.148 (3.8)	1.562 (39.7)	1.817 (46.2)	0.062 (1.6)	0.250 (6.4)	1.042 (26.5)	1.048 (26.6)	1.1875-18 UNEF
22	1.5000-18 UNEF	0.894 (22.7)	1.375 (34.9)	0.148 (3.8)	1.687 (42.8)	1.942 (49.3)	0.062 (1.6)	0.250 (6.4)	1.042 (26.5)	1.048 (26.6)	1.3125-18 UNEF
24	1.6250-18 UNEF	0.927 (23.5)	1.500 (38.1)	0.148 (3.8)	1.812 (46.0)	2.067 (52.5)	0.062 (1.6)	0.250 (6.4)	1.075 (27.3)	1.048 (26.6)	1.4375-18 UNEF

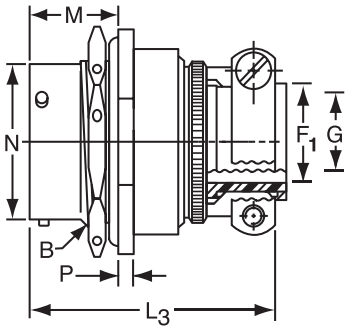
All dimensions in inches (millimeters in parenthesis)

JAM NUT RECEPTACLES

62GB14E

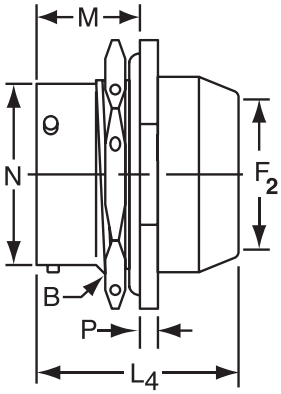


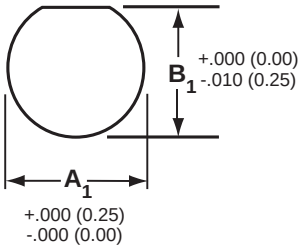
62GB14F

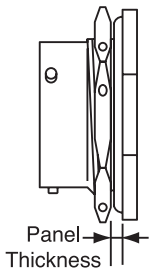


PANEL CUTOUTS/THICKNESS

62GB17P







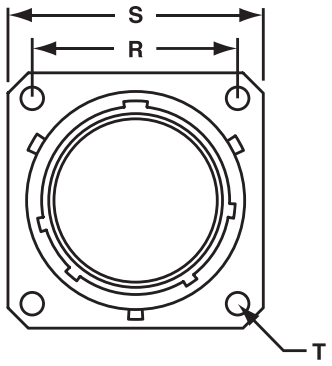
62GB14E	62GB14F			62GB17P	
L_2 MAX.	F_1 MIN.	G ±.005 (± 0.13)	L_3	F_2	L_4
1.344 (34.1)	0.240 (6.1)	0.156 (4.0)	1.762 (44.8)	0.260 (6.6)	1.391 (35.3)
1.344 (34.1)	0.302 (7.7)	0.188 (4.8)	1.762 (44.8)	0.463 (11.8)	1.391 (35.3)
1.344 (34.1)	0.428 (10.9)	0.312 (7.9)	1.762 (44.8)	0.577 (14.7)	1.391 (35.3)
1.344 (34.1)	0.552 (14.0)	0.375 (9.5)	1.762 (44.8)	0.590 (15.0)	1.391 (35.3)
1.344 (34.1)	0.615 (15.6)	0.500 (12.7)	1.876 (47.7)	0.713 (18.1)	1.391 (35.3)
1.344 (34.1)	0.740 (18.8)	0.625 (15.9)	1.876 (47.7)	0.835 (21.2)	1.391 (35.3)
1.576 (40.0)	0.740 (18.8)	0.625 (15.9)	2.118 (53.8)	1.015 (25.8)	1.641 (41.7)
1.576 (40.0)	0.928 (23.6)	0.750 (19.1)	2.118 (53.8)	1.015 (25.8)	1.641 (41.7)
1.609 (40.9)	0.990 (25.1)	0.800 (20.3)	2.250 (57.2)	1.265 (32.1)	1.674 (42.5)

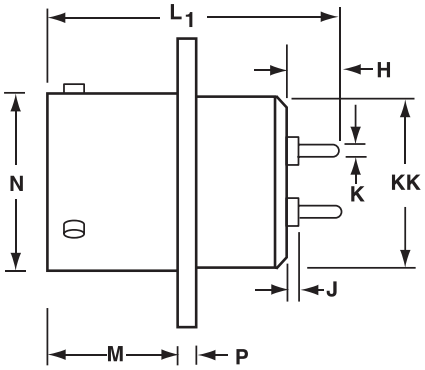
SHELL SIZE	A1 +010-.000 (+.25-.00)	B1 +.000-.010 (+.00-.25)	PANEL THICKNESS	
			MIN.	MAX.
8	0.572 (14.5)	0.542 (13.8)	0.062 (1.6)	0.125 (3.2)
10	0.697 (17.7)	0.669 (17.0)	0.062 (1.6)	0.125 (3.2)
12	0.884 (22.5)	0.830 (21.1)	0.062 (1.6)	0.125 (3.2)
14	1.007 (25.6)	0.955 (24.3)	0.062 (1.6)	0.125 (3.2)
16	1.134 (28.8)	1.084 (27.5)	0.062 (1.6)	0.125 (3.2)
18	1.259 (32.0)	1.208 (30.7)	0.062 (1.6)	0.125 (3.2)
20	1.384 (35.2)	1.333 (33.9)	0.062 (1.6)	0.250 (6.4)
22	1.507 (38.3)	1.459 (37.1)	0.062 (1.6)	0.250 (6.4)
24	1.634 (41.5)	1.575 (40.0)	0.062 (1.6)	0.250 (6.4)

All dimensions in inches (millimeters in parenthesis)

RECEPTACLES

PCB BOX MOUNT
62GB-12E-219



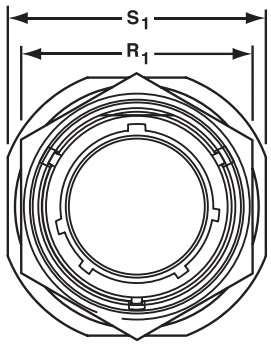


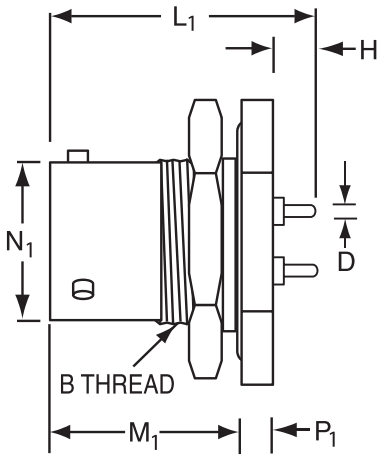
	62GB12E-219											
SHELL SIZE	M ±.005 (± 0.13)	N +.001 -.055	P	R (TP)	S	T DIA.	L_1 MAX.	H MAX.	H MIN.	KK DIA. MAX.	K +/-.001 (0.025)	J +/-.020 (0.51)
8	0.445	0.473	0.062	0.594	0.817	0.120	0.982	0.198	0.166	0.434	0.029	0.089
	(11.3)	(12.0)	(1.6)	(15.1)	(20.8)	(3.0)	(24.85)	(5.03)	(4.22)	(11.0)	(0.73)	(2.26)
10	0.445	0.590	0.062	0.719	0.992	0.120	0.982	0.198	0.166	0.558	0.029	0.089
	(11.3)	(15.0)	(1.6)	(18.3)	(23.9)	(3.0)	(24.85)	(5.03)	(4.22)	(14.2)	(0.73)	(2.26)
12	0.445	0.750	0.062	0.812	1.036	0.120	0.982	0.198	0.166	0.683	0.029	0.089
	(11.3)	(19.1)	(1.6)	(20.6)	(26.3)	(3.0)	(24.85)	(5.03)	(4.22)	(17.3)	(0.73)	(2.26)
14	0.445	0.875	0.062	0.906	1.130	0.120	0.982	0.198	0.166	0.808	0.029	0.089
	(11.3)	(22.2)	(1.6)	(23.0)	(28.7)	(3.0)	(24.85)	(5.03)	(4.22)	(20.5)	(0.73)	(2.26)
16	0.445	1.000	0.062	0.969	1.223	0.120	0.982	0.198	0.166	0.933	0.029	0.089
	(11.3)	(25.4)	(1.6)	(24.6)	(31.1)	(3.0)	(24.85)	(5.03)	(4.22)	(23.7)	(0.73)	(2.26)
18	0.445	1.125	0.062	1.062	1.317	0.120	0.982	0.198	0.166	1.057	0.029	0.089
	(11.3)	(28.6)	(1.6)	(27.0)	(33.5)	(3.0)	(24.85)	(5.03)	(4.22)	(26.8)	(0.73)	(2.26)
20	0.555	1.250	0.080	1.156	1.442	0.120	1.057	0.185	0.153	1.182	0.029	0.076
	(14.1)	(31.8)	(2.4)	(29.4)	(36.6)	(3.0)	(26.85)	(4.70)	(3.89)	(30.0)	(0.73)	(1.93)
22	0.555	1.375	0.080	1.250	1.567	0.120	1.057	0.185	0.153	1.307	0.029	0.076
	(14.1)	(34.9)	(2.4)	(31.8)	(39.8)	(3.0)	(26.85)	(4.70)	(3.89)	(33.2)	(0.73)	(1.93)
24	0.590	1.500	0.080	1.375	1.692	0.147	1.057	0.185	0.153	1.432	0.029	0.076
	(15.0)	(38.1)	(3.2)	(34.9)	(43.0)	(3.7)	(26.85)	(4.70)	(3.89)	(36.4)	(0.73)	(1.93)

All dimensions in inches (millimeters in parenthesis)

RECEPTACLES

PCB JAM NUT
62GB57A-219

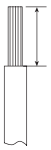


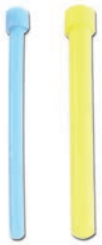


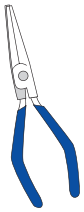
62GB-57A-219										
SHELL SIZE	B THREAD CLASS 2A	M_1 ±.005 (± 0.13)	N_1	P_1 ±.005 (± 0.13)	R_1	S_1	L_1 MAX.	H MIN.	H MAX.	D +/-.001 (0.025)
8	.5625-24 UNEF	0.706 (17.9)	0.473 (12.0)	0.117 (3.0)	0.750 (19.1)	0.942 (23.9)	0.976 (24.79)	0.133 (3.38)	0.173 (4.40)	0.029 (0.73)
10	.6875-24 UNEF	0.706 (17.9)	0.590 (15.0)	0.117 (3.0)	0.875 (22.2)	1.067 (27.1)	0.976 (24.79)	0.133 (3.38)	0.173 (4.40)	0.029 (0.73)
12	.8750-20 UNEF	0.706 (17.9)	0.750 (19.1)	0.117 (3.0)	1.062 (27.0)	1.255 (31.9)	0.976 (24.79)	0.133 (3.38)	0.173 (4.40)	0.029 (0.73)
14	1.0000-20 UNEF	0.706 (17.9)	0.875 (22.2)	0.117 (3.0)	1.187 (30.1)	1.380 (35.1)	0.976 (24.79)	0.133 (3.38)	0.173 (4.40)	0.029 (0.73)
16	1.1250-18 UNEF	0.706 (17.9)	1.000 (25.4)	0.117 (3.0)	1.312 (33.3)	1.505 (38.2)	0.976 (24.79)	0.133 (3.38)	0.173 (4.40)	0.029 (0.73)
18	1.2500-18 UNEF	0.706 (17.9)	1.125 (28.6)	0.117 (3.0)	1.437 (36.5)	1.630 (41.4)	0.976 (24.79)	0.133 (3.38)	0.173 (4.40)	0.029 (0.73)
20	1.3750-18 UNEF	0.894 (22.7)	1.250 (31.8)	0.148 (3.8)	1.562 (39.7)	1.817 (46.2)	1.195 (30.35)	0.133 (3.38)	0.173 (4.40)	0.029 (0.73)
22	1.5000-18 UNEF	0.894 (22.7)	1.375 (34.9)	0.148 (3.8)	1.687 (42.8)	1.942 (49.3)	1.195 (30.35)	0.133 (3.38)	0.173 (4.40)	0.029 (0.73)
24	1.6250-18 UNEF	0.927 (23.5)	1.500 (38.1)	0.148 (3.8)	1.812 (46.0)	2.067 (52.5)	1.228 (31.19)	0.133 (3.38)	0.173 (4.40)	0.029 (0.73)

All dimensions in inches (millimeters in parenthesis)

PINS





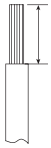

Insertion tool

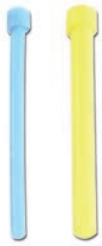
Extraction tool

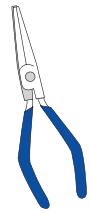
Size	Wire Size AWG	Pin	Wire Strip Lengths Inches (mm)	Wire Sealing Range Inches (mm) Max.	Wire Sealing Range Inches (mm) Min.	Wire Hole Filler*	Hand Crimp Tool	Power Crimp Tool ǂǂ	Turret Head	Use Turret Head Locator Color	Metal Insertion Tool	Metal Extraction Tool
20	20-24	62-1525	.314 (8.00)	.047 (1.19)	.085 (2.16)	MS27488-20-2	M22520/1-01	WA27F	M22520/1-04	RED	62GB-20-INS	62GB-20-EXT
16	16-20	62-1708	.314 (8.00)	.066 (1.68)	.109 (2.77)	MS27488-16-2	M22520/1-01	WA27F	M22520/1-02	BLUE	62GB-16-INS	62GB-16-EXT
12	12-14	62-1621	.314 (8.00)	.097 (2.46)	.142 (3.78)	MS27488-12-2	M22520/1-01	WA27F	M22520/1-02	YELLOW	62GB-12-INS	62GB-12-EXT

ǂǂ Contact us for more tool accessories.
Note: Size 8 contacts not available in crimp.
*Insert head first. Trim off excess.

SOCKETS





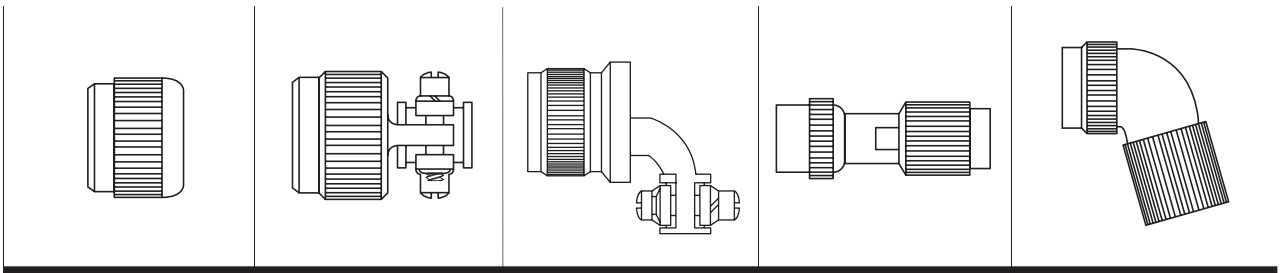

Insertion tool

Extraction tool

Size	Wire Size AWG	Pin	Wire Strip Lengths Inches (mm)	Wire Sealing Range Inches (mm) Max.	Wire Sealing Range Inches (mm) Min.	Wire Hole Filler*	Hand Crimp Tool	Power Crimp Tool ǂǂ	Turret Head	Use Turret Head Locator Color	Metal Insertion Tool	Metal Extraction Tool
20	20-24	62-1563	.314 (8.00)	.047 (1.19)	.085 (2.16)	MS27488-20-2	M22520/1-01	WA27F	M22520/1-04	RED	62GB-20-INS	62GB-20-EXT
16	16-20	62-1698	.314 (8.00)	.066 (1.68)	.109 (2.77)	MS27488-16-2	M22520/1-01	WA27F	M22520/1-02	BLUE	62GB-16-INS	62GB-16-EXT
12	12-14	62-1670	.314 (8.00)	.097 (2.46)	.142 (3.78)	MS27488-12-2	M22520/1-01	WA27F	M22520/1-02	YELLOW	62GB-12-INS	62GB-12-EXT

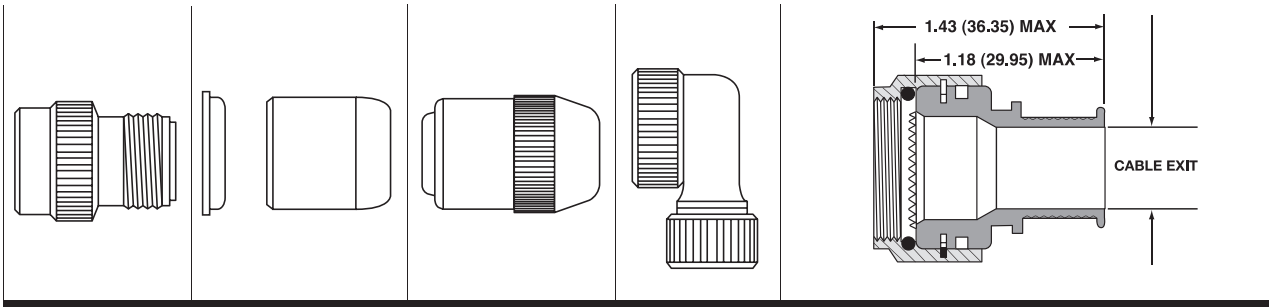
ǂǂ Contact us for more tool accessories.
Note: Size 8 contacts not available in crimp.
*Insert head first. Trim off excess.

ENDBELLS OR TYPE T CONNECTORS



62GB GROMMET KITS					
				SHIELDED GLAND SEAL ENDBELLS (SCREENED)	
SIZE	SHELL E ENDBELL	F ENDBELL	RIGHT ANGLE ENDBELL	STRAIGHT	75 DEGREE
08	62GB-584-08-XXP or S**	62GB-585-08-XXP or S**	62GB-711-08-XXP or S**	62GB-587-08-XXP or S**	62GB-5028-08-XXP or S**
10	62GB-584-10-XXP or S**	62GB-585-10-XXP or S**	62GB-711-10-XXP or S**	62GB-587-10-XXP or S**	62GB-5028-10-XXP or S**
12	62GB-584-12-XXP or S**	62GB-585-12-XXP or S**	62GB-711-12-XXP or S**	62GB-587-12-XXP or S**	62GB-5028-12-XXP or S**
14	62GB-584-14-XXP or S**	62GB-585-14-XXP or S**	62GB-711-14-XXP or S**	62GB-587-14-XXP or S**	62GB-5028-14-XXP or S**
16	62GB-584-16-XXP or S**	62GB-585-16-XXP or S**	62GB-711-16-XXP or S**	62GB-587-16-XXP or S**	62GB-5028-16-XXP or S**
18	62GB-584-18-XXP or S**	62GB-585-18-XXP or S**	62GB-711-18-XXP or S**	-	-
20	62GB-584-20-XXP or S**	62GB-585-20-XXP or S**	62GB-711-20-XXP or S**	62GB-587-20-XXP or S**	62GB-5028-20-XXP or S**
22	62GB-584-22-XXP or S**	62GB-585-22-XXP or S**	62GB-711-22-XXP or S**	62GB-587-22-XXP or S**	-
24	62GB-584-24-XXP or S**	62GB-585-24-XXP or S**	62GB-711-24-XXP or S**	62GB-587-24-XXP or S**	62GB-5028-24-XXP or S**

XX - Insert layout. Add -214 for endbells where no grommet is available. Example: 62GB-585-12-14P-214



62GB ENDBELL KITS							
			GLAND SEAL ENDBELL/GROMMET KIT				
SHELL SIZE	A ENDBELL	POTTING CUP (MOULD)	J ENDBELL	SHIELDED (SCREENED)	AIA-5001	CABLE EXIT MAX.	SPRING
08	62GB-776-08**	62GB-586-08	62GB-720-08**	62GB-1225-08**	AIA5001-08-00-00-10-AA**	.255 (6.48)	HE050
10	62GB-776-10**	62GB-586-10	62GB-720-10**	62GB-1225-10**	AIA5001-10-00-00-10-AA-**	.317 (8.05)	HE100
12	62GB-776-12**	62GB-586-12	62GB-720-12**	62GB-1225-12**	AIA5001-12-00-00-10-AA-**	.443 (11.25)	HE200
14	62GB-776-14**	62GB-586-14	62GB-720-14**	62GB-1225-14**	AIA5001-14-00-00-10-AA-**	.505 (12.53)	HE200
16	62GB-776-16**	62GB-586-16	62GB-720-16**	-	AIA5001-16-00-00-10-AA-**	.630 (16.00)	HE200
18	62GB-776-18**	62GB-586-18	62GB-720-18**	-	AIA5001-18-00-00-10-AA-**	.755 (19.18)	HE300
20	62GB-776-20**	62GB-586-20	62GB-720-20**	-	AIA5001-20-00-00-10-AA-**	.881 (22.38)	HE300
22	62GB-776-22**	62GB-586-22	62GB-720-22**	-	AIA5001-22-00-00-10-AA-**	1.006 (25.55)	HE300
24	62GB-776-24**	62GB-586-24	62GB-720-24**	-	AIA5001-24-00-00-10-AA-**	1.006 (25.55)	HE300

** = Plating Code (default) = Green Zinc Cobalt (*RoHS*)
771 = Black Zinc Cobalt (*RoHS*)
714 = Olive Drab Chromate over Cadmium
416 = Electroless Nickel (*RoHS*)
608 = Black-Anodized (*RoHS*)

Other diameters available. Please contact us for more details.

Please contact us for heat shrink boot.

SOLDER ASSEMBLY INSTRUCTIONS

STEP 1: Slide the back-end accessories over the wire bundle in the proper sequence for reassembly: cable clamp and/or endbell first, then ferrule/follower and coupling nut (if used).

STEP 2: Pre-tin the wire ends and insert the individual wires through the proper holes in the grommet.

STEP 3: Solder the wires to the appropriate contacts on the rear of the connector.

STEP 4: Place the connector in the fixture for reassembly using the endbell assembly tool or a mating connector with the contacts installed.

STEP 5: Slide the grommet down the wires – lubricating the grommet with isopropyl alcohol will help.

STEP 6: Fill each unused cavity in the grommet with a wire hole filler to maintain the sealing integrity of the connector.

Step 7: Slide ferrule and endbell accessories over the rear of the connector and tighten.

	DUST CAP WITH WIRE ROPE				
SHELL		RECEPTACLES			CORD*
SIZE	PLUGS	FLANGED	JAM NUT	IN-LINE	LENGTH
08	62GB-810-08-**	62GB-812-08-**	62GB-813-08-**	62GB-814-08-**	3.00 (76.2)
10	62GB-810-10-**	62GB-812-10-**	62GB-813-10-**	62GB-814-10-**	3.00 (76.2)
12	62GB-810-12-**	62GB-812-12-**	62GB-813-12-**	62GB-814-12-**	3.50 (88.9)
14	62GB-810-14-**	62GB-812-14-**	62GB-813-14-**	62GB-814-14-**	3.50 (88.9)
16	62GB-810-16-**	62GB-812-16-**	62GB-813-16-**	62GB-814-16-**	3.50 (88.9)
18	62GB-810-18-**	62GB-812-18-**	62GB-813-18-**	62GB-814-18-**	3.50 (88.9)
20	62GB-810-20-**	62GB-812-20-**	62GB-813-20-**	62GB-814-20-**	4.00 (101.6)
22	62GB-810-22-**	62GB-812-22-**	62GB-813-22-**	62GB-814-22-**	4.00 (101.6)
24	62GB-810-24-**	62GB-812-24-**	62GB-813-24-**	62GB-814-24-**	4.00 (101.6)

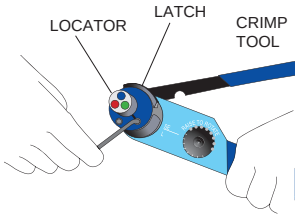
** = Plating Code
(default) = Green Zinc Cobalt (*RoHS*)
771 = Black Zinc Cobalt (*RoHS*)
714 = Olive Drab Chromate over Cadmium
416 = Electroless Nickel (*RoHS*)
608 = Black-Anodized (*RoHS*)

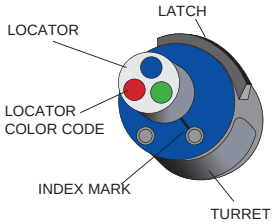
*Other lengths available. Please contact us for more details.

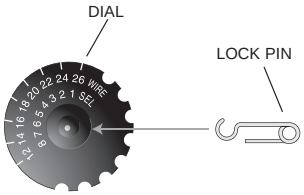
All dimensions in inches (millimeters in parenthesis)

CRIMP TOOL OPERATION

NOTE: Hand-crimp tools can be used with size 20, 16 and 12 contacts.







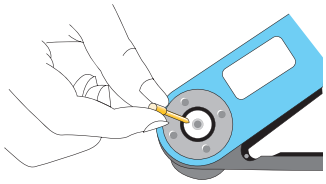
STEP 1: Strip the wires to the appropriate length. See strip lengths on the Contact Selection Guide, ⇨ page 154.

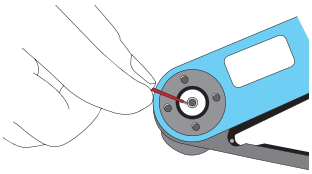
STEP 2: Open the crimp tool by squeezing the handles. Push the latch on the turret to release the locator. Attach the turret to the crimp tool using the two captive hex bolts in the turret.

STEP 3: Select the proper locator position for your contact by rotating the locator until the proper color is aligned with the index mark. Push locator down until it snaps into position.

CONTACT SIZE	LOCATOR COLOR
20	Red
16	Blue
12	Yellow

STEP 4: Adjust dial for proper wire gauge. To change the dial setting, remove the lock pin and lift center of dial. Turn to the desired wire gauge. Replace lock pin on dial.

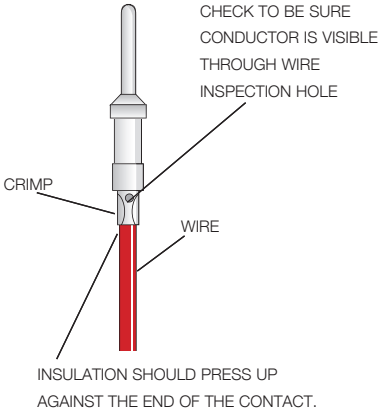




STEP 5: Cycle the tool before inserting the contact to be sure the tool is in the open position. Drop the contact, mating end first, into the crimp cavity of the tool. Squeeze the tool handle just enough to grip the contact without actually crimping it.

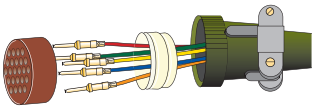
STEP 6: Insert the stripped wire into the contact with a slight twisting motion. Be sure all wire strands are inside the contact. Squeeze the handle to cycle the tool. The handle will not release until the contact is completely crimped.

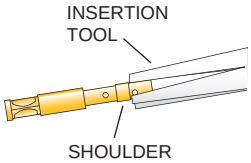
STEP 7: Remove the crimped contact. Pull on the wire slightly to be sure it is properly crimped. Be sure the contact is not bent or damaged in any way. Visually inspect the crimp.

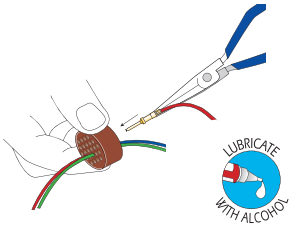


MICRO-SECTIONS : Enlargement of micro-section permits a final inspection of crimp quality. This test is recommended whenever new tools or new types of wire or contacts are used.

INSERTION OF CONTACTS







STEP 1: Slide the rear accessories over the wire bundle in the proper sequence for re-assembly: cable clamp and/or endbell first, then ferrule, and coupling nut.

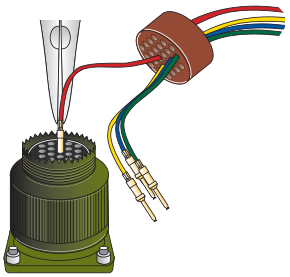
STEP 2: Use the proper insertion tool from the Contact Selection Chart on ⇨ page 154. Place the contact in the tool. The tool should press against the shoulder of the contact. Contact sizes 20, 16, and 12 use a pliers-style tool.

STEP 3: Lubricate the grommet with isopropyl alcohol (do not use any lubricant other than isopropyl alcohol). Insert the contact through the appropriate cavity in the grommet.

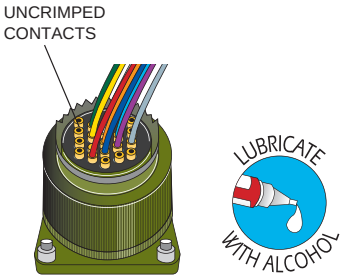
STEP 4: Place the connector into an assembly fixture (fixtures are available for production use, contact us for information.)

INSERTION OF CONTACTS (CONTINUED)

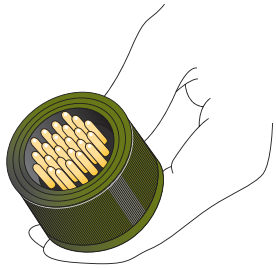
STEP 5: Lubricate the contact cavities of the connector insulator with isopropyl alcohol (do not use any other type of lubricant).



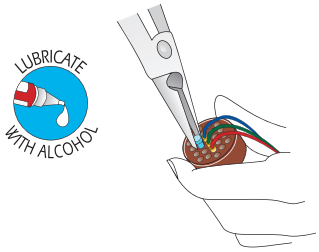
STEP 6: Using guide pins where necessary, push straight down with a firm, even pressure until the contact snaps into position in the proper cavity. Start at the center of the pattern and work toward the outer edges.



STEP 7: Fill any unused cavities with contacts.



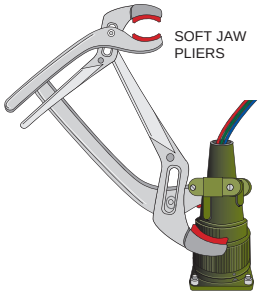
STEP 8: Check the mating face of the connector to ensure that all the same-sized contacts are on the same plane (fully inserted); If not, the contact is not fully inserted. Remove the contact using the proper extraction tool and procedure and reinsert. Do not attempt to reinsert the insertion tool to correct the problem.



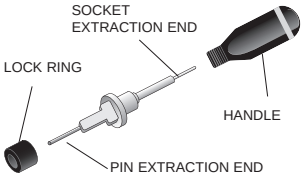
STEP 9: A wire hole filler must be inserted into the grommet behind the unused contacts to maintain the sealing integrity of the connector. See the Contact Selection Chart on ⇨ page 154 for wire hole fillers.

STEP 10: Place the connector back in the fixture for re-assembly. Slide the connector accessories down the cable over the rear of the connector and tighten. Use the appropriate endbell tools.

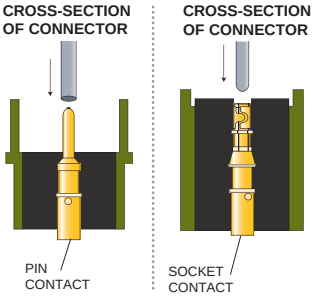
EXTRACTION OF CONTACTS



STEP 1: Remove the endbell accessories and slide them back over the wires. Use the appropriate endbell tools.



STEP 2: Use the proper extraction tool from the Contact Selection Chart on ⇨ page 154. The extraction tool can be used for both pin and socket contacts by removing the shaft from the handle and reversing it for pin or socket extraction.



STEP 3: On the mating face of the connector, insert the tool over the pin contact or into the socket contact until the tool reaches bottom. Apply a slow, continuous pressure to push the contact through the rear of the connector. When the shoulder of the tool hits against the insulator, the contact is extracted.

STEP 4: Carefully remove the extraction tool from the connector to avoid damage to the insulator.

Amphenol MIL-DTL-26482 Series II MB (Matrix®)

HIGH-PERFORMANCE MINIATURE CONNECTOR PERFECT FOR AEROSPACE APPLICATIONS

Amphenol's Matrix® MIL-DTL-26482 series II miniature cylindrical connectors have a quick-mating, three-point bayonet coupling system. Given their small size and high-quality contact retention and seal, the MB series is excellent for high-reliability applications in the harshest conditions, including the aerospace industry.

- Space-rated Class G outgassing available in 48 hours
- Mates with all MIL-DTL-26482 series I connectors

APPLICATIONS

- Commercial and military aircraft
- High-temperature industrial equipment
- Instrumentation
- Avionics

FEATURES

HIGH-QUALITY CONTACT SYSTEM

Amphenol's MB connector series uses industry-standard M39029 crimp-style contacts and a field-proven contact retention clip that locks the contact into place while allowing easy insertion and removal with simple, low-cost plastic tools.

WIDE RANGE OF CABLE ACCESSORIES, INCLUDING MILITARY-STANDARD

Unlike MIL-DTL-26482 series I style connectors, MIL-DTL-26482 Series II style are supplied without rear accessories but with military-standard rear threads. This permits a choice from one of the broadest array of endbells, including M85049-standard endbells, and from low-cost, simple cable tie versions to fully environmentally-sealed EMI-shielded endbells.

BROAD OPERATING TEMPERATURES

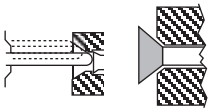
MBs use high-quality silicone for the peripheral, interfacial and wire seals. This, along with the stable hard dielectric insert material that houses the contact retention clip, provide operating temperatures from -85°F to +392°F (-65°C to +200°C).

REAR CONTACT INSERTION AND RELEASE SYSTEM

Used properly, the insertion and extraction tools never touch, come in contact with or damage the interfacial seals, eliminating a common problem with front-release contact systems.

CORK-IN-A-BOTTLE INTERFACIAL SEAL SYSTEM

Socket inserts have hard, dielectric, funnel-shaped contact lead-ins that not only assist in aligning the contacts when mating, but provide compression of the raised individual contact seals on the high-quality silicone interfacial seals of the pin insert.



TECHNICAL SPECIFICATIONS

MATERIALS & FINISHES

Shell	High-grade aluminum alloy per QQ-A-367, QQ-A-591 or QQ-A-225; stainless steel 303 grade (AMS 5640)
Jam Nut	Aluminum alloy per QQ-A-225
Coupling Nut	High-grade aluminum alloy per QQ-A-591; stainless steel 303 grade (AMS 5640)
Plating	Electroless nickel per MIL-C-26074 class 3; 4 grade B, or olive drab chromate over cadmium over nickel per QQ-P-416 black-anodized non-conductive, black zinc conductive
Bayonet Pins	Passivated stainless steel per QQ-S-763
Contacts	Copper alloy
Plating	Gold-plated per MIL-G-45204 50 microinches
Insulator	Rigid-plastic dielectric
Grommet & Seals	Silicone-based elastomer

ELECTRICAL DATA

Working & Test Voltage

SERVICE RATING	WORKING		TEST	
	At Sea Level VAC RMS	70,000 feet ALTITUDE VAC RMS	At Sea Level VAC RMS	70,000 feet ALTITUDE VAC RMS
I	600	300	1,500	375
II	1,000	450	2,300	500

Current Rating

WIRE SIZE AWG	CONTACT SIZE	MAX. CURRENT FOR TEST IN AMPS	POTENTIAL DROP MILLIVOLT AT 77°F, (25°C)
24	20	3	<45
20	20	7.5	<55
20	16	7.5	<45
16	16	13	<50
14	12	17	<45
12	12	23	<50

Wire Range Sizes	24 – 12 AWG
Insulation Resistance	5,000 megohms minimum at 77°F (25°C) 500 megohms minimum at 392°F (200°C) Class L and 347°F (175°C) Class W

MECHANICAL

Operating Temperature	Electroless nickel and olive drab chromate over cadmium over nickel -85°F up to +392°F (-65°C up to +200°C)

Wire Sealing Range

CONTACT SIZE	WIRE SEALING RANGE MIN. INCH (MM)	WIRE SEALING RANGE MAX. INCH (MM)
20	.040 (1.02)	.083 (2.11)
16	.053 (1.35)	.103 (2.62)
12	.097 (2.46)	.158 (4.01)

Insulation Strip Length

CONTACT SIZE	WIRE SIZE AWG	STRIP LENGTH INCH (MM)
20	20-24	.188 (4.76)
16	16-20	.281 (7.14)
12	12-14	.281 (7.14)

Mating Life	500 cycles minimum, 250 cycles minimum for shielded plug
Salt Spray	Class L, 48 hours unmated; Class W, 500 hours mated; 452 hours mated per MIL-STD-1344 Method, 1001 per MIL-DTL-26482 black zinc, 500 hours
Heat	All platings and materials, +392°F (+200°C); for 1000 hours to MIL-STD-1344 Method 1005.1
Chemical Resistance	Tested unmated according to MIL-DTL-26482 4.6.28 for hydraulic fluid, lubricating oil, deicing fluids, jet fuels, solvents and coolants
Vibration	10 to 2000Hz (20g's) 10 microseconds maximum discontinuity. To MIL-STD-1344 Method 2005 per MIL-DTL-26482
Shock	150g's 6ms duration, three major axes. 10 microsecond maximum discontinuity
Contact Type	Crimp, coax, twinax, printed circuit board, and fiber optic
Number of Circuits	3 to 61
Contact Insertion & Extraction	Insertion from rear of connector with simple plastic or high-quality metal hand-tool. Extraction from rear with plastic or high-quality metal hand-tools
Contact Retention	Per MIL-STD-1344A Method 2007 per MIL-DTL-26482

CONTACT SIZE	AXIAL LOAD POUNDS MIN.
20	20
16	25
12	30

Polarization	Five-keyway, three-point bayonet with optional rotational polarization. See page 163.
Approvals	MIL-DTL-26482

Excerpt from MIL-DTL-26482H

3.7.4 JAN and J marking. The United States Government has adopted and is exercising legitimate control over the certification marks "JAN" and "J", respectively, to indicate that items so marked or identified are manufactured to, and meet all the requirements of specifications. Accordingly, items acquired to, and meeting all of the criteria specified herein and in applicable specifications shall bear the certification mark "JAN" except that items too small to bear the certification mark "JAN" shall bear the letter "J". The "JAN" or "J" shall be placed immediately before the PIN except that if such location would place a hardship on the manufacturer in connection with such marking, the "JAN" or "J" may be located on the first line above or below the PIN. Items furnished under contracts or orders which either permit or require deviation from the conditions or requirements specified herein or in applicable specifications shall not bear "JAN" or "J". In the event an item fails to meet the requirements of this specification and the applicable specification sheets, the manufacturer shall remove completely the military PIN and the "JAN" or the "J" from the sample tested and also from all items represented by the sample. The "JAN" or "J" certification mark shall not be used on products acquired to contractor drawings or specification. The United States Government has obtained Certificate of Registration Number 504,860 for the certification mark "JAN" and Registration Number 1,586,261 for the certification mark "J".

PIN = Part Identification Number

CREATE YOUR PART NUMBER USING THESE SIX STEPS

1	2	3	4	5	6
MS3470°	L°	24-61	P	W	-LC
SHELL STYLE	FINISH	LAYOUT	CONTACT	ROTATION	MODIFIER

(military part number example)

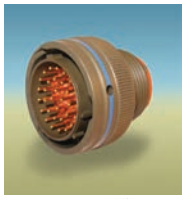
1	2	3	4	5	6
MB10*	B*	24-61	P	W	-A15
SHELL STYLE	FINISH	LAYOUT	CONTACT	ROTATION	MODIFIER

(commercial part number example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

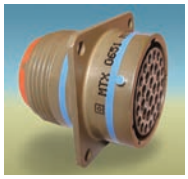
PLUGS ← Mates with → **RECEPTACLES**

MS3476 (MB16)
Standard Plug +

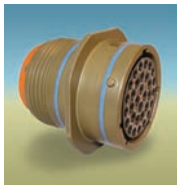


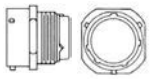
MS3475 (MB18)
Shielded Plug +

+ Most popular

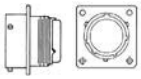


MS3470 (MB10)
Narrow Flange Receptacle +

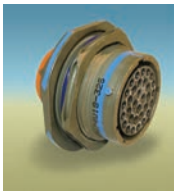


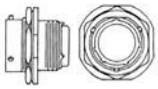


MS3471 (MB13)
Cable Receptacle



MS3472 (MB11)
Wide Flange Receptacle





MS3474 (MB14)
Jam Nut Receptacle +

STEP 2: SELECT FINISH

L° (R)* = Electroless Nickel *(RoHS)*

W*° = Olive Drab Chromate over Cadmium over Nickel 500 Hour Salt Spray

G*° = Stainless Steel 303 grade *(AMS 5640)*

A*° = Black Anodized

B* = Conductive Black Alloy *(RoHS with A15 mod code)*

* Commerical
° Military
** Green Zinc & Durmalon platings are available, please contact us for details.

NEED HELP? Our engineers will help you find the most cost-effective solution for your application. Contact us via our online technical request form at www.peigenesis.com/technical-support

STEP 3: SELECT LAYOUT

Listed by shell size. For listing by number of contacts, see page 164.

LAYOUT NUMBER	SERVICE RATING	TOTAL NUMBER OF CONTACTS	20	16	12	ROTATIONS			
						W	X	Y	Z
8-33	I	3	3			90	-	-	-
8-98	I	3	3			-	-	-	-
10-6	I	6	6			90	-	-	-
12-3	II	3		3		-	-	180	-
12-8	I	8	8			90	112	203	292
12-10	I	10	10			60	155	270	295
14-4	I	4			4	45	-	-	-
14-5	II	5		5		40	92	184	273
14-9S	I	9	5		4	15	90	180	270
14-12	I	12	8	4		43	90	-	-
14-15	I	15	14	1		17	110	155	234
14-18	I	18	18			15	90	180	270
14-19	I	19	19			30	165	315	-
16-8	II	8		8		54	152	180	331
16-23S	I	23	22	1		158	270	-	-
16-26	I	26	26			60	-	275	338
18-8	I	8			8	180	-	-	-
18-11S	II	11		11		62	119	241	340
18-30S	I	30	29	1		180	193	285	350
18-32	I	32	32			85	138	222	265
20-16	II	16		16		238	318	333	347
20-24S	I	24	24			70	145	215	290
20-39	I	39	37	2		63	144	252	333
20-41	I	41	41			45	126	225	-
22-12S	I	12			12	-	-	-	-
22-19S	I	19			19	15	90	225	308
22-21	II	21		21		16	135	175	349
22-32S	I	32	32			72	145	215	288
22-41	I	41	27	14		39	135	264	-
22-55	I	55	55			30	142	226	314
22-95S	I	32	26		6	26	180	266	-
24-19S	II	19			19	30	165	315	-
24-31	I	31		31		90	225	255	-
24-61	I	61	61			90	180	270	324

Arrangements designated with an **S** are tooled in socket only.

STEP 4: SELECT CONTACT

P = Pin
S = Socket
A = Less Pin Contacts
B = Less Socket Contact

The "A" and "B" designators are used for contacts other than power (PCB, coax, thermocouple, or fibre optic contacts)

STEP 5: SELECT ROTATION

See chart above (Omit for normal)

W, X, Y, Z

STEP 6: SELECT MODIFIER

For other commercial modifications, i.e., less tools, with PC contact or with endbell, please contact us. (Omit for standard contacts)

* Commerical

A15* = for use with B class for conductive black alloy finish
LC = for use with standard contacts, but supplied without contacts, seal plugs or tools (PO must state "Less Contacts")

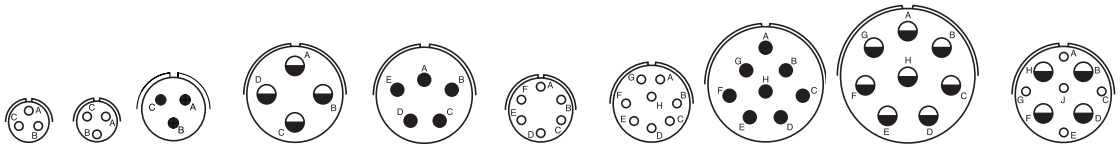
NOTE: LC is not marked on part

LAYOUTS BY NUMBER OF CONTACTS

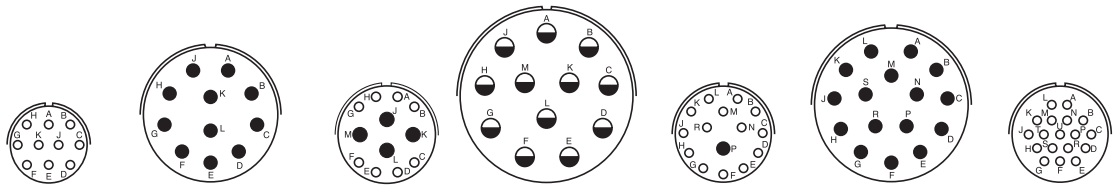
○ 20 ● 16 ◒ 12

Drawing not to scale; mating-face view of pin insert shown (socket view is opposite)

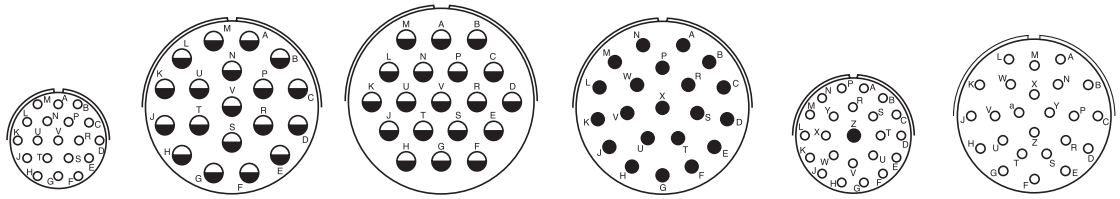
CONTACTS	3		4	5	6	8			9
SHELL SIZE/LAYOUT	8-33	8-98	14-4	14-5	10-6	12-8	16-8	18-8	14-9S
# OF CONTACTS	3-#20	3-#20	4-#12	5-#16	6-#20	8-#20	8-#16	8-#12	5-#20, 4-#12
SERVICE RATING	I	I	I	II	I	I	II	I	I



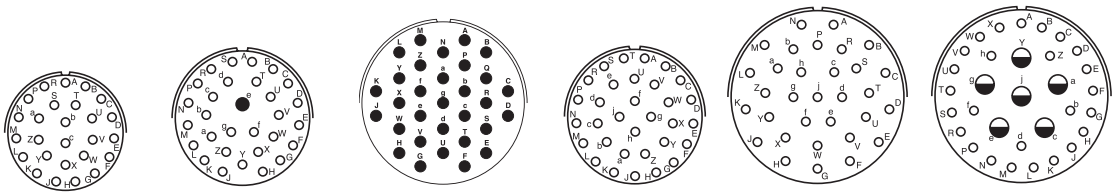
CONTACTS	10	11	12		15	16	18
SHELL SIZE/LAYOUT	12-10	18-11S	14-12	22-12S	14-15	20-16	14-18
# OF CONTACTS	10-#20	11-#16	8-#20, 4-#16	12-#12	14-#20, 1-#16	16-#16	18-#20
SERVICE RATING	I	II	I	I	I	II	I



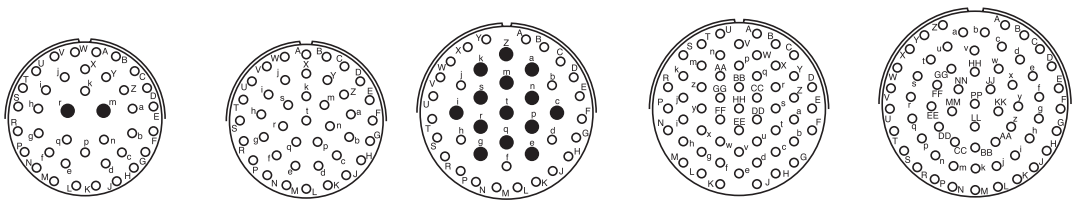
CONTACTS	19			21	23	24
SHELL SIZE/LAYOUT	14-19	22-19S	24-19S	22-21	16-23S	20-24S
# OF CONTACTS	19-#20	19-#12	19-#12	21-#16	22-#20, 1-#16	24-#20
SERVICE RATING	I	I	II	II	I	I



CONTACTS	26	30	31	32		
SHELL SIZE/LAYOUT	16-26	18-30S	24-31	18-32	22-32S	22-95S
# OF CONTACTS	26-#20	29-#20, 1-#16	31-#16	32-#20	32-#20	26-#20, 6-#12
SERVICE RATING	I	I	I	I	I	I



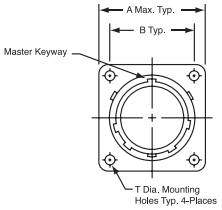
CONTACTS	39	41		55	61
SHELL SIZE/LAYOUT	20-39	20-41	22-41	22-55	24-61
# OF CONTACTS	37-#20, 2-#16	41-#20	27-#20, 14-#16	55-#20	61-#20
SERVICE RATING	I	I	I	I	I

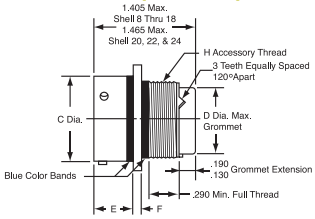


S = Arrangements are tooled in socket only.

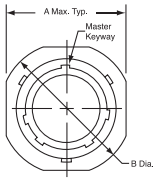
RECEPTACLES

MB10 (MS3470)

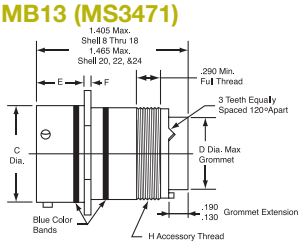




MB11 (MS3472)



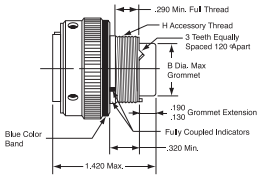
MB13 (MS3471)

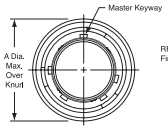


SHELL SIZE	A MAX		B ± .005 (± .127)		B DIA. ± .020 (± .508)	C DIAMETER ± .003 (± .076)	D DIAMETER MAX	E MAX/MIN		F ± .016 (±.406)	H THREAD CLASS 2A	T ± .005 (± .127)	
	MS3470/ MB10 MS3471/ MB13	MS3472/ MB11	MS3470/ MB10	MS3472/ MB11	MS3471/ MB13			MS3470/ MB10 MS3471/ MB13	MS3472/ MB11			MS3470/ MB10	MS3472/ MB11
8	0.828 (21.0)	1.065 (27.1)	0.594 (15.1)	0.734 (18.6)	0.938 (23.8)	0.471 (12.0)	0.305 (7.7)	.462/.431 (11.7/10.9)	.493/.462 (12.5/11.7)	0.062 (1.6)	.5000-20 UNF	0.120 (3.0)	0.150 (3.8)
10	0.954 (24.2)	1.141 (29.0)	0.719 (18.3)	0.812 (20.6)	1.062 (27.0)	0.588 (14.9)	0.405 (10.3)	.462/.431 (11.7/10.9)	.493/.462 (12.5/11.7)	0.062 (1.6)	.6250-24 UNEF	0.120 (3.0)	0.150 (3.8)
12	1.047 (26.6)	1.266 (32.2)	0.812 (20.6)	0.938 (23.8)	1.156 (29.4)	0.748 (19.0)	0.531 (13.5)	.462/.431 (11.7/10.9)	.493/.462 (12.5/11.7)	0.062 (1.6)	.7500-20 UNEF	0.120 (3.0)	0.150 (3.8)
14	1.141 (29.0)	1.360 (34.5)	0.906 (23.0)	1.031 (26.2)	1.250 (31.8)	0.873 (22.2)	0.665 (16.9)	.462/.431 (11.7/10.9)	.493/.462 (12.5/11.7)	0.062 (1.6)	.8750-20 UNEF	0.120 (3.0)	0.150 (3.8)
16	1.234 (31.3)	1.453 (36.9)	0.969 (24.6)	1.125 (28.6)	1.344 (34.1)	0.998 (25.3)	0.790 (20.1)	.462/.431 (11.7/10.9)	.493/.462 (12.5/11.7)	0.062 (1.6)	1.0000-20 UNEF	0.120 (3.0)	0.150 (3.8)
18	1.328 (33.7)	1.532 (38.9)	1.062 (27.0)	1.203 (30.6)	1.438 (36.5)	1.123 (28.5)	0.869 (22.1)	.462/.431 (11.7/10.9)	.493/.462 (12.5/11.7)	0.062 (1.6)	1.0625-18 UNEF	0.120 (3.0)	0.150 (3.8)
20	1.453 (36.9)	1.688 (42.9)	1.156 (29.4)	1.297 (32.9)	1.562 (39.7)	1.248 (31.7)	0.994 (25.2)	.587/.556 (14.9/14.1)	.587/.556 (14.9/14.1)	0.094 (2.4)	1.1875-18 UNEF	0.120 (3.0)	0.150 (3.8)
22	1.578 (40.1)	1.766 (44.9)	1.250 (31.8)	1.375 (34.9)	1.688 (42.9)	1.373 (34.9)	1.119 (28.4)	.587/.556 (14.9/14.1)	.587/.556 (14.9/14.1)	0.094 (2.4)	1.3125-18 UNEF	0.120 (3.0)	0.150 (3.8)
24	1.703 (43.3)	1.891 (48.0)	1.375 (34.9)	1.500 (38.1)	1.812 (46.0)	1.498 (38.0)	1.244 (31.6)	.620/.589 (15.7/15.0)	.620/.589 (15.7/15.0)	0.094 (2.4)	1.4375-18 UNEF	0.147 (3.7)	0.150 (3.8)

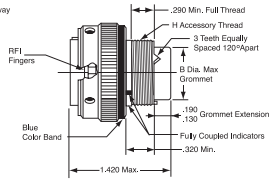
PLUGS

MB16 (MS3476)





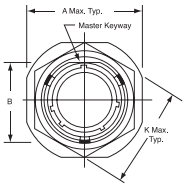
MB18 (MS3475)

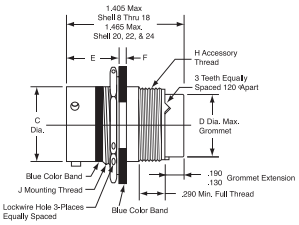


SHELL SIZE	A DIAMETER MAX.	B DIAMETER MAX.	H THREAD CLASS 2A
8	0.782 (19.9)	0.305 (7.7)	.5000-20 UNF
10	0.926 (23.5)	0.405 (10.3)	.6250-24 UNEF
12	1.043 (26.5)	0.531 (13.5)	.7500-20 UNEF
14	1.183 (30.0)	0.665 (16.9)	.8750-20 UNEF
16	1.305 (33.1)	0.790 (20.1)	1.0000-20 UNEF
18	1.391 (35.3)	0.869 (22.1)	1.0625-18 UNEF
20	1.530 (38.9)	0.994 (25.2)	1.1875-18 UNEF
22	1.656 (42.1)	1.119 (28.4)	1.3125-18 UNEF
24	1.777 (45.1)	1.244 (31.6)	1.4375-18 UNEF

JAM NUT RECEPTACLE

MB14 (MS3474)

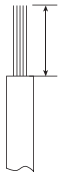


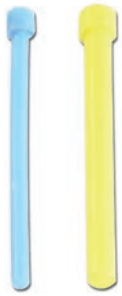


SHELL SIZE	A MAX	B ± .005 (±0.127)	C DIAMETER ± .003 (±0.076)	D DIAMETER MAX	E MAX/MIN	F MAX/MIN	H THREAD CLASS 2A	K MAX	J MOUNTING THREAD CLASS 2A
8	0.954 (24.2)	0.525 (13.3)	0.471 (12.0)	0.305 (7.7)	.707/.658 (17.9/16.7)	.113/.086 (2.8/2.1)	.5000-20 UNF	0.767 (19.5)	.5625-24 UNEF
10	1.078 (27.4)	0.650 (16.5)	0.588 (14.9)	0.405 (10.3)	.707/.658 (17.9/16.7)	.113/.086 (2.8/2.1)	.6250-24 UNEF	0.892 (22.7)	.6875-24 UNEF
12	1.266 (32.2)	0.813 (20.7)	0.748 (19.0)	0.531 (13.5)	.707/.658 (17.9/16.7)	.113/.086 (2.8/2.1)	.7500-20 UNEF	1.079 (27.4)	.8750-20 UNEF
14	1.391 (35.3)	0.937 (23.8)	0.873 (22.2)	0.665 (16.9)	.707/.658 (17.9/16.7)	.113/.086 (2.8/2.1)	.8750-20 UNEF	1.205 (30.6)	1.0000-20 UNEF
16	1.516 (38.5)	1.061 (26.9)	0.998 (25.3)	0.790 (20.1)	.707/.658 (17.9/16.7)	.113/.086 (2.8/2.1)	1.0000-20 UNEF	1.329 (33.8)	1.1250-18 UNEF
18	1.641 (41.7)	1.186 (30.1)	1.123 (28.5)	0.869 (22.1)	.707/.658 (17.9/16.7)	.113/.086 (2.8/2.1)	1.0625-18 UNEF	1.455 (37.0)	1.2500-18 UNEF
20	1.828 (46.4)	1.311 (33.3)	1.248 (31.7)	0.994 (25.2)	.772/.721 (19.6/18.3)	.148/.096 (3.7/2.4)	1.1875-18 UNEF	1.579 (40.1)	1.3750-18 UNEF
22	1.954 (49.6)	1.436 (36.5)	1.373 (34.9)	1.119 (28.4)	.772/.721 (19.6/18.3)	.148/.096 (3.7/2.4)	1.3125-18 UNEF	1.705 (43.3)	1.5000-18 UNEF
24	2.078 (52.8)	1.561 (39.6)	1.498 (38.0)	1.244 (31.6)	.772/.721 (19.6/18.3)	.148/.096 (3.7/2.4)	1.4375-18 UNEF	1.829 (46.5)	1.6250-18 UNEF

All dimensions in inches (millimeters in parenthesis)

PINS

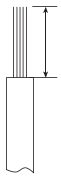


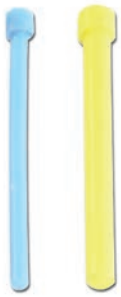


Insert head first, trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS			WIRE STRIP LENGTHS	WIRE INSULATION RANGE		WIRE HOLE FILLER	COLOR
			1	2	3		MIN	MAX		
20	20, 22 & 24	M39029/4-110	Brown	Brown	Black	.1875 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16	16, 18 & 20	M39029/4-111	Brown	Brown	Brown	.2812 (7.14)	.053 (1.35)	.103 (2.62)	MS27488-16-2	Blue
12	12 & 14	M39029/4-113	Brown	Brown	Orange	.2812 (7.14)	.097 (2.46)	.158 (4.01)	MS27488-12-2	Yellow
20 Alumel*	20, 22 & 24	M39029/9-134	Brown	Orange	Yellow	.1875 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
20 Chromel*	20, 22 & 24	M39029/9-135	Brown	Orange	Green	.1875 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16 Fiber Optic*	-	MIL-T-29504/10	-	-	-	-	-	-	-	-
12 Coax*	-	Contact us	-	-	-	-	-	-	-	-

SOCKETS



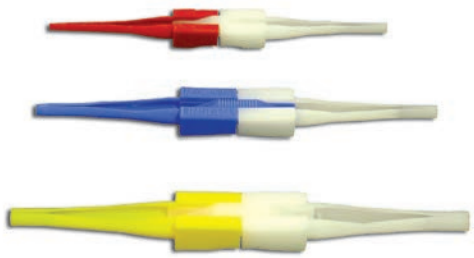


Insert head first, trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS			WIRE STRIP LENGTHS	WIRE INSULATION RANGE		WIRE HOLE FILLER	COLOR
			1	2	3		MIN	MAX		
20	20, 22 & 24	M39029/5-115	Brown	Brown	Green	.1875 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16	16, 18 & 20	M39029/5-116	Brown	Brown	Blue	.2812 (7.14)	.053 (1.35)	.103 (2.62)	MS27488-16-2	Blue
12	12 & 14	M39029/5-118	Brown	Brown	Grey	.2812 (7.14)	.097 (2.46)	.158 (4.01)	MS27488-12-2	Yellow
20 Alumel*	20, 22 & 24	M39029/10-140	Brown	Yellow	Black	.1875 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
20 Chromel*	20, 22 & 24	M39029/10-141	Brown	Yellow	Brown	.1875 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16 Fiber Optic*	-	MIL-T-29504/11	-	-	-	-	-	-	-	-
12 Coax*	-	Contact us	-	-	-	-	-	-	-	-

All dimensions in inches (millimeters in parenthesis) * Special – contact us for information.

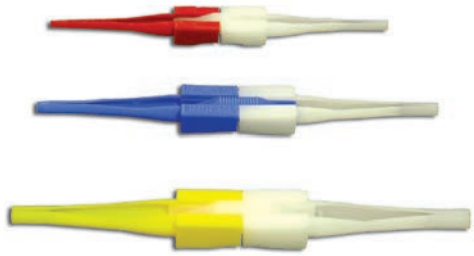
PINS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	METAL		PLASTIC		
					INSERTION TOOL	EXTRACTION TOOL	INSERTION/ EXTRACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR
20	M22520/1-01	WA27F††	M22520/1-02	Red	DAK83-20B	DRK83-20B	M81969/14-11	Red	White
16	M22520/1-01	WA27F††	M22520/1-02	Blue	DAK83-16B	DRK83-16B	M81969/14-03	Blue	White
12	M22520/1-01	WA27F††	M22520/1-02	Yellow	DAK83-12B	DRK83-12B	M81969/14-04	Yellow	White
20 Alumel*	M22520/1-01	WA27F††	M22520/1-02	Red	DAK83-20B	DAK83-20B	M81969/14-11	Red	White
20 Chromel*	M22520/1-01	WA27F††	M22520/1-02	Red	DAK83-20B	DAK83-20B	M81969/14-11	Red	White
16 Fiber Optic*	-	-	-	-	-	-	-	-	-
12 Coax*	-	-	-	-	-	-	-	-	-

†† Contact us for more tool accessories.

SOCKETS



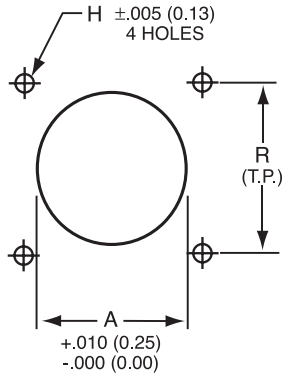
CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	METAL		PLASTIC		
					INSERTION TOOL	EXTRACTION TOOL	INSERTION/ EXTRACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR
20	M22520/1-01	WA27F††	M22520/1-02	Red	DAK83-20B	DRK83-20B	M81969/14-11	Red	White
16	M22520/1-01	WA27F††	M22520/1-02	Blue	DAK83-16B	DRK83-16B	M81969/14-03	Blue	White
12	M22520/1-01	WA27F††	M22520/1-02	Yellow	DAK83-12B	DRK83-12B	M81969/14-04	Yellow	White
20 Alumel*	M22520/1-01	WA27F††	M22520/1-02	Red	DAK83-20B	DAK83-20B	M81969/14-11	Red	White
20 Chromel*	M22520/1-01	WA27F††	M22520/1-02	Red	DAK83-20B	DAK83-20B	M81969/14-11	Red	White
16 Fiber Optic*	-	-	-	-	-	-	-	-	-
12 Coax*	-	-	-	-	-	-	-	-	-

†† Contact us for more tool accessories.

All dimensions in inches (millimeters in parenthesis)

MB FLANGED PANEL CUTOUTS

MS3470 (MB10)
MS3472 (MB11)

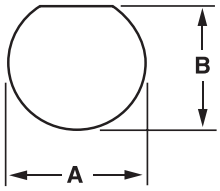


SHELL SIZE	MS3470/MB10 NARROW FLANGE				MS3472/MB11 WIDE FLANGE		
	A DIAMETER	R	SCREW H	SIZE	R	SCREW H	SIZE
8	.620 (15.7)	.594 (15.0)	.125 (3.1)	#4	.734 (18.6)	.155 (3.9)	#6
10	.740 (18.8)	.719 (18.2)	.125 (3.1)	#4	.812 (20.6)	.155 (3.97)	#6
12	.864 (21.9)	.812 (20.6)	.125 (3.1)	#4	.938 (23.9)	.155 (3.97)	#6
14	.990 (25.1)	.906 (23.0)	.125 (3.1)	#4	1.031 (26.1)	.155 (3.97)	#6
16	1.118 (28.4)	.969 (24.6)	.125 (3.1)	#4	1.125 (28.5)	.155 (3.97)	#6
18	1.240 (31.5)	1.062 (26.9)	.125 (3.1)	#4	1.203 (30.5)	.155 (3.97)	#6
20	1.366 (34.7)	1.156 (29.3)	.125 (3.1)	#4	1.297 (32.9)	.155 (3.97)	#6
22	1.490 (37.8)	1.250 (31.7)	.125 (3.1)	#4	1.375 (34.9)	.155 (3.97)	#6
24	1.616 (41.0)	1.375 (34.9)	.155 (3.9)	#6	1.500 (38.1)	.155 (3.97)	#6

⇨ See page 135 for MS3470/MB10 gaskets.
⇨ See page 366 for nut plates and seal screws.

JAM NUT PANEL CUTOUTS

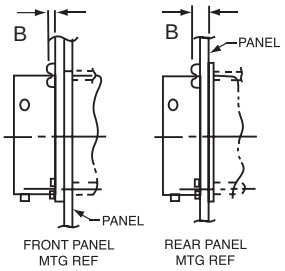
MS3474 (MB14)



SHELL SIZE	A DIAMETER ±.005 (±0.13)	B±.005 (±0.13)
8	.572 (15.5)	.536 (13.6)
10	.697 (17.7)	.661 (16.7)
12	.895 (22.7)	.824 (20.9)
14	1.010 (25.6)	.948 (24.0)
16	1.135 (28.3)	1.072 (27.2)
18	1.260 (32.0)	1.197 (30.4)
20	1.385 (35.1)	1.322 (33.5)
22	1.510 (38.3)	1.447 (36.7)
24	1.635 (41.5)	1.572 (39.9)

PANEL THICKNESS

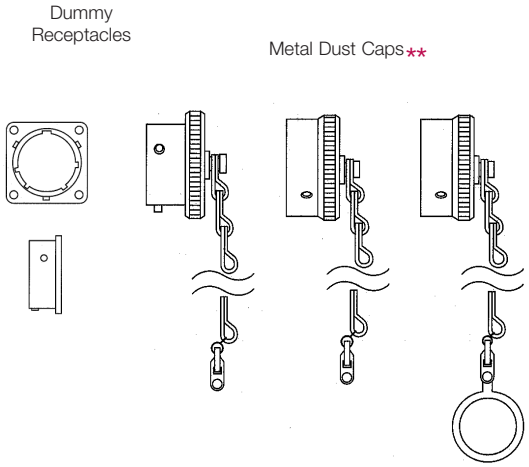
MS3470 (MB10) Narrow Flange
MS3472 (MB11) Wide Flange



SHELL SIZE	NARROW FLANGE MS3470/MB10	WIDE FLANGE MS3472/MB11
	*B MAX	
8		
10	.087	.118
12	(2.2)	(3.0)
14		
16		
18		
20		
22	.212	.212
24	(5.3)	(5.3)

* (Screw head front-mount or panel thickness plus screw head rear-mount)

DUMMY RECEPTACLES & METAL DUST CAPS



SHELL SIZE CHAIN	DUMMY RECEPTACLE	FOR PLUG	METAL DUST CAPS FOR RECEPTACLE FLANGED** WITH SASH CHAIN PART NUMBER	METAL DUST CAPS FOR RECEPTACLE JAM NUT** WITH SASH AND RING
8	MS3115-8	MS3180-8CA	MS3181-8CA	MS3181-8NA
10	MS3115-10	MS3180-10CA	MS3181-10CA	MS3181-10NA
12	MS3115-12	MS3180-12CA	MS3181-12CA	MS3181-12NA
14	MS3115-14	MS3180-14CA	MS3181-14CA	MS3181-14NA
16	MS3115-16	MS3180-16CA	MS3181-16CA	MS3181-16NA
18	MS3115-18	MS3180-18CA	MS3181-18CA	MS3181-18NA
20	MS3115-20	MS3180-20CA	MS3181-20CA	MS3181-20NA
22	MS3115-22	MS3180-22CA	MS3181-22CA	MS3181-22NA
24	MS3115-24	MS3180-24CA	MS3181-24CA	MS3181-24NA

** Sash chain for mounting screw on flanged receptacles.
Sash chain with ring for mounting to jam nut receptacle.
Dust caps are anodized-plated.

All dimensions in inches (millimeters in parenthesis)

STANDARD CABLE CLAMPS

Light-weight open-rear design

SHELL SIZE	STRAIGHT CLAMP		90°		CABLE ENTRY	
	LOW COST	SELF-LOCKING	LOW COST	SELF-LOCKING	MAX	MIN
8	M85049/52-1-8*	M85049/52S8*	M85049/51-1-8*	M85049/51S8*	.204 (5.18)	.125 (3.18)
10	M85049/52-1-10*	M85049/52S10*	M85049/51-1-10*	M85049/51S10*	.286 (7.26)	.187 (4.75)
12	M85049/52-1-12*	M85049/52S12*	M85049/51-1-12*	M85049/51S12*	.416 (10.57)	.291 (7.39)
14	M85049/52-1-14*	M85049/52S14*	M85049/51-1-14*	M85049/51S14*	.476 (12.09)	.351 (8.92)
16	M85049/52-1-16*	M85049/52S16*	M85049/51-1-16*	M85049/51S16*	.625 (15.88)	.501 (12.72)
18	M85049/52-1-18*	M85049/52S18*	M85049/51-1-18*	M85049/51S18*	.706 (17.93)	.518 (13.16)
20	M85049/52-1-20*	M85049/52S20*	M85049/51-1-20*	M85049/51S20*	.831 (21.11)	.581 (14.76)
22	M85049/52-1-22*	M85049/52S22*	M85049/51-1-22*	M85049/51S22*	.956 (24.28)	.644 (16.36)
24	M85049/52-1-24*	M85049/52S24*	M85049/51-1-24*	M85049/51S24*	1.081 (27.46)	.706 (17.93)

* Select plating code to match connector plating
N = Electroless nickel
W = Olive drab chromate over cadmium over electroless nickel (500-hour salt spray)

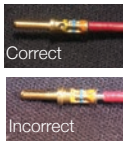
	DESCRIPTION	PART NUMBER PREFIX	STRAIGHT	90°	45°
	Heat Shrink Boot Adapter ⇨ See pages 367-368	M85049/60	X		
	Environmental	M85049/7			X
		M85049/9		X	
		M85049/11	X		
	EMI/RFI Non-Environmental	M85049/23			X
		M85049/24		X	
		M85049/25	X		
	EMI/RFI Environmental	M85049/6			X
		M85049/8		X	
		M85049/10	X		
	EMI/RFI Crimp Ring	M85049/26	X		
	EMI/RFI Banding	M85049/82	X		
		M85049/83			X
		M85049/84		X	
	Cable Tie	M85049/55		X	
		M85049/53	X		
		M85049/54			X
	Wire Seal Compression Nuts "E"	M85049/31	X		

NOTE: If military-standard versions won't work for your applications, please contact us with your requirements.

All dimensions in inches (millimeters in parenthesis)

ASSEMBLY INSTRUCTIONS

WIRE STRIPPING AND CONTACT CRIMPING



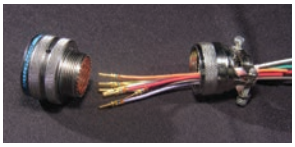
STEP 1: Strip wires. See above for correct strip length for contact. Insert wire into rear of contact. Wire insulation must push against rear of contact. Wire must be visible through inspection hole.

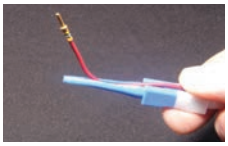
STEP 2: Use M22520/1-01 crimp tool with proper crimp locator M22520/1-02. ⇨ See pages 166-167 for additional tooling.

CONTACT SIZE	COLOR
20	Red
16	Blue
12	Yellow

STEP 3: Insert contact and wire into tool jaws. To crimp, squeeze handles together fully until ratchet releases and allows handles to expand; otherwise, contact cannot be extracted from tool jaws. Maintain slight insertion pressure on wire while crimping contact to wire.*

CONTACT INSERTION

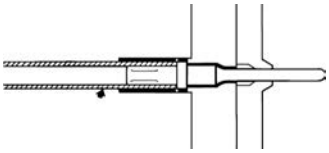


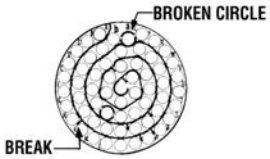


STEP 1: Remove backshell and put wired contacts through cable clamp opening.

STEP 2: Use colored end of CIET tool for insertion. Place wire into tool at large opening. To facilitate contact insertion, a minimum six inches of free wire is recommended.

STEP 3: Slide tool on wire while holding thumb against wire at opening. Wire will slip into tool.





STEP 4: With tool pressed against shoulder of contact, starting at the center cavity, insert wired contact and tool into properly-identified cavity at rear of plug with firm, even pressure. Do not use excessive pressure.

STEP 5: When contact bottoms, a slight click can be heard as tines of metal retaining clip snap into place behind contact shoulder.

STEP 6: Check face of plug or receptacle for proper contact installation. In socket inserts with a large number of contacts, cavities are identified in a spiral pattern. A projecting line from the spiral indicates omission of a letter; a broken circle around a cavity indicates transition between capitals, lower case and double letters.

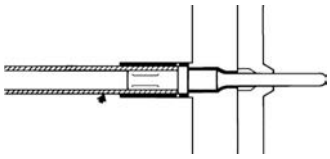
STEP 7: Withdraw tool from rear of plug. To be sure that contact is locked, pull back lightly on wire. Then remove tool from wire and proceed with other contacts.

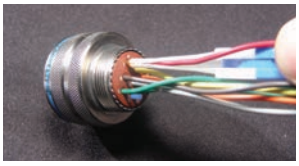
STEP 8: After all contacts are inserted, fill unwired cavities with sealing plugs (insert head first and leave end protruding for ease of removal), assemble backshell on rear of connector.

⇨ **SEE PAGE 138** for endbell tightening tools.

* **IMPORTANT NOTE:** Microsection the contact to verify crimp quality.

CONTACT EXTRACTION





STEP 1: Remove backshell and slide along wires to allow access. To extract a contact, use white end of CIET tool. Place wire into tool at large opening. Slide back tool on wire while holding thumb against wire at opening. Wire will slip into tool.

STEP 2: Push tool into rear of plug until it bottoms. At this point, tool releases tines on retaining clip so that contact can be extracted.

STEP 3: While maintaining slight insertion force on tool, firmly hold wire against serrated shoulder at center of tool and extract both wired contact and tool from plug.

NOTE: LJT series shown.

Amphenol LJT MIL-DTL-38999 Series I

100% SCOOP-PROOF DESIGN WITH QUICK, POSITIVE BAYONET COUPLING

Amphenol's MIL-DTL-38999 series I LJT miniature connectors offer high-density contact arrangements and are suitable for extremely high-reliability connections, including use in military and commercial aviation. They are environmentally-sealed and have a wide operating temperature range.

- Meets requirements of HE308
- Intermateable with ITT Cannon, Deutsch, Souriau, Matrix® and all MIL-DTL-38999 series I connectors
- Formerly MIL-C-38999

APPLICATIONS

- High-performance military aircraft
- Commercial airlines
- Communications equipment
- Armored personnel carriers & tanks
- Missiles
- Shipboard
- Medical instrumentation
- High-reliability test equipment

FEATURES

QUICK-MATING

A three-point bayonet coupling system makes the LJTs quick-mating and provides an audible and tactile "click," along with visual verification of mated connectors via a sighting hole and high-visibility, bright blue bayonet pins.

SHIELDED INTERCONNECT

LJT plugs feature high-quality grounding springs that provide 360-degrees of EMI/RFI shielding protection. These springs ground the barrel of the LJT plugs to the inside wall of the LJT receptacles with a wiping action that offers effective protection from reception or transmission of electronic noise.

MANY CONTACT LAYOUTS AND STYLES

LJT connectors come in a wide variety of contact sizes and layouts, up to 128 contacts. Printed circuit board, fibre optic, thermocouple, and coax-style contacts are available for special applications.

UTILIZES HIGH-QUALITY MILITARY CONTACTS

For standard applications, LJT's come with crimp-style military contacts design to resist bending and provide reliable performance under the most rigorous conditions.

CORROSION-RESISTANT

LJT's are available with cadmium over nickel plating that has met and passed the 500-hour military salt spray corrosion tests.

TECHNICAL SPECIFICATIONS

MATERIALS AND FINISHES

Shell	Aluminum alloy
Bayonet Pins	Passivated stainless steel per QQ-S-763
Plating	A - Clear chromate over cadmium over electroless nickel per QQ-P-416 B - Olive drab chromate over cadmium over electroless nickel per QQ-P-416 F - Electroless nickel per QQ-N-290 C - Hard, anodic, non-conductive in accordance with MIL-A-862 W52 - Olive drab zinc cobalt
Contacts	Copper alloy
Plating	Gold-plated, 50 microinches per MIL-G-45204 type II, grade C, class I
Insulator	Hard dielectric wafer which contains metal retention tines for high-reliability retention of crimp contacts
Grommet & Seals	Silicone-based elastomer
Grounding Springs	Beryllium copper

ELECTRICAL DATA

Operating Voltage & Test Voltage (Unmated Condition)

	SERVICE RATING			
TEST VOLTAGES	N	M	I	II
Sea Level	1000	1300	1800	2300
100,000 Feet	200	200	200	200

Current Rating by Contact Size & Wire Accommodation (Test Amps)

WIRE SIZE	22D	22M✱	22✱	20	16	12	8
28	1.5	1.5	-	-	-	-	-
26	2.0	2.0	2.0	-	-	-	-
24	3.0	3.0	3.0	3.0	-	-	-
22	5.0	-	5.0	5.0	-	-	-
20	-	-	-	7.5	7.5	-	-
18	-	-	-	-	10.0	-	-
16	-	-	-	-	13.0	-	-
14	-	-	-	-	-	17.0	-
12	-	-	-	-	-	23.0	-
8 (Power)	-	-	-	-	-	-	46

Contact resistance of Mated Contacts End-to-End

CONTACT SIZE	MAX. MILLIVOLT DROP
22D	73
22M✱	45
22✱	73
20	55
16	49
12	42
8 (Power)	26

Insulation Resistance — 5,000 megohms minimum

MECHANICAL

Operating Temperature	A - Plating -65°C to 150°C (-85°F to 302°F) B - Plating -65°C to 175°C (-85°F to 347°F) F - Plating -65°C to 200°C (-85°F to 392°F) C - Anodic (non-conductive) -65°C to 200°C (-85°F to 392°F) W52 - Plating -65°C to 150°C (-85°F to 302°F)
Sealing	Against sand, dust per MIL-STD-202 & ice resistance

Wire Sealing Range

CONTACT SIZE	MINIMUM IN	MAXIMUM IN	MINIMUM MM	MAXIMUM MM
22D	0.030	0.054	0.76	1.37
22M✱	0.030	0.050	0.76	1.27
22✱	0.034	0.060	0.86	1.52
20	0.040	0.083	1.02	2.11
16	0.065	0.109	1.65	2.77
12	0.097	0.142	2.46	3.61
10	0.135	0.162	3.42	4.12
8 (Power)	0.135	0.155	3.43	3.94
8 (Coax)	0.135	0.155	3.43	3.94
8 (Twinax)	0.124	0.134	3.15	3.40

TECHNICAL SPECIFICATIONS

INSULATION STRIP LENGTH

CONTACT SIZE	STRIP LENGTH
22✱, 22D or 22M✱	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
8 (Power)	.470 (11.94)

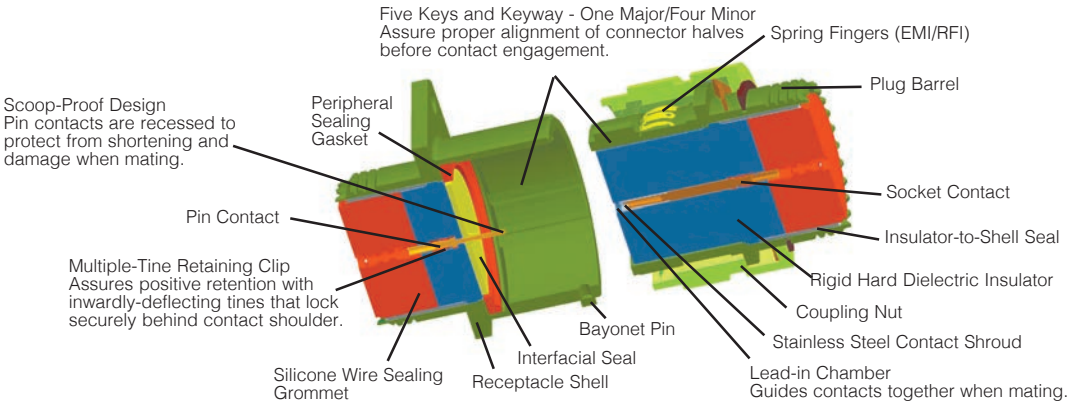
Mating Life	500 cycles minimum
Salt Spray	Finish A: 48-hour per MIL-STD-1344A method 1001 condition B Finish B: 500-hour per MIL-STD 1344A method 1001 condition C Finish F: 48-hour per MIL-STD-1344A method 1001 condition B Finish C: 500-hour per MIL-STD 1344A method 1001 condition C Finish W52: 48-hour
Heat	Finish A: 150°C (302°F) Finish B: 175°C (347°F) Finish F: 200°C (392°F) 1000-hour to MIL-STD-1344 method 1005 Finish C: 200°C (392°F) Finish W52: 175°C (347°F)
Chemical Resistance	Lubricating oils, hydraulic fluids, coolants, deicing fluids per MIL-STD-1344A Method 1016 condition A-1
Sine Vibration	30g at ambient temperature with simulated accessory load
Random Vibration	49.5 grms at ambient temperatures
Shock	300g ±15% half-sine wave magnitude for 3 ±1 milliseconds
EMI-Shielding Effectiveness	100 MHz to 10 GHz - minimum attenuation of 50dB
Contact Type	Crimp, fibre optic, coax, twinax, or printed circuit
Number of Circuits	2 to 128
Contact Insertion	Rear-insertion/rear-extraction with simple plastic or high-quality metal hand tools.
Contact Retention	Per MIL-DTL-38999L tested to MIL-STD-1344A method 2007

CONTACT	AXIAL LOAD NEWTONS ±10%	AXIAL LOAD POUNDS ±10%
22✱, 22D, 22M✱	44	10
20	67	15
16	111	25
12	111	25
8 (Coax, Twinax, Power)	111	25

Polarization	Three-point bayonet coupling, five keyways with optional master keyway rotations, note insert and four fixed minor keyways.
Approvals	MIL-DTL-38999L

✱ Inactive for new designs

CROSS-SECTION



CREATE YOUR PART NUMBER

1	2	3A	4	3B	5	6	7
MS27468	T	25	F	35	P	A	-LC
SHELL STYLE	CLASS	SIZE	PLATING	LAYOUT	CONTACT	POLARIZATION (OMIT FOR NORMAL)	MODIFIER

(military part number example) ***Note:** Out of sequence

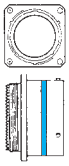
WHEN CHOOSING LAYOUT
First Number = Step 3A – Shell Size, Dash = Step 4 – Plating, Second Number = 3B – Layout

1	2	3	5	6	4*	7
LJT07	RE-	25-35	P	A	-014	-LC
SHELL STYLE	CLASS	LAYOUT	CONTACT	POLARIZATION (OMIT FOR NORMAL)	PLATING*	MODIFIER

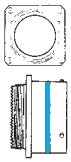
(Commercial part number example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

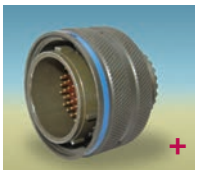
RECEPTACLES ← Mates with → PLUGS

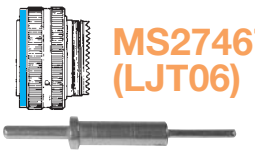


MS27466 (LJT00R)
Front Mount with Rear Accessory Threads.

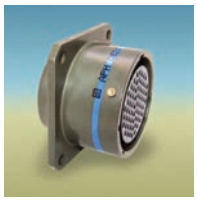


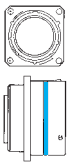
MS27656 (LJTPQ00R)
Rear Mount with Rear Accessory Threads.



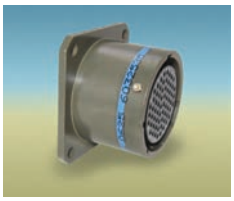


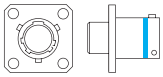
MS27467 (LJT06)
Available with PC pins. Contact us for details.



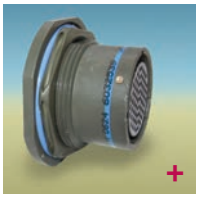


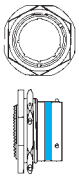
MS27496E (LJT02RE)
Front Mount without Rear Accessory Threads.



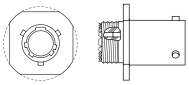


MS27505E (LJTP02RE)
Rear Mount without Rear Accessory Threads.





MS27468 (LJT07R)
Jam Nut with Rear Accessory Threads.



(LJT01R)
In-line with Accessory Threads.

STEP 2: SELECT CLASS

E° = No rear accessories
P° = Potting ring & cup
T° = No rear accessories, NOT used on MS27505E & MS27496E
RE = No rear accessories
RP = Potting ring & cup
RT = No rear accessories, NOT used on LJT02RE & LJTP02RE
RGF = Electroless nickel-plated ground-plane aluminum 200°C
RGW = Olive drab cadmium-plated ground-plane aluminum

° Military + Most Popular

STEP 3: SELECT LAYOUT

Layout	Service Rating	Contacts													
		Total	22D	22M	22	20	16	12	8	4	2/0	Specials			
												12✱	10	8✱	8✱✱
9-6	M	6		6											
9-35	M	6	6												
9-45	M	4			4										
9-98	I	3				3									
11-2G	I	2					2								
11-4✦	I	4				4									
11-5✦	I	5				5									
11-12(11-01)		1						1							
11-13	M	13		13											
11-35	M	13	13												
11-98	I	6				6									
11-99	I	7				7									
13-3P•	II	3					3								
13-4G	I	4					4								
13-8	I	8				8									
13-22	M	22		22											
13-26	M	8	6					2							
13-35	M	22	22												
13-98	I	10				10									
15-4•✦	I	4						4							
15-5G	II	5					5								
15-15	I	15				14	1								
15-18	I	18				18									
15-19✦	I	19				19									
15-35	M	37	37												
15-37	M	37		37											
15-68•✦	I	8					8								
15-97	I	12				8	4								
17-2✦	M	39	38												1
17-6	I	6						6							
17-8G	II	8					8								
17-13•✦	I	13					13								
17-22•✦	COAX	4										2		2	
17-25•✦	M	24	22											2	
17-26	I	26				26									
17-35	M	55	55												
17-42•	M	42			42										
17-55	M	55		55											
17-75	I	2													2
17-99	I	23				21	2								
19-11G	II	11					11								
19-18✦	M	18	14												4
19-28		28				26	2								
19-30P•	I	30				29	1								
19-32	I	32				32									
19-35	M	66	66												
19-53P•	M	53			53										
19-66	M	66		66											
19-67•✦P	M	67		67											
19-68•✦P	I	18					18								
21-1	M	79		79											
21-2•✦	M	65			65										
21-11✦G	I	11						11							
21-16G	II	16					16								
21-35	M	79	79												
21-39	I	39				37	2								
21-41	I	41				41									
21-48		4							4						
21-75✦G	N	4										(See Note 4)			
21-79•✦	II	19	17									(See Note 5)			
23-1	M	100		100											
23-2	M	85			85										
23-6P•G	M	6													6
23-14•✦	I	14						14							
23-21G	II	21					21								
23-32P•	I	32				32									
23-35	M	100	100												
23-53	I	53				53									
23-55✦	I	55				55									
23-P1(23-01)		1									1				
25-1	M	128		128											
25-2	M	100			100										
25-4	I	56				48	8								
25-7•✦	M	99	97												2
25-11S•✦	N	11				2							9		
25-19✦G	I	19						19							
25-20•✦	N	30				10	13					4			3
25-24G	I	24					12	12							
25-29G	I	29					29								
25-35	M	128	128												
25-37•✦G	I	37					37								
25-43✦	I	43				23	20								
25-46✦	I	46				40	4						(See Note 6)		
25-61	I	61				61									
25-1AC(24-44)	M	8					4			4					

For listing by # of contacts, ⇨ see pages 178-181.

STEP 4: SELECT PLATING

Finish	Military	Commercial	Commercial +SR
Cadmium-plated nickel base	A	-	SR
Olive drab cadmium-plated nickel base	B	014	386
Electroless nickel	F	023	424
Electroless nickel space-compatible	-	453	467
Anodic coating (Alumilite)	C	005	300
Chromate-tested (Iridite 14-2)	-	011	344
Passivated steel (Hermetic only)	E	-	-
Stainless steel	-	155	-
Olive drab zinc cobalt	-	W52	-

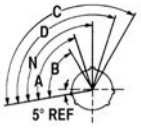
SR = Strain Relief

STEP 5: SELECT CONTACT

P = Pin
S = Socket
H = 1500 Mating Cycles Pin
J = 1500 Mating Cycles Socket
A = Less Pin Contacts
B = Less Socket Contact

STEP 6: SELECT POLARIZATION

N = Normal Standard (Omit for normal)
A = Highly-Popular
B = Limited Availability
C = Check for Availability
D = Check for Availability



Mating Face of Receptacle

Shell Size	N	A	B	C	D
9	95	77	-	-	113
11	95	81	67	123	109
13	95	75	63	127	115
15	95	74	61	129	116
17	95	77	65	125	113
19	95	77	65	125	113
21	95	77	65	125	113
23	95	80	69	121	110
25	95	80	69	121	110

STEP 7: SELECT MODIFIER

Note: LC is not marked on part

Omit for standard contacts
LC = less contacts, wire hole fillers and plastic insertion/extraction tool.
(Purchase Order must state Less Contacts)

(4) MS Connector 21-75 is supplied with four size-8 twinax contacts. Proprietary connector 21-75 is supplied with four size-8 coax contacts.
(5) MS connector 21-79 has provision for two size-8 coax contacts. Coax contacts are not supplied unless specified by customer.
(6) 25-46 is supplied two size-8 coax contacts for RG180/U & RG195/U cable.

• NOT QPL'D ✦ Not Tooled for RP or 02RE
✱ Coax ✱✱ Twinax

P = Pin Insert Only
S = Socket Insert Only
G = Grounded

HOW TO ORDER HE308 SERIES CONNECTORS

1	2	3	4	5	6	7	8	9
HE308	07	T	1535	P	N	7	M	L
PREFIX	SHELL STYLE	CLASS	LAYOUT	CONTACT	POLARIZATION	FINISH	MANDATORY SUFFIX	MODIFIER

(military part number example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → PLUGS

00
Wall Mount Receptacle, crimp contacts

01
Line Mount Receptacle, crimp contacts

06
Straight Plug, crimp contacts

07
Jam Nut Receptacle, crimp contacts

11
Jam Nut Receptacle, PCB contacts

STEP 2: SELECT CLASS

T = Environmental with accessory thread

STEP 3: SELECT LAYOUT

For listing by # of contacts, ⇨ see pages 178-181.

LAYOUT NUMBER	SERVICE RATING	CONTACTS							SPECIALS						
		TOTAL	22D	22M	22	20	16	12	12*	10	8*	8**	8 POWER	4	00
9-22	I	2				2									
9-35	M	6	6												
9-98	I	3				3									
11-02	I	2					2								
11-04	I	4				4									
11-05	I	5				5									
11-01	-	1						1							
11-35	M	13	13												
11-98	I	6				6									
11-99	I	7				7									
13-04	I	4					4								
13-08	I	8				8									
13-26	M	8	6					2							
13-35	M	22	22												
13-98	I	10				10									
15-04	I	4						4							
15-05	II	5					5								
15-15	I	15				14	1								
15-18	I	18				18									
15-19	I	19				19									
15-35	M	37	37												
15-97	I	12				8	4								
17-02	M	39	38									1			
17-06	I	6						6							
17-08	II	8					8								
17-25	M	24	22								2				
17-26	I	26				26									
17-35	M	55	55												
17-75	I	2										2			
17-99	I	23				21	2								
19-11	II	11					11								
19-18	M	18	14									4			
19-28	I	28				26	2								
19-32	I	32				32									
19-35	M	66	66												
21-11	I	11						11							
21-16	II	16					16								
21-35	M	79	79												
21-39	I	39				37	2								
21-41	I	41				41									
21-48	-	4											4		
21-75	N	4									(See Note 4)				
21-79	II	19	17								(See Note 5)				
23-01	M	-	1												1
23-21	II	21					21								
23-35	M	100	100												
23-53	I	53				53									
23-55	I	55				55									
25-04	I	56				48	8								
25-07	M	99	97									2			
25-19	I	19						19							
25-24	I	24					12	12							
25-29	I	29					29								
25-35	M	128	128												
25-37	I	37					37								
25-43	I	43				23	20								
25-46	I	46				40	4				2				
25-61	I	61				61									
25-44	M	8					4							4	

* COAX ** TWINAX

(4) MS Connector 21-75 is supplied with four size-8 twinax contacts. Proprietary connector 21-75 is supplied with four size-8 coax contacts.

(5) MS connector 21-79 has provision for two size-8 coax contacts. Coax contacts are not supplied unless specified by customer.

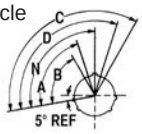
STEP 4: SELECT CONTACT

P = Pin **S** = Socket

STEP 5: SELECT POLARIZATION

N = Normal Standard
A = Highly-Popular
B = Limited Availability
C = Check for Availability
D = Check for Availability

Mating Face of Receptacle



Shell Size	N	A	B	C	D
9	95	77	-	-	113
11	95	81	67	123	109
13	95	75	63	127	115
15	95	74	61	129	116
17	95	77	65	125	113
19	95	77	65	125	113
21	95	77	65	125	113
23	95	80	69	121	110
25	95	80	69	121	110

STEP 6: SELECT SHELL FINISH

7 = Olive drab cadmium-plated
6 = Electroless nickel-plated

STEP 7: MANDATORY SUFFIX

M = Mandatory Suffix

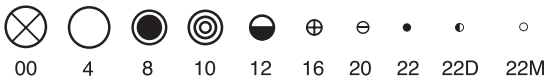
STEP 8: MODIFIER

Leave blank for connector delivered WITH contacts

L = Connector delivered WITHOUT contacts

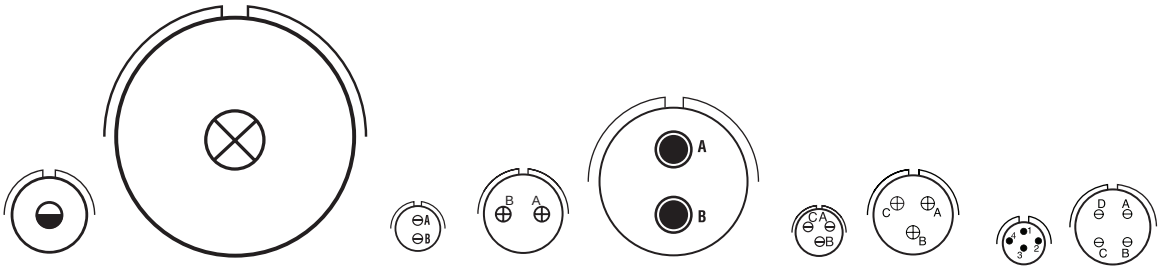
LAYOUTS BY NUMBER OF CONTACTS

View of Mating-Face of Pin Insert

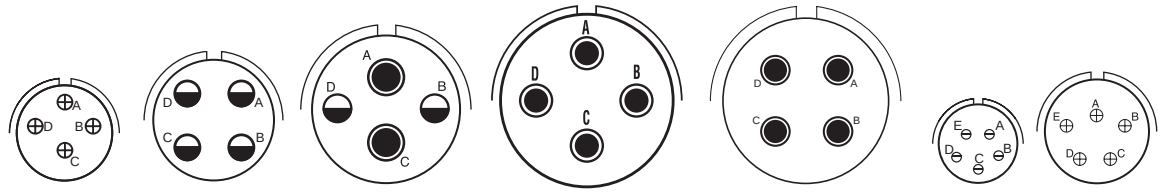


Drawing not to scale; mating face view of pin insert shown (socket view is opposite)

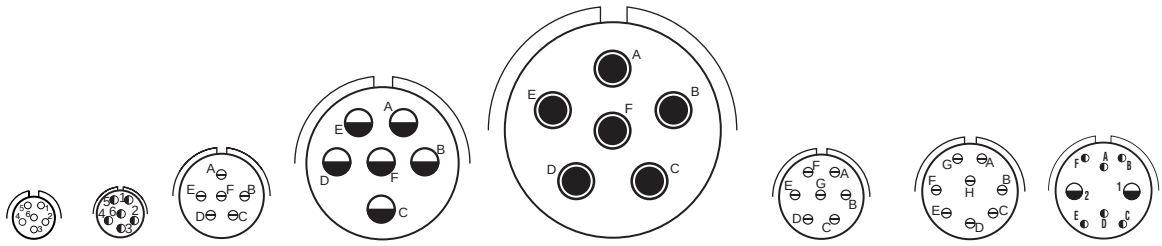
CONTACTS	1	2				3		4	
LAYOUT	11-12	23-P1 (23-01)	9-22	11-2✦G	17-75	9-98	13-3P•	9-44	11-4✦
# OF CONTACTS	1-#12	1-#00	2-#20	2-#16	2-#8✱✱	3-#20	3-#16	4-#22	4-#20
SERVICE RATING	-	-	I	I	I	I	II	M	I



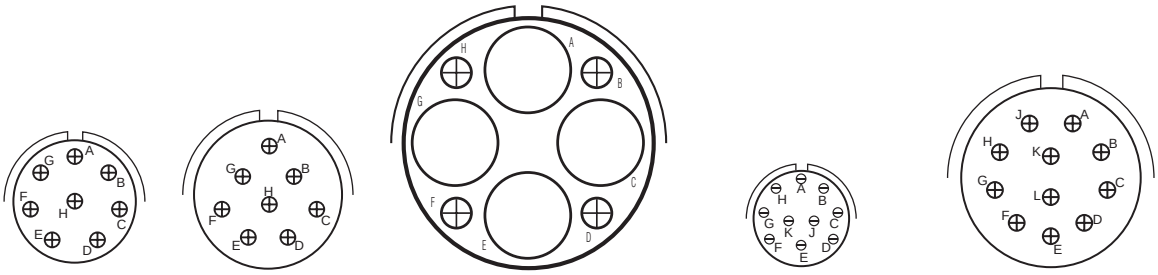
CONTACTS	4						5	
LAYOUT	13-4G	15-4•✦	17-22•✦	21-48	21-75✦G		11-5✦	15-5G
# OF CONTACTS	4-#16	4-#12	2-#12✱ 2-#8✱	4-#8 Power	4-#8✱✱		5-#20	5-#16
SERVICE RATING	I	I	COAX	-	N		I	II



CONTACTS	6					7	8	
LAYOUT	9-6	9-35	11-98	17-6	23-6P•G	11-99	13-8	13-26
# OF CONTACTS	6-#22M	6-#22D	6-#20	6-#12	6-#8✱✱	7-#20	8-#20	6-#22D, 2-#12
SERVICE RATING	M	M	I	I	M	I	I	M



CONTACTS	8					10	11
LAYOUT	15-68•✦	17-8G	25-1A (24-44)	13-98	19-11G
# OF CONTACTS	8-#16	8-#16	4-#16, 4-#4	10-#20	11-#16
SERVICE RATING	I	II	M	I	II



✱Coax ✱✱Twinax • NOT QPL'D ✦ Not Tooled for RP or 02RE **P** = Pin Insert Only **S** = Socket Insert Only **G** = Grounded Contact us for more information.

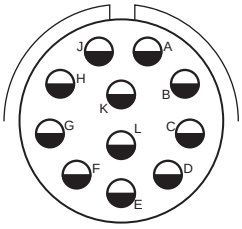
LAYOUTS BY NUMBER OF CONTACTS

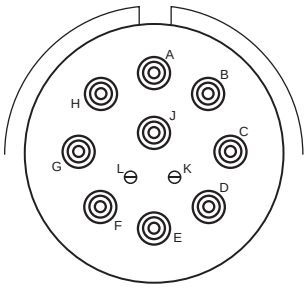
View of Mating-Face of Pin Insert

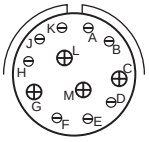
00 4 8 10 12 16 20 22 22D 22M

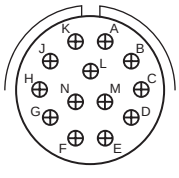
Drawing not to scale; mating face view of pin insert shown (socket view is opposite)

CONTACTS	11	12			13	
LAYOUT	21-11✦G	25-11S•✦	15-97	11-13	11-35	17-13•✦
# OF CONTACTS	11-#12	2-#20, 9-#10✱	8-#20, 4-#16	13-#22M	13-#22D	13-#16
SERVICE RATING	I	N	I	M	M	I

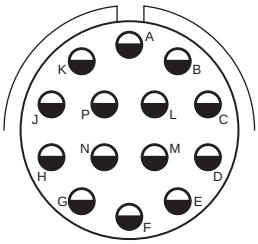


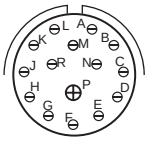


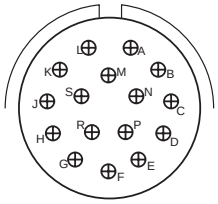


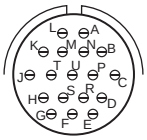


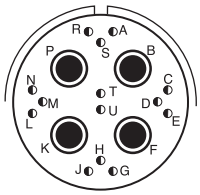
CONTACTS	14	15	16	18	
LAYOUT	23-14•✦	15-15	21-16G	15-18	19-18✦
# OF CONTACTS	14-#12	14-#20, 1-#16	16-#16	18-#20	14-#22D, 4-#8✱✱
SERVICE RATING	I	I	II	I	M



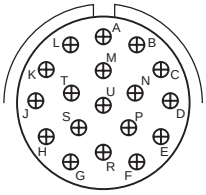


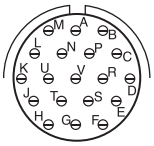


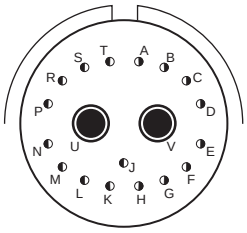


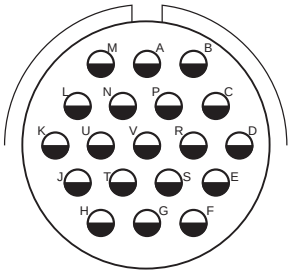


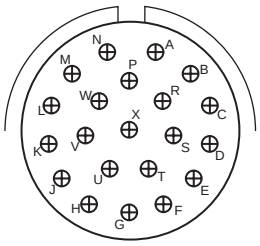
CONTACTS	18	19			21
LAYOUT	19-68P•✦	15-19✦	21-79•✦	25-19✦G	23-21G
# OF CONTACTS	18-#16	19-#20	17-#22D, 2-#8✱	19-#12	21-#16
SERVICE RATING	I	I	II	I	II



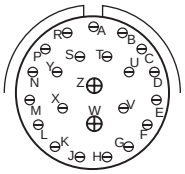


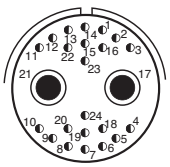


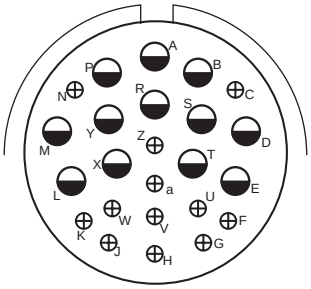


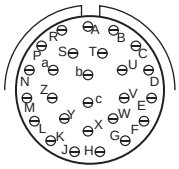


CONTACTS	22		23	24		26
LAYOUT	13-22	13-35	17-99	17-25•✦✱	25-24G	17-26
# OF CONTACTS	22-#22M	22-#22D	21-#20, 2-#16	22-#22D, 2-#8	12-#16, 12-#12	26-#20
SERVICE RATING	M	M	I	M	I	I









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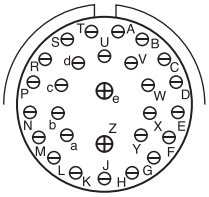
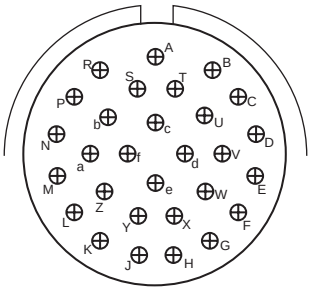
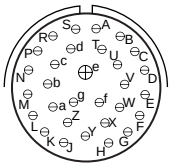
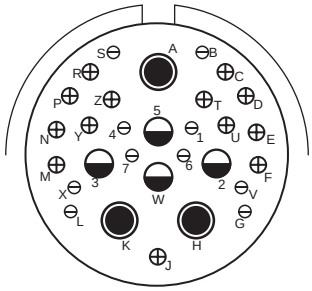
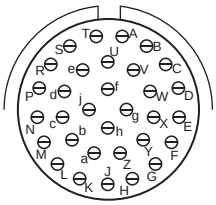
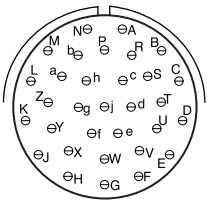
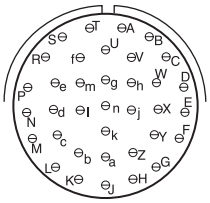
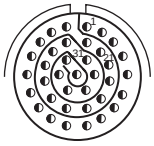
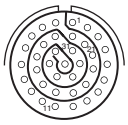
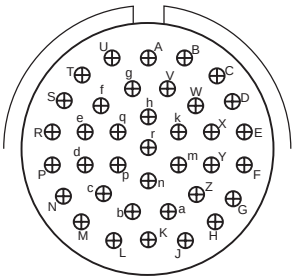
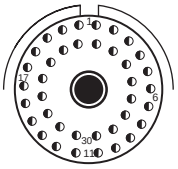
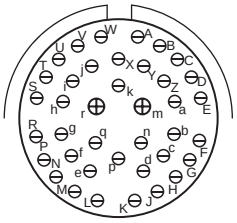
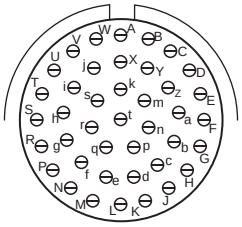
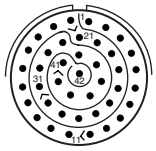
LAYOUTS BY NUMBER OF CONTACTS

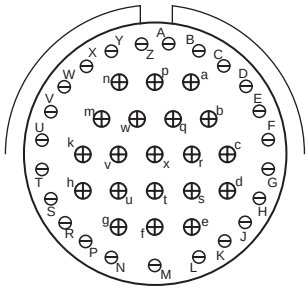
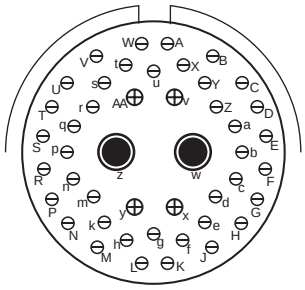
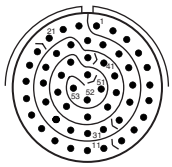
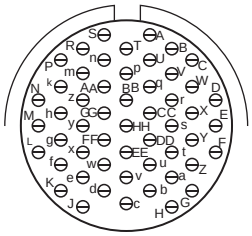
View of Mating-Face of Pin Insert

Drawing not to scale; mating face view of pin insert shown (socket view is opposite)

CONTACTS	28	29	30	
				
LAYOUT	**19-28**	**25-29G**	**19-30P•**	**25-20•✦**
# OF CONTACTS	26-#20, 2-#16	29-#16	29-#20, 1-#16	10-#20, 13-#16, 4-#12✱, 3-#8✱✱
SERVICE RATING	I	I	I	I

CONTACTS	32		36	37	
					
LAYOUT	**19-32**	**23-32P•**	**23-36•✦**	**15-35**	**15-37**
# OF CONTACTS	32-#20	32-#20	36-#20	37-#22D	37-#22M
SERVICE RATING	I	I	I	M	M

CONTACTS	37	39		41	42
					
LAYOUT	**25-37•✦G**	**17-2✦**	**21-39**	**21-41**	**17-42•**
# OF CONTACTS	37-#16	38-#22D, 1-#8✱✱	37-#20, 2-#16	41-#20	42-#22
SERVICE RATING	I	M	I	I	M

CONTACTS	43	46	53	
				
LAYOUT	**25-43✦**	**25-46✦**	**19-53P•**	**23-53**
# OF CONTACTS	23-#20, 20-#16	40-#20, 4-#16, 2-#8✱	53-#22	53-#20
SERVICE RATING	I	I	M	I

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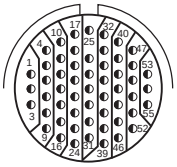
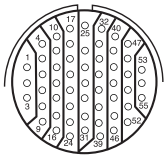
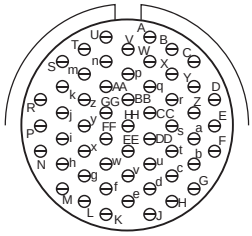
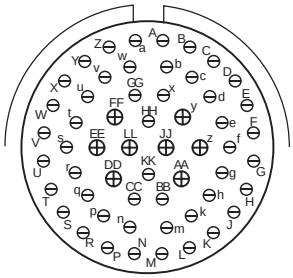
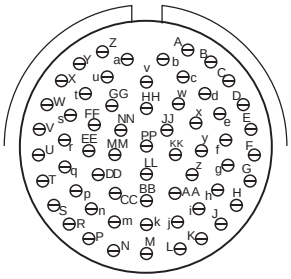
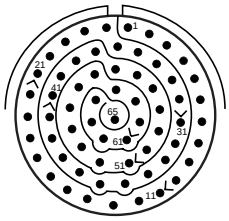
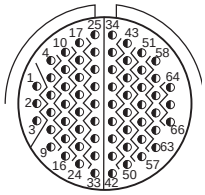
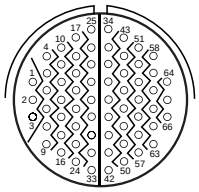
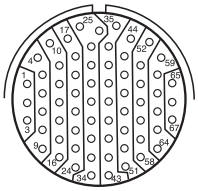
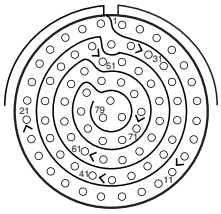
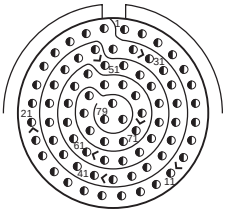
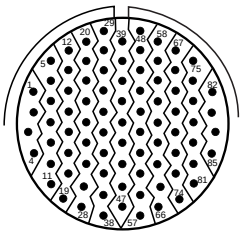
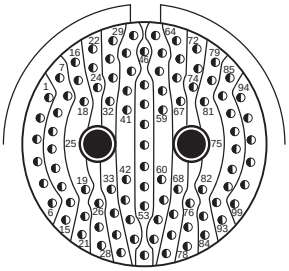
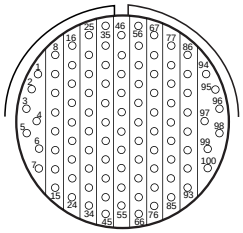
LAYOUTS BY NUMBER OF CONTACTS

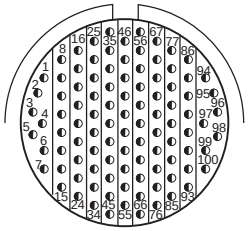
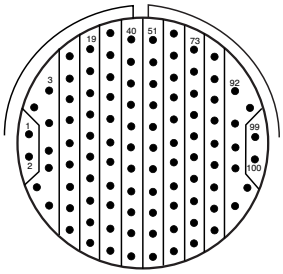
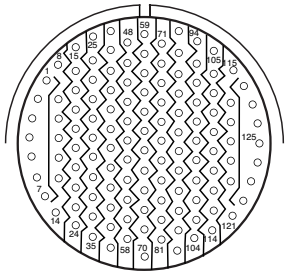
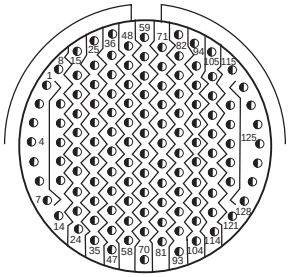
View of Mating-Face of Pin Insert

Drawing not to scale; mating face view of pin insert shown (socket view is opposite)

CONTACTS	55			56	61
					
LAYOUT	**17-35**	**17-55**	**23-55✦**	**25-4**	**25-61**
# OF CONTACTS	55-#22D	55-#22M	55-#20	48-#20, 8-#16	61-#20
SERVICE RATING	M	M	I	I	I

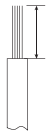
CONTACTS	65	66		67	79
					
LAYOUT	**21-2•✦**	**19-35**	**19-66**	**19-67P•✦**	**21-1**
# OF CONTACTS	65-#22	66-#22D	66-#22M	67-#22M	79-#22M
SERVICE RATING	M	M	M	M	M

CONTACTS	79	85	99	100
				
LAYOUT	**21-35**	**23-2**	**25-7•✦**	**23-1**
# OF CONTACTS	79-#22D	85-#22	97-#22D, 2-#8✱✱	100-#22M
SERVICE RATING	M	M	M	M

CONTACTS	100		128	
				
LAYOUT	**23-35**	**25-2**	**25-1**	**25-35**
# OF CONTACTS	100-#22D	100-#22	128-#22M	128-#22D
SERVICE RATING	M	M	M	M

✱Coax ✱✱Twinax • NOT QPL'D ✦ Not Tooled for RP or 02RE **P** = Pin Insert Only **S** = Socket Insert Only **G** = Grounded Contact us for more information.

PINS

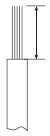


Insert head first.
Trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22	22,24,26 & 28	M39029/58-360	Orange	Blue	Black	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
		M39029/107-620#	Blue	Red	Black					
22M◊	24,26 & 28	M39029/58-361	Orange	Blue	Brown	.125 (3.18)	.030 (0.76)	.050 (1.27)	MS27488-22-2	Black
22◊	22,24,& 26	M39029/58-362	Orange	Blue	Red	.125 (3.18)	.034 (0.86)	.060 (1.52)	MS27488-22-2	Black
20	20, 22 & 24	M39029/58-363	Orange	Blue	Orange	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
		M39029/107-621#	Blue	Red	Brown					
16	16,18 & 20	M39029/58-364	Orange	Blue	Yellow	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
		M39029/107-622#	Blue	Red	Red					
12	12 & 14	M39029/58-365	Orange	Blue	Green	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
		M39029/107-623#	Blue	Red	Orange					
10	10 & 12	M39029/58-528	Green	Red	Gray	.355 (8.51)	.135 (3.42)	.162 (4.12)	M85049/81-10	Green
8	Coax∗ RG180B/U RG195A/U	M39029/60-367	Orange	Blue	Violet	Detailed Instructions included with contacts	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8	Twinax∗∗ M17/M176-0002	M39029/90-529	Green	Red	White		.124 (3.15)	.134 (3.40)	MS27488-8-3	Red
8 Power	8	10-497448-075	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8 Power	10	10-497448-095	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red

#1500 Mating Cycle Contacts ∗Coax ∗∗Twinax, contact us for details. ◊Inactive for new design For fibre optic contacts, please contact us.

SOCKETS

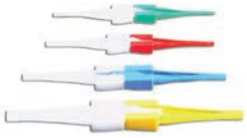


Insert head first.
Trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22D	22,24,26 & 28	M39029/56-348	Orange	Yellow	Gray	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
		M39029/106-614#	Blue	Brown	Yellow					
20	20, 22 & 24	M39029/56-351	Orange	Green	Brown	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
		M39029/106-615#	Blue	Brown	Gree					
16	16,18 & 20	M39029/56-352	Orange	Green	Red	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
		M39029/106-616#	Blue	Brown	Blue					
12	12 & 14	M39029/56-353	Orange	Green	Orange	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
		M39029/106-617#	Blue	Brown	Violet					
10	10 & 12	M39029/56-527	Green	Red	Violet	.355 (8.51)	.135 (3.42)	.162 (4.12)	M85049/81-10	Green
8	Coax∗ RG180B/U RG195A/U	M39029/59-366	Orange	Blue	Blue	Detailed Instructions included with contacts	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8	Twinax∗∗ M17/M176-0002	M39029/91-530	Green	Orange	Black		.124 (3.15)	.134 (3.40)	MS27488-8-3	Red
8 Power	8	10-497446-075	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8 Power	10	10-497446-095	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red

#1500 Mating Cycle Contacts ∗Coax ∗∗Twinax, contact us for details. ◊Inactive for new design For fibre optic contacts, please contact us.

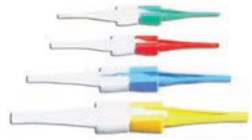
PINS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXRTACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND 1	COLOR BAND 2
22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
22M◊	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
22◊	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Blue	MS27495R16	Blue	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Green	M81969/8-12	Green	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	--	DRK95-12B	-	-
10	TP-201423 or 1716P-1	-	-	-	M81969/14-05	Gray	White	M81969/8-11	Green	M81969/8-12	Green	White
8 Coax	M22520/2-01 M22520/5-01	WA22†† HX23	M22520/2-31 (inner) M22520/5-05 (outer)		M81969/14-12	Green		-	-	DRK264-8	-	-
8 Twinax	M22520/2-01 M22520/5-01	WA22†† HX23	K709 (inner) Y631 (outer)		M81969/14-12	Green		M81969/46-06	Red	M81969/46-12	-	-
8 Power	-	400B-1	414DA-8N(Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-
8 Power	M3SP-6	400B-1	414DA-10N(Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-

†† Contact us for more tool accessories.

SOCKETS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXRTACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND 1	COLOR BAND 2
22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Blue	MS27495R16	Blue	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Green	M81969/8-12	Green	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	--	DRK95-12B	-	-
10	TP-201423 or 1716P-1	-	-	-	M81969/14-05	Gray	White	M81969/8-11	Green	M81969/8-12	Green	White
8 Coax	M22520/2-01 M22520/5-01	WA22†† HX23	M22520/2-31 (inner) M22520/5-05 (outer)		M81969/14-12	Green		-	-	DRK264-8	-	-
8 Twinax	M22520/2-01 M22520/5-01	WA22†† HX23	K709 (inner) Y631 (outer)		M81969/14-12	Green		M81969/46-06	Red	M81969/46-12	-	-
8 Power	-	400B-1	414DA-8N(Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-
8 Power	M3SP-6	400B-1	414DA-10N(Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-

†† Contact us for more tool accessories.

COAX CONTACTS

COAX PIN

COAX SOCKET

CRIMPING TOOLS

M22520/5-01

Crimp Dies

COAX CONTACT SIZE	CABLE TYPE	CONTACT PART NUMBER		CRIMPING TOOLS	
		PIN	SOCKET	INNER CONTACT	CRIMP FERRULE
16	RG-178B/U, RG-196A/U	21-033122-564 (M39029/76-425)	21-033123-564 (M39029/77-429)	M22520/2-01 w/ Positioner M22520/2-35 or w/ Daniels Positioner K532	M22520/4-01 w/ Positioner M22520/4-02
	RG-174A/U, RG-188A/U, RG-161/U, RG-187A/U, RG-316/U, RG-179B/U	21-033122-563 (M39029/76-424)	21-033123-563 (M39029/77-428)		
12		21-033122-546 (M39029/28-211)	21-033123-546 (M39029/75-416)	M22520/2-01 w/ Positioner M22520/2-34 or w/ Daniels Positioner K323	M22520/31-01 w/ Positioner M22520/31-02 or Daniels GS-200 Tool w/ Positioner G2P330
	RG-180B/U, RG-195A/U	21-033122-541 (M39029/28-409)	21-033123-541 (M39029/75-417)		
8	RG-187A/U, RG-179B/U, RG-174A/U, RG-188A/U, RG-316/U, RG-161/U	21-033102-023	21-033101-023	M22520/2-01 w/ Positioner M22520/2-31 or Solder	M22520/5-01 w/ die set M22520/5-03 (A) or M22520/5-08 (A) M22520/5-35 (B) or M22520/10-01 w/ die set M22520/10-05 (A)
	RG-142B/U, RG-223/U	21-033102-024	21-033101-024	Solder	M22520/5-01 w/ die set M22520/5-05 (A)or M22520/5-19 (B) or M22520/10-01 w/ die set M22520/10-07 (A)
	RG-180B/U, RG-195A/U	21-033102-021 (M39029/60-367)	21-033101-021 (M39029/59-366)	M22520/2-01 w/ Positioner M22520/2-31 or Solder	M22520/5-01 w/ die set M22520/5-05 (B) or M22520/5-41 (B) or M22520/10-01 w/ die set M22520/10-07 (B)
	RG-400	21-033102-027	21-033101-027	M22520/2-01 w/ Positioner M22520/2-10	M22520/5-01 w/ die set M22520/5-45 (A)
	RG-58 (M17/155-00001)	21-033102-029	21-033101-029	Solder	M22520/5-01 w/ die set M22520/5-05 (B)

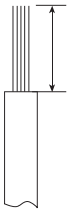
PRINTED CIRCUIT BOARD CONTACTS - PIN

PCB PIN CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX./MIN.						
			MS27466 LJT00RT	MS27656 LJTPQ00RT	MS27496 LJT02RE	MS27505 LJTP02RE	MS27467 LJT06RE	MS27468 LJT07RE	
								(9-17)	(19-25)
10-407552-015	22M	0.019	.372 / .317	.357 / .302	.576 / .521	.576 / .520	.372 / .317	.351 / .296	.329 / .279
10-407552-055	22M	0.019	.261 / .206	.246 / .191	.465 / .410	.465 / .409	.261 / .206	.240 / .185	.218 / .168
10-407552-085	22M	0.019	.097 / .047	.082 / .032	.301 / .251	.301 / .250	.097 / .047	.076 / .026	.054 / .009
10-407552-115	22M	0.019	.035 / NS	.020 / NS	.239 / .189	.239 / .188	.035 / NS	.014 / NS	NS
10-497640-015	20	0.019	.385 / .335	.370 / .320	.589 / .539	.589 / .538	.385 / .335	.364 / .314	.342 / .297
10-497640-025	20	0.019	.250 / .200	.235 / .185	.454 / .404	.454 / .403	.250 / .200	.229 / .179	.207 / .162
10-497640-045	20	0.019	NS	NS	.191 / .141	.191 / .141	NS	NS	NS
10-497596-015	20	0.025	.095 / .049	.080 / .034	.299 / .253	.299 / .252	.095 / .049	.074 / .028	.052 / .011
10-497596-025	20	0.025	.185 / .139	.170 / .124	.389 / .343	.389 / .342	.185 / .139	.164 / .118	.142 / .101
10-497596-035	20	0.025	.266 / .220	.251 / .205	.470 / .424	.470 / .423	.266 / .220	.245 / .199	.223 / .182
10-497596-055	20	0.025	.383 / .337	.368 / .322	.587 / .541	.587 / .540	.383 / .337	.362 / .316	.340 / .299
10-497695-015	16	0.040	.292 / .242	.277 / .227	.496 / .446	.496 / .445	.292 / .242	.271 / .221	.249 / .204
10-497630-035	16	0.062	.097 / .047	.082 / .032	.301 / .251	.301 / .250	.385 / .335	.076 / .026	.054 / .009
10-497630-055	16	0.062	.296 / .250	.281 / .235	.454 / .401	.454 / .401	.232 / .182	.229 / .175	.207 / .158
10-597502-015	12	0.081	.265 / .215	.250 / .200	.469 / .410	.469 / .418	.265 / .215	.244 / .194	.222 / .177

= Standard PC tail used

WIRE HOLE FILLER

WIRE STRIP LENGTH



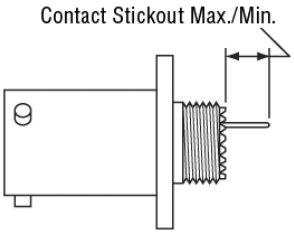
WIRE SEALING RANGE

INSTALLATION TOOLS		WIRE STRIP LENGTHS	WIRE SEALING RANGE	
INSERTION	REMOVAL		MIN.	MAX.
M81969/8-07 or M81969/14-03	M81969/8-08 or M81969/14-03	Contact us for details	.065 (1.65)	.109 (2.77)
M81969/8-09 or M81969/14-04	M81969/8-10 or M81969/14-04	Contact us for details	.097 (2.46)	.142 (3.61)
Hand insertion	M81969/14-12 or DRK264-8 or 11-9170	Contact us for details	.135 (3.43)	.155 (3.94)

All dimensions in inches (millimeters in parenthesis)

PRINTED CIRCUIT BOARD CONTACTS - SOCKET

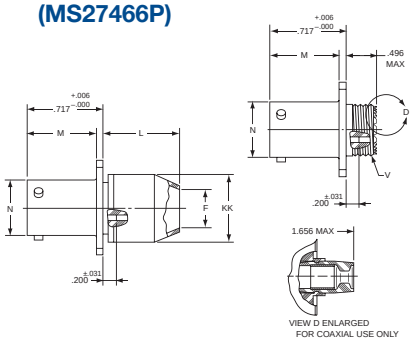
PCB SOCKET CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX./MIN.						
			MS27466 LJT00RT	MS27656 LJTPQ00RT	MS27496 LJT02RE	MS27505 LJTP02RE	MS27467 LJT06RE	MS27468 LJT07RE	
								(9-17)	(19-25)
10-497623-015	22M	0.019	.328 / .263	.313 / .248	.532 / .467	.532 / .466	.328 / .263	.307 / .424	.285 / .225
10-497623-335	22M	0.019	.264 / .199	.249 / .188	.468 / .406	.468 / .405	.264 /.199	.243 / .182	.221 / .165
10-497623-025	22M	0.019	.905 / .840	.890 / .825	1.109 / 1.044	1.109 / 1.043	.905 / .840	.884 / .819	.862 / .802
10-497623-035	22M	0.019	.385 / .320	.370 / .305	.589 / .524	.589 / .523	.385 / .320	.364 / .299	.342 / .282
10-497623-045	22M	0.019	.245 / .180	.230 / .165	.449 / .384	.449 / .383	.245 / .180	.224 / .159	.202 / .142
10-497623-075	22M	0.019	.183 / .118	.168 / .103	.387 / .322	.387 / .321	.183 / .118	.162 / .097	.140 / .080
10-497623-145	22M	0.019	.646 / .576	.631 / .561	.850 / .780	.850 / .779	.646 / .576	.625 / .555	.603 / .538
10-497623-155	22M	0.019	.460 / .395	.445 / .380	.664 / .599	.664 / .598	.460 / .395	.439 / .374	.417 / .357
10-497643-015	20	0.019	.385 / .339	.370 / .316	.589 / .535	.589 / .536	.385 / .331	.364 / .310	.342 / .293
10-497643-025	20	0.019	.250 / .204	.235 / .181	.454 / .400	.454 / .401	.250 / .196	.229 / .175	.207 / .15
10-497643-035	20	0.019	.592 / .546	.577 / .523	.796 / .742	.796 / .743	.592 / .538	.571 / .517	.549 / .500
10-497650-015	16	0.040	.292 / .246	.277 / .223	.496 / .442	.496 / .443	.292 / .238	.271 / .217	.249 / .200
10-597503-015	12	0.081	.221 / .175	.206 / .152	.425 / .371	.425 / .372	.221 / .167	.200 / .146	.178 / .129



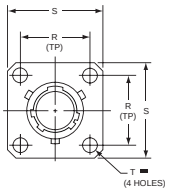
= Standard PC tail used

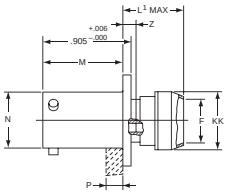
RECEPTACLES

LJT00RP (MS27466P)



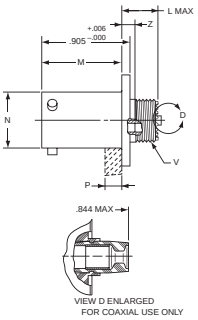
LJT00RE (MS27466E)
LJT00RT (MS27466T) HE30800T

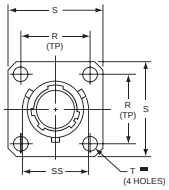




LJTPQ00RP (MS27656P)

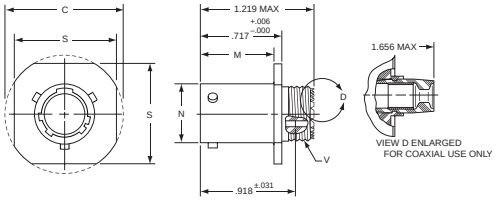
LJTPQ00RE (MS27656E)
LJTPQ00RT (MS27656T)





SHELL SIZE	F ±.010	L MAX. MS27466/ LJT00R	L MAX. MS27656/ LJTPQ00R	L1 MAX. MS27656/ LJTPQ00R	M +.000 / -.005 MS27466/ LJT00R	M +.000 / -.005 MS27656/ LJTPQ00R	N DIA. +.001/ -.005	R (TP)	S DIMENSION MS27466/ LJT00R ±016	S DIMENSION MS27656/ LJTPQ00R +.011/-010	T DIA. ±.005 (±.127)	KK DIMENSION MAX. MS27466/ LJT00R	KK DIMENSION MAX. MS27656/ LJTPQ00	V THREAD CLASS 2A (PLATED)	Z MAX. MS27466/ LJTPQ00R	SS DIA. MS27466/ LJTPQ00R
9	0.444	0.813	0.453	0.641	0.632	0.820	0.572	0.719	0.938	0.938	0.128	0.608	0.625	.4375-28	0.138	0.662
	(11.3)	(20.7)	(11.5)	(16.3)	(16.1)	(20.8)	(14.5)	(18.3)	(23.8)	(23.8)	(3.3)	(15.4)	(15.9)	UNEF	(3.5)	(16.8)
11	0.558	0.813	0.453	0.641	0.632	0.820	0.700	0.812	1.031	1.031	0.128	0.734	0.750	.5625-24	0.138	0.810
	(14.2)	(20.7)	(11.5)	(16.3)	(16.1)	(20.8)	(17.8)	(20.6)	(26.2)	(26.2)	(3.3)	(18.6)	(19.1)	UNEF	(3.5)	(20.6)
13	0.683	0.813	0.453	0.641	0.632	0.820	0.850	0.906	1.125	1.125	0.128	0.858	0.875	.6875-24	0.138	0.960
	(17.3)	(20.7)	(11.5)	(16.3)	(16.1)	(20.8)	(21.6)	(23.0)	(28.6)	(28.6)	(3.3)	(21.8)	(22.2)	UNEF	(3.5)	(24.4)
15	0.808	0.813	0.453	0.641	0.632	0.820	0.975	0.969	1.219	1.219	0.128	0.984	1.000	.8125-20	0.138	1.085
	(20.5)	(20.7)	(11.5)	(16.3)	(16.1)	(20.8)	(24.8)	(24.6)	(31.0)	(31.0)	(3.3)	(25.0)	(25.4)	UNEF	(3.5)	(27.6)
17	0.909	0.813	0.453	0.641	0.632	0.820	1.100	1.062	1.312	1.312	0.128	1.110	1.125	.9375-20	0.138	1.210
	(23.1)	(20.7)	(11.5)	(16.3)	(16.1)	(20.8)	(27.9)	(27.0)	(33.3)	(33.3)	(3.3)	(28.2)	(28.6)	UNEF	(3.5)	(30.7)
19	1.034	0.813	0.453	0.641	0.632	0.820	1.207	1.156	1.438	1.438	0.128	1.234	1.250	1.0625-18	0.138	1.317
	(26.3)	(20.7)	(11.5)	(16.3)	(16.1)	(20.8)	(30.7)	(29.4)	(36.5)	(36.5)	(3.3)	(31.3)	(31.8)	UNEF	(3.5)	(33.5)
21	1.159	0.906	0.484	0.672	0.602	0.790	1.332	1.250	1.562	1.562	0.128	1.360	1.375	1.1875-18	0.168	1.442
	(29.4)	(23.0)	(12.3)	(17.1)	(15.3)	(20.1)	(33.8)	(31.8)	(39.7)	(39.7)	(3.3)	(34.5)	(34.9)	UNEF	(4.3)	(36.6)
23	1.284	0.906	0.484	0.672	0.602	0.790	1.457	1.375	1.688	1.688	0.147	1.484	1.500	1.3125-18	0.168	1.567
	(32.6)	(23.0)	(12.3)	(17.1)	(15.3)	(20.1)	(37.0)	(34.9)	(42.9)	(42.9)	(3.7)	(37.7)	(38.1)	UNEF	(4.3)	(39.8)
25	1.409	0.906	0.484	0.672	0.602	0.790	1.582	1.500	1.812	1.812	0.147	1.610	1.625	1.4375-18	0.168	1.692
	(35.8)	(23.0)	(12.3)	(17.1)	(15.3)	(20.1)	(40.2)	(38.1)	(46.0)	(46.0)	(3.7)	(40.9)	(41.3)	UNEF	(4.3)	(43.0)

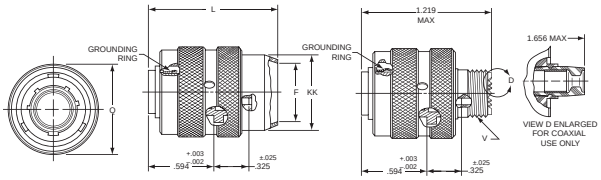
LJT01RE/LJT01RT/HE30801T



SHELL SIZE	C MAX.	M +.000/-.005 (+.000/-.127)	N +.000/-.005 (+.000/-.127)	S ± .016 (±.406)	V THREAD CLASS 2A (PLATED)
9	1.094	0.632	0.572	0.938	.4375-28 UNEF
	(27.8)	(16.1)	(14.5)	(23.8)	
11	1.188	0.632	0.700	1.031	.5625-24 UNEF
	(30.2)	(16.1)	(17.8)	(26.2)	
13	1.281	0.632	0.850	1.125	.6875-24 UNEF
	(32.5)	(16.1)	(21.6)	(28.6)	
15	1.375	0.632	0.975	1.219	.8125-20 UNEF
	(34.9)	(16.1)	(24.8)	(31.0)	
17	1.469	0.632	1.100	1.312	.9375-20 UNEF
	(37.3)	(16.1)	(27.9)	(33.3)	
19	1.594	0.632	1.207	1.438	1.0625-18 UNEF
	(40.5)	(16.1)	(30.7)	(36.5)	
21	1.719	0.602	1.332	1.562	1.1875-18 UNEF
	(43.7)	(15.3)	(33.8)	(39.7)	
23	1.844	0.602	1.457	1.688	1.3125-18 UNEF
	(46.8)	(15.3)	(37.0)	(42.9)	
25	1.969	0.602	1.582	1.812	1.4375-18 UNEF
	(50.0)	(15.3)	(40.2)	(46.0)	

LJT06RP (MS27467P)

LJT06RE (MS27467E)
LJT06RT (MS27467T) HE30806T

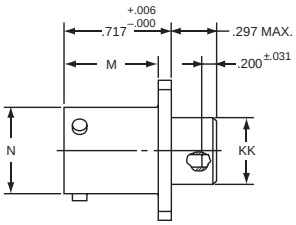


SHELL SIZE	F ± .010	L MAX.	Q MAX.	KK DIAMETER MAX.	V THREAD CLASS 2A (PLATED)
9	0.444	1.531	0.844	0.608	.4375-28 UNEF
	(11.3)	(38.9)	(21.4)	(15.4)	
11	0.558	1.531	0.969	0.734	.5625-24 UNEF
	(14.2)	(38.9)	(24.6)	(18.6)	
13	0.683	1.531	1.141	0.858	.6875-24 UNEF
	(17.3)	(38.9)	(29.0)	(21.8)	
15	0.808	1.531	1.266	0.984	.8125-20 UNEF
	(20.5)	(38.9)	(32.2)	(25.0)	
17	0.909	1.531	1.391	1.110	.9375-20 UNEF
	(23.1)	(38.9)	(35.3)	(28.2)	
19	1.034	1.531	1.500	1.234	1.0625-18 UNEF
	(26.3)	(38.9)	(38.1)	(31.3)	
21	1.159	1.625	1.625	1.360	1.1875-18 UNEF
	(29.4)	(41.3)	(41.3)	(34.5)	
23	1.284	1.625	1.750	1.484	1.3125-18 UNEF
	(32.6)	(41.3)	(44.5)	(37.7)	
25	1.409	1.625	1.875	1.610	1.4375-18 UNEF
	(35.8)	(41.3)	(47.6)	(40.9)	

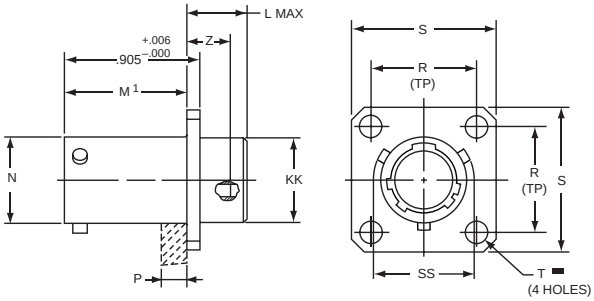
All dimensions in inches (millimeters in parenthesis)

RECEPTACLES

LJT02RE (MS27496E)

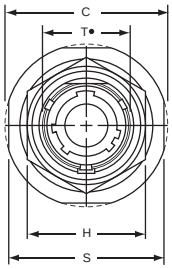


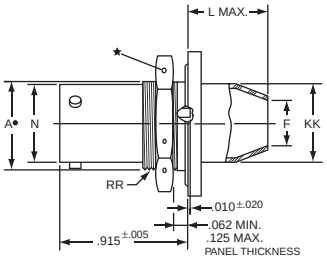
LJTP02RE (MS27505E)



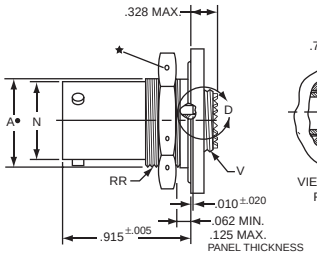
SHELL SIZE	L MAX.	M +.000/-.005 (+.000/-.127)	M1 +.001/-.005 (+.000/-.127)	N DIAMETER +.001/-.005 (+.025/-.127)	P MAX. PANEL THICKNESS	R (TP)	S +.011/-.010 (+.279/-.254)	T DIAMETER ±.005 (±.127)	Z ±.031 (±.787)	KK DIAMETER +.006/-.005 (+.152/-.127)	SS DIAMETER +.000/-.016 (+.000/-.406)
9	0.203 (5.2)	0.632 (16.1)	0.820 (20.8)	0.572 (14.5)	0.234 (5.9)	0.719 (18.3)	0.938 (23.8)	0.128 (3.3)	0.107 (2.7)	0.433 (11.0)	0.662 (16.8)
11	0.203 (5.2)	0.632 (16.1)	0.820 (20.8)	0.700 (17.8)	0.234 (5.9)	0.812 (20.6)	1.031 (26.2)	0.128 (3.3)	0.107 (2.7)	0.557 (14.1)	0.810 (20.6)
13	0.203 (5.2)	0.632 (16.1)	0.820 (20.8)	0.850 (21.6)	0.234 (5.9)	0.906 (23.0)	1.125 (28.6)	0.128 (3.3)	0.107 (2.7)	0.676 (17.2)	0.960 (24.4)
15	0.203 (5.2)	0.632 (16.1)	0.820 (20.8)	0.975 (24.8)	0.234 (5.9)	0.969 (24.6)	1.219 (31.0)	0.128 (3.3)	0.107 (2.7)	0.801 (20.3)	1.085 (27.6)
17	0.203 (5.2)	0.632 (16.1)	0.820 (20.8)	1.100 (27.9)	0.234 (5.9)	1.062 (27.0)	1.312 (33.3)	0.128 (3.3)	0.107 (2.7)	0.926 (23.5)	1.210 (30.7)
19	0.203 (5.2)	0.632 (16.1)	0.820 (20.8)	1.207 (30.7)	0.234 (5.9)	1.156 (29.4)	1.438 (36.5)	0.128 (3.3)	0.107 (2.7)	1.032 (26.2)	1.317 (33.5)
21	0.234 (5.9)	0.602 (15.3)	0.790 (20.1)	1.332 (33.8)	0.204 (5.2)	1.250 (31.8)	1.562 (39.7)	0.128 (3.3)	0.137 (3.5)	1.157 (29.4)	1.442 (36.6)
23	0.234 (5.9)	0.602 (15.3)	0.790 (20.1)	1.457 (37.0)	0.204 (5.2)	1.375 (34.9)	1.688 (42.9)	0.147 (3.7)	0.137 (3.5)	1.282 (32.6)	1.567 (39.8)
25	0.234 (5.9)	0.602 (15.3)	0.790 (20.1)	1.582 (40.2)	0.193 (4.9)	1.500 (38.1)	1.812 (46.0)	0.147 (3.7)	0.137 (3.5)	1.407 (35.7)	1.692 (43.0)

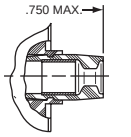
LJT07RP (MS27468P)





LJT07RE (MS27468E)
LJT07RT (MS27468T) HE30807T





SHELL SIZE	A• +.000/-.010 (+.000/-.254)	C MAX.	F ± .010	H HEX. +.017/-.016 (+.432/-.406)	L MAX.	N +.001/-.005 (+.025/-.127)	S ±.016 (±.406)	T• +.010/-.000 (+.254/-.000)	V THREAD CLASS 2A (PLATED)	KK DIAMETER MAX.	RR THREAD CLASS 2A (PLATED)
9	0.669 (17.0)	1.199 (30.5)	0.444 (11.3)	0.875 (22.2)	0.625 (15.9)	0.572 (14.5)	1.062 (27.0)	0.697 (17.7)	.4375-28 UNEF	0.608 (15.4)	.6875-24 UNEF
11	0.769 (19.5)	1.386 (35.2)	0.558 (14.2)	1.000 (25.4)	0.625 (15.9)	0.700 (17.8)	1.250 (31.8)	0.822 (20.9)	.5625-24 UNEF	0.734 (18.6)	.8125-20 UNEF
13	0.955 (24.3)	1.511 (38.4)	0.683 (17.3)	1.188 (30.2)	0.625 (15.9)	0.850 (21.6)	1.375 (34.9)	1.007 (25.6)	.6875-24 UNEF	0.858 (21.8)	1.0000-20 UNEF
15	1.084 (27.5)	1.636 (41.6)	0.808 (20.5)	1.312 (33.3)	0.625 (15.9)	0.975 (24.8)	1.500 (38.1)	1.134 (28.8)	.8125-20 UNEF	0.984 (25.0)	1.1250-18 UNEF
17	1.208 (30.7)	1.761 (44.7)	0.909 (23.1)	1.438 (36.5)	0.625 (15.9)	1.100 (27.9)	1.625 (41.3)	1.259 (32.0)	.9375-20 UNEF	1.110 (28.2)	1.2500-18 UNEF
19	1.333 (33.9)	1.949 (49.5)	1.034 (26.3)	1.562 (39.7)	0.656 (16.7)	1.207 (30.7)	1.812 (46.0)	1.384 (35.2)	1.0625-18 UNEF	1.234 (31.3)	1.3750-18 UNEF
21	1.459 (37.1)	2.073 (52.7)	1.159 (29.4)	1.688 (42.9)	0.750 (19.1)	1.332 (33.8)	1.938 (49.2)	1.507 (38.3)	1.1875-18 UNEF	1.360 (34.5)	1.5000-18 UNEF
23	1.580 (40.1)	2.199 (55.9)	1.284 (32.6)	1.812 (46.0)	0.750 (19.1)	1.457 (37.0)	2.062 (52.4)	1.634 (41.5)	1.3125-18 UNEF	1.484 (37.7)	1.6250-18 UNEF
25	1.709 (43.4)	2.323 (59.0)	1.409 (35.8)	2.000 (50.8)	0.750 (19.1)	1.582 (40.2)	2.188 (55.6)	1.759 (44.7)	1.4375-18 UNEF	1.610 (40.9)	1.7500-18 UNS

• "D" shaped mounting hole dimensions

All dimensions in inches (millimeters in parenthesis)

ACCESSORIES

LJT SHELL SIZE	DUMMY RECEPTACLES	RECEPTACLE DUST CAPS		PLUG CAP
		FOR FLANGED	FOR JAM NUT	
9	M38999/9-9B	MS27502**9C	MS27502**9N	MS27501**9C
11	M38999/9-11B	MS27502**11C	MS27502**11N	MS27501**11C
13	M38999/9-13B	MS27502**13C	MS27502**13N	MS27501**13C
15	M38999/9-15B	MS27502**15C	MS27502**15N	MS27501**15C
17	M38999/9-17B	MS27502**17C	MS27502**17N	MS27501**17C
19	M38999/9-19B	MS27502**19C	MS27502**19N	MS27501**19C
21	M38999/9-21B	MS27502**21C	MS27502**21N	MS27501**21C
23	M38999/9-23B	MS27502**23C	MS27502**23N	MS27501**23C
25	M38999/9-25B	MS27502**25C	MS27502**25N	MS27501**25C

** Select code for plating
B = Olive Drab Chromate over Cadmium over Nickel (500-Hour Salt Spray) (Most Popular)
F = Electroless Nickel (Fluid-Resistant)
A = Gold Iridite over Cadmium Nickel
C = Hard Anodize

Straight

Right Angle

LJT SHELL SIZE	ENDBELLS		CABLE RANGE	
	STRAIGHT, LOW-COST	RIGHT-ANGLE, LOW-COST	MIN.	MAX.
9	M85049/49-2-8**	M85049/47**8	.098 (2.50)	.234 (5.94)
11	M85049/49-2-10**	M85049/47**10	.153 (3.89)	.234 (5.94)
13	M85049/49-2-12**	M85049/47**12	.190 (4.83)	.328 (8.33)
15	M85049/49-2-14**	M85049/47**14	.260 (6.60)	.457 (11.61)
17	M85049/49-2-16**	M85049/47**16	.283 (7.19)	.614 (15.60)
19	M85049/49-2-18**	M85049/47**18	.325 (8.25)	.634 (16.10)
21	M85049/49-2-20**	M85049/47**20	.343 (8.71)	.698 (17.73)
23	M85049/49-2-22**	M85049/47**22	.381 (9.68)	.823 (20.90)
25	M85049/49-2-24**	M85049/47**24	.418 (10.62)	.853 (21.67)

** Select code for connector plating
W = Olive Drab Chromate over Cadmium over Nickel (1000-Hour Salt Spray)
N = Electroless Nickel (Fluid-Resistant)
A = Black Anodize

All dimensions in inches (millimeters in parenthesis)

ACCESSORIES

Straight

Right Angle

LJT SHELL SIZE	SELF-LOCKING ENDBELLS, STRAIGHT	CABLE RANGE, RIGHT-ANGLE	MIN.	MAX.
9	M85049/49-2S8**	M85049/47S**8	.098 (2.49)	.234 (5.94)
11	M85049/49-2S10**	M85049/47S**10	.153 (3.89)	.234 (5.94)
13	M85049/49-2S12**	M85049/47S**12	.190 (4.83)	.328 (8.33)
15	M85049/49-2S14**	M85049/47S**14	.260 (6.60)	.457 (11.61)
17	M85049/49-2S16**	M85049/47S**16	.283 (7.19)	.614 (15.60)
19	M85049/49-2S18**	M85049/47S**18	.325 (8.25)	.634 (16.10)
21	M85049/49-2S20**	M85049/47S**20	.343 (8.71)	.698 (17.73)
23	M85049/49-2S22**	M85049/47S**22	.381 (9.68)	.823 (20.90)
25	M85049/49-2S24**	M85049/47S**24	.418 (10.62)	.853 (21.67)

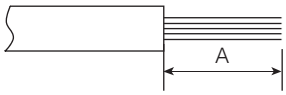
** Select code for connector plating
W = Olive Drab Chromate over Cadmium over Nickel (1000-Hour Salt Spray)
N = Electroless Nickel (Fluid-Resistant)
S = 300 Series Steel, Passivated

	SEALED	EMI/RFI	S = STRAIGHT A = 90° B = 45°	ORIENTATION	DESCRIPTION
M85049/62 	Y	N	S	Heat Shrink Boot Adapters	Designed for use with straight or right angle shrink boots. A knurled rear section with a boot groove provides excellent surface for the boot to grab the metal endbell. Available with lock wire and drain holes. See Heat Shrink Boots on pages 367-368.
M85049/33 M85049/32 	N	Y	S A	Shield Termination Back Shell	Non-environmental designed for use with jacketed cable. Allow extra space to break out the wires and still provide stain relief clamping to the outside of the cable jacket.
M85049/17 	Y	Y	S	Extender Back Shell	This EMI/RFI-shielding, environmentally-sealed endbell features a standard-style cable clamp with gland seal at the end of an extender-style backshell.
M85049/29 	N	N	S	Extender Back Shell	This EMI/RFI-shielding, non-environmentally-sealed endbell features a standard-style cable clamp.
Banding M85049/85 M85049/86 M85049/87	Y	Y	 S B A	Banding Adapter	Banding adapters utilize a band of metal that fastens and grounds cable shields to the outside of endbells. This method of terminating shields has advantages in that they typically use tools to tighten and trim the bands. These tools make the termination tight, repeatable, reworkable (if you make a mistake, just cut the band off and start again) and facilitates service. Banding adapters help lower the total applied cost by having simpler designs that have fewer parts with uncomplicated assembly procedures.
Custom			SAB	Custom Designs Contact us	If the military-standard endbells don't fit your needs, contact us and we will customize an endbell solution. Most of these customized endbells are typically assembled in 4-8 weeks or sooner!
M85049/27	N	N	S	E-Nut	Wire seal compression nut

All dimensions in inches (millimeters in parenthesis)

WIRE STRIPPING

Strip insulation from end of wire to be crimped. (See table for proper stripping dimensions.) Do not cut or damage wire strands.



WIRE SIZE	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
10	.335 (8.51)
8 (power)	.470 (11.99)

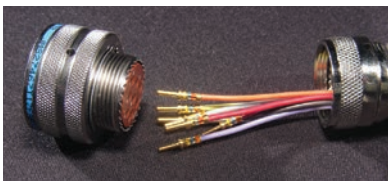
CONTACT CRIMPING

STEP 1: Insert wire into rear of contact. Wire insulation must press against rear of contact. Wire must be visible through inspection hole.

STEP 2: M22520 series crimp tool and locator is recommended. See Contact and Tool Table on pages 182 and 183 for choice of turret head and selection setting according to contact size, part number and wire gauge size.

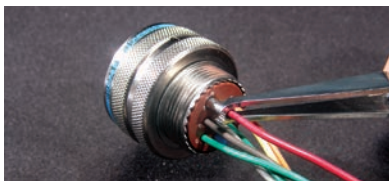
STEP 3: Insert contact and wire into tool jaws. To crimp, squeeze handles together fully until ratchet releases and allows handles to expand; otherwise, contact cannot be extracted from tool jaws. Maintain slight insertion pressure on wire while crimping contact to wire.

CONTACT INSERTION

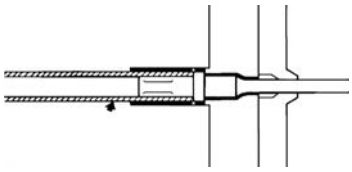


STEP 1: Remove hardware from plug or receptacle and slip over wire bundle in proper order for reassembly.

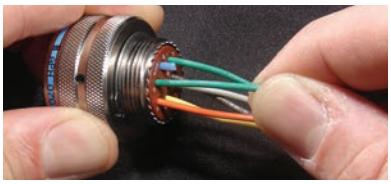
STEP 2: Using proper plastic or metal insertion tool for corresponding contact, position wire in tip of the tool so that the tool tip presses against the contact shoulder.



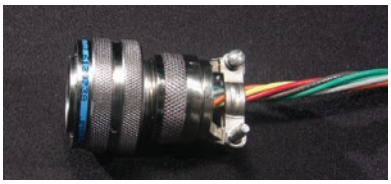
STEP 3: Press tool against contact shoulder and, with firm and even pressure, insert wired contact and tool tip into center contact cavity.



STEP 4: When contact bottoms, a slight "click" can be heard as tines of metal retaining clip snap into place behind contact shoulder.

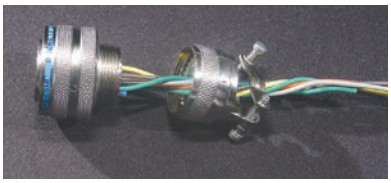


STEP 5: Remove tool and pull back lightly on wire to make sure contact is properly seated. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.

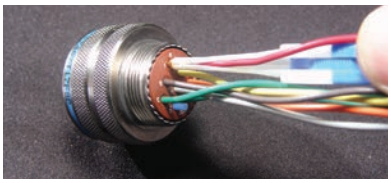


STEP 6: After all contacts are inserted, fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

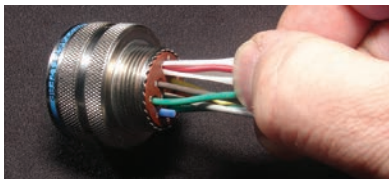
CONTACT EXTRACTION



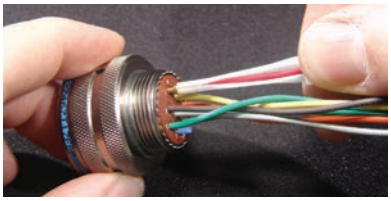
STEP 1: Remove hardware from plug or receptacle and slide hardware back along wire bundle.



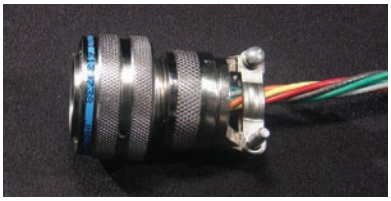
STEP 2: Using plastic or metal extraction tool with proper color code corresponding to contact size, place wire in tool.



STEP 3: Insert tool into contact cavity until tool tip bottoms against the contact shoulder, expanding clip retaining tines.



STEP 4: Hold wire firmly in tool and extract wired contact and tool. Repeat operation for all contacts to be extracted.



STEP 5: Fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

All dimensions in inches (millimeters in parenthesis)

Amphenol JT MIL-DTL-38999 Series II

LIGHT-WEIGHT, SPACE-SAVING DESIGN

Amphenol's MIL-DTL-38999 series II JT miniature connectors offer high-density contact arrangements in a small size. They were designed for high-performance requirements, including military and commercial aviation applications. They are environmentally-sealed and have a wide operating temperature range.

- Intermateable with Deutsch, ITT Cannon, Souriau and all MIL-DTL-38999 series II connectors
- Formerly MIL-C-38999

APPLICATIONS

- High-performance military aircraft
- Commercial airlines
- Communications equipment
- Missiles
- Test equipment
- Ships

FEATURES

HIGH-RELIABILITY

MIL-DTL-38999 series II - JT style connectors are used in performance aircraft that demand reliable connections in some of the most rigorous environments. The connectors must perform flawlessly under wide temperature ranges, high vibrations, and be resistant to a vast array of contaminants.

LOW-PROFILE CONNECTOR DESIGN

JT's require a fraction of the space needed to mate most other high-performance connectors, permitting use in areas that would be impossible for other mating systems.

LIGHT-WEIGHT

Today's aircraft designs require connectors that are very light-weight. Saving weight on the connector systems allows the aircraft to carry more fuel, maximizing its range or payload-carrying capacity.

HIGH-DENSITY CONNECTORS

JT connectors offer up to 128 contacts per connector. Ideally-suited for the demands of today's digital electronics that are used on fly-by wire aircraft, advanced robotics, and critical industrial equipment.

OPERATES AT EXTREME TEMPERATURES

These connectors will operate in temperatures from -85°F to +392°F (-65°C to +200°C)

QUICK-MATING COUPLING SYSTEMS

Three-point bayonet coupling nuts provide fast, one-third-turn connector mating. Mating is easily verified with an audible and tactile "click" and a bayonet pin sighting hole located in the coupling nut.

BROAD RANGE OF MILITARY AND COMMERCIAL ACCESSORIES

Many military-standard endbells to MIL-C-85049 specifications and a wide array of cable termination styles are available. Straight, 45- and 90-degree endbells come in many styles from low-cost, standard clamp to shielded, environmentally-sealed.

MIL-DTL-38999 APPROVED

JT's are fully-intermatable and intermountable with all other MIL-DTL-38999 series II connectors.

TECHNICAL SPECIFICATIONS

MATERIALS AND FINISHES

Shell	Aluminum alloy
Platings	A - Clear chromate over cadmium over electroless nickel per QQ-P-416 B - Olive drab chromate over cadmium over electroless nickel per QQ-P-416 F - Electroless nickel per QQ-N-290 C - Hard, anodic, non-conductive in accordance with MIL-A-862 W52 - Olive drab zinc cobalt
Contacts	Copper alloy
Plating	Gold-plated, 50 microinches per MIL-G-45204 type II, grade C, class 1
Insulator	Hard dielectric wafer that contains metal retention tines for high-reliability retention of crimp contacts
Grommet & Seals	Silicone-based elastomer
Grounding Springs	Beryllium copper (Grounded plug only)

ELECTRICAL DATA

Operating Voltage & Test Voltage (unmated condition)

TEST VOLTAGES	SERVICE RATING N	M	I	II
SEA LEVEL	1000	1300	1800	2300
100,000 FEET	200	200	200	200

Current Rating by Contact Size & Wire Accommodation (Test Amps)

WIRE SIZE	22D	22M✱	22 ✱	20	16	12
28	1.5	1.5	-	-	-	-
26	2.0	2.0	2.0	-	-	-
24	3.0	3.0	3.0	3.0	-	-
22	5.0	-	5.0	5.0	-	-
20	-	-	-	7.5	7.5	-
18	-	-	-	-	10.0	-
16	-	-	-	-	13.0	-
14	-	-	-	-	-	17.0
12	-	-	-	-	-	23.0

Contact Resistance of Mated Contacts End-to-End

CONTACT SIZE	MAXIMUM MILLIVOLT DROP
22D	73
22M✱	45
22✱	73
20	55
16	49
12	42

Insulation Resistance	5,000 megohms minimum

MECHANICAL

Operating Temperature	A - Plating -65°C to 150°C (-85°F to 302°F) B - Plating -65°C to 175°C (-85°F to 347°F) F - Plating -65°C to 200°C (-85°F to 392°F) C - Anodic (non-conductive) -65°C to 200°C (-85°F to 392°F) W52 - Plating -65°C to 150°C (-85°F to 302°F)
Sealing	Against sand, dust per MIL-STD-202 & ice resistance

Wire Sealing Range

CONTACT SIZE	MINIMUM INCHES	MAXIMUM INCHES	MINIMUM MM	MAXIMUM MM
22D	0.030	0.054	0.76	1.37
22M✱	0.030	0.050	0.76	1.27
22✱	0.034	0.060	0.60	1.52
20	0.040	0.083	1.02	2.11
16	0.065	0.109	1.65	2.77
12	0.097	0.142	2.46	3.61

TECHNICAL SPECIFICATIONS

Insulation Strip Length	

CONTACT SIZE	STRIP LENGTH
22✱, 22D or 22M✱	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)

Mating Life	500 cycles minimum: 250 for plug with grounding fingers (JTG06)
Salt Spray	Finish A: 48-hour per MIL-STD-1344A method 1001 condition B Finish B: 500-hour per MIL-STD-1344A method 1001 condition C Finish F: 48-hour per MIL-STD-1344A method 1001 condition B Finish C: 500-hour per MIL-STD-1344A method 1001 condition C Finish W52: 48-hour
Heat	Finish A: 150°C (302°F) Finish B: 175°C (347°F) Finish F: 200°C (392°F) 1000 hours to MIL-STD-1344 method 1005 Finish C: 200°C (392°F) Finish W52: 175°C (347°F)
Chemical Resistance	Lubricating oils, hydraulic fluids, coolants, deicing fluids per MIL-STD-1344A Method 1016 condition A-1
Sine Vibration	Not applicable
Random Vibration	43.7 grms at ambient temperatures
Shock	300g ±15% for 3 ±1 milliseconds per MIL-DTL-38999L 4.7.23
EMI-Shielding Effectiveness	100 MHz to 10 GHz - minimum attenuation of 45dB
Contact Type	Crimp, fibre optic, coax, twinax, or printed circuit
Number of Circuits	2 to 128
Contact Insertion	Rear insertion/rear extraction with simple plastic or high-quality metal hand-tools.
Contact Retention	Per MIL-C-38999L tested to MIL-STD-1344A method 2007

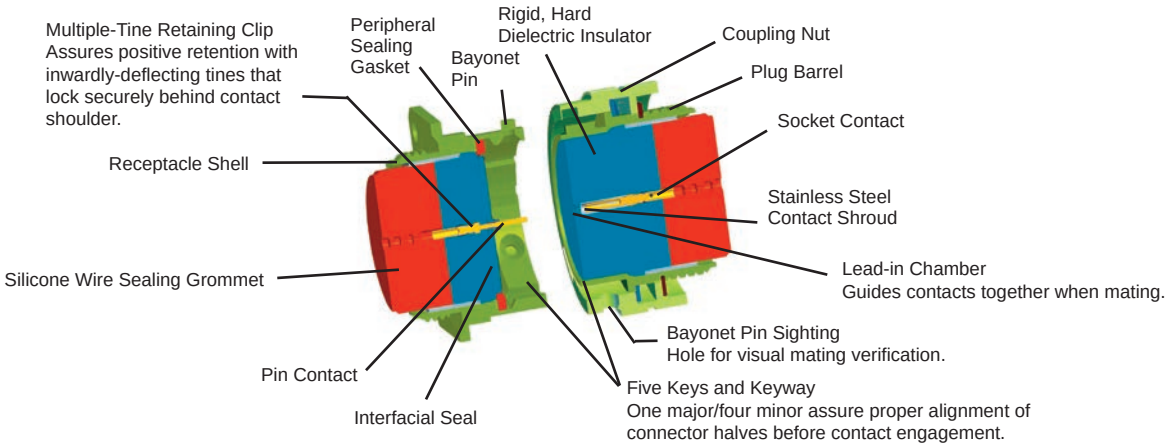
CONTACT	AXIAL LOAD NEWTONS ±10%	AXIAL LOAD POUNDS ±10%
22✱, 22D, 22M✱	44	10
20	67	15
16	111	25
12	111	25

Polarization	Three-point bayonet coupling, five keyways with optional master keyway rotations, note insert and four fixed minor keyways.
Approvals	MIL-DTL-38999L

✱ Inactive for new designs

All dimensions in inches (millimeters in parenthesis)

CROSS-SECTION



CREATE YOUR PART NUMBER

1	2	3A	4	3B	5	6	7
MS27474	T	24	F	35	P	A	-LC
SHELL STYLE	CLASS	SIZE	PLATING	LAYOUT	CONTACT	POLARIZATION (OMIT FOR NORMAL)	MODIFIER

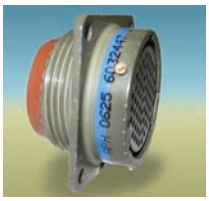
(military part number example) ***Note:** Out of sequence

1	2	3	5	6	4*	7
JT07	RE-	24-35	P	A	-014	-LC
SHELL STYLE	CLASS	LAYOUT	CONTACT	POLARIZATION (OMIT FOR NORMAL)	PLATING*	MODIFIER

(Commercial part number example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → **PLUGS**



MS27472 (JT00R)
Front Mount with Accessory Threads.

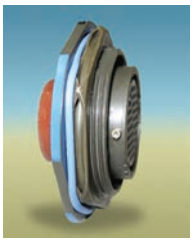
MS27497 (JTPQ00R) +
Rear Mount with Accessory Threads.

JT01R
In-line with Accessory Threads.

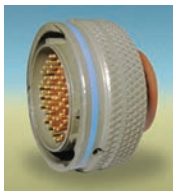
MS27499E (JT02R)
Front Mount. No Accessory Threads.

MS27513E (JT02RE) +
Front Mount. No Accessory Threads.

MS27508E (JTP02RE)
Rear Mount. No Accessory Threads.



MS27474 (JTL07)
Rear Mount. Jam Nut with Accessory Threads.
Contact Us for Details



MS27473 (JT06R)
Standard

MS27484 (JTG06R)
With Grounding Spring.

MS27500 (JT08R)

Available with PC pins. Contact us for details.

STEP 2: SELECT CLASS

E° = Grommet & Compression Nut *(not applicable to box mount receptacles)*
P° = Potting Ring & Cup
T° = No Rear Accessories
RE* = Grommet & Compression Nut *(not applicable to box mount receptacles)*
RP* = Potting Ring & Cup
RT* = No Rear Accessories

+ Most Popular Military Only=(°) Commercial=(*)

STEP 3: SELECT LAYOUT (LISTED BY SIZE)

For listing by # of contacts, ⇨ see pages 196-198.

LAYOUT NUMBER	SERVICE RATING	CONTACTS TOTAL NUMBER	22D	22M	22	20	16	12
8-35	M	6	6					
8-44	M	4			4			
8-98	I	3				3		
8-6	M	6		6				
10-4P•✦	I	4				4		
10-5	I	5				5		
10-13	M	13		13				
10-35	M	13	13					
10-98	I	6				6		
10-99	I	7				7		
12-3	II	3					3	
12-4	I	4					4	
12-8	I	8				8		
12-22	M	22		22				
12-35	M	22	22					
12-98	I	10				10		
14-4•✦	I	4						4
14-5	II	5					5	
14-15	I	15				14	1	
14-18	I	18				18		
14-19•	I	19				19		
14-35	M	37	37					
14-37	M	37		37				
14-68•✦	I	8					8	
14-97•	I	12				8	4	
16-6	I	6						6
16-8	II	8					8	
16-13•✦	I	13					13	
16-26	I	26				26		
16-35	M	55	55					
16-42	M	42			42			
16-55	M	55		55				
16-99	I	23				21	2	
18-11	II	11					11	
18-28	I	28				26	2	
18-30	I	30				29	1	
18-32	I	32				32		
18-35	M	66	66					
18-53	M	53			53			
18-66	M	66		66				
18-68•✦	I	18					18	
18-96✦	I	9						9
20-1	M	79		79				
20-2	M	65			65			
20-11P•✦	I	11						11
20-16	II	16					16	
20-35	M	79	79					
20-39	I	39				37	2	
20-41	I	41				41		
22-1	M	100		100				
22-2	M	85			85			
22-14•✦	I	14						14
22-21	II	21					21	
22-32	I	32				32		
22-35	M	100	100					
22-53P•✦	I	53				53		
22-55	I	55				55		
24-1	M	128		128				
24-2	M	100			100			
24-4	I	56				48	8	
24-19•	I	19						19
24-24	I	24					12	12
24-29	I	29					29	
24-35	M	128	128					
24-37	I	37					37	
24-43P•✦	I	43				23	20	
24-61	I	61				61		

• NOT QPL'D ✦ Not Tooled for RP or 02RE **P** = Pin Insert Only

STEP 4: SELECT PLATING

Finish	Military	Commerical	Commerical + SR
Cadmium-plated nickel base	A	-	SR
Olive drab cadmium-plated nickel base	B	014	386
Electroless nickel	F	023	424
Electroless nickel space-compatible	-	453	467
Anodic coating (Alumilite)	C	005	300
Chromate-tested (Iridite 14-2)	-	011	344
Passivated steel (Hermetic only)	E	-	-
Stainless steel	-	155	-
Olive drab zinc cobalt	-	W52	-

SR = Strain Relief

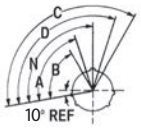
STEP 5: SELECT CONTACT

Note: See Step 7 if not ordering contacts with part.

P = Pin
S = Socket
A = Less Pin Contacts
B = Less Socket Contact

STEP 6: SELECT POLARIZATION

N = Normal Standard (Omit for normal)
A = Highly-Popular
B = Limited Availability
C = Check for Availability
D = Check for Availability



Mating Face of Receptacle

SHELL SIZE	AB ANGLE OF ROTATION (DEGREES) NORMAL	A	B	C	D
8	100	82	-	-	118
10	100	86	72	128	114
12	100	80	68	132	120
14	100	79	66	134	121
16	100	82	70	130	118
18	100	82	70	130	118
20	100	82	70	130	118
22	100	85	74	126	115
24	100	85	74	126	115

STEP 7: SELECT MODIFIER

Note: LC is not marked on part

Omit for standard contacts
LC = Less contacts, wire hole fillers and plastic insertion/extraction tool.
(Purchase Order must state "Less Contacts")

LAYOUT BY NUMBER OF CONTACTS

View of mating-face of pin insert

12 16 20 22 22D 22M

CONTACTS	3		4				5		6	
									Inactive. Use 8-35	
LAYOUT	**8-98**	**12-3**	**8-44**	**10-4P•✦**	**12-4**	**14-4•✦**	**10-5**	**14-5**	**8-6**	**8-35**
# OF CONTACTS	3-#20	3-#16	4-#22	4-#20	4-#16	4-#12	5-#20	5-#16	6-#22M	6-#22D
SERVICE RATING	I	II	M	I	I	I	I	II	M	M

CONTACTS	6		7	8			9
LAYOUT	**10-98**	**16-6**	**10-99**	**12-8**	**14-68•✦**	**16-8**	**18-96✦**
# OF CONTACTS	6-#20	6-#12	7-#20	8-#20	8-#16	8-#16	9-#12
SERVICE RATING	I	I	I	I	I	II	I

CONTACTS	10	11		12	13			
					Inactive. Use 10-35			
LAYOUT	**12-98**	**18-11**	**20-11P•✦**	**14-97•**	**10-13**	**10-35**	**16-13•✦**
# OF CONTACTS	10-#20	11-#16	11-#12	8-#20, 4-#16	13-#22M	13-#22D	13-#16
SERVICE RATING	I	II	I	I	M	M	M

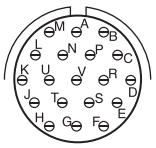
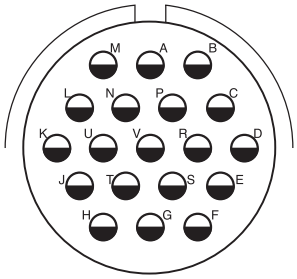
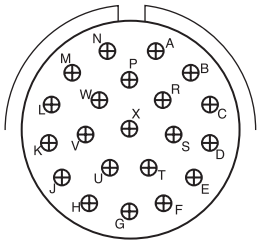
CONTACTS	14	15	16	18	
LAYOUT	**22-14•✦**	**14-15**	**20-16**	**14-18**	**18-68•✦**
# OF CONTACTS	14-#12	14-#20, 1-#16	16-#16	18-#20	18-#16
SERVICE RATING	I	I	II	I	I

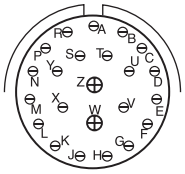
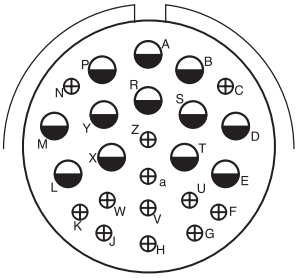
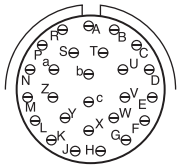
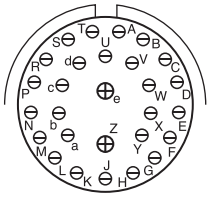
• NOT QPL'D ✦Not Tooled for RP or 02RE **P** = Pin Insert Only Contact us for more information.

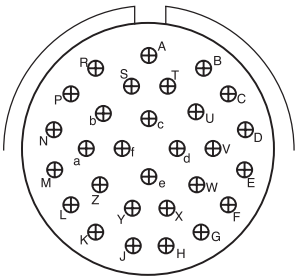
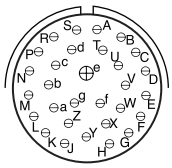
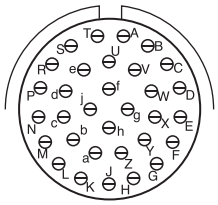
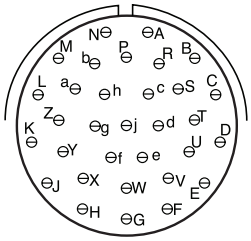
LAYOUT BY NUMBER OF CONTACTS

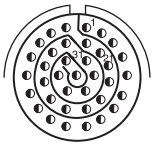
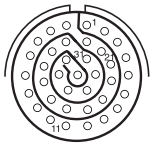
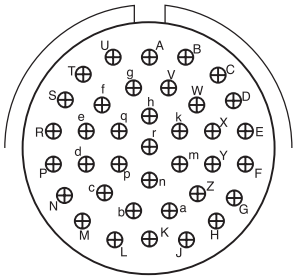
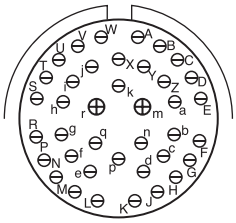
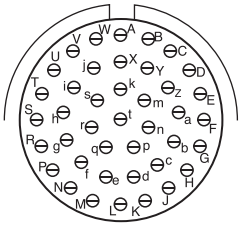
View of mating-face of pin insert

◒ 12 ⊕ 16 ⊖ 20 • 22 ◐ 22D ○ 22M

CONTACTS	19		21	22	
				Inactive. Use 12-35	
					
LAYOUT	**14-19•**	**24-19•**	**22-21**	**12-22**	**12-35**
# OF CONTACTS	19-#20	19-#12	21-#16	22-#22M	22-#22D
SERVICE RATING	I	I	II	M	M

CONTACTS	23	24	26	28
				
LAYOUT	**16-99**	**24-24**	**16-26**	**18-28**
# OF CONTACTS	21-#22, 2-#16	12-#16, 12#12	26-#20	26-#20, 2-#16
SERVICE RATING	I	I	I	I

CONTACTS	29	30	32	
				
LAYOUT	**24-29**	**18-30**	**18-32**	**22-32**
# OF CONTACTS	29-#16	29-#20, 1-#16	32-#20	32-#20
SERVICE RATING	I	I	I	I

CONTACTS	37			39	41
		Inactive. Use 14-35			
					
LAYOUT	**14-35**	**14-37**	**24-37**	**20-39**	**20-41**
# OF CONTACTS	37-#22D	37-#22M	37-#16	37-#20, 2-#16	41-#20
SERVICE RATING	M	M	I	I	I

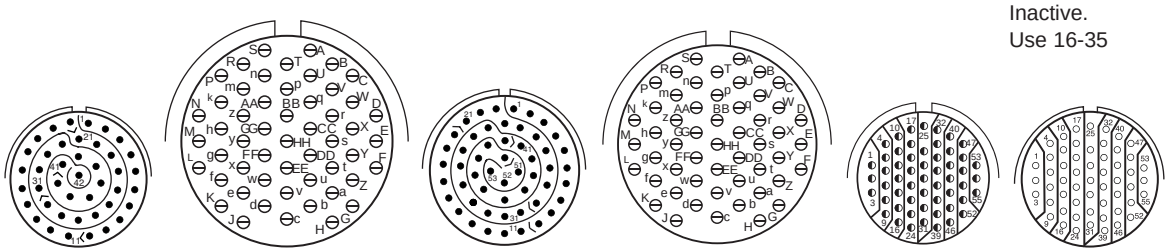
• NOT QPL'D ✦Not Tooled for RP or 02RE **P** = Pin Insert Only Contact us for more information.

LAYOUT BY NUMBER OF CONTACTS

View of mating-face of pin insert

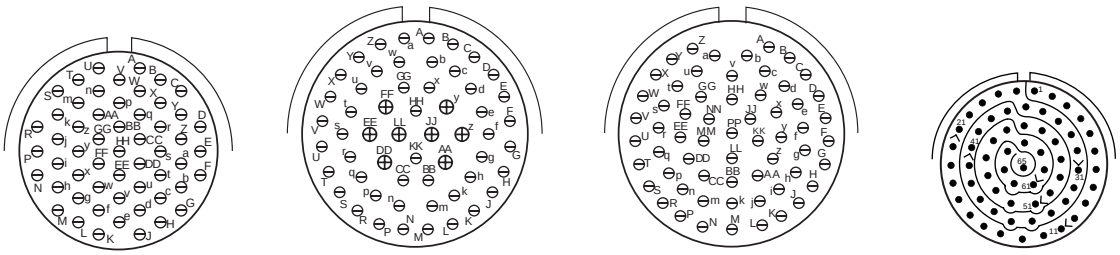
◒ 12 ⊕ 16 ⊖ 20 • 22 ◐ 22D ○ 22M

CONTACTS	42	43	53	55
				Inactive. Use 16-35



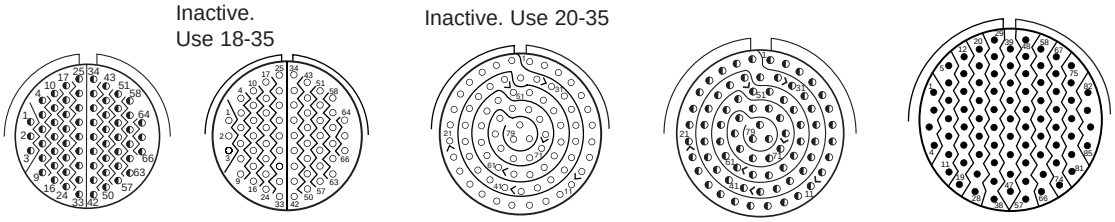
LAYOUT	**16-42**	**24-43P•✦**	**18-53**	**22-53P•✦**	**16-35**	**16-55**
# OF CONTACTS	42-#22	23-#20, 20-#16	53-#22	53-#20	55-#22D	55-#22M
SERVICE RATING	M	I	M	I	M	M

CONTACTS	55	56	61	65



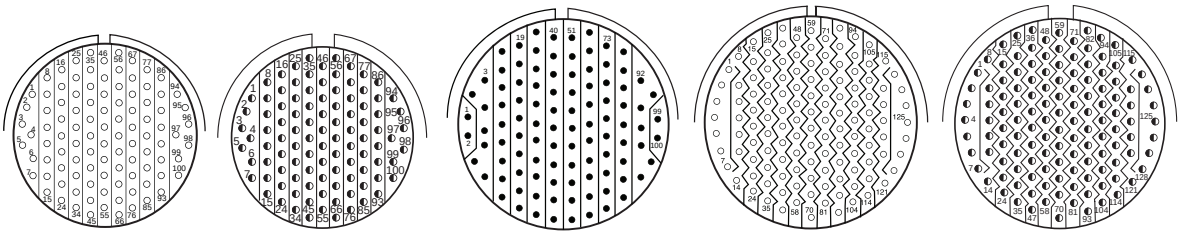
LAYOUT	**22-55**	**24-4**	**24-61**	**20-2**
# OF CONTACTS	55-#20	48-#20, 8-#16	61-#20	65-#22
SERVICE RATING	I	I	I	M

CONTACTS	66		79		85
		Inactive. Use 18-35	Inactive. Use 20-35		



LAYOUT	**18-35**	**18-66**	**20-1**	**20-35**	**22-2**
# OF CONTACTS	66-#22D	66-#22M	79-#22M	79-#22D	85-#22
SERVICE RATING	M	M	M	M	M

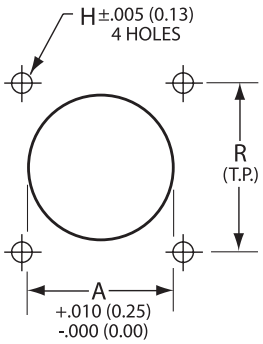
CONTACTS	100			128	
	Inactive. Use 22-35		Inactive. No Replacement	Inactive. Use 24-35	



LAYOUT	**22-1**	**22-35**	**24-2**	**24-1**	**24-35**
# OF CONTACTS	100-#22M	100-#22D	100-#22	128-#22M	128-#22D
SERVICE RATING	M	M	M	M	M

• NOT QPL'D ✦Not Tooled for RP or 02RE **P** = Pin Insert Only Contact us for more information.

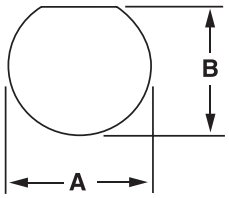
FLANGED PANEL CUTOUTS



SHELL SIZE	A FRONT DIA. MIN.	A BACK DIA. MIN.	H +/- .005	R
8	0.516 (13.11)	0.557 (14.15)	0.125 (3.18)	0.594 (15.09)
10	0.625 (15.88)	0.682 (17.32)	0.125 (3.18)	0.719 (18.26)
12	0.750 (19.05)	0.854 (21.69)	0.125 (3.18)	0.812 (20.62)
14	0.906 (23.01)	0.979 (24.87)	0.125 (3.18)	0.906 (23.01)
16	1.016 (25.81)	1.104 (28.04)	0.125 (3.18)	0.969 (24.61)
18	1.141 (28.98)	1.229 (31.22)	0.125 (3.18)	1.062 (26.97)
20	1.266 (32.16)	1.354 (34.39)	0.125 (3.18)	1.156 (29.36)
22	1.375 (34.93)	1.479 (37.57)	0.125 (3.18)	1.250 (31.75)
24	1.484 (37.69)	1.760 (44.70)	0.152 (3.86)	1.375 (34.93)

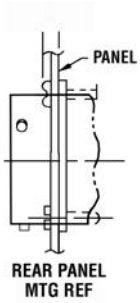
⇨See page 366 for Nut Plates and Sealing Screws.

JAM NUT PANEL CUTOUTS



Shell Size	A Diameter +.10 (.25) -0 (0)	B Flat +.00 (0.0) -.010 (-.25)
8	0.885 (22.48)	0.830 (21.08)
10	1.010 (25.64)	0.955 (24.26)
12	1.135 (28.83)	1.085 (27.56)
14	1.260 (32.01)	1.210 (30.73)
16	1.385 (35.18)	1.335 (33.91)
18	1.510 (38.35)	1.460 (37.08)
20	1.635 (41.53)	1.585 (40.26)
22	1.760 (44.70)	1.710 (43.43)
24	1.885 (47.88)	1.835 (46.61)

PANEL THICKNESS



SHELL SIZE	MS27497 JTPQ00R	MS27508 JTP02RE
8	.142 (3.01)	.147 (3.73)
10, 12, 14, 16, 18		.152 (3.86)
20, 22		.179 (4.55)
24		.169 (4.29)

TOOLING ACCESSORIES

TG70 STRAP WRENCH

The strap wrench is used to connect or disconnect coupling nuts in a confined space, or to tighten or loosen endbells without damaging the connector plating. It also increases torque, allowing you to easily mate or unmate a connector. Do not substitute tools (pipe wrench or pliers), as severe damage may occur.

TG69P NON-MARRING ADJUSTABLE ENDBELL PLIERS FOR FIELD SERVICE

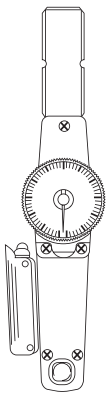
These pliers have resilient jaws and are used to tighten or remove endbells without damaging the connector plating. They are adjustable and accommodate all connector sizes in this catalog. Do not substitute tools (pipe wrench or pliers), as severe damage may occur. Replacement jaws, part number G77015, are available.

600 SERIES PRODUCTION SYSTEM

The 600 series is a complete system for the proper assembly and torquing of connector endbells. The system includes a bench-mounted or hand-held torque wrench, plug and receptacle holders, and a range of endbell tightening tools. Each item is shipped with instructions.

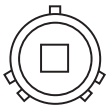
600-007

Bench Mounted Torque Wrench

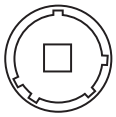


600-004

Hand Held Torque Wrench



600FF005-R#



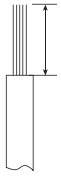
600FF005-P#

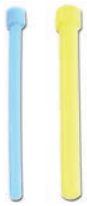
Plug and Receptacle Holders

SERIES II SIZE	MIL-DTL-38999 FOR JT RECEPTACLES	MIL-DTL-38999 FOR JT PLUGS
9	600FF005-8R#	600FF005-8P#
11	600FF005-10R#	600FF005-10P#
13	600FF005-12R#	600FF005-12P#
15	600FF005-14R#	600FF005-14P#
17	600FF005-16R#	600FF005-16P#
19	600FF005-18R#	600FF005-18P#
21	600FF005-20R#	600FF005-20P#
23	600FF005-22R#	600FF005-22P#
25	600FF005-24R#	600FF005-24P#

Add polarizations: N, A, B, C, D, E

PINS



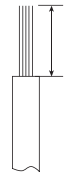


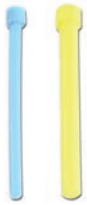
Insert head first, trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22D	28,26,24&22	M39029/58-360	Orange	Blue	Black	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
✱22M	28,26&24	M39029/58-361	Orange	Blue	Brown	.125 (3.18)	.030 (0.76)	.050 (1.27)	MS27488-22-2	Black
✱22	26,24&22	M39029/58-362	Orange	Blue	Red	.125 (3.18)	.034 (0.86)	.060 (1.52)	MS27488-22-2	Black
20	20,22&24	M39029/58-363	Orange	Blue	Orange	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16	16,18&20	M39029/58-364	Orange	Blue	Yellow	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
12	12&14	M39029/58-365	Orange	Blue	Green	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow

✱ Inactive for new design

SOCKETS





Insert head first, trim excess

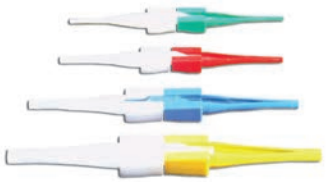
CONTACT SIZE	WIRE SIZE AWG	SOCKET CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22D	28,26,24&22	M39029/57-354	Orange	Green	Yellow	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
✱22M	28,26&24	M39029/57-355	Orange	Green	Green	.125 (3.18)	.030 (0.76)	.050 (1.27)	MS27488-22-2	Black
✱22	28,26&24	M39029/57-356	Orange	Green	Blue	.125 (3.18)	.034 (0.86)	.060 (1.52)	MS27488-22-2	Black
20	20,22&24	M39029/57-357	Orange	Green	Violet	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16	16,18&20	M39029/57-358	Orange	Green	Gray	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
12	12&14	M39029/57-359	Orange	Green	White	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow

✱ Inactive for new design

CONTACT COLOR CODES			
0	Black	5	Green
1	Brown	6	Blue
2	Red	7	Violet
3	Orange	8	Gray
4	Yellow	9	White

All dimensions in inches (millimeters in parenthesis)

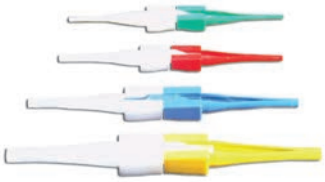
PINS



CONTACT SIZE	HAND-CRIMP TOOL	POWER CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXTRACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND	
✱22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
✱22M	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
✱22	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22	Black	MS27495R22	Brown	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Red	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	MS27495A12	Yellow	MS27495R12	Blue	White

†† Contact us for more tool accessories. ✱ Inactive for new design

SOCKETS



CONTACT SIZE	HAND-CRIMP TOOL	POWER CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXTRACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND	
✱22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
✱22M	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
✱22	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22	Black	MS27495R22	Brown	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Red	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	MS27495A12	Yellow	MS27495R12	Blue	White

†† Contact us for more tool accessories. ✱ Inactive for new design

All dimensions in inches (millimeters in parenthesis)

COAX CONTACTS

Coax Pin

Coax Socket

Crimping Tools

M22520/2-01

Crimp Dies

COAX CONTACT SIZE	CABLE TYPE	CONTACT PART NUMBER		CRIMPING TOOLS	
		PIN	SOCKET	INNER CONTACT	CRIMP FERRULE
16	RG-178B/U, RG-196A/U	21-033122-564 (M39029/76-425)	21-033121-564 (M39029/78-433)	M22520/2-01 w/ Positioner M22522/2-35 or w/ Daniels Positioner K532	M22520/4-01 w/ Positioner M22520/4-02
	RG-174A/U, RG-188A/U, RG-161/U, RG-187A/U, RG-316/U, RG-179B/U	21-033122-563 (M39029/76-424)	21-033121-563 (M39029/78-432)		
12		21-033122-546 (M39029/28-211)	21-033121-546 (M39029/27-210)	M22520/2-01 w/ Positioner M22520/2-34 or w/ Daniels Positioner K323	M22520/31-01 w/ Positioner M22520/31-02 or Daniels GS-200 Tool w/ Positioner G2P330
	RG-180B/U, RG-195A/U	21-033122-541 (M39029/28-409)	21-033121-541 (M39029/27-420)		

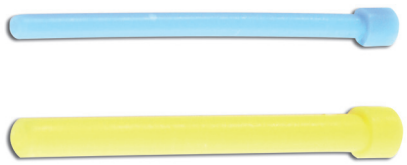
PRINTED CIRCUIT BOARD CONTACTS - PIN

PCB PIN CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX./MIN.					
			MS27472 JT00RT	MS27497 JTPQ00RT	MS27499 JT02RE	MS27508 JTP02RE	MS27473 JT06RT	MS27474 JT07RT
10-407552-015	22M	0.019	.379 / .317	.379 / .317	.577 / .520	.577 / .520	.379 / .317	.379 / .317
10-407552-055	22M	0.019	.268 / .206	.268 / .206	.466 / .409	.466 / .409	.268 / .206	.268 / .206
10-407552-085	22M	0.019	.104 / .047	.104 / .047	.302 / .250	.302 / .250	.104 / .047	.104 / .047
10-407552-115	22M	0.019	.042 / NS	.042 / NS	.240 / .188	.240 / .188	.042 / NS	.042 / NS
10-497640-015	20	0.019	.392 / .335	.392 / .335	.590 / .538	.590 / .538	.392 / .335	.392 / .335
10-497640-025	20	0.019	.257 / .200	.257 / .200	.455 / .403	.455 / .403	.257 / .200	.257 / .200
10-497640-045	20	0.019	NS	NS	.192 / .140	.192 / .140	NS	NS
10-497596-015	20	0.025	.102 / .049	.102 / .049	.300 / .252	.300 / .252	.102 / .049	.102 / .049
10-497596-025	20	0.025	.192 / .139	.192 / .139	.390 / .342	.390 / .342	.192 / .139	.192 / .139
10-497596-035	20	0.025	.273 / .220	.273 / .220	.471 / .423	.471 / .423	.273 / .220	.273 / .220
10-497596-055	20	0.025	.390 / .337	.390 / .337	.588 / .540	.588 / .540	.390 / .337	.390 / .337
10-497695-015	16	0.040	.299 / .242	.299 / .242	.497 / .445	.497 / .445	.229 / .242	.229 / .242
10-497630-035	16	0.062	.104 / .047	.104 / .047	.302 / .250	.302 / .250	.104 / .047	.104 / .047
10-497630-055	16	0.062	.257 / .200	.257 / .200	.455 / .403	.455 / .403	.272 / .215	.272 / .200
10-597502-015	12	0.081	.272 / .215	.272 / .215	.470 / .418	.470 / .418	.272 / .215	.272 / .215

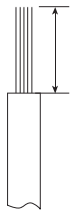
= Standard PC tail used

All dimensions in inches

Wire Hole Filler



Wire Strip Length



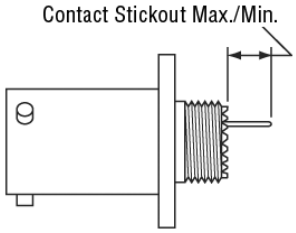
Wire Sealing Range

INSTALLATION TOOLS		WIRE STRIP LENGTHS	WIRE SEALING RANGE	
INSERTION	REMOVAL		MIN.	MAX.
M81969/8-07 or M81969/14-03	M81969/8-08 or M81969/14-03	Contact us for details	.065 (1.65)	.109 (2.77)
M81969/8-09 or M81969/14-04	M81969/8-10 or M81969/14-04	Contact us for details	.097 (2.46)	.142 (3..61)

All dimensions in inches (millimeters in parenthesis)

PRINTED CIRCUIT BOARD CONTACTS - SOCKET

PCB SOCKET CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX./MIN.					
			MS27472 JT00RT	MS27497 JTPQ00RT	MS27499 JT02RE	MS27508 JTP02RE	MS27473 JT06RT	MS27474 JT07RT
10-407553-055	22M	0.019	.268 / .194	.268 / .194	.466 / .395	.466 / .395	.268 / .194	.268 / .194
10-407553-175	22M	0.019	.268 / .178	.268 / .178	.466 / .409	.466 / .409	.268 / .178	.268 / .178
10-407553-085	22M	0.019	.104 / .035	.104 / .035	.302 / .236	.302 / .236	.104 / .035	.104 / .035
10-497641-025	20	0.019	.257 / .200	.257 / .200	.455 / .403	.455 / .403	.257 / .200	.257 / .200
10-497631-055	16	0.062	.257 / .200	.257 / .200	.455 / .403	.455 / .403	.257 / .200	.257 / .200



All dimensions in inches

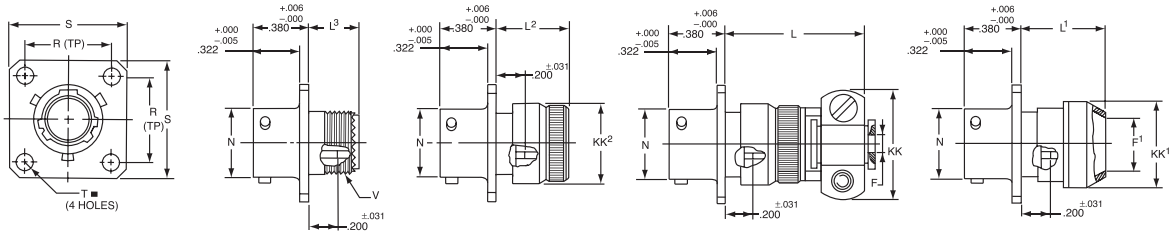
EXCERPT FROM MIL-DTL-38999K

3.43.2 JAN brand. The United States Government has adopted, and is exercising legitimate control over the certification marks "JAN" and "J", respectively, to indicate that items so marked or identified are manufactured to, and meet all the requirements of military specification. Accordingly, items acquired to, and meeting all of the criteria specified herein and in applicable specifications shall bear the certification mark "JAN" except that items too small to bear the certification mark "JAN" shall bear the letter "J". The "JAN" or "J" shall be placed immediately before the PIN except that if such location would place a hardship on the manufacturer in connection with such marking, the "JAN" or "J" may be located on the first line above or below the PIN. Items furnished under contracts or orders which either permit or require deviation from the conditions or requirements specified herein or in applicable specifications shall not bear "JAN" or "J". In the event an item fails to meet the requirements of this specification and the applicable specification sheets or associated detail specifications, the manufacturer shall remove the "JAN" or the "J" from the sample tested and also from all items represented by the sample. The "JAN" or "J" certification mark shall not be used on products acquired to contractor drawings or specification. The United States Government has obtained Certificate of Registration No. 504,860 for the certification mark "JAN".

Note: The "JAN" or "J" is not part of the PIN but indicates a certification.

PIN = Part Identification Number

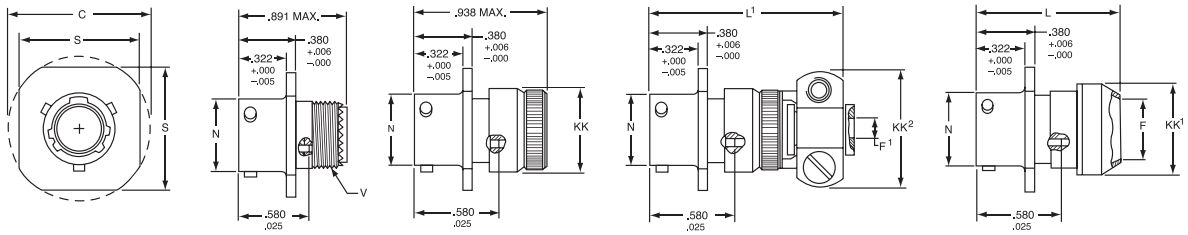
RECEPTACLES



JT00RT (MS27472T) **JT00RE (MS27472E)** **JT00RE_-SR** **JT00RP(MS27472P)**

Shell Size	F Diameter +.010/-.025 (+.254/-.635)	F1 Diameter +.010 (+.254)	L Max.		L1 Max.		L2 Max. MS27472/ JT00R	L3 Max. MS27497/ JTPQ00R	N +.001/-.005 (+.025/-.127)	P Max. Panel Thickness MS27497/ JTPQ00R
			MS27472/ JT00R	MS27497/ JTPQ00R	MS27472/ JT00R	MS27497/ JTPQ00R				
8	0.125 (3.2)	0.444 (11.3)	1.094 (27.8)	1.140 (29.0)	0.609 (15.5)	0.468 (11.9)	0.547 (13.9)	0.500 (12.7)	0.473 (12.0)	0.142 (3.6)
10	0.188 (4.8)	0.558 (14.2)	1.094 (27.8)	1.140 (29.0)	0.609 (15.5)	0.468 (11.9)	0.547 (13.9)	0.500 (12.7)	0.590 (15.0)	0.142 (3.6)
12	0.312 (7.9)	0.683 (17.3)	1.094 (27.8)	1.140 (29.0)	0.609 (15.5)	0.468 (11.9)	0.547 (13.9)	0.500 (12.7)	0.750 (19.1)	0.142 (3.6)
14	0.375 (9.5)	0.808 (20.5)	1.344 (34.1)	1.375 (34.9)	0.609 (15.5)	0.468 (11.9)	0.547 (13.9)	0.500 (12.7)	0.875 (22.2)	0.142 (3.6)
16	0.500 (12.7)	0.909 (23.1)	1.344 (34.1)	1.375 (34.9)	0.609 (15.5)	0.468 (11.9)	0.547 (13.9)	0.500 (12.7)	1.000 (25.4)	0.142 (3.6)
18	0.625 (15.9)	1.034 (26.3)	1.344 (34.1)	1.375 (34.9)	0.609 (15.5)	0.468 (11.9)	0.547 (13.9)	0.500 (12.7)	1.125 (28.6)	0.142 (3.6)
20	0.625 (15.9)	1.159 (29.4)	1.344 (34.1)	1.375 (34.9)	0.609 (15.5)	0.468 (11.9)	0.547 (13.9)	0.500 (12.7)	1.250 (31.8)	0.142 (3.6)
22	0.750 (19.1)	1.284 (32.6)	1.469 (37.3)	1.516 (38.5)	0.609 (15.5)	0.468 (11.9)	0.547 (13.9)	0.500 (12.7)	1.375 (34.9)	0.142 (3.6)
24	0.800 (20.3)	1.409 (35.8)	1.469 (37.3)	1.500 (38.1)	0.688 (17.5)	0.540 (13.7)	0.547 (13.9)	0.500 (12.7)	1.500 (38.1)	0.142 (3.6)

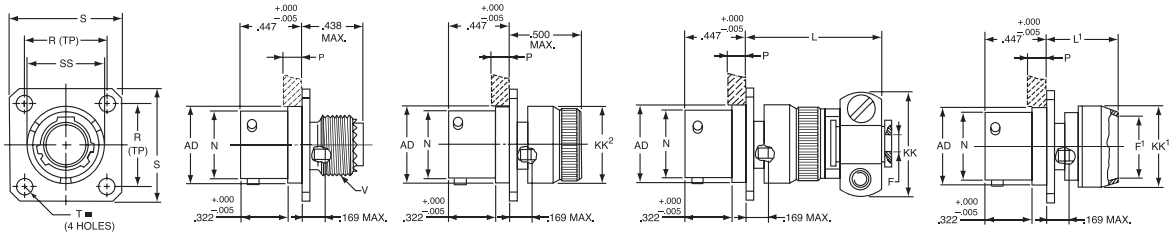
JT01RT **JT01RE** **JT01RE_-SR** **JT01RP**



Shell Size	C Max.	F Diameter +.010 (-.254)	F1 Diameter +.010/-.025 (+.254/-.635)	L Max.	L1 Max.	N Diameter +.001/-.005 (+.025/-.127)	S +.017/-.016 (+.431/-.406)	KK Diameter Max.	KK1 Diameter Max.	KK2 Max.	V Thread Class 2A (Plated)
8	0.965 (24.5)	0.444 (11.3)	0.125 (3.2)	1.031 (26.2)	1.562 (39.7)	0.473 (12.0)	0.812 (20.6)	0.578 (14.7)	0.625 (15.9)	0.812 (20.6)	.4375-28 UNEF
10	1.089 (27.7)	0.558 (14.2)	0.188 (4.8)	1.031 (26.2)	1.562 (39.7)	0.590 (15.0)	0.938 (23.8)	0.703 (17.9)	0.750 (19.1)	0.875 (22.2)	.5625-24 UNEF
12	1.183 (30.0)	0.683 (17.3)	0.312 (7.9)	1.031 (26.2)	1.562 (39.7)	0.750 (19.1)	1.031 (26.2)	0.828 (21.0)	0.875 (22.2)	1.000 (25.4)	.6875-20 UNEF
14	1.277 (32.4)	0.808 (20.5)	0.375 (9.5)	1.031 (26.2)	1.812 (46.0)	0.875 (22.2)	1.125 (28.6)	0.953 (24.2)	1.000 (25.4)	1.125 (28.6)	.8125-20 UNEF
16	1.371 (34.8)	0.909 (23.1)	0.500 (12.7)	1.031 (26.2)	1.812 (46.0)	1.000 (25.4)	1.219 (31.0)	1.078 (27.4)	1.125 (28.6)	1.188 (30.2)	.9375-20 UNEF
18	1.465 (37.2)	1.034 (26.3)	0.625 (15.9)	1.031 (26.2)	1.812 (46.0)	1.125 (28.6)	1.312 (33.3)	1.203 (30.6)	1.250 (31.8)	1.438 (36.5)	1.0625-18 UNEF
20	1.589 (40.4)	1.159 (29.4)	0.625 (15.9)	1.031 (26.2)	1.812 (46.0)	1.250 (31.8)	1.438 (36.5)	1.328 (33.7)	1.375 (34.9)	1.438 (36.5)	1.1875-18 UNEF
22	1.715 (43.6)	1.284 (32.6)	0.750 (19.1)	1.031 (26.2)	1.938 (49.2)	1.375 (34.9)	1.562 (39.7)	1.453 (36.9)	1.500 (38.1)	1.625 (41.3)	1.3125-18 UNEF
24	1.838 (46.7)	1.409 (35.8)	0.800 (20.3)	1.109 (28.2)	1.938 (49.2)	1.500 (38.1)	1.688 (42.9)	1.578 (40.1)	1.625 (41.3)	1.719 (43.7)	1.4375-18 UNEF

All dimensions in inches (millimeters in parenthesis)

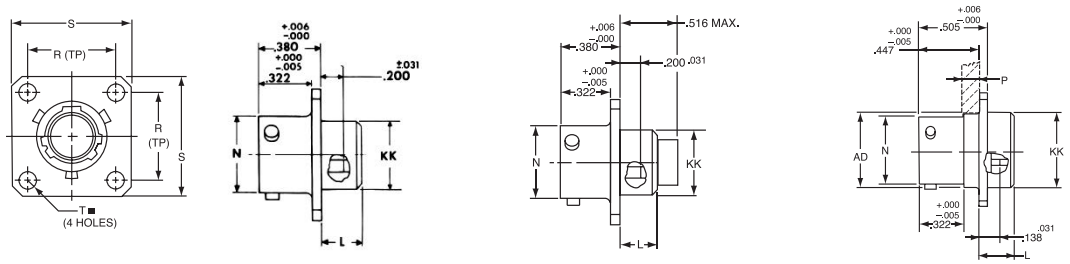
DIMENSIONS



JTPQ00RT (MS27497T) **JTPQ00RE (MS27497E)** **JTPQ00RE_-SR** **JTPQ00RP (MS27497P)**

Shell Size	R (TP)	S ±.016 (±.406)	T Diameter ±.005 (±.127)	V Thread Class 2A (Plated)	AD Diameter ±.005 (±.127)	KK Max.		KK1 Diameter Max.	KK2 Diameter Max.	SS Diameter +.000/-.016 (+.000/-.406)
					MS27497/ JTPQ00R	MS27472/ JTPQ00R	MS27497/ JTPQ00R			MS27497/ JTPQ00R
8	0.594 (15.1)	0.812 (20.6)	0.120 (3.0)	.4375-28 UNEF	0.516 (13.1)	0.812 (20.6)	0.781 (19.8)	0.625 (15.9)	0.578 (14.7)	0.563 (14.3)
10	0.719 (18.3)	0.938 (23.6)	0.120 (3.0)	.5625-24 UNEF	0.633 (16.1)	0.875 (22.2)	0.844 (21.4)	0.750 (19.1)	0.703 (17.9)	0.680 (17.3)
12	0.812 (20.6)	1.031 (26.2)	0.120 (3.0)	.6875-24 UNEF	0.802 (20.4)	1.000 (25.4)	0.969 (24.6)	0.875 (22.2)	0.828 (21.0)	0.85 (21.8)
14	0.906 (23.0)	1.125 (28.6)	0.120 (3.0)	.8125-20 UNEF	0.927 (23.5)	1.125 (28.6)	1.094 (27.8)	1.000 (25.4)	0.953 (24.2)	0.98 (25.0)
16	0.969 (24.6)	1.219 (31.0)	0.120 (3.0)	.9375-20 UNEF	1.052 (26.7)	1.188 (30.2)	1.154 (29.3)	1.125 (28.6)	1.078 (27.4)	1.10 (28.1)
18	1.062 (27.0)	1.312 (33.3)	0.120 (3.0)	1.0625-18 UNEF	1.177 (29.9)	1.438 (36.5)	1.406 (35.7)	1.250 (31.8)	1.203 (30.6)	1.23 (31.3)
20	1.156 (29.4)	1.438 (36.5)	0.120 (3.0)	1.1875-18 UNEF	1.302 (33.1)	1.438 (36.5)	1.406 (35.7)	1.375 (34.9)	1.328 (33.7)	1.35 (34.5)
22	1.250 (31.8)	1.562 (39.7)	0.120 (3.0)	1.3125-18 UNEF	1.427 (36.2)	1.625 (41.3)	1.594 (40.5)	1.500 (38.1)	1.453 (36.9)	1.48 (37.7)
24	1.375 (34.9)	1.688 (42.9)	0.147 (3.0)	1.4375-18 UNEF	1.552 (39.4)	1.719 (43.7)	1.688 (42.9)	1.625 (41.3)	1.578 (40.1)	1.61 (40.9)

JT02RE (MS27499) **JT02RE_-053 (MS27513E)** **JTP02RE (MS27508E)**



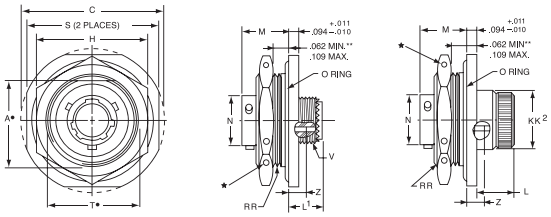
Shell Size	L Max.		N +.001/-.005 (+.025/-.127)	P Max. Panel Thickness	R (TP)	S ±.016 (±.406)	T Diameter ±.005 (±.127)	AD Diameter ±.005 (±.127)	KK Diameter Max.	
	MS27499/ JT02RE MS27513/ JT02RE	MS27508/ JTP02RE		MS27508/ JTP02RE				MS27508/ JTP02R	MS27499/ JT02RE MS27513/ JT02RE	MS27508/ JTP02RE
8	0.286 (7.3)	0.225 (5.7)	0.473 (12.0)	0.147 (3.7)	0.594 (15.1)	0.812 (20.6)	0.120 (3.0)	0.516 (13.1)	0.438 (11.1)	0.531 (13.5)
10	0.286 (7.3)	0.225 (5.7)	0.590 (15.0)	0.152 (3.9)	0.719 (18.3)	0.938 (23.8)	0.120 (3.0)	0.633 (16.1)	0.563 (14.3)	0.656 (16.7)
12	0.286 (7.3)	0.225 (5.7)	0.750 (19.1)	0.152 (3.9)	0.812 (20.6)	1.031 (26.2)	0.120 (3.0)	0.802 (20.4)	0.688 (17.5)	0.828 (21.0)
14	0.286 (7.3)	0.225 (5.7)	0.875 (22.2)	0.152 (3.9)	0.906 (23.0)	1.125 (28.6)	0.120 (3.0)	0.927 (23.5)	0.813 (20.7)	0.953 (24.2)
16	0.286 (7.3)	0.225 (5.7)	1.000 (25.4)	0.152 (3.9)	0.969 (24.6)	1.219 (31.0)	0.120 (3.0)	1.052 (26.7)	0.938 (23.8)	1.078 (27.4)
18	0.286 (7.3)	0.225 (5.7)	1.125 (28.6)	0.152 (3.9)	1.062 (27.0)	1.312 (33.3)	0.120 (3.0)	1.177 (29.9)	1.047 (26.6)	1.203 (30.6)
20	0.286 (7.3)	0.225 (5.7)	1.250 (31.8)	0.179 (4.5)	1.156 (29.4)	1.438 (36.5)	0.120 (3.0)	1.302 (33.1)	1.172 (29.8)	1.328 (33.7)
22	0.286 (7.3)	0.225 (5.7)	1.375 (34.9)	0.179 (4.5)	1.250 (31.8)	1.562 (39.7)	0.120 (3.0)	1.427 (36.2)	1.297 (32.9)	1.453 (36.9)
24	0.286 (7.3)	0.225 (5.7)	1.500 (38.1)	0.169 (4.3)	1.375 (34.9)	1.688 (42.9)	0.147 (3.7)	1.552 (39.4)	1.422 (36.1)	1.578 (40.1)

All dimensions in inches (millimeters in parenthesis)

DIMENSIONS

RECEPTACLES

JT07RT (MS27474T) JT07RE (MS27474E)

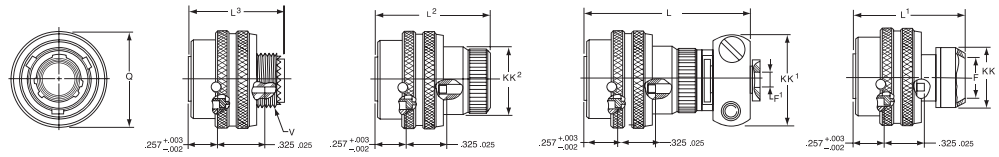


SHELL SIZE	A• +.000/-.010 (+.000/-.254)	C MAX.	F DIAMETER +.010/-.025 (+.254/-.635)	F1 DIAMETER	H HEX. +.017/-.016 (+.432/-.406)	L MAX.	L1 MAX.	L2 MAX.	L3 MAX.
8	0.830 (21.1)	1.390 (35.3)	0.125 (3.2)	0.444 (11.3)	1.062 (27.0)	0.484 (12.3)	0.453 (11.5)	0.563 (14.3)	1.047 (26.6)
10	0.955 (24.3)	1.515 (38.5)	0.188 (4.8)	0.558 (14.2)	1.188 (30.2)	0.484 (12.3)	0.453 (11.5)	0.563 (14.3)	1.047 (26.6)
12	1.084 (27.5)	1.640 (41.7)	0.312 (7.9)	0.683 (17.3)	1.312 (33.3)	0.484 (12.3)	0.453 (11.5)	0.563 (14.3)	1.047 (26.6)
14	1.208 (30.7)	1.765 (44.8)	0.375 (9.5)	0.808 (20.5)	1.438 (36.5)	0.484 (12.3)	0.453 (11.5)	0.563 (14.3)	1.297 (32.9)
16	1.333 (33.9)	1.953 (49.6)	0.500 (12.7)	0.909 (23.1)	1.562 (39.7)	0.484 (12.3)	0.453 (11.5)	0.563 (14.3)	1.297 (32.9)
18	1.459 (37.1)	2.031 (51.6)	0.625 (15.9)	1.034 (26.3)	1.688 (42.9)	0.484 (12.3)	0.453 (11.5)	0.563 (14.3)	1.297 (32.9)
20	1.576 (40.0)	2.156 (54.8)	0.625 (15.9)	1.159 (29.4)	1.812 (46.0)	0.453 (11.5)	0.422 (10.7)	0.531 (13.5)	1.266 (32.2)
22	1.701 (43.2)	2.280 (57.9)	0.750 (19.1)	1.284 (32.6)	2.000 (50.8)	0.453 (11.5)	0.422 (10.7)	0.531 (13.5)	1.391 (35.3)
24	1.826 (46.4)	2.405 (61.1)	0.800 (20.3)	1.409 (35.8)	2.125 (54.0)	0.375 (9.5)	0.422 (10.7)	0.609 (15.5)	1.391 (35.3)

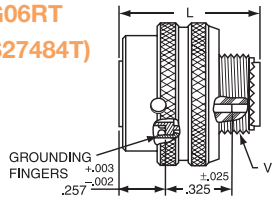
PLUGS

• "D" shaped mounting hole dimensions

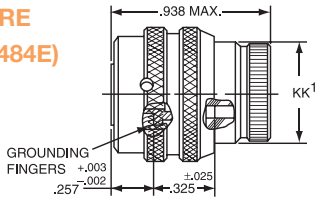
JT06RT (MS27473T) JT06RE (MS27473E) JT06RE_-SR JT06RP (MS27473P)



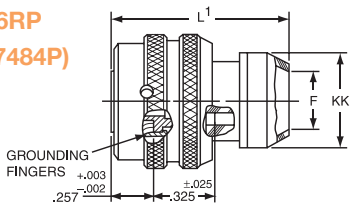
JTG06RT (MS27484T)



JTG06RE (MS27484E)



JTG06RP (MS27484P)

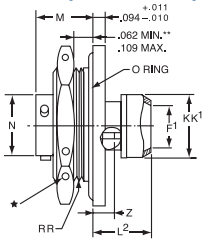


Shell Size	F Dia.	F1 Diameter +.010/-.025 (+.254/-.635) MS27473/ JT06R	L Max. MS27473/ JT06R	L Max. MS27484/ JTG06R	L1 Max.	L2 Max. MS27473/ JT06R	L3 Max. MS27473/ JT06R	Q Dia. Max.	V Thread Modified Class 2A UNEF	V Thread Modified Modified Major Dia.	KK Dia. Max.	KK1 Max. MS27473/ JT06R	KK1 Max. MS27484/ JTG06R	KK2 Max. MS27473/ JT06R
8	0.444 (11.3)	0.125 (3.2)	1.562 (39.7)	0.891 (22.6)	1.000 (25.4)	0.938 (23.8)	0.891 (22.6)	0.734 (18.6)	.4375-28	.421 - .417 (10.69 - 10.59)	0.625 (15.9)	0.812 (20.6)	0.578 (14.7)	0.578 (14.7)
10	0.558 (14.2)	0.188 (4.8)	1.562 (39.7)	0.891 (22.6)	1.000 (25.4)	0.938 (23.8)	0.891 (22.6)	0.844 (21.4)	.5625-24	.542 - .538 (13.77 - 13.67)	0.750 (19.1)	0.875 (22.2)	0.703 (17.9)	0.703 (17.9)
12	0.683 (17.3)	0.312 (7.9)	1.562 (39.7)	0.891 (22.6)	1.000 (25.4)	0.938 (23.8)	0.891 (22.6)	1.016 (25.8)	.6875-24	.667 - .663 (16.94 - 16.84)	0.875 (22.2)	1.000 (25.4)	0.828 (21.0)	0.828 (21.0)
14	0.808 (20.5)	0.375 (9.5)	1.812 (46.0)	0.891 (22.6)	1.000 (25.4)	0.938 (23.8)	0.891 (22.6)	1.141 (29.0)	.8125-20	.791 - .787 (20.09 - 19.99)	1.000 (25.4)	1.125 (28.6)	0.953 (24.2)	0.953 (24.2)
16	0.909 (23.1)	0.500 (12.7)	1.812 (46.0)	0.891 (22.6)	1.000 (25.4)	0.938 (23.8)	0.891 (22.6)	1.265 (32.1)	.9375-20	.916 - .912 (23.27 - 23.16)	1.125 (28.6)	1.188 (30.2)	1.078 (27.4)	1.078 (27.4)
18	1.034 (26.3)	0.625 (15.9)	1.812 (46.0)	0.891 (22.6)	1.000 (25.4)	0.938 (23.8)	0.891 (22.6)	1.391 (35.3)	1.0625-18	1.034 - 1.030 (26.26 - 26.16)	1.250 (31.8)	1.438 (36.5)	1.203 (30.6)	1.203 (30.6)
20	1.159 (29.4)	0.625 (15.9)	1.812 (46.0)	0.891 (22.6)	1.000 (25.4)	0.938 (23.8)	0.891 (22.6)	1.500 (38.1)	1.1875-18	1.158 - 1.154 (29.41 - 29.31)	1.375 (34.9)	1.438 (36.5)	1.328 (33.7)	1.328 (33.7)
22	1.284 (32.6)	0.750 (19.1)	1.938 (49.2)	0.891 (22.6)	1.000 (25.4)	0.938 (23.8)	0.891 (22.6)	1.625 (41.3)	1.3125-18	1.283 - 1.279 (32.59 - 32.49)	1.500 (38.1)	1.625 (41.3)	1.453 (36.9)	1.453 (36.9)
24	1.409 (35.8)	0.800 (20.3)	1.938 (49.2)	0.891 (22.6)	1.062 (27.0)	0.938 (23.8)	0.891 (22.6)	1.750 (44.5)	1.4375-18	1.408 - 1.404 (35.76 - 35.66)	1.625 (41.3)	1.719 (43.7)	1.578 (40.1)	1.578 (40.1)

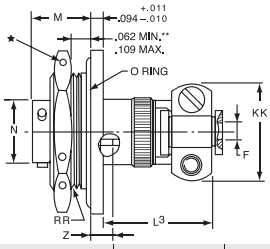
All dimensions in inches (millimeters in parenthesis)

RECEPTACLES

JT07RP (MS27474P)



JT07RE_-SR

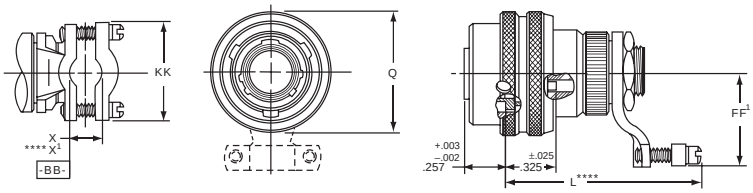


Shell Size	M ±.005 (±.127)	N +.001/-.005 (+.025/-.127)	S ±.016 (±.406)	T• +.010/-.000 (+.254/-.000)	V Thread Class 2A (Plated)	Z ±.031 (±.787)	KK Max.	KK1 Dia. Max.	KK2 Dia. Max.	RR Thread Class 2A (Plated)
8	0.438 (11.1)	0.473 (12.0)	1.250 (31.8)	0.884 (22.5)	.4375-28 UNEF	0.144 (3.7)	0.812 (20.6)	0.625 (15.9)	0.578 (14.7)	.8750-20UNEF
10	0.438 (11.1)	0.590 (15.0)	1.375 (34.9)	1.007 (25.6)	.5625-24 UNEF	0.144 (3.7)	0.875 (22.2)	0.750 (19.1)	0.703 (17.9)	1.0000-20UNEF
12	0.438 (11.1)	0.750 (19.1)	1.500 (38.1)	1.134 (28.8)	.6875-24 UNEF	0.144 (3.7)	1.000 (25.4)	0.875 (22.2)	0.828 (21.0)	1.1250-18UNEF
14	0.438 (11.1)	0.875 (22.2)	1.625 (41.3)	1.259 (32.0)	.8125-20 UNEF	0.144 (3.7)	1.125 (28.6)	1.000 (25.4)	0.953 (24.2)	1.2500-18UNEF
16	0.438 (11.1)	1.000 (25.4)	1.781 (45.2)	1.384 (35.2)	.9375-20 UNEF	0.144 (3.7)	1.188 (30.2)	1.125 (28.6)	1.078 (27.4)	1.3750-18UNEF
18	0.438 (11.1)	1.125 (28.6)	1.890 (48.0)	1.507 (38.3)	1.0625-18 UNEF	0.144 (3.7)	1.438 (36.5)	1.250 (31.8)	1.203 (30.6)	1.5000-18UNEF
20	0.464 (11.8)	1.250 (31.8)	2.016 (51.2)	1.634 (41.5)	1.1875-18 UNEF	0.188 (4.8)	1.438 (36.5)	1.375 (34.9)	1.328 (33.7)	1.6250-18UNEF
22	0.464 (11.8)	1.375 (34.9)	2.140 (54.4)	1.759 (44.7)	1.3125-18 UNEF	0.188 (4.8)	1.625 (41.3)	1.500 (38.1)	1.453 (36.9)	1.7500-18UNS
24	0.464 (11.8)	1.500 (38.1)	2.265 (57.5)	1.884 (47.9)	1.4375-18 UNEF	0.188 (4.8)	1.719 (43.7)	1.625 (41.3)	1.578 (40.1)	1.8750-16UN

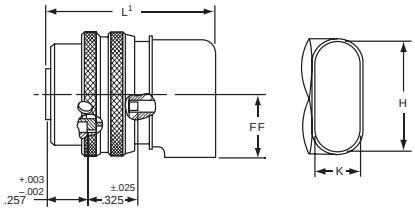
• "D" shaped mounting hole dimensions

PLUGS

JT08RE (MS27500E)



JT08RP



SHELL SIZE	H +.010 (+.254)	K +.010 (+.254)	L MAX.	L1 MAX.	Q DIAMETER MAX.	X MIN. CABLE	X1 MAX. CABLE	FF MAX.	FF1 MAX.	KK MAX.
8	0.547 (13.9)	0.156 (4.0)	1.578 (40.1)	1.125 (28.6)	0.734 (18.6)	0.082 (2.1)	0.234 (5.9)	0.438 (11.1)	0.984 (25.0)	0.755 (19.2)
10	0.709 (18.0)	0.188 (4.8)	1.578 (40.1)	1.156 (29.4)	0.844 (21.4)	0.082 (2.1)	0.234 (5.9)	0.516 (13.1)	1.016 (25.8)	0.755 (19.2)
12	0.829 (21.1)	0.281 (7.1)	1.656 (42.1)	1.250 (31.8)	1.016 (25.8)	0.114 (2.9)	0.328 (8.3)	0.594 (15.1)	1.078 (27.4)	0.817 (20.8)
14	1.000 (25.4)	0.438 (11.1)	1.844 (46.8)	1.406 (35.7)	1.141 (29.0)	0.176 (4.5)	0.457 (11.6)	0.656 (16.7)	1.203 (30.6)	0.943 (24.0)
16	1.021 (25.9)	0.500 (12.7)	2.000 (50.8)	1.469 (37.3)	1.265 (32.1)	0.238 (6.0)	0.634 (16.1)	0.719 (18.3)	1.265 (32.1)	1.067 (27.1)
18	1.145 (29.1)	0.562 (14.3)	2.046 (52.0)	1.531 (38.9)	1.391 (35.3)	0.208 (5.3)	0.614 (15.6)	0.781 (19.8)	1.328 (33.7)	1.149 (29.2)
20	1.270 (32.3)	0.625 (15.9)	2.125 (54.0)	1.594 (40.5)	1.500 (38.1)	0.302 (7.7)	0.608 (15.4)	0.844 (21.4)	1.359 (34.5)	1.399 (35.5)
22	1.395 (35.4)	0.688 (17.5)	2.250 (57.2)	1.656 (42.1)	1.625 (41.3)	0.302 (7.7)	0.823 (20.9)	0.906 (23.0)	1.421 (36.1)	1.399 (35.5)
24	1.520 (38.6)	0.750 (19.1)	2.422 (61.5)	1.797 (45.6)	1.750 (44.5)	0.332 (8.4)	0.853 (21.7)	0.969 (24.6)	1.703 (43.3)	1.587 (40.3)

All dimensions in inches (millimeters in parenthesis)

ACCESSORIES

JT SHELL SIZE	DUMMY RECEPTACLES	RECEPTACLE DUST CAPS FOR FLANGED	RECEPTACLE DUST CAPS FOR JAM NUT	PLUG CAP
8	M38999/10-8B	MS27511**8C	MS27511**8N	MS27510**8CL
10	M38999/10-10B	MS27511**10C	MS27511**10N	MS27510**10CL
12	M38999/10-12B	MS27511**12C	MS27511**12N	MS27510**12CL
14	M38999/10-14B	MS27511**14C	MS27511**14N	MS27510**14CL
16	M38999/10-16B	MS27511**16C	MS27511**16N	MS27510**16CL
18	M38999/10-18B	MS27511**18C	MS27511**18N	MS275 10**18CL
20	M38999/10-20B	MS27511**20C	MS27511**20N	MS27510**20CL
22	M38999/10-22B	MS27511**22C	MS27511**22N	MS27510**22CL
24	M38999/10-24B	MS27511**24C	MS27511**24N	MS27510**24CL

** Select code for plating
B = Olive Drab Chromate over Cadmium over Nickel (500-Hour Salt Spray) (Most Popular)
F = Electroless Nickel (Fluid Resistant)
A = Gold Iridite over Cadmium Nickel
C = Hard Anodize

Straight

Right Angle

JT SHELL SIZE	ENDBELLS STRAIGHT LOW-COST	ENDBELLS RIGHT ANGLE LOW-COST	CABLE RANGE MIN.	CABLE RANGE MAX.
8	M85049/49-2-8**	M85049/47**8	.098 (2.49)	.234 (5.94)
10	M85049/49-2-10**	M85049/47**10	.153 (3.89)	.234 (5.94)
12	M85049/49-2-12**	M85049/47**12	.190 (4.83)	.328 (8.33)
14	M85049/49-2-14**	M85049/47**14	.260 (6.60)	.457 (11.61)
16	M85049/49-2-16**	M85049/47**16	.283 (7.19)	.614 (15.60)
18	M85049/49-2-18**	M85049/47**18	.325 (8.25)	.634 (16.10)
20	M85049/49-2-20**	M85049/47**20	.343 (8.71)	.698 (17.73)
22	M85049/49-2-22**	M85049/47**22	.381 (9.68)	.823 (20.90)
24	M85049/49-2-24**	M85049/47**24	.418 (10.62)	.853 (21.67)

** Select code for connector plating
W = Olive Drab Chromate over Cadmium over Nickel (1000-Hour Salt Spray)
N = Electroless Nickel (Fluid Resistant)
A = Black Anodize

All dimensions in inches (millimeters in parenthesis)

ACCESSORIES

Straight

Right Angle

JT SHELL SIZE	SELF-LOCKING ENDBELLS, STRAIGHT	CABLE RANGE, RIGHT ANGLE	MIN.	MAX.
8	M85049/49-2S8**	M85049/47S**8	.098 (2.49)	.234 (5.94)
10	M85049/49-2S10**	M85049/47S**10	.153 (3.89)	.234 (5.94)
12	M85049/49-2S12**	M85049/47S**12	.190 (4.83)	.328 (8.33)
14	M85049/49-2S14**	M85049/47S**14	.260 (6.60)	.457 (11.61)
16	M85049/49-2S16**	M85049/47S**16	.283 (7.19)	.614 (15.60)
18	M85049/49-2S18**	M85049/47S**18	.325 (8.25)	.634 (16.10)
20	M85049/49-2S20**	M85049/47S**20	.343 (8.71)	.698 (17.73)
22	M85049/49-2S22**	M85049/47S**22	.381 (9.68)	.823 (20.90)
24	M85049/49-2S24**	M85049/47S**24	.418 (10.62)	.853 (21.67)

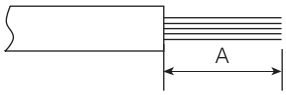
** Select code for connector plating
W = Olive Drab Chromate over Cadmium over Nickel (1000-Hour Salt Spray)
N = Electroless Nickel (Fluid Resistant)
S = 300-Series Steel, Passivated

	SEALED	EMI/RFI	S = STRAIGHT A = 90° B = 45°	ORIENTATION	DESCRIPTION
M85049/62 	Y	N	S	Heat Shrink Boot Adapters	Designed for use with straight or right angle shrink boots. A knurled rear section with a boot groove provides an excellent surface for the boot to grab the metal endbell. Available with lock wire and drain holes. See Heat Shrink Boots on pages 367-368.
M85049/33 M85049/32 	N	Y	S A	Shield-Termination Back Shell	Non-environmental designed for use with jacketed cable. Allow extra space to break out the wires and still provide stain relief clamping to the outside of the cable jacket.
M85049/17 	Y	Y	S	Extender Back Shell	This EMI/RFI-shielding, environmentally sealed endbell features a standard-style cable clamp with gland seal at the end of an extender-style backshell.
M85049/29 	N	N	S	Extender Back Shell	This non-environmentally-sealed endbell features a standard-style cable clamp.
Banding M85049/85 M85049/86 M85049/87	Y	Y	 S B A	Banding Adapter	Banding adapters utilize a band of metal that fastens and grounds cable shields to the outside of endbells. This method of terminating shields has advantages in that they typically use tools to tighten and trim the bands. These tools make the termination tight, repeatable, reworkable (if you make a mistake, just cut the band off and start again) and facilitates service. Banding adapters help lower the total applied cost by having simpler designs that have fewer parts with uncomplicated assembly procedures.
Custom			SAB	Custom Designs Contact us	If the military-standard endbells don't fit your needs, contact us and we will customize an endbell solution. Most of these customized endbells are typically assembled in 4-8 weeks or sooner!
M85049/27	N	N	S	E-Nut	Wire seal compression nut

ASSEMBLY INSTRUCTIONS

WIRE STRIPPING

Strip insulation from end of wire to be crimped. (See table for proper stripping dimensions.) Do not cut or damage wire strands.

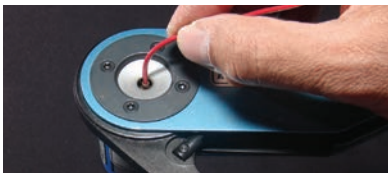


WIRE SIZE	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)

CONTACT CRIMPING

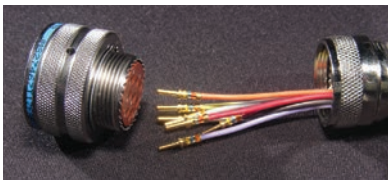
STEP 1: Insert wire into rear of contact. Wire insulation must press against rear of contact. Wire must be visible through inspection hole.

STEP 2: M22520 series crimp tool and locator is recommended. See Contact and Tool Table on pages 182 and 183 for choice of turret head and selection setting according to contact size, part number and wire gauge size.

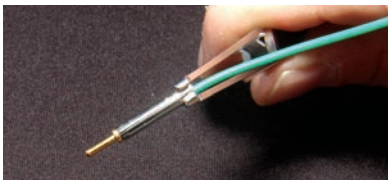


STEP 3: Insert contact and wire into tool jaws. To crimp, squeeze handles together fully until ratchet releases and allows handles to expand; otherwise, contact cannot be extracted from tool jaws. Maintain slight insertion pressure on wire while crimping contact to wire.

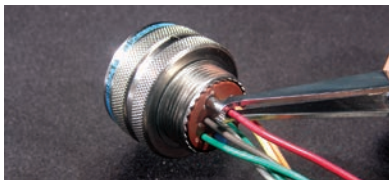
CONTACT INSERTION



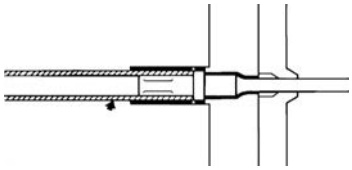
STEP 1: Remove hardware from plug or receptacle and slip over wire bundle in proper order for reassembly.



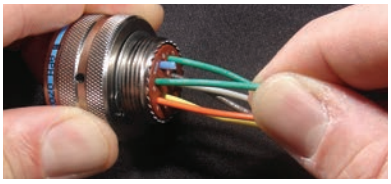
STEP 2: Using proper plastic or metal insertion tool for corresponding contact, position wire in tip of the tool so that the tool tip presses against the contact shoulder.



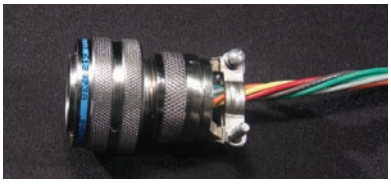
STEP 3: Press tool against contact shoulder and, with firm and even pressure, insert wired contact and tool tip into center contact cavity.



STEP 4: When contact bottoms, a slight "click" can be heard as tines of metal retaining clip snap into place behind contact shoulder.

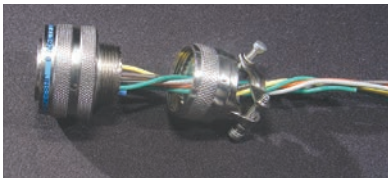


STEP 5: Remove tool and pull back lightly on wire to make sure contact is properly seated. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.

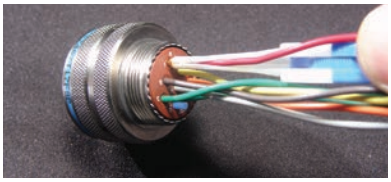


STEP 6: After all contacts are inserted, fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

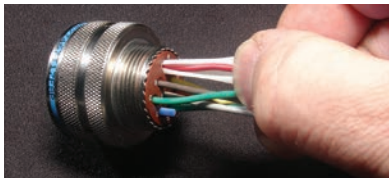
CONTACT EXTRACTION



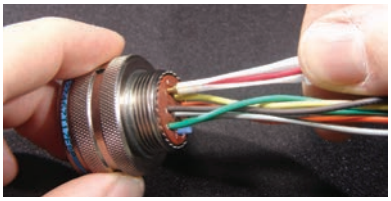
STEP 1: Remove hardware from plug or receptacle and slide hardware back along wire bundle.



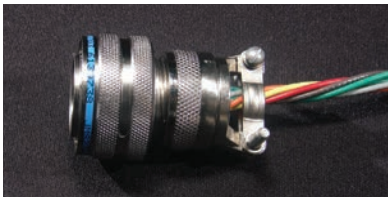
STEP 2: Using plastic or metal extraction tool with proper color code corresponding to contact size, place wire in tool.



STEP 3: Insert tool into contact cavity until tool tip bottoms against the contact shoulder, expanding clip retaining tines.



STEP 4: Hold wire firmly in tool and extract wired contact and tool. Repeat operation for all contacts to be extracted.



STEP 5: Fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

All dimensions in inches (millimeters in parenthesis)

Amphenol TV-CTV Tri-Start MIL-DTL-38999 Series III

COMBINES HIGH COUPLING DURABILITY WITH EMI-SHIELDING AND MOISTURE & CORROSION RESISTANCE

TV-CTV Tri-Start MIL-DTL-38999 Series III connectors have high-density contact arrangements in a miniature circular shell. Originally designed for the high-performance requirements of military and commercial aircraft, these circular connectors are perfect for applications requiring extremely reliable interconnections. TV's are quick-mating and environmentally-sealed.

- Space-rated Class G outgassing available in 48 hours
- Intermateable with Deutsch, ITT Cannon, Souriau and all MIL-DTL-38999 series III connectors
- Formerly MIL-C-38999

APPLICATIONS

- High-performance military aircraft
- Commercial airlines
- Communications equipment
- Armored personnel carriers & tanks
- Missiles
- Shipboard

FEATURES

HIGH-RELIABILITY

D38999 - TV style connectors are used in some of the most rigorous environments and must perform flawlessly under wide temperature ranges, high vibrations and be resistant to a vast array of contaminants. Visual confirmation of mating is provided by the plug coupling nut covering a red band on the mating shell.

OUTSTANDING EMI-SHIELDING PROTECTION

These connectors provide excellent signal integrity due to the shielded mating system that utilizes 360-degree shell grounding fingers, providing protection of up to 65 dB at 10 GHz.

OPERATES AT EXTREME TEMPERATURES

These connectors operate in temperatures from -85°F to +392°F (-65°C to +200°C).

HIGH-DENSITY CONNECTORS

If space is at a premium, TV connectors offer up to 128 contacts per connector. Ideally suited for the demands of digital electronics on fly-by wire aircraft, advanced robotics, and critical industrial equipment.

SELF-LOCKING CONNECTOR SYSTEMS

Self-locking coupling nuts and self-locking endbell accessory hardware provide the best performance for threaded connectors in high-vibration applications.

BROAD RANGE OF MILITARY AND COMMERCIAL ACCESSORIES

Many military-standard endbells to M85049 specifications and a wide array of cable termination styles are available. Straight, 45 and 90-degree endbells come in many styles from cost-effective standard clamp to shielded, environmentally-sealed and everything in between.

CONTACT PROTECTION

TV connectors are designed to be scoop-proof. Pin contacts are recessed to prevent contact damage and contact shorting when connector halves are mated.

MIL-DTL-38999-APPROVED

TV's are fully-intermatable and intermountable with all other manufacturer's MIL-DTL-38999 series III connectors.

TECHNICAL SPECIFICATIONS

MATERIALS AND FINISHES

Shell & Plating

ALUMINUM ALLOY	COMPOSITE	STAINLESS STEEL	MARINE MATERIAL
W - Olive drab chromate over cadmium over electroless nickel per QQ-P-416	J - Olive drab cadmium plate per QQ-P-416	K - Conductive, corrosion-resistant steel passivated	RB - Nickel aluminum bronze
DT - Durmalon™	M - Conductive electroless nickel plating	S - Electrodeposited nickel per QQ-N-290	
W52 - Olive drab zinc cobalt			
F - Electroless nickel QQ-N-290			
ZN - Zinc nickel			

Contacts	Copper alloy
Plating	Gold-plated, 50 microinches per MIL-G-45204 type II, grade C, class I
Insulator	Hard dielectric wafer which contains tines for high-reliability retention of crimp contacts
Grommet & Seals	Silicone-based elastomer
Grounding Springs	Beryllium copper (grounded plug only)

ELECTRICAL DATA

Contact Sizes: 22D, 20, 16 and 12

Operating Voltage & Test Voltage (Unmated Condition)

	SERVICE RATING			
TEST VOLTAGES	N	M	I	II
Sea Level	1000	1300	1800	2300
100,000 Feet	200	200	200	200

Current Rating by Contact Size & Wire Accommodation (Test Amps)

WIRE SIZE	22D	20	16	12	10	8
28	1.5	-	-	-	-	-
26	2.0	-	-	-	-	-
24	3.0	3.0	-	-	-	-
22	5.0	5.0	-	-	-	-
20	-	7.5	7.5	-	-	-
18	-	-	10.0	-	-	-
16	-	-	13.0	-	-	-
14	-	-	-	17.0	-	-
12	-	-	-	23.0	-	-
10 (power)	-	-	-	-	33.0	-
8 (power)	-	-	-	-	-	46.0

Contact Resistance of Mated Contacts End to-End

CONTACT SIZE	MAXIMUM MILLIVOLT DROP
22D	73
20	55
16	49
12	42
10 (power)	33
8 (power)	26

Insulation Resistance: 5,000 megohms minimum

MECHANICAL

Operating Temperature: W, W52, RB, J & ZN plating -65°C to 175°C (-85°F to 347°F)
DT, F, M, K & S plating -65°C to 200°C (-85°F to 392°F)

Sealing: Against sand, dust per MIL-STD-202 & ice resistance

Wire Sealing Range

CONTACT SIZE	MINIMUM INCHES	MAXIMUM INCHES	MINIMUM MM	MAXIMUM MM
22D	0.030	0.054	0.76	1.37
20	0.040	0.083	1.02	2.11
16	0.065	0.109	1.65	2.77
12	0.097	0.142	2.46	3.61
10	0.135	0.162	3.42	4.12
10 (power)	0.135	0.162	3.42	4.12
8 (power)	0.135	0.155	3.43	3.94
8 (coax)	0.135	0.155	3.43	3.94
8 (twinax)	0.124	0.134	3.15	3.40

TECHNICAL SPECIFICATIONS

Insulation Strip Length

CONTACT SIZE	STRIP LENGTH
22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
10 (power)	.335 (8.51)
8 (power)	.470 (11.94)

Mating Life
500 cycles minimum

Salt Spray
Finish W: 500-hour per MIL-STD-1344A method 1001 condition C
Finish W52: 48-hour
Finish F: 48-hour per MIL-STD-1344A method 1001 condition B
Finish J & M: 2000-hour per MIL-STD-1344A method 1001 condition C
Finish S & K: 2000-hour per MIL-STD-1344A method 1001 condition C
Finish RB: 500-hour per BS CECC 75201-002
Finish DT & ZN: 500-hour

Tempature Durability
Finish W: 175°C (347°F), Finish F: 200°C (392°F), mated, wired test period 1000 hours to MIL-STD-1344 Method 1005
Finish DT, M, K & S: 200°C (392°F)
Finish J, RB, W52 & ZN: 175°C (347°F)

Chemical Resistance
Lubricating oils, hydraulic fluids, coolants, deicing fluids per MIL-STD-1344A Method 1016 condition A-1

Sine Vibration
60g at -55°C per MIL-DTL-38999K 4.5.22.2.1

Random Vibration
49.5 grms at ambient temperatures

Shock
300 grms

EMI-Shielding Effectiveness
100 MHz to 10 GHz - minimum attenuation of 50dB

Contact Type
Crimp, fibre optic, coax, twinax, or printed circuit

Number of Circuits
2 to 128

Contact Insertion
Rear-insertion/rear-extraction with simple plastic or high-quality metal hand tools

Contact Retention
Per MIL-DTL-38999K tested to MIL-STD-1344A method 2007

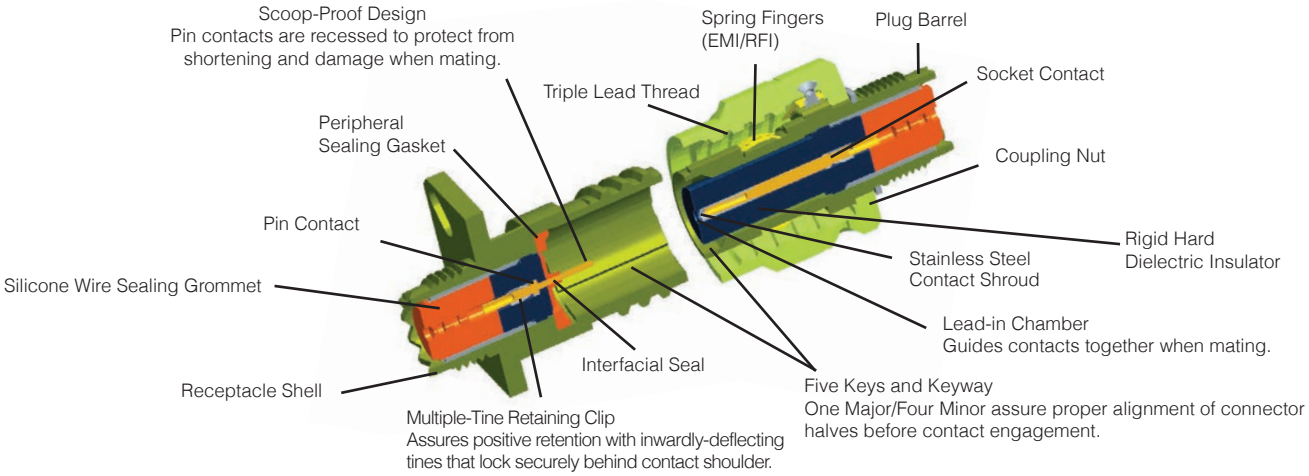
CONTACT	AXIAL LOAD NEWTONS ±10%	AXIAL LOAD POUNDS ±10%
22D	44	10
20	67	15
16	111	25
12	111	25
10	111	25
8	111	25

Polarization
Five keyways with optional master keyway rotations
(Note: insert and main keyways remain fixed)

Approvals
MIL-DTL-38999

All dimensions in inches (millimeters in parenthesis)

CROSS-SECTION



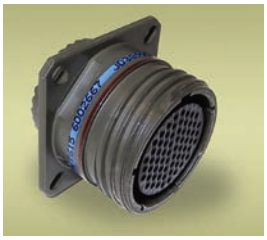
CREATE YOUR PART NUMBER - MILITARY

1	2	3	4	5	6
D38999/20	F	A35	P	N	-LC
SHELL STYLE	FINISH	LAYOUT	CONTACT	POLARIZATION	MODIFIER

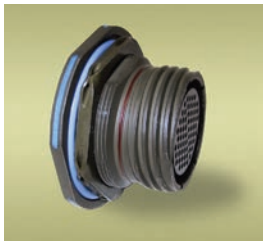
(military part number example)

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → **PLUGS**



D38999/20
Wall Mount Receptacle



D38999/24
Jam Nut Receptacle

D38999/26
Straight Cable Plug

Lanyard Release Plug
Contact us for more details.

HERMETICS
Please contact us
D38999/21 - Box Mount
D38999/23 - Jam Nut
D38999/25 - Solder Mount
D38999/27 - Weld Mount

Available with PC pins. Contact us for details.

STEP 2: SELECT CLASS

- **F** = Electroless Nickel (Aluminum)
- **K** = Stainless Steel - Firewall - 45dB
- **W** = Olive Drab Chromate over Cadmium (Aluminum)
- **C** = Anodized (Aluminum)
- **S** = Stainless Steel/Electroless Nickel -65dB
- **J** = Composite (Olive Drab Chromate over Cadmium)
- **M** = Composite (Electroless Nickel)
- **T** = Nickel - PTFE (Aluminum) Durmalon™

CONTACT US FOR DETAILS

- **G** = Space-Grade
- **L** = Corrosion-Resistant Steel/Electrodeposited Nickel
- **Y** = Hermetic Stainless Steel
- **N** = Hermetic Stainless Steel/Electrodeposited Nickel

NOTE: Part numbers will be prefixed with the United States Government Certification Marks “J” or “JAN”. The Certification and Registration 504,860 for “JAN” and 1,586,261 for the “J” Certification marks. EXAMPLE: JD38999/20FA35PN

STEP 3: SELECT LAYOUT

For listing by # of contacts, see pages 218-221.

Military D38999 Layout	Service Rating	Contacts: Total Number	22D	20	16	12	10	8	Available in Hermetic Pin Layouts
A35	M	6	6						P
A98	I	3		3					P
B2	I	2			2				
B5	I	5		5					P
B35	M	13	13						P
B98	I	6		6					P
B99	I	7		7					
C4	I	4			4				P
C8	I	8		8					P
C35	M	22	22						P
C98	I	10		10					P
D5	II	5			5				P
D15	I	15		14	1				P
D18	I	18		18					P
D19	I	19		19					P
D35	M	37	37						P
D97	I	12		8	4				P
E2	M	39	38					1✱✱	
E6	I	6				6			P
E8	II	8			8				P
E26	I	26		26					P
E35	M	55	55						P
E99	I	23		21	2				
F11	II	11			11				P
F18	M	18	14					4✱✱	
F28	I	28		26	2				
F32	I	32		32					P
F35	M	66	66						P
G11	I	11				11			
G16	II	16			16				P
G35	M	79	79						P
G39	I	39		37	2				P
G41	I	41		41					P
G75	M	4						4✱	(See Note)
H21	II	21			21				P
H35	M	100	100						P
H53	I	53		53					P
H55	I	55		55					P
J4	I	56		48	8				P
J7	TWINAX	99	97					2✱✱	
J8	TWINAX	8						8✱✱	
J11	N	11		2			9		
J19	I	19				19			P
J20	N	30		10	13	4◆		3✱✱	
J24	I	24			12	12			P
J29	I	29			29				
J35	M	128	128						P
J37	I	37			37				
J43	I	43		23	20	2✱			
J46	I	46		40	4	2✱			
J61	I	61		61					P
J90	I	46		40	4			2✱✱	

P - Pin inserts only (Contact us for socket availability)
Note: MS connector G75 is supplied with size 8 twinax
Propriety connector 21-75 is supplied with size 8 coax
✱Coax ✱✱Twinax
◆J20 is supplied with 2-#12 coax and 2-#12 shielded contacts
Contact us for more information.

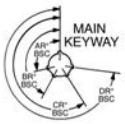
STEP 4: SELECT CONTACT

P = Pin
S = Socket
H = 1500-Mating Cycle Pins (Composite type only)
J = 1500-Mating Cycle Socket (Composite type only)
A = Less Pin Contacts*
B = Less Socket Contacts*
* Use only for special contact types (PC Pin, Thermocouple, Fiberoptic).

STEP 5: SELECT POLARIZATION

N = Normal Standard
A = Highly-Popular
B = Limited Availability
C = Check for Availability
D = Check for Availability

Receptacle



Plug

SHELL SIZE		MINOR KEY LOCATION: AR° & AP°	BR° & BP°	CR° & CP°	DR° & DP°
A	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
	E	91	131	197	240
B C D	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
	E	51	141	184	242
E F	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272
G H J	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

STEP 6: MODIFIER

Omit for standard contacts

LC = For use with standard contacts but supplied with contacts, seal plugs or tools. (P.O. must state Less Contacts.) LC is not marked on parts.

UNIVERSAL MOD (KITTED NOT MARKED ON PART)
U = Universal endbell for heat shrink tube or boots
US = Universal endbell with shielding spring
UT = Universal endbell with shielding tape
UW = Universal endbell with shielding tape and spring
SB or HSB = Heavy-duty heat shrink boot

CG = Cord Grip Adapter

CA = Flexible Conduit Adapter

CREATE YOUR PART NUMBER - COMMERCIAL

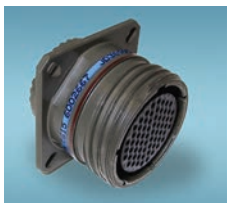
1	2	3	4	5	6
TVP00	RW-	9-35	P	-	-LC
SHELL STYLE	FINISH	LAYOUT	CONTACT	POLARIZATION	MODIFIER

(example)

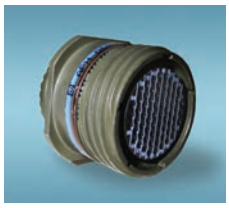
STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → **PLUGS**

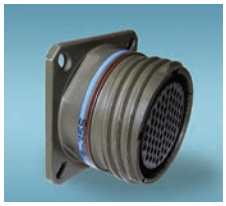
NOTE: To be used with Service Classes RF, RK & RS only for 200°C. TVS/CTVS TVPS/CTVPS



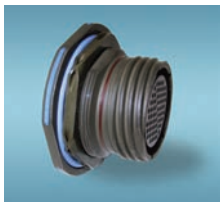
TVP00/TVPS00 CTVP00/ CTVPS00
Wall Mount Receptacle



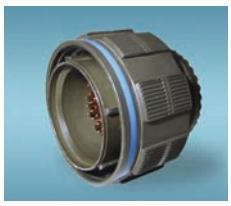
TV01/TVS01 CTV01/CTVS01
In-Line Receptacle



TVP02/TVPS02 CTVP02/ CTVPS02
Box Mount Receptacle



TV07/TVS07 CTV07/CTVS07
Jam Nut Receptacle



TV06/TVS06 CTV06/CTVS06
Straight Cable Plug

TVS06RB_W88
Straight Cable Plug
Heavy Duty Coupling Nut

TV09/TVS09
Flange Mounting Plug
Please contact us for details

NOTE: For high-vibration and harsh-environment applications. Please contact us. (TV26/HTV26)

STEP 2: SELECT CLASS

RB = Marine Nickel Aluminum Bronze
RF = Electroless Nickel (Aluminum)
RK = Stainless Steel - Firewall - 45dB
RW = Olive Drab Chromate over Cadmium (Aluminum)
RS = Stainless Steel/Electroless Nickel - 65dB
ZN = Zinc Nickel (ROHS)
DT = Durmalon™ (ROHS) Contact us for details

CONTACT US FOR DETAILS

Y = Hermetic Stainless Steel
YN = Hermetic Stainless Steel/Electroless Nickel
RGF = Electroless Nickel Plated Ground Plane Aluminum, 200ºC
RGW = Olive Drab Cadmium Plated Ground Plane Aluminum, 175ºC
RQF = Same as RF, except with Quadrax Contacts
RQW = Same as RW, except with Quadrax Contacts
RGQF = Same as RGF, except with Quadrax Contacts
RGQW = Same as RGW, except with Quadrax Contacts
RQK = Same as RK, except with Quadrax Contacts#
RX = Alternate Finish, requires special variation suffix
Not Firewall Capable

HERMETICS
Please contact us

TVPS02 - Box Mount	TVS07 - Jam Nut
TVSIY - Solder Mount	TVSHIY - Weld Mount

Available with PC pins. Contact us for details.

STEP 3: SELECT LAYOUT

For listing by # of contacts, ⇨ see pages 218-221.

Commercial TV/CTV Layout	Service Rating	Contacts: Total Number	22D	20	16	12	10	8	Available in Hermetic Pin Layouts
9-5QG	Grounded	1						1**	
9-35	M	6	6						P
9-94•	M	2		2					
9-98	I	3		3					P
11-01	Twinax	1						1**	
11-2•G	I	2			2				
11-4•		4		4					
11-5	I	5		5					P
11-35	M	13	13						P
11-54•	II	4	4						
11-98	I	6		6					P
11-99	I	7		7					
13-4G	I	4			4				P
13-8	I	8		8					P
13-13	I,Fibre Optic	4			2	2			
13-35	M	22	22						P
13-98	I	10		10					P
15-4•	I	4				4			
15-5G	II	5			5				P
15-15	I	15		14	1				P
15-18	I	18		18					P
15-19	I	19		19					P
15-35	M	37	37						P
15-97	I	12		8	4				P
17-2•	M	39	38					1**	
17-6	I	6				6			P
17-8G	II	8			8				P
17-20	M	20	16			4			
17-22•Q	Coax	4				2*		2*	
17-26	I	26		26					P
17-35	M	55	55						P
17-52Q	M	2						2**	
17-60Q	I/Coax	10	8					2*	
17-99	I	23		21	2				
19-ADQ	I/Twinax	17		16				1**	
19-11G	II	11			11				P
19-17	M	17	10	1	4			2**	
19-18•Q	M	18	14					4**	
19-28	I	28		26	2				
19-31•Q	M	15	12			1		2	
19-32	I	32		32					P
19-35	M	66	66						P
21-11G	I	11				11			
21-16G	II	16			16				P
21-29	I	27		19	4	4			
21-35	M	79	79						P
21-39	I	39		37	2				P
21-41	I	41		41					P
21-48		4						4***	
21-75QG	M	4						4*	(See Note)
21-79Q	II	19	17					2*	
23-6QG	M	6						6**	
23-14•	I	14				14			
23-21G	II	21			21				P
23-35	M	100	100						P
23-53	I	53		53					P
23-54•	M	53	40		9	4			
23-55•	I	55		55					P
25-4	I	56		48	8				P
25-7•Q	Twinax	99	97					2**	
25-8•QG	Twinax	8						8**	
25-11•	N	11		2			9		
25-17•	M	42	36					6**	
25-19G	I	19				19			P
25-20•Q	N	30		10	13	4◆		3**	
25-24G	I	24			12	12			P
25-26•	I	25		16		5		4*	
25-29G	I	29			29				
25-35	M	128	128						P
25-37•G	I	37			37				
25-41	I	41	22	3	11	2*		3**	
25-43•	I	43		23	20				
25-46•Q	I	46		40	4			2*	
25-61	I	61		61					P
25-62•Q	I	12			8			4	
25-90•	I	46		40	4			2**	
25-F4•	M/I	66	49		13	4			

STEP 4: SELECT CONTACT

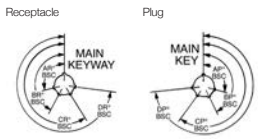
P = Pin
S = Socket
H = 1500-Mating Cycle Pins (Composite type only)
J = 1500-Mating Cycle Socket (Composite type only)
A = Less Pin Contacts*
B = Less Socket Contacts*

* Use only for special contact types (PC pin, thermocouple, fibre optic).

STEP 5: SELECT POLARIZATION

(omit for normal)

A = Highly-Popular
B = Limited Availability
C = Check for Availability
D = Check for Availability
E = Check for Availability



SHELL SIZE		MINOR KEY LOCATION: AR° & AP°	BR° & BP°	CR° & CP°	DR° & DP°
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
	E	91	131	197	240
11	N	95	141	208	236
13	A	113	156	182	292
15	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
	E	51	141	184	242
17	N	80	142	196	293
19	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272
21	N	80	142	196	293
23	A	135	170	200	310
25	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

STEP 6: MODIFIER

⇨ See page 215 for more Modifiers.

Omit for standard contacts

LC = For use with standard contacts but supplied with contacts, seal plugs or tools. (P.O. must state Less Contacts.) LC is not marked on parts.
W52 = Olive Drab Zinc Cobalt
W88 = Heavy-Duty Plug (RB Only)

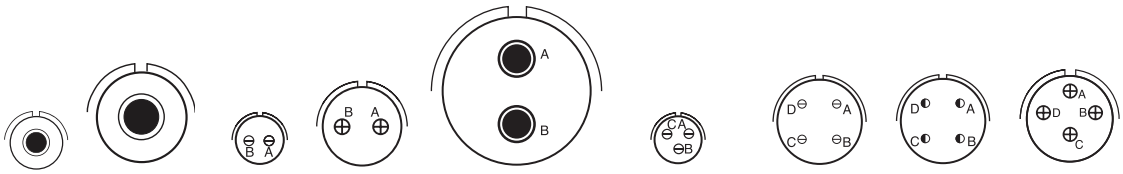
● Not tooled for 02-R **Q** = Available in Quadrax Layouts
◆ 25-20 is supplied with 2-#12 coax and 2-#12 shielded contacts
* Coax ** Twinax *** Power Contact us for more information.
G = Groundplane option available. 9-5 is exclusively groundplane.

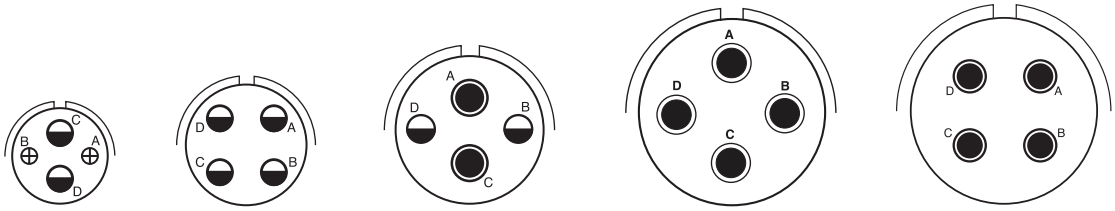
Note: Propriety connector 21-75 is supplied with size 8 coax

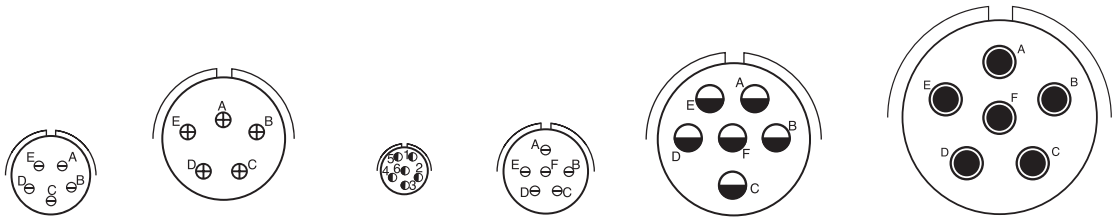
LAYOUT BY NUMBER OF CONTACTS

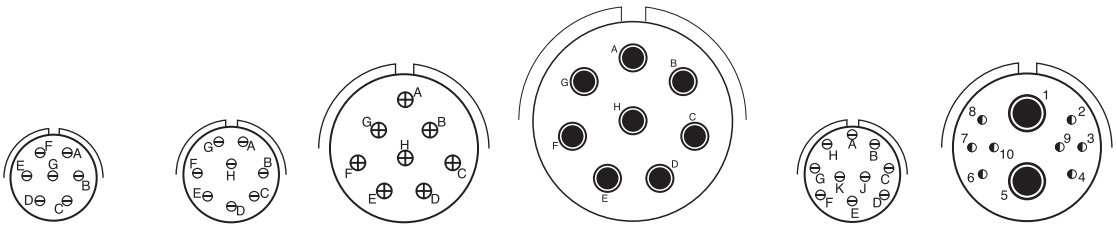
View of Mating-Face of Pin Insert

22D 20 16 12 10 8

CONTACTS	1		2			3	4		
									
D38999 LAYOUT	-	-	-	B2	-	A98	-	-	C4
TV/CTV LAYOUT	9-5Q	11-01	9-94•	11-2•	17-52Q	9-98	11-4•	11-54	13-4
# OF CONTACTS	1-#8	1-#8**	2-#20	2-#16	2-#8**	3-#20	4-#20	4-#22D	4-#16
SERVICE RATING	M	TWINAX	M	I	M	I	I	II	I

CONTACTS	4				
					
D38999 LAYOUT	-	-	-	-	G75
TV/CTV LAYOUT	13-13	15-4•	17-22•Q	21-48	21-75Q
# OF CONTACTS	2-#16, 2-#12	4-#12	2-#12*, 2-#8*	4-#8***	4-#8* or **
SERVICE RATING	I, FIBER OPTIC	I	COAX	-	M

CONTACTS	5			6		
						
D38999 LAYOUT	B5	D5	A35	B98	E6	-
TV/CTV LAYOUT	11-5•	15-5	9-35	11-98	17-6	23-6Q
# OF CONTACTS	5-#20	5-#16	6-#22D	6-#20	6-#12	6-#8**
SERVICE RATING	I	II	M	I	I	M

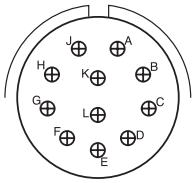
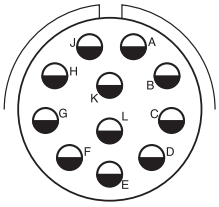
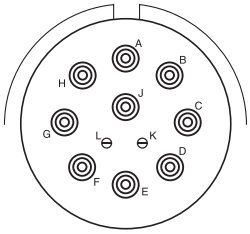
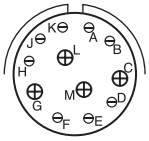
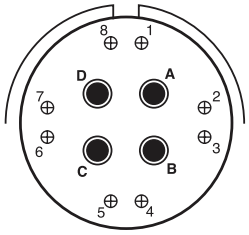
CONTACTS	7	8				10	
							
D38999 LAYOUT	B99	C8	E8	J8		C98	-
TV/CTV LAYOUT	11-99	13-8	17-8	25-8•Q		13-98	17-60Q
# OF CONTACTS	7-#20	8-#20	8-#16	8-#8**		10-#20	8-#22D, 2-#8*
SERVICE RATING	I	I	II	TWINAX		I	I/COAX

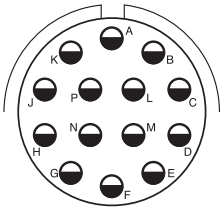
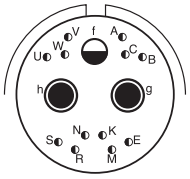
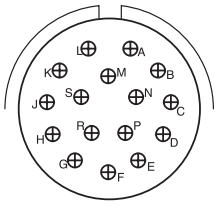
*Coax **Twinax ***Power •Not Tooled for 02-R Q Quadrax Contact us for more information.

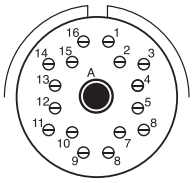
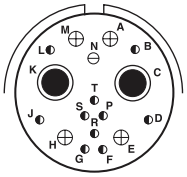
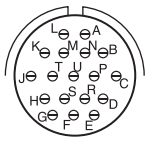
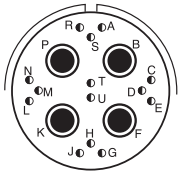
LAYOUT BY NUMBER OF CONTACTS

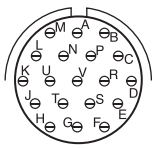
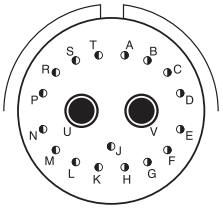
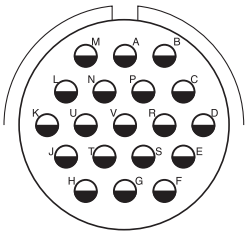
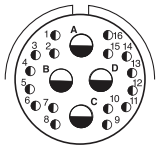
View of Mating-Face of Pin Insert

22D 20 16 12 10 8

CONTACTS	11			12	
					
D38999 LAYOUT	**F11**	**G11**	**J11**	**D97**	**-**
TV/CTV LAYOUT	**19-11**	**21-11**	**25-11•**	**15-97**	**25-62Q**
# OF CONTACTS	11-#16	11-#12	2-#20, 9-#10	8-#20, 4-#16	8-#16, 4-#8✱✱
SERVICE RATING	II	I	N	I	I

CONTACTS	13	14	15		16
					
D38999 LAYOUT	**B35**	**-**	**D15**	**-**	**G16**
TV/CTV LAYOUT	**11-35**	**23-14•**	**15-15**	**19-31•Q**	**21-16**
# OF CONTACTS	13-#22D	14-#12	14-#20,1-#16	12-#22D, 1-#12, 2-#8✱	16-#16
SERVICE RATING	M	I	I	M	II

CONTACTS	17		18	
				
D38999 LAYOUT	**-**	**-**	**D18**	**F18**
TV/CTV LAYOUT	**19-ADQ**	**19-17**	**15-18**	**19-18•Q**
# OF CONTACTS	16-#20, 1#8✱✱	10-#22D, 1-#20, 4-#16, 2-#8✱✱	18-#20	14-#22D, 4-#8✱✱
SERVICE RATING	I/TWINAX	M	I	M

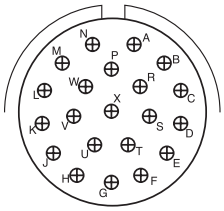
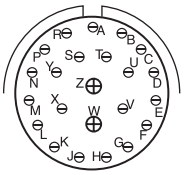
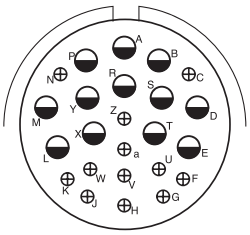
CONTACTS	19			20
				
D38999 LAYOUT	**D19**	**-**	**J19**	**-**
TV/CTV LAYOUT	**15-19•**	**21-79Q**	**25-19**	**17-20**
# OF CONTACTS	19-#20	17-#22D, 2-#8✱	19-#12	16-#22D, 4-#12
SERVICE RATING	I	II	I	M

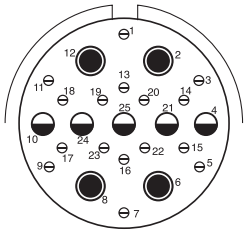
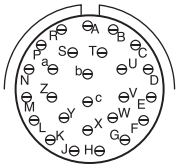
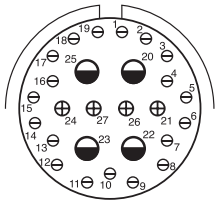
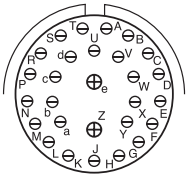
✱Coax ✱✱Twinax ✱✱✱Power •Not Tooled for 02-R Q Quadrax Contact us for more information.

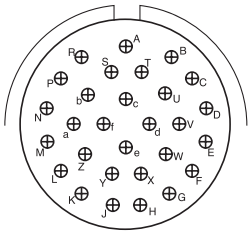
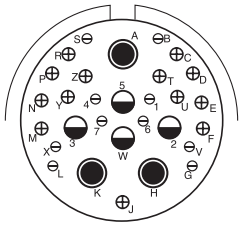
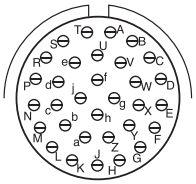
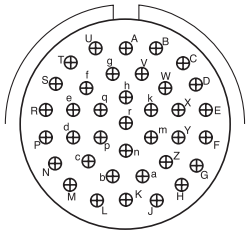
LAYOUT BY NUMBER OF CONTACTS

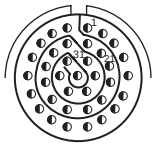
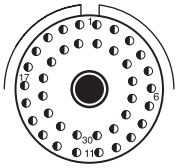
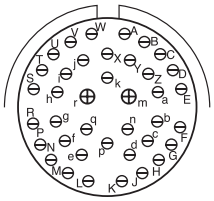
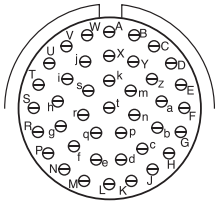
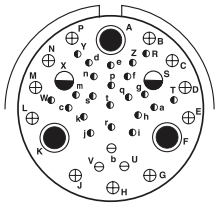
View of Mating-Face of Pin Insert

22D 20 16 12 10 8

CONTACTS	21	22	23	24
				
D38999 LAYOUT	**H21**	**C35**	**E99**	**J24**
TV/CTV LAYOUT	**23-21**	**13-35**	**17-99**	**25-24**
# OF CONTACTS	21-#16	22-#22D	21-#20, 2-#16	12-#16, 12-#12
SERVICE RATING	II	M	I	I

CONTACTS	25	26	27	28
				
D38999 LAYOUT	**-**	**E26**	**-**	**F28**
TV/CTV LAYOUT	**25-26•Q**	**17-26**	**21-29**	**19-28**
# OF CONTACTS	16-#20, 5-#12, 4-#8✱	26-#20	19-#20, 4-#16, 4-#12	26-#20, 2-#16
SERVICE RATING	I	I	I	I

CONTACTS	29	30	32	37
				
D38999 LAYOUT	**J29**	**J20**	**F32**	**J37**
TV/CTV LAYOUT	**25-29**	**25-20•Q**	**19-32**	**25-37•**
# OF CONTACTS	29-#16	10-#20, 13-#16, 4-#12◆, 3-#8✱✱	32-#20	37-#16
SERVICE RATING	I	N	I	I

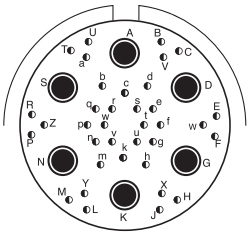
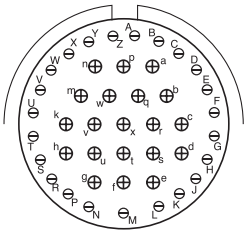
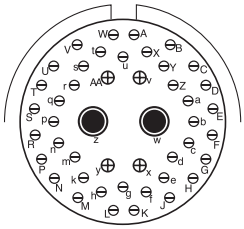
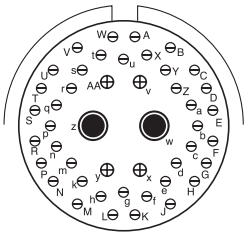
CONTACTS	37	39		41	
					
D38999 LAYOUT	**D35**	**E2**	**G39**	**G41**	**-**
TV/CTV LAYOUT	**15-35**	**17-2**	**21-39**	**21-41**	**25-41**
# OF CONTACTS	37-#22D	38-#22D, 1-#8✱✱	37-#20;2-#16	41-#20	22-#22D, 3-#20, 11-#16, 2-#12✱, 3-#8✱✱
SERVICE RATING	M	M	I	I	I

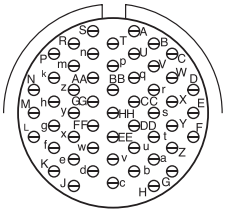
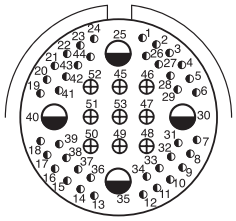
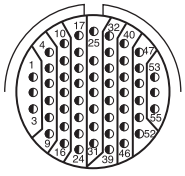
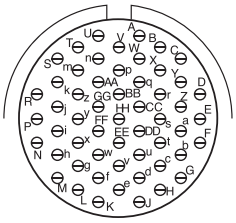
✱Coax ✱✱Twinax ✱✱✱Power •Not Tooled for 02-R Q Quadrax Contact us for more information. ◆ 25-20 is supplied with 2-#12 coax and 2-#12 shielded contacts

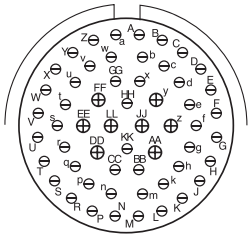
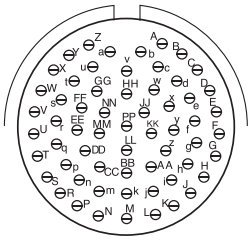
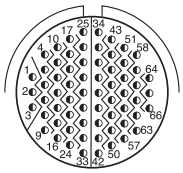
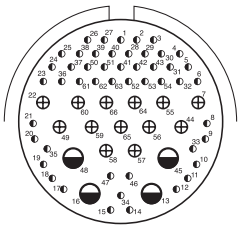
LAYOUT BY NUMBER OF CONTACTS

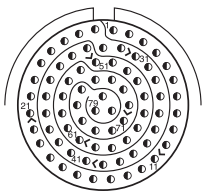
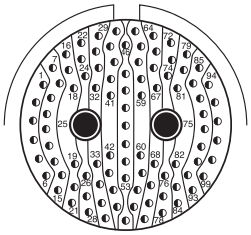
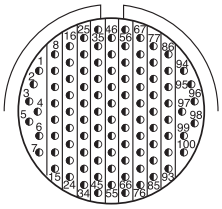
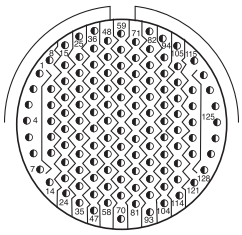
View of Mating-Face of Pin Insert

22D 20 16 12 10 8

CONTACTS	42	43	46	
				
D38999 LAYOUT	-	**J43**	**J46**	**J90**
TV/CTV LAYOUT	**25-17•**	**25-43•**	**25-46•Q**	**25-90**
# OF CONTACTS	36-#22D, 6-#8**	23-#20, 20-#16	40-#20, 4-#16, 2-#8*	40-#20, 4-#16, 2-#8**
SERVICE RATING	M	I	I	I

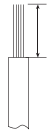
CONTACTS	53		55	
				
D38999 LAYOUT	**H53**	-	**E35**	**H55**
TV/CTV LAYOUT	**23-53**	**23-54•**	**17-35**	**23-55•**
# OF CONTACTS	53-#20	40-#22D, 9-#16, 4-#12	55-#22D	55-#20
SERVICE RATING	I	M	M	I

CONTACTS	56	61	66	
				
D38999 LAYOUT	**J4**	**J61**	**F35**	-
TV/CTV LAYOUT	**25-4**	**25-61**	**19-35**	**25-F4•**
# OF CONTACTS	48-#20, 8-#16	61-#20	66-#22D	49-#22D, 13-#16, 4-#12
SERVICE RATING	I	I	M	M/I

CONTACTS	79	99	100	128
				
D38999 LAYOUT	**G35**	**J7**	**H35**	**J35**
TV/CTV LAYOUT	**21-35**	**25-7•Q**	**23-35**	**25-35**
# OF CONTACTS	79-#22D	97-#22D, 2-#8**	100-#22D	128-#22D
SERVICE RATING	M	TWINAX	M	M

*Coax **Twinax ***Power •Not Tooled for 02-R Q Quadrax Contact us for more information.

PINS

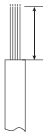


Insert head first.
Trim excess.

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22D	22,24,26 & 28	M39029/58-360	Orange	Blue	Black	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
		M39029/107-620#	Blue	Red	Black					
20	20,22 & 24	M39029/58-363	Orange	Blue	Orange	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
		M39029/107-621#	Blue	Red	Brown					
16	16,18 & 20	M39029/58-364	Orange	Blue	Yellow	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
		M39029/107-622#	Blue	Red	Red					
12	12 & 14	M39029/58-365	Orange	Blue	Green	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
		M39029/107-623#	Blue	Red	Orange					
10	10 & 12	M39029/58-528	Green	Red	Gray	.335 (8.51)	.135 (3.42)	.162 (4.12)	M85049/81-10	Green
8	Coax∗ RG180B/U RG195A/U	M39029/60-367	Orange	Blue	Violet	Detailed instructions included with contacts	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8	Twinax∗∗ M17/M176-0002	M39029/90-529	Green	Red	White		.124 (3.15)	.134 (3.40)	MS27488-8-3	Red
8 Power	8	10-497448-075	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8 Power	10	10-497448-095	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red

#1500 Mating Cycle Contacts ∗Coax ∗∗Twinax call for details. For fibre optic contacts, please contact us.

SOCKETS



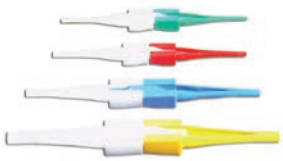
Insert head first.
Trim excess.

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22D	22,24,26 & 28	M39029/56-348	Orange	Yellow	Gray	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
		M39029/106-614#	Blue	Brown	Yellow					
20	20, 22 & 24	M39029/56-351	Orange	Green	Brown	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
		M39029/106-615#	Blue	Brown	Green					
16	16,18 & 20	M39029/56-352	Orange	Green	Red	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
		M39029/106-616#	Blue	Brown	Blue					
12	12 & 14	M39029/56-353	Orange	Green	Orange	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
		M39029/106-617#	Blue	Brown	Violet					
10	10 & 12	M39029/56-527	Green	Red	Violet	.355 (8.51)	.135 (3.42)	.162 (4.12)	M85049/81-10	Green
8	Coax∗ RG180B/U RG195A/U	M39029/59-366	Orange	Blue	Blue	Detailed instructions included with contacts	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8	Twinax∗∗ M17/M176-0002	M39029/91-530	Green	Orange	Black		.124 (3.15)	.134 (3.40)	MS27488-8-3	Red
8 Power	8	10-497446-075	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8 Power	10	10-497446-095	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red

#1500 Mating Cycle Contacts ∗Coax ∗∗Twinax call for details. For Fiber Optic Contacts, please call.

All dimensions in inches (millimeters in parenthesis)

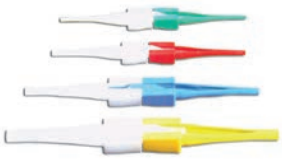
PINS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXRTACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND 1	COLOR BAND 2
22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Blue	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	-	DRK95-12B	-	-
10	TP-201423 or 1716P-1	-	-	-	M81969/14-05	Gray	White	M81969/8-11	Green	M81969/8-12	Green	White
8 Coax	M22520/2-01 M22520/5-01	WA22†† HX23	M22520/2-31 (inner) M22520/5-05 (outer)		M81969/14-12	Green		-	-	DRK264-8	-	-
8 Twinax	M22520/2-01 M22520/5-01	WA22 HX23	K709 (inner) Y631 (outer)		M81969/14-12	Green		M81969/46-06	Red	M81969/46-12	-	-
8 8 AWG Power	-	400B-1	414DA-8N (Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-
8 10 AWG Power	M3SP-6	400B-1	414DA-10N (Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-

†† Contact us for more tool accessories.

SOCKETS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXRTACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND 1	COLOR BAND 2
22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Blue	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	-	DRK95-12B	-	-
10	TP-201423 or 1716P-1	-	-	-	M81969/14-05	Gray	White	M81969/8-11	Green	M81969/8-12	Green	White
8 Coax	M22520/2-01 M22520/5-01	WA22†† HX23	M22520/2-31 (inner) M22520/5-05 (outer)		M81969/14-12	Green		-	-	DRK264-8	-	-
8 Twinax	M22520/2-01 M22520/5-01	WA22 HX23	K709 (inner) Y631 (outer)		M81969/14-12	Green		M81969/46-06	Red	M81969/46-12	-	-
8 8 AWG Power	-	400B-1	414DA-8N (Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-
8 10 AWG Power	M3SP-6	400B-1	414DA-10N (Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-

†† Contact us for more tool accessories.

COAX CONTACTS

COAX PIN

COAX SOCKET

CRIMPING TOOLS

M22520/5-01

Crimp Dies

COAX CONTACT SIZE	CABLE TYPE	CONTACT PART NUMBER		CRIMPING TOOLS	
		PIN	SOCKET	INNER CONTACT	CRIMP FERRULE
16	RG-178B/U, RG-196A/U	21-033122-564 (M39029/76-425)	21-033123-564 (M39029/77-429)	M22520/2-01 w/ Positioner M22522/2-35 or w/ Daniels Positioner K532	M22520/4-01 w/ Positioner M22520/4-02
	RG-174A/U, RG-188A/U, RG-161/U, RG-187A/U, RG-316/U, RG-179B/U	21-033122-563 (M39029/76-424)	21-033123-563 (M39029/77-428)		
12		21-033122-546 (M39029/28-211)	21-033123-546 (M39029/75-416)	M22520/2-01 w/ Positioner M22520/2-34 or w/ Daniels Positioner K323	M22520/31-01 w/ Positioner M22520/31-02 or Daniels GS-200 Tool w/ Positioner G2P330
	RG-180B/U, RG-195A/U	21-033122-541 (M39029/28-409)	21-033123-541 (M39029/75-417)		
8	RG-187A/U, RG-179B/U, RG-174A/U, RG-188A/U, RG-316/U, RG-161/U	21-033102-023	21-033101-023	M22520/2-01 w/ Positioner M22520/2-31 or Solder	M22520/5-01 w/ die set M22520/5-03 (A) or M22520/5-08 (A) M22520/5-35 (B) or M22520/10-01 w/ die set M22520/10-05 (A)
	RG-142B/U, RG-223/U	21-033102-024	21-033101-024		M22520/5-01 w/ die set M22520/5-05 (A) or M22520/5-19 (B) or M22520/10-01 w/ die set M22520/10-07 (A)
	RG-180B/U, RG-195A/U	21-033102-021 (M39029/60-367)	21-033101-021 (M39029/59-366)		M22520/5-01 w/ die set M22520/5-05 (B) or M22520/5-41 (B) or M22520/10-01 w/ die set M22520/10-07 (B)
	RG-400	21-033102-027	21-033101-027	M22520/2-01 w/ Positioner M22520/2-10	M22520/5-01 w/ die set M22520/5-45 (A)
	RG-58 (M17/155-00001)	21-033102-029	21-033101-029	Solder	M22520/5-01 w/ die set M22520/5-05 (B)

PRINTED CIRCUIT BOARD CONTACTS - PIN

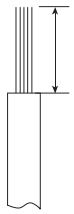
PCB PIN CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX./MIN.				
			D38999/20 TVP00	TVP02	D38999/26 TV06	D38999/24 TV07	
						METAL	COMPOSITE
10-407552-015	22D	0.019	.335 /.280	.555 / .500	.360 / .305	.329 / .279	.286 / .236
10-407552-055	22D	0.019	.224 / .169	.444 / .389	.249 / .194	.218 / .168	.175 / .125
10-407552-085	22D	0.019	.060 / .010	.280 / .230	.085 / .035	.054 / .009	.011 / NS
10-407552-115	22D	0.019	.002 / NS	.222 / NS	.023 / NS	NS	NS
10-497640-015	20	0.019	.348 / .298	.568 / .518	.373 / .323	.342 / .297	.299 / .254
10-497640-025	20	0.019	.213 / .163	.433 / .383	.238 / .188	.207 / .162	.164 / .119
10-497640-045	20	0.019	NS	NS	NS	NS	NS
10-497596-015	20	0.025	.058 / .012	.278 / .232	.083 / .037	.052 / .011	.009 / .044
10-497596-025	20	0.025	.148 / .102	.368 / .322	.173 / .127	.142 / .101	.099 / .058
10-497596-035	20	0.025	.229 / .183	.449 / .403	.254 /.208	.223 / .182	.180 / .058
10-497596-055	20	0.025	.346 / .300	.566 / .520	.371 / .325	.340 / .299	.297 / .256
10-497695-015	16	0.040	.255 / .205	.475 / .425	.280 / .230	.249 / .204	.206 / .161
10-497630-035	16	0.062	.060 / .010	.280 / .230	.085 / .035	.054 / .009	.011 / NS
10-497630-055	16	0.062	.228 / .178	.460 / .375	.253 / .203	.244 / .177	.201 / .190
10-597502-015	12	0.081	.228 / .178	.448 / .398	.252 / .203	.222 / .177	.179 / .134

= Standard PC tail used

All dimensions in inches (millimeters in parenthesis)

WIRE HOLE FILLER

WIRE STRIP LENGTH

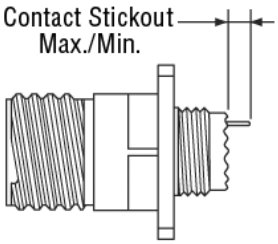


WIRE SEALING RANGE

INSTALLATION TOOLS		WIRE STRIP LENGTHS	WIRE SEALING RANGE	
INSERTION	REMOVAL		MIN.	MAX.
M81969/8-07 or M81969/14-03	M81969/8-08 or M81969/14-03	Contact us for details	.065 (1.65)	.109 (2.77)
M81969/8-09 or M81969/14-04	M81969/8-10 or M81969/14-04	Contact us for details	.097 (2.46)	.142 (3.61)
Hand insertion	M81969/14-012 or DRK264-8 or 11-9170	Contact us for details	.135 (3.43)	.155 (3.94)

PRINTED CIRCUIT BOARD CONTACTS - SOCKET

PCB PIN CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX./MIN.				
			D38999/20 TVP00	TVP02	D38999/26 TV06	D38999/24 TV07	
						METAL	COMPOSITE
10-497623-015	22D	0.019	.291 / .226	.511 / .446	.316 / .251	.285 / .222	.242 / .182
10-497623-335	22D	0.019	.242 / .181	.471 / .399	.267 / .202	.258 / .180	.215 / .155
10-497623-025	22D	0.019	.868 /.803	1.088 / 1.023	.893 / .828	.862 / .802	.819 / .759
10-497623-035	22D	0.019	.348 / .283	.568 / .503	.373 / .308	.342 / .282	.299 / .239
10-497623-045	22D	0.019	.208 / .143	.428 / .363	.233 / .168	.202 / .142	.159 / .099
10-497623-075	22D	0.019	.146 / .081	.366 / .301	.171 / .106	.140 / .080	.097 / .037
10-497623-145	22D	0.019	.609 / .539	.829 / .759	.634 / .564	.603 / .538	.560 / .495
10-497623-155	22D	0.019	.423 / .358	.643 / .578	.448 / .383	.417 / .357	.374 / .314
10-497643-015	20	0.019	.348 / .294	.568 / .514	.373 / .319	.342 / .293	.299 / .250
10-497643-025	20	0.019	.213 / .159	.433 / .379	.238 / .184	.207 / .158	.164 / .115
10-497643-035	20	0.019	.555 / .501	.775 / .721	.580 / .526	.549 / .500	.506 / .457
10-497650-015	16	0.040	.255 / .201	.475 / .421	.280 / .226	.249 / .200	.206 / .157
10-597503-015	12	0.081	.184 / .130	.404 / .350	.209 / .155	.178 / .129	.135 / .086



= Standard PC tail used

All dimensions in inches (millimeters in parenthesis)

QUADRAX CONTACTS

Pin

Socket

Cable Part Number	Contact Part Number		Inner Impedance	Conductor (AWG)	Electrical Protocol
	Pin	Socket			
Draka Fileca F-4703-3, F4704-4, Filotex ET 2PC236, FilotexET2PF870, PIC Wire E50424ABS0972, Tensolite23450/04090X-4(LD)	21-033384-021	21-033385-021	100Ω	24	Ethernet, 1000Base-T Gigabit Ethernet
Tensolite 26473/02006X-4(LD)/Gore RCN8328 (not for new designs, use 21-033450/1 series)	21-033384-031	21-033385-031	150Ω	26	-
Tensolite NF24Q100, NF24Q100-0, 24443/9P025X-4(LD), S280W502-4, 24443/03130X-4(LD), 24443/C20714X-4(LD), 24450/0120X-4(LD), NF24-2Q100, TYCO CECRWC-18664, GORE GSC-01-81869-01, 24443/03166X-4(LD), ThermaxT956-4T200, Pic Wire E51424, Thermax MX100Q-24, NF24Q100-01-200C (Space), PIC E50424	21-033384-051	21-033385-051	100Ω	24	Ethernet, 1000Base-T Gigabit Ethernet
Tensolite NF22Q100, NF22Q100-01, Thermax 956-5, Draka FilecaF-4704-5, GORE RCN 7688, ABS1503 KD 24	21-033384-061	21-033385-061	100Ω	22	
Tensolite NF26Q100, NF26Q100-01, NF26-2Q100, PIC E50426	21-033384-071	21-033385-071	100Ω	26	Ethernet (100 Mbps), 1000 Base-T Gigabit Ethernet (1 Gbps)
JSFY02-1	21-033384-091	21-033385-091	110Ω	24	
Gore RCN8487, JSFY18	21-033384-111	21-033385-111	110Ω	24	
Draka Fileca F-4704-6, Gore RCN 8672	21-033384-151	21-033385-151	100Ω	26	
Tensolite NF24Q100-01 (same as 21-03338( )-051, uses EMI Piggyback)	21-033384-161	21-033385-161	100Ω	24	
Gore RCN8513, JSF-118-3	21-033384-171	21-033385-171	100Ω	22	
Tensolite NF24Q100, NF24Q100-01 for 2.5 Gbps applications	21-033384-191	21-033385-191	100Ω	24	Serial FPDP Applications (2.5 Gbps)
USB2 (28433/02171LX-4)	21-033384-101	21-033385-101	95Ω		USB2.0 (480 Mbps)
Tensolite 24450/03089X-4(LD)	21-033384-211	21-033385-211	110Ω	24	IEEE 1394B Firewire
JSFY02-1, JSFY18	21-033384-221	21-033385-221	110Ω	24	Contact us for details
Gore RCN8487, JSFY18	21-033384-231	21-033385-231	110Ω	24	
Tensolite 24450/03089X-4(LD) Same as 21-03338( )-211 but Box pattern, mates with 21-03338( )-241 only	21-033384-241	21-033385-241	110Ω	24	

PCB types and transitions are available, please contact us.

Crimping Tools

M22520/5-01

Crimp Dies

Plastic

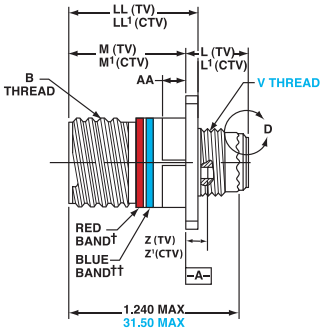
Metal

Installation Instruction Sheet	Inner Crimp Tool		Outer Crimp Tool		Plastic Sealing Plug	Metal Sealing Plug*	Metalized Piggyback Grommet
	Tool (setting)	Positioner	Tool	Die Set (location)			
L-2119-A	M22520/2-01 (5)	Daniels K709 (M22520/2-37)	M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-B	M22520/2-01 (4)		M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-D	M22520/2-01 (5)		M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-H	M22520/2-01 (5)		M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-AB	M22520/2-01 (5)		M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-AD	M22520/2-01 (5)		M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-AK	M22520/2-01 (4)		M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-AW	M22520/2-01 (4)		M22520/5-01	M22520/5-45(A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-BE							
L-2119-BN	M22520/2-01 (5)		M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-BS	M22520/2-01 (5)		M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
Contact us for details							
Contact us for details							
L-2119-CD	M22520/2-01 (5)	Daniels K709 (M22520/2-37)	M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
L-2119-CR	M22520/2-01 (4)		M22520/5-01	M22520/5-45 (A)	T3-4008-59P	21-033899-8Q1	21-033321-023
Contact us for details							

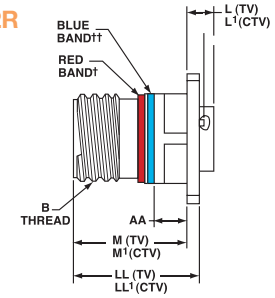
*Can be used when mating with contacts on mating half.

RECEPTACLES

TVP00R/TVPS00R
CTVP00R/CTVPS00R
D38999/20

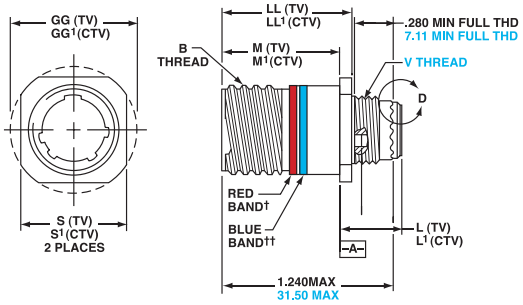


TVP02R/TVPS02R
CTVP02R/CTVPS02R



SHELL SIZE	MS SHELL CODE	B THREAD CLASS 2A 1.0P-0.3L -TS (PLATED)	M +.000/ -.005 (+.000/ -.130) TV	M1 +.000/ -.005 (+.000/ -.130) CTV	Z MAX. (TV)	Z1 MAX. (CTV)	L MAX. (TV)		L1 MAX. (CTV)		LL +.006/ .000 (+.150/ -.000) TV	LL1 ±.005/ (±.130) CTV
							D38999/20 / TVP00R / TVP01R	TVP02R	D38999/20 / CTVP00R / CTVP01R	CTVP02R		
9	A	0.625	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.205 (5.21)	.514 (13.06)	.250 (6.35)	.905 (22.99)	.908 (23.06)
11	B	0.750	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.205 (5.21)	.514 (13.06)	.250 (6.35)	.905 (22.99)	.908 (23.06)
13	C	0.875	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.205 (5.21)	.514 (13.06)	.250 (6.35)	.905 (22.99)	.908 (23.06)
15	D	1.000	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.205 (5.21)	.514 (13.06)	.250 (6.35)	.905 (22.99)	.908 (23.06)
17	E	1.1875	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.205 (5.21)	.514 (13.06)	.250 (6.35)	.905 (22.99)	.908 (23.06)
19	F	1.250	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.205 (5.21)	.514 (13.06)	.250 (6.35)	.905 (22.99)	.908 (23.06)
21	G	1.375	.790 (20.07)	.741 (18.82)	.183 (4.65)	.228 (5.79)	.500 (12.70)	.235 (5.97)	.545 (13.84)	.280 (7.11)	.905 (22.99)	.904 (22.96)
23	H	1.500	.790 (20.07)	.741 (18.82)	.183 (4.65)	.228 (5.79)	.500 (12.70)	.235 (5.97)	.545 (13.84)	.280 (7.11)	.905 (22.99)	.904 (22.96)
25	J	1.625	.790 (20.07)	.741 (18.82)	.183 (4.65)	.228 (5.79)	.500 (12.70)	.235 (5.97)	.545 (13.84)	.280 (7.11)	.905 (22.99)	.904 (22.96)

TV01R/TVS01R
CTV01R/CTVS01R

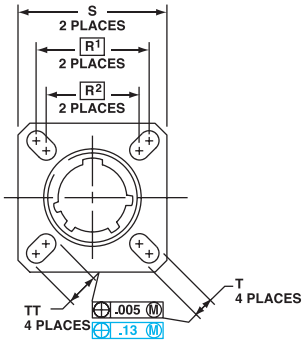


Shell Size	MS Shell Size Code	B Thread Class 2A 0.1P-0.3L-TS (Plated)	M +.000/ -.005 (+.000/ -.130) TV	M1 +.000/ -.005 (+.000/ -.130) CTV	Z Max. (TV)	Z1 Max. (CTV)	L Max. (TV)	L1 Max. (CTV)	LL +.006/ -.000 (± .150 -.000) TV	LL1 ± .005 ±.130) CTV	S ±.010 (±.250) TV	S1 ±.010 (±.250) CTV	GG ±.010 (±.250) TV	GG1 ±.010 (±.250) CTV	V Thread Metric
9	A	0.625	.820 (20.83)	.773 (19.63)	153 (3.89)	.198 (5.03)	.469 (11.91)	.514 (13.06)	.905 (22.99)	.908 (23.06)	.675 (17.15)	.635 (16.13)	.812 (20.62)	.699 (17.75)	M12X1-6g
11	B	0.750	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.514 (13.06)	.905 (22.99)	.908 (23.06)	.800 (20.32)	.765 (19.43)	.905 (22.99)	.875 (22.22)	M15X1-6g
13	C	0.875	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.514 (13.06)	.905 (22.99)	.908 (23.06)	.925 (23.50)	.885 (22.47)	1.093 (27.76)	1.007 (25.57)	M18X1-6g
15	D	1.000	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.514 (13.06)	.905 (22.99)	.908 (23.06)	1.050 (26.67)	1.100 (27.94)	1.219 (30.96)	1.140 (28.95)	M22X1-6g
17	E	1.1875	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.514 (13.06)	.905 (22.99)	.908 (23.06)	1.238 (31.45)	1.197 (30.40)	1.375 (34.93)	1.229 (31.21)	M25X1-6g
19	F	1.250	.820 (20.83)	.773 (19.63)	.153 (3.89)	.198 (5.03)	.469 (11.91)	.514 (13.06)	.905 (22.99)	.908 (23.06)	1.300 (33.02)	1.260 (32.00)	1.469 (37.31)	1.380 (35.05)	M28X1-6g
21	G	1.375	.790 (20.07)	.741 (18.92)	.183 (4.65)	.228 (5.79)	.500 (12.70)	.545 (13.84)	.905 (35.18)	.904 (22.96)	1.425 (36.20)	1.385 (35.18)	1.625 (41.28)	1.493 (37.92)	M31X1-6g
23	H	1.500	.790 (20.07)	.741 (18.92)	.183 (4.65)	.228 (5.79)	.500 (12.70)	.545 (13.84)	.905 (22.99)	.904 (22.96)	1.550 (39.37)	1.510 (38.35)	1.750 (44.45)	1.626 (41.30)	M34X1-6g
25	J	1.625	.790 (20.07)	.741 (18.92)	.183 (4.65)	.228 (5.79)	.500 (12.70)	.545 (13.84)	.905 (22.99)	.904 (22.96)	1.675 (42.55)	1.635 (41.53)	1.875 (47.63)	1.777 (45.13)	M37X1-6g

All dimensions in inches (millimeters in parenthesis)

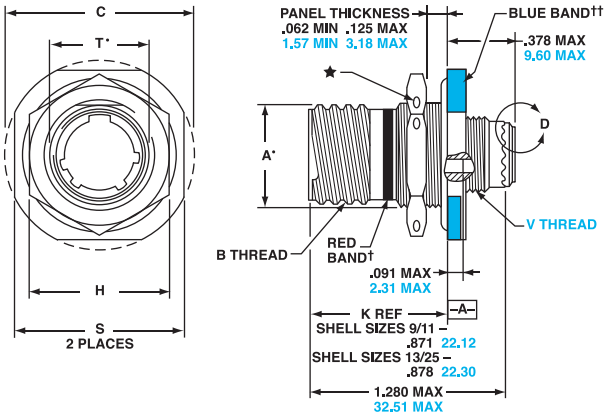
RECEPTACLES

TVP00R/TVPS00R
CTVP00R/CTVPS00R
TVP02R/TVPS02R
CTVP02R/CTVPS02R
D38999/20 (CONTINUED)



R1	R2	S Max.	T +.008/-.006 (+.200/-.130)	TT +.008/-.006 (+.200/-.130)	V Thread Metric
.719 (18.26)	.594 (15.09)	.948 (24.10)	.128 (3.25)	.216 (5.49)	M12X1-6g
.812 (20.62)	.719 (18.26)	1.043 (26.50)	.128 (3.25)	.194 (4.93)	M15X1-6g
.906 (23.01)	.812 (20.62)	1.137 (28.90)	.128 (3.25)	.194 (4.93)	M18X1-6g
.969 (24.61)	.906 (23.01)	1.232 (31.30)	.128 (3.25)	.173 (4.39)	M22X1-6g
1.062 (26.97)	.969 (24.61)	1.323 (33.70)	.128 (3.25)	.194 (4.93)	M25X1-6g
1.156 (29.36)	1.062 (26.97)	1.449 (36.90)	.128 (3.25)	.194 (4.93)	M28X1-6g
1.250 (31.75)	1.156 (29.36)	1.575 (40.10)	.128 (3.25)	.194 (4.93)	M31X1-6g
1.375 (34.92)	1.250 (31.75)	1.701 (43.30)	.154 (3.91)	.242 (6.15)	M34X1-6g
1.500 (38.10)	1.375 (34.92)	1.823 (46.40)	.154 (3.91)	.242 (6.15)	M37X1-6g

TV07R/TVS07R
CTV02R/CTVS07R
D38999/24



Shell Size		A• +.000/-.010 (+.000/-.250)	B Thread Class 2A 0.1P-0.3L-TS (Plated)	C Max. Flange Wrench	D1 +.010/-.000 (+.250/-.000)	D2 +.010/-.000 (+.250/-.000)	H Hex +.017/-.016 (+.430/-.410)	S ±.010	T• +.010/-.000 (+.250/-.000)	V Thread Metric
TV07/CTV07	D38999/24									
9	A	0.669 (16.99)	0.6250	1.199 (30.45)	.700 (17.78)	.670 (17.02)	.875 (22.23)	1.062 (26.97)	.697 (17.70)	M12X1-6g
11	B	0.769 (19.53)	0.7500	1.386 (35.20)	.825 (20.96)	.770 (19.59)	1.000 (25.40)	1.250 (31.75)	.822 (20.88)	M15X1-6g
13	C	0.955 (24.26)	0.8750	1.511 (38.38)	1.010 (25.65)	.955 (24.26)	1.188 (30.18)	1.375 (34.93)	1.007 (25.58)	M18X1-6g
15	D	1.084 (27.53)	1.0000	1.636 (41.55)	1.135 (28.83)	1.085 (27.56)	1.312 (33.32)	1.500 (38.10)	1.134 (28.80)	M22X1-6g
17	E	1.208 (30.68)	1.1875	1.761 (44.73)	1.260 (32.01)	1.210 (30.73)	1.438 (36.53)	1.625 (41.28)	1.259 (31.98)	M25X1-6g
19	F	1.333 (33.86)	1.2500	1.949 (49.50)	1.385 (35.18)	1.335 (33.91)	1.562 (39.67)	1.812 (46.02)	1.384 (35.15)	M28X1-6g
21	G	1.459 (37.06)	1.3750	2.073 (52.65)	1.510 (38.35)	1.460 (37.08)	1.688 (42.80)	1.938 (49.23)	1.507 (38.28)	M31X1-6g
23	H	1.575 (40.01)	1.5000	2.199 (55.85)	1.635 (41.53)	1.585 (40.26)	1.812 (46.02)	2.062 (52.37)	1.634 (41.50)	M34X1-6g
25	J	1.709 (43.41)	1.6250	2.323 (59.00)	1.760 (44.70)	1.710 (43.43)	2.000 (50.80)	2.188 (55.58)	1.759 (44.68)	M37X1-6G

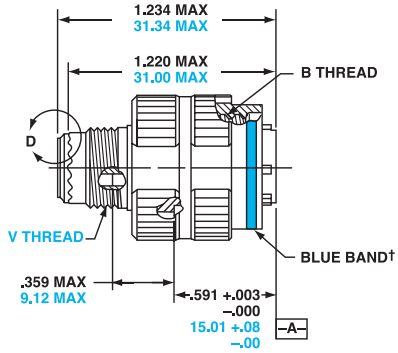
All dimensions in inches (millimeters in parenthesis)

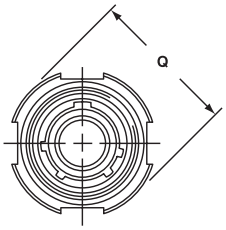
DIMENSIONS

PLUGS

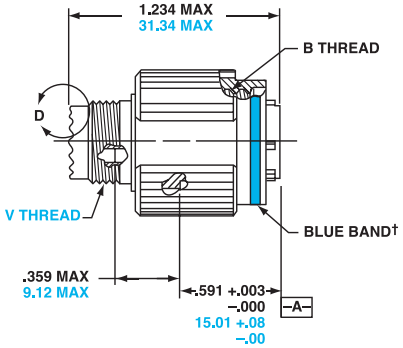
TV06R/TVS06R
CTV06R/CTVS06R
D38999/26

Metal





Composite

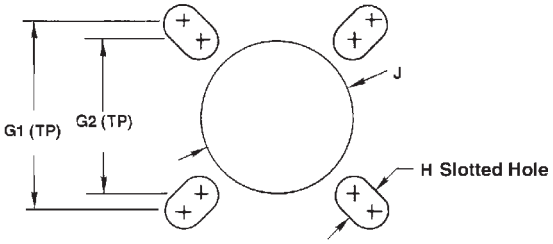


SHELL SIZE		B THREAD 0.1P-0.3L-TS-2B (PLATED)	Q DIAMETER MAX.	V THREAD METRIC
TV06/CTV06	D38999/26			
9	A	0.6250	.858 (21.80)	M12X1-6g
11	B	0.7500	.984 (25.00)	M15X1-6g
13	C	0.8750	1.157 (29.40)	M18X1-6g
15	D	1.0000	1.280 (32.50)	M22X1-6g
17	E	1.1875	1.406 (35.70)	M25X1-6g
19	F	1.2500	1.516 (38.50)	M28X1-6g
21	G	1.3750	1.642 (41.70)	M31X1-6g
23	H	1.5000	1.768 (44.90)	M34X1-6g
25	J	1.6250	1.890 (48.00)	M37X1-6G

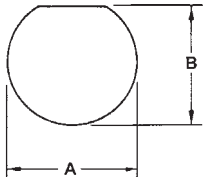
All dimensions in inches (millimeters in parenthesis)

PANEL CUTOUTS

WALL MOUNT RECEPTACLE



JAM NUT RECEPTACLE



Shell Size		D38999/20 & TV/CTV Wall Mount					D38999/24 & TV/CTV Jam Nut	
D38999	TV/CTV	G1	G2	H Diameter +.005 (+.130) -.000 (.000)	Front Mount J Min.	Back Mount J Min.	A +.010 (+.025) -.000 (.000)	B +.000 (000) -.010 (-.025)
A	9	.719 (18.26)	.59 (15.09)	.130 (3.25)	.516 (13.11)	.656 (16.66)	.693 (17.60)	.657 (16.70)
B	11	.81 (20.62)	.71 (18.26)	.130 (3.25)	.625 (15.88)	.796 (20.22)	.825 (20.96)	.770 (19.59)
C	13	.91 (23.01)	.81 (20.62)	.130 (3.25)	.750 (19.05)	.922 (23.42)	1.010 (25.65)	.955 (24.26)
D	15	.97 (24.61)	.90 (23.01)	.130 (3.25)	.906 (23.01)	1.047 (26.59)	1.135 (28.83)	1.085 (27.56)
E	17	1.06 (26.97)	.96 (24.61)	.130 (3.25)	1.016 (25.81)	1.219 (30.96)	1.260 (32.01)	1.210 (30.73)
F	19	1.16 (29.36)	1.06 (26.97)	.130 (3.25)	1.141 (28.98)	1.297 (32.94)	1.385 (35.18)	1.335 (33.91)
G	21	1.25 (31.75)	1.15 (29.36)	.130 (3.25)	1.266 (32.16)	1.422 (36.12)	1.510 (38.35)	1.460 (37.08)
H	23	1.38 (34.93)	1.25 (31.75)	.155 (3.94)	1.375 (34.93)	1.547 (34.93)	1.635 (41.53)	1.585 (40.29)
J	25	1.50 (38.10)	1.37 (34.93)	.155 (3.94)	1.484 (37.69)	1.672 (42.47)	1.760 (44.70)	1.710 (43.43)

All dimensions in inches (millimeters in parenthesis)

PANEL THICKNESS

WALL MOUNT RECEPTACLE
D38999/20 Rear Mount .125" (3.18) Max.

JAM NUT RECEPTACLE
D38999/24 Jam Nut
.125" (3.18) Max./.062" (1.57) Min.

CONNECTOR TOOLS

TG70 STRAP WRENCH

The strap wrench is used to connect or disconnect coupling nuts in a confined space, or to tighten or loosen endbells without damaging the connector plating. A strap wrench also increases torque, allowing you to more easily mate or unmate a connector pair. Substitute tools, such as a pipe wrench or pliers, should never be used because of the high probability of severe damage to the connector plating or the coupling mechanism.

TG69P NON-MARRING ADJUSTABLE ENDBELL PLIERS FOR FIELD SERVICE

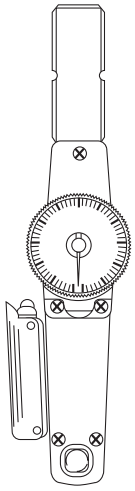
The TG69P pliers have resilient jaws and are used to tighten or remove endbells without damaging the connector plating. The pliers are adjustable and will accommodate all of the connector sizes in this catalog. Substitute tools, such as a pipe wrench or metal jaw pliers, should never be used due to the high probability of severe damage to the connector plating. Replacement jaws, part number G77015, are available.

600 SERIES PRODUCTION SYSTEM

The 600 series is a complete system for the proper assembly and torquing of connector endbells. The system includes a bench-mounted or hand-held torque wrench, plug and receptacle holders, and a range of endbell tightening tools. When used together, these tools provide the user with consistent endbell installations. Each item is shipped with detailed assembly instructions.

600-007

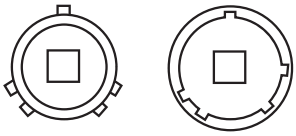
Bench-mounted torque wrench



600-004

Hand-held torque wrench

PLUG AND RECEPTACLE HOLDERS



600H005-R# **600H005-P#**

PINS WITH ALTERNATE KEYING	SOCKETS WITH ALTERNATE KEYING
PA = E	SA = F
PB = R	SB = T
PC = W	SC = X
PD = Y	SD = Z

MIL-DTL-38999 SERIES III FOR TV-CTV			
SHELL SIZE		RECEPTACLES	PLUGS
A	9	600H005-9R#	600H005-9P#
B	11	600H005-11R#	600H005-11P#
C	13	600H005-13R#	600H005-13P#
D	15	600H005-15R#	600H005-15P#
E	17	600H005-17R#	600H005-17P#
F	19	600H005-19R#	600H005-19P#
G	21	600H005-21R#	600H005-21P#
H	23	600H005-23R#	600H005-23P#
J	25	600H005-25R#	600H005-25P#

Add polarizations: N, A, B, C, D, E

DUMMY RECEPTACLES, DUST CAPS & PLUG CAPS

10-553974-XX†

10-552943-XX†

10-553970-XX† = 6" chain
10-553120-XX† = 3.5" chain

10-552944-XX† = 5" chain w/ loop
10-553998-XX† = 3.5" chain w/ loop

D38999	TV/CTV	DUMMY RECEPTACLES	RECEPTACLE DUST CAPS FOR FLANGED	RECEPTACLE DUST CAPS FOR JAM NUT	PLUG CAP
A	9	D38999/22A∗∗	D38999/33∗∗9R	D38999/33∗∗9N	D38999/32∗∗9##
B	11	D38999/22B∗∗	D38999/33∗∗11R	D38999/33∗∗11N	D38999/32∗∗11##
C	13	D38999/22C∗∗	D38999/33∗∗13R	D38999/33∗∗13N	D38999/32∗∗13##
D	15	D38999/22D∗∗	D38999/33∗∗15R	D38999/33∗∗15N	D38999/32∗∗15##
E	17	D38999/22E∗∗	D38999/33∗∗17R	D38999/33∗∗17N	D38999/32∗∗17##
F	19	D38999/22F∗∗	D38999/33∗∗19R	D38999/33∗∗19N	D38999/32∗∗19##
G	21	D38999/22G∗∗	D38999/33∗∗21R	D38999/33∗∗21N	D38999/32∗∗21##
H	23	D38999/22H∗∗	D38999/33∗∗23R	D38999/33∗∗23N	D38999/32∗∗23##
J	25	D38999/22J∗∗	D38999/33∗∗25R	D38999/33∗∗25N	D38999/32∗∗25##

Olive drab chromate over cadmium over nickel (500-hour salt spray)
- ## = Select code for ring or loop
- N = Ring to attach to backshell
- R = Loop for screw mounting
- **XX** = Shell size

∗∗ Plating Material
- W = Olive drab chromate over cadium over nickel (1000-hour salt spray)
- F = Electroless nickel (Fluid-resistant)
- K = Stainless steel

Finish	10-No Suffix
Olive Drab, Cadmium, Nickel Base	-XX9
Electroless Nickel	-XXG

† Select code for plating

CABLE CLAMPS

Straight

Right Angle

D38999	TV/CTV	Straight LOW-COST	Straight SELF-LOCKING	Right Angle LOW-COST	Right Angle SELF-LOCKING	CABLE RANGE MIN.	CABLE RANGE MAX.
A	9	M85049/38-9∗∗	M85049/38S9∗∗	M85049/39-9∗∗	M85049/39S9∗∗	.098 (2.49)	.234 (5.94)
B	11	M85049/38-11∗∗	M85049/38S11∗∗	M85049/39-11∗∗	M85049/39S11∗∗	.153 (3.89)	.234 (5.94)
C	13	M85049/38-13∗∗	M85049/38S13∗∗	M85049/39-13∗∗	M85049/39S13∗∗	.190 (4.83)	.328 (8.33)
D	15	M85049/38-15∗∗	M85049/38S15∗∗	M85049/39-15∗∗	M85049/39S15∗∗	.260 (6.60)	.457 (11.61)
E	17	M85049/38-17∗∗	M85049/38S17∗∗	M85049/39-17∗∗	M85049/39S17∗∗	.283 (7.19)	.614 (15.60)
F	19	M85049/38-19∗∗	M85049/38S19∗∗	M85049/39-19∗∗	M85049/39S19∗∗	.325 (8.25)	.634 (16.10)
G	21	M85049/38-21∗∗	M85049/38S21∗∗	M85049/39-21∗∗	M85049/39S21∗∗	.343 (8.71)	.698 (17.73)
H	23	M85049/38-23∗∗	M85049/38S23∗∗	M85049/39-23∗∗	M85049/39S23∗∗	.381 (9.68)	.823 (20.90)
J	25	M85049/38-25∗∗	M85049/38S25∗∗	M85049/39-25∗∗	M85049/39S25∗∗	.418 (10.62)	.853 (21.67)

∗∗ Plating Material
- W = Olive drab chromate over cadmium over nickel (1000-hour salt spray)
- N = Electroless nickel (Fluid-resistant)
- A = Black anodize
- S = Stainless steel

All dimensions in inches (millimeters in parenthesis)

STANDARD MIL-SPEC ACCESSORIES

	SEALED	EMI/RFI	S = STRAIGHT A = 90° B = 45°	ORIENTATION	DESCRIPTION
M85049/69	Y	N	S	Heat Shrink Boot Adapters	Designed for use with straight or right angle shrink boots. A knurled rear section with a boot groove provides excellent surface for the boot to grab the metal endbell. Available with lock wire and drain holes. See Heat Shrink Boots on pages 367-368
M85049/21	N	N	S	Extender Backshell	Non-environmental, designed for use with jacketed cable, allows extra space to break out the wires and still provide stain relief clamping to the outside of the cable jacket.
M85049/18	Y	Y	S	Extender Backshell	This EMI/RFI-shielding, environmentally-sealed endbell features a standard-style cable clamp with gland seal at the end of and extender-style backshell.
M85049/19	N	Y	S	Extender Backshell	This EMI/RFI-shielding, non-environmentally-sealed endbell features a standard-style cable clamp.
Banding M85049/88 M85049/89 M85049/90	Y	Y	 S B A	Banding Adapter	Banding adapters utilize a band of metal that fastens and grounds cable shields to the outside of endbells. This method of terminating shields has advantages in that they typically use tools to tighten and trim the bands. These tools make the termination tight, repeatable, reworkable (if you make a mistake, just cut the band off and start again) and facilitates service. Banding adapters help lower the total applied cost by having simpler designs that have fewer parts with uncomplicated assembly procedures.
M85049/14S	N	N	S	E-Nut	Wire seal compression nut.

LOW-COST UNIVERSAL ENDBELLS

Spring

Mesh Tape

POTTED (PREFERRED)

U = Unshielded
US = with EMI-shielding spring
UT = with EMI-shielding tape

CG = Cord Grips

Right Angle

CA = Flexible Conduit Adapter

Q = Quick Thread Converter
For use with Standard Accessoried Thread
MS3057

(Use when needed)

EXCERPT FROM MIL-DTL-38999K

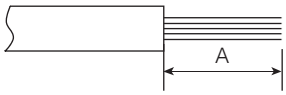
3.43.2 JAN brand. The United States Government has adopted, and is exercising legitimate control over the certification marks "JAN" and "J", respectively, to indicate that items so marked or identified are manufactured to, and meet all the requirements of military specification. Accordingly, items acquired to, and meeting all of the criteria specified herein and in applicable specifications shall bear the certification mark "JAN" except that items too small to bear the certification mark "JAN" shall bear the letter "J". The "JAN" or "J" shall be placed immediately before the PIN except that if such location would place a hardship on the manufacturer in connection with such marking, the "JAN" or "J" may be located on the first line above or below the PIN. Items furnished under contracts or orders which either permit or require deviation from the conditions or requirements specified herein or in applicable specifications shall not bear "JAN" or "J". In the event an item fails to meet the requirements of this specification and the applicable specification sheets or associated detail specifications, the manufacturer shall remove the "JAN" or the "J" from the sample tested and also from all items represented by the sample. The "JAN" or "J" certification mark shall not be used on products acquired to contractor drawings or specification. The United States Government has obtained Certificate of Registration No. 504,860 for the certification mark "JAN".

Note: The "JAN" or "J" is not part of the PIN but indicates a certification.

ASSEMBLY INSTRUCTIONS

WIRE STRIPPING

Strip insulation from end of wire to be crimped. (See table for proper stripping dimensions.) Do not cut or damage wire strands.



WIRE SIZE	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
10	.335 (8.51)
8 (power)	.470 (11.99)

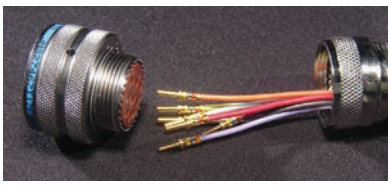
CONTACT CRIMPING

STEP 1: Insert wire into rear of contact. Wire insulation must press against rear of contact. Wire must be visible through inspection hole.

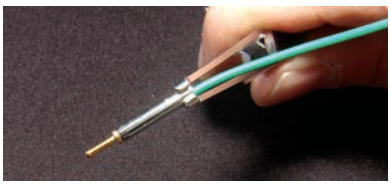
STEP 2: M22520 series crimp tool and locator is recommended. See Contact and Tool Table on pages 182 and 183 for choice of turret head and selection setting according to contact size, part number and wire gauge size.

STEP 3: Insert contact and wire into tool jaws. To crimp, squeeze handles together fully until ratchet releases and allows handles to expand; otherwise, contact cannot be extracted from tool jaws. Maintain slight insertion pressure on wire while crimping contact to wire.

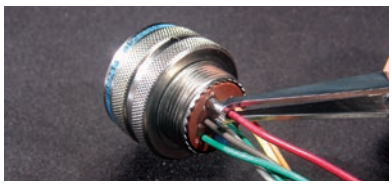
CONTACT INSERTION



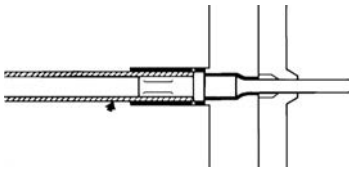
STEP 1: Remove hardware from plug or receptacle and slip over wire bundle in proper order for reassembly.



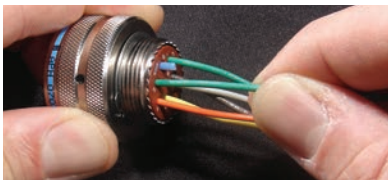
STEP 2: Using proper plastic or metal insertion tool for corresponding contact, position wire in tip of the tool so that the tool tip presses against the contact shoulder.



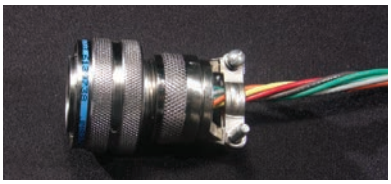
STEP 3: Press tool against contact shoulder and, with firm and even pressure, insert wired contact and tool tip into center contact cavity.



STEP 4: When contact bottoms, a slight "click" can be heard as tines of metal retaining clip snap into place behind contact shoulder.

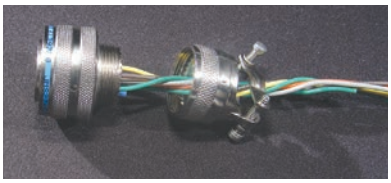


STEP 5: Remove tool and pull back lightly on wire to make sure contact is properly seated. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.

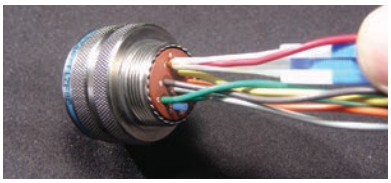


STEP 6: After all contacts are inserted, fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

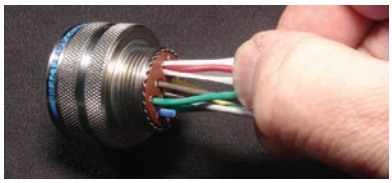
CONTACT EXTRACTION



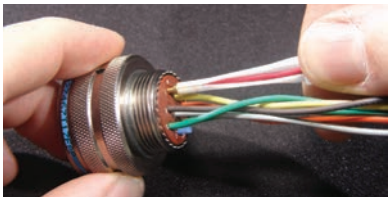
STEP 1: Remove hardware from plug or receptacle and slide hardware back along wire bundle.



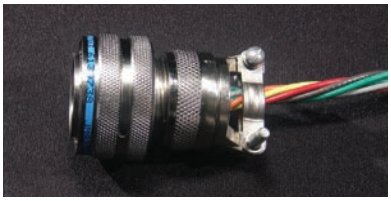
STEP 2: Using plastic or metal extraction tool with proper color code corresponding to contact size, place wire in tool.



STEP 3: Insert tool into contact cavity until tool tip bottoms against the contact shoulder, expanding clip retaining tines.



STEP 4: Hold wire firmly in tool and extract wired contact and tool. Repeat operation for all contacts to be extracted.



STEP 5: Fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

Note: LJT series shown.

All dimensions in inches (millimeters in parenthesis)

Amphe-Lite™ D38999 Series III Derivative

LIGHT-WEIGHT COMMERCIAL 38999 DERIVATIVE PERFECT FOR COMMUNICATIONS EQUIPMENT IN HARSH ENVIRONMENTS

Amphenol's Amphe-Lite™ connectors are light-weight commercial 38999s that offer the highest performance capabilities for harsh environments, including communication towers and equipment, manufacturing process control and medical equipment.

APPLICATIONS

- Medical equipment
- Process control
- Communications equipment
- Industrial

FEATURES

HIGH-RELIABILITY

Amphe-Lite connectors perform flawlessly under wide temperature ranges and in high vibrations and are resistant to a vast array of contaminants. Visual confirmation of mating is accomplished by the plug coupling nut covering a red band on the mating shell.

OUTSTANDING EMI-SHIELDING PROTECTION

These connectors provide excellent signal integrity due to the shielded mating system that utilizes 360-degree shell grounding fingers, providing protection of up to 50 dB minimum - 100Mhz to 10GHz.

OPERATES AT EXTREME TEMPERATURES

These connectors will operate in temperatures from -67°F up to 320°F (-55°C up to +150°C).

HIGH-DENSITY CONNECTORS

If space is at a premium, Amphe-Lite offers up to 128 contacts per connector. Ideally suited for digital electronics used on fly-by wire aircraft, advanced robotics, and critical industrial equipment.

SELF-LOCKING CONNECTOR SYSTEMS

Self-locking coupling nuts and self-locking endbell accessory hardware provide the best performance for threaded connectors in high-vibration applications.

CONTACT PROTECTION

Amphe-Lite connectors are designed to be scoop-proof. Pin contacts are recessed to prevent contact damage and contact shorting when connector halves are mated.

APPROVALS

Amphe-Lite is UL-recognized, File E115497

RoHS Compliant

TECHNICAL SPECIFICATIONS

MATERIALS AND FINISHES

Shell & Plating	Composite, electroless nickel-plated and unplated (RoHS)
Contacts	Copper alloy
Plating	Gold-plated, 50 microinches per MIL-G-45204 type II, grade C, class I
Insulator	Hard dielectric wafer which contains tines for high-reliability retention of crimp contacts
Grommet & Seals	Fluorinated is standard or dimethyl silicone rubber elastomer
Grounding Springs	Beryllium copper (grounded plug only)

ELECTRICAL DATA

Contact Sizes: 22D, 20, 16, 12, 10 and 8

Operating Voltage & Test Voltage

	SERVICE RATING			
TEST VOLTAGES	N	M	I	II
Sea Level	1000	1300	1800	2300
100,000 Feet	200	200	200	200

Current Rating by Contact Size & Wire Accommodation (Test Amps)

WIRE SIZE	22D	20	16	12	10	8
28	1.5	-	-	-	-	-
26	2.0	-	-	-	-	-
24	3.0	3.0	-	-	-	-
22	5.0	5.0	-	-	-	-
20	-	7.5	7.5	-	-	-
18	-	-	10.0	-	-	-
16	-	-	13.0	-	-	-
14	-	-	-	17.0	-	-
12	-	-	-	23.0	-	-
10	-	-	-	-	33.0	-
8	-	-	-	-	-	46.0

Contact Resistance of Mated Contacts End-to-End

CONTACT SIZE	MAXIMUM MILLIVOLT DROP
22D	73
20	55
16	49
12	42
10 (power)	33
8 (power)	26

Insulation Resistance: 5,000 megohms minimum

MECHANICAL

Operating Temperature	-55°C to +125°C (-67°F to +248°F)
Sealing	Against sand, dust per MIL-STD-202 & ice resistance

Wire Sealing Range

CONTACT SIZE	MINIMUM INCHES	MAXIMUM INCHES	MINIMUM MM	MAXIMUM MM
22D	0.030	0.054	0.76	1.37
20	0.040	0.083	1.02	2.11
16	0.065	0.109	1.65	2.77
12	0.097	0.142	2.46	3.61
10	0.135	0.162	3.42	4.12
8 (power)	0.135	0.155	3.43	3.94
8 (coax)	0.135	0.155	3.43	3.94
8 (twinax)	0.124	0.134	3.15	3.40

TECHNICAL SPECIFICATIONS

Insulation Strip Length

CONTACT SIZE	STRIP LENGTH
22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
10	.335 (8.51)
8 (power)	.470 (11.94)

Mating Life	500 cycles minimum
Salt Spray	Electroless nickel only: 2000 hours min.
Temp. Durability	Unplated and electroless nickel: UL RTI rating is 105°C (221°F)
EMI-Shielding Effectiveness	100 MHz to 10 GHz - minimum attenuation of 50dB
Contact Type	Crimp, fibre optic, coax, twinax, or printed circuit
Number of Circuits	2 to 128
Contact Insertion	Rear-insertion/rear-extraction with simple plastic or high-quality metal hand tools.

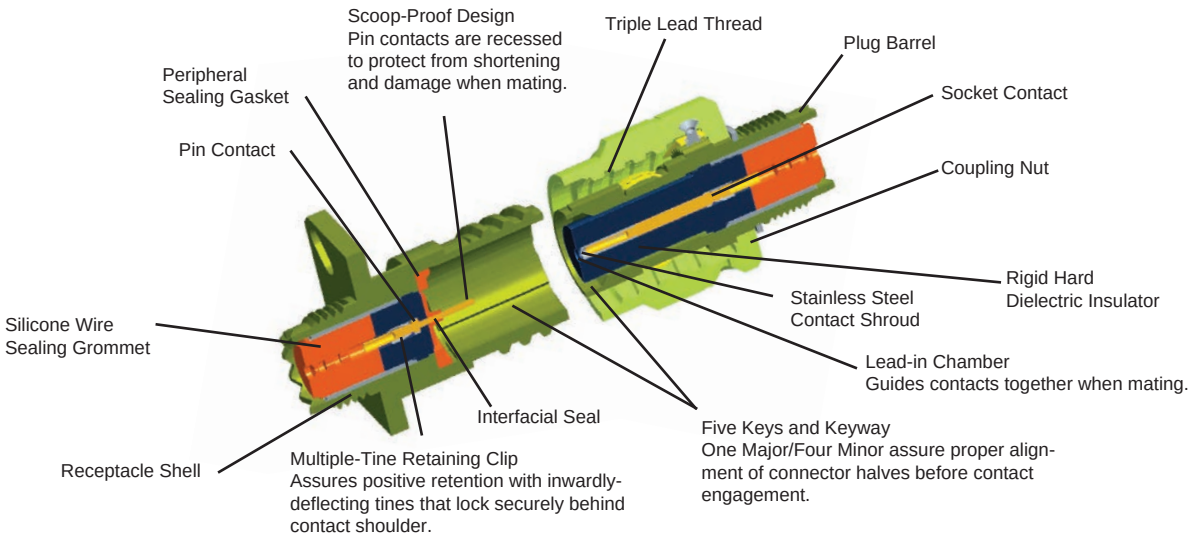
Contact Retention

CONTACT	AXIAL LOAD NEWTONS ±10%	AXIAL LOAD POUNDS ±10%
22D	44	10
20	67	15
16	111	25
12	111	25
10	111	25
8	111	25

Polarization	Five keyways with optional master keyway rotations (Note: insert and main keyways remain fixed)
Approvals	UL E115497

All dimensions in inches (millimeters in parenthesis)

CROSS-SECTION



CREATE YOUR PART NUMBER

1	2	3	4	5	6
AL00	F	9-35	P	A	-LC
SHELL STYLE	FINISH	LAYOUT	CONTACT	POLARIZATION (OMIT FOR NORMAL)	MODIFIER

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → **PLUGS**

AL00
Wall Mount Receptacle

AL07
Jam Nut Receptacle

AL06
Straight Cable Plug

Available with PC pins. Contact us for details.

STEP 2: SELECT CLASS-SERVICE CLASS

(All classes are RoHS Compliant)

F = Electroless nickel-plated composite shells, with fluorinated silicone rubber components *(Brown-colored grommet) (RoHS)*

FD = Electroless nickel-plated composite shells, with dimethyl silicone rubber components. Not available on all inserts, see FD label†. *(Blue or red-colored insert) (RoHS)*

U = Black composite, unplated with fluorinated silicone rubber components. *(Brown-colored grommet) (RoHS)*

UD = Black composite, unplated with dimethyl silicone rubber components. Not available on all inserts, see UD label†. *(Blue or red-colored insert) (RoHS)*

STEP 3: SELECT LAYOUT

For listing by # of contacts, see pages 240-243.

Layout Number	Service Rating	Contacts: Total Number	22D	20	16	12	10	8
9-35	M	6	6					
9-94	M	2		2				
9-98	I	3		3				
11-2†	I	2			2			
11-5	I	5		5				
11-35†	M	13	13					
11-98†	I	6		6				
11-99	I	7		7				
13-4†	I	4			4			
13-8†	I	8		8				
13-13†	I, FIBRE OPTIC	4			2	2		
13-35	M	22	22					
13-71†	I	2				2		
13-98†	I	10		10				
15-AC†	M	26	24		2			
15-5	II	5			5			
15-15	I	15		14	1			
15-18	I	18		18				
15-19†	I	19		19				
15-35†	M	37	37					
15-97	I	12		8	4			
17-2	M	39	38					1**
17-6	I	6				6		
17-8†	II	8			8			
17-22	COAX	4					2	2*
17-26†	I	26		26				
17-31	M	19	4	11	4			
17-35	M	55	55					
17-99	I	23		21	2			
19-11	II	11			11			
19-31	M	15	12			1		2
19-32	I	32		32				
19-35	M	66	66					
21-11	I	11				11		
21-16	II	16			16			
21-35†	M	79	79					
21-39	I	39		37	2			
21-41	I	41		41				
21-75	M	4						4*
23-6	M	6						6**
23-21	II	21			21			
23-35	M	100	100					
23-53	I	53		53				
23-54	M	53	40		9	4		
23-55	I	55		55				
25-4	I	56		48	8			
25-7	TWINAX	99	97					2**
25-8	TWINAX	8						8**
25-11	N	11		2			9	
25-17	M	42	36					6**
25-19	I	19				19		
25-20	N	30		10	13		4	3**
25-24	I	24			12	12		
25-26	I	25		16		5		4*
25-29	I	29			29			
25-35	M	128	128					
25-37	I	37			37			
25-43	I	43		23	20			
25-46	I	46		40	4			2*
25-61	I	61		61				

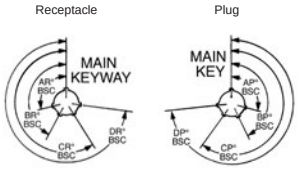
Note: Propriety connector 21-75 is supplied with size 8 Coax
*Coax **Twinax Contact us for more information.
† UD/FD-Type Insert Tooled

STEP 4: SELECT CONTACT

P = Pin **S** = Socket

STEP 5: SELECT POLARIZATION

N = Normal Standard (Omit for normal)
A = Highly-Popular
sizes 11, 13, &17 only
B = Limited Availability
sizes 11, 13, &17 only
C = Check for Availability
sizes 13, &17 only



Shell Size		Minor Key Locations: AR & AP	BR & BP	CR & CP	DR & DP
A	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
	E	91	131	197	240
B	N	95	141	208	236
C	A	113	156	182	292
D	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
	E	51	141	184	242
E	N	80	142	196	293
F	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272
G	N	80	142	196	293
H	A	135	170	200	310
J	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

STEP 6: MODIFIER

Omit for standard contacts

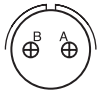
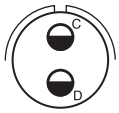
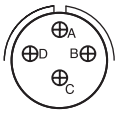
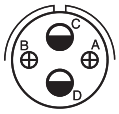
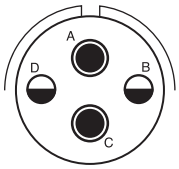
LC = No contacts, sealing plugs or tools supplied
(P.O. must state Less Contacts.) LC is not marked on parts

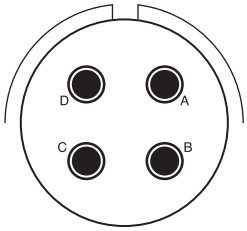
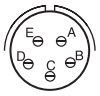
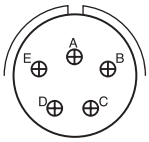
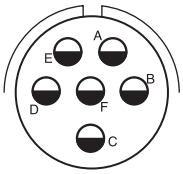
NMG = Non-magnetic (Please contact us for availability)

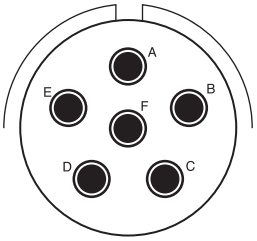
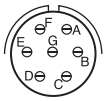
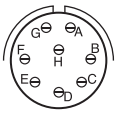
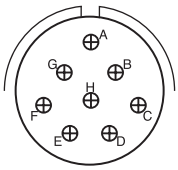
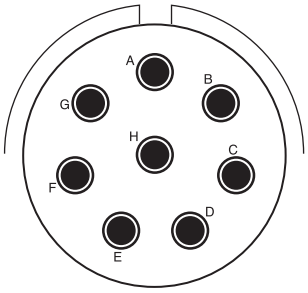
LAYOUT BY NUMBER OF CONTACTS

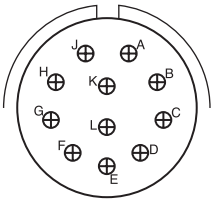
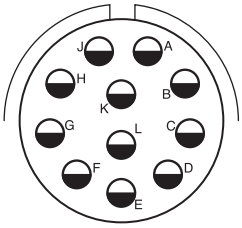
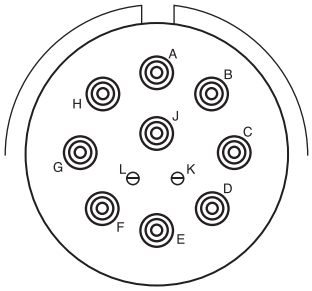
View of Mating Face of Pin Insert

22D 20 16 12 10 8

CONTACTS	2			3	4		
							
LAYOUT	**9-94**	**11-2†**	**13-71†**	**9-98**	**13-4†**	**13-13†**	**17-22**
# OF CONTACTS	2-#20	2-#16	2-#12	3-#20	4-#16	2-#16, 2-#12	2-#12✱, 2-#8✱
SERVICE RATING	M	I	I	I	I	I, FIBER OPTIC	COAX

CONTACTS	4	5			6	
						
LAYOUT	**21-75**	**11-5**	**15-5**	**9-35**	**11-98†**	**17-6**
# OF CONTACTS	4-#8✱	5-#20	5-#16	6-#22D	6-#20	6-#12
SERVICE RATING	M	I	II	M	I	I

CONTACTS	6	7	8			
						
LAYOUT	**23-6**	**11-99**	**13-8†**	**17-8†**	**25-8**	
# OF CONTACTS	6-#8✱✱	7-#20	8-#20	8-#16	8-#8✱✱	
SERVICE RATING	M	I	I	II	TWINAX	

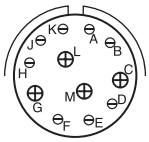
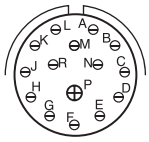
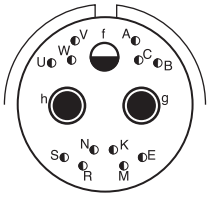
CONTACTS	10	11		
				
LAYOUT	**13-98†**	**19-11**	**21-11**	**25-11**
# OF CONTACTS	10-#20	11-#16	11-#12	2-#20, 9-#10
SERVICE RATING	I	II	I	N

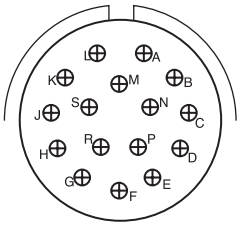
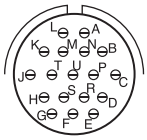
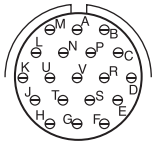
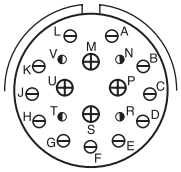
✱Coax ✱✱Twinax † UD/FD-Type Insert Tooled Contact us for more information.

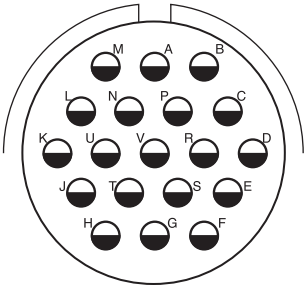
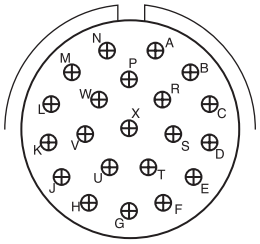
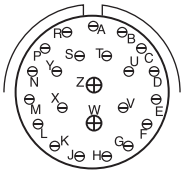
LAYOUT BY NUMBER OF CONTACTS

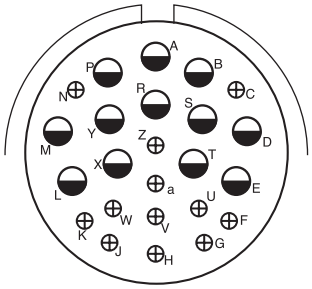
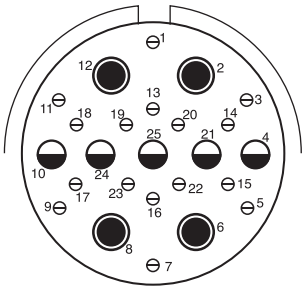
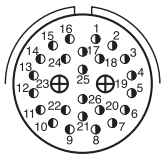
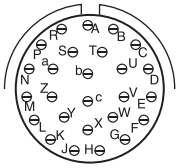
View of Mating Face of Pin Insert

22D 20 16 12 10 8

CONTACTS	12	13	15	
				
LAYOUT # OF CONTACTS SERVICE RATING	**15-97** 8-#20, 4-#16 I	**11-35**† 13-#22D M	**15-15** 14-#20,1-#16 I	**19-31** 12-#22D, 1-#12, 2-#8✱ M

CONTACTS	16	18	19	
				
LAYOUT # OF CONTACTS SERVICE RATING	**21-16** 16-#16 II	**15-18** 18-#20 I	**15-19**† 19-#20 I	**17-31** 4-#22D, 11-#20, 4- #16 M

CONTACTS	19	21	22	23
				
LAYOUT # OF CONTACTS SERVICE RATING	**25-19** 19-#12 I	**23-21** 21-#16 II	**13-35** 22-#22D M	**17-99** 21-#20, 2-#16 I

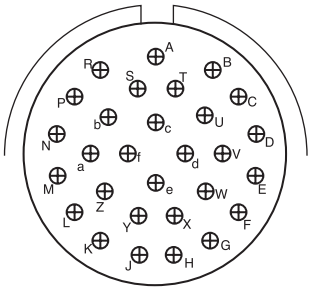
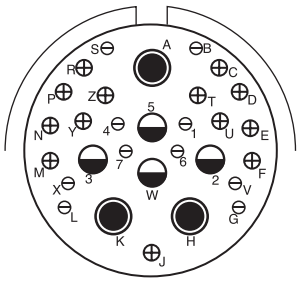
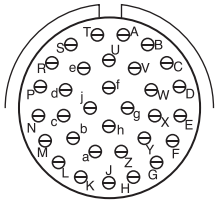
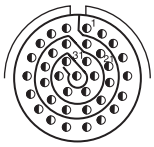
CONTACTS	24	25	26	
				
LAYOUT # OF CONTACTS SERVICE RATING	**25-24** 12-#16, 12-#12 I	**25-26** 16-#20, 5-#12, 4-#8✱ I	**15-AC**† 24-#22D, 2-#16 M	**17-26**† 26-#20 I

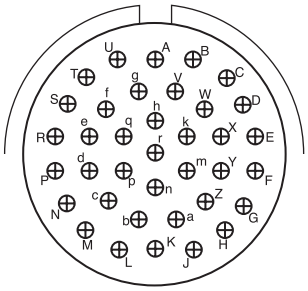
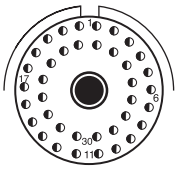
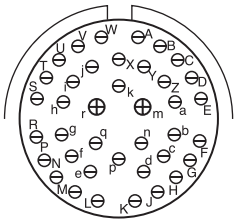
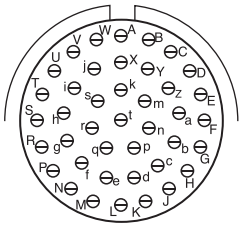
✱Coax ✱✱Twinax † UD/FD-Type Insert Tooled Contact us for more information.

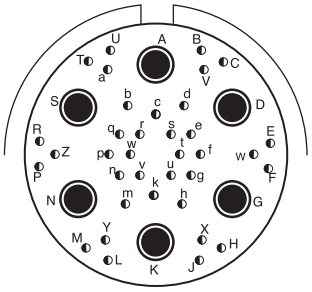
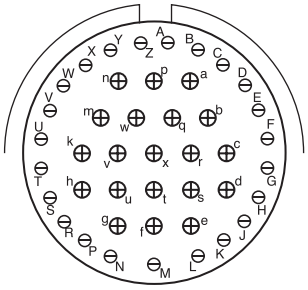
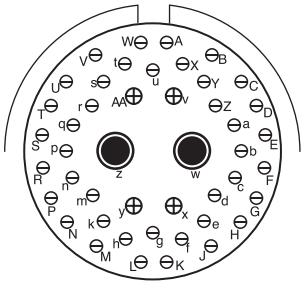
LAYOUT BY NUMBER OF CONTACTS

View of Mating Face of Pin Insert

22D 20 16 12 10 8

CONTACTS	29	30	32	37
				
LAYOUT	**25-29**	**25-20**	**19-32**	**15-35†**
# OF CONTACTS	29-#16	10-#20, 13-#16, 4-#12✱, 3-#8✱✱	32-#20	37-#22D
SERVICE RATING	I	N	I	M

CONTACTS	37	39		41
				
LAYOUT	**25-37**	**17-2**	**21-39**	**21-41**
# OF CONTACTS	37-#16	38-#22D, 1-#8✱✱	37-#20;2-#16	41-#20
SERVICE RATING	I	M	I	I

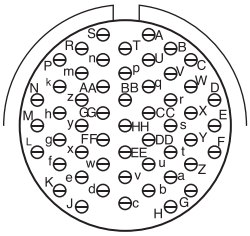
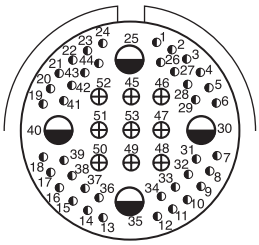
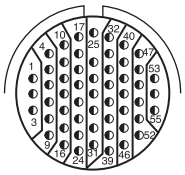
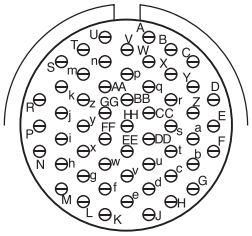
CONTACTS	42	43	46
			
LAYOUT	**25-17**	**25-43**	**25-46**
# OF CONTACTS	36-#22D, 6-#8✱✱	23-#20, 20-#16	40-#20, 4-#16, 2-#8✱
SERVICE RATING	M	I	I

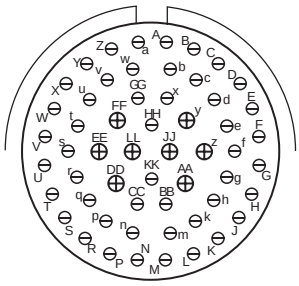
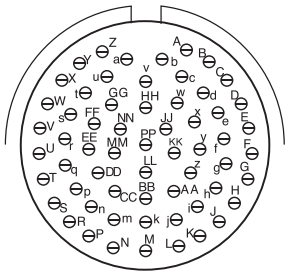
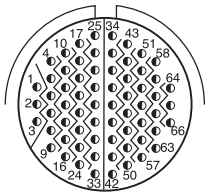
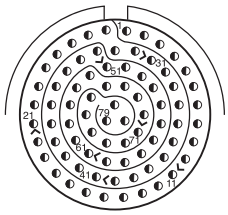
✱Coax ✱✱Twinax † UD/FD-Type Insert Tooled Contact us for more information.

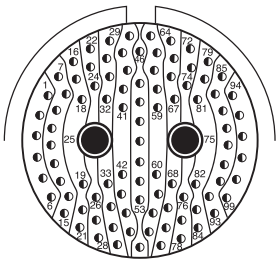
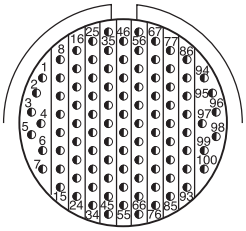
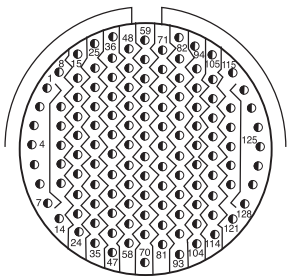
LAYOUT BY NUMBER OF CONTACTS

View of Mating Face of Pin Insert

22D 20 16 12 10 8

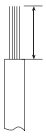
CONTACTS	53		55	
				
LAYOUT # OF CONTACTS SERVICE RATING	**23-53** 53-#20 I	**23-54** 40-#22D, 9-#16, 4-#12 M	**17-35** 55-#22D M	**23-55** 55-#20 I

CONTACTS	56	61	66	79
				
LAYOUT # OF CONTACTS SERVICE RATING	**25-4** 48-#20, 8-#16 I	**25-61** 61-#20 I	**19-35** 66-#22D M	**21-35**† 79-#22D M

CONTACTS	99	100	128
			
LAYOUT # OF CONTACTS SERVICE RATING	**25-7** 97-#22D, 2-#8** TWINAX	**23-35** 100-#22D M	**25-35** 128-#22D M

*Coax **Twinax † UD/FD-Type Insert Tooled Contact us for more information.

PINS

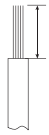


Insert head first, Trim excess.

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22D	22,24,26 & 28	M39029/58-360	Orange	Blue	Black	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
		M39029/107-620#	Blue	Red	Black					
20	20,22 & 24	M39029/58-363	Orange	Blue	Orange	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
		M39029/107-621#	Blue	Red	Brown					
16	16,18 & 20	M39029/58-364	Orange	Blue	Yellow	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
		M39029/107-622#	Blue	Red	Red					
12	12 & 14	M39029/58-365	Orange	Blue	Green	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
		M39029/107-623#	Blue	Red	Orange					
10	10 & 12	M39029/58-528	Green	Red	Gray	.335 (8.51)	.135 (3.42)	.162 (4.12)	M85049/81-10	Green
8	Coax∗ RG180B/U RG195A/U	M39029/60-367	Orange	Blue	Violet	Detailed instructions included with contacts	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8	Twinax∗∗ M17/M176-0002	M39029/90-529	Green	Red	White		.124 (3.15)	.134 (3.40)	MS27488-8-3	Red
8 Power	8	10-497448-075	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8 Power	10	10-497448-095	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red

#1500-Mating Cycle Contacts ∗Coax ∗∗Twinax contact us for details. For Fibre Optic Contacts, please contact us.

SOCKETS



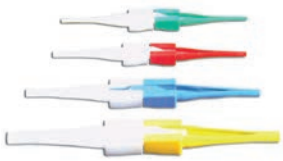
Insert head first, Trim excess.

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22D	22,24,26 & 28	M39029/56-348	Orange	Yellow	Gray	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
		M39029/106-614#	Blue	Brown	Yellow					
20	20, 22 & 24	M39029/56-351	Orange	Green	Brown	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
		M39029/106-615#	Blue	Brown	Green					
16	16,18 & 20	M39029/56-352	Orange	Green	Red	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
		M39029/106-616#	Blue	Brown	Blue					
12	12 & 14	M39029/56-353	Orange	Green	Orange	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
		M39029/106-617#	Blue	Brown	Violet					
10	10 & 12	M39029/56-527	Green	Red	Violet	.355 (8.51)	.135 (3.42)	.162 (4.12)	M85049/81-10	Green
8	Coax∗ RG180B/U RG195A/U	M39029/59-366	Orange	Blue	Blue	Detailed instructions included with contacts	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8	Twinax∗∗ M17/M176-0002	M39029/91-530	Green	Orange	Black		.124 (3.15)	.134 (3.40)	MS27488-8-3	Red
8 Power	8	10-497446-075	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8 Power	10	10-497446-095	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red

#1500-Mating Cycle Contacts ∗Coax ∗∗Twinax contact us for details. For Fibre Optic Contacts, please contact us.

All dimensions in inches (millimeters in parenthesis)

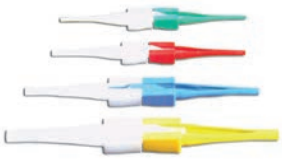
PINS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXRTACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND 1	COLOR BAND 2
22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Blue	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	-	DRK95-12B	-	-
10	TP-201423 or 1716P-1	-	-	-	M81969/14-05	Gray	White	M81969/8-11	Green	M81969/8-12	Green	White
8 Coax	M22520/2-01 M22520/5-01	WA22†† HX23	M22520/2-31 (inner) M22520/5-05 (outer)		M81969/14-12	Green		-	-	DRK264-8	-	-
8 Twinax	M22520/2-01 M22520/5-01	WA22 HX23	K709 (inner) Y631 (outer)		M81969/14-12	Green		M81969/46-06	Red	M81969/46-12	-	-
8 8 AWG Power	-	400B-1	414DA-8N (Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-
8 10 AWG Power	M3SP-6	400B-1	414DA-10N (Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-

†† Contact us for more tool accessories.

SOCKETS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXRTACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND 1	COLOR BAND 2
22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Blue	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	-	DRK95-12B	-	-
10	TP-201423 or 1716P-1	-	-	-	M81969/14-05	Gray	White	M81969/8-11	Green	M81969/8-12	Green	White
8 Coax	M22520/2-01 M22520/5-01	WA22†† HX23	M22520/2-31 (inner) M22520/5-05 (outer)		M81969/14-12	Green		-	-	DRK264-8	-	-
8 Twinax	M22520/2-01 M22520/5-01	WA22 HX23	K709 (inner) Y631 (outer)		M81969/14-12	Green		M81969/46-06	Red	M81969/46-12	-	-
8 8 AWG Power	-	400B-1	414DA-8N (Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-
8 10 AWG Power	M3SP-6	400B-1	414DA-10N (Die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-

†† Contact us for more tool accessories.

COAX CONTACTS

COAX PIN

COAX SOCKET

CRIMPING TOOLS

M22520/5-01

Crimp Dies

COAX CONTACT SIZE	CABLE TYPE	CONTACT PART NUMBER		CRIMPING TOOLS	
		PIN	SOCKET	INNER CONTACT	CRIMP FERRULE
16	RG-178B/U, RG-196A/U	21-033122-564 (M39029/76-425)	21-033123-564 (M39029/77-429)	M22520/2-01 w/ Positioner M22522/2-35 or w/ Daniels Positioner K532	M22520/4-01 w/ Positioner M22520/4-02
	RG-174A/U, RG-188A/U, RG-161/U, RG-187A/U, RG-316/U, RG-179B/U	21-033122-563 (M39029/76-424)	21-033123-563 (M39029/77-428)		
12		21-033122-546 (M39029/28-211)	21-033123-546 (M39029/75-416)	M22520/2-01 w/ Positioner M22520/2-34 or w/ Daniels Positioner K323	M22520/31-01 w/ Positioner M22520/31-02 or Daniels GS-200 Tool w/ Positioner G2P330
	RG-180B/U, RG-195A/U	21-033122-541 (M39029/28-409)	21-033123-541 (M39029/75-417)		
8	RG-187A/U, RG-179B/U, RG-174A/U, RG-188A/U, RG-316/U, RG-161/U	21-033102-023	21-033101-023	M22520/2-01 w/ Positioner M22520/2-31 or Solder	M22520/5-01 w/ die set M22520/5-03 (A) or M22520/5-08 (A) M22520/5-35 (B) or M22520/10-01 w/ die set M22520/10-05 (A)
	RG-142B/U, RG-223/U	21-033102-024	21-033101-024		M22520/5-01 w/ die set M22520/5-05 (A)or M22520/5-19 (A) or M22520/10-01 w/ die set M22520/10-07 (A)
	RG-180B/U, RG-195A/U	21-033102-021 (M39029/60-367)	21-033101-021 (M39029/59-366)		M22520/5-01 w/ die set M22520/5-05 (B) or M22520/5-41 (B) or M22520/10-01 w/ die set M22520/10-07 (B)
	RG-400	21-033102-027	21-033101-027	M22520/2-01 w/ Positioner M22520/2-10	M22520/5-01 w/ die set M22520/5-45 (A)
	RG-58 (M17/155-00001)	21-033102-029	21-033101-029	Solder	M22520/5-01 w/ die set M22520/5-05 (B)

PRINTED CIRCUIT BOARD CONTACTS - PIN

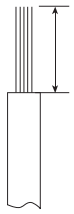
PCB PIN CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX./MIN.				
			D38999/20 TVP00	TVP02	D38999/26 TV06	D38999/24 TV07	
						METAL	COMPOSITE
10-407552-015	22D	0.019	.335 /.280	.555 / .500	.360 / .305	.329 / .279	.286 / .236
10-407552-055	22D	0.019	.224 / .169	.444 / .389	.249 / .194	.218 / .168	.175 / .125
10-407552-085	22D	0.019	.060 / .010	.280 / .230	.085 / .035	.054 / .009	.011 / NS
10-407552-115	22D	0.019	.002 / NS	.222 / NS	.023 / NS	NS	NS
10-497640-015	20	0.019	.348 / .298	.568 / .518	.373 / .323	.342 / .297	.299 / .254
10-497640-025	20	0.019	.213 / .163	.433 / .383	.238 / .188	.207 / .162	.164 / .119
10-497640-045	20	0.019	NS	NS	NS	NS	NS
10-497596-015	20	0.025	.058 / .012	.278 / .232	.083 / .037	.052 / .011	.009 / .044
10-497596-025	20	0.025	.148 / .102	.368 / .322	.173 / .127	.142 / .101	.099 / .058
10-497596-035	20	0.025	.229 / .183	.449 / .403	.254 /.208	.223 / .182	.180 / .058
10-497596-055	20	0.025	.346 / .300	.566 / .520	.371 / .325	.340 / .299	.297 / .256
10-497695-015	16	0.040	.255 / .205	.475 / .425	.280 / .230	.249 / .204	.206 / .161
10-497630-035	16	0.062	.060 / .010	.280 / .230	.085 / .035	.054 / .009	.011 / NS
10-497630-055	16	0.062	.228 / .178	.460 / .375	.253 / .203	.244 / .177	.201 / .190
10-597502-015	12	0.081	.228 / .178	.448 / .398	.252 / .203	.222 / .177	.179 / .134

= Standard PC tail used

All dimensions in inches (millimeters in parenthesis)

WIRE HOLE FILLER

WIRE STRIP LENGTH

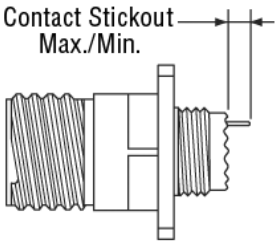


WIRE SEALING RANGE

COAX CONTACT SIZE	INSTALLATION TOOLS		WIRE STRIP LENGTHS	WIRE SEALING RANGE	
	INSERTION	REMOVAL		MIN.	MAX.
16	M81969/8-07 or M81969/14-03	M81969/8-08 or M81969/14-03	Contact us for details	.065 (1.65)	.109 (2.77)
12	M81969/8-09 or M81969/14-04	M81969/8-10 or M81969/14-04	Contact us for details	.097 (2.46)	.142 (3.61)
8	Hand-insertion	M81969/14-012 or DRK264-8 or 11-9170	Contact us for details	.135 (3.43)	.155 (3.94)

PRINTED CIRCUIT BOARD CONTACTS - SOCKET

PCB PIN CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX./MIN.				
			D38999/20 TVP00	TVP02	D38999/26 TV06	D38999/24 TV07	
						METAL	COMPOSITE
10-497623-015	22D	0.019	.291 / .226	.511 / .446	.316 / .251	.285 / .222	.242 / .182
10-497623-335	22D	0.019	.242 / .181	.471 / .399	.267 / .202	.258 / .180	.215 / .155
10-497623-025	22D	0.019	.868 /.803	1.088 / 1.023	.893 / .828	.862 / .802	.819 / .759
10-497623-035	22D	0.019	.348 / .283	.568 / .503	.373 / .308	.342 / .282	.299 / .239
10-497623-045	22D	0.019	.208 / .143	.428 / .363	.233 / .168	.202 / .142	.159 / .099
10-497623-075	22D	0.019	.146 / .081	.366 / .301	.171 / .106	.140 / .080	.097 / .037
10-497623-145	22D	0.019	.609 / .539	.829 / .759	.634 / .564	.603 / .538	.560 / .495
10-497623-155	22D	0.019	.423 / .358	.643 / .578	.448 / .383	.417 / .357	.374 / .314
10-497643-015	20	0.019	.348 / .294	.568 / .514	.373 / .319	.342 / .293	.299 / .250
10-497643-025	20	0.019	.213 / .159	.433 / .379	.238 / .184	.207 / .158	.164 / .115
10-497643-035	20	0.019	.555 / .501	.775 / .721	.580 / .526	.549 / .500	.506 / .457
10-497650-015	16	0.040	.255 / .201	.475 / .421	.280 / .226	.249 / .200	.206 / .157
10-597503-015	12	0.081	.184 / .130	.404 / .350	.209 / .155	.178 / .129	.135 / .086

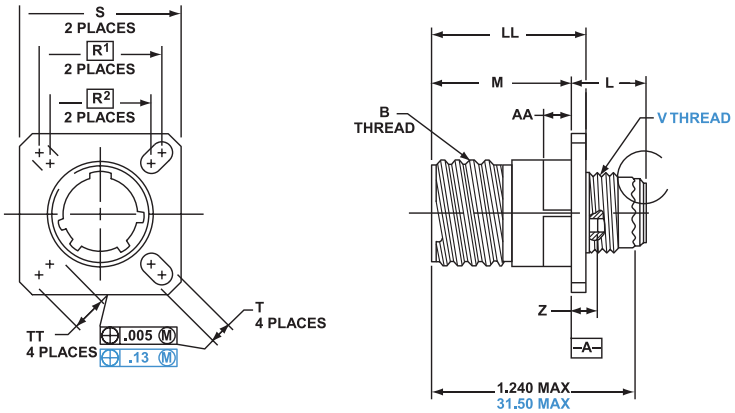


= Standard PC tail used

All dimensions in inches (millimeters in parenthesis)

RECEPTACLE - WALL MOUNTING

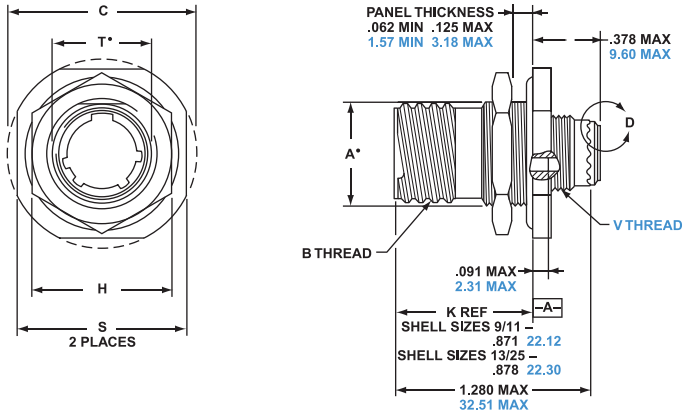
AL00



Shell Size	B Thread Class 2A 1.0P-0.3L -TS (Plated)	L Max.	M +.000/ -.005 (+.000/ -.13)	R1	R2	S Max.	T +.008/ -.006 (+.20/ -.13)	V Thread Metric	Z Max.	AA Max. Panel Thickness	LL +/-.005 (+/-.13)	TT +.008/ -.006 (+.20/ -.13)
9	.6250	.514 (13.06)	.775 (19.69)	.719 (18.26)	.594 (15.09)	.948 (24.10)	.128 (3.25)	M12X1-6g	.198 (5.03)	.234 (5.94)	.913 (23.19)	.216 (5.49)
11	.7500	.514 (13.06)	.775 (19.69)	.812 (20.62)	.719 (18.26)	1.043 (26.50)	.128 (3.25)	M15X1-6g	.198 (5.03)	.234 (5.94)	.913 (23.19)	.194 (4.93)
13	.8750	.514 (13.06)	.775 (19.69)	.906 (23.01)	.812 (20.62)	1.137(28.90)	.128 (3.25)	M18X1-6g	.198 (5.03)	.234 (5.94)	.913 (23.19)	.194 (4.93)
15	1.0000	.514 (13.06)	.775 (19.69)	.969 (24.61)	.906 (23.01)	1.232 (31.30)	.128 (3.25)	M22X1-6g	.198 (5.03)	.234 (5.94)	.913 (23.19)	.173 (4.39)
17	1.1875	.514 (13.06)	.775 (19.69)	1.062 (26.97)	.969 (24.61)	1.323 (33.70)	.128 (3.25)	M25X1-6g	.198 (5.03)	.234 (5.94)	.913 (23.19)	.194 (4.93)
19	1.2500	.514 (13.06)	.775 (19.69)	1.156 (29.36)	1.062 (26.97)	1.449 (36.90)	.128 (3.25)	M28X1-6g	.198 (5.03)	.234 (5.94)	.913 (23.19)	.194 (4.93)
21	1.3750	.545 (13.84)	.745 (18.92)	1.250 (31.75)	1.156 (29.36)	1.575 (40.10)	.128 (3.25)	M31X1-6g	.228 (5.79)	.204 (5.18)	.911 (23.14)	.194 (4.93)
23	1.5000	.545 (13.84)	.745 (18.92)	1.375 (34.93)	1.250 (31.75)	1.701 (43.30)	.154 (3.91)	M34X1-6g	.228 (5.79)	.204 (5.18)	.911 (23.14)	.242 (6.15)
25	1.6250	.545 (13.84)	.745 (18.92)	1.500 (38.10)	1.375 (34.93)	1.823 (46.40)	.154 (3.91)	M37X1-6g	.228 (5.79)	.204 (5.18)	.911 (23.14)	.242 (6.15)

RECEPTACLE - JAM NUT

AL07

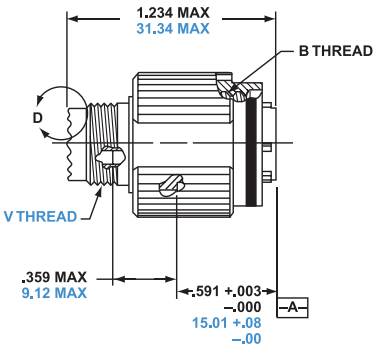


SHELL SIZE	A +.000/-.010 (+.00/-.25)	B THREAD CLASS 2A 0.1P-0.3L-TS (PLATED)	C MAX.	H HEX +.017/-.016 (+.43/-.41)	S +/- .010 (+/-.25)	T +.010/-.000 (+.25/-.00)	V THREAD METRIC
9	.669 (16.99)	0.6250	1.199 (30.45)	0.875 (22.23)	1.062 (26.97)	0.697 (17.70)	M12X1-6g
11	0.769 (19.53)	0.7500	1.386 (35.20)	1.062 (27.00)	1.250 (31.75)	0.822 (20.88)	M15X1-6g
13	0.955 (24.26)	0.8750	1.511 (38.38)	1.250 (30.18)	1.375 (34.93)	1.007 (25.58)	M18X1-6g
15	1.084 (27.53)	1.0000	1.636 (41.55)	1.375 (33.32)	1.500 (38.10)	1.134 (28.80)	M22X1-6g
17	1.208 (30.68)	1.1875	1.761 (44.73)	1.438 (36.53)	1.625 (41.28)	1.259 (31.98)	M25X1-6g
19	1.333 (33.86)	1.2500	1.949 (49.50)	1.562 (39.67)	1.812 (46.02)	1.384 (35.15)	M28X1-6g
21	1.459 (37.06)	1.3750	2.073 (52.65)	1.688 (42.80)	1.938 (49.23)	1.507 (38.28)	M31X1-6g
23	1.575 (40.01)	1.5000	2.199 (55.85)	1.812 (46.02)	2.062 (52.37)	1.634 (41.50)	M34X1-6g
25	1.709 (43.41)	1.6250	2.323 (59.00)	2.000 (50.80)	2.188 (55.58)	1.759 (44.68)	M37X1-6g

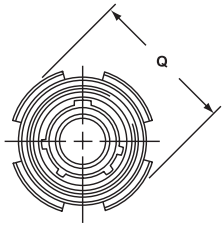
All dimensions in inches (millimeters in parenthesis)

PLUG - STRAIGHT

AL06

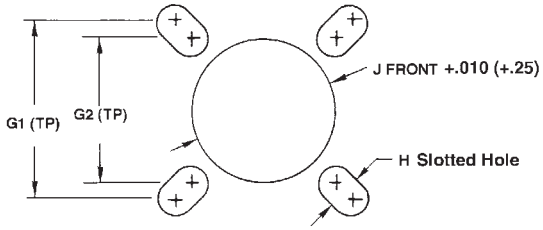


SHELL SIZE	B THREAD CLASS 2B 0.1P-0.3L-TS (PLATED)	Q DIAMETER MAX.	V THREAD METRIC
9	0.6250	.858 (21.8)	M12X1-6g
11	0.7500	.984 (25.0)	M15X1-6g
13	0.8750	1.157 (29.4)	M18X1-6g
15	1.0000	1.279 (32.5)	M22X1-6g
17	1.1875	1.405 (35.7)	M25X1-6g
19	1.2500	1.515 (38.5)	M28X1-6g
21	1.3750	1.641 (41.7)	M31X1-6g
23	1.5000	1.767 (44.9)	M34X1-6g
25	1.6250	1.889 (48.0)	M37X1-6g

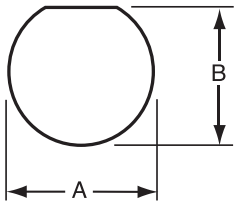


PANEL CUTOUTS

WALL MOUNT RECEPTACLE



JAM NUT RECEPTACLE



Shell Size		D38999/20 & TV/CTV Wall Mount					D38999/24 & TV/CTV Jam Nut	
D38999	TV/CTV	G1	G2	H Diameter +.005 (+.130) -.000 (.000)	Front Mount J Min.	Back Mount J Min.	A +.010 (+.025) -.000 (.000)	B +.000 (000) -.010 (-.025)
A	9	.719 (18.26)	.59 (15.09)	.130 (3.25)	.516 (13.11)	.656 (16.66)	.693 (17.60)	.657 (16.70)
B	11	.81 (20.62)	.71 (18.26)	.130 (3.25)	.625 (15.88)	.796 (20.22)	.825 (20.96)	.770 (19.59)
C	13	.91 (23.01)	.81 (20.62)	.130 (3.25)	.750 (19.05)	.922 (23.42)	1.010 (25.65)	.955 (24.26)
D	15	.97 (24.61)	.90 (23.01)	.130 (3.25)	.906 (23.01)	1.047 (26.59)	1.135 (28.83)	1.085 (27.56)
E	17	1.06 (26.97)	.96 (24.61)	.130 (3.25)	1.016 (25.81)	1.219 (30.96)	1.260 (32.01)	1.210 (30.73)
F	19	1.16 (29.36)	1.06 (26.97)	.130 (3.25)	1.141 (28.98)	1.297 (32.94)	1.385 (35.18)	1.335 (33.91)
G	21	1.25 (31.75)	1.15 (29.36)	.130 (3.25)	1.266 (32.16)	1.422 (36.12)	1.510 (38.35)	1.460 (37.08)
H	23	1.38 (34.93)	1.25 (31.75)	.155 (3.94)	1.375 (34.93)	1.547 (34.93)	1.635 (41.53)	1.585 (40.29)
J	25	1.50 (38.10)	1.37 (34.93)	.155 (3.94)	1.484 (37.69)	1.672 (42.47)	1.760 (44.70)	1.710 (43.43)

All dimensions in inches (millimeters in parenthesis)

PANEL THICKNESS

AL00 - WALL MOUNT RECEPTACLE
Rear Mount .125” (3.18) Max

AL07 - JAM NUT RECEPTACLE
.125” (3.18) Max/.062” (1.57) Min

All dimensions in inches (millimeters in parenthesis)

DUMMY RECEPTACLES, DUST CAPS & PLUG CAPS

Example
C10-630910-09F
C10-630910-009

Example
C10-630911-09F
C10-630911-009

Example
C10-630912-09F
C10-630912-009

Example
C10-630907-09F
C10-630907-009

Example
C10-630908-09F
C10-630908-009

Example
C10-630909-09F
C10-630909-009

PLUG DUST CAPS		RECEPTACLE DUST CAPS			
Nylon braid	Nylon braid with metal ring attached	No cord	Nylon braid	Nylon braid 6-inch long with metal ring attached	Nylon braid 3.5-inch long with metal ring attached
C10-630910-XXX	C10-630911-XXX	C10-630912-XXX	C10-630907-XXX	C10-630908-XXX	C10-630909-XXX

FINISH	SUFFIX
Electroless nickel	-**XX**F
Black composite, unplated	-0**XX**

XX = Insert shell size

CABLE CLAMPS

Straight

Right Angle

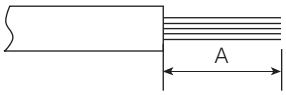
SHELL SIZE	CABLE CLAMP - ELECTROLESS NICKEL ONLY	
	STRAIGHT	RIGHT ANGLE
9	C10-630934-09F	C10-630935-09F
11	C10-630934-11F	C10-630935-11F
13	C10-630934-13F	C10-630935-13F
15	C10-630934-15F	C10-630935-15F
17	C10-630934-17F	C10-630935-17F
19	C10-630934-19F	C10-630935-19F
21	C10-630934-21F	C10-630935-21F
23	C10-630934-23F	C10-630935-23F
25	C10-630934-25F	C10-630935-25F

Metric adaptors available. Please contact us.

All dimensions in inches (millimeters in parenthesis)

WIRE STRIPPING

Strip insulation from end of wire to be crimped. See table for proper stripping dimensions. Do not cut or damage wire strands.



WIRE SIZE	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
10	.335 (8.51)
8 (power)	.470 (11.99)

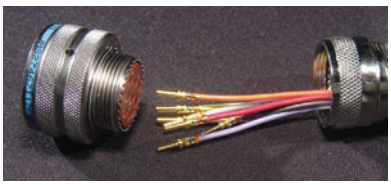
CONTACT CRIMPING

STEP 1: Insert wire into rear of contact. Wire insulation must press against rear of contact. Wire must be visible through inspection hole.

STEP 2: M22520 series crimp tool and locator is recommended. See Contact and Tool Table on pages 244 and 245 for choice of turret head and selection setting according to contact size, part number and wire gauge size.

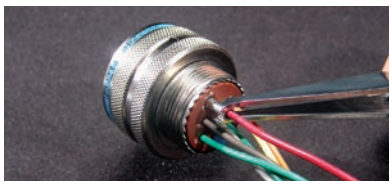
STEP 3: Insert contact and wire into tool jaws. To crimp, squeeze handles together fully until ratchet releases and allows handles to expand; otherwise, contact cannot be extracted from tool jaws. Maintain slight insertion pressure on wire while crimping contact to wire.

CONTACT INSERTION

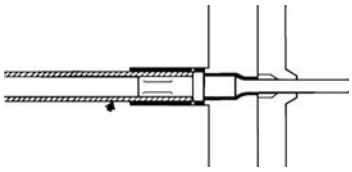


STEP 1: Remove hardware from plug or receptacle and slip over wire bundle in proper order for reassembly.

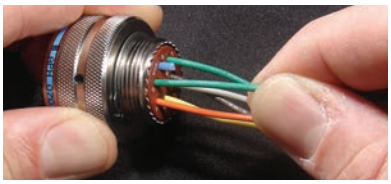
STEP 2: Using proper plastic or metal insertion tool for corresponding contact, position wire in tip of the tool so that the tool tip presses against the contact shoulder.



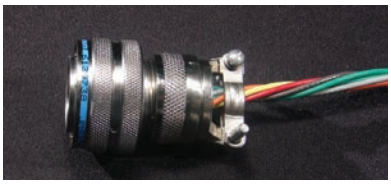
STEP 3: Press tool against contact shoulder and, with firm and even pressure, insert wired contact and tool tip into center contact cavity.



STEP 4: When contact bottoms, a slight "click" can be heard as tines of metal retaining clip snap into place behind contact shoulder.

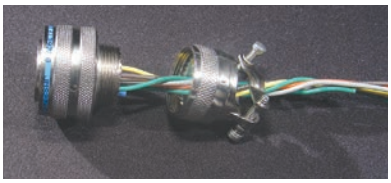


STEP 5: Remove tool and pull back lightly on wire to make sure contact is properly seated. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.

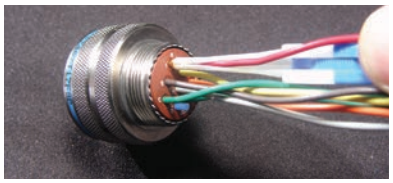


STEP 6: After all contacts are inserted, fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

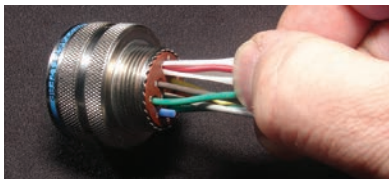
CONTACT EXTRACTION



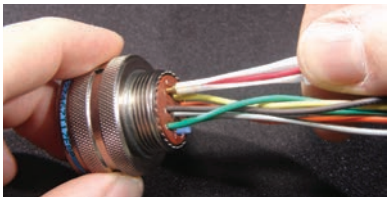
STEP 1: Remove hardware from plug or receptacle and slide hardware back along wire bundle.



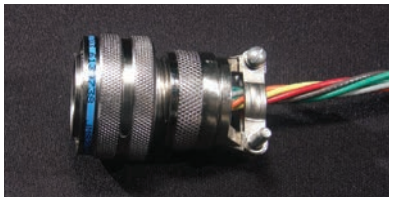
STEP 2: Using plastic or metal extraction tool with proper color code corresponding to contact size, place wire in tool.



STEP 3: Insert tool into contact cavity until tool tip bottoms against the contact shoulder, expanding clip retaining tines.



STEP 4: Hold wire firmly in tool and extract wired contact and tool. Repeat operation for all contacts to be extracted.



STEP 5: Fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

Note: LJT Series shown.

All dimensions in inches (millimeters in parenthesis)

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Amphenol SJT MIL-DTL-38999 Type 1.5

MINIATURE CONNECTOR QUALIFIED TO JAN1003

Amphenol's SJT series of miniature MIL-DTL-38999 series II circular connectors offer high-density contact arrangements. They are environmentally-sealed and have a wide operating temperature range.

- Commonly called 38999 type 1.5
- Internationally-accepted NATO-standard connectors based on MIL-DTL-38999 design
- Qualified to JAN1003
- Meets the requirements VG96912

APPLICATIONS

- High-performance military aircraft
- Commercial airlines
- Communications equipment
- Armored personnel carriers & tanks
- Missiles
- Ships
- Medical instrumentation
- High-reliability test equipment

FEATURES

QUICK-MATING

A three-point bayonet coupling system not only makes SJT's quick-mating, but also provides an audible and tactile ''click'' along with a visual verification of mating.

SHIELDED INTERCONNECT

The SJT range can be supplied with 360-degree EMI/RFI-shielding spring protection. These springs ground the barrel of the plug to the inside wall of the receptacle with a wiping action that offers effective protection from reception or transmission of electrical noise.

MANY CONTACT LAYOUTS AND STYLES

SJT connectors come in a wide variety of contact sizes and layouts up to 128 contacts. Printed circuit board, fibre optic, thermocouple and coax style contacts are available for special applications.

UTILIZES HIGH-QUALITY MILITARY CONTACTS

The SJT range of connectors use the same crimp-style military contacts as the MIL-DTL-38999 connectors to provide reliable performance under rigorous conditions.

CORROSION-RESISTANT

SJT's are available with cadmium-over-nickel plating that passed 500-hour military salt spray corrosion tests.

TECHNICAL SPECIFICATIONS

MATERIALS AND FINISHES

Shell	Aluminum alloy
Bayonet Pins	Passivated stainless steel per QQ-S-763
Plating	(Default) - Clear chromate over cadmium over electroless nickel per QQ-P-416 014 - Olive drab chromate over cadmium over electroless nickel per QQ-P-416 023 - Electroless nickel per QQ-N-290 005 - Hard, anodic, non-conductive in accordance with MIL-A-862 W52 - Olive drab zinc cobalt
Contacts	Copper alloy
Plating	Gold-plated, 50 microinches per MIL-G-45204 type II, grade C, class I
Insulator	Hard, dielectric wafer which contains metal retention tines for high-reliability retention of crimp contacts
Grommet & Seals	Silicone-based elastomer
Grounding Springs	Beryllium copper

ELECTRICAL DATA

Operating Voltage & Test Voltage (Unmated Condition)

TEST VOLTAGES	SERVICE RATING			
	N	M	I	II
Sea Level	1000	1300	1800	2300
100,000 Feet	200	200	200	200

Current Rating by Contact Size & Wire Accommodation (Test Amps)

WIRE SIZE	22D	22MQ	22Q	20	16	12
28	1.5	1.5	-	-	-	-
26	2.0	2.0	2.0	-	-	-
24	3.0	3.0	3.0	3.0	-	-
22	5.0	-	5.0	5.0	-	-
20	-	-	-	7.5	7.5	-
18	-	-	-	-	10.0	-
16	-	-	-	-	13.0	-
14	-	-	-	-	-	17.0
12	-	-	-	-	-	23.0

Contact Resistance of Mated Contacts End-to-End

CONTACT SIZE	MAX. MILLIVOLT DROP
22D	73
22M*	45
22*	73
20	55
16	49
12	42

MECHANICAL

Operating Temperature	(Default) Plating -65°C to 150°C (-85°F to 302°F) 014 Plating -65°C to 175°C (-85°F to 347°F) 023 Plating -65°C to 200°C (-85°F to 392°F) 005 Anodic (non-conductive) -65°C to 200°C (-85°F to 392°F) W52 Plating -65°C to 175°C (-85°F to 347°F)
Sealing	Against sand, dust per MIL-STD-202 & ice resistance

Wire Sealing Range

CONTACT SIZE	MIN. INCHES	MAX. INCHES	MIN. MM	MAX. MM
22D	0.030	0.054	0.76	1.37
22M	0.030	0.050	0.76	1.27
22	0.034	0.060	0.86	1.52
20	0.040	0.083	1.02	2.11
16	0.065	0.109	1.65	2.77
12	0.097	0.142	2.46	3.61
10	0.135	0.162	3.42	4.12
8 (Coax)	0.135	0.155	3.43	3.94
8 (Twinax)	0.124	0.134	3.15	3.40

* Inactive for new designs

TECHNICAL SPECIFICATIONS

Insulation Strip Length

CONTACT SIZE	STRIP LENGTH
22∗, 22D or 22M∗	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)

Mating Life	500 cycles minimum
Salt Spray	Finish (default): 48 hour per MIL-STD-1344A method 1001 condition B Finish 014: 500 hour per MIL-STD-1344A method 1001 condition C Finish 023: 48 hour per MIL-STD-1344A method 1001 condition B Finish 005: 500 hour per MIL-STD-1344A method 1001 condition C Finish W52: 48 hour
Heat	Finish (default): 150°C (302°F) Finish 014: 175°C (347°F) Finish 023: 200°C (392°F) Finish 005: 150°C (302°F) Finish W52: 175°C (347°F)
Chemical Resistance	Lubricating oils, hydraulic fluids, coolants, deicing fluids per MIL-STD-1344A Method 1016 condition A-1
Sine Vibration	30g at ambient temperature with simulated accessory load
Random Vibration	49.5 grms at ambient temperatures
Shock	300g ±15% half-sine wave magnitude for 3 ±1 milliseconds
EMI Shielding Effectiveness	100 MHz to 10 GHz - minimum attenuation of 50dB
Contact Type	Crimp, fibre optic, coax, twinax, or printed circuit
Number of Circuits	2 to 128
Contact Insertion	Rear-insertion/rear-extraction with simple plastic or high-quality metal hand-tools.
Contact Retention	Per MIL-DTL-38999K, tested to MIL-STD-1344A method 2007

CONTACT SIZE	AXIAL LOAD NEWTONS ±10%	AXIAL LOAD POUNDS ±10%
22∗, 22D, 22M∗	44	10
20	67	15
16	111	25
12	111	25

Polarization	Three-point bayonet coupling, five keyways with optional master keyway rotations, note insert and four fixed minor keyways.
Approvals	In accordance with JAN1003 and VG96912

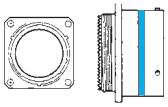
∗ Inactive for new designs

CREATE YOUR PART NUMBER

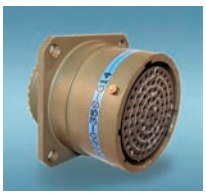
1	2	3	5	6	4	7
SJT07	RT	24-35	P	N	-014	-LC
SHELL STYLE	CLASS	LAYOUT	CONTACT	POLARIZATION	PLATING	MODIFIER

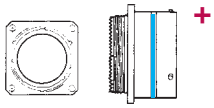
STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → PLUGS

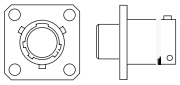


SJT00RT
Front Mount with Rear Accessory Threads.

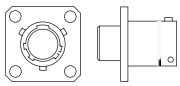




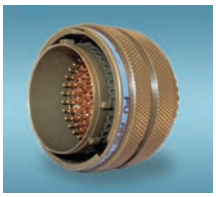
SJTP00RT
Rear Mount with Rear Accessory Threads.

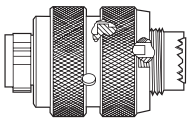


SJT02RE
Front Mount without Rear Accessory Threads.

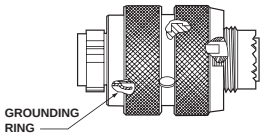


SJTP02RE
Rear Mount without Rear Accessory Threads.



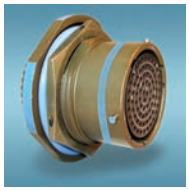


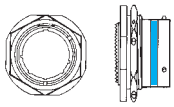
SJT06RT
Straight Plug



SJTG06RT
Straight Plug with Grounding Fingers

Available with PC pins. Contact us for details.





SJT07RT
Jam Nut with Rear Accessory Threads.

STEP 2: SELECT CLASS

RE = No Rear Threads

RP = Potting Ring & Cup

RT = Rear Threads

CONTACT US FOR DETAILS
SJTB - Thru Bulkhead
SJT1Y - Hermetic Soder Mount
SJT07Y - Hermetic Jam Nut

STEP 3: SELECT LAYOUT

For listing by # of contacts, ⇨ see pages 260-263.

Layout Number	Service Rating	CONTACTS Total Contacts	22D	22M	22	20	16	12	12 (Coax)	10 (Power)	8 (Coax)	8 (Twinax)
8-6	M	6		6								
8-35	M	6	6									
8-44	M	4			4							
8-98	I	3				3						
10-1	M	1										1✱✱
10-2✦	I	2					2					
10-4✦	I	4				4						
10-5✦	I	5				5						
10-13	M	13		13								
10-35	M	13	13									
10-98	I	6				6						
12-4	I	4					4					
12-8	I	8				8						
12-22	M	22		22								
12-35	M	22	22									
12-98	I	10				10						
14-5	II	5					5					
14-15	I	15				14	1					
14-18	I	18				18						
14-19	I	19				19						
14-35	M	37	37									
14-37	M	37		37								
14-97✦	I	12				8	4					
16-2✦	M	39	38									1✱✱
16-6	I	6						6				
16-8	II	8					8					
16-13✦	I	13					13					
16-26	I	26				26						
16-35	M	55	55									
16-42✦	M	42			42							
16-55	M	55		55								
16-99	I	23				21	2					
18-11	II	11					11					
18-17	M	17	10			1	4					2✱✱
18-32	I	32				32						
18-35	M	66	66									
18-66	M	66		66								
20-1	M	79		79								
20-2	M	65			65							
20-11✦	I	11						11				
20-16	II	16					16					
20-35	M	79	79									
20-39	I	39				37	2					
20-41	I	41				41						
20-75✦	M	4									4✱	
20-79✦	II	19	17									2✱✱
22-1	M	100		100								
22-2	M	85			85							
22-21	II	21					21					
22-35	M	100	100									
22-53	I	53				53						
24-1	M	128		128								
24-2	M	100			100							
24-4	I	56				48	8					
24-7✦	M	99	97									2✱✱
24-11✦	N	11				2				9		
24-19✦	I	19						19				
24-20✦	N	30				10	13		4◆			3✱✱
24-24	I	24					12	12				
24-29	I	29					29					
24-35	M	128	128									
24-37✦	I	37					37					
24-43✦	I	43				23	20					
24-46✦	I	46				40	4					2✱✱
24-61	I	61				61						

WHEN CHOOSING LAYOUT:

First Number = Step 3A – Shell Size, Dash = Step 4 – Plating, Second Number = 3B – Layout

STEP 4: SELECT PLATING

Finish	Suffix Data	Suffix Data & Strain Relief
Cadmium-plated nickel base	-	SR
Olive drab cadmium-plated nickel base	014	386
Electroless nickel	023	424
Anodic coating (Alumilite) 005	300	-
Olive drab zinc cobalt	W52	W52-SR

SR = Strain Relief

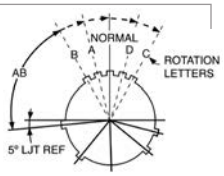
STEP 5: SELECT CONTACT

P = Pin
S = Socket
(1500-mating cycles available - contact us for details.)

Note: See Step 6 if you are not ordering contacts with part.

STEP 6: SELECT POLARIZATION

N = Normal Standard
A = Highly-Popular
B = Limited Availability
C = Check for Availability
D = Check for Availability



Mating Face of Receptacle

SHELL SIZE	N	A	B	C	D
9	95	77	-	-	113
11	95	81	67	123	109
13	95	75	63	127	115
15	95	74	61	129	116
17	95	77	65	125	113
19	95	77	65	125	113
21	95	77	65	125	113
23	95	80	69	121	110
25	95	80	69	121	110

STEP 7: SELECT MODIFIER

For other commercial modifications, i.e., less tools, with PC contact or with endbell, contact us.

Omit for standard contacts
LC = Less contacts, wire hole fillers and plastic insertion/extraction tool. *(Purchase Order must state "Less Contacts")*
Note: LC is not marked on part

✦ Not tooled for RP or 02RE
✱ Coax
✱✱ Twinax
◆ 20-24 is supplied with 2#12 coax and 2 #12 shielded contacts

HOW TO ORDER JN1003 SERIES CONNECTORS

1	2	3	4	5
JN1003A	1608	P	N	1
SHELL STYLE	LAYOUT	CONTACT	POLARIZATION	MODIFIER

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → PLUGS

JN1003A
Jam Nut Receptacle

JN1003B
Wall Mount Receptacle

JN1003FG
Plug with Grounding Fingers

STEP 2: SELECT LAYOUT

For listing by # of contacts, see pages 260-263.

LAYOUT NUMBER	SERVICE RATING	TOTAL CONTACTS	CONTACTS 22D	22M	22	20	16	12	12 (COAX)	10 (POWER)	8 (COAX)	8 (TWINAX)
8-35	M	6	6									
8-98	I	3				3						
10-02✦	I	2					2					
10-35	M	13	13									
10-98	I	6				6						
12-04	I	4					4					
12-35	M	22	22									
12-98	I	10				10						
14-19	I	19				19						
14-35	M	37	37									
14-97✦	I	12				8	4					
16-06	I	6						6				
16-08	II	8					8					
16-26	I	26				26						
16-35	M	55	55									
18-11	II	11					11					
18-12	N	12				6	4					2**
18-17	M	17	10			1	4					2**
18-32	I	32				32						
18-35	M	66	66									
20-11✦	I	11						11				
20-16	II	16					16					
20-35	M	79	79									
20-41	I	41				41						
22-21	II	21					21					
22-35	M	100	100									
22-53	I	53				53						
24-04	I	56				48	8					
24-07✦	M	99	97									2**
24-19✦	I	19						19				
24-20✦	N	30				10	13		4◆			3**
24-35	M	128	128									
24-37✦	I	37					37					
24-41		41										
24-61	I	61				61	16					

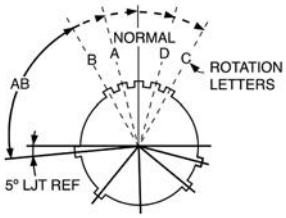
✦ Not tooled for RP or 02RE * Coax ** Twinax ◆ 20-24 is supplied with 2#12 coax and 2 #12 shielded contacts

STEP 3: SELECT CONTACT

P = Pin S = Socket

STEP 4: SELECT ROTATION

N = Normal Standard
A = Highly-Popluar
B = Limited Availability
C = Check for Availability
D = Check for Availability



Mating Face of Receptacle

SHELL SIZE	N	A	B	C	D
9	95	77	-	-	113
11	95	81	67	123	109
13	95	75	63	127	115
15	95	74	61	129	116
17	95	77	65	125	113
19	95	77	65	125	113
21	95	77	65	125	113
23	95	80	69	121	110
25	95	80	69	121	110

STEP 5: SELECT MODIFIER

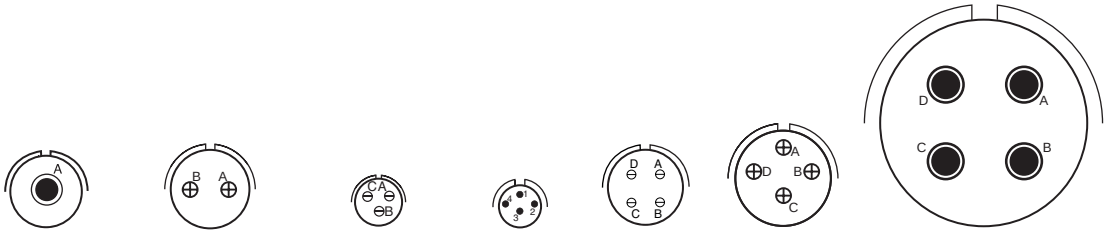
Leave blank for connector delivered without contacts 1 = Connector delivered with contacts

LAYOUTS BY NUMBER OF CONTACTS

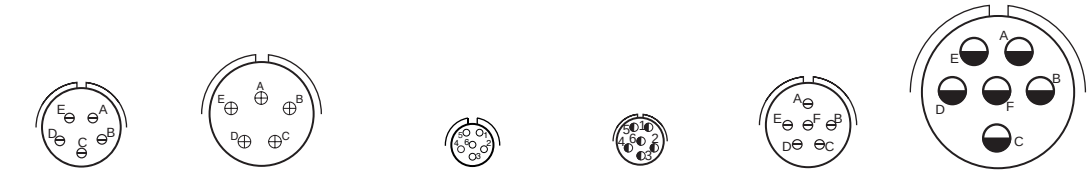
View of mating-face of pin insert

Drawing not to scale; mating face view of pin insert shown (socket view is opposite)

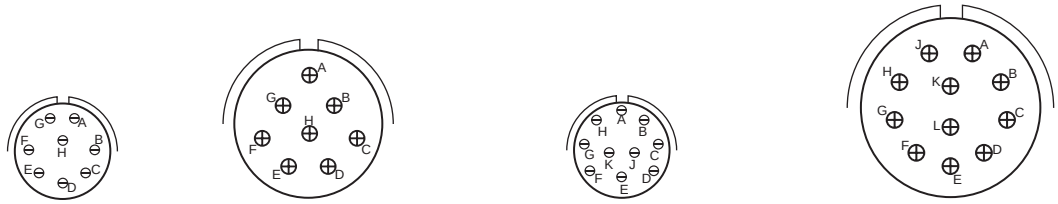
CONTACTS	1	2	3	4			
LAYOUT	**10-1**	**10-2**	**8-98**	**8-44**	**10-4**	**12-4**	**20-75**
# OF CONTACTS	1-#8 **	2-#16	3-#20	4-#22	4-#20	4-#16	4-#8 *
SERVICE RATING	M	I	I	M	I	I	N



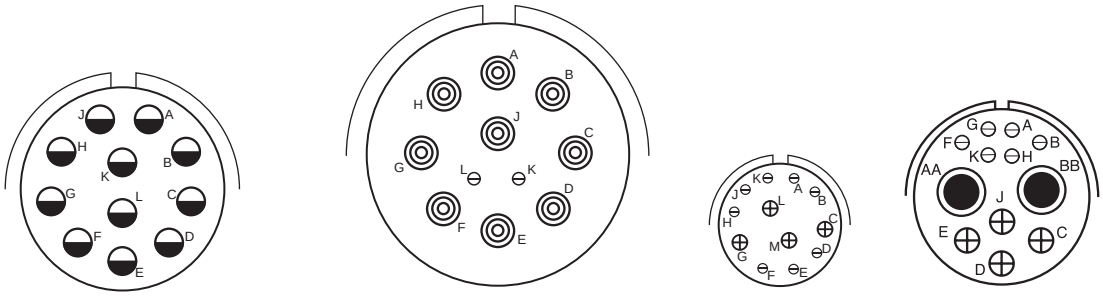
CONTACTS	5		6			
LAYOUT	**10-5**	**14-5**	**8-6**	**8-35**	**10-98**	**16-6**
# OF CONTACTS	5-#20	5-#16	6-#22M	6-#22D	6-#20	6-#12
SERVICE RATING	I	II	M	M	I	I



CONTACTS	8		10	11
LAYOUT	**12-8**	**16-8**	**12-98**	**18-11**
# OF CONTACTS	8-#20	8-#16	10-#20	11-#16
SERVICE RATING	I	II	I	II



CONTACTS	11		12	
LAYOUT	**20-11**	**24-11**	**14-97**	**18-12**
# OF CONTACTS	11-#12	2-#20, 9-#10	8-#20, 4-#16	6-#20, 4-#16, 2-#8**
SERVICE RATING	I	N	I	N

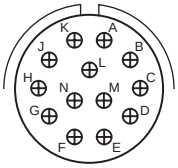
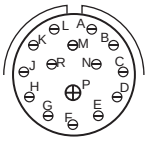
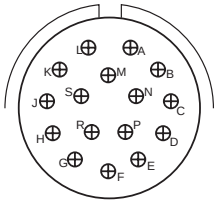


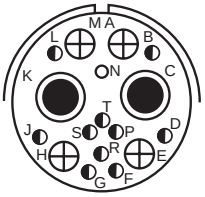
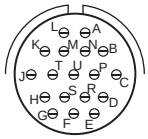
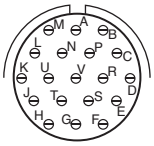
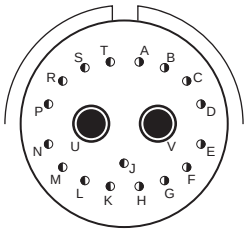
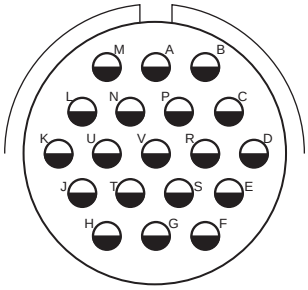
*Coax **Twinax

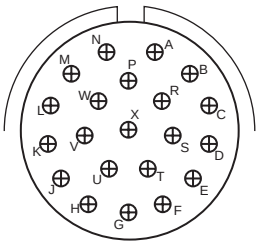
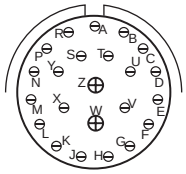
LAYOUTS BY NUMBER OF CONTACTS

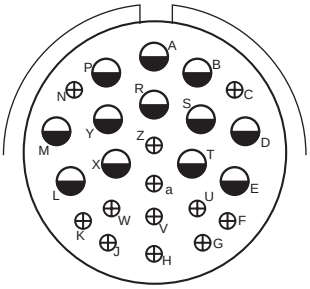
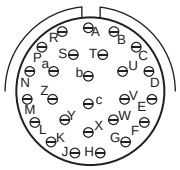
View of mating-face of pin insert

Drawing not to scale; mating face view of pin insert shown (socket view is opposite)

CONTACTS	13			15	16
					
LAYOUT	**10-13**	**10-35**	**16-13**	**14-15**	**20-16**
# OF CONTACTS	13-#22M	13-#22D	13-#16	14-#20, 1-#16	16-#16
SERVICE RATING	M	M	I	I	II

CONTACTS	17	18	19		
					
LAYOUT	**18-17**	**14-18**	**14-19**	**20-79**	**24-19**
# OF CONTACTS	10-#22D, 1-#20, 4-#16, 2-#8**	18-#20	19-#20	17-#22D, 2-#8 **	19-#12
SERVICE RATING	M	I	I	II	I

CONTACTS	21	22		23
				
LAYOUT	**22-21**	**12-22**	**12-35**	**16-99**
# OF CONTACTS	21-#16	22-#22M	22-#22D	21-#20, 2-#16
SERVICE RATING	II	M	M	I

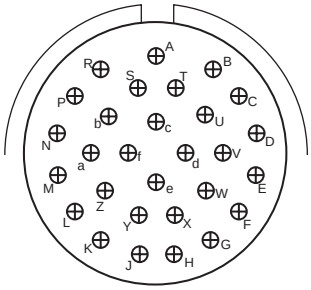
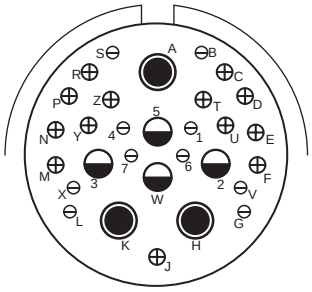
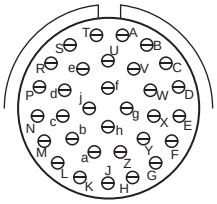
CONTACTS	24	26
		
LAYOUT	**24-24**	**16-26**
# OF CONTACTS	12-#16, 12-#12	26-#20
SERVICE RATING	I	I

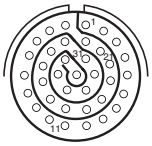
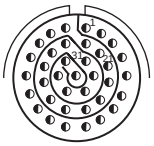
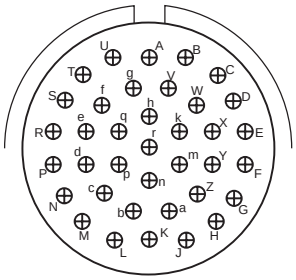
* Coax **Twinax

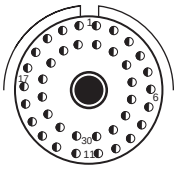
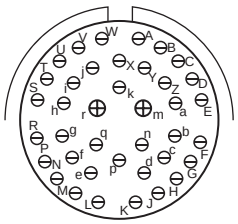
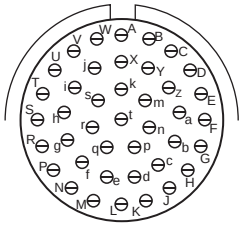
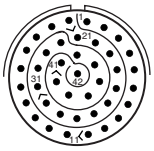
LAYOUTS BY NUMBER OF CONTACTS

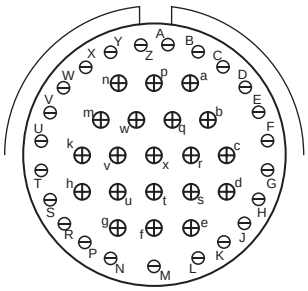
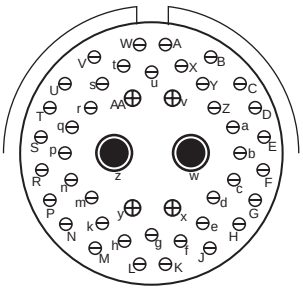
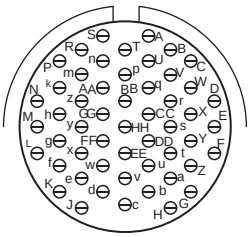
View of mating-face of pin insert

Drawing not to scale; mating face view of pin insert shown (socket view is opposite)

CONTACTS	29	30	32
			
LAYOUT	**24-29**	**24-20**	**18-32**
# OF CONTACTS	29-#16	10-#20, 13-#16, 4#12◆, 3#8✱✱	32-#20
SERVICE RATING	I	I	I

CONTACTS	37		
			
LAYOUT	**14-37**	**14-35**	**24-37**
# OF CONTACTS	37-#22M	37-#22D	37-#16
SERVICE RATING	M	M	I

CONTACTS	39	41	42
				
LAYOUT	**16-2**	**20-39**	**20-41**	**16-42**
# OF CONTACTS	38-#22D, 1-#8✱✱	37-#20, 2-#16	41-#20	42-#22
SERVICE RATING	M	I	I	M

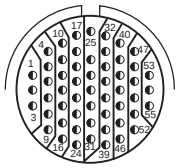
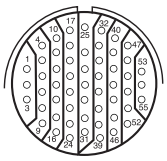
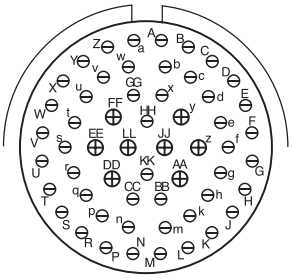
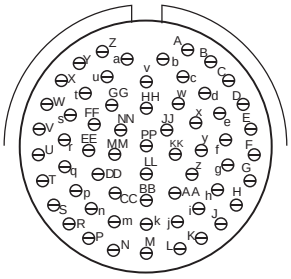
CONTACTS	43	46	53
			
LAYOUT	**24-43**	**24-46**	**22-53**
# OF CONTACTS	23-#20, 20-#16	40-#20, 4-#16, 2-#8✱	53-#20
SERVICE RATING	I	I	M

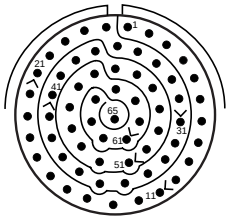
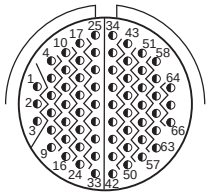
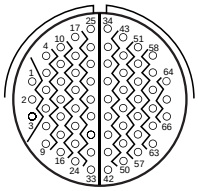
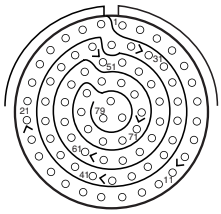
✱Coax ✱✱Twinax ◆ 20-24 is supplied with 2#12 coax and 2 #12 shielded contacts

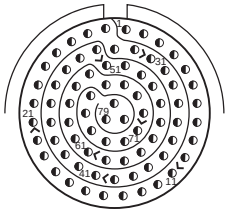
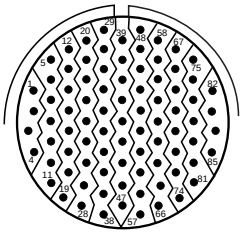
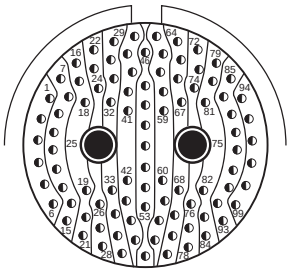
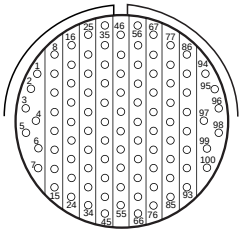
LAYOUTS BY NUMBER OF CONTACTS

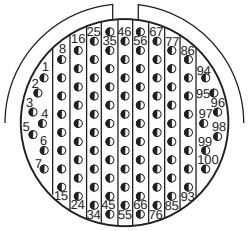
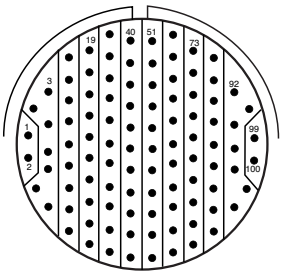
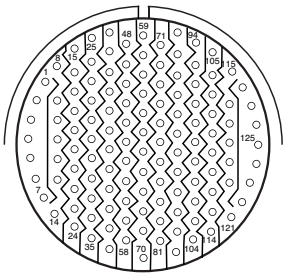
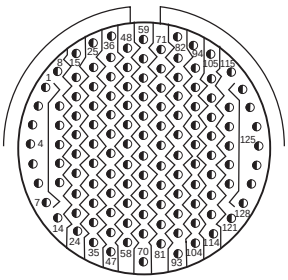
View of mating-face of pin insert

Drawing not to scale; mating face view of pin insert shown (socket view is opposite)

CONTACTS	55		56	61
				
LAYOUT	**16-35**	**16-55**	**24-4**	**24-61**
# OF CONTACTS	55-#22D	55-#22M	48-#20, 8-#16	61-#20
SERVICE RATING	M	M	I	I

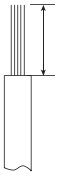
CONTACTS	65	66		79
				
LAYOUT	**20-2**	**18-35**	**18-66**	**20-1**
# OF CONTACTS	65-#22	66-#22D	66-#22M	79-#22M
SERVICE RATING	M	M	M	M

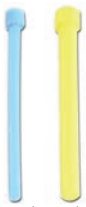
CONTACTS	79	85	99	100
				
LAYOUT	**20-35**	**22-2**	**24-7**	**22-1**
# OF CONTACTS	79-#22D	85-#22	97-#22D, 2-#8**	100-#22M
SERVICE RATING	M	M	M	M

CONTACTS	100		128	
				
LAYOUT	**22-35**	**24-2**	**24-1**	**24-35**
# OF CONTACTS	100-#22D	100-#22	128-#22M	128-#22D
SERVICE RATING	M	M	M	M

*Coax **Twinax

PINS



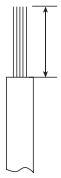


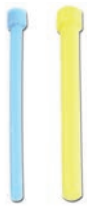
Insert head first.
Trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22D	28,26,24&22	M39029/58-360	Orange	Blue	Black	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
✱22M	28,26&24	M39029/58-361	Orange	Blue	Brown	.125 (3.18)	.030 (0.76)	.050 (1.27)	MS27488-22-2	Black
✱22	26,24&22	M39029/58-362	Orange	Blue	Red	.125 (3.18)	.034 (0.86)	.060 (1.52)	MS27488-22-2	Black
20	20,22&24	M39029/58-363	Orange	Blue	Orange	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16	16,18&20	M39029/58-364	Orange	Blue	Yellow	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
12	12&14	M39029/58-365	Orange	Blue	Green	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
8	Coax+	-	-	-	-	-	.135 (3.43)	.155 (3.94)	MS27488-8-3	-

+ For fibre optic contacts, please contact us. ✱ Inactive for new design

SOCKETS





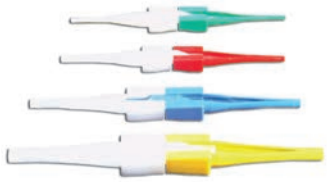
Insert head first.
Trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS 1	COLOR BANDS 2	COLOR BANDS 3	WIRE STRIP LENGTHS	WIRE RANGE MIN.	WIRE RANGE MAX.	WIRE HOLE FILLER	COLOR
22D	28,26,24&22	M39029/56-348	Orange	Yellow	Gray	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
20	20,22&24	M39029/56-351	Orange	Green	Brown	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16	16,18&20	M39029/56-352	Orange	Green	Red	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
12	12&14	M39029/56-353	Orange	Green	Orange	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
8	Coax+	-	-	-	-	-	.135 (3.43)	.155 (3.94)	MS27488-8-3	-

+ For fibre optic contacts, please contact us.

All dimensions in inches (millimeters in parenthesis)

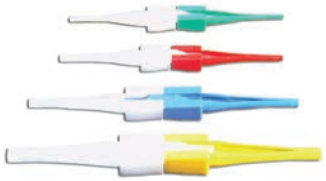
PINS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXTRACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND	
											1	2
22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Gren	White	MS27495A22M	Black	MS27495R22M	Black	White
*22M	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
*22	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Blue	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	-	DRK95-12B	-	-
8	-	-	-	-	M81969/14-06	-	Red	-	-	-	-	-

†† Contact us for more tool accessories.

SOCKETS



CONTACT SIZE	HAND-CRIMP TOOL	POWER-CRIMP TOOL	TURRET HEADS	USE LOCATOR COLOR	PLASTIC INSERTION/ EXTRACTION TOOL	INSERTION TIP COLOR	EXTRACTION TIP COLOR	METAL INSERTION TOOL	COLOR BAND	METAL EXTRACTION TOOL	COLOR BAND	
											1	2
22D	M22520/2-01	WA22††	M22520/2-07	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Blue	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	-	DRK95-12B	-	-
8	-	-	-	-	M81969/14-06	-	Red	-	-	-	-	-

†† Contact us for more tool accessories.

COAX CONTACTS

COAX PIN

COAX SOCKET

CRIMPING TOOLS

M22520/5-01

Crimp Dies

COAX CONTACT SIZE	CABLE TYPE	CONTACT PART NUMBER		CRIMPING TOOLS	
		PIN	SOCKET	INNER CONTACT	CRIMP FERRULE
16	RG-178B/U, RG-196A/U	21-033122-564 (M39029/76-425)	21-033123-564 (M39029/77-429)	M22520/2-01 w/ Positioner M22522/2-35 or w/ Daniels Positioner K532	M22520/4-01 w/ Positioner M22520/4-02
	RG-174A/U, RG-188A/U, RG-161/U, RG-187A/U, RG-316/U, RG-179B/U	21-033122-563 (M39029/76-424)	21-033123-563 (M39029/77-428)		
12		21-033122-546 (M39029/28-211)	21-033123-546 (M39029/75-416)	M22520/2-01 w/ Positioner M22520/2-34 or w/ Daniels Positioner K323	M22520/31-01 w/ Positioner M22520/31-02 or Daniels GS-200 Tool w/ Positioner G2P330
	RG-180B/U, RG-195A/U	21-033122-541 (M39029/28-409)	21-033123-541 (M39029/75-417)		
8	RG-187A/U, RG-179B/U, RG-174A/U, RG-188A/U, RG-316/U, RG-161/U	21-033102-023	21-033101-023	M22520/2-01 w/ Positioner M22520/2-31 or Solder	M22520/5-01 w/ die set M22520/5-03 (A) or M22520/5-08 (A) M22520/5-35 (B) or M22520/10-01 w/ die set M22520/10-05 (A)
	RG-142B/U, RG-223/U	21-033102-024	21-033101-024	Solder	M22520/5-01 w/ die set M22520/5-05 (A)or M22520/5-19 (A) or M22520/10-01 w/ die set M22520/10-07 (A)
	RG-180B/U, RG-195A/U	21-033102-021 (M39029/60-367)	21-033101-021 (M39029/59-366)	M22520/2-01 w/ Positioner M22520/2-31 or Solder	M22520/5-01 w/ die set M22520/5-05 (B) or M22520/5-41 (B) or M22520/10-01 w/ die set M22520/10-07 (B)
	RG-400	21-033102-027	21-033101-027	M22520/2-01 w/ Positioner M22520/2-10	M22520/5-01 w/ die set M22520/5-45 (A)
	RG-58 (M17/155-00001)	21-033102-029	21-033101-029	Solder	M22520/5-01 w/ die set M22520/5-05 (B)

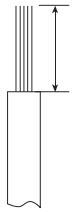
PRINTED CIRCUIT BOARD CONTACTS - PIN

PCB PIN CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX./MIN.						
			SJT00RT	SJTP00RT	SJT02RE	SJTP02RE	SJT06RE	SJT07RE	
								(9-17)	(19-25)
10-407552-015	22M	0.019	.372 / .317	.357 / .302	.576 / .521	.576 / .520	.372 / .317	.351 / .296	.329 / .279
10-407552-055	22M	0.019	.261 / .206	.246 / .191	.465 / .410	.465 / .409	.261 / .206	.240 / .185	.218 / .168
10-407552-085	22M	0.019	.097 / .047	.082 / .032	.301 / .251	.301 / .250	.097 / .047	.076 / .026	.054 / .009
10-407552-115	22M	0.019	.035 / NS	.020 / NS	.239 / .189	.239 / .188	.035 / NS	.014 / NS	NS
10-497640-015	20	0.019	.385 / .335	.370 / .320	.589 / .539	.589 / .538	.385 / .335	.364 / .314	.342 / .297
10-497640-025	20	0.019	.250 / .200	.235 / .185	.454 / .404	.454 / .403	.250 / .200	.229 / .179	.207 / .162
10-497640-045	20	0.019	NS	NS	.191 / .141	.191 / .141	NS	NS	NS
10-497596-015	20	0.025	.095 / .049	.080 / .034	.299 / .253	.299 / .252	.095 / .049	.074 / .028	.052 / .011
10-497596-025	20	0.025	.185 / .139	.170 / .124	.389 / .343	.389 / .342	.185 / .139	.164 / .118	.142 / .101
10-497596-035	20	0.025	.266 / .220	.251 / .205	.470 / .424	.470 / .423	.266 / .220	.245 / .199	.223 / .182
10-497596-055	20	0.025	.383 / .337	.368 / .322	.587 / .541	.587 / .540	.383 / .337	.362 / .316	.340 / .299
10-497695-015	16	0.040	.292 / .242	.277 / .227	.496 / .446	.496 / .445	.292 / .242	.271 / .221	.249 / .204
10-497630-035	16	0.062	.097 / .047	.082 / .032	.301 / .251	.301 / .250	.385 / .335	.076 / .026	.054 / .009
10-497630-055	16	0.062	.296 / .250	.281 / .235	.454 / .401	.454 / .401	.232 / .182	.229 / .175	.207 / .158
10-597502-015	12	0.081	.265 / .215	.250 / .200	.469 / .410	.469 / .418	.265 / .215	.244 / .194	.222 / .177

= Standard PC tail used

WIRE HOLE FILLER

WIRE STRIP LENGTH



WIRE SEALING RANGE

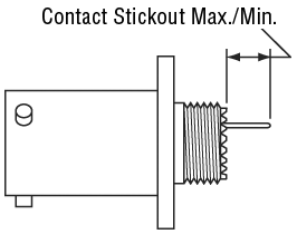
COAX CONTACT SIZE	INSTALLATION TOOLS		WIRE STRIP LENGTHS	WIRE SEALING RANGE	
	INSERTION	REMOVAL		MIN.	MAX.
16	M81969/8-07 or M81969/14-03	M81969/8-08 or M81969/14-03	Contact us for details	.065 (1.65)	.109 (2.77)
12	M81969/8-09 or M81969/14-04	M81969/8-10 or M81969/14-04	Contact us for details	.097 (2.46)	.142 (3.61)
8	Hand-insertion	M81969/14-012 or DRK264-8 or 11-9170	Contact us for details	.135 (3.43)	.155 (3.94)

All dimensions in inches (millimeters in parenthesis)

PRINTED CIRCUIT BOARD CONTACTS - SOCKET

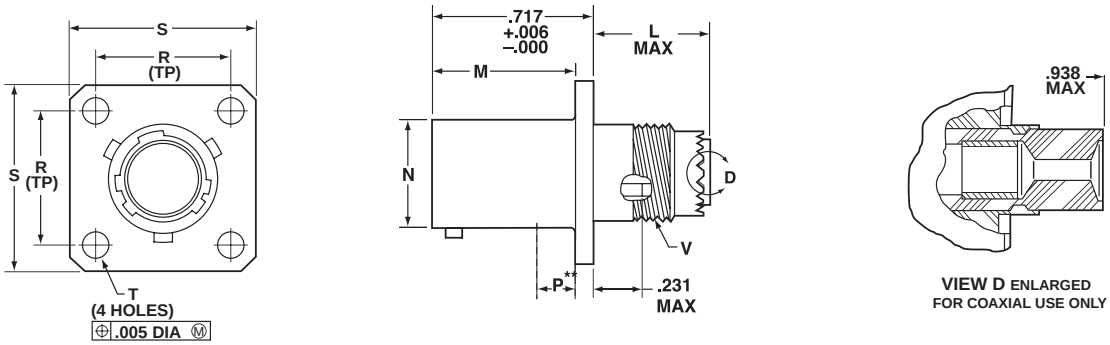
PCB PIN CONTACTS	SIZE	TAIL DIAMETER +/- .001	CONTACT STICKOUT MAX/MIN						
			SJT00RT	SJTP00RT	SJT02RE	SJTP02RE	SJT06RE	SJT07RE (9-17)	SJT07RE (19-25)
10-497623-015	22M	0.019	.328 / .263	.313 / .248	.532 / .467	.532 / .466	.328 / .263	.307 / .424	.285 / .225
10-497623-335	22M	0.019	.264 / .199	.249 / .188	.468 / .406	.468 / .405	.264 /.199	.243 / .182	.221 / .165
10-497623-025	22M	0.019	.905 / .840	.890 / .825	1.109 / 1.044	1.109 / 1.043	.905 / .840	.884 / .819	.862 / .802
10-497623-035	22M	0.019	.385 / .320	.370 / .305	.589 / .524	.589 / .523	.385 / .320	.364 / .299	.342 / .282
10-497623-045	22M	0.019	.245 / .180	.230 / .165	.449 / .384	.449 / .383	.245 / .180	.224 / .159	.202 / .142
10-497623-075	22M	0.019	.183 / .118	.168 / .103	.387 / .322	.387 / .321	.183 / .118	.162 / .097	.140 / .080
10-497623-145	22M	0.019	.646 / .576	.631 / .561	.850 / .780	.850 / .779	.646 / .576	.625 / .555	.603 / .538
10-497623-155	22M	0.019	.460 / .395	.445 / .380	.664 / .599	.664 / .598	.460 / .395	.439 / .374	.417 / .357
10-497643-015	20	0.019	.385 / .339	.370 / .316	.589 / .535	.589 / .536	.385 / .331	.364 / .310	.342 / .293
10-497643-025	20	0.019	.250 / .204	.235 / .181	.454 / .400	.454 / .401	.250 / .196	.229 / .175	.207 / .158
10-497643-035	20	0.019	.592 / .546	.577 / .523	.796 / .742	.796 / .743	.592 / .538	.571 / .517	.549 / .500
10-497650-015	16	0.040	.292 / .246	.277 / .223	.496 / .442	.496 / .443	.292 / .238	.271 / .217	.249 / .200
10-597503-015	12	0.081	.221 / .175	.206 / .152	.425 / .372	.425 / .372	.221 / .167	.200 / .146	.178 / .129

= Standard PC tail used



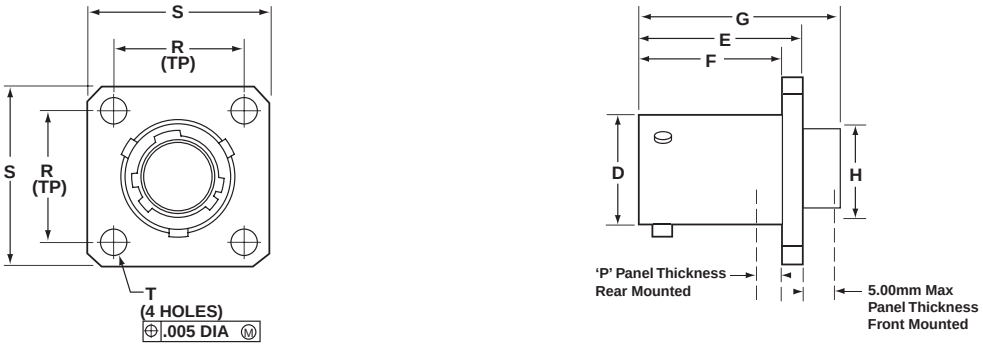
RECEPTACLES

SJT00RT



SHELL SIZE	L MAX. (+.000/-.010)	M +.000/-.005	R (TP) (+.040/-.040)	S +.011/-.010 (+.010/-.010)	T +.005/-.005 (PLATED UNEF)	V THREAD MODIFIED CLASS 2A MAJOR DIAMETER	V THREAD MODIFIED MODIFIED (+.000/-.010)	N +.001/ -.005	P MAX.
8	.500 (12.7)	.632 (16.05)	.594 (15.09)	.812 (20.62)	.120 (3.05)	.4375-28	.412 - .417	.473 (12.61)	.117 (2.92)
10	.500 (12.7)	.632 (16.05)	.719 (18.26)	.938 (23.82)	.120 (3.05)	.5625-24	.542 - .538	.590 (14.99)	.117 (2.92)
12	.500 (12.7)	.632 (16.05)	.812 (20.62)	1.031 (26.19)	.120 (3.05)	.6875-24	.667 - .663	.750 (19.05)	.117 (2.92)
14	.500 (12.7)	.632 (16.05)	.906 (23.01)	1.125 (28.57)	.120 (3.05)	.8125-20	.791 - .787	.875 (22.22)	.117 (2.92)
16	.500 (12.7)	.632 (16.05)	.969 (24.61)	1.219 (30.96)	.120 (3.05)	.9375-20	.916 - .912	1.000 (25.40)	.117 (2.92)
18	.500 (12.7)	.632 (16.05)	1.062 (26.97)	1.312 (33.32)	.120 (3.05)	1.0625-18	1.034 - 1.030	1.125 (28.57)	.117 (2.92)
20	.500 (12.7)	.602 (15.29)	1.156 (29.36)	1.438 (36.52)	.120 (3.05)	1.1875-18	1.158 - 1.154	1.250 (31.75)	.087 (2.21)
22	.500 (12.7)	.602 (15.29)	1.250 (31.75)	1.562 (39.67)	.120 (3.05)	1.3125-18	1.283 - 1.279	1.375 (34.92)	.087 (2.21)
24	.550 (13.97)	.602 (15.29)	1.375 (34.92)	1.688 (42.87)	.147 (3.73)	1.4375-18	1.408 - 1.404	1.500 (38.10)	.055 (1.39)

SJT02RE



SHELL SIZE	F +.001/ -.005 (+.000/-.010)	E +.006/-.000 (+.150/-.000)	G MAX.	H MAX.	B (TP)	A +.011/-.010 (+.040/-.040)	C +.005/ -.005 (+.010/-.010)	D +.001/ -.005 (+.000/-.130)	P MAX.
8	.632 (16.05)	.717 (18.21)	1.089 (27.65)	.469 (11.91)	.594 (15.09)	.812 (20.62)	.120 (3.05)	.473 (12.00)	.117 (3.00)
10	.632 (16.05)	.717 (18.21)	1.089 (27.65)	.594 (15.09)	.719 (18.26)	.938 (23.82)	.120 (3.05)	.590 (15.00)	.117 (3.00)
12	.632 (16.05)	.717 (18.21)	1.089 (27.65)	.719 (18.26)	.812 (20.62)	1.031 (26.19)	.120 (3.05)	.750 (19.05)	.117 (3.00)
14	.632 (16.05)	.717 (18.21)	1.089 (27.65)	.844 (21.44)	.906 (23.01)	1.125 (28.57)	.120 (3.05)	.875 (22.22)	.117 (3.00)
16	.632 (16.05)	.717 (18.21)	1.089 (27.65)	.969 (24.61)	.969 (24.61)	1.219 (30.96)	.120 (3.05)	1.000 (25.4)	.117 (3.00)
18	.632 (16.05)	.717 (18.21)	1.089 (27.65)	1.078 (27.38)	1.062 (26.97)	1.312 (33.32)	.120 (3.05)	1.125 (28.57)	.117 (3.00)
20	.602 (15.29)	.717 (18.21)	1.089 (27.65)	1.203 (30.56)	1.156 (29.36)	1.438 (36.52)	.120 (3.05)	1.250 (31.75)	.117 (3.00)
22	.602 (15.29)	.717 (18.21)	1.089 (27.65)	1.329 (33.73)	1.250 (31.75)	1.562 (39.67)	.120 (3.05)	1.375 (34.92)	.117 (3.00)
24	.602 (15.29)	.717 (18.21)	1.131 (28.72)	1.453 (36.91)	1.375 (34.92)	1.688 (42.87)	.147 (3.73)	1.500 (38.10)	.055 (2.26)

All dimensions in inches (millimeters in parenthesis)

RECEPTACLES

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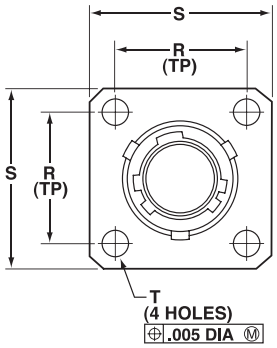
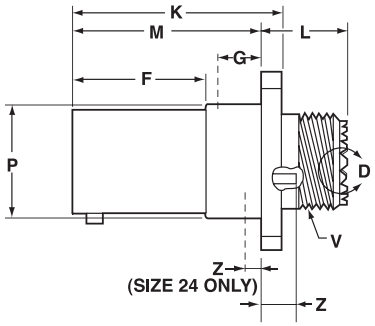
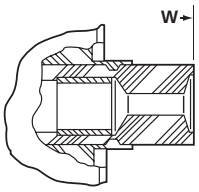


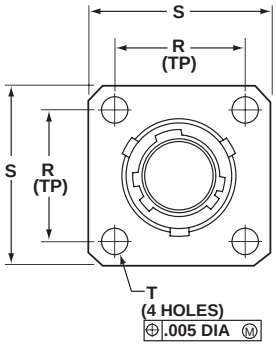


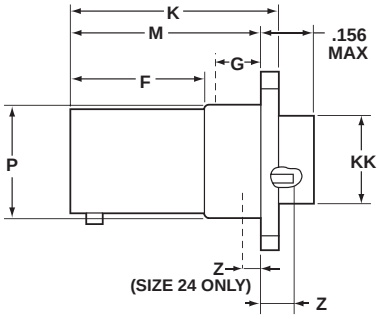


VIEW D ENLARGED
FOR COAXIAL USE ONLY

Shell Size	F +.000/ -.005 (+.000/-.010)	K +.006/-.000 (+.150/-.000)	L Max.	M +.000/-.005 (+.000/-.010)	R (TP)	S +.011/-.010 (±.04/-.04)	T +.005/-.005 (+.01/-.01)	Z +.031/ -.031 (+.07/-0.07)	V Thread Class 2A (Plated UNEF)	P Diameter +.001/ -.005 (+.00/-0.01)	W Max.	G Max.
8	.609 (15.47)	.945 (24.00)	.539 (13.69)	.860 (21.84)	.594 (15.09)	.812 (20.62)	.120 (3.05)	.062 (1.58)	.4375-28	.516 (13.11)	.812 (20.62)	.345 (8.76)
10	.609 (15.47)	.945 (24.00)	.539 (13.69)	.860 (21.84)	.719 (18.26)	.938 (23.82)	.120 (3.05)	.062 (1.58)	.5625-24	.633 (16.08)	.812 (20.62)	.345 (8.76)
12	.609 (15.47)	.945 (24.00)	.539 (13.69)	.860 (21.84)	.812 (20.62)	1.031 (26.19)	.120 (3.05)	.062 (1.58)	.6875-24	.802 (20.37)	.812 (20.62)	.345 (8.76)
14	.609 (15.47)	.945 (24.00)	.539 (13.69)	.860 (21.84)	.906 (23.01)	1.125 (28.57)	.120 (3.05)	.062 (1.58)	.8125-20	.927 (23.54)	.812 (20.62)	.345 (8.76)
16	.609 (15.47)	.945 (24.00)	.539 (13.69)	.860 (21.84)	.969 (24.61)	1.219 (30.96)	.120 (3.05)	.062 (1.58)	.9375-20	1.052 (26.72)	.812 (20.62)	.345 (8.76)
18	.609 (15.47)	.945 (24.00)	.539 (13.69)	.860 (21.84)	1.062 (26.97)	1.312 (33.32)	.120 (3.05)	.062 (1.58)	1.0625-18	1.177 (29.89)	.812 (20.62)	.345 (8.76)
20	.609 (15.47)	.945 (24.00)	.539 (13.69)	.860 (21.84)	1.156 (29.36)	1.438 (36.52)	.120 (3.05)	.062 (1.58)	1.1875-18	1.302. (33.07)	812 (20.62)	.345 (8.76)
22	.609 (15.47)	.945 (24.00)	.539 (13.69)	.860 (21.84)	1.250 (31.75)	1.562 (39.67)	.120 (3.05)	.062 (1.58)	1.3125-18	1.427 (36.25)	.812 (20.62)	.345 (8.76)
24	.750 (19.05)	1.085 (27.55)	.493 (11.15)	1.000 (25.4)	1.375 (34.92)	1.688 (42.87)	.147 (3.73)	.078 (1.98)	1.4375-18	1.552 (39.42)	.781 (19.84)	.452 (11.48)

SJTP02RE





Shell Size	F +.000/-.005 (+.00/-.01)	K +.006/-.000 (+.15/-.00)	M +.000/-.005 (+.00/-.04)	R (TP)	S +.011/-.010 (±.04/-.04)	T +.005/-.005 (+.01/-.01)	Z +.031/ -.031 (+.07/-.07)	P Diameter +.001/-.005 (+.00/-0.01)	KK Diameter +.005/-.002 (+0.01/-0.00)	G Max.
8	.609 (15.47)	.945 (24.00)	.860 (21.84)	.594 (15.09)	.812 (20.62)	.120 (3.05)	.062 (1.58)	.516 (13.11)	.417 (10.59)	.345 (8.76)
10	.609 (15.47)	.945 (24.00)	.860 (21.84)	.719 (18.26)	.938 (23.82)	.120 (3.05)	.062 (1.58)	.633 (16.08)	.538 (13.66)	.345 (8.76)
12	.609 (15.47)	.945 (24.00)	.860 (21.84)	.812 (20.62)	1.031 (26.19)	.120 (3.05)	.062 (1.58)	.802 (20.37)	.663 (16.84)	.345 (8.76)
14	.609 (15.47)	.945 (24.00)	.860 (21.84)	.906 (23.01)	1.125 (28.57)	.120 (3.05)	.062 (1.58)	.927 (23.54)	.787 (19.99)	.345 (8.76)
16	.609 (15.47)	.945 (24.00)	.860 (21.84)	.969 (24.61)	1.219 (30.96)	.120 (3.05)	.062 (1.58)	1.052 (26.72)	.912 (23.16)	.345 (8.76)
18	.609 (15.47)	.945 (24.00)	.860 (21.84)	1.062 (26.97)	1.312 (33.32)	.120 (3.05)	.062 (1.58)	1.177 (29.89)	1.030 (26.16)	.345 (8.76)
20	.609 (15.47)	.945 (24.00)	.860 (21.84)	1.156 (29.36)	1.438 (36.52)	.120 (3.05)	.062 (1.58)	1.302 (33.07)	1.154 (29.31)	.345 (8.76)
22	.609 (15.47)	.945 (24.00)	.860 (21.84)	1.250 (31.75)	1.562 (39.67)	.120 (3.05)	.062 (1.58)	1.427 (36.25)	1.279 (32.49)	.345 (8.76)
24	.750 (19.05)	1.085 (27.55)	1.000 (25.4)	1.375 (34.92)	1.688 (42.87)	.147 (3.73)	.078 (1.98)	1.552 (39.42)	1.404 (35.66)	.452 (11.48)

All dimensions in inches (millimeters in parenthesis)

RECEPTACLES

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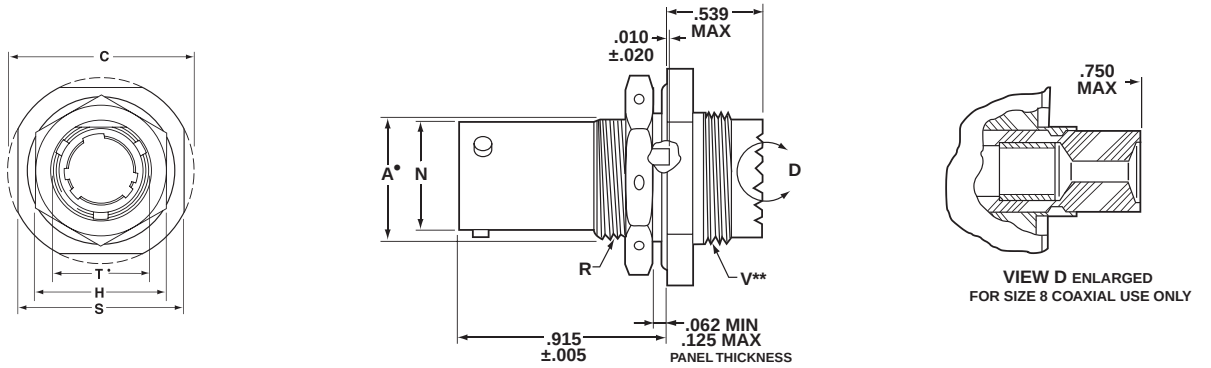
JN1003A

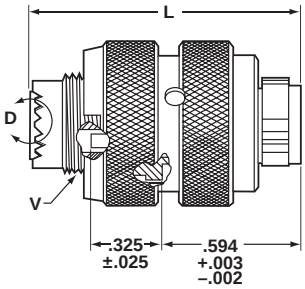


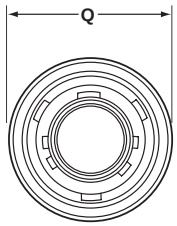
SHELL SIZE	C MAX.	A +.001/-.010 (+0.00/-0.25)	H HEX. +.017/-.016 (+0.43/-0.41)	S +.016/-.016 (+0.41/-0.41)	T +.010/-.000 (+0.25/-0.00)	V THREAD CLASS 2A (PLATED UNEF)	R THREAD CLASS 2A (PLATED UNEF)	N +.001/ -.005 (+.000/-0.01)
8	1.078 (27.38)	.542 (13.77)	.750 (19.05)	.938 (23.82)	.572 (14.52)	.5625-24	.5625-24	.473 (12.61)
10	1.203 (30.56)	.669 (16.92)	.875 (22.22)	1.062 (26.97)	.697 (17.70)	.6875-24	.6875-24	.590 (14.99)
12	1.391 (35.33)	.830 (21.08)	1.062 (26.97)	1.250 (31.75)	.884 (22.45)	.8125-20	.8750-20	.750 (19.05)
14	1.515 (38.48)	.955 (24.26)	1.188 (30.17)	1.375 (34.92)	1.007 (25.58)	.9375-20	1.0000-20	.875 (22.22)
16	1.641 (41.68)	1.084 (27.53)	1.312 (33.32)	1.500 (38.10)	1.134 (28.80)	1.0625-18	1.1250-18	1.00 (25.40)
18	1.766 (44.86)	1.208 (30.68)	1.438 (36.52)	1.625 (41.27)	1.259 (31.98)	1.1875-18	1.2500-18	1.125 (28.57)
20	1.953 (49.61)	1.333 (33.86)	1.562 (39.67)	1.812 (46.02)	1.384 (35.15)	1.3125-18	1.3750-18	1.250 (31.75)
22	2.078 (52.78)	1.459 (37.06)	1.688 (42.87)	1.938 (49.22)	1.507 (38.28)	1.4375-18	1.5000-18	1.375 (34.92)
24	2.203 (55.96)	1.580 (46.13)	1.812 (46.62)	2.062 (52.37)	1.634 (41.50)	1.4375-18	1.6250-18	1.500 (38.10)

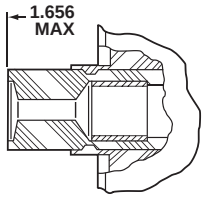
All dimensions in inches (millimeters in parenthesis)

PLUGS

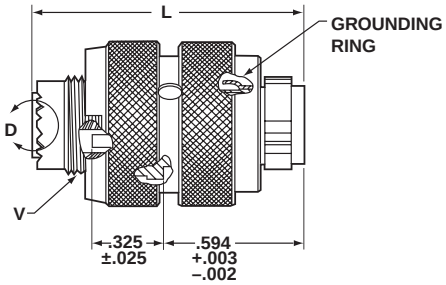
SJT06RT
SJTG06RT
JN1003FG







VIEW D ENLARGED
FOR SIZE 8 COAXIAL USE ONLY



SHELL SIZE	L MAX.	Q MAX.	V THREAD	
			CLASS 2A (PLATED UNEF)	MODIFIED MAJOR DIAMETER
8	1.219 (30.96)	.734 (18.64)	.4375-28	.412 - .417
10	1.219 (30.96)	.844 (21.44)	.5625-24	.542 - .538
12	1.219 (30.96)	1.016 (25.81)	.6875-24	.667 - .663
14	1.219 (30.96)	1.141 (28.98)	.8125-20	.791 - .787
16	1.219 (30.96)	1.265 (32.13)	.9375-20	.916 - .912
18	1.219 (30.96)	1.391 (35.33)	1.0625-18	1.034 - 1.030
20	1.219 (30.96)	1.500 (38.10)	1.1875-18	1.158 - 1.154
22	1.219 (30.96)	1.625 (41.28)	1.3125-18	1.283 - 1.279
24	1.258 (31.95)	1.750 (44.45)	1.4375-18	1.408 - 1.404

All dimensions in inches (millimeters in parenthesis)

ACCESSORIES

Cord Length
Varies by Shell Size

Cord Length
Varies by Shell Size

Chain Length
7.00 (177.80) Approx.

SJT SHELL SIZE	DUMMY RECEPTACLES	RECEPTACLE DUST CAPS			PLUG DUST CAPS	
		FOR FLANGED	FOR JAM NUT	NO CHAIN	WITH CHAIN	NO CHAIN
8	10-476807-08†	10-431918-08†	10-432984-08†	10-325943-08†	10-476810-08†	10-476801-08†
10	10-467807-10†	10-431918-10†	10-432984-10†	10-325943-10†	10-476810-10†	10-476801-10†
12	10-467807-12†	10-431918-12†	10-432984-12†	10-325943-12†	10-476810-12†	10-476801-12†
14	10-467807-14†	10-431918-14†	10-432984-14†	10-325943-14†	10-476810-14†	10-476801-14†
16	10-467807-16†	10-431918-16†	10-432984-16†	10-325943-16†	10-476810-16†	10-476801-16†
18	10-467807-18†	10-431918-18†	10-432984-18†	10-325943-18†	10-476810-18†	10-476801-18†
20	10-467807-20†	10-431918-20†	10-432984-20†	10-325943-20†	10-476810-20†	10-476801-20†
22	10-467807-22†	10-431918-22†	10-432984-22†	10-325943-22†	10-476810-22†	10-476801-22†
24	10-467807-24†	10-431918-24†	10-432984-24†	10-325943-24†	10-476810-24†	10-476801-24†

† Select code for plating

FINISH	SUFFIX
Anodic coating (005)	-XX5
Cadmium plate nickel base (default)	-XX7
Olive drab, cadmium, nickel base (014)	-XX9
Electroless nickel (023)	-XXG

Straight

Right Angle

SJT SHELL SIZE	ENDBELLS STRAIGHT	CABLE RANGE RIGHT ANGLE	MIN.	MAX.
8	M85049/49-2-8**	M85049/47**8	.098 (2.49)	.234 (5.94)
10	M85049/49-2-10**	M85049/47**10	.153 (3.89)	.234 (5.94)
12	M85049/49-2-12**	M85049/47**12	.190 (4.83)	.328 (8.33)
14	M85049/49-2-14**	M85049/47**14	.260 (6.60)	.457 (11.61)
16	M85049/49-2-16**	M85049/47**16	.283 (7.19)	.614 (15.60)
18	M85049/49-2-18**	M85049/47**18	.325 (8.25)	.634 (16.10)
20	M85049/49-2-20**	M85049/47**20	.343 (8.71)	.698 (17.73)
22	M85049/49-2-22**	M85049/47**22	.381 (9.68)	.823 (20.90)
24	M85049/49-2-24**	M85049/47**24	.418 (10.62)	.853 (21.67)

** Select code for connector plating
W = Olive Drab Chromate over Cadmium over Nickel (1000-hour Salt Spray)
N = Electroless Nickel (Fluid-resistant)
S = 300-series Steel, Passivated

All dimensions in inches (millimeters in parenthesis)

Straight

Right Angle

SJT SHELL SIZE	ENDBELLS STRAIGHT	CABLE RANGE RIGHT ANGLE	MIN.	MAX.
8	M85049/49-2S8**	M85049/47S**8	.098 (2.49)	.234 (5.94)
10	M85049/49-2S10**	M85049/47S**10	.153 (3.89)	.234 (5.94)
12	M85049/49-2S12**	M85049/47S**12	.190 (4.83)	.328 (8.33)
14	M85049/49-2S14**	M85049/47S**14	.260 (6.60)	.457 (11.61)
16	M85049/49-2S16**	M85049/47S**16	.283 (7.19)	.614 (15.60)
18	M85049/49-2S18**	M85049/47S**18	.325 (8.25)	.634 (16.10)
20	M85049/49-2S20**	M85049/47S**20	.343 (8.71)	.698 (17.73)
22	M85049/49-2S22**	M85049/47S**22	.381 (9.68)	.823 (20.90)
24	M85049/49-2S24**	M85049/47S**24	.418 (10.62)	.853 (21.67)

** Select code for connector plating
W = Olive Drab Chromate over Cadmium over Nickel (1000-hour Salt Spray)
N = Electroless Nickel (Fluid-resistant)
S = 300-series Steel, Passivated

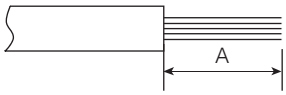
	SEALED	EMI/RFI	S = STRAIGHT A = 90° B = 45°	ORIENTATION	DESCRIPTION
M85049/62	Y	N	S	Heat Shrink Boot Adapters	Designed for use with straight or right angle shrink boots. A knurled rear section with a boot groove provides an excellent surface for the boot to grab the metal endbell. Available with lock wire and drain holes. See Heat Shrink Boots on pages 367-368.
M85049/33 M85049/32	N	Y	S A	Shield-Termination Back Shell	Non-environmental designed for use with jacketed cable. Allow extra space to break out the wires and still provide stain relief clamping to the outside of the cable jacket.
M85049/17	Y	Y	S	Extender Back Shell	This EMI/RFI-shielding, environmentally-sealed endbell features a standard-style cable clamp with gland seal at the end of an extender-style backshell.
M85049/29	N	N	S	Extender Back Shell	This EMI/RFI-shielding, non-environmentally-sealed endbell features a standard-style cable clamp.
Banding M85049/85 M85049/86 M85049/87	Y	Y	 S B A	Banding Adapter	Banding adapters utilize a band of metal that fastens and grounds cable shields to the outside of endbells. This method of terminating shields has advantages in that they typically use tools to tighten and trim the bands. These tools make the termination tight, repeatable, reworkable (if you make a mistake, just cut the band off and start again) and facilitates service. Banding adapters help lower the total applied cost by having simpler designs that have fewer parts with uncomplicated assembly procedures.
Custom	-	-	SAB	Custom Designs Contact us	If the military-standard endbells don't fit your needs, contact us and we will customize an endbell solution. Most of these customized endbells are typically assembled in 4-8 weeks or sooner!
M85049/27	N	N	S	E-Nut	Wire seal compression nut

All dimensions in inches (millimeters in parenthesis)

ASSEMBLY INSTRUCTIONS

WIRE STRIPPING

Strip insulation from end of wire to be crimped. (See table for proper stripping dimensions.) Do not cut or damage wire strands.



WIRE SIZE	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
10	.335 (8.51)
8 (power)	.470 (11.99)

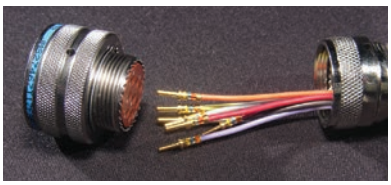
CONTACT CRIMPING

STEP 1: Insert wire into rear of contact. Wire insulation must press against rear of contact. Wire must be visible through inspection hole.

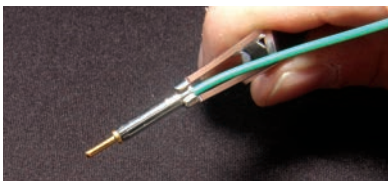
STEP 2: M22520 series crimp tool and locator is recommended. See Contact and Tool Table on pages 264 and 265 for choice of turret head and selection setting according to contact size, part number and wire gauge size.

STEP 3: Insert contact and wire into tool jaws. To crimp, squeeze handles together fully until ratchet releases and allows handles to expand; otherwise, contact cannot be extracted from tool jaws. Maintain slight insertion pressure on wire while crimping contact to wire.

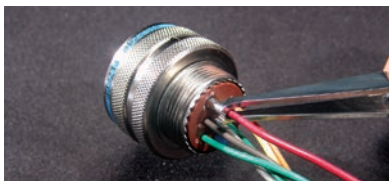
CONTACT INSERTION



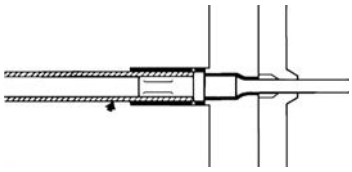
STEP 1: Remove hardware from plug or receptacle and slip over wire bundle in proper order for reassembly.



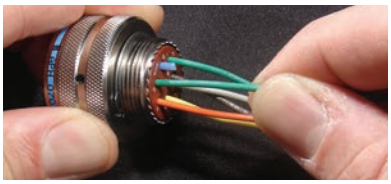
STEP 2: Using proper plastic or metal insertion tool for corresponding contact, position wire in tip of the tool so that the tool tip presses against the contact shoulder.



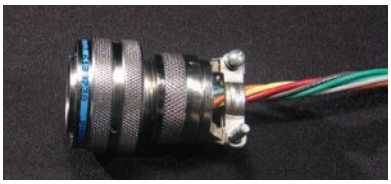
STEP 3: Press tool against contact shoulder and, with firm and even pressure, insert wired contact and tool tip into center contact cavity.



STEP 4: When contact bottoms, a slight "click" can be heard as tines of metal retaining clip snap into place behind contact shoulder.

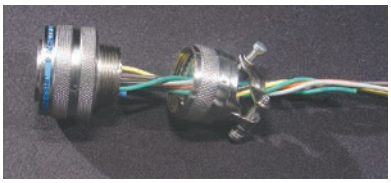


STEP 5: Remove tool and pull back lightly on wire to make sure contact is properly seated. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.

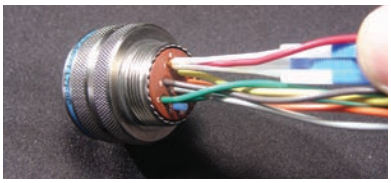


STEP 6: After all contacts are inserted, fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

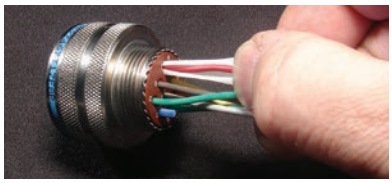
CONTACT EXTRACTION



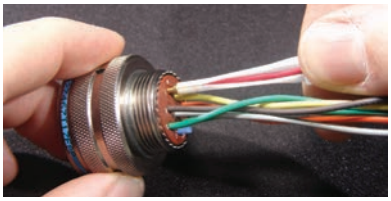
STEP 1: Remove hardware from plug or receptacle and slide hardware back along wire bundle.



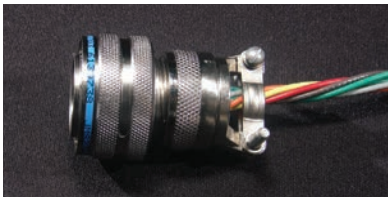
STEP 2: Using plastic or metal extraction tool with proper color code corresponding to contact size, place wire in tool.



STEP 3: Insert tool into contact cavity until tool tip bottoms against the contact shoulder, expanding clip retaining tines.



STEP 4: Hold wire firmly in tool and extract wired contact and tool. Repeat operation for all contacts to be extracted.



STEP 5: Fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

Note: LJT series shown.

Amphenol Amphe-EX Explosion-proof Series

EXCLUSIVE WORLDWIDE ASSEMBLER OF AMPHE-EX CIRCULAR CONNECTORS

Amphenol Industrial's explosion-proof connector series Amphe-EX is ATEX and IECex-approved for Zone 1-rated (Europe) and Class I, Division II (USA) hazardous applications (IECex 60079). Amphe-EX is the only explosion-proof connector that allows the use of copper, coax and fibre optic contacts in one product. PEI-Genesis is the only approved worldwide assembling distributor.

- Complements Amphenol Star-Line EX connectors
- Meets IECex 60079

APPLICATIONS

- Chemical manufacturing
- Petrochemical refineries
- Pharmaceutical manufacturing
- Land and offshore drill rigs
- Flour and sugar refining
- Aircraft fuelling pods

All areas where the risk of an explosion exists.

FEATURES

MATERIAL

The shells are machined from high-tensile strength aluminum and plated with a hard anodic coating or stainless steel to withstand the most extreme environments.

CONTACT TYPES

There are many sizes and types with different contact configurations that can be used on this connector series. Insert patterns ranging from 2 to 79 contacts include RF, fibre optic, and coaxial.

MATING SYSTEM

The Double-Lead Acme threaded coupling systems ensure a positive mating which allows for self-cleaning mating action and does not clog with ice, mud, snow, or sand. Inserts are compatible with the D38999 series III layouts up to shell size 21.

KEYING

Additional keying of the shells ensures that mis-mating of similar connectors does not occur in explosive environments.

PHYSICAL SIZE

Smaller interface than most heavy-duty, hazardous-rated connectors.

EASE OF ASSEMBLY

Conductors are easily terminated to the contacts with ample space to slip cable housing over conductors to eliminate seating of inserts and cumbersome handling.

ACCOMODATION OF VARIOUS CABLE TYPES

The cable gland terminations allow for the use of various types of cable in the construction such as unarmored, armored, and sheathed cable. Flexible cables such as SOOW-A,W, G-GC and DLO can also be used.

APPROVALS

ATEX for Zone 1-IIC, IECex,AEX and Centelec IP68-rated.

TECHNICAL SPECIFICATIONS

MATERIALS AND FINISHES

Shell & Plating	Aluminum alloy, alloy (black hardcoat), or stainless steel (1.4404, AISI 316L)
Contacts	Copper alloy
Plating	Gold-plated, 50 microinches per MIL-G-45204 type II, grade C, class I
Insulator	Hard, dielectric wafer which contains tines for high-reliability retention of crimp contacts
Grommet & Seals	Silicone-based elastomer

ELECTRICAL DATA

Contact Sizes: 22D, 20, 16, 12, and 8

Operating Voltage & Test Voltage

TEST VOLTAGES	SERVICE RATING			
	N	M	I	II
Sea Level	1000	1300	1800	2300
100,000 Feet	200	200	200	200

Current Rating by Contact Size and Wire Accommodation (Test Amps) (Unmated Condition)

WIRE SIZE	22D	20	16	12	10	8
28	1.5	-	-	-	-	-
26	2.0	-	-	-	-	-
24	3.0	3.0	-	-	-	-
22	5.0	5.0	-	-	-	-
20	-	7.5	7.5	-	-	-
18	-	-	10.0	-	-	-
16	-	-	13.0	-	-	-
14	-	-	-	17.0	-	-
12	-	-	-	23.0	-	-
8 (power)	-	-	-	-	-	46

Contact Resistance of Mated Contacts End-to-End

CONTACT SIZE	MAXIMUM MILLIVOLT DROP
22D	73
20	55
16	49
12	42
8 (power)	26

Insulation Resistance: 5,000 megohms minimum

MECHANICAL

Operating Temperature: -20°C to + 55°C (-4°F to +131°F)

Sealing: Against sand, dust per MIL-STD-202 & ice resistance

Wire Sealing Range

CONTACT SIZE	MIN inches	MAX inches	MIN mm	MAX mm
22D	0.030	0.054	0.76	1.37
20	0.040	0.083	1.02	2.11
16	0.065	0.109	1.65	2.77
12	0.097	0.142	2.46	3.61
8 (power)	0.135	0.155	3.43	3.94

TECHNICAL SPECIFICATIONS

Insulation Strip Length

CONTACT SIZE	STRIP LENGTH
22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
8 (power)	.470 (11.94)

All dimensions in inches (millimeters in parenthesis)

Mating Life	500 cycles minimum
Salt Spray	48-hour salt spray
Temperature Durability	-20°C + 40°C ambient (-4°F to +104°F)
Contact Type	Crimp
Number of Circuits	2 to 79
Contact Insertion	Rear-insertion/rear-extraction with simple plastic or high-quality metal hand tools.

Contact Retention

CONTACT	AXIAL LOAD NEWTONS ±10%	AXIAL LOAD POUNDS ±10%
22D	44	10
20	67	15
16	111	25
12	111	25
8 (power)	111	25

Polarization	Five keyways with optional master keyway rotations (Note insert and main keyways remain fixed)

Approvals

EEx dIIC T6 / Ex tD A21 IP68 (Plug and Receptacles)
EEx de IIC T6 / Ex tD A21 IP68 (Panel mount receptacles filled with cement)
Sira 07ATEX1229X

RJ45 AMPHE-EX

BOX MOUNT RECEPTACLES WITH POTTING ADAPTER

EXM-A02-19-RJF-00
RJ45 to PCB
EXM-A02-19-RJF-01
RJ45 to RJ45

IN-LINE RECEPTACLE WITH EEX D GLAND

EXM-A01-19-RJF-00A2
RJ45 to PCB
EXM-A01-19-RJF-01A2
RJ45 to RJ45
Cable range – .283 to .460 in (7.2 to 11.7mm)
Other sizes available

Mates with

CABLE PLUG EEX D GLAND

EXM-A06-19-RJ2-03A2
Cable range – .283 to .460 in (7.2 to 11.7mm)

CREATE YOUR PART NUMBER

1	2	3	4	5	6	7	8
EXM-	A	06-	9-35	P	A1	-01	-BS
PREFIX	**MATERIAL**	**SHELL STYLE**	**LAYOUT**	**CONTACT**	**CABLE GLAND**	**POLARIZATION** (OMIT FOR NORMAL)	**MODIFIER** CONTACT US FOR DETAILS

STEP 1: SELECT MATERIAL

A = Aluminum Alloy Black Hardcoat

S = Stainless Steel

STEP 2: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → **PLUGS**

02
Panel Mount Receptacle
(Cable glands mot available)

01
In-Line Receptacle

06
Cable Plug

STEP 3: SELECT LAYOUT

For listing by # of contacts, see pages 280-281.

INSERT ARRANGEMENT NUMBER	SERVICE RATING	TOTAL NUMBER OF CONTACTS	22D	20	16	12	8
9-5	Grounded	1					1
9-35	M	6	6				
9-94	M	2		2			
9-98	I	3		3			
11-2	I	2			2		
11-4	I	4		4			
11-5	I	5		5			
11-35	M	13	13				
11-54	II	4	4				
11-98	I	6		6			
11-99	I	7		7			
13-4	I	4			4		
13-8	I	8		8			
13-13	I, Fibre Optic	4			2	2	
13-35	M	22	22				
13-98	I	10		10			
15-4	I	4				4	
15-5	II	5			5		
15-15	I	15		14	1		
15-18	I	18		18			
15-19	I	19		19			
15-35	M	37	37				
15-97	I	12		8	4		
17-2	M	39	38				1
17-6	I	6				6	
17-8	II	8			8		
17-22	Coax	4				2	2*
17-26	I	26		26			
17-35	M	55	55				
17-60	I, Coax	10	8				2*
17-99	I	23		21	2		
19-AD	I	17			16		1
19-11	II	11			11		
19-18	M	18	14				4**
19-28	I	28		26	2		
19-31	M	15	12			1	2*
19-32	I	32		32			
19-35	M	66	66				
19-68	I	18				18	
21-11	I	11				11	
21-16	II	16			16		
21-29	I	27		19	4	4	
21-35	M	79	79				
21-39	I	39		37	2		
21-41	I	41		41			
21-75	M	4					4*
21-79	II	19	17				2*

* COAX ** TWINAX

All dimensions in inches (millimeters in parenthesis)

STEP 4: SELECT CONTACT

P = Pin **S** = Socket

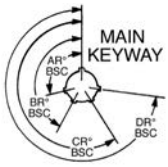
STEP 5: SELECT GLAND SIZE

Shell Size	EEx d Cable MAX Gland Size Code	Unarmored Cable No Modification Needed		Armored & Sheathed Cable -BS	
		Min.	Max.	Min.	Max.
9/11	A1	.1575 (4.0)	.3307 (8.4)	.3543 (9.0)	.5315 (13.5)
13	A2	.2835 (7.2)	.4606 (11.7)	.4528 (11.5)	.6299 (16.0)
13	A	.3780 (9.6)	.5512 (14.0)	.6102 (15.5)	.8307 (21.1)
15/17	B	.5315 (13.5)	.7874 (20.0)	.7992 (20.3)	1.079 (27.4)
19/21	C	.7677 (19.5)	1.035 (26.3)	1.051 (26.7)	1.339 (34.0)

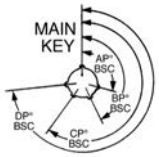
STEP 6: SELECT POLARIZATION

N = Normal Standard
01 = Highly-Popular
02 = Check for Availability
03 = Check for Availability
04 = Check for Availability

A plug with a given polarization letter will mate with a receptacle with the same polarization letter. The angles for a given connector are the same whether it contains pins or sockets. Inserts are not rotated in conjunction with the master keyway.



Receptacle Front face shown.



Plug Front face shown.

Shell Size	Key & Keyway Arrangement Identification	ARo or APo BSC	BRo or BPo BSC	CRo or CPo BSC	DRo or DPo BSC
Shells 9 & 11	N	95	141	208	236
	01		156	182	292
	02		145	195	252
	03		156	220	255
	04	80	146	234	298
	05		141	184	242
Shells 13 & 15	N	80	142	196	293
	01		170	200	310
	02		169	200	244
	03		140	200	257
	04		145	176	280
	05		153	180	272
Shells 17, 19, 21	N	80	142	196	273
	01		170	200	310
	02		169	200	244
	03		140	200	257
	04		145	180	280
	05		153	197	272

STEP 7: SELECT MODIFIER

-BS = Armored Cable & Sheathed Cable
Other sizes available. Contact us for details.

LAYOUT BY NUMBER OF CONTACTS

View of Mating-Face of Pin Insert

22D 20 16 12 10 8

CONTACTS	1	2		3	4			
LAYOUT # OF CONTACTS SERVICE RATING	**9-5** 1-#8 Grounded	**9-94** 2-#20 M	**11-2** 2-#16 I	**9-98** 3-#20 I	**11-4** 4-#20 I	**11-54** 4-#22D II	**13-4** 4-#16 I	**13-13** 2-#16, 2-#12 I, Fiber Optic

CONTACTS	4			5		6	
LAYOUT # OF CONTACTS SERVICE RATING	**15-4** 4-#12 I	**17-22** 2-#12, 2-#8 COAX	**21-75** 4-#8 M	**11-5** 5-#20 I	**15-5** 5-#16 II	**9-35** 6-#22D M	**11-98** 6-#20 I

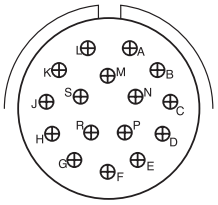
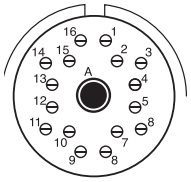
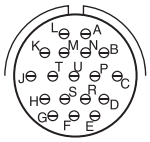
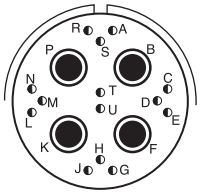
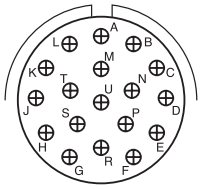
CONTACTS	6	7	8		10	
LAYOUT # OF CONTACTS SERVICE RATING	**17-6** 6-#12 I	**11-99** 7-#20 I	**13-8** 8-#16 I	**17-8** 8-#16 II	**13-98** 10-#20 I	**17-60** 8-#22D, 2-#8 I, COAX

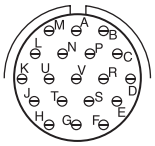
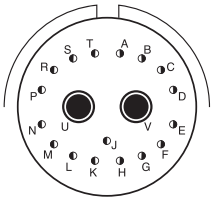
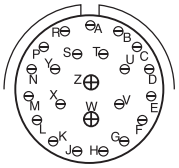
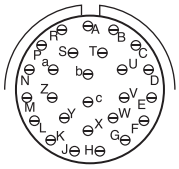
CONTACTS	11		12	13	15	
LAYOUT # OF CONTACTS SERVICE RATING	**19-11** 11-#16 II	**21-11** 11-#12 I	**15-97** 8-#20, 4-#16 I	**11-35** 13-#22D M	**15-15** 14-#20,1-#16 I	**19-31** 12-#22D, 1-#12, 2-#8 M

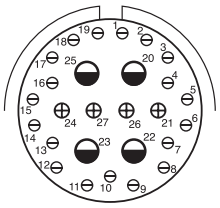
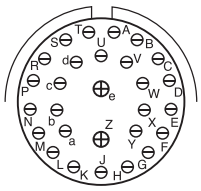
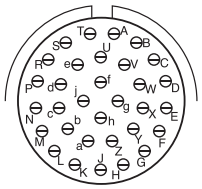
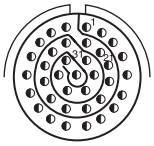
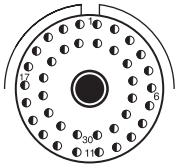
LAYOUT BY NUMBER OF CONTACTS

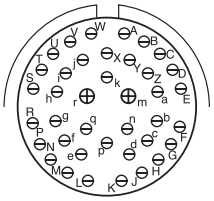
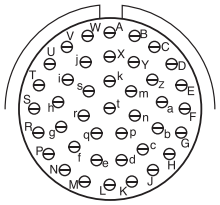
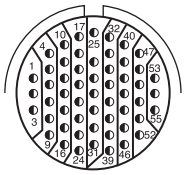
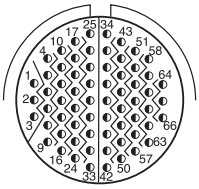
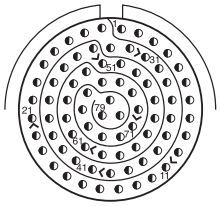
View of Mating-Face of Pin Insert

22D 20 16 12 10 8

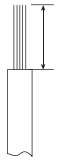
CONTACTS	16	17	18		
					
LAYOUT	**21-16**	**19-AD**	**15-18**	**19-18**	**19-68**
# OF CONTACTS	16-#16	16-#16,1-#8	18-#20	14-#22D, 4-#8	18-#16
SERVICE RATING	II	I	I	M	I

CONTACTS	19		22	23	26
					
LAYOUT	**15-19**	**21-79**	**13-35**	**17-99**	**17-26**
# OF CONTACTS	19-#20	17-#22D, 2-#8	22-#22D	21-#20, 2-#16	26-#20
SERVICE RATING	I	II	M	I	M

CONTACTS	27	28	32	37	39
					
LAYOUT	**21-29**	**19-28**	**19-32**	**15-35**	**17-2**
# OF CONTACTS	19-#20, 4-#16, 4-#10	26-#20, 2-#16	32-#20	37-#22D	38-#22D, 1-#8
SERVICE RATING	I	I	I	M	M

CONTACTS	39	41	55	66	79
					
LAYOUT	**21-39**	**21-41**	**17-35**	**19-35**	**21-35**
# OF CONTACTS	37-#20, 2-#16	41-#20	55-#22D	66-#22D	79-#22D
SERVICE RATING	I	I	M	M	M

PINS

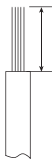


Insert head first, trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS			WIRE STRIP LENGTHS	WIRE RANGE		WIRE HOLE FILLER	COLOR
			1	2	3		MIN.	MAX.		
22D	22,24,26 & 28	M39029/58-360	Orange	Blue	Black	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
20	20,22 & 24	M39029/58-363	Orange	Blue	Orange	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16	16,18 & 20	M39029/58-364	Orange	Blue	Yellow	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
12	12 & 14	M39029/58-365	Orange	Blue	Green	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
8 Power	8	10-497448-075	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8 Power	10	10-497448-095	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red

For fibre optic (MIL-T-29504/4 for size 16 contacts) or thermocouple contacts, please contact us.

SOCKETS



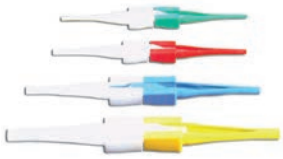
Insert head first, trim excess

CONTACT SIZE	WIRE SIZE AWG	PIN CONTACT PART NUMBER	COLOR BANDS			WIRE STRIP LENGTHS	WIRE RANGE		WIRE HOLE FILLER	COLOR
			1	2	3		MIN.	MAX.		
22D	22,24,26 & 28	M39029/58-360	Orange	Blue	Black	.125 (3.18)	.030 (0.76)	.054 (1.37)	MS27488-22-2	Black
20	20,22 & 24	M39029/58-363	Orange	Blue	Orange	.188 (4.77)	.040 (1.02)	.083 (2.11)	MS27488-20-2	Red
16	16,18 & 20	M39029/58-364	Orange	Blue	Yellow	.188 (4.77)	.065 (1.65)	.109 (2.77)	MS27488-16-2	Blue
12	12 & 14	M39029/58-365	Orange	Blue	Green	.188 (4.77)	.097 (2.46)	.142 (3.61)	MS27488-12-2	Yellow
8 Power	8	10-497448-075	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red
8 Power	10	10-497448-095	-	-	-	.470 (11.94)	.135 (3.42)	.162 (4.12)	MS27488-8-3	Red

For fibre optic (MIL-T-29504/4 for size 16 contacts) or thermocouple contacts, please contact us.

All dimensions in inches (millimeters in parenthesis)

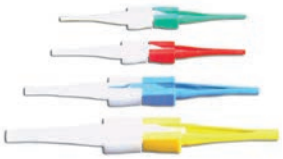
PINS



Contact Size	Hand-Crimp Tool	Power-Crimp Tool	Turret Heads	Use Locator Color	Plastic Insertion/ Extraction Tool	Insertion Tip Color	Extraction Tip Color	Metal Insertion Tool	Color Band	Metal Extraction Tool	Color Band	
22D	M22520/2-01	WA22††	M22520/2-09	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Blue	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	-	DRK95-12B	-	-
8 8 AWG Power	-	400B-1	414DA-8N (die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-
8 10 AWG Power	M3SP-6	400B-1	414DA-10N (die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-

†† Contact us for more tool accessories.

SOCKETS



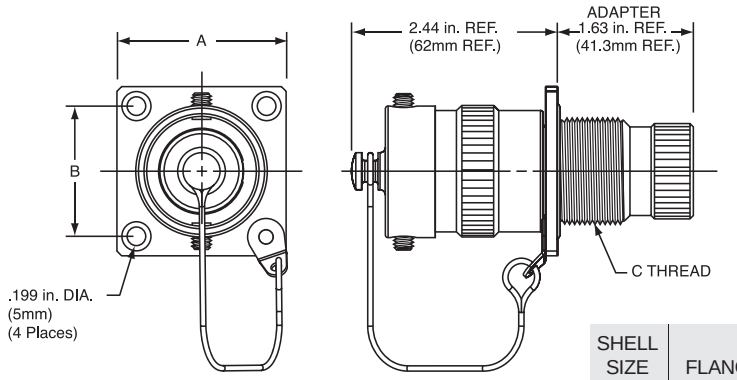
Contact Size	Hand-Crimp Tool	Power-Crimp Tool	Turret Heads	Use Locator Color	Plastic Insertion/ Extraction Tool	Insertion Tip Color	Extraction Tip Color	Metal Insertion Tool	Color Band	Metal Extraction Tool	Color Band	
22D	M22520/2-01	WA22††	M22520/2-07	-	M81969/14-01	Green	White	MS27495A22M	Black	MS27495R22M	Black	White
20	M22520/1-01	WA27F††	M22520/1-04	Red	M81969/14-10	Red	Orange	MS27495A20	Red	MS27495R20	Red	White
16	M22520/1-01	WA27F††	M22520/1-04	Blue	M81969/14-03	Blue	White	MS27495A16	Blue	MS27495R16	Blue	White
12	M22520/1-01	WA27F††	M22520/1-04	Yellow	M81969/14-04	Yellow	White	DAK95-12B	-	DRK95-12B	-	-
8 8 AWG Power	-	400B-1	414DA-8N (die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-
8 10 AWG Power	M3SP-6	400B-1	414DA-10N (die) 4691 (positioner)	-	M81969/14-12 (extraction only)	-	Green	-	-	DRK264-8	-	-

†† Contact us for more tool accessories.

All dimensions in inches (millimeters in parenthesis)

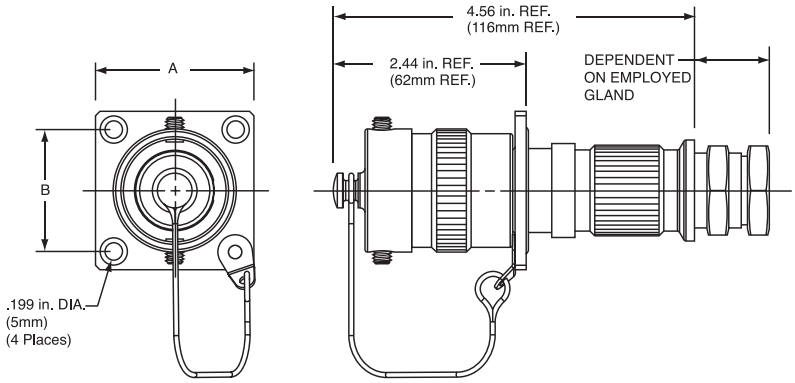
RECEPTACLE

EXM-A02 - BOX MOUNT RECEPTACLE



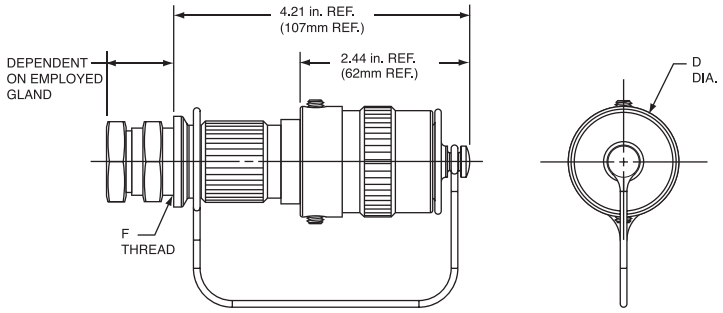
SHELL SIZE	A FLANGE DIM.	B MOUNTING DIM.	C-THREAD ADAPTER PG TYPE
9	1.772 (45.0)	1.299 (33.0)	(M25)
11	1.772 (45.0)	1.299 (33.0)	(M25)
13	2.008 (51.0)	1.535 (39.0)	(M32)
15	2.008 (51.0)	1.535 (39.0)	(M32)
17	2.126 (54.0)	1.693 (43.0)	(M40)
19	2.126 (54.0)	1.693 (43.0)	(M40)
21	2.126 (54.0)	1.693 (43.0)	(M40)

EXM-A01 - IN-LINE RECEPTACLE



SHELL SIZE	A FLANGE DIM.	B MOUNTING DIM.
9	1.772 (45.0)	1.299 (33.0)
11	1.772 (45.0)	1.299 (33.0)
13	2.008 (51.0)	1.535 (39.0)
15	2.008 (51.0)	1.535 (39.0)
17	2.126 (54.0)	1.693 (43.0)
19	2.126 (54.0)	1.693 (43.0)
21	2.126 (54.0)	1.693 (43.0)

EXM-A06 - STRAIGHT PLUG

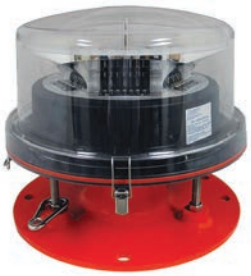


SHELL SIZE	D DIAMETER ±0.625 (1.5875)	F CABLE GLAND ENTRY THREAD (METRIC)
9	1.3125 (33.3375)	M16X1.5mm
11	1.4375 (36.5125)	M16X1.5mm
13	1.5625 (39.6875)	M20X1.5mm
15	1.6875 (42.8625)	M25X1.5mm
17	1.8175 (46.0375)	M25X1.5mm
19	1.9375 (49.2125)	M32X1.5mm
21	2.0625 (52.3875)	M32X1.5mm

All dimensions in inches (millimeters in parenthesis)

Dialight offers SafeSite LED signaling for hazardous locations. These products are rated Class I, Div 2, are ATEX Certified and IP65 / IP66 / NEMA 4X-rated. They last longer than incandescent, are resistant to shock and vibration, use less energy and have a weather/ corrosion-resistant lamp assembly and housing. The optically-designed lens is unique, enhancing LED operation and providing 360-degree visibility.

SAFESITE L-864 RED LED MEDIUM-INTENSITY BEACON



Class 1 Div 2 Beacon	D164-B13-001
ATEX 120/230 VAC Beacon	D264-D13-001

SAFESITE L-810 RED LED OBSTRUCTION LIGHTS

	CLASS 1, DIV 2		ATEX	
VOLTAGE	SINGLE-UNIT	DUAL-UNIT	SINGLE-UNIT	DUAL-UNIT
120VAC	860-2R01-001	860-2R01-002	860-9R01-001	860-9R01-002
230VAC	860-2R02-001	860-2R02-002	860-9R02-001	860-9R02-002

SAFESITE 860 SERIES LED STEADY-BURN VISUAL SIGNAL LIGHTS

CLASS 1, DIV 2 - SINGLE-UNIT					
VOLTAGE	RED	WHITE	GREEN	YELLOW	BLUE
120VAC	860-2R01-001	860-2W01-001	860-2G01-001	860-2Y01-001	860-2B01-001
230VAC	860-2R02-001	860-2W02-001	860-2G02-001	860-2Y02-001	860-2B02-001

CLASS 1, DIV 2 - DUAL-UNIT					
VOLTAGE	RED	WHITE	GREEN	YELLOW	BLUE
120VAC	860-2R01-002	860-2W01-002	860-2G01-002	860-2Y01-002	860-2B01-002
230VAC	860-2R02-002	860-2W02-002	860-2G02-002	860-2Y02-002	860-2B02-002

SAFESITE FLS SERIES LED FLASHING VISUAL SIGNAL LIGHTS

CLASS 1, DIV 2 - SINGLE-UNIT					
VOLTAGE	RED	WHITE	GREEN	YELLOW	BLUE
120VAC	FLS-2R01-001	FLS-2W01-001	FLS-2G01-001	FLS-2Y01-001	FLS-2B01-001
230VAC	FLS-2R02-001	FLS-2W02-001	FLS-2G02-001	FLS-2Y02-001	FLS-2B02-001

CLASS 1, DIV 2 -SINGLE UNIT				
RED	WHITE	GREEN	YELLOW	BLUE
FLS-2R01-001	FLS-2W01-001	FLS-2G01-001	FLS-2Y01-001	FLS-2B01-001

SAFESITE 860 SERIES LED VISUAL SIGNAL LIGHTS WITH FLAT BASE

CLASS 1, DIV 2 -SINGLE-UNIT 120VAC		
RED	YELLOW	BLUE
860-2R01-005	860-2Y01-005	860-2B01-005

SAFESITE FLS SERIES LED FLASHING SIGNAL LIGHTS WITH FLAT BASE JUNCTION BOX

CLASS 1, DIV 2 -SINGLE-UNIT 120VAC		
RED	YELLOW	BLUE
FLS-2R01-005	FLS-2Y01-005	FLS-2B01-005

ASSEMBLY INSTRUCTIONS

STEP 1: Read manufacturer's assembly instructions before assembling connectors. Use assembly instructions to identify the various component parts and to check for any missing parts.

STEP 2: Cut cable jacket and sheathing squarely and to correct length, using only approved wire strippers. In preparing the individual wires for assembly, leave allowances in length for reaching the outermost circle of contact cavities in the conductors. The insulation should be cut progressively longer as it extends out from the center of the cable or harness to ensure sufficient length.

STEP 3: Follow cable stripping lengths see page 288 for effective cable gland sealing. All conductors should be fit into contact wire wells correctly. A practice layout should be done.

STEP 4: Prior to starting termination of wires, it is essential to layout cables and harnesses in a specific order in accordance with the wiring diagram. Proper layout will eliminate the need for twisting and crossover of conductors. If the wiring layout is not correct, the termination operation will be difficult or even impossible and the chance of errors will increase. Cable and harness assemblies with a spiral layout must also be matched carefully to the correct contacts in both the male and female inserts.

STEP 5: Some cables will have a "basket weave" armor under the outer jacket (sheath) and over the inner jacket. Since many regulatory entities require that the armor be grounded at the source end, it is beneficial to ground the armor via a spare contact within the connector. Following the removal of a sufficient amount of outer jacket (see Table 1), an ample amount of armor can be clipped away, but not all. An adequate amount should remain so that a small cross-section conductor, short in length, can be woven into the remaining armor weave and either soldered or covered with mastic- impregnated heat shrink, creating an intimate bond to the armor. At the opposite end of the short piece of wire, a contact should be crimped and inserted into the insert.

STEP 6: Use only correctly-sized and provided Exd glands to ensure resistance to moisture and other contaminates.

STEP 7: Use only the proper crimping tools that have been set or calibrated with precision gauges.

STEP 8: Ensure that all contacts are the correct size before attempting to assemble in insert cavities. This is particularly important when both power and control contact types are used in the same connector.

STEP 9: Ensure that ground contacts are correctly located.

STEP 10: Seat all contacts properly so that they will not be damaged or become disengaged during connector mating operation.

STEP 11: Use only the proper insertion tools and ensure that they are aligned axially when pushing contact into their fully-seated position.

STEP 12: When the inserts have more cavities than the conductors, plug unused cavities with furnished contacts.

STEP 13:. After all terminated contacts are inserted in their respective cavities and inspected, the cable adapter or insert clamp nut should be tightened with a wrench. This assembly operation should be done by placing the components in a vise with smooth-faced jaws, using a strap wrench.

STEP 14:. When handling cables, use adequate support to prevent damage to the internal wires. Exd glands are intended for sealing purposes and should not be used as a cable grip.

STEP 15: If for any reason terminated conductors have to be removed from an insert because of an assembly error or change in circuitry, be sure to remove the cable gland or cable adapter first before extracting the contact and reinserting it.

STEP 16: If one of the connector poles is a ground wire, make sure that it is grounded properly before the connector actually is engaged.

STEP 17: When connectors with the same configuration are to be mounted closer together, different or alternate key arrangements should be used to prevent mismatching and possible damage to the electrical system.

STEP 18: Always inspect all parts of connector assembly operations before putting connector into operation.

STEP 19: Crimping and terminating of conductors to contacts must be done carefully. Make certain that all wire strands are fully bottomed in contact wells by checking through provided inspection hole.

STEP 20: Never attempt to straighten bent contacts. Straightening will not be done properly and the contact plating most likely will be marred. This will result in a high-resistance connection and will expose the base material to possible corrosion.

STEP 21: Potting of the connector where required should be the very last step prior to fastening the grommet and nut on the cable adapter. 'Ringing out' of the contacts with their mate should be done prior to potting.

STEP 22: It is recommended that all receptacles be potted while coupled to their mating connector.

STEP 23: Each assembly operator should also inspect. Worn, damaged, or defective tools should be reported immediately.

Assembly workmanship is a significant factor in the quality of terminating multiple-contact connectors. Quality cannot be "inspected" into connectors; it must be built-in during each assembly operation.

THE FOLLOWING INSTRUCTIONS APPLY TO EQUIPMENT COVERED BY CERTIFICATE NUMBER: SIRA 07ATEX1229X

The equipment may be used with flammable gases and vapors with apparatus group(s) IIA,IIB, & IIC and with temperature classes T6, T5, T4, T3, T2 & T1.

The equipment is only certified for use in ambient temperatures in the range -20°C to +40°C and should not be used outside this range.

THE PRODUCT COMPLIES WITH THE FOLLOWING STANDARDS:

EN 60079-0:2006	General requirements for electrical apparatus for explosive gas atmospheres
EN 60079-1:2007	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosures "d" (Plus Cor 1) (IEC 60079-1:2003)
EN 60079-7:2003	Electrical apparatus for explosive gas atmospheres - Part 7: Increased safety "e" (IEC 60079-7:2001)
EN 61241-0:2006	General requirements for electrical apparatus for use in the presence of combustible dust
EN 61241-1:2004	Electrical apparatus for use in the presence of combustible dust. Protection by enclosures "tD"

Installation shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. EN 60079- 14. It is the end user's responsibility to ensure that the product, as specified and confirmed by the product label, is suitable for its intended application.

Inspection and maintenance of this equipment shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. EN 60079-17.

Repair of this equipment shall be carried out by suitably-trained personnel in accordance with the applicable code of practice e.g. EN 60079-19.

THE CERTIFICATION OF THIS EQUIPMENT RELIES UPON THE FOLLOWING MATERIALS USED IN ITS CONSTRUCTION:

Connector Material:	ASTM B211 or B221 6061-T6 Aluminum
O-ring Seal Material:	Buna Rubber w/ Durometer of 70 SHORE A
Potting Compound:	Hysol Epoxy Resin Part # ES4412™

If the equipment is likely to come into contact with aggressive substances, then it is the responsibility of the user to take suitable precautions that prevent it from being adversely affected, thus ensuring that the type of protection provided by the equipment is not compromised.

Aggressive substances: e.g. acidic liquids or gases that may attack metals or solvents that may affect polymeric materials. Suitable precautions: e.g. regular checks as part of routine inspections or establishing from the material's data sheets that it is resistant to specific chemicals.

SPECIAL CONDITIONS FOR SAFE USE:

The "X" suffix to the certificate number relates to the following special condition(s) for safe use:

1. The plugs and receptacles shall only be used with suitable, certified cable glands capable of a temperature range at their point of mounting of -20°C to 90.1°C.
2. Cables fitted to the plugs and receptacles shall be suitable for a continuous operating temperature of at least 90°C.
3. Plugs are not permitted to remain energized when not engaged to the receptacles, as per EN 60079-0; clause 20.2
4. The plugs and receptacles are not to be energized when fitted with the environmental blanking caps.
5. An explosion-proof receptacle cap must be fitted to the receptacles to be re-energized when they are not mated to a plug.
6. The connector does not incorporate an external earth facility. It is the responsibility of the user or installer to ensure adequate internal earth continuity by means of terminating ground wire to spare contact within the insert patterns for both plug and receptacles to allow for continuity.
7. The panel mount receptacles shall only be used where the temperature at the point of entry in service on the associated enclosure is between -20°C to +105°C.

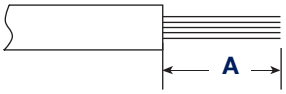
CONTACT PREPARATION INSTRUCTIONS

CRIMP TOOLS

M22520 series is recommended.
See Tool Table on page 282
for choice of turret head and selection setting according to contact size, part number and wire gauge size.

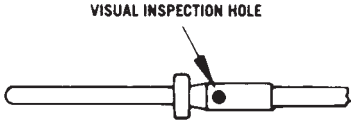
WIRE STRIPPING

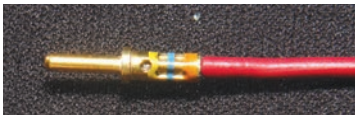
Strip insulation from end of wire to be crimped. (See table for proper stripping dimensions.) Do not cut or damage wire strands.



WIRE SIZE	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
8 (power)	.470 (11.94)

CONTACT CRIMPING





STEP 1: Insert stripped wire into contact crimp pot. Wire must be visible through inspection hole.

STEP 2: Using correct crimp tool and locator, cycle the tool once to be sure the indentors are open. Insert contact and wire into locator. Squeeze tool handles firmly and completely to ensure a proper crimp. The tool will not release unless the crimp indentors in the tool head have been fully-actuated.

STEP 3: Release crimped contact and wire from tool. Ensure the wire is visible through inspection hole in contact.

All dimensions in inches (millimeters in parenthesis)

CONNECTOR ASSEMBLY

ASSEMBLING AN INLINE PLUG AND INLINE RECEPTACLE CONNECTORS

STEP 1: Slide the EX gland onto the cable about 12 inches, threaded-end last.

STEP 2: Slide the cable adapter onto the cable up to the EX gland, large-diameter first.

STEP 3: Slide the coupling nut onto the cable up to the cable adapter, grub screw end first.

STEP 4: Group all conductors according to size to facilitate orderly termination. Spiral layouts must also be matched carefully to the correct contacts in both the male and female inserts.

STEP 5: Working on one conductor at a time, strip the insulation off per the wire stripping length (See page 288) and terminate a contact to it, using a properly-adjusted crimp tool, following crimp instruction (See page 288.) Repeat the process for each conductor.

STEP 6: Make sure the grub screws are fully-retracted, then slide the coupling nut up onto the plug shell until seated against its mating shoulder.

STEP 7: Thread the cable adapter onto the plug shell and hand-tighten.

STEP 8: Thread the EX gland onto the cable adapter and hand-tighten.

STEP 9: Using a strap wrench, fully tighten the cable adapter onto the plug shell.

STEP 10: Position the cable correctly. Using a hex wrench, tighten the EX gland. The seal must grip the outer jacket of the cable when the cable gland is tightened. Tighten back nut (or conduit receptor) to entry body. Ensure seal makes full contact with cable sheath. Tighten an extra 1½ turns (up to 2½ turns for minimum cable).

PREPARING A BULKHEAD RECEPTACLE CONNECTOR FOR ENCLOSURE MOUNTING

All receptacle shells have contact positioning inserts that are permanently installed by the factory.

STEP 1: Slide the bulkhead adapter up onto the cable or conductor group, knurled-end first.

STEP 2: Terminate each conductor with its proper contact.

STEP 3: Populate the insert with contacts by poking each of the wired contacts into its respective insert cavity, following an electrical schematic for the system being wired.

STEP 4: Slide the bulkhead adapter down the conductors and screw it onto the panel mount receptacle.

STEP 5: Use a strap wrench to tighten the bulkhead adapter until it is fully tightened to shoulder.

STEP 6: Referring to Amphe-EX potting instructions, stand the assembly vertically, conductors pointing up, and fill the adapter with cement to a level 1/16-inch below the top of the adapter. After curing, this assembly is now permanently cemented, non-separable and non-repairable, and can be mounted to the bulkhead.

STEP 7: It is best to fit the connector to the bulkhead at a time when the free end of the cable is not terminated to the electrical system. If this is not possible, then it is necessary to rotate the connector assembly counter-clockwise to wind the cable/conductors so that when the assembly is threaded into a bulkhead in the subsequent instruction, the cable/conductors regain their most natural lay once the connector is mounted to the bulkhead. (Rotations required to be determined by end-user).

STEP 8: Position the protective cover's lanyard tab over one of the mounting holes and screw a fastener through it. Apply the remaining fasteners to the other three holes with torque suitable for screw size used.

STEP 9: Install the protective cover and tighten fully.

STEP 10: Secure both grub screws to prevent unauthorized removal.

POTTING INSTRUCTIONS

All cable adapters other than ones suited for mating with an EX-certified gland must be filled with encapsulant (potted). The material certified for use in filling this connector line is Dexter-Hysol Product #ES4412.

The user or installer shall consider the performance of these materials with regard to attack by aggressive substances that may be present in the hazardous area.

This material is a two-component casting system with a 1:1 volumetric mix ratio. It has low exothermic qualities, peak at only 102°F during cure in two hours at 140°F. The product is available in premeasured "mix & dispense" packaging.

CONNECTOR ASSEMBLY

BULKHEAD ADAPTER

Bulkhead adapters should be filled to a maximum of 1/16-inch below the top of the adapter.

Care must be exercised so that the potting compound does not contaminate the bulkhead threads or spill onto the outer surfaces of the receptacle flange.

In preparation for potting, the receptacle is to be mated to its corresponding plug, so that all contacts are mated and in their optimal post-potted position.

When potting, the receptacle flange should be rigidly fixtured in a horizontal position. This fixture must be capable of holding the mated connector pair in that position for a minimum of two hours at room temperature.

The exiting conductor/cable should be fixtured inline above the connector pair during the entire curing process.

SIRA PRODUCT LABELING INFORMATION

Information below must be attached to connectors via a nonremovable label.

Amphenol Industrial Sidney NY 13838 USA Part Number, Size Ref Work Order Number; Date Code

0518 II 2 GD

EEx dIIC T6 / Ex tD A21 IP68 (Plug and Receptacles)
EEx de IIC T6 / Ex tD A21 IP68 (Panel mount receptacles filled with cement)
Sira 07ATEX1229X “max volts, max amp. Current rating per pin”
Do not separate when energized
Do not open when an explosive gas or dust atmosphere is present

MIXING/POTTING INSTRUCTIONS

1. CAUTION: Wear goggles or other eye protection during all operations.

2. The potting compound is premeasured in “burst bag” packaging. This packaging consists of a single plastic bag that is compartmentalized into two chambers, each containing one part of the two-part compound. The segregating feature is called a ‘burst seal’.

3. Lay the bag on a flat surface. Using either end of the bag that is parallel to the burst seal, start coiling/rolling the bag so that the compound in that half of the bag is pushed up against the burst seal.

4. Squeeze and apply pressure to the rolled side of the bag so that the compound bursts through the burst seal and joins the compound on the other side of the bag. Unroll the bag.

5. Mix the entire contents by alternately squeezing the bag and working it across the edge of a table to fully move the entire contents back and forth between chambers. Work the material in this manner, continuously, for a minimum of four minutes.

6. Once mixed, squeeze all the contents away from one corner of the bag, fully clearing that corner of the bag of all compound.

7. Make a 3/16-inch pouring spout by snipping off the bag’s cleared corner.

8. To minimize air entrapment, slowly pour the compound into the back end of the bulkhead adapter to a level shown in Figure Z.

9. Set the bag containing the remaining compound aside, so that it may cure. After cure, the bag may be disposed of safely with common consumer refuse. CAUTION: As the remaining compound cures, the bag will become hot.

HYSOL VOLUME PER BULKHEAD ADAPTER

SHELL SIZE	FILL LENGTH INSIDE ADAPTER (INCHES)	ADAPTER DIAMETER (INCHES)	INTERNAL VOLUME (IN ^ 2)	INTERNAL VOLUME (OUNCES)
9	1.064	0.652	0.355	0.197
13	1.064	0.927	0.718	0.398
15	1.064	0.927	0.718	0.398
17	1.064	1.242	1.289	0.714
19	1.064	1.242	1.289	0.714
21	1.064	1.242	1.289	0.714

Note: This is the maximum volume of cement needed without considering volume claimed by the conductors

WHAT IS A ZONE?

The IEC has defined three areas of hazardous gas or vapor release as follows:

ZONE 0

Explosive atmosphere is continuously present.

Zone in which an explosive mixture of gas, vapor or mist is continuously present.

ZONE 1

Explosive atmosphere is often present.

Zone in which an explosive mixture of gas, vapor or mist is likely to occur during normal operations.

ZONE 2

Explosive atmosphere is often present.

Zone in which an explosive mixture of gas, vapor or mist is not likely to occur in normal operation and if it occurs, it will only exist for a short time (leaks or maintenance).

COMPARING IEC ZONES AND NEC® DIVISIONS

DETERMINING A "ZONE" REQUIRES ANSWERING 4 ESSENTIAL QUESTIONS

1. What is emission level of gas/vapor?
   - (a) continuous
   - (b) first level emission (released during normal operation)
   - (c) second level emission (released during abnormal operation)
2. What type of openings currently exist?
   - (a) continuously-open
   - (b) normally closed
   - (c) weatherproof
   - (d) emergency open only
3. What is ventilation?
   - (a) very good
   - (b) good
   - (c) poor
4. What is level of ventilation?
   - (a) high
   - (b) average
   - (c) weak

CHARTS COMPARING IEC VS. NEC®/CEC

Chart 1 – Area Classification – IEC vs. NEC®/CEC (Class/Division/Group)

	IEC/CENELEC				NEC®/CEC		
INFLAMMABLE MATERIAL	PROTECTION	ZONE	GROUP	SUBDIVISION	CLASS	DIVISION	GROUP
Gases & Vapors Acetylene	D and/or E	1 or 2	II	C	I	1 or 2	A
Hydrogen	D and/or E	1 or 2	II	C + H^2	I	1 or 2	B
Propylene Oxide Ethyl Oxide, Butadiene	D and/or E	1 or 2	II	B	I	1 or 2	B
Cyclopropane Ethyl Ether, Ethylene	D and/or E	1 or 2	II	B	I	1 or 2	C
Acetone, Benzene, Butane, Propane, Hexane, Paint Solvents Natural Gas	D and/or E	1 or 2	II	A	I	1 or 2	D

CHARTS COMPARING IEC VS. NEC®/CEC

CHART 2 – IEC VS. NEC® TEMPERATURE CLASSIFICATION COMPARISON

CLASSIFICATION		
TEMPERATURES IN °C (°F)	IEC	NORTH AMERICA
85° (185°)	T6	T6
100° (212°)	T5	T5
120° (248°)	T4	T4A
135° (275°)		T4
160° (320°)	T3	T3C
165° (329°)		T3B
180° (356°)		T3A
200° (392°)		T3
215° (419°)		T2D
230° (446°)	T2	T2C
260° (500°)		T2B
280° (536°)		T2A
300° (572°)		T2
450° (842°)	T1	T1

CHART 3 – SAFE EQUIPMENT OPERATING TEMPERATURE

SPONTANEOUS IGNITION TEMPERATURE OF THE GASES (T°)	TEMPERATURE CLASS OF THE EQUIPMENT					
	T6 85° (185°)	T5 100° (212°)	T4 135° (275°)	T3 200° (392°)	T2 300° (572°)	T1 450° (842°)
85° (185°) ≤ T° ≤ 100° (212°)						
100° (212°) < T° ≤ 135° (275°)						
135° (275°) < T° ≤ 200° (392°)						
200° (392°) < T° ≤ 300° (572°)						
300° (572°) < T° ≤ 450° (842°)						
450° (842°) ≤ T°						

Note: the temperatures given in °C (°F)

Explosion danger

Equipment safe to use

CHART 4 – IEC-NEC® GAS GROUPS

IEC	NEC®/CEC	Gas or Vapor
II C	A	Acetylene
II C	B	Hydrogen
II B	C	Ethylene
II B	C	Ethyl Ether
II B	C	Cyclopropane
II B	C	Butadene 1-3
II A	D	Propane
II A	D	Ethane
II A	D	Butane
II A	D	Benzene
II A	D	Pentane
II A	D	Heptane
II A	D	Acetone
II A	D	Methyl Ethyl
II A	D	Methyl Alcohol
II A	D	Ethyl Alcohol

CHART 5 – IEC-NEC® EQUIPMENT STANDARDS

EQUIPMENT	IEC	CENLEC	NEC® (UL)	CEC (CSA)
Fixed Luminaries for General Use	60 079.0 60 079.1 60 079.7 60 598.1	EN 50 014 EN 50 018 And /or EN 50 019 EN 60 598.1	UL 844	C22.2 No. 4
Portable Equipment			UL 844 UL 781	C22.2 No. 4 C22.2 No. 137
Floodlights and Lamps			UL 844 UL 783	
Luminaries with Fluorescent Lamps			UL 844 UL 1570	-
Luminaries with Incandescent Lamps			UL 844 UL 1571	C22.2 No. 4 C22.2 No. 9
Power Outlets	60 079.0 60 079.1 60 079.7 60 309.1 60 309.2	EN 50 014 EN 50 018 and/or 019 EN 60 309.1 EN 60 309.2	UL 1010 UL 1982	C22.2 No. 159 N/A
Switches	60 079.0 60 079.1 60 079.7 60 947.1 60 947.3	EN 50 014 EN 50 018 and/or 019 EN 60 947.1 EN 60 947.3	UL 508 UL 98 UL1087 UL894	C22.2 N/A C22.2 No. 5.2 C22.2 No. 25&30

CHARTS COMPARING IEC VS. NEC®/CEC

CHART 6 – PROTECTION TECHNIQUES BY IEC, NEC® AND CEC

PROTECTION METHOD	IDENTIFICATION LETTERS	GROUP DIVISION	PERMITTED ZONE	PRINCIPLE
Flameproof	d	2	1 or 2	Containment
Intrinsic Safety (Zone 0)	ia	1 or 2	0, 1, 2	Energy-Limited
Intrinsic Safety (Zone 1)	ib	2	1 or 2	Energy-Limited
Pressurization	p	1 or 2	1 or 2	Expels Vapor
Increased Safety	e	2	1 or 2	No Arcs
Immersed in Oil	o	1 or 2	1 or 2	Arc Immersion
Filled with Powder/Sand	q	2	1 or 2	Arc Immersion
Encapsulated	m	2	1 or 2	Hermetic Seal
Apparatus with "n"* protection	n	2	2	No Sparking

*Includes non-sparking (nA), restricted breathing (nR), hermetically-sealed non-incendive (nC)

UNDERSTANDING IEC MARKINGS

Ex

Explosion-Protected
Meets IEC Standards
Eex = Meets CENELEC Standards
AEX = Equipment conforms to NEC®

d

Type of Protection
d = Flameproof

II

II Gas Group -
Surface Gases

c

Gas Subdivision
Group c = Hydrogen

T6

Temperature Class
T6 = Max 85°C (185°F)

Distinctive CENELEC mandatory marking for equipment useable in explosive atmospheres. Sometimes broadly used for IEC Ex equipment.

NOTE: Temperature given in °C (°F)

MAIN PROTECTION TECHNIQUES

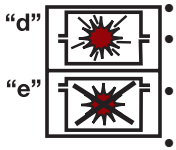
FLAMEPROOF "D"

- Contain internal explosion
- Control external temperature of enclosure
- Similar to NEC® explosion-proof

INCREASED SAFETY "E"

- High-impact-resistant enclosures – FRP, GRP, sheet steel/aluminum
- Will not hold static charge
- Use approved components
- Control internal and external temperature
- Maintain minimum of IP54 ingress protection
- No arcs or sparks

FLAMEPROOF PLUS INCREASED SAFETY "DE"



- Location of arcing has "d" protection (flameproof)
- Connection terminals have "e" protection (increased safety)
- Typical use in switches, lighting, power outlets – where arcs can normally occur
- Control internal and external temperature

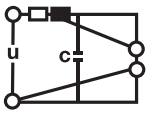
NON-SPARKING "N"

- Equipment has no normally-arcing parts
- Thermal effects incapable of ignition
- nA = non-sparking
- nR = restricted breathing
- nC = hermetically-sealed non-incendive

PRESSURED APPARATUS "P"

- Expels ignitable vapor/gas
- Maintains positive enclosure pressure

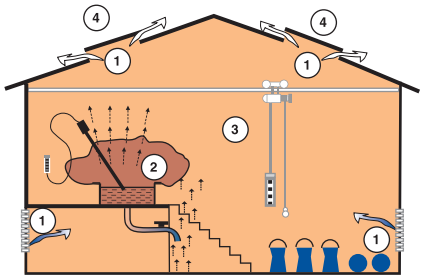
PRESSURED APPARATUS "P"



- Incapable of releasing energy to cause an explosion

EXAMPLES OF ZONE CLASSIFICATION SITUATIONS

ZONE 0 | ZONE1 | ZONE 2 | NON-HAZARDOUS ZONE

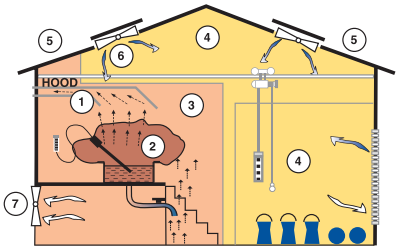


Zone Example 1

CONDITIONS

1. All-manual ventilation
2. Zone 0
3. Zone 1
4. Non-hazardous area

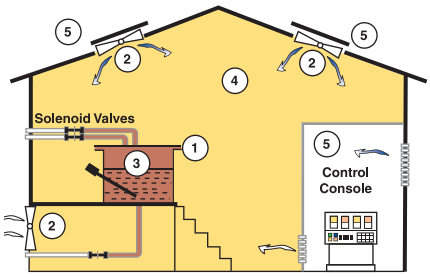
- Open-air mixing tank
- No mechanical ventilation
- Products stored in work area



Zone Example 2

CONDITIONS

1. Hood over tank
2. Zone 0
3. Zone 1
4. Zone 2
5. Non-hazardous area
6. Mechanical ventilation
7. Stored products separated from work area



Zone Example 3

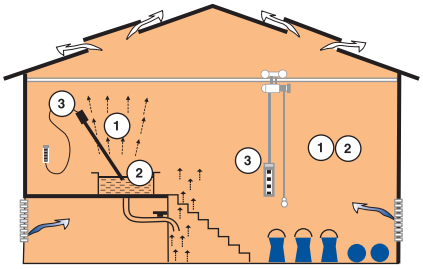
CONDITIONS

1. Tank closed
2. Mechanical ventilation
3. Zone 0
4. Zone 2
5. Non-hazardous area

- Operations control outside zones

EXAMPLES OF CLASS 1, DIVISION 1 AND 2 SITUATIONS

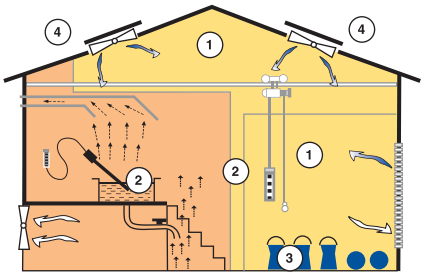
ZONE 0 | ZONE1 | ZONE 2 | NON-HAZARDOUS ZONE



Division Example 1

CONDITIONS

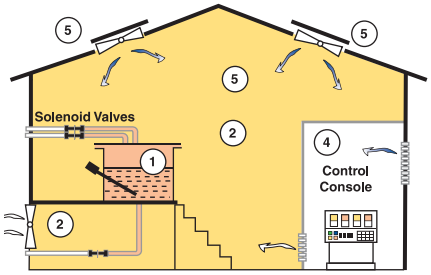
1. Class 1, Division 1 hazard exists during normal operating conditions
   - Open-air mixing
   - Products stored in work area
2. Area classified based on properties of vapors present
3. Electrical equipment must use approved Div. 1 NEC® protection techniques and wiring methods



Division Example 2

CONDITIONS

1. Division 2 area can exist where vapors normally exist in closed system or containers
2. Division 1 and 2 areas separated by barrier or space
   - Hazardous areas properly documented
   - Div. 2 must use approved NEC® wiring methods and products
3. Stored products outside Div. 1 work area
4. Non-hazardous area



Division Example 3

CONDITIONS

1. Closed tank and piping confines Div. 1
2. Yellow area qualifies as Div. 2
3. Stored products not present
4. Purged/pressurized control room qualifies as “non-hazardous” is sealed off from Div. 2 area
5. Electrical equipment in Div. 2 must use approved Div. 2 protection techniques and products

Amphenol SCE2/Terrapin Series

MINIATURE PUSH-PULL CONNECTOR FOR HARSH APPLICATIONS

Amphenol's SCE2 Terrapin series of miniature push-pull connectors are environmentally-sealed for use in harsh environments. They offer silent mating with high mating cycles and a lockable coupling ring to prevent connector break-away. For more product details, please see full specifications below.

APPLICATIONS

- Radios
- Headsets
- GPS units
- Computer systems
- LAN switches and routers
- Gigabit ethernet

TECHNICAL SPECIFICATIONS

MATERIALS AND FINISHES

Shell Material	Brass
Shell Plating	Black-silver (non-reflective)
Contact Material	Copper alloy
Contact Plating	1μM of gold over nickel

ELECTRICAL DATA

Current Rating	23AWG contacts: 3A DC	20AWG contacts: 7.5A DC
Shell-to-Shell Continuity	10mΩ max (shielded)	200mΩ max (unshielded)
Contact Resistance	Size 20 & 23 AWG contacts:	5mΩ initial 10mΩ maximum
Insulation Resistance	5000mΩ minimum	
Working Voltage	400Vac (rms)	
Dielectric Withstanding Voltage	2mA maximum leakage	

TECHNICAL

Mating Durability	2000+ cycles
Backshell Overtorque	25 lb.f.in.
Panel Nut Overtorque	30 lb.f.in.
Non-magnetic	Yes

ENVIRONMENTAL

Operating Temperature Range	-67°F to + 248°F (-55°C to + 125°C)
Temperature Endurance	250 hours +125°C
Sealing (mated and unmated)	IP68, 1 hour at 2 meters*
Air Leakage	Less than 1cc per hour
Salt Spray	1000-hours
Altitude Immersion	70,000 feet
RoHS-Compliant	Yes
Suitable for RoHS-Compliant Soldering	Yes

*Contact us if greater depth/duration of sealing is required

HOW TO ORDER

RECEPTACLES

	CABLE-MOUNT RECEPTACLES (PINS) SOLDER BUCKETS ONLY				PANEL-MOUNT RECEPTACLES (PINS)		
# of Contacts	01K Receptacle with Integral Backshell	01T Receptacle with Threaded Backshell	L1K Locking Receptacle w/ Integral Backshell	L1T Locking Receptacle w/ Threaded Backshell	07A Rear Mount Jam Nut Receptacle	71A Front Mount Jam Nut Receptacle	Shell Size
7	SCE2-B-01K06-07P*	SCE2-B-01T06-07P*-003	SCE2-B-L1K06-07P*	SCE2-B-L1T06-07P*-003	SCE2-B-07A06-07P*XXX	SCE2-B-71A06-07P*-XXX	6
10	SCE2-B-01K07-10AP*	SCE2-B-01T07-10AP*-003	SCE2-B-L1K07-10AP*	SCE2-B-L1T07-10AP*-003	SCE2-B-07A07-10AP*-XXX	SCE2-B-71A07-10AP*-XXX	7
12	SCE2-B-01K07-12P*	SCE2-B-01T07-12P*-003	SCE2-B-L1K07-12P*	SCE2-B-L1T07-12P*-003	SCE2-B-07A07-12P*-XXX	SCE2-B-71A07-12P*-XXX	7
14	SCE2-B-01K07-14P*	SCE2-B-01T07-14P*-003	SCE2-B-L1K07-14P*	SCE2-B-L1T07-14P*-003	SCE2-B-07A07-14P*-XXX	SCE2-B-71A07-14P*-XXX	7
19	SCE2-B-01K08-19P*	SCE2-B-01T08-19P*-003	SCE2-B-L1K08-19P*	SCE2-B-L1T08-19P*-003	SCE2-B-07A08-19P*-XXX	SCE2-B-71A08-19P*-XXX	8
26	SCE2-B-01K09-26P*	SCE2-B-01T09-26P*-003	SCE2-B-L1K09-26P*	SCE2-B-L1T09-26P*-003	SCE2-B-07A09-26P*-XXX	SCE2-B-71A09-26P*-XXX	9
37	SCE2-B-01K10-37P*	SCE2-B-01T10-37P*-003	SCE2-B-L1K10-37P*	SCE2-B-L1T10-37P*-003	SCE2-B-07A10-37P*-XXX	SCE2-B-71A10-37P*-XXX	10

* = Include keyway orientations N,A,B,C,D

Add -985 for grounding spring on L1K and L1T types only

XXX = Contact Termination Code
use -001 for PCB
use -002 for Solder Buckets

See page 298 for layouts and keyways.

Mates with

PLUGS

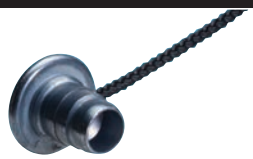
	CABLE-MOUNT PLUGS (SOCKETS)			IN-LINE PLUGS (SOCKETS) SOLDER BUCKETS ONLY		
# of Contacts	76A Rear Mount Jam Nut Plug	67A Front Mount Jam Nut Plug	76T Rear Mount Jam Nut w/ Threaded Backshell Plug	06K In-Line Plug w/ Intergral Backshell	06T In-Line Plug w/ Threaded Backshell	Shell Size
7	SCE2-B-76A06-07S*-XXX	SCE2-B-67A06-07S*-XXX	SCE2-B-76T06-07S*-002	SCE2-B-06K06-07S*	SCE2-B-06T06-07S*-003	6
10	SCE2-B-76A07-10AS*-XXX	SCE2-B-67A07-10AS*-XXX	SCE2-B-76T07-10AS*-002	SCE2-B-06K07-10AS*	SCE2-B-06T07-10AS*-003	7
12	SCE2-B-76A07-12S*-XXX	SCE2-B-67A07-12S*-XXX	SCE2-B-76T07-12S*-002	SCE2-B-06K07-12S*	SCE2-B-06T07-12S*-003	7
14	SCE2-B-76A07-14S*-XXX	SCE2-B-67A07-14S*-XXX	SCE2-B-76T07-14S*-002	SCE2-B-06K07-14S*	SCE2-B-06T07-14S*-003	7
19	SCE2-B-76A08-19S*-XXX	SCE2-B-67A08-19S*-XXX	SCE2-B-76T08-19S*-002	SCE2-B-06K08-19S*	SCE2-B-06T08-19S*-003	8
26	SCE2-B-76A09-26S*-XXX	SCE2-B-67A09-26S*-XXX	SCE2-B-76T09-26S*-002	SCE2-B-06K09-26S*	SCE2-B-06T09-26S*-003	9
37	SCE2-B-76A10-37S*-XXX	SCE2-B-67A10-37S*-XXX	SCE2-B-76T10-37S*-002	SCE2-B-06K10-37S*	SCE2-B-06T10-37S*-003	10

XXX = Contact termination code
use -001 for PCB
use -002 for solder buckets

* = Include keyway orientations N,A,B,C,D

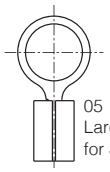
See page 298 for layouts and keyways.

RECEPTACLE ACCESSORIES

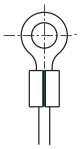


Shell Size	DUSTCAPS FOR RECEPTACLES						SHRINK BOOTS			
	Metal	Rubber	Metal	Rubber	Metal	Rubber				
	with Crimp Ferrule		with Eyelet		with Large Eyelet for Jam Nut		Straight	Cable Exit Dia.	Right Angle	Cable Exit Dia.
6	390-5056-06-###-02	390-5063-06-###-02	390-5056-06-###-03	390-5063-06-###-03	390-5056-06-###-05	390-5063-06-###-05	123GB-0798-06-S	0.24 (6.10)	123GB-0798-06-R	0.22 (5.59)
7	390-5056-07-###-02	390-5063-07-###-02	390-5056-07-###-03	390-5063-07-###-03	390-5056-07-###-05	390-5063-07-###-05	123GB-0798-07-S	0.24 (6.10)	123GB-0798-07-R	0.25 (6.35)
8	390-5056-08-###-02	390-5063-08-###-02	390-5056-08-###-03	390-5063-08-###-03	390-5056-08-###-05	390-5063-08-###-05	123GB-0798-08-S	0.24 (6.10)	123GB-0798-08-R	0.25 (6.35)
9	390-5056-09-###-02	390-5063-09-###-02	390-5056-09-###-03	390-5063-09-###-03	390-5056-09-###-05	390-5063-09-###-05	123GB-0798-09-S	0.24 (6.10)	123GB-0798-09-R	0.25 (6.35)
10	390-5056-10-###-02	390-5063-10-###-02	390-5056-10-###-03	390-5063-10-###-03	390-5056-10-###-05	390-5063-10-###-05	123GB-0798-10-S	0.24 (6.10)	123GB-0798-10-R	0.25 (6.35)

= Length of cord 060,130,180 mm (other options available, please contact us)



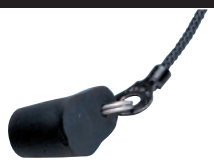
05
Large Eyelet
for Jam Nut



03
Eyelet

02
Crimp Ferrule

PLUG ACCESSORIES



Shell Size	DUSTCAPS FOR PLUGS						SHRINK BOOTS			
	Metal	Rubber	Metal	Rubber	Metal	Rubber				
	with Crimp Ferrule		with Eyelet		with Large Eyelet for Jam Nut		Straight	Cable Exit Dia.	Right Angle	Cable Exit Dia.
6	390-5057-06-###-02	390-5064-06-###-02	390-5057-06-###-03	390-5064-06-###-03	390-5057-06-###-05	390-5064-06-###-05	123GB-0798-06-S	0.24 (6.10)	123GB-0798-06-R	0.22 (5.59)
7	390-5057-07-###-02	390-5064-07-###-02	390-5057-07-###-03	390-5064-07-###-03	390-5057-07-###-05	390-5064-07-###-05	123GB-0798-07-S	0.24 (6.10)	123GB-0798-07-R	0.25 (6.35)
8	390-5057-08-###-02	390-5064-08-###-02	390-5057-08-###-03	390-5064-08-###-03	390-5057-08-###-05	390-5064-08-###-05	123GB-0798-08-S	0.24 (6.10)	123GB-0798-08-R	0.25 (6.35)
9	390-5057-09-###-02	390-5064-09-###-02	390-5057-09-###-03	390-5064-09-###-03	390-5057-09-###-05	390-5064-09-###-05	123GB-0798-09-S	0.24 (6.10)	123GB-0798-09-R	0.25 (6.35)
10	390-5057-10-###-02	390-5064-10-###-02	390-5057-10-###-03	390-5064-10-###-03	390-5057-10-###-05	390-5064-10-###-05	123GB-0798-10-S	0.24 (6.10)	123GB-0798-10-R	0.25 (6.35)

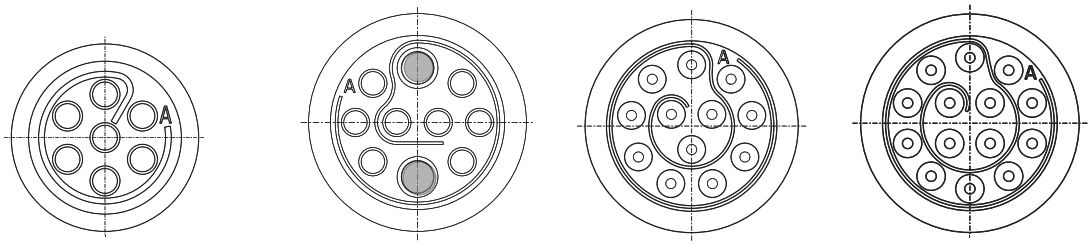
= Length of cord 060,130,180 mm (other options available, please contact us.)

All dimensions in inches (millimeters in parenthesis)

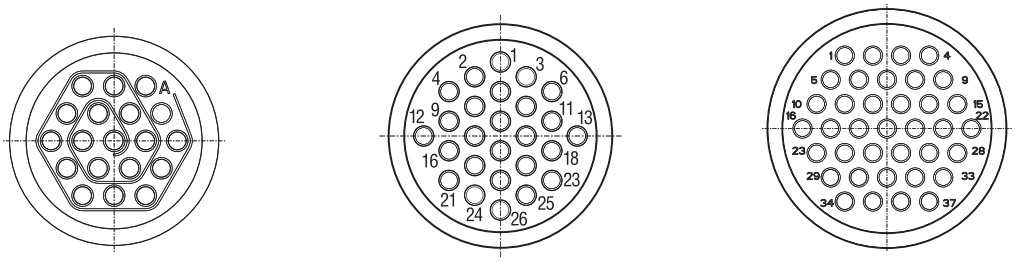
INSERT ARRANGEMENTS REAR VIEW OF THE PLUG

○ 23AWG contacts
● 20AWG contacts

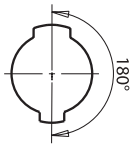
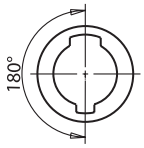
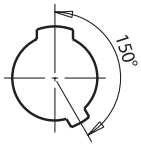
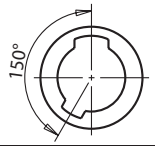
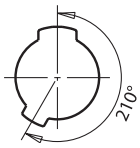
SHELL SIZE	06	07		
LAYOUT	06-07	07-10A	07-12	07-14

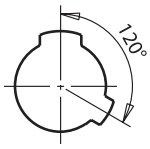
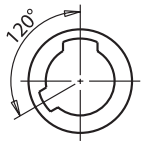
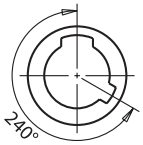


SHELL SIZE	08	09	10
LAYOUT	08-19	09-26	10-37



PLUG AND RECEPTACLE KEYWAY ORIENTATION

KEYWAY ORIENTATION LETTER	PLUG KEYWAY ORIENTATION	RECEPTACLE KEYWAY ORIENTATION
N		
A		
B		

KEYWAY ORIENTATION LETTER	PLUG KEYWAY ORIENTATION	RECEPTACLE KEYWAY ORIENTATION
C		
D		

TERMINOLOGY

L1T

Body
Threaded Backshell
Shielding-Crimp Ferrule

L1K

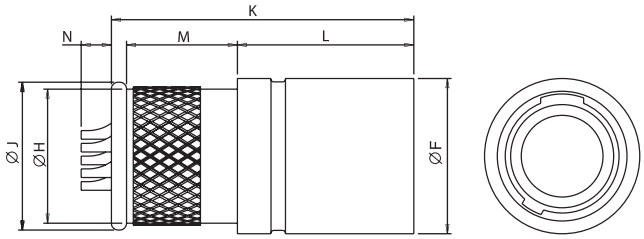
Locking Coupling Ring
Integral Backshell for Direct-Screen Termination

01K

Integral Backshell for Direct-Screen Termination

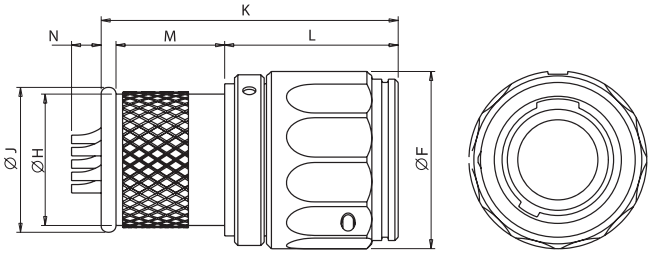
RECEPTACLES (PINS)

SCE2-X-01K - IN-LINE RECEPTACLE WITH INTEGRAL BACKSHELL



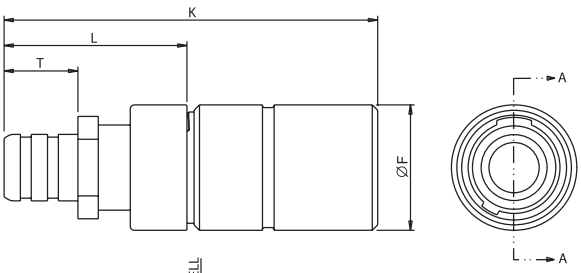
SHELL SIZE	ØF	ØH	ØJ	K	L	M	N
06	.462 (11.73)	.399 (10.13)	.440 (11.18)	.900 (22.86)	.525 (13.34)	.330 (8.38)	.090 (2.29)
07	.575 (14.61)	.460 (11.68)	.505 (12.83)	.900 (22.86)	.525 (13.34)	.330 (8.38)	.090 (2.29)
08	.620 (15.75)	.581 (14.76)	.620 (15.75)	.900 (22.86)	.525 (13.34)	.330 (8.38)	.090 (2.29)
09	.691 (17.55)	.651(16.54)	.690 (17.53)	.970 (24.64)	.525 (13.34)	.400 (10.16)	.020 (0.51)
10	.761 (19.33)	.721(18.31)	.760 (19.30)	.970 (24.64)	.525 (13.34)	.400 (10.16)	.020 (0.51)

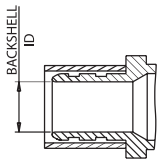
SCE2-X-L1K - IN-LINE LATCHING RECEPTACLE WITH INTEGRAL BACKSHELL



SHELL SIZE	ØF	ØH	ØJ	K	L	M	N
06	.540 (13.75)	.399 (10.14)	.440 (11.18)	.902 (22.91)	.527 (13.39)	.330 (8.38)	.090 (2.29)
07	.610 (15.50)	.447 (11.35)	.505 (12.83)	.902 (22.91)	.527 (13.39)	.330 (8.38)	.090 (2.29)
08	.699 (17.75)	.581 (14.75)	.620 (15.75)	.902 (22.91)	.527 (13.39)	.330 (8.38)	.090 (2.29)
09	.770 (19.56)	.651 (16.54)	.690 (17.53)	.972 (24.69)	.527 (13.39)	.400 (10.16)	.090 (2.29)
10	.840 (21.34)	.721 (18.31)	.760 (19.30)	.972 (24.69)	.527 (13.39)	.400 (10.16)	.090 (2.29)

SCE2-X-01T - IN-LINE RECEPTACLE WITH THREADED BACKSHELL





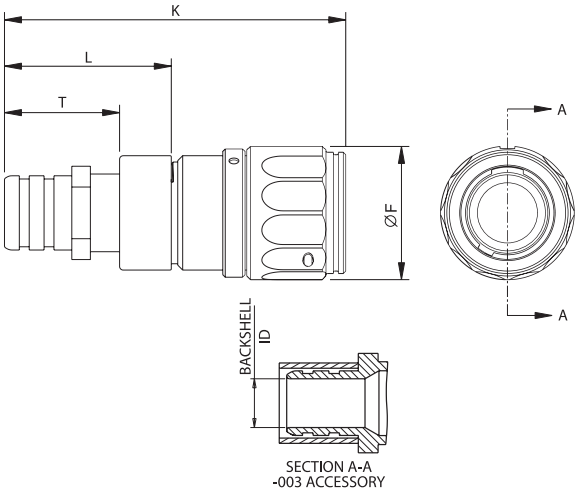
SECTION A-A
-003 ACCESSORY

SHELL SIZE	ØF	K	L	T	BACKSHELL ID -003
06	.462 (11.73)	1.377 (34.98)	.674 (17.12)	.272 (6.91)	.185 (4.70)
07	.575 (14.61)	1.377 (34.98)	.674 (17.12)	.272 (6.91)	.265 (6.73)
08	.620 (15.75)	1.377 (34.98)	.674 (17.12)	.272 (6.91)	.345 (8.76)
09	.690 (17.53)	1.447 (36.75)	.674 (17.12)	.272 (6.91)	.425 (10.80)
10	.760 (19.30)	1.447 (36.75)	.674 (17.12)	.272 (6.91)	.505 (12.83)

All dimensions in inches (millimeters in parenthesis)

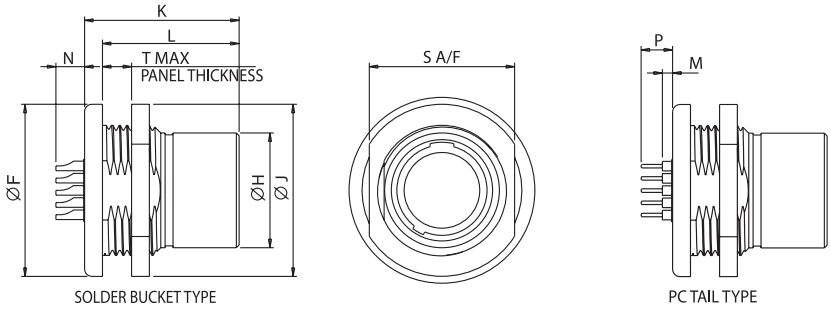
RECEPTACLES (PINS)

SCE2-X-L1T - IN-LINE LATCHING RECEPTACLE WITH THREADED BACKSHELL



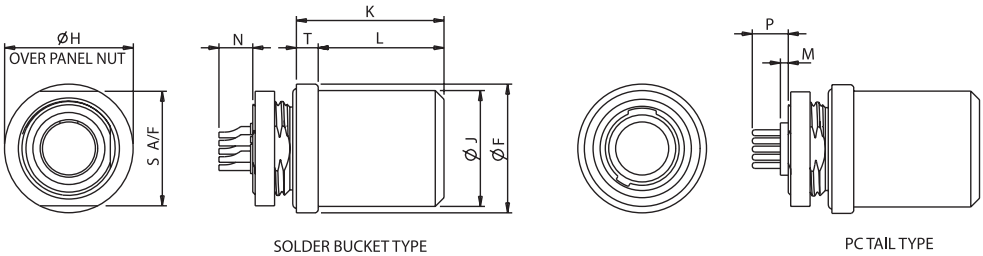
SHELL SIZE	ØF	K	L	T	BACKSHELL ID -003
Size 06	.538 (13.67)	1.379 (35.03)	.674 (17.12)	.465 (11.81)	.185 (4.70)
Size 07	.610 (15.50)	1.379 (35.03)	.674 (17.12)	.465 (11.81)	.265 (6.73)
Size 08	.699 (17.75)	1.379 (35.03)	.674 (17.12)	.465 (11.81)	.345 (8.76)
Size 09	.770 (19.56)	1.449 (36.80)	.674 (17.12)	.465 (11.81)	.425 (10.80)
Size 10	.840 (21.34)	1.449 (36.80)	.674 (17.12)	.465 (11.81)	.505 (12.83)

SCE2-X-07A - JAM NUT - REAR MOUNT RECEPTACLE



SHELL SIZE	ØF	ØH	ØJ	K	L	M	N	P	S A/F	T MAX
Size 06	.750 (19.05)	.462 (11.73)	.750 (19.05)	.835 (21.21)	.738 (18.75)	.055 (1.40)	.155 (3.94)	.170 (4.42)	.672 (17.07)	.157 (4.45)
Size 07	.895 (22.73)	.575 (14.61)	.895 (22.73)	.835 (21.21)	.738 (18.75)	.055 (1.40)	.155 (3.94)	.170 (4.42)	.750 (19.05)	.157 (4.45)
Size 08	.930 (23.62)	.620 (15.75)	.930 (23.62)	.835 (21.21)	.738 (18.75)	.055 (1.40)	.155 (3.94)	.170 (4.42)	.825 (20.96)	.157 (4.45)
Size 09	1.005 (25.53)	.690 (17.53)	1.005 (25.53)	.905 (22.99)	.808 (20.52)	N/A	.080 (2.03)	.170 (4.42)	.900 (22.86)	.157 (4.45)
Size 10	1.080 (27.43)	.760 (19.30)	1.080 (27.43)	.905 (22.99)	.808 (20.52)	N/A	.080 (2.03)	.170 (4.42)	.975 (24.77)	.157 (4.45)

SCE2-X-71A - JAM NUT - FRONT MOUNT RECEPTACLE

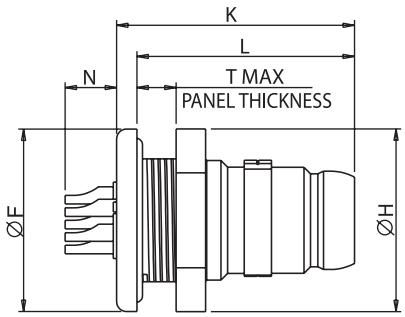


SHELL SIZE	ØF	ØH	ØJ	K	L	M	N	P	S A/F	T MAX
Size 06	.590 (14.99)	.462 (11.73)	.590 (14.99)	.877 (22.28)	.677 (17.20)	.015 (0.38)	.113 (2.87)	.130 (3.30)	.525 (13.34)	.100 (2.54)
Size 07	.620 (15.75)	.575 (14.61)	.620 (15.75)	.877 (22.28)	.677 (17.20)	.015 (0.38)	.113 (2.87)	.130 (3.30)	.685 (17.40)	.100 (2.54)
Size 08	.760 (19.30)	.620 (15.75)	.760 (19.30)	.877 (22.28)	.677 (17.20)	.015 (0.38)	.113 (2.87)	.130 (3.30)	.825 (20.96)	.100 (2.54)
Size 09	.890 (22.61)	.690 (17.53)	.890 (22.61)	.947 (24.05)	.747 (18.97)	N/A	.113 (2.87)	.060 (1.52)	.955 (24.26)	.100 (2.54)
Size 10	.930 (20.62)	.760 (19.30)	.930 (20.62)	.947 (24.05)	.747 (18.97)	N/A	.113 (2.87)	.060 (1.52)	.995 (25.27)	.100 (2.54)

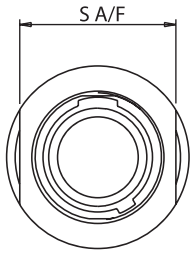
All dimensions in inches (millimeters in parenthesis)

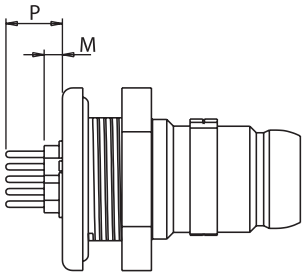
PLUGS (SOCKETS)

SCE2-X-76A - JAM NUT - REAR MOUNT PLUG



SOLDER BUCKET TYPE

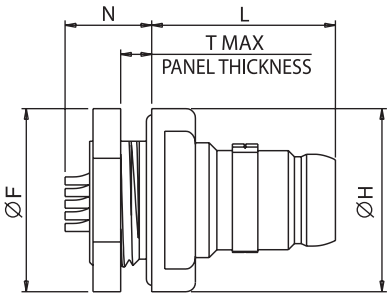




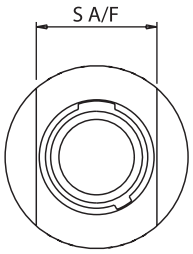
PC TAIL TYPE

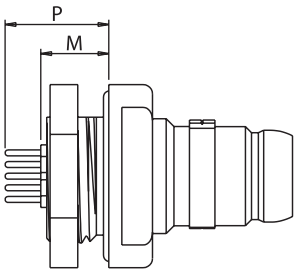
SHELL SIZE	ØF	ØH	K	L	M	N	P	S A/F	T MAX.
06	.550 (13.97)	.550 (13.97)	.716 (18.19)	.655 (16.64)	.114 (2.89)	.155 (3.94)	.170 (4.32)	.470 (11.94)	.118 (3.00)
07	.620 (15.75)	.600 (15.24)	.716 (18.19)	.655 (16.64)	.114 (2.89)	.155 (3.94)	.170 (4.32)	.510 (12.95)	.118 (3.00)
08	.760 (19.30)	.760 (19.30)	.716 (18.19)	.655 (16.64)	.114 (2.89)	.155 (3.94)	.170 (4.32)	.706 (17.93)	.118 (3.00)
09	.890 (22.61)	.830 (21.08)	.802 (20.37)	.725 (18.42)	.114 (2.89)	.085 (2.16)	.250 (6.35)	.745 (18.92)	.118 (3.00)
10	.930 (20.62)	.900 (22.86)	.802 (20.37)	.725 (18.42)	.114 (2.89)	.085 (2.16)	.250 (6.35)	.808 (20.52)	.125 (3.18)

SCE2-X-67A - JAM NUT - FRONT MOUNT PLUG



SOLDER BUCKET TYPE





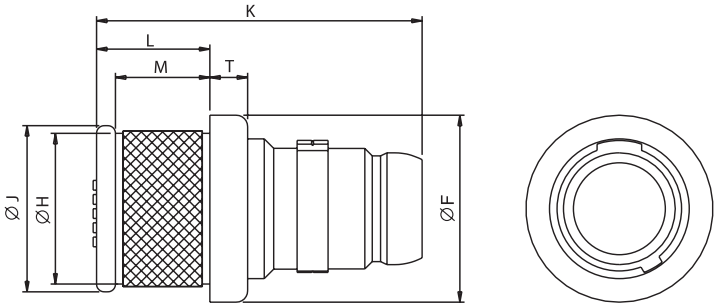
PC TAIL TYPE

SHELL SIZE	ØF	ØH	L	M	N	P	S A/F	T MAX.
06	.590 (14.99)	.590 (14.99)	.592 (13.04)	.324 (8.23)	.279 (7.09)	.424 (10.78)	.525 (13.34)	.100 (2.54)
07	.620 (15.75)	.620 (15.75)	.592 (13.04)	.324 (8.23)	.279 (7.09)	.424 (10.78)	.685 (17.40)	.100 (2.54)
08	.760 (19.30)	.760 (19.30)	.592 (13.04)	.324 (8.23)	.279 (7.09)	.424 (10.78)	.825 (20.96)	.100 (2.54)
09	.890 (22.61)	.890 (22.61)	.662 (16.82)	.254 (6.45)	.209 (5.31)	.354 (8.99)	.955 (24.26)	.100 (2.54)
10	.930 (23.62)	.930 (23.62)	.662 (16.82)	.254 (6.45)	.209 (5.31)	.354 (8.99)	.995 (25.27)	.100 (2.54)

All dimensions in inches (millimeters in parenthesis)

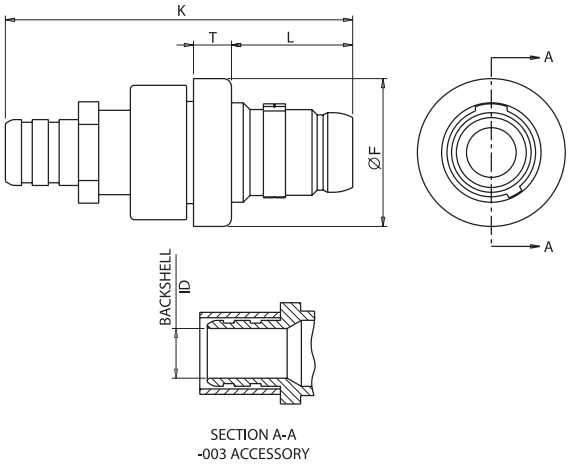
PLUGS (SOCKETS)

SCE2-X-06K - IN-LINE PLUG WITH INTEGRAL BACKSHELL



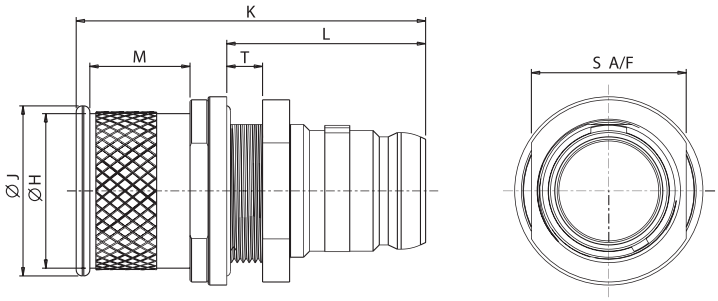
SHELL SIZE	ØF	ØH	ØJ	K	L	M	T
06	.495 (12.57)	.412 (10.46)	.440 (11.18)	.862 (21.89)	.300 (7.62)	.250 (6.35)	.100 (2.54)
07	.575 (14.61)	.460 (11.68)	.505 (12.83)	.862 (21.89)	.300 (7.62)	.250 (6.35)	.100 (2.54)
08	.650 (16.51)	.593 (15.06)	.620 (15.75)	.862 (21.89)	.300 (7.62)	.250 (6.35)	.100 (2.54)
09	.725 (18.42)	.651 (16.54)	.690 (17.53)	.932 (23.67)	.300 (7.62)	.250 (6.35)	.100 (2.54)
10	.800 (20.32)	.721 (18.31)	.760 (19.30)	.932 (23.67)	.300 (7.62)	.250 (6.35)	.100 (2.54)

SCE2-X-06T - IN-LINE PLUG WITH THREADED BACKSHELL



SHELL SIZE	ØF	K	L	T	BACKSHELL ID -003
06	.550 (13.97)	1.292 (32.82)	.451 (11.46)	.141 (3.58)	.185 (4.70)
07	.630 (16.00)	1.292 (32.82)	.451 (11.46)	.141 (3.58)	.265 (6.73)
08	.705 (17.91)	1.292 (32.82)	.451 (11.46)	.141 (3.58)	.345 (8.76)
09	.780 (19.81)	1.362 (34.60)	.521 (13.23)	.141 (3.58)	.425 (10.80)
10	.855 (21.72)	1.362 (34.60)	.521 (13.23)	.141 (3.58)	.505 (12.83)

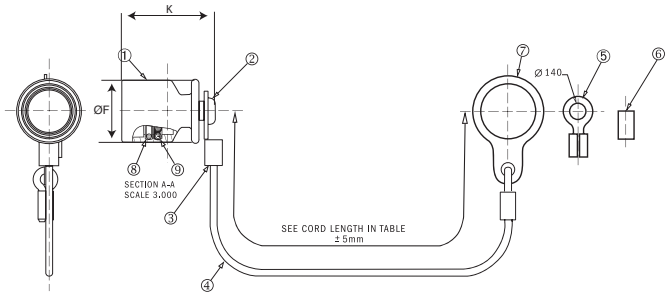
SCE2-X-76T - JAM NUT - REAR MOUNT PLUG WITH SCREW-ON BACKSHELL



SHELL SIZE	ØH	ØJ	K	L	M	S A/F	T MAX.
06	.460 (11.68)	.490 (12.45)	1.150 (29.21)	.655 (16.64)	.330 (8.38)	.470 (11.94)	.125 (3.18)
07	.600 (15.24)	.645 (16.83)	1.150 (29.21)	.655 (16.64)	.330 (8.38)	.510 (12.95)	.125 (3.18)
08	.730 (18.54)	.770 (19.56)	1.150 (29.21)	.655 (16.64)	.330 (8.38)	.706 (17.93)	.125 (3.18)
09	.790 (20.07)	.830 (21.08)	1.220 (30.99)	.725 (18.42)	.330 (8.38)	.745 (18.92)	.125 (3.18)
10	.860 (21.84)	.900 (22.86)	1.220 (30.99)	.725 (18.42)	.330 (8.38)	.808 (20.52)	.125 (3.18)

All dimensions in inches (millimeters in parenthesis)

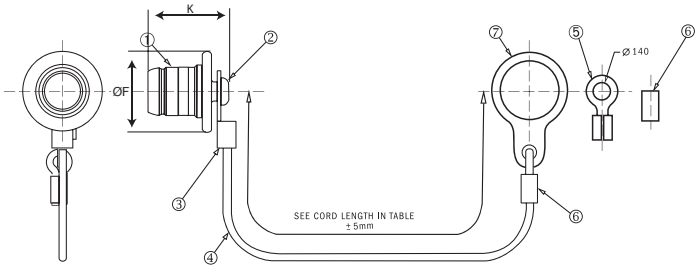
390-5057 - METAL DUSTCAP FOR PLUGS



SHELL SIZE	PART NUMBER	ITEM 1 - CAP	
		ØF	K
06	390-5057-06-XXX-XX	.464 (11.79)	.794 (20.17)
07	390-5057-07-XXX-XX	.545 (13.84)	.794 (20.17)
08	390-5057-08-XXX-XX	.620 (15.75)	.794 (20.17)
09	390-5057-09-XXX-XX	.695 (17.65)	.794 (20.17)
10	390-5057-10-XXX-XX	.770 (19.56)	.794 (20.17)

XXX = Length of cord 060, 130, 180 mm
XX = 02 = Crimp ferrule
03 = Eyelet
05 = Large eyelet for jamnut

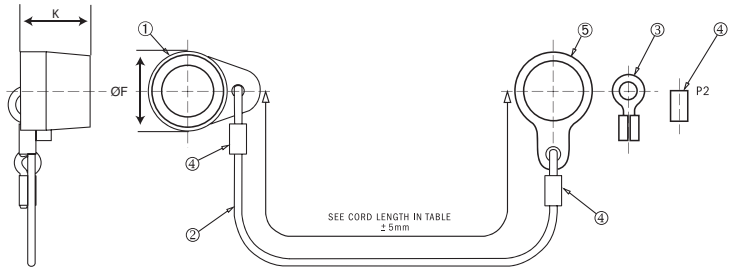
390-5056 - METAL DUSTCAP FOR RECEPTACLES



SHELL SIZE	PART NUMBER	ITEM 1 - CAP	
		ØF	K
06	390-5056-06-XXX-XX	.575 (14.61)	.664 (16.87)
07	390-5056-07-XXX-XX	.575 (14.61)	.664 (16.87)
08	390-5056-08-XXX-XX	.750 (19.05)	.664 (16.87)
09	390-5056-09-XXX-XX	.825 (20.95)	.664 (16.87)
10	390-5056-10-XXX-XX	.900 (22.86)	.664 (16.87)

XXX = Length of cord 060, 130, 180 mm
XX = 02 = Crimp ferrule
03 = Eyelet
05 = Large eyelet for jamnut

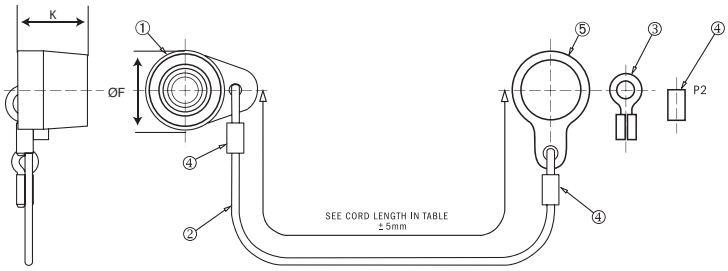
390-5064 - RUBBER DUSTCAP FOR PLUGS



SHELL SIZE	PART NUMBER	ITEM 1 - CAP	
		ØF	K
06	390-5064-06-XXX-XX	.450 (11.43)	.550 (13.97)
07	390-5064-07-XXX-XX	.525 (13.34)	.550 (13.97)
08	390-5064-08-XXX-XX	.595 (15.11)	.550 (13.97)
09	390-5064-09-XXX-XX	.665 (16.89)	.550 (13.97)
10	390-5064-10-XXX-XX	.735 (18.67)	.550 (13.97)

XXX = Length of cord 060, 130, 180 mm
XX = 02 = Crimp ferrule
03 = Eyelet
05 = Large eyelet for jamnut

390-5063 - RUBBER DUSTCAP FOR RECEPTACLES



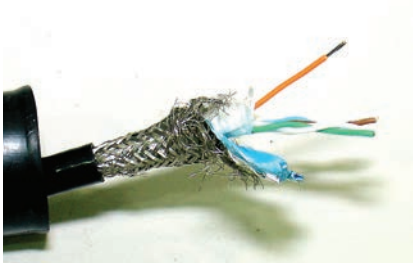
SHELL SIZE	PART NUMBER	ITEM 1 - CAP	
		ØF	K
06	390-5063-06-XXX-XX	.625 (15.88)	.550 (13.97)
07	390-5063-07-XXX-XX	.725 (18.42)	.550 (13.97)
08	390-5063-08-XXX-XX	.780 (19.81)	.550 (13.97)
09	390-5063-09-XXX-XX	.870 (22.10)	.550 (13.97)
10	390-5063-10-XXX-XX	.940 (23.88)	.550 (13.97)

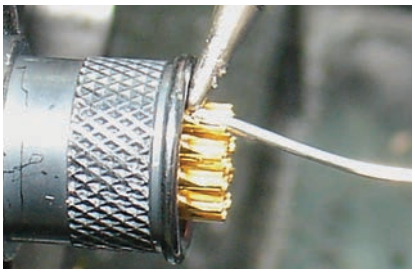
XXX = Length of cord 060, 130, 180 mm
XX = 02 = Crimp ferrule
03 = Eyelet
05 = Large eyelet for jamnut

All dimensions in inches (millimeters in parenthesis)

RECOMMENDED SOLDER EQUIPMENT

- JBC soldering iron AD2700 set at approx. 662°F (350°C)
- JBC tip 2245-930
- Should adhere to IPC J-STD-001 Rev D Class 3, using IPC 610 for reference.

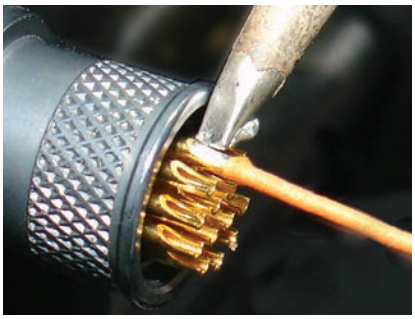


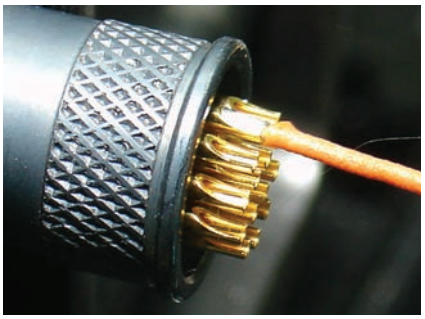


STEP 1: Slide the rear accessories over the wire bundle in the proper sequence for reassembly.

STEP 2: Strip wires .200" (5.08).

STEP 3: Pre-tin wire to be terminated.





STEP 4: Pre-tin the solder bucket. This should be done using the minimum temperature required while achieving the wetted solder joint. Remember to ensure a good solder bridge. Place the iron tip inside the bucket.

STEP 5: Terminate wire to the solder bucket, again using minimum heat while ensuring the required wetting. Place the iron tip inside the bucket and slide in the wire to be terminated. Always clean solder joints, ensuring that the contacts are not damaged.

STEP 6: Repeat steps for additional contacts. Terminate shield using banding termination or other method. Recover heat shrink boot starting on the connector and moving downward towards the cable. Adhesive should flow out of the boot.

ETHERNET WIRING

Rear view of connector

Termination process for 07-14 layout to CAT 6 Ethernet Cable

- Standard CAT 6 Ethernet RJ45 Patch lead terminated to the rear of the connector, as per instructions

Temperatures are °F (°C). All Dimensions in inches (millimeters in parenthesis).

2M Series

SMALLER, LIGHTER-WEIGHT ALTERNATIVE FOR D3899 PERFORMANCE

Amphenol 2M micro-miniature connectors are a small, light-weight option for mil-spec performance that can withstand harsh environments. They are quick-mating and a variety of styles and options are available. For full product details, please see our specifications below.

- Intermateable with Glenair® Mighty Mouse

APPLICATIONS

- Headsets
- Tactical equipment
- Airframes
- Avionics boxes
- Handheld equiptment

	2M801	2M803	2M804	2M805
Type	Dual-Start ACME Thread	Bayonet	Push-Pull	Tri-Start ACME Thread
# of Contacts	1 to 130	1 to 55	1 to 55	1 to 130
Coupling Type	Threaded Coupling 1-1/2 turns to fully mate	1/4 Turn Lock Bayonet	Push-Pull Quick-Disconnect	Tri-Start Thread Ratched
Sealing	MIL-STD-810 Method 512 1 Meter for 1 Hour	Splashproof	MIL-STD-810 Method 512 1 Meter for 1 Hour	MIL-STD-810 Method 512 1 Meter for 1 Hour
EMI-Shielding	Good	Fair	Very Good	Excellent
Mating Cycles	2000 Cycles	250 Cycles Aluminum; 500 Cycles Stainless Steel	2000 Cycles	500 Cycles
Electrical Performance	Size 12: 23A, 1800 VAC Size 16: 13A, 1800 VAC Size 20: 7.5A, 750 VAC Size 23: 5A, 500 VAC	Size 12: 23A, 1800 VAC Size 16: 13A, 1800 VAC Size 20: 7.5A, 750 VAC Size 23: 5A, 500 VAC	Size 12: 23A, 1800 VAC Size 16: 13A, 1800 VAC Size 20: 7.5A, 750 VAC Size 23: 5A, 500 VAC	Size 12: 23A, 1800 VAC Size 16: 13A, 1800 VAC Size 20: 7.5A, 750 VAC Size 23: 5A, 500 VAC
Shock & Vibration	37 g's Random Vibration; 300 g's Shock	37 g's Random Vibration; 300 g's Shock	37 g's Random Vibration; 300 g's Shock	37 g's Random Vibration; 300 g's Shock

TECHNICAL SPECIFICATIONS

MATERIALS AND FINISHES

Shell	Aluminum alloy 6061 T6, stainless steel passivated, 200C
Insert	Polyphenylene sulfide (PPS)
Contact Retention Clip	Beryllium copper, heat-treated, unplated
Contacts	50u" gold-plated copper alloy
Socket Contact Hood	Passivated stainless steel
Grommet & Seals	Fluorosilicone rubber
Adhesives	Epoxy film
Potting Compound for PCB & Solder Versions	High-strength epoxy

ELECTRICAL DATA

Contact Sizes	23, 20, 20HD, 16, & 12 AWG

Operating Voltage & Test Voltage (Mated Condition)

CONTACT SIZE	23	20	20HD	16	12
Sea Level VAC	500	1800	750	1800	1800
40,000 Feet VAC	100	325	150	1000	1000

Current Rating (Max)

CONTACT SIZE	AMPERES
23	5
20	7.5
16	13
12	23

Contact Resistance

CONTACT SIZE	MILLIVOLT DROP
23	73 @ 5A test current
20	55 @ 7.5A test current
16	49 @ 13A test current
12	42 @ 23A test current

Insulation Resistance	5,000 megaohms minimum

MECHANICAL

Operating Temperature	-67 F to +302 F (-55C to +150 C) aluminium -67 F to +392 F (-55C to +200 C) stainless steel
Sealing	1 meter for 1 hour (2M803 splashproof)

TECHNICAL SPECIFICATIONS

Insulation Strip Length

CONTACT SIZE	STRIP LENGTH
23	0.150 (3.81)
20	0.188 (2.54)
20HD	0.150 (3.81)
16	0.188 (2.54)
12	0.188 (2.54)

Mating Life	2000 cycles; 2M803 aluminum 250 cycles
Salt Spray	Plating C & M: 48-hours Plating MT, NF, ZN, ZNU, UCR: 500-hours
Fungus	Fungus inert
Vibration	37g
Gunfire Virbration	No disconintuity greater than 1 microseconds; no cracking, breaking or loosening of parts, plug shall not disengage from receptacle. Connectors meet electrical requirements after vibration test.
Shock	300 G, half-sine, 3ms, 3 axes
EMI-Shieleding Effectiveness	55 dB min from 100 MHz to 1000 MHz
Contact Type	Crimp, solder or printed circuit
Number of Contacts	1 to 130

Contact Retention

CONTACT SIZE	MIN. POUNDS	MIN. NEWTONS
23	6	27
20	15	67
20HD	9	40
16	25	111
12	25	111

Contact Seperation Force

CONTACT SIZE	MIN. OUNCES	MIN. NEWTONS
23	0.5	0.14
20	0.7	0.19
20HD	0.7	0.19
16	2.0	0.56
12	3.0	0.83

Coupling Torque

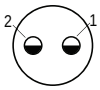
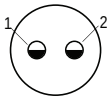
SHELL SIZE	INCH / POUNDS
5, 6, 7	8
8, 9	9
10	12
12, 13	16
14, 15	28
16, 17	24
21	32

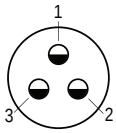
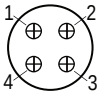
Polarization	Dual-Start ACME Thread coupling, 3 keyways with optional keyway rotations, note insert remained fixed.

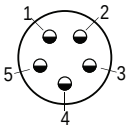
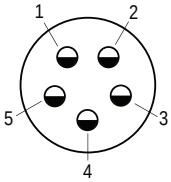
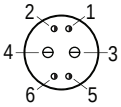
All dimensions in inches (millimeters in parenthesis)

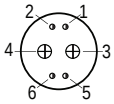
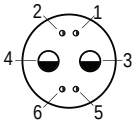
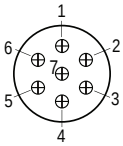
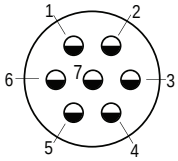
LAYOUTS BY NUMBER OF CONTACTS

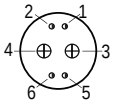
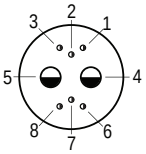
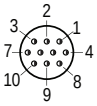
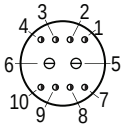
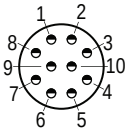
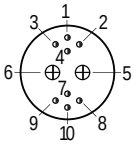
Front face of pin inserts shown. (Sockets mirror image)

CONTACTS	1		2		
					
2M801	6-1	7-1	8-2	10-2	13-2
2M803	6-1	7-1	8-2	10-2	12-2
2M804	6-1	7-1	8-2	10-2	12-2
2M805	8-1	9-1	10-2	12-2	15-2
# OF CONTACTS & SIZE	1#16	1#12	2#16	2#12	2#12
DWV VOLTAGE (VAC)	1800	1800	1800	1800	1800

CONTACTS	3			4	
					
2M801	5-3	6-23	13-3	6-4	9-4
2M803	5-3	6-23	12-3	6-4	9-4
2M804	5-3	6-23	12-3	6-4	9-4
2M805	NA	8-23	15-3	8-4	11-4
# OF CONTACTS & SIZE	3#23	3#20HD	3#12	4#23	4#16
DWV VOLTAGE (VAC)	500	750	1800	500	1800

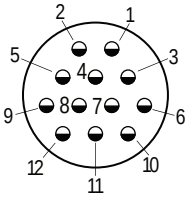
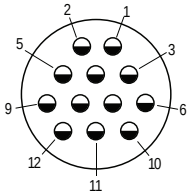
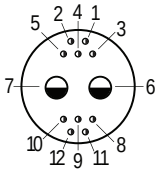
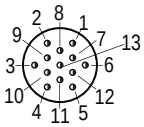
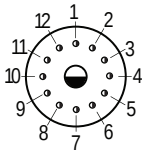
CONTACTS	5			6	
					
2M801	7-25	10-5	16-5	6-6	8-200
2M803	7-25	10-5	14-5	6-6	8-200
2M804	7-25	10-5	14-5	6-6	8-200
2M805	9-25	12-5	18-5	8-6	10-200
# OF CONTACTS & SIZE	5#20HD	5#16	5#12	6#23	4#23, 2#20
DWV VOLTAGE (VAC)	750	1800	1800	500	1000 (#20), 500 (#23)

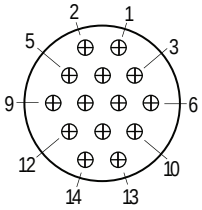
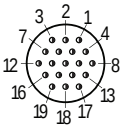
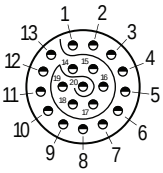
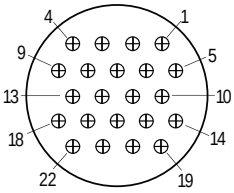
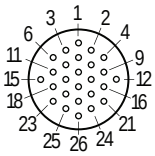
CONTACTS	6 (CONT.)		7		
					
2M801	9-200	10-201	6-7	13-7	17-7
2M803	9-200	10-201	6-7	12-7	NA
2M804	9-200	10-201	6-7	12-7	NA
2M805	11-200	12-201	8-7	15-7	19-7
# OF CONTACTS & SIZE	4#23, 2#16	4#23, 2#12	7#23	7#16	7#12
DWV VOLTAGE (VAC)	1800 (#16), 500 (#23)	1800 (#12), 500 (#23)	500	1800	1800

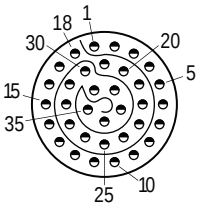
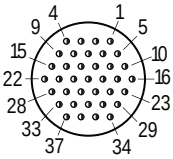
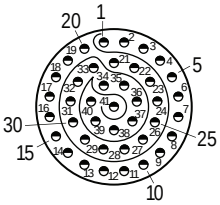
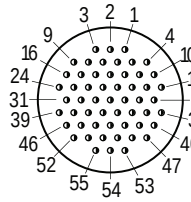
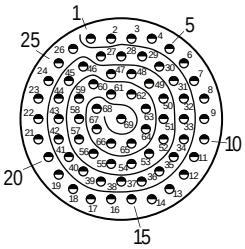
CONTACTS	8			10		
						
2M801	8-28	13-200	7-10	9-201	9-210	10-202
2M803	8-28	12-200	7-10	9-201	9-210	10-202
2M804	8-28	12-200	7-10	9-201	9-210	10-202
2M805	10-28	15-200	9-10	11-201	11-210	12-202
# OF CONTACTS & SIZE	8#20HD	6#23, 2#12	10#23	8#23, 12#20	10#20HD	8#23, 2#16
DWV VOLTAGE (VAC)	750	1800 (#12), 500 (#23)	500	1000 (#700), 500 (#23)	750	1800 (#16), 500 (#23)

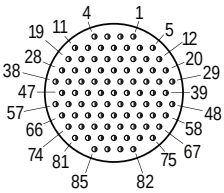
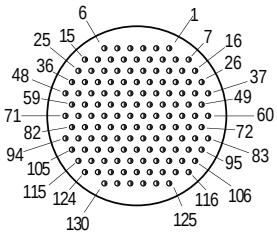
LAYOUTS BY NUMBER OF CONTACTS

Front face of pin inserts shown. (Sockets mirror image)

CONTACTS	12			13	
					
2M801	16-12	21-12	13-201	8-13	10-200
2M803	14-12	NA	12-201	8-13	10-200
2M804	14-12	NA	12-201	8-13	10-200
2M805	18-12	23-12	15-201	10-13	12-200
# OF CONTACTS & SIZE	12#16	12#12	10#23, 2#12	13#23	12#23, 1#12
DWV VOLTAGE (VAC)	1800	1800	1800(#12), 500(#23)	500	1800(#12), 500(#23)

CONTACTS	14	19	20	22	26
					
2M801	17-14	9-19	13-220	21-22	10-26
2M803	NA	9-19	12-220	NA	10-26
2M804	NA	9-19	12-220	NA	10-26
2M805	19-14	11-19	15-220	23-22	12-26
# OF CONTACTS & SIZE	14#16	19#23	20#20HD	22#16	26#23
DWV VOLTAGE (VAC)	1800	500	750	1800	500

CONTACTS	35	37	41	55	69
					
2M801	16-235	13-37	17-241	16-55	21-269
2M803	14-235	12-37	NA	14-55	NA
2M804	14-235	12-37	NA	14-55	NA
2M805	18-235	15-37	19-241	18-55	23-269
# OF CONTACTS & SIZE	35#20HD	37#23	41#20HD	55#23	69#20HD
DWV VOLTAGE (VAC)	750	500	750	500	750

CONTACTS	85	130
		
2M801	17-85	21-130
2M803	NA	NA
2M804	15-85	NA
2M805	19-85	23-130
# OF CONTACTS & SIZE	85#23	130#23
DWV VOLTAGE (VAC)	500	500

CREATE YOUR PART NUMBER 2M801 DUAL START ACME THREADS

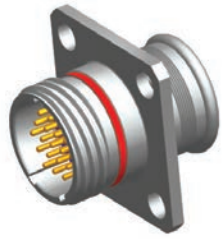
1	2	3	5	6
2M801-007-16	NF	8-13	P	A
SHELL STYLE	PLATING	SHELL SIZE - LAYOUT	CONTACT TYPE	KEYING

STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

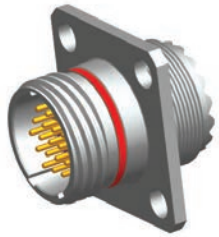
RECEPTACLES ← Mates with → **PLUGS**

2M801-009-01
In-Line with Integral Backshell

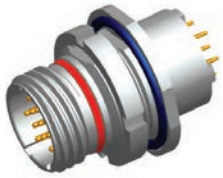
2M801-010-01
In-Line with Rear Accessory Threads



2M801-009-02
Square Flange with Integral Backshell



2M801-010-02
Square Flange with Rear Accessory Threads



2M801-009-07
Jam Nut with Integral Backshell

2M801-010-07
Jam Nut with Rear Accessory Threads

2M801-007-16
Plug with Integral Backshell Anti-Decoupling Spring

2M801-007-26
Self-Locking Plug with Ratchet Mechanism

2M801-008-16
Plug with Rear Accessory Thread Anti-Decoupling Spring

2M801-008-26
Self-Locking Plug with Ratchet Mechanism

STEP 2: SELECT CLASS

- **C** = Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
- **M** = Aluminum/ Electroless Nickel *(RoHS)*
- **NF** = Aluminum/ Cadmium with Olive Drab Chromate
- **MT** = Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
- **Z1** = Stainless Steel/ Passivated
- **ZN** = Aluminum/ Zinc-Nickel with Olive Drab Chromate
- **ZNU** = Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

STEP 3: SELECT LAYOUT

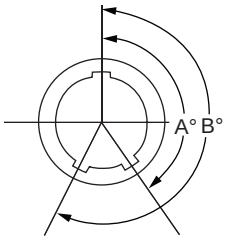
		CONTACT SIZE				
LAYOUT	# OF CONTACTS	23	20	20HD	16	12
5-3	3	3				
6-1	1				1	
6-4	4	4				
6-6	6	6				
6-7	7	7				
6-23	3			3		
7-1	1					1
7-10	10	10				
7-25	5			5		
8-2	2				2	
8-13	13	13				
8-28	8			8		
8-200	6	4	2			
9-4	4				4	
9-19	19	19				
9-200	6	4			2	
9-201	10	8	2			
9-210	10			10		
10-2	2					2
10-5	5				5	
10-26	26	26				
10-200	13	12				1
10-201	6	4				2
10-202	10	8			2	
13-2	2					2
13-3	3					3
13-7	7				7	
13-37	37	37				
13-200	8	6				2
13-201	12	10				2
13-220	20			20		
16-5	5					5
16-12	12				12	
16-55	55	55				
16-235	35			35		
17-7	7					7
17-14	14				14	
17-85	85	85				
17-241	41			41		
21-12	12					12
21-22	22				22	
21-130	130	130				
21-269	69			69		

STEP 4: SELECT CONTACT

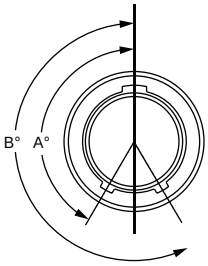
P = Pin **S** = Socket

STEP 5: SELECT KEYING

	A KEYWAY DEGREE	B KEYWAY DEGREE
A	150	210
B	75	210
C	95	230
D	140	275
E	75	275
F	95	210



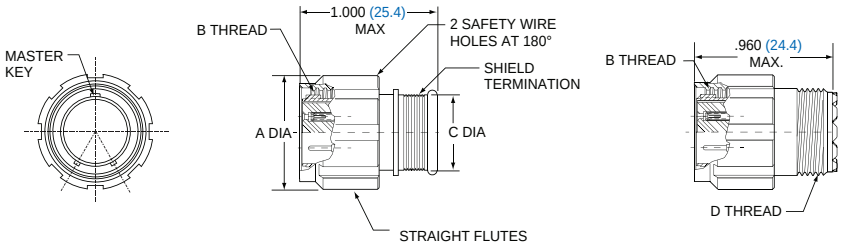
Receptacle View



Plug View

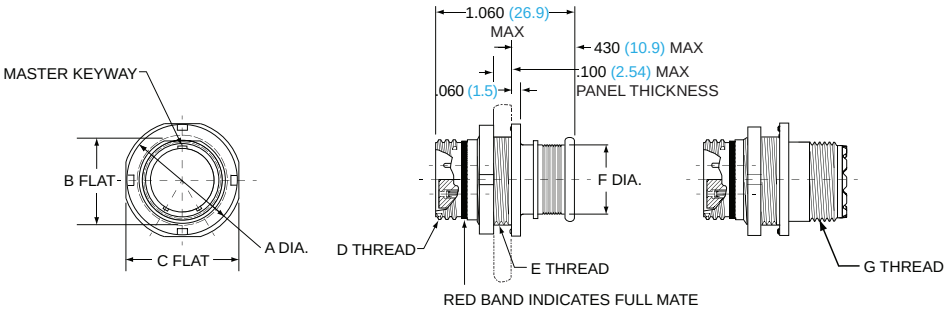
2M801 DIMENSIONS

PLUG

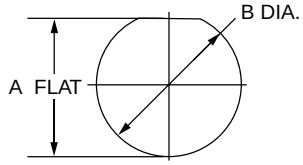


SHELL SIZE	STYLE 16 A DIA.		STYLE 26 A DIA.		B THREAD	C DIA.		D THREAD UNEF-2A
	IN.	MM.	IN.	MM.		IN.	MM.	
5	0.540	13.72	0.64	16.256	.3125-.05P-.1L-2B	0.245	6.223	.250 - 32
6	0.600	15.24	0.7	17.78	.3750-.05P-.1L-2B	0.29	7.366	.3125 - 32
7	0.680	17.27	0.78	19.812	.4375-.05P-.1L-2B	0.39	9.906	.4375 - 28
8	0.750	19.05	0.85	21.59	.5000-.05P-.1L-2B	0.445	11.303	.5000 - 28
9	0.810	20.57	0.91	23.114	.5625-.05P-.1L-2B	0.5	12.7	.5625 - 24
10	0.880	22.35	0.98	24.892	.6250-.05P-.1L-2B	0.56	14.224	.6250 - 24
13	1.050	26.67	1.15	29.21	.8125-.1P-.2L-2B	0.65	16.51	.6875 - 24
16	1.240	31.50	1.34	34.036	1.000-.1P-.2L-2B	0.805	20.447	.9375 - 20
17	1.300	33.02	1.4	35.56	1.0625-.1P-.2L-2B	0.85	21.59	.9375 - 20
21	1.550	39.37	1.65	41.91	1.3125-.1P-.2L-2B	1.11	28.194	1.1875 - 18

JAM NUT RECEPTACLE



SHELL SIZE	A DIA.		B FLAT		C FLAT	D THREAD	E THREAD	F DIA.		G THREAD
	IN.	MM.	IN.	MM.				IN.	MM.	
5	0.575	14.61	0.350	8.89	0.545	.3125-.05P-.1L-2A	.3125-.05P-.1L-2A	0.245	6.22	.2500-32 UN-2A
6	0.635	16.13	0.410	10.41	0.595	.3750-.05P-.1L-2A	.3750-.05P-.1L-2A	0.290	7.37	.3125-32 UN-2A
7	0.755	19.18	0.536	13.61	0.723	.4375-.05P-.1L-2A	.4375-.05P-.1L-2A	0.390	9.91	.4375-28 UN-2A
8	0.755	19.18	0.536	13.61	0.723	.5000-.05P-.1L-2A	.5000-.05P-.1L-2A	0.445	11.30	.5000-28 UN-2A
9	0.830	21.08	0.596	15.14	0.790	.5625-.05P-.1L-2A	.5625-.05P-.1L-2A	0.500	12.70	.5625-24 UN-2A
10	0.890	22.61	0.658	16.71	0.855	.6250-.05P-.1L-2A	.6250-.05P-.1L-2A	0.560	14.22	.6250-24 UN-2A
13	1.078	27.38	0.845	21.46	1.044	.8125-.1P-.2L-2A	.8125-.1P-.2L-2A	0.650	16.51	.6875-24 UN-2A
16	1.264	32.11	1.022	25.96	1.230	1.0000-.1P-.2L-2A	1.0000-.1P-.2L-2A	0.805	20.45	.9375-20 UN-2A
17	1.325	33.66	1.096	27.84	1.290	1.0625-.1P-.2L-2A	1.0625-.1P-.2L-2A	0.850	21.59	.9375-20 UN-2A
21	1.625	41.28	1.345	34.16	1.577	1.3125-.1P-.2L-2A	1.3125-.1P-.2L-2A	1.110	28.19	1.1875-18 UN-2A

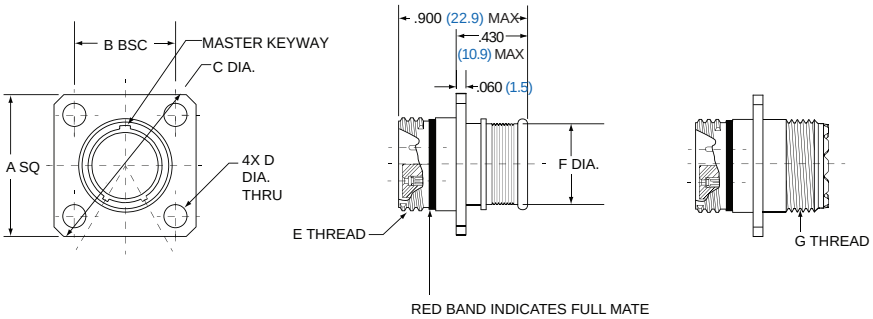


CUTOUT DIMENSIONS

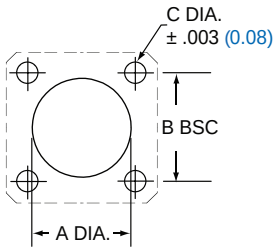
JAM NUT PANEL CUTOUT				
SHELL SIZE	A FLAT		B DIA.	
	IN +/-.002	MM +/- 0.05	IN +/-.002	MM +/- 0.05
5	0.356	9.04	0.385	9.78
6	0.416	10.57	0.447	11.35
7	0.542	13.77	0.572	14.53
8	0.542	13.77	0.572	14.53
9	0.602	15.29	0.635	16.13
10	0.666	16.62	0.697	17.7
13	0.851	21.62	0.885	22.48
16	1.028	26.11	1.075	27.31
17	1.102	27.99	1.135	28.83
21	1.354	34.39	1.385	35.18

All dimensions in inches (millimeters in blue)

SQUARE FLANGED RECEPTACLE

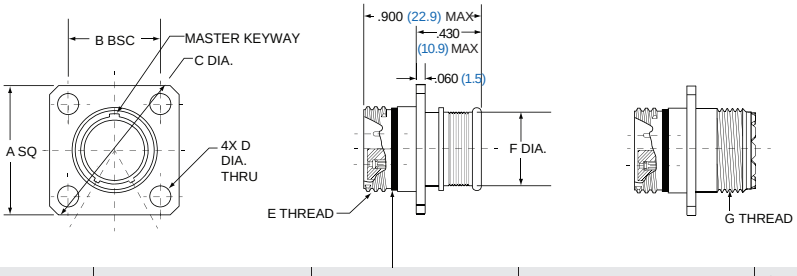


SHELL SIZE	A		B BSC		C DIA.		D DIA.		E THREAD	F DIA.		G THREAD UN-2A
	IN.	MM.	IN.	MM.	IN.	MM.	IN. ± .003	MM. ± .08		IN.	MM.	
5	0.530	13.46	0.363	9.22	0.680	17.27	0.093	2.36	.3125-.05P-.1L-2A	0.245	6.22	.2500-32
6	0.590	14.99	0.423	10.74	0.750	19.05	0.093	2.36	.3750-.05P-.1L-2A	0.290	7.37	.3125-32
7	0.650	16.51	0.483	12.27	0.850	21.59	0.093	2.36	.4375-.05P-1L-2A	0.390	9.91	.4375-28
8	0.712	18.08	0.545	13.84	0.938	23.83	0.093	2.36	.5000-.05P-1L-2A	0.445	11.30	.5000-28
9	0.850	21.59	0.607	15.42	1.125	28.58	0.128	3.25	.5625-.05P-.1L-2A	0.500	12.70	.5625-24
10	0.890	22.61	0.670	17.02	1.188	30.18	0.128	3.25	.6250-.05P-1L-2A	0.560	14.22	.6250-24
13	1.030	26.16	0.812	20.62	1.375	34.93	0.128	3.25	.8125-.1P-.2L-2A	0.650	16.51	.6875-24
16	1.219	30.96	0.981	24.92	1.625	41.28	0.128	3.25	1.0000-.1P-.2L-2A	0.805	20.45	.9375-20
17	1.280	32.51	1.060	26.92	1.700	43.18	0.128	3.25	1.0625-.1P-.2L-2A	0.850	21.59	.9375-20
21	1.430	36.32	1.205	30.61	1.938	49.23	0.128	3.25	1.3125-.1P-.2L-2A	1.110	28.19	1.1875-18



FLANGE MOUNT PANEL CUTOUT						
SHELL SIZE	A DIA.		B DIA.		C DIA.	
	IN.	MM.	IN.	MM.	IN.	MM.
5	0.330	8.38	0.363	9.22	0.093	2.36
6	0.390	9.91	0.423	10.74	0.093	2.36
7	0.450	11.43	0.483	12.27	0.093	2.36
8	0.510	12.95	0.545	13.84	0.093	2.36
9	0.575	14.61	0.607	15.42	0.128	3.25
10	0.640	16.26	0.670	17.02	0.128	3.25
13	0.825	20.96	0.812	20.65	0.128	3.25
16	1.015	25.78	0.981	24.92	0.128	3.25
17	1.075	27.31	1.060	26.92	0.128	3.25
21	1.325	33.66	1.205	30.61	0.128	3.25

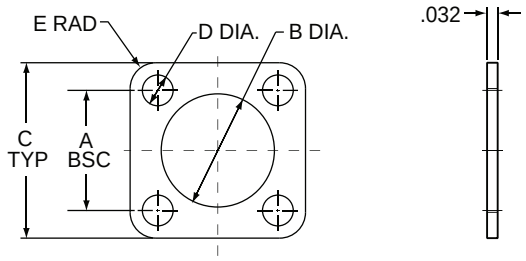
IN-LINE RECEPTACLE



SHELL SIZE	A DIA.		B FLAT		E THREAD	D DIA.		G THREAD UNEF-2A
	IN.	MM.	IN.	MM.		IN.	MM.	
5	0.355	9.02	0.325	8.13	.3125-.05P-.1L-2A	0.245	6.22	.2500-32
6	0.415	10.54	0.385	9.78	.3750-.05P-.1L-2A	0.29	7.37	.3125-32
7	0.48	12.19	0.445	11.3	.4375-.05P-.1L-2A	0.39	9.91	.4375-28
8	0.54	13.72	0.51	12.95	.5000-.05P-.1L-2A	0.445	11.3	.5000-28
9	0.605	15.37	0.575	14.61	.5625-.05P-.1L-2A	0.5	12.7	.5625-24
10	0.665	16.89	0.635	16.13	.6250-.05P-.1L-2A	0.56	14.22	.6250-24
13	0.855	21.72	0.825	20.96	.8125-.1P-.2L-2A	0.65	16.51	.6875-24
16	1.04	26.42	1.01	25.65	1.0000-.1P-.2L-2A	0.805	20.44	.9375-20
17	1.11	28.19	1.07	27.18	1.0625-.1P-.2L-2A	0.85	21.59	.9375-20
21	1.405	35.69	1.385	35.18	1.3125-.1P-2L-2A	1.11	28.19	1.1875-18

All dimensions in inches (millimeters in blue)

SQUARE FLANGED GASKETS



SHELL SIZE	PART NUMBER			A BSC.		B DIA.		C TYP.		D DIA.		E RAD.	
	FLUOROSILICONE	VITON®	CONDUCTIVE	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.
5	2M809-108F11	2M809-108V11	2M809-108X11	0.363	9.22	0.342	8.69	0.530	13.46	0.093	2.36	0.078	1.98
6	2M809-108F12	2M809-108V12	2M809-108X12	0.423	10.74	0.405	10.29	0.590	14.99	0.093	2.36	0.078	1.98
7	2M809-108F13	2M809-108V13	2M809-108X13	0.483	12.27	0.467	11.86	0.650	16.51	0.093	2.36	0.078	1.98
8	2M809-108F14	2M809-108V14	2M809-108X14	0.542	13.84	0.530	13.46	0.712	18.08	0.093	2.36	0.078	1.98
9	2M809-108F16	2M809-108V16	2M809-108X16	0.719	15.42	0.560	14.22	0.850	21.59	0.125	3.18	0.105	2.67
10	2M809-108F15	2M809-108V15	2M809-108X15	0.719	17.02	0.655	16.64	0.890	22.61	0.125	3.18	0.105	2.67
13	2M809-108F17	2M809-108V17	2M809-108X17	0.812	20.62	0.842	21.39	1.030	26.16	0.125	3.18	0.105	2.67
16	2M809-108F18	2M809-108V18	2M809-108X18	0.981	24.92	1.030	26.16	1.219	30.96	0.125	3.18	0.105	2.67
17	2M809-108F19	2M809-108V19	2M809-108X19	1.060	26.92	1.092	27.74	1.280	32.51	0.125	3.18	0.105	2.67
21	2M809-108F43	2M809-108V43	2M809-108X43	1.322	33.58	1.332	33.83	1.570	39.88	0.125	3.18	0.105	2.67

SHRINK BOOTS FOR INTEGRAL ENDBELL

High Performance Elastomer

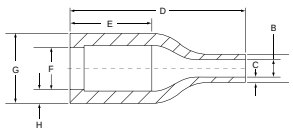
Pre-Coated with high-tempature adhesive

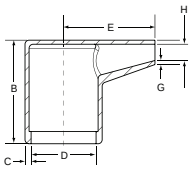
- Operating temperature -94 F to +302 F (-70 C to +150 C)
- Rated for 3000 hours of continous operation at +302 F (+150 C)
- Excellent resistance to fuels, oils, and solvents
- Spec VG95343 Part 6

Zero-Halogen

Low-Smoke, Zero-Halogen Toxicity Requirements

- Meets U.S. and E.U. standards
- Pre-coated with high-tempature adhesive
- Operating temperature -22 F to +257 F (-30 C to +125 C)
- Good resistance to fuels, oils, and solvents
- Spec NAVSEA 5617649





BOOT SIZE	SHELL SIZE	HIGH-PERFORMANCE ELASTOMER		ZERO-HALOGEN		STRAIGHT BOOT CABLE RANGE				RIGHT ANGLE BOOT CABLE RANGE			
						MAX.		MIN.		MAX.		MIN.	
		STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.
1	5	2M809S060-1	2M809A060-1	2M809S060-1H	2M809A060-1H *	0.350	9.0	0.080	2.0	0.240	6.0	0.080	2.0
2	6, 7	2M809S060-2	2M809A060-2	2M809S060-2H	2M809A060-2H	0.650	16.5	0.150	3.8	0.650	16.5	0.100	2.5
3	8, 9	2M809S060-3	2M809A060-3	2M809S060-3H	2M809A060-3H	0.920	23.4	0.220	5.6	0.920	23.3	0.220	5.6
4	10, 13	2M809S060-4	2M809A060-4	2M809S060-4H	2M809A060-4H	1.120	28.4	0.260	6.6	1.120	28.5	0.250	6.3
5	16, 17	2M809S060-5	2M809A060-5	2M809S060-5H	2M809A060-5H	1.220	31.0	0.280	7.1	1.220	30.9	0.280	7.1
6	21	2M809S060-6	2M809A060-6	2M809S060-6H	2M809A060-6H	1.680	42.7	0.390	9.9	1.680	42.6	0.380	9.7

* Size 1 Zero-halogen right-angle supplied less lip, see graphic

DUSTCAPS

SHELL SIZE FOR 2M801	METAL DUSTCAPS WITH NYLON ROPE LANYARD		
	FOR PLUGS WITH RING ATTACHMENT	FOR FLANGED RECEPTACLES WITH RING ATTACHMENT	FOR JAM NUT RECEPTACLES WITH LARGE RING ATTACHMENT
5	2M667-217-XX-G502-4	2M667-218-XX-G501-3	2M667-218-XX-G514-4
6	2M667-217-XX-G602-4	2M667-218-XX-G601-3	2M667-218-XX-G615-4
7	2M667-217-XX-G702-4	2M667-218-XX-G701-3	2M667-218-XX-G716-4
8	2M667-217-XX-G802-4	2M667-218-XX-G801-3	2M667-218-XX-G816-4
9	2M667-217-XX-G902-4	2M667-218-XX-G902-3	2M667-218-XX-G917-4
10	2M667-217-XX-G1002-5	2M667-218-XX-G1002-3	2M667-218-XX-G1018-4
13	2M667-217-XX-G1302-5	2M667-218-XX-G1302-3	2M667-218-XX-G1319-4
16	2M667-217-XX-G1602-6	2M667-218-XX-G1602-3	2M667-218-XX-G1620-4
17	2M667-217-XX-G1702-6	2M667-218-XX-G1702-3	2M667-218-XX-G1721-4
21	2M667-217-XX-G2102-6	2M667-218-XX-G2102-3	2M667-218-XX-G1724-4

C Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
M Aluminum/ Electroless Nickel *(RoHS)*
NF Aluminum/ Cadmium with Olive Drab Chromate
MT Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
Z1 Stainless Steel/ Passivated
ZN Aluminum/ Zinc-Nickel with Olive Drab Chromate
ZNU Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

REPLACE XX WITH PLATING CODE

STRAIN RELIEF CABLE CLAMP WITH ROTATABLE COUPLING

SHELL SIZE	PART NUMBER	THREAD SIZE 2B	CABLE ENTRY DIA.
5	2M620MS065-XX05	.2500-32 UNEF	0.11
6	2M620MS065-XX06	.3125-32 UNEF	0.17
7	2M620MS065-XX07	.4375-28 UNEF	0.23
8	2M620MS065-XX08	.5000-28 UNEF	0.30
9	2M620MS065-XX09	.5625-24 UNEF	0.30
10	2M620MS065-XX10	.6250-24 UNEF	0.36
13	2M620MS065-XX12	.6875-24 UNEF	0.42
16	2M620MS065-XX14	.9375-20 UNEF	0.48
17	2M620MS065-XX15	.9375-20 UNEF	0.61
21	2M620MS065-XX17	1.1875-18 UNEF	0.86

C Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
M Aluminum/ Electroless Nickel *(RoHS)*
NF Aluminum/ Cadmium with Olive Drab Chromate
MT Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
Z1 Stainless Steel/ Passivated
ZN Aluminum/ Zinc-Nickel with Olive Drab Chromate
ZNU Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

REPLACE XX WITH PLATING CODE

ADDITIONAL BACKSHELLS

	DESCRIPTION	PART NUMBER PREFIX	STRAIGHT	90°	45°
	Thread-On BAND-IT Adapter	2M440MS135	X		
		2M440ML135		X	
		2M440MK135			X
	Low-Profile BAND-IT Adapter	2M440MS134	X		
	Environmental Backshell	2M370MS038	X		
		2M370MA038		X	
		2M370MB038			X
	EMI Backshell	2M380MS137	X		
		2M380MA137		X	
		2M380MB137			X
	Environmental EMI Backshell	2M390MS077	X		
		2M390MA077		X	
		2M390MB077			X

CREATE YOUR PART NUMBER 2M803 BAYONET

1	2	3	5	6
2M803-001-06	NF	8-13	P	N
SHELL STYLE	PLATING	SHELL SIZE - LAYOUT	CONTACT TYPE	KEYING

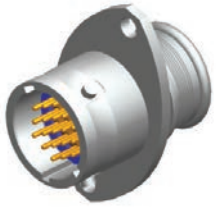
STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → **PLUGS**

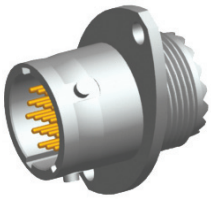
2M803-003-01
In-Line with Integral Backshell

2M803-004-01
In-Line with Rear Accessory Threads

2M803-001-06
Plug with Integral Backshell



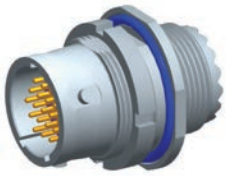
2M803-003-02
2-Hole Flange with Integral Backshell



2M803-004-02
2-Hole Flange with Rear Accessory Threads

2M803-002-06
Plug with Rear Accessory Thread

2M803-003-07
Jam Nut with Integral Backshell



2M803-004-07
Jam Nut with Rear Accessory Threads

STEP 2: SELECT CLASS

- **C** = Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
- **M** = Aluminum/ Electroless Nickel *(RoHS)*
- **NF** = Aluminum/ Cadmium with Olive Drab Chromate
- **MT** = Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
- **Z1** = Stainless Steel/ Passivated
- **ZN** = Aluminum/ Zinc-Nickel with Olive Drab Chromate
- **ZNU** = Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

STEP 3: SELECT LAYOUT

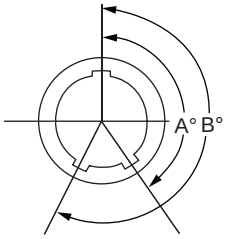
LAYOUT	# OF CONTACTS	CONTACT SIZE				
		23	20	20HD	16	12
5-3	3	3				
6-1	1				1	
6-4	4	4				
6-6	6	6				
6-7	7	7				
6-23	3			3		
7-1	1					1
7-10	10	10				
7-25	5			5		
8-2	2				2	
8-13	13	13				
8-28	8			8		
8-200	6	4	2			
9-4	4				4	
9-19	19	19				
9-200	6	4			2	
9-201	10	8	2			
9-210	10			10		
10-2	2					2
10-5	5				5	
10-26	26	26				
10-200	13	12				1
10-201	6	4				2
10-202	10	8			2	
12-2	2					2
12-3	3					3
12-7	7				7	
12-37	37	37				
12-200	8	6				2
12-201	12	10				2
12-220	20			20		
14-5	5					5
14-12	12				12	
14-55	55	55				
14-235	35			35		

STEP 4: SELECT CONTACT

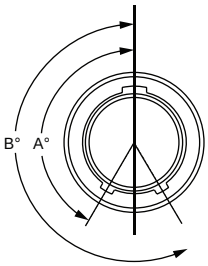
P = Pin **S** = Socket

STEP 5: SELECT KEYING

	A KEYWAY DEGREE	B KEYWAY DEGREE
N	150	210
X	75	210
Y	95	230
Z	140	275



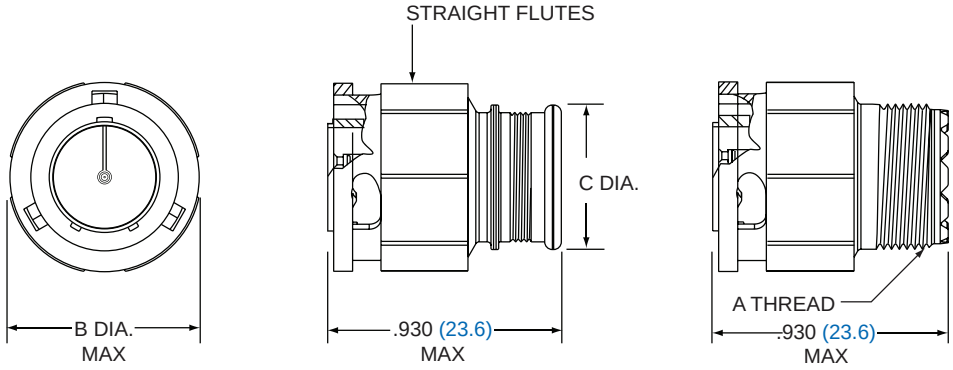
Receptacle View



Plug View

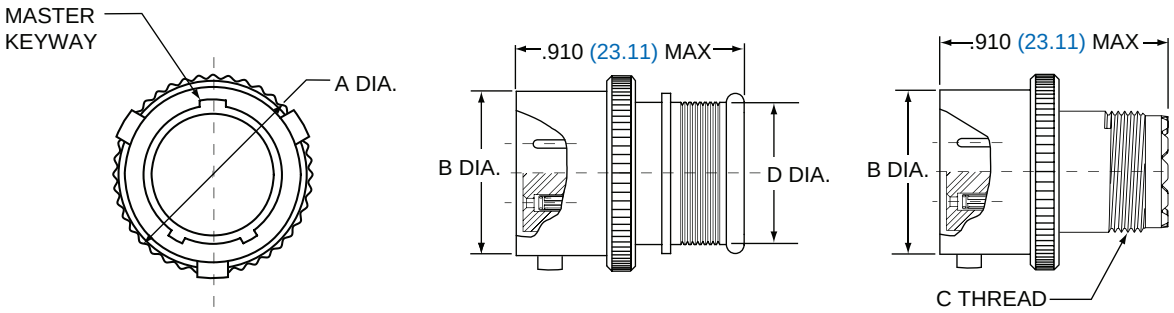
2M803 DIMENSIONS BAYONET COUPLING

PLUG



SHELL SIZE	A THREAD	B DIA. MAX.		C DIA.	
		IN.	MM.	IN.	MM.
5	.2500-32 UNEF-2A	0.470	11.94	0.210	5.33
6	.3125-32 UNEF-2A	0.535	13.59	0.280	7.11
7	.4375-28 UNEF-2A	0.615	15.62	0.390	9.91
8	.5000-28 UNEF-2A	0.670	17.02	0.455	11.56
9	.5625-24 UNEF-2A	0.740	18.80	0.510	12.95
10	.6250-24 UNEF-2A	0.805	20.45	0.570	14.48
12	.6875-24 UNEF-2A	0.890	27.60	0.650	16.51
14	.9375-20 UNEF-2A	1.095	27.81	0.805	20.45

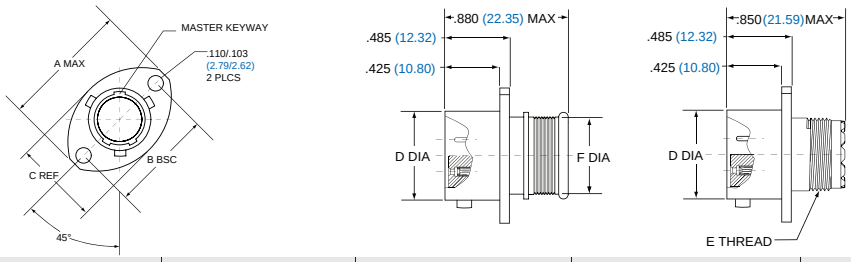
IN-LINE



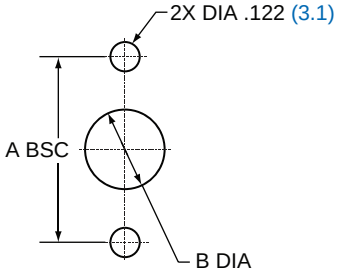
SHELL SIZE	A MAX.		B DIA.		C THREAD	D DIA.	
	IN.	MM.	IN.	MM.		IN.	MM.
5	0.380	9.65	0.300	7.62	.2500-32 UNEF-2A	0.230	5.84
6	0.465	11.81	0.362	9.19	.3125-32 UNEF-2A	0.286	7.26
7	0.500	12.70	0.436	11.07	.4375-28 UNEF-2A	0.390	9.91
8	0.570	14.48	0.508	12.90	.5000-28 UNEF-2A	0.440	11.18
9	0.652	16.56	0.561	14.25	.5625-24 UNEF-2A	0.500	12.70
10	0.715	18.15	0.635	16.13	.6250-24 UNEF-2A	0.562	14.27
12	0.805	20.45	0.714	18.14	.6875-24 UNEF-2A	0.650	16.51
14	0.915	23.24	0.865	21.97	.9375-20 UNEF-2A	0.805	20.45

All dimensions in inches (millimeters in blue)

FLANGE MOUNT RECEPTACLE

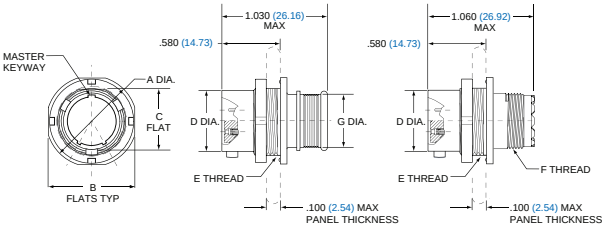


SHELL SIZE	A MAX.		B BSC.		C REF.		D DIA.		E THREAD	F DIA.	
	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.		IN.	MM.
5	0.703	17.86	0.513	13.03	0.460	11.68	0.300	7.62	.2500-32 UNEF-2A	0.230	5.84
6	0.788	20.02	0.598	15.19	0.522	13.26	0.362	9.19	.3125-32 UNEF-2A	0.286	7.26
7	0.890	22.61	0.708	17.98	0.590	14.99	0.436	11.07	.4375-28 UNEF-2A	0.390	9.91
8	1.154	29.31	0.964	24.49	0.668	16.97	0.500	12.70	.5000-28 UNEF-2A	0.440	11.18
9	1.207	30.66	1.017	25.83	0.721	18.31	0.561	14.25	.5625-24 UNEF-2A	0.500	12.70
10	1.291	32.79	1.101	27.97	0.795	20.19	0.635	16.13	.6250-24 UNEF-2A	0.562	14.27
12	1.394	35.41	1.204	30.58	0.874	22.20	0.714	18.14	.6875-24 UNEF-2A	0.650	16.51
14	1.545	39.24	1.280	32.51	1.050	26.67	0.865	21.97	.9375-20 UNEF-2A	0.805	20.45

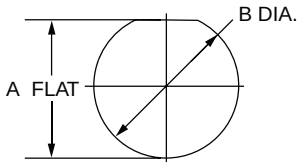


FLANGE MOUNT PANEL CUTOUTS				
SHELL SIZE	A BSC.		B DIA.	
	IN.	MM.	IN.	MM.
5	0.513	13.03	0.365	9.25
6	0.598	15.19	0.430	10.92
7	0.708	17.98	0.520	13.21
8	0.964	17.98	0.592	15.04
9	1.017	25.83	0.645	16.38
10	1.101	27.97	0.726	18.44
12	1.204	30.58	0.832	21.13
14	1.280	32.51	0.945	24.00

JAM NUT RECEPTACLES



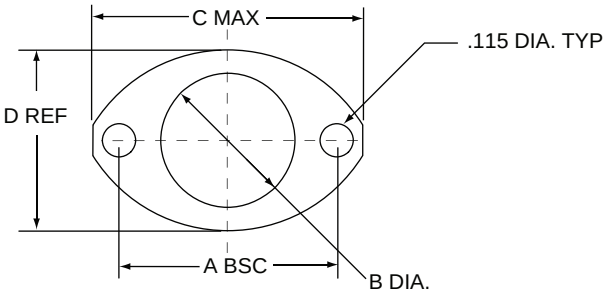
SHELL SIZE	A DIA.		B FLAT		C FLAT		D DIA.		E THREAD	F THREAD	G DIA.	
	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.			IN.	MM.
5	0.575	14.61	0.545	13.84	0.350	8.89	0.300	7.62	.3750-32 UNEF-2A	.2500-32 UNEF-2A	0.230	5.84
6	0.635	16.13	0.595	15.11	0.410	10.41	0.362	9.19	.4375-28 UNEF-2A	.3125-32 UNEF-2A	0.286	7.26
7	0.755	19.18	0.723	18.36	0.536	13.61	0.436	11.07	.5625-32 UN-2A	.4375-28 UNEF-2A	0.390	9.91
8	0.830	21.08	0.790	20.11	0.593	15.10	0.500	12.70	.6250-28 UN-2A	.5000-28 UNEF-2A	0.440	11.18
9	0.830	21.08	0.790	20.07	0.596	15.14	0.561	14.25	.6250-28 UN-2A	.5625-24 UNEF-2A	0.500	12.70
10	0.955	24.26	0.925	23.51	0.721	18.31	0.635	16.13	.7500-28 UN-2A	.6250-24 UNEF-2A	0.562	14.27
12	1.078	27.38	1.044	26.52	0.845	21.46	0.714	18.14	.8750-28 UN-2A	.6875-24 UNEF-2A	0.650	16.51
14	1.264	32.11	1.230	31.24	1.022	25.96	0.865	21.97	1.0625-20 UN-2A	.9375-20 UNEF-2A	0.805	20.45



JAM NUT PANEL CUTOUTS				
SHELL SIZE	A FLAT		B DIA.	
	IN.	MM.	IN.	MM.
5	0.355	9.02	0.382	9.70
6	0.415	10.54	0.445	11.30
7	0.541	13.74	0.572	14.53
8	.603/.599	15.32/15.21	0.635	16.13
9	0.601	15.27	0.643	16.33
10	.731/.727	18.57/18.47	0.76	18.29
12	0.850	21.59	0.885	22.48
14	1.031	23.19	1.072	27.23

All dimensions in inches (millimeters in blue)

2 HOLE FLANGED GASKETS



SHELL SIZE	PART NUMBER			A BSC.		B DIA.		C TYP.		D DIA.	
	FLUOROSILICONE	VITON®	CONDUCTIVE	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.
5	2M809-108F31	2M809-108V31	2M809-108X31	0.513	13.03	0.345	8.00	0.710	18.03	0.460	11.68
6	2M809-108F32	2M809-108V32	2M809-108X32	0.598	15.19	0.405	10.29	0.795	20.19	0.522	13.26
7	2M809-108F33	2M809-108V33	2M809-108X33	0.708	17.98	0.475	12.07	0.900	22.86	0.590	14.99
8	2M809-108F34	2M809-108V34	2M809-108X34	0.964	24.51	0.545	13.84	1.160	29.46	0.670	17.02
9	2M809-108F35	2M809-108V35	2M809-108X35	1.017	25.83	0.605	15.37	1.215	30.86	0.721	18.31
10	2M809-108F36	2M809-108V36	2M809-108X36	1.101	27.97	0.682	17.32	1.295	32.89	0.795	20.19
12	2M809-108F37	2M809-108V37	2M809-108X37	1.204	30.58	0.757	19.23	1.400	35.56	0.874	22.20
14	2M809-108F38	2M809-108V38	2M809-108X38	1.280	32.51	0.910	23.11	1.555	39.50	1.050	26.67
17	2M809-108F19	2M809-108V19	2M809-108X19	1.060	26.92	1.092	27.74	1.280	32.51	0.125	3.18
21	2M809-108F43	2M809-108V43	2M809-108X43	1.322	33.58	1.332	33.83	1.570	39.88	0.125	3.18

SHRINK BOOTS FOR INTEGRAL ENDBELL

High-Performance Elastomer

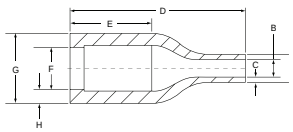
Pre-Coated with high-tempature adhesive

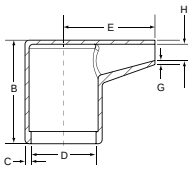
- Operating temperature -94 F to +302 F (-70 C to +150 C)
- Rated for 3000 hours of continous operation at +302 F (+150 C)
- Excellent resistance to fuels, oils, and solvents
- Spec VG95343 Part 6

Zero-Halogen

Low-Smoke, Zero-Halogen Toxicity Requirements

- Meets U.S. and E.U. standards
- Pre-coated with high-tempature adhesive
- Operating temperature -22 F to +257 F (-30 C to +125 C)
- Good resistance to fuels, oils, and solvents
- Spec NAVSEA 5617649





BOOT SIZE	SHELL SIZE	HIGH-PERFORMANCE ELASTOMER		ZERO-HALOGEN		STRAIGHT BOOT CABLE RANGE				RIGHT ANGLE BOOT CABLE RANGE			
						MAX.		MIN.		MAX.		MIN.	
		STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.
1	5	2M809S060-1	2M809A060-1	2M809S060-1H	2M809A060-1H *	0.350	9.0	0.080	2.0	0.240	6.0	0.080	2.0
2	6, 7	2M809S060-2	2M809A060-2	2M809S060-2H	2M809A060-2H	0.650	16.5	0.150	3.8	0.650	16.5	0.100	2.5
3	8, 9	2M809S060-3	2M809A060-3	2M809S060-3H	2M809A060-3H	0.920	23.4	0.220	5.6	0.920	23.3	0.220	5.6
4	10, 12	2M809S060-4	2M809A060-4	2M809S060-4H	2M809A060-4H	1.120	28.4	0.260	6.6	1.120	28.5	0.250	6.3
5	14	2M809S060-5	2M809A060-5	2M809S060-5H	2M809A060-5H	1.220	31.0	0.280	7.1	1.220	30.9	0.280	7.1

* Size 1 zero-halogen right-angle supplied less lip, see graphic

DUSTCAPS

SHELL SIZE FOR 2M803	METAL DUSTCAPS WITH NYLON ROPE LANYARD		
	FOR PLUGS WITH RING ATTACHMENT	FOR FLANGED RECEPTACLES WITH RING ATTACHMENT	FOR JAM NUT RECEPTACLES WITH LARGE RING ATTACHMENT
5	2M660-082-XX-G502-4	2M660-083-XX-G501-3	2M660-083-XX-G514-4
6	2M660-082-XX-G602-4	2M660-083-XX-G601-3	2M660-083-XX-G615-4
7	2M660-082-XX-G702-4	2M660-083-XX-G701-3	2M660-083-XX-G716-4
8	2M660-082-XX-G802-4	2M660-083-XX-G801-3	2M660-083-XX-G817-4
9	2M660-082-XX-G902-4	2M660-083-XX-G902-3	2M660-083-XX-G918-4
10	2M660-082-XX-G1002-5	2M660-083-XX-G1002-3	2M660-083-XX-G1019-4
12	2M660-082-XX-G1202-5	2M660-083-XX-G1202-3	2M660-083-XX-G1219-4
14	2M660-082-XX-G1402-6	2M660-083-XX-G1402-3	2M660-083-XX-G1420-4

C Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
M Aluminum/ Electroless Nickel *(RoHS)*
NF Aluminum/ Cadmium with Olive Drab Chromate
MT Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
Z1 Stainless Steel/ Passivated
ZN Aluminum/ Zinc-Nickel with Olive Drab Chromate
ZNU Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

REPLACE XX WITH PLATING CODE

STRAIN RELIEF CABLE CLAMP WITH ROTATABLE COUPLING

SHELL SIZE	PART NUMBER	THREAD SIZE 2B	CABLE ENTRY DIA.
5	2M620MS065-XX05	.2500-32 UNEF	0.11
6	2M620MS065-XX06	.3125-32 UNEF	0.17
7	2M620MS065-XX07	.4375-28 UNEF	0.23
8	2M620MS065-XX08	.5000-28 UNEF	0.30
9	2M620MS065-XX09	.5625-24 UNEF	0.30
10	2M620MS065-XX10	.6250-24 UNEF	0.36
12	2M620MS065-XX12	.6875-24 UNEF	0.42
14	2M620MS065-XX14	.9375-20 UNEF	0.48

C Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
M Aluminum/ Electroless Nickel *(RoHS)*
NF Aluminum/ Cadmium with Olive Drab Chromate
MT Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
Z1 Stainless Steel/ Passivated
ZN Aluminum/ Zinc-Nickel with Olive Drab Chromate
ZNU Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

REPLACE XX WITH PLATING CODE

ADDITIONAL BACKSHELLS

	DESCRIPTION	PART NUMBER PREFIX	STRAIGHT	90°	45°
	Thread-On BAND-IT Adapter	2M440MS135	X		
		2M440ML135		X	
		2M440MK135			X
	Low-Profile BAND-IT Adapter	2M440MS134	X		
	Environmental Backshell	2M370MS038	X		
		2M370MA038		X	
		2M370MB038			X
	EMI Backshell	2M380MS137	X		
		2M380MA137		X	
		2M380MB137			X
	Environmental EMI Backshell	2M390MS077	X		
		2M390MA077		X	
		2M390MB077			X

CREATE YOUR PART NUMBER 2M804 PUSH-PULL QUICK DISCONNECT

1	2	3	5	6
2M804-001-06	NF	8-13	P	A
SHELL STYLE	PLATING	SHELL SIZE - LAYOUT	CONTACT TYPE	KEYING

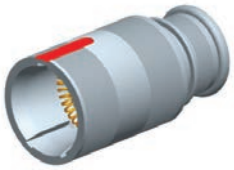
STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → PLUGS

2M804-003-00
Front Mount Jam Nut with Integral Backshell

2M804-004-00
Front Mount Jam Nut with Rear Accessory Threads

2M804-001-06
Plug with Integral Backshell



2M804-003-01
In-Line with Integral Backshell

2M804-004-01
In-Line with Rear Accessory Threads

2M804-002-06
Plug with Rear Accessory Thread

2M804-003-07
Rear Mount Jam Nut with Integral Backshell

2M804-004-07
Rear Mount Jam Nut with Rear Accessory Threads

STEP 2: SELECT CLASS

- **C** = Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
- **M** = Aluminum/ Electroless Nickel *(RoHS)*
- **NF** = Aluminum/ Cadmium with Olive Drab Chromate
- **MT** = Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
- **Z1** = Stainless Steel/ Passivated
- **ZN** = Aluminum/ Zinc-Nickel with Olive Drab Chromate
- **ZNU** = Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

STEP 3: SELECT LAYOUT

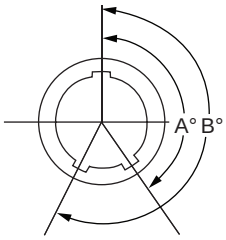
LAYOUT	# OF CONTACTS	CONTACT SIZE				
		23	20	20HD	16	12
5-3	3	3				
6-1	1				1	
6-4	4	4				
6-6	6	6				
6-7	7	7				
6-23	3			3		
7-1	1					1
7-10	10	10				
7-25	5			5		
8-2	2				2	
8-13	13	13				
8-28	8			8		
8-200	6	4	2			
9-4	4				4	
9-19	19	19				
9-200	6	4			2	
9-201	10	8	2			
9-210	10			10		
10-2	2					2
10-5	5				5	
10-26	26	26				
10-200	13	12				1
10-201	6	4				2
10-202	10	8			2	
12-2	2					2
12-3	3					3
12-7	7				7	
12-37	37	37				
12-200	8	6				2
12-201	12	10				2
12-220	20			20		
14-5	5					5
14-12	12				12	
14-55	55	55				
14-235	35			35		

STEP 4: SELECT CONTACT

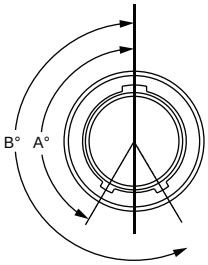
P = Pin **S** = Socket

STEP 5: SELECT KEYING

	A KEYWAY DEGREE	B KEYWAY DEGREE
OMIT FOR NORMAL	SINGLE MASTER KEYWAY	
A	150	210
B	75	210
C	95	230
D	140	275



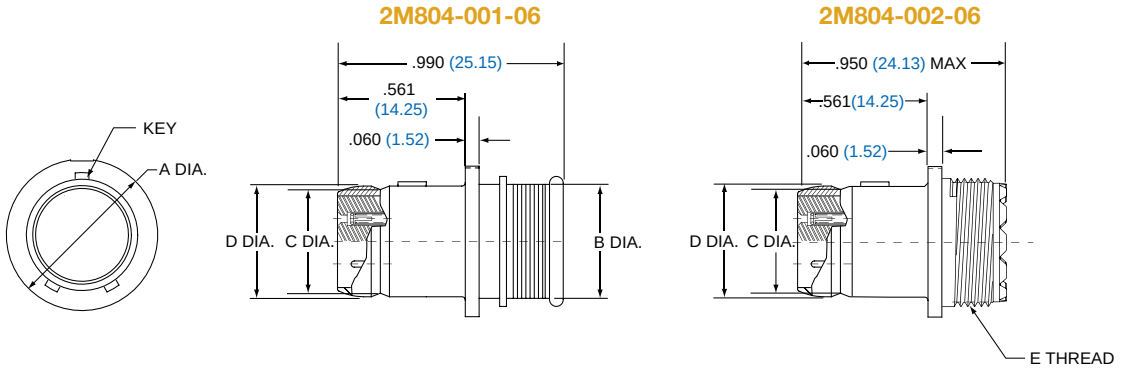
Receptacle View



Plug View

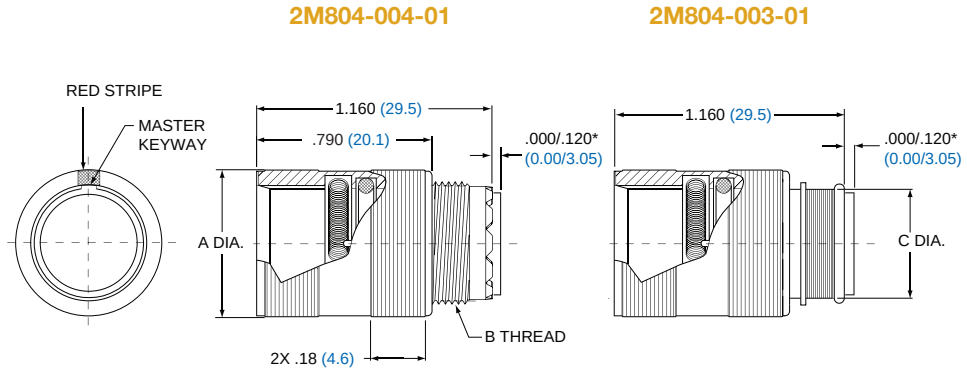
2M804 DIMENSIONS PUSH-PULL QUICK DISCONNECT

PLUG



SHELL SIZE	A DIA.		B DIA.		C DIA.		D DIA.		E THREAD
	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	
5	0.420	10.67	0.246	6.25	0.219	5.56	0.260	6.60	.2500-32 UNEF-2A
6	0.495	12.57	0.286	7.26	0.275	6.99	0.325	8.26	.3125-32 UNEF-2A
7	0.562	14.28	0.390	9.91	0.351	8.92	0.390	9.90	.4375-28 UNEF-2A
8	0.605	15.37	0.442	11.23	0.398	10.11	0.440	11.18	.5000-28 UNEF-2A
9	0.670	17.02	0.500	12.70	0.450	11.43	0.495	12.57	.5625-24 UNEF-2A
10	0.745	18.92	0.564	14.33	0.529	13.44	0.563	14.30	.6250-24 UNEF-2A
12	0.852	21.64	0.650	16.51	0.646	16.41	0.685	17.40	.6875-24 UNEF-2A
14	0.985	25.02	0.805	20.45	0.761	19.33	0.810	20.57	.9375-20 UNEF-2A

IN-LINE RECEPTACLE

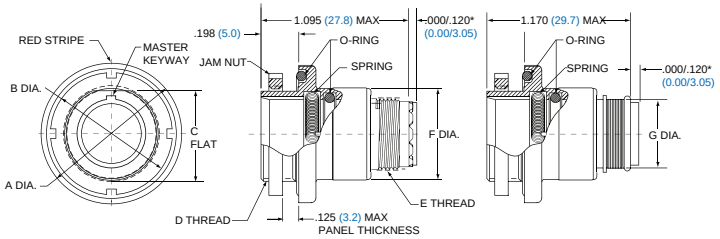


SHELL SIZE	A DIA.		B THREAD	C DIA.	
	IN.	MM.		IN.	MM.
5	0.450	11.43	.2500-32 UNEF-2A	0.246	6.25
6	0.520	13.21	.3125-32 UNEF-2A	0.286	7.26
7	0.580	14.73	.4375-28 UNEF-2A	0.390	9.91
8	0.603	15.32	.5000-28 UNEF-2A	0.442	11.23
9	0.695	17.65	.5625-24 UNEF-2A	0.500	12.70
10	0.735	18.67	.6250-24 UNEF-2A	0.564	14.33
12	0.880	22.35	.6875-24 UNEF-2A	0.650	16.51
14	1.010	25.65	.9375-20 UNEF-2A	0.805	20.45

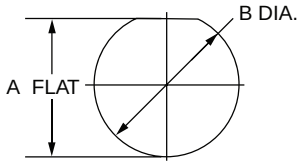
All dimensions in inches (millimeters in blue)

REAR MOUNT JAM NUT

2M804-004-07
2M804-003-07



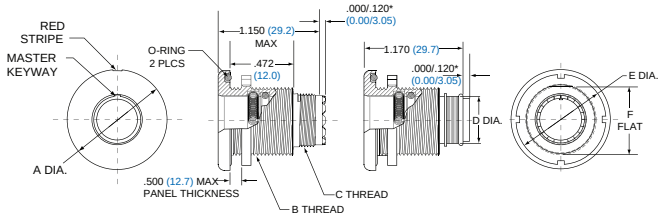
SHELL SIZE	A DIA.		B DIA.		C FLAT		D THREAD	E THREAD	F DIA.		G DIA.	
	IN.	MM.	IN.	MM.	IN.	MM.			IN.	MM.	IN.	MM.
5	0.775	19.69	0.562	14.27	0.415	10.54	.4375-32 UN-2A	.2500-32 UNEF-2A	0.450	11.43	0.235	5.97
6	0.830	21.08	0.625	15.87	0.467	14.40	.5000-32 UN-2A	.3125-32 UNEF-2A	0.520	13.21	0.286	7.26
7	0.910	23.11	0.750	19.05	0.594	15.09	.6250-28 UN-2A	.4375-28 UNEF-2A	0.580	14.73	0.390	9.91
8	0.955	24.26	0.750	19.05	0.594	15.09	.6250-28 UN-2A	.5000-28 UNEF-2A	0.603	15.32	0.442	11.23
9	1.000	25.40	0.812	20.62	0.655	16.64	.6875-28 UN-2A	.5625-24 UNEF-2A	0.695	17.65	0.500	12.70
10	1.085	27.48	0.875	22.22	0.721	18.31	.7500-28 UN-2A	.6250-24 UNEF-2A	0.735	18.67	0.564	14.33
12	1.180	29.97	1.000	25.40	0.843	21.41	.8750-28 UN-2A	.6875-24 UNEF-2A	0.880	22.35	0.650	16.51
14	1.370	34.80	1.125	28.57	0.968	24.59	1.0000-28 UN-2A	.9375-20 UNEF-2A	1.010	25.65	0.805	20.45



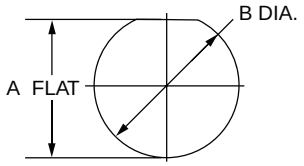
REAR MOUNT JAM NUT PANEL CUTOUT				
SHELL SIZE	A FLAT		B DIA.	
	IN. ±.002	MM. ± 0.05	IN. ±.005	MM. ± 0.13
5	0.423	10.74	0.448	11.38
6	0.475	12.07	0.510	12.95
7	0.602	15.29	0.635	16.13
8	0.602	15.29	0.635	16.13
9	0.663	16.84	0.698	17.73
10	0.729	18.82	0.760	19.30
12	0.851	21.62	0.885	22.48
14	0.976	24.79	1.010	25.65

FRONT MOUNT JAM NUT

2M804-004-00
2M804-003-00



SHELL SIZE	A DIA.		B THREAD	C THREAD	D DIA.		E DIA.		F FLAT.	
	IN.	MM.			IN.	MM.	IN.	MM.	IN.	MM.
5	0.830	21.08	.5000-32 UN-2A	.2500-32 UNEF-2A	0.246	6.25	0.625	15.87	0.470	11.94
6	0.885	22.48	.5625-32 UN-2A	.3125-32 UNEF-2A	0.286	7.26	0.688	17.47	0.530	13.46
7	0.955	25.27	.6875-28 UN-2A	.4375-28 UNEF-2A	0.390	9.91	0.812	20.62	0.663	16.84
8	0.955	25.27	.6875-28 UN-2A	.5000-28 UNEF-2A	0.442	11.23	0.812	20.62	0.663	16.84
9	1.075	27.31	.7500-28 UN-2A	.5625-24 UNEF-2A	0.500	12.70	0.875	22.22	0.720	18.29
10	1.140	28.95	.8125-28 UN-2A	.6250-24 UNEF-2A	0.564	14.33	0.938	23.82	0.780	19.81
12	1.340	34.04	1.0000-28 UN-2A	.6875-24 UNEF-2A	0.650	16.51	1.125	28.57	0.970	24.64
14	1.390	35.31	1.0625-20 UN-2A	.9375-20 UNEF-2A	0.805	20.45	1.188	30.18	1.020	25.91



FRONT MOUNT JAM NUT PANEL CUTOUT				
SHELL SIZE	A FLAT		B DIA.	
	IN. ±.002	MM. ± 0.05	IN. ±.005	MM. ± 0.13
5	0.477	12.12	0.510	12.95
6	0.537	13.64	0.573	14.55
7	0.670	17.02	0.698	17.73
8	0.670	17.02	0.698	17.73
9	0.727	18.47	0.760	19.30
10	0.787	20.19	0.823	20.90
12	0.977	24.82	1.010	25.65
14	1.027	26.09	1.073	27.25

All dimensions in inches (millimeters in blue)

SHRINK BOOTS FOR INTEGRAL ENDBELL

High Performance Elastomer

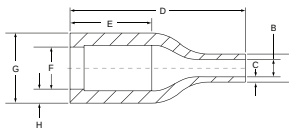
Pre-Coated with high-tempature adhesive

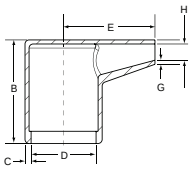
- Operating temperature -94 F to +302 F (-70 C to +150 C)
- Rated for 3000 hours of continous operation at +302 F (+150 C)
- Excellent resistance to fuels, oils, and solvents
- Spec VG95343 Part 6

Zero Halogen

Low-Smoke, Zero-Halogen Toxicity Requirements

- Meets U.S. and E.U. standards
- Pre-coated with high-tempature adhesive
- Operating temperature -22 F to +257 F (-30 C to +125 C)
- Good resistance to fuels, oils, and solvents
- Spec NAVSEA 5617649





BOOT SIZE	SHELL SIZE	HIGH-PERFORMANCE ELASTOMER		ZERO-HALOGEN		STRAIGHT BOOT CABLE RANGE				RIGHT ANGLE BOOT CABLE RANGE			
						MAX.		MIN.		MAX.		MIN.	
		STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.
1	5	2M809S060-1	2M809A060-1	2M809S060-1H	2M809A060-1H *	0.350	9.0	0.080	2.0	0.240	6.0	0.080	2.0
2	6, 7	2M809S060-2	2M809A060-2	2M809S060-2H	2M809A060-2H	0.650	16.5	0.150	3.8	0.650	16.5	0.100	2.5
3	8, 9	2M809S060-3	2M809A060-3	2M809S060-3H	2M809A060-3H	0.920	23.4	0.220	5.6	0.920	23.3	0.220	5.6
4	10, 12	2M809S060-4	2M809A060-4	2M809S060-4H	2M809A060-4H	1.120	28.4	0.260	6.6	1.120	28.5	0.250	6.3
5	14	2M809S060-5	2M809A060-5	2M809S060-5H	2M809A060-5H	1.220	31.0	0.280	7.1	1.220	30.9	0.280	7.1

* Size 1 Zero-halogen right-angle supplied less lip, see graphic

METAL DUSTCAPS

SHELL SIZE FOR 2M804	METAL DUSTCAPS WITH NYLON ROPE LANYARD			
	FOR PLUGS WITH RING ATTACHMENT	FOR FLANGED RECEPTACLES WITH RING ATTACHMENT	FOR JAM NUT RECEPTACLES REAR MOUNT WITH LARGE RING ATTACHMENT	FOR JAM NUT RECEPTACLES FRONT MOUNT WITH LARGE RING ATTACHMENT
5	2M809-198-XX5-G02-4	2M667-202-XX5-G01-3R	2M667-202-XX5-G14-4R	2M667-202-XX5-G16-4R
6	2M809-198-XX6-G02-4	2M667-202-XX6-G01-3R	2M667-202-XX6-G15-4R	2M667-202-XX6-G16-4R
7	2M809-198-XX7-G02-4	2M667-202-XX7-G01-3R	2M667-202-XX7-G16-4R	2M667-202-XX7-G18-4R
8	2M809-198-XX8-G02-4	2M667-202-XX8-G01-3R	2M667-202-XX8-G16-4R	2M667-202-XX8-G18-4R
9	2M809-198-XX9-G02-4	2M667-202-XX9-G02-3R	2M667-202-XX9-G17-4R	2M667-202-XX9-G19-4R
10	2M809-198-XX10-G02-5	2M667-202-XX10-G02-3R	2M667-202-XX10-G18-4R	2M667-202-XX10-G19-4R
12	2M809-198-XX12-G02-5	2M667-202-XX12-G02-3R	2M667-202-XX12-G19-4R	2M667-202-XX12-G20-4R
14	2M809-198-XX14-G02-6	2M667-202-XX14-G02-3R	2M667-202-XX14-G20-4R	2M667-202-XX14-G20-4R

C Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
M Aluminum/ Electroless Nickel *(RoHS)*
NF Aluminum/ Cadmium with Olive Drab Chromate
MT Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
Z1 Stainless Steel/ Passivated
ZN Aluminum/ Zinc-Nickel with Olive Drab Chromate
ZNU Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*
REPLACE XX WITH PLATING CODE

RUBBER DUSTCAPS

SHELL SIZE FOR 2M804	RUBBER NON-CONDUCTIVE DUSTCAPS WITH NYLON ROPE LANYARD		
	FOR PLUG WITH RING ATTACH-MENT	FOR FLANGED RECEPTACLE WITH RING ATTACHEMENT	FOR JAM NUT RECEPTACLES FRONT MOUNT WITH LARGE RING ATTACHMENT
5	2M809-083-5G4-02	2M809-087-5G4-15	2M809-087-5G4-08
6	2M809-083-6G4-02	2M809-087-6G4-08	2M809-087-6G4-16
7	2M809-083-7G4-02	2M809-087-7G4-17	2M809-087-7G4-18
8	2M809-083-8G4-02	2M809-087-8G4-17	2M809-087-8G4-18
9	2M809-083-9G4-02	2M809-087-9G4-18	2M809-087-9G4-10
10	2M809-083-10G5-02	2M809-087-10G4-10	2M809-087-10G4-25
12	2M809-083-12G5-02	2M809-087-12G4-19	2M809-087-12G4-12
14	2M809-083-14G6-02	2M809-087-14G4-12	2M809-087-14G4-20

STRAIN RELIEF CABLE CLAMP WITH ROTATABLE COUPLING

SHELL SIZE	PART NUMBER	THREAD SIZE 2B	CABLE ENTRY DIA.
5	2M620MS065-XX05	.2500-32 UNEF	0.11
6	2M620MS065-XX06	.3125-32 UNEF	0.17
7	2M620MS065-XX07	.4375-28 UNEF	0.23
8	2M620MS065-XX08	.5000-28 UNEF	0.30
9	2M620MS065-XX09	.5625-24 UNEF	0.30
10	2M620MS065-XX10	.6250-24 UNEF	0.36
12	2M620MS065-XX12	.6875-24 UNEF	0.42
14	2M620MS065-XX14	.9375-20 UNEF	0.48

C Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
M Aluminum/ Electroless Nickel *(RoHS)*
NF Aluminum/ Cadmium with Olive Drab Chromate
MT Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
Z1 Stainless Steel/ Passivated
ZN Aluminum/ Zinc-Nickel with Olive Drab Chromate
ZNU Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

REPLACE XX WITH PLATING CODE

All Dimensions in inches (millimeters in parenthesis).

ADDITIONAL BACKSHELLS

	DESCRIPTION	PART NUMBER PREFIX	STRAIGHT	90°	45°
	Thread-On BAND-IT Adapter	2M440MS135	X		
		2M440ML135		X	
		2M440MK135			X
	Low-Profile BAND-IT Adapter	2M440MS134	X		
	Environmental Backshell	2M370MS038	X		
		2M370MA038		X	
		2M370MB038			X
	EMI Backshell	2M380MS137	X		
		2M380MA137		X	
		2M380MB137			X
	Environmental EMI Backshell	2M390MS077	X		
		2M390MA077		X	
		2M390MB077			X

CREATE YOUR PART NUMBER 2M805 TRI-START THREADED COUPLING

1	2	3	5	6
2M805-001-16	NF	8-23	P	A
SHELL STYLE	PLATING	SHELL SIZE - LAYOUT	CONTACT TYPE	KEYING

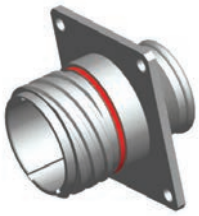
STEP 1: SELECT SHELL STYLE, PLUG OR RECEPTACLE

RECEPTACLES ← Mates with → PLUGS

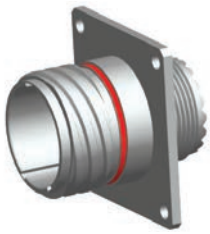
2M805-003-01
In-Line with
Integral Backshell

2M805-004-01
In-Line with
Rear Accessory Threads

2M805-001-16
Plug with Integral Backshell
Anti-Decoupling Spring



2M805-003-02
Square Flange with
Integral Backshell



2M805-004-02
Square Flange with
Rear Accessory Threads

2M805-002-16
Plug with Rear Accessory Thread
Anti-Decoupling Spring

2M805-003-07
Jam Nut with
Integral Backshell

2M805-004-07
Jam Nut with
Rear Accessory Threads

STEP 2: SELECT CLASS

- **C** = Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
- **M** = Aluminum/ Electroless Nickel *(RoHS)*
- **NF** = Aluminum/ Cadmium with Olive Drab Chromate
- **MT** = Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
- **Z1** = Stainless Steel/ Passivated
- **ZN** = Aluminum/ Zinc-Nickel with Olive Drab Chromate
- **ZNU** = Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

STEP 3: SELECT LAYOUT

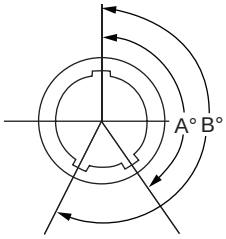
LAYOUT	# OF CONTACTS	CONTACT SIZE				
		23	20	20HD	16	12
8-1	1				1	
8-4	4	4				
8-6	6	6				
8-7	7	7				
8-23	3			3		
9-1	1					1
9-10	10	10				
9-25	5			5		
10-2	2				2	
10-13	13	13				
10-28	8			8		
10-200	6	4	2			
11-4	4				4	
11-19	19	19				
11-200	6	4			2	
11-201	10	8	2			
11-210	10			10		
12-2	2					2
12-5	5				5	
12-26	26	26				
12-200	13	12				1
12-201	6	4				2
12-202	10	8			2	
15-2	2					2
15-3	3					3
15-7	7				7	
15-37	37	37				
15-200	8	6				2
15-201	12	10				2
15-220	20			20		
18-5	5					5
18-12	12				12	
18-55	55	55				
18-235	35			35		
19-7	7					7
19-14	14				14	
19-85	85	85				
19-241	41			41		
23-12	12					12
23-22	22				22	
23-130	130	130				
23-269	69			69		

STEP 4: SELECT CONTACT

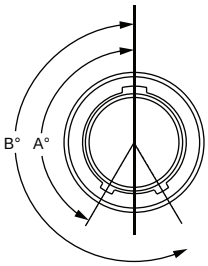
P = Pin **S** = Socket

STEP 5: SELECT KEYING

	A KEYWAY DEGREE	B KEYWAY DEGREE
A	150	210
B	75	210
C	95	230
D	140	275



Receptacle View

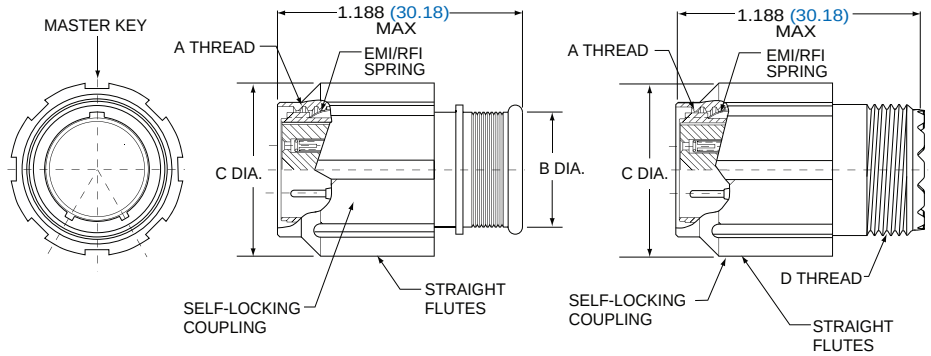


Plug View

2M805 DIMENSIONS

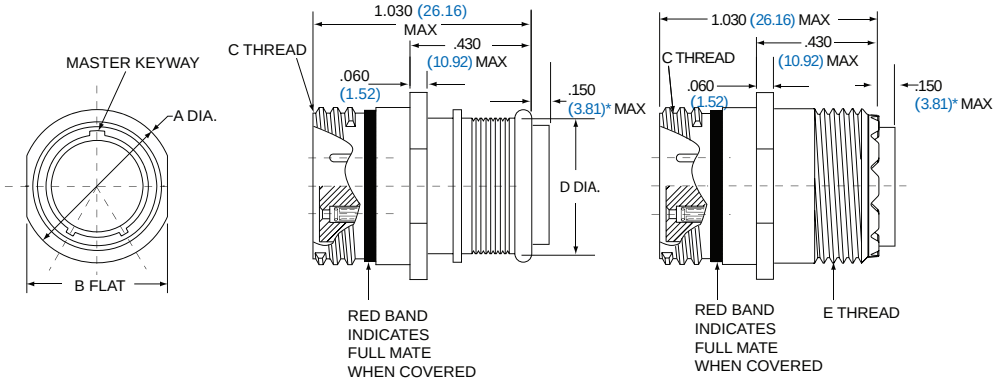
PLUG

2M805-001 **2M805-002**



SHELL SIZE	A THREADS	B DIA.		C DIA.		D THREADS ACCESSORY
		IN.	MM.	IN.	MM.	
8	.5000.1P-.3L-TS-2B	0.317	8.05	0.691	17.55	.3750-32 UNEF-2A
9	.5625.1P-.3L-TS-2B	0.397	10.08	0.787	19.99	.4375-28 UNEF-2A
10	.6250.1P-.3L-TS-2B	0.473	12.01	0.826	20.98	.5000-28 UNEF-2A
11	.6875.1P-.3L-TS-2B	0.519	13.18	0.916	23.27	.5625-24 UNEF-2A
12	.7500.1P-.3L-TS-2B	0.585	14.86	0.982	24.94	.6250-24 UNEF-2A
15	.9375.1P-.3L-TS-2B	0.687	17.45	1.097	27.86	.7500-20 UNEF-2A
18	1.1250.1P-.3L-TS-2B	0.884	22.45	1.29	32.77	.9375-20 UNEF-2A
19	1.1875.1P-.3L-TS-2B	0.884	22.45	1.31	33.27	.9375-20 UNEF-2A
23	1.4375.1P-.3L-TS-2B	1.135	28.83	1.562	39.67	1.1875-18 UNEF-2A

IN-LINE RECEPTACLE

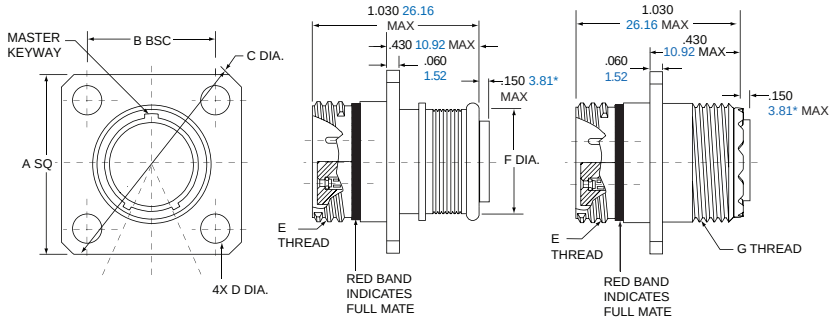


SHELL SIZE	A DIA.		B FLAT		C THREADS	D DIA.		E THREADS ACCESSORY
	IN.	MM.	IN.	MM.		IN.	MM.	
8	0.540	13.72	0.510	12.95	.5000.1P-.3L-TS-2A	0.316	8.05	.3750-32 UNEF-2A
9	0.605	15.37	0.575	14.61	.5625.1P-.3L-TS-2A	0.397	10.08	.4375-28 UNEF-2A
10	0.668	16.96	0.638	16.21	.6250.1P-.3L-TS-2A	0.472	12.01	.5000-28 UNEF-2A
11	0.730	18.54	0.700	17.78	.6875.1P-.3L-TS-2A	0.519	13.18	.5625-24 UNEF-2A
12	0.793	20.14	0.763	19.38	.7500.1P-.3L-TS-2A	0.585	14.86	.6250-24 UNEF-2A
15	0.980	24.89	0.950	24.13	.9375.1P-.3L-TS-2A	0.687	17.45	.7500-20 UNEF-2A
18	1.165	29.59	1.135	28.83	1.1250.1P-.3L-TS-2A	0.884	22.45	.9375-20 UNEF-2A
19	1.235	31.37	1.205	30.61	1.1875.1P-.3L-TS-2A	0.884	22.45	.9375-20 UNEF-2A
23	1.485	37.72	1.455	39.96	1.4375.1P-.3L-TS-2A	1.134	28.80	1.1875-18 UNEF-2A

All dimensions in inches (millimeters in blue)

SQUARE FLANGED RECEPTACLE

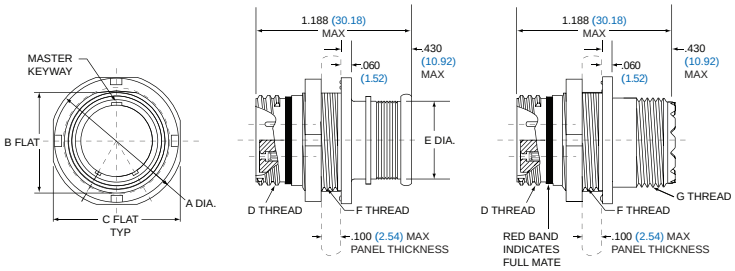
2M805-003-02
2M805-004-02



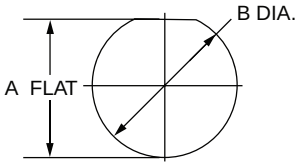
SHELL SIZE	A SQ.		B BSC.		C DIA.		D DIA.		E THREADS	F DIA.		G THREADS ACCESSORY
	IN.	MM.	IN.	MM.	IN.	MM.	IN. ±.003	MM. ±.08		IN.	MM.	
8	0.850	21.59	0.660	16.76	1.150	29.21	0.094	2.39	.5000.1P-.3L-TS-2A	0.316	8.05	.3750-32 UNEF-2A
9	0.913	23.19	0.723	18.36	1.230	31.24	0.094	2.39	.5625.1P-.3L-TS-2A	0.397	10.08	.4375-28 UNEF-2A
10	0.975	24.77	0.785	19.94	1.330	33.78	0.094	2.39	.6250.1P-.3L-TS-2A	0.472	12.01	.5000-28 UNEF-2A
11	1.039	26.39	0.848	21.54	1.410	35.81	0.094	2.39	.6875.1P-.3L-TS-2A	0.519	13.18	.5625-24 UNEF-2A
12	1.099	27.91	0.909	23.09	1.500	38.10	0.094	2.39	.7500.1P-.3L-TS-2A	0.585	14.86	.6250-24 UNEF-2A
15	1.288	32.74	1.058	26.87	1.750	44.45	0.128	3.25	.9375.1P-.3L-TS-2A	0.687	17.45	.7500-20 UNEF-2A
18	1.475	37.47	1.255	31.88	2.000	50.80	0.128	3.25	1.1250.1P-.3L-TS-2A	0.884	22.45	.9375-20 UNEF-2A
19	1.537	71.06	1.327	33.71	2.094	53.19	0.128	3.25	1.1875.1P-.3L-TS-2A	0.884	22.45	.9375-20 UNEF-2A
23	1.787	45.39	1.570	39.88	2.440	61.98	0.128	3.25	1.4375.1P-.3L-TS-2A	1.134	28.80	1.1875-18 UNEF-2A

JAM NUT RECEPTACLE

2M805-003-07
2M805-004-07



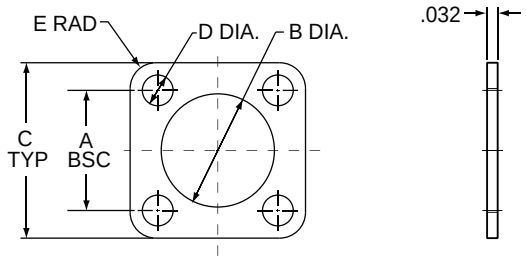
SHELL SIZE	A DIA.		B FLAT		C FLAT		D THREADS	E DIA.		F THREADS	G ACCESSORY THREADS
	IN.	MM.	IN.	MM.	IN.	MM.		IN.	MM.		
8	0.760	19.30	0.535	13.59	0.730	18.54	.5000.1P-.3L-TS-2A	0.317	8.05	.5625-28 UNEF-2A	.3750-32 UNEF-2A
9	0.880	22.35	0.661	16.79	0.850	21.59	.5625.1P-.3L-TS-2A	0.397	10.08	.6875-28 UN-2A	.4375-28 UNEF-2A
10	0.880	22.35	0.661	16.79	0.850	21.59	.6250.1P-.3L-TS-2A	0.473	12.01	.6875-28 UN-2A	.5000-28 UNEF-2A
11	0.955	24.26	0.721	18.31	0.925	23.50	.6875.1P-.3L-TS-2A	0.519	13.18	.7500-28 UN-2A	.5625-24 UNEF-2A
12	1.060	26.92	0.784	19.91	1.035	26.29	.7500.1P-.3L-TS-2A	0.585	14.86	.8125-28 UN-2A	.6250-24 UNEF-2A
15	1.203	30.56	0.970	24.64	1.173	29.79	.9375.1P-.3L-TS-2A	0.687	17.45	1.0000-28 UN-2A	.7500-20 UNEF-2A
18	1.389	35.28	1.147	29.13	1.359	34.52	1.1250.1P-.3L-TS-2A	0.884	22.45	1.1875-28 UN-2A	.9375-20 UNEF-2A
19	1.450	36.83	1.221	31.01	1.420	36.07	1.1875.1P-.3L-TS-2A	0.884	22.45	1.2500-28 UN-2A	.9375-20 UNEF-2A
23	1.705	43.31	1.470	37.34	1.675	42.55	1.4375.1P-.3L-TS-2A	1.134	28.80	1.5000-28 UN-2A	1.1875-18 UNEF-2A



JAM NUT PANEL CUTOUT				
SHELL SIZE	A FLAT		B DIA	
	IN. ±.002	MM. ± 0.05	IN. ±.005	MM. ± 0.13
8	0.543	13.79	0.572	14.53
9	0.669	16.99	0.698	17.73
10	0.669	16.99	0.698	17.73
11	0.729	18.51	0.760	19.30
12	0.792	20.17	0.822	20.88
15	0.978	24.84	1.010	25.65
18	1.155	29.34	1.198	30.43
19	1.231	31.27	1.260	32.00
23	1.480	37.59	1.510	38.35

All dimensions in inches (millimeters in blue)

SQUARE FLANGED GASKETS



SHELL SIZE	PART NUMBER			A BSC.		B DIA.		C TYP.		D DIA.		E RAD.	
	FLUOROSILICONE	VITON®	CONDUCTIVE	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.
8	2M809-108F20	2M809-108V20	2M809-108X20	0.660	16.76	0.530	13.46	0.850	21.46	0.093	2.36	0.078	1.98
9	2M809-108F21	2M809-108V21	2M809-108X21	0.723	18.36	0.590	14.99	0.913	23.19	0.093	2.36	0.078	1.98
10	2M809-108F22	2M809-108V22	2M809-108X22	0.785	19.94	0.660	16.76	0.975	24.77	0.093	2.36	0.078	1.98
11	2M809-108F23	2M809-108V23	2M809-108X23	0.848	21.54	0.720	18.29	1.039	26.39	0.093	2.36	0.078	1.98
12	2M809-108F24	2M809-108V24	2M809-108X24	0.909	23.09	0.780	19.81	1.099	27.91	0.093	2.36	0.078	1.98
15	2M809-108F25	2M809-108V25	2M809-108X25	1.058	26.87	0.970	24.64	1.288	32.72	0.125	3.18	0.105	2.67
18	2M809-108F26	2M809-108V26	2M809-108X26	1.255	31.88	1.160	29.46	1.475	37.47	0.125	3.18	0.105	2.67
19	2M809-108F27	2M809-108V27	2M809-108X27	1.327	33.71	1.220	30.99	1.537	39.04	0.125	3.18	0.105	2.67
21	2M809-108F43	2M809-108V43	2M809-108X43	1.322	33.58	1.332	33.83	1.570	39.88	0.125	3.18	0.105	2.67
23	2M809-108F28	2M809-108V28	2M809-108X28	1.570	39.88	1.458	37.03	1.797	45.64	0.125	3.18	0.105	2.67

SHRINK BOOTS FOR INTEGRAL ENDBELL

High-Performance Elastomer

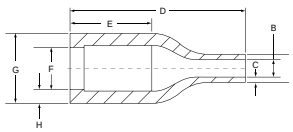
Pre-Coated with Hiegh-Tempature Adhesive

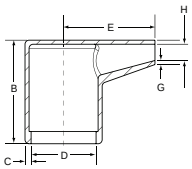
- Operating temperature -94 F to +302 F (-70 C to +150 C)
- Rated for 3000 hours of continous operation at +302 F (+150 C)
- Excellent resistance to fuels, oils, and solvents
- Spec VG95343 Part 6

Zero-Halogen

Low-Smoke, Zero-Halogen Toxicity Requirements

- Meets U.S. and E.U. standards
- Pre-coated with high-tempature adhesive
- Operating temperature -22 F to +257 F (-30 C to +125 C)
- Good resistance to fuels, oils, and solvents
- Spec NAVSEA 5617649





BOOT SIZE	SHELL SIZE	HIGH-PERFORMANCE ELASTOMER		ZERO-HALOGEN		STRAIGHT BOOT CABLE RANGE				RIGHT ANGLE BOOT CABLE RANGE			
						MAX.		MIN.		MAX.		MIN.	
		STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.
2	8, 9	2M809S060-2	2M809A060-2	2M809S060-2H	2M809A060-2H	0.650	16.5	0.150	3.8	0.650	16.5	0.100	2.5
3	10,11	2M809S060-3	2M809A060-3	2M809S060-3H	2M809A060-3H	0.920	23.4	0.220	5.6	0.920	23.3	0.220	5.6
4	12,15	2M809S060-4	2M809A060-4	2M809S060-4H	2M809A060-4H	1.120	28.4	0.260	6.6	1.120	28.5	0.250	6.3
5	18,19	2M809S060-5	2M809A060-5	2M809S060-5H	2M809A060-5H	1.220	31.0	0.280	7.1	1.220	30.9	0.280	7.1
6	23	2M809S060-6	2M809A060-6	2M809S060-6H	2M809A060-6H	1.680	42.7	0.390	9.9	1.680	42.7	0.380	9.7

DUSTCAPS

SHELL SIZE FOR 2M805	METAL DUSTCAPS WITH NYLON ROPE LANYARD		
	FOR PLUGS WITH RING ATTACHMENT	FOR FLANGED RECEPTACLES WITH RING ATTACHMENT	FOR JAM NUT RECEPTACLES WITH LARGE RING ATTACHMENT
8	2M667-261-XX-G0802-4	2M667-262-XX-G0801-4	2M667-262-XX-G0816-4
9	2M667-261-XX-G0902-4	2M667-262-XX-G0901-4	2M667-262-XX-G0918-4
10	2M667-261-XX-G1002-5	2M667-262-XX-G1001-5	2M667-262-XX-G1018-5
11	2M667-261-XX-G1102-5	2M667-262-XX-G1101-5	2M667-262-XX-G1119-5
12	2M667-261-XX-G1202-5	2M667-262-XX-G1201-5	2M667-262-XX-G1219-5
15	2M667-261-XX-G1502-6	2M667-262-XX-G1502-5	2M667-262-XX-G1520-5
18	2M667-261-XX-G1802-6	2M667-262-XX-G1802-5	2M667-262-XX-G1822-5
19	2M667-261-XX-G1902-6	2M667-262-XX-G1902-5	2M667-262-XX-G1923-5
23	2M667-261-XX-G2302-6	2M667-262-XX-G2302-5	2M667-262-XX-G2325-5

C Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
M Aluminum/ Electroless Nickel *(RoHS)*
NF Aluminum/ Cadmium with Olive Drab Chromate
MT Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
Z1 Stainless Steel/ Passivated
ZN Aluminum/ Zinc-Nickel with Olive Drab Chromate
ZNU Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

REPLACE XX WITH PLATING CODE

STRAIN RELIEF CABLE CLAMP WITH ROTATABLE COUPLING

SHELL SIZE	PART NUMBER	THREAD SIZE 2B	CABLE ENTRY DIA.
8	2M620MS065-XX11	.2500-32 UNEF	0.11
9	2M620MS065-XX07	.3125-32 UNEF	0.17
10	2M620MS065-XX08	.4375-28 UNEF	0.23
11	2M620MS065-XX09	.5000-28 UNEF	0.30
12	2M620MS065-XX10	.5625-24 UNEF	0.30
15	2M620MS065-XX13	.6250-24 UNEF	0.36
18, 19	2M620MS065-XX14	.9375-20 UNEF	0.48
18, 19	2M620MS065-XX15	.9375-20 UNEF	0.61
23	2M620MS065-XX17	1.1875-18 UNEF	0.86

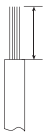
C Aluminum/ Black Anodize *(Non-Conductive) (RoHS)*
M Aluminum/ Electroless Nickel *(RoHS)*
NF Aluminum/ Cadmium with Olive Drab Chromate
MT Aluminum/ Nickel-PTFE *(Durmalon) (RoHS)*
Z1 Stainless Steel/ Passivated
ZN Aluminum/ Zinc-Nickel with Olive Drab Chromate
ZNU Aluminum/ Zinc-Nickel with Black Chromate *(RoHS)*

REPLACE XX WITH PLATING CODE

ADDITIONAL BACKSHELLS

	DESCRIPTION	PART NUMBER PREFIX	STRAIGHT	90°	45°
	Thread-On BAND-IT Adapter	2M440MS135	X		
		2M440ML135		X	
		2M440MK135			X
	Low-Profile BAND-IT Adapter	2M440MS134	X		
	Environmental Backshell	2M370MS038	X		
		2M370MA038		X	
		2M370MB038			X
	EMI Backshell	2M380MS137	X		
		2M380MA137		X	
		2M380MB137			X
	Environmental EMI Backshell	2M390MS077	X		
		2M390MA077		X	
		2M390MB077			X

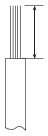
PINS

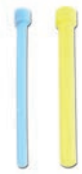


Insert head first

CONTACT SIZE AWG	WIRE SIZE AWG	PIN CONTACT	COLOR BANDS			WIRE STRIP LENGTH	WIRE SEALING RANGE		WIRE HOLE FILLER	HAND-CRIMP TOOL	POSITIONER (LOCATOR)	PLASTIC INSERTION/ EXTRACTION TOOL	METAL INSERTION TOOL	METAL EXTRACTION TOOL
			1	2	3		MIN.	MAX.						
23	22,24,26,& 28	2M809-001	N/A	N/A	N/A	0.15 (3.81)	0.024 (.609)	0.052 (1.32)	2M809-155 (Black)	M22520/2-01	K1461-1	2M809-088	DAK225-22	DRK225-22
	26,28, & 30	2M809-042	Blue	N/A	N/A	0.15 (3.81)	0.024 (.609)	0.052 (1.32)			2M809-057			
20HD	20,22, & 24	2M809-204	N/A	N/A	N/A	0.15 (3.81)	0.040 (1.02)	0.083 (2.11)	MS27488-20-2 (Red)	M22520/2-01	2M809-206	2M809-203	N/A	N/A
20	20,22, & 24	M39029/58-363	Orange	Blue	Orange	.188 (4.77)	0.040 (1.02)	0.083 (2.11)	MS27488-20-2 (Red)	M22520/1-01	M22520/1-04	M81969/14-10	11-008674-020	11-008675-020
16	16,18, & 20	M39029/58-364	Orange	Blue	Yellow	.188 (4.77)	0.065 (1.65)	0.109 (2.77)	MS27488-16-2 (Green)	M22520/1-01	M22520/1-04	M81969/14-03	11-008674-016	11-008675-016
12	12 & 14	M39029/58-365	Orange	Blue	Green	.188 (4.77)	0.097 (2.46)	0.142 (.361)	MS27488-12-2 (Orange)	M22520/1-01	M22520/1-04	M81969/14-04	11-008674-012	11-008675-012

SOCKETS



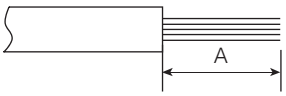

Insert head first

CONTACT SIZE AWG	WIRE SIZE AWG	PIN CONTACT	COLOR BANDS			WIRE STRIP LENGTH	WIRE SEALING RANGE		WIRE HOLE FILLER	HAND-CRIMP TOOL	POSITIONER (LOCATOR)	PLASTIC INSERTION/ EXTRACTION TOOL	METAL INSERTION TOOL	METAL EXTRACTION TOOL
			1	2	3		MIN.	MAX.						
23	22,24,26,& 28	2M809-002	N/A	N/A	N/A	0.15 (3.81)	0.024 (.609)	0.052 (1.32)	2M809-155 (Black)	M22520/2-01	K1461-1	2M809-088	DAK225-22	DRK225-22
	26,28, & 30	2M809-043	Blue	N/A	N/A	0.15 (3.81)	0.024 (.609)	0.052 (1.32)			2M809-057			
20HD	20,22, & 24	2M809-205	N/A	N/A	N/A	0.15 (3.81)	0.040 (1.02)	0.083 (2.11)	MS27488-20-2 (Red)	M22520/2-01	2M809-206	2M809-203	N/A	N/A
20	20,22, & 24	M39029/57-357	Orange	Green	Violet	.188 (4.77)	0.040 (1.02)	0.083 (2.11)	MS27488-20-2 (Red)	M22520/1-01	M22520/1-04	M81969/14-10	11-008674-020	11-008675-020
16	16,18, & 20	M39029/57-358	Orange	Green	Gray	.188 (4.77)	0.065 (1.65)	0.109 (2.77)	MS27488-16-2 (Green)	M22520/1-01	M22520/1-04	M81969/14-03	11-008674-016	11-008675-016
12	12 & 14	M39029/57-359	Orange	Green	White	.188 (4.77)	0.097 (2.46)	0.142 (.361)	MS27488-12-2 (Orange)	M22520/1-01	M22520/1-04	M81969/14-04	11-008674-012	11-008675-012

All dimensions in inches

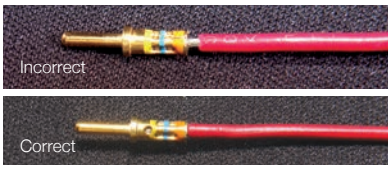
WIRE STRIPPING

Strip insulation from the end of wire to be crimped. (See table for proper stripping dimensions.) Do not cut or damage wire strands.



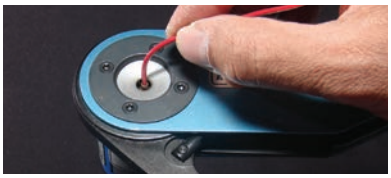
CONTACT SIZE	A
23, 20HD	.150 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)

CONTACT CRIMPING



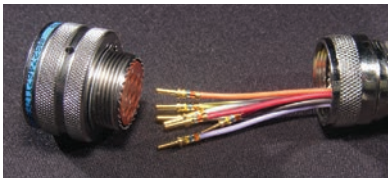
STEP 1: Insert wire into rear of contact. Wire insulation must press against rear of contact. Wire must be visible through inspection hole.

STEP 2: M22520 series crimp tool and locator is recommended. See Contact and Tool Table on pages 182 and 183 for choice of turret head and selection setting according to contact size, part number and wire gauge size.

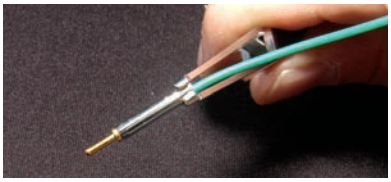


STEP 3: Insert contact and wire into tool jaws. To crimp, squeeze handles together fully until ratchet releases and allows handles to expand; otherwise, contact cannot be extracted from tool jaws. Maintain slight insertion pressure on wire while crimping contact to wire.

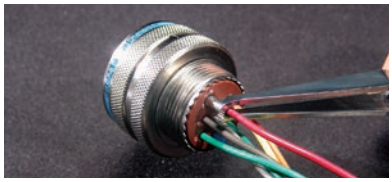
CONTACT INSERTION



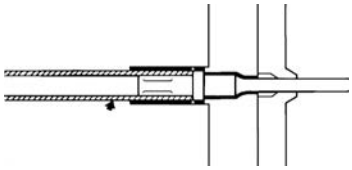
STEP 1: Remove hardware from plug or receptacle and slip over wire bundle in proper order for reassembly.



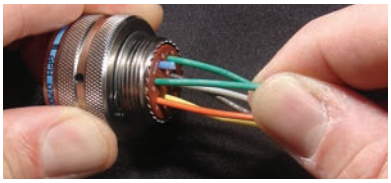
STEP 2: Using proper plastic or metal insertion tool for corresponding contact, position wire in tip of the tool so that the tool tip presses against the contact shoulder.



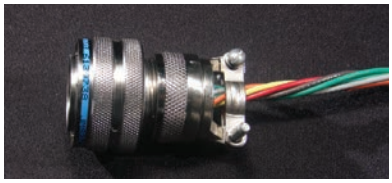
STEP 3: Press tool against contact shoulder and, with firm and even pressure, insert wired contact and tool tip into center contact cavity.



STEP 4: When contact bottoms, a slight "click" can be heard as tines of metal retaining clip snap into place behind contact shoulder.



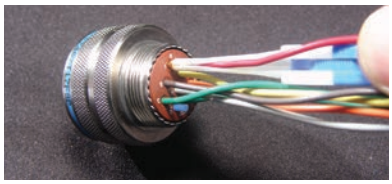
STEP 5: Remove tool and pull back lightly on wire to make sure contact is properly seated. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.



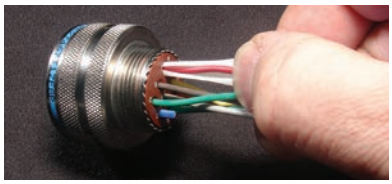
STEP 6: After all contacts are inserted, fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

CONTACT EXTRACTION

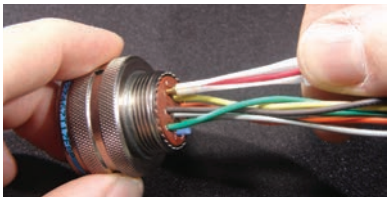
STEP 1: Remove hardware from plug or receptacle and slide hardware back along wire bundle.



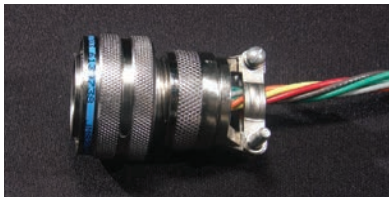
STEP 2: Using plastic or metal extraction tool with proper color code corresponding to contact size, place wire in tool.



STEP 3: Insert tool into contact cavity until tool tip bottoms against the contact shoulder, expanding clip retaining tines.



STEP 4: Hold wire firmly in tool and extract wired contact and tool. Repeat operation for all contacts to be extracted.



STEP 5: Fill any empty cavities with wire sealing plugs. Reassemble plug or receptacle hardware.

All dimensions in inches

PEI-Genesis™
Engineered Solutions for connectors and power
48 HOUR
TURNAROUND ON CONNECTORS

Amphenol®

2M

THE POWER & DEPENDABILITY OF 38999…MINIATURIZED.

- High-retention contacts won't disengage
- Superior performance*
- Excellent for:
  - o Harsh-environment communications applications such as soldier-worn and surveillance
  - o Downhole-drilling

For complete technical and performance data, please see pages 305 – 307.

Amphenol RJ Field Series

NO HAZARDOUS ON-FIELD CABLING AND GROUNDING

The Amphenol RJ Field series allows the use of an Ethernet Class D/ Cat5e and Class E/Cat6 connection for Ethernet over twisted-pair networks in harsh environments. The RJStop® connection system protects from shock, dust and fluid. No hazardous on-field cabling and grounding required!

- Connections for 10Base-T, 100Base-TX, or 1000Base-T networks
- No tools required
- Mechanical coding/polarization

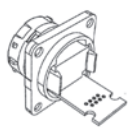
APPLICATIONS

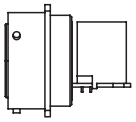
- Robotics
- Military data hubs
- Special machines
- Welding machines
- Communications
- CNC machines
- Process & motion control
- Diagnostics

FEATURES

- Cat5e & Cat6e Cable
- USB-A, USB-B
- Mating systems – bayonet, triple-lead, latch, push-pull

TECHNICAL SPECIFICATIONS





SERIES	RJF RB	RJF 544	RJF-EZ	RJF	RJFTV	USBFTV (USB-A)	USBBFTV (USB-B)
Shape	Circular	Circular	Rectangular	Circular	Circular	Circular	Circular
Coupling System	Reverse Bayonet	Push-Pull	Lever	Bayonet	Tri-Start Thread	Tri-Start Thread	Tri-Start Thread
Material	Plastic	Plastic	Plastic	Metal	Metal	Metal	Metal
Data Type	CAT5e & CAT6	CAT5e	CAT5e	CAT5e	CAT5e	USB-A 2.0	USB-B 2.0
Number of possible Codings (polarizations)	1	1	1	4	4	4	4
RoHS Options Available	Yes	No	No	Yes	Yes	Yes	Yes
Mating Cycles	500 min.	500 min.	500 min.	500 min.	500 min.	up to 1500	up to 1500

FEATURES

RJF RB - REVERSE BAYONET

MAIN CHARACTERISTICS

- Composite material
- Sealed against fluids and dust (IP68)
- Shock, vibration, and traction resistant
- No-cabling operation in-field and no tools required
- Reverse bayonet coupling
- RJ45 cordset retention in the plug: 70 N in the axis
- Mating cycles: 500 min.
- IDC receptacle
- PCB receptacle
- RoHS compliant

ENVIRONMENTAL PROTECTION

- Sealing: IP68
- Salt Spay > 1000-hour
- Fire retardant/low smoke: UL94 VO and NFF 16102, DIN 5510-2
- Thermal shock: 5 cycles at -40°F to +212°F (-40°C to +100°C)
- Operating temperature: -40°F to +185°F (-40°C to +85°C)

DATA TRANSMISSION

10 Base-T, 100 Base-TX and 1000 Base-T networks

Cat5e per TIA/EIA 568B and Class D per ISO/IEC 11801

Cat6e per TIA/EIA 568B and Class E per ISO/IEC 11801

PLUG	RECEPTACLES						DUSTCAPS	
			IDC CAT6					
PLUG	JAM NUT STRAIGHT	JAM NUT RIGHT ANGLE	JAM NUT UNSHIELDED	JAM NUT PARTIAL SHIELDED	JAM NUT 100% SHIELDED	CORDSET	DUSTCAP FOR RECEPTACLE TYPES 71X & 72X	DUSTCAP FOR RECEPTACLE TYPES 73X
RJFRB6	RJFRB71	RJFRB71RA	RJFRB73U	RJFRB73F	RJFRB73S	RJFRB72**100BTX	RJFRBC7	RJFRBC75

** Select for cordset length
03 = 11.81 (0.30M)
05 = 19.68 (0.50M)
10 = 39.37 (1.00M)
15 = 59.05 (1.50M)

PCB available, please contact us.

ASSEMBLY INSTRUCTIONS

STEP 1:

STEP 2:

STEP 3:

STEP 4:

STEP 5:

STEP 6:

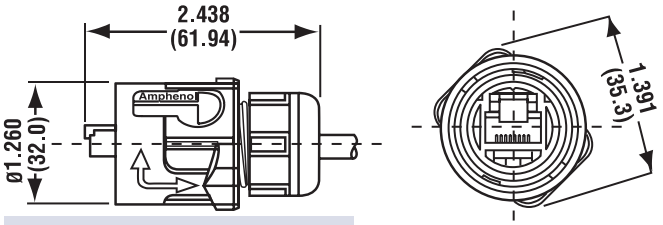
STEP 7:

STEP 8:

All dimensions in inches (millimeters in parenthesis)

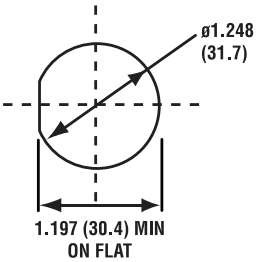
PLUG

RJF RB 6
Plug with Plastic Gland



Outside Diameter Range MARK

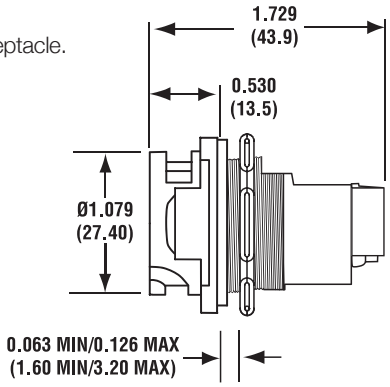
RJF RB 73X
IDC CAT6 Termination (Rear Mount)



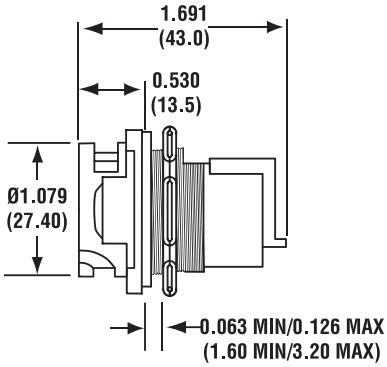
Panel Cutout

RECEPTACLES

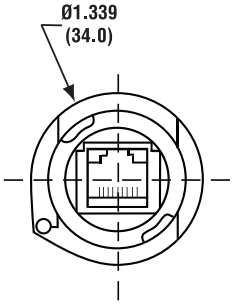
RJF RB 71
RJ45 Female Receptacle.

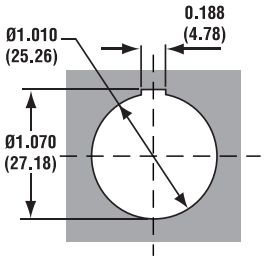


RJF RB 71 RA
RJ45 Right Angle Female Receptacle.



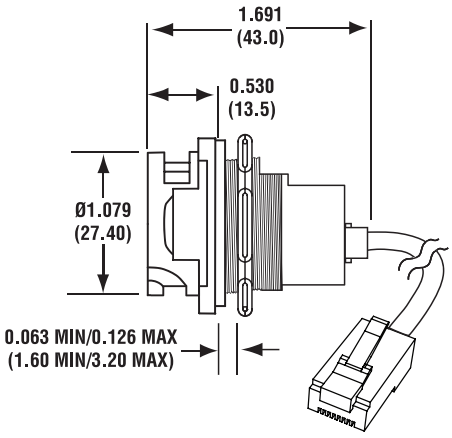
COMMON RECEPTACLE DIMENSIONS





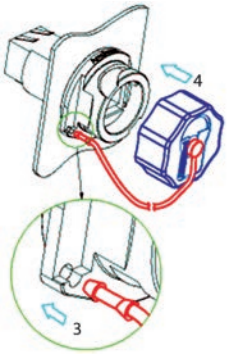
Panel Cutout

RJF RB 72XX 100BTX
RJ45 Cordset



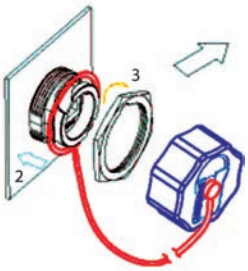
ACCESSORIES

IP68 DUSTCAPS



RJF RB C7
Cap for receptacles RJFRB71 / 71RA / 72xxx

Cord length 2.76" (70.0)



RJF RB C75
Cap for receptacles RJFRB73x

Cord length 3.93" (100.0)

All dimensions in inches (millimeters in parenthesis)

FEATURES

RJF 544 SERIES

MAIN CHARACTERISTICS

- Composite material
- Compliant with IEC 60603-7 variant 12
- Shock, vibration and traction-resistant
- No-cabling operation in-field and no tools required
- Sealed against fluids and dust (IP68)
- Quick push-pull coupling
- RJ45 cordset retention in the plug: 100 N in the axis
- Mating cycles: 500 min.
- Improved EMI protection
- Compatible with cable diameter from 0.236 in. (6 mm) to 0.512 in. (13.0 mm)

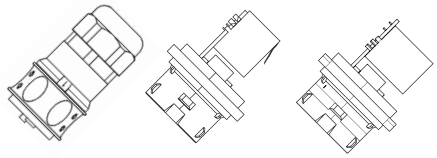
ENVIRONMENTAL PROTECTION

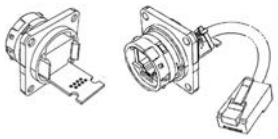
- Sealing: IP68
- Salt Spray > 1000-hour
- Fire retardant/low smoke: UL94 VO and NFF 16102, DIN 5510-2
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 10 nano seconds
- Thermal shock: 5 cycles at -40°F to +212°F (-40°C to +100°C)
- Operating temperature: -40°F to +185°F (-40°C to +85°C)

DATA TRANSMISSION

10 Base-T, 100 Base-TX, and 1000 Base-T networks

Cat5e per TIA/EIA 568B and Class D per ISO/IEC 11801



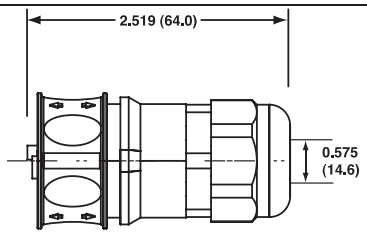


PLUG	RECEPTACLES						ACCESSORIES			
PLUG	FLANGE STRAIGHT	FLANGE STRAIGHT METAL INSERT	FLANGE RIGHT ANGLE	FLANGE RIGHT ANGLE METAL INSERT	FLANGE STRAIGHT 8 PCB TINNED HOLES	FLANGE CORDSET	DUST CAP FOR PLUG	DUST CAP FOR RECEPTACLE	PANEL FLANGED GASKET	INSERT REMOVAL TOOL FOR PLUG
RJF5446	RJF54421	RJF5442M1	RJF54421RA	RJF5442M1RA	RJF5442200	RJF54422**100BTX	54402BM	54402BE	RJF54402JE	5440T02

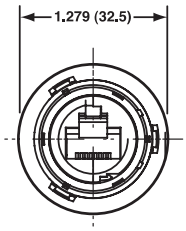
** Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M) **BOLD** = Stocked items

PLUG

RJF 544 6

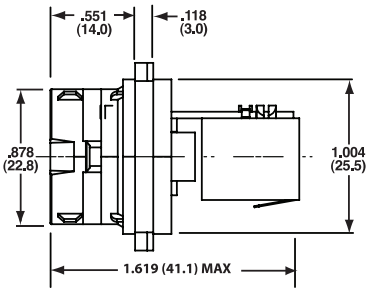


Cable Exit Range .236 (6.0) to .512 (13.0)

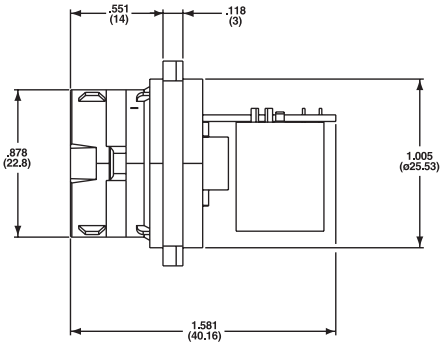


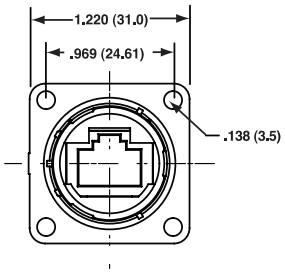
RECEPTACLE

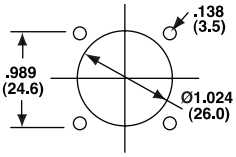
RJF 544 21



RJF54421RA



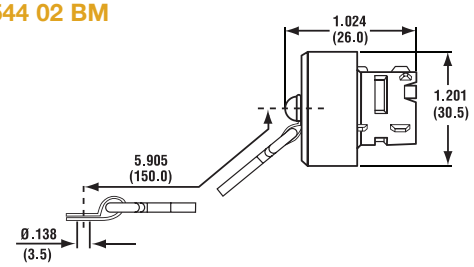




Panel Cutout

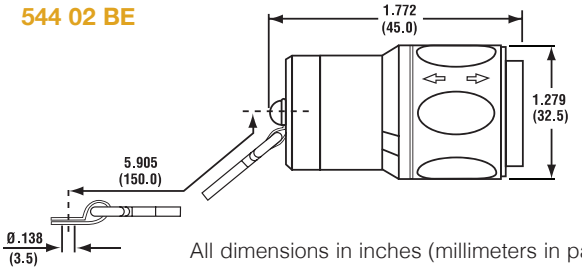
DUSTCAPS FOR PLUGS

544 02 BM



DUSTCAPS FOR RECEPTACLES

544 02 BE



All dimensions in inches (millimeters in parenthesis)

FEATURES

RJF EZ

MAIN CHARACTERISTICS

- Composite material
- Compliant with IEC 60603-7 variant 13
- Sealed against fluids and dust (IP68)
- Shock, vibration and traction-resistant
- No-cabling operation in-field and no tools required
- Quick lever coupling
- RJ45 cordset retention in the plug: 70 N in the axis
- Mating cycles: 500 min.
- Compatible with cable diameter 0.216 in. (5.5 mm) to 0.275 in. (7.0 mm)

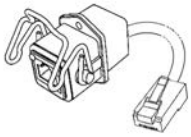
ENVIRONMENTAL PROTECTION

- Sealing: IP68
- Salt Spray > 1000-hour
- Fire retardant/low smoke: UL94 VO and NFF 16102, DIN 5510-2
- Thermal shock: 5 cycles at -40°F to +212°F (-40°C to +100°C)
- Operating temperature: -40°F to +185°F (-40°C to +85°C)

DATA TRANSMISSION

10 Base-T, 100 Base-TX, and 1000 Base-T networks

Cat5e per TIA/EIA 568B and Class D per ISO/IEC 11801



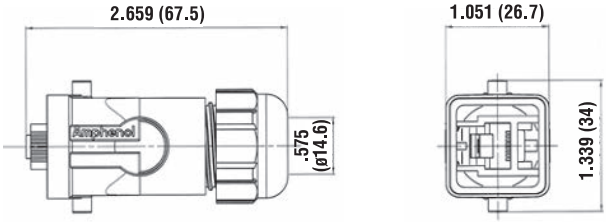
PLUG	RECEPTACLES		ACCESSORIES	
PLUG	RECEPTACLE FEMALE RJ45 BACK TERMINATION	RECEPTACLE CORDSET TERMINATION	IP68 DUSTCAP FOR RECEPTACLE CORD LENGTH 2.36 (60.0)	PANEL GASKET
RJFEZ6	RJFEZ21	RJFEZ22**100BTX	RJFEZBE	RJFEZJE

** Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)

BOLD =Stocked items

PLUG

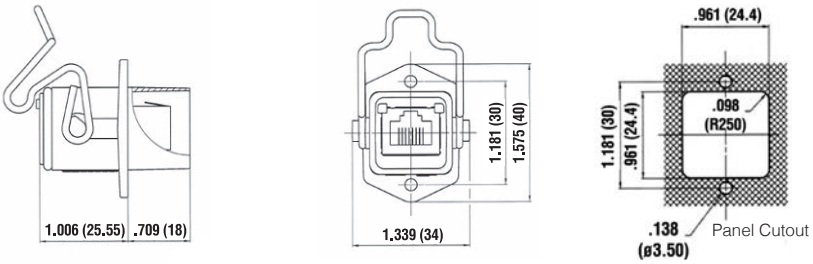
RJF EZ6



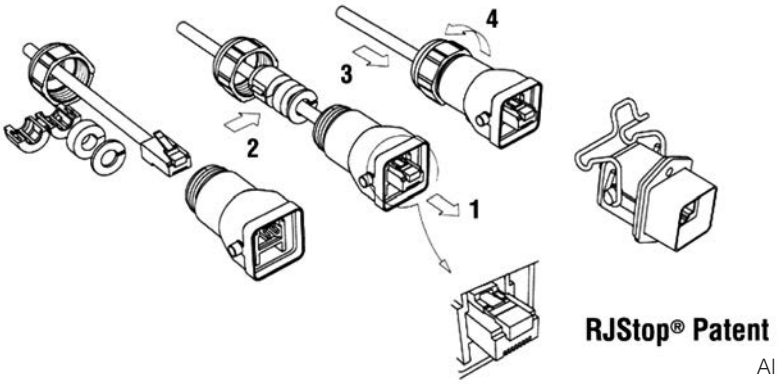
Cable Exit Range .216 (5.5) to .275 (7.0)

RECEPTACLE

RJF EZ21



ASSEMBLY INSTRUCTIONS



All dimensions in inches (millimeters in parenthesis)

RJF FEATURES

RJF

MAIN CHARACTERISTICS

- Compliant with IEC 60603-7 variant 11
- Bayonet coupling ("audible & visual" coupling signal)
- Robust metallic shells based on MIL-DTL-26482H
- RJ45 cordset retention in the plug: 100 N in the axis
- Mating cycles: 500 min.
- Sealed against fluids and dust (IP68)
- Shock, vibration and traction-resistant
- No cabling operation in-field and no tools required
- Mechanical coding / polarization (4 positions)
- Compatible with cable diameters from 0.236 in. (6 mm) to 0.512 in. (13.0 mm)

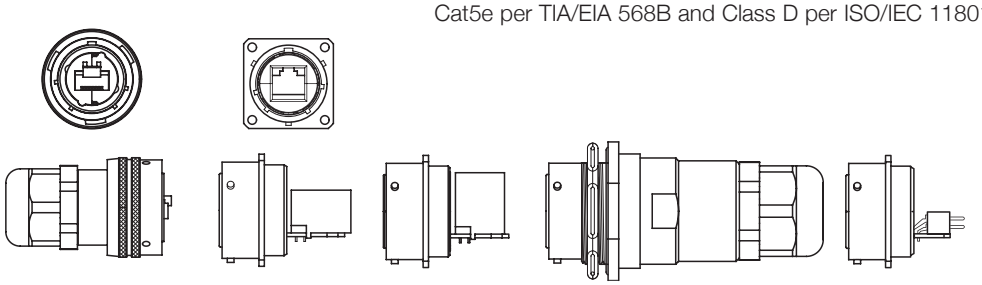
ENVIRONMENTAL PROTECTION

- Sealing: IP68
- Salt spray: 48-hour with nickel-plating > 96-hour with black coating > 500-hour with olive drab cadmium
- Fire-retardant/low-smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 10 nano s.
- Shocks: IK06; weight of 250 g drop from 15.75" (40 cm) onto connectors (mated pair)
- Humidity: 21 days, 109.4°F (43°C), 98% humidity
- Thermal shock: 5 cycles at -40°F to +212°F (-40°C to +100°C)
- Operating temperature: -40°F to +185°F (-40°C to +85°C)

DATA TRANSMISSION

10 Base-T, 100 Base-TX, and 1000 Base-T networks

Cat5e per TIA/EIA 568B and Class D per ISO/IEC 11801



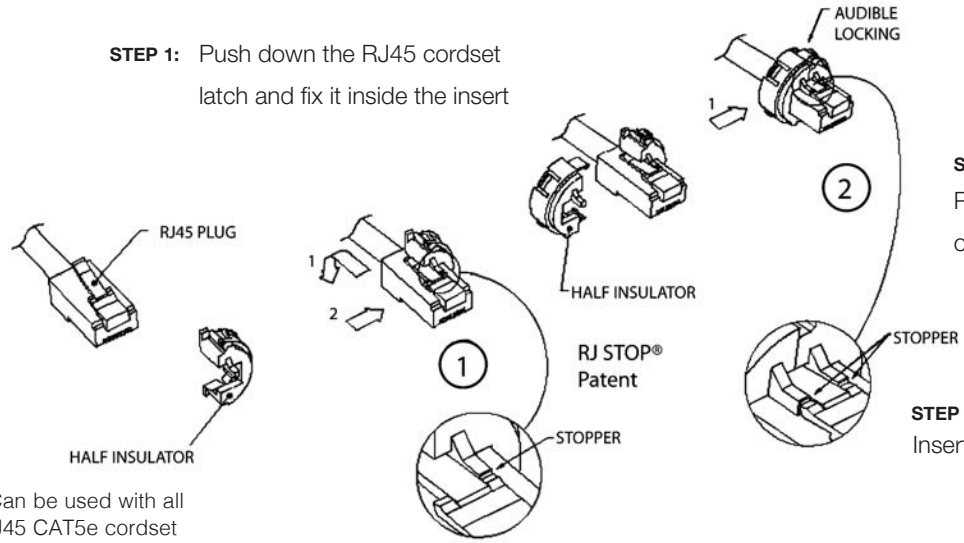
	PLUGS		RECEPTACLES							
PLATING	CABLE GLANDS		STANDARD BOX MOUNT	CORDSET BOX MOUNT	RIGHT ANGLE FEMALE RJ45	INLINE CABLE MOUNT		PC TAILS RECEPTACLES	CABLE GLANDS	
	PLASTIC	METAL				PLASTIC	METAL		PLASTIC	METAL
Black-Anodized	**RJF6B**	RJF6MB	**RJF21B**	**RJF22B✱✱100BTX**	RJF21RAB	RJF2PEWF1B	RJF2PEMWF1B	RJF2SA5B	RJF2PE1B	RJF2PEM1B
Nickel	**RJF6N**	**RJF6MN**	**RJF21N**	**RJF22N✱✱100BTX**	RJF21RAN	RJF2PEWF1N	RJF2PEMWF1N	RJF2SA5N	RJF2PE1N	RJF2PEM1N
Olive Drab Cadmium	**RJF6G**	**RJF6MG**	**RJF21G**	RJF22G✱✱100BTX	RJF21RAG	RJF2PEWF1G	RJF2PEMWF1G	RJF2SA5G	RJF2PE1G	**RJF2PEM1G**

✱✱ Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)

BOLD = Stocked items

ASSEMBLY INSTRUCTIONS

STEP 1: Push down the RJ45 cordset latch and fix it inside the insert



STEP 2: Press in and click the other part of the insert

STEP 3: Insert in the metallic housing

Universal: Can be used with all standard RJ45 CAT5e cordset brands

All dimensions in inches (millimeters in parenthesis)

RJF FEATURES

RJF TRANSVERSALLY-SEALED

	RECEPTACLE			JAM NUT RECEPTACLE		
PLATING	STANDARD SEALED BOX MOUNT	CORDSET SEALED BOX MOUNT	RIGHT ANGLE SEALED FEMALE RJ45	STANDARD SEALED JAM NUT	CORDSET SEALED JAM NUT	RIGHT ANGLE SEALED FEMALE RJ45
Black-Anodized	RJF2S✱1B	RJF2S✱2B✱✱100BTX	RJF2S✱1RAB	RJF7S✱1B	RJF7S✱2B✱✱100BTX	RJF7S✱1RAB
Nickel	RJF2S✱1N	RJF2S✱2N✱✱100BTX	RJF2S✱1RAN	RJF7S✱1N	RJF7S✱2N✱✱100BTX	RJF7S✱1RAN
Olive Drab Cadmium	RJF2S✱1G	RJF2S✱2G✱✱100BTX	RJF2S✱1RAG	RJF7S✱1G	RJF7S✱2G✱✱100BTX	RJF7S✱1RAG

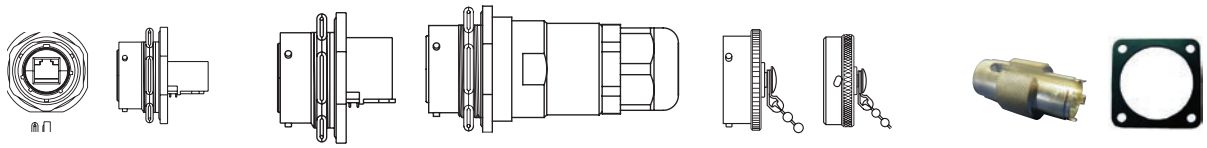
✱ Coding A, B, C, D ✱✱ Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)

BOLD =Stocked Items

RJF HERMETIC SEALED

	RECEPTACLE			JAM NUT RECEPTACLE		
PLATING	STANDARD HERMETIC BOX MOUNT	CORDSET HERMETIC BOX MOUNT	RIGHT ANGLE HERMETIC FEMALE RJ45	STANDARD HERMETIC JAM NUT	CORDSET HERMETIC JAM NUT	RIGHT ANGLE HERMETIC FEMALE RJ45
Black-Anodized	RJF2H✱1B	RJF2H✱2B✱✱100BTX	RJF2H✱1RAB	RJF7H✱1B	RJF7H✱2B✱✱100BTX	RJF7H✱1RAB
Nickel	RJF2H✱1N	RJF2H✱2N✱✱100BTX	RJF2H✱1RAN	RJF7H✱1N	RJF7H✱2N✱✱100BTX	RJF7H✱1RAN
Olive Drab Cadmium	RJF2H✱1G	RJF2H✱2G✱✱100BTX	RJF2H✱1RAG	RJF7H✱1G	RJF7H✱2G✱✱100BTX	RJF7H✱1RAG

✱ Coding A, B, C, D ✱✱ Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)



	JAM NUT RECEPTACLE					ACCESSORIES				
				CABLE GLAND		DUST CAP+				
PLATING	STANDARD JAM NUT	CORDSET JAM NUT	RIGHT ANGLE FEMALE RJ45	PLASTIC	METAL	PLUG §	BOX MOUNT §	JAM NUT§	INSERT REMOVAL TOOL	FLANGE GASKET
Black-Anodized	RJF71B	RJF72B✱✱100BTX	RJF71RAB	RJFPE1B	RJF7PEM1B	RJFC6B	RJFC2B	RJFC7B	RJFODE	JE18
Nickel	RJF71N	RJF72N✱✱100BTX	RJF71RAN	RJFPE1N	RJF7PEM1N	RJFC6N	RJFC2N	RJFC7N		
Olive Drab Cadmium	RJF71G	RJF72G✱✱100BTX	RJF71RAG	RJFPE1G	RJF7PEM1G	RJFC6G	RJFC2G	RJFC7G		

✱✱ Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)

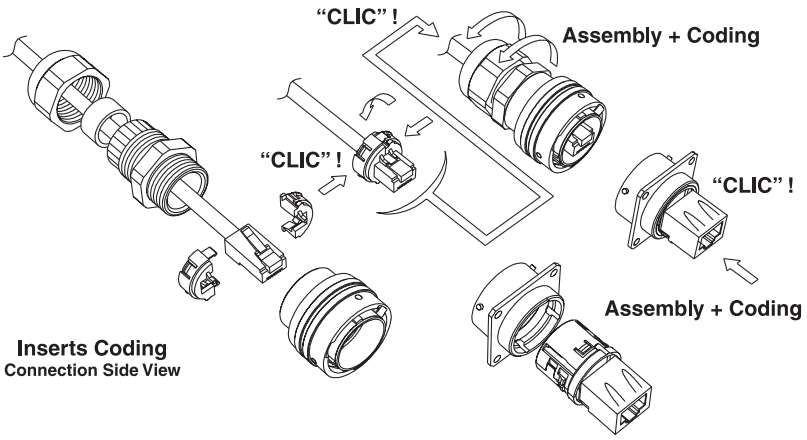
+ Metallic Chains Available

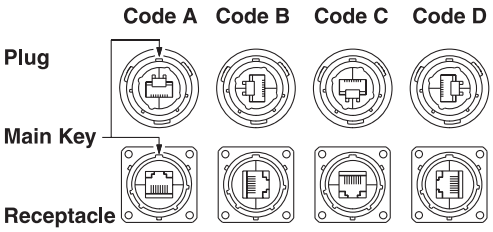
§ Nylon Cord Lengths: Plugs - 6.30 (160.0)
Box Mount and Jam Nut - 4.134 (105.0)

BOLD = Stocked items

ASSEMBLY INSTRUCTIONS

Easy and Safe: No field cabling tools required



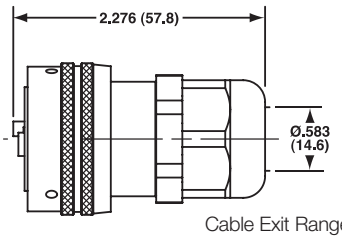


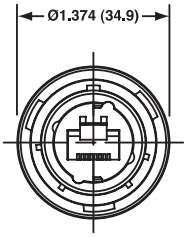
All dimensions in inches (millimeters in parenthesis)

RJF DIMENSIONS

PLUG

RJF 6
Plug with plastic or metal gland

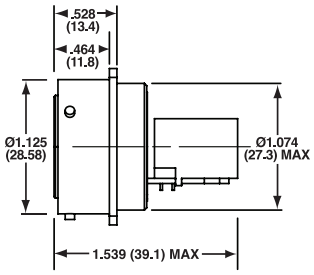




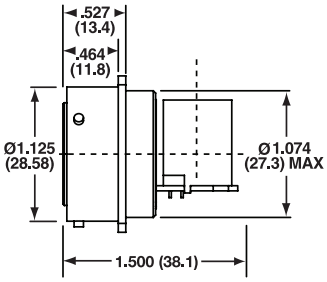
Cable Exit Range .236 (6.0) to .512 (13.0)

RECEPTACLES

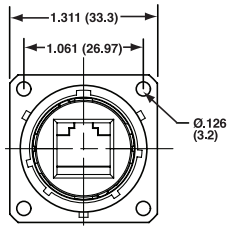
RJF 2
Square flange receptacle, 4 mounting holes

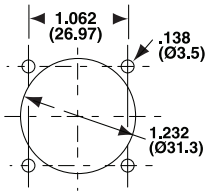


Straight



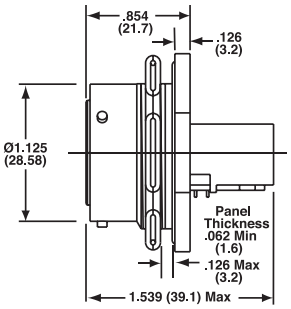
Right Angle



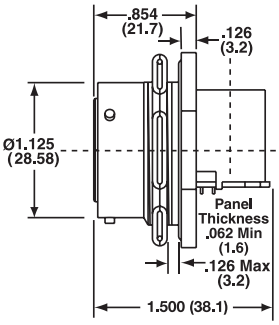


Panel Cutout

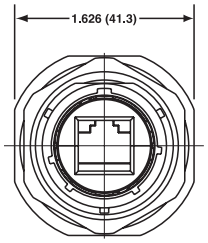
RJF 7
Jam nut receptacle
Hexagonal-nut mounting

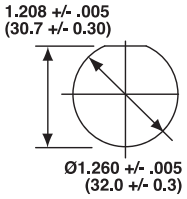


Straight



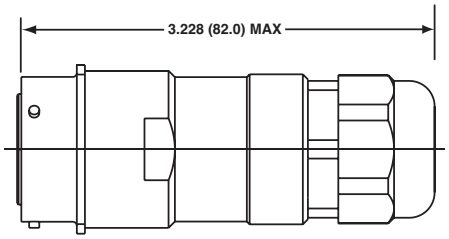
Right Angle



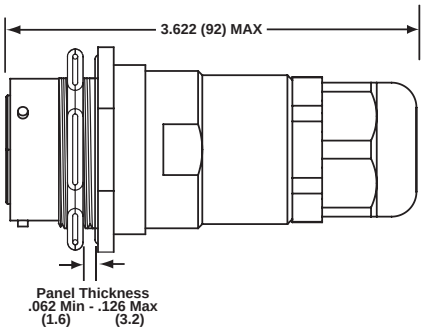


Panel Cutout

RJF 2PE/2PEM
RJF 72PE/7PEM
IP68 inline receptacles with plastic or metal gland

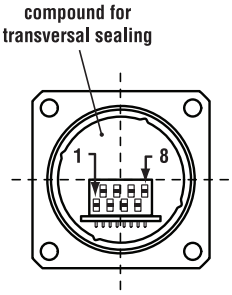


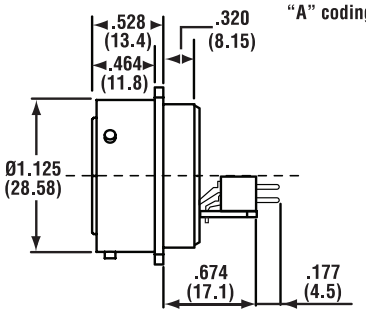
Cable Exit Range .236 (6.0) to .512 (13.0)

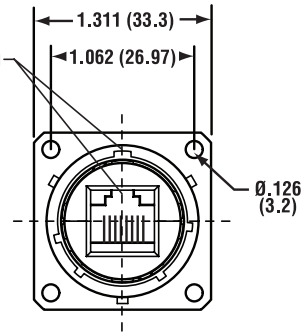


PCB TAILS RECEPTACLES

PCB LAYOUT







All dimensions in inches (millimeters in parenthesis)

SELF-CLOSING CAP

This self-closing cap automatically protects the RJ Field square flange receptacles (MIL-C-26482-type), protecting your system from dust and water projections. The same cap can be used to protect USB and IEEE1394 receptacles. A spring automatically closes the upper part of the cap when either the RJ Field plug, RJ45 cordset, USB or IEEE1394 cordset, or USB key are removed from the receptacle.

Plating	RJ45	USB-A	USB-B	IEE1394
Black-Anodized	RJF21BSCC	USBF21BSCC	USBBF21BSCC	FWF21BSCC
Nickel	RJF21NSCC	USBF21NSCC	USBBF21NSCC	FWF21NSCC

BOLD = Stocked Items

CABLE Cat5e

General construction: A four-pair, 24 AWG, 100 Ohm SFTP round patch cable, designed to the ISO / IEC 11801 Category 5e requirements (Cat5e on 76m). The cable contains four twisted pairs, cabled, double-shielded with Kevlar reinforcement strands, jacketed in black UV-resistant polyurethane HFFR. Designed for fixed or portable applications in harsh environments.

HFFR: HALOGEN-FREE FLAME-RETARDANT

Jacket Compound Specification:

Halogen-free flame-retardant polyether-based polyurethane. Glossy finish.
Excellent hydrolysis resistance. High microbial resistance. UV-resistant. High flexibility.

PHYSICAL CHARACTERISTICS

Conductors	24 AWG (0.25 mm2) Tinned copper, 7x0.2 mm
Insulation	Color-coded 568-B, Linear low-density polyethylene, Nom. Dia. 0.039” (1mm)
Assembly	Pairs cabled with Kevlar-strength members and separation-tape wrapped
Shields	Inner: Aluminum mylar 100% coverage Outer: Tinned-copper braid 80% coverage
Jacket	Black, special PUR compound
Weight	40 lbs / mft (59 kg/km)
Outside Dia.	0.28” (7.1 mm) nom.
Min. Bend Radius (During installation)	67.5mm (9 x O.D.)
Min. Bend Radius (During operation)	37.5mm (5 x O.D.)
Min. Flexes to Failure	Passes IEC 61156-6 requirements
Temperature	-40°F to +185°F (-40°C to +85°C)

REEL OF CABLE (WITHOUT RJ45 PLUG ON ENDS)	
LENGTH (M/FT)	PART NUMBER
100 m /~328 ft	190-038045-00
300 m /~984 ft	190-038045-01

ELECTRICAL CHARACTERISTICS

DC Resistance	96 Ohms/KM @ 20°C
Impedance	100 ± 15 Ohms 1-100 MHz
Attenuation	
772 KHz	2.70 db/100m nom.
1 MHz	3.15 db/100m nom.
4 MHz	6.45 db/100m nom.
10 MHz	9.90 db/100m nom.
16 MHz	12.3 db/100m nom.
20 MHz	13.8 db/100m nom.
31.25 MHz	17.7 db/100m nom.
62.5 MHz	25.6 db/100m nom.
100 MHz	33 db/100m nom.
Capacitance	46pF/m nom. @ 1KHz
LCL	43 dB min. @ 64 KHz
Capacitance Unbalance	3.4 pF/m max. @ 1KHz (wire to ground)
Insulation Resistance	150 M Ohm min.
Votage Rating	230 VMS
Dielectric Strength	VAC/1 min - 700 v/min.
Propagation Delay	(100 MHZ) 5.2 ns/m max. @ 100 MHz
Delay Skew	20 ns/100m max. @ 100 MHZ
Resistance Unbalance	3% max. @ 20°
Structural Return Loss	(100 MHz) 23 db/100m min. @ 1-20 MHz
Spark Test	3 KV (tested during production)
Velocity of propagation	67% nom.

All dimensions in inches (millimeters in parenthesis)

RJFTV FEATURES

RJFTV

MAIN CHARACTERISTICS

- Sealed against fluids and dusts (IP68)
- Shock, vibration and traction-resistant
- No cabling operation in-field and no tools required
- Mechanical coding / polarization (4 positions)
- Improved EMI-protection
- Tri-Start thread coupling mechanism (MIL-DTL-38999 series III-type) with anti-decoupling device
- Robust metallic shells
- RJ45 cordset retention in the plug: 100 N in the axis
- Mating cycles: 500 min.
- Compatible with cable diameters from 0.236 in. (6 mm) to 0.512 in. (13.0 mm)

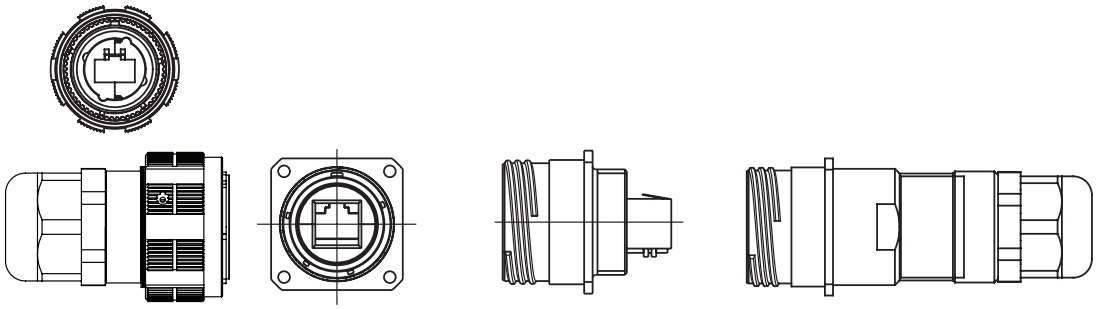
ENVIRONMENTAL PROTECTION

- Sealing: IP68
- Salt Spray: 48-hour with aluminum shell - nickel-plating > 500-hour with aluminum shell - olive drab cadmium plating; 1000-hour with marine bronze shell
- Fire-retardant/low-smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 10 nanos.
- Compounded versions tested per NAS 1599 (5-3000 Hz, 20g, 12h)
- Shocks: IK06; weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 109.4°F (43°C), 98% humidity
- Thermal shock: 5 cycles at -40°F to +212°F (-40°C to +100°C)
- Operating temperature: -40°F to +185°F (-40°C to +85°C)

DATA TRANSMISSION

10 Base-T, 100 Base-TX, and 1000 Base-T networks

Cat5e per TIA/EIA 568B and Class D per ISO/IEC 11801

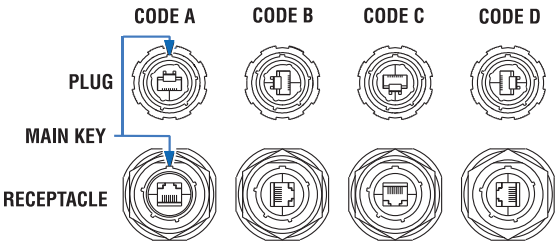


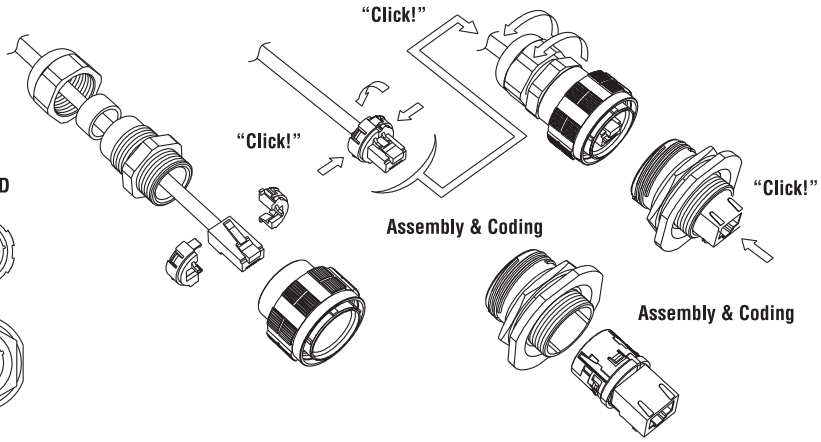
	PLUG		RECEPTACLES				
	CABLE GLANDS					CABLE GLANDS	
PLATING	PLASTIC	METAL	STANDARD BOX MOUNT	CORDSET BOX MOUNT	RIGHT ANGLE FEMALE RJ45	PLASTIC	METAL
MARINE BRONZE	RJFTV6BZ	RJFTV6MBZ	RJFTV21BZ	RJFTV22BZ**100BTX	RJFTV21RABZ	RJFTV2PE1BZ	RJFTV2PEM1BZ
NICKEL	RJFTV6N	**RJFTV6MN**	**RJFTV21N**	RJFTV22N**100BTX	RJFTV21RAN	RJFTV2PE1N	RJFTV2PEM1N
OLIVE DRAB CADMIUM	**RJFTV6G**	**RJFTV6MG**	**RJFTV21G**	**RJFTV22G**100BTX**	RJFTV21RAG	RJFTV2PE1G	**RJFTV2PEM1G**

** Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)

BOLD =Stocked Items

ASSEMBLY INSTRUCTIONS





All dimensions in inches (millimeters in parenthesis)

RJFTV TRANSVERSALLY-SEALED

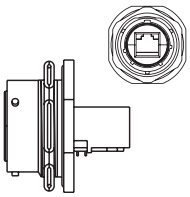
	RECEPTACLE			JAM NUT RECEPTACLE		
PLATING	STANDARD SEALED BOX MOUNT	CORDSET SEALED BOX MOUNT	RIGHT ANGLE SEALED FEMALE RJ45	STANDARD SEALED JAM NUT	CORDSET SEALED JAM NUT	RIGHT ANGLE SEALED FEMALE RJ45
Marine Bronze	RJFTV2S∗1BZ	RJFTV2S∗2B∗∗100BZTX	RJFTV2S∗1RABZ	RJFTV7S∗1BZ	RJFTV7S∗2B∗∗100BZTX	RJFTV7S∗1RABZ
Nickel	RJFTV2S∗1N	RJFTV2S∗2N ∗∗100BTX	RJFTV2S∗1RAN	RJFTV7S∗1N	RJFTV7S∗2N∗∗100BTX	RJFTV7S∗1RAN
Olive Drab Cadmium	RJFTV2S∗1G	RJFTV2S∗2G∗∗100BTX	RJFTV2S∗1RAG	RJFTV7S∗1G	RJFTV7S∗2G∗∗100BTX	RJFTV7S∗1RAG

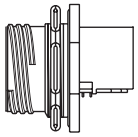
∗ Coding A, B, C, D ∗∗ Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)

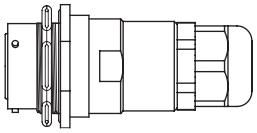
RJFTV HERMETIC SEALED

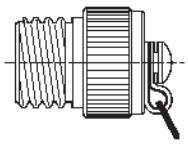
	RECEPTACLE			JAM NUT RECEPTACLE		
PLATING	STANDARD HERMETIC BOX MOUNT	CORDSET HERMETIC BOX MOUNT	RIGHT ANGLE HERMETIC FEMALE RJ45	STANDARD HERMETIC JAM NUT	CORDSET HERMETIC JAM NUT	RIGHT ANGLE HERMETIC FEMALE RJ45
Marine Bronze	RJFTV2H∗1BZ	RJFTV2H∗2BZ∗∗100BTX	RJFTV2H∗1RABZ	RJFTV7H∗1BZ	RJFTV7H∗2BZ∗∗100BTX	RJFTV7H∗1RABZ
Nickel	RJFTV2H∗1N	RJFTV2H∗2N∗∗100BTX	RJFTV2H∗1RAN	RJFTV7H∗1N	RJFTV7H∗2N∗∗100BTX	RJFTV7H∗1RAN
Olive Drab Cadmium	RJFTV2H∗1G	RJFTV2H∗2G∗∗100BTX	RJFTV2H∗1RAG	RJFTV7H∗1G	RJFTV7H∗2G∗∗100BTX	RJFTV7H∗1RAG

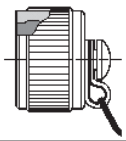
∗ Coding A, B, C, D ∗ ∗ Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)











	JAM NUT RECEPTACLE					ACCESSORIES					
PLATING	STANDARD JAM NUT	CORDSET JAM NUT	RIGHT ANGLE FEMALE 45	CABLE GLAND		DUST CAP			SELF CLOSING CAP ONLY FOR RJFTV2***	INSERT REMOVAL TOOL	FLANGE GASKET
				PLASTIC	METAL	PLUG	BOX MOUNT	JAM NUT			
Marine Bronze	RJF71BZ	RJF72BZ∗∗100BTX	RJF71RABZ	RJFPE1BZ	RJF7PEM1BZ	RJFC6BZ	RJFC2BZ	RJFC7BZ	-		
Nickel	**RJF71N**	RJF72N∗∗100BTX	RJF71RAN	RJFPE1N	**RJF7PEM1N**	RJFC6N	**RJFC2N**	**RJFC7N**	RJFTVSCCN	**RJFODE**	**JE19**
Olive Drab Cadmium	**RJF71G**	RJF72G∗∗100BTX	RJF71RAG	RJFPE1G	**RJF7PEM1G**	**RJFC6G**	**RJFC2G**	**RJFC7G**	RJFTVSCCG		

∗∗ Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M) **BOLD** =Stocked Items

SPECIALS

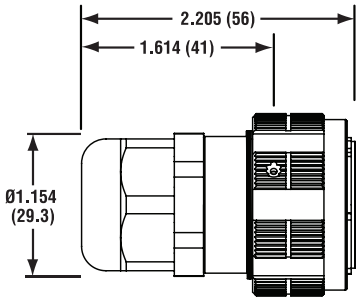
	THROUGH BULKHEAD RECEPTACLE		STAND-OFF RECEPTACLE	
PLATING	NON METALLIZED INSERTS	METALLIZED INSERTS	SQUARE FLANGE	JAM NUT
Nickel	RJFTVB2NISOBRUT	RJFTVB2NISONI	RJFTV2S∗5NF459	RJFTV7S∗5NF459
Olive Drab Cadmium	RJFTVB2GISOBRUT	RJFTVB2GISONI	RJFTV2S∗5GF459	RJFTV7S∗5GNF459

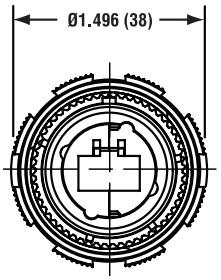
∗ Coding A, B, C, D

All dimensions in inches (millimeters in parenthesis)

PLUG

RJF TV 6
Plug with plastic or metal gland

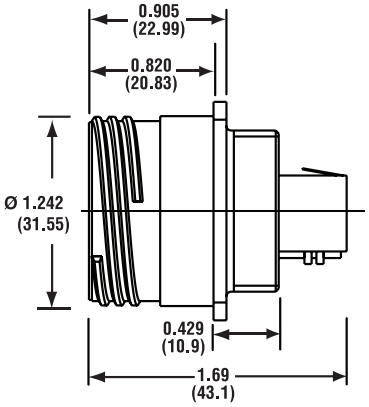




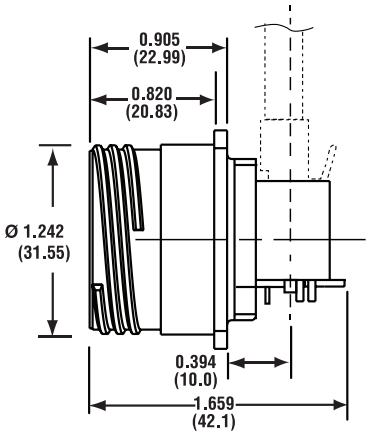
Cable Exit Range .236 (6.0) to .512 (13.0)

RECEPTACLES

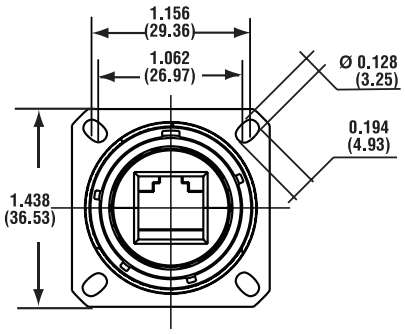
RJF TV 21
Square flange

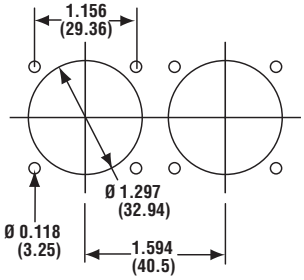


RJF TV 21 RA
Right-angle square flange



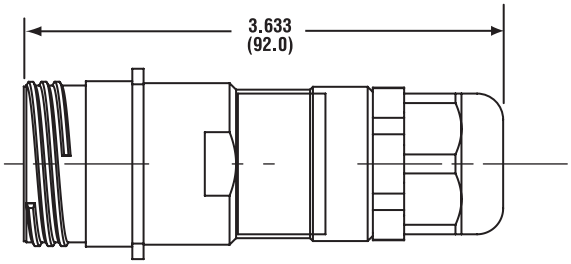
COMMON RECEPTACLE DIMENSIONS





Panel Cutout

RJF TV 2 PE (M)
RJF TV 7 PE (M)
IP68 backshell: • Shell type 2PE and 7PE plastic or metal gland

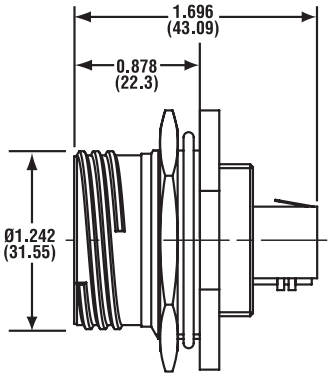


Cable Exit Range .216 (5.5) to .512 (13.0)

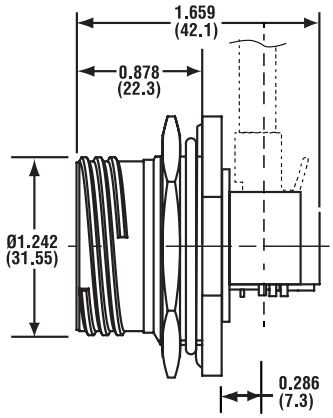
All dimensions in inches (millimeters in parenthesis)

RECEPTACLES

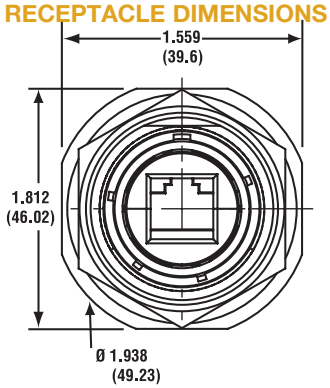
RJF TV 71
Jam nut receptacle

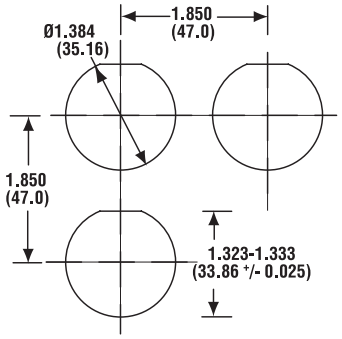


RJF TV 71 RA
Right-angle jam nut



COMMON RECEPTACLE DIMENSIONS



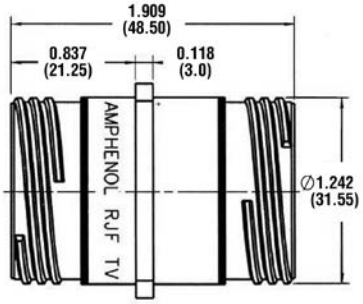


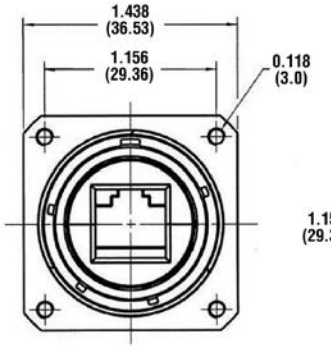
Panel Cutout

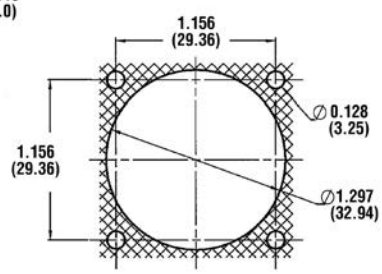
SPECIALS

THROUGH BULKHEAD RECEPTACLE

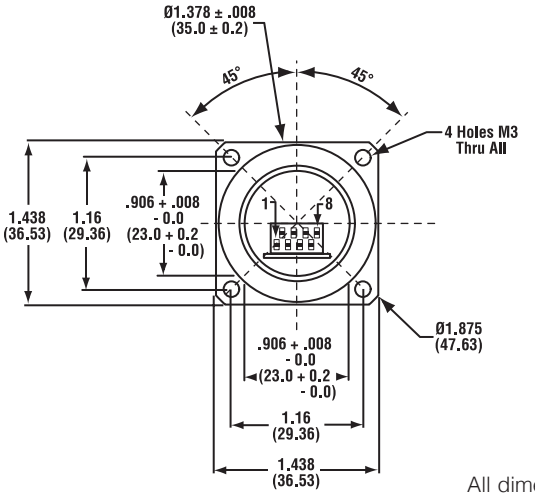
Max Panel Thickness
.352 (8.94)

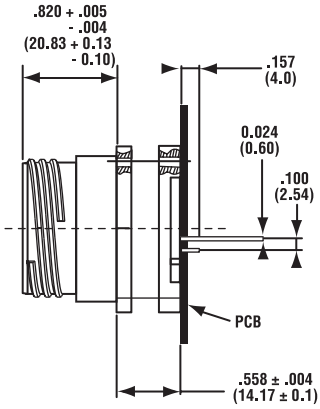






STAND-OFF RECEPTACLE

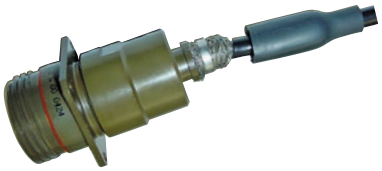




All dimensions in inches (millimeters in parenthesis)

RJFTV - WITH 360° EMI BACKSHELLS

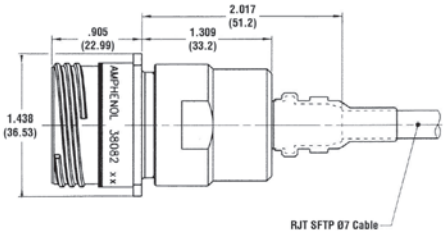
RJFTV series receptacles and plugs with EMI backshells provide a solution with 360-degree shielding offering similar protection as the standard MIL-DTL-38999 series III connectors. With those solutions, we recommend using our reinforced and double-shielded Cat5e cable.

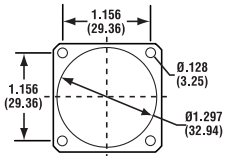


RJFTV RECEPTACLES AND PLUGS WITH 360° EMI BACKSHELLS PART NUMBERS

	RECEPTACLE		JAM NUT		PLUG	
	SQUARE FLANGE		STANDARD		GROUNDED	
PLATING	STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE	STRAIGHT	RIGHT ANGLE
Nickel	KIT38082NI	KIT40791NI	KIT38204NI	KIT40771NI	KIT38081NI	KIT40792NI
Olive Drab Cadmium	KIT38082	KIT40791	KIT38204	KIT40771	KIT38081	KIT40792

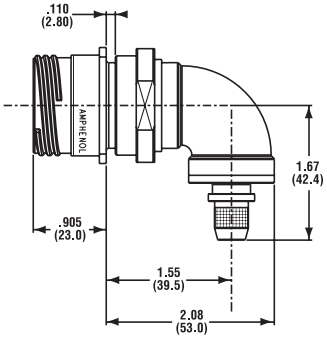
SQUARE FLANGE RECEPTACLE STRAIGHT

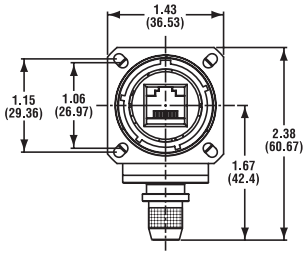




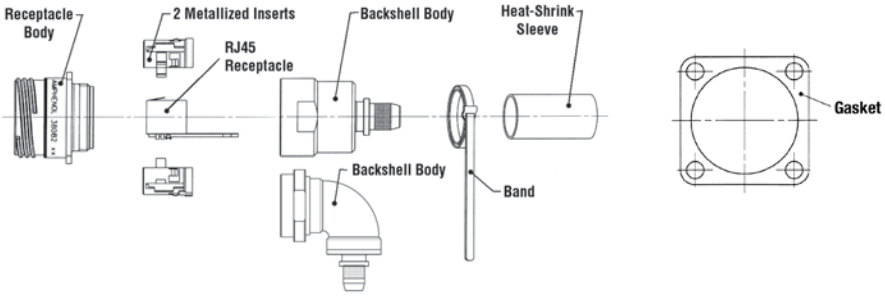
Panel Cutout

SQUARE FLANGE RECEPTACLE RIGHT ANGLE BACKSHELL

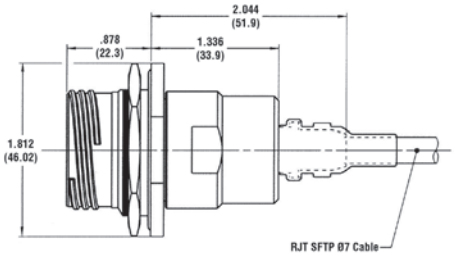


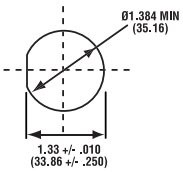


KIT38082, KIT38082NI, KIT40791 & KIT40791NI include:



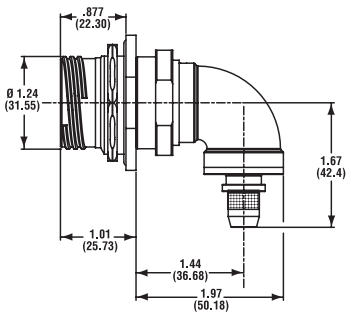
JAM NUT RECEPTACLE STRAIGHT BACKSHELL

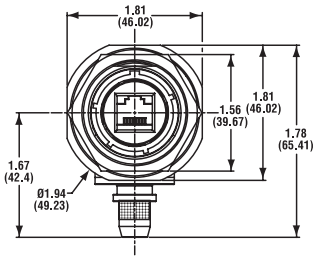




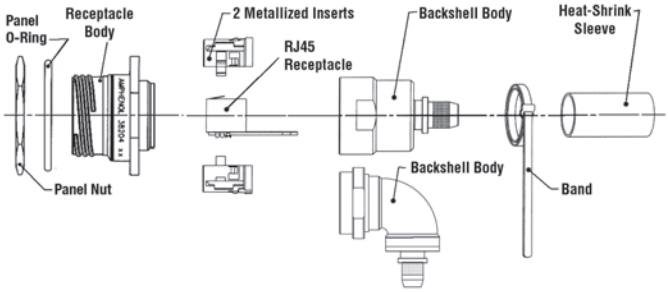
Panel Cutout

JAM NUT RECEPTACLE RIGHT ANGLE BACKSHELL



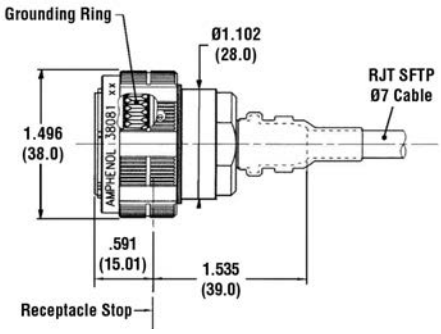


KIT38204, KIT38204NI, KIT40771 & KIT40771NI include:

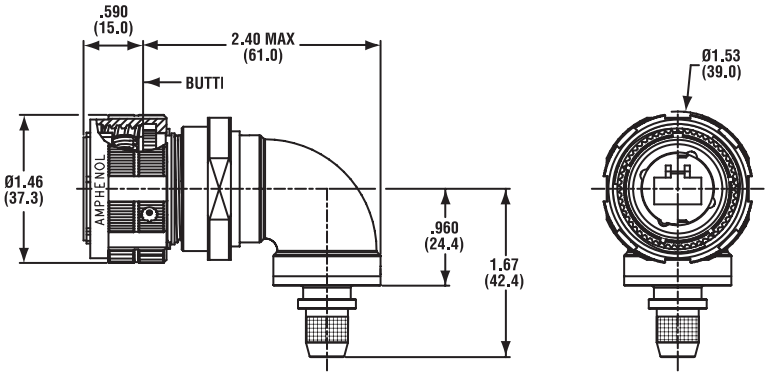


RJFTV DIMENSIONS

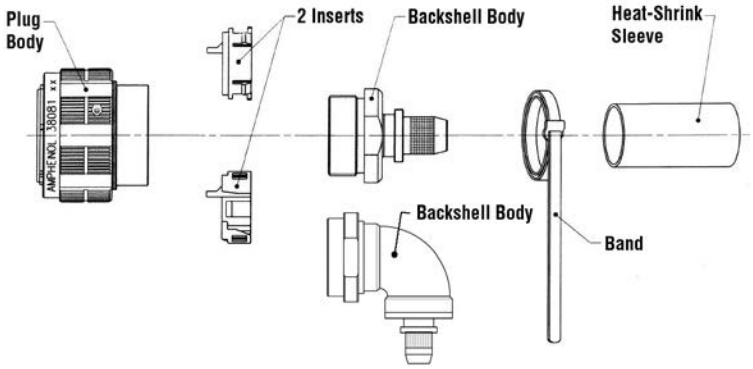
PLUG STRAIGHT BACKSHELL



PLUG RIGHT ANGLE BACKSHELL



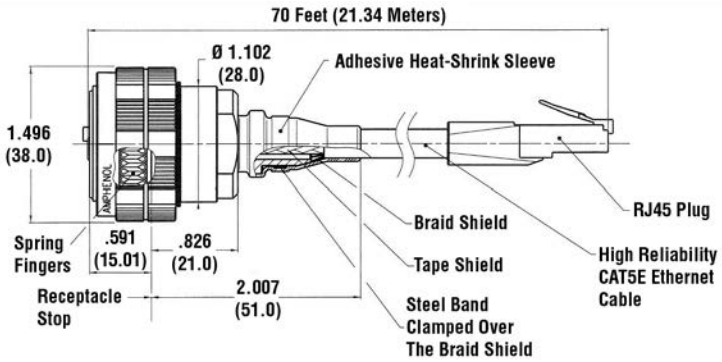
KIT38081, KIT38081NI, KIT40792 & KIT-40792NI include:



IMPORTANT NOTE

With these plugs, the standard RJ45 plug is not provided. The crimping of a standard RJ45 onto the cable must be done by the user.

We advise using our double shielded, reinforced Cat5e cable with these RJFTV series EMI connectors. Contact us to check backshell compatibility for other cable types. We also provide assembled cordsets (see examples below).



USBFTV USB-A FEATURES

USBFTV - USB-A

MAIN CHARACTERISTICS

- Sealed against fluids and dust (IP68)
- Shock, vibration and traction-resistant
- No cabling operation in-field and no tools required
- Improved EMI-protection
- Tri-Start thread coupling mechanism (MIL-DTL-38999 series III-type) with anti-decoupling device
- 2 mechanical coding / polarization possibilities by the user (receptacle insert rotation)
- USBF TV plug retention in the receptacle: 100 N in the axis
- Mating cycles: 500 to 1500

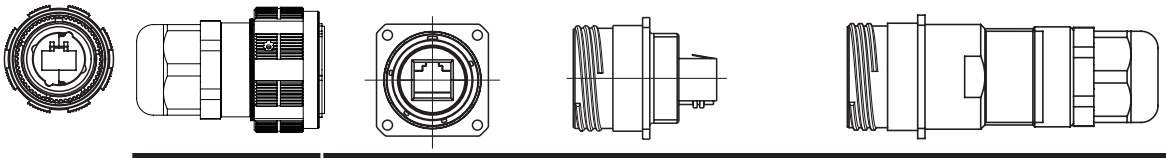
ENVIRONMENTAL PROTECTION

- Sealing (when mated): IP68 (Temporary immersion)
- Salt Spray: 48-hour with nickel-plating > 500-hour with olive drab cadmium 1000-hour with marine bronze shell
- Fire-retardant / low-smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 1 micros
- Shocks: IK06; weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 109.4°F (43°C), 98% humidity
- Temperature Range: -40°F to +185°F (-40°C to +85°C)

DATA TRANSMISSION

USB Specification 2.0

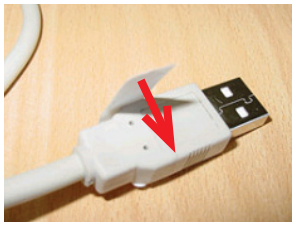
Data Rate: Up to 480 Mb/s for high-speed



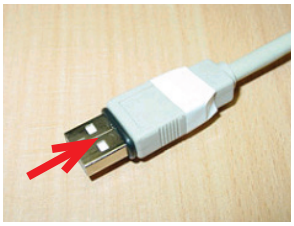
	PLUG	RECEPTACLES				
		SQUARE FLANGE RECEPTACLE				
PLATING	STANDARD	FEMALE USB-A		SOLDER (4 TINNED HOLES)		
Marine Bronze	USBFTV6BZ	USBFTV21BZ	USBFTV2PE1BZ	USBFTV22BZ	USBFTV2PE2BZ	USBFTV2PEM2BZ
Nickel	**USBFTV6N**	**USBFTV21N**	USBFTV2PE1N	**USBFTV22N**	USBFTV2PE2N	USBFTV2PEM2N
Olive Drab Cadmium	**USBFTV6G**	**USBFTV21G**	**USBFTV2PE1G**	**USBFTV22G**	USBFTV2PE2G	USBFTV2PEM2G

BOLD =Stocked Items

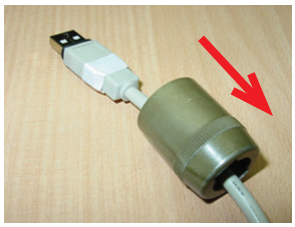
PLUG ASSEMBLY INSTRUCTIONS



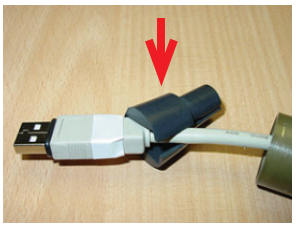
STEP 1: If you need a full sealing to IP68, install the white sticker around the plug, covering the four holes of the overmolding.



STEP 2: Insert the black o-ring around the front face of the USB-A plug. This O-ring will ensure connection sealing.



STEP 3: Insert the USB cordset into the metallic backshell.



STEP 4: Insert the retention spacer laterally to the cable (this spacer is soft in order to adapt to different shapes of overmolding) and slide the overmolding of the USB-A plug into this retention spacer.

IMPORTANT NOTE

The connection sealing is not done by the black retention spacer (which is slotted), but by the front face O-Ring (fig. 2)

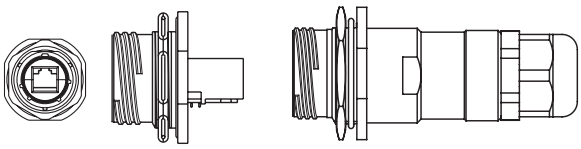
USBFTV TRANSVERSALLY SEALED

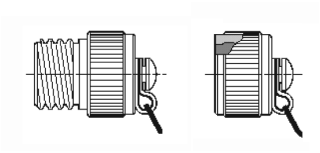
	SQUARE FLANGE RECEPTACLE			
PLATING	STANDARD USB-A PLUG	OPEN CABLE	W/BACKSHELL AND PLASTIC GLAND	W/ BACKSHELL AND METAL GLAND
Nickel	USBFTV2S∗2N∗∗A	USBFTV2S∗2N∗∗OPEN	USBFTV2PES∗2N∗∗A	USBFTV2PEMS∗2N∗∗A
Olive Drab Cadmium	USBFTV2S∗2G∗∗A	USBFTV2S∗2G∗∗OPEN	USBFTV2PES∗2G∗∗A	USBFTV2PEMS∗2G∗∗A

∗ Coding A, B, C, D ∗∗ Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M)

	JAM NUT RECEPTACLE			
PLATING	STANDARD USB-A PLUG	OPEN CABLE	W/BACKSHELL AND PLASTIC GLAND	W/ BACKSHELL AND METAL GLAND
Nickel	USBFTV7S∗2N∗∗A	USBFTV7S∗2N∗∗OPEN	USBFTV7PES∗2N∗∗A	USBFTV7PEMS∗2N∗∗A
Olive Drab Cadmium	USBFTV7S∗2G∗∗A	USBFTV7S∗2G∗∗OPEN	USBFTV7PES∗2G∗∗A	USBFTV7PEMS∗2G∗∗A

∗ Coding A, B, C, D ∗∗ Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M)



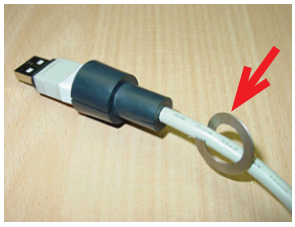


RECEPTACLES					ACCESSORIES				
JAM NUT RECEPTACLES					METALLIC DUST CAPS			SELF-CLOSING CAP*	INSERT REMOVAL TOOL	FLANGED GASKET
FEMALE USB-A		SOLDER (4 TINNED HOLES)			PLUG §	BOX MOUNT §	JAM NUT §			
USBFTV71BZ	USBFTV7PE1BZ	USBFTV72BZ	USBFTV7PE2BZ	USBFTV7PEM2BZ	USBFTVC6BZ	USBFTVC2BZ	USBFTVC7BZ	USBFTVSCC for square flange only	USBFODE	JE15
USBFTV71N	USBFTVPE1N	USBFTV72N	USBFTVPE2N	USBFTV7PEM2N	USBFTVC6N	**USBFTVC2N**	USBFTVC7N			
USBFTV71G	USBFTVPE1G	**USBFTV72G**	USBFTVPE2G	USBFTV7PEM2G	**USBFTVC6G**	**USBFTVC2G**	**USBFTVC7G**			

§ Nylon Cord Lengths: Plugs = 6.30 (160.0) Box Mount and Jam Nut = 4.134 (105.0)

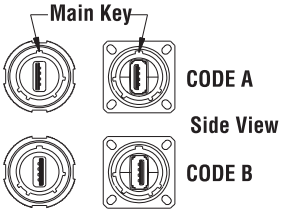
BOLD = Stocked Items

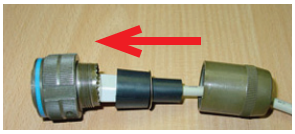
PLUG ASSEMBLY INSTRUCTIONS



STEP 5: Insert the friction ring laterally to the cable

STEP 6: Choose the right coding (2 positions) and insert the USB-A plug into the protective plug. Note that at this step, the main key is used for polarization.





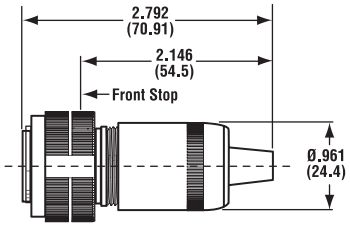
STEP 7: Screw the backshell onto the plug body. A wrench may be necessary to fully tighten.

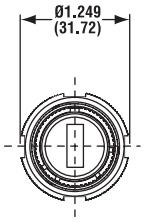
All dimensions in inches (millimeters in parenthesis)

USBFTV USB-A DIMENSIONS

PLUG

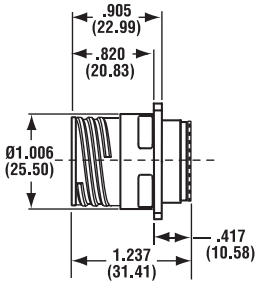
USBFTV 6

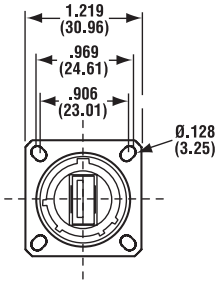


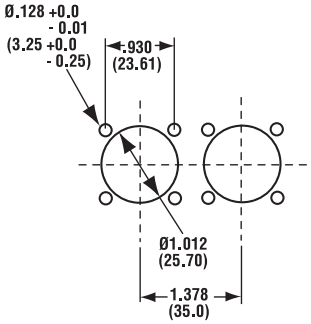


RECEPTACLE

USBFTV 2
Square flange receptacle
4 mounting holes



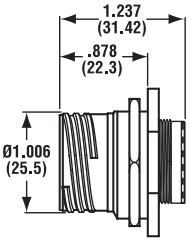


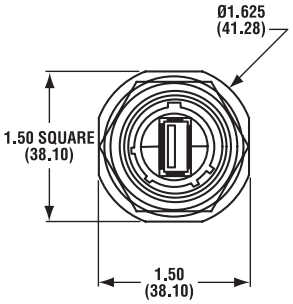


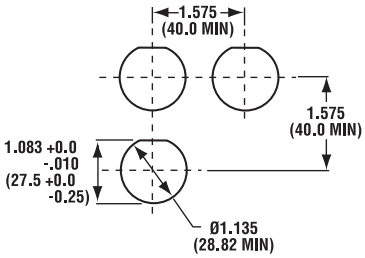
Panel Cutout

RECEPTACLE

USBFTV 7
Jam nut receptacle
Hexagonal-nut mounting



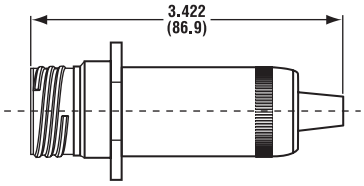




Panel Cutout

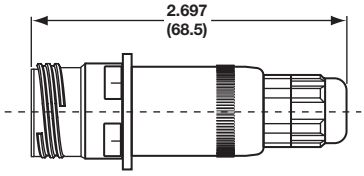
RECEPTACLE

USBF TV 2PE /7PE
Receptacle with
backshell termination type 1

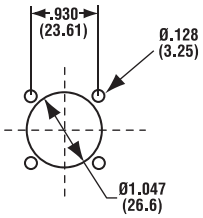


USBF TV 2PE / 7PE-1

Same panel drilling as USBFTV 2xx



USBF TV 2PE(M) / 7PE(M)-2

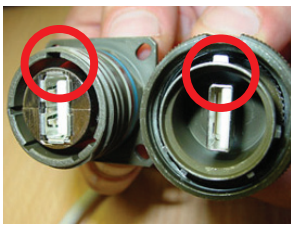


Panel Cutout
(for type 2 only)

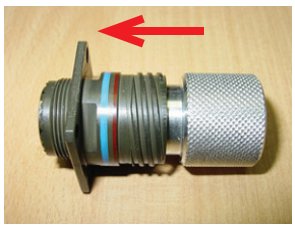
RECEPTACLE ASSEMBLY INSTRUCTIONS

INSERTION

STEP 1: Insert the USB module from the rear. Reference is main key.



STEP 2: Take care to have a coding compatible with the coding used for the plug: in the front view, the white shapes in the USBs must be on the same side.



EXTRACTION

STEP 1: To remove the USB module, insert the removal tool USBF ODE from the front.

Removal Tool

STEP 2: Push back the module as shown.

All dimensions in inches (millimeters in parenthesis)

MAIN CHARACTERISTICS

- Sealed (IP68) USB-B connection system
- USB-B male plug overmolded on USB2.0 cable
- USB-A plug can be used with USBFTV
- USB-B female receptacle with 50 mm wires & five-way connectors
- Plastic shells
- Thread coupling
- Rear mount jam nut receptacle with panel gasket included
- To -4°F +176°F (-20°C +80°C)

APPLICATIONS

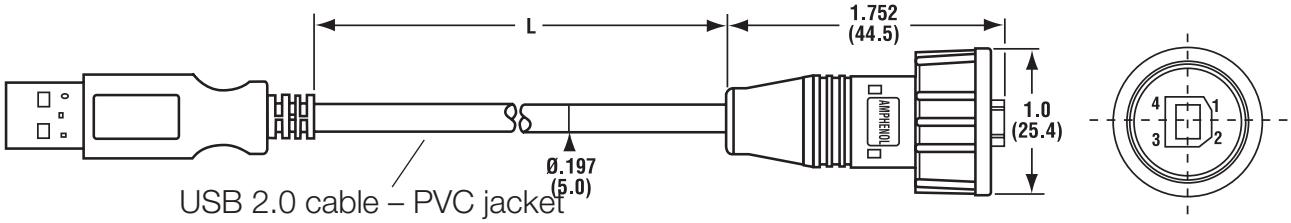
- Embedded computers
- Data transfer

* Numerical control machine

MALE SEALED PLUG USB-B / USB-A CORDSET

FEMALE RECEPTACLE AND CAP

PLUG CORDSET – MALE SEALED USB-B / MALE USB-A (*)



PART NUMBERS:

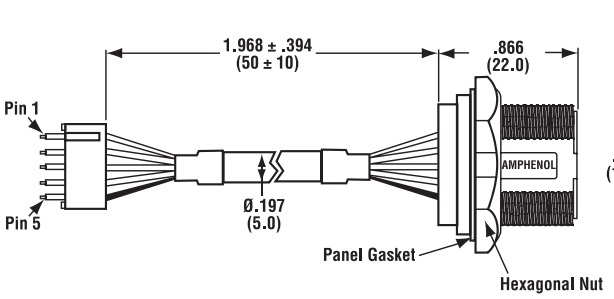
L = 39.37±1.97 [1000±50mm] - P/N: **USBBF6100**
L = 78.74±1.97 [2000±50mm] - P/N: **USBBF6200**

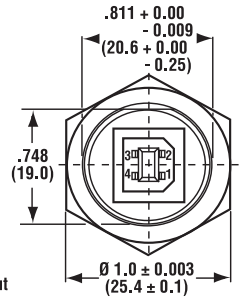
(*) To get a sealed USB-A plug, use our USB FTV series.

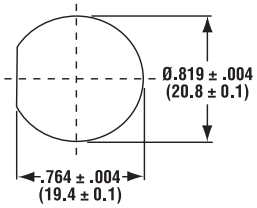
PIN ASSIGNMENTS (FRONT VIEW)

1 = RED (24 AWG)
2 = WHITE (28 AWG)
3 = GREEN (28 AWG)
4 = BLACK (24 AWG)
Shield = Drain

RECEPTACLE – FEMALE USB-B







RECEPTACLE & CAP

RECEPTACLE PN: USBBF7

CAP PN: USBBFC7

JWT CONNECTOR – PITCH 2.5MM

JWT 1 = USB1 = RED (24 AWG)
JWT 2 = USB2 = WHITE (28 AWG)
JWT 3 = USB3 = GREEN (28 AWG)
JWT 4 = USB4 = BLACK (24 AWG)
JWT 5 = USB Shield = YELLOW (24 AWG)

All dimensions in inches (millimeters in parenthesis)

USBBFTV - USB-B

MAIN CHARACTERISTICS

- Sealed against fluids and dust (IP68)
- Shock, vibration and traction-resistant
- No cabling operation in-field and no tools required
- Improved EMI-protection
- Tri-Start thread coupling mechanism (MIL-DTL-38999 series III-type) with anti-decoupling device
- 2 mechanical coding / polarization possibilities by the user (receptacle insert rotation)
- USBF TV plug retention in the receptacle: 100 N in the axis
- Mating cycles: 500 to 1500

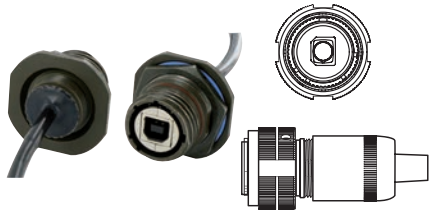
ENVIRONMENTAL PROTECTION

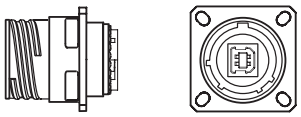
- Sealing (when mated): IP68 (Temporary immersion)
- Salt Spray: 48-hour with nickel-plating > 500-hour with olive drab cadmium
- Fire-retardant / low-smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 1 micros
- Shocks: IK06; weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 109.4°F (43°C), 98% humidity
- Temperature Range: -40°F to +185°F (-40°C to +85°C)

DATA TRANSMISSION

USB Specification 2.0

Data Rate: Up to 480 Mb/s for high-speed

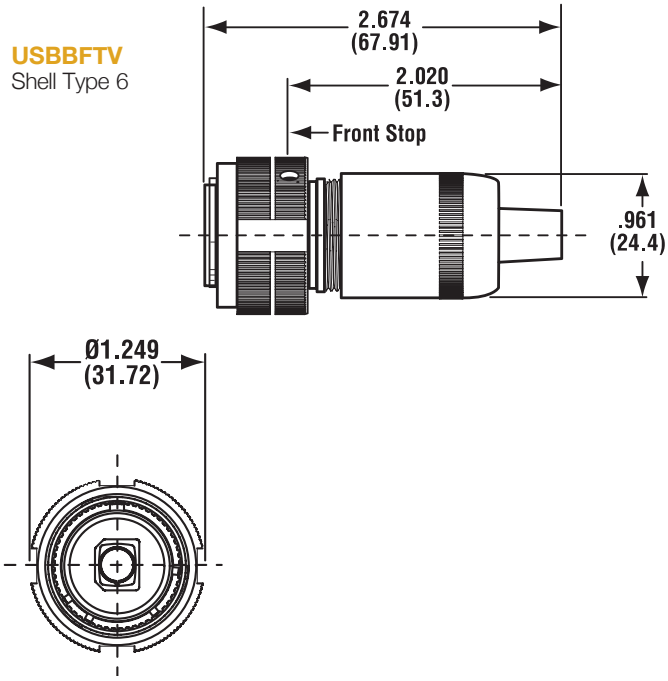




	PLUG	RECEPTACLES			
		SQUARE FLANGE RECEPTACLE			
PLATING	STANDARD	FEMALE USB-A		SOLDER (4 TINNED HOLES)	
Nickel	USBBFTV6N	USBBFTV21N	USBBFTV2PE1N	USBBFTV2PE2N	USBBFTV2PEM2N
Olive Drab Cadmium	USBBFTV6G	USBBFTV21G	USBBFTV2PE1G	USBBFTV2PE2G	USBBFTV2PEM2G

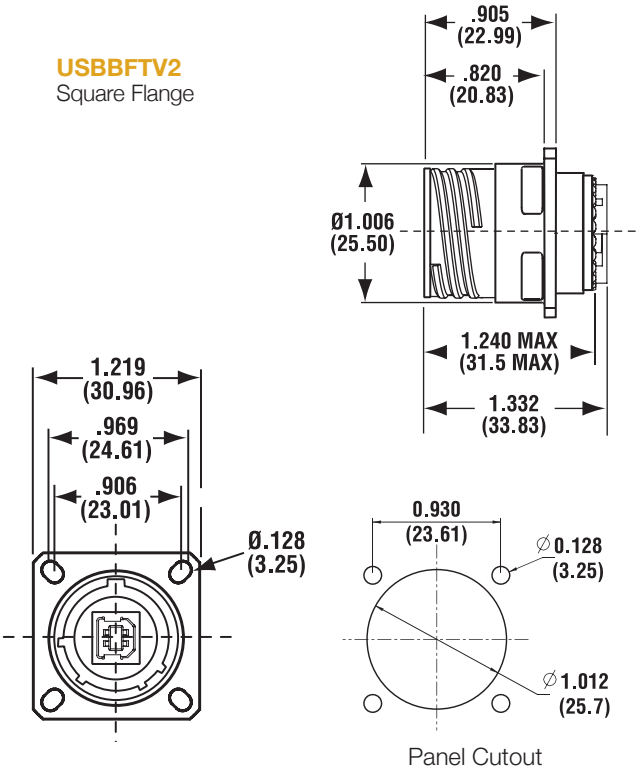
PLUG

USBBFTV
Shell Type 6



RECEPTACLES

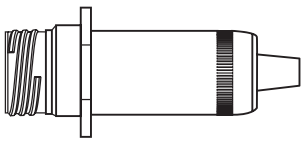
USBBFTV2
Square Flange

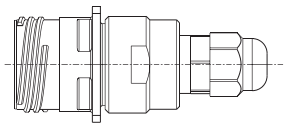


Panel Cutout

All dimensions in inches (millimeters in parenthesis)

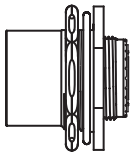
USBBFTV TRANSVERSALLY-SEALED

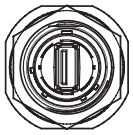


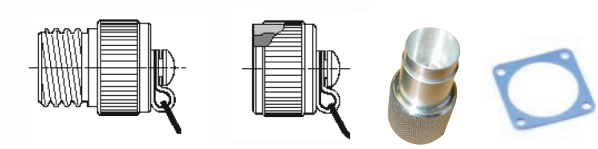


PLATING	PLUG	RECEPTACLES					
		SQUARE FLANGE			JAM NUT		
	STANDARD USB-B PLUG	OPEN CABLE	W/ BACKSHELL PLASTIC GLAND	W/ BACKSHELL METAL GLAND	OPEN CABLE	W/ BACKLSHELL PLASTIC GLAND	W/ BACKSHELL METAL GLAND
Nickel	USBBFTV2S2N**A	USBBFTV2S2N**OPEN	USBBFTV2PES2N**A	USBBFTV2PEMS2N**A	USBBFTV7S2N**OPEN	USBBFTV7PES2N**A	USBBFTV7PEMS2N**A
Olive Drab Cadium	USBBFTV2S2G**A	USBBFTV2S2G**OPEN	USBBFTV2PES2G**A	USBBFTV2PEMS2G**A	USBBFTV7S2G**OPEN	USBBFTV7PES2G**A	USBBFTV7PEMS2G**A

* Coding A, B, C, D ** Select for Cordset Length 03 = 11.81 (0.30M) 05 = 19.68 (0.50M) 10 = 39.37 (1.00M) 15 = 59.05 (1.50M)



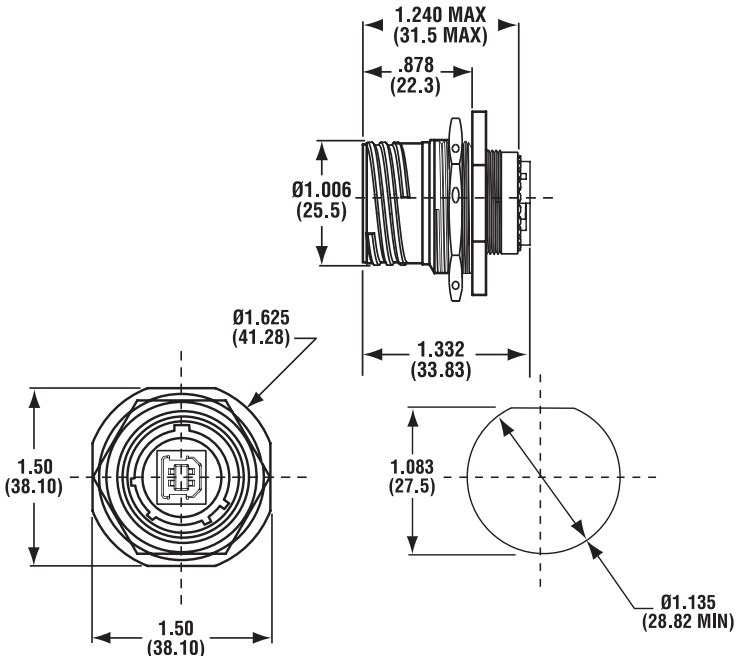




RECEPTACLES				ACCESSORIES				
JAM NUT				METALLIC DUST CAPS			REMOVAL TOOL	GASKET
FEMALE USB-A		SOLDER (4 TINNED HOLES)						
STANDARD	METAL BACKSHELL	METAL BACKSHELL + PLASTIC GLAND	METAL GLAND	PLUG	FLANGE	JAM NUT		
USBBFTV71N	USBBFTV7PE1N	USBBFTV7PE2N	USBBFTV7PEM2N	USBFTVC6N	USBFTVC2N	USBFTVC7N	USBBF ODE	JE15
USBBFTV71G	USBBFTV7PE1G	USBBFTV7PE2G	USBBFTV7PEM2G	USBFTVC6G	USBFTVC2G	USBFTVC7G	USBBF ODE	JE15

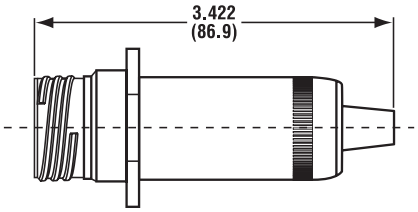
RECEPTACLE

USBBFTV7
Jam Nut Receptacle

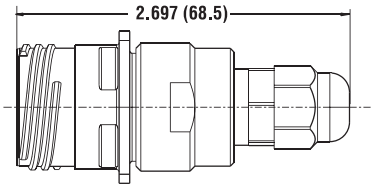


Panel Cutout

USBBF TV 2PE/7PE-1
Backshell used with back termination type 1: USB-A receptacle



USBBF TV 2PE(M)/7PE(M)-2
Backshell used with back termination type 2: Solder IP68



USBFTV SC – SPRING-LOADED RECEPTACLE

MAIN CHARACTERISTICS

- Sealed against fluids and dust (IP67)
- Shock, vibration and traction-resistant
- No cabling operation in-field and no tools required
- Improved EMI-protection
- Mating cycles: 500
- Mating force after 500 cycles: 40 N
- Unmating force after 500 cycles: 55 N

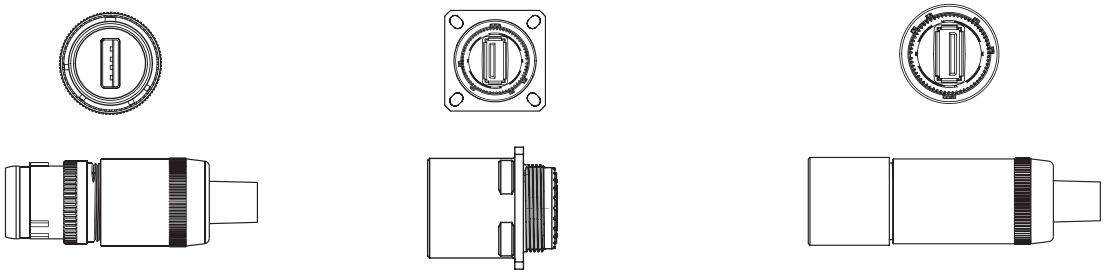
ENVIRONMENTAL PROTECTION

- Sealing (when mated): IP67 (Temporary immersion)
- Salt Spray: 48-hour with nickel-plating > 500-hour with olive drab cadmium
- Fire-retardant / low-smoke: UL94 V0 and NF F 16 101 & 16 102
- Vibrations: 10 – 500 Hz, 10 g, 3 axes: no discontinuity > 1 micros
- Shocks: IK06; weight of 250 g drop from 40 cm [15.75 in] onto connectors (mated pair)
- Humidity: 21 days, 109.4°F (43°C), 98% humidity

DATA TRANSMISSION

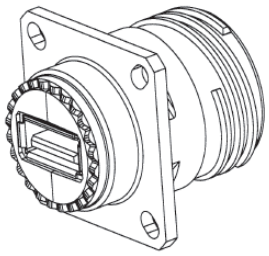
USB Specification 2.0

Data Rate: Up to 480 Mb/s for high-speed

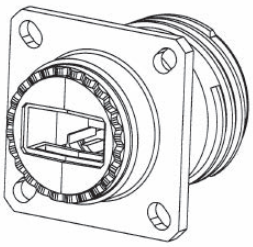


	PLUG	RECEPTACLES				
		INLINE	SQUARE FLANGE		JAM NUT	
PLATING	STANDARD	FEMALE USB-A	FEMALE USB-A	SOLDER (4 TINNED HOLES)	FEMALE USB-A	SOLDER (4 TINNED HOLES)
Marine Bronze	USBFSC6BZ	USBFSC11BZ	USBFSC21BZ	USBFSC22BZ	USBFSC71BZ	USBFSC72BZ
Nickel	USBFSC6N	USBFSC11N	USBFSC21N	USBFSC22N	USBFSC71N	USBFSC72N
Olive Drab Cadmium	USBFSC6G	USBFSC11G	USBFSC21G	USBFSC22G	USBFSC71G	USBFSC72G

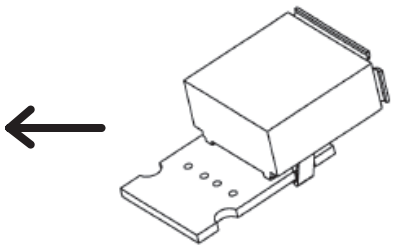
BACK TERMINATIONS – USBFSC RECEPTACLES



Type 1: Female USB-A



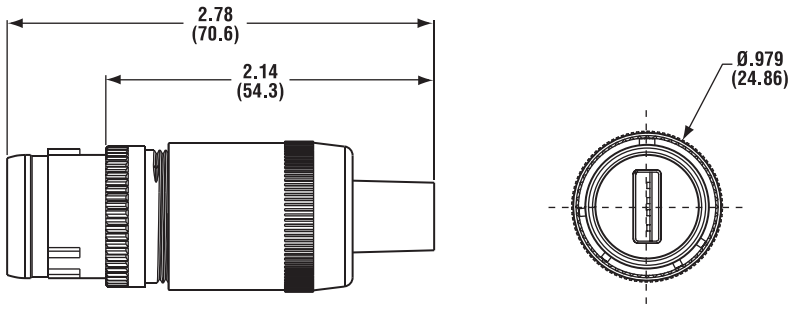
Type 2: Solder four tinned holes to solder cable



View of the PCB of Type 2 with four tinned holes for solder termination

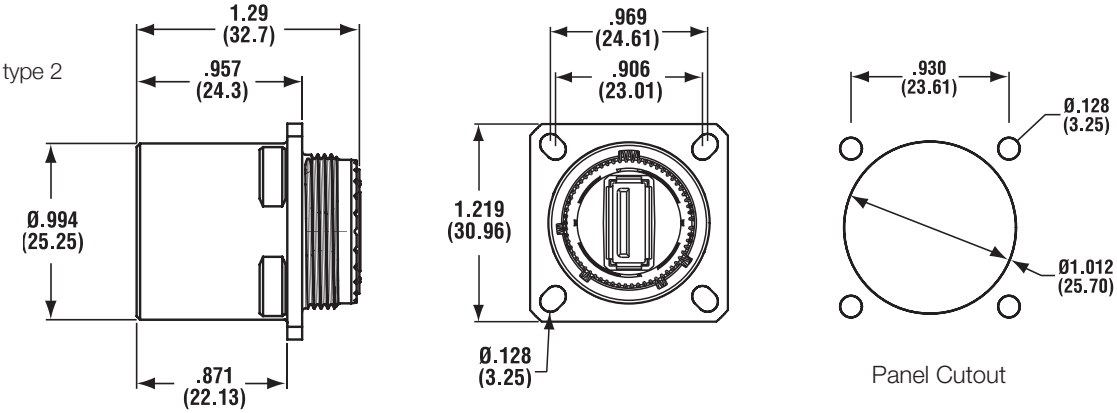
PLUG

USBFSC 6 X
Shell type 6



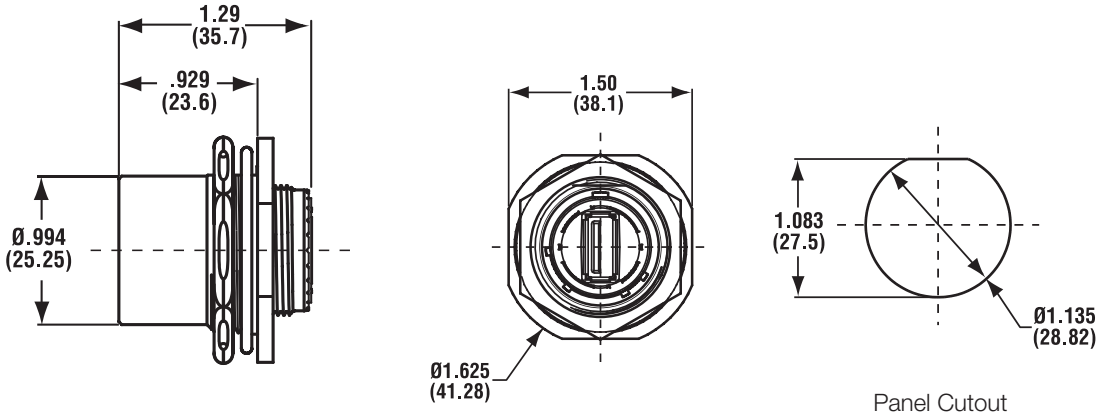
RECEPTACLES

USBFSC 21 X
Square flange
4 mounting holes: shell type 2



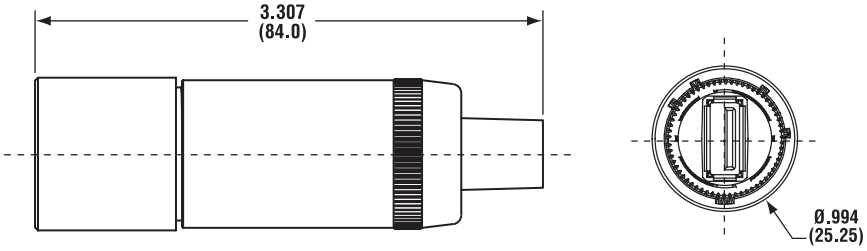
Panel Cutout

USBFSC 71 X
Jam nut receptacle
Hexagonal nut mounting:
Shell type 7



Panel Cutout

USBFSC 11 X
Inline receptacle
Shell type 1



REINFORCED USBFTV

ENVIRONMENTAL PROTECTION

- Sealing: IP68 (when mated)
- Salt spray: 48-hour with nickel-plating (ROHS) > 500-hour with olive drab cadmium
- Vibrations: MIL-STD-810F method 514.5 fig 514.5.C Cat14
- Temperature range: -40°F to +185°F (-40°C to +85°C) (MIL-STD-810F)
- Data transmission during vibration & temperature tests

OTHER FEATURES

- Type: USB2.0
- Voltage: 5V DC - 500 mA maximum
- Electromagnetic compatibility: 89/336/EEC and Part 15 Class B

We offer reinforced USB memory keys in different capacities. They can ONLY be used with our USBFTV series receptacles. When mated on the receptacle, the system is IP68.

IMPORTANT NOTE
USBFTV memory key to be used with USBF TV receptacle.

	REINFORCED USBFTV MEMORY KEYS			
Plating	512MB	1024MB	2048MB	4096MB
Nickel	USBFTVKEY6*0512N**	USBFTVKEY6*1024N**	USBFTVKEY6*2048N**	USBFTVKEY6*4096N**
Olive Drab Cadmium	USBFTVKEY6*0512G**	USBFTVKEY6*1024G**	USBFTVKEY6*2048G**	USBFTVKEY6*4096G**

* Coding A or B ** Blank = without CAP CAP = with CAP

BOLD =Stocked Items

RUGGED USB

ENVIRONMENTAL PROTECTION

- Sealing: IP68 (when closed)
- Salt spray: 48-hour with nickel-plating (ROHS) > 96-hour with black coating (ROHS)
  > 500-hour with olive drab cadmium
- Vibrations: MIL-STD-810F method 514.5 fig 514.5.C Cat14

OTHER FEATURES

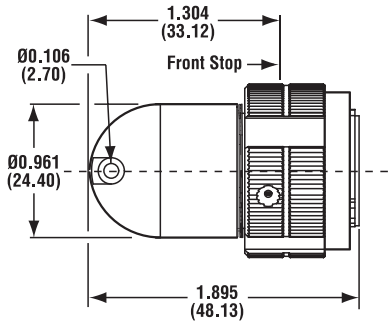
- Type: USB2.0
- Voltage: 5V DC - 500 mA max
- Electromagnetic compatibility: 89/336/EEC and Part 15 Class B

We offer reinforced USB memory keys in different capacities. When mated, the system is IP68. Shells are metallic with 1/4-turn bayonet coupling.

IMPORTANT NOTE
Compatible with any standard USB port

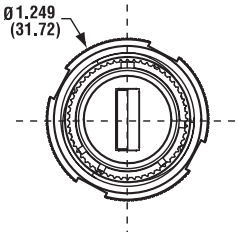
	RUGGED USB MEMORY KEYS			
Plating	512MB	1024MB	2048MB	4096MB
Nickel	USBFKEY0512N	USBFKEY1024N	USBFKEY2048N	USBFKEY4096N
Green	USBFKEY0512G	USBFKEY1024G	USBFKEY2048G	USBFKEY4096G
Black	USBFKEY0512B	USBFKEY1024B	USBFKEY2048B	USBFKEY4096B

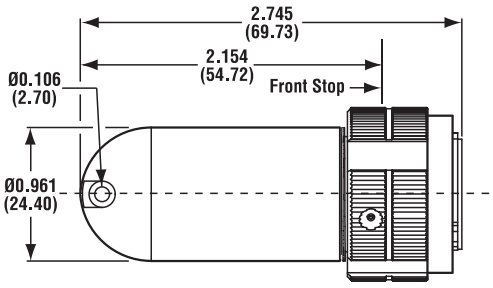
REINFORCED USBFTV DIMENSIONS



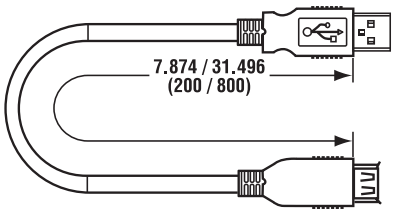
UP TO 4GB MEMORY SIZE

COMMON DIMENSION





FROM 8 TO 64GB MEMORY SIZE

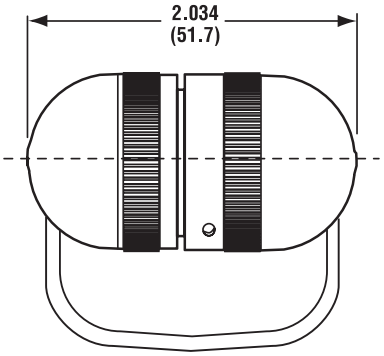


USB Cordset is included with each memory key

REINFORCED USBFTV MEMORY KEYS				
8192MB	16384MB	16384GT MB	32768MB	64GB
USBFTVKEY6*8192N**	USBFTVKEY6*16384N**	USBFTVKEY6*16384GTN**	USBFTVKEY6*32768N**	USBFTVKEY6*64N**
USBFTVKEY6*8192G**	USBFTVKEY6*16384G**	USBFTVKEY6*16384GTG**	USBFTVKEY6*32768G**	USBFTVKEY6*64G**

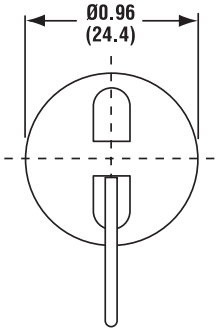
* Coding A or B ** Blank = without CAP CAP = with CAP

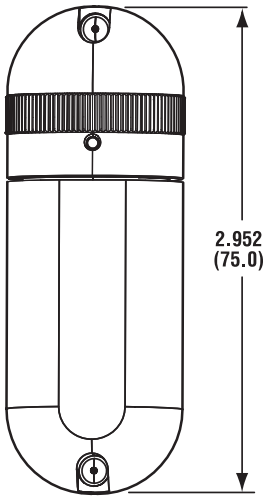
RUGGED USB DIMENSIONS



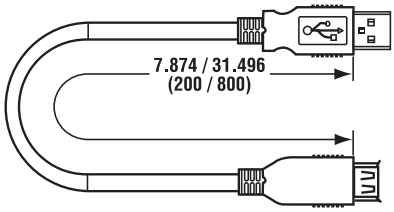
UP TO 4GB MEMORY SIZE

COMMON DIMENSION





FROM 8 TO 64GB MEMORY SIZE



USB Cordset is included with each memory key

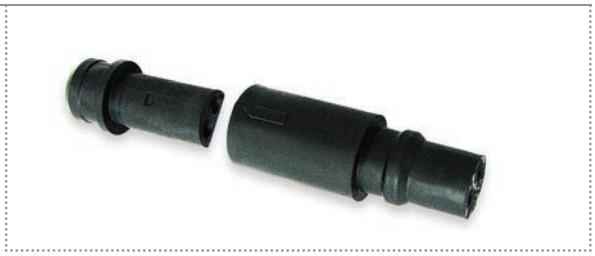
Rugged metallic USB key with cap sealing IP67

RUGGED USB MEMORY KEYS				
8192MB	16384MB	16384GT MB	32768MB	64GB
USBFKEY8192N	USBFKEY16384N	USBFKEY16384GTN	USBFKEY32768N	USBFKEY64N
USBFKEY8192G	USBFKEY16384G	USBFKEY16384GTG	USBFKEY32768G	USBFKEY64G
USBFKEY8192B	USBFKEY16384B	USBFKEY16384GTB	USBFKEY32768B	USBFKEY64B

Amphenol-Tuchel Electronics 44 Series

COST-EFFECTIVE ENVIRONMENTAL SEALING

Amphenol Tuchel 44 series connectors offer cost-effective performance for applications requiring environmental sealing. The connector's single-piece structure is resistant to water, fuel, lubricants, ozone, road salt and vibration.



APPLICATIONS

- Automotive safety & security system connectors
- Traffic control equipment
- Marine industrial connectors
- Truck accessory disconnects
- Mining ventilation systems
- Car interconnections
- RV interconnections

FEATURES

- Long-term resistance against environmental impacts
- 3 liquid-proof seals (primary, secondary & wire)
- Quick & easy assembly
- Quick & easy mating
- Protection against mismating
- Protection class IP 65/67
- High-reliability
- Discrete wire interconnection
- 2 to 6 low-insertion-force types

TECHNICAL SPECIFICATIONS

Rated Insulation Voltage	250 V~
Rated Impulse Withstand Voltage	1000 V~
Current Carrying Capacity	8 A
Insulation Resistance	> 5000 MΩ
Contact Resistance	< 30 mΩ
Operating Temperature	- 40°C to +105°C
Wire Gauge	18 – 14 AWG (1.0 - 2.5 mm²)
Overall Wire Insulation Diameter	0.080 to 0.130 inches (2.03 to 3.30 mm)
Contact Material	Tinned-copper alloy
Insulation Material	Santoprene, thermoplastic rubber
Mating Cycles	25 max.
Contact Retention	Axial displacement of contact < 0.03 inches (0,762 mm)
Color	Black

PART NUMBERS

			LOW-INSERTION	
# OF CONTACTS	RECEPTACLE (PIN)	PLUG (SOCKET)	RECEPTACLE (PIN)	PLUG (SOCKET)
1	44-104-10001-02	44-103-10001	-	-
2	44-104-10002-02	44-103-10002	44-104-10302	44-103-10302
3	44-104-10003-02	44-103-10003	44-104-10303	44-103-10303
4	44-104-10004-02	44-103-10004	44-104-10304	44-103-10304
5	44-104-10005-02	44-103-10005	44-104-10305	44-103-10305
6	44-104-10006-02	44-103-10006	44-104-10306	44-103-10306

CONTACTS & TOOLING

PIN CONTACTS (RECEPTACLES)	SOCKET CONTACTS (PLUG)	PCS	CRIMP TOOL		INSERTION TOOL	EXTRACTION TOOL
			W/O RATCHET	WITH RATCHET		
44-100-1414P	44-102-1414S	1	357-561	357-588	356-258	PIN 356-258 SOCKET 356-260
44-100-1414P-100-101	44-102-1414S-100-101	100	357-561	357-588	356-258	
44-100-1414P-1000-101	44-102-1414S-1000-101	1000	357-561	357-588	356-258	

Amphenol-Tuchel C 091 Series

SUITABLE FOR A WIDE RANGE OF APPLICATIONS

The Amphenol-Tuchel C091 series connectors are available in a variety of contact arrangements and have a metal integral strain relief. They are available in straight or right-angle configurations.

APPLICATIONS

- Factory automation
- Motors
- Robotics
- Test & measurement
- Machine tools
- Heavy equipment
- Control systems
- Sensors

FEATURES

- Available with crimp solder or PCB terminals
- Internal strain relief
- Ability to rewire
- Cable housing straight or right-angled
- UL registered file #E63093
- Front or rear mounting receptacles
- EMI-shielded, fully-mated on A&D types
- One cable housing for cables 6 to 8mm

TECHNICAL SPECIFICATIONS

	COMMON SPECIFICATIONS FOR C 091A, C 091B & C 091D	
Number of Contacts	3 - 8 Contacts	12 & 14 Contacts
Rated Voltage	250V	60V
Current Rating	5 A / +104°F (+40° C)	3 A / +104°F (+40°C)
Temperature Range	-40°F to +185°F (-40°C to +85°C)	
Mechanical Operation	Silver ≥ 500 mating cycles; Gold ≥ 1000 mating cycles	
Dielectric Material	Thermoplastic	
Contact Plating	Silver-plated / gold-plated **	
Termination Technique	Solder, crimp	Solder
Wire Gauge	Solder ≤ 0,5mm² (20-26 AWG), Crimp 0.14 – 0.75mm² (26-18 AWG)	≤ 0.25mm² / 24AWG
Flammability	UL 94 V0	

	DIFFERENCES IN SPECIFICATIONS		
Shell Style	C091A	C091B	C091D
IP-degree	IP40	IP40	IP67 / IP65
Housing Material	Coupling ring brass, strain relief, die cast, nickel-plated	Die cast, nickel-plated	Die cast, nickel-plated
Sealing Material	-	-	Neoprene
Locking System	Metal screw coupling	Bayonet	Metal screw coupling

APPROVALS

UL File #E63093

Amphenol Ecomate™

EXCELLENT FOR EXTREME ENVIRONMENTS FOUND IN INDUSTRIAL & MEDICAL APPLICATIONS

Amphenol Ecomate connectors are rugged and offer environmental protection under event extreme conditions. They are excellent for plant construction, machine building, control technology and medical applications. A wide selection of housings and shapes are available.

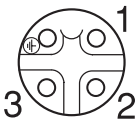
APPLICATIONS

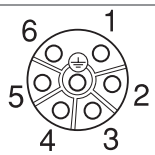
- Welding machines
- Machine tools
- Factory automation
- Electric motors
- Robotics
- Hydraulic controls
- Test & measurement
- Drive systems

FEATURES

- Quick & easy to assemble
- Screwed cable gland with clamping ring
- Strain relief & mounted gasket all in one component
- Robust thread for cable clamp
- Fastening for protective cap
- Available with crimp or solder-type terminals
- Circular connectors with 3+PE and 6+PE contacts
- Housing of premium molding material
- Cable housing straight or angled
- Vibration-safe connection through stable and non-sensitive screw locking
- Protection to IP65/67 in mated condition in accordance with DIN EN 60526
- Clamping ring or internal strain relief
- One cable housing for cables 6.0-12.5mm

TECHNICAL SPECIFICATIONS





Number of Contacts	3 + PE	6 + PE	
Electrical	Screw-Type	Solder-Type	Crimp-Type
Rated Insulation Voltage	400 V	250V	250V
Current-Carrying Capacity	16A / 131°F (+55°C)	10 A / 131°F (+55°C)	13 A / 131°F (+55°C)
Operating Temperature	-40°F to +212°F (-40°C to+100°C)	-40°F to +212°F (-40°C - +100°C)	
IP-degree of Protection	IP65/IP67	IP65/IP67	
Mechanical Operation	500 mating cycles	500 mating cycles	
Housing Material	PA6.6/ PA6	PA6.6/ PA6	
Dielectric Material	PA6.6/ PA6	PA6.6/ PA6	
Gasket Material	Neoprene	Neoprene	
Contact Plating	Silver-plated/ gold-plated	Silver-plated/ Gold-plated	
Termination Technique	Screw	Solder	Crimp
Wire Gauge	Max 2.5 mm^2 (14 AWG)	0.75 mm^2 (20 AWG)	0.14-1.15 mm^2 (26-16 AWG)
Flammabilty	UL94 VO		UL94 VO

APPROVALS

	CHARACTERISTICS	APPROVAL #
VDE	3+PE, 400V, 16A	1781
	6+PE, 250V, 10A	1780
SEV	3+PE, 400V, 16A 6+PE, 250V, 6A	00.0394
UL	3+PE, 250V, 12A 6+PE, 250V, 8A	E63093
CSA	3+PE, 250V, 12A 6+PE,250V, 8A (Solder) 6+PE,250V, 15A (Crimp)	48932
GERMAN LLOYD	3+PE, 250V, 16A 6+PE, 50V, 8A	14108/84

Amphenol Alden Pulse-Lok®

UNIQUE COUPLING SYSTEM CREATES SECURE CONNECTIONS FOR MEDICAL APPLICATIONS

Amphenol Alden Pulse-Lok® connectors have a unique locking coupling system with both tactile and audible confirmation for secure connections as well as quick-release action. These connectors are excellent for medical, factory automation, and instrumentation field applications. Many contact types are available, including signal, power, high-voltage, and Ethernet.

APPLICATIONS

- Medical
- Factory automation
- Test & measurement
- Sensors
- Military (solider communication)
- Renewable energy

FEATURES

- Quick-release action
- Tactile & audible mating confirmation
- IP67 sealed
- Low-insertion
- High mating cycles
- Small package (.500 – 1.2” dia.)
- 1 to 78 conductors
- EMI-shielding
- Field-installable versions
- Sterilization version
- Ergonomic

TYPES

PL-500SM-N

PL-700RG-N

PL-700SM-B

PL-700SM-N

PL-900SM-N

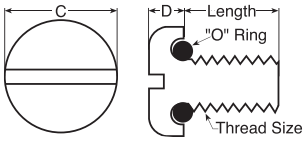
PL-1200RG-N

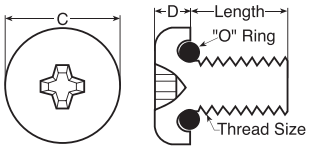
PL-1300EN-V

PL-PULSEPLUS

SEALING SCREWS

Sealing screws are designed with a groove underneath the head to accomodate an O-ring. When tightened, the O-ring is compressed against the connector flange a seal against air, water, and gas. These screws are also vibration-resistant. The reservoir beneath the head confines the O-ring and permits full metal-to-metal contact between the screw and the connector flange. Sealing screws can be reused without spoiling the sealing action. Sealing screws are used in conjunction with the nut plates below.





SLOTTED PAN HEAD						
PART NUMBER	THREAD	LENGTH	C MAX.	D MAX.	CLEAR HOLE MIN.	CLEAR HOLE MAX.
S-440-3/8	4-40NC-2A	3/8”	.220”	.069”	.125”	.129”
S-440-1/2		1/2”				
S-440-5/8		5/8”				
S-440-3/4		3/4”				
S-632-3/8	6-32NC-2A	3/8”	.271”	.083”	.147”	.152”
S-632-1/2		1/2”				
S-632-5/8		5/8”				
S-632-3/4		3/4”				
Metric						
SM4-12mm	M4	12mm	CALL	CALL	CALL	CALL
SM5-12mm	M5	12mm	CALL	CALL	CALL	CALL

Additional threads, lengths, and styles available. Contact us for ordering information.

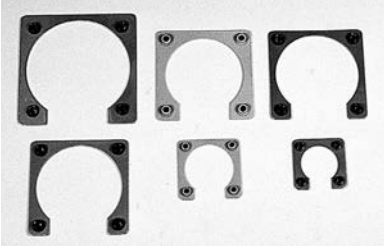
PHILLIPS PAN HEAD (MEETS MS3212 & MS3213)						
PART NUMBER	THREAD	LENGTH	C MAX.	D MAX.	CLEAR HOLE MIN.	CLEAR HOLE MAX.
R-440-3/8	4-40NC-2A	3/8”	.238”	.080”	.125”	.129”
R-440-1/2		1/2”				
R-440-5/8		5/8”				
R-440-3/4		3/4”				
R-632-3/8	6-32NC-2A	3/8”	.294”	.097”	.147”	.152”
R-632-1/2		1/2”				
R-632-5/8		5/8”				
R-632-3/4		3/4”				

Material: Passivated stainless steel screws & silicone rubber O-rings

NUT PLATES

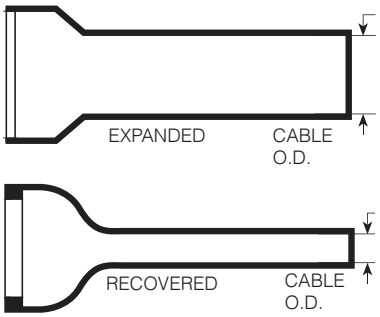
Nut plates are flat metal brackets containing four captive nuts that are used to mount flanged receptacles to a panel. They eliminate the challenge of working with loose nuts in a confined area and effectively distribute the screw tension across the back of the panel. These cost-effective devices are “self-wrenching,” drawing the bracket up for automatice alignment. Our plates are a “C” shape, design which allows you to slip the nut plate over the wire bundle just prior to mounting. The bracket is aluminum alloy with alodine plating and the nuts are steel alloy-plated with cadmium. Nut plates mate with above sealing screws.

CONNECTOR STYLES		MIL-DTL-5015	MIL-DTL-26482		MIL-DTL-38999		
PART NUMBER	THREAD	9440, 9443 97, AIT, MS AIB/GT	PT/PTSE, 62GB, MB10, MS3470	MB12, MS3472	LJT SERIES I/ HE308	SJT, JN1003 JT SERIES II	AL00, TV-CTV SERIES III
M85049/95-8A	4-40	8/8S	8			8	
M85049/95-10A	4-40	10S/10SL	10		9	10	A
M85049/95-10B	6-32			10			
M85049/95-12A	4-40	12/12S	12	10	11	12	B
M85049/95-12B	6-32			12			
M85049/95-14A	4-40	14/14S	14		13	14	C
M85049/95-14B	6-32			14			
M85049/95-16A	4-40	16/16S/RJF544	16		15	16	D
M85049/95-16B	6-32			16			
M85049/95-18A	4-40	18	18/RJF		17	18	E
M85049/95-18B	6-32			18			
M85049/95-20A	4-40	20	20/RJFTV		19	20	F
M85049/95-20B	6-32			20			
M85049/95-22A	4-40	22	22		21	22	G
M85049/95-22B	6-32			22			
M85049/95-24A	4-40			24	25		J
M85049/95-24B	6-32	24	24		23	24	H
M85049/95-25A	6-32				25		
M85049/95-28A	6-32	28					
M85049/95-32A	6-32	32					
M85049/95-36A	6-32	36					
AT283-40	8-32	40					



TORQUE	MAX. IN/LB	MAX. MM
4-40	6.3	.71
6-32	10	1.12

STANDARD HEAT SHRINK BOOTS



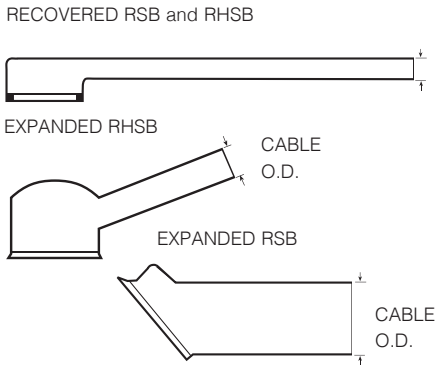
Standard heat shrink boots are supplied in flame-retardant polyolefin with an adhesive inner liner. A high shrink-ratio version for sealing smaller wire bundles is also available. The adhesive liner is heat-activated and bonds to the underlying surface, filling any small voids that might exist. When cool, the adhesive forms a barrier against water, moisture, dirt and other environmental contaminants. The lip on the connector end of the recovered boot fits into the sealing groove. Operating temperature is -67° F to 275° F (-55° C to 135° C). These boots are also available in halogen-free polyolefin, semi-rigid polyolefin, silicone, or Viton, with or without adhesive liner.

HEAT SHRINK BOOT PART NUMBER	CABLE O.D.		LENGTH ± 10%	AIT, AIB/GT G STYLE (MIL-DTL-5015) SHELL SIZE										
	MAX.	MIN.		10SL	12S	14S	16S/16	18	20	22	24	28	32	36
HSB1	0.25 (6.4)	0.08 (2.0)	2.37 (60.2)	●	●									
HSB2	0.30 (7.6)	0.10 (2.5)	2.92 (74.2)			●	●	●						
HSB3	0.38 (9.7)	0.12 (3.0)	3.32 (84.3)						●	●				
HSB4	0.45 (11.4)	0.14 (3.6)	3.92 (99.6)								●	●		
SB1	0.88 (22.4)	0.25 (6.4)	4.17 (105.9)	●	●	●								
SB2	1.01 (25.7)	0.29 (7.4)	4.77 (121.2)	●	●	●	●	●						
SB3	1.16 (29.5)	0.33 (8.4)	5.46 (138.7)			●	●	●						
SB4	1.34 (34.0)	0.39 (9.9)	6.28 (159.5)				●	●	●	●				
SB5	1.47 (37.3)	0.41 (10.4)	7.00 (177.8)						●	●				
SB6	1.72 (43.7)	0.48 (11.2)	8.00 (203.2)								●	●		
SB7	1.97 (50.0)	0.51 (13.0)	8.00 (203.2)										●	●
SB8	2.47 (62.7)	0.69 (17.5)	8.00 (203.2)										●	●

HEAT SHRINK BOOT PART NUMBER	CABLE O.D.		± 10%	MB M85049/60 (MIL-DTL-26482 STYLE) SHELL SIZE LENGTH									LJT/SJT/JT M85049/62 & TV-CTV M85049/69 (MIL-DTL-38999 STYLE) SHELL SIZE								
													A	B	C	D	E	F	G	H	J
	MAX.	MIN.		8	10	12	14	16	18	20	22	24	8/9	10/11	12/13	14/15	16/17	18/19	20/21	22/23	24/25
HSB1	0.25 (6.4)	0.08 (2.0)	2.37 (60.2)	●	●								●	●							
HSB2	0.30 (7.6)	0.10 (2.5)	2.92 (74.2)			●	●	●							●	●	●				
HSB3	0.38 (9.7)	0.12 (3.0)	3.32 (84.3)						●	●								●	●		
HSB4	0.45 (11.4)	0.14 (3.6)	3.92 (99.6)								●	●								●	●
SB1	0.88 (22.4)	0.25 (6.4)	4.17 (105.9)	●	●	●	●						●	●	●	●					
SB2	1.01 (25.7)	0.29 (7.4)	4.77 (121.2)		●	●	●	●						●	●	●	●				
SB3	1.16 (29.5)	0.33 (8.4)	5.46 (138.7)			●	●	●	●						●	●	●	●			
SB4	1.34 (34.0)	0.39 (9.9)	6.28 (159.5)					●	●	●							●	●	●		
SB5	1.47 (37.3)	0.41 (10.4)	7.00 (177.8)							●	●	●						●	●	●	
SB6	1.72 (43.7)	0.48 (11.2)	8.00 (203.2)								●	●								●	●

All dimensions in inches (millimeters in parenthesis)

RIGHT ANGLE HEAT SHRINK BOOTS



Right angle heat shrink boots are supplied in flame-retardant polyolefin with an adhesive inner liner. A high shrink-ratio version for sealing smaller wire bundles is also available. The adhesive liner is heat-activated and bonds to the underlying surface, filling any small voids that might exist. When cool, the adhesive forms a barrier against water, moisture, dirt and other environmental contaminants. The lip on the connector end of the recovered boot fits into the sealing groove. Operating temperature is -67° F to 275° F (-55° C to 135° C). These boots are also available in halogen-free polyolefin, semi-rigid polyolefin, silicone, or Viton, with or without adhesive liner.

HEAT SHRINK BOOT PART NUMBER	CABLE O.D.		LENGTH	AIT, AIB/GT G STYLE (MIL-DTL-5015 STYLE) SHELL SIZE										
	MAX	MIN	± 10%	10SL	12S	14S	16S/16	18	20	22	24	28	32	36
RHSB1	0.24 (6.1)	0.08 (2.0)	1.77 (45.0)	●	●									
RHSB2	0.30 (7.6)	0.10 (2.5)	2.64 (67.1)			●	●	●						
RHSB3	0.37 (9.4)	0.12 (3.0)	3.17 (81.0)						●	●				
RHSB4	0.45 (11.4)	0.14 (3.6)	4.57 (116.1)							●	●	●	●	
RSB1	0.88 (22.4)	0.23 (5.8)	4.14 (105.2)	●	●									
RSB2	1.01 (25.7)	0.26 (6.6)	4.88 (124.0)	●	●	●	●	●						
RSB3	1.16 (29.5)	0.30 (7.6)	5.76 (146.3)			●	●	●						
RSB4	1.34 (34.0)	0.35 (8.9)	6.78 (172.2)				●	●	●	●				
RSB5	1.47 (37.3)	0.37 (9.4)	7.29 (185.2)						●	●				
RSB6	1.72 (43.7)	0.44 (11.2)	7.93 (201.4)								●	●		
RSB7	1.97 (50.0)	0.51 (13.0)	8.84 (224.5)								●	●	●	●
RSB8	2.47 (62.7)	0.69 (17.5)	8.95 (227.3)										●	●

HEAT SHRINK BOOT PART NUMBER	CABLE O.D.		LENGTH	MB M85049/60 (MIL-DTL-26482 STYLE) SHELL SIZE									LJT/SJT/JT M85049/62 & TV-CTV M85049/69 (MIL-DTL-38999 STYLE) SHELL SIZE								
													A	B	C	D	E	F	G	H	J
NUMBER	MAX.	MIN.	± 10%	8	10	12	14	16	18	20	22	24	8/9	10/11	12/13	14/15	16/17	18/19	20/21	22/23	24/25
RHSB1	0.24 (6.1)	0.08 (2.0)	1.77 (45.0)	●	●								●	●							
RHSB2	0.30 (7.6)	0.10 (2.5)	2.64 (67.1)			●	●	●							●	●	●				
RHSB3	0.37 (9.4)	0.12 (3.0)	3.17 (81.0)						●	●								●	●		
RHSB4	0.45 (11.4)	0.14 (3.6)	4.57 (116.1)								●	●								●	●
RSB1	0.88 (22.4)	0.23 (5.8)	4.14 (105.2)	●	●	●	●						●	●	●	●					
RSB2	1.01 (25.7)	0.26 (6.6)	4.88 (124.0)		●	●	●	●						●	●	●	●				
RSB3	1.16 (29.5)	0.30 (7.6)	5.76 (146.3)			●	●	●	●						●	●	●	●			
RSB4	1.34 (34.0)	0.35 (8.9)	6.78 (172.2)					●	●	●	●						●	●	●	●	
RSB5	1.47 (37.3)	0.37 (9.4)	7.29 (185.2)							●	●	●							●	●	●
RSB6	1.72 (43.7)	0.44 (11.2)	7.93 (201.4)								●	●								●	●

All dimensions in inches (millimeters in parenthesis)

BLACK POLYOLEFIN CONVOLUTED BOOTS

Convoluted boots are used in applications that require various cable outlet angles or if the cable harness requires quick access to connector wiring. When held in place on an angle while cooling, these boots will maintain their bend. If maximum connector serviceability is required, a two-piece spin coupling endbell should be used. The convoluted boot is used in conjunction with this spin coupling endbell, which allows the user to unthread and push the endbell back out of the way by heating the boot until it becomes flexible. The user can make the required repair, reheat the boot and rethread the backshell without having to cut off and replace the boot.

CONVOLUTED BOOTS	CABLE O.D.		LENGTH	MAX 90° LENGTH	AIT, AIB/GT G STYLE (MIL-DTL-5015 STYLE) SHELL SIZE										
	MAX.	MIN.			10SL	12S	14S	16S/16	18	20	22	24	28	32	36
CSB2	0.70 (17.8)	0.32 (8.1)	5.25 (133.4)	2.67 (67.8)	●	●	●								
CSB3	1.06 (26.9)	0.50 (12.7)	5.75 (146.1)	2.89 (73.4)			●	●	●	●	●				
CSB4	1.44 (36.6)	0.69 (17.5)	6.25 (158.8)	3.08 (78.2)				●	●	●	●	●	●		
CSB5	1.80 (45.7)	0.88 (22.4)	6.75 (171.5)	3.26 (82.8)						●	●	●	●	●	●
CSB6	2.15 (54.6)	0.90 (22.9)	9.30 (236.2)	5.45 (138.4)										●	●

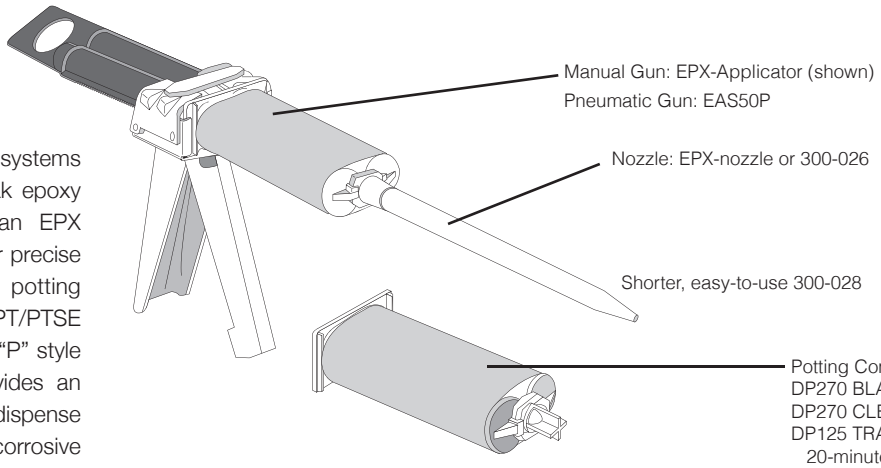
CONVOLUTED BOOTS	CABLE O.D.		LENGTH	MAX 90° LENGTH	MB M85049/60 (MIL-DTL-26482 STYLE) SHELL SIZE																	
	MAX.	MIN.			8	10	12	14	16	18	20	22	24	8/9	10/11	12/13	14/15	16/17	18/19	20/21	22/23	24/25
CSB2	0.70 (17.8)	0.32 (8.1)	5.25 (133.4)	2.67 (67.8)	●	●								●	●							
CSB3	1.06 (26.9)	0.50 (12.7)	5.75 (146.1)	2.89 (73.4)			●	●	●	●					●	●	●	●				
CSB4	1.44 (36.6)	0.69 (17.5)	6.25 (158.8)	3.08 (78.2)					●	●	●	●	●					●	●	●	●	●
CSB5	1.80 (45.7)	0.88 (22.4)	6.75 (171.5)	3.26 (82.8)							●	●	●			●	●	●				

NOTE: Allow 20% recovery for proper bonding of adhesive liner.

All dimensions in inches (millimeters in parenthesis)

POTTING SYSTEM

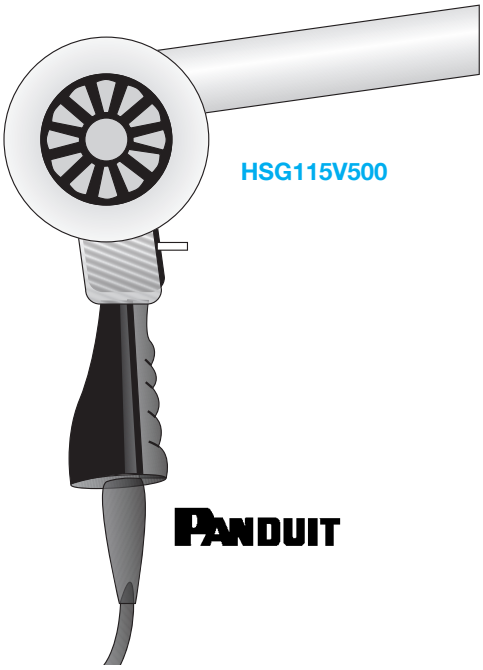
3M Scotch-Weld™ EPX potting systems consist of a self-leveling Duo-Pak epoxy potting compound cartridge, an EPX applicator, and an EPX nozzle for precise mixing. 3M's two-part epoxy potting compound is for use with the PT/PTSE and MS-E/F/R, AIT & AIB series "P" style endbells. The EPX system provides an easy way to meter, mix and dispense potting compound. 3M's non-corrosive epoxy potting compound is specially-formulated for electronic applications. Available in black and clear.



Potting Compound:
DP270 BLACK
DP270 CLEAR
DP125 TRANSLUSCENT
20-minute work-life with excellent wetting properties allows same-day shipping of assemblies
DP100 PLUS CLEAR
4-minute work-life; Rapid setup for automotive applications

HEAT GUN

The Panduit HSG115V500 heat gun is a general-purpose tool designed for all types of heat shrink boots and tubing. The air intake adjustment varies temperature from 500°F (260°C) to 650°F (344°C). The unit operates on 115 Vac at 11 amps. The tools comes with an adjustable stand and a neoprene AC cord. The bearings, brushes and heating element are replaceable.



PMA ADAPTERS

PMAFIX Adapters are manufactured from specially-formulated polyamids that are self-extinguishing, free of halogen and cadmium and are extremely shock-resistant.

Simple mounting with locking clips ensures high pullout values and a vibration-free connection to PMAFLEX conduit. Using a snap-to-close clip fastening, PMAFIX connectors feature a unique safety mechanism that can only be released with a screwdriver. These connectors are ideal for use in applications where the cable protection system requires a high degree of sealing and safety.

= Sealed to IP68 all others IP67

FOR MIL-DTL-5015, MS310-, AIT, AIB, GT & 97 STYLES

			PMA CONDUIT SIZE						
SHELL SIZE	CONNECTOR BARREL	THREADED A/B ENDBELL	10	12	17	23	29	36	48
8S		●	Contact us	Contact us					
10S	●		BFIBM-U120T	Contact us					
10SL		●	BVIRA-U150	BVIRA-U152					
12S/12	●	●	BVIRA-U150	BVIRA-U152					
12SL		●	BVIRA-U180	BVIRA-U182	BVIRA-U187				
14S/14	●	●	BVIRA-U180	BVIRA-U182	BVIRA-U187				
16S/16	●	●		BVIVG-U212	BVIVG-U217				
18	●	●		BVIVG-U242	BVIVG-U247	BVIVG-U243			
20	●	●		BVIVG-U292	BVIVG-U297	BVIVG-U293	BVIVG-U299		
22		●		BVIVG-U292	BVIVG-U297	BVIVG-U293	BVIVG-U299		
24		●		BVIVG-U352	BVIVG-U357	BVIVG-U353	BVIVG-U359	BVIVG-U356	
28		●		BVIVG-U352	BVIVG-U357	BVIVG-U353	BVIVG-U359	BVIVG-U356	
32		●			BVIVG-U437	BVIVG-U433	BVIVG-U439	BVIVG-U436	
36		●				BVIVG-U503	BVIVG-U509	BVIVG-U506	BVIVG-U508
40		●				BVIVG-U563	BVIVG-U569	BVIVG-U566	BVIVG-U568

FOR MIL-DTL-26482 SERIES 1 STYLES

			PMA CONDUIT SIZE						
SHELL SIZE	PT/PTSE CONNECTOR BARREL	PT A ENDBELL	10	12	17	23	29	36	48
8		●	Contact us	Contact us					
10	●		BFIBM-U120T	Contact us					
		●	BVIRA-U150	BVIRA-U152					
12	●			BVIRB-U162					
		●	BVIRA-U180	BVIRA-U182	BVIRA-U187				
14		●		BVIVG-U212	BVIVG-U217				
	●			BVIVB-U202					
16	●			BVIRB-U232	BVIRB-U237				
18	●			BVIRB-U262	BVIRB-U267				
20	●	●			BVIVG-U297	BVIVG-U293	BVIVG-U299	BVIVG-U296***	
22	●					BVIRB-U323			
		●			BVIRB-U357	BVIRB-U353	BVIRB-U359		
24	●	●			BVIVG-U357	BVIVG-U353	BVIVG-U359		

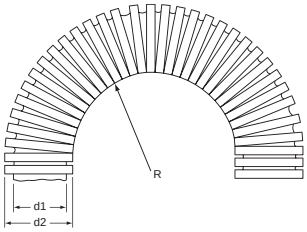
*** Uses an additional thread adapter

FOR MIL-DTL-26482 SERIES 2 STYLES

		PMA CONDUIT SIZE						
SHELL SIZE	MB/MS347_ CONNECTOR BARREL	10	12	17	23	29	36	48
8	●		BVIVG-U242	BVIVG-U247	BVIVG-U243			
10	●	BVIRA-U150	BVIRA-U152					
12	●	BVIRA-U180	BVIRA-U182	BVIRA-U187				
14	●		BVIVG-U212	BVIVG-U217				
16	●		BVIVG-U242	BVIVG-U242				
18	●		BVIRB-U262††	BFIVB-U267				
20	●		BVIVG-U292	BVIVG-U297	BVIVG-U293	BVIVG-U299		
22	●				BFILB-U323			
24	●			BVIVG-U357	BVIVG-U353	BVIVG-U359	BVIVG-U356	

†† Special please contact us

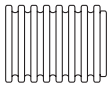
PMAFLEX PCS



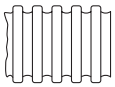
PMAFLEX PCS heavy-duty cable conduits are manufactured using modified polyamides that are free of halogen and cadmium. These impact-resistant conduits are rugged, easy to install and provide excellent resistance to UV rays and environmental corrosion.

They are CSA-approved (227.3) and UL-recognized: File # E-80294.

Temperature range -58°F to 221°F (-50°C to 105°C)



T-PROFILE



G-PROFILE

CONDUIT SIZE	PART NUMBER	PUT UP FEET (METERS)	D1	D2	STATIC NON-FLEXING BEND RADIUS	DYNAMIC FLEXING BEND RADIUS
T (THIN PROFILE) TIGHT BEND RADIUS						
10	PCST-10B	164 (50)	0.362 (9.2)	0.512 (13.0)	0.787 (20.0)	1.969 (50.0)
12	PCST-12B	164 (50)	0.465 (11.8)	0.622 (15.8)	0.984 (25.0)	2.756 (70.0)
17	PCST-17B	164 (50)	0.630 (16.0)	0.835 (21.2)	1.378 (35.0)	3.150 (80.0)
G (LARGE PROFILE) HIGH PULL-OUT STRENGTH						
17	PCSG-17B	164 (50)	0.598 (15.2)	0.835 (21.2)	1.378 (35.0)	3.346 (85.0)
23	PCSG-23B	164 (50)	0.866 (22.0)	1.122 (28.5)	1.575 (40.0)	4.331 (110.0)
29	PCSG-29B	164 (50)	1.091 (27.7)	1.354 (34.4)	1.969 (50.0)	5.118 (130.0)
36	PCSG-36B	98 (30)	1.409 (35.8)	1.669 (42.4)	2.362 (60.0)	7.087 (180.0)
48	PCSG-48B	98 (30)	1.843 (46.8)	2.142 (54.4)	2.756 (70.0)	8.661 (220.0)

NOTE: A wide array of conduits are available including high-temperature or ultraflexible for robotics.

F.CK SCREENING BRAID

F.CK Screening Braid is made of tin-plated copper and is supplied on a tube former. The tube former prevents the material from folding and greatly simplifies installation. This product is used in applications that require shielding from electromagnetic fields. F.CK Screening Braid is used over wires or cables but inside conduit.

Temperature range -103°F to 842°F (-75°C to 450°C). Up to 95% electrical coverage.

NOTE: Contact us for EMI endbell adapters

PART NUMBER	WIRING	CROSS SECTION INCH^2 (MM^2)	OPERATING RANGE INCH (MM)		WEIGHT PER 100 M LBS. (KG)	PCS CONDUIT SIZE
			MIN.	MAX.		
F.CK03	16X5X0.12	.035 (0.9)	.098 (2.5)	.138 (3.5)	2.86 (1.3)	-
F.CK04	16X7X0.12	.050 (1.3)	.118 (3.0)	.196 (5.0)	3.74 (1.7)	-
F.CK06	24X7X0.12	.075 (1.9)	.177 (4.5)	.354 (9.0)	4.62 (2.1)	07
F.CK10	24X9X0.14	.131 (3.3)	.275 (7.0)	.472 (12.0)	11.00 (5.5)	10
F.CK12.5	24X10X0.14	.145 (3.7)	.433 (11.0)	.551 (14.0)	16.06 (7.3)	12
F.CK15	24X11X0.20	.326 (8.3)	.512 (13.0)	.708 (18.0)	25.30 (11.5)	17
F.CK20	48X16X0.12	.342 (8.7)	.630 (16.0)	1.500 (38.0)	33.70 (15.3)	23
F.CK25	48X18X0.14	.524 (13.3)	.866 (22.0)	1.570 (40.0)	45.50 (20.7)	23, 29
F.CK30	48X20X0.15	.667 (16.9)	1.06 (27.0)	1.690 (43.0)	68.20 (31.0)	29, 36
F.CK35	48X20X0.15	.667 (16.9)	1.30 (33.0)	1.850 (47.0)	93.50 (42.5)	36, 48

All dimensions in inches (millimeters in parenthesis)