Glenair®

High-Performance Micro-D Connectors and Cables

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Fourth Edition • February 2011

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New 130 Contact Micro-D's Now Tooled and Available!

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High-Performance Micro-D Connectors and Cables
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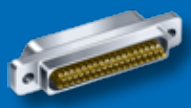
Product Selection Guide

High-Performance Micro-D Connectors and Cables

B — Metal Shell Micro-D for Harnessing Applications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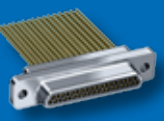
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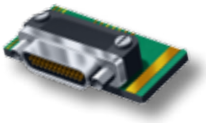
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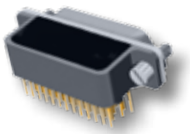
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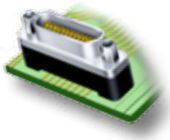
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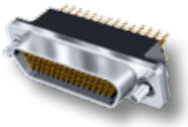
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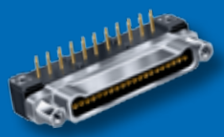
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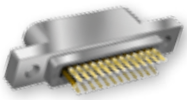
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Metal Shell Pre-Wired **E-5**


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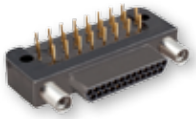
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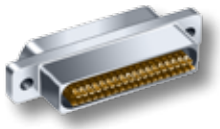
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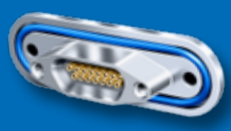
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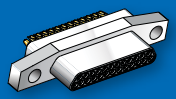
Product Selection Guide

High-Performance Micro-D Connectors and Cables

Well-Master™ 260 High Temperature Micro-D


Pin (Plug) PCB Header **J-1**


Socket (Receptacle Cable Connector **J-1**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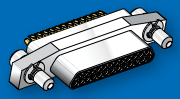
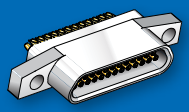

Pin (Plug) with Jackscrews **J-2**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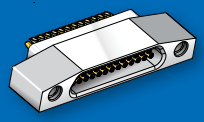
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J

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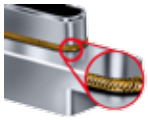
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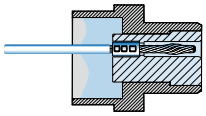
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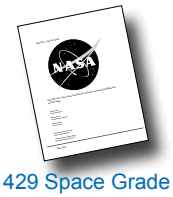

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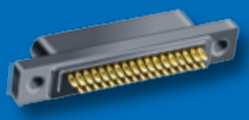
K

MIL-DTL-83513 Connectors and Hardware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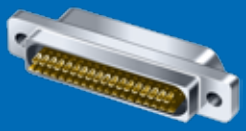
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Board Mount M83513 **L-15**


M83513 Hardware **L-7**

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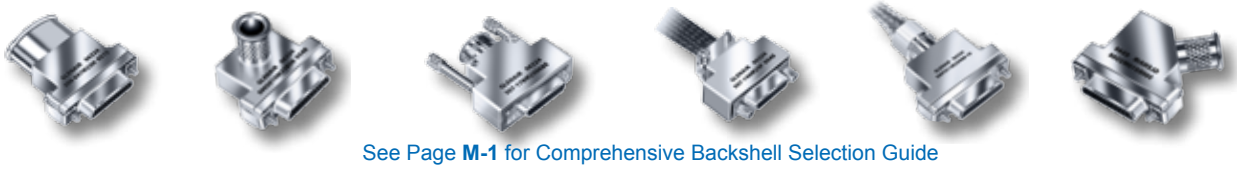

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M

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Rubber Covers **N-7**

N

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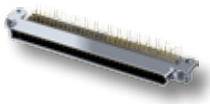
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P

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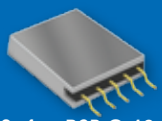
Vertical PCB **Q-9**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Q

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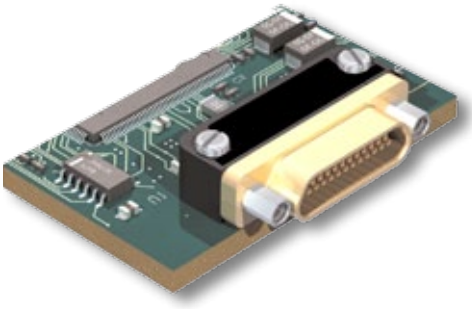


Six Reasons

to Select a Glenair High-Performance Micro-D Connector...

1 Recognized performance standards.

Every element of the MIL-DTL-83513 Micro-D is exactly controlled—from terminal spacing to approved wire termination methods. The military standard defines contact resistance, dielectric withstanding voltage, corrosion resistance, shock and vibration tolerances and a wide range of other electrical, mechanical and environmental performance standards. Standardized measurement and test methodologies ensure consistent, predictable performance throughout this broad family of ruggedized, miniature connectors.

2 Proven reliability under tough operating conditions.

For applications where interconnect failure is simply not an option, the Glenair high-reliability Micro-D offers a wealth of performance benefits which far outweigh any potential cost savings realized by specifying a lesser caliber connector. If downtime is a critical concern, other connectors cannot match the long-term durability and performance advantages of the MIL-DTL-83513 Micro-D, which include:

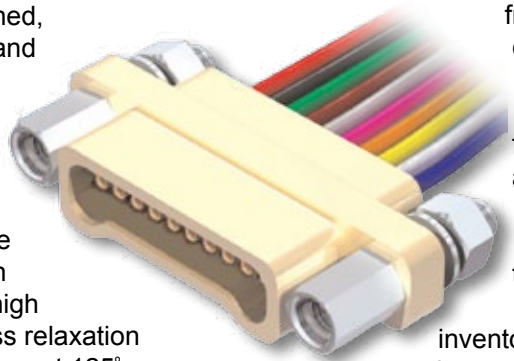
- Higher current ratings
- Lower circuit resistance
- Superior vibration and shock
- Optimized EMI/RFI shielding
- Broader operating temperature
- Better damage resistance
- Enhanced corrosion resistance
- Better contact retention
- Better environmental sealing

3 The flexibility of easy customization.

Manufacturers of satellite communications systems, geophysical exploration devices, medical diagnostics and industrial equipment face many of the same packaging requirements for reduced size, weight and shape as do their military counterparts. And the ability to design-in a wide range of custom modifications which fit the unique packaging requirements of these specialized applications is a distinct advantage of the Glenair Micro-D —making it the connector of choice for many unique or small quantity applications.

4 Advanced, high temperature tolerance.

Heat from electrical or environmental sources can soften mated contacts over time and reduce contact retention force. Under extreme conditions of shock and vibration this loss of normal retention can result in unstable resistance across the interconnect. This is the case for all types of contacts—machined, drawn, stamped and twisted. But materials selection, fabrication and heat treating techniques enable Glenair's TwistPin contact to resist high temperature stress relaxation for up to 1000 hours at 125° C and thus perform at levels unmatched by other contact designs.



5 Trouble-free mating and un-mating.

Glenair has perfected a nickel underplating combined with a proprietary duplex gold overplating which provides optimal contact lubricity (anti-galling) and effectively eliminates the oxidation common to copper flash underplating. Glenair's advanced plating process contributes to the overall durability of the connector by reducing contact engaging and separating forces. Glenair 100 contact Micro-D connectors have been successfully tested to 25,550 mating cycles (test report ER1010) proving the durability of the Glenair plating process.

6 Fast Turnaround and Same-Day Availability.

Are the Micro-D connectors and accessories you need either in stock or able to be manufactured in a short period of time? Glenair has built its reputation on fast turnaround and can deliver TwistPin products—from discrete connectors to complete assemblies—faster than anyone else in our business. We maintain the world's largest inventory of Micro-D connectors and accessories, all available for immediate shipment with no quantity or price minimums.

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Not All Micro-D's
Are Created Equally

The MIL-DTL-83513 and MIL-DTL-32139 specifications define the minimum acceptable performance levels for Micro-D and Nanominiature connectors. While the specs are rigid in their performance benchmarks, manufacturers are given considerable leeway when it comes to contact design, crimp fabrication, contact finish and material selection. Stamped and formed contacts, for example, are widely used in Micro-d connectors due to their low-cost and ease of manufacture. But independent testing clearly shows that TwistPin style contacts provide superior performance in such areas as high temperature tolerance, contact retention and crimp strength. If you have already made the decision to use either a Micro-D or Nano sized connector because its ruggedized performance outweighs the potential cost-savings realized in a lesser-caliber connector, then you owe it to yourself to understand the very real differences between stamped pins and the Glenair TwistPin Contact System.

Split-Tine Contact Systems

The socket contact is made by machining a copper alloy tube, then cutting a longitudinal slot. The contact is then crimped to bend the tines together. The smallest split tine contact systems are used in connectors with .075 inch spacing. The TwistPin offers improved vibration performance and higher contact density.

M39029 Split Tine Contact System

Two Reasons to Choose TwistPins

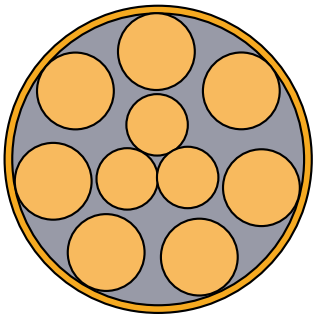
This unretouched photograph shows important differences between the TwistPin and stamped pins.

1 A Better Crimp Joint

Micro-D connectors are factory-terminated to wire. Board mount and insulated wire pigtails have crimp joints where the wire attaches to the contact. Micro-D crimp joints are concealed with epoxy potting. The Micro-D is unique among high reliability mil spec connectors because the mil spec allows stamped crimp barrels and does not specify that the crimping process must use mil spec crimp tools. The thin sheet metal in the stamped pin cannot produce a satisfactory gas-tight crimp joint, so spot welding is required to reduce the chance of failure.

2 A Stronger Front End

Both types of contacts meet the requirements of MIL-DTL-83513. But only the TwistPin offers a stronger front-end with its seven points of contact, high normal force and better resistance to vibration.



Seven Points of Electrical Contact

The TwistPin size #24 contact has seven strands of BeCu wire surrounding three filler strands . Each strand makes contact with the socket, assuring low resistance, plenty of contact wipe, and excellent shock and vibration performance.

The Glenair TwistPin Contact

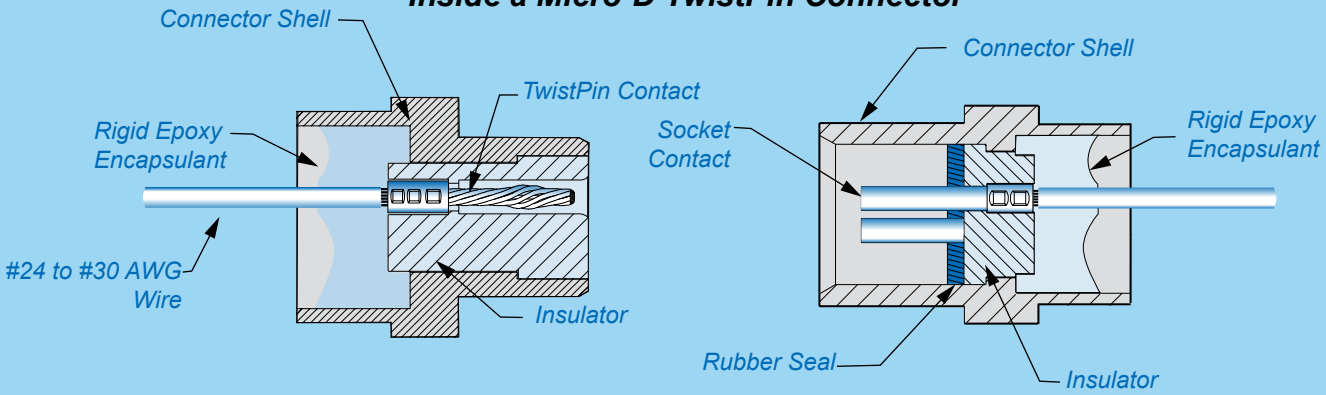
At-a-Glance

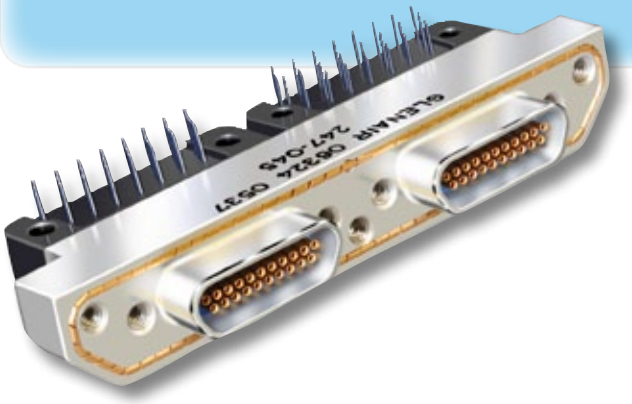
Question:
Why choose a TwistPin connector?

Answer: Design Flexibility and Reliable Performance

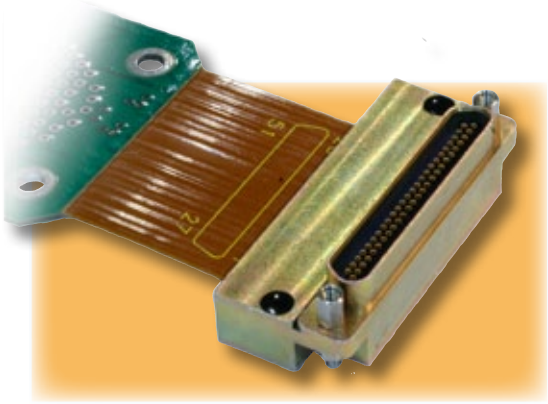
If reliability and performance were the only considerations in the design of a micro contact system, everyone would opt for a TwistPin contact and a machined socket and crimp sleeve. But cost and ease of manufacture are significant issues as well, which is why stamped and formed contacts, as well as split-tine M39029 contacts, are still widely used. The Glenair TwistPin Contact System provides a superior wire attachment which translates to lower contact resistance—and it does so under extreme conditions of vibration, shock and high heat. An additional key benefit of the TwistPin contact is the ease of designing a custom package to fit your exact needs. The precision machined components can be readily integrated into a wide range of connector package envelopes.

Inside a Micro-D TwistPin Connector





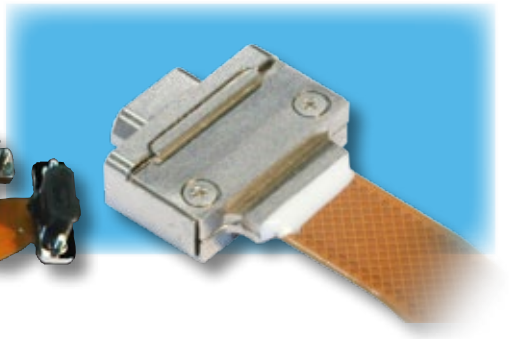
TwistPin Contacts
The TwistPin contact is made with a bundle of beryllium copper wires welded at the tip to form a semispherical radius and "bulged" to create a spring.

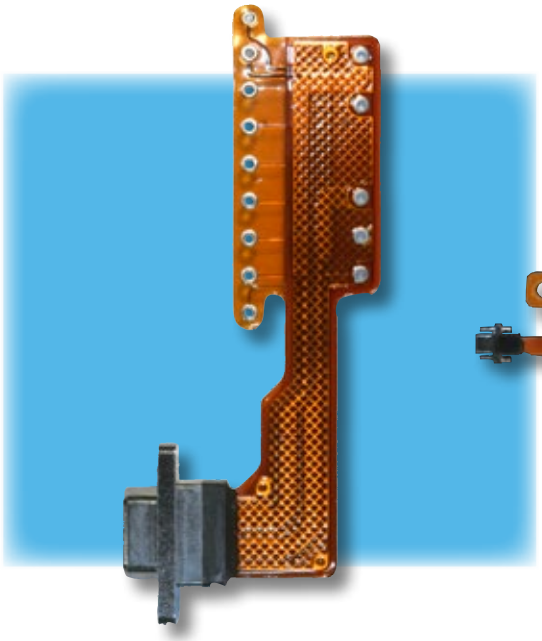


Four Reasons
to Select Glenair for Your Next Micro/Nano Flex Circuit Project

1 Unsurpassed Experience in Micro/Nano Flex Circuit Production

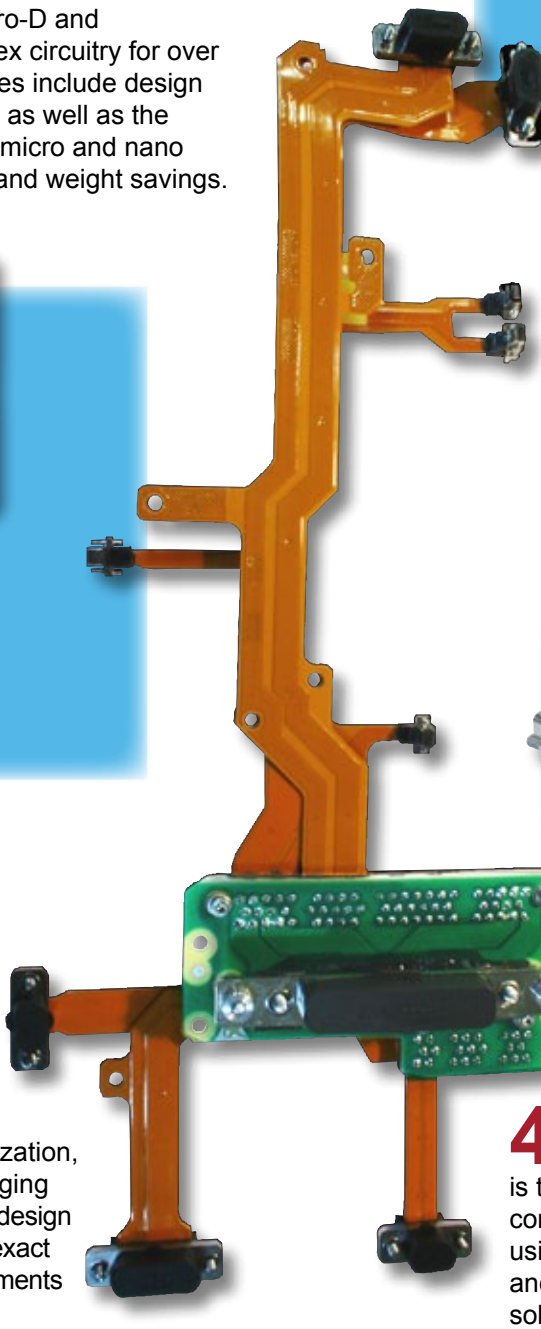
Glenair has been integrating Micro-D and Nanominiature connectors into flex circuitry for over 30 years. Our technical capabilities include design and layout of turnkey assemblies as well as the production of custom-configured micro and nano interconnects for maximum size and weight savings.





2 Full Spectrum Product Offering

Glenair offers a complete range of miniaturized printed circuit board connectors with high-reliability TwistPin contacts. We supply both through-hole and surface mount designs in every angle and mounting style for integration into single-sided, double-sided and multilayered flex circuitry.



3 Application Design

Our turnkey Micro-D and Nanominiature flex circuit assemblies are produced to exacting specifications. Customer-supplied designs are reviewed and revised to insure the most advantageous utilization of EMI shielding, polarization, strain-relief and connector packaging technologies. At Glenair, the final design solution is optimized to meet the exact mechanical and electronic requirements of the application environment.

4 Termination Expertise

Glenair's experienced workforce is trained and qualified to produce consistently reliable circuit terminations using the most advanced techniques and technologies, including automated solder reflow systems.

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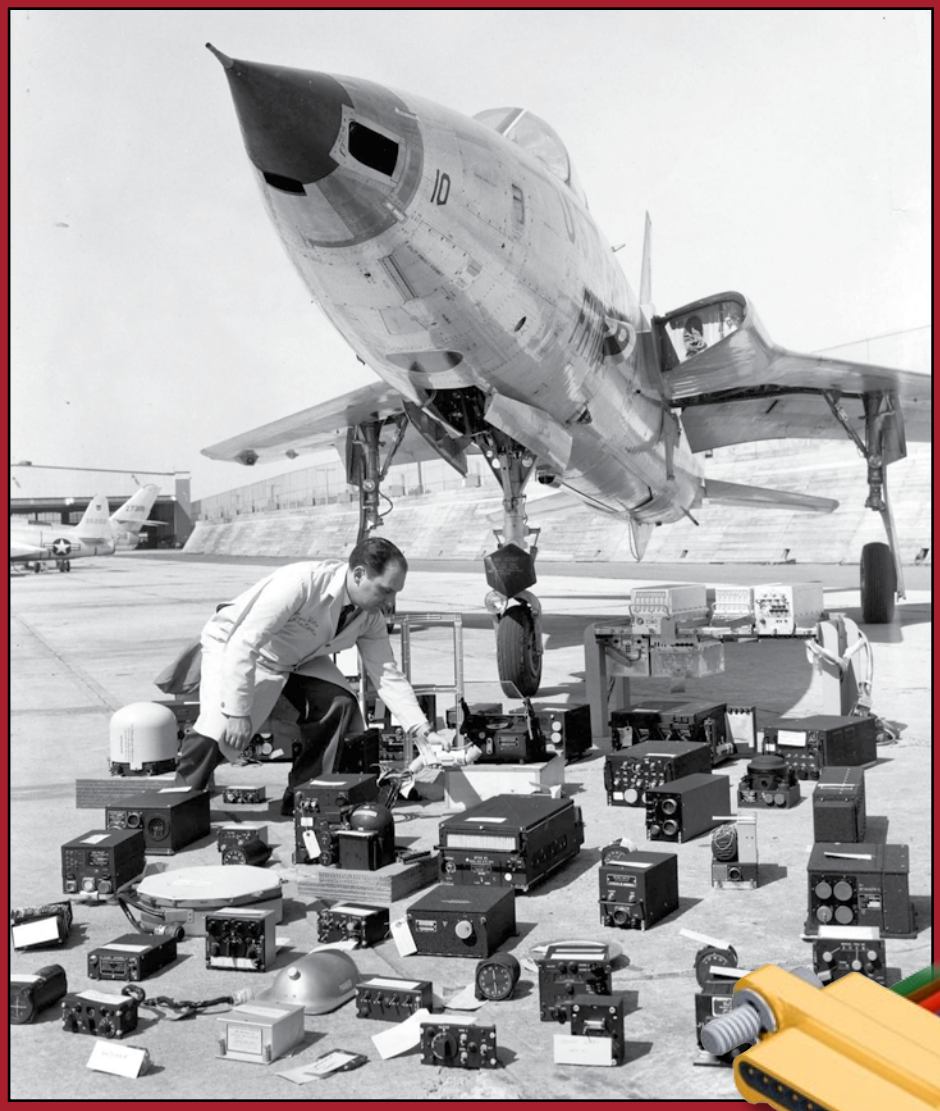
Aircraft On Ground?

Need a Connector Now?

Glenair Micro-D's In Stock!



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MICRO-D STANDARD MATERIALS AND FINISHES	
Connector Shell, Metal	**Aluminum Alloy 6061 In Accordance With SAE AMS-QQ-A-250/11:** Plating Code 1: Cadmium With Yellow Chromate Conversion Coating in Accordance With SAE-AMS-QQ-P-416, Type II, Class 3 Plating Code 2: Electroless Nickel In Accordance With ASTM B733 Plating Code 4: Black Anodize In Accordance With MIL-A-8625 Type II Class 2 Plating Code 5: Gold Plated In Accordance With ASTM B488 Over Electroless Nickel In Accordance With ASTM B733-90. Plating Code 6: Chem Film In Accordance With MIL-C-5541 Class 3 **Stainless Steel, 300 Series:** Plating Code 3: Passivated In Accordance With SAE AMS 2700
Connector Shell, Plastic	Liquid Crystal Polymer, 30% Glass-Filled, In Accordance With MIL-M-24519
Insulator	Liquid Crystal Polymer, 30% Glass-Filled, In Accordance With MIL-M-24519
Interfacial Seal	Fluorosilicone Rubber In Accordance With A-A-59588
Terminal Block, PCB	Liquid Crystal Polymer, 30% Glass-Filled, In Accordance With MIL-M-24519
Pin Contact (TwistPin)	Beryllium Copper, Gold Plated In Accordance With ASTM B 488 Type II Class 1.27 (50 Microinches Minimum) Code C, Over Nickel Underplate In Accordance With SAE AMS-QQ-N-290, Class 2, (30-150 Microinches).
Socket Contact	Phos Bronze In accordance With ASTM 139 Gold Plated In Accordance With ASTM B 488 Type II Class 1.27 (50 Microinches Minimum) Code C, Over Nickel Underplate In Accordance With SAE-AMS-QQ-N-290, Class 2, (30-150 Microinches).
Encapsulant (Potting)	Epoxy Resin, Hysol EE4215/HD3561
Jackscrews, Jackposts, Float Mounts	Stainless Steel, 300 Series, Passivated In Accordance With SAE AMS 2700
Pigtail Wire, Insulated Hookup	Wire Type E: Silver-Coated Copper Wire, Extruded PTFE Insulation, 600 Volts RMS, 200°C., In Accordance with NEMA HP3 (Replaces MIL-W-16878/4) Wire Type K: Silver-Coated Copper Wire, Extruded PTFE Insulation, 600 Volts RMS, 200° C., In Accordance with SAE AS 22759/11 Wire Type J: High-Strength Silver-Coated Copper Alloy Wire, Crosslinked Modified ETFE Insulation, 600 Volts RMS, 200° C., In Accordance with SAE AS 22759/33
Pigtail Wire, Uninsulated	Wire Finish Code 3: Solid Copper Wire In Accordance With A-A-59551, Gold-Plated, Solder Dipped in 63/37 tin-lead Wire Finish Code 4: Solid Copper Wire In Accordance With A-A-59551, Gold-Plated

MICRO-D PERFORMANCE SPECIFICATIONS

1 **SCOPE**

1.1 **Scope**. This specification covers performance requirements for Glenair Micro-D connectors manufactured in accordance with MIL-DTL-83513F.

1.2 **Description**. MWD plastic and MWDM metal shell Micro-D connectors on .050 inch (1.27 mm) centers, with TwistPin contacts.

2 **ORDER OF PRECEDENCE**

2.1 **Order of precedence**. In the event of a conflict between the requirements of this specification and the references cited herein, this document takes precedence.The requirements set forth in customer specifications and Glenair detail drawings shall take precedence over this document.

3 **REQUIREMENTS**

3.1 **Electrical performance requirements**.

3.1.1 **Insulation resistance**. 5,000 megohms minimum between any pair of contacts and any contact and the shell when tested in accordance with EIA-364 Procedure 21, which specifies 500 volts DC.

3.1.2 **Dielectric withstanding voltage**.

3.1.2.1 **Dielectric withstanding voltage (sea level)**. 600 volts ac, rms 60 Hz. Connectors shall show no evidence of breakdown or flashover when subjected to the DWV test of EIA-364 Procedure 20.

3.1.2.2 **Dielectric withstanding voltage (70,000 feet).** 150 volts ac, rms 60 Hz. Connectors shall show no evidence of breakdown or flashover when subjected to the DWV test of EIA-364 Procedure 20.

3.1.3 **Contact resistance**

3.1.3.1 **Contact resistance (M83513 Group C qualification)**. The voltage drop of a mated pair of contacts attached to wires shall not exceed the values shown when tested in accordance with MIL-DTL-83513F Paragraph 4.5.8, using 2.5 amps test current.

Wire	Voltage Drop (mV)
M22759/11-26	65 Maximum
M22759/33-26	75 Maximum
A-A-59551 25 gage	60 Maximum

3.1.3.2 **Contact resistance (lot acceptance testing)**. The voltage drop across a mated pair of contacts shall not exceed 8 millivolts when tested in accordance with EIA-364-06, using a test current of one ampere ± 2%. If the connector under test is wired, the calculated resistance across the contacts shall not exceed 8 milliohms when the maximum specified wire resistance per foot is subtracted from the total resistance.

3.1.4 **Low signal level contact resistance**. When tested with a micro-ohmeter using a test current of 100 milliamperes maximum and 20 millivolts open circuit maximum, the resistance of a mated pair of contacts shall be 32 milliohms maximum. Test procedure shall be in accordance with EIA-364-23.

3.1.5 **Contact Current Capability**. Contacts shall be capable of carrying 3.0 amperes in continuous duty operation from -55° C. to +150° C. when tested in accordance with EIA-364-70.

3.1.6 **Shell-To-Shell Conductivity**. A mated pair of nickel-plated metal shell Micro-D connectors fitted with an optional grounding spring on the plug shell mating face, shall not exceed 10 millivolts maximum voltage drop when tested in

accordance with EIA-364-83.

3.1.7 **Shielding Effectiveness**. A mated pair of metal shell Micro-D connectors fitted with an optional grounding spring on the plug shell mating face shall meet a requirement of 65 dB minimum attenuation when tested in accordance with EIA-364-66.

3.1.8 **Magnetic Permeability**. Magnetic permeability, when tested in accordance with EIA-364-54, shall not exceed 2 mu.

3.2 **MECHANICAL REQUIREMENTS**

3.2.1 **Contact engaging and separation force**. Maximum engaging force shall be 6.0 ounces when tested in accordance with EIA-364-37, except with a .0221 ± .0001 diameter sleeve with a 6-10 microfinish. Minimum separation force shall be 0.5 ounces when tested in accordance with EIA-364-37, except with a .0230 ± .0001 diameter sleeve with a 6-10 microfinish.

3.2.2 **Connector mating and unmating force**. The maximum mating and unmating force shall not exceed a value equal to 10 ounces times the number of contacts, when tested per EIA-364-13. Mate connectors three times before initial measurements are taken.

3.2.3 **Contact Retention**. Contacts, when tested in accordance with EIA-364-29, shall withstand a 5 pound axial load for a minimum of 5 seconds, with a maximum allowable displacement of .005 inch.

3.2.4 **Crimp Tensile Strength**. Wire shall not break or pull out of crimp joints at less than the specified force when tested in accordance with EIA-364-08.

Wire	Gage	Force in Pounds
M22759/11	24	8
M22759/11	26	5
M22759/11	28	4
M22759/33	24	12
M22759/33	26	10
M22759/33	28	6

3.2.5 **Insert retention**. Inserts shall not be dislodged or moved from their original position when subjected to an axial load of 50 pounds per square inch when tested in accordance with EIA-364-35.

3.2.6 **Resistance to soldering heat.** Connectors with solder cup contacts shall not be damaged following soldering with a 360° C. solder iron for at least 4 seconds in accordance with EIA-364-56 Procedure 1. Connectors with printed circuit board terminations shall withstand immersion in a solder bath for 9-11 seconds at 260° C. when tested in accordance with EIA-364-56 Procedure 3 Test Condition B. Connectors, after cooling, shall not exhibit damage or warpage when examined at 10X magnification. .

3.2.7 **Solderability**. Solder cup and printed circuit terminals shall meet the solderability requirements of MIL-STD-202 Method 208.

3.2.8 **Durability**. Micro-D connectors shall be capable of 500 cycles of mating with no damage or degradation to electrical performance. Engaging and separation force and mating forces shall not exceed the requirements of 3.2.1 and 3.2.2.

3.3 **ENVIRONMENTAL REQUIREMENTS**

MICRO-D PERFORMANCE SPECIFICATIONS

3.3.1 **Salt spray (corrosion)**. Connectors shall show no exposure of base metal due to corrosion when subjected to the salt spray test of EIA-364-26. In addition, connectors shall meet contact resistance, low circuit level contact resistance and mating force requirements.

Shell material, finish (code)	EIA-364-26 test condition	Duration (hours)
Aluminum, cadmium plating (01)	A	96
Aluminum, electroless nickel plating (02)	B	48
Aluminum, black anodize (04)	B	48
Aluminum, chem film (06)	B	48
Aluminum, gold (05)	B	48
Stainless steel, passivated (03)	D	1000

3.3.2 **Fluid immersion**. Connectors shall meet mating force requirements following 20 hours immersion in synthetic lubricating oil and 1 hour immersion in coolanol 25, when tested in accordance with MIL-DTL-83513F paragraph 4.5.18.

3.3.3 **Thermal vacuum outgassing**. The assembled connector mass excluding metallic parts shall not exceed 1.0% total mass loss (TML) or 0.1% total volatile condensible materials (CVCM) when tested in accordance with ASTM E595. ***NOTE: the interfacial seal on metal shell MWDM receptacle connectors slightly exceeds the allowable CVCM unless it is specially processed. This is acceptable per MIL-DTL-83513 but may not be permissible for specific space programs.***

Outgassing properties of Micro-d components

Component	Material	Brand Name	% Total Mass Loss (TML)	% Collected Volatile Condensable Material (CVCM)	Test Report
Thermoplastic Insulators and PCB Trays	Liquid Crystal Polymer	Vectra® C-130	0.03	0.00	NASA Test #GSC17478
Potting Compound	Epoxy	Hysol C9-4215	0.48	0.01	Glenair Test
Interfacial Seal “as received”	Fluorosilicone	(none)	0.99	0.13	Glenair Test
Interfacial Seal with Oven Bakeout 8 hrs. 400° F.	Fluorosilicone	(none)	0.03	0.01	Glenair Test
Interfacial Seal with Thermal Vacuum Bakeout24 hrs. 125° C.	Fluorosilicone	(none)	0.08	0.02	Glenair Test
Wire	Tefzel®	Tefzel®	0.22	0.01	NASA Test #GSC19998

3.3.4 **Thermal shock**. Unmated connectors shall withstand 5 cycles of thermal shock with a minimum temperature of -65° C. and a maximum temperature of 150° C. when tested in accordance with EIA-364-32, Condition IV. Connectors shall not exhibit any detrimental damage or degradation of electrical performance.

MICRO-D PERFORMANCE SPECIFICATIONS

3.3.5 **Humidity**

3.3.5.1 **Humidity, MWDM connectors with interfacial seals**. Wired, mated connectors shall be subjected to humidity conditioning in accordance with EIA-364-31, Test Condition IV. After a minimum of 3 hours of step 7a of the final cycle, and while the connectors are still subjected to high humidity, the insulation resistance shall be measured when the chamber temperature reaches 20° ± 5° C. Insulation resistance shall not be less than 100 megohms, and connectors shall pass a DWV test of 360 volts (rms 60 hertz ac).

3.3.5.2 **Humidity, MWD plastic connectors without interfacial seals**. Wired, mated connectors shall be subjected to humidity conditioning in accordance with EIA-364-31, Test Condition IV. On completion of step 6 of the final cycle, connectors shall be removed from the chamber, unmated and surface moisture removed. Connectors shall meet 1 megohm minimum and shall pass a DWV test of 100 volts (rms 60 hertz ac).

3.3.6 **Vibration (sine)**. Connectors, when mated, wired in series and fixtured in accordance with MIL-DTL-83513F, shall not exhibit any discontinuity longer than 1 microsecond when tested in accordance with EIA-364-28 Test Condition IV, which specifies 12 hour duration, 10 Hz to 2000 Hz, and amplitude of 20 g_n peak. Connectors shall not be damaged and no loosening of parts shall occur.

3.3.7 **Shock**. Connectors, when mated, wired in series and fixtured in accordance with MIL-DTL-83513F, shall not exhibit any discontinuity longer than 1 microsecond when tested in accordance with EIA-364-27, Test Condition E, which specifies an amplitude of 50 g peak. Connectors shall not be damaged and no loosening of parts shall occur.

3.3.8 **Marking Permanency**. Connector marking shall meet the requirements od MIL-STD-202 Method 215.

3.3.9 **Fungus resistance**. Connector materials shall meet the requirements of MIL-STD-810 Method 508.5.

Micro-D Weights

MICRO-D METAL SHELL WEIGHTS IN GRAMS[1]						
Layout	Solder Cup	Pigtail[2]	PCB "CBR"	PCB "BR"	PCB "BS"	PCB "CBS"
9P	1.7	1.6	3.9	5.9	4.1	3.1
9S	1.7	1.6	3.9	5.9	4.1	3.1
15P	2.3	2.2	4.8	6.8	4.7	3.3
15S	2.2	2.1	4.7	6.7	4.7	3.4
21P	3.0	2.9	5.6	7.7	5.7	4.1
21S	2.6	2.5	5.4	7.6	5.6	4.8
25P	3.3	3.2	6.1	8.3	5.9	5.3
25S	3.0	2.9	6.0	8.2	6.1	5.5
31P	3.9	3.8	7.6	9.5	7.2	6.5
31S	3.6	3.5	7.5	9.4	7.3	6.6
37P	4.4	4.2	8.4	11.1	8.5	7.7
37S	4.1	3.9	8.4	11.0	8.3	7.5
51P	5.1	4.9	11.0	12.7	9.6	8.6
51S	4.8	4.7	10.9	12.8	9.5	8.6
51-2P	5.0	4.8	10.9	12.5	9.5	8.5
51-2S	4.7	4.4	10.8	12.4	9.4	8.5
67P	5.7	5.5	13.4	13.6	10.6	9.5
67S	5.4	5.3	13.2	13.4	10.5	9.4
69P	6.2	6.0	14.0	14.1	11.1	10.0
69S	5.9	5.8	13.5	13.9	11.0	9.9
100P	9.1	8.6	26.6	27.5	25.4	22.9
100S	8.2	7.9	26.4	27.1	24.8	22.3

1. Nominal weight shown. Add 10% for maximum weight. 2. Weight is connector only. See table below for wire weight calculation.

STAINLESS STEEL MICRO-D WEIGHT ADDERS	
Layout	Stainless Steel Adder in Grams
9P	1.9
9S	2.0
15P	2.4
15S	2.4
21P	2.9
21S	2.8
25P	3.2
25S	2.9
31P	3.4
31S	3.2
37P	3.6
37S	4.1
51P	4.0
51S	3.8
51-2P	6.2
51-2S	6.0
67P	7.1
67S	6.8
69P	7.3
69S	7.0
100P	8.3
100S	8.0

1. Nominal weight shown. Add 10% for maximum weight.
2. Weight includes 18 inches of M22759/11-26 insulated #26 AWG copper wire.

HOW TO CALCULATE WEIGHTS FOR DIFFERENT WIRE TYPES AND LENGTHS		
Wire Type	Wire Gage (AWG)	Maximum Wire Weight Per Inch in Grams
M22759/11	24	.098
M22759/11	26	.072
M22759/11	28	.052
M22759/33	24	.076
M22759/33	26	.053
M22759/33	28	.034
M22759/33	30	.025

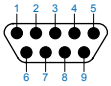
EXAMPLE CALCULATION:

MWDM2L-37P-6K7-54B (54 inches of M22759/11 #26 gage wire)

1. Find the connector weight in the "Pigtail" column above .... 4.2 g.
2. Find the wire weight in grams per inch.....072 g./in.
3. Multiply the # of conductors times length and weight
   37 wires x 54 inches x .072 g./in. =.....144 g.
4. Add the connector weight to the wire weight ..... 148.2 g.

Micro-D Contact Arrangements

MICRO-D CONTACT ARRANGEMENTS (FACE VIEW PIN CONNECTOR)



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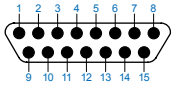

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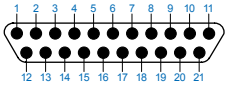

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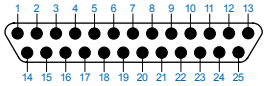

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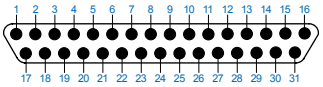

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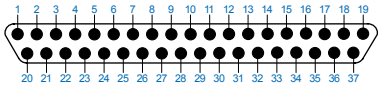

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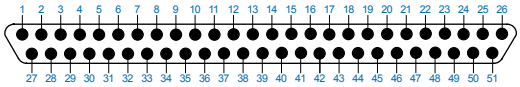
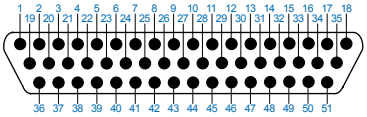


51 Pin (Special 2 Row)



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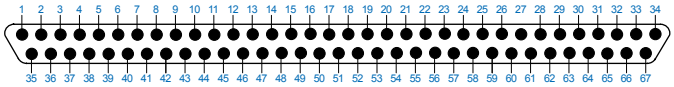

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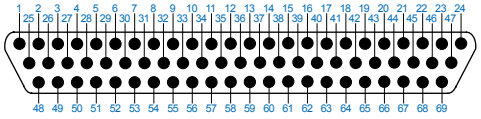

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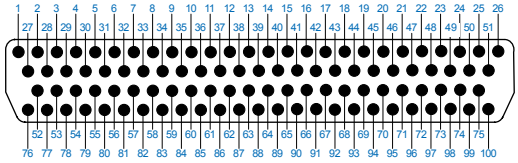
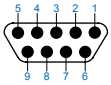


100 Pin

MICRO-D CONTACT ARRANGEMENTS (FACE VIEW SOCKET CONNECTOR)



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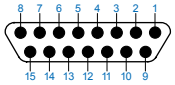

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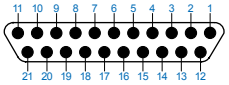
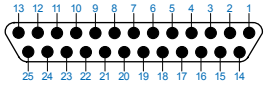


21 Socket



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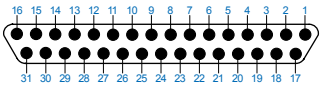

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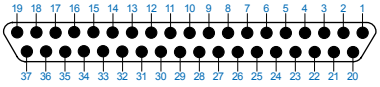

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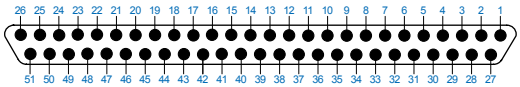

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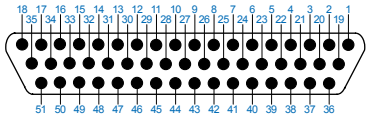

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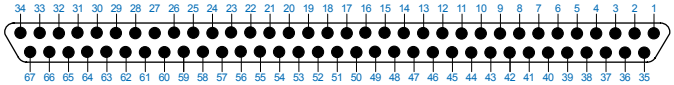

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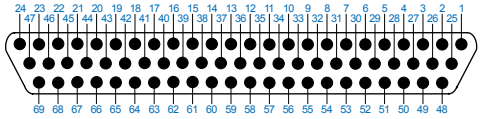

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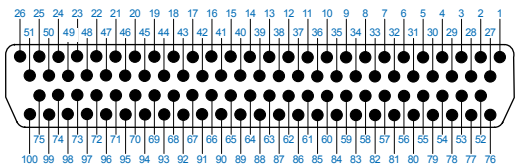
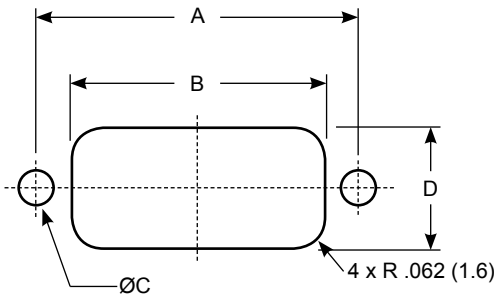


100 Socket

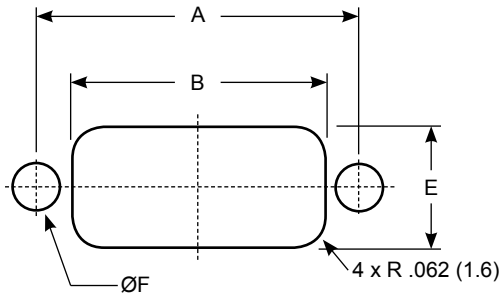
U.S. CAGE Code 06324
Printed in U.S.A.

Micro-D Panel Cutouts

RECOMMENDED MICRO-D PANEL CUTOUTS



Front Panel Mounting



Rear Panel Mounting

PLASTIC SHELL MWD CONNECTORS (M83513/06 THRU /09)

Layout	A		B		C		D		E		F	
	In. ± .003	mm. ± 0.08	In. ± .002	mm. ± 0.05	In. ± .002	mm. ± 0.05	In. ± .002	mm. ± 0.05	In. +.005 -.000	mm. +0.13 -0.00	In. ± .002	mm. ± 0.05
9	.565	14.35	.410	10.41	.091	2.31	.174	4.42	.219	5.56	.126	3.20
15	.715	18.16	.560	14.22	.091	2.31	.174	4.42	.219	5.56	.126	3.20
21	.865	21.97	.710	18.03	.091	2.31	.174	4.42	.219	5.56	.126	3.20
25	.965	24.51	.810	20.57	.091	2.31	.174	4.42	.219	5.56	.126	3.20
31	1.115	28.32	.960	24.38	.091	2.31	.174	4.42	.219	5.56	.126	3.20
37	1.265	32.13	1.110	28.19	.091	2.31	.174	4.42	.219	5.56	.126	3.20
51	1.215	30.86	1.060	26.92	.091	2.31	.217	5.51	.261	5.56	.126	3.20

METAL SHELL MWDM CONNECTORS

Layout	A		B		C		D		E		F	
	In. ± .003	mm. ± 0.08	In. ± .002	mm. ± 0.05	In. ± .002	mm. ± 0.05	In. ± .002	mm. ± 0.05	In. ± .005	mm. ± 0.13	In. ± .002	mm. ± 0.05
9	.565	14.35	.410	10.41	.091	2.31	.277	7.04	.256	6.50	.126	3.20
15	.715	18.16	.560	14.22	.091	2.31	.277	7.04	.256	6.50	.126	3.20
21	.865	21.97	.710	18.03	.091	2.31	.277	7.04	.256	6.50	.126	3.20
25	.965	24.51	.810	20.57	.091	2.31	.277	7.04	.256	6.50	.126	3.20
31	1.115	28.32	.960	24.38	.091	2.31	.277	7.04	.256	6.50	.126	3.20
37	1.265	32.13	1.110	28.19	.091	2.31	.277	7.04	.256	6.50	.126	3.20
51	1.215	30.86	1.060	26.92	.091	2.31	.317	8.05	.300	7.62	.126	3.20
51-2	1.615	41.02	1.460	37.08	.091	2.31	.277	7.04	.256	6.50	.126	3.20
67	2.015	51.18	1.858	47.19	.091	2.31	.277	7.04	.256	6.50	.126	3.20
69	1.520	38.61	1.360	34.54	.091	2.31	.317	8.05	.300	7.62	.126	3.20
100	1.800	45.72	1.452	36.88	.120	3.05	.363	9.22	.406	10.31	.148	3.76

MIL-STD-681 Color Code Chart

MIL-STD-681 COLOR CODE CHART FOR MICRO-D CONNECTORS

PIN NO.	MIL-STD-681 NUMBER	Base Color	First Stripe	Second Stripe	PIN NO.	MIL-STD-681 NO.	Base Color	First Stripe	Second Stripe	Third Stripe
1	0	BLK			51	957	WHT	GRN	VIO	
2	1	BRN			52	958	WHT	GRN	GRY	
3	2	RED			53	967	WHT	BLU	VIO	
4	3	ORN			54	968	WHT	BLU	GRY	
5	4	YEL			55	978	WHT	VIO	GRY	
6	5	GRN			56	9012	WHT	BLK	BRN	RED
7	6	BLU			57	9013	WHT	BLK	BRN	ORN
8	7	VIO			58	9014	WHT	BLK	BRN	YEL
9	8	GRY			59	9015	WHT	BLK	BRN	GRN
10	9	WHT			60	9016	WHT	BLK	BRN	BLU
11	90	WHT	BLK		61	9017	WHT	BLK	BRN	VIO
12	91	WHT	BRN		62	9018	WHT	BLK	BRN	GRY
13	92	WHT	RED		63	9023	WHT	BLK	RED	ORN
14	93	WHT	ORN		64	9024	WHT	BLK	RED	YEL
15	94	WHT	YEL		65	9025	WHT	BLK	RED	GRN
16	95	WHT	GRN		66	9026	WHT	BLK	RED	BLU
17	96	WHT	BLU		67	9027	WHT	BLK	RED	VIO
18	97	WHT	VIO		68	9028	WHT	BLK	RED	GRY
19	98	WHT	GRY		69	9034	WHT	BLK	ORN	YEL
20	901	WHT	BLK	BRN	70	9035	WHT	BLK	ORN	GRN
21	902	WHT	BLK	RED	71	9036	WHT	BLK	ORN	BLU
22	903	WHT	BLK	ORN	72	9037	WHT	BLK	ORN	VIO
23	904	WHT	BLK	YEL	73	9038	WHT	BLK	ORN	GRY
24	905	WHT	BLK	GRN	74	9045	WHT	BLK	YEL	GRN
25	906	WHT	BLK	BLU	75	9046	WHT	BLK	YEL	BLU
26	907	WHT	BLK	VIO	76	9047	WHT	BLK	YEL	VIO
27	908	WHT	BLK	GRY	77	9048	WHT	BLK	YEL	GRY
28	912	WHT	BRN	RED	78	9056	WHT	BLK	GRN	BLU
29	913	WHT	BRN	ORN	79	9057	WHT	BLK	GRN	VIO
30	914	WHT	BRN	YEL	80	9058	WHT	BLK	GRN	GRY
31	915	WHT	BRN	GRN	81	9067	WHT	BLK	BLU	VIO
32	916	WHT	BRN	BLU	82	9068	WHT	BLK	BLU	GRY
33	917	WHT	BRN	VIO	83	9078	WHT	BLK	VIO	GRY
34	918	WHT	BRN	GRY	84	9123	WHT	BRN	RED	ORN
35	923	WHT	RED	ORN	85	9124	WHT	BRN	RED	YEL
36	924	WHT	RED	YEL	86	9125	WHT	BRN	RED	GRN
37	925	WHT	RED	GRN	87	9126	WHT	BRN	RED	BLU
38	926	WHT	RED	BLU	88	9127	WHT	BRN	RED	VIO
39	927	WHT	RED	VIO	89	9128	WHT	BRN	RED	GRY
40	928	WHT	RED	GRY	90	9134	WHT	BRN	ORN	YEL
41	934	WHT	ORN	YEL	91	9135	WHT	BRN	ORN	GRN
42	935	WHT	ORN	GRN	92	9136	WHT	BRN	ORN	BLU
43	936	WHT	ORN	BLU	93	9137	WHT	BRN	ORN	VIO
44	937	WHT	ORN	VIO	94	9138	WHT	BRN	ORN	GRY
45	938	WHT	ORN	GRY	95	9145	WHT	BRN	YEL	GRN
46	945	WHT	YEL	GRN	96	9146	WHT	BRN	YEL	BLU
47	946	WHT	YEL	BLU	97	9147	WHT	BRN	YEL	VIO
48	947	WHT	YEL	VIO	98	9148	WHT	BRN	YEL	GRY
49	948	WHT	YEL	GRY	99	9156	WHT	BRN	GRN	BLU
50	956	WHT	GRN	BLU	100	9157	WHT	BRN	GRN	VIO

Glenair®

RoHS Compliance Information

TwistPin Connectors and RoHS Compliance

European Union Directive 2002/95/EC on Restriction of the use of certain Hazardous Substances ("RoHS") states that certain types of equipment (primarily consumer electronic products such as personal computers) shall not contain lead, mercury, cadmium, hexavalent chromium, PBB's or PBDE's. For the record, Glenair does not produce any OEM products of this type. Furthermore, our interconnect components are either free of the substances RoHS controls, or specifically intended for use in military-aerospace applications that are exempt. Makers of consumer products should refer to the following guidelines to insure Glenair interconnect components are correctly specified when used in in RoHS regulated electronic equipment.

Are Micro-D Connectors RoHS compliant?

The products in this catalog can be ordered with various plating finishes. Some of these finishes such as cadmium and chem film, along with solder-dipping, do not comply with the RoHS directive.

Why doesn't Glenair eliminate non-RoHS products?

Glenair products are typically used in defense and aerospace equipment exempt from RoHS requirements. Glenair will continue to offer cadmium and chromate finishes in accordance with DoD and aerospace specifications. Our part numbers contain a broad range of plating finish ordering codes. Customers can easily specify RoHS compliant finishes if desired.

Products that do not comply with RoHS regulations:

1 **Cadmium plating** is available on metal shell connectors in this catalog. Note that cadmium plating does not currently comply with RoHS rules.

2 **Chem film** is available on metal shell connectors.This coating contains hexavalent chromium which does not currently comply with RoHS rules.

3 **Tin-lead solder dipped printed circuit board tails.** Board mount M83513 Micro-D's and other products are normally solder dipped in 63% tin 37% lead molton solder. RoHS compliance for consumer products requires elimination of solder coatings containing lead.

RoHS compliance made easy

1 **Specify electroless nickel plating on the connector shell.** Or, choose stainless steel shells for maximum corrosion protection and RoHS compliance.

2 **Use Mod Code 513 on Micro-D board mount connectors.** Board mount Micro-D's and other products are normally solder dipped in 63% tin 37% lead molton solder. Any solder-dipped part can be supplied with RoHS compliant gold-plating instead simply by adding Mod Code 513 as a suffix to the standard part number.

MICRO-D RoHS COMPLIANCE EXAMPLES

Part Number	Problem	Solution	RoHS Compliant Part Number
MWDM***1***L-37PSB	Plating code 1 specifies cadmium plating.	Change to electroless nickel plating (code 2).	MWDM**2**L-37PSB
MWDM2L-25SCBRP-.110	CBR style PCB connectors are solder-dipped in tin-lead.	Add Mod Code 513 to change the PC tail finish to gold plating.	MWDM2L-25SCBRP-.110-513
MWDM***6***L-9S-6K7-18L	Plating code 6 specifies chem film.	Change to electroless nickel plating (code 2).	MWDM**2**L-9S-6K7-18L
M83513/03-E07C	Cadmium plated shell and solder-dipped contacts.	Change to nickel plating and gold contacts	M83513/03-E05N

MICRO-D CONNECTOR PLATING CODES: RoHS COMPLIANCE

Micro-D Plating Code	Plating Type	RoHS Compliance	Notes
1, A	Cadmium with yellow chromate conversion coating over electroless nickel	No	Electroless nickel is the preferred alternate.
2, B	Electroless nickel	RoHS Compliant	First choice for RoHS compliance. Good corrosion resistance, excellent conductivity, M83513 approved, always in stock.
3, F	Stainless steel shell, passivated	RoHS Compliant	Higher cost but unsurpassed corrosion resistance, not conductive enough for typical EMI needs. Build-to-order.
4, D	Black anodize over aluminum	RoHS Compliant	Economical, non-reflective, non-conductive. Build-to-order.
5, E	Gold over aluminum	RoHS Compliant	Low volume, higher cost, excellent conductivity. Build-to-order.
6, C	Chem film	No	Electroless nickel is the preferred alternate.

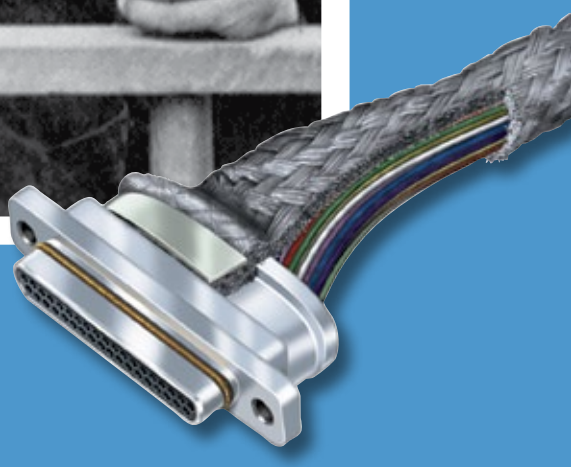
MICRO-D BACKSHELL PLATING CODES: RoHS COMPLIANCE

Plating Code	Plating Type	RoHS Compliance	Notes
C	Black anodize	RoHS Compliant	Inexpensive, non-reflective, not suitable for EMI (poor conductivity), build-to-order.
E	Chem film	No	Electroless nickel is the preferred alternate.
J	Cadmium with yellow chromate conversion coating over electroless nickel	No	Electroless nickel is the preferred alternate.
M	Electroless nickel	RoHS Compliant	First choice for RoHS compliance. Good corrosion resistance, excellent conductivity, M83513 approved, always in stock.
NF	Cadmium with olive drab chromate conversion coating over electroless nickel	RoHS Compliant	Electroless nickel is the preferred alternate.
Z2	Gold	RoHS Compliant	Low volume, higher cost, excellent conductivity, build-to-order.

Held Hostage to Long Lead Times?

Need a Connector Now?

Glenair Micro-D's In Stock!



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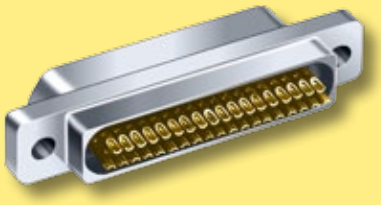
Section B
Micro-D Metal Shell Connectors for Harness Applications

PRODUCT SELECTION GUIDE

MWDM Solder Cup Connectors
Always in stock, these connectors feature gold-plated solder cup contacts for termination to #24 through #30 AWG wire.



Solder Cup
Page B-2

MWDM Pre-Wired Connectors
These connectors avoid the expense and workmanship issues with soldering wires. Crimp terminations assure consistent circuit resistance. Stocked in #26 AWG, available in #24 gage to #30 gage wire.

Pre-Wired
Page B-4

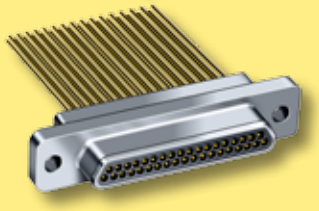
MWDM Back-To-Back Unshielded Cables
If a simple jumper cable is required, these cable assemblies simplify ordering. No special part numbers are necessary. Available in all sizes. Wiring is #1 to #1, etc. Back-to-backs are built to order in any length.

Back-To-Back
Page B-6

MWDM Shielded Cable Assemblies
Featuring special Micro-D connectors with integral shield attachment platforms and ground springs, these shielded cable assemblies are terminated, tested and ready for immediate use.

Shielded Cables
Page B-8

MWDM Uninsulated Wire Pigtails
Gold plated or solder dipped single strand uninsulated wire can be used for a variety of termination techniques, including wire bonding, flexible circuits and rigid boards.



Uninsulated Wire
Page B-12

GMDE Environmentally Sealed Panel Mount
GMDE connectors are special Micro-D connectors with O-rings for sealing to panels or bulkheads.

Environ-mental
Page B-14

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Micro-D Metal Shell
MWDM Solder Cup Connectors

Micro-D Solder Cup Termination–These connectors feature gold-plated TwistPin contacts for best performance. Use with #26 or smaller stranded or solid wire. Specify nickel-plated shells or cadmium plated shells for best availability.

Now Available With #24 Gage Contacts–AWG 24 wire offers increased mechanical strength and lower voltage drop. Glenair Micro-D solder cup connectors are now compatible with 24 gage stranded or solid wire. Specify "N" for 24 gage pin contacts, or "T" for 24 gage socket contacts.

HOW TO ORDER METAL SHELL SOLDER CUP MICRO-D CONNECTORS

Series	Shell Material and Finish	Insulator Material	Contact Layout	Contact Type	Termination Type	Hardware
MWDM	**Aluminum Shell** 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	L – LCP 30% Glass-Filled Liquid Crystal Polymer	9 15 21 25 31 37 51 51-2 67 69 100	**Size #26 Solder Cup Contacts (Standard)** P – Pin S – Socket **Size #24 Solder Cup Contacts** N – Pin T – Socket	S – Solder Cup	B P M M1 S S1 L K F R H See Micro-D Mounting Hardware Options Below
Sample Part Number						
MWDM	2	L –	37	S	S	B

MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R	H
										
Thru-Hole	Jackpost	Hex Head Jackscrew	Hex Head Jackscrew, Extended	Slot Head Jackscrew	Slot Head Jackscrew, Extended	Hex Head Jackscrew Non-Removable	Slot Head Jackscrew Non-Removable Extended	Float Mount For Front Panel Mounting	Float Mount For Rear Panel Mounting	Threaded Insert

Micro-D Metal Shell
MWDM Solder Cup Connectors

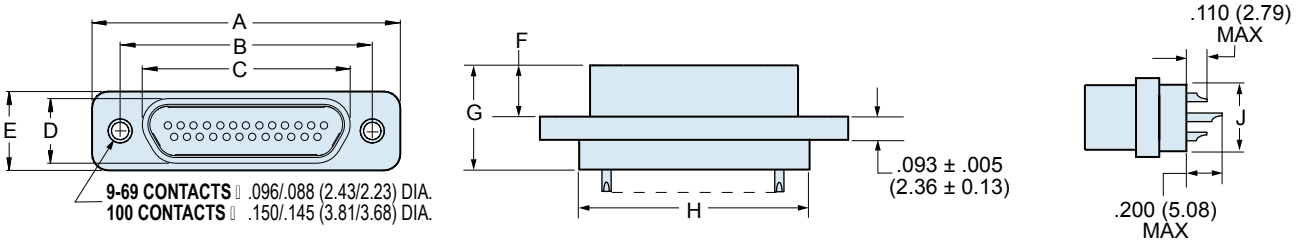
Glenair®

PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 μ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Beryllium Copper Gold over Nickel Plating
Socket Contact	Copper Alloy Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215



DIMENSIONS

Layout	A Max. In.	A Max. mm.	B In. ± .003	B mm. ± 0.08	C Max. In.	C Max. mm.	D Max. In.	D Max. mm.	E Max. In.	E Max. mm.	F In. ± .003	F mm. ± 0.08	G Max. In.	G Max. mm.	H Max. In.	H Max. mm.	J Max. In.	J Max. mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.400	10.16	.270	6.86
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.400	10.16	.270	6.86
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.550	13.97	.270	6.86
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.550	13.97	.270	6.86
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.700	17.78	.270	6.86
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.700	17.78	.270	6.86
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.800	20.32	.270	6.86
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.800	20.32	.270	6.86
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.950	24.13	.270	6.86
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.950	24.13	.270	6.86
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.308	7.82	.183	4.65	.416	10.57	1.100	27.94	.270	6.86
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.308	7.82	.195	4.95	.429	10.90	1.100	27.94	.270	6.86
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.416	10.57	1.050	26.67	.310	7.87
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.429	10.90	1.050	26.67	.310	7.87
51-2P	1.835	46.61	1.615	41.02	1.384	35.15	.184	4.67	.310	7.87	.183	4.65	.416	10.57	1.450	36.83	.270	6.86
51-2S	1.835	46.61	1.615	41.02	1.450	36.83	.250	6.35	.310	7.87	.195	4.95	.429	10.90	1.450	36.83	.270	6.86
67P	2.235	56.77	2.015	51.18	1.784	45.31	.184	4.67	.310	7.87	.183	4.65	.416	10.57	1.850	36.83	.270	6.86
67S	2.235	56.77	2.015	51.18	1.850	46.99	.250	6.35	.310	7.87	.195	4.95	.429	10.90	1.850	36.83	.270	6.86
69P	1.735	44.07	1.515	38.48	1.284	32.61	.228	5.79	.351	8.92	.183	4.65	.416	10.57	1.350	34.29	.310	7.87
69S	1.735	44.07	1.515	38.48	1.350	34.29	.296	7.52	.351	8.92	.195	4.95	.429	10.90	1.350	34.29	.310	7.87
100P	2.170	55.12	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	.416	10.57	1.442	36.63	.360	9.14
100S	2.170	55.12	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	.429	10.90	1.442	36.63	.360	9.14

Micro-D Metal Shell
MWDM Pre-Wired with Insulated Wire

Micro-D Pre-Wired Pigtails–These connectors feature gold-plated TwistPin contacts and mil spec crimp termination. Specify nickel-plated shells or cadmium plated shells for best availability. 100% tested and backpotted, ready for use.

Choose the Wire Type and Size To Fit Your Application–If on-hand availability is most important, choose #26 AWG Type K mil spec Teflon® wire. Select M22759/33 Type J for space applications.

HOW TO ORDER METAL SHELL PRE-WIRED MICRO-D CONNECTORS

Series	Shell Material and Finish	Insulator Material	Contact Layout	Contact Type	Wire Gage (AWG)	Wire Type	Wire Color	Wire Length Inches	Hardware
MWDM	**Aluminum Shell** 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	L – LCP 30% Glass-Filled Liquid Crystal Polymer	9 15 21 25 31 37 51 51-2 67 69 100	P – Pin S – Socket	4 – #24 6 – #26 8 – #28 0 – #30	K – M22759/11 600 Vrms Teflon® (TFE) J – M22759/33 600 Vrms Modified Cross-Linked Tefzel® (ETFE) E – NEMA HP3-EB 600 VrmsType E M16878/4 (TFE) (replaced by M22759/11 for mil spec applications)	1 – White 2 – Yellow 5 – Color-Coded Stripes Per MIL-STD-681 (Striped wire not available on 67, 69 or 100 pin connectors or for #28, #30 AWG) 7 – Ten Color Repeating	18 Wire Length In Inches. "18" Specifies 18 Inches.	B P M M1 S S1 L K F R H
Sample Part Number									
MWDM	2	L –	25	S –	4	K	7 –	18	B

MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R	H
										
Thru-Hole	Jackpost	Hex Head Jackscrew	Hex Head Jackscrew, Extended	Slot Head Jackscrew	Slot Head Jackscrew, Extended	Hex Head Jackscrew Non-Removable	Slot Head Jackscrew Non-Removable Extended	Float Mount For Front Panel Mounting	Float Mount For Rear Panel Mounting	Threaded Insert

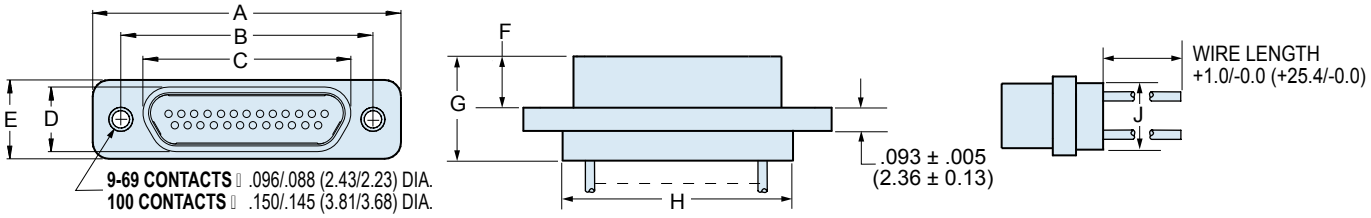
Micro-D Metal Shell
MWDM Pre-Wired with Insulated Wire

PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Beryllium Copper Gold over Nickel Plating
Socket Contact	Copper Alloy Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215



DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.		J Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.400	10.16	.270	6.86
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.400	10.16	.270	6.86
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.550	13.97	.270	6.86
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.550	13.97	.270	6.86
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.700	17.78	.270	6.86
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.700	17.78	.270	6.86
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.800	20.32	.270	6.86
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.800	20.32	.270	6.86
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.950	24.13	.270	6.86
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.950	24.13	.270	6.86
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.308	7.82	.183	4.65	.416	10.57	1.100	27.94	.270	6.86
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.308	7.82	.195	4.95	.429	10.90	1.100	27.94	.270	6.86
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.416	10.57	1.050	26.67	.310	7.87
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.429	10.90	1.050	26.67	.310	7.87
51-2P	1.835	46.61	1.615	41.02	1.384	35.15	.184	4.67	.310	7.87	.183	4.65	.416	10.57	1.450	36.83	.270	6.86
51-2S	1.835	46.61	1.615	41.02	1.450	36.83	.250	6.35	.310	7.87	.195	4.95	.429	10.90	1.450	36.83	.270	6.86
67P	2.235	56.77	2.015	51.18	1.784	45.31	.184	4.67	.310	7.87	.183	4.65	.416	10.57	1.850	36.83	.270	6.86
67S	2.235	56.77	2.015	51.18	1.850	46.99	.250	6.35	.310	7.87	.195	4.95	.429	10.90	1.850	36.83	.270	6.86
69P	1.735	44.07	1.515	38.48	1.284	32.61	.228	5.79	.351	8.92	.183	4.65	.416	10.57	1.350	34.29	.310	7.87
69S	1.735	44.07	1.515	38.48	1.350	34.29	.296	7.52	.351	8.92	.195	4.95	.429	10.90	1.350	34.29	.310	7.87
100P	2.170	55.12	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	.416	10.57	1.442	36.63	.360	9.14
100S	2.170	55.12	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	.429	10.90	1.442	36.63	.360	9.14

Micro-D Metal Shell
MWDM Back-To-Back
Unshielded Cable Assemblies

Save Time and Money With Back-To-Back Cables– These Micro-D connectors feature crimp wire terminations and epoxy encapsulation. The installed cost is lower than terminating solder cup connectors.

100% Certified– all back-to-back assemblies are 100% checked for continuity, resistance, voltage and insulation resistance.

Hardware Note– if jackposts are required on one end and jackscrews on the other, use hardware designator "B" (no hardware installed), and order hardware kits separately.

HOW TO ORDER BACK-TO-BACK UNSHIELDED CABLES

Series	Shell Material and Finish	Insulator Material	Contact Layout	Connect or Type	Wire Gage (AWG)	Wire Type	Wire Color	Total Length Inches	Hardware
MWDM	**Aluminum Shell** 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	L – LCP 30% Glass-Filled Liquid Crystal Polymer	9 15 21 25 31 37 51 51-2 67 69 100	GP – Pin (Plug) Connector Both Ends GS – Socket (Receptacle) Connector Both Ends CS – Pin Connector to Socket Connector	4 – #24 6 – #26 8 – #28 0 – #30	K – M22759/11 600 Vrms Teflon (TFE) J – M22759/33 600 Vrms Modified Cross-Linked Tefzel® (ETFE) E – NEMA HP3-EB 600 VrmsType E M16878/4 (TFE) (replaced by M22759/11 for mil spec applications)	1 – White 2 – Yellow 7 – Ten Color Repeating 5 – Color-Coded Stripes Per MIL-STD-681 (Striped wire not available on 67, 69 or 100 pin connectors or for #28, #30 AWG) 7 – Ten Color Repeating	18 Total Length In Inches. "18" Specifies 18 Inches (2" Min. for 2 row, 3" Min. for 3 row, 4" Min. for 4 row)	B P M M1 S S1 L K
Sample Part Number									
MWDM	1	L –	25	GP –	6	K	7 –	18	B

MICRO-D MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K
							
Thru-Hole Order Hardware Separately	**Jackpost** Removable Includes Nut and Washer	**Jackscrew** Hex Head Removable E-ring	**Jackscrew** Hex Head Removable E-ring Extended	**Jackscrew** Slot Head Removable E-ring	**Jackscrew** Slot Head Removable E-ring Extended	**Jackscrew** Hex Head Non- Removable	**Jackscrew** Slot Head Non-Removable Extended

Micro-D Metal Shell
MWDM Back-To-Back
Unshielded Cable Assemblies

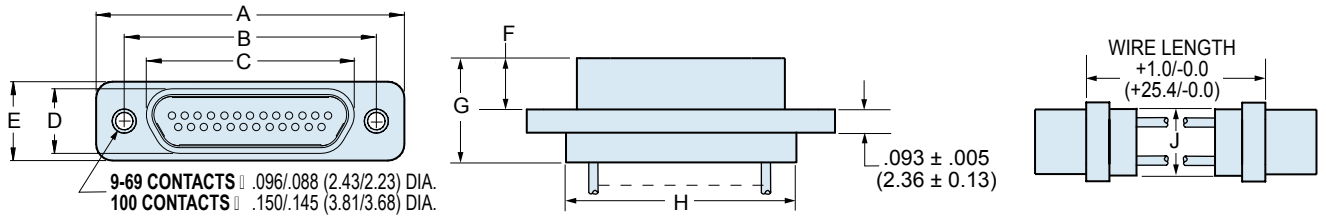
Glenair®

PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Beryllium Copper Gold over Nickel Plating
Socket Contact	Copper Alloy Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215



DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.		J Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.400	10.16	.270	6.86
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.400	10.16	.270	6.86
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.550	13.97	.270	6.86
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51-2S	1.835	46.61	1.615	41.02	1.450	36.83	.250	6.35	.310	7.87	.195	4.95	.429	10.90	1.450	36.83	.270	6.86
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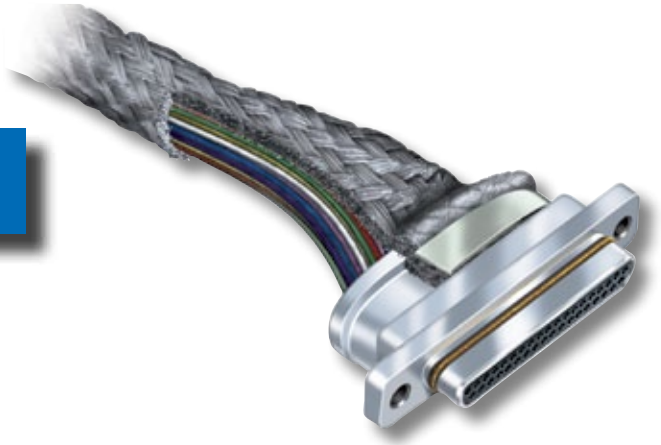
MWDM Micro-D Shielded Cable Assemblies



Single-Ended or Double-Ended–These easy-to-order cable assemblies eliminate the need for expensive assembly labor. 100% tested and ready for use.

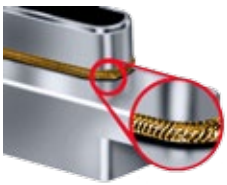
Now With Twisted Pairs–No need to create a procurement specification for Micro-D cables with twisted pairs. Glenair 177-740 cables are furnished with a full complement of white/blue twisted pair wires.

Integral Shield Termination–The connector shell has a platform to accept Band-It shield termination bands. The cable shield braid is attached directly to the connector.

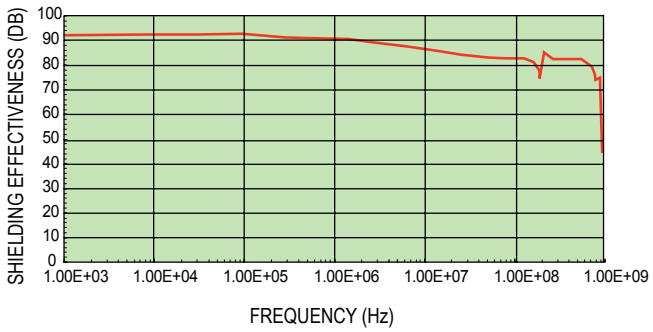
Save Labor, Reduce Weight and Improve EMI Shielding with Glenair's Micro-D Shielded Cable Assemblies

Aerospace electronics systems require higher and higher levels of protection from radiated emissions. Glenair's fully shielded Micro-D cable assemblies meet this need. The cable shield is attached directly onto the one-piece connector shell and secured with a stainless steel ***BAND-IT***® clamp. These pre-wired, 100% tested assemblies meet the requirements of MIL-DTL-83513. An optional ground spring on the pin connector assures low shell-to-shell resistance. Available with a variety of wire types and shields, Micro-D shielded assemblies can be ordered in any length, either single-ended or "back-to-back".

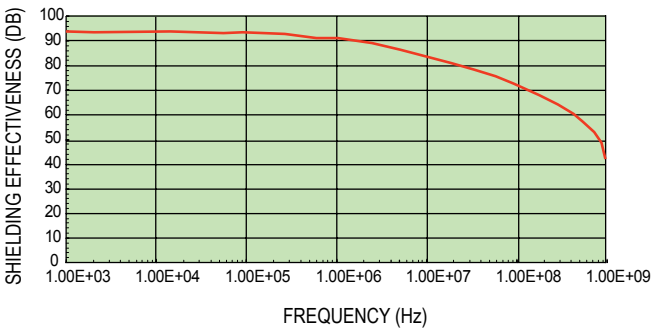
Ground Spring and EMI Shielding Effectiveness – A gold-plated stainless steel ground spring on the pin connector mating face offers substantial improvement in EMI protection. The graphs compare identical connectors tested with and without ground springs.



EMI Performance with Ground Spring



EMI Performance without Ground Spring



HOW TO ORDER SHIELDED MICRO-D CABLE ASSEMBLIES

177–710 – 2 – 25 P 4 K 1 – 24 M A G

Basic Number
- **177-710** – Untwisted Wire
- **177-740** – Twisted Pair Wire

Shell Plating
- **1** – Cadmium w/Yellow Chromate*
- **2** – Electroless Nickel
- **5** – Gold

Number of Contacts
- **9**, **15**, **21**, **25**, **31**, **37**, **51**, **100**

Contact Type
- **P** – Pin (Single End Plug)
- **S** – Socket (Single End Receptacle)
- **GP** – Double End Cable, Pin Connectors Both Ends
- **GS** – Double End Cable, Socket connectors Both Ends
- **CS** – Double End Cable, Pin and Socket

Wire Gage (AWG)
- **4** – #24 Gage
- **6** – #26 Gage
- **8** – #28 Gage
- **0** – #30 Gage

Wire Type
- **K** – Teflon® Wire Per MIL-W-22759/11 (Not available in #30 gage)
- **J** – Cross-Linked Tefzel® Wire Per MIL-W-22759/33

Wire Color
- **1** – White (177-710 only) Or White/Blue Pairs (177-740 Only)
- **5** – Color-Coded Per MIL-STD-681 (177-710 only)(#24 and #26 gage only)
  White/Blue Twisted Pairs With Numbered Wire Markers (177-740 only)
- **7** – Ten Color Repeating (177-710 only)

Overall Length in Inches

6 Inch (152 mm.) Minimum

Mounting Hardware
- **B** – No Mounting Hardware Installed
- **M** – Male Jackscrew, Allen Head, Low Profile
- **S** – Male Jackscrew, Slot Head, Low Profile
- **P** – Female Jackpost
- **L** – Male Jackscrew, Allen Head, Non-Removable
- **F** – Float Mount, for Front Panel Mounting
- **R** – Float Mount, for Rear Panel Mounting

Shield and Jacket Option
- **N** – No Shield, No Jacket
- **A** – Braided Shield Installed
- **C** – Braided Shield Installed, With E-CTFE Halar “Expando” Jacket (+150° C.)
- **D** – No Shield, With E-CTFE Halar “Expando” Jacket Installed (+150° C.)
- **S** – 100% Braided AmberStrand® Shield Installed
- **T** – 100% Braided AmberStrand® Shield Installed with E-CTFE Halar “Expando” Jacket (+150° C.)
- **V** – 75% Braided AmberStrand® Shield Installed
- **Z** – 75% Braided AmbrerStrand® Shield Installed with E-CTFE Halar “Expando” Jacket (+150° C.)

Ground Spring Option*
- **N** – No Ground Spring
- **G** – Ground Spring Installed (Pin Connectors Only)

***Ground Spring cannot be used with Cadmium Plating**

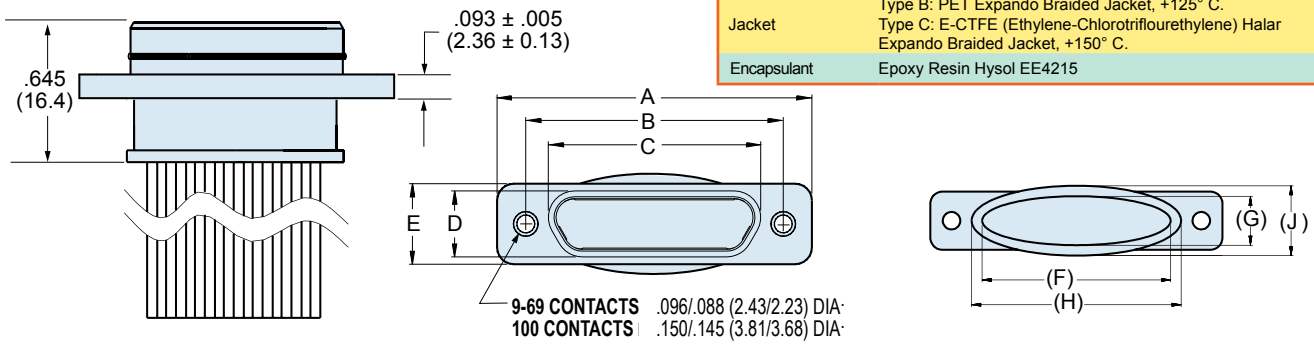
MWDM Micro-D
Shielded Cable Assemblies
177-710 (Untwisted) and 177-740 (Twisted Pairs)

PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
Dielectric Withstanding Voltage	600 VAC Sea Level
Voltage	150 VAC 70,000 Feet
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resistance	32 Milliohms Maximum
Magnetic Permeability	2 μ Maximum
Operating Temperature	-55° C. to +150° C.
Shock	50 g.
Vibration	20 g.
Outgassing	Meets NASA Outgassing Requirements
Mating Force	(10 Ounces) X (# of Contacts)
EMI Shielding Effectiveness	50 dB Attenuation, 100 MHz to 1000 MHz
For additional performance requirements, please refer to MIL-DTL-83513	

MATERIALS AND FINISHES

Connector Shell	Plating Code 1: Cadmium With Yellow Chromate Plating Code 2: Electroless Nickel Plating Code 5: Gold
Insulator	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy With 50 Microinches Gold over Nickel Plating
Socket Contact	Copper Alloy With 50 Microinches Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Wire	Type K: per MIL-W-22759/11. Silver-Plated Copper Conductor, Extruded TFE Teflon® Insulation Type J: per MIL-W-22759/33. Silver-Plated Copper Conductor, Extruded Crosslinked Tefzel® Insulation
Shield Braid	#36 AWG Nickel-Coated Copper per ASTM B355 Class 4 OFHC 100% AmberStrand® EMI/RFI Conductive Composite Thermoplastic Braided Shielding 75% AmberStrand© Conductive Composite Thermoplastic EMI/RFI Shielding Blended with 25% NiCu EMI/RFI Braided Shielding ArmorLite™ Lightweight Stainless Steel EMI/RFI Shielding
Jacket	Type B: PET Expando Braided Jacket, +125° C. Type C: E-CTFE (Ethylene-Chlorotriflourethylene) Halar Expando Braided Jacket, +150° C.
Encapsulant	Epoxy Resin Hysol EE4215



DIMENSIONS

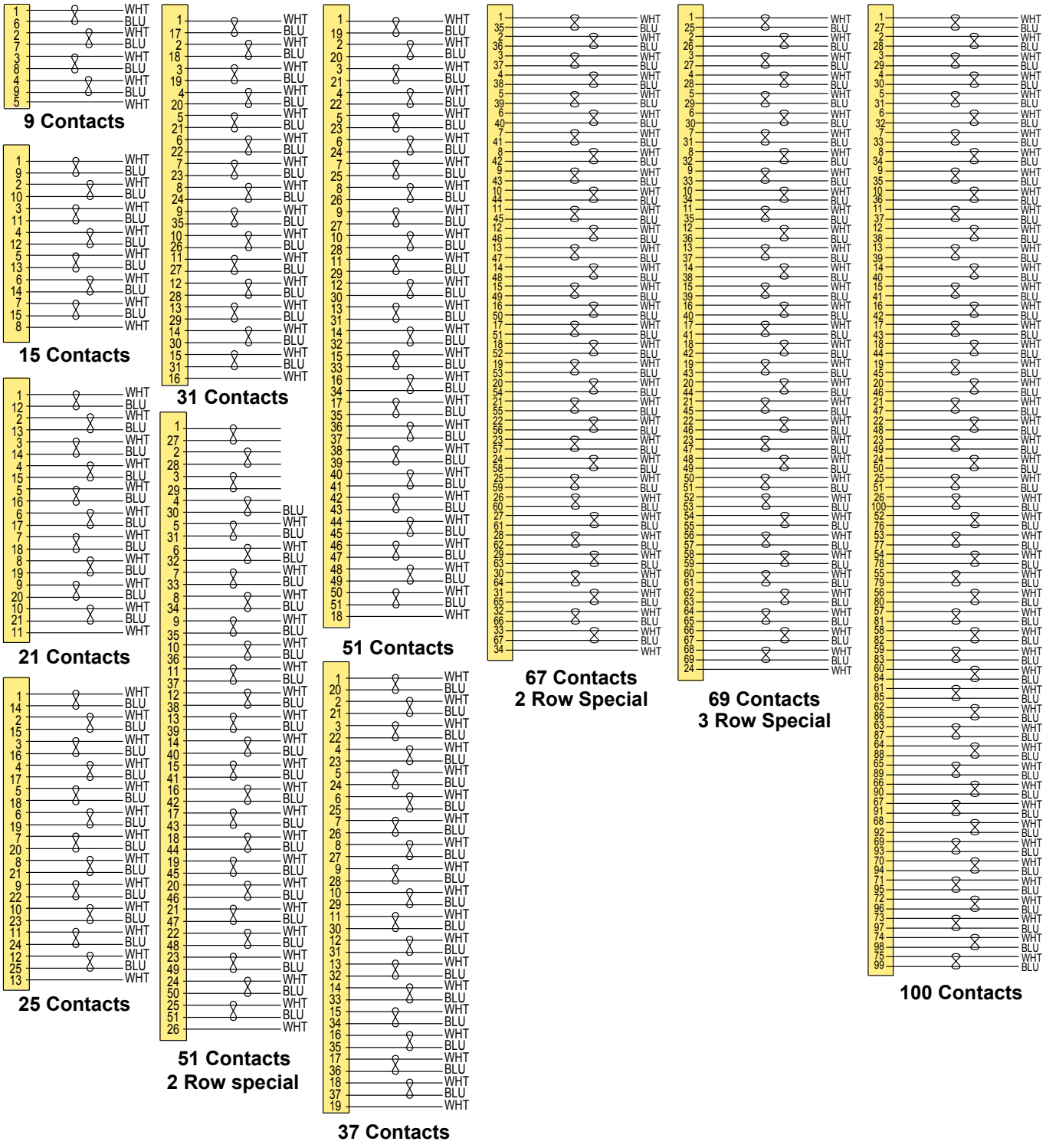
	A Max.		B		C Max.		D Max.		E Max.		F		G		H		J		K	
Layout	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.310	7.87	.183	4.65	.340	8.64	.214	5.44	.450	11.43	.324	8.23
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.310	7.87	.195	4.95	.340	8.64	.214	5.44	.450	11.43	.324	8.23
15P	.935	23.7	.715	18.16	.483	12.27	.184	4.67	.310	7.87	.183	4.65	.490	12.45	.214	5.44	.600	15.24	.324	8.23
15S	.935	23.7	.715	18.16	.551	14.00	.250	6.35	.310	7.87	.195	4.95	.490	12.45	.214	5.44	.600	15.24	.324	8.23
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.310	7.87	.183	4.65	.640	16.26	.214	5.44	.750	19.05	.324	8.23
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.310	7.87	.195	4.95	.640	16.26	.214	5.44	.750	19.05	.324	8.23
25P	1.185	30.10	.965	24.51	.733	18.62	.184	4.67	.310	7.87	.183	4.65	.740	18.80	.214	5.44	.850	21.59	.324	8.23
25S	1.185	30.10	.965	24.51	.801	20.35	.250	6.35	.310	7.87	.195	4.95	.740	18.80	.214	5.44	.850	21.59	.324	8.23
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.310	7.87	.183	4.65	.890	22.61	.214	5.44	1.000	25.40	.324	8.23
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.310	7.87	.195	4.95	.890	22.61	.214	5.44	1.000	25.40	.324	8.23
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.310	7.87	.183	4.65	1.040	26.42	.214	5.44	1.150	29.21	.324	8.23
37S	1.485	37.72	1.265	32.13	1.101	27.97	.250	6.35	.310	7.87	.195	4.95	1.040	26.42	.214	5.44	1.150	29.21	.324	8.23
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.990	25.15	.257	6.53	1.100	27.94	.367	9.32
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.990	25.15	.257	6.53	1.100	27.94	.367	9.32
51-2P	1.835	46.61	1.615	41.02	1.384	35.15	.184	4.67	.310	7.87	.183	4.65	1.390	35.31	.214	5.44	1.460	37.08	.324	8.23
51-2S	1.835	46.61	1.615	41.02	1.450	36.83	.250	6.35	.310	7.87	.195	4.95	1.390	35.31	.214	5.44	1.460	37.08	.324	8.23
67P	2.235	56.77	2.015	51.18	1.784	45.31	.184	4.67	.310	7.87	.183	4.65	1.790	45.47	.214	5.44	1.900	48.26	.324	8.23
67S	2.235	56.77	2.015	51.18	1.850	46.99	.250	6.35	.310	7.87	.195	4.95	1.790	45.47	.214	5.44	1.900	48.26	.324	8.23
69P	1.735	44.07	1.515	38.48	1.284	32.61	.228	5.79	.351	8.92	.183	4.65	1.290	32.77	.257	6.53	1.400	35.56	.367	9.32
69S	1.735	44.07	1.515	38.48	1.350	34.29	.296	7.52	.351	8.92	.195	4.95	1.290	32.77	.257	6.53	1.400	35.56	.367	9.32
100P	2.160	54.86	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	1.385	35.18	.307	7.80	1.495	38.00	.417	10.59
100S	2.160	54.86	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	1.385	35.18	.307	7.80	1.495	38.00	.417	10.59

U.S. CAGE Code 06324

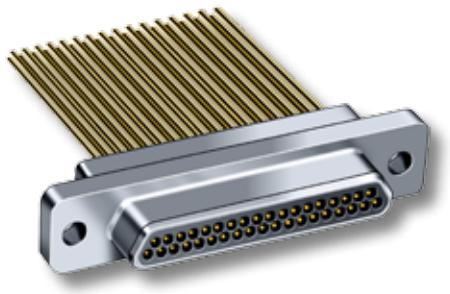
Printed in U.S.A.

MWDM Micro-D
Shielded Cable Assemblies
177-710 (Untwisted) and 177-740 (Twisted Pairs)

177-740 TWISTED PAIR WIRING DIAGRAM



Micro-D Metal Shell
MWDM Uninsulated Wire Pigtails



Micro-D Uninsulated Pigtails–These connectors feature gold-plated TwistPin contacts and mil spec crimp termination to gold-plated single strand copper wire. Suitable for soldering or splicing applications, the wire leads can be ordered either gold-plated or solder-dipped.

New One-Piece Socket Contact–An "integral tail" socket contact is now standard on all socket connectors ordered with 24 AWG or 25 AWG, up to one inch of wire. This phos bronze contact eliminates the crimp joint and offers greater rigidity.

HOW TO ORDER METAL SHELL PIGTAILS, UNINSULATED WIRE MICRO-D CONNECTORS

Series	Shell Material and Finish	Insulator Material	Contact Layout	Contact Type	Wire Gage (AWG)	Wire Type	Wire Finish	Wire Length Inches	Hardware
MWDM	**Aluminum Shell** 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	L – LCP 30% Glass-Filled Liquid Crystal Polymer	9 15 21 25 31 37 51 51-2 67 69 100	P – Pin S – Socket	4 – #24 (.020") 5 – #25 (.018") 6 – #26 (.016")	C – Single Strand Copper	3 – Solder-Dipped 4 – Gold	.125 .250 .375 .500 .750 1.000 2.000 Wire Length In Inches. ".500" Specifies Half Inch.	B P M M1 S S1 L K F R H
Sample Part Number									
MWDM	2	L –	37	P –	5	C	4 –	.250	M

MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R	H
										
Thru-Hole	Jackpost	Hex Head Jackscrew	Hex Head Jackscrew, Extended	Slot Head Jackscrew	Slot Head Jackscrew, Extended	Hex Head Jackscrew Non-Removable	Slot Head Jackscrew Non-Removable Extended	Float Mount For Front Panel Mounting	Float Mount For Rear Panel Mounting	Threaded Insert

Micro-D Metal Shell
MWDM Uninsulated Wire Pigtails

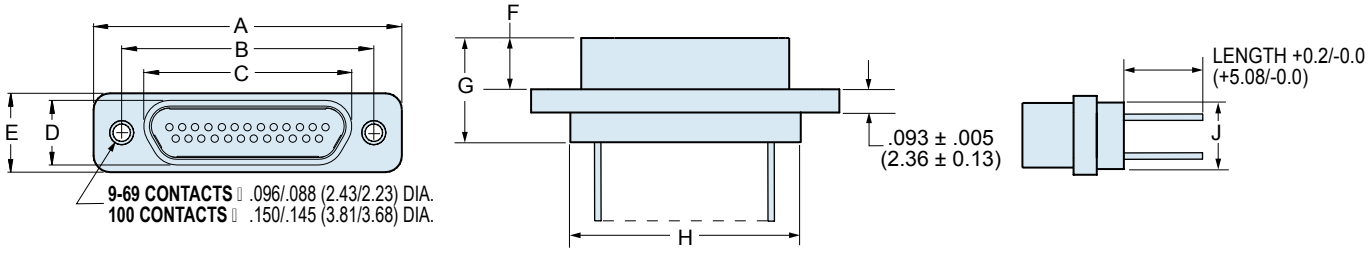
Glenair®

PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

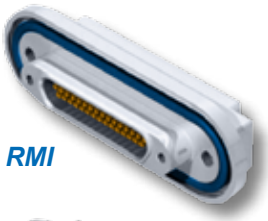
Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy, _Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215



DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.		J Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.400	10.16	.270	6.86
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.400	10.16	.270	6.86
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.550	13.97	.270	6.86
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.550	13.97	.270	6.86
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.700	17.78	.270	6.86
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.700	17.78	.270	6.86
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.800	20.32	.270	6.86
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.800	20.32	.270	6.86
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.308	7.82	.183	4.65	.416	10.57	.950	24.13	.270	6.86
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.308	7.82	.195	4.95	.429	10.90	.950	24.13	.270	6.86
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.308	7.82	.183	4.65	.416	10.57	1.100	27.94	.270	6.86
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.308	7.82	.195	4.95	.429	10.90	1.100	27.94	.270	6.86
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.416	10.57	1.050	26.67	.310	7.87
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.429	10.90	1.050	26.67	.310	7.87
51-2P	1.835	46.61	1.615	41.02	1.384	35.15	.184	4.67	.308	7.82	.183	4.65	.416	10.57	1.450	36.83	.270	6.86
51-2S	1.835	46.61	1.615	41.02	1.450	36.83	.250	6.35	.308	7.82	.195	4.95	.429	10.90	1.450	36.83	.270	6.86
67P	2.235	56.77	2.015	51.18	1.784	45.31	.184	4.67	.310	7.87	.183	4.65	.416	10.57	1.850	36.83	.270	6.86
67S	2.235	56.77	2.015	51.18	1.850	46.99	.250	6.35	.310	7.87	.195	4.95	.429	10.90	1.850	36.83	.270	6.86
69P	1.735	44.07	1.515	38.48	1.284	32.61	.228	5.79	.351	8.92	.183	4.65	.416	10.57	1.350	34.29	.310	7.87
69S	1.735	44.07	1.515	38.48	1.350	34.29	.296	7.52	.351	8.92	.195	4.95	.429	10.90	1.350	34.29	.310	7.87
100P	2.170	55.12	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	.416	10.57	1.442	36.63	.360	9.14
100S	2.170	55.12	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	.429	10.90	1.442	36.63	.360	9.14

Micro-D Metal Shell
GMDE Environmentally Sealed
Panel Mount With O-Ring



RMI

CMI

RMI Style

Blind tapped mounting holes with stainless steel inserts accomodate either #4-40 or M3 mounting screws. Connectors are supplied with jackposts installed. Socket connectors feature integral jackposts.

CMI Style

Space-saving design uses rear panel mount jackposts to attach connectors to the panel.

Choose the Style That Meets Your Needs– ***RMI*** version features blind tapped mounting holes, allowing secure installation on panels. ***CMI*** version saves space by using rear panel jackposts to attach the connector.

Mates to Standard M83513 Connectors– GMDE connectors meet the requirements of MIL-DTL-83513 and feature TwistPin contacts for best performance.

Meets MIL-STD-810 Immersion– The nitrile O-ring and a special epoxy wire sealing process allow GMDE connectors to meet immersion requirements.

Protect Your Equipment with Ruggedized Micro-D Connectors

Tactical communications boxes must be sealed to prevent water ingress. Standard M83513 type Micro connectors can be difficult to seal to a bulkhead. The flange is too narrow for a gasket, and sealing with RTV can be time-consuming and messy. The Glenair GMDE connector with O-rings provide a better way to seal the connector.

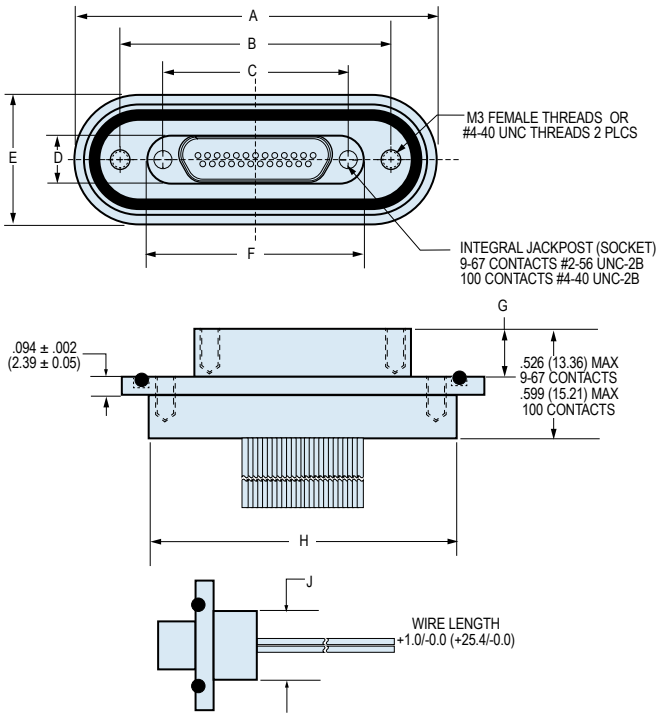
HOW TO ORDER GMDE CONNECTORS

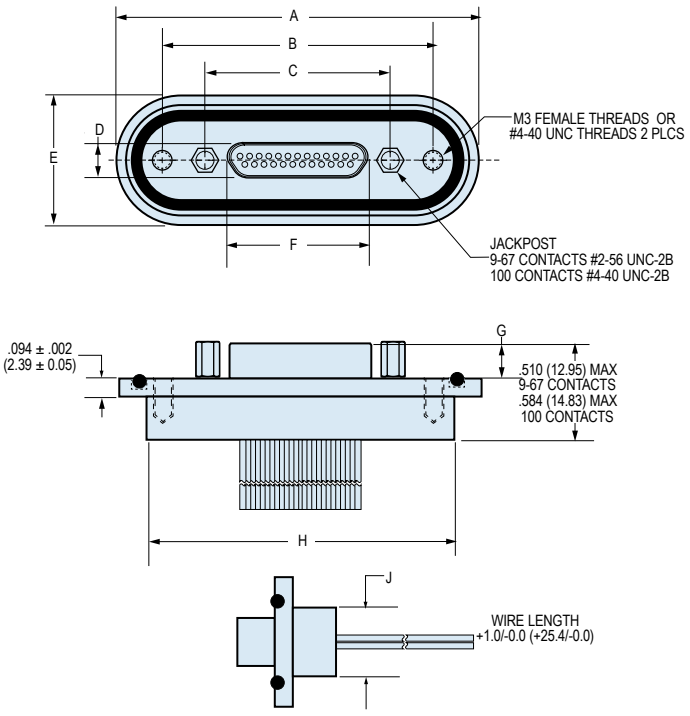
Series	Shell Material and Finish	Layout	Contact Type	Flange Style	Wire Gage (AWG)	Wire Type	Wire Color	Wire Length Inches	Hardware
GMDE	**Aluminum Shell** 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	9 15 21 25 31 37 51 51-2 67 100	P – Pin S – Socket	RMI CMI	4 – #24 6 – #26 8 – #28 0 – #30	K – M22759/11 600 Vrms Teflon® (TFE) J – M22759/33 600 Vrms Modified Cross-Linked Tefzel® (ETFE) E – NEMA HP3-EB 600 VrmsType E M16878/4 (TFE)	1 – White 2 – Yellow 5 – Color-Coded Stripes Per MIL-STD-681 (Striped wire not available on 67or 100 pin connectors or for #28, #30 AWG) 7 – Ten Color Repeating	18 Wire Length In Inches. "18" Specifies 18 Inches.	RMI Style Only SM Furnished with Jackposts and M3 Mounting Holes SU Furnished with Jackposts and #4-40 Mounting Holes CMI Style Only Jackposts for Rear Panel Mount T – .094 (2.4) V – .062 (1.6) W – .047 (1.2) X – .031 (0.8) Y – .023 (0.65)

Sample Part Number

GMDE	2	25	S –	RMI	4	K	7 –	18	SM

Micro-D Metal Shell
GMDE Environmentally Sealed
Panel Mount With O-Ring

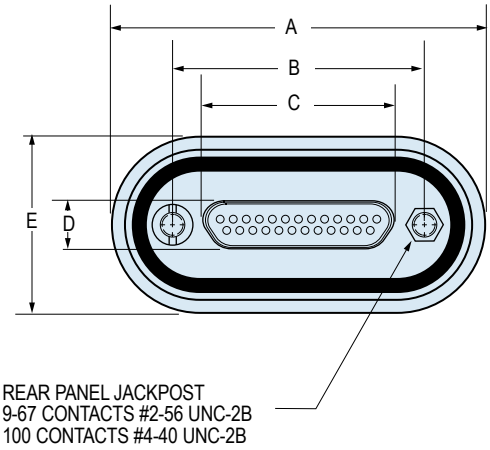


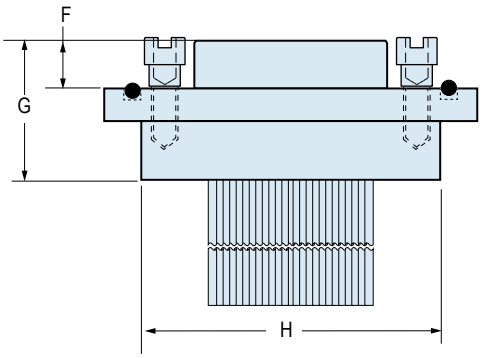


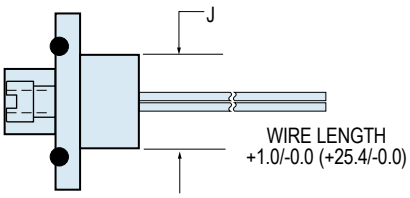
GMDE RMI DIMENSIONS

Layout	A Max.		B		C		D Max.		E Max.		F Max.		G		H Max.		J Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.
9P	1.488	37.79	1.011	25.69	.565	14.35	.184	4.67	.675	17.13	.333	8.46	.183	4.65	1.193	30.29	.358	9.10
9S	1.488	37.79	1.011	25.69	.565	14.35	.250	6.35	.675	17.13	.728	18.48	.195	4.95	1.193	30.29	.358	9.10
15P	1.638	41.60	1.161	29.50	.715	18.16	.184	4.67	.675	17.13	.483	12.27	.183	4.65	1.343	34.10	.358	9.10
15S	1.638	41.60	1.161	29.50	.715	18.16	.250	6.35	.675	17.13	.878	22.29	.195	4.95	1.343	34.10	.358	9.10
21P	1.788	45.41	1.311	33.31	.865	21.97	.184	4.67	.675	17.13	.633	16.08	.183	4.65	1.532	38.91	.358	9.10
21S	1.788	45.41	1.311	33.31	.865	21.97	.250	6.35	.675	17.13	1.028	26.10	.195	4.95	1.532	38.91	.358	9.10
25P	1.888	47.95	1.411	35.85	.965	24.51	.184	4.67	.675	17.13	.733	18.62	.183	4.65	1.593	40.45	.358	9.10
25S	1.888	47.95	1.411	35.85	.965	24.51	.250	6.35	.675	17.13	1.128	28.64	.195	4.95	1.593	40.45	.358	9.10
31P	2.038	51.76	1.561	39.66	1.115	28.32	.184	4.67	.675	17.13	.883	22.43	.183	4.65	1.743	44.26	.358	9.10
31S	2.038	51.76	1.561	39.66	1.115	28.32	.250	6.35	.675	17.13	1.278	32.45	.195	4.95	1.743	44.26	.358	9.10
37P	2.188	55.57	1.711	43.47	1.265	32.13	.184	4.67	.675	17.13	1.033	26.24	.183	4.65	1.893	48.07	.358	9.10
37S	2.188	55.57	1.711	43.47	1.265	32.13	.250	6.35	.675	17.13	1.428	36.26	.195	4.95	1.893	48.07	.358	9.10
51P	2.138	54.30	1.661	42.40	1.215	30.86	.224	5.69	.714	18.13	.983	24.97	.183	4.65	1.843	46.80	.358	9.10
51S	2.138	54.30	1.661	42.40	1.215	30.86	.293	7.44	.714	18.13	1.378	34.99	.195	4.95	1.843	46.80	.358	9.10
51-2P	2.538	64.46	2.061	52.36	1.615	41.02	.184	4.67	.675	17.13	1.384	35.15	.183	4.65	2.243	56.96	.358	9.10
51-2S	2.538	64.46	2.061	52.36	1.615	41.02	.250	6.35	.675	17.13	1.778	45.15	.195	4.95	2.243	56.96	.358	9.10
67P	2.938	74.62	2.461	62.52	2.015	51.18	.184	5.69	.675	17.13	1.284	32.61	.183	4.65	2.643	67.12	.358	9.10
67S	2.938	74.62	2.461	62.52	2.015	51.18	.250	7.44	.675	17.13	2.178	55.31	.195	4.95	2.643	67.12	.358	9.10
100P	2.820	71.62	2.312	58.72	1.800	45.72	.270	6.86	.875	22.13	1.383	35.13	.183	4.65	2.493	63.32	.555	14.10
100S	2.820	71.62	2.312	58.72	1.800	45.72	.333	8.46	.875	22.13	2.002	50.85	.195	4.95	2.493	63.32	.555	14.10

Micro-D Metal Shell
GMDE Environmentally Sealed
Panel Mount With O-Ring





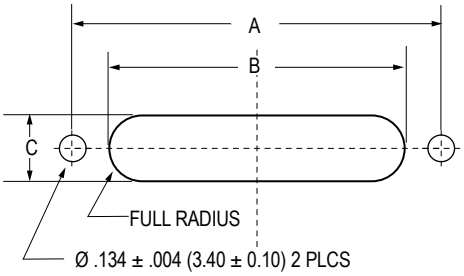


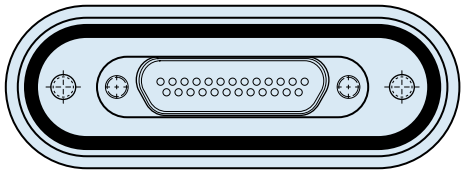
GMDE CMI DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	1.025	26.03	.565	14.35	.333	8.46	.184	4.67	.675	17.13	.183	4.65	.510	12.95	.795	20.13	.358	9.10
9S	1.025	26.03	.565	14.35	.400	10.16	.250	6.35	.675	17.13	.195	4.95	.526	13.36	.795	20.13	.358	9.10
15P	1.135	28.83	.715	18.16	.483	12.27	.184	4.67	.675	17.13	.183	4.65	.510	12.95	.950	24.13	.358	9.10
15S	1.135	28.83	.715	18.16	.551	14.00	.250	6.35	.675	17.13	.195	4.95	.526	13.36	.950	24.13	.358	9.10
21P	1.325	33.63	.865	21.97	.633	16.08	.184	4.67	.675	17.13	.183	4.65	.510	12.95	1.090	27.63	.358	9.10
21S	1.325	33.63	.865	21.97	.701	17.81	.250	6.35	.675	17.13	.195	4.95	.526	13.36	1.090	27.63	.358	9.10
25P	1.430	36.33	.965	24.51	.733	18.62	.184	4.67	.675	17.13	.183	4.65	.510	12.95	1.190	30.13	.358	9.10
25S	1.430	36.33	.965	24.51	.801	20.35	.250	6.35	.675	17.13	.195	4.95	.526	13.36	1.190	30.13	.358	9.10
31P	1.580	40.09	1.115	28.32	.883	22.43	.184	4.67	.675	17.13	.183	4.65	.510	12.95	1.345	34.13	.358	9.10
31S	1.580	40.09	1.115	28.32	.951	24.16	.250	6.35	.675	17.13	.195	4.95	.526	13.36	1.345	34.13	.358	9.10
37P	1.725	43.83	1.265	32.13	1.033	26.24	.184	4.67	.675	17.13	.183	4.65	.510	12.95	1.505	38.13	.358	9.10
37S	1.725	43.83	1.265	32.13	1.101	27.96	.250	6.35	.675	17.13	.195	4.95	.526	13.36	1.505	38.13	.358	9.10
51P	1.675	42.53	1.215	30.86	.983	24.97	.224	5.69	.714	18.14	.183	4.65	.510	12.95	1.445	36.63	.358	9.10
51S	1.675	42.53	1.215	30.86	1.051	26.70	.293	7.44	.714	18.14	.195	4.95	.526	13.36	1.445	36.63	.358	9.10
51-2P	2.075	52.63	1.615	41.02	1.384	35.15	.184	4.67	.675	17.13	.183	4.65	.510	12.95	1.835	46.63	.358	9.10
51-2S	2.075	52.63	1.615	41.02	1.450	36.83	.250	6.35	.675	17.13	.195	4.95	.526	13.36	1.835	46.63	.358	9.10
67P	2.465	62.63	2.015	51.18	1.284	32.61	.184	5.69	.675	17.13	.183	4.65	.510	12.95	2.250	57.13	.358	9.10
67S	2.465	62.63	2.015	51.18	1.350	34.29	.250	7.44	.675	17.13	.195	4.95	.526	13.36	2.250	57.13	.358	9.10
100P	2.600	63.50	1.800	45.72	1.383	35.13	.270	6.86	.875	22.13	.183	4.65	.585	14.83	2.135	54.13	.555	14.10
100S	2.600	63.50	1.800	45.72	1.451	36.86	.333	8.46	.875	22.13	.195	4.95	.600	15.24	2.135	54.13	.555	14.10

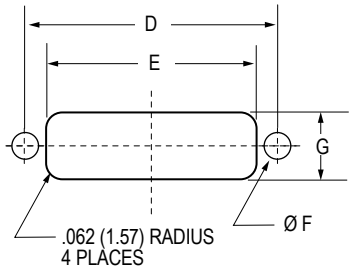
Micro-D Metal Shell
GMDE Environmentally Sealed
Panel Mount With O-Ring

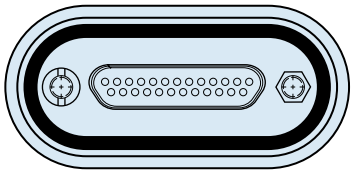
RMI Version





CMI Version



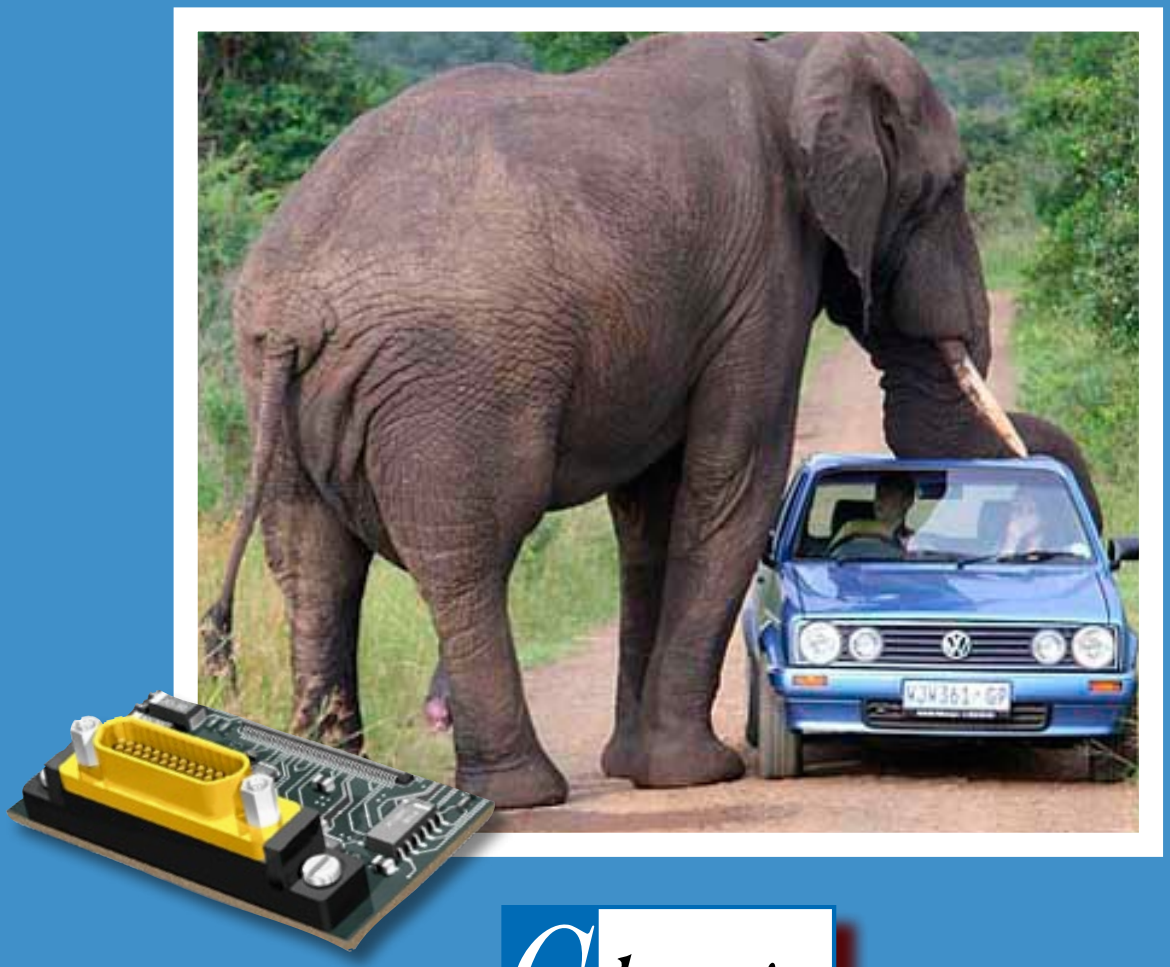


GMDE PANEL CUTOUT DIMENSIONS

Layout	A		B		C		D		E		F		G	
	In . ± .003	mm. ±0.08	In . ± .005	mm. ±0.13	In . +.005/-0	mm. +0.13/-0	In . ± .005	mm. ±0.13	In . ± .005	mm. ±0.13	In. ± .002	mm. ±0.05	In . ± .005	mm. ±0.13
9	1.011	25.69	.731	18.56	.252	6.40	.565	14.35	.406	10.31	.126	3.20	.256	6.50
15	1.161	29.50	.881	22.37	.252	6.40	.715	18.16	.556	14.12	.126	3.20	.256	6.50
21	1.311	33.31	1.031	26.18	.252	6.40	.865	21.97	.706	17.93	.126	3.20	.256	6.50
25	1.411	35.85	1.131	28.72	.252	6.40	.965	24.51	.806	20.47	.126	3.20	.256	6.50
31	1.561	39.66	1.281	32.53	.252	6.40	1.115	28.32	.956	24.28	.126	3.20	.256	6.50
37	1.711	43.47	1.431	36.34	.252	6.40	1.265	32.13	1.106	28.09	.126	3.20	.256	6.50
51	1.661	42.20	1.381	35.07	.295	7.50	1.215	30.86	1.056	26.82	.126	3.20	.300	7.62
51-2	2.061	52.36	1.781	45.23	.252	6.40	1.615	41.02	1.456	36.98	.126	3.20	.256	6.50
67	2.461	62.52	2.181	55.39	.252	6.40	2.015	51.18	2.606	66.19	.126	3.20	.256	6.50
100	2.312	58.72	2.005	50.93	.333	8.47	1.800	45.72	1.520	38.61	.148	3.76	.406	10.31

Need Something Smaller?

Glenair Compact Micro-D's (Even Smaller Than a Mouse!) are in Stock and Ready for Immediate Shipment



Glenair®

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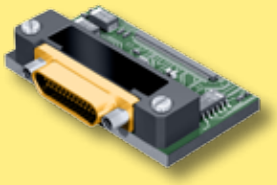
PRODUCT SELECTION GUIDE

MWDM .100" Pitch Thru-Hole Printed Circuit Board

Always in stock, these industry-standard PCB connectors feature 63/37 SnPb solder-dipped .020" diameter tails in eight lengths.

"BS" Vertical
Page C-10

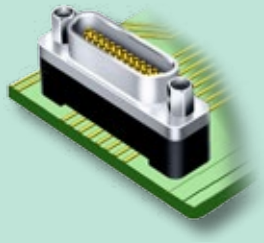


"BR" 90°
Page C-6

"CBR"
Condensed 90°
Page C-2

MWDM .100" X .075" Compact Vertical Mount

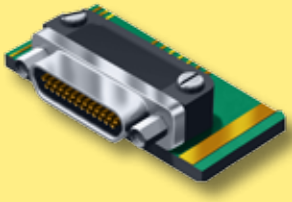
A recent addition to the M83513 spec, these connectors save real estate on the circuit board and are also intended for use on flexible circuits.



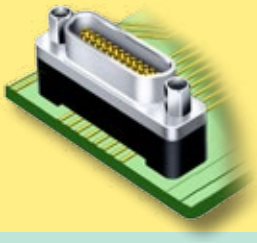
"CBS"
Vertical Condensed
Page C-14

GMR75 .075" X .075" Pitch Thru-Hole PCB

These connectors save size and weight compared to .100" pitch connectors. Available with two standard tail lengths plus a staggered tail version, these connectors also have a full range of mounting hardware options and shell plating options.



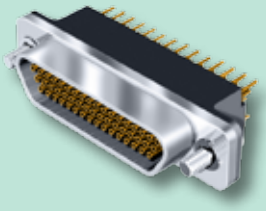
GMR7590
Page C-28



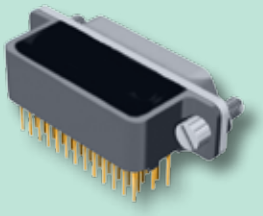
GMR7580
Page C-20

GMR75C .075" X .075" Pitch Compact

Designed for flexible circuits, these connectors are modified versions of the GMR75 series. The flange thickness is .100" maximum, allowing installation of standard jackscrews.



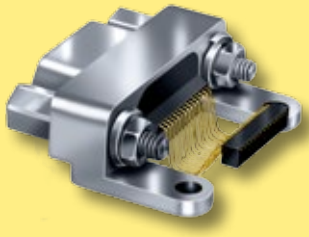
GMR7580C
Page C-24



GMR7590C
Page C-32

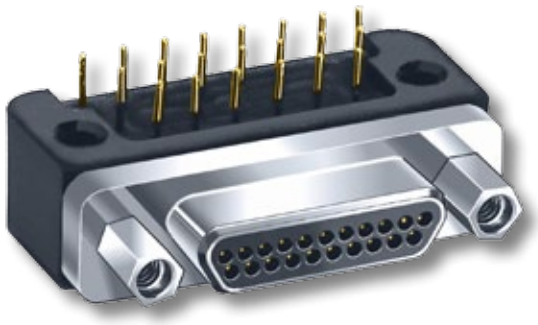
MWDM Surface Mount Right Angle

These connectors feature .025 inch (0.64 mm.) terminal spacing. The integral metal mounting legs provide a ground path. A molded alignment strip ensures accurate terminal registration.



Surface Mount
Page C-36

Micro-D Metal Shell Printed Circuit Board Connectors
CBR Style Right Angle Thru-Hole



High Performance – These connectors feature gold-plated TwistPin contacts for best performance. PC tails are .020 inch diameter. Specify nickel-plated shells or cadmium plated shells for best availability.

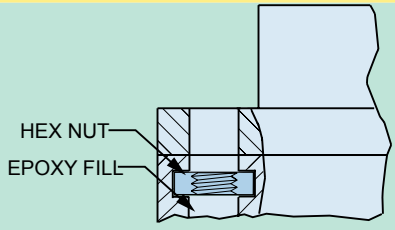
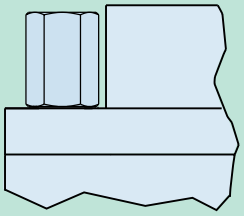
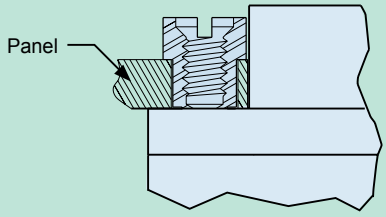
Solder-Dipped – Terminals are coated with SN63/Pb37 tin-lead solder for best solderability. Optional gold-plated terminals are available for RoHS compliance.

Front Panel or Rear Mountable – Can be installed through panels up to .125 inch thick. Specify rear panel mount jackposts.

HOW TO ORDER CBR STYLE PCB MICRO-D CONNECTORS

Series	Shell Material and Finish	Insulator Material	Contact Layout	Contact Type	Termination Type	Jackpost Option	Threaded Insert Option	Terminal Length In Inches	Gold-Plated Terminal Mod Code
MWDM	Aluminum Shell 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film Stainless Steel Shell 3 – Passivated	L – LCP 30% Glass-Filled Liquid Crystal Polymer	9 15 21 25 31 37 51 69 100	P Pin S Socket	CBR Condensed Board Right Angle	(Omit for None) P – Jackpost Jackposts for Rear Panel Mounting R1 – .032" Panel R2 – .047" Panel R3 – .062" Panel R4 – .093" Panel R5 – .125" Panel	T Threaded Insert In Board Mount Hole (Omit for Thru-Hole)	.080 .110 .125 .140 .150 .172 .190 .250 Length in Inches ± .015 (0.38)	These connectors are solder-dipped in 63/37 tin-lead solder. To delete the solder dip and change to gold-plated terminals, add code 513
Sample Part Number									
MWDM	1	L	– 15	P	CBR	R3		– .110	

MICRO-D JACKPOST OPTIONS

No Designator	P	R1 Thru R5
		
Thru-Hole For use with Glenair jackposts only. Order hardware separately. Install with threadlocking compound.	**Standard Jackpost** Factory installed, not intended for removal.	**Jackpost for Rear Panel Mounting** Shipped loosely installed. Install with permanent threadlocking compound.

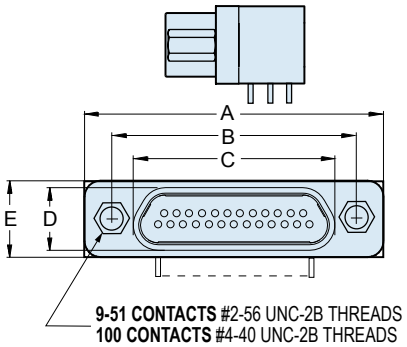
Micro-D Metal Shell
Printed Circuit Board Connectors
CBR Style Right Angle Thru-Hole

PERFORMANCE SPECIFICATIONS

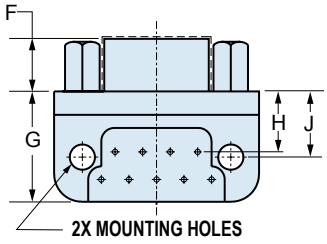
Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator, Tray	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
PCB Terminals	Gold Plated Copper Alloy, Solder Dipped
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215

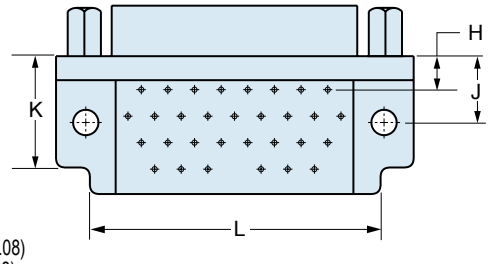


CONFIGURATION FOR 9-25 CONTACTS



PCB MOUNTING HOLES
9-51 CONTACTS .096 DIA. ± .003 (2.44 ± 0.08)
100 CONTACTS .125 DIA. ± .003 (3.18± 0.08)

CONFIGURATION FOR 31-100 CONTACTS



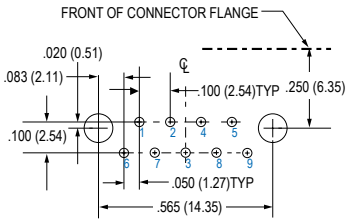
DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H		J		K Max.		L Max.	
	In.	mm.	In. ±.003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ±.003	mm. ± 0.08	In.	mm.	In. ±.010	mm. ±0.25	In. ±.010	mm. ±0.25	In.	mm.	In.	mm.
9P	.787	19.94	.565	14.35	.333	8.46	.184	4.67	.310	7.87	.183	4.65	.425	10.80	.230	5.84	.250	6.35	—	—	—	—
9S	.787	19.94	.565	14.35	.400	10.16	.250	6.35	.310	7.87	.195	4.95	.425	10.80	.230	5.84	.250	6.35	—	—	—	—
15P	.937	23.75	.715	18.16	.483	12.27	.184	4.67	.310	7.87	.183	4.65	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
15S	.937	23.75	.715	18.16	.551	14.00	.250	6.35	.310	7.87	.195	4.95	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
21P	1.087	27.56	.865	21.97	.633	16.08	.184	4.67	.310	7.87	.183	4.65	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
21S	1.087	27.56	.865	21.97	.701	17.81	.250	6.35	.310	7.87	.195	4.95	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
25P	1.187	30.01	.965	24.51	.733	18.62	.184	4.67	.310	7.87	.183	4.65	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
25S	1.187	30.01	.965	24.51	.801	20.35	.250	6.35	.310	7.87	.195	4.95	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
31P	1.337	33.91	1.115	28.32	.883	22.43	.184	4.67	.310	7.87	.183	4.65	.525	13.34	.130	3.30	.250	6.35	.450	11.43	1.085	27.56
31S	1.337	33.91	1.115	28.32	.951	24.16	.250	6.35	.310	7.87	.195	4.95	.525	13.34	.130	3.30	.250	6.35	.450	11.43	1.085	27.56
37P	1.487	37.72	1.265	32.13	1.033	26.24	.184	4.67	.310	7.87	.183	4.65	.525	13.34	.130	3.30	.250	6.35	.450	11.43	1.185	30.10
37S	1.487	37.72	1.265	32.13	1.101	27.96	.250	6.35	.310	7.87	.195	4.95	.525	13.34	.130	3.30	.250	6.35	.450	11.43	1.185	30.10
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.660	16.76	.150	3.81	.300	7.62	.450	11.43	1.225	31.12
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.660	16.76	.150	3.81	.300	7.62	.450	11.43	1.225	31.12
69P	1.740	44.20	1.515	38.48	1.283	32.59	.228	5.79	.351	8.92	.183	4.65	.750	19.05	.150	3.81	.300	7.62	.450	11.43	1.530	38.86
69S	1.740	44.20	1.515	38.58	1.351	34.32	.296	7.52	.351	8.92	.195	4.95	.750	19.05	.150	3.81	.300	7.62	.450	11.43	1.530	38.86
100P	2.175	55.12	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	1.010	25.65	.200	5.08	.490	12.45	.400	10.16	.590	14.99
100S	2.175	55.12	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	1.010	25.65	.200	5.08	.490	12.45	.400	10.16	.590	14.99

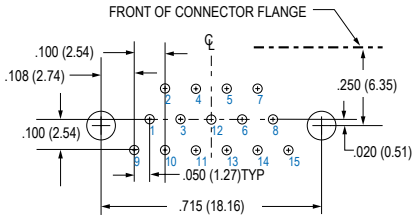
Micro-D Metal Shell
Printed Circuit Board Connectors
CBR Style Right Angle Thru-Hole

MICRO-D CBR BOARD MOUNT CONNECTOR PCB LAYOUTS – PIN CONNECTORS

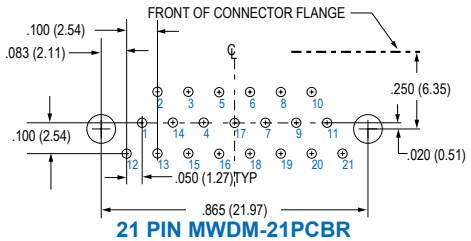
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



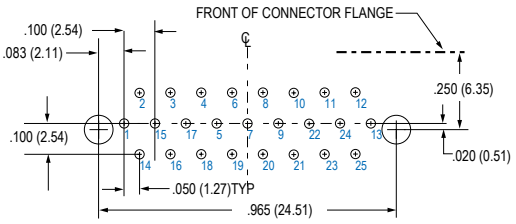
9 PIN MWDM-9PCBR



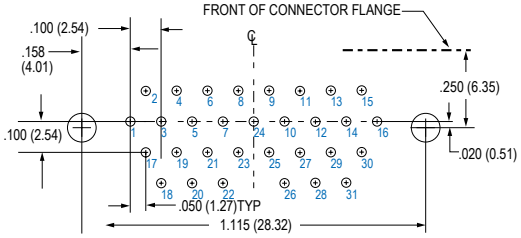
15 PIN MWDM-15PCBR



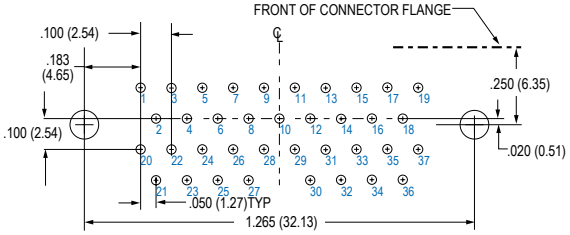
21 PIN MWDM-21PCBR



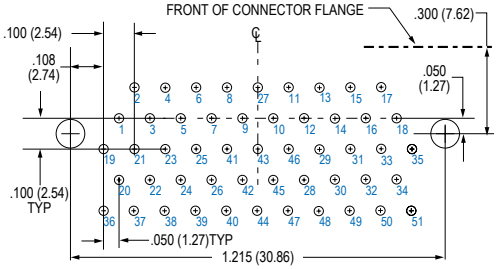
25 PIN MWDM-25PCBR



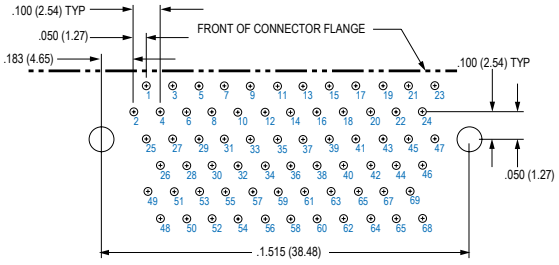
31 PIN MWDM-31PCBR



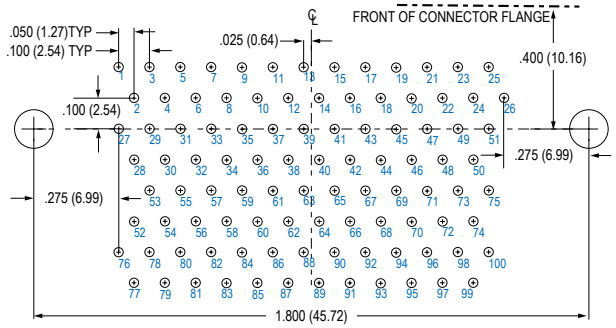
37 PIN MWDM-37PCBR



51 PIN MWDM-51PCBR



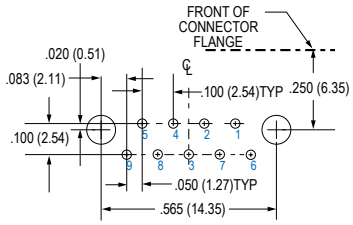
69 PIN MWDM-69PCBR



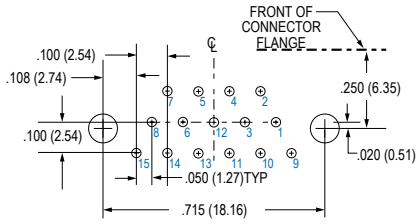
100 PIN MWDM-100PCBR

MICRO-D CBR BOARD MOUNT CONNECTOR PCB LAYOUTS – SOCKET CONNECTORS

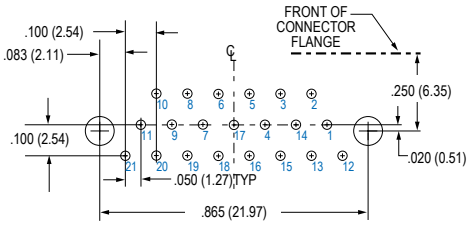
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



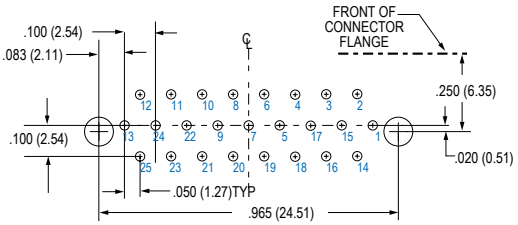
9 SOCKET MWDM-9SCBR



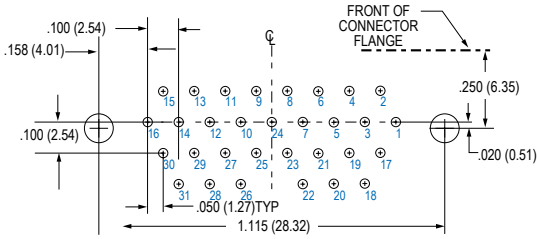
15 SOCKET MWDM-15SCBR



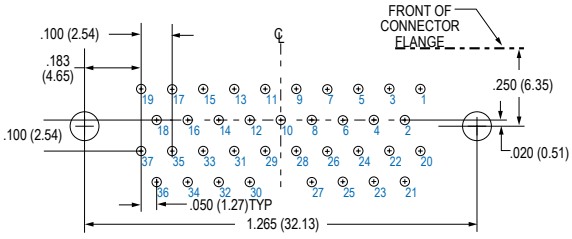
21 SOCKET MWDM-21SCBR



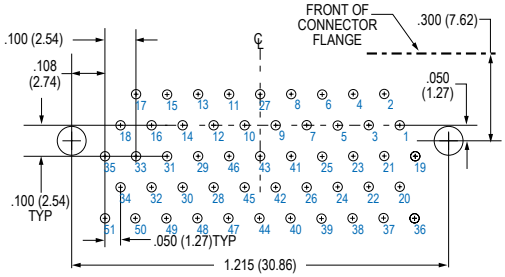
25 SOCKET MWDM-25SCBR



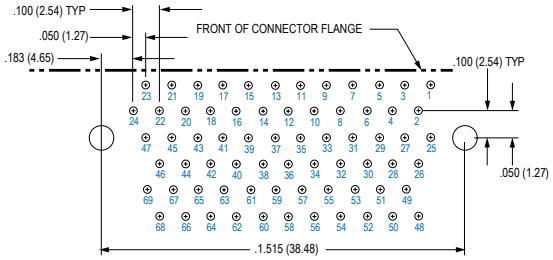
31 SOCKET MWDM-31SCBR



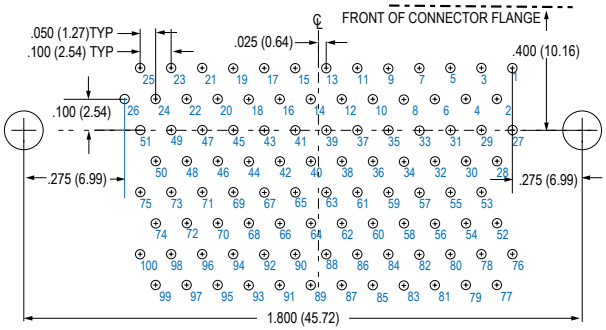
37 SOCKET MWDM-37SCBR



51 SOCKET MWDM-51SCBR

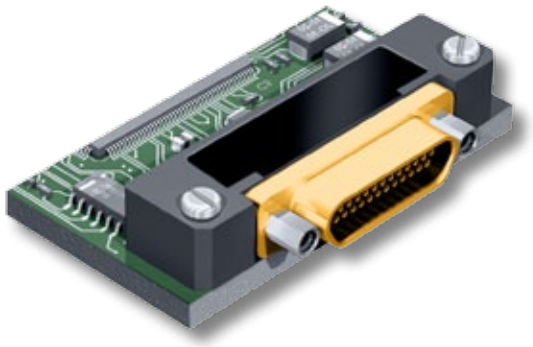


69 SOCKET MWDM-69SCBR



100 SOCKET MWDM-100SCBR

Micro-D Metal Shell Printed Circuit Board Connectors
BR Style Right Angle Thru-Hole



High Performance–These connectors feature gold-plated TwistPin contacts for best performance. PC tails are .020 inch diameter. Specify nickel-plated shells or cadmium plated shells for best availability.

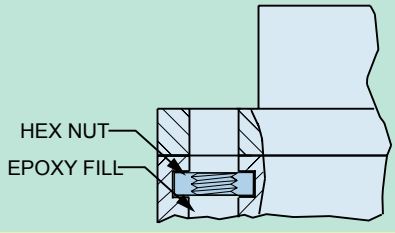
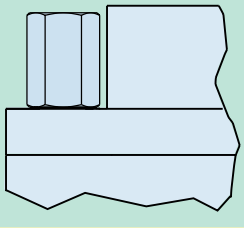
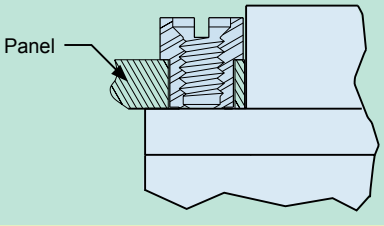
Solder-Dipped–Terminals are coated with SN63/Pb37 tin-lead solder for best solderability. Optional gold-plated terminals are available for RoHS compliance.

Front Panel or Rear Mountable–Can be installed through panels up to .125 inch thick. Specify rear panel mount jackposts.

HOW TO ORDER BR STYLE PCB MICRO-D CONNECTORS

Series	Shell Material and Finish	Insulator Material	Contact Layout	Contact Type	Termination Type	Jackpost Option	Threaded Insert Option	Terminal Length In Inches	Gold-Plated Terminal Mod Code
MWDM	Aluminum Shell 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film Stainless Steel Shell 3 – Passivated	L – LCP 30% Glass-Filled Liquid Crystal Polymer	9 15 21 25 31 37 51 100	P Pin S Socket	BR Board Right Angle	(Omit for None) P – Jackpost Jackposts for Rear Panel Mounting R1 – .032" Panel R2 – .047" Panel R3 – .062" Panel R4 – .093" Panel R5 – .125" Panel	T Threaded Insert In Board Mount Hole (Omit for Thru-Hole)	.080 .110 .125 .140 .150 .172 .190 .250 Length in Inches ± .015 (0.38)	These connectors are solder-dipped in 63/37 tin-lead solder. To delete the solder dip and change to gold-plated terminals, add code 513
Sample Part Number									
MWDM	1	L	– 15	P	BR	R3		– .110	

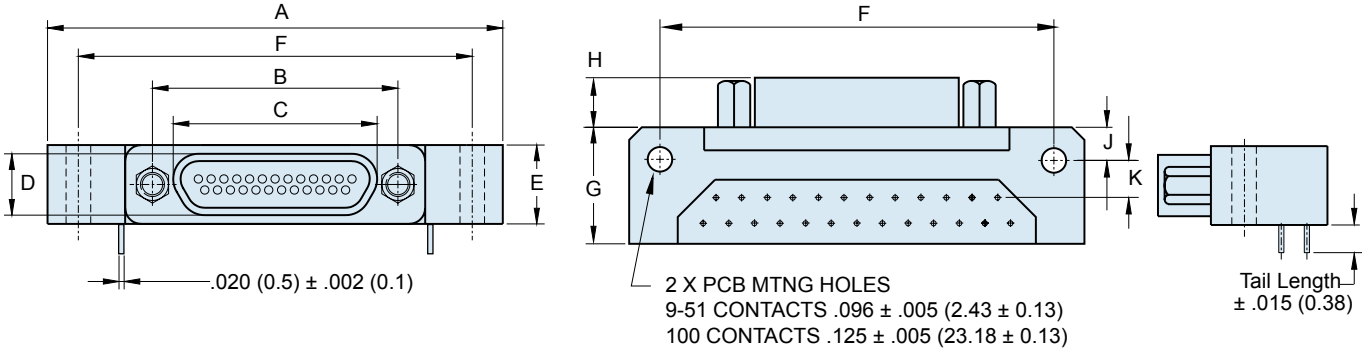
MICRO-D JACKPOST OPTIONS

No Designator	P	R1 Thru R5
		
Thru-Hole For use with Glenair jackposts only. Order hardware separately. Install with threadlocking compound.	**Standard Jackpost** Factory installed, not intended for removal.	**Jackpost for Rear Panel Mounting** Shipped loosely installed. Install with permanent threadlocking compund.

Micro-D Metal Shell
Printed Circuit Board Connectors
BR Style Right Angle Thru-Hole

PERFORMANCE SPECIFICATIONS	
Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 μ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES	
Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator, Tray	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
PCB Terminals	Gold Plated Copper Alloy, Solder Dipped
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215



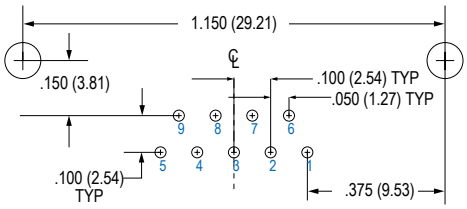
BR STYLE MICRO-D PCB CONNECTORS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H		J		K	
	In.	mm.	In. ±.003	mm. ±0.08	In.	mm.	In.	mm.	In.	mm.	In. ±.007	mm. ±0.18	In.	mm.	In. ±.003	mm. ±0.08	In. ±.015	mm. ±0.38	In. ±.010	mm. ±0.25
9P	1.390	35.31	.565	14.35	.333	8.46	.184	4.67	.310	7.87	1.150	29.21	.465	11.81	.183	4.65	.125	3.18	.150	3.81
9S	1.390	35.31	.565	14.35	.400	10.16	.250	6.35	.310	7.87	1.150	29.21	.465	11.81	.195	4.95	.125	3.18	.150	3.81
15P	1.540	39.12	.715	18.16	.483	12.27	.184	4.67	.310	7.87	1.300	33.02	.465	11.81	.183	4.65	.125	3.18	.150	3.81
15S	1.540	39.12	.715	18.16	.551	14.00	.250	6.35	.310	7.87	1.300	33.02	.465	11.81	.195	4.95	.125	3.18	.150	3.81
21P	1.690	42.93	.865	21.97	.633	16.08	.184	4.67	.310	7.87	1.450	36.83	.465	11.81	.183	4.65	.125	3.18	.150	3.81
21S	1.690	42.93	.865	21.97	.701	17.81	.250	6.35	.310	7.87	1.450	36.83	.465	11.81	.195	4.95	.125	3.18	.150	3.81
25P	1.790	45.47	.965	24.51	.733	18.62	.184	4.67	.310	7.87	1.550	39.37	.465	11.81	.183	4.65	.125	3.18	.150	3.81
25S	1.790	45.47	.965	24.51	.801	20.35	.250	6.35	.310	7.87	1.550	39.37	.465	11.81	.195	4.95	.125	3.18	.150	3.81
31P	2.040	51.82	1.115	28.32	.883	22.43	.184	4.67	.310	7.87	1.800	45.72	.465	11.81	.183	4.65	.125	3.18	.150	3.81
31S	2.040	51.82	1.115	28.32	.951	24.16	.250	6.35	.310	7.87	1.800	45.72	.465	11.81	.195	4.95	.125	3.18	.150	3.81
37P	2.340	59.44	1.265	32.13	1.033	26.24	.184	4.67	.310	7.87	2.100	53.34	.465	11.81	.183	4.65	.125	3.18	.150	3.81
37S	2.340	59.44	1.265	32.13	1.101	27.96	.250	6.35	.310	7.87	2.100	53.34	.465	11.81	.195	4.95	.125	3.18	.150	3.81
51P	1.875	47.63	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	1.600	40.64	.565	14.35	.183	4.65	.125	3.18	.150	3.81
51S	1.875	47.63	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	1.600	40.64	.565	14.35	.195	4.95	.125	3.18	.150	3.81
100P	2.780	70.60	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	2.500	63.50	.765	19.43	.183	4.65	.225	5.72	.150	3.81
100S	2.780	70.60	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	2.500	63.50	.765	19.43	.195	4.95	.225	5.72	.150	3.81

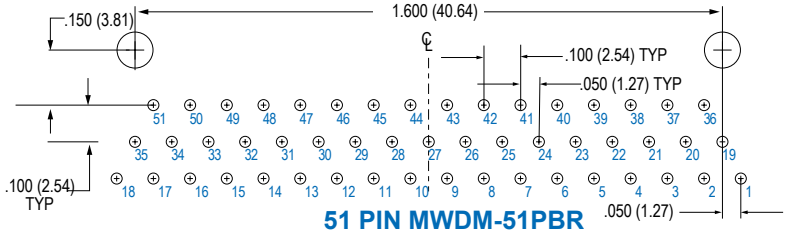
Micro-D Metal Shell
Printed Circuit Board Connectors
BR Style Right Angle Thru-Hole

MICRO-D BR BOARD MOUNT CONNECTOR PCB LAYOUTS – PIN CONNECTORS

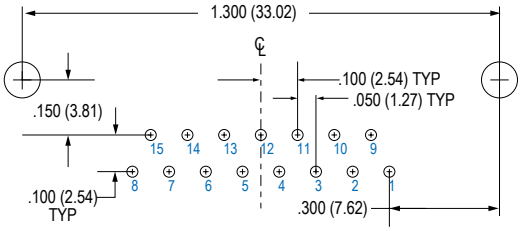
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



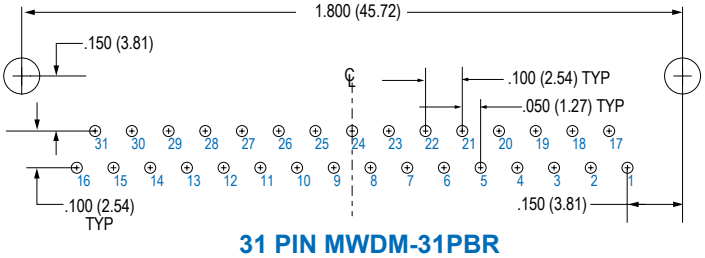
9 PIN MWDM-9PBR



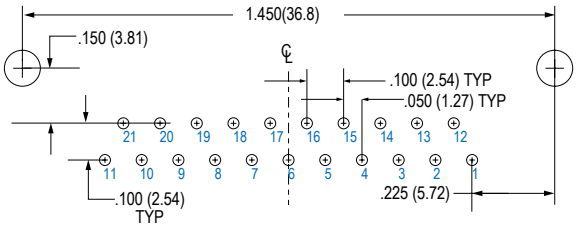
51 PIN MWDM-51PBR



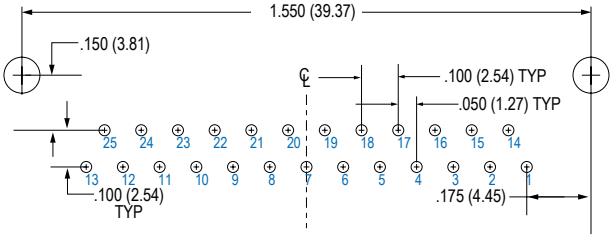
15 PIN MWDM-15PBR



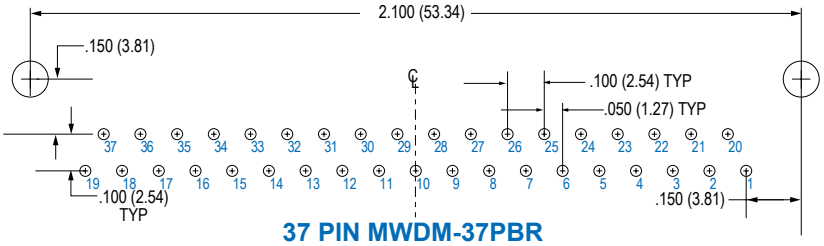
31 PIN MWDM-31PBR



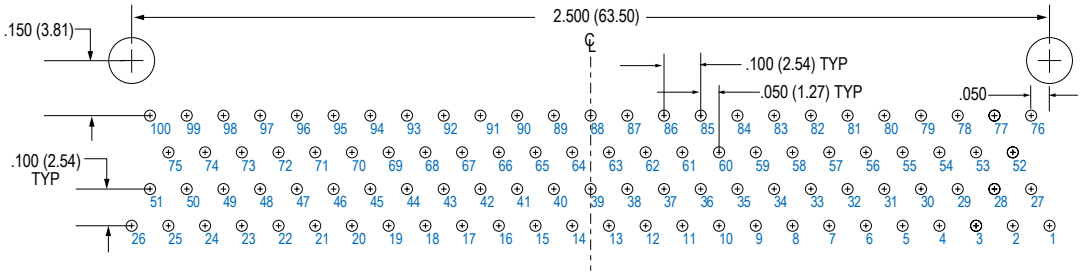
21 PIN MWDM-21PBR



25 PIN MWDM-25PBR



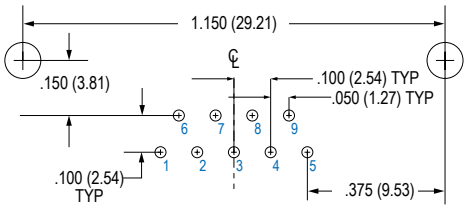
37 PIN MWDM-37PBR



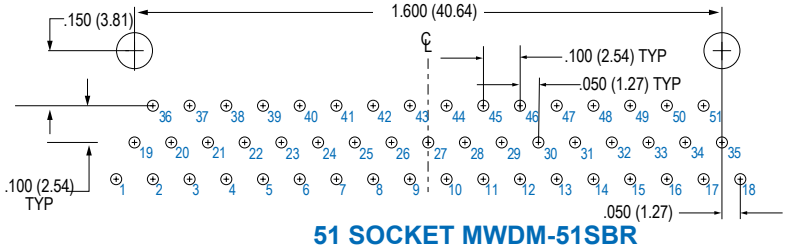
100 PIN MWDM-100PBR

MICRO-D BR BOARD MOUNT CONNECTOR PCB LAYOUTS – SOCKET CONNECTORS

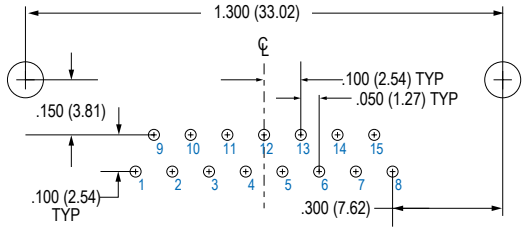
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



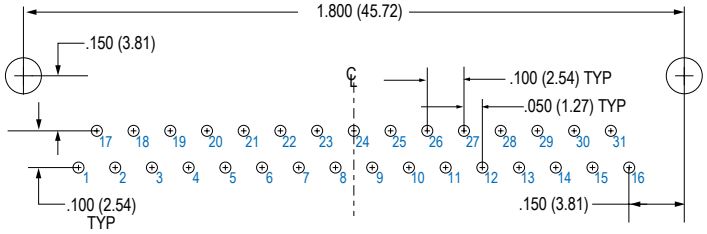
9 SOCKET MWDM-9SBR



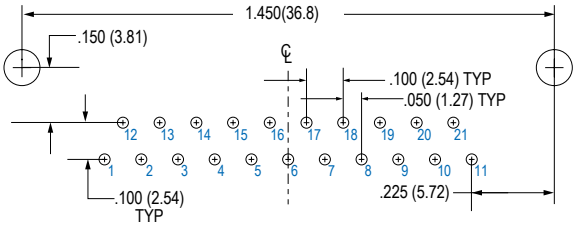
51 SOCKET MWDM-51SBR



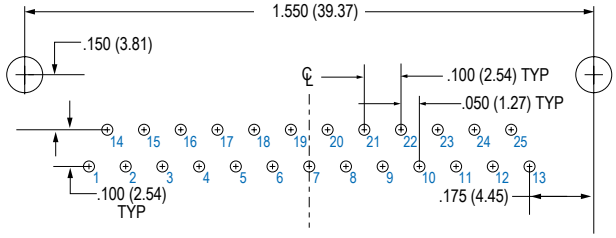
15 SOCKET MWDM-15SBR



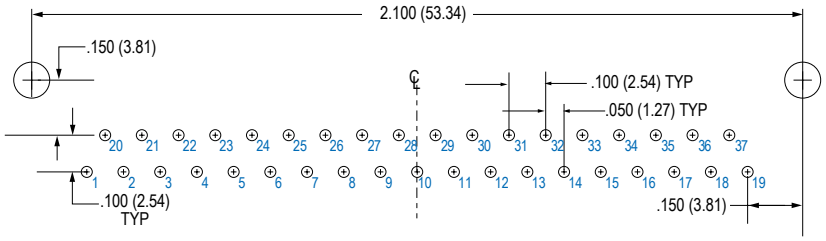
31 SOCKET MWDM-31SBR



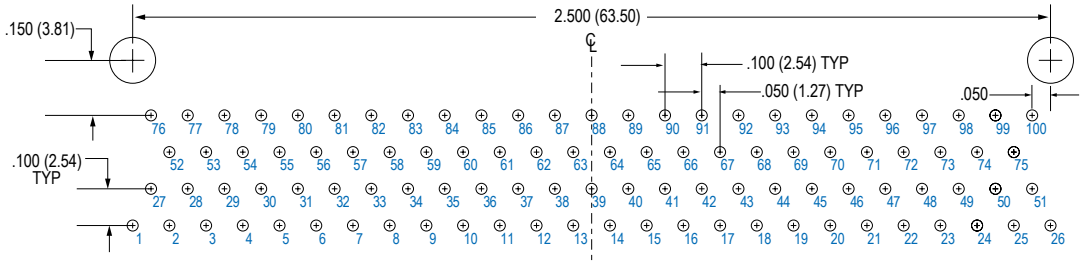
21 SOCKET MWDM-21SBR



25 SOCKET MWDM-25SBR



37 SOCKET MWDM-37SBR



100 SOCKET MWDM-100SBR

Micro-D Metal Shell Printed Circuit Board Connectors
BS Style Vertical Mount Thru-Hole

High Performance–These connectors feature gold-plated TwistPin contacts for best performance. PC tails are .020 inch diameter. Specify nickel-plated shells or cadmium plated shells for best availability.

Solder-Dipped–Terminals are coated with SN63/Pb37 tin-lead solder for best solderability. Optional gold-plated terminals are available for RoHS compliance.

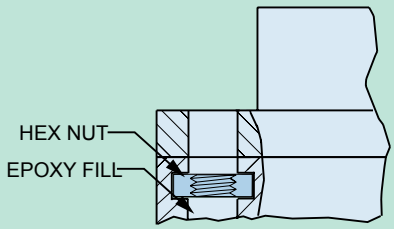
Front Panel or Rear Mountable–Can be installed through panels up to .125 inch thick. Specify rear panel mount jackposts.

HOW TO ORDER BS STYLE PCB MICRO-D CONNECTORS

Series	Shell Material and Finish	Insulator Material	Contact Layout	Contact Type	Termination Type	Jackpost Option	Threaded Insert Option	Terminal Length In Inches	Gold-Plated Terminal Mod Code
MWDM	Aluminum Shell 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film Stainless Steel Shell 3 – Passivated	L – LCP 30% Glass-Filled Liquid Crystal Polymer	9 15 21 25 31 37 51 100	P Pin S Socket	BS Vertical Board Mount	(Omit for None) P – Jackpost Jackposts for Rear Panel Mounting R1 – .032" Panel R2 – .047" Panel R3 – .062" Panel R4 – .093" Panel R5 – .125" Panel	T Threaded Insert In Board Mount Hole (Omit for Thru-Hole)	.080 .110 .125 .140 .150 .172 .190 .250 Length in Inches ± .015 (0.38)	These connectors are solder-dipped in 63/37 tin-lead solder. **To delete the solder dip and change to gold-plated terminals, add code 513**
Sample Part Number									
MWDM	1	L	– 15	P	BS	R3		– .110	

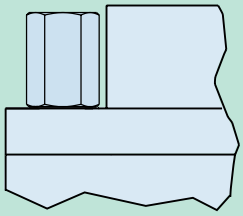
MICRO-D JACKPOST OPTIONS

No Designator



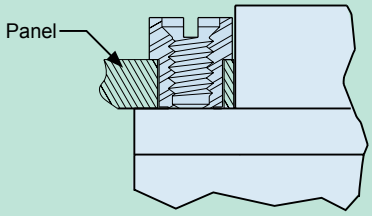
Thru-Hole
For use with Glenair jackposts only. Order hardware separately. Install with threadlocking compound.

P



Standard Jackpost
Factory installed, not intended for removal.

R1 Thru R5

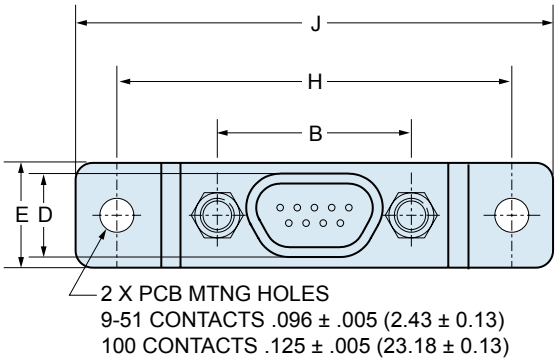


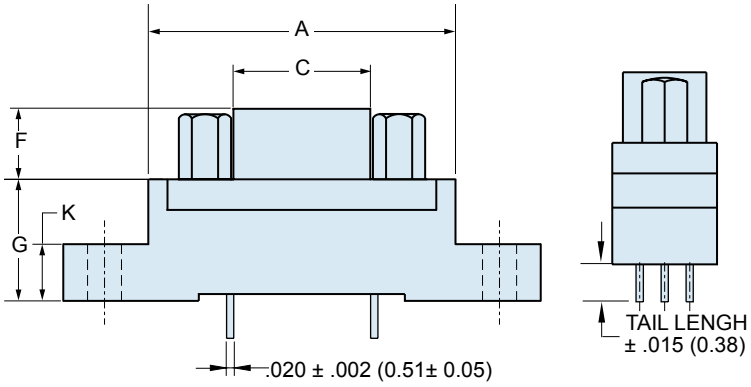
Jackpost for Rear Panel Mounting
Shipped loosely installed. Install with permanent threadlocking compund.

Micro-D Metal Shell
Printed Circuit Board Connectors
BS Style Virtical Mount Thru-Hole

PERFORMANCE SPECIFICATIONS	
Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 μ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES	
Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator, Tray	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
PCB Terminals	Gold Plated Copper Alloy, Solder Dipped
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215





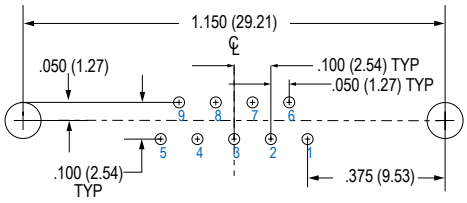
DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		G		H		J Max.		K	
	In.	mm.	In. ±.003	mm. ±0.08	In.	mm.	In.	mm.	In.	mm.	In. ±.004	mm. ±0.10	In. ±.010	mm. ±0.25	In. ±.007	mm. ±0.18	In.	mm.	In. ±.010	mm. ±0.25
9P	.790	20.07	.565	14.35	.333	8.46	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.150	29.21	1.390	35.31	.155	3.94
9S	.790	20.07	.565	14.35	.400	10.16	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.150	29.21	1.390	35.31	.155	3.94
15P	.940	23.88	.715	18.16	.483	12.27	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.150	29.21	1.390	35.31	.155	3.94
15S	.940	23.88	.715	18.16	.551	14.00	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.150	29.21	1.390	35.31	.155	3.94
21P	1.180	29.97	.865	21.97	.633	16.08	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.450	36.83	1.690	42.93	.155	3.94
21S	1.180	29.97	.865	21.97	.701	17.81	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.450	36.83	1.690	42.93	.155	3.94
25P	1.275	32.39	.965	24.51	.733	18.62	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.500	38.10	1.740	44.20	.155	3.94
25S	1.275	32.39	.965	24.51	.801	20.35	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.500	38.10	1.740	44.20	.155	3.94
31P	1.575	40.01	1.115	28.32	.883	22.43	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.800	45.72	2.040	51.82	.155	3.94
31S	1.575	40.01	1.115	28.32	.951	24.16	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.800	45.72	2.040	51.82	.155	3.94
37P	1.875	47.63	1.265	32.13	1.033	26.24	.184	4.67	.310	7.87	.183	4.65	.333	8.46	2.100	53.34	2.340	59.44	.155	3.94
37S	1.875	47.63	1.265	32.13	1.101	27.96	.250	6.35	.310	7.87	.195	4.95	.333	8.46	2.100	53.34	2.340	59.44	.155	3.94
51P	1.775	45.09	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.333	8.46	2.000	50.80	2.270	57.64	.155	3.94
51S	1.775	45.09	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.333	8.46	2.000	50.80	2.270	57.64	.155	3.94
100P	2.585	65.66	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	.525	13.34	2.800	71.12	3.250	82.55	.293	7.44
100S	2.585	65.66	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	.525	13.34	2.800	71.12	3.250	82.55	.293	7.44

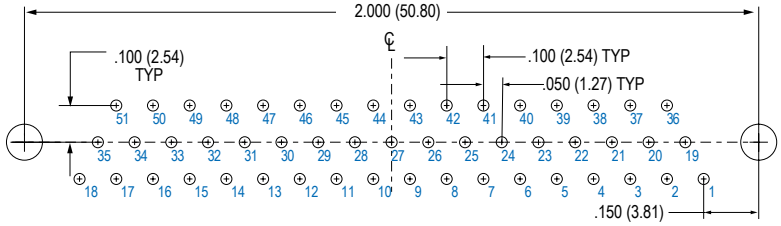
Micro-D Metal Shell
Printed Circuit Board Connectors
BS Style Vertical Mount Thru-Hole

MICRO-D BS BOARD MOUNT CONNECTOR PCB LAYOUTS – PIN CONNECTORS

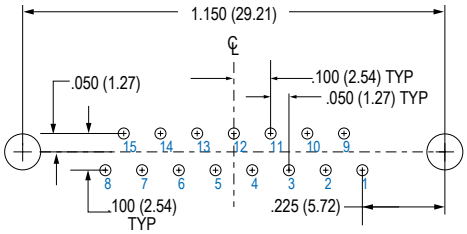
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



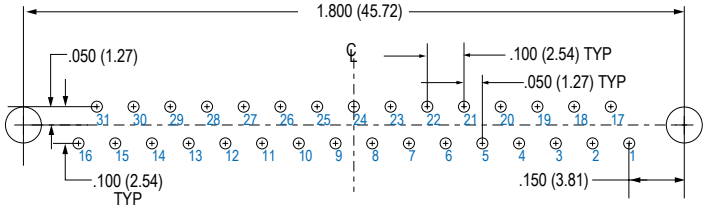
9 PIN MWDM-9PBS



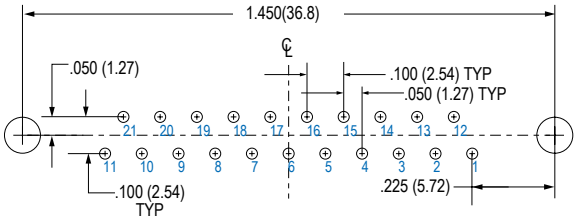
51 PIN MWDM-51PBS



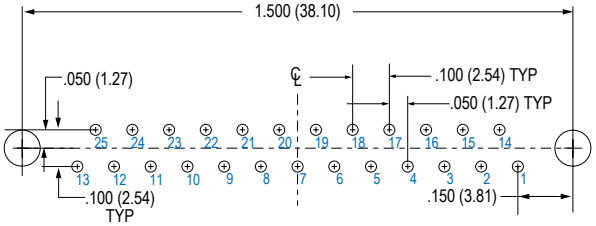
15 PIN MWDM-15PBS



31 PIN MWDM-31PBS

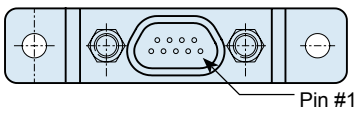


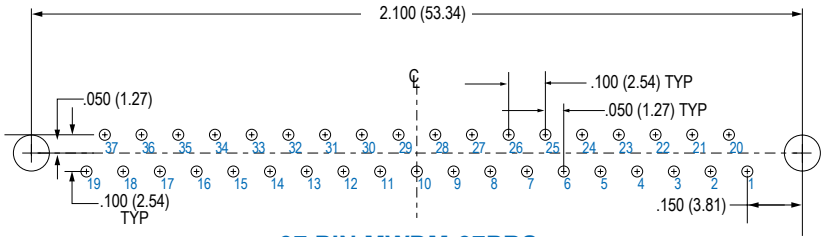
21 PIN MWDM-21PBS



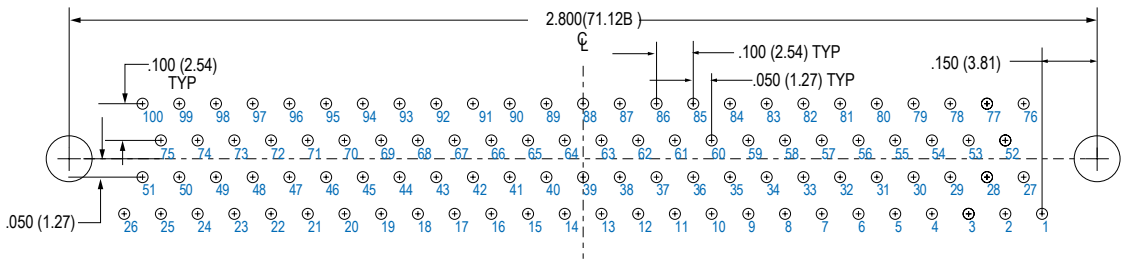
25 PIN MWDM-25PBS

Connector Orientation





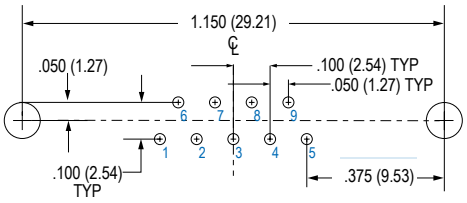
37 PIN MWDM-37PBS



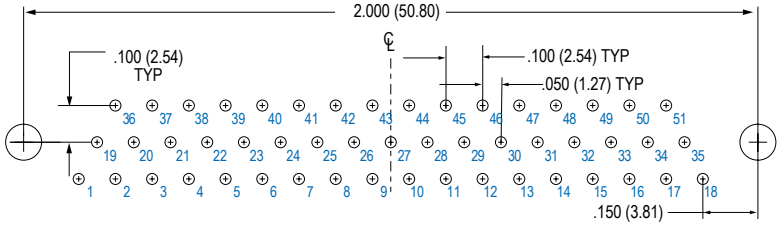
100 PIN MWDM-100PBS

MICRO-D BS BOARD MOUNT CONNECTOR PCB LAYOUTS – SOCKET CONNECTORS

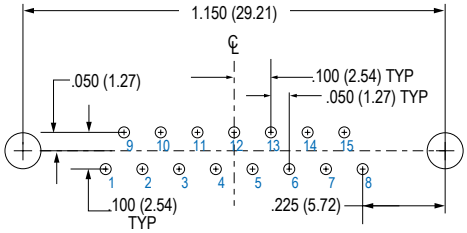
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



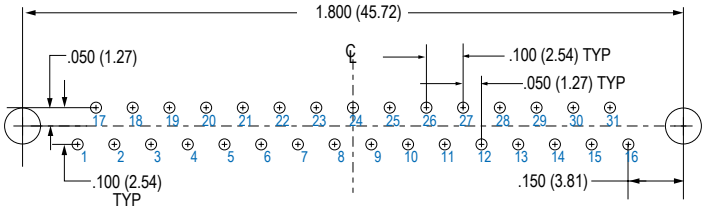
9 SOCKET MWDM-9SBS



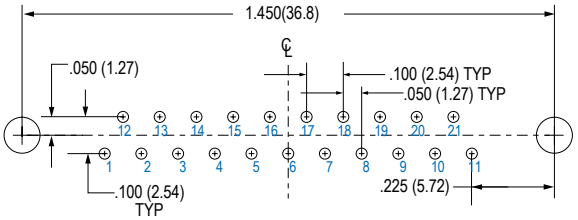
51 SOCKET MWDM-51SBS



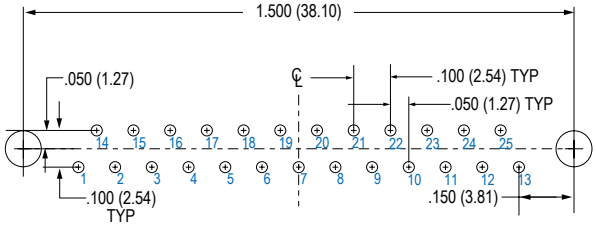
15 SOCKET MWDM-15SBS



31 SOCKET MWDM-31SBS

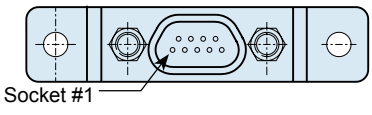


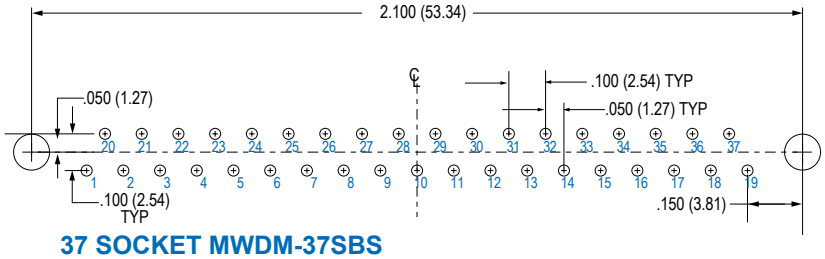
21 SOCKET MWDM-21SBS



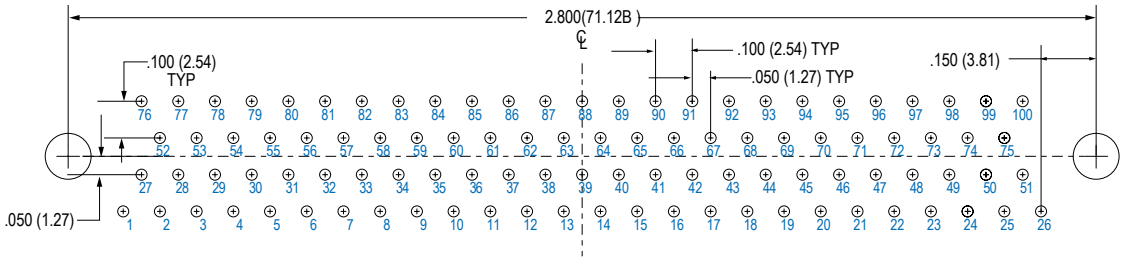
25 SOCKET MWDM-25SBS

Connector Orientation



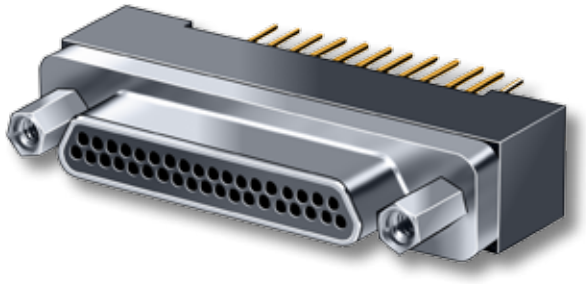


37 SOCKET MWDM-37SBS



100 SOCKET MWDM-100SBS

Micro-D Printed Circuit Board Connectors
Condensed Board
Straight CBS .075 Inch Spacing



Save Space On Your Circuit Board–These Micro-D connectors feature .075 inch row spacing. The board footprint is reduced to match the size of the connector body.

Designed for Flex Circuits–CBS COTS connectors are available with jackscrews for flex circuit compatibility.

Solder-Dipped–Terminals are coated with SN63/Pb37 tin-lead solder for best solderability. Optional gold-plated terminals are available for RoHS compliance.

High Performance–These connectors meet the demanding requirements of MIL-DTL-83513. Suitable for Level 1 NASA reliability.

HOW TO ORDER CBS CONDENSED BOARD STRAIGHT CONNECTORS

Series	Shell Material and Plating Finish	Insulator Material	Number of Contacts	Contact Type	Termination Style	Hardware Option	PC Tail Length	Gold-Plated Terminal Mod Code
MWDM Micro-D Metal Shell	Aluminum Shell **1** – Cadmium **2** – Nickel **4** – Black Anodize **5** – Gold **6** – Chem Film Stainless Steel Shell **3** – Passivated	**L** LCP (Liquid Crystal Polymer)	**9** **15** **21** **25** **31** **37** **51** **69** **100**	**P** Pin **S** Socket	**CBS** Condensed Board Straight	**NN** – No Jackpost, No Threaded Insert **PN** – Extended Jackpost for .062" (1.6) PCB, No Threaded Insert **RN** – Extended Jackpost for .196" (5.0) PCB, No Threaded Insert **NU** – Threaded Insert Only, No Jackposts **PU** – Short Jackpost and Threaded Insert Rear Panel Jackposts With Threaded Inserts **R6U** – 0.125" (3.2) Panel **R5U** – 0.094" (2.4) Panel **R4U** – 0.062" (1.6) Panel **R3U** – 0.047" (1.2) Panel **R2U** – 0.031" (0.8) Panel **Jackscrew Options** **M** – Hex Head Jackscrews **S** – Slot Head Jackscrews	**.080** **.110** **.140** **.172** **.190** **.250** Length in Inches ± .015 (0.38)	These connectors are solder-dipped in 63/37 tin-lead solder. **To delete the solder dip and change to gold-plated terminals, add code 513**
Sample Part Number								
MWDM	**1**	**L –**	**31**	**P**	**CBS**	**NN**	**– .110**	

HARDWARE OPTIONS
See Pages C-16 and C-17

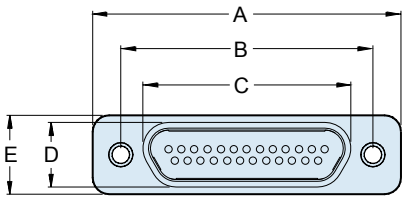
Micro-D Printed Circuit Board Connectors
Condensed Board
Straight CBS .075 Inch Spacing

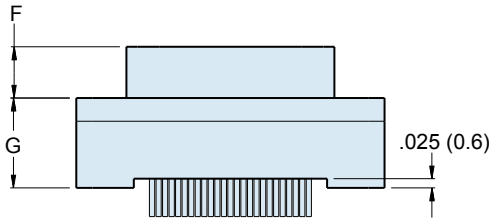
PERFORMANCE SPECIFICATIONS

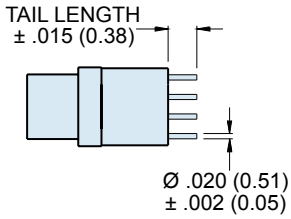
Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator, Tray	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
PCB Terminals	Gold Plated Copper Alloy, Solder Dipped
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215





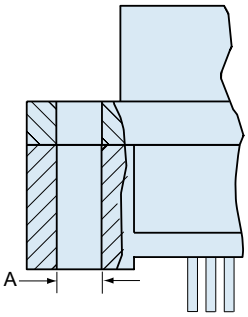


MICRO-D CBS BOARD MOUNT CONNECTOR DIMENSIONS

Layout	A Max. In.	A Max. mm.	B In. ± .005	B mm. ± 0.13	C Max. In.	C Max. mm.	D Max. In.	D Max. mm.	E Max. In.	E Max. mm.	F In. ± .003	F mm. ± 0.08	G Max. In.	G Max. mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.310	7.87	.183	4.65	.355	9.02
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.310	7.87	.195	4.95	.355	9.02
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.310	7.87	.183	4.65	.355	9.02
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.310	7.87	.195	4.95	.355	9.02
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.310	7.87	.183	4.65	.355	9.02
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.310	7.87	.195	4.95	.355	9.02
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.310	7.87	.183	4.65	.355	9.02
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.310	7.87	.195	4.95	.355	9.02
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.310	7.87	.183	4.65	.355	9.02
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.310	7.87	.195	4.95	.355	9.02
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.310	7.87	.183	4.65	.355	9.02
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.310	7.87	.195	4.95	.355	9.02
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.400	10.16	.183	4.65	.355	9.02
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.400	10.16	.195	4.95	.355	9.02
69P	1.735	44.07	1.515	38.48	1.284	32.61	.224	5.69	.400	10.16	.183	4.65	.355	9.02
69S	1.735	44.07	1.515	38.48	1.350	34.29	.293	7.44	.400	10.16	.195	4.95	.355	9.02
100P	2.170	55.12	1.800	45.72	1.383	35.13	.270	6.86	.510	12.95	.183	4.65	.430	10.92
100S	2.170	55.12	1.800	45.72	1.451	36.86	.333	8.46	.510	12.95	.195	4.95	.430	10.92

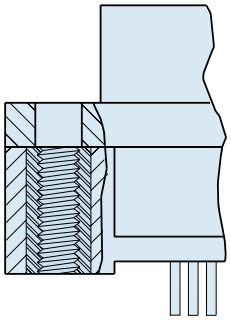
Micro-D Printed Circuit Board Connectors
Condensed Board
Straight CBS .075 Inch Spacing

MICRO-D CBS BOARD MOUNT CONNECTOR HARDWARE OPTIONS



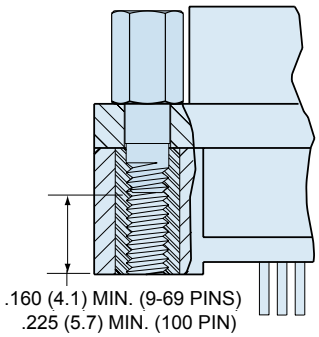
A DIAMETER
9-69 CONTACTS
.096/.088 (2.44/2.24)
100 CONTACTS
.150/.145 (3.81/3.68)

NN Style
Thru-Hole, No Hardware



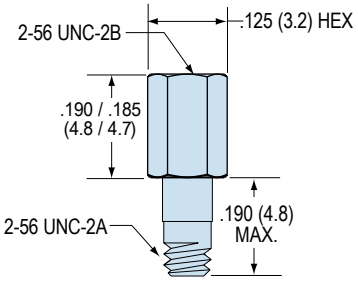
9-69 CONTACTS
NO. 2-56 UNC-2B
100 CONTACTS
NO. 4-40 UNC-2B

NU Style
Threaded Insert



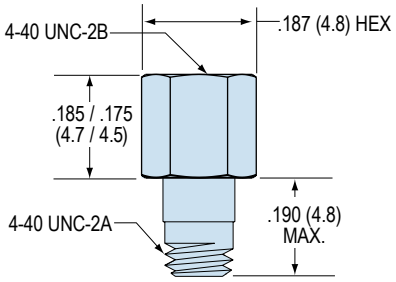
PU Style
Jackpost with Threaded Insert

9 – 69 Contacts

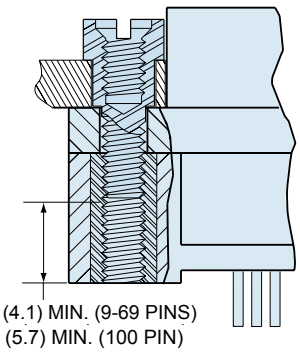


Kit Part Number **500-063-1**
Kit Consists of Two Jackposts

100 Contacts

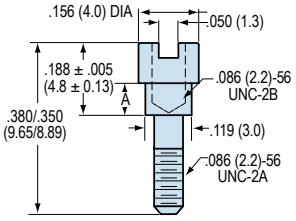


Kit Part Number **500-063-2**
Kit Consists of Two Jackposts

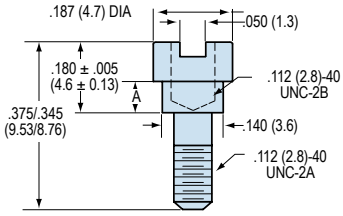


RU Style
Jackpost For Rear Panel
Mounting, with Threaded Insert

9 – 69 Contacts

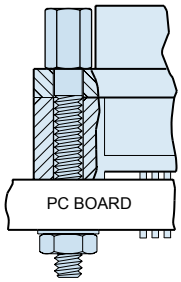


100 Contacts



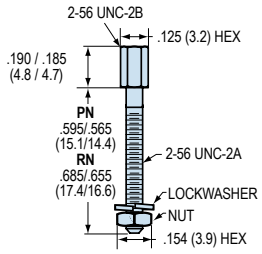
Hardware Option	Panel Thickness	Part Number	A ± .003 (0.08)	Hardware Option	Panel Thickness	Part Number	A ± .003 (0.08)
R2U	1/32 (0.8)	177-505-A-2-2	.024 (0.6)	R2U	1/32 (0.8)	177-505-D-4-2	.024 (0.6)
R3U	3/64 (1.2)	177-505-A-2-3	.041 (1.0)	R3U	3/64 (1.2)	177-505-D-4-3	.041 (1.0)
R4U	1/16 (1.6)	177-505-A-2-4	.055 (1.4)	R4U	1/16 (1.6)	177-505-D-4-4	.055 (1.4)
R5U	3/32 (2.4)	177-505-A-2-5	.086 (2.2)	R5U	3/32 (2.4)	177-505-D-4-5	.086 (2.2)
R6U	1/8 (3.2)	177-505-A-2-6	.118 (3.0)	R6U	1/8 (3.2)	177-505-D-4-6	.118 (3.0)

MICRO-D CBS BOARD MOUNT CONNECTOR HARDWARE OPTIONS



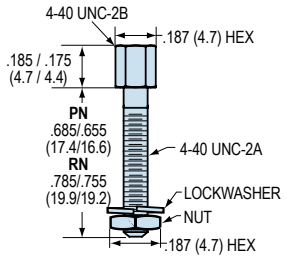
PN Style for .062" PCB
RN Style for .196" PCB
Jackpost Kit

9 – 69 Contacts

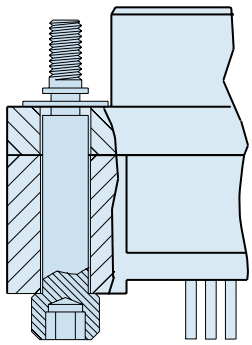


PN Kit Part Number **500-069-2-6**
RN Kit Part Number **500-069-2-7**
Kit Consists of 2 Jackposts, 2 Nuts, 2 Washers

100 Contacts

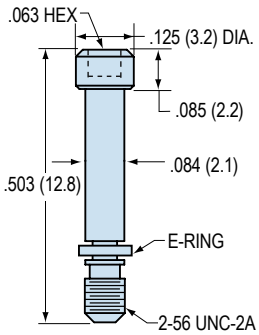


PN Kit Part Number **500-069-4-7**
RN Kit Part Number **500-069-4-8**
Kit Consists of 2 Jackposts, 2 Nuts, 2 Washers



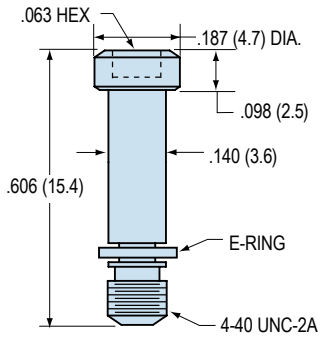
M Style
Hex Head Jackscrew with E-Ring

9 – 69 Contacts

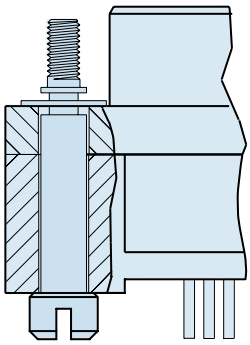


Kit Part Number **500-080-2**
Kit Consists of 2 Jackscrews and 2 E-Rings

100 Contacts

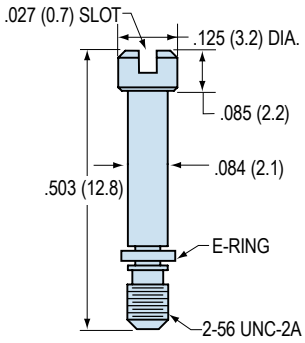


Kit Part Number **500-080-4**
Kit Consists of 2 Jackscrews and 2 E-Rings



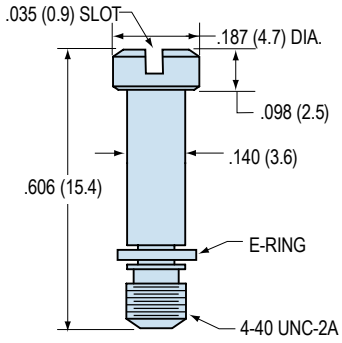
S Style
Slot Head Jackscrew with E-Ring

9 – 69 Contacts



Kit Part Number **500-081-2**
Kit Consists of 2 Jackscrews and 2 E-Rings

100 Contacts

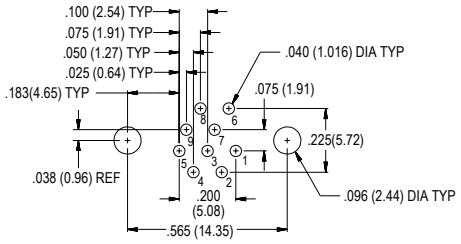


Kit Part Number **500-081-4**
Kit Consists of 2 Jackscrews and 2 E-Rings

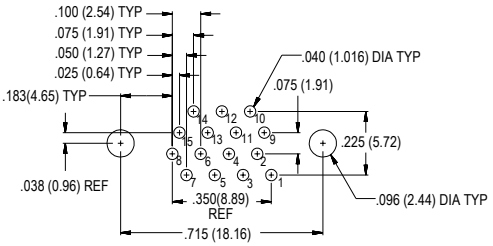
Micro-D Printed Circuit Board Connectors
Condensed Board
Straight CBS .075 Inch Spacing

Patterns shown are for connector mounting side of PC board.

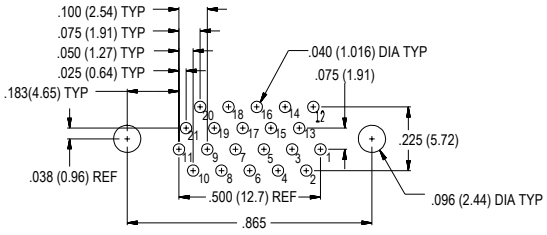
MICRO-D CBS BOARD MOUNT CONNECTOR PCB LAYOUTS – PIN CONNECTORS



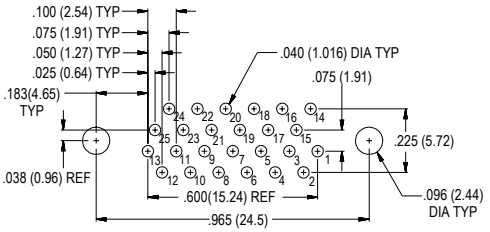
9 PIN MWDM-9PCBS



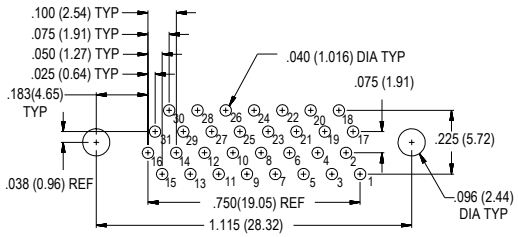
15 PIN MWDM-15PCBS



21 PIN MWDM-21PCBS



25 PIN MWDM-25PCBS



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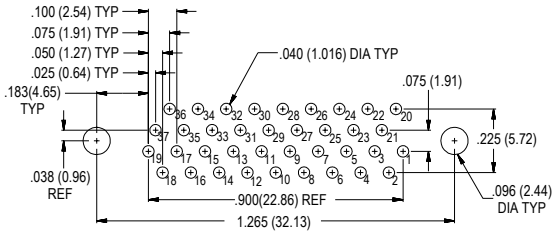
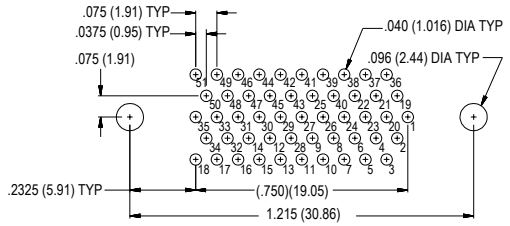
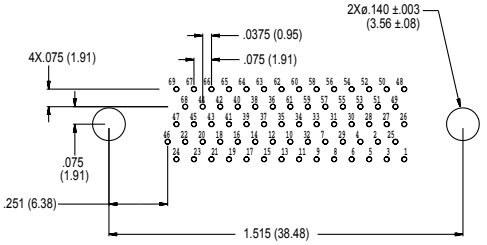


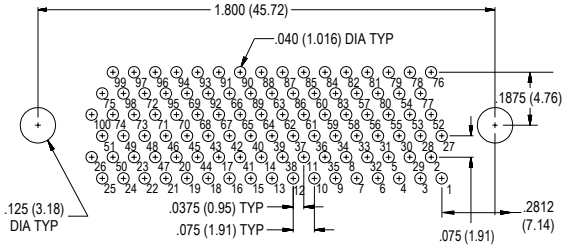
37 PIN MWDM-37PCBS



51 PIN MWDM-51PCBS



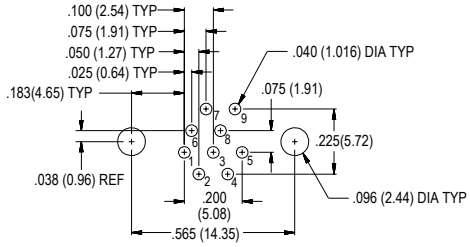
69 PIN MWDM-69PCBS



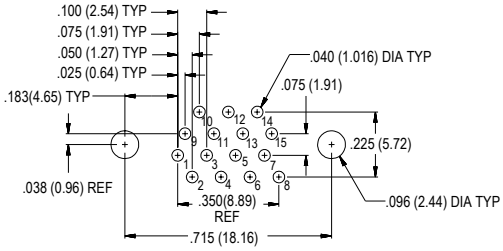
100 PIN MWDM-100PCBS

Patterns shown are for connector mounting side of PC board.

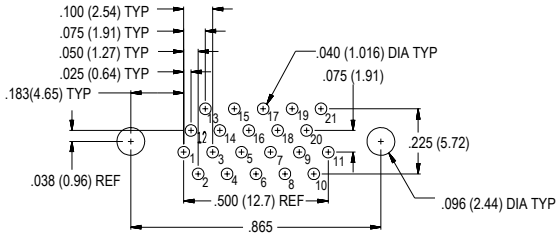
MICRO-D CBS BOARD MOUNT CONNECTOR PCB LAYOUTS – SOCKET CONNECTORS



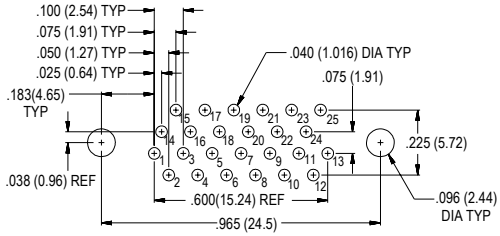
9 Socket MWDM-9SCBS



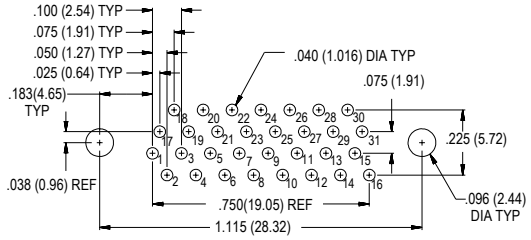
15 Socket MWDM-15SCBS



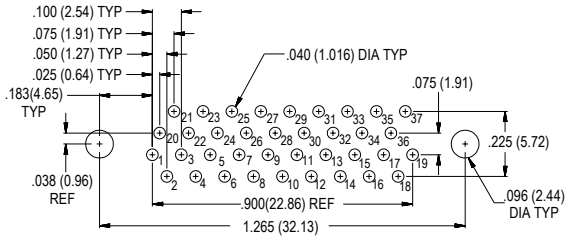
21 Socket MWDM-21SCBS



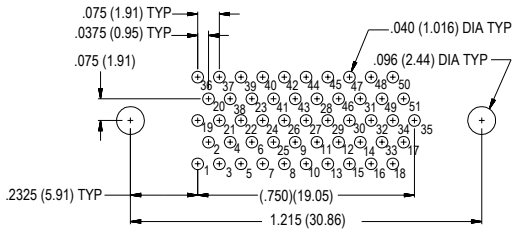
25 Socket MWDM-25SCBS



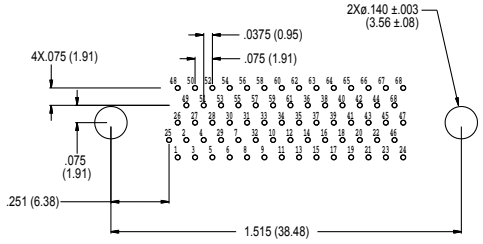
31 Socket MWDM-31SCBS



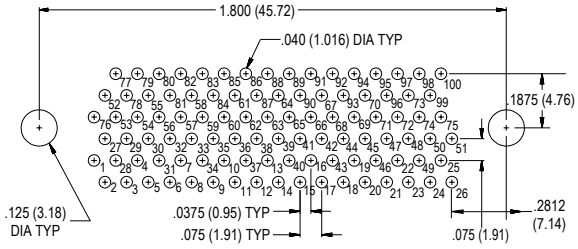
37 Socket MWDM-37SCBS



51 Socket MWDM-51SCBS

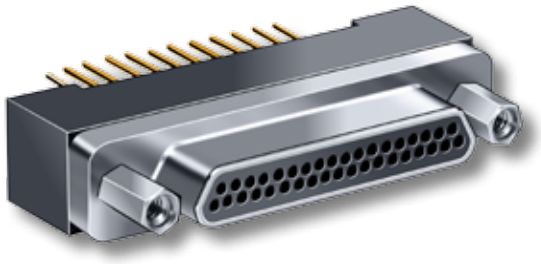


69 Socket MWDM-69SCBS



100 Socket MWDM-100SCBS

GMR7580 Vertical Mount Micro-D Connectors



Save Space On Your Circuit Board – These Micro-D connectors feature .075 X .075 inch terminal spacing. Glenair's GMR7580 offers significant size and weight savings compared to traditional .100" pitch connectors.

High Performance – GMR7580 connectors meet the performance requirements of MIL-DTL-83513. Gold-plated TwistPin contacts assure best performance.

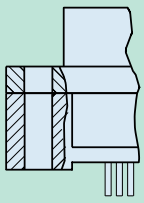
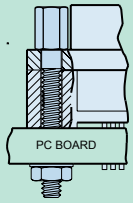
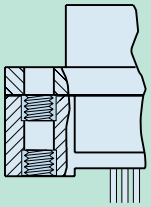
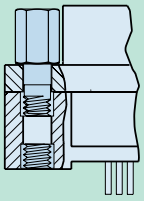
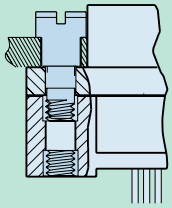
HOW TO ORDER GMR7580 VERTICAL .075" PITCH CONNECTORS

Series	Number of Contacts	Contact Type	Tail Length In. (mm.)	Shell Plating Finish	Hardware Option	Gold-Plated Terminal Mod Code
GMR7580 Micro-D Metal Shell, Vertical Mount PCB	**9** **15** **21** **25** **31** **37** **51** **100**	**P** Pin **S** Socket	**1** – .109" (2.76) **2** – .150" (3.81) **3** – .190" (4.83) **4** – .250" (6.35) **5** – Staggered Tail Length Length in Inches ± .015 (0.38)	**A** – Cadmium **B** – Nickel **C** – Allochrome **D** – Black Anodize **E** – Gold **Stainless Steel Shell** **F** – Passivated	**NN** – No Jackpost, No Threaded Insert **PN** –Extended Jackpost for .062" (1.6) PCB, No Threaded Insert **RN** –Extended Jackpost for .196" (5.0) PCB, No Threaded Insert **NU** –UN Threaded Insert Only, No Jackposts **NM** –Metric Threaded Insert Only, No Jackposts **SU** –Short Jackpost and UN Threaded Insert **SM** –Short Jackpost and Metric Threaded Insert **Rear Panel Mount Jackposts and Threaded Inserts** UN Threads / Metric Threads / Panel Thickness **TU** / **TM** / .094" (2.4) **VU** / **VM** / .062" (1.6) **WU** / **WM** / .047" (1.2) **XU** / **XM** / .031" (0.8) **YU** / **YM** / .023" (0.6)	These connectors are solder-dipped in 63/37 tin-lead solder. **To delete the solder-dip and change to gold-plated terminals, add code 513**

Sample Part Number

GMR7580	**– 31**	**S**	**2**	**B**	**NN**	

GMR7580 JACKPOST OPTIONS

NN	PN and RN	NU, NM	SU, SM	TU,VU,WU,XU,YU TM,VM,WM,XM,YM
				
Thru-Hole	Jackpost Kit PN – .062 (1.6) PCB RN – .196 (5.0) PCB	Threaded Inserts	Jackpost With Threaded Insert	Jackpost for Rear Panel Mounting

U.S. CAGE Code 06324
Printed in U.S.A.

GLENAIR, INC. • 1211 AIR WAY • GLENDALE, CA 91201-2497 • 818-247-6000 • FAX 818-500-9912
www.glenair.com

E-Mail: sales@glenair.com

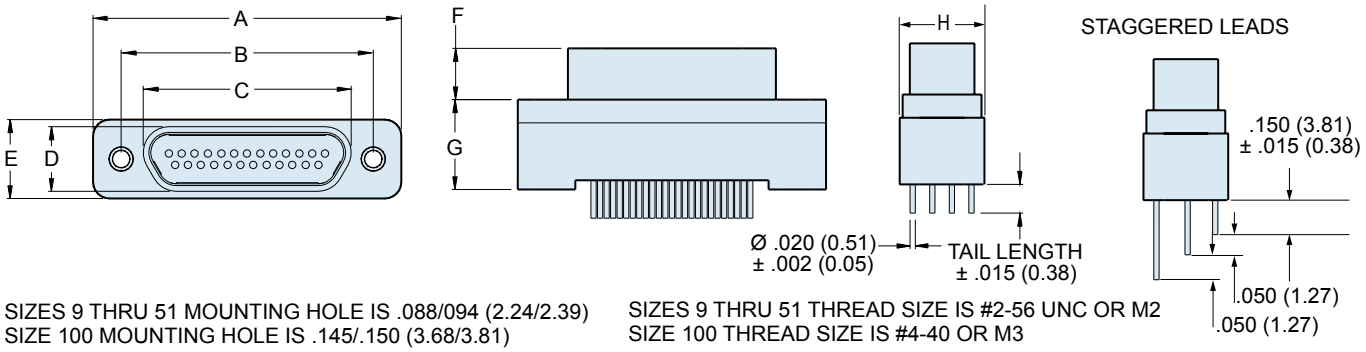
GMR7580 Vertical Mount Micro-D Connectors

PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator, Tray	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
PCB Terminals	Tin Plated Copper Alloy (100% Tin)
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215



SIZES 9 THRU 51 MOUNTING HOLE IS .088/094 (2.24/2.39)
SIZE 100 MOUNTING HOLE IS .145/.150 (3.68/3.81)

SIZES 9 THRU 51 THREAD SIZE IS #2-56 UNC OR M2
SIZE 100 THREAD SIZE IS #4-40 OR M3

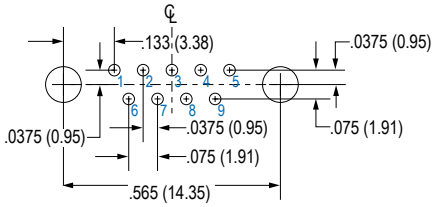
GMR7580 CONNECTOR DIMENSIONS

	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.	
Layout	In.	mm.	In . ± .005	mm. ±0.13	In .	mm.	In .	mm.	In .	mm.	In . ± .003	mm. ±0.08	In .	mm.	In .	mm.
9P	.785	19.94	.565	14.35	.335	8.51	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
9S	.785	19.94	.565	14.35	.400	10.16	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
15P	.935	23.75	.715	18.16	.485	12.32	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
15S	.935	23.75	.715	18.16	.550	13.97	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
21P	1.085	27.56	.865	21.97	.635	16.13	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
21S	1.085	27.56	.865	21.97	.700	17.78	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
25P	1.185	30.01	.965	24.51	.735	18.67	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
25S	1.185	30.01	.965	24.51	.800	20.32	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
31P	1.335	33.91	1.115	28.32	.885	22.48	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
31S	1.335	33.91	1.115	28.32	.950	24.13	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
37P	1.485	37.72	1.265	32.13	1.035	26.29	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
37S	1.485	37.72	1.265	32.13	1.100	27.94	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
51P	1.435	36.45	1.215	30.86	.985	25.02	.228	5.79	.351	8.92	.183	4.65	.355	9.02	.351	8.92
51S	1.435	36.45	1.215	30.86	1.050	26.67	.296	7.52	.351	8.92	.195	4.95	.355	9.02	.351	8.92
100P	2.170	55.12	1.800	45.72	1.384	35.15	.271	6.88	.394	10.00	.183	4.65	.430	10.92	.470	11.94
100S	2.170	55.12	1.800	45.72	1.451	36.86	.394	10.00	.394	10.00	.195	4.95	.430	10.92	.470	11.94

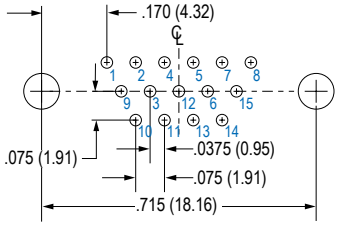
GMR7580 Vertical Mount Micro-D Connectors

GMR7580 CONNECTOR PCB LAYOUTS – PIN CONNECTORS

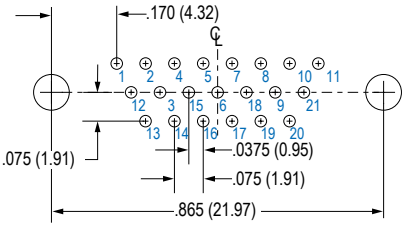
Patterns shown are for connector mounting side of PC board.



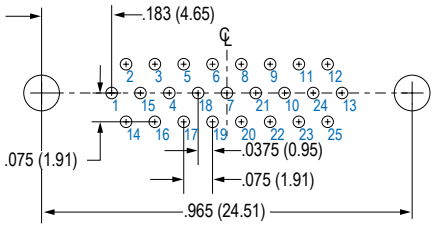
9 PIN



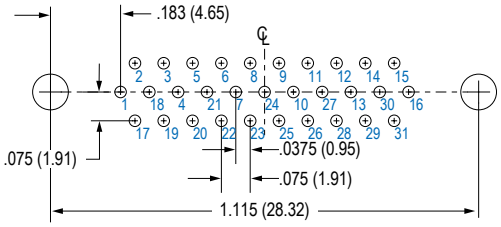
15 PIN



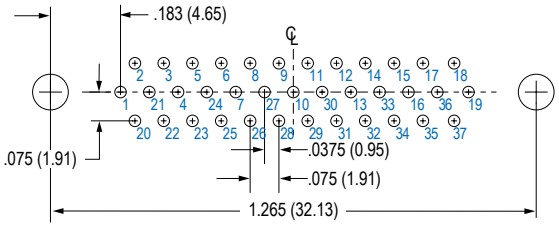
21 PIN



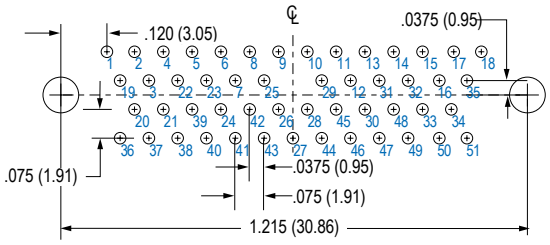
25 PIN



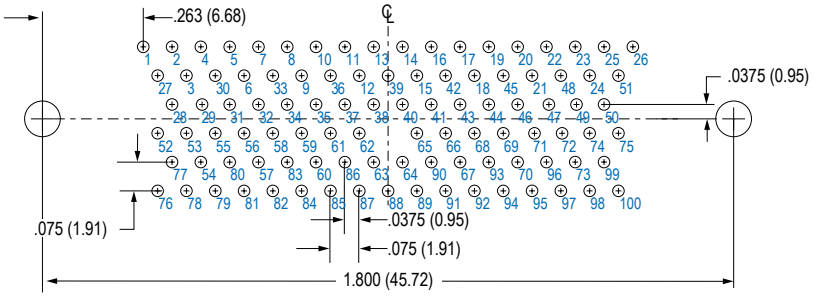
31 PIN



37 PIN



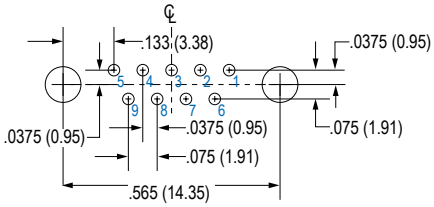
51 PIN



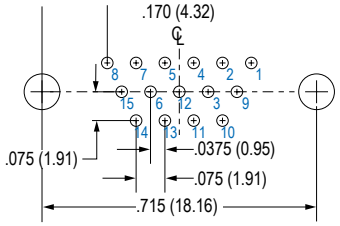
100 PIN

GMR7580 CONNECTOR PCB LAYOUTS – SOCKET CONNECTORS

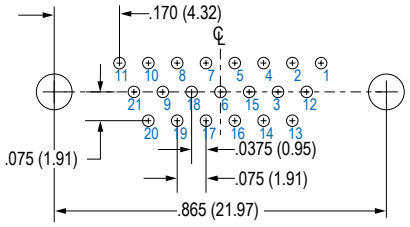
Patterns shown are for connector mounting side of PC board.



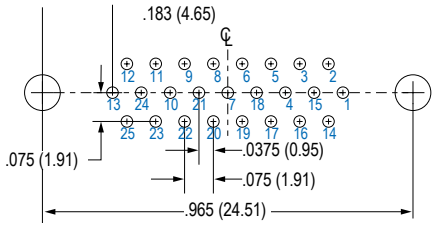
9 SOCKET



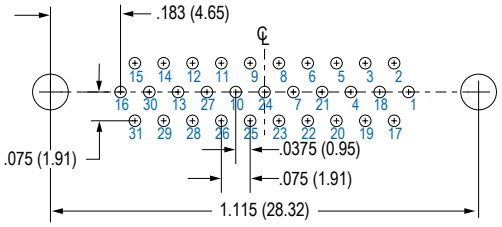
15 SOCKET



21 SOCKET



25 SOCKET



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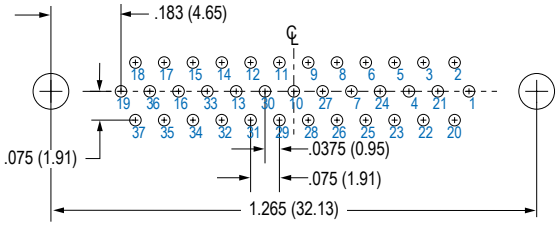

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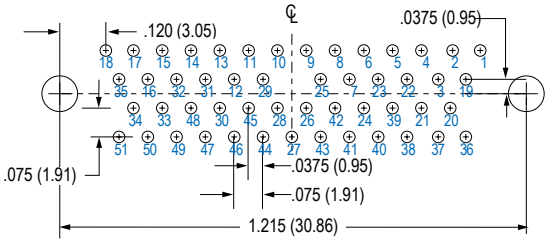
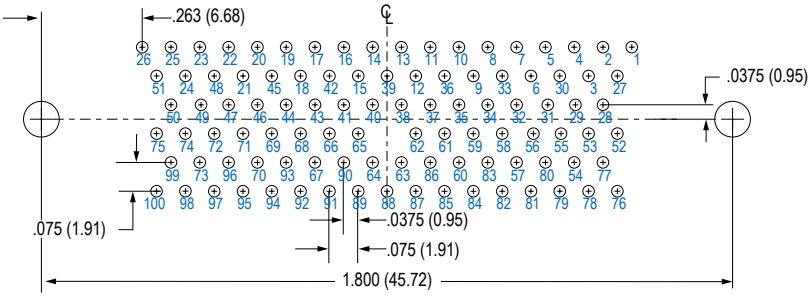
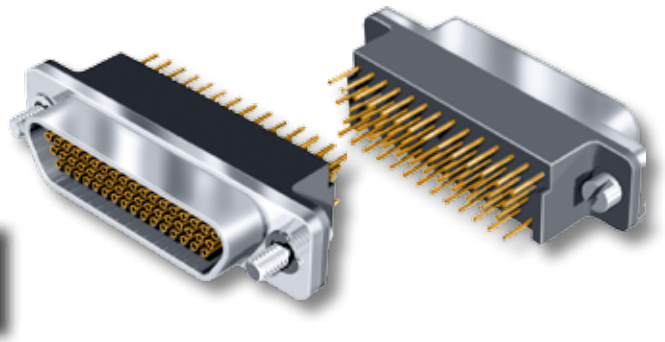


51 SOCKET



100 SOCKET

GMR7580C Vertical Mount Micro-D Connectors
Compact Flange



Innovative Design for Flex Circuits – These Micro-D connectors answer the need for a compact flex circuit connector. Featuring .075 X .075 inch row spacing. Glenair's GMR7580C accepts standard jackscrews and jackposts, making it ideal for flex-to-board applications.

High Performance – GMR7580C connectors meet the performance requirements of MIL-DTL-83513. Gold-plated TwistPin contacts assure best electrical and mechanical performance.

HOW TO ORDER GMR7580 VERTICAL .075" PITCH CONNECTORS

Series	Number of Contacts	Contact Type	Tail Length In. (mm.)	Shell Plating Finish	Hardware	Gold-Plated Terminal Mod Code
GMR7580C Micro-D Metal Shell, Vertical Mount PCB, Compact	**9** **15** **21** **25** **31** **37** **51** **100**	**P** Pin **S** Socket	**1** – .109" (2.76) **2** – .150" (3.81) **3** – .190" (4.83) **4** – .250" (6.35) **5** – Staggered Tail Length Length in Inches ± .015 (0.38)	**A** – Cadmium **B** – Nickel **C** – Allochrome **D** – Black Anodize **E** – Gold **Stainless Steel Shell** **F** – Passivated	**B** **P** **M** **M1** **S** **S1** **L** **K** **F** **R**	These connectors are solder-dipped in 63/37 tin-lead solder. **To delete the solder dip and change to gold-plated terminals, add code 513**
Sample Part Number						
GMR7580C	**– 31**	**S**	**2**	**B**	**S1**	

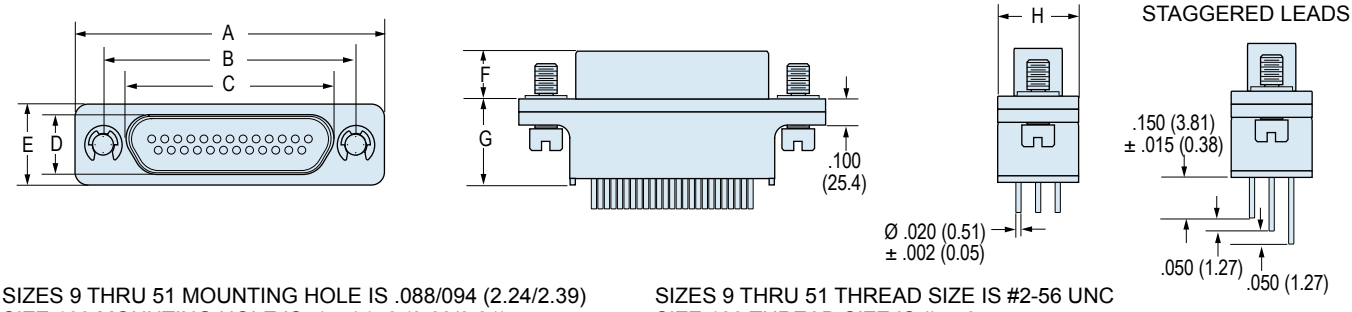
MICRO-D MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R
									
Thru-Hole Order Hardware Separately	**Jackpost** Removable Includes Nut and Washer	**Jackscrew** Hex Head Removable E-ring	**Jackscrew** Hex Head Removable E-ring Extended	**Jackscrew** Slot Head Removable E-ring	**Jackscrew** Slot Head Removable E-ring Extended	**Jackscrew** Hex Head Non-Removable	**Jackscrew** Slot Head Non-Removable Extended	**Float Mount** For Front Panel Mounting	**Float Mount** For Rear Panel Mounting

GMR7580C Vertical Mount Micro-D Connectors
Compact Flange

PERFORMANCE SPECIFICATIONS	
Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES	
Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator, Tray	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
PCB Terminals	Tin Plated Copper Alloy (100% Tin)
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215



SIZES 9 THRU 51 MOUNTING HOLE IS .088/094 (2.24/2.39)
SIZE 100 MOUNTING HOLE IS .145/.150 (3.68/3.81)

SIZES 9 THRU 51 THREAD SIZE IS #2-56 UNC
SIZE 100 THREAD SIZE IS #4-40

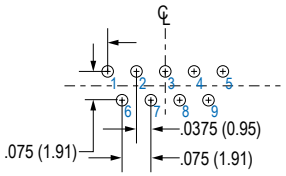
GMR7580C CONNECTOR DIMENSIONS

	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.	
Layout	In.	mm.	In. ± .005	mm. ± 0.13	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.335	8.51	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
9S	.785	19.94	.565	14.35	.400	10.16	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
15P	.935	23.75	.715	18.16	.485	12.32	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
15S	.935	23.75	.715	18.16	.550	13.97	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
21P	1.085	27.56	.865	21.97	.635	16.13	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
21S	1.085	27.56	.865	21.97	.700	17.78	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
25P	1.185	30.01	.965	24.51	.735	18.67	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
25S	1.185	30.01	.965	24.51	.800	20.32	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
31P	1.335	33.91	1.115	28.32	.885	22.48	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
31S	1.335	33.91	1.115	28.32	.950	24.13	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
37P	1.485	37.72	1.265	32.13	1.035	26.29	.185	4.70	.310	7.87	.183	4.65	.355	9.02	.310	7.87
37S	1.485	37.72	1.265	32.13	1.100	27.94	.251	6.38	.310	7.87	.195	4.95	.355	9.02	.310	7.87
51P	1.435	36.45	1.215	30.86	.985	25.02	.228	5.79	.351	8.92	.183	4.65	.355	9.02	.351	8.92
51S	1.435	36.45	1.215	30.86	1.050	26.67	.296	7.52	.351	8.92	.195	4.95	.355	9.02	.351	8.92
100P	2.170	55.12	1.800	45.72	1.384	35.15	.271	6.88	.394	10.00	.183	4.65	.430	10.92	.470	11.94
100S	2.170	55.12	1.800	45.72	1.451	36.86	.394	10.00	.394	10.00	.195	4.95	.430	10.92	.470	11.94

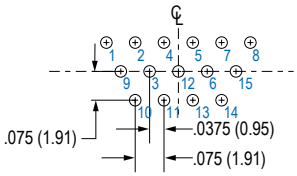
GMR7580C Vertical Mount Micro-D Connectors
Compact Flange

GMR7580C CONNECTOR PCB LAYOUTS – PIN CONNECTORS

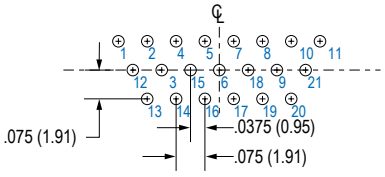
Patterns shown are for connector mounting side of PC board.



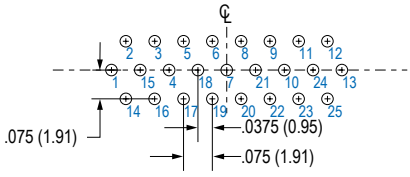
9 PIN



15 PIN



21 PIN



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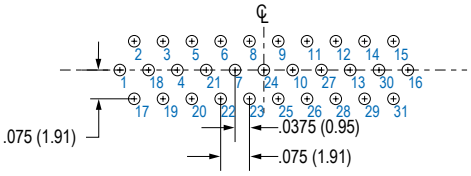

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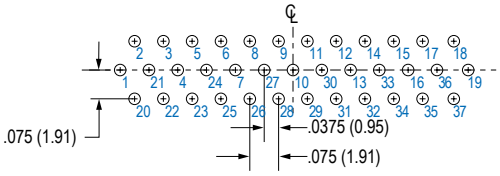

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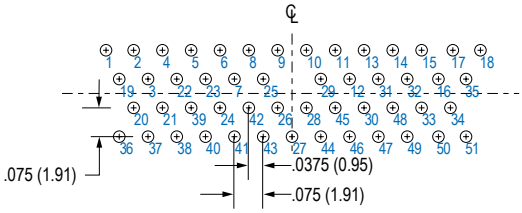

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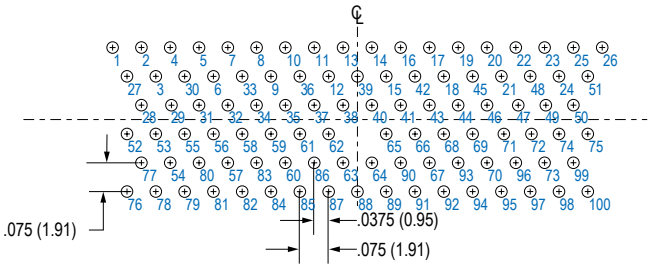
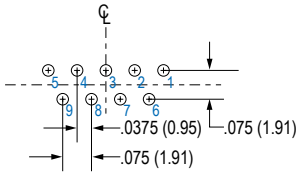


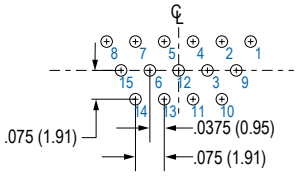
100 PIN

GMR7580C CONNECTOR PCB LAYOUTS – SOCKET CONNECTORS

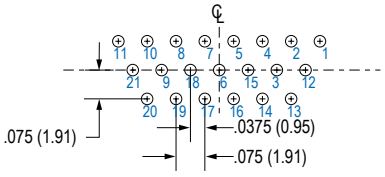
Patterns shown are for connector mounting side of PC board.



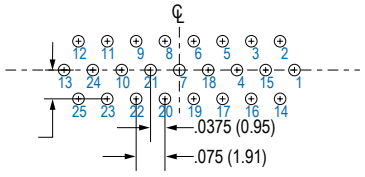
9 SOCKET



15 SOCKET



21 SOCKET



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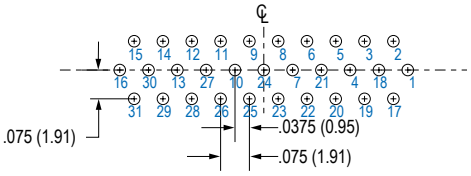

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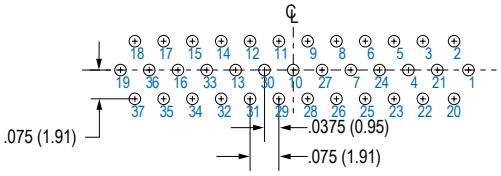

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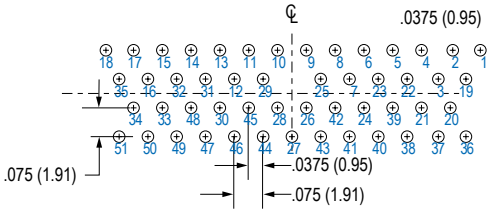

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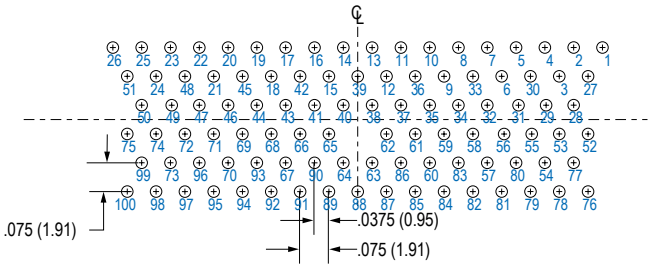


100 SOCKET

GMR7590
Right Angle Micro-D Connectors

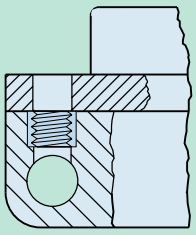
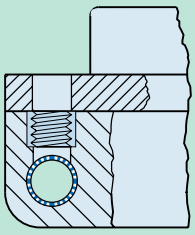
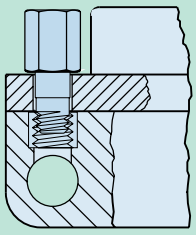
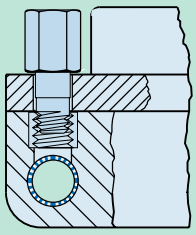
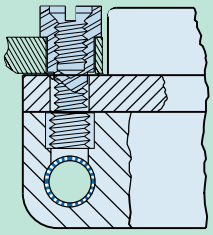
Save Space On Your Circuit Board – These Micro-D connectors feature .075 X .075 inch terminal spacing. Glenair's GMR7590 offers size and weight savings compared to traditional .100" pitch connectors.

High Performance – GMR7590 connectors meet the performance requirements of MIL-DTL-83513. Gold plated TwistPin contacts assure best electrical and mechanical performance.

HOW TO ORDER GMR7590 RIGHT ANGLE .075" PITCH CONNECTORS

Series	Number of Contacts	Contact Type	Tail Length In. (mm.)	Shell Plating Finish	Hardware Option	Gold-Plated Terminal Mod Code
GMR7590 Micro-D Metal Shell, Right Angle Mount PCB	**9** **15** **21** **25** **31** **37** **51** **100**	**P** Pin **S** Socket	**1** – .109" (2.76) **2** – .150" (3.81) **3** – .190" (4.83) **4** – .250" (6.35) **5** – Staggered Tail Length Length in Inches ± .015 (0.38)	**A** – Cadmium **B** – Nickel **C** – Allochrome **D** – Black Anodize **E** – Gold **Stainless Steel Shell** **F** – Passivated	**NN** – No Jackpost, No Threaded Insert **NU** –UN Threaded Insert Only, No Jackposts **NM** –Metric Threaded Insert Only, No Jackposts **SU** –Short Jackpost and UN Threaded Insert **SM** –Short Jackpost and Metric Threaded Insert **SN** –Short Jackpost, No Threaded Insert **Rear Panel Mount Jackposts and Threaded Inserts** UN Threads / Metric Threads / Panel Thickness **TU** / **TM** / .094" (2.4) **VU** / **VM** / .062" (1.6) **WU** / **WM** / .047" (1.2) **XU** / **XM** / .031" (0.8) **YU** / **YM** / .023" (0.6)	These connectors are solder-dipped in 63/37 tin-lead solder. **To delete the solder dip and change to gold-plated terminals, add code 513**
SAMPLE PART NUMBER						
GMR7590	**– 31**	**S**	**2**	**B**	**SU**	

GMR7590 JACKPOST OPTIONS

NN	NU, NM	SN	SU, SM	TU,VU,WU,XU,YU TM,VM,WM,XM,YM
				
No Jackpost, No Threaded Insert In PCB Mtng Hole	No Jackpost, Threaded Insert In PCB Mounting Hole	Jackpost Installed, No Threaded Insert in PCB Mounting Hole	Jackpost With Threaded Insert	Jackpost for Rear Panel Mounting

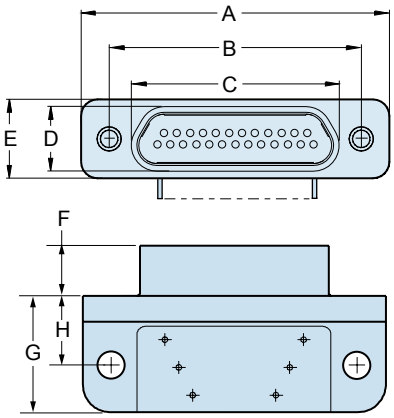
GMR7590
Right Angle Micro-D Connectors

PERFORMANCE SPECIFICATIONS

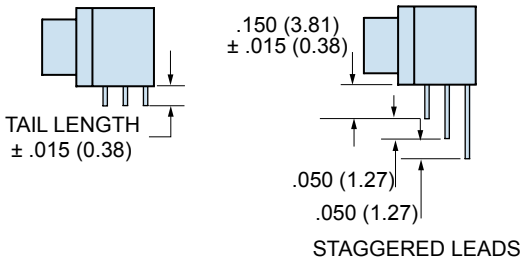
Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 μ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator, Tray	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
PCB Terminals	Tin Plated Copper Alloy SN63/Pb37
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215



SIZES 9 THRU 51 MOUNTING HOLE IS .088/094 (2.24/2.39)
SIZE 100 MOUNTING HOLE IS .145/.150 (3.68/3.81)



SIZES 9 THRU 51 THREAD SIZE IS #2-56 UNC OR M2.
SIZE 100 THREAD SIZE IS #4-40 OR M3.

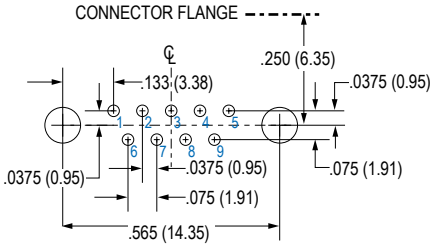
GMR7590 CONNECTOR DIMENSIONS

	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H	
Layout	In.	mm.	In. ± .005	mm. ±0.13	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ±0.08	In.	mm.	In. ± .010	mm. ±0.25
9P	.785	19.94	.565	14.35	.335	8.51	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.250	6.35
9S	.785	19.94	.565	14.35	.400	10.16	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.250	6.35
15P	.935	23.75	.715	18.16	.485	12.32	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.250	6.35
15S	.935	23.75	.715	18.16	.550	13.97	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.250	6.35
21P	1.085	27.56	.865	21.97	.635	16.13	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.250	6.35
21S	1.085	27.56	.865	21.97	.700	17.78	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.250	6.35
25P	1.185	30.01	.965	24.51	.735	18.67	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.250	6.35
25S	1.185	30.01	.965	24.51	.800	20.32	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.250	6.35
31P	1.335	33.91	1.115	28.32	.885	22.48	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.250	6.35
31S	1.335	33.91	1.115	28.32	.950	24.13	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.250	6.35
37P	1.485	37.72	1.265	32.13	1.035	26.29	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.250	6.35
37S	1.485	37.72	1.265	32.13	1.100	27.94	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.250	6.35
51P	1.435	36.45	1.215	30.86	.985	25.02	.228	5.79	.351	8.92	.183	4.65	.490	12.45	.300	7.62
51S	1.435	36.45	1.215	30.86	1.050	26.67	.296	7.52	.351	8.92	.195	4.95	.490	12.45	.300	7.62
100P	2.170	55.12	1.800	45.72	1.384	35.15	.271	6.88	.394	10.00	.183	4.65	.660	16.76	.400	10.16
100S	2.170	55.12	1.800	45.72	1.451	36.86	.394	10.00	.394	10.00	.195	4.95	.660	16.76	.400	10.16

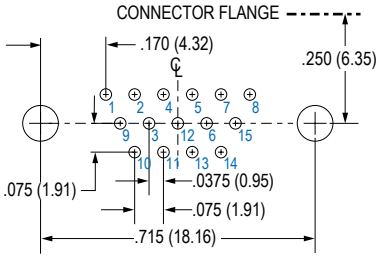
GMR7590
Right Angle Micro-D Connectors

GMR7590 CONNECTOR PCB LAYOUTS – PIN CONNECTORS

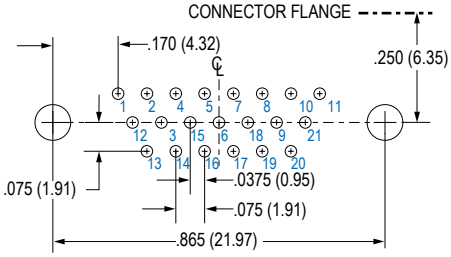
Patterns shown are for connector mounting side of PC board.



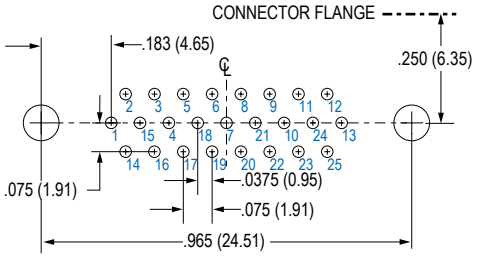
9 PIN



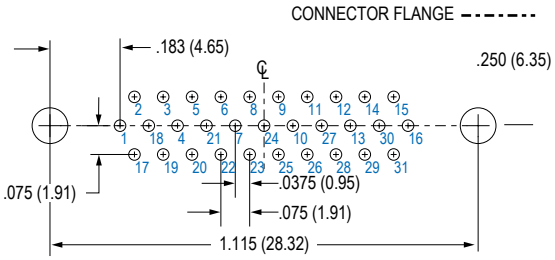
15 PIN



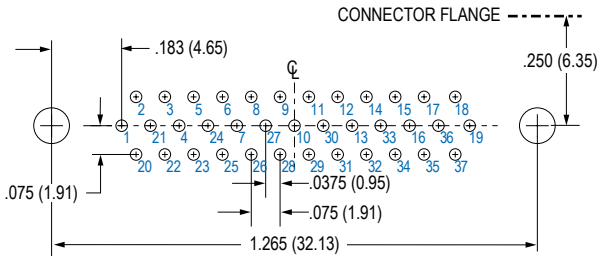
21 PIN



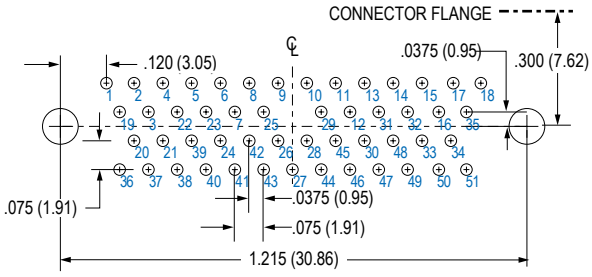
25 PIN



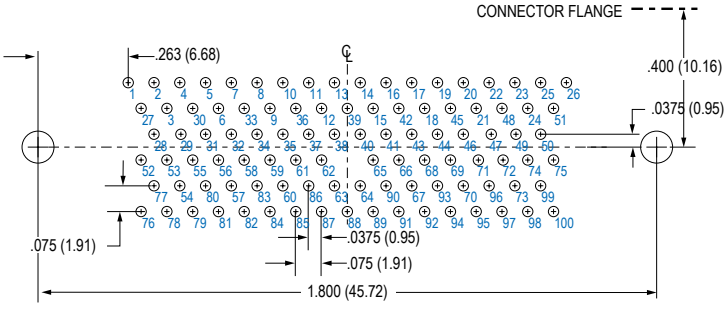
31 PIN



37 PIN



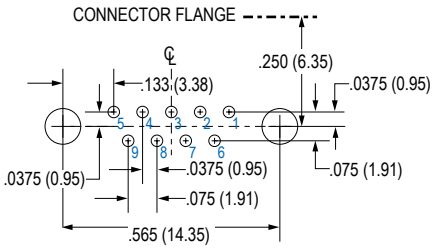
51 PIN



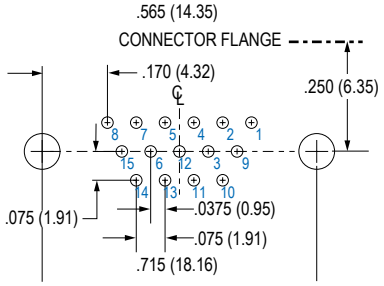
100 PIN

GMR7590 CONNECTOR PCB LAYOUTS – SOCKET CONNECTORS

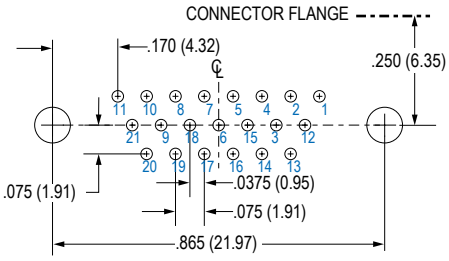
Patterns shown are for connector mounting side of PC board.



9 SOCKET



15 SOCKET



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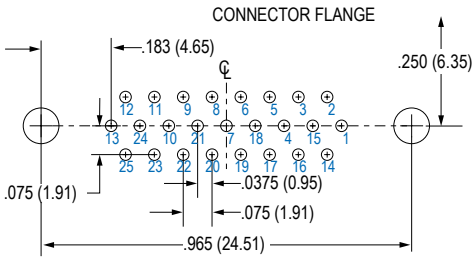
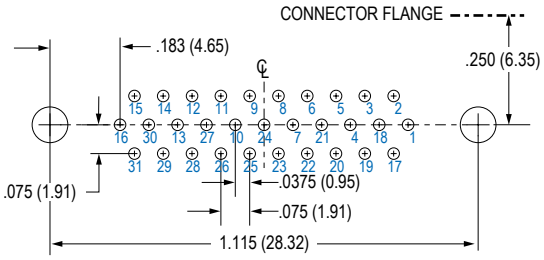
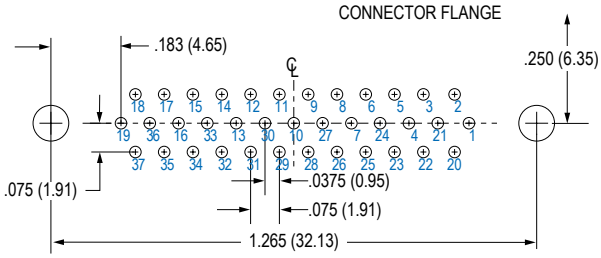


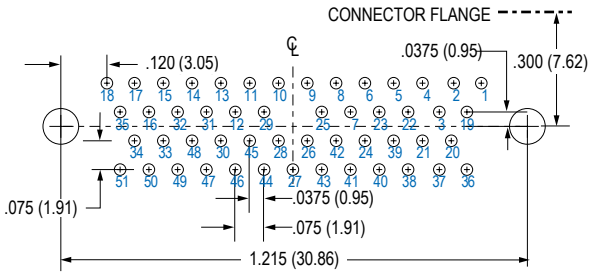
25 SOCKET



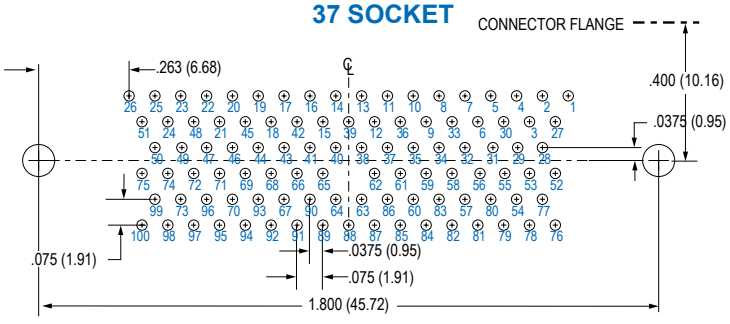
31 SOCKET



37 SOCKET

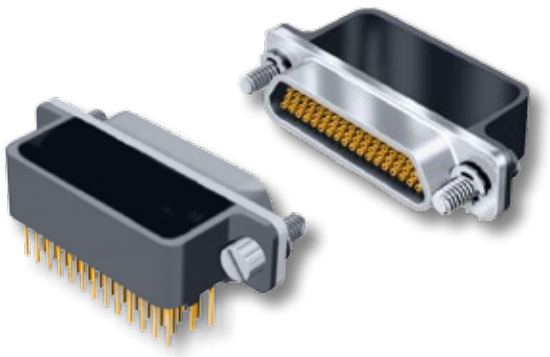


51 SOCKET



100 SOCKET

GMR7590C
Right Angle Mount Micro-D Connectors
Compact Flange



Innovative Design for Flex Circuits – These Micro-D connectors answer the need for a compact flex circuit connector. Featuring .075 X .075 inch row spacing. Glenair's GMR7590C accepts standard jackscrews and jackposts, making it ideal for flex-to-board applications.

High Performance – GMR7590C connectors meet the performance requirements of MIL-DTL-83513. Gold plated TwistPin contacts assure best electrical and mechanical performance.

HOW TO ORDER GMR7590 RIGHT ANGLE .075" PITCH PCB CONNECTORS

Series	Number of Contacts	Contact Type	Tail Length In. (mm.)	Shell Plating Finish	Hardware	Gold-Plated Terminal Mod Code
GMR7590C Micro-D Metal Shell, Right Angle Mount PCB, Compact	**9** **15** **21** **25** **31** **37** **51** **100**	**P** Pin **S** Socket	**1** – .109" (2.76) **2** – .150" (3.81) **3** – .190" (4.83) **4** – .250" (6.35) **5** – Staggered Tail Length	**A** – Cadmium **B** – Nickel **C** – Allochrome **D** – Black Anodize **E** – Gold **Stainless Steel Shell** **F** – Passivated	**B** **P** **M** **M1** **S** **S1** **L** **K** **F** **R**	These connectors are solder-dipped in 63/37 tin-lead solder. **To delete the solder dip and change to gold-plated terminals, add code 513**
Sample Part Number						
GMR7590C	**– 31**	**S**	**2**	**B**	**S1**	

MICRO-D MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R
									
Thru-Hole Order Hardware Separately	**Jackpost** Removable Includes Nut and Washer	**Jackscrew** Hex Head Removable E-ring	**Jackscrew** Hex Head Removable E-ring Extended	**Jackscrew** Slot Head Removable E-ring	**Jackscrew** Slot Head Removable E-ring Extended	**Jackscrew** Hex Head Non-Removable	**Jackscrew** Slot Head Non-Removable Extended	**Float Mount** For Front Panel Mounting	**Float Mount** For Rear Panel Mounting

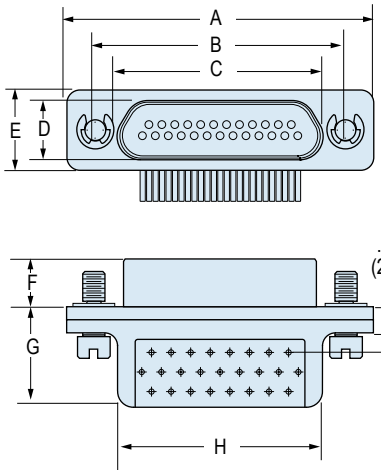
GMR7590C
Right Angle Mount Micro-D Connectors
Compact Flange

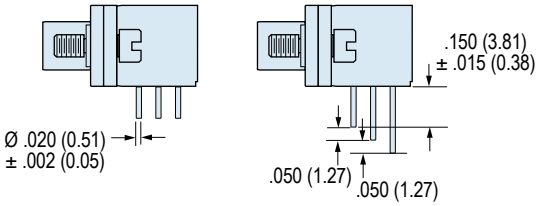
PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 μ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, passivated. See Ordering Info for Plating Options
Insulator, Tray	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Copper Alloy, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
PCB Terminals	Tin Plated Copper Alloy (100% Tin)
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215





STAGGERED LEADS

SIZES 9 THRU 51 MOUNTING HOLE IS .088/094 (2.24/2.39)
SIZE 100 MOUNTING HOLE IS .145/.150 (3.68/3.81)

SIZES 9 THRU 51 THREAD SIZE IS #2-56 UNC
SIZE 100 THREAD SIZE IS #4-40

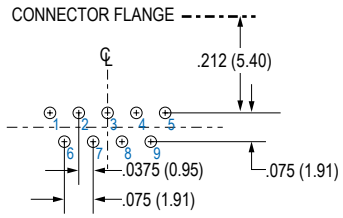
GMR7590C CONNECTOR DIMENSIONS

	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H	
Layout	In.	mm.	In. ± .005	mm. ± 0.13	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In. ± .010	mm. ±0.25
9P	.785	19.94	.565	14.35	.335	8.51	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.400	10.16
9S	.785	19.94	.565	14.35	.400	10.16	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.400	10.16
15P	.935	23.75	.715	18.16	.485	12.32	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.530	13.46
15S	.935	23.75	.715	18.16	.550	13.97	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.530	13.46
21P	1.085	27.56	.865	21.97	.635	16.13	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.700	17.78
21S	1.085	27.56	.865	21.97	.700	17.78	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.700	17.78
25P	1.185	30.01	.965	24.51	.735	18.67	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.800	20.32
25S	1.185	30.01	.965	24.51	.800	20.32	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.800	20.32
31P	1.335	33.91	1.115	28.32	.885	22.48	.185	4.70	.310	7.87	.183	4.65	.400	10.16	.950	24.13
31S	1.335	33.91	1.115	28.32	.950	24.13	.251	6.38	.310	7.87	.195	4.95	.400	10.16	.950	24.13
37P	1.485	37.72	1.265	32.13	1.035	26.29	.185	4.70	.310	7.87	.183	4.65	.400	10.16	1.100	27.94
37S	1.485	37.72	1.265	32.13	1.100	27.94	.251	6.38	.310	7.87	.195	4.95	.400	10.16	1.100	27.94
51P	1.435	36.45	1.215	30.86	.985	25.02	.228	5.79	.351	8.92	.183	4.65	.490	12.45	1.050	26.67
51S	1.435	36.45	1.215	30.86	1.050	26.67	.296	7.52	.351	8.92	.195	4.95	.490	12.45	1.050	26.67
100P	2.170	55.12	1.800	45.72	1.384	35.15	.271	6.88	.394	10.00	.183	4.65	.660	16.76	1.500	38.13
100S	2.170	55.12	1.800	45.72	1.451	36.86	.394	10.00	.394	10.00	.195	4.95	.660	16.76	1.500	38.13

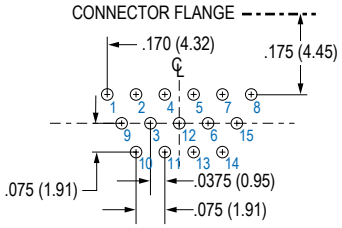
GMR7590C
Right Angle Mount Micro-D Connectors
Compact Flange

GMR7590C CONNECTOR PCB LAYOUTS – PIN CONNECTORS

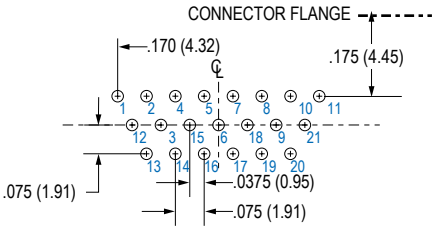
Patterns shown are for connector mounting side of PC board.



9 PIN



(15 PIN



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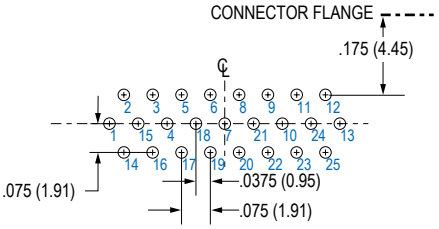
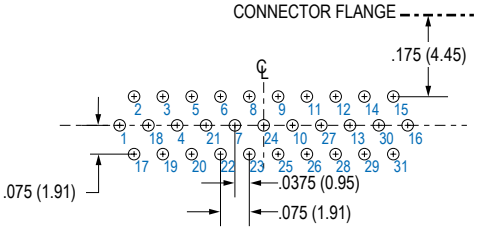


25 PIN



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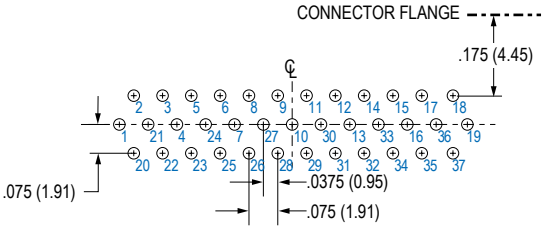
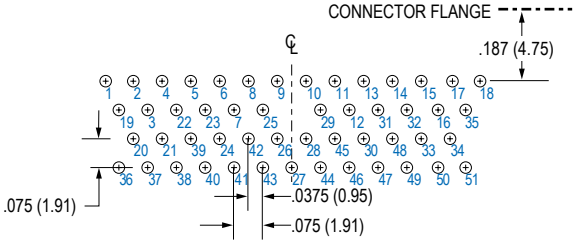
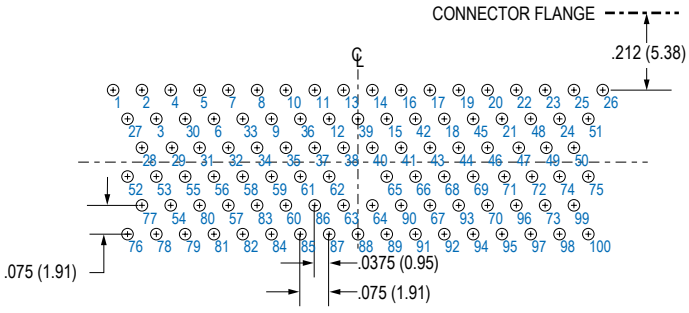


37 PIN



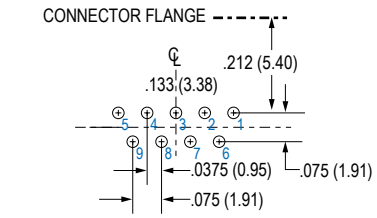
51 PIN



100 PIN

GMR7590C CONNECTOR PCB LAYOUTS – SOCKET CONNECTORS

Patterns shown are for connector mounting side of PC board.



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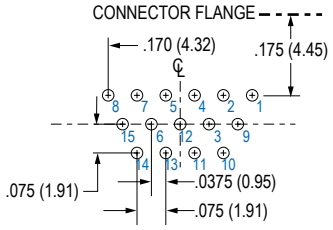

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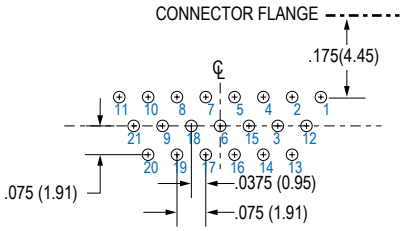

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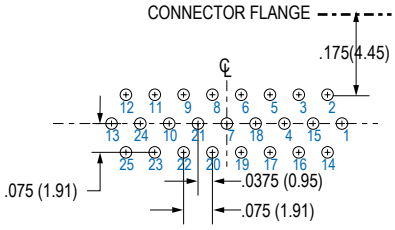

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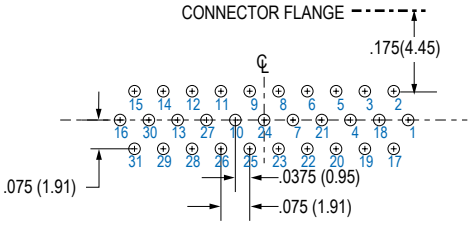
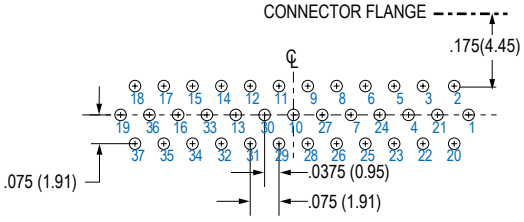
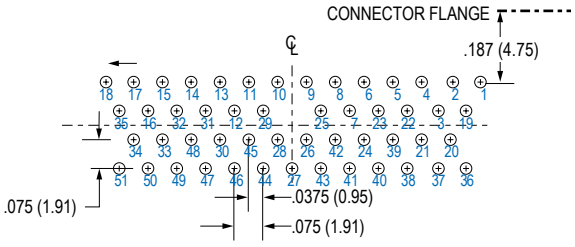


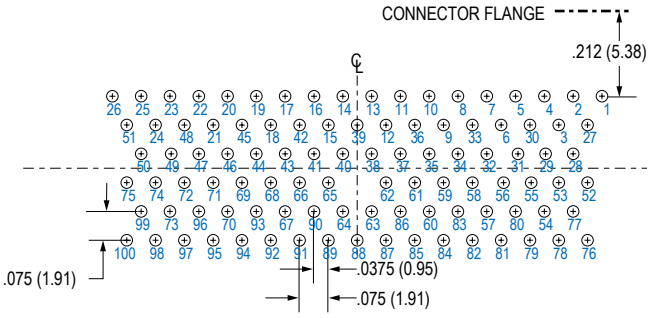
31 SOCKET



37 SOCKET



51 SOCKET



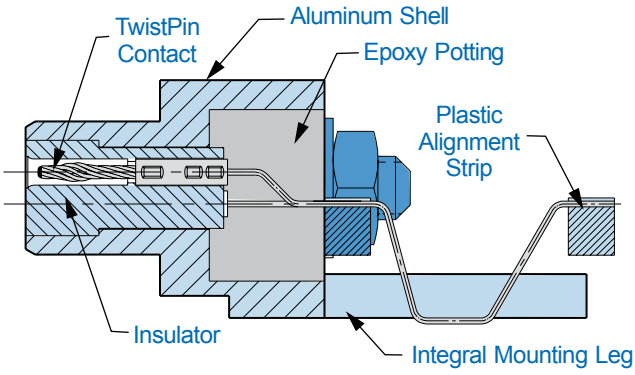
100 SOCKET

MWDM
Surface Mount Right Angle
Micro-D Connectors

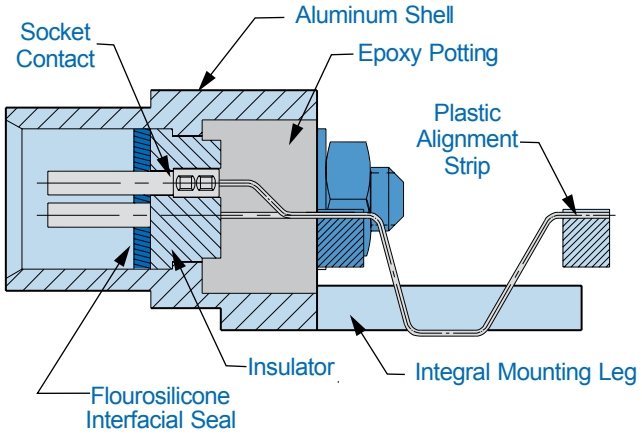
Surface Mount Micro-D – These connectors feature .025 inch terminal spacing and an alignment strip for accurate registration. The integral mounting legs provide a ground path.

9 To 51 Contacts – These compact connectors are lighter and smaller than comparable thru-hole versions.

Mil Spec Reliability – Suitable for mission-critical requirements, These high performance connectors meet the requirements of MIL-DTL-83513.

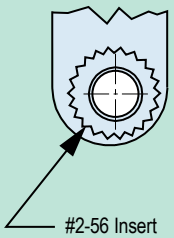


Pin Connector



Socket Connector

HOW TO ORDER SURFACE MOUNT PCB MICRO-D CONNECTORS

Series	Shell Material and Finish	Insulator Material	Contact Layout	Contact Type	Termination Type	Jackpost or Jackscrew Option	Board Mounting Threaded Insert Option
MWDM	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	L – LCP 30% Glass-Filled Liquid Crystal Polymer	9 15 21 25 31 37 51-2	P – Pin S – Socket	SMR Surface Mount Right Angle	N – Thru-Hole P – Jackpost M – Jackscrew, Hex Head T – Threaded Insert Jackposts for Rear Panel Mounting R1 – .032" Panel R2 – .047" Panel R3 – .062" Panel R4 – .093" Panel R5 – .125" Panel	N – Thru-Hole, No Insert T – Threaded Inserts 

Sample Part Number

MWDM	2	L	– 51-2	P	SMR	P	N

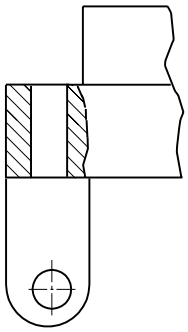
U.S. CAGE Code 06324
Printed in U.S.A.

GLENAIR, INC. • 1211 AIR WAY • GLENDALE, CA 91201-2497 • 818-247-6000 • FAX 818-500-9912
www.glenair.com

E-Mail: sales@glenair.com

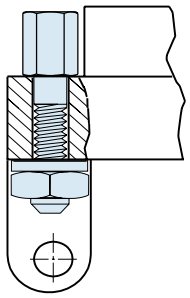
SURFACE MOUNT MICRO-D HARDWARE OPTIONS

N



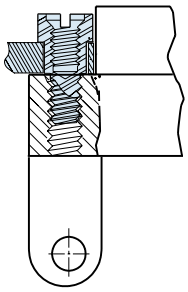
Thru-Hole
No jackpost supplied

P



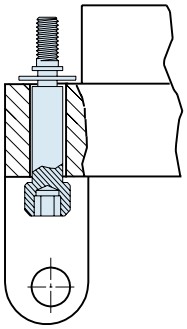
Standard Jackpost
Factory installed with nut and lockwasher

R1 Thru R5



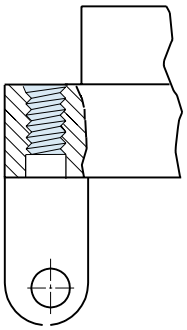
Jackpost for Rear Panel Mounting
Shipped loosely installed. Install with permanent threadlocking compund.

M



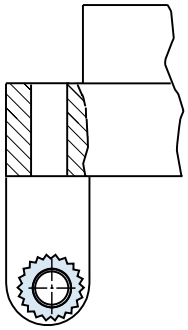
Jackscrew, Hex Drive
Attached with e-ring

T



Threaded Insert
#2-56 Thread

T

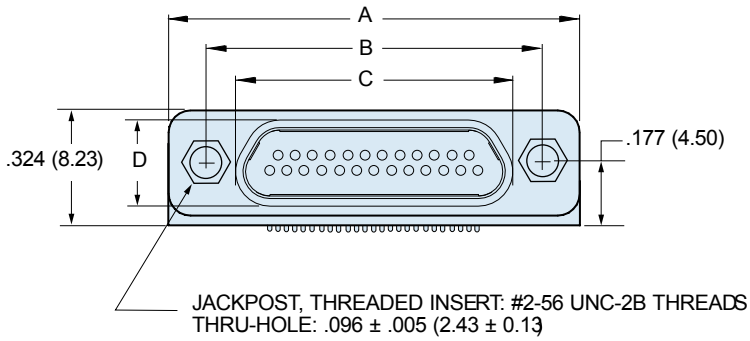


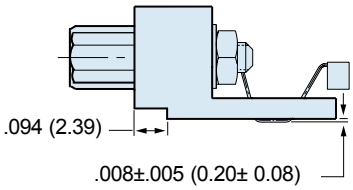
Board Mount Threaded Insert

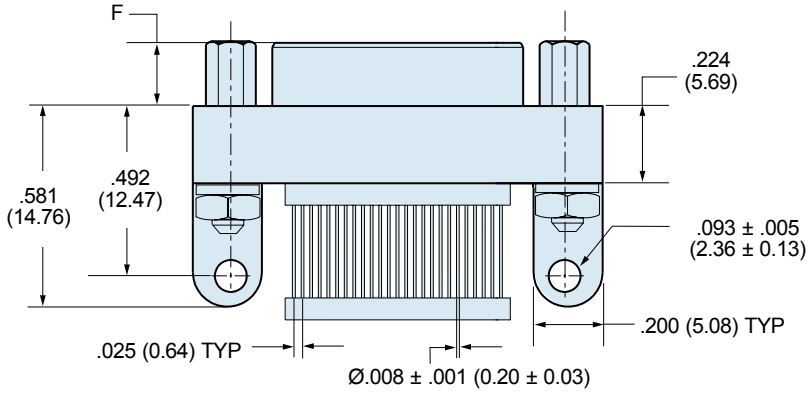
PERFORMANCE SPECIFICATIONS	
Current Rating	1 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resist.	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES	
Connector Shell	Aluminum Alloy 6061.See Ordering Info for Plating Options
Insulators	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact	Beryllium Copper Gold over Nickel Plating
Socket Contact	Copper Alloy Gold Over Nickel Plating
PCB Terminals	Gold Plated Copper Alloy, Solder Dipped
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy Resin Hysol EE4215

MWDM
Surface Mount Right Angle
Micro-D Connectors







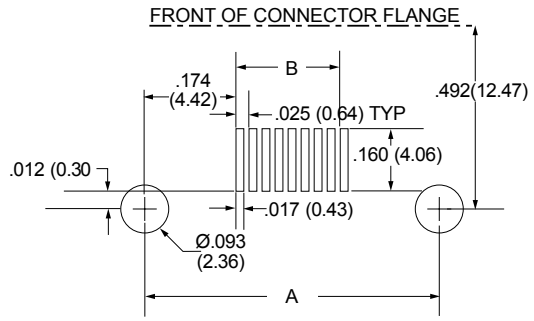
DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		F	
	In.	mm.	In. ±.005	mm. ±0.13	In.	mm.	In.	mm.	In. ±.003	mm. ±0.08
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.183	4.65
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.195	4.95
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.183	4.65
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.195	4.95
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.183	4.65
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.195	4.95
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.183	4.65
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.195	4.95
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.183	4.65
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.195	4.95
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.183	4.65
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.195	4.95
51-2P	1.840	46.74	1.615	41.02	1.375	34.93	.184	4.67	.183	4.65
51-2S	1.840	46.74	1.615	41.02	1.444	36.68	.250	6.35	.195	4.95

 U.S. CAGE Code 06324 Printed in U.S.A.

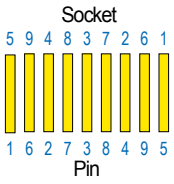
SMR SURFACE MOUNT CONNECTOR PCB LAYOUTS

Suggested Printed Circuit Board Layout

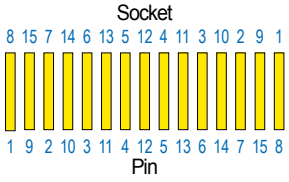


Layout	A		B	
	In.	mm.	In.	mm.
9	.565	14.35	.200	5.08
15	.715	18.16	.350	8.89
21	.865	21.97	.500	12.70
25	.965	24.51	.600	15.24
31	1.115	28.32	.750	19.05
37	1.265	32.13	.900	22.86
51-2	1.615	41.02	1.250	31.75

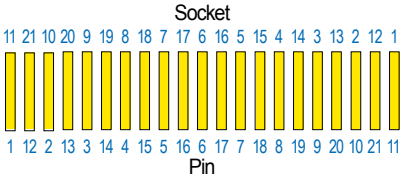
9 Contacts



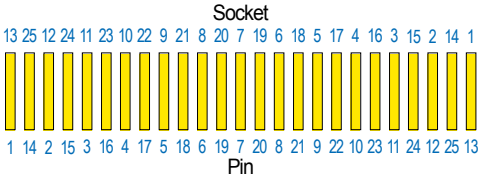
15 Contacts



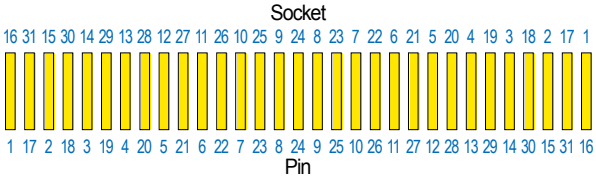
21 Contacts



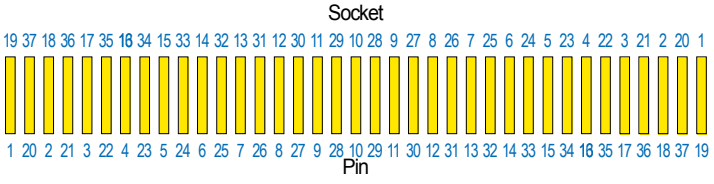
25 Contacts



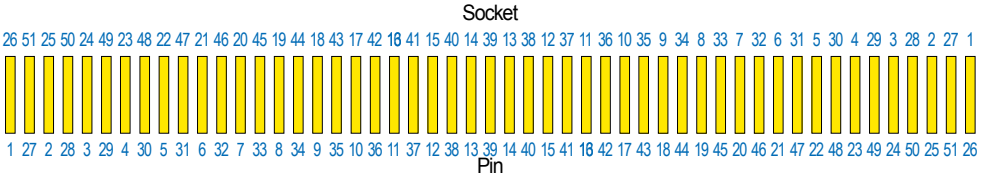
31 Contacts



37 Contacts



51 Contacts



U.S. CAGE Code 06324
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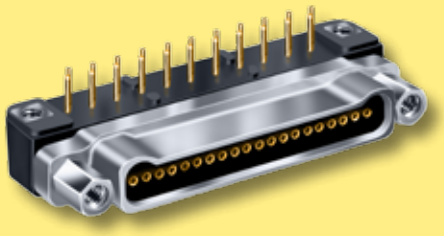
PRODUCT SELECTION GUIDE



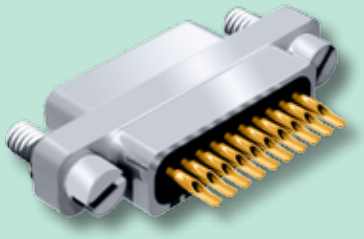
Connector height is a priority for miniaturized electronics modules. These GMSM connectors are shorter and occupy less board real estate than comparable two row Micro-D connectors.

Solder Cup, Pre-wired and PCB Versions feature gold-plated TwistPin contacts, machined aluminum shells, and are fully potted with epoxy. The glass-filled thermoplastic LCP trays will withstand soldering heat without damage.

Eight Contact Arrangements – Choose from 4 to 35 contacts. Available in a variety of finishes, the socket connectors are fitted with Fluorosilicone interfacial seals.

GMSM Solder Cup Connectors

Nonremovable solder cup contacts for termination to #26 AWG or smaller wire, .050" contact spacing, eight layouts from 4 to 35 contacts.



Solder Cup Connectors Page D-2

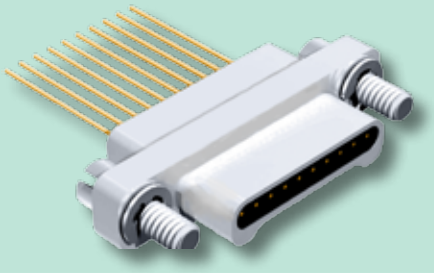
GMSM Pre-Wired Pigtails

Crimp contacts are terminated to insulated Teflon® wire. Connectors are backpotted with epoxy, providing strain relief and environmental protection.

Insulated Wire Pigtails Page D-3

GMSM with Solid Uninsulated Wire

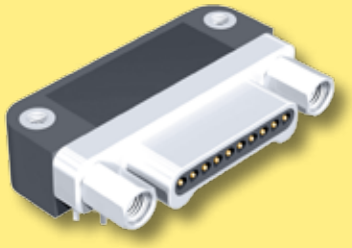
Gold-plated or solder-dipped solid copper wire, crimp termination, backpotted with epoxy. Can be terminated to flexible circuits.



Solid Wire Pigtails Page D-3

GMSM RIght Angle Printed Circuit Board

.075 inch by .100 inch terminal spacing, for thru-hole rigid or flexible circuits. One piece threaded inserts provide a ground path from the jackpost to the board.



Right Angle PCB Page D-5

GMSM Low Profile Single Row Metal Shell Microminiature
Solder Cup and Pre-Wired Connectors

GMSM Connectors offer mil spec design and performance in a smaller form factor. These GMSM single row connectors are reduced in height compared to two-row Micro-D connectors.

GMSM Connectors feature gold plated TwistPin contacts, machined aluminum shells, and are fully potted with epoxy. Choose from 4 to 35 contacts. Available in a variety of finishes, socket connectors are fitted with Fluorosilicone interfacial seals.

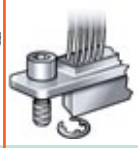
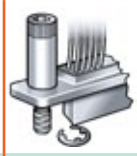
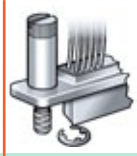
D

HOW TO ORDER GMSM SOLDER CUP CONNECTORS

Solder Cup

Series	Shell Finish	Number of Contacts	Contact Type	Termination Type	Hardware
GMSM	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	4 6 10 15 20 25 30 35	P – Pin S – Socket	S Solder Cup	B P M M1 S S1 L K F R
Sample Part Number					
GMSM	1 –	15	P	S	B

MICRO-D MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R
									
Thru-Hole Order Hardware Separately	**Jackpost** Removable Includes Nut and Washer	**Jackscrew** Hex Head Removable E-ring	**Jackscrew** Hex Head Removable E-ring Extended	**Jackscrew** Slot Head Removable E-ring	**Jackscrew** Slot Head Removable E-ring Extended	**Jackscrew** Hex Head Non-Removable	**Jackscrew** Slot Head Non-Removable Extended	**Float Mount** For Front Panel Mounting	**Float Mount** For Rear Panel Mounting

GMSM Low Profile Single Row Metal Shell Microminiature
Solder Cup and Pre-Wired Connectors

Glenair®

HOW TO ORDER GMSM CONNECTORS WITH INSULATED WIRE PIGTAILS

Insulated Wire Pigtails

Series	Shell Finish	Number of Contacts	Contact Type	Wire Gage (AWG)	Wire Type	Wire Color	Wire Length Inches	Hardware
GMSM	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	4 6 10 15 20 25 30 35	P – Pin S – Socket	4 – #24 6 – #26 8 – #28	K – M22759/11 600 Vrms Teflon (TFE)® J – M22759/33 600 Vrms Modified Cross-Linked Tefzel (ETFE)® E – NEMA HP3-EB 600 VrmsType E M16878/4 (TFE)	1 – White 2 – Yellow 5 – Color-Coded Stripes Per MIL-STD-681 7 – Ten Color Repeating	18 Wire Length In Inches. "18" Specifies 18 Inches.	B P M M1 S S1 L K F R

Sample Part Number

GMSM	2 –	10	P –	6	K	1 –	18	B

HOW TO ORDER GMSM CONNECTORS WITH UNINSULATED SOLID LEADS

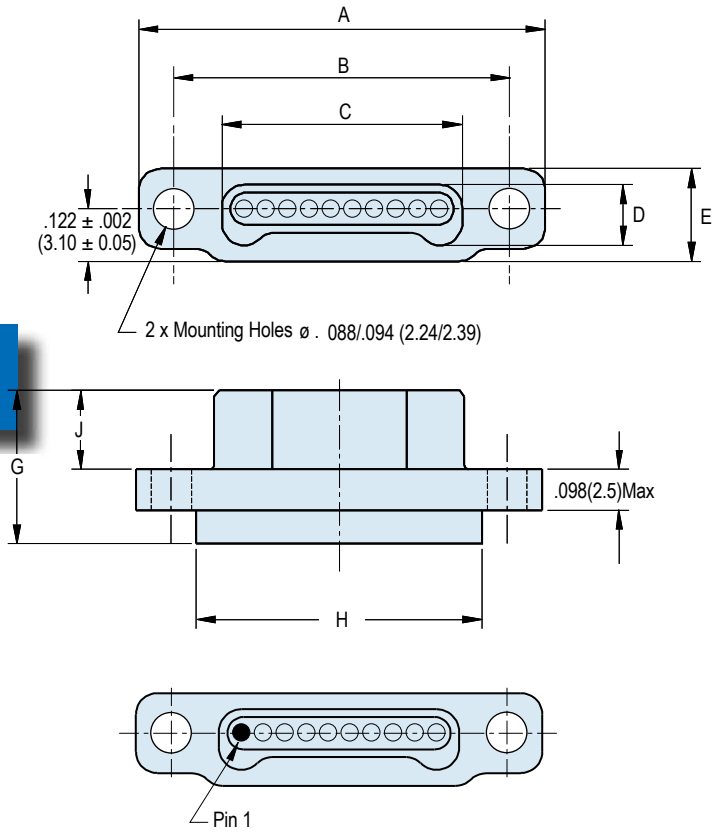
Gold Plated or Solder Dipped Solid Leads

Series	Shell Finish	Number of Contacts	Contact Type	Wire Gage (AWG)	Wire Type	Wire Finish	Wire Length Inches	Hardware
GMSM	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	4 6 10 15 20 25 30 35	P – Pin S – Socket	4 – #24 5 – #25 6 – #26	C – Copper Wire	3 – Solder Dipped (63/37 Tin/Lead) 4 – Gold Plated	.125 .250 .375 .500 .750 1.000 2.000 Wire Length In Inches. ".500" Specifies Half Inch.	B P M M1 S S1 L K F R

Sample Part Number

GMSM	2 –	10	P –	5	C	4 –	.250	P

GMSM Low Profile Single Row
Metal Shell Microminiature
Solder Cup and Pre-Wired Connectors

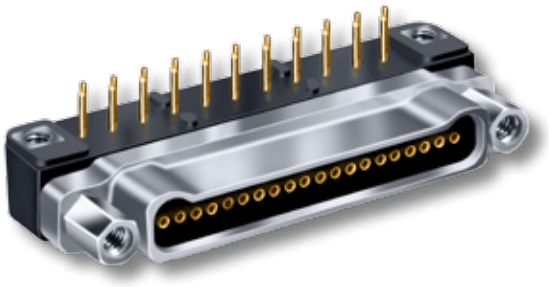


Face View of Pin (Plug) Connector

Face View of Socket (Receptacle) Connector

DIMENSIONS																		
	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
Layout	In.	mm.	In. ±.003	mm. ±0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
4P	.648	16.45	.478	12.11	.250	6.37	.135	3.42	.218	5.54	.041	1.03	.358	9.10	.309	7.85	.184	4.67
4S	.648	16.45	.478	12.11	.309	7.85	.194	4.94	.218	5.54	.012	0.30	.370	9.40	.309	7.85	.197	5.00
6P	.748	19.00	.578	14.65	.350	8.91	.135	3.42	.218	5.54	.041	1.03	.358	9.10	.409	10.40	.184	4.67
6S	.748	19.00	.578	14.65	.409	10.40	.194	4.94	.218	5.54	.012	0.30	.370	9.40	.409	10.40	.197	5.00
10P	.948	24.07	.777	19.73	.550	13.99	.135	3.42	.218	5.54	.041	1.03	.358	9.10	.609	15.47	.184	4.67
10S	.948	24.07	.777	19.73	.609	15.47	.194	4.94	.218	5.54	.012	0.30	.370	9.40	.609	15.47	.197	5.00
15P	1.198	30.42	1.027	26.08	.800	20.34	.135	3.42	.218	5.54	.041	1.03	.358	9.10	.859	21.82	.184	4.67
15S	1.198	30.42	1.027	26.08	.859	21.82	.194	4.94	.218	5.54	.012	0.30	.370	9.40	.859	21.82	.197	5.00
20P	1.448	36.77	1.277	32.43	1.050	26.69	.135	3.42	.218	5.54	.041	1.03	.358	9.10	1.109	28.17	.184	4.67
20S	1.448	36.77	1.277	32.43	1.109	28.17	.194	4.94	.218	5.54	.012	0.30	.370	9.40	1.109	28.17	.197	5.00
25P	1.698	43.12	1.527	38.78	1.300	33.04	.135	3.42	.218	5.54	.041	1.03	.358	9.10	1.359	34.52	.184	4.67
25S	1.698	43.12	1.527	38.78	1.359	34.52	.194	4.94	.218	5.54	.012	0.30	.370	9.40	1.359	34.52	.197	5.00
30P	1.948	49.47	1.777	45.13	1.550	39.39	.135	3.42	.218	5.54	.041	1.03	.358	9.10	1.609	40.87	.184	4.67
30S	1.948	49.47	1.777	45.13	1.609	40.87	.194	4.94	.218	5.54	.012	0.30	.370	9.40	1.609	40.87	.197	5.00
35P	2.198	55.82	2.027	51.48	1.800	45.74	.135	3.42	.218	5.54	.041	1.03	.358	9.10	1.859	47.22	.184	4.67
35S	2.198	55.82	2.027	51.48	1.859	47.22	.194	4.94	.218	5.54	.012	0.30	.370	9.40	1.859	47.22	.197	5.00

GMSM Low Profile Single Row Metal Shell Microminiature
Solder Cup and Pre-Wired Connectors



Low Profile GMSM Single Row Micro Connectors offer mil spec design and performance in a smaller form factor for space savings. These GMSM connectors are shorter and occupy less board real estate than comparable two row Micro-D connectors.

GMSM Connectors feature gold-plated TwistPin contacts, machined aluminum shells, and are fully potted with epoxy. Choose from 4 to 35 contacts. Available in a variety of finishes, socket connectors are fitted with Fluorosilicone interfacial seals.

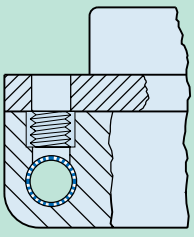
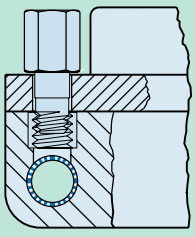
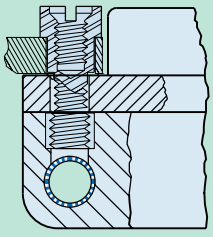
HOW TO ORDER GMSM RIGHT ANGLE PCB CONNECTORS

Series	Shell Finish	Number of Contacts	Contact Type	Termination Style	Hardware Option	Tail Length
GMSM	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	4 6 10 15 20 25 30 35	P – Pin S – Socket	CBR Right Angle PCB	NU – Threaded Insert Only, No Jackposts SU – Jackpost and Threaded Insert **Rear Panel Jackposts With Threaded Inserts** TU – 0.094" (2.4) Panel VU – 0.062" (1.6) Panel WU – 0.047" (1.2) Panel XU – 0.031" (0.8) Panel YU – 0.023" (0.6) Panel	1 – .109 (2.8) 2 – .150 (3.8) 3 – .190 (4.8) 4 – .250 (6.3)

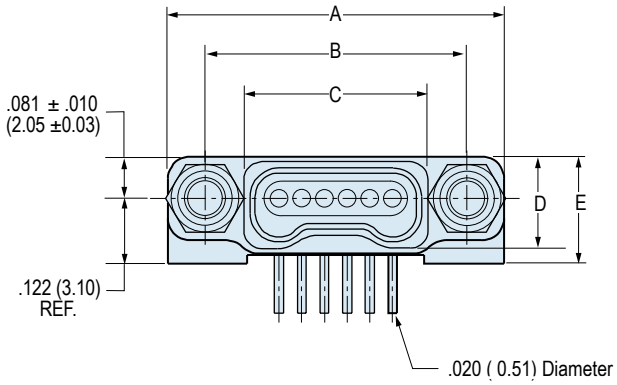
Sample Part Number

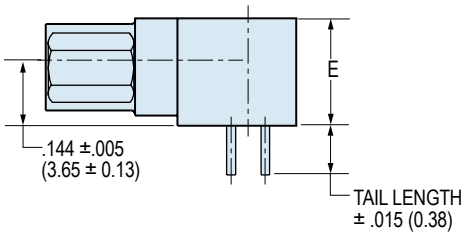
GMSM	2 –	10	P	CBR	SU	1

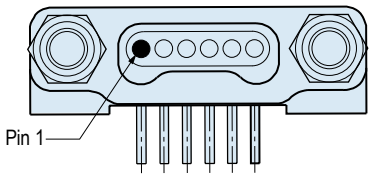
GMSM PRINTED CIRCUIT BOARD MOUNTING HARDWARE

NU	SU	TU,VU,WU,XU,YU
		
No Jackpost, Threaded Insert In PCB Mounting Hole	Jackpost With Threaded Insert	Jackpost for Rear Panel Mounting

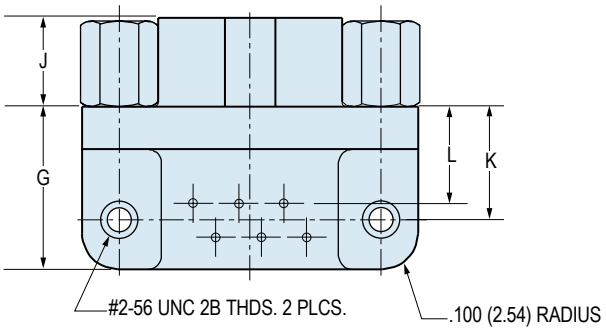
GMSM Low Profile Single Row
Metal Shell Microminiature
Right Angle Printed Circuit Board Connectors

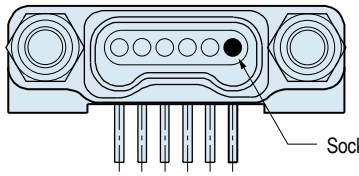






Face View of Pin (Plug) Connector



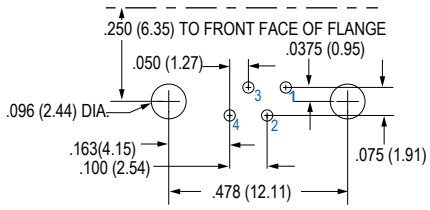


Face View of Socket (Receptacle) Connector

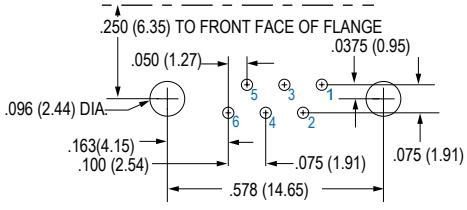
DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		G Max.		J Max.		K		L	
	In.	mm.	In. ±.003	mm. ±0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In. ±.004	mm. ±0.10	In. ±.010	mm. ±0.25
4P	.648	16.45	.478	12.11	.250	6.37	.135	3.42	.241	6.13	.364	9.25	.184	4.67	.250	6.35	.213	5.41
4S	.648	16.45	.478	12.11	.309	7.85	.194	4.94	.241	6.13	.364	9.25	.197	5.00	.250	6.35	.213	5.41
6P	.748	19.00	.578	14.65	.350	8.91	.135	3.42	.241	6.13	.364	9.25	.184	4.67	.250	6.35	.213	5.41
6S	.748	19.00	.578	14.65	.409	10.40	.194	4.94	.241	6.13	.364	9.25	.197	5.00	.250	6.35	.213	5.41
10P	.948	24.07	.777	19.73	.550	13.99	.135	3.42	.241	6.13	.364	9.25	.184	4.67	.250	6.35	.213	5.41
10S	.948	24.07	.777	19.73	.609	15.47	.194	4.94	.241	6.13	.364	9.25	.197	5.00	.250	6.35	.213	5.41
15P	1.198	30.42	1.027	26.08	.800	20.34	.135	3.42	.241	6.13	.364	9.25	.184	4.67	.250	6.35	.213	5.41
15S	1.198	30.42	1.027	26.08	.859	21.82	.194	4.94	.241	6.13	.364	9.25	.197	5.00	.250	6.35	.213	5.41
20P	1.448	36.77	1.277	32.43	1.050	26.69	.135	3.42	.241	6.13	.364	9.25	.184	4.67	.250	6.35	.213	5.41
20S	1.448	36.77	1.277	32.43	1.109	28.17	.194	4.94	.241	6.13	.364	9.25	.197	5.00	.250	6.35	.213	5.41
25P	1.698	43.12	1.527	38.78	1.300	33.04	.135	3.42	.241	6.13	.364	9.25	.184	4.67	.250	6.35	.213	5.41
25S	1.698	43.12	1.527	38.78	1.359	34.52	.194	4.94	.241	6.13	.364	9.25	.197	5.00	.250	6.35	.213	5.41
30P	1.948	49.47	1.777	45.13	1.550	39.39	.135	3.42	.241	6.13	.364	9.25	.184	4.67	.250	6.35	.213	5.41
30S	1.948	49.47	1.777	45.13	1.609	40.87	.194	4.94	.241	6.13	.364	9.25	.197	5.00	.250	6.35	.213	5.41
35P	2.198	55.82	2.027	51.48	1.800	45.74	.135	3.42	.241	6.13	.364	9.25	.184	4.67	.250	6.35	.213	5.41
35S	2.198	55.82	2.027	51.48	1.859	47.22	.194	4.94	.241	6.13	.364	9.25	.197	5.00	.250	6.35	.213	5.41

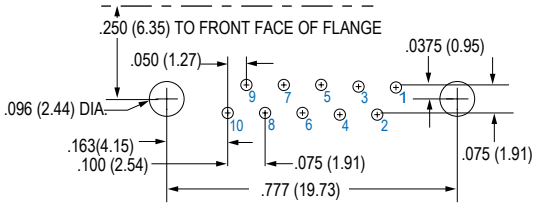
GMSM PCB LAYOUTS – PIN CONNECTORS



4 Pin



6 Pin



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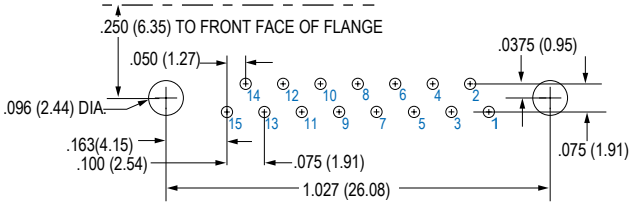
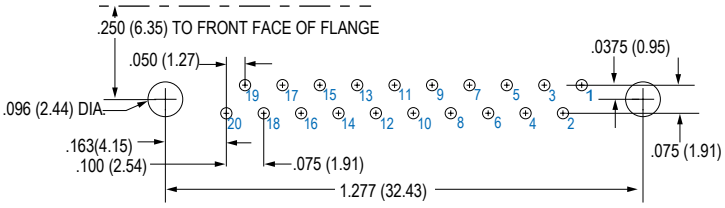


15 Pin



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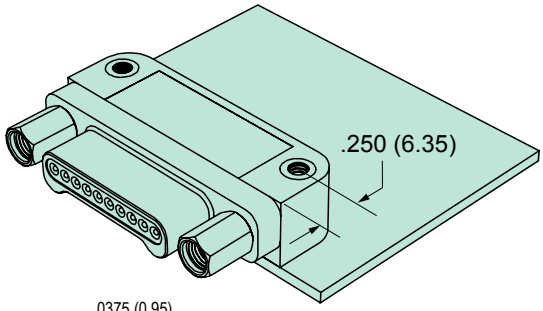

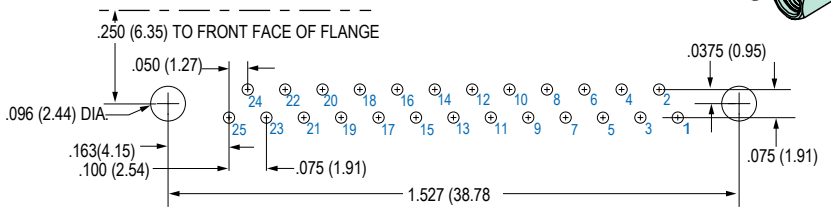

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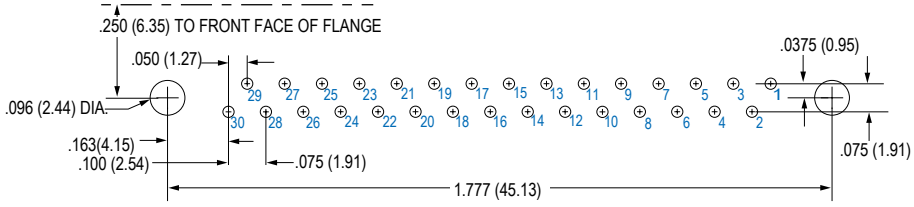

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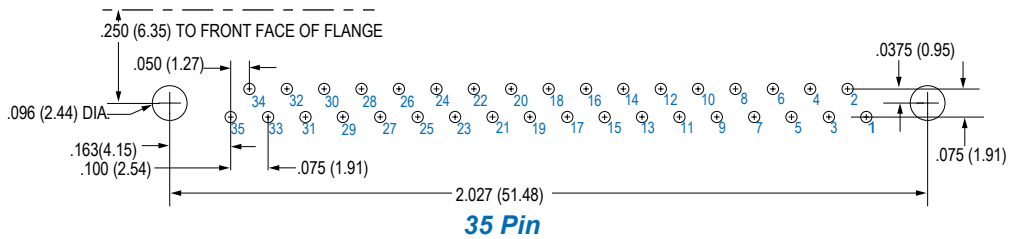
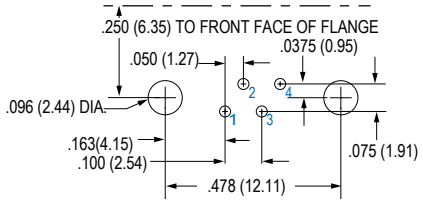


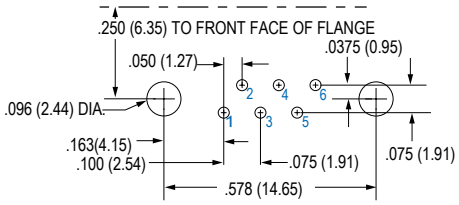
35 Pin

GMSM Low Profile Single Row
Metal Shell Microminiature
Right Angle Printed Circuit Board Connectors

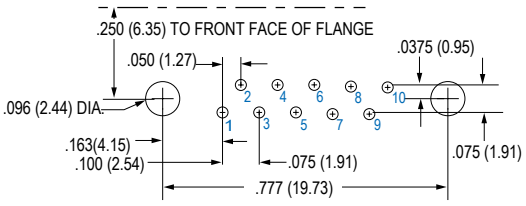
GMSM PCB LAYOUTS – SOCKET CONNECTORS



4 *Pin*



6 Pin



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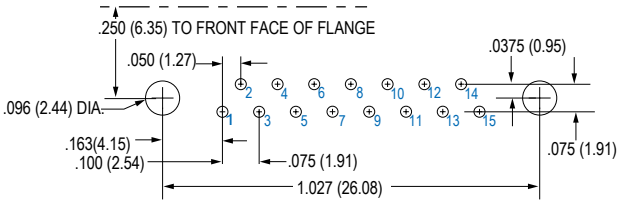

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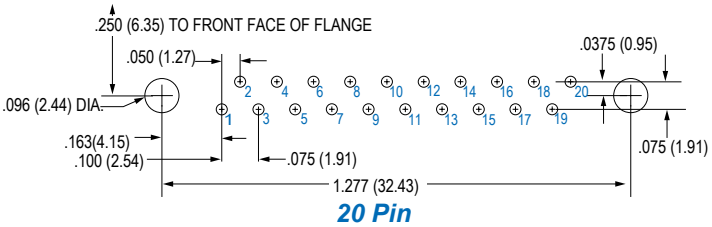

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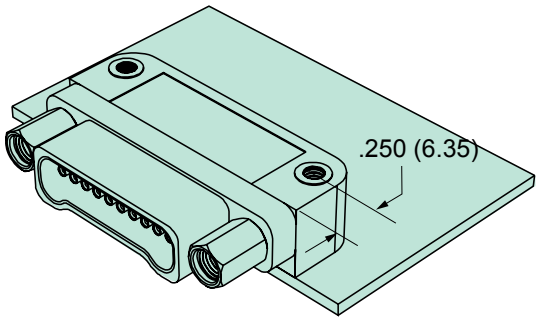
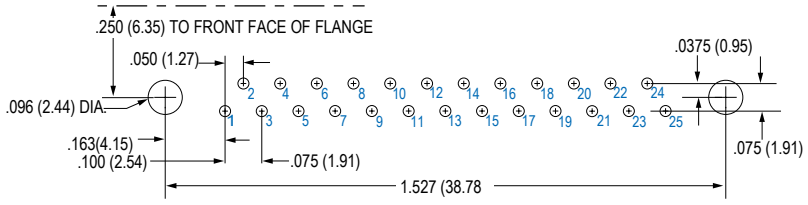
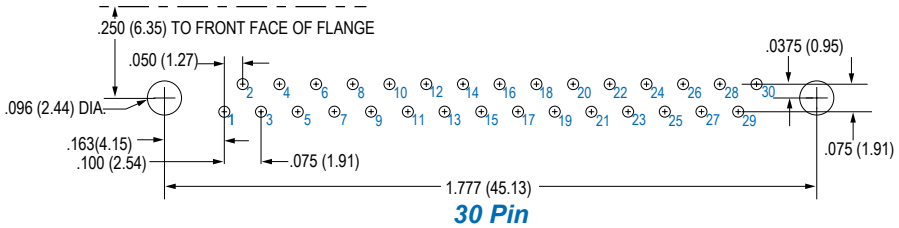
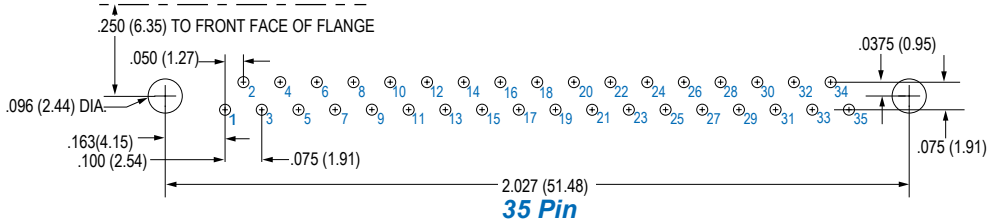




25 Pin



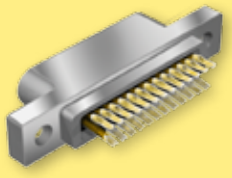
30 Pin



35 Pin

SECTION E LOW PROFILE MLDM AND MWDL MICRO-D PRODUCT SELECTION GUIDE

Metal Shell Solder Cup
Page E-3



MLDM Metal Shell, Solder Cup
Solder cup contacts accept #24-30 AWG solid or stranded wire. Available in 9 to 51 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. Gold-plated solder cups. 3 Amp, 600 Vac,-55°C to +150°C.

Metal Shell Pre-Wired
Page E-5

MLDM Metal Shell, Pre-Wired
Pre-wired with #24 to #30 stranded wire or uninsulated solid wire. Available in 9 to 51 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. 3 Amp, 600 Vac,-55°C to +150°C.

Metal Shell Right Angle PCB
Page E-11

MLDM Metal Shell, Right Angle PCB
Available in 9 to 51 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. PCB terminal spacing is .100" x .100" for easy board fabrication. 3 Amp, 600 Vac,-55°C to +150°C.

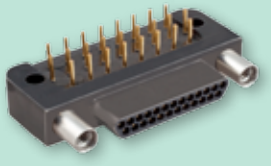
Plastic Shell Solder Cup
Page E-15

MWD All-Plastic, Solder Cup
These connectors are available with nine through 51 contacts. Featuring the same TwistPin contact system as the MLDM metal shell connector, the MWD All-Plastic connector is an economical alternative to metal shell connectors. Gold-plated solder cups accept #24 – #30 AWG wire. 3 Amp, 600 Vac,-55°C to +150°C.

Plastic Shell Pre-Wired
Page E-17

MWD All-Plastic, Pre-Wired
These crimp-terminated pre-wired assemblies offer an alternative to the time-consuming job of soldering wires. Connectors are available with insulated, stranded mil spec wire or with uninsulated single strand wire. Back-to-back cables assemblies are also available. #24 – #30 AWG wire size. 3 Amp, 600 Vac,-55°C to +150°C.

Plastic Shell Right Angle PCB
Page E-23



MWD All-Plastic, Right Angle PCB
Available in 9 to 51 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. Gold-plated PC tails. PCB terminal spacing is .100" x .100" for easy board fabrication. 3 Amp, 600 Vac,-55°C to +150°C.

Low Profile
Metal and Plastic Shell Micro-D
Product Information

MLDM
Low Profile Metal Shell Connector

MWD
Low Profile All-Plastic Connector

- Metal Shell or One-Piece Plastic
- High Reliability TwistPin Contact System
- .050" Pitch Contact Spacing
- Solder Cup, Pre-Wired or PCB Headers
- 3 Amps, +150°C, 600 Vac

Low Profile Metal Shell and Plastic Shell Micro-D's Save Space Compared to MWDM Metal Shell Connectors

Low profile MLDM metal shell and MWD plastic shell connectors are intended for high reliability board-to-wire I/O and wire-to-wire applications. Gold-plated TwistPin contacts provide excellent performance when subjected to high levels of shock and vibration. Plastic and metal versions are intermateable. Flange height is reduced by 33% compared to MWDM standard Micro-D connectors.

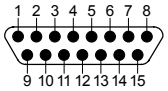
SIZE COMPARISON

MLDM 51 Pin Low Profile

MWDM 51 Pin Standard Height

LOW PROFILE MLDM AND MWD CONTACT ARRANGEMENTS

9



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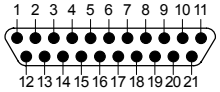

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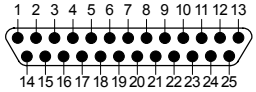

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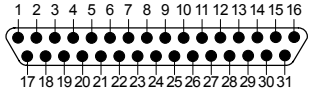

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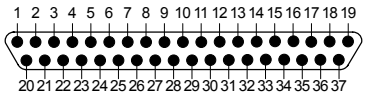

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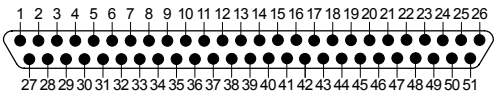
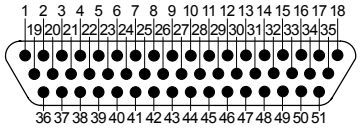


51-2



51

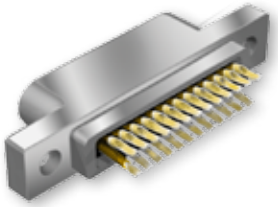
Mating face of pin connector. Socket connector contact numbers are reversed.

MATERIALS AND FINISHES	
Contacts	Copper alloy, 50 µInch gold over nickel
Insulator, MWDL Body	Liquid crystal polymer (LCP)
MLDM Shell	Aluminum alloy
Mounting Hardware	Stainless Steel
Potting Compound	Epoxy
Insulated Wire	Per MIL-W-22759/11 and /33
Solid Wire, PC Tails	Per A-A-59551, gold plated or tinned

SPECIFICATIONS	
Current Rating	3 Amps
Contact Resistance	8 milliohms maximum
Dielectric Withstanding Voltage	600 Vac sea level
Insulation Resistance	5000 megohms minimum
Operating Temperature	-55°C. to +150°C.
Shock	50 g.
Vibration	20 g.

U.S. CAGE Code 06324
Printed in U.S.A.

Low Profile MLDM Metal Shell Micro-D with Solder Cup Contacts



MLDM2L-25SSB

Low profile MLDM connectors have reduced flange height compared to standard MWDM Micro-D connectors. These .050" pitch solder cup Micro-D connectors accept #26 to #30 gage wire with standard contacts and up to size #24 wire with "large bore" contacts. Contacts are factory-installed and potted with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Machined aluminum shell. Glass-filled high temperature LCP thermoplastic insulators withstand soldering heat. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

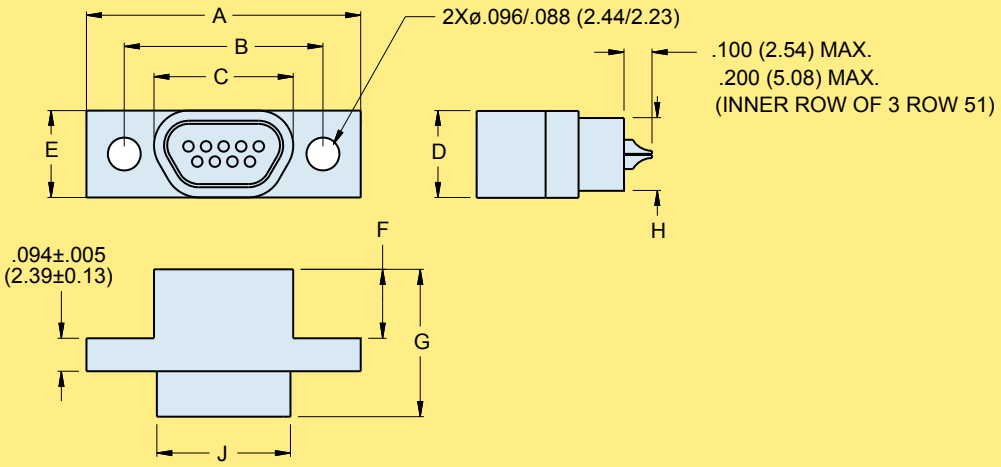
Sample Part Number

MLDM2L	-25	PS	B

Series	Number of Contacts	Contact Type	Mounting Hardware			
MLDM1L Low Profile Metal Shell Micro-D with Yellow Chromate over **Cadmium** Shell Finish (Good corrosion protection, not RoHS compliant) **MLDM2L** Low Profile Metal Shell Micro-D with **Electroless Nickel** Shell Finish (RoHS compliant, preferred for space vehicles and protected environments) **MLDM32L** Low Profile Metal Shell Micro-D with **Black Zinc Nickel** Shell Finish (RoHS compliant, preferred for tactical equipment where a black finish and good corrosion protection are required) **MLDM33L** Low Profile Metal Shell Micro-D with **Nickel-Fluorocarbon** Shell Finish (RoHS compliant, excellent corrosion protection, grey color)	**-9** **-15** **-21** **-25** **-31** **-37** **-51** **-51-2**	**PS** Pin Contacts, Size #26 Solder Cup **NS** Pin Contacts, Size #24 Solder Cup **SS** Socket Contacts, Size #26 Solder Cup **TS** Socket Contacts, Size #24 Solder Cup	**B** Thru-Hole		**P** Jackpost	
			M Jackscrew, Hex Head, Removable		**M1** Jackscrew, Hex Head, Extended, Removable	
			S Jackscrew, Slot Head, Removable		**S1** Jackscrew, Slot Head, Extended, Removable	
			L Jackscrew, Hex Head, Non-Removable		**K** Jackscrew, Slot Head, Extended, Non-Removable	
			F Float Mount for Front-Panel Mounting		**R** Float Mount for Rear-Panel Mounting	
			H #2-56 Threaded Inserts			

Low Profile Metal and Plastic Shell
Micro-D MLDM Metal Shell
Solder Cup Contacts

MLDM SOLDER CUP DIMENSIONS



Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.		J Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.405	10.29
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.405	10.29
15P	.938	23.83	.715	18.16	.442	11.23	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.555	14.10
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.555	14.10
21P	1.088	27.64	.865	21.97	.592	15.04	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.705	17.91
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.705	17.91
25P	1.188	30.18	.965	24.51	.692	17.58	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.805	20.45
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.805	20.45
31P	1.338	33.99	1.115	28.32	.842	21.39	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.955	24.26
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.955	24.26
37P	1.488	37.80	1.265	32.13	.992	25.20	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	1.105	28.07
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	1.105	28.07
51P	1.438	36.53	1.215	30.86	.942	23.93	.177	4.50	.260	6.60	.199	5.05	.390	9.91	.220	5.59	1.058	26.87
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.260	6.60	.180	4.57	.377	9.58	.220	5.59	1.058	26.87
51-2P	1.835	46.61	1.615	41.02	1.340	34.04	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	1.455	36.96
51-2S	1.835	46.61	1.615	41.02	1.425	36.20	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	1.455	36.96

Low Profile Metal and Plastic Shell Micro-D MLDM Metal Shell
Insulated Wire Pigtails

Low Profile MLDM Metal Shell Micro-D With Insulated Wire

MLDM2L-31P-6K5-18M

Low profile MLDM connectors have reduced flange height compared to standard MWDM Micro-D connectors. These .050" pitch Micro-D connectors are supplied with stranded mil spec hookup wire. Contacts are crimped to wire and potted with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Machined aluminum shell. Glass-filled high temperature LCP thermoplastic insulators. M22759/11 standard wire, or M22959/33 lightweight, high strength space grade wire. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

Sample Part Number

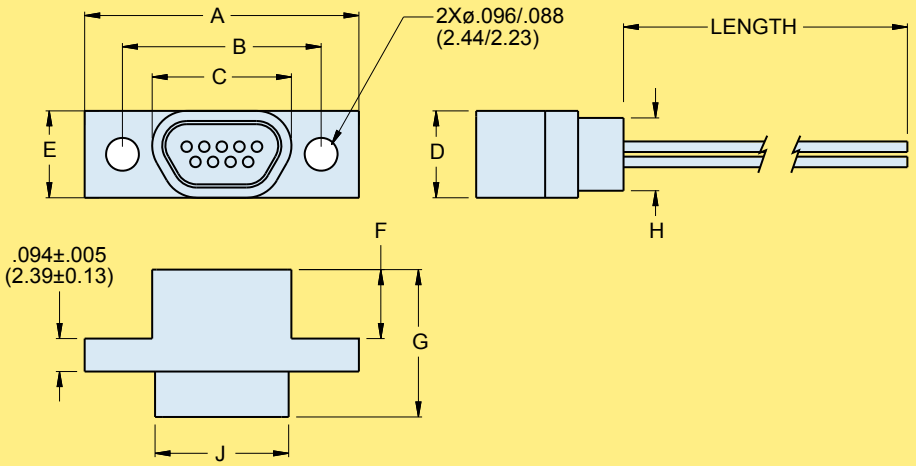
MLDM2L	-31	P	-6	K	5	-18	M
Series	**No. of Contacts**	**Contact Type**	**Wire Gage (AWG)**	**Wire Type**	**Wire Color Code**	**Wire Length (Inches)**	**Mounting Hardware**
MLDM1L Low Profile Metal Shell Micro-D with Yellow Chromate over **Cadmium** Finish **MLDM2L** Low Profile Metal Shell Micro-D with **Electroless Nickel** Shell Finish **MLDM32L** Low Profile Metal Shell Micro-D with **Black Zinc Nickel** Shell Finish **MLDM33L** Low Profile Metal Shell Micro-D with **Nickel-Fluorocarbon** Shell Finish	**-9** **-15** **-21** **-25** **-31** **-37** **-51** **-51-2**	**P** Pin Contacts **S** Socket Contacts	**-4** #24 **-6** #26 **-8** #28 **-0** #30	**K** Standard Wire Extruded PTFE per M22759/11, Silver-Plated Conductors (#30 AWG not available) **J** Space Grade Wire High Strength, Lightweight, Crosslinked Modified ETFE per M22759/33, Silver-Plated Conductors	**1** White **5** Color-Coded per MIL-STD-681 Wires 1-10 are solid color, 11-up are striped. **7** 10 Color Repeat Wires are solid color per MIL-STD-681 color code system. Wires #1, #11, #21 are black, wires #2, #12, #22 are brown, and so on.	Wire Length In Inches Example: **-18** 18 inches 6, 12 and 18 are frequently used lengths.	**B** **M** **M1** **S** **S1** **L** **F** **H** **P** **K** **R**

MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R	H
										
Thru-Hole	**Jackpost** #2-56	**Hex Head Jackscrew** #2-56	**Hex Head Jackscrew, Extended** #2-56	**Slot Head Jackscrew** #2-56	**Slot Head Jackscrew, Extended** #2-56	**Hex Head Jackscrew Non-Removable** #2-56	**Slot Head Jackscrew Non-Removable Extended** #2-56	**Float Mount For Front Panel Mounting**	**Float Mount For Rear Panel Mounting**	**#2-56 Threaded Insert**

Low Profile Metal and Plastic Shell
Micro-D MLDM Metal Shell
Insulated Wire Pigtails

MLDM INSULATED WIRE PIGTAIL DIMENSIONS



Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.		J Max.	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.405	10.29
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.405	10.29
15P	.938	23.83	.715	18.16	.442	11.23	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.555	14.10
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.555	14.10
21P	1.088	27.64	.865	21.97	.592	15.04	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.705	17.91
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.705	17.91
25P	1.188	30.18	.965	24.51	.692	17.58	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.805	20.45
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.805	20.45
31P	1.338	33.99	1.115	28.32	.842	21.39	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.955	24.26
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.955	24.26
37P	1.488	37.80	1.265	32.13	.992	25.20	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	1.105	28.07
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	1.105	28.07
51P	1.438	36.53	1.215	30.86	.942	23.93	.177	4.50	.260	6.60	.199	5.05	.390	9.91	.220	5.59	1.058	26.87
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.260	6.60	.180	4.57	.377	9.58	.220	5.59	1.058	26.87
51-2P	1.835	46.61	1.615	41.02	1.340	34.04	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	1.455	36.96
51-2S	1.835	46.61	1.615	41.02	1.425	36.20	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	1.455	36.96

Low Profile MLDM Metal Shell Micro-D With Solid Wire

MLDM2L-31S-4C4-.250B

Low profile MLDM connectors have reduced flange height compared to standard MWDM Micro-D connectors. These .050" pitch Micro-D connectors are supplied with single strand copper wire. Contacts are crimped to wire and potted with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Machined aluminum shell. Glass-filled high temperature LCP thermoplastic insulators. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

Sample Part Number

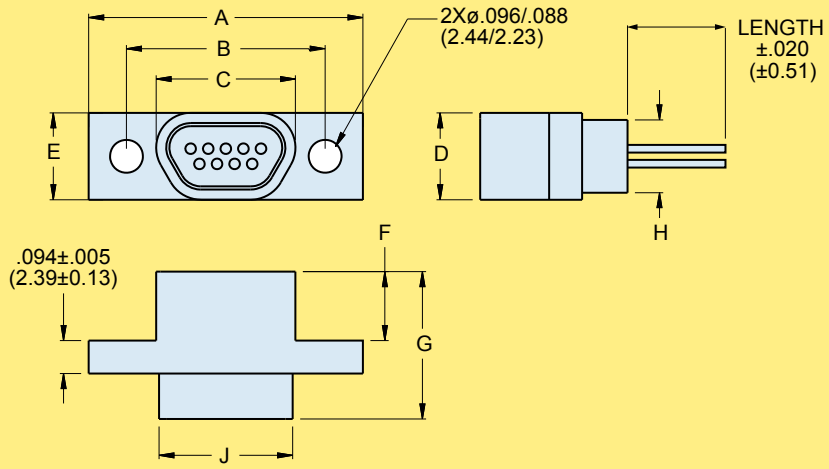
MLDM2L	-31	S	-4	C	4	-.250	B
Series	**No. of Contacts**	**Contact Type**	**Wire Gage (AWG)**	**Wire Type**	**Wire Finish**	**Wire Length (Inches)**	**Mounting Hardware**
MLDM1L Low Profile Metal Shell Micro-D with Yellow Chromate over **Cadmium** Finish **MLDM2L** Low Profile Metal Shell Micro-D with **Electroless Nickel** Shell Finish **MLDM32L** Low Profile Metal Shell Micro-D with **Black Zinc Nickel** Shell Finish **MLDM33L** Low Profile Metal Shell Micro-D with **Nickel-Fluorocarbon** Shell Finish	**-9** **-15** **-21** **-25** **-31** **-37** **-51** **-51-2**	**P** Pin Contacts **S** Socket Contacts	**-4** #24 **-5** #25 **-6** #26	**C** Single Strand Copper A-A-59551 Type S	**3** Solder Dipped in 63/37 Tin-Lead **4** Gold-plated	**.125** **.250** **.500** **1.000** **1.500** **2.000** Wire Length In Inches	**B** **M** **M1** **S** **S1** **L** **F** **H** **P** **K** **R**

MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R	H
										
Thru-Hole	**Jackpost** #2-56	**Hex Head Jackscrew** #2-56	**Hex Head Jackscrew, Extended** #2-56	**Slot Head Jackscrew** #2-56	**Slot Head Jackscrew, Extended** #2-56	**Hex Head Jackscrew Non-Removable** #2-56	**Slot Head Jackscrew Non-Removable Extended** #2-56	**Float Mount For Front Panel Mounting**	**Float Mount For Rear Panel Mounting**	**#2-56 Threaded Insert**

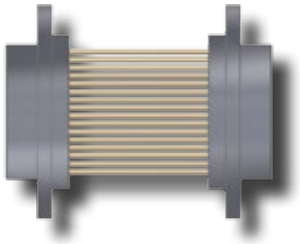
Low Profile Metal and Plastic Shell
Micro-D MLDM Metal Shell
Solid Wire Termination

MLDM WITH SOLID WIRE DIMENSIONS



Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.		J Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.405	10.29
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.405	10.29
15P	.938	23.83	.715	18.16	.442	11.23	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.555	14.10
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.555	14.10
21P	1.088	27.64	.865	21.97	.592	15.04	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.705	17.91
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.705	17.91
25P	1.188	30.18	.965	24.51	.692	17.58	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.805	20.45
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.805	20.45
31P	1.338	33.99	1.115	28.32	.842	21.39	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	.955	24.26
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	.955	24.26
37P	1.488	37.80	1.265	32.13	.992	25.20	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	1.105	28.07
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	1.105	28.07
51P	1.438	36.53	1.215	30.86	.942	23.93	.177	4.50	.260	6.60	.199	5.05	.390	9.91	.220	5.59	1.058	26.87
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.260	6.60	.180	4.57	.377	9.58	.220	5.59	1.058	26.87
51-2P	1.835	46.61	1.615	41.02	1.340	34.04	.134	3.40	.218	5.54	.199	5.05	.390	9.91	.175	4.45	1.455	36.96
51-2S	1.835	46.61	1.615	41.02	1.425	36.20	.218	5.54	.218	5.54	.180	4.57	.377	9.58	.175	4.45	1.455	36.96

Low Profile MLDM Metal Shell Micro-D Back-To-Back Cables



Factory terminated MLDM "back-to-back" jumper cables simplify ordering and reduce assembly labor. Contacts are crimped to wire and potted with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Aluminum alloy shell. Glass-filled high temperature LCP thermoplastic insulator. M22759/11 standard wire, or M22959/33 lightweight, high strength space grade wire. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

Sample Part Number

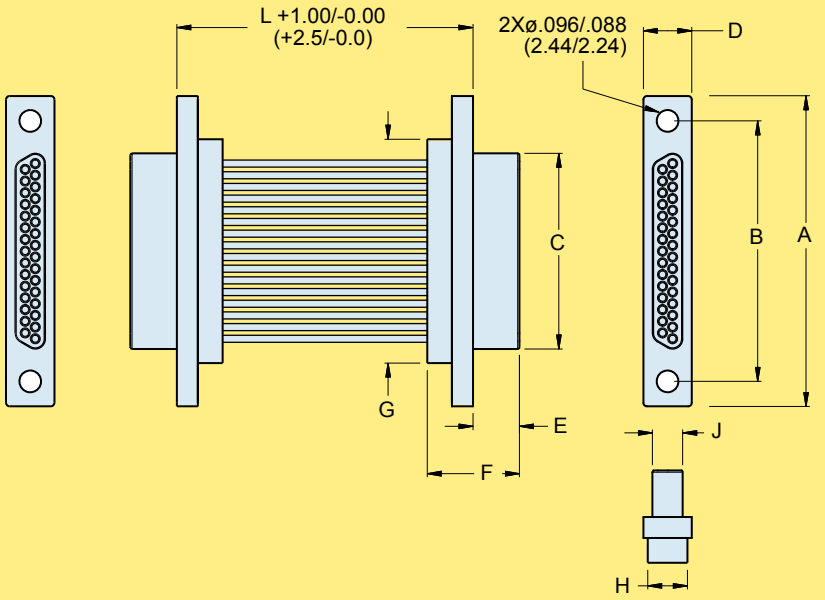
MLDM32L	-37	GP	-6	K	1	-24	P
Series	**No. of Contacts**	**Connector Type**	**Wire Gage (AWG)**	**Wire Type**	**Wire Color Code**	**Wire Length (Inches)**	**Mounting Hardware**
MLDM1L Low Profile Metal Shell Micro-D with Yellow Chromate over **Cadmium** Finish **MLDM2L** Low Profile Metal Shell Micro-D with **Electroless Nickel** Shell Finish **MLDM32L** Low Profile Metal Shell Micro-D with **Black Zinc Nickel** Shell Finish **MLDM33L** Low Profile Metal Shell Micro-D with **Nickel-Fluorocarbon** Shell Finish	**-9** **-15** **-21** **-25** **-31** **-37** **-51** **-51-2**	**GP** Pin Connector Both Ends **GS** Socket Contacts Both Ends **CS** Pin Connector to Socket Connector	**-4** #24 **-6** #26 **-8** #28 **-0** #30	**K** Standard Wire Extruded PTFE per M22759/11, Silver-Plated Conductors (#30 AWG not available) **J** Space Grade Wire High Strength, Lightweight, Crosslinked Modified ETFE per M22759/33, Silver-Plated Conductors	**1** White **5** Color-Coded per MIL-STD-681 Wires 1-10 are solid color, 11-up are striped. **7** 10 Color Repeat Wires are solid color per MIL-STD-681 color code system. Wires #1, #11, #21 are black, wires #2, #12, #22 are brown, and so on.	Wire Length In Inches Example: **-18** 18 inches 6, 12 and 18 are frequently used lengths.	**B** **M** **M1** **S** **S1** **L** **P** **K** **F** **R** **H**

MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R	H
										
Thru-Hole	**Jackpost** #2-56	**Hex Head Jackscrew** #2-56	**Hex Head Jackscrew, Extended** #2-56	**Slot Head Jackscrew** #2-56	**Slot Head Jackscrew, Extended** #2-56	**Hex Head Jackscrew** Non-Removable #2-56	**Slot Head Jackscrew** Non-Removable Extended #2-56	**Float Mount** For Front Panel Mounting	**Float Mount** For Rear Panel Mounting	**#2-56 Threaded Insert**

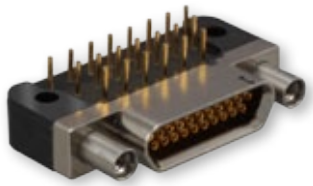
Low Profile Metal and Plastic Shell
Micro-D MLDM Metal Shell
Back-To-Back Cables

MLDM BACK-TO-BACK CABLE DIMENSIONS



Layout	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.218	5.54	.202	5.13	.395	10.03	.408	10.36	.173	4.39	.134	3.40
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.185	4.70	.375	9.53	.408	10.36	.173	4.39	.218	5.54
15P	.938	23.83	.715	18.16	.442	11.23	.218	5.54	.202	5.13	.395	10.03	.558	14.17	.173	4.39	.134	3.40
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.185	4.70	.375	9.53	.558	14.17	.173	4.39	.218	5.64
21P	1.088	27.64	.865	21.97	.592	15.04	.218	5.54	.202	5.13	.395	10.03	.708	17.98	.173	4.39	.134	3.40
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.185	4.70	.375	9.53	.708	17.98	.173	4.39	.218	5.64
25P	1.188	30.18	.965	24.51	.692	17.58	.218	5.54	.202	5.13	.395	10.03	.808	20.52	.173	4.39	.134	3.40
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.185	4.70	.375	9.53	.808	20.52	.173	4.39	.218	5.64
31P	1.338	33.99	1.115	28.32	.842	21.39	.218	5.54	.202	5.13	.395	10.03	.958	24.33	.173	4.39	.134	3.40
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.185	4.70	.375	9.53	.958	24.33	.173	4.39	.218	5.64
37P	1.488	37.80	1.265	32.13	.992	25.20	.218	5.54	.202	5.13	.395	10.03	1.108	28.14	.173	4.39	.134	3.40
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.185	4.70	.375	9.53	1.108	28.14	.173	4.39	.218	5.64
51P	1.438	36.53	1.215	30.86	.942	23.93	.260	6.60	.202	5.13	.395	10.03	1.058	26.87	.220	5.59	.177	4.50
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.185	4.70	.375	9.53	1.058	26.87	.220	5.59	.260	6.60
51-2P	1.835	46.61	1.615	41.02	1.340	34.04	.218	5.54	.214	5.44	.199	5.05	.390	9.91	.175	4.45	.134	3.40
51-2S	1.835	46.61	1.615	41.02	1.425	36.20	.218	5.54	.214	5.44	.180	4.57	.377	9.58	.175	4.45	.218	5.54

Low Profile MLDM Metal Shell Micro-D Right Angle Printed Circuit Board



MLDM2L-21SCBRP-.110

Low profile MLDM connectors have reduced flange height compared to standard MWDM Micro-D connectors. These thru-hole "CBR" style Micro-D connectors have gold-plated PC tails on .100" centers. Connectors are backfilled with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Gold-plated PC tails. Machined aluminum shell, stainless steel hardware. Optional #2-56 threaded inserts in board mounting holes. Glass-filled LCP thermoplastic insulators and tray withstand immersion in +260C solder for 10 seconds. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

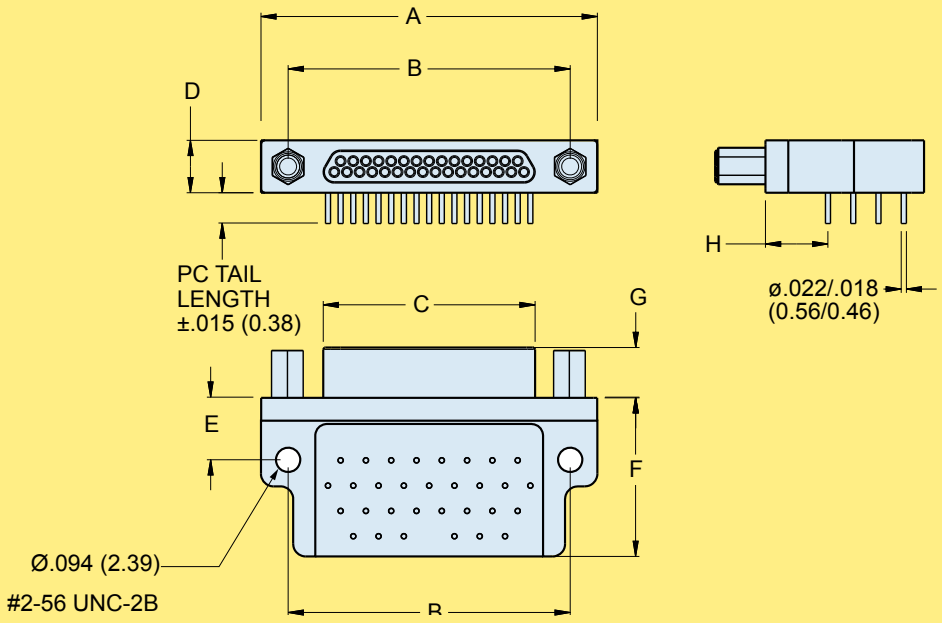
Sample Part Number

MLDM2L	-21	S	CBR	P		-.110
Series	**No. of Contacts**	**Contact Type**	**Termination Type**	**Hardware Option**	**Threaded Insert Option**	**PC Tail Length**
MLDM1L Low Profile Metal Shell Micro-D with Yellow Chromate over **Cadmium** Finish **MLDM2L** Low Profile Metal Shell Micro-D with **Electroless Nickel** Shell Finish **MLDM32L** Low Profile Metal Shell Micro-D with **Black Zinc Nickel** Shell Finish **MLDM33L** Low Profile Metal Shell Micro-D with **Nickel-Fluorocarbon** Shell Finish	**-9** **-15** **-21** **-25** **-31** **-37** **-51**	**P** Pin Contacts **S** Socket Contacts	**CBR** Condensed Board Right Angle	***Omit*** For None **P** Standard Jackpost (non-removable) **R1** Jackpost for Rear-Panel Mounting, .032" (0.81) Panel Thickness **R2** Jackpost for Rear-Panel Mounting, .047" (1.19) Panel Thickness **R3** Jackpost for Rear-Panel Mounting, .062" (1.57) Panel Thickness **R4** Jackpost for Rear-Panel Mounting, .093" (2.36) Panel Thickness **R5** Jackpost for Rear-Panel Mounting, .125" (3.18) Panel Thickness	***Omit*** For Thru-Holes **T** Threaded Inserts in Board Mounting Holes. #2-56 Female Thread.	**-.110** **-.125** **-.150** **-.190** **-.250**

E

Low Profile Metal and Plastic Shell
Micro-D MLDM Metal Shell
Right Angle Printed Circuit Board

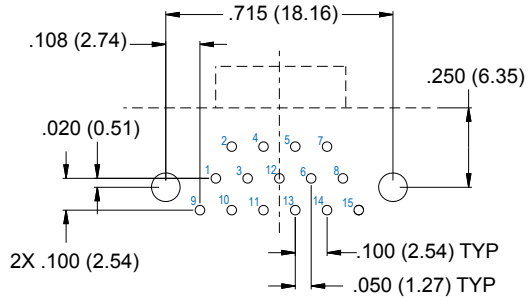
MLDM CBR DIMENSIONS



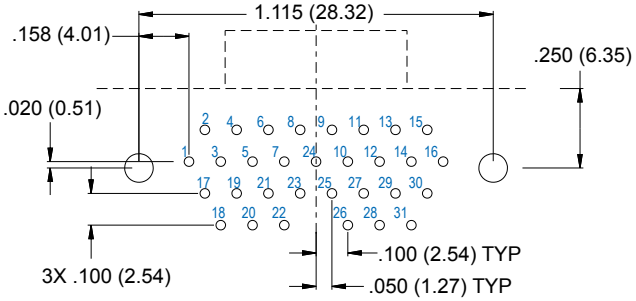
Layout	A Max.		B		C Max.		D Max.		E		F Max.		G Max.		H	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In . ± .010	mm. ± 0.25
9P	.788	20.02	.565	14.35	.292	7.42	.218	5.54	.250	6.35	.425	10.80	.202	5.13	.230	5.84
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.250	6.35	.425	10.80	.185	4.70	.230	5.84
15P	.938	23.83	.715	18.16	.442	11.23	.218	5.54	.250	6.35	.425	10.80	.202	5.13	.130	3.30
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.250	6.35	.425	10.80	.185	4.70	.130	3.30
21P	1.088	27.64	.865	21.97	.592	15.04	.218	5.54	.250	6.35	.425	10.80	.202	5.13	.130	3.30
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.250	6.35	.425	10.80	.185	4.70	.130	3.30
25P	1.188	30.18	.965	24.51	.692	17.58	.218	5.54	.250	6.35	.425	10.80	.202	5.13	.130	3.30
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.250	6.35	.425	10.80	.185	4.70	.130	3.30
31P	1.338	33.99	1.115	28.32	.842	21.39	.218	5.54	.250	6.35	.525	13.34	.202	5.13	.130	3.30
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.250	6.35	.525	13.34	.185	4.70	.130	3.30
37P	1.488	37.80	1.265	32.13	.992	25.20	.218	5.54	.250	6.35	.525	13.34	.202	5.13	.130	3.30
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.250	6.35	.525	13.34	.185	4.70	.130	3.30
51P	1.438	36.53	1.215	30.86	.942	23.93	.260	6.60	.300	7.62	.660	16.76	.202	5.13	.150	3.81
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.300	7.62	.660	16.76	.185	4.70	.150	3.81

MLDM CBR PCB LAYOUTS — PIN CONNECTORS

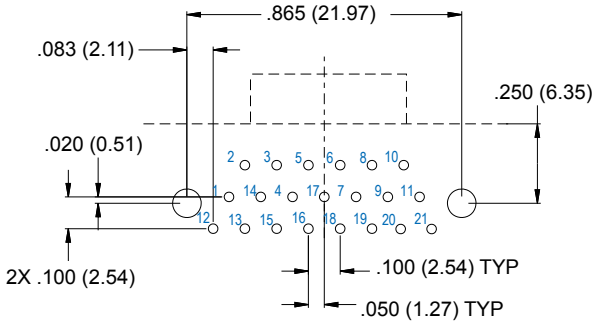
9 PIN



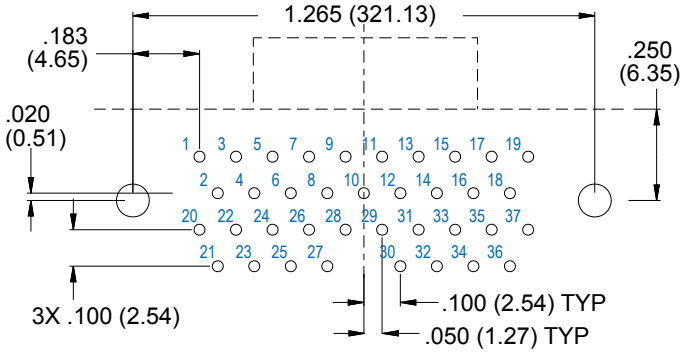
25 PIN



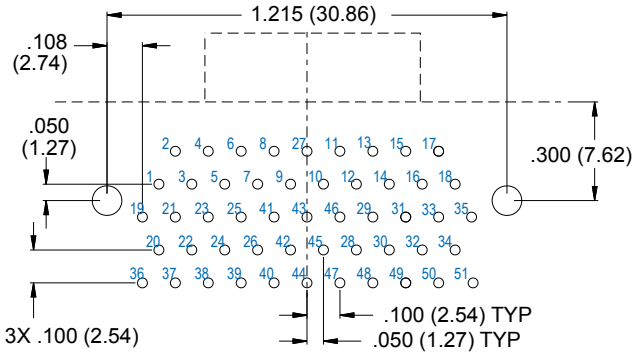
15 PIN



31 PIN



21 PIN



37 PIN

Notes

1. Patterns shown are for connector mounting side of PC board.
2. Board mounting holes are .094" (2.39) diameter.
3. PC tails are .022" (0.56) maximum diameter.

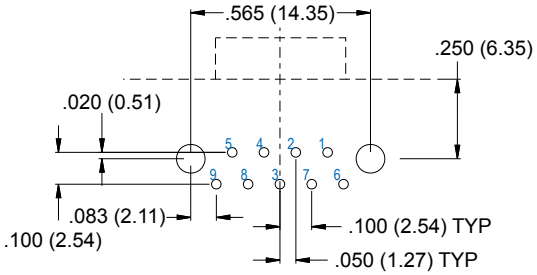
51 PIN

Low Profile Metal and Plastic Shell Micro-D MLDM Metal Shell

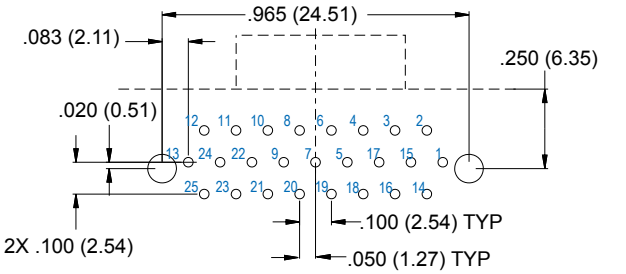
Right Angle Printed Circuit Board

MLDM CBR PCB LAYOUTS — SOCKET CONNECTORS

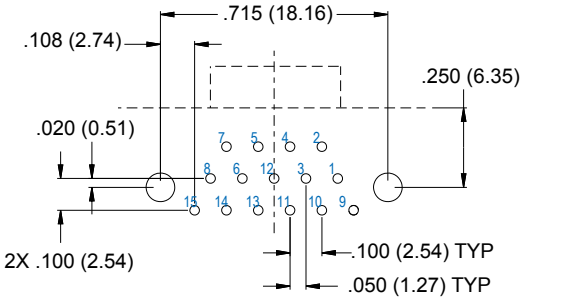
9S



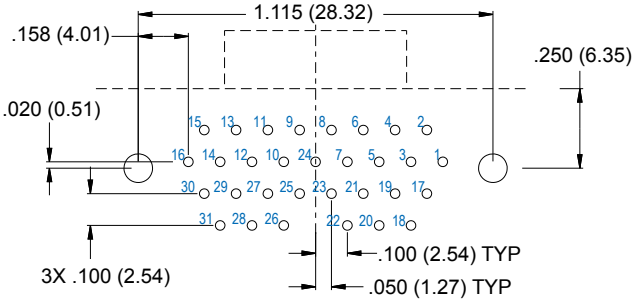
25S



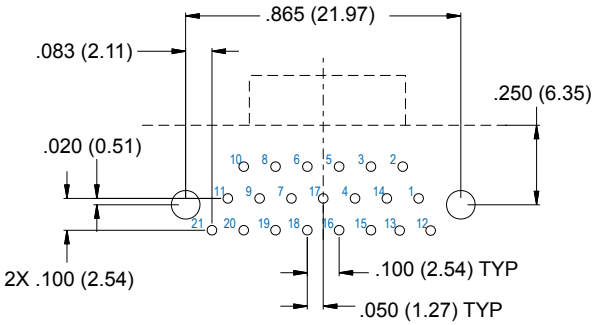
15S



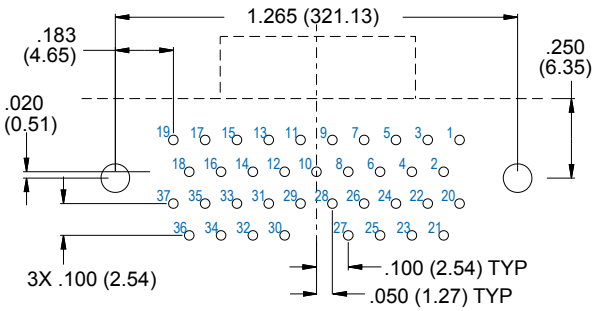
31S



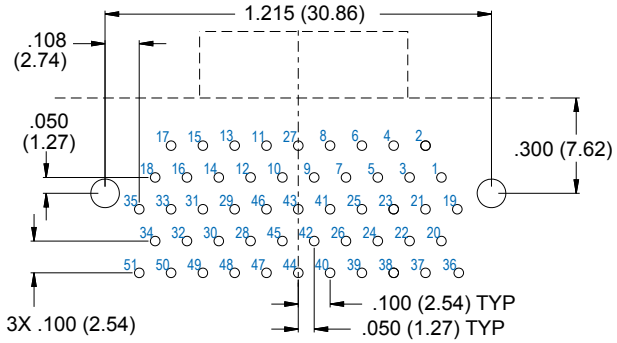
21S



37S



51S



Notes

1. Patterns shown are for connector mounting side of PC board.
2. Board mounting holes are .094" (2.39) diameter.
3. PC tails are .022" (0.56) maximum diameter.

Low Profile MWDL Plastic Shell Micro-D with Solder Cup Contacts

MWDL-25PSB

.050" pitch all-plastic solder cup Micro-D connectors accept #26 to #30 gage wire with standard contacts and up to size #24 wire with "large bore" contacts. Contacts are factory-installed and potted with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Glass-filled high temperature LCP thermoplastic insulators withstand soldering heat. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

Sample Part Number

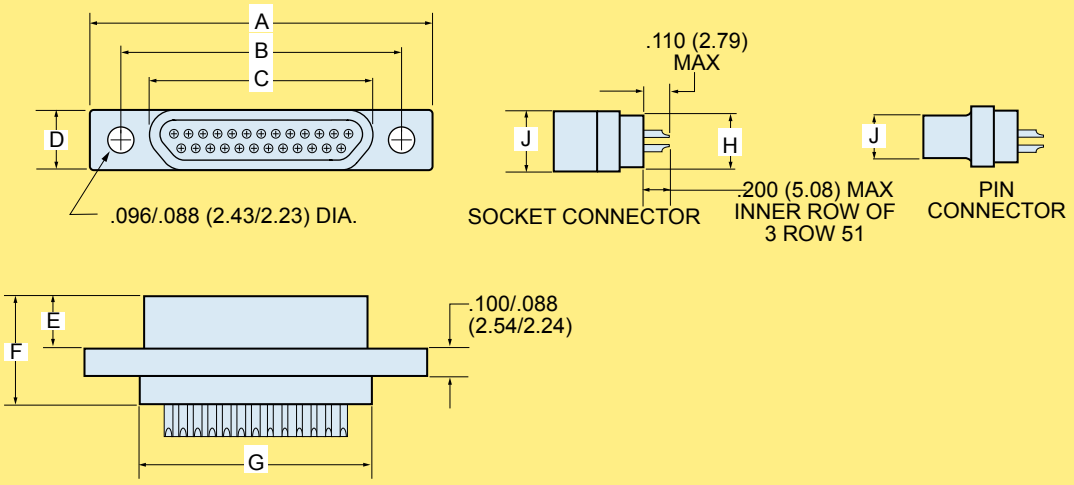
MWDL	-25	SS	B
Series	**Number of Contacts**	**Contact Type**	**Mounting Hardware**

Series	Number of Contacts	Contact Type	Mounting Hardware	
MWDL Low Profile Plastic Shell Micro-D	**-9** **-15** **-21** **-25** **-31** **-37** **-51**	**PS** Pin Contacts, Size #26 Solder Cup **NS** Pin Contacts, Size #24 Solder Cup **SS** Socket Contacts, Size #26 Solder Cup **TS** Socket Contacts, Size #24 Solder Cup	**B** Thru-Hole	
			P Jackpost	
			M Jackscrew, Hex Head, Removable	
			M1 Jackscrew, Hex Head, Extended, Removable	
			S Jackscrew, Slot Head, Removable	
			S1 Jackscrew, Slot Head, Extended, Removable	

E

Low Profile Metal and Plastic Shell
Micro-D MWDL Plastic Shell
Solder Cup Termination

MWDL SOLDER CUP DIMENSIONS



Layout	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.218	5.54	.202	5.13	.395	10.03	.408	10.36	.173	4.39	.134	3.40
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.185	4.70	.375	9.53	.408	10.36	.173	4.39	.218	5.54
15P	.938	23.83	.715	18.16	.442	11.23	.218	5.54	.202	5.13	.395	10.03	.558	14.17	.173	4.39	.134	3.40
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.185	4.70	.375	9.53	.558	14.17	.173	4.39	.218	5.64
21P	1.088	27.64	.865	21.97	.592	15.04	.218	5.54	.202	5.13	.395	10.03	.708	17.98	.173	4.39	.134	3.40
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.185	4.70	.375	9.53	.708	17.98	.173	4.39	.218	5.64
25P	1.188	30.18	.965	24.51	.692	17.58	.218	5.54	.202	5.13	.395	10.03	.808	20.52	.173	4.39	.134	3.40
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.185	4.70	.375	9.53	.808	20.52	.173	4.39	.218	5.64
31P	1.338	33.99	1.115	28.32	.842	21.39	.218	5.54	.202	5.13	.395	10.03	.958	24.33	.173	4.39	.134	3.40
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.185	4.70	.375	9.53	.958	24.33	.173	4.39	.218	5.64
37P	1.488	37.80	1.265	32.13	.992	25.20	.218	5.54	.202	5.13	.395	10.03	1.108	28.14	.173	4.39	.134	3.40
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.185	4.70	.375	9.53	1.108	28.14	.173	4.39	.218	5.64
51P	1.438	36.53	1.215	30.86	.942	23.93	.260	6.60	.202	5.13	.395	10.03	1.058	26.87	.220	5.59	.177	4.50
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.185	4.70	.375	9.53	1.058	26.87	.220	5.59	.260	6.60

PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Body	Liquid Crystal Polymer (LCP), Glass-filled
Pin Contact	Beryllium Copper, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy

Low Profile MWDL Plastic Shell Micro-D with Insulated Wire Termination

MWDL-37P-6K7-18B

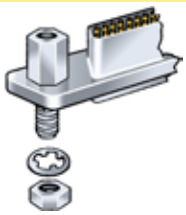
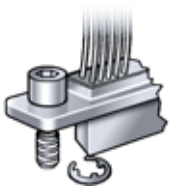
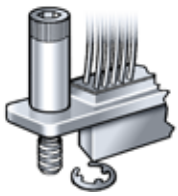
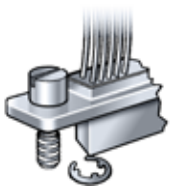
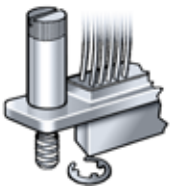
All-Plastic MWDL connectors are supplied with stranded mil spec hookup wire. Contacts are crimped to wire and potted with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Glass-filled high temperature LCP thermoplastic connector body. M22759/11 standard wire, or M22959/33 lightweight, high strength space grade wire. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

Sample Part Number

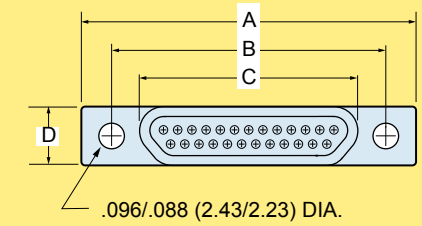
MWDL	-37	P	-6	K	5	-18	M
Series	**No. of Contacts**	**Contact Type**	**Wire Gage (AWG)**	**Wire Type**	**Wire Color Code**	**Wire Length (Inches)**	**Mounting Hardware**
MWDL Low Profile Plastic Shell Micro-D	**-9** **-15** **-21** **-25** **-31** **-37** **-51**	**P** Pin Contacts **S** Socket Contacts	**-4** #24 **-6** #26 **-8** #28 **-0** #30	**K** Standard Wire Extruded PTFE per M22759/11, Silver-Plated Conductors (#30 AWG not available) **J** Space Grade Wire High Strength, Lightweight, Crosslinked Modified ETFE per M22759/33, Silver-Plated Conductors	**1** White **5** Color-Coded per MIL-STD-681 Wires 1-10 are solid color, 11-up are striped. **7** 10 Color Repeat Wires are solid color per MIL-STD-681 color code system. Wires #1, #11, #21 are black, wires #2, #12, #22 are brown, and so on.	Wire Length In Inches Example: **-18** 18 inches 6, 12 and 18 are frequently used lengths.	**B** **M** **M1** **S** **S1** **P** See Mounting Hardware Table Below

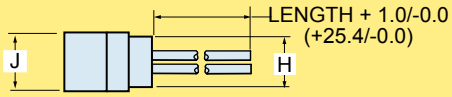
MOUNTING HARDWARE

B	P	M	M1	S	S1
					
Thru-Hole	**Jackpost** #2-56	**Hex Head Jackscrew** #2-56	**Hex Head Jackscrew, Extended** #2-56	**Slot Head Jackscrew** #2-56	**Slot Head Jackscrew, Extended** #2-56

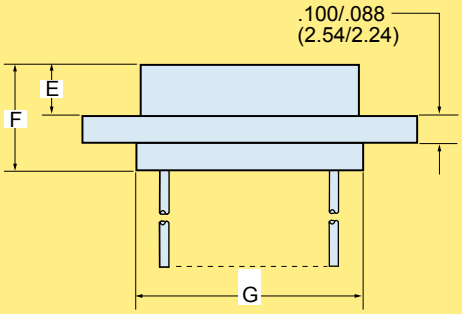
Low Profile Metal and Plastic Shell
Micro-D MWDL Plastic Shell
Insulated Wire Pigtails

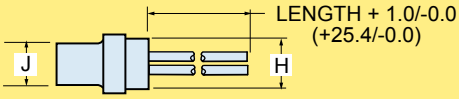
MWDL INSULATED WIRE PIGTAIL DIMENSIONS





SOCKET CONNECTOR





PIN CONNECTOR

Layout	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.218	5.54	.202	5.13	.395	10.03	.408	10.36	.173	4.39	.134	3.40
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.185	4.70	.375	9.53	.408	10.36	.173	4.39	.218	5.54
15P	.938	23.83	.715	18.16	.442	11.23	.218	5.54	.202	5.13	.395	10.03	.558	14.17	.173	4.39	.134	3.40
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.185	4.70	.375	9.53	.558	14.17	.173	4.39	.218	5.64
21P	1.088	27.64	.865	21.97	.592	15.04	.218	5.54	.202	5.13	.395	10.03	.708	17.98	.173	4.39	.134	3.40
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.185	4.70	.375	9.53	.708	17.98	.173	4.39	.218	5.64
25P	1.188	30.18	.965	24.51	.692	17.58	.218	5.54	.202	5.13	.395	10.03	.808	20.52	.173	4.39	.134	3.40
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.185	4.70	.375	9.53	.808	20.52	.173	4.39	.218	5.64
31P	1.338	33.99	1.115	28.32	.842	21.39	.218	5.54	.202	5.13	.395	10.03	.958	24.33	.173	4.39	.134	3.40
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.185	4.70	.375	9.53	.958	24.33	.173	4.39	.218	5.64
37P	1.488	37.80	1.265	32.13	.992	25.20	.218	5.54	.202	5.13	.395	10.03	1.108	28.14	.173	4.39	.134	3.40
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.185	4.70	.375	9.53	1.108	28.14	.173	4.39	.218	5.64
51P	1.438	36.53	1.215	30.86	.942	23.93	.260	6.60	.202	5.13	.395	10.03	1.058	26.87	.220	5.59	.177	4.50
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.185	4.70	.375	9.53	1.058	26.87	.220	5.59	.260	6.60

PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Body	Liquid Crystal Polymer (LCP), Glass-filled
Pin Contact	Beryllium Copper, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy

Low Profile MWDL Plastic Shell Micro-D with Solid Wire Termination

MWDL-15S-5C3-.500B

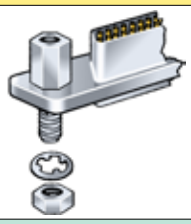
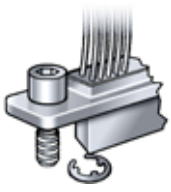
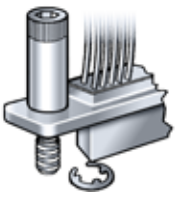
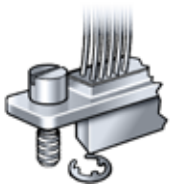
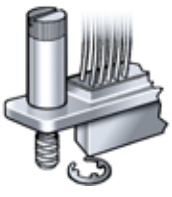
These all-plastic MWDL connectors are supplied with single strand copper wire. Contacts are crimped to wire and potted with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Glass-filled high temperature LCP thermoplastic connector body. Choose gold-plated wire or pre-tinned with 63/37 tin-lead solder. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

Sample Part Number

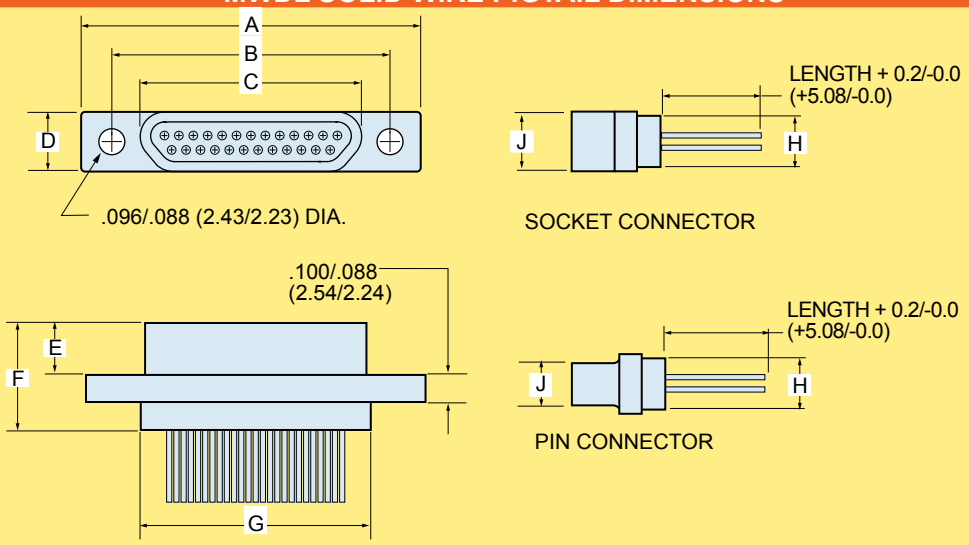
MWDL	-31	S	-4	C	4	-.250	B
Series	**No. of Contacts**	**Contact Type**	**Wire Gage (AWG)**	**Wire Type**	**Wire Finish**	**Wire Length (Inches)**	**Mounting Hardware**
MWDL Low Profile Plastic Shell Micro-D	**-9** **-15** **-21** **-25** **-31** **-37** **-51**	**P** Pin Contacts **S** Socket Contacts	**-4** #24 **-5** #25 **-6** #26	**C** Single Strand Copper A-A-59551 Type S	**3** Solder Dipped in 63/37 Tin-Lead **4** Gold-plated	**.125** **.250** **.500** **1.000** **1.500** **2.000** Wire Length In Inches	**B** **M** **M1** **S** **S1** **P** See Mounting Hardware Table Below

MOUNTING HARDWARE

B	P	M	M1	S	S1
					
Thru-Hole	**Jackpost** #2-56	**Hex Head Jackscrew** #2-56	**Hex Head Jackscrew, Extended** #2-56	**Slot Head Jackscrew** #2-56	**Slot Head Jackscrew, Extended** #2-56

Low Profile Metal and Plastic Shell
Micro-D MWDL Plastic Shell
Solid Wire Termination

MWDL SOLID WIRE PIGTAIL DIMENSIONS



Layout	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.218	5.54	.202	5.13	.395	10.03	.408	10.36	.173	4.39	.134	3.40
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.185	4.70	.375	9.53	.408	10.36	.173	4.39	.218	5.54
15P	.938	23.83	.715	18.16	.442	11.23	.218	5.54	.202	5.13	.395	10.03	.558	14.17	.173	4.39	.134	3.40
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.185	4.70	.375	9.53	.558	14.17	.173	4.39	.218	5.64
21P	1.088	27.64	.865	21.97	.592	15.04	.218	5.54	.202	5.13	.395	10.03	.708	17.98	.173	4.39	.134	3.40
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.185	4.70	.375	9.53	.708	17.98	.173	4.39	.218	5.64
25P	1.188	30.18	.965	24.51	.692	17.58	.218	5.54	.202	5.13	.395	10.03	.808	20.52	.173	4.39	.134	3.40
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.185	4.70	.375	9.53	.808	20.52	.173	4.39	.218	5.64
31P	1.338	33.99	1.115	28.32	.842	21.39	.218	5.54	.202	5.13	.395	10.03	.958	24.33	.173	4.39	.134	3.40
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.185	4.70	.375	9.53	.958	24.33	.173	4.39	.218	5.64
37P	1.488	37.80	1.265	32.13	.992	25.20	.218	5.54	.202	5.13	.395	10.03	1.108	28.14	.173	4.39	.134	3.40
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.185	4.70	.375	9.53	1.108	28.14	.173	4.39	.218	5.64
51P	1.438	36.53	1.215	30.86	.942	23.93	.260	6.60	.202	5.13	.395	10.03	1.058	26.87	.220	5.59	.177	4.50
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.185	4.70	.375	9.53	1.058	26.87	.220	5.59	.260	6.60

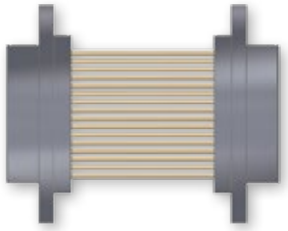
PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Body	Liquid Crystal Polymer (LCP), Glass-filled
Pin Contact	Beryllium Copper, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy

Low Profile MWDL Plastic Shell Micro-D Back-To-Back Cables



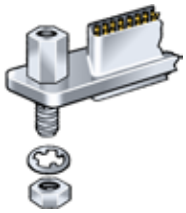
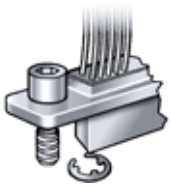
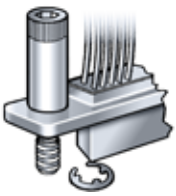
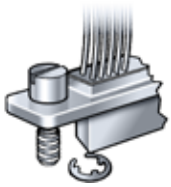
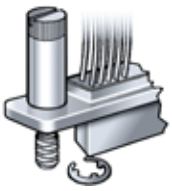
Factory terminated all-plastic "back-to-back" jumper cables simplify ordering and reduce assembly labor. Contacts are crimped to wire and potted with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Glass-filled high temperature LCP thermoplastic connector body. M22759/11 standard wire, or M22959/33 lightweight, high strength space grade wire. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

Sample Part Number

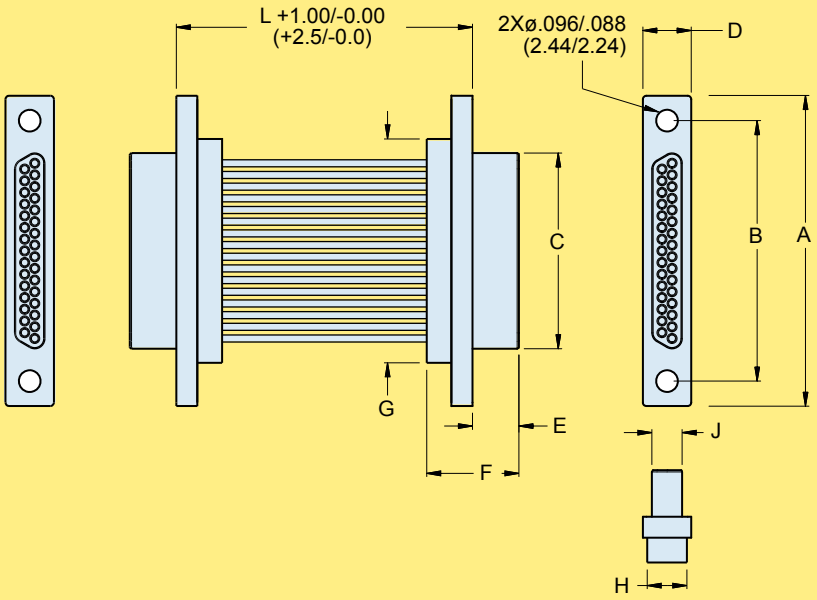
MWDL	-37	GP	-6	K	1	-24	P
Series	**No. of Contacts**	**Connector Type**	**Wire Gage (AWG)**	**Wire Type**	**Wire Color Code**	**Wire Length (Inches)**	**Mounting Hardware**
MWDL Low Profile Plastic Shell Micro-D	**-9** **-15** **-21** **-25** **-31** **-37** **-51**	**GP** Pin Connector Both Ends **GS** Socket Contacts Both Ends **CS** Pin Connector to Socket Connector	**-4** #24 **-6** #26 **-8** #28 **-0** #30	**K** Standard Wire Extruded PTFE per M22759/11, Silver-Plated Conductors (#30 AWG not available) **J** Space Grade Wire High Strength, Lightweight, Crosslinked Modified ETFE per M22759/33, Silver-Plated Conductors	**1** White **5** Color-Coded per MIL-STD-681 Wires 1-10 are solid color, 11-up are striped. **7** 10 Color Repeat Wires are solid color per MIL-STD-681 color code system. Wires #1, #11, #21 are black, wires #2, #12, #22 are brown, and so on.	Wire Length In Inches Example: **-18** 18 inches 6, 12 and 18 are frequently used lengths.	**B** **M** **M1** **S** **S1** **P** See Mounting Hardware Table Below

MOUNTING HARDWARE

B	P	M	M1	S	S1
					
Thru-Hole	**Jackpost** #2-56	**Hex Head Jackscrew** #2-56	**Hex Head Jackscrew, Extended** #2-56	**Slot Head Jackscrew** #2-56	**Slot Head Jackscrew, Extended** #2-56

Low Profile Metal and Plastic Shell
Micro-D MWDL Plastic Shell
Back-To-Back Cables

MWDL BACK-TO-BACK CABLE DIMENSIONS



Layout	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.218	5.54	.202	5.13	.395	10.03	.408	10.36	.173	4.39	.134	3.40
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.185	4.70	.375	9.53	.408	10.36	.173	4.39	.218	5.54
15P	.938	23.83	.715	18.16	.442	11.23	.218	5.54	.202	5.13	.395	10.03	.558	14.17	.173	4.39	.134	3.40
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.185	4.70	.375	9.53	.558	14.17	.173	4.39	.218	5.54
21P	1.088	27.64	.865	21.97	.592	15.04	.218	5.54	.202	5.13	.395	10.03	.708	17.98	.173	4.39	.134	3.40
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.185	4.70	.375	9.53	.708	17.98	.173	4.39	.218	5.54
25P	1.188	30.18	.965	24.51	.692	17.58	.218	5.54	.202	5.13	.395	10.03	.808	20.52	.173	4.39	.134	3.40
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.185	4.70	.375	9.53	.808	20.52	.173	4.39	.218	5.54
31P	1.338	33.99	1.115	28.32	.842	21.39	.218	5.54	.202	5.13	.395	10.03	.958	24.33	.173	4.39	.134	3.40
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.185	4.70	.375	9.53	.958	24.33	.173	4.39	.218	5.54
37P	1.488	37.80	1.265	32.13	.992	25.20	.218	5.54	.202	5.13	.395	10.03	1.108	28.14	.173	4.39	.134	3.40
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.185	4.70	.375	9.53	1.108	28.14	.173	4.39	.218	5.54
51P	1.438	36.53	1.215	30.86	.942	23.93	.260	6.60	.202	5.13	.395	10.03	1.058	26.87	.220	5.59	.177	4.50
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.185	4.70	.375	9.53	1.058	26.87	.220	5.59	.260	6.60

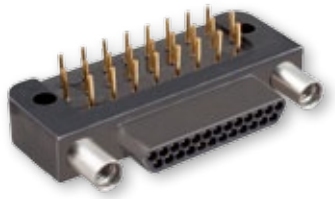
PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Body	Liquid Crystal Polymer (LCP), Glass-filled
Pin Contact	Beryllium Copper, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy

Low Profile MWDL Plastic Shell Micro-D Right Angle Printed Circuit Board



MWDL-25PCBRP-.110

Low profile MWDL connectors have reduced flange height compared to standard MWDM Micro-D connectors. These thru-hole "CBR" style Micro-D connectors have gold-plated PC tails on .100" centers. Connectors are backfilled with epoxy. Pin contacts are gold-plated high performance TwistPin type and are recessed into insulator to prevent damage. Socket contacts are gold plated, machined copper alloy. Stainless steel hardware. Optional #2-56 threaded inserts in board mounting holes. Glass-filled LCP thermoplastic insulators and tray withstand immersion in +260C solder for 10 seconds. Meets performance requirements of MIL-DTL-83513. Available with 9 to 51 contacts. 3 A., 600 Vac, -55°C to +150°C.

HOW TO ORDER

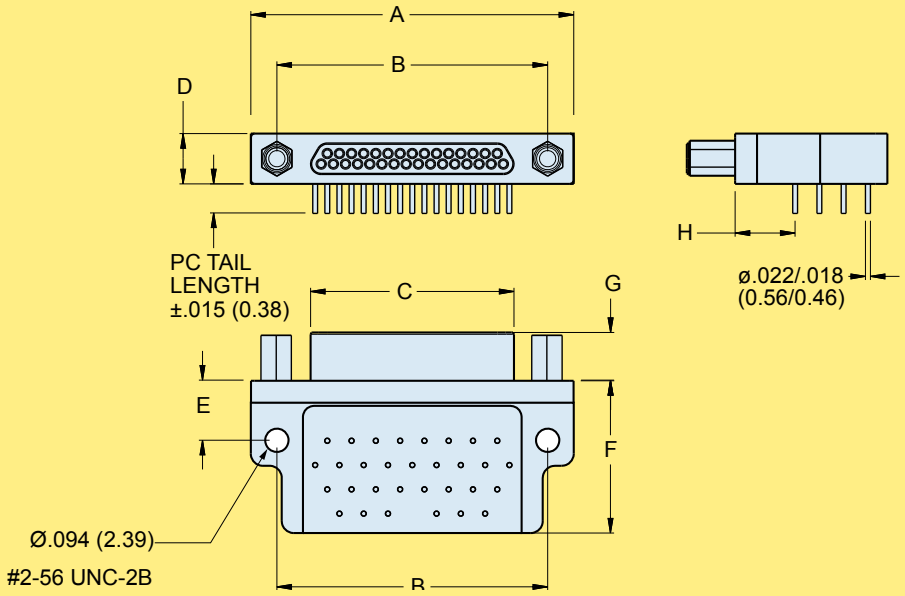
Sample Part Number

MWDL	-21	S	CBR	P		-.110
Series	**No. of Contacts**	**Contact Type**	**Termination Type**	**Hardware Option**	**Threaded Insert Option**	**PC Tail Length**
MWDL Low Profile Plastic Shell Micro-D	**-9** **-15** **-21** **-25** **-31** **-37** **-51**	**P** Pin Contacts **S** Socket Contacts	**CBR** Condensed Board Right Angle	***Omit*** For None **P** Standard Jackpost (non-removable) **R1** Jackpost for Rear-Panel Mounting, .032" (0.81) Panel Thickness **R2** Jackpost for Rear-Panel Mounting, .047" (1.19) Panel Thickness **R3** Jackpost for Rear-Panel Mounting, .062" (1.57) Panel Thickness **R4** Jackpost for Rear-Panel Mounting, .093" (2.36) Panel Thickness **R5** Jackpost for Rear-Panel Mounting, .125" (3.18) Panel Thickness	***Omit*** For Thru-Holes **T** Threaded Inserts in Board Mounting Holes. #2-56 Female Thread.	**-.110** **-.125** **-.150** **-.190** **-.250**

E

Low Profile Metal and Plastic Shell
Micro-D MWDL Plastic Shell
Right Angle PCB

MWDL CBR DIMENSIONS



Layout	A Max.		B		C Max.		D Max.		E		F Max.		G Max.		H	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In . ± .010	mm. ± 0.25
9P	.788	20.02	.565	14.35	.292	7.42	.218	5.54	.250	6.35	.425	10.80	.202	5.13	.230	5.84
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.250	6.35	.425	10.80	.185	4.70	.230	5.84
15P	.938	23.83	.715	18.16	.442	11.23	.218	5.54	.250	6.35	.425	10.80	.202	5.13	.130	3.30
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.250	6.35	.425	10.80	.185	4.70	.130	3.30
21P	1.088	27.64	.865	21.97	.592	15.04	.218	5.54	.250	6.35	.425	10.80	.202	5.13	.130	3.30
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.250	6.35	.425	10.80	.185	4.70	.130	3.30
25P	1.188	30.18	.965	24.51	.692	17.58	.218	5.54	.250	6.35	.425	10.80	.202	5.13	.130	3.30
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.250	6.35	.425	10.80	.185	4.70	.130	3.30
31P	1.338	33.99	1.115	28.32	.842	21.39	.218	5.54	.250	6.35	.525	13.34	.202	5.13	.130	3.30
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.250	6.35	.525	13.34	.185	4.70	.130	3.30
37P	1.488	37.80	1.265	32.13	.992	25.20	.218	5.54	.250	6.35	.525	13.34	.202	5.13	.130	3.30
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.250	6.35	.525	13.34	.185	4.70	.130	3.30
51P	1.438	36.53	1.215	30.86	.942	23.93	.260	6.60	.300	7.62	.660	16.76	.202	5.13	.150	3.81
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.300	7.62	.660	16.76	.185	4.70	.150	3.81

PERFORMANCE SPECIFICATIONS

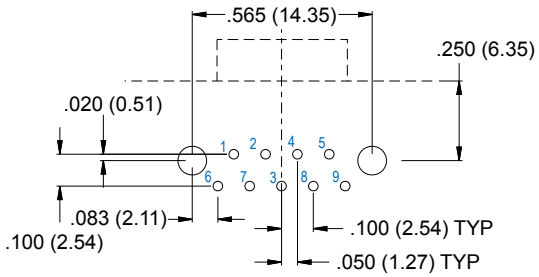
Current Rating	3 AMP
DWV	600 VAC Sea level
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Operating Temperature	-55° C. to +150° C.
Shock, Vibration	50 g., 20g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

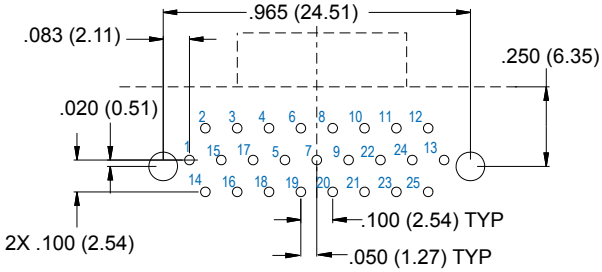
Connector Body	Liquid Crystal Polymer (LCP), Glass-filled
Pin Contact	Beryllium Copper, Gold over Nickel Plating
Socket Contact	Copper Alloy, Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
Encapsulant	Epoxy

MWDL CBR PCB LAYOUTS — PIN CONNECTORS

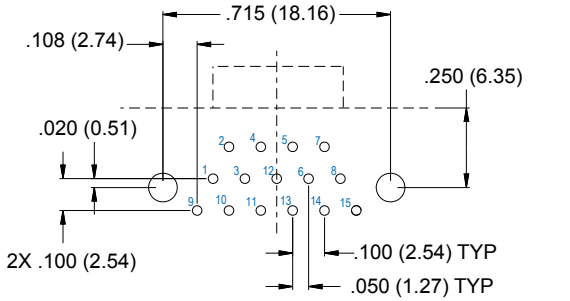
9 PIN



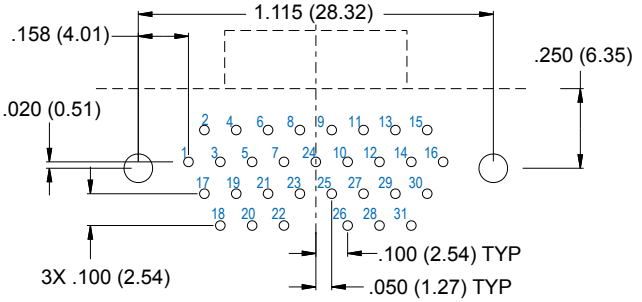
25 PIN



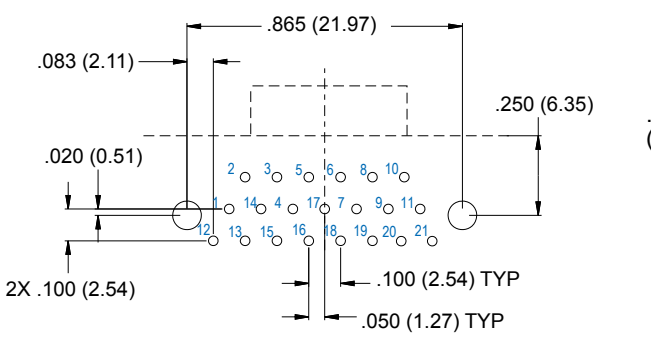
15 PIN



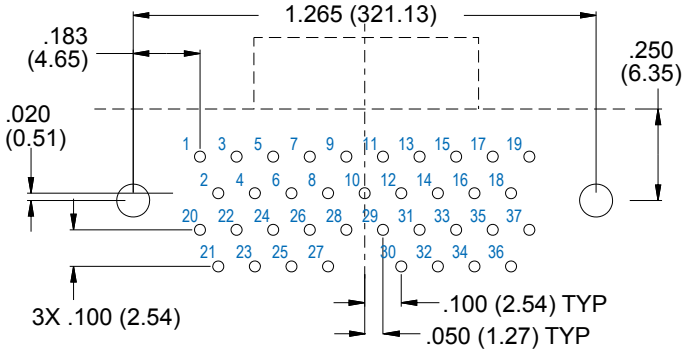
31 PIN



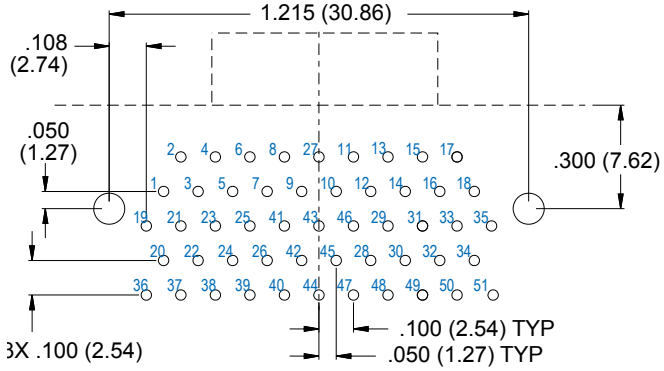
21 PIN



37 PIN



51 PIN

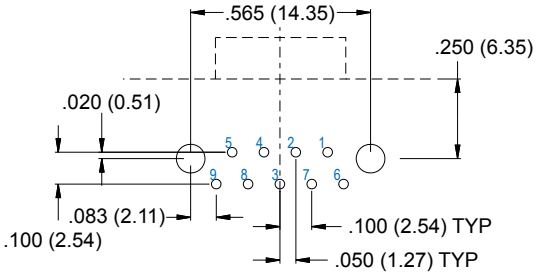


Notes

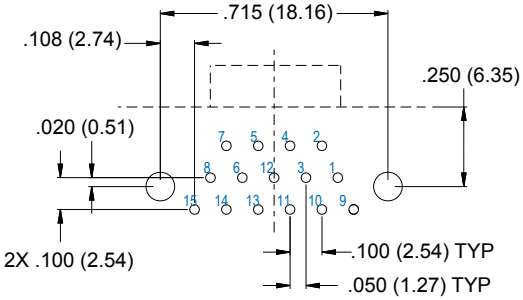
1. Patterns shown are for connector mounting side of PC board.
2. Board mounting holes are .094" (2.39) diameter.
3. PC tails are .022" (0.56) maximum diameter.

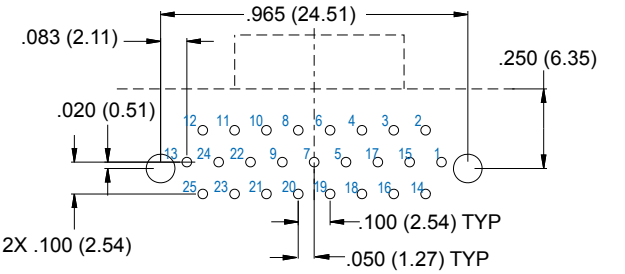
Low Profile Metal and Plastic Shell
Micro-D MWDL Plastic Shell
Right Angle PCB

MLDM CBR PCB LAYOUTS — SOCKET CONNECTORS



9S





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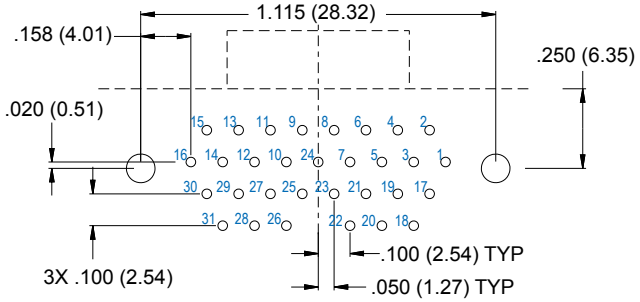
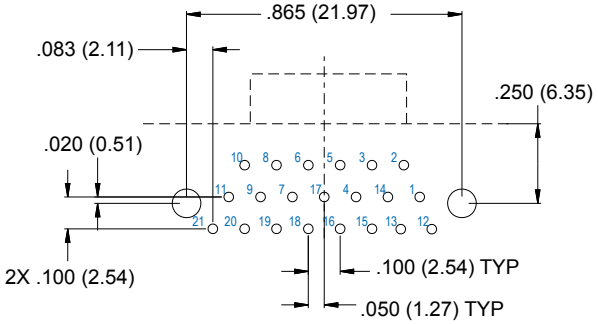


15S



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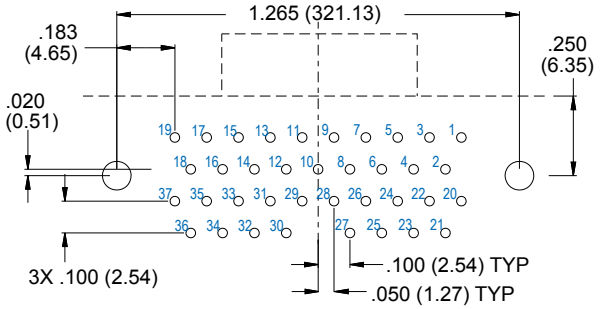
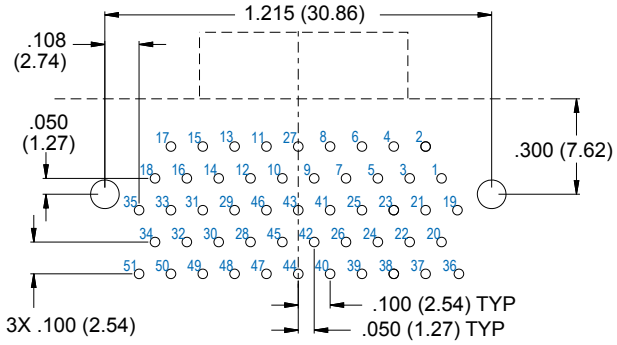


21S



37S

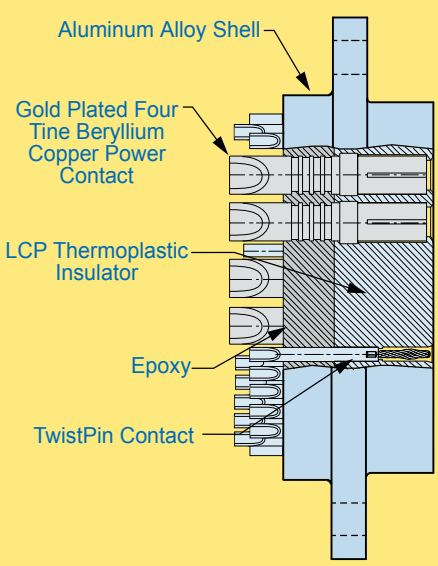
Notes

1. Patterns shown are for connector mounting side of PC board.
2. Board mounting holes are .094" (2.39) diameter.
3. PC tails are .022" (0.56) maximum diameter.

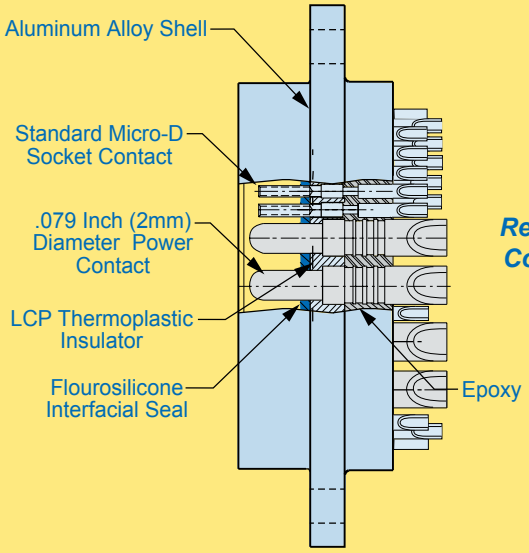
51S

Combo Micro-D for High Power Applications

OVERVIEW AND PRODUCT SELECTION GUIDE



Plug Connector



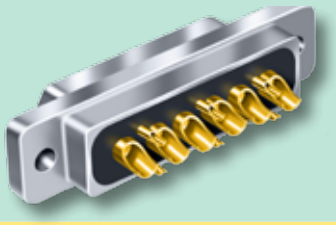
Receptacle Connector

Glenair's Combo Micro-D's combine the size and weight advantages of a Micro -D connector with the added ability to handle higher power needs. These connectors feature combinations of .079 inch (2mm) power contacts and TwistPin signal contacts.

13 Amp Current Rating – Available in three styles: solder cup, pre-wired pigtails or printed circuit board, these Micro-D connectors handle up to #16 AWG wire.

Combo Micro-D Solder Cup Connectors

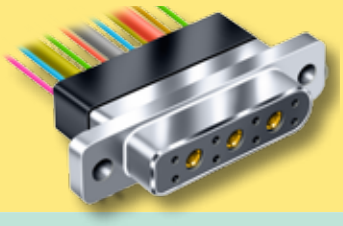
Nonremovable solder cup #16 power contacts for termination to #16 AWG or smaller wire. Micro pins accept #26 AWG or smaller wire. Gold plated contacts are backfilled with rigid epoxy.



Combo Solder Cup Page E-3

Combo Micro-D Pre-Wired Pigtails

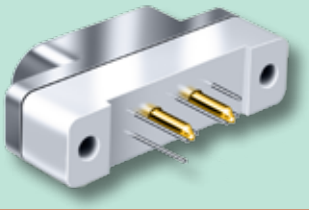
Crimp contacts are terminated to insulated Teflon® wire. Connectors are backpotted with epoxy, providing strain relief and environmental protection.



Combo Pre-Wired Page E-6

Combo Micro-D Printed Circuit Board

Ideal for flexible or rigid circuits, these vertical mount connectors feature high temperature materials to withstand soldering heat. A full range of hardware options is available.



Combo Board Mount Page E-9

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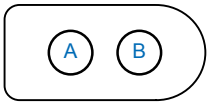
E-Mail: sales@glenair.com

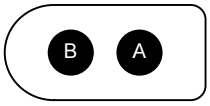
Combo Micro-D for High Power Applications
Contact Arrangements

CONTACT ARRANGEMENTS– MATING FACE VIEW

B112

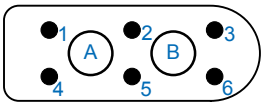


B112P Plug
2 Each .079" (2mm) Socket Contacts

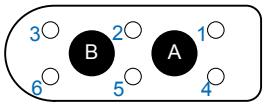


B112R Receptacle
2 Each .079" (2mm) Pin Contacts

D113

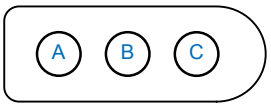


D113P Plug
2 Each .079" (2mm) Socket Contacts, 6 Each Micro TwistPins

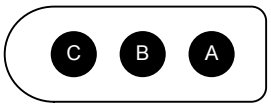


D113R Receptacle
2 Each .079" (2mm) Pin Contacts, 6 Each Micro Sockets

D112

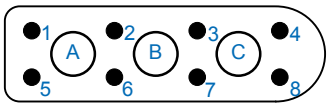


D112P Plug
2 Each .079" (2mm) Socket Contacts

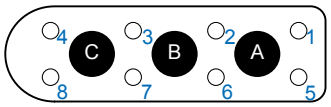


D112R Receptacle
3 Each .079" (2mm) Pin Contacts

E113

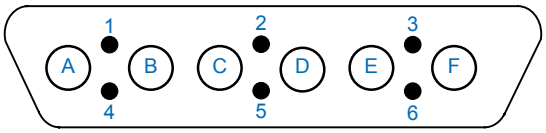


E113P Plug
3 Each .079" (2mm) Socket Contacts, 8 Each Micro TwistPins

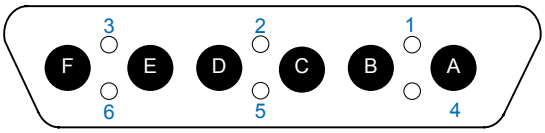


E113R Receptacle
3 Each .079" (2mm) Pin Contacts, 8 Each Micro Sockets

G103

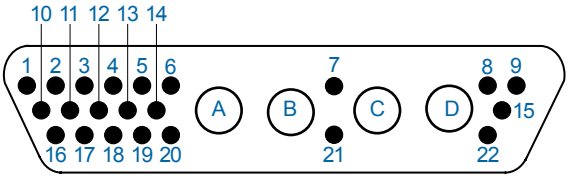


G103P Plug
6 Each .079" (2mm) Socket Contacts, 6 Each Micro TwistPins

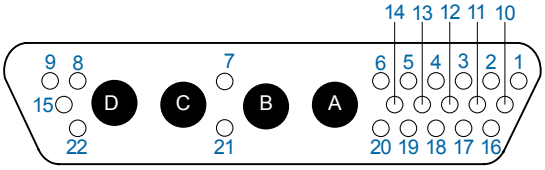


G103R Receptacle
6 Each .079" (2mm) Pin Contacts, 6 Each Micro Sockets

G101

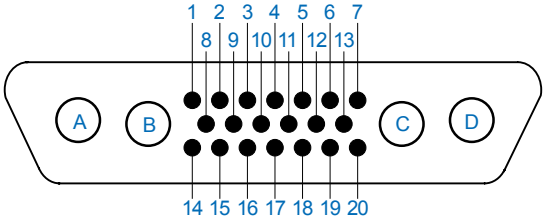


G101P Plug
4 Each .079" (2mm) Socket Contacts, 22 Each Micro TwistPins

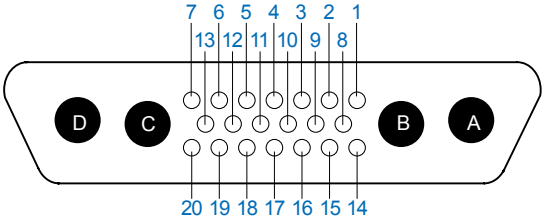


G101R Receptacle
4 Each .079" (2mm) Pin Contacts, 22 Each Micro Sockets

G111



G111P Plug
4 Each .079" (2mm) Socket Contacts, 20 Each Micro TwistPins



G111R Receptacle
4 Each .079" (2mm) Pin Contacts, 20 Each Micro Sockets

Combo Solder Cup Micro-D for High Power Applications

13 Amp Current Rating – Combo Micro-D's combine the size and weight advantages of a Micro -D connector with the added ability to handle higher power needs.

Solder Cup Contacts – Gold plated beryllium copper power contacts accommodate up to #16 AWG stranded wire. Signal contacts accept up to #26 AWG wire.

Mil Spec Performance – Glenair combo Micro-D connectors comply with the requirements of MIL-DTL-83513 and feature excellent resistance to high temperatures, shock and vibration.

HOW TO ORDER COMBO SOLDER CUP MICRO-D

Series	Shell Finish	Shell Size and Insert Arrangement	Termination Type	Hardware
GMPM	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	B112P B112R D112P D112R D113P D113R E113P E113R G101P G101R G103P G103R G111P G111R	S – Solder Cup	B P M M1 S S1 L K F R H
Sample Part Number				
GMPM	2	– G111P	S	B

G103P

Plug Connector
with TwistPin signal contacts and socket 2mm power contacts

G103S

Receptacle Connector
with socket TwistPin signal contacts and male 2mm power contacts

MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R	H
										
Thru-Hole	Jackpost #2-56	Hex Head Jackscrew #2-56	Hex Head Jackscrew, Extended #2-56	Slot Head Jackscrew #2-56	Slot Head Jackscrew, Extended #2-56	Hex Head Jackscrew Non-Removable #2-56	Slot Head Jackscrew Non-Removable Extended	Float Mount For Front Panel Mounting	Float Mount For Rear Panel Mounting	#2-56 Threaded Insert

Combo Solder Cup Micro-D for High Power Applications

PERFORMANCE SPECIFICATIONS

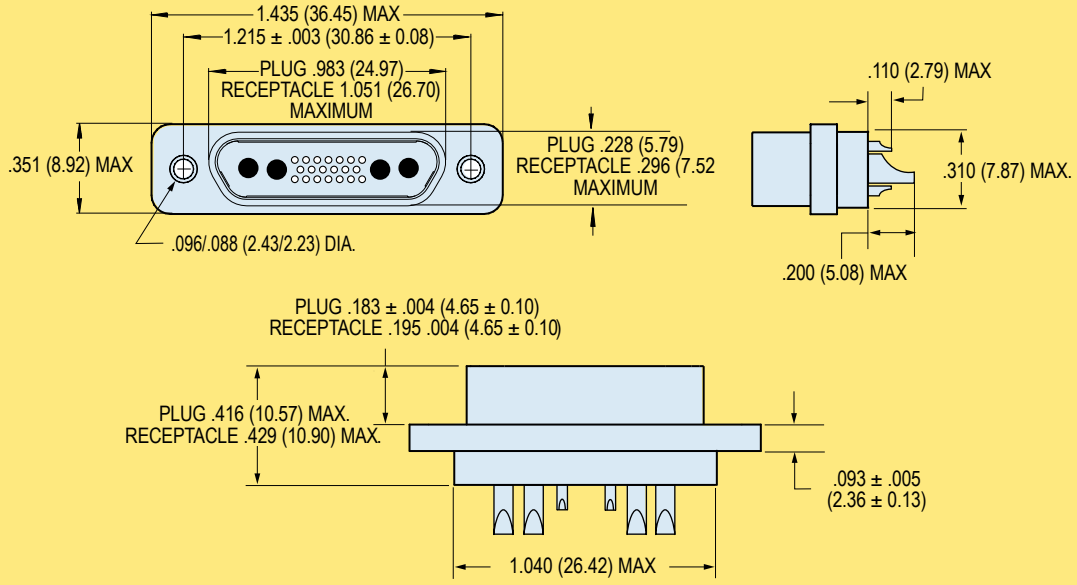
Current Rating	3 AMP Signal Contacts 13 AMP .079" (2mm) Power Contacts
Dielectric Withstanding Voltage	600 VAC Sea Level 150 VAC 70,000 Feet
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resistance	32 Milliohms Max. Signal Contacts
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock	50 g.
Vibration	20 g.
Outgassing	Meets NASA Outgassing Requirements
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061. See Ordering Info for Plating Options.
Insulator	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact, TwistPin	Copper Alloy with 50 Microinches Gold over Nickel Plating
Socket Contact	Copper Alloy with 50 Microinches Gold Over Nickel Plating
Pin Contact, 2mm. Power	Brass With 50 Microinches Gold Over Nickel Plating
Skt. Contact. 2mm. Power	Beryllium Copper With 50 Microinches Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
PCB Terminals	Gold-Plated Copper Alloy, Solder Dipped
Encapsulant	Epoxy Resin Hysol EE4215

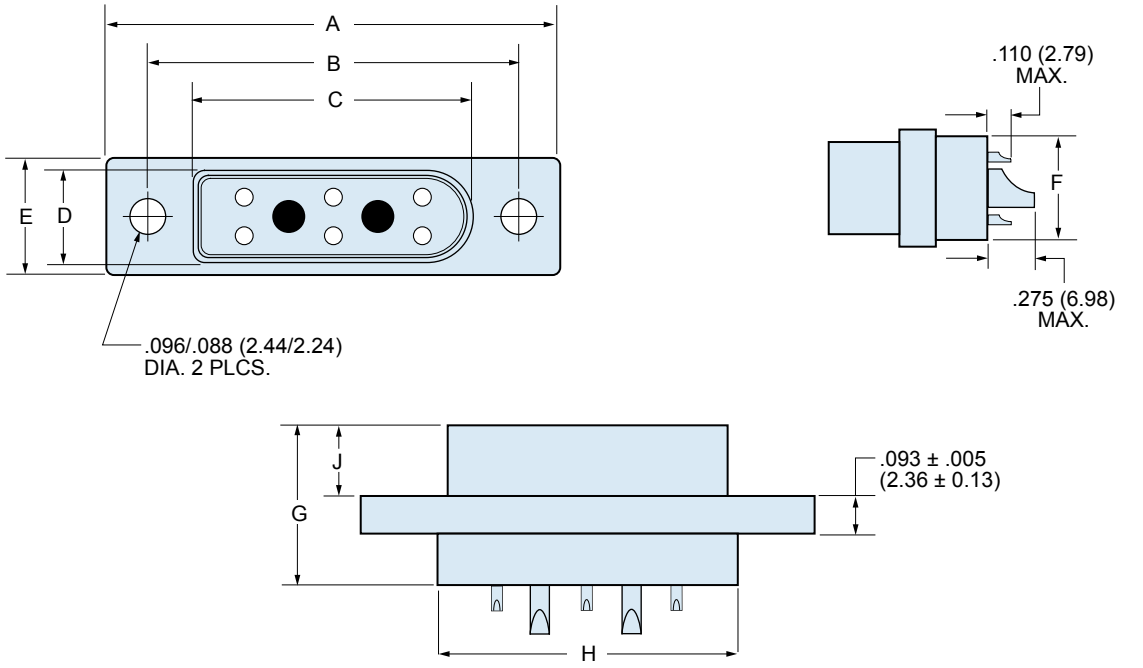
F

DIMENSIONS FOR SHELL SIZE G CONNECTORS



Dimensions for Shell Size G Connectors
Layouts G101, G103, G111

Combo Solder Cup Micro-D for High Power Applications



Dimensions for Shell Size B, D, AND E Connectors
Layouts B112, D112, D113, and E113

COMBO SOLDER CUP CONNECTOR DIMENSIONS

	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
Layout	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
B112P	.935	23.75	.715	18.16	.481	12.21	.242	6.15	.315	8.00	.270	6.86	.416	10.57	.550	13.97	.184	4.68
B112R	.935	23.75	.715	18.16	.547	13.92	.315	8.00	.315	8.00	.270	6.86	.429	10.90	.550	13.97	.197	5.01
D112P	1.185	30.01	.965	24.51	.731	18.56	.242	6.15	.315	8.00	.270	6.86	.416	10.57	.800	20.32	.184	4.68
D112R	1.185	30.01	.965	24.51	.798	20.27	.315	8.00	.315	8.00	.270	6.86	.429	10.90	.800	20.32	.197	5.01
D113P	1.185	30.01	.965	24.51	.731	18.56	.242	6.15	.315	8.00	.270	6.86	.416	10.57	.800	20.32	.184	4.68
D113R	1.185	30.01	.965	24.51	.798	20.27	.315	8.00	.315	8.00	.270	6.86	.429	10.90	.800	20.32	.197	5.01
E113P	1.335	33.91	1.115	28.32	.881	22.37	.242	6.15	.315	8.00	.270	6.86	.416	10.57	.950	24.13	.184	4.68
E113R	1.335	33.91	1.115	28.32	.948	24.08	.315	8.00	.315	8.00	.270	6.86	.429	10.90	.950	24.13	.197	5.01

Combo Pre-Wired Micro-D for High Power Applications

GMPMT-D113P with (6) #24 pins and (3) 2mm. sockets

13 Amp Current Rating–Combo Micro-D's combine the size and weight advantages of a Micro -D connector with the added ability to handle higher power needs.

Pre-Wired And Potted with Epoxy–Gold plated power contacts accommodate up to #16 AWG stranded wire. Signal contacts accept up to #24 AWG wire.

Mil Spec Performance–Glenair combo Micro-D connectors comply with the requirements of MIL-DTL-83513 and feature excellent resistance to high temperatures, shock and vibration.

HOW TO ORDER PRE-WIRED MICRO-D POWER CONNECTORS

Series	Shell Finish	Shell Size and Insert Layout	Cable Entry Style	Wire Gage for #24 Contacts (AWG)	Wire Gage for #16 Contacts (AWG)	Wire Type	Wire Color	Wire Length mm	Hardware
GMPM	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	B112P B112R D112P D112R D113P D113R E113P E113R G101P G101R G103P G103R G111P G111R	T - Top Entry	4 – #24 6 – #26 8 – #28 0 – #30 Omit for D112 and B112 layouts containing power contacts only.	16 18 20	K – M22759/11 600 Vrms Teflon® (TFE) J – M22759/33 600 Vrms Modified Cross-Linked Tefze® (ETFE) E – NEMA HP3-EB 600 VrmsType E M16878/4 (TFE)) F – NEMA HP3-ETB Type ET M16878/6 250Vrms	1 – White Wire 2 – Yellow 5 – Color-Coded Stripes Per MIL-STD-681 7 – Ten Color Repeating #16 wire is always white. Wire colors apply to the signal wires only.	460 Wire length In millimeters, rounded up to the nearest 10 mm.	B P M M1 S S1 L K F R H
Sample Part Number									
GMPM	2 –	B112P	T	–	18	K	7 –	460	B

MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R	H
										
Thru-Hole	**Jackpost**	**Hex Head Jackscrew**	**Hex Head Jackscrew, Extended**	**Slot Head Jackscrew**	**Slot Head Jackscrew, Extended**	**Hex Head Jackscrew** Non-Removable	**Slot Head Jackscrew** Non-Removable Extended	**Float Mount** For Front Panel Mounting	**Float Mount** For Rear Panel Mounting	**Threaded Insert**

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www.glenair.com
E-Mail: sales@glenair.com

Combo Pre-Wired Micro-D for High Power Applications

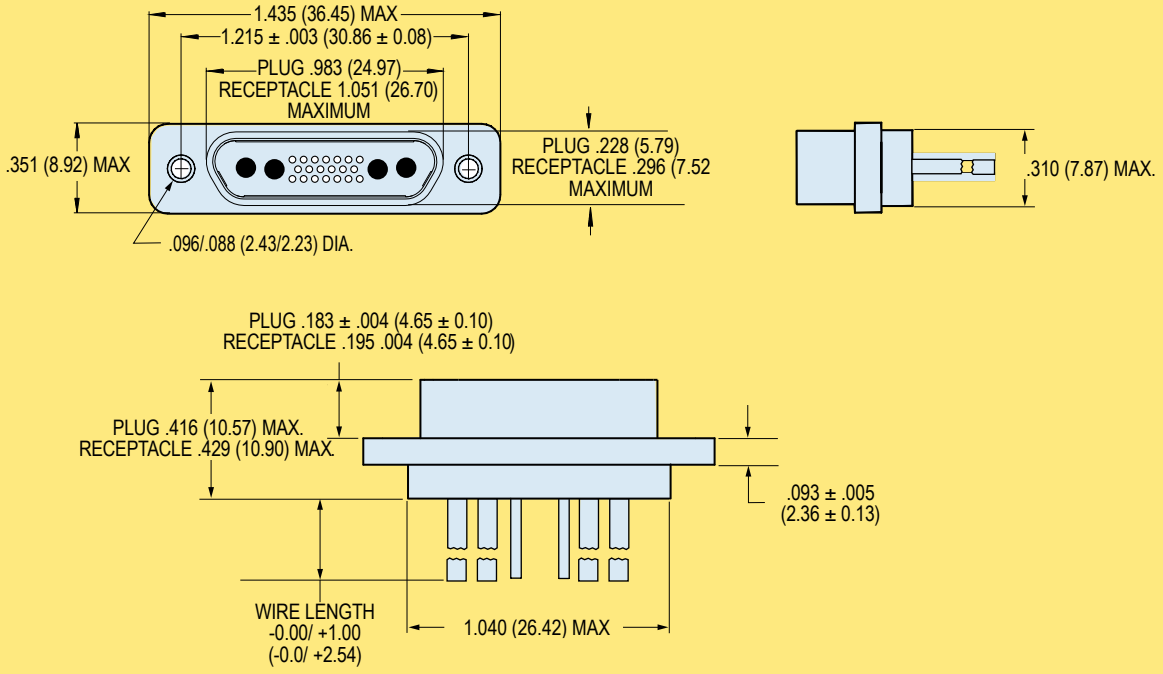
PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP Signal Contacts 13 AMP .079" (2mm) Power Contacts
Dielectric Withstanding Voltage	600 VAC Sea Level 150 VAC 70,000 Feet
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resistance	32 Milliohms Max. Signal Contacts
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock	50 g.
Vibration	20 g.
Outgassing	Meets NASA Outgassing Requirements
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES

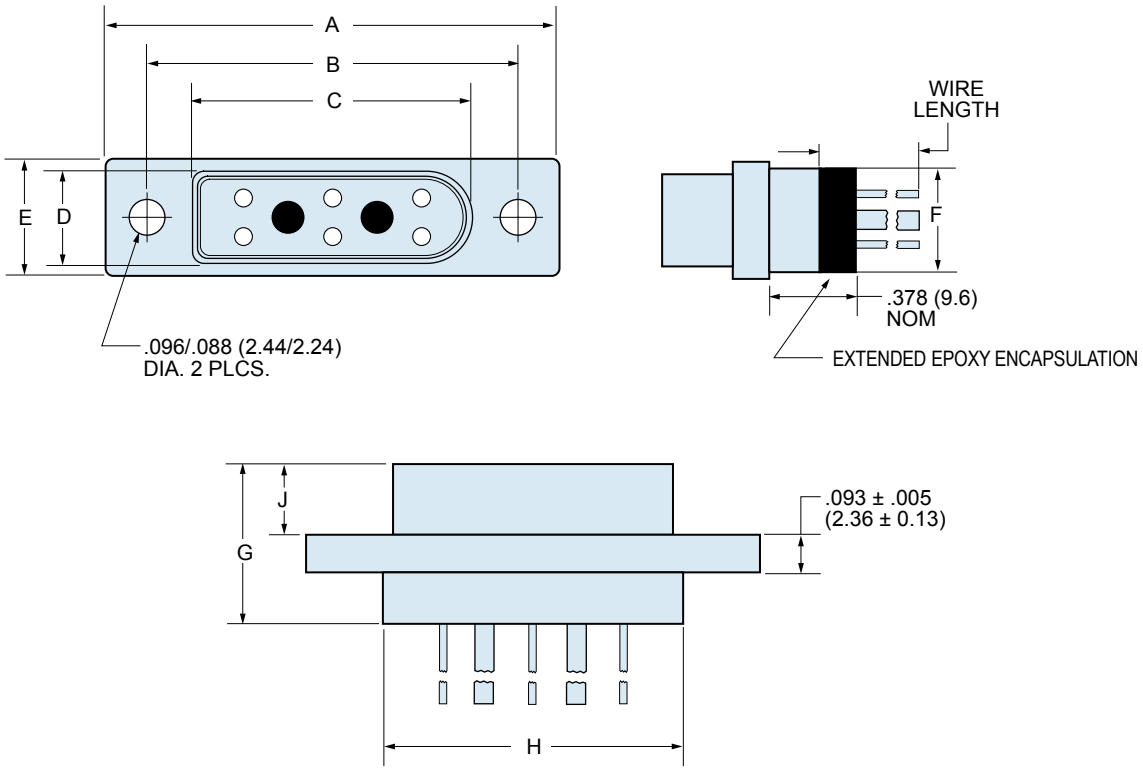
Connector Shell	Aluminum Alloy 6061. See Ordering Info for Plating Options.
Insulator	Liquid Crystal Polymer (LCP)
Interfacial Seal	Fluorosilicone Rubber, Blue
Pin Contact, TwistPin	Copper Alloy with 50 Microinches Gold over Nickel Plating
Socket Contact,	Copper Alloy with 50 Microinches Gold Over Nickel Plating
Pin Contact, 2mm. Power	Brass With 50 Microinches Gold Over Nickel Plating
Skt. Contact. 2mm. Power	Beryllium Copper With 50 Microinches Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
PCB Terminals	Gold-Plated Copper Alloy, Solder Dipped
Encapsulant	Epoxy Resin Hysol EE4215

DIMENSIONS FOR SHELL SIZE G CONNECTORS



Dimensions for Shell Size G Connectors
Layouts G101, G103, G111

Combo Micro-D for High Power Applications



Dimensions for Shell Size B, D, AND E Connectors
Layouts B112, D112, D113, and E113

COMBO PRE-WIRED CONNECTOR DIMENSIONS

	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
Layout	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
B112P	.935	23.75	.715	18.16	.481	12.21	.242	6.15	.315	8.00	.270	6.86	.416	10.57	.550	13.97	.184	4.68
B112R	.935	23.75	.715	18.16	.547	13.92	.315	8.00	.315	8.00	.270	6.86	.429	10.90	.550	13.97	.197	5.01
D112P	1.185	30.01	.965	24.51	.731	18.56	.242	6.15	.315	8.00	.270	6.86	.416	10.57	.800	20.32	.184	4.68
D112R	1.185	30.01	.965	24.51	.798	20.27	.315	8.00	.315	8.00	.270	6.86	.429	10.90	.800	20.32	.197	5.01
D113P	1.185	30.01	.965	24.51	.731	18.56	.242	6.15	.315	8.00	.270	6.86	.416	10.57	.800	20.32	.184	4.68
D113R	1.185	30.01	.965	24.51	.798	20.27	.315	8.00	.315	8.00	.270	6.86	.429	10.90	.800	20.32	.197	5.01
E113P	1.335	33.91	1.115	28.32	.881	22.37	.242	6.15	.315	8.00	.270	6.86	.416	10.57	.950	24.13	.184	4.68
E113R	1.335	33.91	1.115	28.32	.948	24.08	.315	8.00	.315	8.00	.270	6.86	.429	10.90	.950	24.13	.197	5.01

Combo Micro-D for High Power Applications

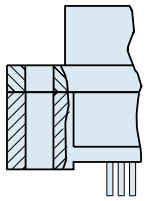
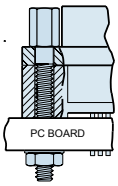
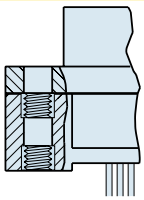
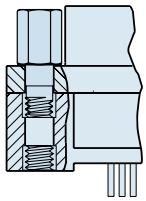
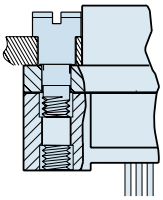
13 Amp Current Rating–Combo Micro-D's combine the size and weight advantages of a Micro -D connector with the added ability to handle higher power needs.

Printed Circuit Board Terminals–Ideal for flexible circuits or rigid boards, these gold plated PC tail contacts are sealed with epoxy encapsulant and are non-removable.

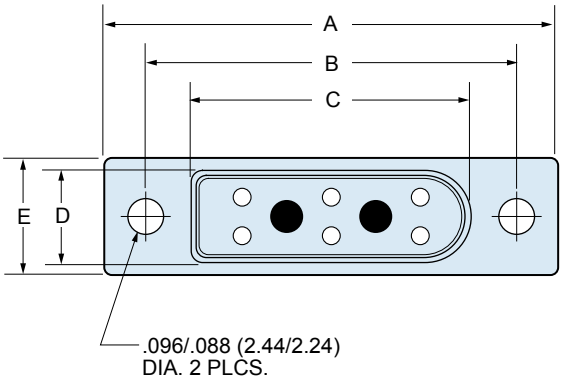
HOW TO ORDER VERTICAL MOUNT PCB COMBO MICRO-D CONNECTORS

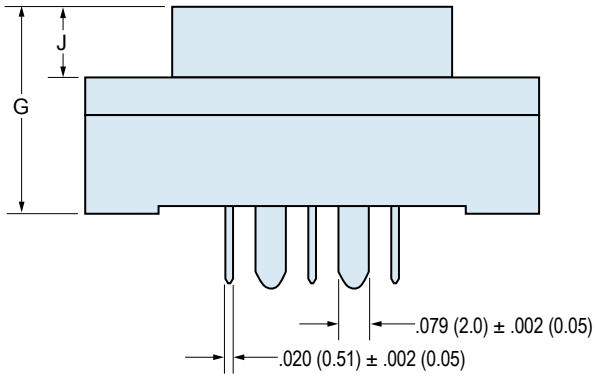
Series	Shell Finish	Shell Size and Insert Arrangement	Shell Style	Termination Style	Hardware	PC Tail Length
GMPM	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold Plated 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	B112 D112 D112 D113 E113	P – Plug R – Receptacle  Plug  Receptacle	CBS Compact Vertical Mount	NN – No Jackpost, No Threaded Insert PN – Extended Jackpost for .062" (1.6) PCB, No Threaded Insert RN – Extended Jackpost for .196" (5.0) PCB, No Threaded Insert NU – 2-56 UNC Threaded Insert, No Jackposts NM – Metric M2 Threaded Insert, No Jackposts SU – Short Jackpost, 2-56 UNC Threaded Insert SM – Short Jackpost, M2 Metric Threaded Insert **Rear Panel Jackposts** Supplied either with U style 2-56 UNC or M style M2 Threaded Inserts TU or TM – 0.094" (2.4) Panel VU or VM – 0.062" (1.6) Panel WU or WM – 0.047" (1.2) Panel XU or XM – 0.031" (0.8) Panel XU or XM – 0.023" (0.6) Panel	.172 .109 .150 .190 .250 Length in Inches ± .015 (0.38)
Sample Part Number						
GMPM	2	B112	R	CBS	PU	– .110

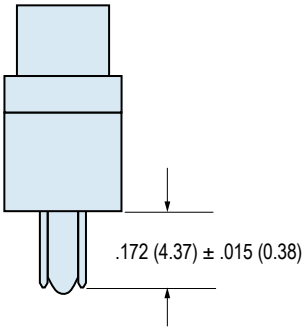
GMR7580 JACKPOST OPTIONS

NN	PN and RN	NU, NM	SU, SM	TU,VU,WU,XU,YU TM,VM,WM,XM,YM
				
Thru-Hole	Jackpost Kit PN – .062 (1.6) PCB RN – .196 (5.0) PCB	Threaded Inserts	Jackpost With Threaded Insert	Jackpost for Rear Panel Mounting

Combo Micro-D for High Power Applications





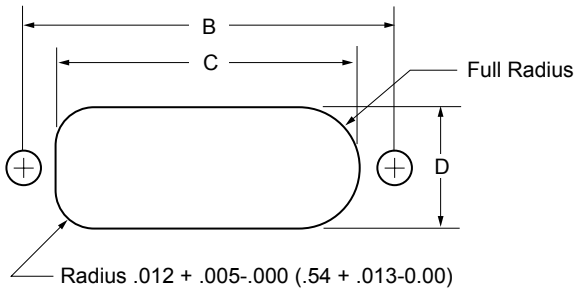


DIMENSIONS

Layout	A Max. In.	A Max. mm.	B In. ± .003	B mm. ± 0.08	C Max. In.	C Max. mm.	D Max. In.	D Max. mm.	E Max. In.	E Max. mm.	G Max. In.	G Max. mm.	J Max. In.	J Max. mm.
B112P	.935	23.75	.715	18.16	.481	12.21	.242	6.15	.315	8.00	.355	9.02	.184	4.68
B112R	.935	23.75	.715	18.16	.547	13.92	.315	8.00	.315	8.00	.355	9.02	.197	5.01
D112P	1.185	30.01	.965	24.51	.731	18.56	.242	6.15	.315	8.00	.355	9.02	.184	4.68
D112R	1.185	30.01	.965	24.51	.798	20.27	.315	8.00	.315	8.00	.355	9.02	.197	5.01
D113P	1.185	30.01	.965	24.51	.731	18.56	.242	6.15	.315	8.00	.355	9.02	.184	4.68
D113R	1.185	30.01	.965	24.51	.798	20.27	.315	8.00	.315	8.00	.355	9.02	.197	5.01
E113P	1.335	33.91	1.115	28.32	.881	22.37	.242	6.15	.315	8.00	.355	9.02	.184	4.68
E113R	1.335	33.91	1.115	28.32	.948	24.08	.315	8.00	.315	8.00	.355	9.02	.197	5.01

RECOMMENDED PANEL CUTOUT

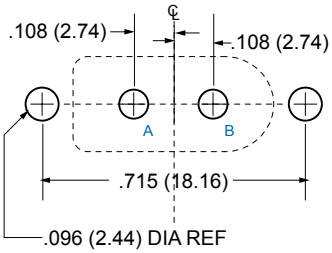
Layout	B In. ± .003	B mm. ± 0.08	C In. + .004 - .000	C mm. +0.06 -0.00	D In. + .004 - .000	D mm. +0.06 -0.00
B112	.715	18.16	.550	13.95	.316	8.02
D112	.965	24.51	.800	20.30	.316	8.02
D113	.965	24.51	.800	20.30	.316	8.02
E113	1.115	28.32	.950	24.11	.316	8.02



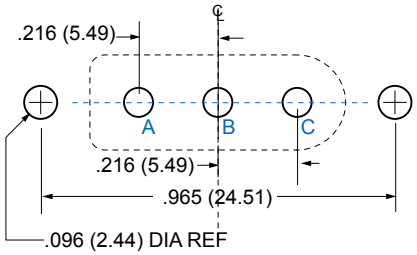
COMBO MICRO-D PCB LAYOUTS

Patterns shown are for connector mounting side of PC board.
Plated thru-holes to accept .081 (2.06) maximum diameter power pins marked A, B and C, and .022 maximum diameter signal pins markied 1 – 8.

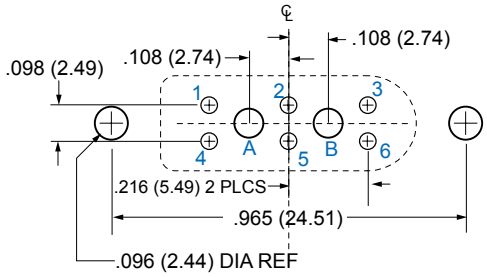
Plug Connectors



B112P



D112P



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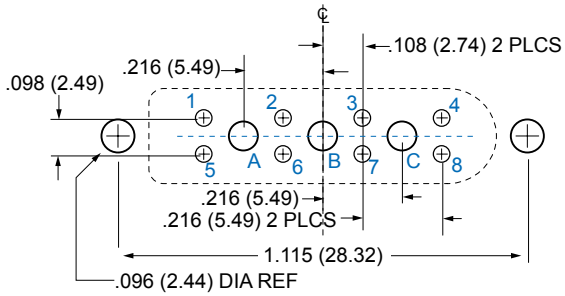
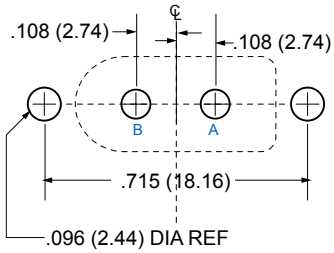
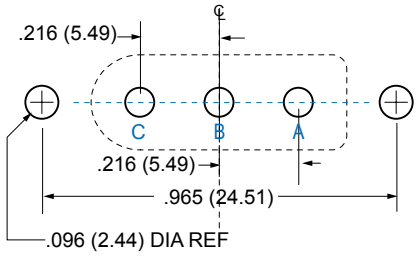


E113P

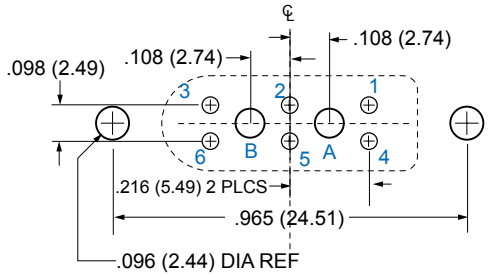
Receptacle Connectors



B112R



D112R



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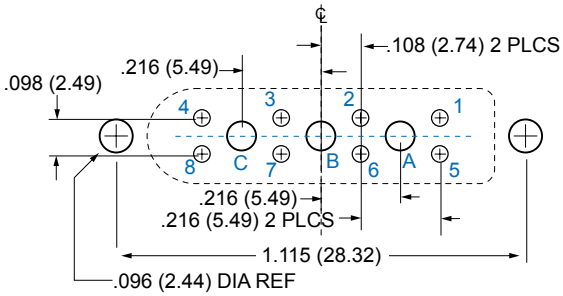
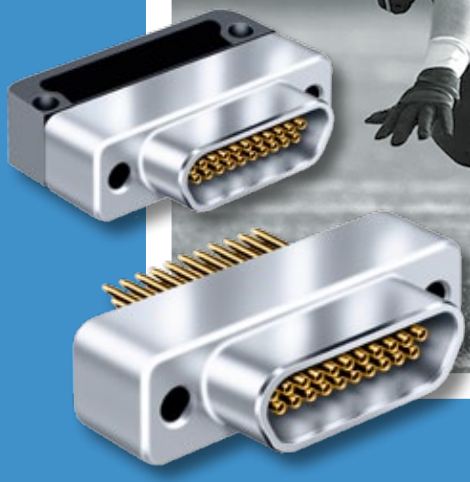


E113R

EMI/RFI Got You Down?

Add Glenair Micro-D EMI/RFI Filter Connectors to Your Playbook



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PRODUCT SELECTION GUIDE

Filter With Solder Cup Contacts

Available in 9,15, 21, 25, 31, and 37 contacts, these aluminum shell filtered Micro-D connectors are backfilled with thermally conductive epoxy to allow soldering without heat damage to sensitive filter elements.

Solder Cup Filter
Page G-5

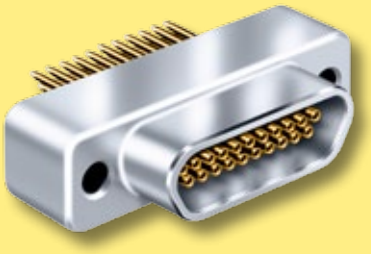
Pre-Wired Pigtail Filter Connector

These pre-wired connectors save labor and provide added reliability. Choose from 9 to 37 contacts. Mates to standard M83513 type Micro-D connectors.

Pre-Wired Filter
Page G-7

Vertical Printed Circuit Board Micro-D Filter

Featuring a one piece aluminum shell, these thru-hole board mount connectors can be ordered with jackposts or with jackscrews for flex-to-board applications. PC terminals are .018" (0.46 mm.) diameter and are spaced .050" (1.27 mm.) apart.



Vertical PCB Filter
Page G-11

90° Printed Circuit Board Micro-D Filter

These right angle thru-hole headers replicate the popular "CBR" .100" by .100" terminal spacing. Filter elements are housed in a wider shell. A molded rear tray withstands soldering heat and is impervious to chemicals. Terminals are encapsulated in epoxy.

Right Angle
PCB Filter
Page G-15

In-Line Filter Adapter

Avoid costly redesign with pin/socket feed-thru adapters. These adapters plug into any standard M83513 connector. Simply unplug your existing cable, install the filter adapter and reconnect the cable.

Feed-Thru Adapter
Page G-9

 U.S. CAGE Code 06324 Printed in U.S.A.

Micro-D Filter Connectors
General Information

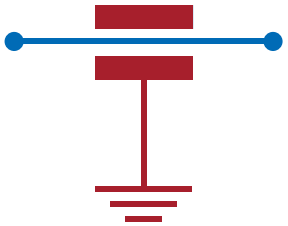
ABOUT MICRO-D FILTER CONNECTORS

Glenair Filter Micro-D connectors are low-pass filters, transmitting DC and low frequency signals while attenuating unwanted high frequency noise. These connectors are available with ***C*** filter elements or ***Pi*** filters. The filter substrates are constructed with a ceramic planar capacitor array.

Glenair Filter Micro-D's meet the demanding performance requirements of MIL-DTL-83513, except for a reduction in the dielectric withstanding voltage rating to 200 volts DC (higher voltages available on request). The TwistPin contact system assures superior performance in the most demanding applications.

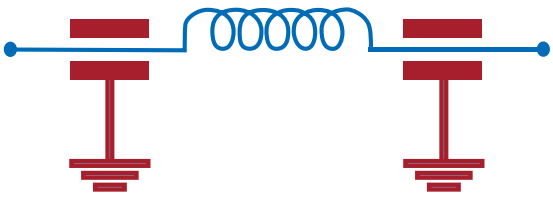
C Filter

Single capacitor with low self inductance. This configuration is generally used to attenuate high frequency signals. The simple design allows high-frequency EMI to discharge to ground via the surrounding electromagnetic field. C filters occupy the least amount of space and offer lower cost compared to other filter types.



Pi Filter

Dual capacitors with a ferrite inductor positioned between them. The Pi filter provides excellent high-frequency performance due to its sharper rolloff.



MICRO-D C FILTER ATTENUATION AND CAPACITANCE VALUES

C Filter

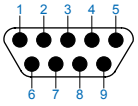
Filter Class	Capacitance pF	No Load Insertion Loss (dB Minimum) 1 MHz	10 MHz	100 MHz	500–1000 MHz
A	19,000 — 28,000	6	24	41	50
B	16,000 — 22,500	5	23	39	49
C	9,000 — 16,500	3	16	35	46
D	4,000 — 6,000	—	8	28	41
E	1,650 — 2500	—	4	21	34
F	400 — 650	—	—	10	23
G	200 — 300	—	—	5	17

MICRO-D PI FILTER ATTENUATION AND CAPACITANCE VALUES

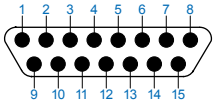
Pi Filter

Filter Class	Capacitance pF	No Load Insertion Loss (dB Minimum) 1 MHz	10 MHz	100 MHz	500–1000 MHz
A	38,000 — 56,000	10	40	62	66
B	32,000 — 45,000	8	35	60	62
C	18,000 — 33,000	5	25	57	60
D	8,000 — 12,000	1	14	50	58
E	3300 — 5000	—	8	40	52
F	800 — 1300	—	2	15	32
G	400 — 600	—	0.8	13	22

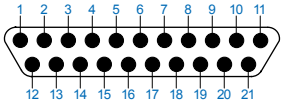
MICRO-D FILTER CONNECTOR CONTACT ARRANGEMENTS (FACE VIEW PIN CONNECTOR)



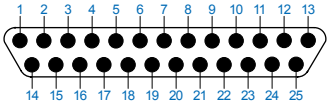
9 Contacts



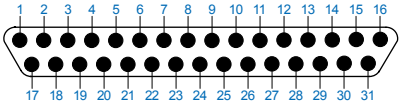
15 Contacts



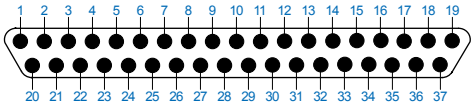
21 Contacts



25 Contacts

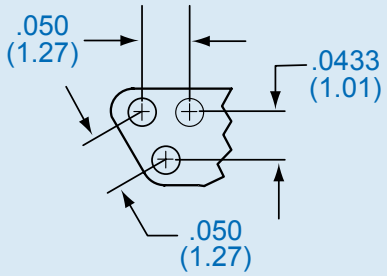


31 Contacts



37 Contacts

CONTACT SPACING



G

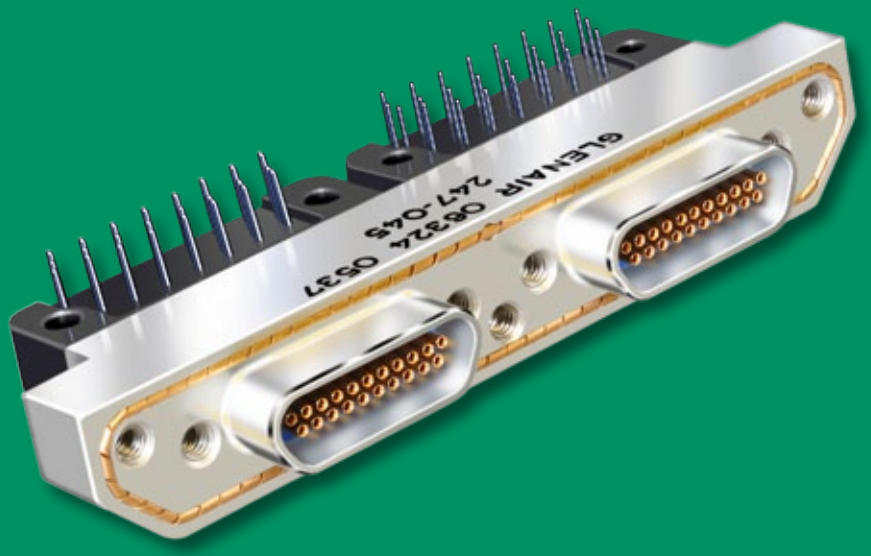
PERFORMANCE SPECIFICATIONS	
Current Rating	3 AMP
Dielectric Withstanding Voltage	250 VDC
Working Voltage	100 VDC
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resistance	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +125° C.
Shock	50 g.
Vibration	20 g.
Mating Force	(10 Ounces) X (# of Contacts)
Capacitance and Attenuation	(See Table on Preceding Page)

MATERIALS AND FINISHES	
Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, Passivated See Ordering Info for Aluminum Plating Options.
Insulator	Liquid Crystal Polymer (LCP)
Seals	Fluorosilicone Rubber, Blue
Pin Contact	Beryllium Copper With 50 Microinches Gold over Nickel Plating
Socket Contact	Copper Alloy With 50 Microinches Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
PCB Terminals	Gold-Plated Copper Alloy, Solder Dipped
Capacitors	Planar Ceramic Array
Inductors	Ferrite
EMI Ground Spring	Beryllium Copper, Gold Plated
Encapsulant	Thermally Conductive Epoxy

SPECIAL PRODUCT INFORMATION

Innovative Designs to Meet Every Need

Sometimes a standard part just won't do. For these situations Glenair welcomes your custom requirements. Whatever the need, we can propose a solution and back it up with rapid design and prototyping.



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Micro-D Filter Connectors
Solder Cup

Glenair's Filtered Solder Cup Micro-D's provide EMI solutions in a miniaturized M83513 type connector. These connectors feature ceramic capacitor planar arrays and ferrite inductors. Solder cups accept #26 thru #30 AWG wire, or specify oversize contacts for #24 gage wire.

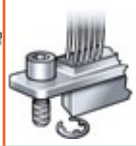
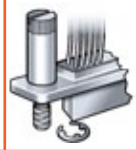
Choose Pi or C Filter Arrays in seven filter classes and six layouts. Glenair filtered Micro-D connectors comply with applicable MIL-DTL-83513 requirements and are 100% intermateable with standard connectors.

Choose 9 to 37 Contacts, with standard cadmium or nickel plating on the connector housing or choose optional finishes such as gold or chem film.

HOW TO ORDER FILTER MICRO-D CONNECTORS WITH SOLDER CUPS

Series	Shell Finish	Number of Contacts	Contact Type	Filter Type	Filter Class	Hardware
240-030	**Aluminum Shell** 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	9 15 21 25 31 37	**Solder Cup Contacts for #24 AWG or Smaller Wire** P – Pin S – Socket	C – C Filter P – Pi Filter	A B C D E F G See "Filter Classes" on Following Page	B P M M1 S S1 L K F R
Sample Part Number						
240-030	– 2	– 25	P	P	B	B

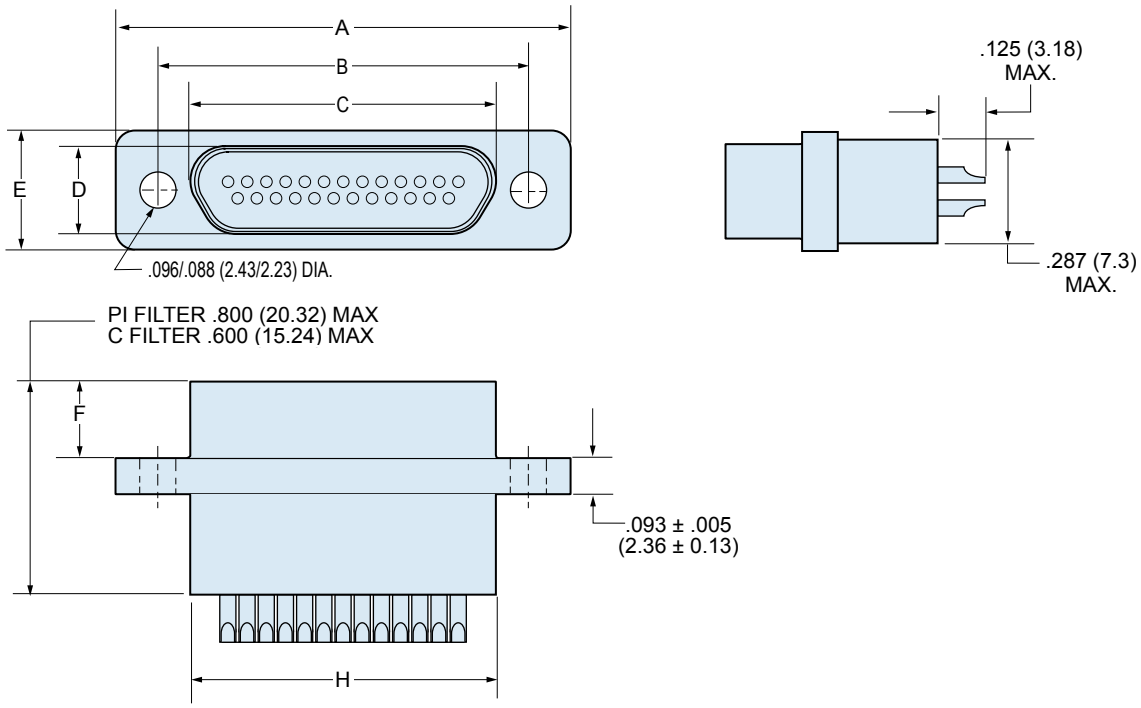
MICRO-D MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R
									
Thru-Hole Order Hardware Separately	**Jackpost** Removable Includes Nut and Washer	**Jackscrew** Hex Head Removable E-ring	**Jackscrew** Hex Head Removable E-ring Extended	**Jackscrew** Slot Head Removable E-ring	**Jackscrew** Slot Head Removable E-ring Extended	**Jackscrew** Hex Head Non-Removable	**Jackscrew** Slot Head Non-Removable Extended	**Float Mount** For Front Panel Mounting	**Float Mount** For Rear Panel Mounting

Micro-D Filter Connectors
Solder Cup

MICRO-D FILTER CLASSES AND PERFORMANCE

Filter Class →	A		B		C		D		E		F		G	
Capacitance, Picofarads (pF)														
C Filter	19000-28000		16000-22500		9000-16500		4000-6000		1650-2500		400-650		200-300	
Pi Filter	38000-56000		32000-45000		18000-33000		8000-12000		3300-5000		800-1300		400-600	
Insertion Loss, dB Minimum, 25° C.														
Filter Type →	**C**	**Pi**	**C**	**Pi**	**C**	**Pi**	**C**	**Pi**	**C**	**Pi**	**C**	**Pi**	**C**	**Pi**
1 MHz	6	10	5	8	3	5	—	1	—	—	—	—	—	—
10 MHz	24	40	23	35	16	25	8	14	4	8	—	2	—	0.8
100 MHz	41	62	39	60	35	57	28	50	21	40	10	15	5	13
500-1000 MHz	50	66	49	62	46	60	41	58	34	52	23	32	17	22



DIMENSIONS

Layout	A Max. In.	A Max. mm.	B In. ± .003	B mm. ± 0.08	C Max. In.	C Max. mm.	D Max. In.	D Max. mm.	E Max. In.	E Max. mm.	F In. ± .004	F mm. ± 0.10	H Max. In.	H Max. mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.322	8.18	.183	4.65	.400	10.16
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.322	8.18	.195	4.95	.400	10.16
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.322	8.18	.183	4.65	.550	13.97
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.322	8.18	.195	4.95	.550	13.97
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.322	8.18	.183	4.65	.700	17.78
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.322	8.18	.195	4.95	.700	17.78
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.322	8.18	.183	4.65	.800	20.32
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.322	8.18	.195	4.95	.800	20.32
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.322	8.18	.183	4.65	.950	24.13
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.322	8.18	.195	4.95	.950	24.13
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.322	8.18	.183	4.65	1.100	27.94
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.322	8.18	.195	4.95	1.100	27.94

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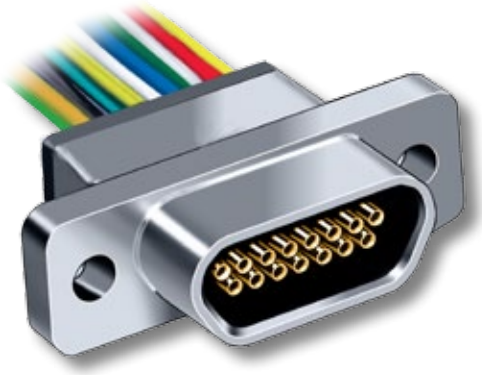
Micro-D Filter Connectors
Pre-Wired Pigtails with Insulated Wire



Glenair's Filtered Pigtail Micro-D's provide EMI solutions in a miniaturized M83513 Micro-D connector. These connectors feature ceramic capacitor planar arrays and ferrite inductors. Insulated wire is factory precision-crimped to TwistPin contacts for superior reliability in the most demanding environments.

Choose Pi or C Filter Arrays in seven filter classes and six layouts. Glenair filtered Micro-D connectors comply with applicable MIL-DTL-83513 requirements and are 100% intermateable with standard connectors.

Choose 9 to 37 Contacts, with standard cadmium or nickel plating on the connector housing or choose optional finishes such as gold or chem film.

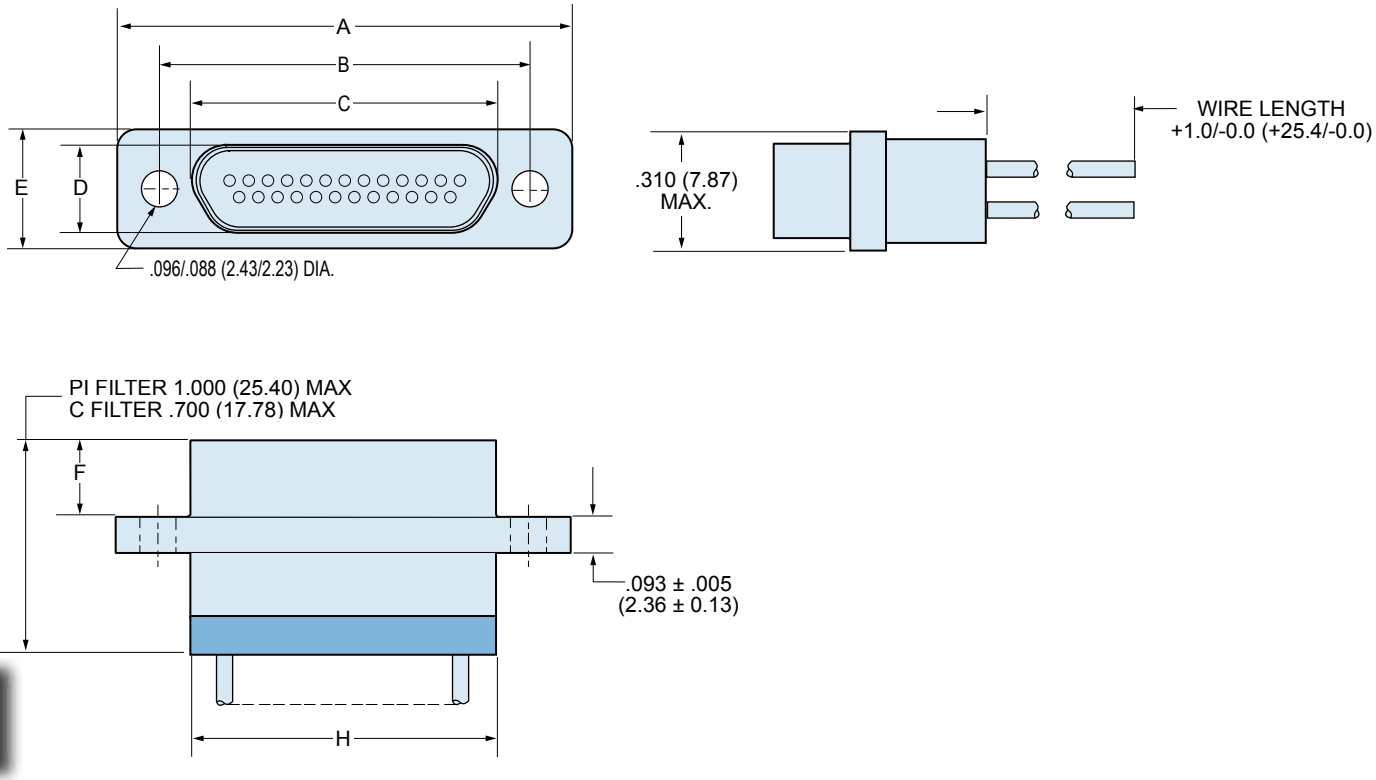
HOW TO ORDER FILTER MICRO-D CONNECTORS WITH INSULATED WIRE PIGTAILS

Series	Shell Finish	Number of Contacts	Contact Type	Filter Type	Filter Class	Wire Gage (AWG)	Wire Type	Wire Color	Wire Length Inches	Hardware
240-032	**Aluminum Shell** 1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	9 15 21 25 31 37	P Pin S Socket	C – C Filter P – Pi Filter	A B C D E F G	4 – #24 6 – #26 8 – #28	K – M22759/11 600 Vrms Teflon® (TFE) J – M22759/33 600 Vrms Modified Cross-Linked Tefzel® (ETFE)	1 – White 2 – Yellow 5 – Color-Coded Stripes Per MIL-STD-681 (#24 and #26 gage only) 7 – Ten Color Repeat	18 Wire Length In Inches. "18" Specifies 18 Inches.	B P M M1 S S1 L K F R
Sample Part Number										
240-032	2	– 25	P	P	B	6	K	1	– 18	B

MICRO-D MOUNTING HARDWARE

B	P	M	M1	S	S1	L	K	F	R
									
Thru-Hole Order Hardware Separately	**Jackpost** Removable Includes Nut and Washer	**Jackscrew** Hex Head Removable E-ring	**Jackscrew** Hex Head Removable E-ring Extended	**Jackscrew** Slot Head Removable E-ring	**Jackscrew** Slot Head Removable E-ring Extended	**Jackscrew** Hex Head Non-Removable	**Jackscrew** Slot Head Non-Removable Extended	**Float Mount** For Front Panel Mounting	**Float Mount** For Rear Panel Mounting

Micro-D Filter Connectors
Pre-Wired Pigtails with Insulated Wire



DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		H Max.	
	In.	mm.	In . ± .003	mm. ±0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .004	mm. ±0.10	In.	mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.322	8.18	.183	4.65	.400	10.16
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.322	8.18	.195	4.95	.400	10.16
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.322	8.18	.183	4.65	.550	13.97
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.322	8.18	.195	4.95	.550	13.97
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.322	8.18	.183	4.65	.700	17.78
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.322	8.18	.195	4.95	.700	17.78
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.322	8.18	.183	4.65	.800	20.32
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.322	8.18	.195	4.95	.800	20.32
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.322	8.18	.183	4.65	.950	24.13
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.322	8.18	.195	4.95	.950	24.13
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.322	8.18	.183	4.65	1.100	27.94
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.322	8.18	.195	4.95	1.100	27.94

Micro-D Filter Connectors
Pin-Socket In-Line Filter Adapters

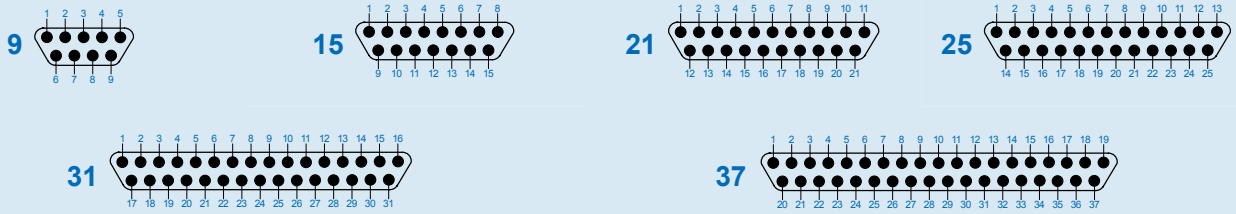
Avoid Costly Redesign with Micro-D Filter Adapters. Upgrade your existing cables and boxes to meet EMI requirements. These pin-socket adapters can be plugged into any standard M83513 connectors. Simply unplug your existing cable, install the filter adapter, and plug the cable into the adapter.

In-Line Filter Adapters feature gold plated TwistPin contacts, machined aluminum shells, and either Pi or C filter elements. These environmentally sealed adapters are designed to meet the requirements of MIL-DTL-83513.

HOW TO ORDER MICRO-D IN-LINE FILTER ADAPTERS

Series	Shell Finish	Number of Contacts	Contact Type	Filter Type	Filter Class	Hardware
240-033	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	9 15 21 25 31 37	PS Pin/Socket	C – C Filter P – Pi Filter	A B C D E F G	N – No Hardware P – Combination Jackscrew and Jackpost (See photograph on this page).
Sample Part Number						
240-033	2	– 25	PS	C	D	P

MICRO-D IN-LINE FILTER ADAPTER CONTACT ARRANGEMENTS



Mating Face View of Pin Connector. Socket connectors have reversed cavity numbers.

MICRO-D FILTER CLASSES AND PERFORMANCE

Filter Class →	A		B		C		D		E		F		G	
Capacitance, Picofarads (pF)														
C Filter	19000-28000		16000-22500		9000-16500		4000-6000		1650-2500		400-650		200-300	
Pi Filter	38000-56000		32000-45000		18000-33000		8000-12000		3300-5000		800-1300		400-600	
Insertion Loss, dB Minimum, 25° C.														
Filter Type →	C	Pi	C	Pi	C	Pi	C	Pi	C	Pi	C	Pi	C	Pi
1 MHz	6	10	5	8	3	5	—	1	—	—	—	—	—	—
10 MHz	24	40	23	35	16	25	8	14	4	8	—	2	—	0.8
100 MHz	41	62	39	60	35	57	28	50	21	40	10	15	5	13
500-1000 MHz	50	66	49	62	46	60	41	58	34	52	23	32	17	22

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Micro-D Filter Connectors
Pin-Socket In-Line Filter Adapters

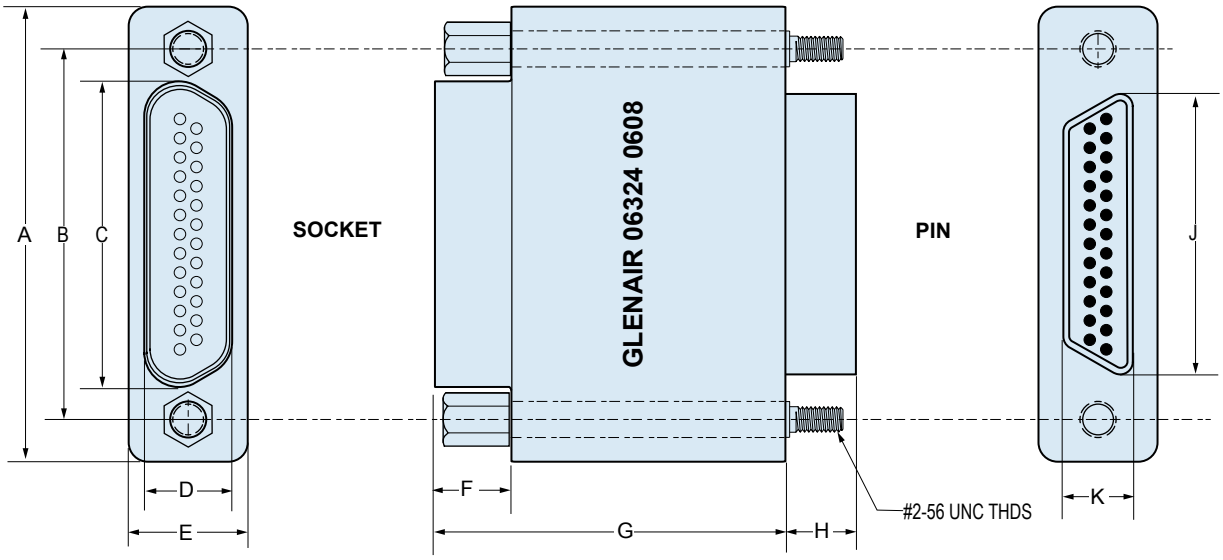
PERFORMANCE SPECIFICATIONS

Current Rating	3 AMP
Dielectric Withstanding Voltage	250 VDC
Working Voltage	100 VDC
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resistance	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +125° C.
Shock	50 g.
Vibration	20 g.
Mating Force	(10 Ounces) X (# of Contacts)
Capacitance and Attenuation	(See Table on Preceding Page)

MATERIALS AND FINISHES

Connector Shell	Aluminum Alloy 6061 or Stainless Steel, 300 Series, Passivated See Ordering Info for Aluminum Plating Options.
Insulator	Liquid Crystal Polymer (LCP)
Seals	Fluorosilicone Rubber, Blue
Pin Contact	Beryllium Copper With 50 Microinches Gold over Nickel Plating
Socket Contact	Copper Alloy With 50 Microinches Gold Over Nickel Plating
Hardware	300 Series Stainless Steel
PCB Terminals	Gold-Plated Copper Alloy, Solder Dipped
Capacitors	Planar Ceramic Array
Inductors	Ferrite
EMI Ground Spring	Beryllium Copper, Gold Plated
Encapsulant	Thermally Conductive Epoxy

G



DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H		J Max.		K Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .004	mm. ± 0.10	In.	mm.	In. ± .004	mm. ± 0.10	In.	mm.	In.	mm.
9PS	.785	19.94	.565	14.35	.333	8.46	.250	6.35	.322	8.18	.195	4.95	1.400	35.56	.183	4.65	.333	8.46	.184	4.67
15PS	.935	23.75	.715	18.16	.483	12.27	.250	6.35	.322	8.18	.195	4.95	1.400	35.56	.183	4.65	.483	12.27	.184	4.67
21PS	1.085	27.56	.865	21.97	.633	16.08	.250	6.35	.322	8.18	.195	4.95	1.400	35.56	.183	4.65	.633	16.08	.184	4.67
25PS	1.185	30.01	.965	24.51	.733	18.62	.250	6.35	.322	8.18	.195	4.95	1.400	35.56	.183	4.65	.733	18.62	.184	4.67
31PS	1.335	33.91	1.115	28.32	.883	22.43	.250	6.35	.322	8.18	.195	4.95	1.400	35.56	.183	4.65	.883	22.43	.184	4.67
37PS	1.485	37.72	1.265	32.13	1.033	26.24	.250	6.35	.322	8.18	.195	4.95	1.400	35.56	.183	4.65	1.033	26.24	.184	4.67

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Micro-D Filter Connectors
Vertical Printed Circuit Board

Printed Circuit Board Micro-D Filter Connectors. These vertical mount PCB connectors are ideal for flexible circuit or motherboard applications.

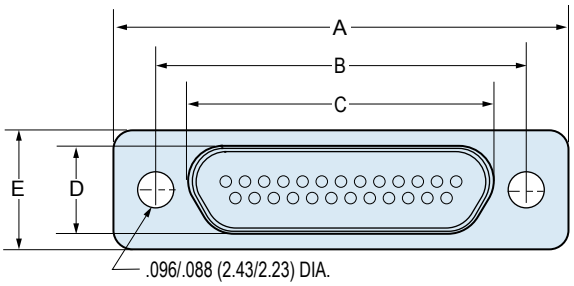
Key Features include gold plated TwistPin contacts, machined aluminum shells, and either Pi or C filter elements. These environmentally sealed connectors are designed to meet the requirements of MIL-DTL-83513.

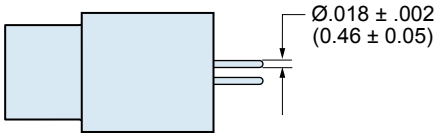
Integral Board Standoffs and Pre-Tinned Tails—These connectors are solder dipped (63/37 SnPb) and feature a full complement of mounting hardware options.

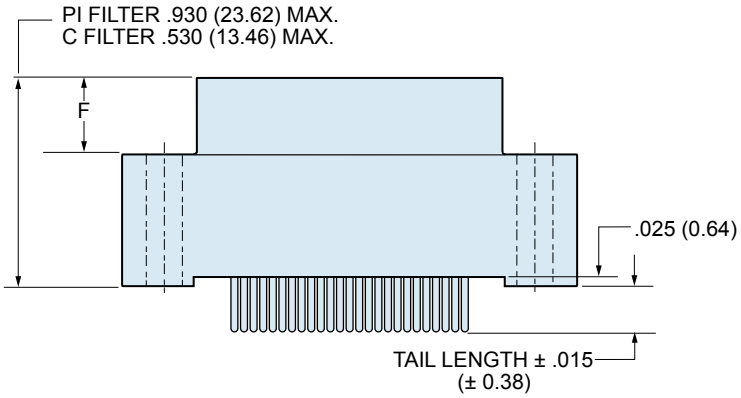
HOW TO ORDER MICRO-D FILTER VERTICAL MOUNT PCB CONNECTORS

Series	Shell Finish	Number of Contacts	Contact Type	Filter Type	Filter Class	PC Tail Length	Hardware Option
240-031	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	9 15 21 25 31 37	P Pin S Socket	C C Filter P Pi Filter	A B C D E F G	1 – .110 Inches (2.79) 2 – .250 Inches (6.35) Length in Inches ± .015 (0.38)	NN – No Jackpost, No Threaded Insert PN – Extended Jackpost for .062" (1.6) PCB, No Threaded Insert RN – Extended Jackpost for .196" (5.0) PCB, No Threaded Insert NU – Threaded Insert Only, No Jackposts PU – Short Jackpost and Threaded Insert **Rear Panel Jackposts With Threaded Inserts** R6U – 0.125" (3.2) Panel R5U – 0.094" (2.4) Panel R4U – 0.062" (1.6) Panel R3U – 0.047" (1.2) Panel R2U – 0.031" (0.8) Panel **Jackscrew Options** M – Hex Head Jackscrews S – Slot Head Jackscrews
Sample Part Number							
240-031	2	– 25	P	C	D	1	PN

Micro-D Filter Connectors
Vertical Printed Circuit Board



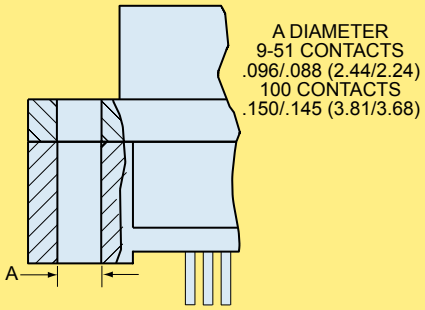




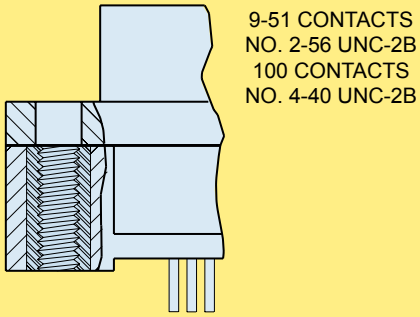
MICRO-D FILTER VERTICAL PCB DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .004	mm. ± 0.10
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.322	8.18	.183	4.65
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.322	8.18	.195	4.95
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.322	8.18	.183	4.65
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.322	8.18	.195	4.95
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.322	8.18	.183	4.65
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.322	8.18	.195	4.95
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.322	8.18	.183	4.65
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.322	8.18	.195	4.95
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.322	8.18	.183	4.65
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.322	8.18	.195	4.95
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.322	8.18	.183	4.65
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.322	8.18	.195	4.95

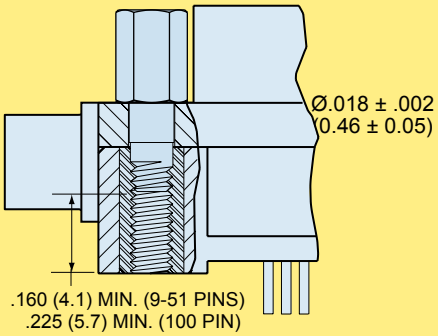
MICRO-D FILTER VERTICAL PCB HARDWARE OPTIONS



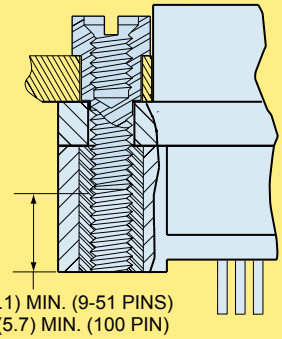
NN Style
Connector Supplied Without Hardware
Thru-Hole, No Hardware



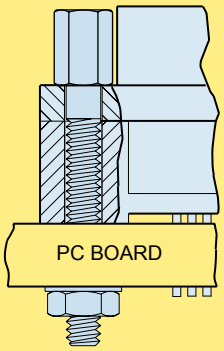
NU Style
Connector Supplied With Threaded Inserts



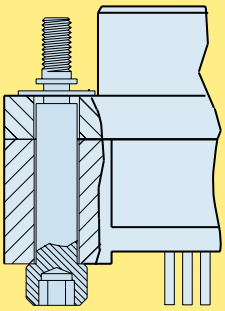
PU Style
Jackpost with Threaded Insert



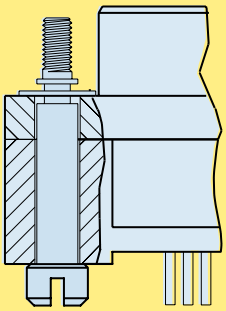
RU Style
Rear Panel Jackpost with Threaded Insert



Extended Jackpost
PN Style for .062" PCB
RN Style for .196" PCB



M Style
Hex Head Jackscrew with E-Ring

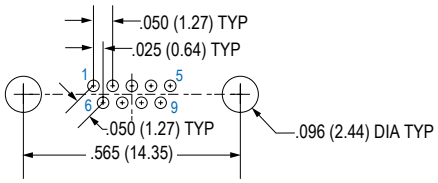


S Style
Slot Head Jackscrew with E-Ring

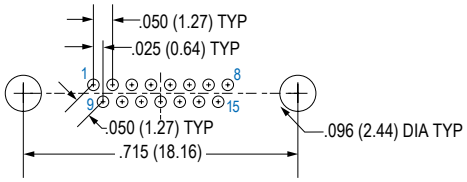
Micro-D Filter Connectors
Vertical Printed Circuit Board

MICRO-D FILTER VERTICAL PCB LAYOUTS— PIN CONNECTOR SHOWN

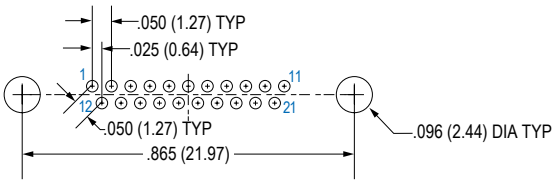
PC Tail Diameter .018 ± .002 (0.46 ± 0.05)
Contact numbers shown are for pin connectors. Reverse for socket.
Patterns shown are for connector mounting side of PC board.



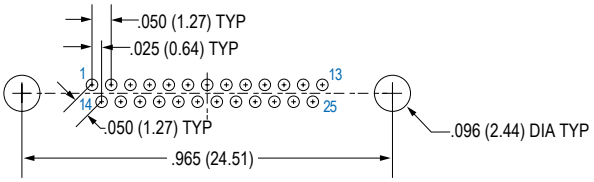
9 Contacts



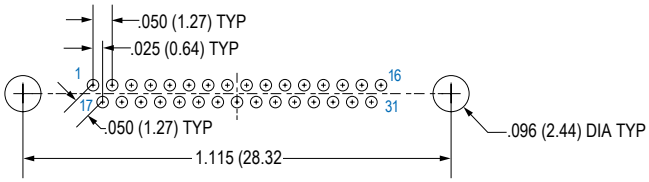
15 Contacts



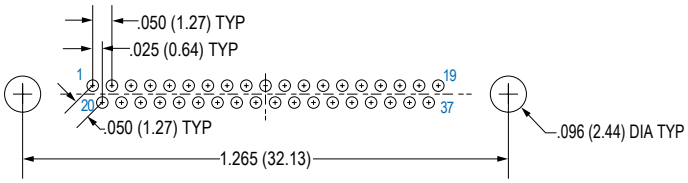
21 Contacts



25 Contacts



31 Contacts



37 Contacts

Micro-D Filter Connectors
Right Angle Printed Circuit Board

Right Angle Board Mount Filtered Micro-D's. These connectors feature low-pass EMI filtering in a right angle header for PCB termination.

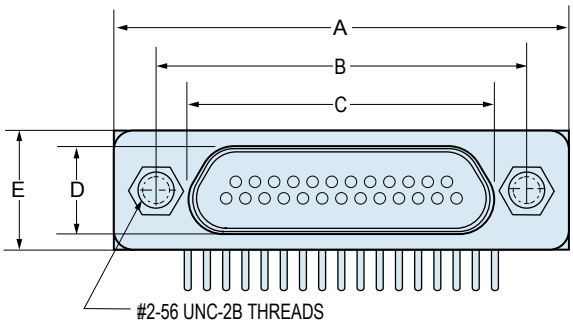
Key Features include gold plated TwistPin contacts, machined aluminum shells, and either Pi or C filter elements. These environmentally sealed connectors are designed to meet the requirements of MIL-DTL-83513.

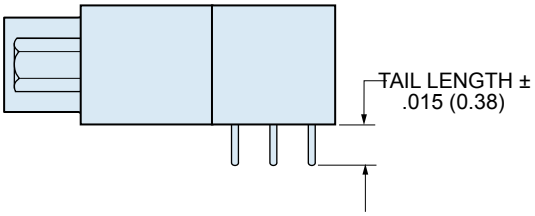
.100" x .100" Board Spacing – These connectors are similar to "CBR" style Micro-D's and share the same board footprint, allowing retrofit to existing boards.

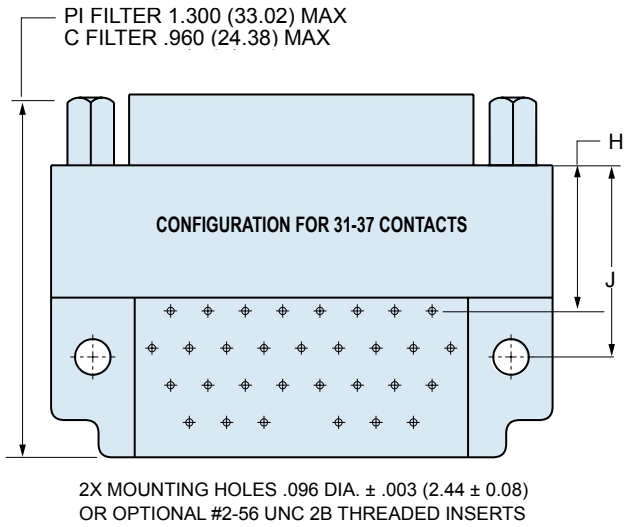
HOW TO ORDER MICRO-D FILTERED RIGHT ANGLE PCB

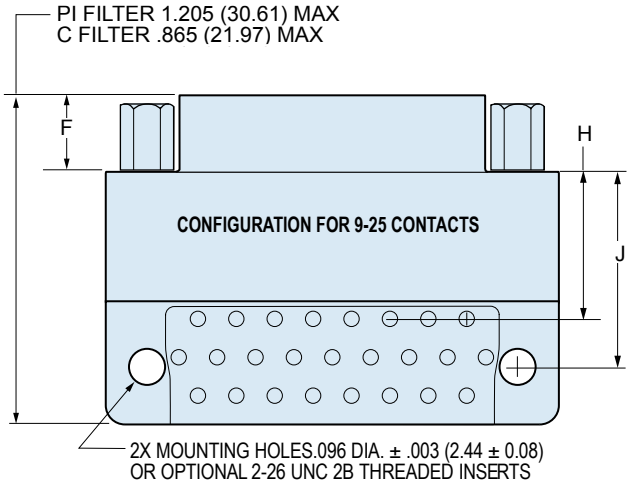
Series	Shell Finish	Number of Contacts	Contact Type	Filter Type	Filter Class	Hardware Option	Tail Length
240-034	1 – Cadmium 2 – Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film **Stainless Steel Shell** 3 – Passivated	9 15 21 25 31 37	P Pin S Socket	C C Filter P Pi Filter	A B C D E F G	NN – No Jackpost, No Threaded Insert PN – Jackpost, No Threaded Insert NU – Threaded Insert Only, No Jackposts PU – Jackpost and Threaded Insert **Rear Panel Jackposts With Threaded Inserts** R6U – 0.125" (3.2) Panel R5U – 0.094" (2.4) Panel R4U – 0.062" (1.6) Panel R3U – 0.047" (1.2) Panel R2U – 0.031" (0.8) Panel	.080 .110 .125 .150 .190 .250 Length in Inches ± .015 (0.38)
Sample Part Number							
240-034	– 2	– 37	S	P	E	PU	– .080

Micro-D Filter Connectors
Right Angle Printed Circuit Board







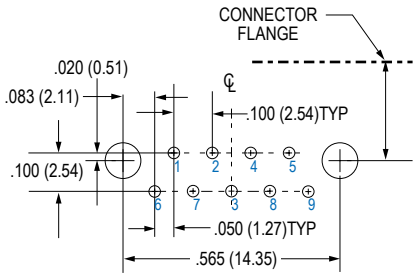


DIMENSIONS

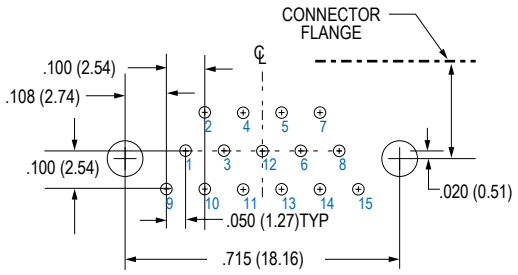
Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		C Filter H		C Filter J		Pi Filter H		Pi Filter J	
	In.	mm.	In. ±.003	mm. ±0.08	In.	mm.	In.	mm.	In.	mm.	In. ±.004	mm. ±0.10	In.	mm.	In. ±.010	mm. ±0.25	In. ±.010	mm. ±0.25	In. ±.010	mm. ±0.25	In. ±.010	mm. ±0.25
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.322	8.18	.183	4.65	.420	10.67	.440	11.18	.460	11.68	.740	18.80	.760	19.30
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.322	8.18	.195	4.95	.420	10.67	.440	11.18	.460	11.68	.740	18.80	.760	19.30
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.322	8.18	.183	4.65	.420	10.67	.340	8.64	.460	11.68	.640	16.26	.760	19.30
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.322	8.18	.195	4.95	.420	10.67	.340	8.64	.460	11.68	.640	16.26	.760	19.30
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.322	8.18	.183	4.65	.420	10.67	.340	8.64	.460	11.68	.640	16.26	.760	19.30
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.322	8.18	.195	4.95	.420	10.67	.340	8.64	.460	11.68	.640	16.26	.760	19.30
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.322	8.18	.183	4.65	.420	10.67	.340	8.64	.460	11.68	.640	16.26	.760	19.30
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.322	8.18	.195	4.95	.420	10.67	.340	8.64	.460	11.68	.640	16.26	.760	19.30
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.322	8.18	.183	4.65	.520	13.21	.340	8.64	.460	11.68	.640	16.26	.760	19.30
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.322	8.18	.195	4.95	.520	13.21	.340	8.64	.460	11.68	.640	16.26	.760	19.30
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.322	8.18	.183	4.65	.520	13.21	.340	8.64	.460	11.68	.640	16.26	.760	19.30
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.322	8.18	.195	4.95	.520	13.21	.340	8.64	.460	11.68	.640	16.26	.760	19.30

MICRO-D FILTER RIGHT ANGLE PCB LAYOUTS— PIN CONNECTOR

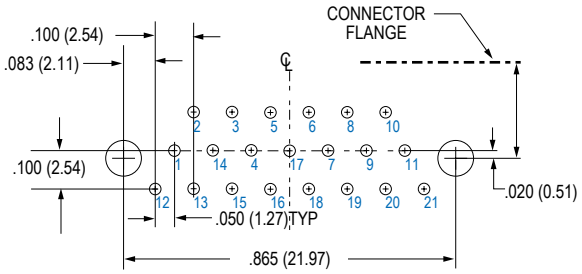
PC Tail Diameter .018 ± .002 (0.46 ± 0.05)
Contact numbers shown are for pin connectors.
Patterns shown are for connector mounting side of PC board.



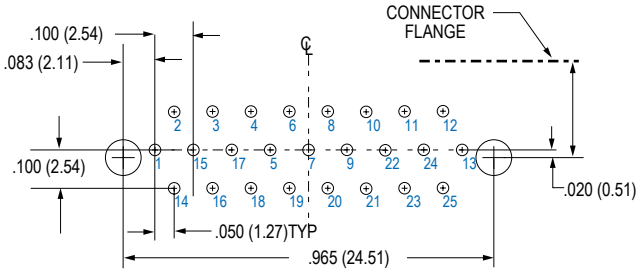
9 Contacts



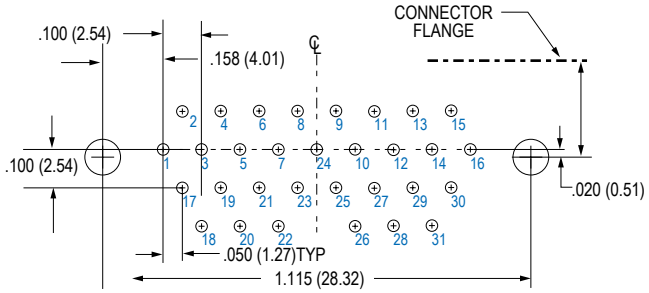
15 Contacts



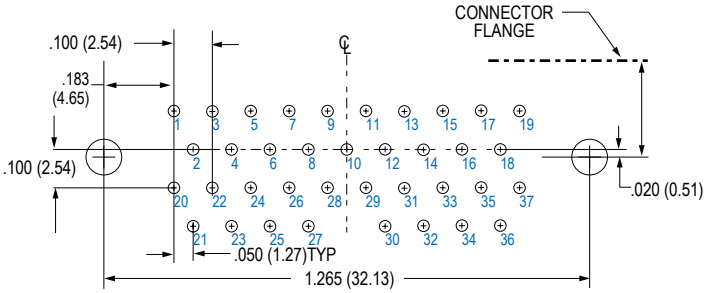
21 Contacts



25 Contacts



31 Contacts

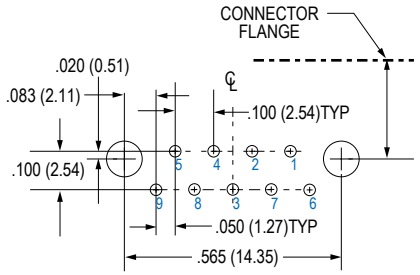


37 Contacts

Micro-D Filter Connectors
Right Angle Printed Circuit Board

MICRO-D FILTER RIGHT ANGLE PCB LAYOUTS— SOCKET CONNECTOR

PC Tail Diameter .018 ± .002 (0.46 ± 0.05)
Contact numbers shown are for socket connectors.
Patterns shown are for connector mounting side of PC board.



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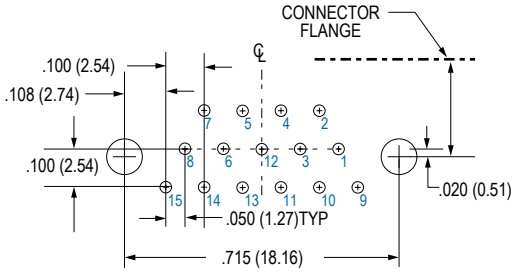

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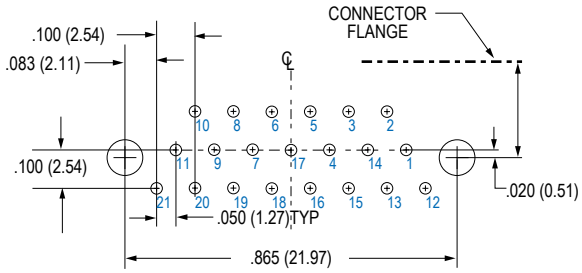
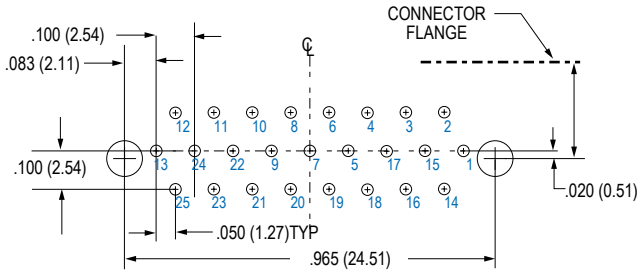


21 Contacts



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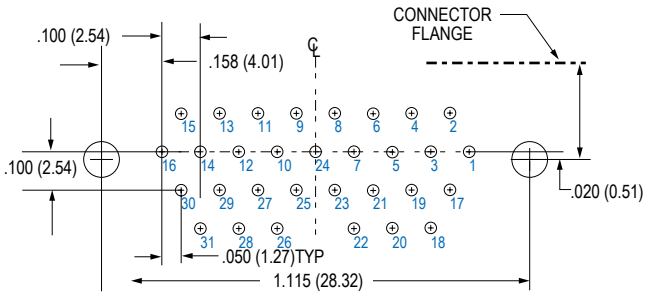
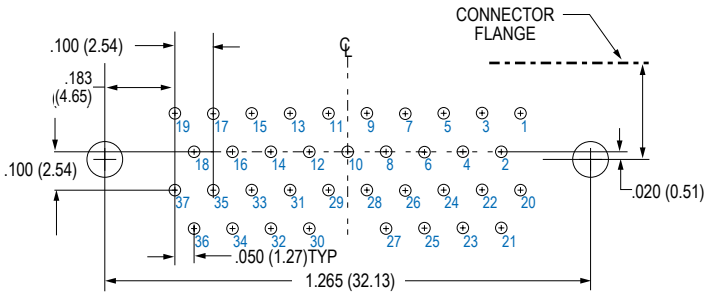


31 Contacts



37 Contacts

PRODUCT SELECTION GUIDE

Glenair's Hermetic Micro-D Connectors feature fused glass insulators to provide an airtight seal. These connectors are 100% tested to meet a maximum leak rate of 1 X 10^{-8} cc's per second of helium.

Matched Kovar® Seal – The shells and contacts are machined from Kovar®, an iron-nickel-cobalt alloy which forms a chemical bond with the vitreous glass insulator. The contacts are gold-plated and the shell is nickel-plated.

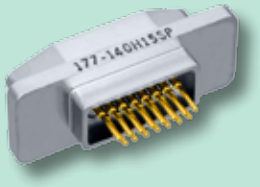
Choose Solder Cup, PC Tails or Pre-Wired in two styles: panel mount for soldering or o-ring mount.

MWDM Solder Mount Hermetic

These Kovar® alloy connectors are available in three styles: solder cup contacts, PC tail contacts or pre-wired and epoxy-sealed. Socket contacts are Kovar® alloy with gold plating. These connectors can be front- or rear-panel mounted. Installation requires soldering, brazing or welding to the bulkhead. Helium leak rate is 1 X 10^{-9} cc's per second.

Solder Mount Hermetic Solder Cup Contacts Page G-5

Solder Mount Hermetic PC Tail Contacts Page G-5



MWDM Hermetic for Rear-Panel Mounting

Avoid the expense of soldering with this o-ring version. Blind tapped mounting holes and integral jackposts provide easy installation. Three termination options are available: solder cup contacts for #26 AWG or smaller wire, PC tails for rigid or flexible circuit boards, or pre-wired with extended epoxy encapsulation to protect and insulate the solder joints.

O-Ring Hermetic Page G-7

Micro-D Hermetic Connectors General Information

MICRO-D HERMETIC CONNECTORS

Hermeticity is defined as "the state or condition of being airtight". Sophisticated military electronics enclosures can experience electrical failure from ingress of moisture. System engineers can design the enclosure to withstand exposure to moisture and condensation by using "moisture-hardened" components and conformal coatings, but often the most practical approach is to install hermetically sealed electrical I/O connectors. Glass-to-metal seals provide assurance that, over the life of the enclosure, the accumulated amount of water vapor inside the box will not exceed the amount necessary to form condensation. Other applications for Micro-D hermetic connectors include vacuum chambers, cryogenics, and enclosures filled with inert gas.

Kovar® Alloy

Glenair's hermetic Micro-D shells and contacts are made from a special alloy called Kovar®, an iron-nickel-cobalt alloy consisting of 54% Fe, 29% Ni, and 17% Co. This alloy is covered by SAE specification AMS-I-23011. Kovar has a relatively low coefficient of thermal expansion.

Micro-D Hermetic Plating Options

Unlike regular connectors which are plated as components prior to assembly, hermetic connectors are electroplated after the parts are fired and cleaned of oxides. Typically the contacts are gold-plated and the connector shell is nickel-plated.

Matched Glass-To-Metal Seals

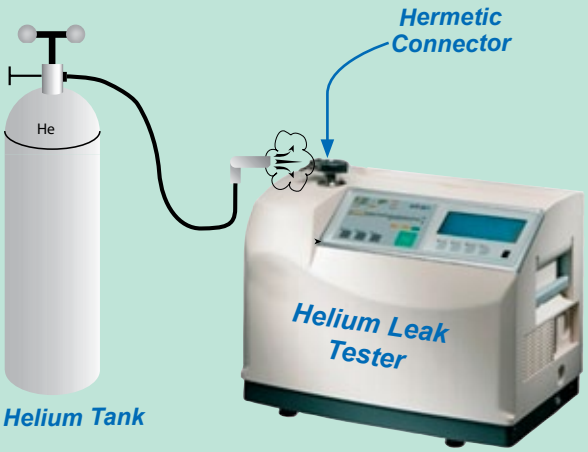
Matched seals rely on a chemical bond between the metal and the glass. Kovar contacts and shells are first exposed to high temperatures in order to develop an oxide coating. Then, the borosilicate glass and metal components are assembled with fixtures and are fused in a firing furnace at 900° C. A strong chemical bond is created between the metal and glass. Unlike compression seals which rely on different thermal coefficients of expansion between the glass and metal, a matched seal offers better resistance to stress from thermal extremes.

Connector Installation

Hermetic connectors are typically soldered or welded into panels or bulkheads. Laser welding is a good option if the connector is mounted onto a Kovar or stainless steel panel. If the panel is aluminum alloy, then soldering is recommended. Micro-D's with o-ring seals offer another alternative. O-rings, when installed properly, will provide a very low permeability seal. The seating surface must be free from scratches or imperfections. A 32 finish is acceptable, but a 16 finish is preferred. The o-ring can be coated with a light coat of vacuum grease.

Hermetic Testing

All Micro-D hermetic connectors are 100% tested prior to shipment. A helium leak test is performed to certify the hermetic seal. This test is conducted by inducing a 1 ATM vacuum on one side of the connector. Helium gas is released on the other side, and a mass spectrometer "counts" the number of helium molecules that penetrate the connector seal. Helium leak testing takes advantage of the small size of a helium molecule compared to air or water vapor. Helium is inert, rare in our atmosphere, and is easy to detect with a mass spectrometer.



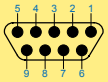
MICRO-D HERMETIC CONNECTOR DESIGN NOTES

"Why can't I get a hermetic Micro-D with pin contacts instead of sockets?"

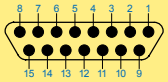
The Micro-D TwistPin contact cannot be made from the materials that are required for hermetic contacts. Hermetic contacts are made from ferrous alloys such as Kovar® or Alloy 52. These alloys do not have spring properties. The Micro-D TwistPin contact is made from spring-temper beryllium copper. The Micro-D socket contact is a cylinder and does not provide any spring force, so Micro-D hermetic connectors are always receptacle connectors with socket contacts. "What about high pressure?" "What is the maximum recommended pressure rating for a hermetic Micro-D?"

Glenair hermetic Micro-D's are built to safely withstand 1000 PSI of hydrostatic pressure in an open face (unmated) condition.

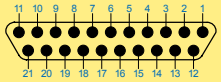
MICRO-D CONTACT ARRANGEMENTS (FACE VIEW SOCKET CONNECTOR)



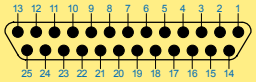
9 Socket



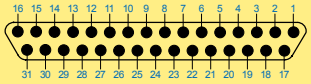
15 Socket



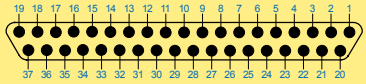
21 Socket



25 Socket



31 Socket



37 Socket

H

Glenair®

Micro-D Hermetic Connectors General Information

MATERIALS AND FINISHES	
Connector Shell	Kovar® Alloy in Accordance With SAE AMS-I-23011 Class 1, Plated with Electrodeposited Nickel In Accordance With SAE-AMS-QQ-N-290 Class 2, 0.0002-0.0003 Inches Thick.
Insulator	Borosilicate Glass
Interfacial Seal	Fluorosilicone Rubber, Blue
Socket Contact	Kovar® Alloy in Accordance With SAE AMS-I-23011 Class 1, Gold Plated In Accordance With ASTM B 488 Type II, Class 1.27 (50 microinches minimum) over Nickel Underplate in Accordance With SAE-AMS-QQ-N-290 Class 2.
Hardware	300 Series Stainless Steel
O-Ring	Fluorosilicone Rubber, Blue
Encapsulant	Epoxy

PERFORMANCE SPECIFICATIONS	
Current Rating	3 AMP
Dielectric Withstanding Voltage	150 VAC
Working Voltage	100 VDC
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	30 Milliohms Maximum
Hermeticity	Maximum Helium Leak Rate 1 X 10^{-8} cc's per Second at One Atmosphere
Operating Temperature	-55° C. to +125° C.
Shock	50 g.
Vibration	20 g.
Outgassing	Meets NASA Outgassing Requirements
Mating Force	(10 Ounces) X (# of Contacts)
For additional performance requirements, please refer to MIL-DTL-83513	

H

CONNECTOR WEIGHTS FOR 177-140H HERMETIC SOLDER MOUNT		
Maximum Weight In Grams		
Layout	**Solder Cup**	**PCB**
9	4.7	4.5
15	7.1	6.8
21	8.2	8.0
25	8.7	8.4
31	9.5	9.2
37	10.8	10.4

Micro-D Hermetic Connectors
Solder Mount 177-140H and 177-704H

Solder these 177-140 and 704 hermetic Micro-D connectors. Featuring a matched glass-to-metal seal, these socket receptacles are designed for panel mounting.

Kovar® Shells and Contacts comply with applicable MIL-DTL-83513 requirements and are 100% intermateable with standard connectors.

Choose 9 to 37 Contacts, with gold-plated contacts and nickel-plated shells. These connectors feature integral female jackposts.

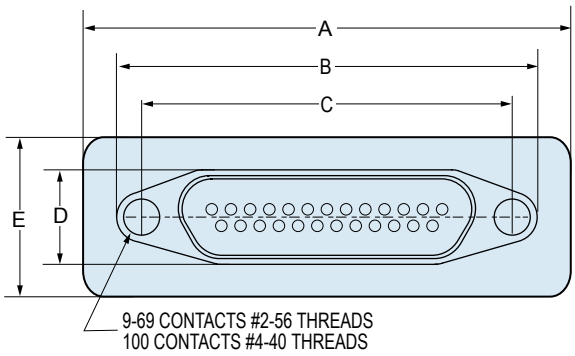
HOW TO ORDER SOLDER CUP AND PC TAIL CONNECTORS

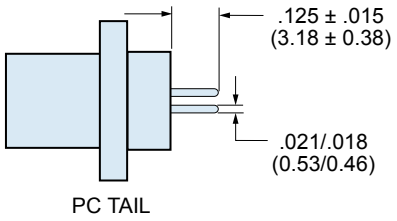
Series	Layout Number of Contacts	Contact Type	Termination Type
177-140H Micro-D Hermetic Socket Receptacle, Solder or Weld Mounting	**9** **15** **21** **25** **31** **37**	**S** – Socket	**S** – Solder Cup **P** – PC Tail
Sample Part Number			
177-140H	**15**	**S**	**P**

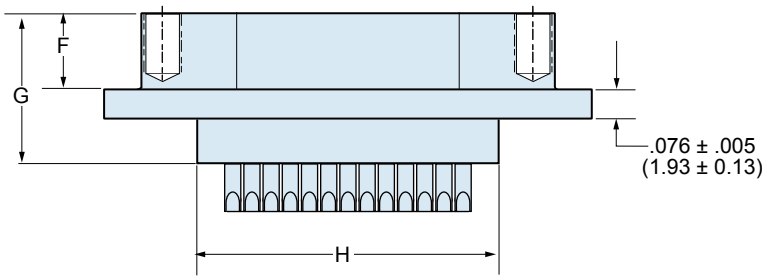
HOW TO ORDER PRE-WIRED CONNECTORS

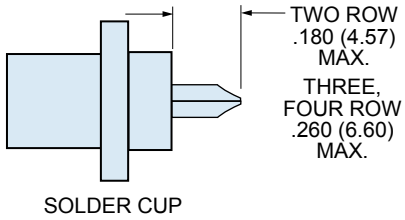
Series	Layout	Contact Type	Wire Gage (AWG)	Wire Type	Wire Color	Wire Length Inches
177-704H	**9** **15** **21** **25** **31** **37**	**S** – Socket	**6** – #26 **8** – #28 **0** – #30	**K** – M22759/11 600 Vrms Teflon® (TFE) (Not Available in #30 AWG) **J** – M22759/33 600 Vrms Modified Cross-Linked Tefzel® (ETFE)	**1** – White **2** – Yellow **5** – Color-Coded Stripes Per MIL-STD-681 (#26 gage only) **7** – Ten Color Repeat	**18** Wire Length In Inches. "18" Specifies 18 Inches.
Sample Part Number						
177-704H	**25**	**S**	**6**	**K**	**1**	**– 18**

Micro-D Hermetic Connectors
Solder Mount 177-140H and 177-704H

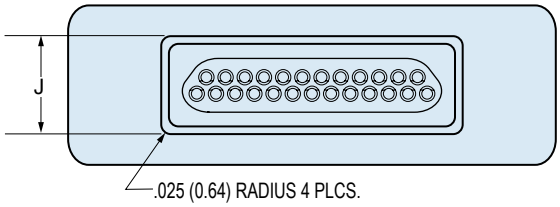


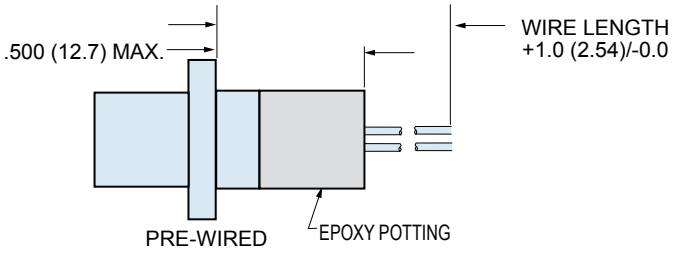






H





DIMENSIONS

Layout	A Max.		B MAX.		C		D Max.		E Max.		F		G Max.		H		J	
	In.	mm.	In. ± .005	mm. ± .013	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In. ± .004	mm. ± 0.10	In.	mm.	In. ± .004	mm. ± 0.10	In. ± .004	mm. ± 0.10
9S	.785	19.94	.695	14.35	.565	14.35	.250	6.35	.310	7.87	.195	4.95	.394	10.01	.398	10.11	.268	6.81
15S	1.030	26.16	.855	21.71	.715	18.16	.250	6.35	.425	10.80	.195	4.95	.394	10.01	.535	13.59	.255	6.48
21S	1.180	29.97	1.005	25.53	.865	21.97	.250	6.35	.425	10.80	.195	4.95	.394	10.01	.750	19.05	.255	6.48
25S	1.280	32.51	1.105	28.06	.965	24.51	.250	6.35	.425	10.80	.195	4.95	.394	10.01	.785	19.94	.255	6.48
31S	1.430	36.32	1.255	31.88	1.115	28.32	.250	6.35	.425	10.80	.195	4.95	.394	10.01	.935	23.75	.255	6.48
37S	1.580	40.13	1.425	36.20	1.265	32.13	.250	6.35	.425	10.80	.195	4.95	.394	10.01	1.085	27.56	.255	6.48

Micro-D Hermetic Connectors
Rear Panel Mount
with O-Ring 177-705H and 177-706H

Fluorosilicone O-Ring eliminates the cost of soldering or welding the connector to a bulkhead.

Kovar® Shells and Contacts comply with applicable MIL-DTL-83513 requirements and are 100% intermateable with standard connectors.

Solder Cup, PC Tail or Pre-Wired and Fully Potted Suitable for #26 gage wire or smaller, solder cup versions feature gold-plated contacts. Choose PC tails for attachment to flex circuits or rigid boards. Solder cup versions are also available pre-wired and potted.

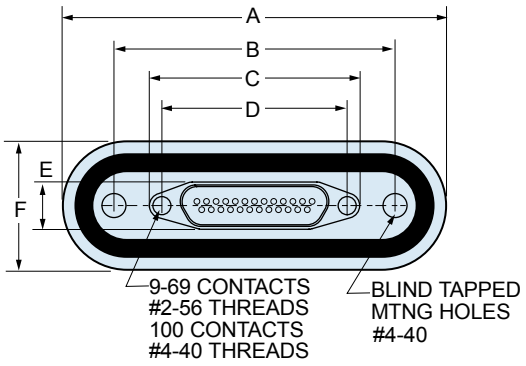
HOW TO ORDER SOLDER CUP AND PC TAIL CONNECTORS

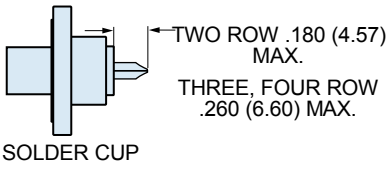
Series	Layout Number of Contacts	Contact Type	Termination Type	Mounting Threads
177-705H Micro-D Hermetic Socket Receptacle, Rear Panel Mount with O-Ring, Solder Cup or PC Tail	**9** **15** **21** **25** **31** **37**	**S** – Socket	**S** – Solder Cup **P** – PC Tail	**U** – #4 - 40 UNC **P** – M3 Metric
Sample Part Number				
177-705H	**15**	**S**	**P**	**U**

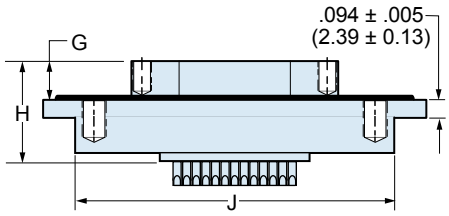
HOW TO ORDER PRE-WIRED CONNECTORS

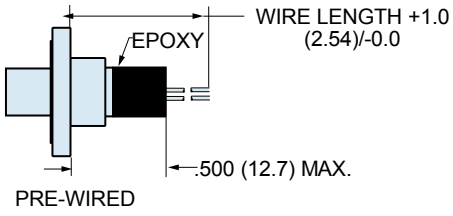
Series	Layout	Contact Type	Wire Gage (AWG)	Wire Type	Wire Color	Wire Length Inches
177-706H	**9** **15** **21** **25** **31** **37**	**S** – Socket	**6** – #26 **8** – #28 **0** – #30	**K** – M22759/11 600 Vrms Teflon (TFE) (Not Available in #30 AWG) **J** – M22759/33 600 Vrms Modified Cross-Linked Tefzel (ETFE)	**1** – White **2** – Yellow **5** – Color-Coded Stripes Per MIL-STD-681 (#26 gage only) **7** – Ten Color Repeat	**18** Wire Length In Inches. "18" Specifies 18 Inches.
Sample Part Number						
177-706H	**25**	**S**	**6**	**K**	**1**	**– 18**

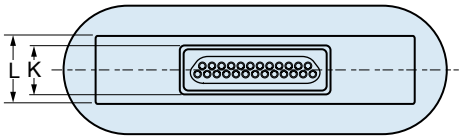
Micro-D Hermetic Connectors
Rear Panel Mount
with O-Ring 177-705H and 177-706H

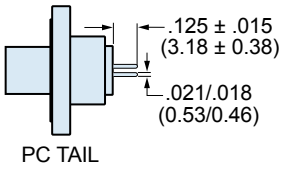










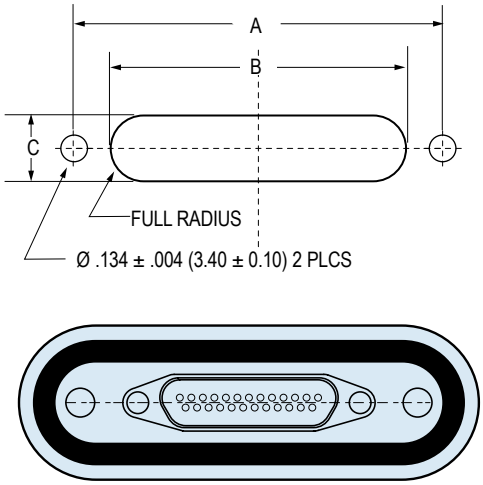


H

DIMENSIONS

Layout	A Max.		B		C MAX.		D		E MAX.		F Max.		G		H Max.		J		K		L Max.		M	
	In.	mm.	In. ± .005	mm. ± 0.13	In .	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In. ± .004	mm. ± 0.10	In.	mm.	In.	mm.	In. ± .004	mm. ± 0.10	In.	mm.	In.	mm.
9S	1.488	37.80	1.011	25.67	.728	18.49	.565	14.35	.250	6.35	.675	17.14	.195	4.95	.526	13.36	1.254	31.85	.254	6.45	.275	6.99	.410	10.41
15S	1.638	41.61	1.161	29.48	.878	22.30	.715	18.16	.250	6.35	.675	17.14	.195	4.95	.526	13.36	1.414	36.91	.254	6.45	.275	6.99	.540	13.72
21S	1.788	45.42	1.311	33.29	1.028	32.51	.865	21.97	.250	6.35	.675	17.14	.195	4.95	.526	13.36	1.564	39.72	.254	6.45	.275	6.99	.710	18.03
25S	1.888	47.96	1.411	35.83	1.128	28.65	.965	24.51	.250	6.35	.675	17.14	.195	4.95	.526	13.36	1.664	42.26	.254	6.45	.275	6.99	.540	13.72
31S	2.038	51.76	1.561	39.64	1.278	32.46	1.115	28.32	.250	6.35	.675	17.14	.195	4.95	.526	13.36	1.814	46.07	.254	6.45	.275	6.99	.955	24.26
37S	2.188	55.57	1.711	43.45	1.428	36.27	1.265	32.13	.250	6.35	.675	17.14	.195	4.95	.526	13.36	1.984	50.39	.254	6.45	.275	6.99	1.095	27.81

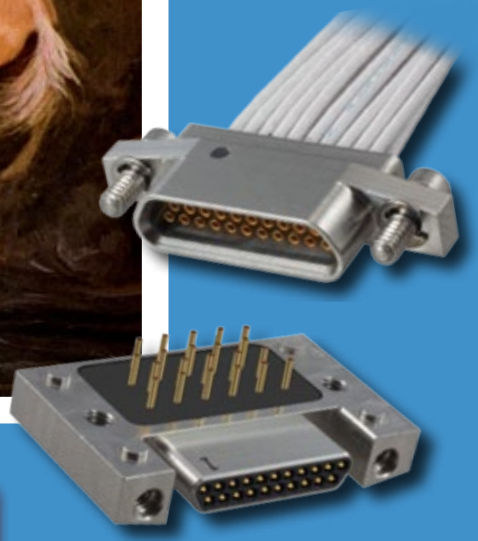
PANEL CUTOUT DIMENSIONS FOR 177-705 AND 177-706



Layout	A		B		C	
	In. ± .003	mm. ± 0.08	In. +.005 -0.0	mm. +0.13 -0.0	In. + .005/ -0.0	mm. + 0.13/ -0.0
9	1.011	25.69	.731	18.56	.252	6.40
15	1.161	29.50	.881	22.37	.252	6.40
21	1.311	33.31	1.031	26.18	.252	6.40
25	1.411	35.85	1.131	28.72	.252	6.40
31	1.561	39.66	1.281	32.53	.252	6.40
37	1.711	43.47	1.431	36.34	.252	6.40

Too Hot to Handle?

Glenair Well-Master™ 260 Micro-D Connectors: In Stock and Cool Under Fire!



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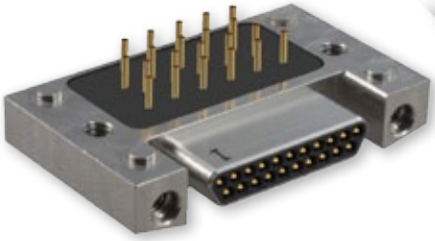


+260°C PCB Header

+260°C Cable Connector

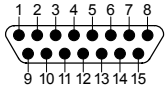
- +260°C Operating Temperature
- Angled Mounting Ears to Fit in Small Diameter Instruments
- High Reliability TwistPin Contact System with Special High Temperature Alloy
- .050" Pitch Contact Spacing for Reduced Size
- Solder Cup, Pre-Wired or PCB

Glenair Well-Master™ 260 Micro-D Withstands Extreme High Temperature

Standard Micro-D connectors are rated for +125°C. Glenair's MWDM Micro-D can withstand +150°C continuous operating temperature and can be upgraded to +200°C if assembled with special high temperature epoxies. But oil, gas and geothermal wells can subject electronic instruments to temperatures as high as +260°C. The GHTM Series Micro-D meets the need for a high density, high performance connector capable of handling this temperature. The GHTM features contacts made from a special alloy that resists softening when exposed to temperatures up to +260°C (500° F). Rugged passivated stainless steel shells and hardware, high temperature liquid crystal polymer (LCP) insulators and special epoxies allow these connectors to survive the most demanding environments. Unique angled mounting ears allow the Well-Master 260 to fit in confined spaces.

GHTM HIGH TEMPERATURE CONTACT ARRANGEMENTS

9



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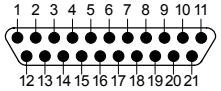

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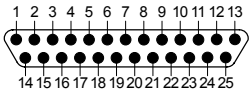

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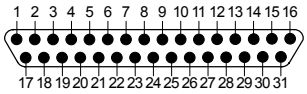

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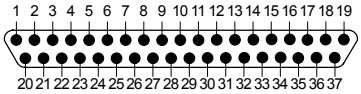


37

Mating face of pin connector. Socket connector contact numbers are reversed.

MATERIALS AND FINISHES	
Contacts	Proprietary nickel alloy, gold plated
Insulators	Liquid crystal polymer (LCP)
Shell	Stainless steel, passivated
Mounting Hardware	Stainless Steel
Potting Compound	Epoxy
Insulated Wire	Nickel-coated copper, PTFE insulation per M22759/87 (260°C)

SPECIFICATIONS	
Current Rating	3 Amps
Contact Resistance	8 milliohms maximum
Dielectric Withstanding Voltage	600 Vac sea level
Insulation Resistance	5000 megohms minimum
Operating Temperature	-55° C. to +260° C.
Shock	50 g.
Vibration	20 g.

Well-Master™ 260
High Temperature Micro-D GHTM
Solder Cup Connectors

GHTM Solder Cup Connectors

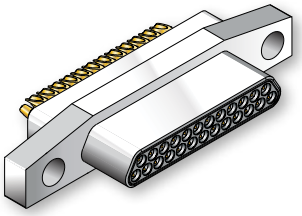


Figure 1
Pin (Plug) with Thru-Hole Mounting (B)
.096/.088 Dia.
(2.43/2.23)

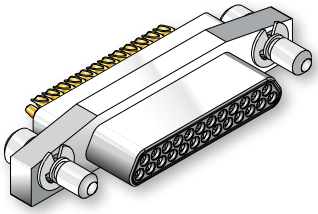


Figure 2
Pin (Plug) with #2-56 Jackscrews
Slot head (S)
Hex Head (M)

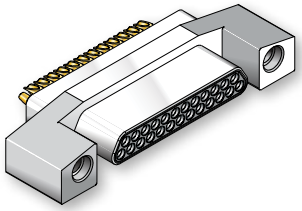


Figure 3
Pin (Plug) with Integral Jackpost (P)
#2-56

GHTM Well-Master™ 260 solder cup Micro-D connectors withstand +260°C continuous operating temperature. These .050" pitch Micro-D connectors accept #26 to #30 gauge wire with standard contacts and up to size #24 wire with “large bore” contacts. Contacts are factory-installed and potted with epoxy. Pin contacts are gold-plated high performance twistpin type and are recessed into insulator to prevent damage. Special nickel alloy contact material resists softening in high heat. Machined passivated stainless steel shell. Glass-filled high temperature LCP thermoplastic insulators withstand soldering heat. Meets performance requirements of MIL-DTL-83513. Available with 9 to 37 contacts. 3 A., 600 Vac, -55°C to +260°C.

GHTM Pin (Plug) Solder Cup Connectors For #26 AWG Wire

No. of Contacts	Type	Thru-Hole Mounting .092 Dia. Fig. 1	Jackscrews Hex Head #2-56 Figure 2	Jackscrews Slot Head #2-56 Figure 2	Integral Jackpost #2-56 Fig. 3
9	Pin	GHTM-9PSB	GHTM-9PSM	GHTM-9PSS	GHTM-9PSP
15	Pin	GHTM-15PSB	GHTM-15PSM	GHTM-15PSS	GHTM-15PSP
21	Pin	GHTM-21PSB	GHTM-21PSM	GHTM-21PSS	GHTM-21PSP
25	Pin	GHTM-25PSB	GHTM-25PSM	GHTM-25PSS	GHTM-25PSP
31	Pin	GHTM-31PSB	GHTM-31PSM	GHTM-31PSS	GHTM-31PSP
37	Pin	GHTM-37PSB	GHTM-37PSM	GHTM-37PSS	GHTM-37PSP

GHTM Pin (Plug) Solder Cup Connectors For #24 AWG Wire

No. of Contacts	Type	Thru-Hole Mounting .092 Dia. Fig. 1	Jackscrews Hex Head #2-56 Figure 2	Jackscrews Slot Head #2-56 Figure 2	Integral Jackpost #2-56 Fig. 3
9	Pin	GHTM-9PNB	GHTM-9PNM	GHTM-9PNS	GHTM-9PNP
15	Pin	GHTM-15PNB	GHTM-15PNM	GHTM-15PNS	GHTM-15PNP
21	Pin	GHTM-21PNB	GHTM-21PNM	GHTM-21PNS	GHTM-21PNP
25	Pin	GHTM-25PNB	GHTM-25PNM	GHTM-25PNS	GHTM-25PNP
31	Pin	GHTM-31PNB	GHTM-31PNM	GHTM-31PNS	GHTM-31PNP
37	Pin	GHTM-37PNB	GHTM-37PNM	GHTM-37PNS	GHTM-37PNP

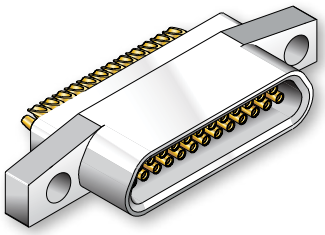


Figure 4
Socket (Receptacle) with Thru-Hole Mounting (B)
.096/.088 Dia.
(2.43/2.23)

GHTM Socket (Receptacle) Solder Cup Connectors For #26 AWG Wire

No. of Contacts	Type	Thru-Hole Mounting .092 Dia. Fig. 4	Jackscrews Hex Head #2-56 Figure 5	Jackscrews Slot Head #2-56 Figure 5	Integral Jackpost #2-56 Fig. 6
9	Socket	GHTM-9SSB	GHTM-9SSM	GHTM-9SSS	GHTM-9SSP
15	Socket	GHTM-15SSB	GHTM-15SSM	GHTM-15SSS	GHTM-15SSP
21	Socket	GHTM-21SSB	GHTM-21SSM	GHTM-21SSS	GHTM-21SSP
25	Socket	GHTM-25SSB	GHTM-25SSM	GHTM-25SSS	GHTM-25SSP
31	Socket	GHTM-31SSB	GHTM-31SSM	GHTM-31SSS	GHTM-31SSP
37	Socket	GHTM-37SSB	GHTM-37SSM	GHTM-37SSS	GHTM-37SSP

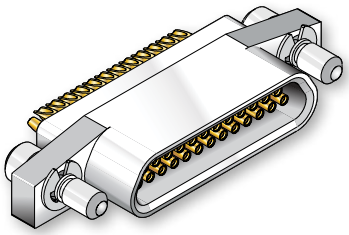


Figure 5
Socket (Receptacle) with #2-56 Jackscrews
Slot head (S)
Hex Head (M)

GHTM Socket (Receptacle) Solder Cup Connectors For #24 AWG Wire

No. of Contacts	Type	Thru-Hole Mounting .092 Dia. Fig. 4	Jackscrews Hex Head #2-56 Figure 5	Jackscrews Slot Head #2-56 Figure 5	Integral Jackpost #2-56 Fig. 6
9	Socket	GHTM-9STB	GHTM-9STM	GHTM-9STS	GHTM-9STP
15	Socket	GHTM-15STB	GHTM-15STM	GHTM-15STS	GHTM-15STP
21	Socket	GHTM-21STB	GHTM-21STM	GHTM-21STS	GHTM-21STP
25	Socket	GHTM-25STB	GHTM-25STM	GHTM-25STS	GHTM-25STP
31	Socket	GHTM-31STB	GHTM-31STM	GHTM-31STS	GHTM-31STP
37	Socket	GHTM-37STB	GHTM-37STM	GHTM-37STS	GHTM-37STP

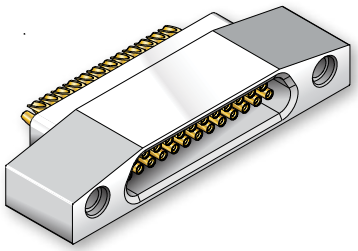


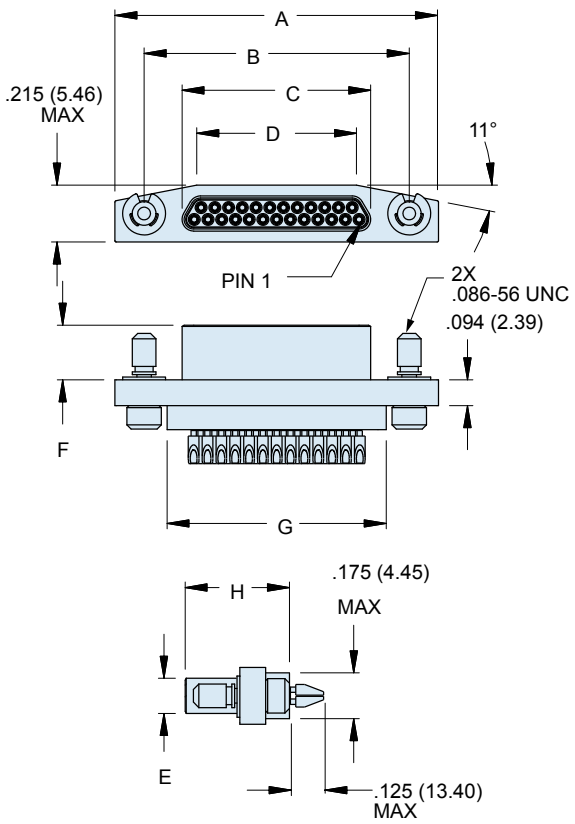
Figure 6
Socket (Receptacle) with Integral Jackpost (P)
#2-56

J

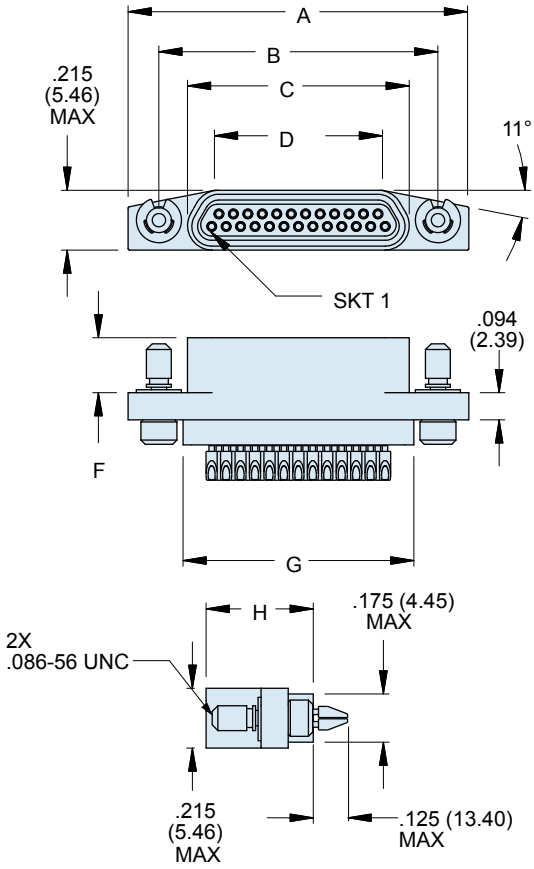
Well-Master™ 260
High Temperature Micro-D GHTM
Solder Cup Connectors

GHTM SOLDER CUP DIMENSIONS: JACKSCREW AND THRU-HOLE VERSIONS

PIN (PLUG) CONNECTOR



SOCKET (RECEPTACLE) CONNECTOR



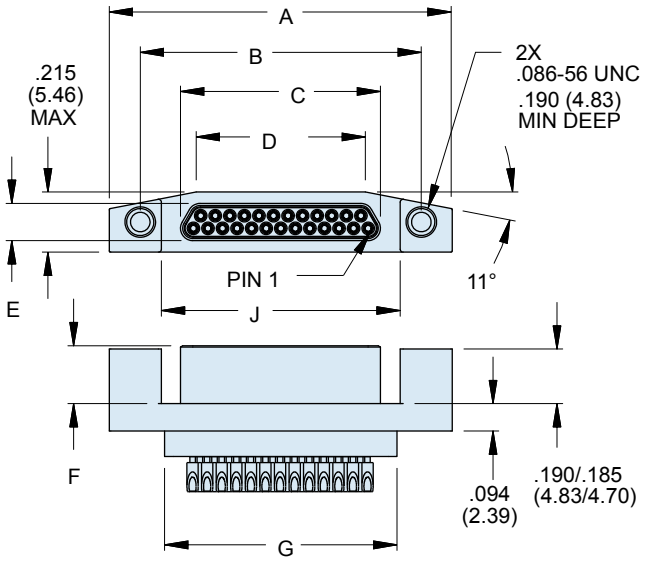
Notes:

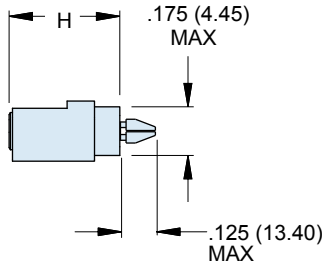
1. Jackscrew version shown. Thru-hole version has (2) .096/.088 (2.43/2.23) diameter mounting holes instead of jackscrews.

Layout	A Max.		B		C Max.		D		E Max.		F		G Max.		H Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.290	7.37	.181	4.60	.131	3.33	.199	5.05	.405	10.29	.390	9.91
9S	.785	19.94	.565	14.35	.371	9.42	.181	4.60	.215	5.46	.191	4.85	.405	10.29	.377	9.58
15P	.935	23.75	.715	18.16	.440	11.18	.331	8.41	.131	3.33	.199	5.05	.555	14.10	.390	9.91
15S	.935	23.75	.715	18.16	.521	13.23	.331	8.41	.215	5.46	.191	4.85	.555	14.10	.377	9.58
21P	1.085	27.43	.865	21.97	.590	14.99	.481	12.22	.131	3.33	.199	5.05	.705	17.91	.390	9.91
21S	1.085	27.43	.865	21.97	.671	17.04	.481	12.22	.215	5.46	.191	4.85	.705	17.91	.377	9.58
25P	1.185	30.01	.965	24.51	.690	17.53	.581	14.76	.131	3.33	.199	5.05	.805	20.45	.390	9.91
25S	1.185	30.01	.965	24.51	.771	19.58	.581	14.76	.215	5.46	.191	4.85	.805	20.45	.377	9.58
31P	1.335	33.91	1.115	28.32	.840	21.34	.731	18.57	.131	3.33	.199	5.05	.955	24.26	.390	9.91
31S	1.335	33.91	1.115	28.32	.921	23.39	.731	18.57	.215	5.46	.191	4.85	.955	24.26	.377	9.58
37P	1.485	37.72	1.265	32.13	.990	25.15	.881	22.38	.131	3.33	.199	5.05	1.105	28.07	.390	9.91
37S	1.485	37.72	1.265	32.13	1.071	27.20	.881	22.38	.215	5.46	.191	4.85	1.105	28.07	.377	9.58

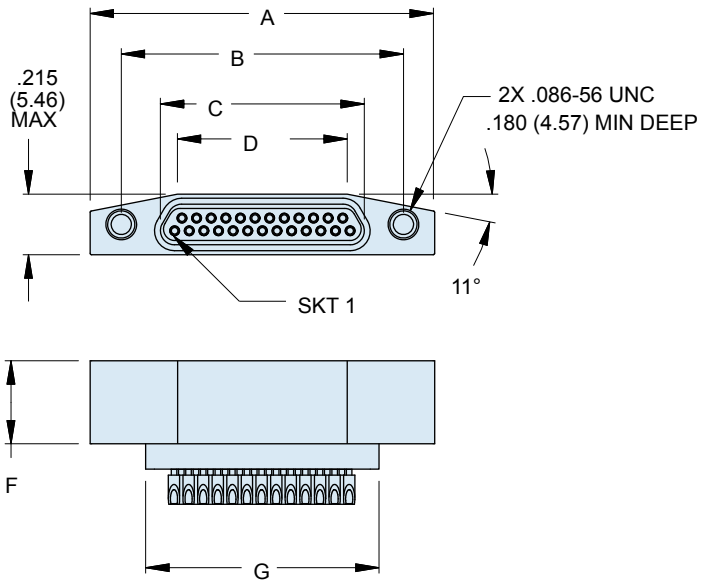
GHTM SOLDER CUP DIMENSIONS: INTEGRAL JACKPOST VERSION

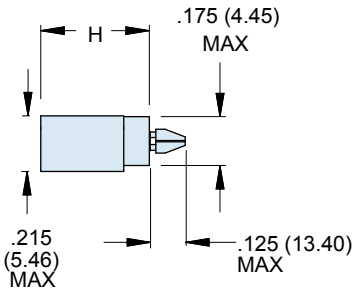
PIN (PLUG) CONNECTOR





SOCKET (RECEPTACLE) CONNECTOR





Layout	A Max.		B		C Max.		D		E Max.		F		G Max.		H Max.		J	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.290	7.37	.181	4.60	.131	3.33	.199	5.05	.405	10.29	.390	9.91	.420	10.67
9S	.785	19.94	.565	14.35	.301	7.65	.181	4.60	.215	5.46	.274	6.96	.405	10.29	.377	9.58	N/A	N/A
15P	.935	23.75	.715	18.16	.440	11.18	.331	8.41	.131	3.33	.199	5.05	.555	14.10	.390	9.91	.570	14.48
15S	.935	23.75	.715	18.16	.451	11.46	.331	8.41	.215	5.46	.274	6.96	.555	14.10	.377	9.58	N/A	N/A
21P	1.085	27.43	.865	21.97	.590	14.99	.481	12.22	.131	3.33	.199	5.05	.705	17.91	.390	9.91	.720	18.29
21S	1.085	27.43	.865	21.97	.601	15.27	.481	12.22	.215	5.46	.274	6.96	.705	17.91	.377	9.58	N/A	N/A
25P	1.185	30.01	.965	24.51	.690	17.53	.581	14.76	.131	3.33	.199	5.05	.805	20.45	.390	9.91	.820	20.83
25S	1.185	30.01	.965	24.51	.701	17.81	.581	14.76	.215	5.46	.274	6.96	.805	20.45	.377	9.58	N/A	N/A
31P	1.335	33.91	1.115	28.32	.840	21.34	.731	18.57	.131	3.33	.199	5.05	.955	24.26	.390	9.91	.970	24.64
31S	1.335	33.91	1.115	28.32	.851	21.62	.731	18.57	.215	5.46	.274	6.96	.955	24.26	.377	9.58	N/A	N/A
37P	1.485	37.72	1.265	32.13	.990	25.15	.881	22.38	.131	3.33	.199	5.05	1.105	28.07	.390	9.91	1.120	28.45
37S	1.485	37.72	1.265	32.13	1.001	25.43	.881	22.38	.215	5.46	.274	6.96	1.105	28.07	.377	9.58	N/A	N/A

Well-Master™ 260
High Temperature Micro-D GHTM
Pre-Wired Connectors

GHTM Pre-Wired Connectors with +260°C Mil Spec PTFE/Polyimide Wire

GHTM Well-Master™ 260 pre-wired Micro-D connectors withstand +260°C continuous operating temperature. These .050" pitch Micro-D connectors are terminated to #24 or #26 AWG insulated wire. Nickel-coated copper wire conforms to M22759/87, PTFE/polyimide insulation. Contacts are crimped to wire, factory-installed and potted with epoxy. Pin contacts are gold-plated high performance twistpin type and are recessed into insulator to prevent damage. Special nickel alloy contact material resists softening in high heat. Machined passivated stainless steel shell. Glass-filled high temperature LCP thermoplastic insulators. 100% hi-pot tested. Meets performance requirements of MIL-DTL-83513. Available with 9 to 37 contacts. 3 A., 600 Vac, -55°C to +260°C.

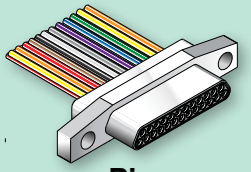
HOW TO ORDER

Sample Part Number

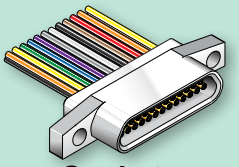
GHTM	-31	S	-4	T	1	-18	B
Series	**N f Contacts**	**Contact Type**	**Wire Gage (AWG)**	**Wire Type**	**Wire Color**	**Wire Length (Inches)**	**Mounting Hardware**
GHTM Glenair High Temperature Micro	**-9** **-15** **-21** **-25** **-31** **-37**	**P** Pin Contacts **S** Socket Contacts	**-4** #24 **-6** #26	**T** PTFE/ Polyimide Insulated Nickel Coated Copper	**1** White **7** 10 Color Repeat	Wire Length In Inches	**B** Thru-Hole **M** Hex Head Jackscrew **S** Slot Head Jackscrew **P** Jackpost

GHTM MOUNTING HARDWARE

B
Thru-Hole Mounting
.096/.088 Dia.
(2.43/2.23)

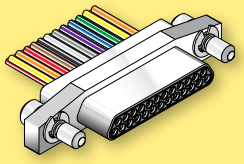


Pin

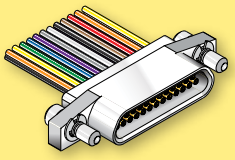


Socket

M and S
#2-56 Jackscrews
Slot head (S)
Hex Head (M)

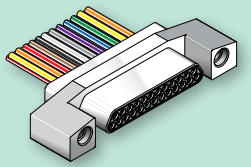


Pin

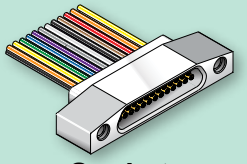


Socket

P
Integral Jackpost
#2-56



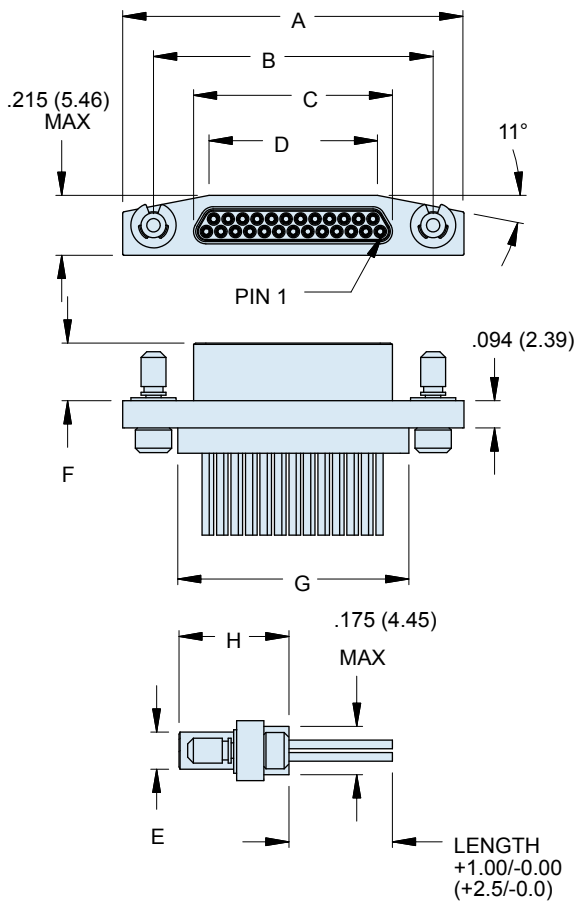
Pin



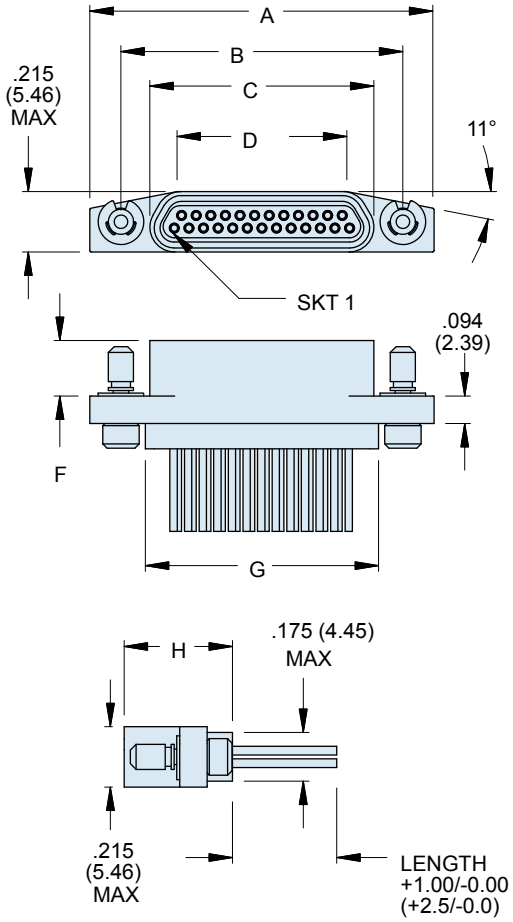
Socket

GHTM PRE-WIRED CONNECTOR DIMENSIONS:THRU-HOLE AND JACKSCREW VERSIONS

PIN (PLUG) CONNECTOR



SOCKET (RECEPTACLE) CONNECTOR

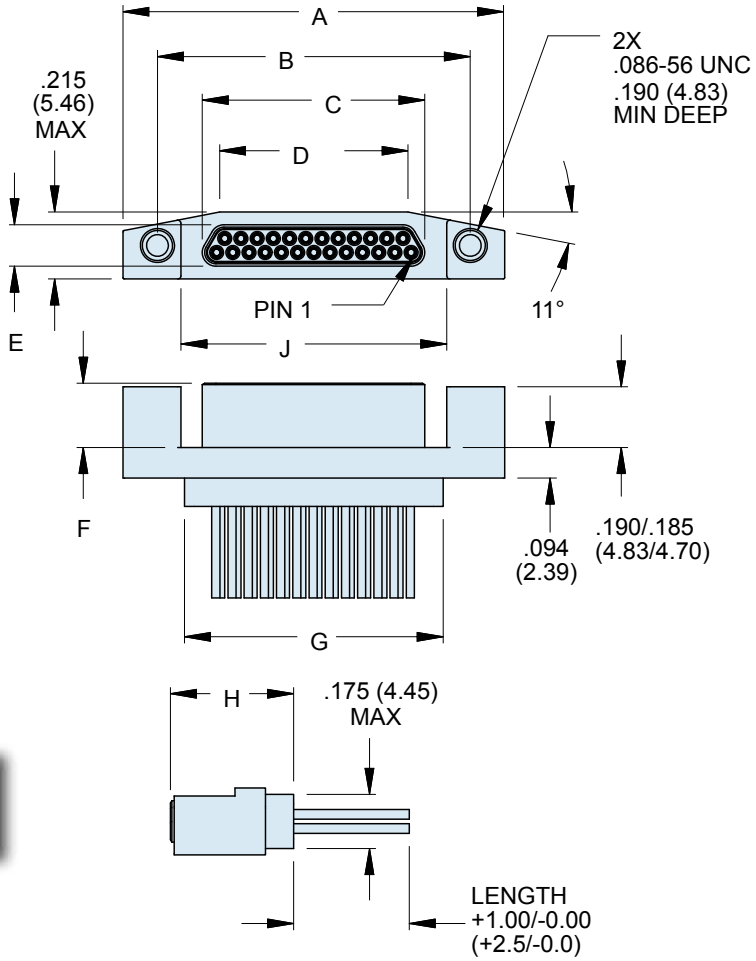


Layout	A Max.		B		C Max.		D		E Max.		F		G Max.		H Max.	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.290	7.37	.181	4.60	.131	3.33	.199	5.05	.405	10.29	.390	9.91
9S	.785	19.94	.565	14.35	.371	9.42	.181	4.60	.215	5.46	.191	4.85	.405	10.29	.377	9.58
15P	.935	23.75	.715	18.16	.440	11.18	.331	8.41	.131	3.33	.199	5.05	.555	14.10	.390	9.91
15S	.935	23.75	.715	18.16	.521	13.23	.331	8.41	.215	5.46	.191	4.85	.555	14.10	.377	9.58
21P	1.085	27.43	.865	21.97	.590	14.99	.481	12.22	.131	3.33	.199	5.05	.705	17.91	.390	9.91
21S	1.085	27.43	.865	21.97	.671	17.04	.481	12.22	.215	5.46	.191	4.85	.705	17.91	.377	9.58
25P	1.185	30.01	.965	24.51	.690	17.53	.581	14.76	.131	3.33	.199	5.05	.805	20.45	.390	9.91
25S	1.185	30.01	.965	24.51	.771	19.58	.581	14.76	.215	5.46	.191	4.85	.805	20.45	.377	9.58
31P	1.335	33.91	1.115	28.32	.840	21.34	.731	18.57	.131	3.33	.199	5.05	.955	24.26	.390	9.91
31S	1.335	33.91	1.115	28.32	.921	23.39	.731	18.57	.215	5.46	.191	4.85	.955	24.26	.377	9.58
37P	1.485	37.72	1.265	32.13	.990	25.15	.881	22.38	.131	3.33	.199	5.05	1.105	28.07	.390	9.91
37S	1.485	37.72	1.265	32.13	1.071	27.20	.881	22.38	.215	5.46	.191	4.85	1.105	28.07	.377	9.58

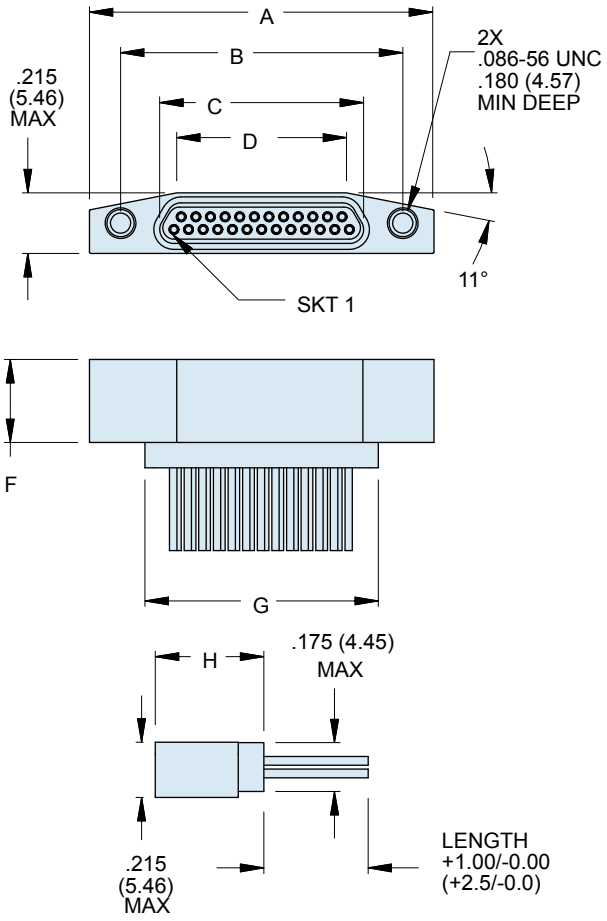
Well-Master™ 260
High Temperature Micro-D GHTM
Pre-Wired Connectors

GHTM PRE-WIRED CONNECTOR DIMENSIONS:INTEGRAL JACKPOST VERSION

PIN (PLUG) CONNECTOR



SOCKET (RECEPTACLE) CONNECTOR

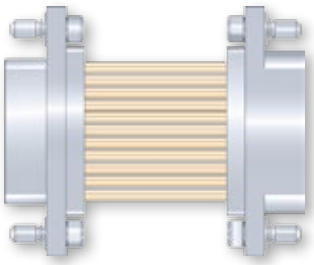


Layout	A Max.		B		C Max.		D		E Max.		F		G Max.		H Max.		J	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.290	7.37	.181	4.60	.131	3.33	.199	5.05	.405	10.29	.390	9.91	.420	10.67
9S	.785	19.94	.565	14.35	.301	7.65	.181	4.60	.215	5.46	.274	6.96	.405	10.29	.377	9.58	N/A	N/A
15P	.935	23.75	.715	18.16	.440	11.18	.331	8.41	.131	3.33	.199	5.05	.555	14.10	.390	9.91	.570	14.48
15S	.935	23.75	.715	18.16	.451	11.46	.331	8.41	.215	5.46	.274	6.96	.555	14.10	.377	9.58	N/A	N/A
21P	1.085	27.43	.865	21.97	.590	14.99	.481	12.22	.131	3.33	.199	5.05	.705	17.91	.390	9.91	.720	18.29
21S	1.085	27.43	.865	21.97	.601	15.27	.481	12.22	.215	5.46	.274	6.96	.705	17.91	.377	9.58	N/A	N/A
25P	1.185	30.01	.965	24.51	.690	17.53	.581	14.76	.131	3.33	.199	5.05	.805	20.45	.390	9.91	.820	20.83
25S	1.185	30.01	.965	24.51	.701	17.81	.581	14.76	.215	5.46	.274	6.96	.805	20.45	.377	9.58	N/A	N/A
31P	1.335	33.91	1.115	28.32	.840	21.34	.731	18.57	.131	3.33	.199	5.05	.955	24.26	.390	9.91	.970	24.64
31S	1.335	33.91	1.115	28.32	.851	21.62	.731	18.57	.215	5.46	.274	6.96	.955	24.26	.377	9.58	N/A	N/A
37P	1.485	37.72	1.265	32.13	.990	25.15	.881	22.38	.131	3.33	.199	5.05	1.105	28.07	.390	9.91	1.120	28.45
37S	1.485	37.72	1.265	32.13	1.001	25.43	.881	22.38	.215	5.46	.274	6.96	1.105	28.07	.377	9.58	N/A	N/A

U.S. CAGE Code 06324
Printed in U.S.A.

Well-Master™ 260
High Temperature Micro-D GHTM
Back-To-Back Cable Assemblies

GHTM Back-To-Back Cable Assemblies



GHTM Well-Master™ 260 back-to-back Micro-D cable assemblies withstand +260°C continuous operating temperature. These .050" pitch Micro-D connectors are terminated to #24 or #26 AWG insulated wire. Nickel-coated copper wire conforms to M22759/87, PTFE/polyimide insulation. Contacts are crimped to wire, factory-installed and potted with epoxy. Pin contacts are gold-plated high performance twistpin type and are recessed into insulator to prevent damage. Special nickel alloy contact material resists softening in high heat. Machined passivated stainless steel shell. Glass-filled high temperature LCP thermoplastic insulators. Meets performance requirements of MIL-DTL-83513. Available with 9 to 37 contacts. 3 A., 600 Vac, -55°C to +260°C.

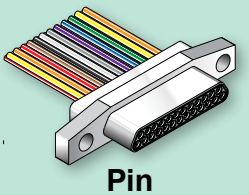
HOW TO ORDER

Sample Part Number

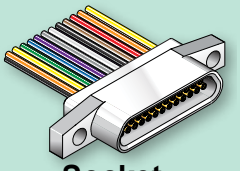
GHTM	-31	GS	-6	T	7	-18	B
Series	**No. of Contacts**	**Contact Type**	**Wire Gage (AWG)**	**Wire Type**	**Wire Color**	**Wire Length (Inches)**	**Mounting Hardware**
GHTM Glenair High Temperature Micro	**-9** **-15** **-21** **-25** **-31** **-37**	**GP** Pin Connector Both Ends **GS** Socket Connector Both Ends **CS** Pin Connector to Socket Connector	**-4** #24 **-6** #26	**T** PTFE/ Polyimide Insulated Nickel Coated Copper	**1** White **7** 10 Color Repeat	Wire Length In Inches	**B** Thru-Hole **M** Hex Head Jackscrew **S** slot head jackscrew **P** Jackpost

GHTM MOUNTING HARDWARE

B
Thru-Hole Mounting
.096/.088 Dia.
(2.43/2.23)

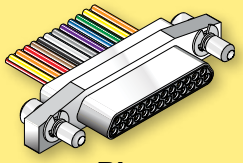


Pin

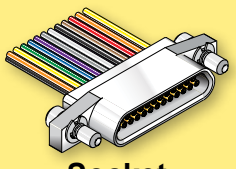


Socket

M and S
#2-56 Jackscrews
Slot head (S)
Hex Head (M)

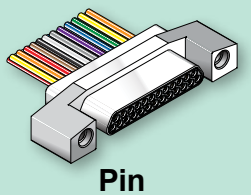


Pin

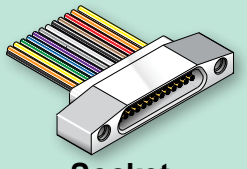


Socket

P
Integral Jackpost
#2-56



Pin

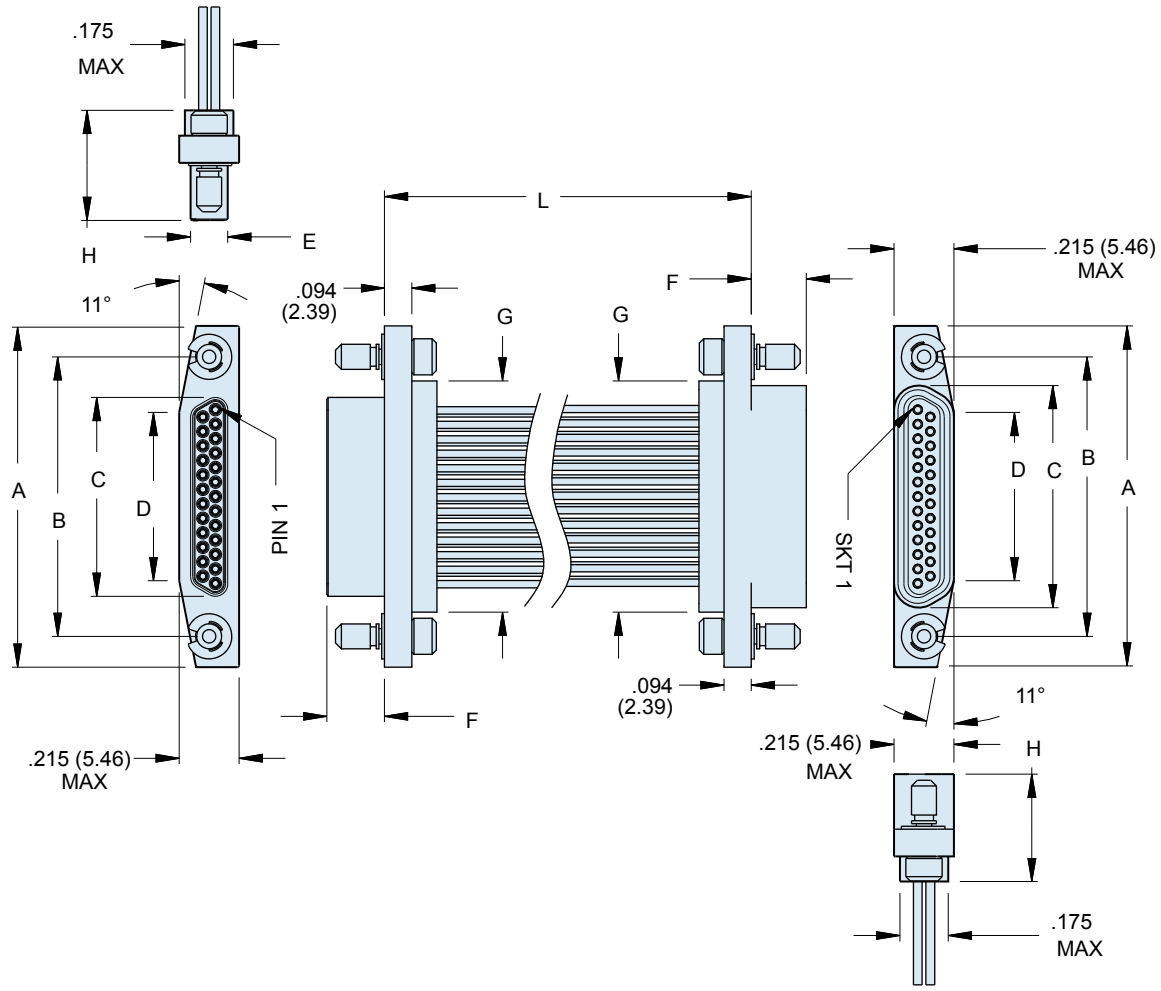


Socket

J

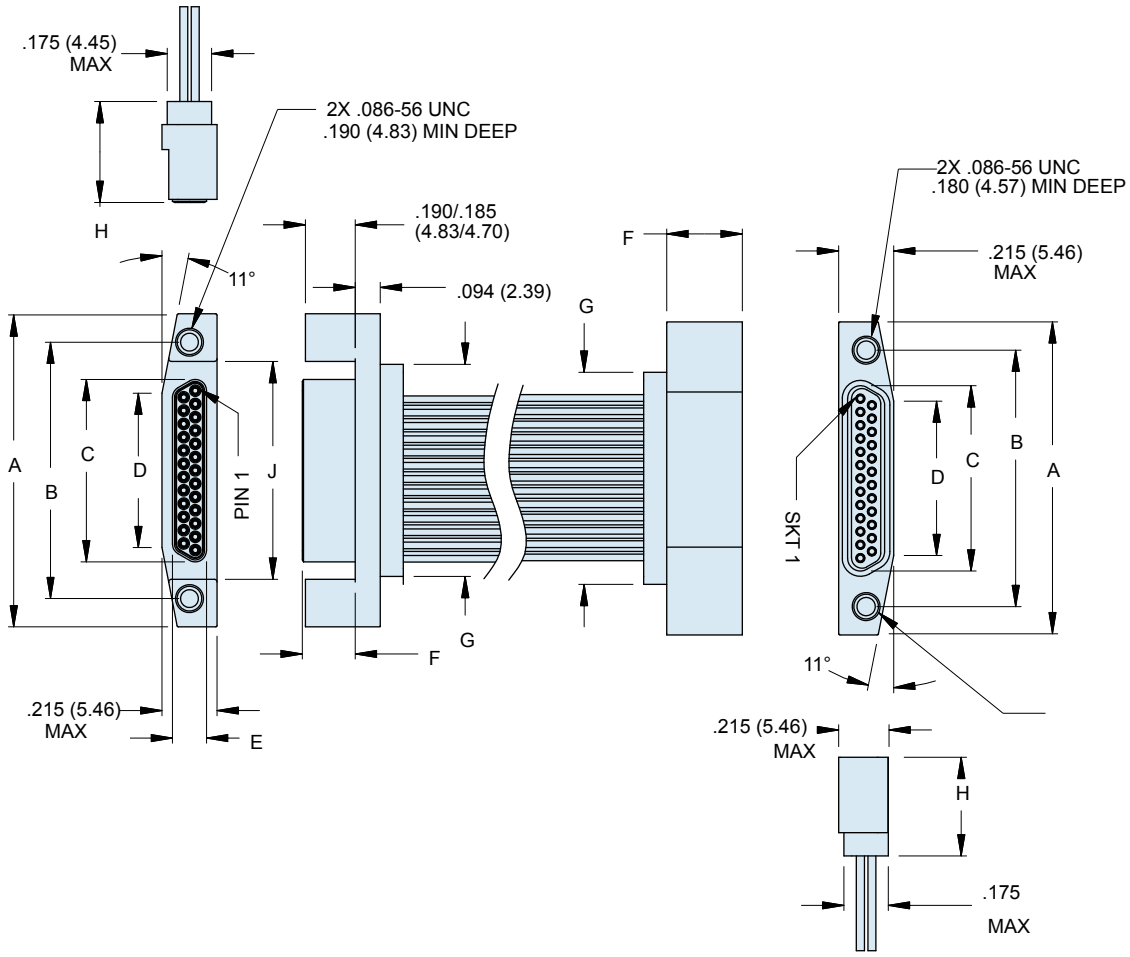
Well-Master™ 260
High Temperature Micro-D GHTM
Back-To-Back Cable Assemblies

GHTM BACK-TO-BACK DIMENSIONS: THRU-HOLE AND JACKSCREW VERSIONS



Layout	A Max.		B		C Max.		D		E Max.		F		G Max.		H Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.290	7.37	.181	4.60	.131	3.33	.199	5.05	.405	10.29	.390	9.91
9S	.785	19.94	.565	14.35	.371	9.42	.181	4.60	.215	5.46	.191	4.85	.405	10.29	.377	9.58
15P	.935	23.75	.715	18.16	.440	11.18	.331	8.41	.131	3.33	.199	5.05	.555	14.10	.390	9.91
15S	.935	23.75	.715	18.16	.521	13.23	.331	8.41	.215	5.46	.191	4.85	.555	14.10	.377	9.58
21P	1.085	27.43	.865	21.97	.590	14.99	.481	12.22	.131	3.33	.199	5.05	.705	17.91	.390	9.91
21S	1.085	27.43	.865	21.97	.671	17.04	.481	12.22	.215	5.46	.191	4.85	.705	17.91	.377	9.58
25P	1.185	30.01	.965	24.51	.690	17.53	.581	14.76	.131	3.33	.199	5.05	.805	20.45	.390	9.91
25S	1.185	30.01	.965	24.51	.771	19.58	.581	14.76	.215	5.46	.191	4.85	.805	20.45	.377	9.58
31P	1.335	33.91	1.115	28.32	.840	21.34	.731	18.57	.131	3.33	.199	5.05	.955	24.26	.390	9.91
31S	1.335	33.91	1.115	28.32	.921	23.39	.731	18.57	.215	5.46	.191	4.85	.955	24.26	.377	9.58
37P	1.485	37.72	1.265	32.13	.990	25.15	.881	22.38	.131	3.33	.199	5.05	1.105	28.07	.390	9.91
37S	1.485	37.72	1.265	32.13	1.071	27.20	.881	22.38	.215	5.46	.191	4.85	1.105	28.07	.377	9.58

GHTM BACK-TO-BACK DIMENSIONS: INTEGRAL JACKPOST VERSIONS

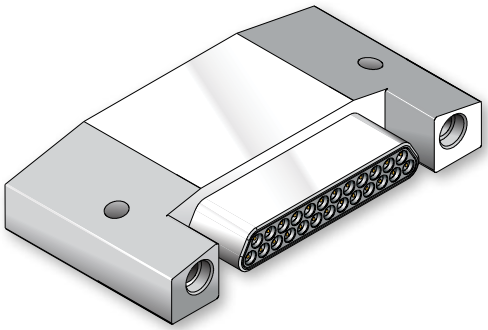


Layout	A Max.		B		C Max.		D		E Max.		F		G Max.		H Max.		J	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.290	7.37	.181	4.60	.131	3.33	.199	5.05	.405	10.29	.390	9.91	.420	10.67
9S	.785	19.94	.565	14.35	.301	7.65	.181	4.60	.215	5.46	.274	6.96	.405	10.29	.377	9.58	N/A	N/A
15P	.935	23.75	.715	18.16	.440	11.18	.331	8.41	.131	3.33	.199	5.05	.555	14.10	.390	9.91	.570	14.48
15S	.935	23.75	.715	18.16	.451	11.46	.331	8.41	.215	5.46	.274	6.96	.555	14.10	.377	9.58	N/A	N/A
21P	1.085	27.43	.865	21.97	.590	14.99	.481	12.22	.131	3.33	.199	5.05	.705	17.91	.390	9.91	.720	18.29
21S	1.085	27.43	.865	21.97	.601	15.27	.481	12.22	.215	5.46	.274	6.96	.705	17.91	.377	9.58	N/A	N/A
25P	1.185	30.01	.965	24.51	.690	17.53	.581	14.76	.131	3.33	.199	5.05	.805	20.45	.390	9.91	.820	20.83
25S	1.185	30.01	.965	24.51	.701	17.81	.581	14.76	.215	5.46	.274	6.96	.805	20.45	.377	9.58	N/A	N/A
31P	1.335	33.91	1.115	28.32	.840	21.34	.731	18.57	.131	3.33	.199	5.05	.955	24.26	.390	9.91	.970	24.64
31S	1.335	33.91	1.115	28.32	.851	21.62	.731	18.57	.215	5.46	.274	6.96	.955	24.26	.377	9.58	N/A	N/A
37P	1.485	37.72	1.265	32.13	.990	25.15	.881	22.38	.131	3.33	.199	5.05	1.105	28.07	.390	9.91	1.120	28.45
37S	1.485	37.72	1.265	32.13	1.001	25.43	.881	22.38	.215	5.46	.274	6.96	1.105	28.07	.377	9.58	N/A	N/A

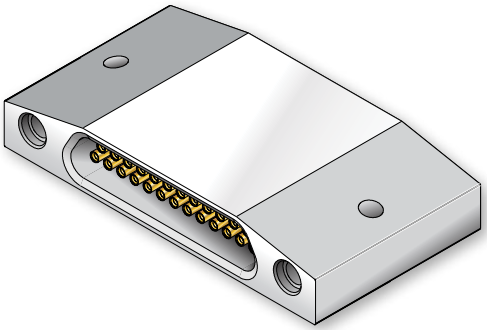
Well-Master™ 260
High Temperature Micro-D GHTM
Right Angle Printed Circuit Board Headers

GHTM Right Angle Printed Circuit Board Headers

GHTM Well-Master™ 260 right angle PCB Micro-D connectors withstand +260°C continuous operating temperature. These .050" pitch Micro-D connectors have .020 inch diameter (0.51mm)gold-plated PC terminals. Terminal spacing is .100 inch by .075 inch (2.54 by 1.91mm).Connectors are potted with special high temperature epoxy. Pin contacts are gold-plated high performance twistpin type and are recessed into insulator to prevent damage. Special nickel alloy contact material resists softening in high heat. Machined passivated stainless steel shell. Glass-filled high temperature LCP thermoplastic insulators and organizer withstand soldering heat. Meets performance requirements of MIL-DTL-83513. Available with 9 to 37 contacts. 3 A., 600 Vac, -55°C to +260°C.



PIN (PLUG) CONNECTOR



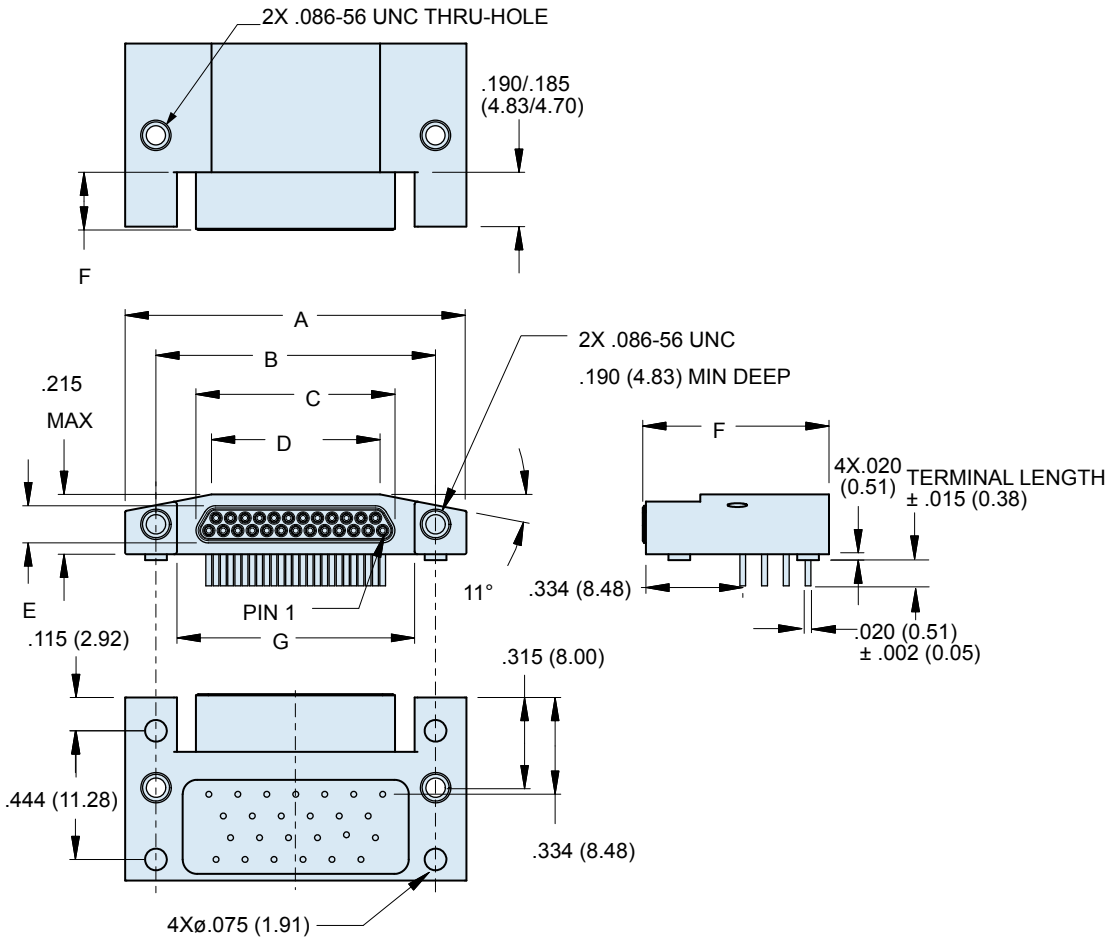
SOCKET (RECEPTACLE) CONNECTOR

J

GHTM Right Angle PCB Connector Ordering Information

Layout	.080 Inch (2.03mm) PC Terminal Length	.125 Inch (3.18 mm) PC Terminal Length	.150 Inch (3.81 mm) PC Terminal Length	.172 Inch (4.37 mm) PC Terminal Length	.190 Inch (4.83 mm) PC Terminal Length	..205 Inch (2.03mm) PC Terminal Length
9P	GHTM-9PRAP-.080	GHTM-9PRAP-.110	GHTM-9PRAP-.150	GHTM-9PRAP-.172	GHTM-9PRAP-.190	GHTM-9PRAP-.205
9S	GHTM-9SRAP-.080	GHTM-9SRAP-.110	GHTM-9SRAP-.150	GHTM-9SRAP-.172	GHTM-9SRAP-.190	GHTM-9SRAP-.205
15P	GHTM-15PRAP-.080	GHTM-15PRAP-.110	GHTM-15PRAP-.150	GHTM-15PRAP-.172	GHTM-15PRAP-.190	GHTM-15PRAP-.205
15S	GHTM-15SRAP-.080	GHTM-15SRAP-.110	GHTM-15SRAP-.150	GHTM-15SRAP-.172	GHTM-15SRAP-.190	GHTM-15SRAP-.205
21P	GHTM-21PRAP-.080	GHTM-21PRAP-.110	GHTM-21PRAP-.150	GHTM-21PRAP-.172	GHTM-21PRAP-.190	GHTM-21PRAP-.205
21S	GHTM-21SRAP-.080	GHTM-21SRAP-.110	GHTM-21SRAP-.150	GHTM-21PRAP-.172	GHTM-21SRAP-.190	GHTM-21SRAP-.205
25P	GHTM-25PRAP-.080	GHTM-25PRAP-.110	GHTM-25PRAP-.150	GHTM-25PRAP-.172	GHTM-25PRAP-.190	GHTM-25PRAP-.205
25S	GHTM-25SRAP-.080	GHTM-25SRAP-.110	GHTM-25SRAP-.150	GHTM-25SRAP-.172	GHTM-25SRAP-.190	GHTM-25SRAP-.205
31P	GHTM-31PRAP-.080	GHTM-31PRAP-.110	GHTM-31PRAP-.150	GHTM-31PRAP-.172	GHTM-31PRAP-.190	GHTM-31PRAP-.205
31S	GHTM-31SRAP-.080	GHTM-31SRAP-.110	GHTM-31SRAP-.150	GHTM-31SRAP-.172	GHTM-31SRAP-.190	GHTM-31SRAP-.205
37P	GHTM-37PRAP-.080	GHTM-37PRAP-.110	GHTM-37PRAP-.150	GHTM-37PRAP-.172	GHTM-37PRAP-.190	GHTM-37PRAP-.205
37S	GHTM-37SRAP-.080	GHTM-37SRAP-.110	GHTM-37SRAP-.150	GHTM-37SRAP-.172	GHTM-37SRAP-.190	GHTM-37SRAP-.205

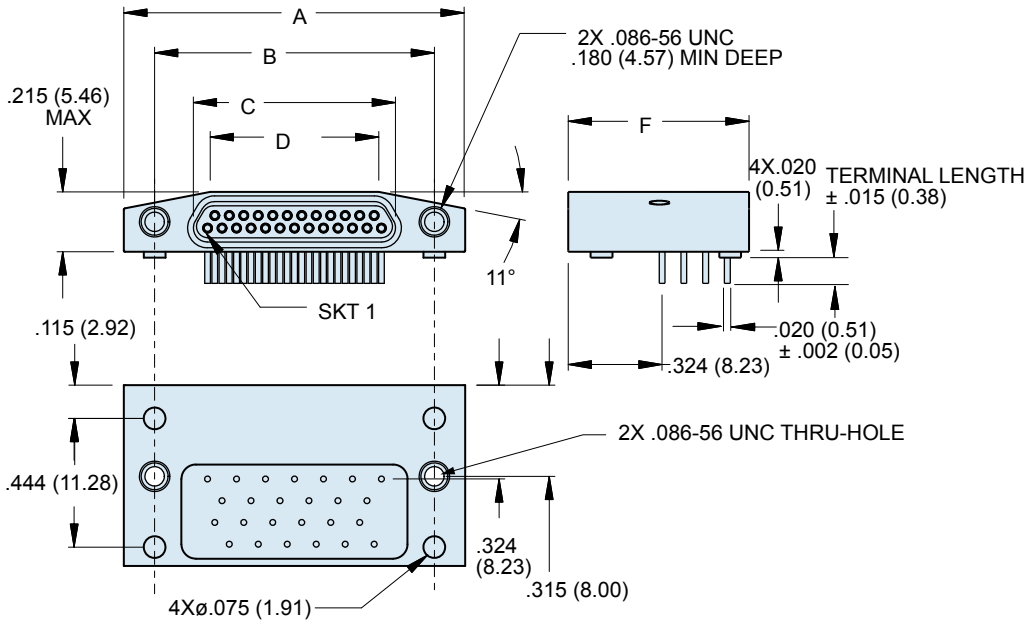
GHTM RIGHT ANGLE PCB DIMENSIONS: PIN (PLUG) CONNECTOR



Layout	A Max.		B		C Max.		D		E Max.		F Max.		H Max.		G	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.290	7.37	.181	4.60	.131	3.33	.648	16.46	.390	9.91	.420	10.67
9S	.785	19.94	.565	14.35	.301	7.65	.181	4.60	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
15P	.935	23.75	.715	18.16	.440	11.18	.331	8.41	.131	3.33	.648	16.46	.390	9.91	.570	14.48
15S	.935	23.75	.715	18.16	.451	11.46	.331	8.41	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
21P	1.085	27.43	.865	21.97	.590	14.99	.481	12.22	.131	3.33	.648	16.46	.390	9.91	.720	18.29
21S	1.085	27.43	.865	21.97	.601	15.27	.481	12.22	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
25P	1.185	30.01	.965	24.51	.690	17.53	.581	14.76	.131	3.33	.648	16.46	.390	9.91	.820	20.83
25S	1.185	30.01	.965	24.51	.701	17.81	.581	14.76	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
31P	1.335	33.91	1.115	28.32	.840	21.34	.731	18.57	.131	3.33	.648	16.46	.390	9.91	.970	24.64
31S	1.335	33.91	1.115	28.32	.851	21.62	.731	18.57	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
37P	1.485	37.72	1.265	32.13	.990	25.15	.881	22.38	.131	3.33	.648	16.46	.390	9.91	1.120	28.45
37S	1.485	37.72	1.265	32.13	1.001	25.43	.881	22.38	.142	3.61	.629	15.98	.377	9.58	N/A	N/A

Well-Master™ 260
High Temperature Micro-D GHTM
Right Angle Printed Circuit Board Headers

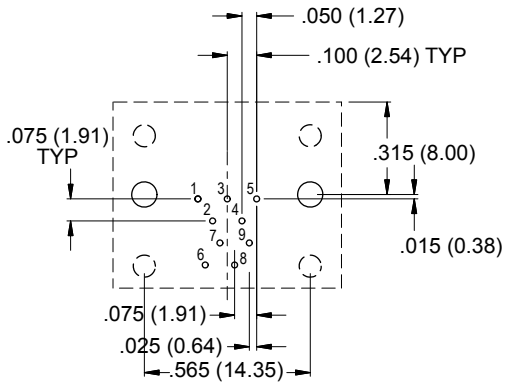
GHTM RIGHT ANGLE PCB DIMENSIONS: SOCKET (RECEPTACLE) CONNECTOR



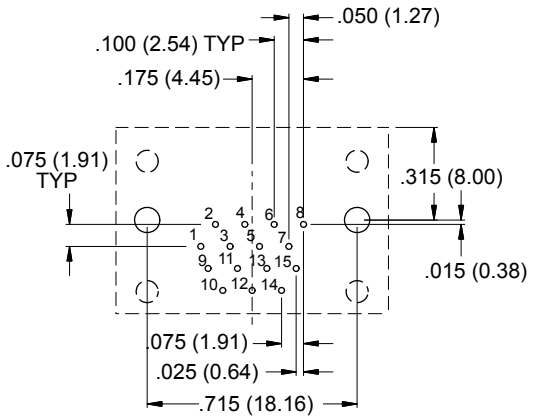
Layout	A Max.		B		C Max.		D		E Max.		F Max.		H Max.		G	
	In.	mm.	In . ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.290	7.37	.181	4.60	.131	3.33	.648	16.46	.390	9.91	.420	10.67
9S	.785	19.94	.565	14.35	.301	7.65	.181	4.60	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
15P	.935	23.75	.715	18.16	.440	11.18	.331	8.41	.131	3.33	.648	16.46	.390	9.91	.570	14.48
15S	.935	23.75	.715	18.16	.451	11.46	.331	8.41	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
21P	1.085	27.43	.865	21.97	.590	14.99	.481	12.22	.131	3.33	.648	16.46	.390	9.91	.720	18.29
21S	1.085	27.43	.865	21.97	.601	15.27	.481	12.22	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
25P	1.185	30.01	.965	24.51	.690	17.53	.581	14.76	.131	3.33	.648	16.46	.390	9.91	.820	20.83
25S	1.185	30.01	.965	24.51	.701	17.81	.581	14.76	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
31P	1.335	33.91	1.115	28.32	.840	21.34	.731	18.57	.131	3.33	.648	16.46	.390	9.91	.970	24.64
31S	1.335	33.91	1.115	28.32	.851	21.62	.731	18.57	.142	3.61	.629	15.98	.377	9.58	N/A	N/A
37P	1.485	37.72	1.265	32.13	.990	25.15	.881	22.38	.131	3.33	.648	16.46	.390	9.91	1.120	28.45
37S	1.485	37.72	1.265	32.13	1.001	25.43	.881	22.38	.142	3.61	.629	15.98	.377	9.58	N/A	N/A

GHTM RIGHT ANGLE PC BOARD LAYOUTS: PIN (PLUG) CONNECTOR

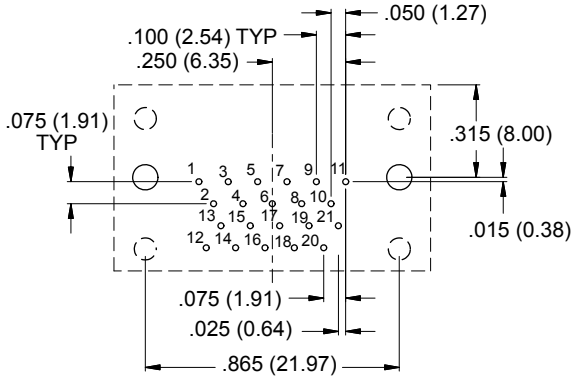
Patterns shown are for component mounting side of PCB. Terminals are .022 (0.56) max. diameter, mounting holes are .093 (2.36) diameter. Segmented lines represent connector body envelope and integral standoff locations.



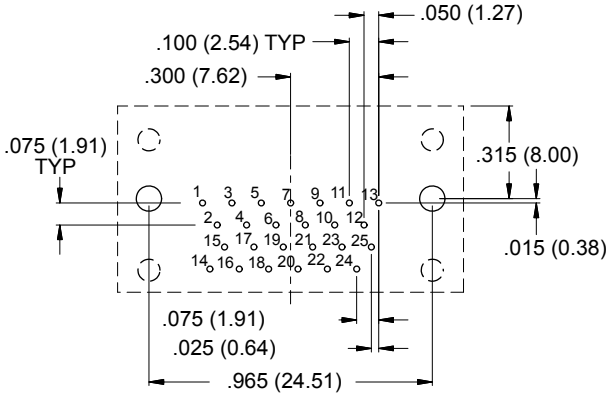
9 PIN



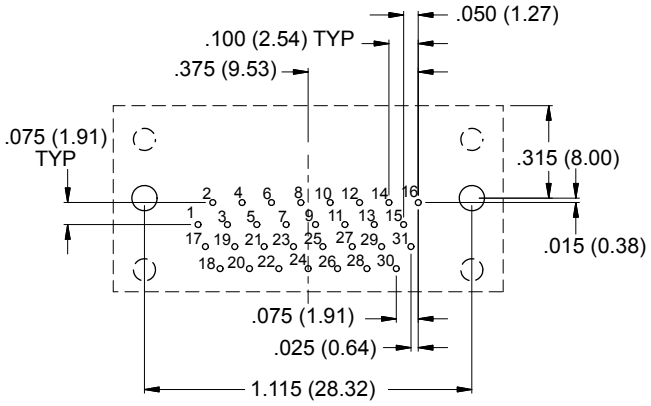
15 PIN



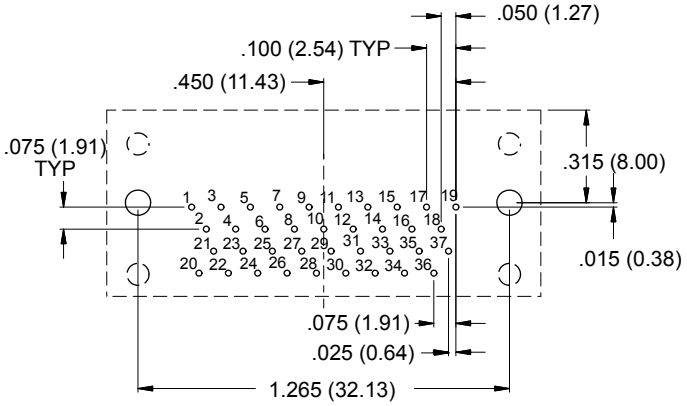
21 PIN



25 PIN



31 PIN

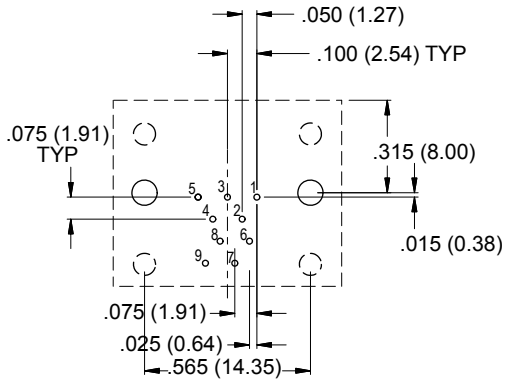


37 PIN

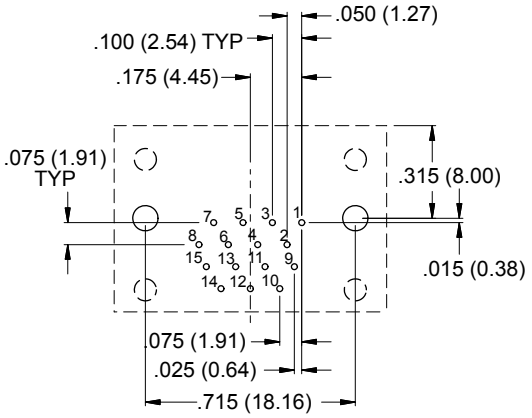
Well-Master™ 260
High Temperature Micro-D GHTM
Right Angle Printed Circuit Board Headers

GHTM RIGHT ANGLE PC BOARD LAYOUTS: SOCKET (RECEPTACLE) CONNECTOR

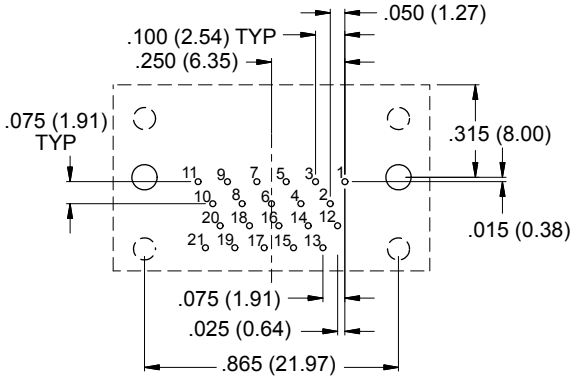
Patterns shown are for component mounting side of PCB. Terminals are .022 (0.56) max. diameter, mounting holes are .093 (2.36) diameter. Segmented lines represent connector body envelope and integral standoff locations.



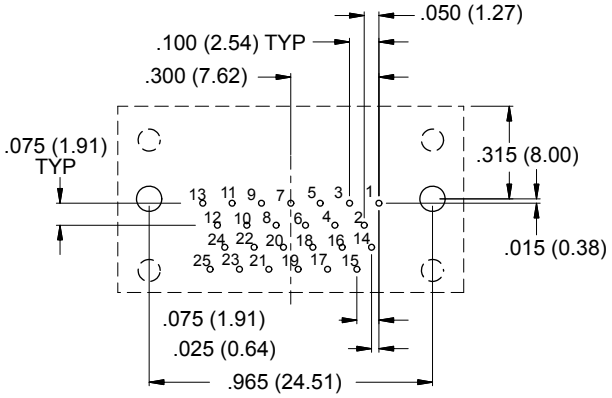
9 SOCKET



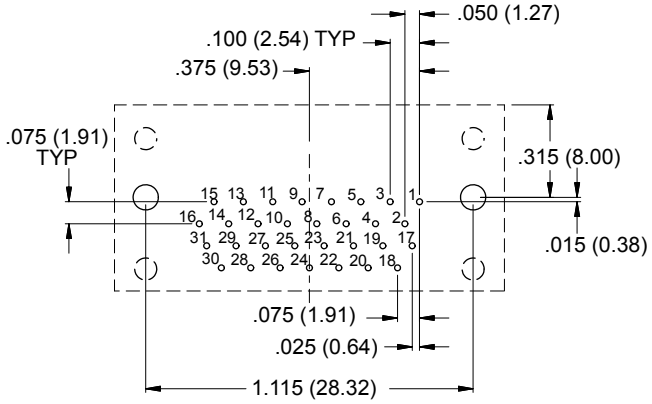
15 SOCKET



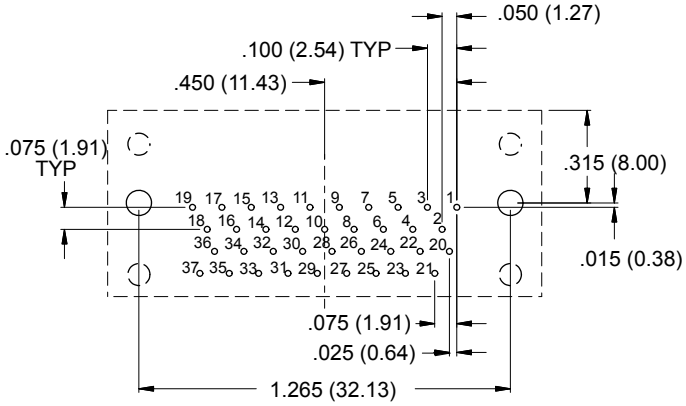
21 SOCKET



25 SOCKET



31 SOCKET

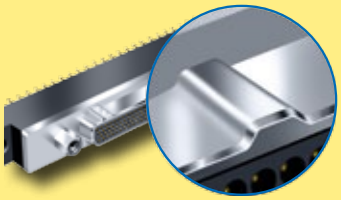


37 SOCKET

MICRO-D MOD CODE LIST

Mod 474 Keying Option

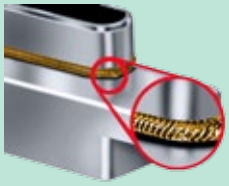
Specially modified shells feature keys and keyways for up to five keying positions. Compatible with standard hardware and backshells.



Page K-2

Mod 497 Ground Spring

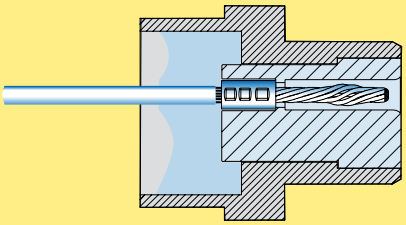
Improve EMI shielding with plug connector ground springs. These gold-plated springs offer lower shell-to-shell resistance and are compatible with standard mating receptacles.



Page K-4

Mod 428 for 200° C. Continuous Temperature

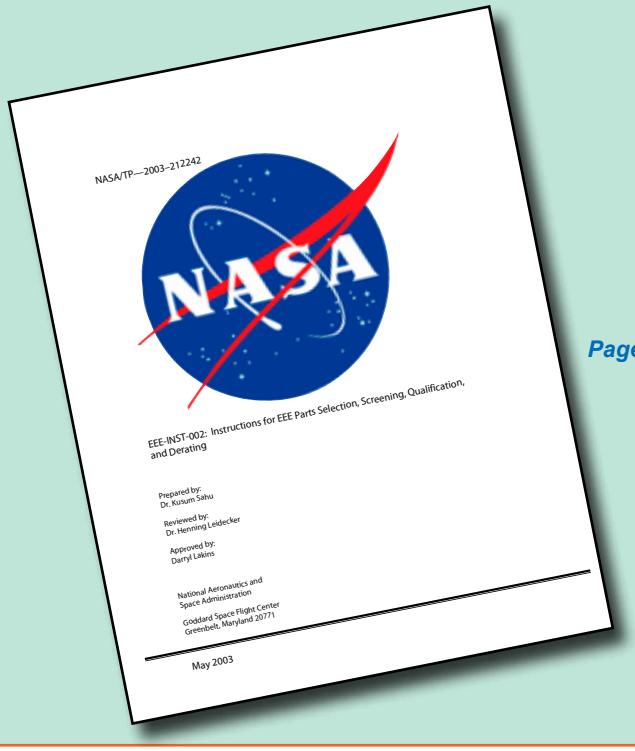
Standard Micro-D connectors are rated for 150° C. maximum continuous temperature. Mod 428 changes the potting compound to provide a 200° C. rating.



Page K-5

Mod 429 Space Grade Micro-D

Save time and cost with the Mod 429 solution. Specify special NASA requirements without the expense of having to create special procurement documentation. This section also contains valuable information on Micro-D's for space applications.

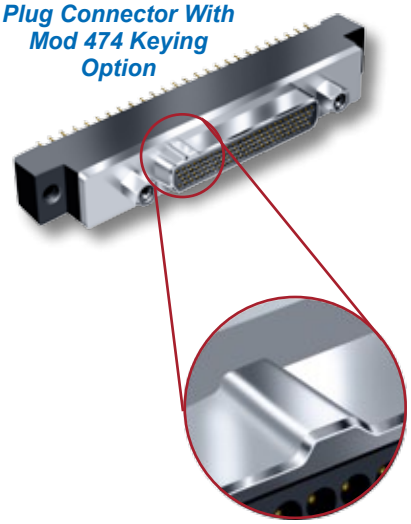


Page K-6

 U.S. CAGE Code 06324 Printed in U.S.A.

Glenair®

Micro-D Mod 474 Keying Options



Plug Connector With Mod 474 Keying Option

Prevent Mis-Mating with Mod 474 Keying Option

Keyed Micro-D connectors for “fail-safe” circuits feature specially modified shells to prevent mis-mating. The plug shell has a raised key, and the receptacle shell has a keyway.

The nine pin connector accommodates three key positions. All other sizes have five positions available. The letter code following Mod 474 specifies the key position. “474A” plugs mate to “474A” receptacles.

Keyed plugs will not mate to unkeyed receptacles, but keyed receptacles will plug into standard unkeyed plugs.

HOW TO ORDER MICRO-D CONNECTORS WITH MOD 474

Step 1: Find a Standard Micro-D Part Number

Mod 474 keying is available on all standard metal shell Micro-D connectors, including solder cup, pre-wired and printed circuit board versions. This feature is not available on plastic Micro-D or M83513 connectors.

Example: MWDM2L-51PCBRP-.110

Step 2: Pick a Keying Position

A letter code identifies the key position. The table on the following page shows the keying options for each shell size. Mod 474A plugs mate to 474A receptacles, and so on.

Example: 474*B*

Step 3: Add the Mod Code to the Part Number

A letter code identifies the key position. The table on the following page shows the keying options for each shell size. Mod 474A plugs mate to 474A receptacles, and so on.

Example: MWDM2L-51PCBRP-.110-474*B*

U.S. CAGE Code 06324

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www.glenair.com

E-Mail: sales@glenair.com

Micro-D Mod 474 Keying Options

MICRO-D KEY POSITIONS: MODIFICATION CODE 474

Plug

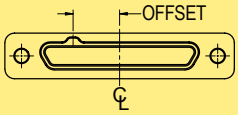


Fig. 1

Plug

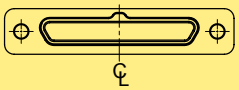


Fig. 2

Plug

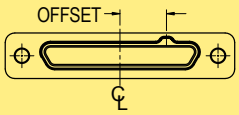


Fig. 3

Plug

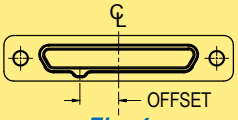


Fig. 4

Plug

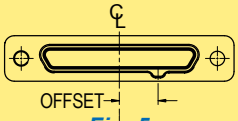


Fig. 5

Receptacle

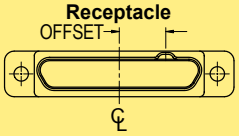


Fig. 6

Receptacle

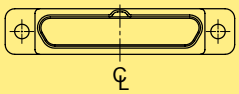


Fig. 7

Receptacle

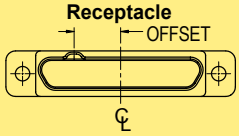


Fig. 8

Receptacle

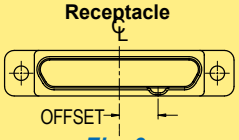


Fig. 9

Receptacle

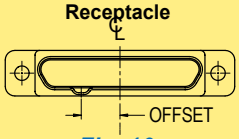


Fig. 10

Figure 1 plug connector mates to Figure 6 receptacle, figure 2 mates to figure 7, and so on. Figure 11 mates to figure 12.

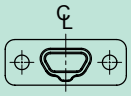


Fig. 11
Plug

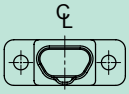


Fig. 12
Receptacle

Mating face of connector shown.

KEY POSITION OFFSETS

	Key Position A			Key Position B			Key Position C			Key Position D			Key Position E		
		Offset			Offset			Offset			Offset			Offset	
Layout	Figure	In.	mm.	Figure	In.	mm.	Figure	In.	mm.	Figure	In.	mm.	Figure	In.	mm.
9P	1	.025	0.64	3	.025	0.64	11	.000	0.00	NA	—	—	NA	—	—
9S	6	.025	0.64	8	.025	0.64	12	.000	0.00	NA	—	—	NA	—	—
15P	1	.090	2.29	2	.000	0.00	3	.090	2.29	4	.050	1.25	5	.050	1.25
15S	6	.090	2.29	7	.000	0.00	8	.090	2.29	9	.050	1.27	10	.050	1.27
21P	1	.130	3.30	2	.000	0.00	3	.130	3.30	4	.100	2.54	5	.100	2.54
21S	6	.130	3.30	7	.000	0.00	8	.130	3.30	9	.100	2.54	10	.100	2.54
25P	1	.180	4.57	2	.000	0.00	3	.180	4.57	4	.125	3.18	5	.125	3.18
25S	6	.180	4.57	7	.000	0.00	8	.180	4.57	9	.125	3.18	10	.125	3.18
31P	1	.200	5.08	2	.000	0.00	3	.200	5.08	4	.150	3.81	5	.150	3.81
31S	6	.200	5.08	7	.000	0.00	8	.200	5.08	9	.150	3.81	10	.150	3.81
37P	1	.300	7.62	2	.000	0.00	3	.300	7.62	4	.250	6.35	5	.250	6.35
37S	6	.300	7.62	7	.000	0.00	8	.300	7.62	9	.250	6.35	10	.250	6.35
51P	1	.225	5.72	2	.000	0.00	3	.225	5.72	4	.175	4.45	5	.175	4.45
51S	6	.225	5.72	7	.000	0.00	8	.225	5.72	9	.175	4.45	10	.175	4.45
100P	1	.500	12.70	1	.250	6.35	2	.000	0.00	3	.250	6.35	3	.500	12.70
100S	6	.500	12.70	6	.250	6.35	7	.000	0.00	8	.250	6.35	8	.500	12.70

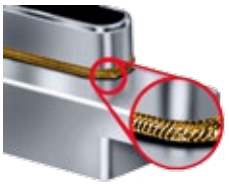
Glenair®

Micro-D Mod 497 EMI Ground Spring

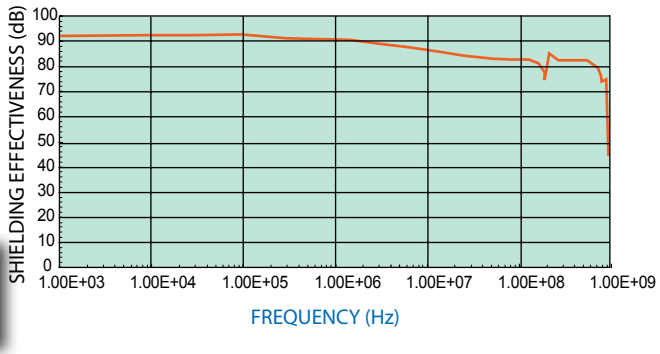
Improve EMI Performance with Mod 497 Ground Springs

Today's military and aerospace electronics systems require improved EMI protection. Micro-D connectors are widely used in EMI applications; however, the shell-to-shell resistance of a mated pair can vary, resulting in inconsistent levels of shielding effectiveness. Ground springs assure consistent shell-to-shell resistance for improved EMI protection.

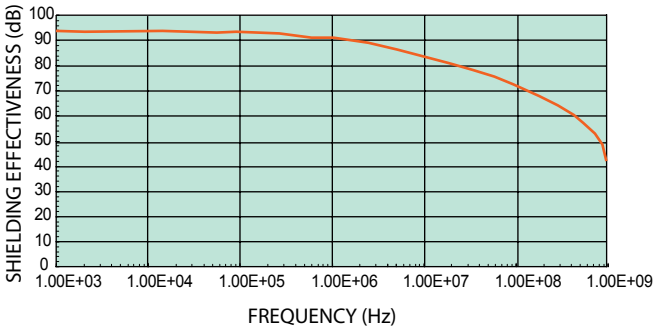
Ground Spring and EMI Shielding Effectiveness – A gold-plated stainless steel ground spring on the pin connector mating face offers substantial improvement in EMI protection. The graphs compare identical connectors tested with and without ground springs.



EMI Performance with Ground Spring



EMI Performance without Ground Spring



K

HOW TO ORDER MICRO-D CONNECTORS WITH MOD 497 SPRINGS

Step 1: Find a Standard Micro-D Part Number

Ground springs are available on all standard Micro-D plug connectors with solder cups, insulated wire, or printed circuit board. Ground spring usage is limited to pin connectors with electroless-nickel plated shells.

Example: MWDM2L-100P-6K7-18B

1. Plugs only (pin connectors)
2. Nickel-plated aluminum shells only

Step 2: Add the Mod Code to the Part Number

Example: MWDM2L-100P-6K7-18B-*497*

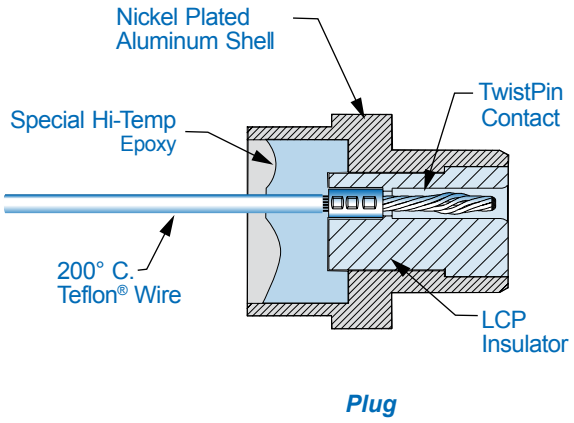
Micro-D Mod 428
for +200° C. Operating Temperature

Potting a Micro-D with Epoxy-Filled Syringe

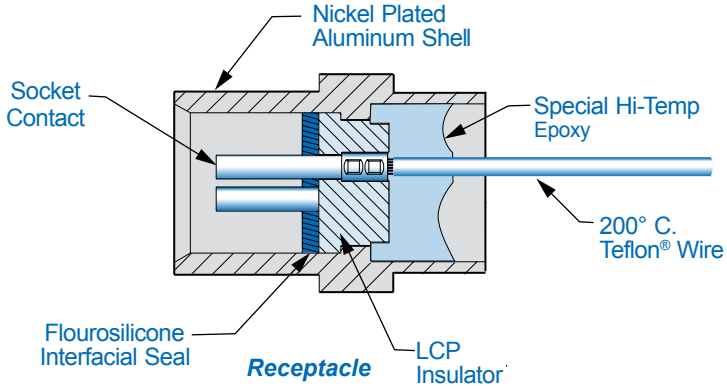
Upgrade to 400° Fahrenheit with Mod 428 High Temperature Epoxy

The search for oil and gas has led to deeper reservoirs where extreme temperatures and pressures test the limits of electronics design. Oil well logging instruments must be able to withstand temperatures beyond the limits of standard connectors.

Micro-D connectors are made from temperature-resistant materials. The Liquid Crystal Polymer (LCP) glass-filled thermoplastic insulators easily withstand 400° F. The Fluorosilicone seals, TwistPin contacts and aluminum shells also are rated for continuous exposure to 400° F. The epoxy potting compound is the only component not rated for high temperature. Mod 428 upgrades the standard epoxy with a special 600° F. epoxy.



Plug



Receptacle

HOW TO ORDER MICRO-D CONNECTORS WITH MOD 428 HI TEMP

Step 1: Find a Standard Micro-D part Number

Mod 428 is available on all standard metal shell Micro-D connectors, including solder cup, pre-wired and printed circuit board versions. Not available on plastic Micro-D or M83513 connectors.

Example: MWDM2L-37PSL

1. Metal shell only
2. Nickel-plated aluminum or stainless steel shells only.

Step 2: Add the Mod Code to the Part Number

Example: MWDM2L-37PSL-*428*

APPLICATION NOTES

1. Shell Material & Finish:	Electroless nickel plated aluminum is commonly used for high temperature connectors. Cadmium plated aluminum is not recommended for temperatures exceeding 175° C. because of discoloration and breakdown of the chromate seal applied to the cadmium. Stainless steel shells provide the best resistance to temperature and corrosive environments, but at the expense of weight and cost.
2. Potting Conmpound:	600° F. Rated Epoxy

U.S. CAGE Code 06324
Printed in U.S.A.

Glenair®

Micro-D Mod 429 Space Grade

Detail of the Atmospheric Infrared Sounder Instrument (AIRS) with Glenair Micro-D Cables and Connectors

Photo courtesy JPL

Six things you should know about Micro-D connectors for space flight

1 **Outgassing**: What is outgassing, why is it important, and how does it affect connector selection? Is special processing required to meet outgassing requirements?

2 **Screening**: What is NASA screening and what level of screening is required?

3 **Magnetic permeability**: Are nonmagnetic connectors required?

4 **Cryogenic exposure**: Are Micro-D connectors suitable for -200° C. exposure?

5 **Materials**: Micro-D connectors offer a variety of materials and plating finishes. Which ones are recommended for space flight?

6 **Wire Corrosion**: M22759/33 irradiated Tefzel® wire is preferred for space applications. What about corrosion problems caused by this wire?

Save Time and Cost with Mod 429 Space Grade Micro-D's

Micro-D TwistPin connectors are a good choice for all types of orbital and deep space projects. Glenair's Mod 429 upgrades Micro-D's to NASA requirements without the need for a customer Statement of Work or Specification Control Drawing. This section explains Glenair Mod 429 ordering, and provides valuable information on outgassing and other space flight topics.

HOW TO ORDER SPACE GRADE MICRO-D'S

Step 1: Find a Standard Micro-D Part Number

Electroless nickel plated shells and Tefzel® wire are preferred for space flight. Cadmium plating is prohibited.

Step 2: Select a NASA Screening Level

The term "Screening Level" refers to the final inspection procedure.
Level 1 for mission-critical highest reliability
Level 2 for high reliability
Level 3 for standard reliability

Step 3: Outgassing Processing

A detailed explanation of outgassing is on the following pages. The interfacial seal on Micro-D receptacles does not meet NASA outgassing requirements unless it is baked or thermal vacuum outgassed. Some customers specify deleting the seal, some opt for a bakeout, and some customers specify thermal vacuum outgassing. Both the bakeout and thermal vacuum outgassing are extra cost.

Step 4: Select the Mod 429 Code that Matches the Desired Level of Screening and Outgassing

Use the following table to choose the right modification code. Add the mod code to the connector part number. Example: MWDM2L-37P-6J5-18L-***429C***

NASA Screening Level	Special Screening Only		Special Screening Plus Outgassing Processing	
	Interfacial Seal is Installed	Interfacial Seal is Deleted	8 Hour Oven Bake 400° F.	Thermal Vacuum Outgassing 24 hrs. 125° C.
Level 1 Highest Reliability	Mod 429B	Mod 429F	Mod 429J	Mod 429C
Level 2 High Reliability	Mod 429	Mod 429D	Mod 429K	Mod 429A
Level 3 Standard Reliability	(Use standard part number)	Mod 432	Mod 186	Mod 186M

Micro-D Mod 429 Space Grade

1 Outgassing: What is outgassing and how does it affect connector selection? Is special processing required to meet outgassing requirements?

What is outgassing?

Plastic and rubber materials give off gaseous molecules. For example, the smell inside a new car is caused by polymer outgassing. Heat and vacuum increase the rate of diffusion. In a spacecraft the gases coming off polymers can contaminate optical surfaces and instruments. The result is degraded performance.

How is outgassing measured?

The space industry has adopted a standardized test procedure, ***ASTM E 595***, to evaluate out-gassing properties of polymers. Small samples of material are heated to 125° C. at a vacuum of 5 X 10^{-5} torr for 24 hours. Then the sample is weighed to calculate the ***Total Mass Loss*** (TML). The TML cannot exceed 1.00% of the total initial mass. During the test, outgassed matter condenses on a cooled collector plate. The quantity of outgassed matter is caluclated to determine the ***Collected Volatile Condensable Material*** (CVCM). The CVCM cannot exceed 0.10% of the original specimen mass.

MIL-DTL-83513 specifies that Micro-D connectors must meet outgassing requirements, but the interfacial seal exceeds the limit. How can this be?

The mil spec allows the TML and CVCM to be calculated based on the total mass of the nonmetallic components. The interfacial seal can exceed outgassing limits as long as the insulator and potting compound are well below maximum outgassing limits.

Is special outgassing necessary?

It depends on the customer. Some programs specify that all connectors be oven baked or thermal vacuum outgassed. For example, NASA GSFC programs typically require that the interfacial seals are deleted,along with level I screening and thermal vacuum outgassing processing.

Why pay extra for bakeout or thermal vacuum outgassing?

If the interfacial seal is not removed, NASA recommends a bakeout process. Table 1 demonstrates that a simple oven bake is sufficient to reduce volatile matter. The choice is up to the customer. Whatever level of processing, the Glenair mod 429 codes make ordering easy.

Outgassing At-a-Glance

1. Fluorosilicone Interfacial Seals exceed NASA outgassing limits.
2. NASA recommends removing the seal or performing a bakeout.
3. An inexpensive oven bakeout has better results than the more costly thermal vacuum outgassing.
4. Glenair Mod 429 codes provide an easy ordering solution, whatever the outgassing option.

TABLE 1: OUTGASSING PROPERTIES OF MICRO-D CONNECTORS

Component	Material	Brand Name	% Total Mass Loss (TML)	% Collected Volatile Condensable Material (CVCM)	Test Report
Thermoplastic Insulators and PCB Trays	Liquid Crystal Polymer	Vectra® C-130	0.03	0.00	NASA Test #GSC17478
Potting Compound	Epoxy	Hysol C9-4215	0.48	0.01	Glenair Test
Interfacial Seal “as received”	Fluorosilicone	(none)	0.99	0.13	Glenair Test
Interfacial Seal with Oven Bakeout 8 hrs. 400° F.	Fluorosilicone	(none)	0.03	0.01	Glenair Test
Interfacial Seal with Thermal Vacuum Bakeout24 hrs. 125° C.	Fluorosilicone	(none)	0.08	0.02	Glenair Test
Wire	Tefzel®	Tefzel®	0.22	0.01	NASA Test #GSC19998

Micro-D Mod 429 Space Grade

2 Screening: What is NASA screening and what level of screening is required?

What is NASA screening?

NASA specification EEE-INST-002 provides instructions on selecting, screening and qualifying parts for use on NASA GSFC space flight projects. Table 2C in the NASA spec contains specific inspection instructions for MIL-DTL-83513 connectors. These screening requirements exceed the standard mil spec inspection levels.

What screening level is required?

NASA defines three levels of screening: level 1 for highest reliability, level 2 for high reliability, and level 3 for standard reliability. Level 3 equates to standard M83513 Group A and B lot acceptance testing, and levels 1 and 2 call for additional testing.

Why does Glenair perform extra screening tests?

Glenair has test procedures that go beyond the letter of the NASA spec. Meeting NASA requirements means not only inspecting per EEE-INST-002, but also building parts in accordance with NASA Technical Standard NASA-STD-8739.4 “Crimping, Interconnecting Cables, Harnesses, and Wiring”. Glenair fully meets these requirements and has obtained NASA certification. Our extra inspection steps reflect the fact that pre-wired connectors not only require best practices on the assembly floor, but also require thorough final electrical and mechanical testing.

What about qualification requirements?

Qualification is not required if the manufacturer has performed qualification testing per MIL-DTL-83513. Qualification by similarity is usually invoked for those Micro-D’s not specifically covered by the mil spec.

Figure 1: Excerpt from NASA EEE-INST-002

Due to the dynamic nature of this document, users are advised to check the http://nepp.nasa.gov website prior to every usage to obtain the latest document revision.

1.0 PURPOSE

The purpose of this document is to establish baseline criteria for selection, screening, qualification, and derating of EEE parts for use on NASA GSFC space flight projects. This document shall provide a mechanism to assure that appropriate parts are used in the fabrication of space hardware that will meet mission reliability objectives within budget constraints.

2.0 SCOPE

This document provides instructions for meeting three reliability levels of EEE parts requirements (see 6.0) based on mission needs. The terms “grade” and “level” are considered synonymous; i.e., a grade 1 part is consistent with reliability level 1. Levels of part reliability confidence decrease by reliability level, with level 1 being the highest reliability and level 3 the lowest. A reliability level 1 part has the highest level of manufacturing control and testing per military or DSCC specifications. Level 2 parts have reduced manufacturing control and testing. Level 3 Parts have no guaranteed reliability controls in the manufacturing process and no standardized testing requirements. The reliability of level 3 parts can vary significantly with each manufacturer, part type and LDC due to unreported and frequent changes in design, construction and materials.

GSFC projects and contractors shall incorporate this guideline into their Project EEE Parts Program.

3.0 DEFINITIONS

Screening. Screening tests are intended to remove nonconforming parts (parts with random defects that are likely to result in early failures, known as infant mortality) from an otherwise acceptable lot and thus increase confidence in the reliability of the parts selected for use.

TABLE 2: NASA SCREENING REQUIREMENTS

Inspection/ Test	NASA Level 1	NASA Level 2	Glenair Level 1 (Mod 429B)	Glenair Level 2 (Mod 429)
Visual Inspection	100%	100%	100% (10X)	100%
Mechanical	2 pcs.	2 pcs.	100%	2 pcs.
Voltage (DWV)	100%	2 pcs.	100%	100%
Insulation Resistance	2 pcs.	2 pcs.	100%	100%
Low Level Contact Resistance	2 pcs.	2 pcs.	100% (Read and Record)	2 pcs. (Read and Record)
Contact Separation Force (pins only)	N/A	N/A	100%	N/A
Mating Force	2 pcs.	N/A	2 pcs.	N/A
Contact/Wire Retention	N/A	N/A	2 pcs.	N/A
Solderability/Resistance to Soldering Heat	2 pcs.	N/A	2 pcs.	N/A

Notes:

1. NASA screening requirements from Table 2C of EEE-INST-002.

3 Magnetic permeability: Are nonmagnetic connectors required?

Spacecraft designers generally avoid the use of ferromagnetic materials, which can become magnetized and can interfere with sensitive instruments. Micro-D connectors do not contain ferromagnetic materials, so magnetic permeability is not a concern. MIL-DTL-83513 requires a maximum permeability of 2 mu. Glenair hermetic Micro-D connectors are made from Kovar® alloy, a highly magnetic material. The stainless steel e-rings commonly used for Micro-D jackscrew attachment also exceed the 2 mu requirement.

4 Cryogenic exposure: Are Micro-D connectors suitable for -200° C. ?

Micro-D connectors are rated to -55° C. Glenair has not performed testing below this temperature. EEE-INST-002 states "...experience has proven it is possible for (non-certified) connector types to be used successfully at cryogenic temperatures. It is recommended that connector samples should be subjected to five cycles of cryogenic temperature...(followed by examination for cracks and DWV)".

5 Materials: Micro-D connectors offer a variety of materials and plating finishes. Which ones are recommended for space flight?

NASA recommends electroless nickel plated connector shells and crosslinked high strength ETFE (Tefzel®) wire. Cadmium plating is prohibited because it sublimates in a vacuum environment. Gold plating is acceptable but rarely used on Micro-D connector shells.

6 Wire Corrosion: M22759/33 irradiated Tefzel® wire is preferred for space applications. What about corrosion problems caused by this wire?

Does M22759/33 wire have an outgassing problem?

Irradiated Tefzel® wire is known to cause tarnishing and corrosion of metal parts in close proximity, usually in sealed bags. Both MIL-DTL-83513 and NASA EEE-INST-002 contain cautionary notes regarding this problem. Wire manufacturers have not been able to eliminate this problem, which might be caused by the insulation extrusion process. This corrosion problem is referred to as "wire outgassing", which has led to confusion over the term outgassing. This problem has nothing to do with the ability of the wire to meet the TML and CVCM outgassing requirements of ASTM E595. M22759/33 irradiated Tefzel wire continues to be the wire of choice for spacecraft. This wire complies with outgassing requirements.

The corrosion problem

Micro-D connectors supplied as pre-wired assemblies should not be stored in sealed bags for extended periods. NASA recommends that parts be inspected for shell discoloration ("a dull "gun metal" appearance) and contact corrosion ("a flat black appearance"). Connectors with corroded contacts should be scrapped.

New Unit Pack Minimizes Corrosion

Glenair has adopted a new packaging standard to protect the connector from tarnishing or corrosion. Figure 2 shows Glenair's standard packaging for metal shell connectors supplied with M22759/33 wire. The connector is wrapped in Teflon® tape and placed in a ventilated sulpher-free paper envelope.

Figure 2
Teflon-wrapped Connector and Perforated Bag

"Users are advised that some ETFE insulations are known to outgas trace amounts of corrosive fluorine over time. When this wire is used with nickel coated metal shell connectors and stored in sealed plastic or ESD bags, trapped fluorine can attack exposed metal shells and contacts."

Excerpt from Note 9, Table 2,
NASA EEE-INST-002

K

Not All QPL'd Micro-D's Are Created Equally

Stamped Pin or TwistPin— You Make the Call

Low Performance Stamped Pin

"B" Crimp With Spot Weld

High Performance TwistPin

8 Indent Mil Spec Crimp Joint

Glenair®

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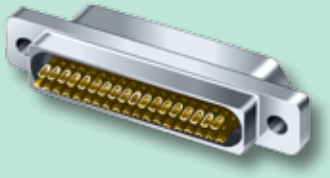
Glendale, California 91201-2497
Telephone: 818-247-6000 · Facsimile: 818-500-9912 · E-mail: sales@glenair.com
United States · United Kingdom · Germany · Nordic · France · Italy · Spain · Japan
www.glenair.com

PRODUCT SELECTION GUIDE

Glenair's Complete Micro-D Product Line includes all M83513 Micro-D connectors. Choose ***Solder Cup, Pre-Wired or PCB*** versions. Glenair M83513 connectors always use ***TwistPin Contacts*** for high performance, made in U.S.A.

M83513/01, /02, /06, /07
Solder Cup Metal or Plastic Shell

These connectors feature gold-plated solder cup contacts for termination to #26 AWG or smaller wire.



Metal Shell
M83513/01 & 02
Page L-4

Plastic Shell
M83513/06 & 07
Page L-8

M83513/03, /04, /08, /09
Pre-Wired Pigtails, Metal or Plastic Shell

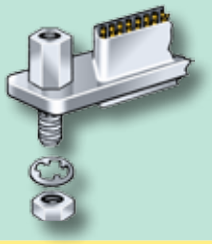
These crimped, epoxy-potted assemblies are available with insulated 19 strand #26 AWG wire or with #25 AWG uninsulated single strand wire. Insulated wire options include wire type, color code and length. Uninsulated wires are gold-plated or SnPb 63/37 solder dipped.

Metal Shell
M83513/03 & 04
Page L-5

Plastic Shell
M83513/08 & 09
Page L-9

M83513/05
Jackscrews and Jackposts

These hardware kits contain stainless steel jackscrews in two lengths. Choose slot head or hex head. Jackscrews attach with e-rings. Jackposts also are stainless steel.



M83513/05
Hardware Kits
Page L-7

M83513/10 Thru 21 Right Angle
.100" Pitch Printed Circuit Board Connectors

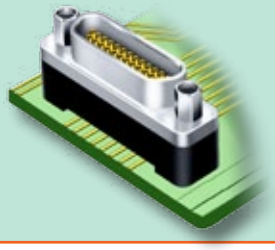
These metal shell connectors feature SnPb 63/37 solder-dipped PC tails. Select vertical or right angle mounting. PC tails are .020 inch (0.50 mm.) diameter on a .100 inch (2.54 mm.) offset grid. Jackposts and threaded inserts are available.

M83513/10 to 15
Right Angle
Narrow PCB
Page L-11

M83513/16 to 21
Right Angle
Wide Style PCB
Page L-15

M83513/22 Thru 33 Vertical
Compact Vertical Mount Printed Circuit Board

These recent additions to the mil spec feature .075 inch by .100 inch PC terminal spacing. The plastic tray does not extend beyond the envelope of the metal connector shell.

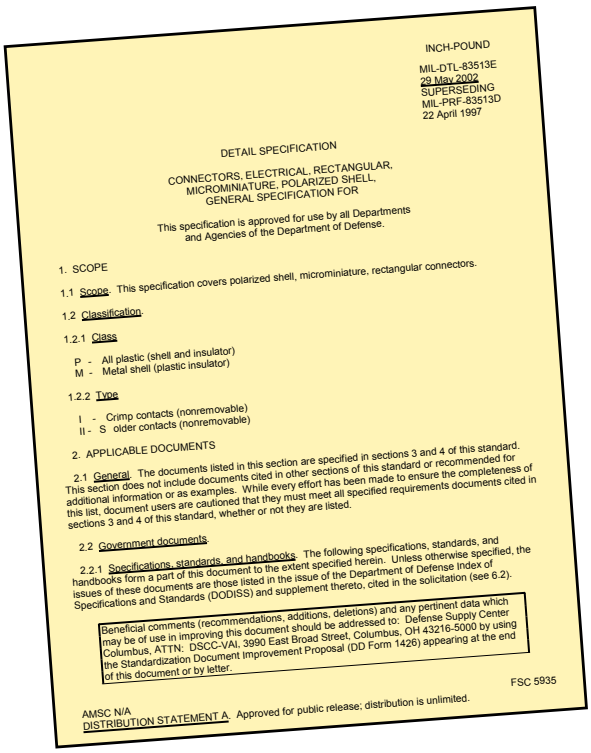


M83513/22 to 27
Vertical Mount PCB
Page L-19

M83513/28 Thru 33
Compact Vertical
PCB
Page L-23

Glenair®

MIL-DTL-83513 At-A-Glance



INCH-POUND
MIL-DTL-83513E
29 May 2002
SUPERSEDING
MIL-PRF-83513D
22 April 1997

DETAIL SPECIFICATION

CONNECTORS, ELECTRICAL, RECTANGULAR,
MICROMINIATURE, POLARIZED SHELL,
GENERAL SPECIFICATION FOR

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers polarized shell, microminiature, rectangular connectors.

1.2 Classification.

1.2.1 Class

P - All plastic (shell and insulator)
M - Metal shell (plastic insulator)

1.2.2 Type

I - Crimp contacts (nonremovable)
II - S older contacts (nonremovable)

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this standard. This section does not include documents cited in other sections of this standard or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this standard, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center Columbus, ATTN: DSCC-VAI, 3990 East Broad Street, Columbus, OH 43216-5000 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

FSC 5935

AMSC N/A
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What is the difference between a Glenair COTS Micro-D and a Glenair Mil Spec Micro-D? Which is less expensive?

All Glenair Micro-D's, whether mil spec or COTS, are built with the same components and meet identical requirements. A COTS Micro-D is not a lower cost version of a mil spec part. COTS versions offer more options than the mil spec versions.

Which is more readily available: Mil Spec or COTS?

All M83513 aluminum shell connectors are in stock. All standard COTS versions are also stocked.

What is the difference between a Glenair Mil Spec connector and another brand?

MIL-DTL-83513 allows the use of low-cost stamped contacts; however, the Glenair Micro-D connector features the high performanceTwistPin contact system. Glenair M83513 connectors are 100% Made in USA. Glenair's industry-leading Micro-D capacity and capabilities offer quick worldwide access to the full range of QPL items.

About The Mil Spec

The United States Department of Defense, Defense Logistics Agency, Defense Supply Center, Columbus, Ohio (DSCC, pronounced "Dessy"), maintains a vast library of military specifications covering all kinds of components used in defense equipment. These mil specs simplify system design and procurement, because mil spec parts do not require costly testing for suitability. Easy multiple sourcing is another key advantage of a mil spec part.
MIL-DTL-83513 is a detail spec controlling dimensions, materials, performance and testing. This spec covers plastic and metal shell Micro-D connectors.

The QPL At-A-Glance

Manufacturers are required to perform a series of mechanical, electrical and environmental tests in order to be eligible for listing as an approved supplier. When DSCC approval is granted, the manufacturer is added to the Qualified Products List (QPL). Glenair is QPL approved for all M83513 variations.

The "Slash Sheets" At-A-Glance

In addition to the general specification, MIL-DTL-83513 contains a total of 33 Detail Specification Sheets, nicknamed "slash sheets" because a forward slash is used in the numbering system.

How to get a copy of the spec

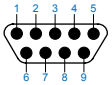
DSCC specs are available for download. The documents include:
MIL-DTL-83513 Detail Specification (the general spec)
MIL-DTL-83513 Slash Sheets (33 individual specs)
These specs can be found at:
http://www.dscc.dla.mil/Programs/MilSpec/DocSearch.asp
The QPL can be found at:
http://www.dscc.dla.mil/programs/qmlqpl/default.asp

Glenair CAGE Codes

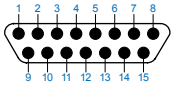
A **CAGE** (**C**ommercial **A**nd **G**overnment **E**ntity) Code is a five position code that identifies companies doing or wishing to do business with the Federal Government. Glenair uses two CAGE codes to identify M83513 products:
06324, Glenair, Glendale , California
0CA77, Glenair Microway Division, Lincolnwood Illinois.

U.S. CAGE Code 06324
Printed in U.S.A.

MIL-DTL-83513 CONTACT ARRANGEMENTS (FACE VIEW PIN CONNECTOR)



9 Contacts



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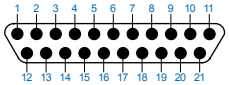

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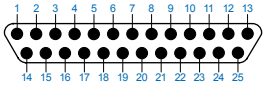

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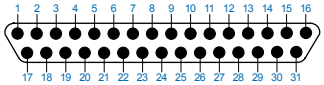

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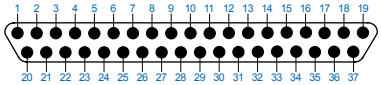

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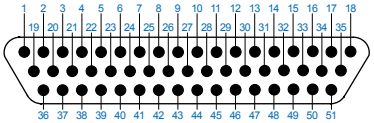

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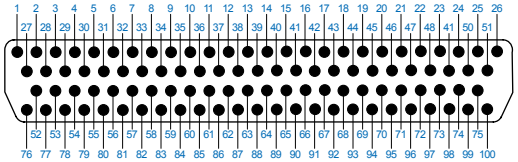


100 Contacts

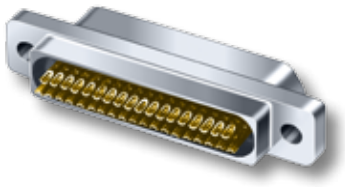
MIL-DTL-83513 MATERIALS AND FINISHES (SPECIFIC TO GLENAIR)

Connector Shell, Metal	Aluminum Alloy 6061 In Accordance With SAE-AMS-QQ-A-250/11 Plating Code C: Cadmium With Yellow Chromate Conversion Coating in Accordance With SAE-AMS-QQ-P-416, Type II, Class 3 Plating Code N: Electroless Nickel In Accordance With SAE-AMS-26074, Class 3 Stainless Steel, 300 Series, Passivated In Accordance With SAE-AMS-QQ-P-35
Connector Shell, Plastic	Liquid Crystal Polymer, 30% Glass-Filled, In Accordance With MIL-M-24519
Insulator	Liquid Crystal Polymer, 30% Glass-Filled, In Accordance With MIL-M-24519
Interfacial Seal	Fluorosilicone Rubber In Accordance With A-A-59588
Terminal Block, PCB	Liquid Crystal Polymer, 30% Glass-Filled, In Accordance With MIL-M-24519
Pin Contact (TwistPin)	Beryllium Copper, Gold Plated In Accordance With ASTM B 488 Type II Class 1.27 (50 Microinches Minimum) Code C, Over Nickel Underplate In Accordance With SAE-AMS-QQ-N-290, Class 2 (30 Microinches Minimum)
Socket Contact	Phos Bronze In accordance With ASTM 139 Gold Plated In Accordance With ASTM B 488 Type II Class 1.27 (50 Microinches Minimum) Code C, Over Nickel Underplate In Accordance With SAE-AMS-QQ-N-290, Class 2 (30 Microinches Minimum)
Encapsulant (Potting)	Epoxy Resin, Hysol EE4215/HD3561
Jackscrews, Jackposts	Stainless Steel, Passivated In Accordance With SAE-AMS-QQ-P-35
Pigtail Wire, Insulated Hookup	MIL-W-22759/11: 19 Strand Silver-Coated Copper Wire, Extruded PTFE Insulation, 600 Volts RMS, 200° C. MIL-W-22759/33: 19 Strand High-Strength Silver-Coated Copper Alloy Wire, Crosslinked Modified ETFE Insulation, 600 Volts RMS, 200° C.
Pigtail Wire, Uninsulated	Wire Type 07 and 08: Solid Copper Wire In Accordance With A-A-59551, 90% Tin/10% Lead Coated Wire Type 05 and 06: Solid Copper Wire In Accordance With A-A-59551, Gold-Plated

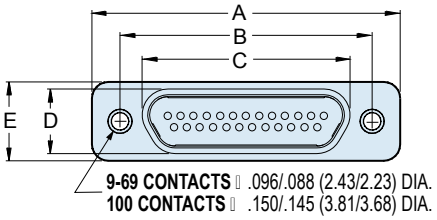
MIL-DTL-83513 PERFORMANCE SPECIFICATIONS

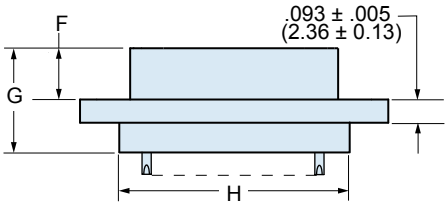
Current Rating	3 AMP
Dielectric Withstanding Voltage	600 VAC Sea Level, 150 VAC 70,000 Feet
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level Contact Resistance	32 Milliohms Maximum
Magnetic Permeability	2 µ Maximum
Operating Temperature	-55° C. to +150° C.
Shock	50 g.
Vibration	20 g.
Outgassing	Meets NASA Outgassing Requirements
Mating Force	(10 Ounces Maximum) X (# Of Contacts)
Salt Spray	48 Hours Aluminum Shell With Cadmium Plating
Durability	500 Mating Cycles Minimum

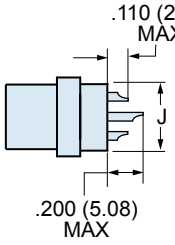
MIL-DTL-83513/01 & /02 Micro-D Connectors
Metal Shell Solder Cup



Metal Shell Solder Cup M83513 Connectors feature gold-plated TwistPin non-removable contacts for solder termination to AWG #26 or smaller wire.







M83513/01 & /02 SOLDER CUP PART NUMBERS

Layout	Config.	Electroless Nickel Plated Aluminum Shell	Cadmium Plated Aluminum Shell	Passivated Stainless Steel Shell
9P	Plug	M83513/01-AN	M83513/01-AC	M83513/01-AP
9S	Receptacle	M83513/02-AN	M83513/02-AC	M83513/02-AP
15P	Plug	M83513/01-BN	M83513/01-BC	M83513/01-BP
15S	Receptacle	M83513/02-BN	M83513/02-BC	M83513/02-BP
21P	Plug	M83513/01-CN	M83513/01-CC	M83513/01-CP
21S	Receptacle	M83513/02-CN	M83513/02-CC	M83513/02-CP
25P	Plug	M83513/01-DN	M83513/01-DC	M83513/01-DP
25S	Receptacle	M83513/02-DN	M83513/02-DC	M83513/02-DP
31P	Plug	M83513/01-EN	M83513/01-EC	M83513/01-EP
31S	Receptacle	M83513/02-EN	M83513/02-EC	M83513/02-EP
37P	Plug	M83513/01-FN	M83513/01-FC	M83513/01-FP
37S	Receptacle	M83513/02-FN	M83513/02-FC	M83513/02-FP
51P	Plug	M83513/01-GN	M83513/01-GC	M83513/01-GP
51S	Receptacle	M83513/02-GN	M83513/02-GC	M83513/02-GP
100P	Plug	M83513/01-HN	M83513/01-HC	M83513/01-HP
100S	Receptacle	M83513/02-HN	M83513/02-HC	M83513/02-HP

DIMENSIONS

	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.		J Max.	
Layout	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.310	7.87	.183	4.65	.416	10.57	.400	10.16	.270	6.86
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.310	7.87	.195	4.95	.429	10.90	.400	10.16	.270	6.86
15P	.935	23.75	.715	18.16	.483	12.27	.184	4.67	.310	7.87	.183	4.65	.416	10.57	.550	13.97	.270	6.86
15S	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.310	7.87	.195	4.95	.429	10.90	.550	13.97	.270	6.86
21P	1.085	27.56	.865	21.97	.633	16.08	.184	4.67	.310	7.87	.183	4.65	.416	10.57	.700	17.78	.270	6.86
21S	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.310	7.87	.195	4.95	.429	10.90	.700	17.78	.270	6.86
25P	1.185	30.01	.965	24.51	.733	18.62	.184	4.67	.310	7.87	.183	4.65	.416	10.57	.800	20.32	.270	6.86
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.310	7.87	.195	4.95	.429	10.90	.800	20.32	.270	6.86
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.310	7.87	.183	4.65	.416	10.57	.950	24.13	.270	6.86
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.310	7.87	.195	4.95	.429	10.90	.950	24.13	.270	6.86
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.310	7.87	.183	4.65	.416	10.57	1.100	27.94	.270	6.86
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.310	7.87	.195	4.95	.429	10.90	1.100	27.94	.270	6.86
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.416	10.57	1.050	26.67	.310	7.87
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.429	10.90	1.050	26.67	.310	7.87
100P	2.170	55.12	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	.416	10.57	1.442	36.63	.360	9.14
100S	2.170	55.12	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	.429	10.90	1.442	36.63	.360	9.14

 U.S. CAGE Code 06324 Printed in U.S.A.

MIL-DTL-83513/03 & /04 Micro-D Connectors
Metal Shell Crimp, Pre-Wired

Micro-D Pre-Wired Pigtails — These connectors feature gold-plated TwistPin contacts and mil spec crimp termination. Specify aluminum shells for best availability. 100% tested and backpotted, ready for use.

Choose the Wire Type To Fit Your Application — For lightest weight and smallest diameter, select M22759/33 space grade insulated wire.

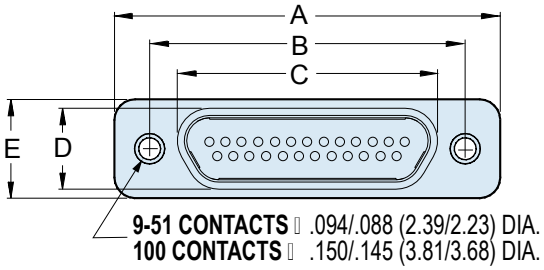
HOW TO ORDER METAL SHELL PRE-WIRED CRIMP MIL-DTL-83513 MICRO-D CONNECTORS

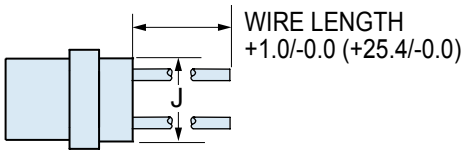
Base Part Number	Slash Number	Shell Size	Wire Type	Shell Finish
M83513	/03 Pin Connector (Plug) /04 Socket Connector (Receptacle)	A B C D E F G H Codes A - H specify the shell size. The number of contacts is shown below for reference. A – 9 B – 15 C – 21 D – 25 E – 31 F – 37 G – 51 H – 100	**M22759/11-26 Teflon®-Insulated Hookup Wire** 01 – 18 Inches (457mm), White 02 – 36 Inches (914mm), White 03 – 18 Inches (457mm), 10 Color Repeating 04 – 36 Inches (914mm), 10 Color Repeating 13 – 72 Inches (1829mm), White 14 – 72 Inches (1829mm), 10 Color Repeating **M22759/33-26 Irradiated Tefzel® Insulated Hookup Wire** 09 – 18 Inches (457mm), White 10 – 36 Inches (914mm), White 11 – 18 Inches (457mm), 10 Color Repeating 12 – 36 Inches (914mm), 10 Color Repeating 15 – 72 Inches (1829mm), White 16 – 72 Inches (1829mm), 10 Color Repeating **25 AWG Single Strand Uninsulated Wire** 05 – .500 Inch (12.7mm), Gold Plated 06 – 1.000 Inch (25.4mm), Gold Plated 07 – .500 Inch (12.7mm), Tin-Lead Plated(2) 08 – 1.000 Inch (25.4mm), Tin-Lead Plated(2)	C – Cadmium N – Electroless Nickel P – Passivated SST
Sample Part Number				
M83513	/04	— B	09	N

APPLICATION NOTES

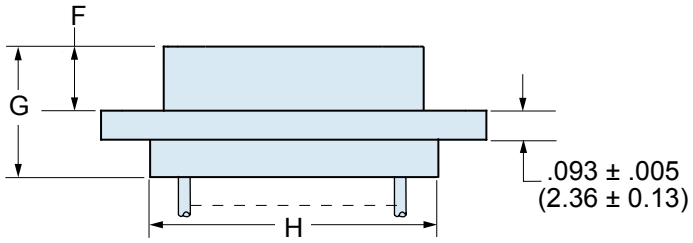
1. Shell Material & Finish:	Cadmium plating offers better corrosion resistance compared to nickel, but cad is not acceptable for space or RoHS applications. Electroless nickel plated aluminum is recommended for new design activity. Or, choose stainless steel shells for corrosive environments.
2. Tin-Plated Wire:	The next revision of the mil spec is expected to prohibit the use of pure tin. Glenair M83513 connectors do not contain any components exceeding 97% tin.
3. M22759/33 Corrosion:	The M83513 spec contains a cautionary note regarding M22759/33 wire. The wire insulation is known to cause corrosion to metal parts when stored in a sealed environment. This corrosion has been observed on M83513 connectors. Glenair has implemented a packaging procedure to minimize or eliminate this problem. Connectors are individually wrapped with teflon tape, and the unit pack is a perforated paper envelope. M22759/33 continues to be the preferred wire for space applications.

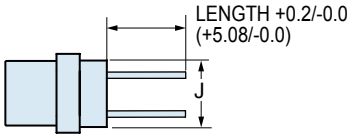
MIL-DTL-83513/03 & /04 Micro-D Connectors
Metal Shell Crimp, Pre-Wired





LENGTH FOR INSULATED STRANDED WIRE





LENGTH FOR UNINSULATED WIRE

DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H Max.		J Max.	
	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.
9P	.785	19.94	.565	14.35	.333	8.46	.184	4.67	.310	7.87	.183	4.65	.416	10.57	.400	10.16	.270	6.86
9S	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.310	7.87	.195	4.95	.429	10.90	.400	10.16	.270	6.86
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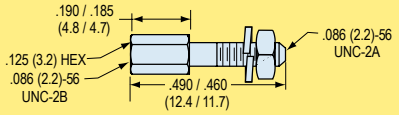
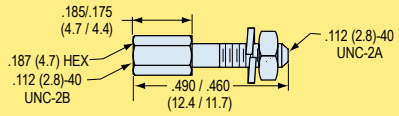
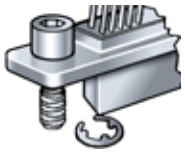
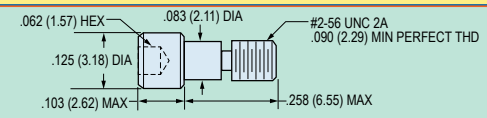
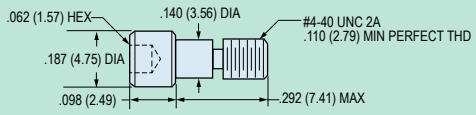
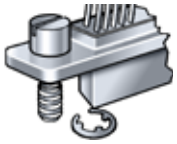
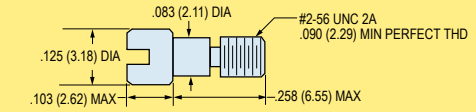
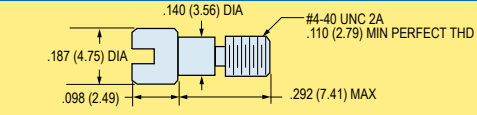
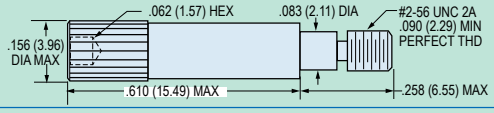
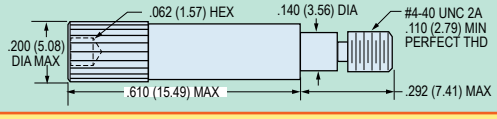
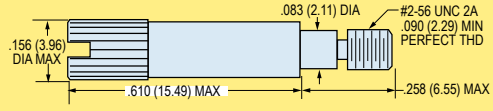
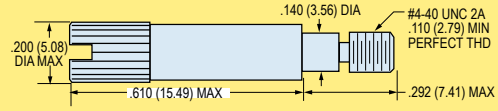
25S	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.310	7.87	.195	4.95	.429	10.90	.800	20.32	.270	6.86
31P	1.335	33.91	1.115	28.32	.883	22.43	.184	4.67	.310	7.87	.183	4.65	.416	10.57	.950	24.13	.270	6.86
31S	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.310	7.87	.195	4.95	.429	10.90	.950	24.13	.270	6.86
37P	1.485	37.72	1.265	32.13	1.033	26.24	.184	4.67	.310	7.87	.183	4.65	.416	10.57	1.100	27.94	.270	6.86
37S	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.310	7.87	.195	4.95	.429	10.90	1.100	27.94	.270	6.86
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.416	10.57	1.050	26.67	.310	7.87
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.429	10.90	1.050	26.67	.310	7.87
100P	2.170	55.12	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	.416	10.57	1.442	36.63	.360	9.14
100S	2.170	55.12	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	.429	10.90	1.442	36.63	.360	9.14

MIL-DTL-83513/05 Micro-D Hardware
Jackscrews and Jackposts

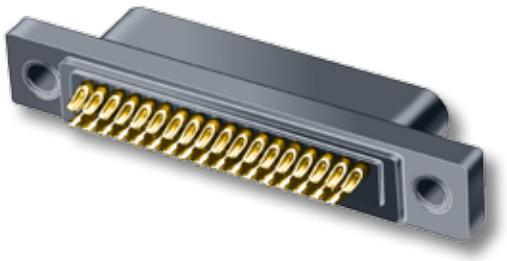
Order One Kit Per Connector. Jackpost kits contain two posts, two hex nuts and 2 lockwashers. Jackscrew kits contain 2 screws and 2 e-rings. Packaged one kit (two screws or posts) per bag.

Mil Spec Hardware Kits feature 300 series stainless steel.

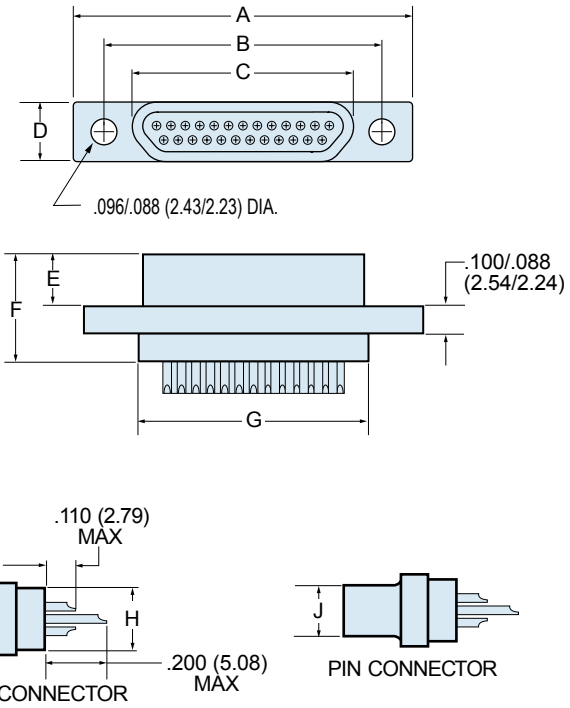
MIL SPEC JACKSCREW KITS

Configuration	Connector Size, Thread Size	Mil Spec Part Number	Glenair Part Number	Dimensions
 Jackpost	Sizes 9 to 69 Contacts. Mil Spec Size A to G #2-56 UNC	M83513/05-07	080-00-00-100	
	Size100 Only Mil Spec Size H #4-40 UNC	M83513/05-17	080-00-00-101	
 Hex Head Jackscrew Low Profile	Sizes 9 to 69 Contacts. Mil Spec Size A to G #2-56 UNC-2A	M83513/05-02	080-00-00-502	
	Size 100 Only Mil Spec Size H #4-40 UNC-2A	M83513/05-12	080-00-00-512	
 Slot Head Jackscrew Low Profile	Sizes 9 to 69 Contacts. Mil Spec Size A to G #2-56 UNC-2A	M83513/05-05	080-00-00-505	
	Size 100 Only Mil Spec Size H #4-40 UNC-2A	M83513/05-15	080-00-00-515	
 Hex Head Jackscrew Extended	Sizes 9 to 69 Contacts. Mil Spec Size A to G #2-56 UNC-2A	M83513/05-03	080-00-00-503	
	Size 100 Only Mil Spec Size H #4-40 UNC-2A	M83513/05-13	080-00-00-513	
 Slot Head Jackscrew Extended	Sizes 9 to 69 Contacts. Mil Spec Size A to G #2-56 UNC-2A	M83513/05-06	080-00-00-506	
	Size 100 Only Mil Spec Size H #4-40 UNC-2A	M83513/05-16	080-00-00-516	

MIL-DTL-83513/06 & /07 Micro-D Connectors
Plastic Shell Solder Cup



Plastic Shell Solder Cup M83513 Connectors feature goldplated TwistPin non-removable contacts for solder termination to AWG #26 or smaller wire. These all-plastic connectors are more economical, lighter and smaller than metal shell versions.



PART NUMBERS

Layout	Config.	Part Number
9P	Plug	M83513/06-A
9S	Receptacle	M83513/07-A
15P	Plug	M83513/06-B
15S	Receptacle	M83513/07-B
21P	Plug	M83513/06-C
21S	Receptacle	M83513/07-C
25P	Plug	M83513/06-D
25S	Receptacle	M83513/07-D
31P	Plug	M83513/06-E
31S	Receptacle	M83513/07-E
37P	Plug	M83513/06-F
37S	Receptacle	M83513/07-F
51P	Plug	M83513/06-G
51S	Receptacle	M83513/07-G

DIMENSIONS

	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
Layout	In.	mm.	In. ± .003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.218	5.54	.202	5.13	.395	10.03	.408	10.36	.173	4.39	.134	3.40
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.185	4.70	.375	9.53	.408	10.36	.173	4.39	.218	5.54
15P	.938	23.83	.715	18.16	.442	11.23	.218	5.54	.202	5.13	.395	10.03	.558	14.17	.173	4.39	.134	3.40
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.185	4.70	.375	9.53	.558	14.17	.173	4.39	.218	5.54
21P	1.088	27.64	.865	21.97	.592	15.04	.218	5.54	.202	5.13	.395	10.03	.708	17.98	.173	4.39	.134	3.40
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.185	4.70	.375	9.53	.708	17.98	.173	4.39	.218	5.54
25P	1.188	30.18	.965	24.51	.692	17.58	.218	5.54	.202	5.13	.395	10.03	.808	20.52	.173	4.39	.134	3.40
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.185	4.70	.375	9.53	.808	20.52	.173	4.39	.218	5.54
31P	1.338	33.99	1.115	28.32	.842	21.39	.218	5.54	.202	5.13	.395	10.03	.958	24.33	.173	4.39	.134	3.40
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.185	4.70	.375	9.53	.958	24.33	.173	4.39	.218	5.54
37P	1.488	37.80	1.265	32.13	.992	25.20	.218	5.54	.202	5.13	.395	10.03	1.108	28.14	.173	4.39	.134	3.40
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.185	4.70	.375	9.53	1.108	28.14	.173	4.39	.218	5.54
51P	1.438	36.53	1.215	30.86	.942	23.93	.260	6.60	.202	5.13	.395	10.03	1.058	26.87	.220	5.59	.177	4.50
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.185	4.70	.375	9.53	1.058	26.87	.220	5.59	.260	6.60

MIL-DTL-83513/08 & /09 Micro-D Connectors
Plastic Shell Crimp, Pre-Wired

Micro-D Pre-Wired Pigtails — These connectors feature gold-plated TwistPin contacts and mil spec crimp termination. 100% tested and backpotted, ready for use.

Choose the Wire Type To Fit Your Application — For lightest weight and smallest diameter, select M22759/33 space grade insulated wire.

HOW TO ORDER PLASTIC SHELL PRE-WIRED CRIMP MIL-DTL-83513/08 AND /09 CONNECTORS

Base Part Number	Slash Number	Insert Arrangement	Wire Type
M83513	/08 Pin Connector (Plug) /09 Socket Connector (Receptacle)	A B C D E F G Codes A - G specify the shell size. The number of contacts is shown below for reference. A – 9 B – 15 C – 21 D – 25 E – 31 F – 37 G – 51	**M22759/11-26 Teflon®-Insulated Hookup Wire** 01 – 18 Inches (457mm), White 02 – 36 Inches (914mm), White 03 – 18 Inches (457mm), 10 Color Repeating 04 – 36 Inches (914mm), 10 Color Repeating 13 – 72 Inches (1829mm), White 14 – 72 Inches (1829mm), 10 Color Repeating **M22759/33-26 Irradiated Tefzel® Insulated Hookup Wire** 09 – 18 Inches (457mm), White 10 – 36 Inches (914mm), White 11 – 18 Inches (457mm), 10 Color Repeating 12 – 36 Inches (914mm), 10 Color Repeating 15 – 72 Inches (1829mm), White 16 – 72 Inches (1829mm), 10 Color Repeating **Single Strand Uninsulated Wire** 05 – .500 Inch (12.7mm), Gold Plated 06 – 1.000 Inch (25.4mm), Gold Plated 07 – .500 Inch (12.7mm), Tin-Lead Plated(2) 08 – 1.000 Inch (25.4mm), Tin-Lead Plated(2)
Sample Part Number			
M83513	/09	— G	12

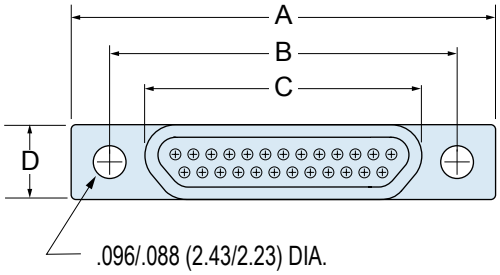
APPLICATION NOTES

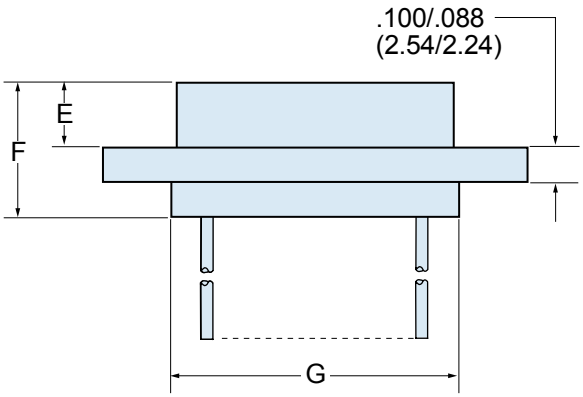
1. Intermatability: M83513 plastic shell connectors are not intermateable with metal shell M83513 connectors.

2. Tin-Plated Wire: The next revision of the mil spec is expected to prohibit the use of pure tin. Glenair M83513 connectors do not contain any components exceeding 97% tin.

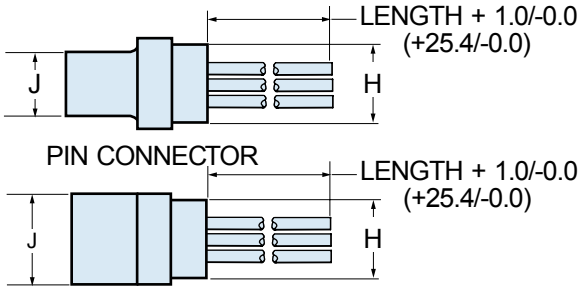
3. M22759/33 Corrosion: The M83513 spec contains a cautionary note regarding M22759/33 wire. The wire insulation is known to cause corrosion to metal parts when stored in a sealed environment. This corrosion has been observed on M83513 connectors. Glenair has implemented a packaging procedure to minimize or eliminate this problem. Connectors are individually wrapped with teflon tape, and the unit pack is a perforated paper envelope. M22759/33 continues to be the preferred wire for space applications.

MIL-DTL-83513 Micro-D Connectors
Plastic Shell Crimp
Pre-Wired M83513/08 & /09

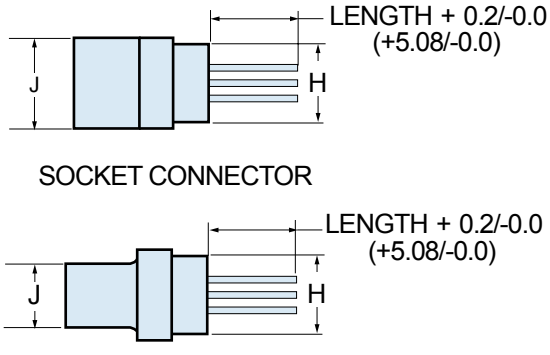




LENGTH FOR INSULATED STRANDED WIRE



LENGTH FOR UNINSULATED WIRE



DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F Max.		G Max.		H Max.		J Max.	
	In.	mm.	In . ± .003	mm. ±0.08	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9P	.788	20.02	.565	14.35	.292	7.42	.218	5.54	.202	5.13	.395	10.03	.408	10.36	.173	4.39	.134	3.40
9S	.788	20.02	.565	14.35	.380	9.65	.218	5.54	.185	4.70	.375	9.53	.408	10.36	.173	4.39	.218	5.54
15P	.938	23.83	.715	18.16	.442	11.23	.218	5.54	.202	5.13	.395	10.03	.558	14.17	.173	4.39	.134	3.40
15S	.938	23.83	.715	18.16	.530	13.46	.218	5.54	.185	4.70	.375	9.53	.558	14.17	.173	4.39	.218	5.54
21P	1.088	27.64	.865	21.97	.592	15.04	.218	5.54	.202	5.13	.395	10.03	.708	17.98	.173	4.39	.134	3.40
21S	1.080	27.64	.865	21.97	.680	17.27	.218	5.54	.185	4.70	.375	9.53	.708	17.98	.173	4.39	.218	5.54
25P	1.188	30.18	.965	24.51	.692	17.58	.218	5.54	.202	5.13	.395	10.03	.808	20.52	.173	4.39	.134	3.40
25S	1.185	30.18	.965	24.51	.780	19.81	.218	5.54	.185	4.70	.375	9.53	.808	20.52	.173	4.39	.218	5.54
31P	1.338	33.99	1.115	28.32	.842	21.39	.218	5.54	.202	5.13	.395	10.03	.958	24.33	.173	4.39	.134	3.40
31S	1.338	33.99	1.115	28.32	.930	23.62	.218	5.54	.185	4.70	.375	9.53	.958	24.33	.173	4.39	.218	5.54
37P	1.488	37.80	1.265	32.13	.992	25.20	.218	5.54	.202	5.13	.395	10.03	1.108	28.14	.173	4.39	.134	3.40
37S	1.488	37.80	1.265	32.13	1.080	27.43	.218	5.54	.185	4.70	.375	9.53	1.108	28.14	.173	4.39	.218	5.54
51P	1.438	36.53	1.215	30.86	.942	23.93	.260	6.60	.202	5.13	.395	10.03	1.058	26.87	.220	5.59	.177	4.50
51S	1.438	36.53	1.215	30.86	1.030	26.16	.260	6.60	.185	4.70	.375	9.53	1.058	26.87	.220	5.59	.260	6.60

MIL-DTL-83513/10 Thru /15 Micro-D Connectors
Right Angle PCB Connectors (CBR)

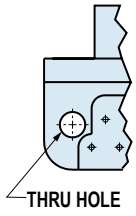
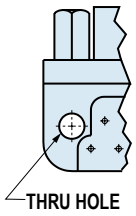
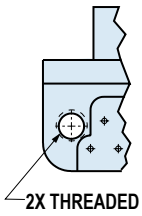
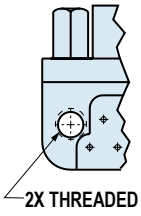
High Performance — These connectors feature gold-plated TwistPin contacts for best performance. PC tails are .020 inch diameter. Specify nickel-plated shells or cadmium plated shells for best availability.

Solder-Dipped — Terminals are coated with SN63/Pb37 tin-lead solder for best solderability.

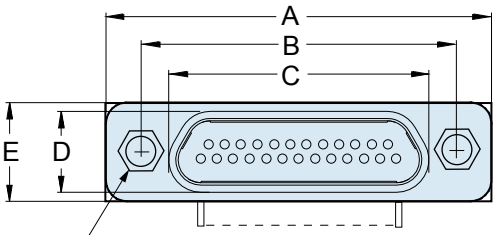
HOW TO ORDER M83513/10 THRU /15 NARROW PROFILE RIGHT ANGLE PCB CONNECGTORS

Spec Number	Slash Number- Shell Size	PC Tail Length	Shell Finish	Hardware Option
M83513/	**Plug (Pin Contacts)** 10–A - 9 Contacts 10–B - 15 Contacts 10–C - 21 Contacts 10–D - 25 Contacts 10–E - 31 Contacts 10–F - 37 Contacts 11–G - 51 Contacts 12–H - 100 Contacts **Receptacle (Socket Contacts)** 13–A - 9 Contacts 13–B - 15 Contacts 13–C - 21 Contacts 13–D - 25 Contacts 13–E - 31 Contacts 13–F - 37 Contacts 14–G - 51 Contacts 15–H - 100 Contacts	01 – .109 Inch (2.77 mm) 02 – .140 Inch (3.56 mm) 03 – .172 Inch (4.37 mm) PC Tail Length ± .015 (0.38)	C – Cadmium N – Electroless Nickel P – Passivated SST	N – No Jackpost P – Jackposts Installed T – Threaded Insert in Board Mount Hole (No Jackposts) W –Threaded Insert in Board Mount Hole and jackposts Installed See "Hardware Options" below for Illustrations Shell sizes A (9) through G (51) are #2-56 UNC-2 threads. Shell size H (100) is #4-40 UNC-2 threads.
Sample Part Number				
M83513/	13-B	02	N	P

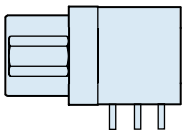
HARDWARE OPTIONS

N	P	T	W
			
No Jackpost	Jackpost	Threaded Insert	Jackpost, Threaded Insert

MIL-DTL-83513/10 Thru /15 Micro-D Connectors
Right Angle PCB Connectors (CBR)

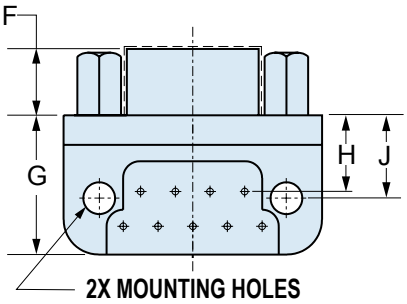


9-51 CONTACTS #2-56 UNC-2B THREADS
100 CONTACTS #4-40 UNC-2B THREADS

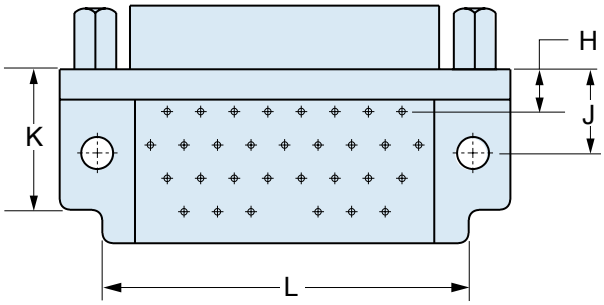


THREAD SIZES
9-51 CONTACTS #2-56 UNC
100 CONTACTS #4-40 UNC

CONFIGURATION FOR 9-25 CONTACTS



CONFIGURATION FOR 31-100 CONTACTS



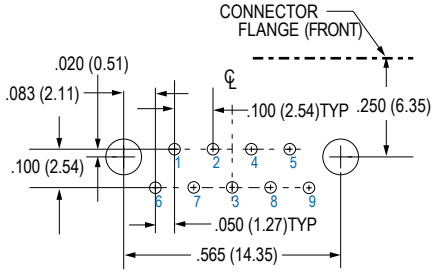
PCB MOUNTING HOLES
9-51 CONTACTS .096 DIA. ± .003 (2.44 ± 0.08)
100 CONTACTS .125 DIA. ± .003 (3.18± 0.08)

DIMENSIONS

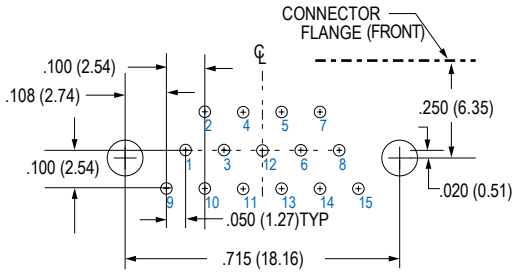
Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H		J		K Max.		L Max.	
	In.	mm.	In. ±.003	mm. ±0.08	In.	mm.	In.	mm.	In.	mm.	In. ±.003	mm. ±0.08	In.	mm.	In. ±.010	mm. ±0.25	In. ±.010	mm. ±0.25	In.	mm.	In.	mm.
9P	.787	19.94	.565	14.35	.333	8.46	.184	4.67	.310	7.87	.183	4.65	.425	10.80	.230	5.84	.250	6.35	—	—	—	—
9S	.787	19.94	.565	14.35	.400	10.16	.250	6.35	.310	7.87	.195	4.95	.425	10.80	.230	5.84	.250	6.35	—	—	—	—
15P	.937	23.75	.715	18.16	.483	12.27	.184	4.67	.310	7.87	.183	4.65	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
15S	.937	23.75	.715	18.16	.551	14.00	.250	6.35	.310	7.87	.195	4.95	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
21P	1.087	27.56	.865	21.97	.633	16.08	.184	4.67	.310	7.87	.183	4.65	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
21S	1.087	27.56	.865	21.97	.701	17.81	.250	6.35	.310	7.87	.195	4.95	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
25P	1.187	30.01	.965	24.51	.733	18.62	.184	4.67	.310	7.87	.183	4.65	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
25S	1.187	30.01	.965	24.51	.801	20.35	.250	6.35	.310	7.87	.195	4.95	.425	10.80	.130	3.30	.250	6.35	—	—	—	—
31P	1.337	33.91	1.115	28.32	.883	22.43	.184	4.67	.310	7.87	.183	4.65	.525	13.34	.130	3.30	.250	6.35	.450	11.43	1.085	27.56
31S	1.337	33.91	1.115	28.32	.951	24.16	.250	6.35	.310	7.87	.195	4.95	.525	13.34	.130	3.30	.250	6.35	.450	11.43	1.085	27.56
37P	1.487	37.72	1.265	32.13	1.033	26.24	.184	4.67	.310	7.87	.183	4.65	.525	13.34	.130	3.30	.250	6.35	.450	11.43	1.185	30.10
37S	1.487	37.72	1.265	32.13	1.101	27.96	.250	6.35	.310	7.87	.195	4.95	.525	13.34	.130	3.30	.250	6.35	.450	11.43	1.185	30.10
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.660	16.76	.150	3.81	.300	7.62	.450	11.43	1.225	31.12
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.660	16.76	.150	3.81	.300	7.62	.450	11.43	1.225	31.12
100P	2.175	55.12	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	1.010	25.65	.200	5.08	.400	10.16	.590	14.99	1.820	46.23
100S	2.175	55.12	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	1.010	25.65	.200	5.08	.400	10.16	.590	14.99	1.820	46.23

M83513/10 THRU /12 CONNECTOR PCB LAYOUTS – PIN CONNECTORS

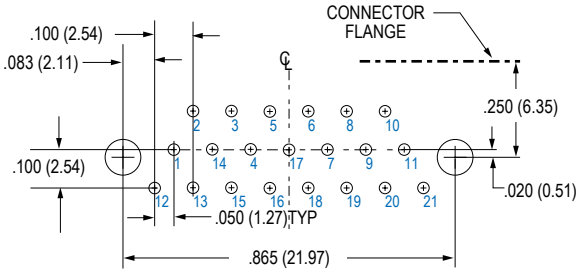
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



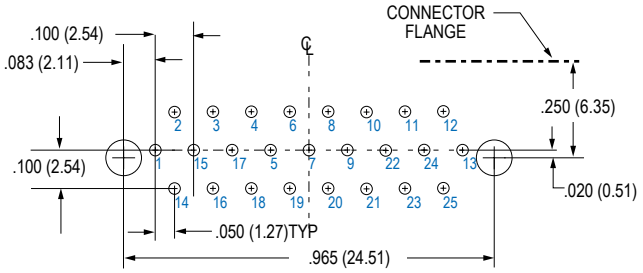
9 PIN M83513/10-A



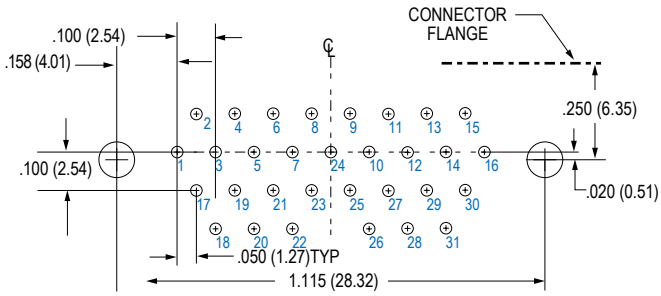
15 PIN M83513/10-B



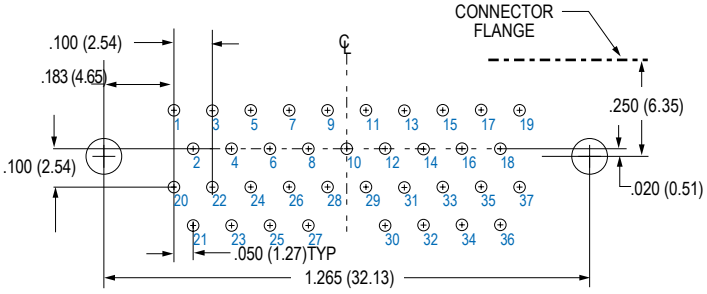
21 PIN M83513/10-C



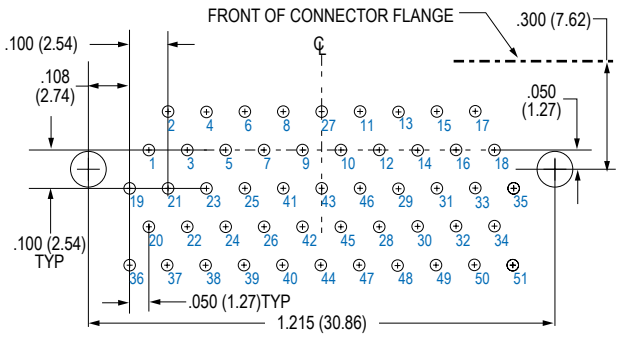
25 PIN M83513/10-D



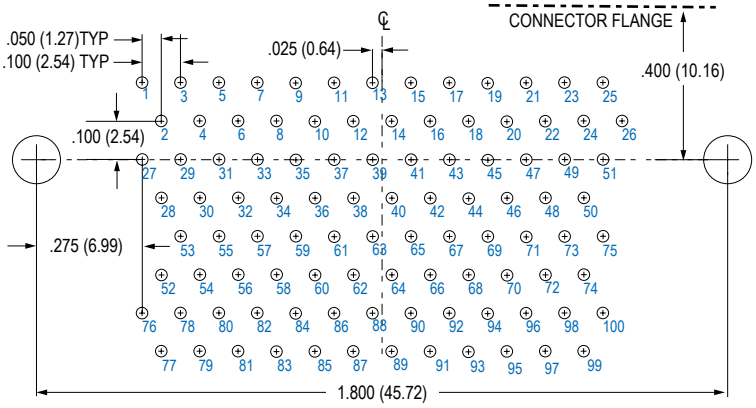
31 PIN M83513/10-E



37 PIN M83513/10-F



51 PIN M83513/11-G

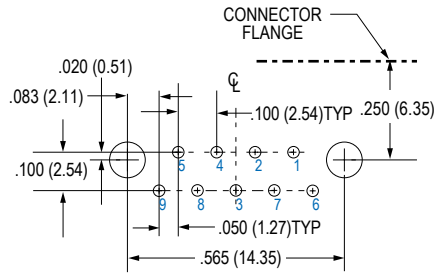


100 PIN M83513/12-H

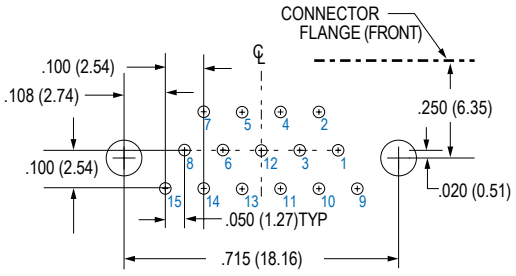
MIL-DTL-83513/10 Thru /15 Micro-D Connectors
Right Angle PCB Connectors (CBR)

M83513/13 THRU /15 CONNECTOR PCB LAYOUTS – SOCKET CONNECTORS

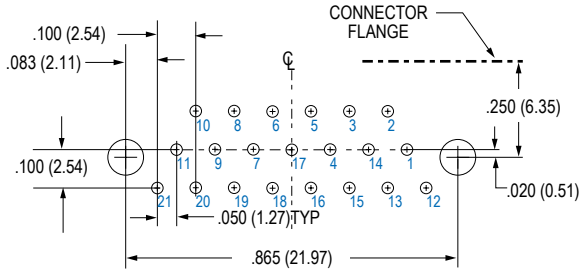
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



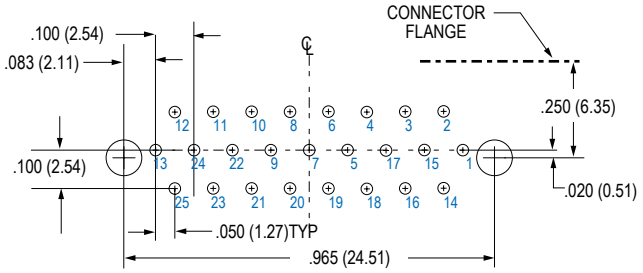
9 SOCKET M83513/13-A



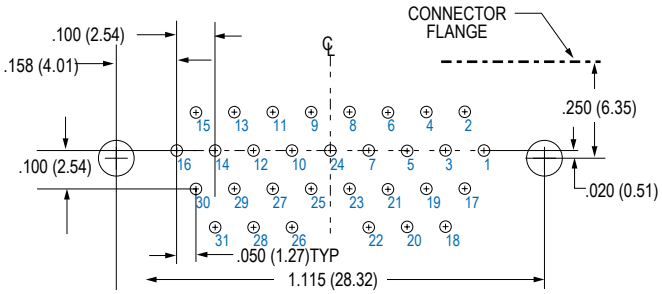
15 SOCKET M83513/13-B



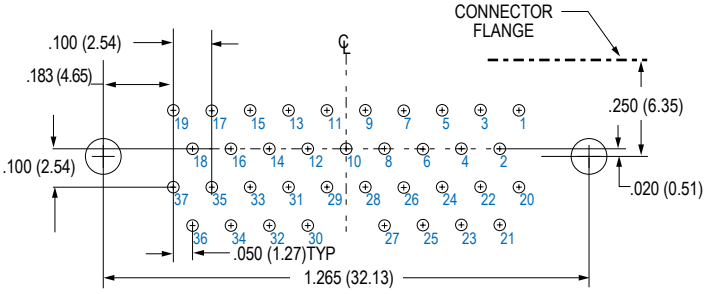
21 SOCKET M83513/13-C



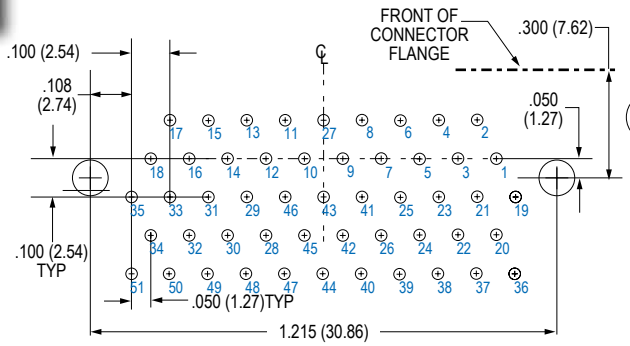
25 SOCKET M83513/13-D



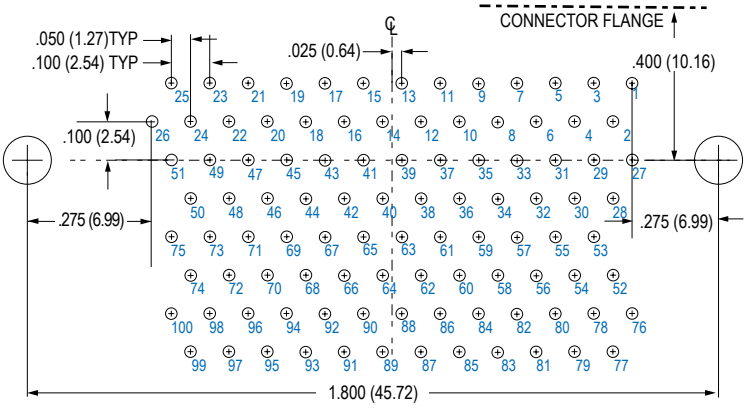
31 SOCKET M83513/13-E



37 SOCKET M83513/13-F



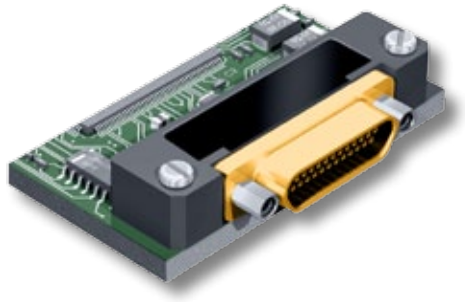
51 SOCKET M83513/14-G



100 SOCKET M83513/15-H

MIL-DTL-83513/16 Thru /21 Micro-D Connectors
Right Angle PCB Connectors (BR)

Glenair®



High Performance — These connectors feature gold-plated TwistPin contacts for best performance. PC tails are .020 inch diameter. Specify nickel-plated shells or cadmium plated shells for best availability.

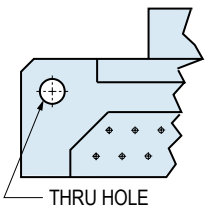
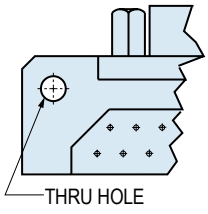
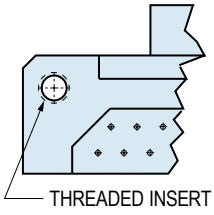
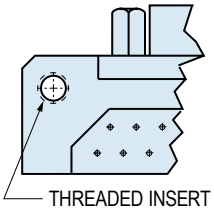
Solder-Dipped — Terminals are coated with SN63/Pb37 tin-lead solder for best solderability.

HOW TO ORDER M83513/16 THRU /21 RIGHT ANGLE PCB CONNECGTORS

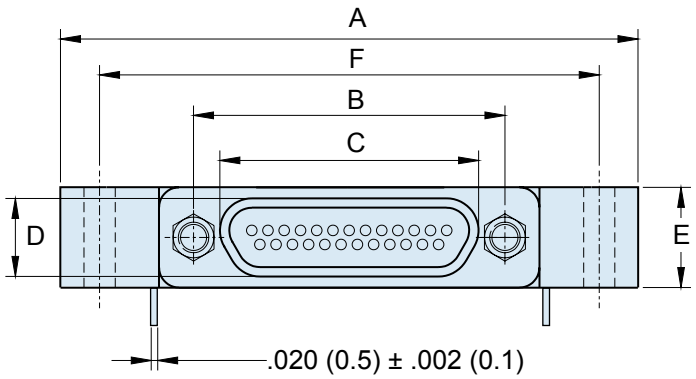
Spec Number	Slash Number- Shell Size	PC Tail Length	Shell Finish	Hardware Option
M83513	**Plug (Pin Contacts)** 16–A - 9 Contacts 16–B - 15 Contacts 16–C - 21 Contacts 16–D - 25 Contacts 16–E - 31 Contacts 16–F - 37 Contacts 17–G - 51 Contacts 18–H - 100 Contacts **Receptacle (Socket Contacts)** 19–A - 9 Contacts 19–B - 15 Contacts 19–C - 21 Contacts 19–D - 25 Contacts 19–E - 31 Contacts 19–F - 37 Contacts 20–G - 51 Contacts 21–H - 100 Contacts	01 – .109 Inch (2.77 mm) 02 – .140 Inch (3.56 mm) 03 – .172 Inch (4.37 mm) PC Tail Length ± .015 (0.38)	C – Cadmium N – Electroless Nickel P – Passivated SST	N – No Jackpost P – Jackposts Installed T – Threaded Insert in Board Mount Hole (No Jackposts) W –Threaded Insert in Board Mount Hole and jackposts Installed (See "Hardware Options" below for Illustrations) Shell sizes A (9) through G (51) are #2-56 UNC-2 threads. Shell size H (100) is #4-40 UNC-2 threads.
Sample Part Number				
M83513/	19-F	02	N	P

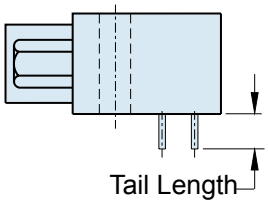
L

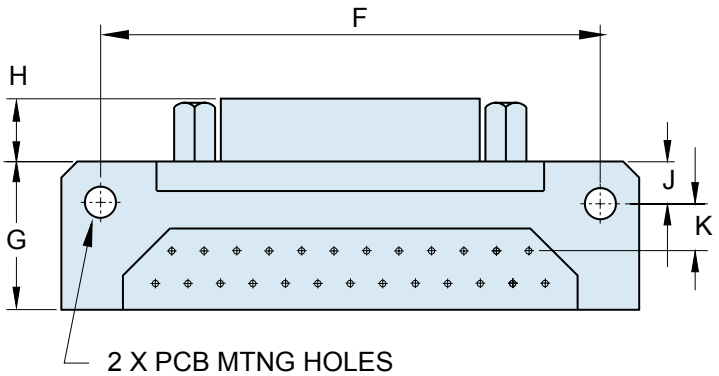
HARDWARE OPTIONS

N	P	T	W
			
No Jackpost	Jackpost	Threaded Insert	Jackpost, Threaded Insert

MIL-DTL-83513/16 Thru /21 Micro-D Connectors
Right Angle PCB Connectors (BR)







2 X PCB MTNG HOLES
9-51 CONTACTS .096 ± .005 (2.43 ± 0.13)
100 CONTACTS .125 ± .005 (23.18 ± 0.13)

THREAD SIZES
9-51 CONTACTS #2-56 UNC
100 CONTACTS #4-40 UNC

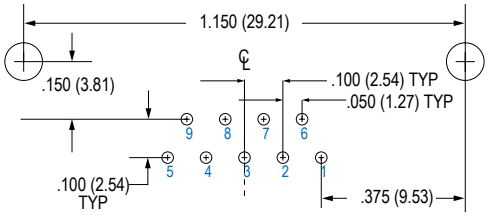
DIMENSIONS

Layout	A Max.		B		C Max.		D Max.		E Max.		F		G Max.		H		J		K	
	In.	mm.	In. ±.005	mm. ± 0.10	In.	mm.	In.	mm.	In.	mm.	In. ±.007	mm. ± 0.18	In.	mm.	In. ±.003	mm. ±0.08	In. ±.015	mm. ±0.38	In. ±.010	mm. ±0.25
9P	1.390	35.31	.565	14.35	.333	8.46	.185	4.70	.325	8.26	1.150	29.21	.465	11.81	.183	4.65	.125	3.18	.150	3.81
9S	1.390	35.31	.565	14.35	.400	10.16	.253	6.26	.325	8.26	1.150	29.21	.465	11.81	.195	4.95	.125	3.18	.150	3.81
15P	1.540	39.12	.715	18.16	.483	12.27	.185	4.70	.325	8.26	1.300	33.02	.465	11.81	.183	4.65	.125	3.18	.150	3.81
15S	1.540	39.12	.715	18.16	.551	14.00	.253	6.26	.325	8.26	1.300	33.02	.465	11.81	.195	4.95	.125	3.18	.150	3.81
21P	1.690	42.93	.865	21.97	.633	16.08	.185	4.70	.325	8.26	1.450	36.83	.465	11.81	.183	4.65	.125	3.18	.150	3.81
21S	1.690	42.93	.865	21.97	.701	17.81	.253	6.26	.325	8.26	1.450	36.83	.465	11.81	.195	4.95	.125	3.18	.150	3.81
25P	1.790	45.47	.965	24.51	.733	18.62	.185	4.70	.325	8.26	1.550	39.37	.465	11.81	.183	4.65	.125	3.18	.150	3.81
25S	1.790	45.47	.965	24.51	.801	20.35	.253	6.26	.325	8.26	1.550	39.37	.465	11.81	.195	4.95	.125	3.18	.150	3.81
31P	2.040	51.82	1.115	28.32	.883	22.43	.185	4.70	.325	8.26	1.800	45.72	.465	11.81	.183	4.65	.125	3.18	.150	3.81
31S	2.040	51.82	1.115	28.32	.951	24.16	.253	6.26	.325	8.26	1.800	45.72	.465	11.81	.195	4.95	.125	3.18	.150	3.81
37P	2.340	59.44	1.265	32.13	1.033	26.24	.185	4.70	.325	8.26	2.100	53.34	.465	11.81	.183	4.65	.125	3.18	.150	3.81
37S	2.340	59.44	1.265	32.13	1.101	27.96	.253	6.26	.325	8.26	2.100	53.34	.465	11.81	.195	4.95	.125	3.18	.150	3.81
51P	1.875	47.63	1.215	30.86	.983	24.97	.228	5.79	.360	9.14	1.600	40.64	.565	14.35	.183	4.65	.125	3.18	.150	3.81
51S	1.875	47.63	1.215	30.86	1.051	26.70	.296	7.52	.360	9.14	1.600	40.64	.565	14.35	.195	4.95	.125	3.18	.150	3.81
100P	2.780	70.60	1.800	45.72	1.383	35.13	.271	6.88	.420	10.67	2.500	63.50	.765	19.43	.183	4.65	.225	5.72	.150	3.81
100S	2.780	70.60	1.800	45.72	1.451	36.86	.333	8.64	.420	10.67	2.500	63.50	.765	19.43	.195	4.95	.225	5.72	.150	3.81

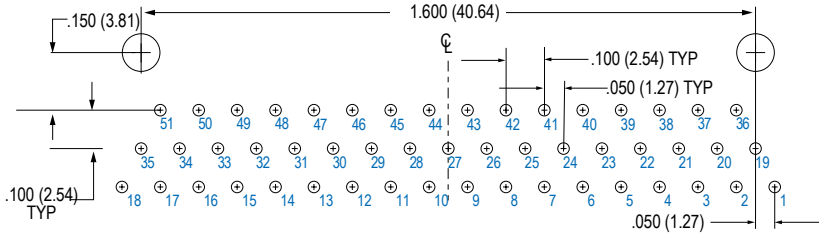
 U.S. CAGE Code 06324 Printed in U.S.A.

M83513/16 THRU /18 PCB LAYOUTS – PIN CONNECTORS

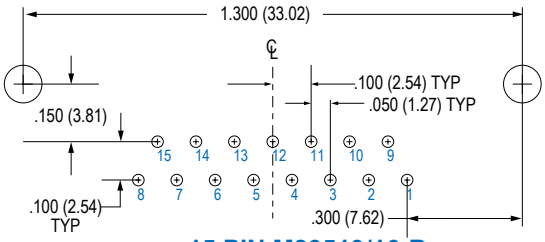
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



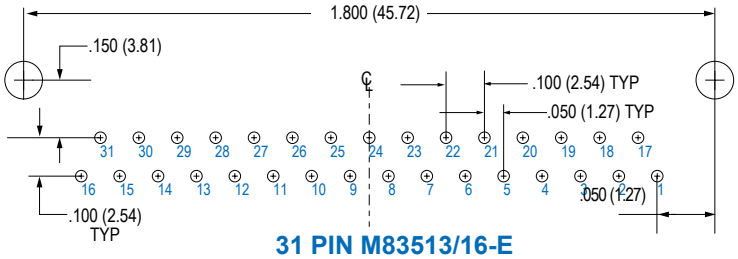
9 PIN M83513/16-A



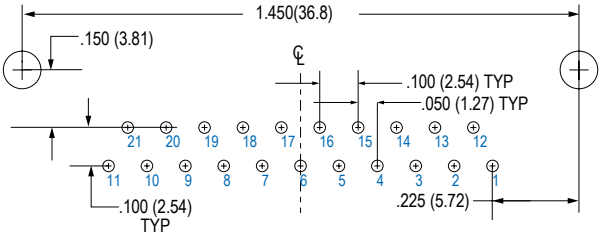
51 PIN M83513/17-G



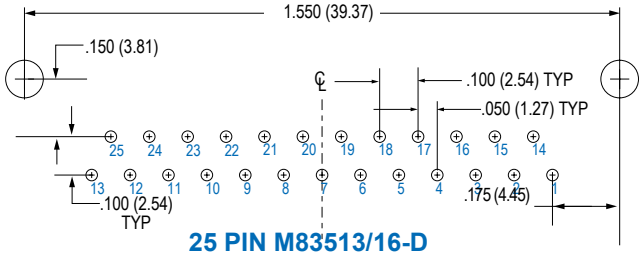
15 PIN M83513/16-B



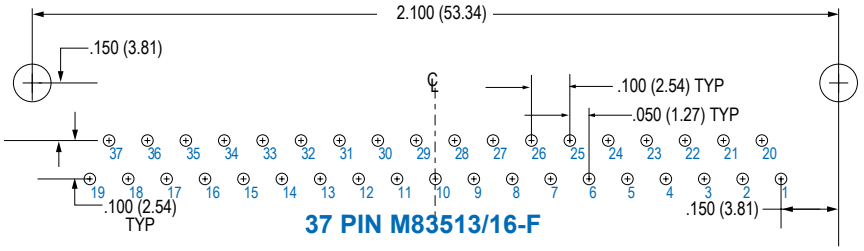
31 PIN M83513/16-E



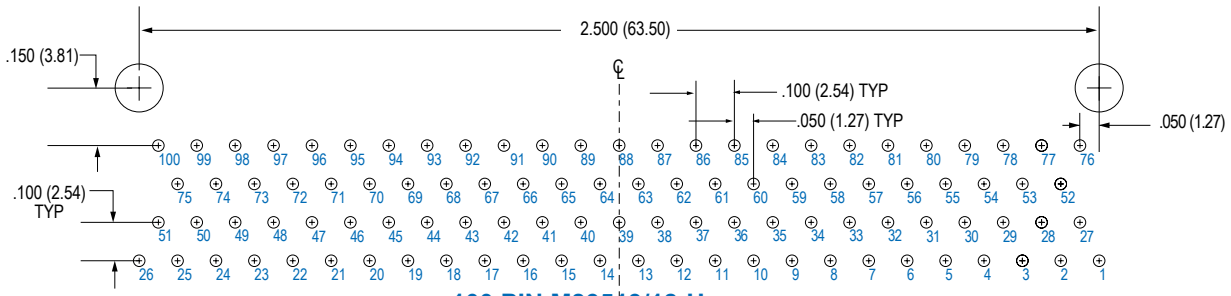
21 PIN M83513/16-C



25 PIN M83513/16-D



37 PIN M83513/16-F

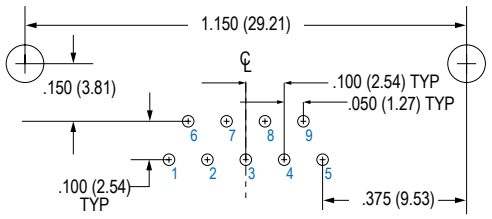


100 PIN M83513/18-H

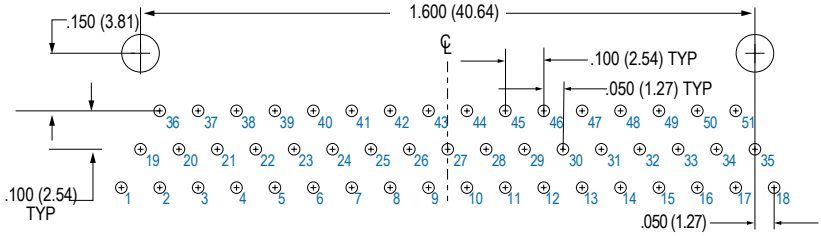
MIL-DTL-83513/16 Thru /21 Micro-D Connectors
Right Angle PCB Connectors (BR)

M83513/19 THRU /21 PCB LAYOUTS – SOCKET CONNECTORS

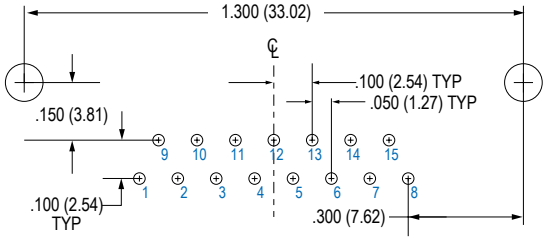
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



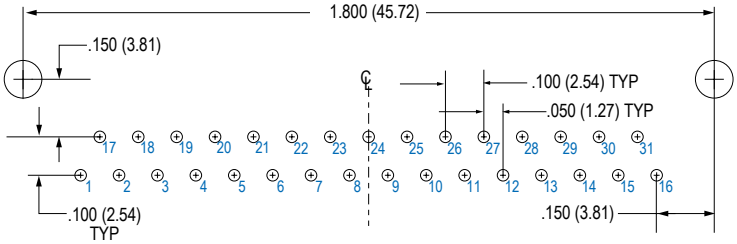
9 SOCKET M83513/19-A



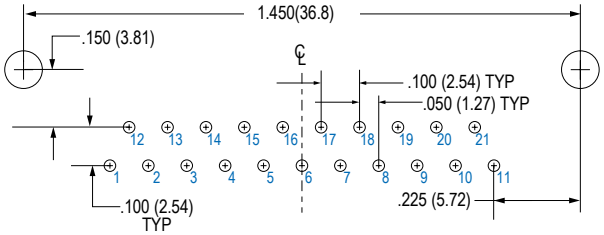
51 SOCKET M83513/20-G



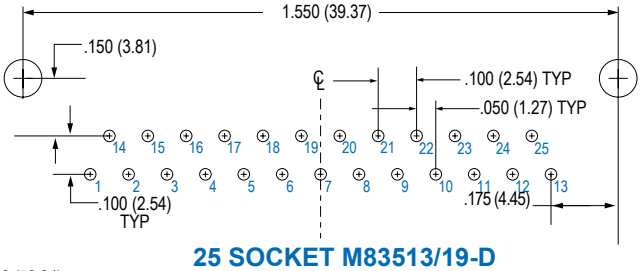
15 SOCKET M83513/19-B



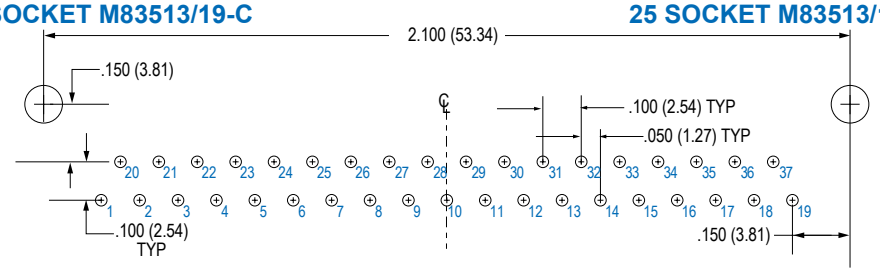
31 SOCKET M83513/19-E



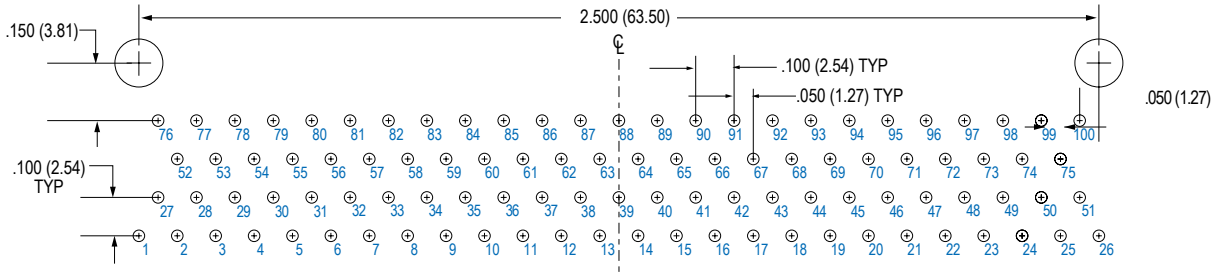
21 SOCKET M83513/19-C



25 SOCKET M83513/19-D



37 SOCKET M83513/19-F



100 SOCKET M83513/21-H

MIL-DTL-83513/22 Thru /27 Micro-D Connectors
Straight PCB Connectors (BS)

Glenair®

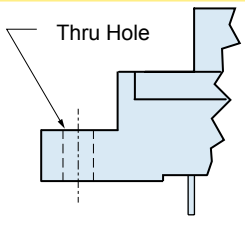
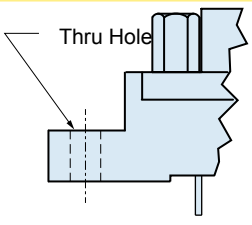
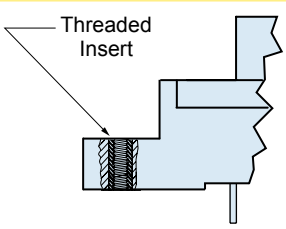
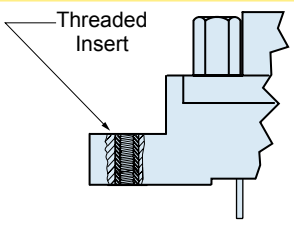
High Performance — These connectors feature goldplated TwistPin contacts for best performance. PC tails are .020 inch diameter. Specify nickel-plated shells or cadmium plated shells for best availability.

Solder-Dipped — Terminals are coated with SN63/Pb37 tin-lead solder for best solderability.

HOW TO ORDER M83513/22 THRU /27 STRAIGHT PCB CONNECGTORS

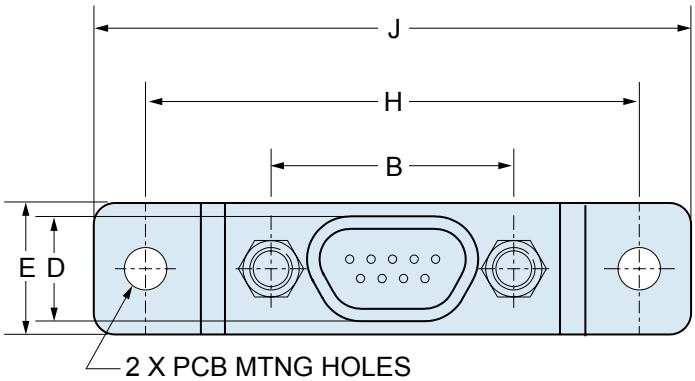
Spec Number	Slash Number- Insert Arrangement	PC Tail Length	Shell Finish	Hardware Option
M83513/	**Plug (Pin Contacts)** 22–A - 9 Contacts 22–B - 15 Contacts 22–C - 21 Contacts 22–D - 25 Contacts 22–E - 31 Contacts 22–F - 37 Contacts 23–G - 51 Contacts 24–H - 100 Contacts **Receptacle (Socket Contacts)** 25–A - 9 Contacts 25–B - 15 Contacts 25–C - 21 Contacts 25–D - 25 Contacts 25–E - 31 Contacts 25–F - 37 Contacts 26–G - 51 Contacts 27–H - 100 Contacts	01 – .109 Inch (2.77 mm) 02 – .140 Inch (3.56 mm) 03 – .172 Inch (4.37 mm) PC Tail Length ± .015 (0.38)	C – Cadmium N – Electroless Nickel P – Passivated SST	N – No Jackpost P – Jackposts Installed T – Threaded Insert in Board Mount Hole (No Jackposts) W –Threaded Insert in Board Mount Hole and jackposts Installed (See "Hardware Options" below for Illustrations) Shell sizes A (9) through G (51) are #2-56 UNC-2 threads. Shell size H (100) is #4-40 UNC-2 threads.
Sample Part Number				
M83513/	26-G	03	C	W

HARDWARE OPTIONS

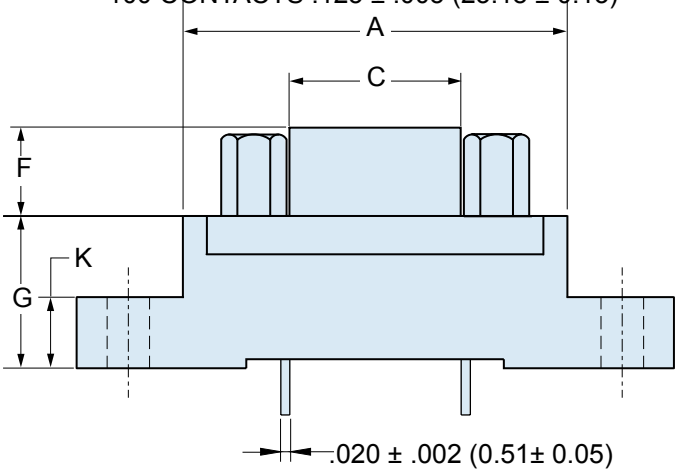
N	P	T	W
			
No Jackpost	Jackpost	Threaded Insert	Jackpost, Threaded Insert

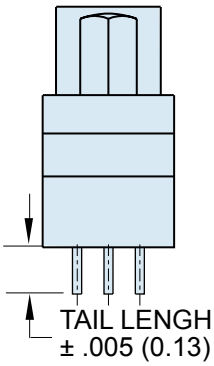
U.S. CAGE Code 06324
Printed in U.S.A.

MIL-DTL-83513/22 Thru /27 Micro-D Connectors
Straight PCB Connectors (BS)



THREAD SIZES
9-51 CONTACTS #2-56 UNC
100 CONTACTS #4-40 UNC



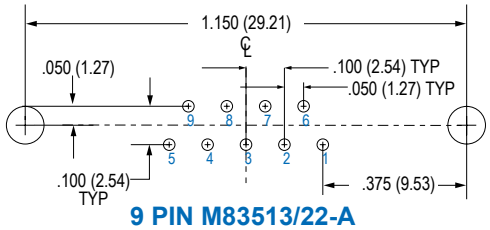


DIMENSIONS

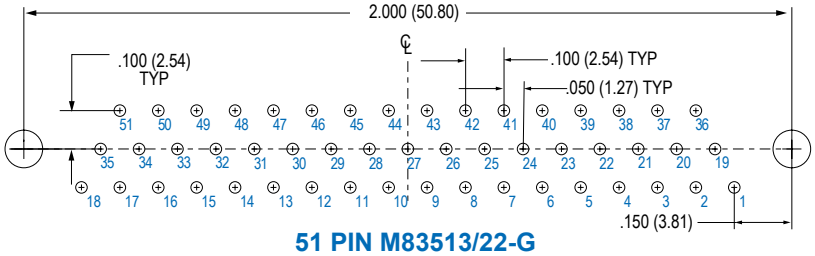
Layout	A Max.		B		C Max.		D Max.		E Max.		F		G		H		J Max.		K	
	In.	mm.	In. ±.003	mm. ± 0.08	In.	mm.	In.	mm.	In.	mm.	In. ±.004	mm. ±0.10	In. ±.010	mm. ±0.25	In. ±.007	mm. ±0.18	In.	mm.	In. ±.010	mm. ±0.25
9P	.790	20.07	.565	14.35	.333	8.46	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.150	29.21	1.390	35.31	.155	3.94
9S	.790	20.07	.565	14.35	.400	10.16	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.150	29.21	1.390	35.31	.155	3.94
15P	.940	23.88	.715	18.16	.483	12.27	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.150	29.21	1.390	35.31	.155	3.94
15S	.940	23.88	.715	18.16	.551	14.00	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.150	29.21	1.390	35.31	.155	3.94
21P	1.180	29.97	.865	21.97	.633	16.08	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.450	36.83	1.690	42.93	.155	3.94
21S	1.180	29.97	.865	21.97	.701	17.81	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.450	36.83	1.690	42.93	.155	3.94
25P	1.275	32.39	.965	24.51	.733	18.62	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.500	38.10	1.740	44.20	.155	3.94
25S	1.275	32.39	.965	24.51	.801	20.35	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.500	38.10	1.740	44.20	.155	3.94
31P	1.575	40.01	1.115	28.32	.883	22.43	.184	4.67	.310	7.87	.183	4.65	.333	8.46	1.800	45.72	2.040	51.82	.155	3.94
31S	1.575	40.01	1.115	28.32	.951	24.16	.250	6.35	.310	7.87	.195	4.95	.333	8.46	1.800	45.72	2.040	51.82	.155	3.94
37P	1.875	47.63	1.265	32.13	1.033	26.24	.184	4.67	.310	7.87	.183	4.65	.333	8.46	2.100	53.34	2.340	59.44	.155	3.94
37S	1.875	47.63	1.265	32.13	1.101	27.96	.250	6.35	.310	7.87	.195	4.95	.333	8.46	2.100	53.34	2.340	59.44	.155	3.94
51P	1.775	45.09	1.215	30.86	.983	24.97	.228	5.79	.351	8.92	.183	4.65	.333	8.46	2.000	50.80	2.270	57.64	.155	3.94
51S	1.775	45.09	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.333	8.46	2.000	50.80	2.270	57.64	.155	3.94
100P	2.585	65.66	1.800	45.72	1.383	35.13	.270	6.86	.394	10.01	.183	4.65	.525	13.34	2.800	71.12	3.250	82.55	.293	7.44
100S	2.585	65.66	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	.525	13.34	2.800	71.12	3.250	82.55	.293	7.44

M83513/22 THRU /24 PCB LAYOUTS – PIN CONNECTORS

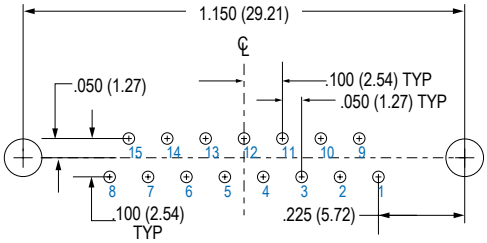
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



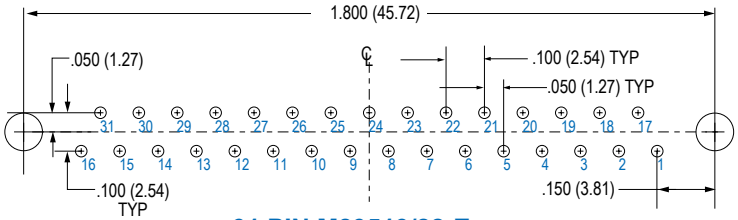
9 PIN M83513/22-A



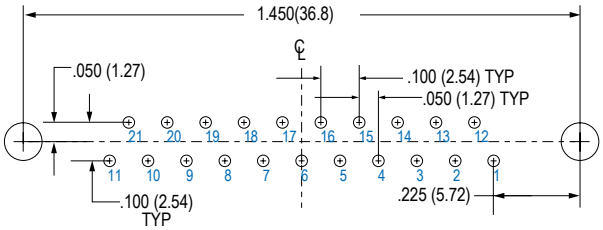
51 PIN M83513/22-G



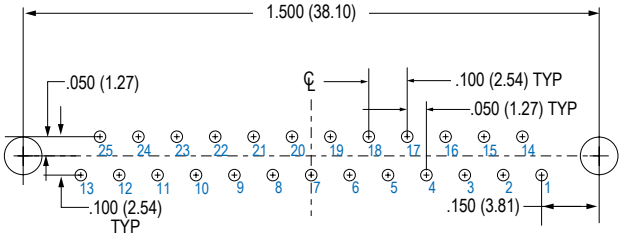
15 PIN M83513/22-B



31 PIN M83513/22-E

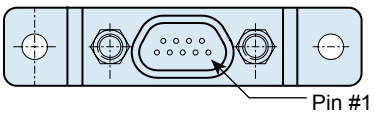


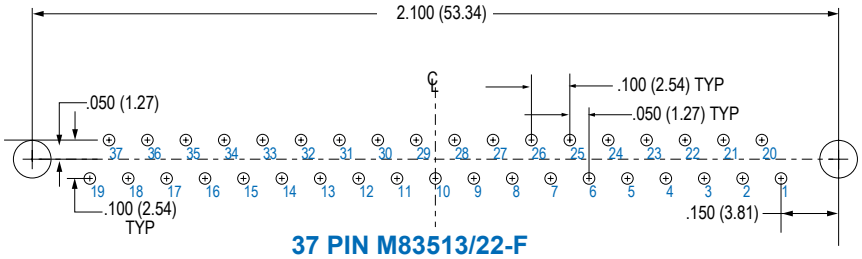
21 PIN M83513/22-C



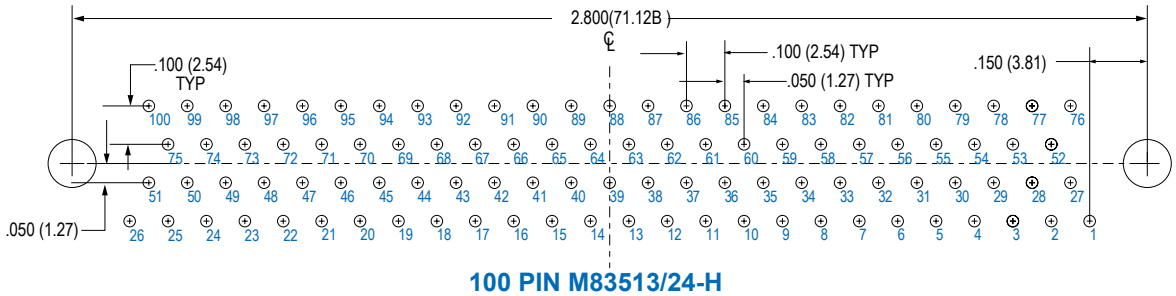
25 PIN M83513/22-D

Connector Orientation





37 PIN M83513/22-F

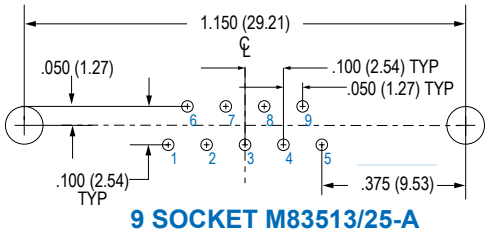


100 PIN M83513/24-H

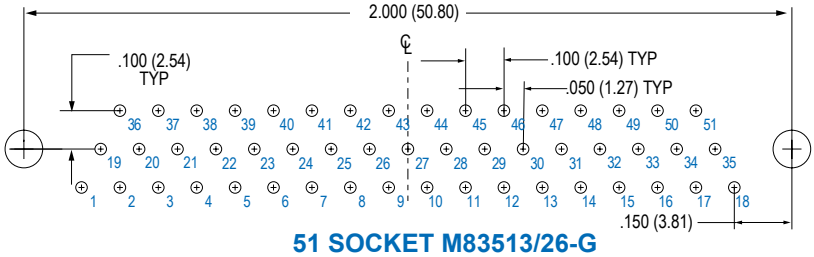
MIL-DTL-83513/22 Thru /27 Micro-D Connectors
Straight PCB Connectors (BS)

M83513/25 THRU /27 PCB LAYOUTS – SOCKET CONNECTORS

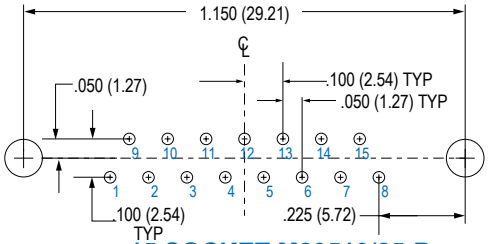
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts .096 (2.44) Diameter Mounting Holes, 100 Pin .125 (3.18) Diameter



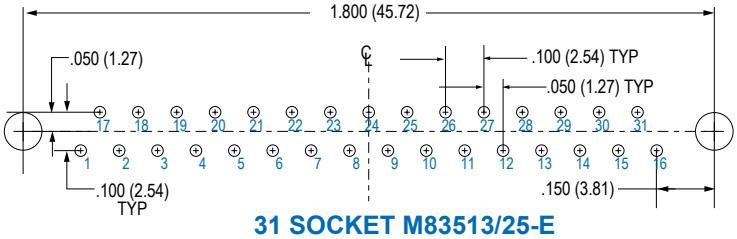
9 SOCKET M83513/25-A



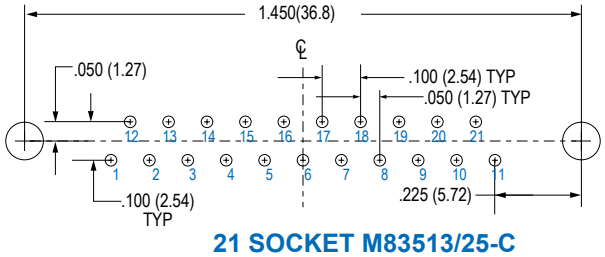
51 SOCKET M83513/26-G



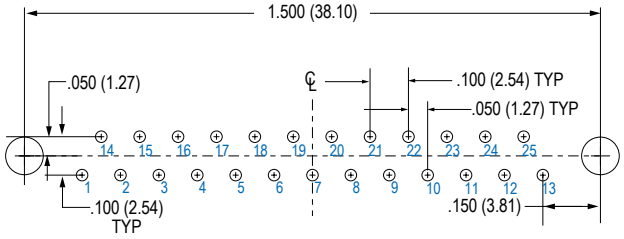
15 SOCKET M83513/25-B



31 SOCKET M83513/25-E

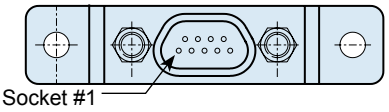


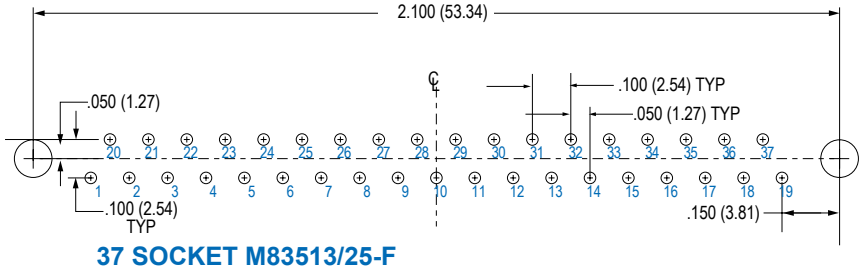
21 SOCKET M83513/25-C



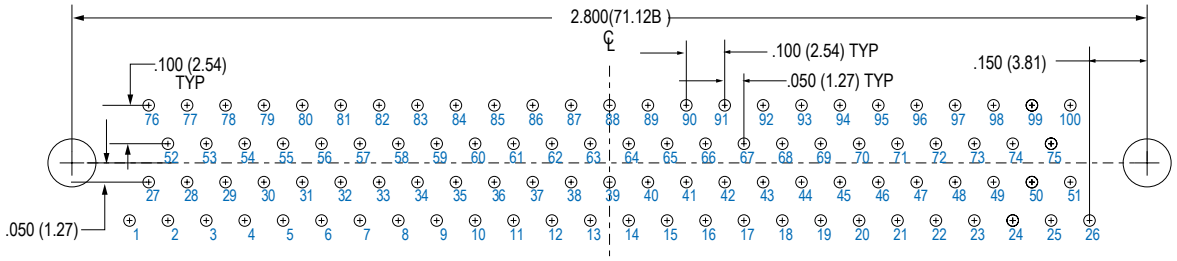
25 SOCKET M83513/25-D

Connector Orientation



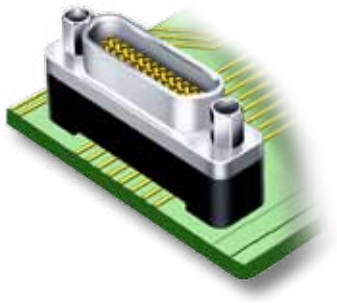


37 SOCKET M83513/25-F



100 SOCKET M83513/27-H

MIL-DTL-83513/28 Thru /33 Micro-D Connectors
Straight PCB Connectors (CBS)



Space-Saving — These connectors take up less room on the PC board. PC tail spacing is .075 inch (1.9mm), compared to .100 inch (2.54mm.).

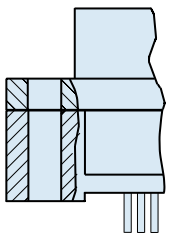
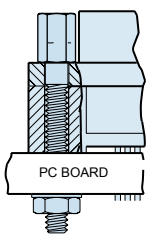
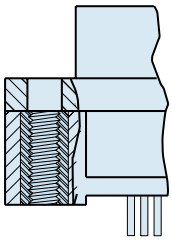
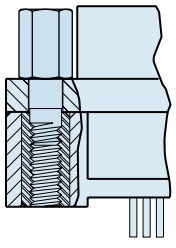
Threaded Inserts — Stainless steel inserts are insert molded into plastic trays. These inserts provide a ground path from the PC board to the mating cable.

Solder-Dipped — Terminals are coated with SN63/Pb37 tin-lead solder for best solderability.

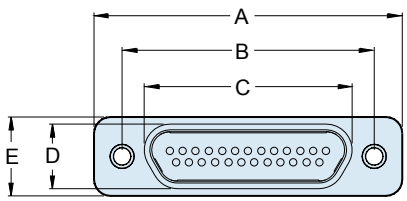
HOW TO ORDER M83513/22 THRU /27 STRAIGHT PCB CONNECGTORS

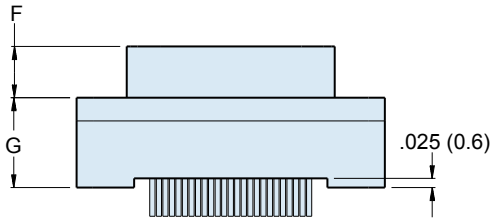
Spec Number	Slash Number- Shell Size	PC Tail Length	Shell Finish	Hardware Option
M83513	**Plug (Pin Contacts)** 28–A - 9 Contacts 28–B - 15 Contacts 28–C - 21 Contacts 28–D - 25 Contacts 28–E - 31 Contacts 28–F - 37 Contacts 29–G - 51 Contacts 30–H - 100 Contacts **Receptacle (Socket Contacts)** 31–A - 9 Contacts 31–B - 15 Contacts 31–C - 21 Contacts 31–D - 25 Contacts 31–E - 31 Contacts 31–F - 37 Contacts 32–G - 51 Contacts 33–H - 100 Contacts	01 – .109 Inch (2.77 mm) 02 – .140 Inch (3.56 mm) 03 – .172 Inch (4.37 mm) PC Tail Length ± .015 (0.38)	C – Cadmium N – Electroless Nickel P – Passivated SST	N – No Jackpost P – Jackposts Installed T – 2-56 Threaded Insert in Board Mount Hole (No Jackposts) W – 2-56 Threaded Insert in Board Mount Hole and Jackposts Installed U – 4-40 Threaded Insert in Board Mount Hole (No Jackposts) Y – 4-40 Threaded Insert in Board Mount Hole and Jackposts Installed (See "Hardware Options" below for Illustrations) Shell sizes A (9) through G (51) are #2-56 UNC-2 threads. Shell size H (100) is #4-40 UNC-2 threads.
Sample Part Number				
M83513/	33-H	01	C	P

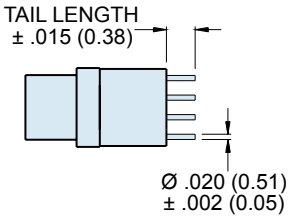
HARDWARE OPTIONS

N	P	T	W
			
No Jackpost	Jackpost	Threaded Insert	Jackpost, Threaded Insert

MIL-DTL-83513/28 Thru /33 Micro-D Connectors
Straight PCB Connectors (CBS)

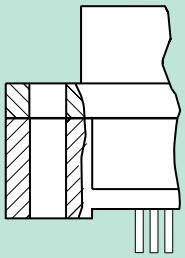






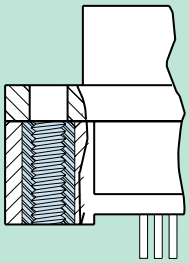
M83513/28 THRU 33 HARDWARE OPTIONS

HARDWARE OPTION N
NO JACKPOST, NO THREADED INSERT



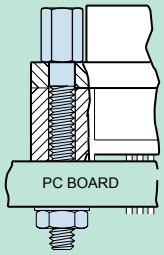
MTNG HOLE DIA.
9-51 CONTACTS
.096/.088 (2.44/2.24)
100 CONTACTS
.128/.122 (3.25/3.10)

HARDWARE OPTIONS T & U
THREADED INSERT, NO POST



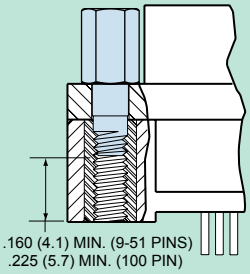
THREAD SIZE
9-51 CONTACTS # 2-56 UNC-2B
100 CONTACTS # 4-40 UNC-2B

HARDWARE OPTION P
JACKPOST AND THRU-HOLE



THREAD SIZE
9-51 CONTACTS # 2-56 UNC
100 CONTACTS # 4-40 UNC
USE WITH .156 (3.96) MAX. PC BOARD THICKNESS

HARDWARE OPTIONS W & Y
JACKPOST AND THREADED INSERT



THREAD SIZE
9-51 CONTACTS #2-56 UNC
100 CONTACTS #4-40 UNC

DIMENSIONS

Layout	A Max. In.	A Max. mm.	B In. ± .005	B mm. ± 0.13	C Max. In.	C Max. mm.	D Max. In.	D Max. mm.	E Max. In.	E Max. mm.	F In. ± .003	F mm. ± 0.08	G Max. In.	G Max. mm.
9P	.785	19.94	.565	14.35	.333	8.46	.185	4.70	.310	7.87	.183	4.65	.355	9.02
9S	.785	19.94	.565	14.35	.400	10.16	.253	6.43	.310	7.87	.195	4.95	.355	9.02
15P	.935	23.75	.715	18.16	.483	12.27	.185	4.70	.310	7.87	.183	4.65	.355	9.02
15S	.935	23.75	.715	18.16	.551	14.00	.253	6.43	.310	7.87	.195	4.95	.355	9.02
21P	1.085	27.56	.865	21.97	.633	16.08	.185	4.70	.310	7.87	.183	4.65	.355	9.02
21S	1.085	27.56	.865	21.97	.701	17.81	.253	6.43	.310	7.87	.195	4.95	.355	9.02
25P	1.185	30.01	.965	24.51	.733	18.62	.185	4.70	.310	7.87	.183	4.65	.355	9.02
25S	1.185	30.01	.965	24.51	.801	20.35	.253	6.43	.310	7.87	.195	4.95	.355	9.02
31P	1.335	33.91	1.115	28.32	.883	22.43	.185	4.70	.310	7.87	.183	4.65	.355	9.02
31S	1.335	33.91	1.115	28.32	.951	24.16	.253	6.43	.310	7.87	.195	4.95	.355	9.02
37P	1.485	37.72	1.265	32.13	1.033	26.24	.185	4.70	.310	7.87	.183	4.65	.355	9.02
37S	1.485	37.72	1.265	32.13	1.101	27.96	.253	6.43	.310	7.87	.195	4.95	.355	9.02
51P	1.435	36.45	1.215	30.86	.983	24.97	.228	5.79	.400	10.16	.183	4.65	.355	9.02
51S	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.400	10.16	.195	4.95	.355	9.02
100P	2.170	55.12	1.800	45.72	1.383	35.13	.271	6.88	.510	12.95	.183	4.65	.430	10.92
100S	2.170	55.12	1.800	45.72	1.451	36.86	.340	8.64	.510	12.95	.195	4.95	.430	10.92

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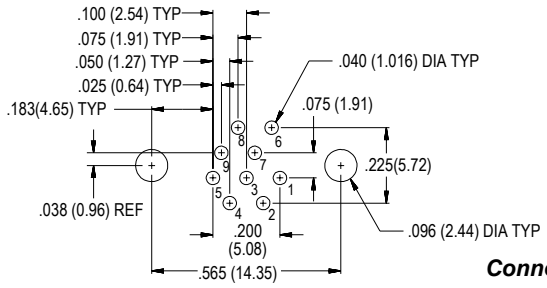
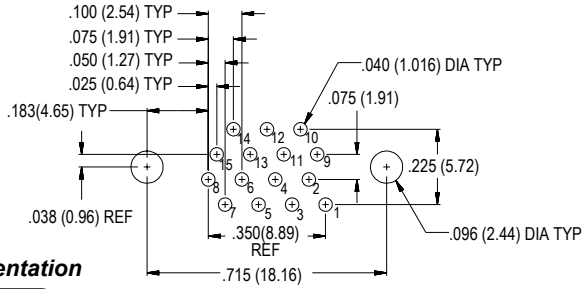
M83513/28 THRU 30 PCB LAYOUTS – PIN CONNECTORS

Patterns shown are for connector mounting side of PC board.

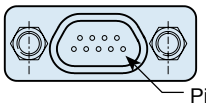


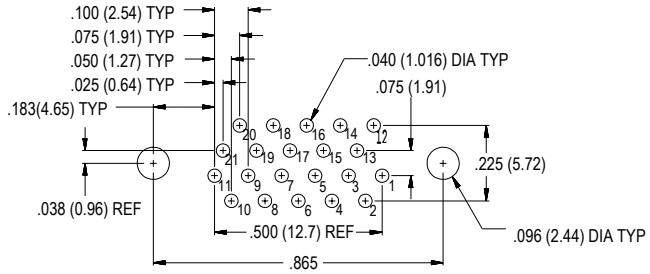
9 PIN M83513/28-A



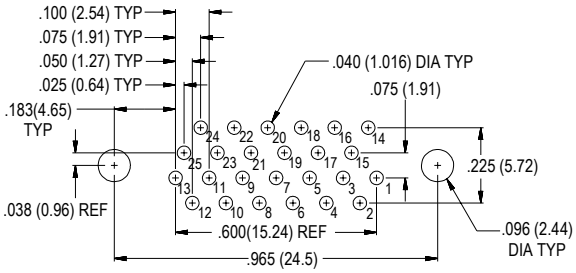
15 PIN M83513/28-B

Connector Orientation

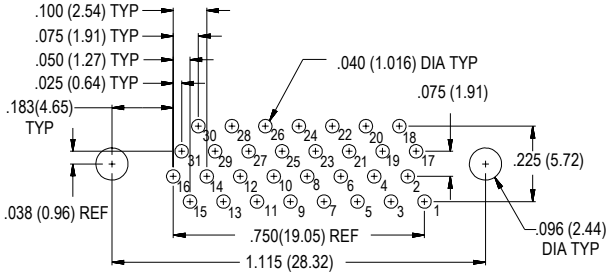




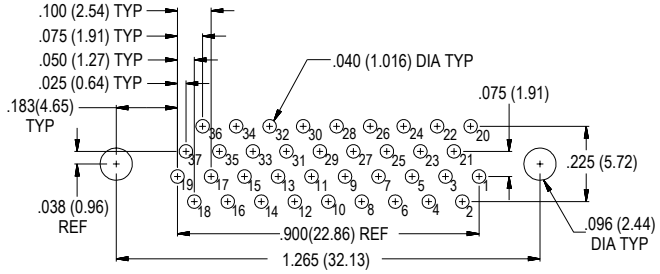
21 PIN M83513/28-C



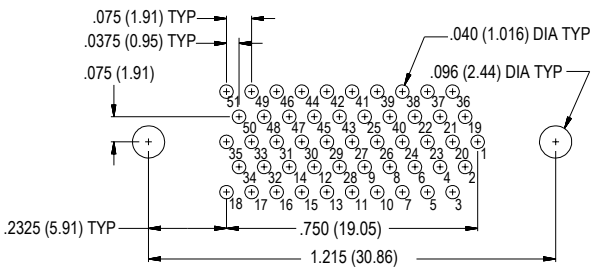
25 PIN M83513/28-D



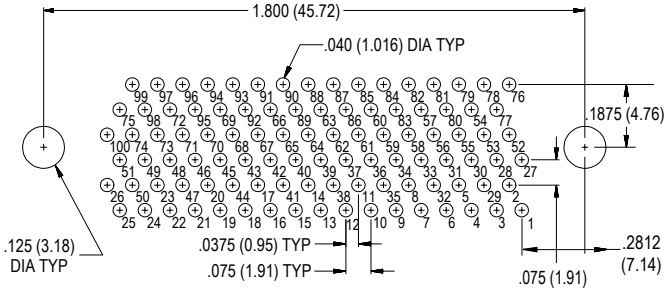
31 PIN M83513/28-E



37 PIN M83513/28-F



51 PIN M83513/29-G



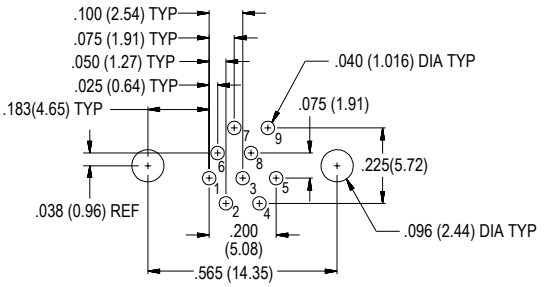
100 PIN M83513/30-H

L

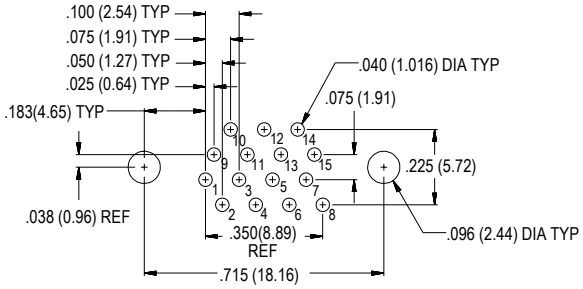
MIL-DTL-83513/28 Thru /33 Micro-D Connectors
Straight PCB Connectors (CBS)

MM83513/31 THRU /33 PCB LAYOUTS – SOCKET CONNECTORS

Patterns shown are for connector mounting side of PC board.

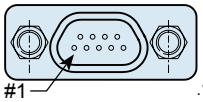


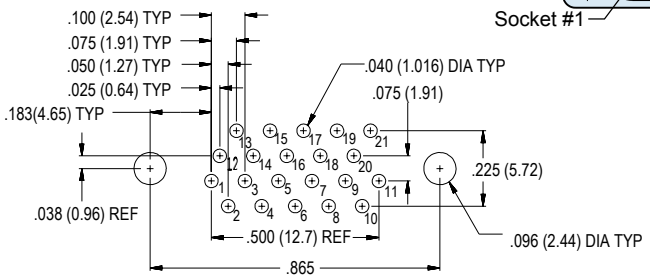
9 Socket M83513/31-A



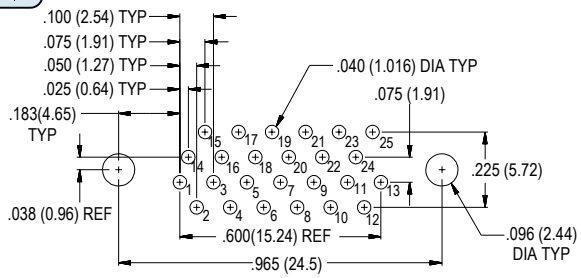
15 Socket M83513/31-B

Connector Orientation

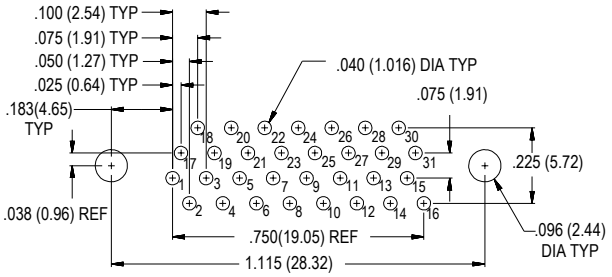




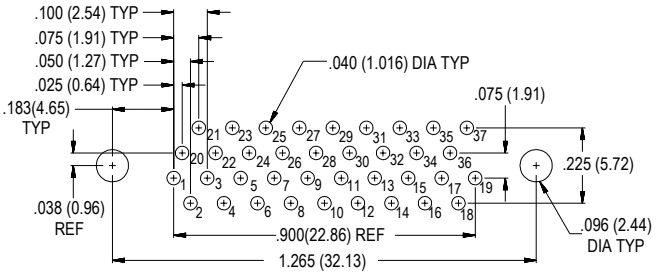
21 Socket M83513/31-C



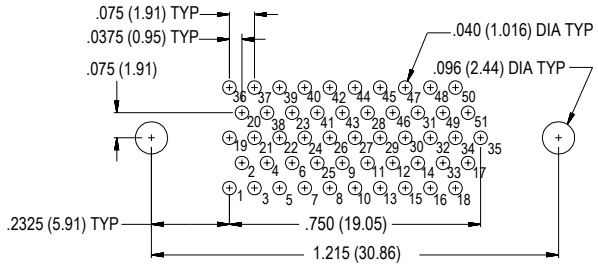
25 Socket M83513/31-D



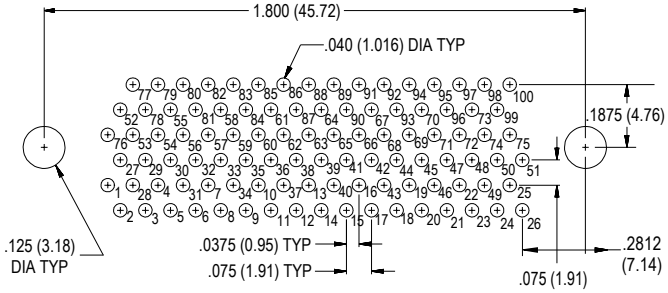
31 Socket M83513/31-E



37 Socket M83513/31-F



51 Socket M83513/32-G



100 Socket M83513/33-H

PRODUCT SELECTION GUIDE

500-010 EMI Backshells With Circular Cable Entry

Always in stock, these one piece aluminum backshells are our most popular Micro-D backshells. Terminate cable shields with BAND-IT® stainless steel straps. Finish the cable with heat-shrink tubing or boots, sold separately. Stocked in top, side and 45° entries. Accepts standard and micro shield bands.

500T010
Page M-6

500S010
Page M-6

500E010
Page M-6

Elliptical Entry EMI Micro-D Backshells for Larger Wire Bundles

If your wire bundle exceeds the diameter of the circular entry backshells, then the answer is an elliptical entry backshell. See the table on page L-5 for more information on wire bundle sizes. Choose one piece or split elliptical shells.

One Piece Top Entry
500-047
Page M-12

One Piece Top, Side and 45°
507-175
Page M-19

Split Top Entry, with Screwlocks
507-178
Page M-21

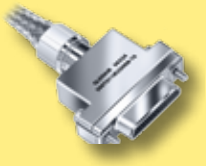
Composite EMI Micro-D Backshells

These nickel-plated thermoplastic backshells offer weight savings compared to aluminum versions.

Composite
507-088
Page M-14

EMI Micro-D Backshells With Braid Attached

These backshells are terminated to tinned copper braid.



Shield Sock
500-011
Page M-8

Split EMI Micro-D Backshell With Circular Entry and Screwlocks

This backshell features screwlocks, allowing the connectors to be fully mated before the hardware is fastened.

Split Screwlock
507-145
Page M-17

EMI Dual Entry Micro-D Backshells

These back-shells allow 2 cables to be secured with bands.

45°
500D010
Page M-6

Top Entry
507-142
Page M-16

Strain Relief Backshells (not for EMI)

These backshells are used for wire or cable strain relief. Three styles are provided.

Bar Clamp
507-198
Page M-23

Bar Clamp
507-146
Page M-18

Tie Wrap
500-012
Page M-10

Potting Shell

Potting shells are attached to the connector and filled with epoxy or similar encapsulants to provide environmental protection and strain relief.

Potting Shell
507-035
Page M-13

Switching Shell

Switching shells are used to house connector wiring on the back of the connector.

Switching Shell
500-016
Page M-11

M

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Micro-D Backshells
General Information and Product Selection Guide

MICRO-D BACKSHELL SELECTION GUIDE

	Backshell Type						Cable Entry							Hardware				Other		
	EMI backshell	Available in Lightweight Composite	Strain Relief Backshell	Potting Shell	Switching Shell	Circular Cable Entry	Elliptical Cable Entry	Straight Cable Entry	45° Cable Entry	Side Cable Entry	Slot Head Jackscrews	Hex Head Jackscrews	Extended Jackscrews	Screw Locks Instead of Jackscrews	One Piece Backshell	Split (Two Piece) Backshell	Accepts Standard Shield Band	Accepts Micro Shield Band	Connector Attaches with Clip	Connector Attaches with E-Ring	Connector is Captivated by Backshell	Page Number
500-010	●				●		●	●	●	●	●	(1)		●		●	●	●				L-6
500-011	●				●		●	●	●	●	●	(1)		●				●				L-8
500-012			●		●		●	●	●	●	●	(1)		●				●				L-10
500-016				●										●				●				L-11
500-047	●					●	●			●	●	●		●		●	●	●				L-12
507-035				●						●	●	●		●				●				L-13
507-088	●	●			●		●	●	●	●	●	(1)		●			●	●				L-14
507-145	●				●		●						●		●		●				●	L-17
507-146			●							●	●	●		●			●	(2)	(2)			L-18
507-175	●					●	●	●	(3)	●	●	●		●			●	●				L-19
507-178	●					●	●						●		●		●				●	L-21
507-198			●				●			●	●	●		●				●				L-23

(1) Extended jackscrew will not work with 45° cable entry or with dual 45 °entry backshells.
(2) Sizes 9 thru 69 use e-rings or c-clips for connector attachment, 100 pin uses c-clip only.
(3) The cable entry is on the long side of shell. See ordering information for clarification.

GLENAIR QWIK CONNECTIONS

	500-010	500-011	500-012	500-016	500-047	507-035	507-088	507-145	507-146	507-175	507-178	507-198
Same Day Stock*	A	C	A	C	A	A	C	B	A	D	D	D
Lightest Weight							●					
Accepts Standard Width Shield Band	●				●							
Meets NASA Outgassing	●	●	●	●	●	●	●	●	●	●	●	
Low Residual Magnetism								●			●	
Oversize Elliptical Cable Entry					●					●	●	
Split Backshell With Screwlocks for Fast Mating								●			●	

*Availability: **A** — All sizes in stock. **B** — Most sizes in stock. **C** — A few sizes in stock. **D** — Not Stocked.

M

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ABOUT MICRO-D BACKSHELLS

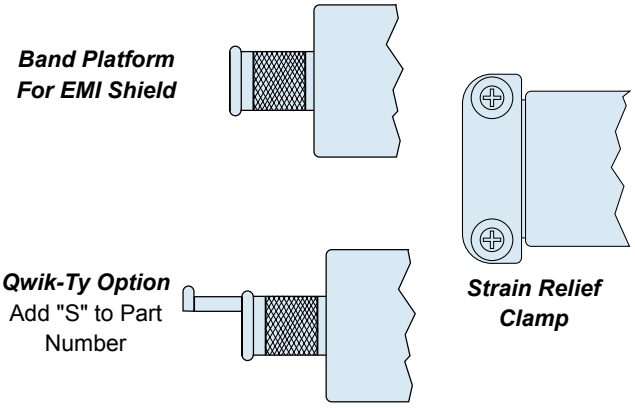
Micro-D EMI backshells connect cable shields to Micro-D connectors, providing strain relief and mechanical protection. These backshells are made out of aluminum alloy. Electroless nickel is the most widely used finish. These backshells are compatible with industry- standard metal shell M83513 type connectors. The following application notes explain how to select the right type of backshell.

EMI Versus Non-EMI Backshells

Select EMI backshells if your cable has a braided copper shield. The cable shield is secured to the backshell with a ***BAND-IT***® strap, supplied with the backshell or purchased separately.

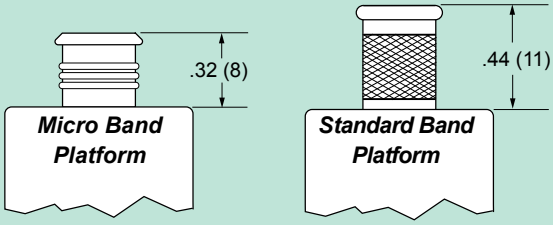
Select a strain relief backshell if your connector has individual wires or if your wire bundle does not have a metal shield.

EMI backshells do not normally require additional strain relief. Micro-D wires are typically potted, and the shield braid is a sufficient strain relief. An optional ty-wrap leg is available if necessary. Add "S" to the end of the part number.



Standard Band Versus Micro Band

Most Micro-D EMI backshells feature low profile band platforms designed for narrow (.125" width) micro band. Some have a taller band platform which also accepts standard bands (.250" width). Please refer to the "Backshell Selection Guide" on the preceding page to identify which backshells are compatible with both the standard band and the micro band.



One Piece Backshell Versus Split Backshell

Use one piece backshells if in stock availability is important. Split backshells allow installation after the other end of the cable has been terminated. Some split backshells fit over the connector, eliminating the highly magnetic clip. Split versions also can accommodate screw locks.

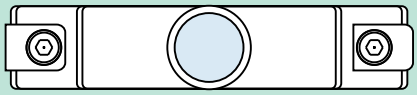
Jackscrews and Screwlocks

Jackscrews are fixed in position and must be turned in order to mate the connectors together. Screwlocks float and allow the connectors to be coupled before the screwlocks are engaged. Screwlocks allow faster mating, while jackscrews offer less risk of contact damage.

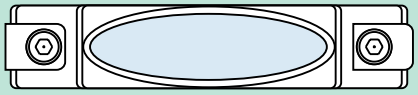
Elliptical Versus Circular Cable Entry

Choose elliptical backshells if the wire bundle diameter is too big to fit in a circular cable entry. Large Micro-D connectors (51 pins and up) usually exceed the limits of the round entries. Refer to the cable entry and wire bundle tables in this section to find out if an elliptical entry is necessary.

The actual size illustrations to the right show the difference between round and elliptical cable entries. The round entry circular mil area = $\pi(\frac{1}{2}D)^2$ = .11 In.^{2}. The formula for the area of an ellipse is π(Length)(Width) ÷ 4 = .36 In.^{2}



Round Cable Entry
100 Pin .375 Inch (9.5 mm.) Diameter



Elliptical Cable Entry
100 Pin .360 By 1.29 Inch (9.1 X 32.8 mm.)

 U.S. CAGE Code 06324 Printed in U.S.A.

Glenair®

Micro-D Backshells
General Information and Reference Data

BAND-IT® SHIELD TERMINATION SYSTEM

Fast, Cost-Effective Shield Termination

Attach cable braid shields to EMI backshells with ***BAND-IT***® stainless steel straps. The ***BAND-IT***® system offers fast termination and the flexibility to handle different diameters with the same band.

The aerospace industry has adopted this system for every type of application where reliability and durability are essential.

IMPORTANT NOTE: ALWAYS DOUBLE-WRAP BANDS!

Contact Glenair or visit our website (www.glenair.com) to view our complete line of ***BAND-IT***® products, including pneumatic tools for high production and calibration kits.

Micro Band Tool

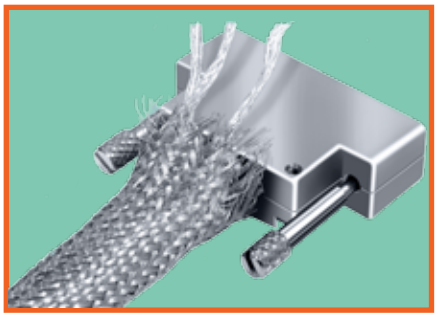
Part Number **600-061**
Weight: 1.18 lbs.
Length: 6.75 Inches (172mm.)

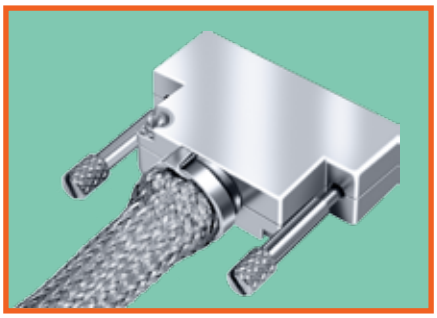
Standard Length Micro Band

8.125 Inches (206 mm.)
Part Number **600-057**
600-057-1 Pre-Coiled
Up to .88 Inches (22 mm.) Diameter

Extended Length Micro Band

14.25 Inches (362 mm.)
Part Number **600-083**
600-083-1 Pre-Coiled
Up to 1.88 Inches (47 mm) Diameter





M

Step One Cable Prep

Lay individual shields over the band platform. Pull overall braid shield over the band platform so that all braid strands will be captured by the band.

Step Two Install Band

Wrap the band through the buckle twice. Insert the free end into the banding tool in the direction shown on the tool. Squeeze the short grey handle to insert the band. Slide the band onto the cable. Close the black handle repeatedly until the handle no longer opens. Close the long grey handle until the tool cuts the band. Remove the excess strap from the tool by closing the small grey handle.

Step Three Trim Braid

It's a snap! Just trim the excess braid and you're done.

U.S. CAGE Code 06324

ROUND CABLE ENTRY DIAMETER AND WIRE BUNDLE SIZE

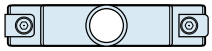
Micro-D backshells have a cable entry code in the part number. This code determines the inside diameter of the wire opening.

CABLE ENTRY CODES

Code	Inside Diameter
04	.125
05	.156
06	.188
07	.219
08	.250
09	.281
10	.312
11	.344
12	.375

Round Cable Entry Backshells May Not Be Large Enough to Accomodate Standard Micro-D Wire Bundles

Backshells with round cable entry might not have enough room for the connector wires. Refer to the table below to find out if the wire bundle exceeds the available backshell cable entry size. These are general guidelines. Twisted wires, tubing or other factors can increase the bundle diameter. Elliptical backshells are recommended for large bundles.



Round Cable Entry

Elliptical Cable Entry
Area = π(Length)(Width)÷4

STANDARD MICRO-D WIRE BUNDLE DIAMETERS

	M22759/11 Wire Bundle Diameter						M22759/33 Wire Bundle Diameter					
No. of Wires	#24 AWG	Entry Code	#26 AWG	Entry Code	#28 AWG	Entry Code	#24 AWG	Entry Code	#26 AWG	Entry Code	#28 AWG	Entry Code
9	.155	06	.138	07	.121	05	.135	05	.117	05	.100	04
15	.200	07	.178	07	.156	06	.174	06	.151	06	.129	05
21	.237	08	.211	08	.184	07	.206	07	.179	07	.153	06
25	.259	09	.230	09	.201	07	.224	08	.196	07	.167	06
31	.288	10	.256	09	.224	08	.250	09	.218	08	.186	07
37	.315	11 (1)	.280	10 (1)	.245	08	.273	09	.238	08	.203	07
51	.370	— (2)	.329	11 (1)	.287	10	.320	11 (1)	.279	09	.238	08
67	.424	— (2)	.377	— (2)	.329	11 (1)	.367	12 (1)	.320	11 (1)	.273	09
69	.430	— (2)	.382	— (2)	.334	11 (1)	.373	— (2)	.325	11 (1)	.277	10
100	.518	— (2)	.460	— (2)	.403	— (2)	.441	— (2)	.384	— (2)	.328	11 (1)

(1) Wire bundle diameter exceeds the largest cable entry for top and 45° entry. Side entry is OK.
(2) Wire bundle exceeds maximum cable entry. Use elliptical versions.

FINISH OPTIONS

Finish Code	Description	Specification	Corresponding Connector Finish Code
C	Black Anodize	MIL-A-8625 Type II Class 2	Code 4
E	Chem Film	MIL-C-5541 Class 3	Code 6
J	Cadmium Plate Over Electroless Nickel with Yellow Chromate Conversion Coating	SAE-AMS-QQ-P-416 Type II Class 3	Code 1
M	Electroless Nickel	SAE-AMS-26074 Class 3	Code 2
NF	Olive Drab Cadmium Plate Over Electroless Nickel (1000 Hour Corrosion Rated)	SAE-AMS-QQ-P-416	NF (Special order)
XM	Electroless Nickel (Composite Only)	SAE-AMS-26074 Class 3	Code 2
Z2	Gold Plated	ASTM B488	Code 5

MATERIALS

Shell, Saddle Clamps	Aluminum Alloy 6061 -T6 Per QQ-A-200, QQ-A-225 (Machined Components) Aluminum Alloy 6061-T6 Per QQ-A-591 (A380) (Die-Cast Components)
Clips, E-Rings	17-7PH Stainless Steel
Jackscrews, Washers, Jackposts	300 Series Stainless Steel, Passivated

EMI/RFI Micro-D Banding Backshell and Round Cable Entry
500-010

Glenair's Most Popular Micro-D Backshell is stocked in all sizes. Choose straight, side or 45° cable entry.

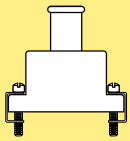
Rugged One-Piece Aluminum shell with stainless steel hardware, available in standard nickel plating, or choose optional finishes.

17-7PH Stainless Steel Clips attach the backshell to the connector. These backshells accept standard and micro ***BAND-IT***® shield termination straps.

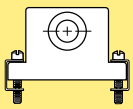
HOW TO ORDER 500-010 EMI BACKSHELLS

Series

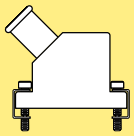
Top Entry
500T010



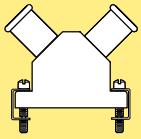
Side Entry
500S010



45° Entry
500E010



Dual 45°
500D010



Shell Finish

- **E** – Chem Film (Alodyne)
- **J** – Cadmium, Yellow Chromate
- **M** – Electroless Nickel
- **NF** – Cadmium, Olive Drab
- **Z2** – Gold

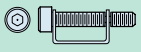
Connector Size

09
15
21
25
31
37
51
51-2
67
69
100

Hardware Option

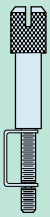
- **B** – Fillister Head Jackscrew

- **H** – Hex Head Jackscrew

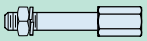


- **E** – Extended Jackscrew

(Not for 45° Entry)



- **F** – Jackpost, Female



Cable Entry Code

- **04** – .125 (3.2)
- **05** – .156 (4.0)
- **06** – .188 (4.8)
- **07** – .219 (5.6)
- **08** – .250 (6.4)
- **09** – .281 (7.1)
- **10** – .312 (7.9)
- **11** – .344 (8.7)
- **12** – .375 (9.5)

Maximum Cable Entry Code

Size	T Top Entry	E 45° Entry	S Side Entry	D Dual 45°
09	08	08	09	06
15	08	08	12	08
21	08	08	12	08
25	08	08	12	08
31	09	09	12	09
37	09	09	12	09
51	10	10	12	10
51-2	09	09	12	09
67	09	09	12	09
69	10	10	12	10
100	12	12	12	12

EMI Band Strap Option

Omit (Leave Blank)
Band Not Included

Use the following codes if you want the band strap included with the connector. For best availability, order band separately.

Standard Band
.250" Wide

- **B** – Uncoiled Band Included
- **K** – Coiled Band Included

Micro Band
.125" Wide

- **M** – Uncoiled Band Included
- **L** – Coiled Band Included

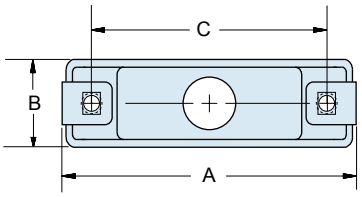
Sample Part Number

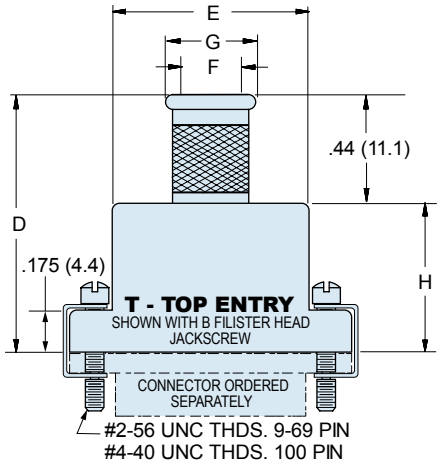
500T010	M	25	H	08	

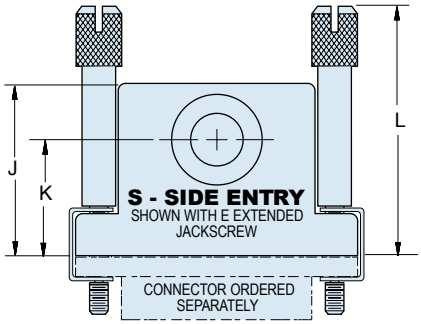
EMI/RFI Micro-D Banding Backshell and Round Cable Entry
500-010

MATERIALS (SEE ORDERING INFO FOR FINISH OPTIONS)

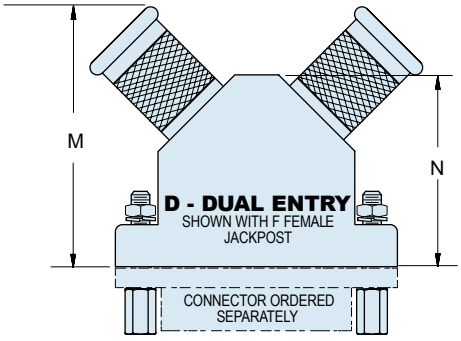
Shell	Aluminum Alloy 6061 -T6 Per QQ-A-200, QQ-A-225 (Machined Components) Aluminum Alloy 6061-T6 Per QQ-A-591 (A380) (Die-Cast Components)
Clips, E-Rings	17-7PH Stainless Steel
Jackscrews, Washers, Jackposts	300 Series Stainless Steel, Passivated

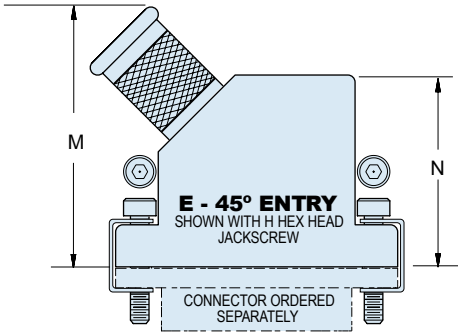






Cable Entry Code	F In. ± .010	F mm. ± 0.25	G In.	G mm.
04	.125	3.18	.281	7.14
05	.156	3.96	.312	7.92
06	.188	4.78	.344	8.74
07	.219	5.56	.375	9.53
08	.250	6.35	.406	10.31
09	.281	7.14	.437	11.10
10	.312	7.92	.469	11.91
11	.344	8.74	.500	12.70
12	.375	9.53	.531	13.49





DIMENSIONS

Size	A Max. In.	A Max. mm.	B Max. In.	B Max. mm.	C In.	C mm.	D Max. In.	D Max. mm.	E Max. In.	E Max. mm.	H Max. In.	H Max. mm.	J Max. In.	J Max. mm.	K In.	K mm.	L Max. In.	L Max. mm.	M Max. In.	M Max. mm.	N Max. In.	N Max. mm.
09	.850	21.59	.370	9.40	.565	14.35	.780	19.81	.410	10.41	.350	8.89	.637	16.18	.435	11.05	1.040	26.42	1.000	25.40	.680	17.27
15	1.000	25.40	.370	9.40	.715	18.16	.910	23.11	.580	14.73	.470	11.94	.673	17.09	.440	11.2	1.170	29.72	1.030	26.16	.730	18.54
21	1.150	29.21	.370	9.40	.865	21.97	1.030	26.16	.740	18.80	.590	14.99	.707	17.95	.458	11.63	1.290	32.77	1.050	26.67	.765	19.43
25	1.250	31.75	.370	9.40	.965	24.51	1.090	27.69	.850	21.59	.650	16.51	.748	19.00	.483	12.27	1.350	34.29	1.090	27.69	.830	21.08
31	1.400	35.56	.370	9.40	1.115	28.32	1.150	29.21	.980	24.89	.710	18.03	.756	19.20	.476	12.09	1.420	36.07	1.130	28.70	.890	22.61
37	1.550	39.37	.370	9.40	1.265	32.13	1.190	30.23	1.130	28.70	.750	19.05	.774	19.66	.478	12.14	1.450	36.83	1.230	31.24	.955	24.26
51	1.500	38.10	.410	10.41	1.215	30.86	1.220	30.99	1.080	27.43	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
51-2	1.910	48.51	.370	9.40	1.615	41.02	1.220	30.99	1.510	38.35	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
67	2.310	58.67	.370	9.40	2.015	51.18	1.220	30.99	1.880	47.75	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
69	1.810	45.97	.410	10.41	1.515	38.48	1.220	30.99	1.380	35.05	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
100	2.235	56.77	.460	11.68	1.800	45.72	1.280	32.51	1.470	37.34	.840	21.34	1.014	25.76	.687	17.45	1.580	40.13	1.320	33.53	1.080	27.43

Glenair®

EMI/RFI Shield Sock Backshell with Round Cable Entry
500-011

Shield Sock Backshells save assembly time. These backshells are terminated to tinned copper braid in whatever length you require.

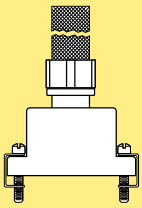
Available in Top, 45° and Side Entry, these backshells feature one piece construction and are available in a variety of plating finishes.

Precision Swaged Braid Termination adds mechanical strength and lowers resistance compared to hex crimps.

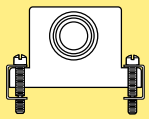
HOW TO ORDER 500-011 SHIELD SOCK EMI BACKSHELLS

Series

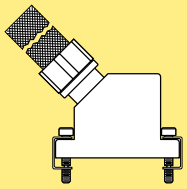
Top Entry
500T011



Side Entry
500S011



45° Entry
500E011



Shell Finish

- **E** – Chem Film (Alodyne)
- **J** – Cadmium, Yellow Chromate
- **M** – Electroless Nickel
- **NF** – Cadmium, Olive Drab
- **Z2** – Gold

Connector Size

09
15
21
25
31
37
51
51-2
67
69
100

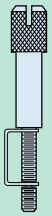
Hardware Option

- **B** – Fillister Head Jackscrew

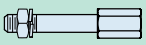
- **H** – Hex Head Jackscrew

- **E** – Extended Jackscrew

(Not for 45° Entry)



- **F** – Jackpost, Female



Cable Entry Code

- **04** – .125 (3.2)
- **05** – .156 (4.0)
- **06** – .188 (4.8)
- **07** – .219 (5.6)
- **08** – .250 (6.4)
- **09** – .281 (7.1)
- **10** – .312 (7.9)
- **11** – .344 (8.7)
- **12** – .375 (9.5)

Maximum Cable Entry Code

Size	T Top Entry	E 45° Entry	S Side Entry
9	08	08	09
15	08	08	12
21	08	08	12
25	08	08	12
31	09	09	12
37	09	09	12
51	10	10	12
51-2	09	09	12
67	09	09	12
69	10	10	12
100	12	12	12

Length of Braid

Length in One Inch Increments

Example: “6” equals six inches.

Sample Part Number

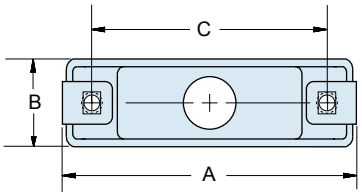
500T011	M	25	H	08	— 12

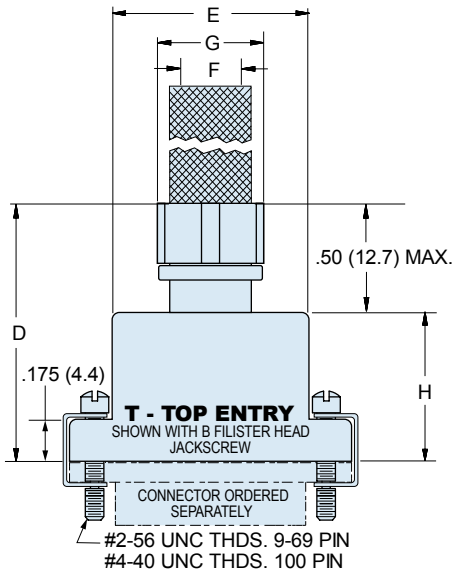
M

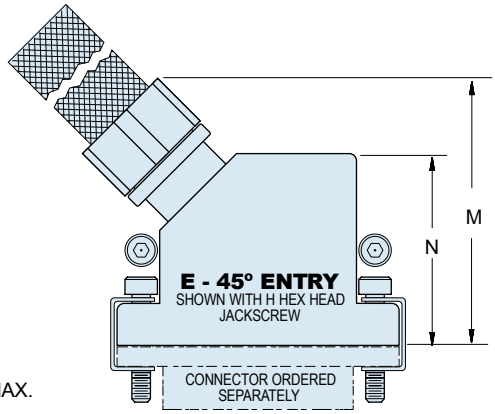
EMI/RFI Shield Sock Backshell with Round Cable Entry
500-011

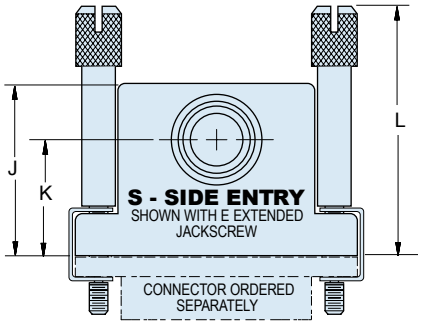
MATERIALS (SEE ORDERING INFO FOR FINISH OPTIONS)

Shell	Aluminum Alloy 6061 -T6 Per QQ-A-200, QQ-A-225 (Machined Components) Aluminum Alloy 6061-T6 Per QQ-A-591 (A380) (Die-Cast Components)
Braid	Tinned Copper Braid Per QQ-B-575 ASTM B33, #36 AWG Strands, 90% Coverage
Crimp Ring	Copper, Tin Plated
Clips, E-Rings	17-7PH Stainless Steel
Jackscrews, Washers, Jackposts	300 Series Stainless Steel, Passivated









Cable Entry Code	F In. ± .010	F mm. ± 0.25	G Max. In.	G Max. mm.
04	.125	3.18	.310	7.87
05	.156	3.96	.350	8.89
06	.188	4.78	.380	9.65
07	.219	5.56	.400	10.16
08	.250	6.35	.425	13.31
09	.281	7.14	.450	11.43
10	.312	7.92	.500	12.70
11	.344	8.74	.525	13.34
12	.375	9.53	.550	13.97

SHIELD SOCK BACKSHELL DIMENSIONS – 500-011

Size	A Max. In.	A Max. mm.	B Max. In.	B Max. mm.	C In.	C mm.	D Max. In.	D Max. mm.	E Max. In.	E Max. mm.	H Max. In.	H Max. mm.	J Max. In.	J Max. mm.	K In.	K mm.	L Max. In.	L Max. mm.	M Max. In.	M Max. mm.	N Max. In.	N Max. mm.
09	.850	21.59	.370	9.40	.565	14.35	.780	19.81	.410	10.41	.350	8.89	.637	16.18	.435	11.05	1.040	26.42	1.000	25.40	.680	17.27
15	1.000	25.40	.370	9.40	.715	18.16	.910	23.11	.580	14.73	.470	11.94	.673	17.09	.440	11.20	1.170	29.72	1.030	26.16	.730	18.54
21	1.150	29.21	.370	9.40	.865	21.97	1.030	26.16	.740	18.80	.590	14.99	.707	17.95	.458	11.63	1.290	32.77	1.050	26.67	.765	19.43
25	1.250	31.75	.370	9.40	.965	24.51	1.090	27.69	.850	21.59	.650	16.51	.748	19.00	.483	12.27	1.350	34.29	1.090	27.69	.830	21.08
31	1.400	35.56	.370	9.40	1.115	28.32	1.150	29.21	.980	24.89	.710	18.03	.756	19.20	.476	12.09	1.420	36.07	1.130	28.70	.890	22.61
37	1.550	39.37	.370	9.40	1.265	32.13	1.190	30.23	1.130	28.70	.750	19.05	.774	19.66	.478	12.14	1.450	36.83	1.230	31.24	.955	24.26
51	1.500	38.10	.410	10.41	1.215	30.86	1.220	30.99	1.080	27.43	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
51-2	1.910	48.51	.370	9.40	1.615	41.02	1.220	30.99	1.510	38.35	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
67	2.310	58.67	.370	9.40	2.015	51.18	1.220	30.99	1.880	47.75	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
69	1.810	45.97	.410	10.41	1.515	38.48	1.220	30.99	1.380	35.05	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
100	2.235	56.77	.460	11.68	1.800	45.72	1.280	32.51	1.470	37.34	.840	21.34	1.014	25.76	.687	17.45	1.580	40.13	1.320	33.53	1.080	27.43

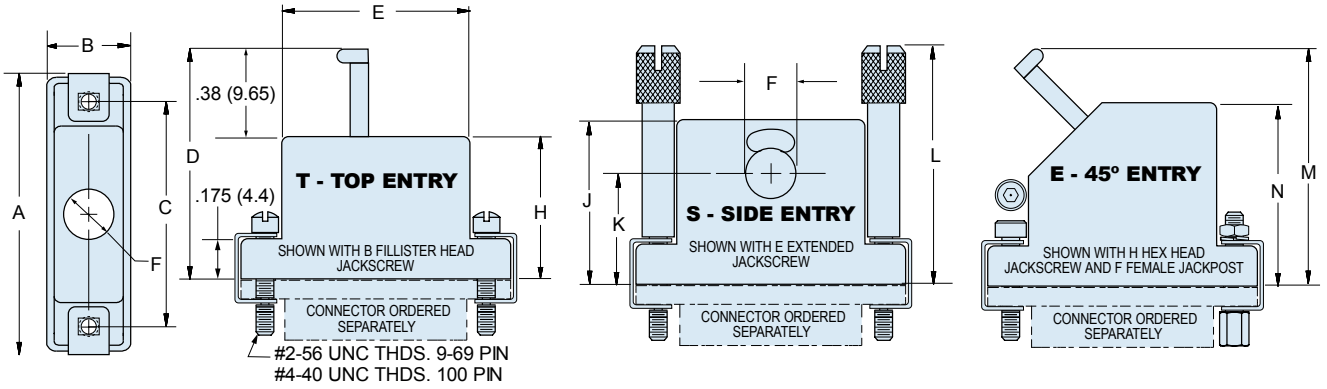
Qwik-Ty Strain Relief Backshell
500-012

Qwik-Ty Backshell is stocked in all sizes. Choose "M" Nickel Finish and "T" top entry for best availability. Customer-furnished cable ties provide strain relief to wire bundles. Suitable for jacketed cable or use with individual wires.

MATERIALS	
Shell	Aluminum Alloy 6061 -T6
Clips	17-7PH Stainless Steel
Hardware	300 Series Stainless Steel

HOW TO ORDER 500-012 QWIK-TY STRAIN RELIEF BACKSHELLS

Series	Shell Finish	Connector Size		Hardware Option
Top Entry 500T012	E – Chem Film (Alodyne)	09	51	B – Fillister Head Jackscrew
	J – Cadmium, Yellow Chromate	15	51-2	H – Hex Head Jackscrew
Side Entry 500S012	M – Electroless Nickel	21	67	E – Extended Jackscrew
	NF – Cadmium, Olive Drab	25	69	F – Jackpost, Female
45° Entry 500E012	Z2 – Gold	31	100	
		37		
Sample Part Number				
500T012	M	25		H



Size	A Max.		B Max.		C		D Max.		E Max.		F		H Max.		J Max.		K		L Max.		M Max.		N Max.	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In. ± .005	mm. ± 0.13	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
09	.850	21.59	.370	9.40	.565	14.35	.780	19.81	.410	10.41	.156	3.18	.350	8.89	.637	16.18	.435	11.05	1.040	26.42	1.000	25.40	.680	17.27
15	1.000	25.40	.370	9.40	.715	18.16	.910	23.11	.580	14.73	.188	3.96	.470	11.94	.673	17.09	.440	11.20	1.170	29.72	1.030	26.16	.730	18.54
21	1.150	29.21	.370	9.40	.865	21.97	1.030	26.16	.740	18.80	.219	4.78	.590	14.99	.707	17.95	.458	11.63	1.290	32.77	1.050	26.67	.765	19.43
25	1.250	31.75	.370	9.40	.965	24.51	1.090	27.69	.850	21.59	.250	5.56	.650	16.51	.748	19.00	.483	12.27	1.350	34.29	1.090	27.69	.830	21.08
31	1.400	35.56	.370	9.40	1.115	28.32	1.150	29.21	.980	24.89	.265	6.35	.710	18.03	.756	19.20	.476	12.09	1.420	36.07	1.130	28.70	.890	22.61
37	1.550	39.37	.370	9.40	1.265	32.13	1.190	30.23	1.130	28.70	.281	7.14	.750	19.05	.774	19.66	.478	12.14	1.450	36.83	1.230	31.24	.955	24.26
51	1.500	38.10	.410	10.41	1.215	30.86	1.220	30.99	1.080	27.43	.312	7.92	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
51-2	1.910	48.51	.370	9.40	1.615	41.02	1.220	30.99	1.510	38.35	..281	7.14	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
67	2.310	58.67	.370	9.40	2.015	51.18	1.220	30.99	1.880	47.75	.281	7.14	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
69	1.810	45.97	.410	10.41	1.515	38.48	1.220	30.99	1.380	47.75	.312	7.92	.780	19.81	.859	21.82	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
100	2.235	56.77	.460	11.68	1.800	45.72	1.280	32.51	1.470	37.34	.375	9.53	.840	21.34	1.014	25.76	.687	17.45	1.580	40.13	1.320	33.53	1.080	27.43

 U.S. CAGE Code 06324 Printed in U.S.A.

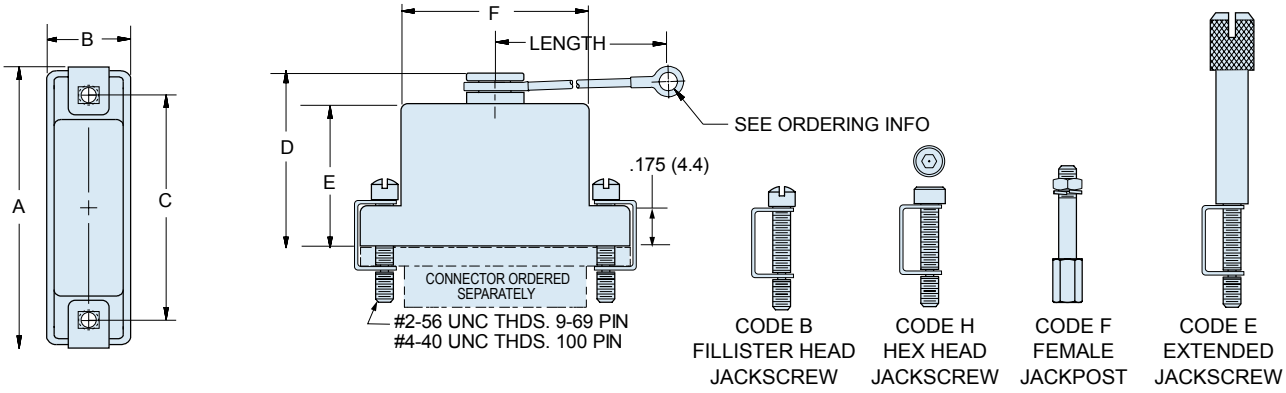
Shorting Can 500-016

Shorting Backshells are closed shells used to provide a convenient way to protect Micro-D connectors used for circuit switching or shorting. Lanyards provide easy attachment to chassis panels.

MATERIALS	
Shell	Aluminum Alloy 6061 -T6
Clips	17-7PH Stainless Steel
Hardware	300 Series Stainless Steel

HOW TO ORDER 500-016 SHORTING BACKSHELLS

Series	Shell Finish	Connector Size	Hardware Option	Lanyard Option	Lanyard Length	Ring Terminal Ordering Code
500-016	E – Chem Film J – Cadmium, Yellow Chromate M – Electroless Nickel NF – Cadmium, Olive Drab Z2 – Gold	09 51 15 51-2 21 67 25 69 31 100 37	B – Fillister Head Jackscrew H – Hex Head Jackscrew E – Extended Jackscrew F – Jackpost, Female	N – No Lanyard F – Wire Rope, Nylon Jacket H – Wire Rope, Teflon Jacket	Length in One Inch Increments Example: "6" equals six inches.	06 – .125 (3.2) 01 – .140 (3.6) 05 – .167 (4.2) 04 – .197 (5.0) I.D. of Ring Terminal
Sample Part Number						
500-016	M	25	H	F	4	– 06



Size	A Max.		B Max.		C		D Max.		E Max.		F Max.	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
09	.850	21.59	.370	9.40	.565	14.35	.500	12.70	.350	8.89	.410	10.41
15	1.000	25.40	.370	9.40	.715	18.16	.620	15.75	.470	11.94	.580	14.73
21	1.150	29.21	.370	9.40	.865	21.97	.740	18.80	.590	14.99	.740	18.80
25	1.250	31.75	.370	9.40	.965	24.51	.800	20.32	.650	16.51	.850	21.59
31	1.400	35.56	.370	9.40	1.115	28.32	.860	21.84	.710	18.03	.980	24.89
37	1.550	39.37	.370	9.40	1.265	32.13	.900	22.86	.750	19.05	1.130	28.70
51	1.500	38.10	.410	10.41	1.215	30.86	.930	23.62	.780	19.81	1.080	27.43
51-2	1.910	48.51	.370	9.40	1.615	41.02	.930	23.62	.780	19.81	1.510	38.35
67	2.310	58.67	.370	9.40	2.015	51.18	.930	23.62	.780	19.81	1.880	47.75
69	1.810	45.97	.410	10.41	1.515	38.48	.930	23.62	.780	19.81	1.380	35.05
100	2.235	56.77	.460	11.68	1.800	45.72	.990	25.15	.840	21.34	1.470	37.34

 U.S. CAGE Code 06324 Printed in U.S.A.

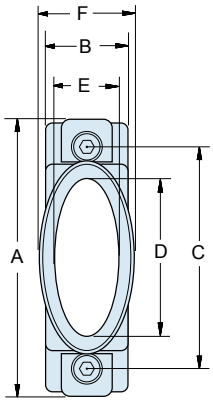
EMI/RFI Eliptical Banding Backshell 500-047

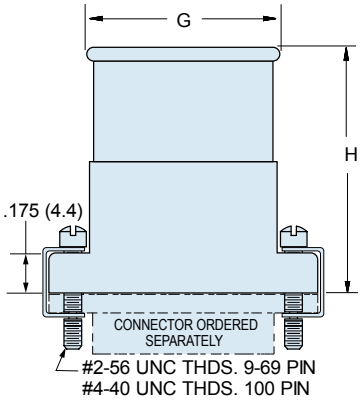
Elliptical Backshells provide extra room for large wire bundles. This one piece version features an oversize shield termination area for both standard and micro ***BAND-IT®*** shield termination straps.

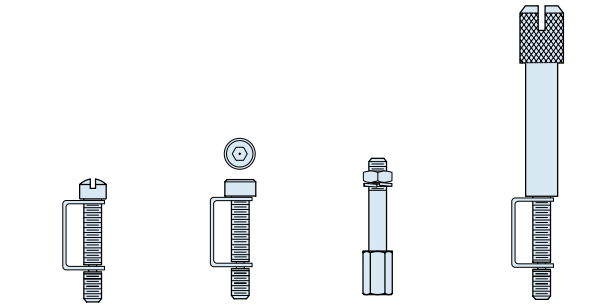
MATERIALS	
Shell	Aluminum Alloy 6061 -T6
Clips	17-7PH Stainless Steel
Hardware	300 Series Stainless Steel

HOW TO ORDER 500-047 ELLIPTICAL BACKSHELLS

Series	Shell Finish	Connector Size	Hardware Option	EMI Band St rap Option
500-047	E – Chem Film J – Cadmium, Yellow Chromate M – Electroless Nickel NF – Cadmium, Olive Drab Z2 – Gold	09 51 15 51-2 21 67 25 69 31 100 37	B – Fillister Head Jackscrew H – Hex Head Jackscrew E – Extended Jackscrew F – Jackpost, Female	**Omit (Leave Blank)** **Band Not Included** B – Standard Band .250" Wide M – Micro Band .125" Wide
Sample Part Number				
500-047	M	25	H	







M

Size	A Max. In.	A Max. mm.	B Max. In.	B Max. mm.	C In.	C mm.	D Max. In.	D Max. mm.	E In. ± .015	E mm. ± 0.38	F Max. In.	F Max. mm.	G Max. In.	G Max. mm.	H Max. In.	H Max. mm.
09	.850	21.59	.370	9.40	.565	14.35	.312	7.92	.281	7.14	.450	11.43	.481	12.22	.780	19.81
15	1.000	25.40	.370	9.40	.715	18.16	.420	10.67	.281	7.14	.450	11.43	.589	14.96	.910	23.11
21	1.150	29.21	.370	9.40	.865	21.97	.591	15.01	.281	7.14	.450	11.43	.759	19.28	1.030	26.16
25	1.250	31.75	.370	9.40	.965	24.51	.690	17.53	.281	7.14	.450	11.43	.859	21.82	1.090	27.68
31	1.400	35.56	.370	9.40	1.115	28.32	.820	20.83	.281	7.14	.450	11.43	.989	25.12	1.150	29.21
37	1.550	39.37	.370	9.40	1.265	32.13	.970	24.64	.281	7.14	.450	11.43	1.139	28.93	1.180	29.97
51	1.500	38.10	.410	10.41	1.215	30.86	.920	23.37	.312	7.92	.481	12.22	1.089	27.66	1.220	30.99
51-2	1.910	48.51	.370	9.40	1.615	41.02	1.030	26.16	.281	7.14	.450	11.43	1.489	37.82	1.220	30.99
67	2.310	58.67	.370	9.40	2.015	51.18	1.720	43,69	.281	7.14	.450	11.43	1.889	47.98	1.220	30.99
69	1.810	45.97	.410	10.41	1.515	38.48	1.220	30.99	.312	7.92	.481	12.22	1.389	35.28	1.220	30.99
100	2.235	56.77	.460	11.68	1.800	45.72	1.290	32.77	.360	9.14	.529	13.44	1.459	37.06	1.280	32.51

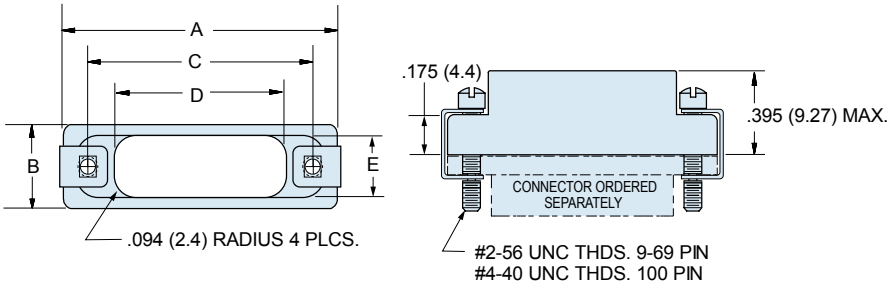
Potting Shell
507-035

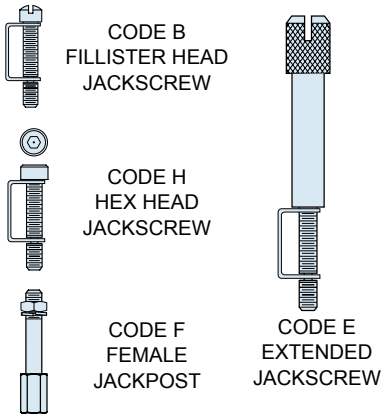
Potting Shells provide easy encapsulation of Micro-D solder cup terminations. These potting shells provide .25 inches (6.3 mm.) of depth.

MATERIALS	
Shell	Aluminum Alloy 6061 -T6
Clips	17-7PH Stainless Steel
Hardware	300 Series Stainless Steel

HOW TO ORDER 507-035 POTTING SHELLS

Series	Shell Finish	Connector Size	Hardware Option
507-035	**E** – Chem Film **J** – Cadmium, Yellow Chromate **M** – Electroless Nickel **NF** – Cadmium, Olive Drab **Z2** – Gold	**09** **51** **15** **51-2** **21** **67** **25** **69** **31** **100** **37**	**Omit for Fillister Head Jackscrew** **H** – Hex Head Jackscrew **E** – Extended Jackscrew **F** – Jackpost, Female
Sample Part Number			
507-035	M	25	H





Size	A Max. In.	A Max. mm.	B Max. In.	B Max. mm.	C In.	C mm.	D In. ± .030	D mm. ± 0.8	E In. ± .030	E mm. ± 0.8
09	.850	21.59	.370	9.40	.565	14.35	.31	7.9	.26	6.6
15	1.000	25.40	.370	9.40	.715	18.16	.48	12.2	.26	6.6
21	1.150	29.21	.370	9.40	.865	21.97	.65	16.5	.26	6.6
25	1.250	31.75	.370	9.40	.965	24.51	.75	19.1	.26	6.6
31	1.400	35.56	.370	9.40	1.115	28.32	.88	22.4	.26	6.6
37	1.550	39.37	.370	9.40	1.265	32.13	1.03	26.2	.26	6.6
51	1.500	38.10	.410	10.41	1.215	30.86	.98	24.9	.30	7.6
51-2	1.910	48.51	.370	9.40	1.615	41.02	1.38	35.0	.26	6.6
67	2.310	58.67	.370	9.40	2.015	51.18	1.78	45.2	.26	6.6
69	1.810	45.97	.410	10.41	1.515	38.48	1.28	32.5	.30	7.6
100	2.235	56.77	.460	11.68	1.800	45.72	1.35	34.3	.36	9.1

U.S. CAGE Code 06324
Printed in U.S.A.

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E-Mail: sales@glenair.com

Composite EMI/RFI Banding Backshell with Round Cable Entry 507-088

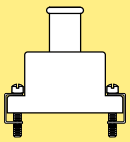
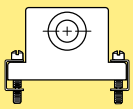
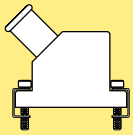
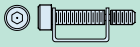
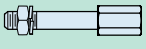
Save Weight and Eliminate Corrosion Damage with composite Micro-D backshells. These round cable entry backshells are injection-molded with high strength Ultem 2300 fiberglass-reinforced thermoplastic.

Choose Top, Side or 45° Cable Entry.

Electroless Nickel Plated for excellent EMI shielding effectiveness.

MATERIALS	
Shell	Ultem 2300
Clips	17-7PH Stainless Steel
Hardware	300 Series Stainless Steel

HOW TO ORDER 507-088 EMI BACKSHELLS

Series	Shell Finish	Connector Size	Hardware Option	Cable Entry Code
Top Entry 507T088  **Side Entry** 507S088  **45° Entry** 507E088 	XM Electroless Nickel	0 9 15 21 25 31 37 51 100	B – Fillister Head Jackscrew  H – Hex Head Jackscrew  E – Extended Jackscrew (Not Available for 45° Cable entry)  F – Jackpost, Female 	04 – .125 (3.2) 05 – .156 (4.0) 06 – .188 (4.8) 07 – .219 (5.6) 08 – .250 (6.4) 09 – .281 (7.1) 10 – .312 (7.9) 11 – .344 (8.7) 12 – .375 (9.5)

Maximum Cable Entry Code

Size	T Top Entry	E 45° Entry	S Side Entry
9	08	08	09
15	08	08	12
21	08	08	12
25	08	08	12
31	09	09	12
37	09	09	12
51	10	10	12
100	12	12	12

Sample Part Number

507T088	XM	25	H	08

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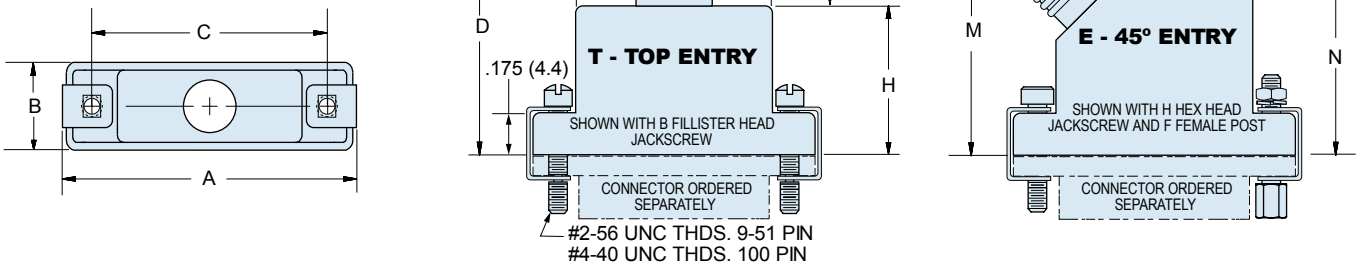
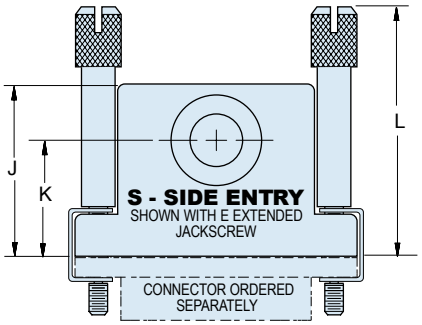
Composite EMI/RFI Banding Backshell with Round Cable Entry 507-088



Cable Entry Code	F		G	
	In. ± .010	mm. ± 0.25	In.	mm.
04	.125	3.18	.219	5.56
05	.156	3.96	.250	6.35
06	.188	4.78	.281	7.14
07	.219	5.56	.313	7.95
08	.250	6.35	.344	8.74
09	.281	7.14	.375	9.53
10	.312	7.92	.406	10.31
11	.344	8.74	.438	11.13
12	.375	9.53	.469	11.92



DIMENSIONS

Size	A Max.		B Max.		C		D Max.		E Max.		H Max.		J Max.		K		L Max.		M Max.		N Max.	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
09	.850	21.59	.370	9.40	.565	14.35	.780	19.81	.410	10.41	.460	8.89	.680	17.27	.435	11.05	1.040	26.42	1.000	25.40	.680	17.27
15	1.000	25.40	.370	9.40	.715	18.16	.790	20.07	.580	14.73	.470	11.94	.730	18.54	.440	11.2	1.170	29.72	1.030	26.16	.730	18.54
21	1.150	29.21	.370	9.40	.865	21.97	.910	23.11	.740	18.80	.590	14.99	.765	19.43	.458	11.63	1.290	32.77	1.050	26.67	.765	19.43
25	1.250	31.75	.370	9.40	.965	24.51	.970	24.64	.850	21.59	.650	16.51	.830	21.08	.483	12.27	1.350	34.29	1.090	27.69	.830	21.08
31	1.400	35.56	.370	9.40	1.115	28.32	1.030	26.16	.980	24.89	.710	18.03	.890	20.32	.476	12.09	1.420	36.07	1.130	28.70	.890	22.61
37	1.550	39.37	.370	9.40	1.265	32.13	1.070	27.18	1.130	28.70	.750	19.05	.955	24.26	.478	12.14	1.450	36.83	1.230	31.24	.955	24.26
51	1.500	38.10	.410	10.41	1.215	30.86	1.100	27.94	1.080	27.43	.780	19.81	1.005	25.53	.548	13.91	1.480	37.59	1.250	31.75	1.005	25.53
100	2.235	56.77	.460	11.68	1.800	45.72	1.160	29.46	1.470	37.34	.810	21.34	1.080	27.43	.687	17.45	1.580	40.13	1.320	33.53	1.080	27.43

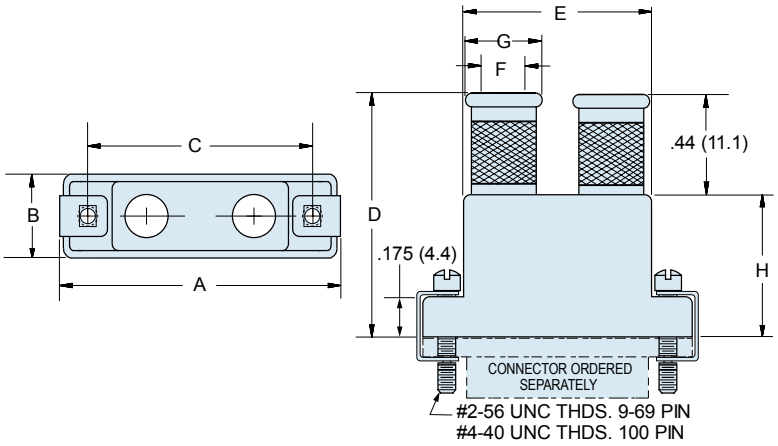
EMI/RFI Dual Entry Banding Backshell 507-142

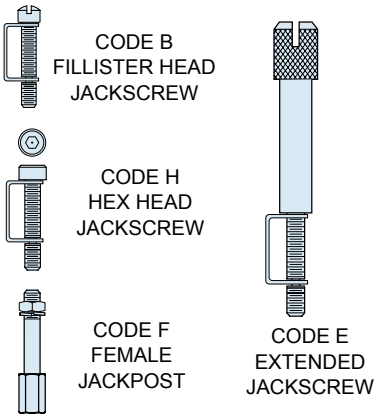
Dual Cable Entry EMI backshell allows attachment of two separate wire bundles to the same Micro-D connector. This backshell accepts both standard and micro shield termination straps.

MATERIALS	
Shell	Aluminum Alloy 6061 -T6
Clips	17-7PH Stainless Steel
Hardware	300 Series Stainless Steel

HOW TO ORDER 507-142 DUAL ENTRY BACKSHELLS

Series	Shell Finish	Connector Size	Hardware Option	EMI Band Strap Option
507-142	E – Chem Film J – Cadmium, Yellow Chromate M – Electroless Nickel NF – Cadmium, Olive Drab Z2 – Gold	09 51 15 51-2 21 67 25 69 31 100 37	B – Fillister Head Jackscrew H – Hex Head Jackscrew E – Extended Jackscrew F – Jackpost, Female	Omit (Leave Blank) Band Not Included B – Standard Band (2 supplied) .250" Wide M – Micro Band (2 supplied) .125" Wide
Sample Part Number				
507-142	M	25	H	





M

Size	A Max.		B Max.		C		D Max.		E Max.		F		G		H Max.	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
21	1.150	29.21	.370	9.40	.865	21.97	1.030	26.16	.740	18.80	.125	3.18	.281	7.13	.590	14.99
25	1.250	31.75	.370	9.40	.965	24.51	1.090	27.69	.850	21.59	.188	4.78	.344	8.74	.650	16.51
31	1.400	35.56	.370	9.40	1.115	28.32	1.150	29.21	.980	24.89	.250	6.35	.406	10.31	.710	18.03
37	1.550	39.37	.370	9.40	1.265	32.13	1.190	30.23	1.130	28.70	.344	8.74	.500	12.70	.750	19.05
51	1.500	38.10	.410	10.41	1.215	30.86	2.130	54.10	1.080	27.43	.312	7.92	.469	11.91	.780	19.81
51-2	1.910	48.51	.370	9.40	1.615	41.02	2.130	54.10	1.510	38.35	.281	7.13	.469	11.91	.780	19.81
67	2.310	58.67	.370	9.40	2.015	51.18	2.130	54.10	1.880	47.75	.281	7.13	.469	11.91	.780	19.81
69	1.810	45.97	.410	10.41	1.515	38.48	2.130	54.10	1.380	35.05	.312	7.93	.469	11.91	.780	19.81
100	2.235	56.77	.460	11.68	1.800	45.72	1.280	32.51	1.470	37.34	.500	12.70	.688	17.48	.840	21.34

EMI/RFI Split Shell Banding Backshell with Round Cable Entry

507-145

Split EMI Backshells allow installation on wired connector assemblies.

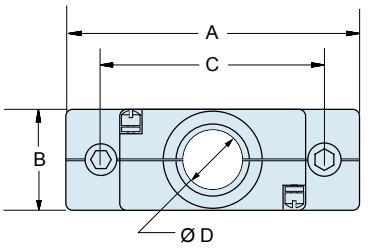
Captive Screwlocks for fast connection. Plug in the connector, then fasten the hardware.

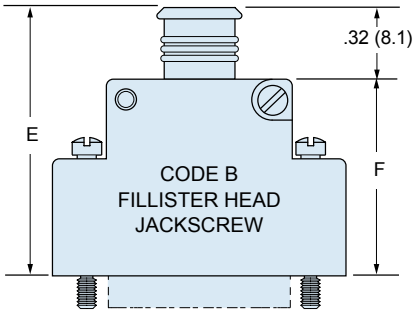
MATERIALS	
Shell	Aluminum Alloy 6061 -T6
Clips	17-7PH Stainless Steel
Hardware	300 Series Stainless Steel

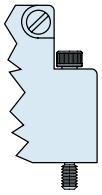
HOW TO ORDER 507-145 SPLIT BACKSHELLS

Series	Shell Finish	Connector Size	Hardware Option	EMI Band Strap Option
507-145	E – Chem Film J – Cadmium, Yellow Chromate M – Electroless Nickel NF – Cadmium, Olive Drab Z2 – Gold	09 51 15 51-2 21 67 25 69 31 100 37	**Omit** for Fillister Head Screwlock H – Hex Head Screwlock E – Extended Screwlock F – Jackpost, Female	**Omit (Leave Blank)** Band Not Included B – Micro Band Supplied K – Coiled Micro Band Supplied

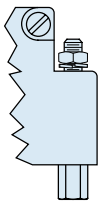
Sample Part Number				
507-145	M	25	H	



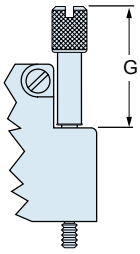




CODE H
HEX HEAD
SCREWLOCK



CODE F
FEMALE
JACKPOST



CODE E
EXTENDED
SCREWLOCK

Size	A Max. In.	A Max. mm.	B Max. In.	B Max. mm.	C In.	C mm.	D In. ± .010	D mm. ± 0.25	E Max. In.	E Max. mm.	F Max. In.	F Max. mm.	G Max. In.	G Max. mm.
09	.915	23.24	.450	11.43	.565	14.35	.160	4.06	1.033	26.24	.721	18.31	.554	14.07
15	1.065	27.05	.450	11.43	.715	18.16	.190	4.83	1.096	27.84	.783	19.89	.617	15.67
21	1.215	30.86	.450	11.43	.865	21.97	.220	5.59	1.127	28.63	.815	20.70	.649	16.48
25	1.315	33.40	.450	11.43	.965	24.51	.260	6.60	1.190	30.23	.877	22.28	.711	18.06
31	1.465	37.21	.450	11.43	1.115	28.32	.275	6.99	1.221	31.01	.908	23.06	.722	18.34
37	1.615	41.02	.450	11.43	1.265	32.13	.285	7.24	1.283	32.59	.971	24.66	.785	19.94
51	1.565	39.75	.495	12.57	1.215	30.86	.350	8.89	1.346	34.19	1.033	26.24	.867	22.02
51-2	1.965	48.91	.450	11.43	1.615	41.02	.285	7.24	1.346	34.19	1.033	26.24	.867	22.02
67	2.365	60.07	.450	11.43	2.015	51.18	.350	8.89	1.346	34.19	1.033	26.24	.867	22.02
69	1.865	47.37	.495	12.57	1.515	38.48	.350	8.89	1.346	34.19	1.033	26.24	.867	22.02
100	2.305	58.55	.540	13.72	1.800	45.72	.490	12.45	1.408	35.76	1.096	27.83	.930	23.62

Strain Relief Backshell
Round Cable Entry
507-146

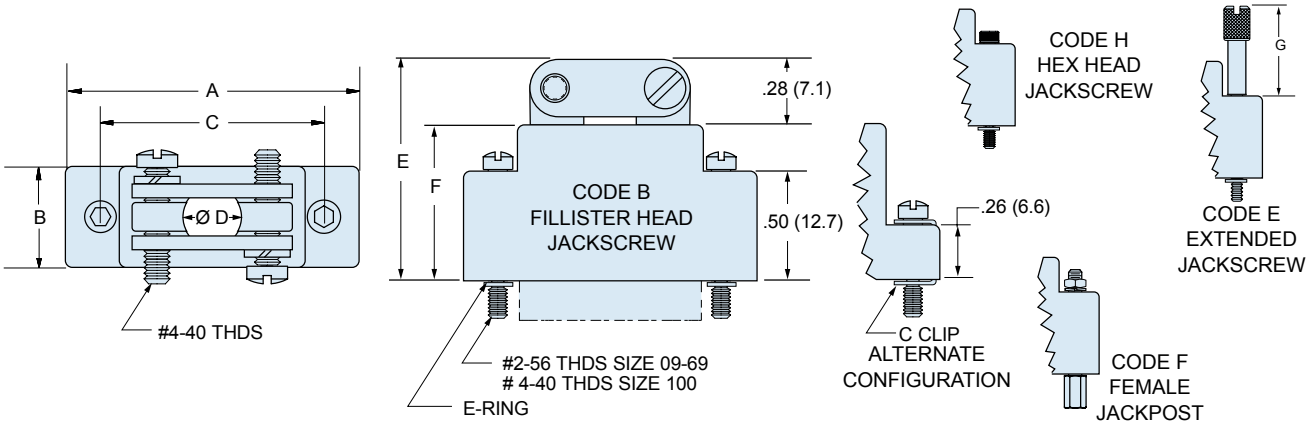
507-146 Strain Relief Backshells feature saddle bar clamps for easy installation.

E-Rings attach the backshell to the Micro-D connector.

MATERIALS	
Shell	Aluminum Alloy 6061 -T6
Clips	17-7PH Stainless Steel
Hardware	300 Series Stainless Steel

HOW TO ORDER 507-146 STRAIN RELIEF BACKSHELLS

Series	Shell Finish	Connector Size	Hardware Option	Jackscrew Attachment Option
507-146	E – Chem Film J – Cadmium, Yellow Chromate M – Electroless Nickel NF – Cadmium, Olive Drab Z2 – Gold	09 51 15 51-2 21 67 25 69 31 100 37	**Omit** for Fillister Head Jackscrews H – Hex Head Jackscrews E – Extended Jackscrews F – Jackpost, Female	**Omit (Leave Blank)** Jackscrews Attach With E-Ring. This Option Applies to Size 09 -69. Size 100 is Not Available With E-Ring. C – "C" Clip
Sample Part Number				
507-146	M	25	H	C



Size	A Max.		B Max.		C		D		E Max.		F Max.		G Max.	
	In.	mm.	In.	mm.	In.	mm.	In. ± .010	mm. ± 0.25	In.	mm.	In.	mm.	In.	mm.
09	.915	23.24	.450	11.43	.565	14.35	.160	4.06	.780	19.81	.550	13.97	.540	13.72
15	1.065	27.05	.450	11.43	.715	18.16	.190	4.83	.830	21.08	.600	15.24	.590	14.99
21	1.215	30.86	.450	11.43	.865	21.97	.220	5.59	.940	23.88	.650	16.51	.700	17.78
25	1.315	33.40	.450	11.43	.965	24.51	.260	6.60	.990	25.15	.700	17.78	.740	18.80
31	1.465	37.21	.450	11.43	1.115	28.32	.275	6.99	1.030	26.16	.740	18.80	.790	20.07
37	1.615	41.02	.450	11.43	1.265	32.13	.285	7.24	1.070	27.18	.780	19.81	.830	21.08
51	1.565	39.75	.495	12.57	1.215	30.86	.350	8.89	1.150	29.21	.860	21.84	.910	23.11
51-2	1.965	49.81	.450	11.43	1.615	41.02	.285	7.24	1.150	29.21	.860	21.84	.910	23.11
67	2.365	60.07	.450	11.43	2.015	51.18	.285	7.24	1.150	29.21	.860	21.84	.910	23.11
69	2.265	57.53	.495	12.57	1.515	38.48	.350	8.89	1.150	29.21	.860	21.84	.910	23.11
100	2.305	58.55	.540	13.72	1.800	45.72	.490	12.45	1.210	30.73	.930	23.62	.970	24.63

U.S. CAGE Code 06324
Printed in U.S.A.

EMI/RFI Elliptical Banding Backshell
507-175

17-7PH Stainless Steel Clips attach the backshell to the connector. These backshells accept standard and micro ***BAND-IT®*** shield termination straps.

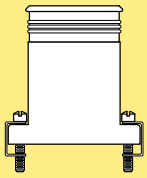
Straight, 45° and Right Angle elliptical backshell provides plenty of working room for complicated wiring situations.

Rugged One-Piece Aluminum Shell with stainless steel hardware, available in standard nickel plating, or choose optional finishes.

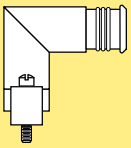
HOW TO ORDER 507-175 EMI BACKSHELLS

Series

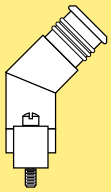
Top Entry
507T175



Side Entry
507S175



45° Entry
507E175



Shell Finish

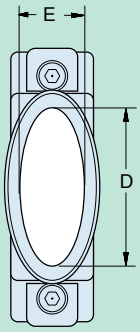
- **E** – Chem Film (Alodyne)
- **J** – Cadmium, Yellow Chromate
- **M** – Electroless Nickel
- **NF** – Cadmium, Olive Drab
- **Z2** – Gold

Connector Size

09
15
21
25
31
37
51
51-2
67
69
100

Cable Entry Code

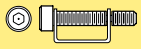
Size	D In. ± .010	D mm. ± 0.25	E In. ± .010	E mm. ± 0.25	Available on Shell Size
01	.344	8.74	.290	7.37	09 Thru 100
02	.494	12.55	.290	7.37	15 Thru 100
03	.644	16.36	.290	7.37	21 Thru 100
04	.744	18.90	.304	7.72	25 Thru 100
05	.894	21.34	.304	7.72	31 Thru 100
06	.994	25.25	.304	7.72	37 Thru 100
07	1.044	26.52	.304	7.72	37 and 100
08	1.024	26.01	.384	9.75	100



Hardware Option

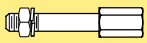
Omit (Leave Blank)
Fillister Head Jackscrew

H – Hex Head Jackscrew



E – Extended Jackscrew

F – Jackpost, Female



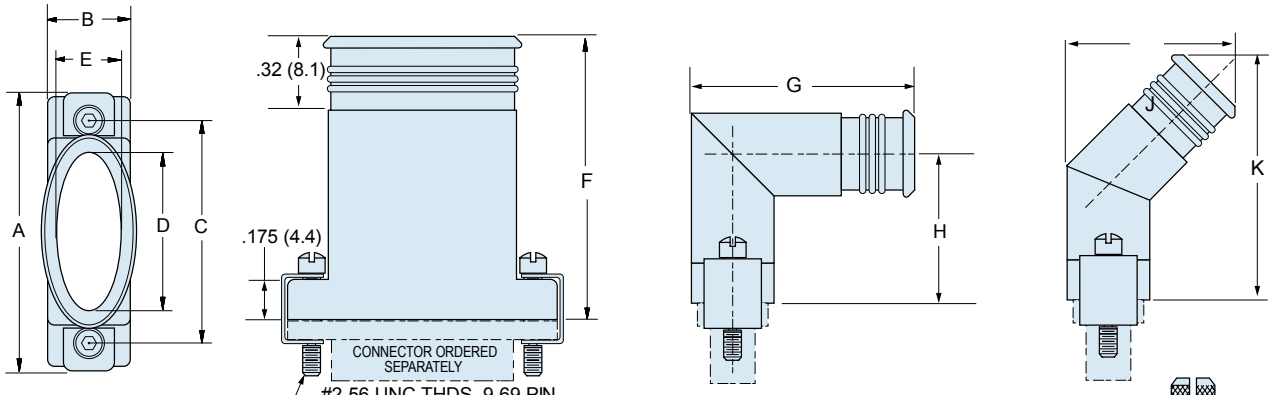
Sample Part Number

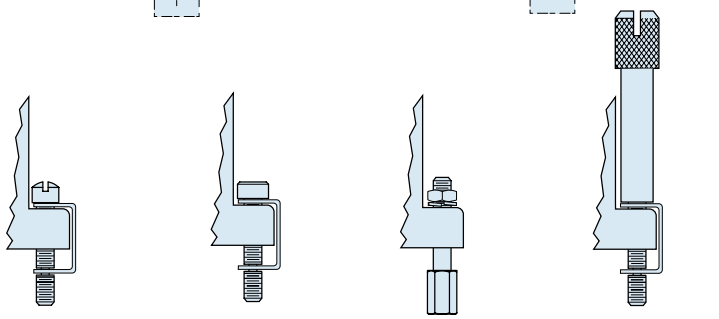
507E175	M	25	04

M

EMI/REF Eliptical Banding Backshell
507-175

MATERIALS (SEE ORDERING INFO FOR FINISH OPTIONS)	
Shell	Aluminum Alloy 6061 -T6 Per QQ-A-200, QQ-A-225 (Machined Components) Aluminum Alloy 6061-T6 Per QQ-A-591 (A380) (Die-Cast Components)
Clips	17-7PH Stainless Steel
Jackscrews, Washers, Jackposts	300 Series Stainless Steel, Passivated





CABLE ENTRY SIZES					
Cable Entry Code	D In. ± .010	D mm. ± 0.25	E In. ± .010	E mm. ± 0.25	Available on Shell Size
01	.344	8.74	.290	7.37	09 Thru 100
02	.494	12.55	.290	7.37	15 Thru 100
03	.644	16.36	.290	7.37	21 Thru 100
04	.744	18.90	.304	7.72	25 Thru 100
05	.894	21.34	.304	7.72	31 Thru 100
06	.994	25.25	.304	7.72	37 Thru 100
07	1.044	26.52	.304	7.72	37 and 100
08	1.024	26.01	.384	9.75	100

DIMENSIONS

Size	A Max. In.	A Max. mm.	B Max. In.	B Max. mm.	C In.	C mm.	F Max. In.	F Max. mm.	G Max. In.	G Max. mm.	H Max. In.	H Max. mm.	J Max. In.	J Max. mm.	K Max. In.	K Max. mm.
09	.850	21.59	.370	9.40	.565	14.35	.782	19.86	.970	24.64	.668	16.97	.673	17.09	.851	21.62
15	1.000	25.40	.370	9.40	.715	18.16	.832	21.13	.970	24.64	.668	16.97	.673	17.09	.876	22.25
21	1.150	29.21	.370	9.40	.865	21.97	.882	22.40	.970	24.64	.668	16.97	.673	17.09	.901	22.89
25	1.250	31.75	.370	9.40	.965	24.51	.932	23.67	.990	25.15	.678	17.22	.700	17.78	.943	23.95
31	1.400	35.56	.370	9.40	1.115	28.32	.972	24.69	.990	25.15	.678	17.22	.700	17.78	.963	24.46
37	1.550	39.37	.370	9.40	1.265	32.13	.972	24.69	.990	25.15	.678	17.22	.700	17.78	.983	24.97
51	1.500	38.10	.410	10.41	1.215	30.86	1.092	27.74	1.030	26.16	.698	17.73	.758	19.25	1.050	26.67
51-2	1.910	48.51	.370	9.40	1.615	41.02	1.092	27.74	1.030	26.16	.698	17.73	.758	19.25	1.050	26.67
67	2.310	58.67	.370	9.40	2.015	51.18	1.092	27.74	1.030	26.16	.698	17.73	.758	19.25	1.050	26.67
69	1.810	45.97	.410	10.41	1.515	38.48	1.092	27.74	1.030	26.16	.698	17.73	.758	19.25	1.050	26.67
100	2.235	56.77	.460	11.68	1.800	45.72	1.157	29.39	1.090	27.69	.723	18.36	.824	20.93	1.130	28.70

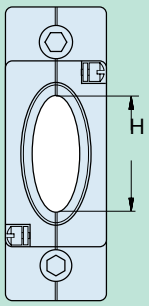
EMI/RFI Eliptical
Split Shell Banding Backshell
507-178

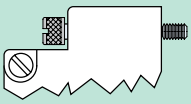
Split Backshell With Elliptical Cable Entry provides added room for larger wire bundles. Terminate cable shields with ***BAND-IT***® microbands. This backshell features floating male screwlocks which allow full mating of the connector before the screws are fastened.

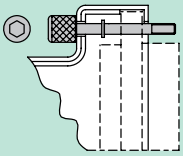
Rugged Aluminum housing with stainless steel hardware, available in standard nickel plating, or choose optional finishes.

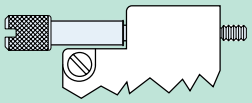
HOW TO ORDER 507-178 EMI BACKSHELLS

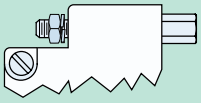
Series	Shell Finish	Connector Size	Cable Entry Code	EMI Band Strap Option	Hardware Option
507-178	**E** – Chem Film (Alodyne) **J** – Cadmium, Yellow Chromate **M** – Electroless Nickel **NF** – Cadmium, Olive Drab **Z2** – Gold	09 15 21 25 31 37 51 51-2 67 69 100	H Code / In. ± .010 / mm. ± 0.25 / Available on Shell Size 04 .250 6.35 09, 15, 21 05 .312 7.92 15 Thru 31 06 .375 9.53 21 Thru 51 07 .437 11.10 25 Thru 51 08 .500 12.70 25 Thru 51 09 .562 14.27 31 Thru 100 10 .625 15.88 31 Thru 100 11 .688 17.48 37 Thru 100 12 .750 19.05 37 Thru 100 13 .812 20.62 37,51-2,67,69,100 14 .875 22.23 51-2, 67, 69, 100 15 .938 23.83 51-2, 67, 69, 100 16 1.000 25.40 51-2, 67, 69, 100	**OMIT-** Band Strap Not Supplied **B** – Microband Supplied (600-057) **K** – Coiled Microband Supplied (600-057-1)	Omit for Standard Slot Head Male Screwlock **H** – Hex Socket Head Screwlock **E** – Extended Screwlock **FF** – Jackpost, Female









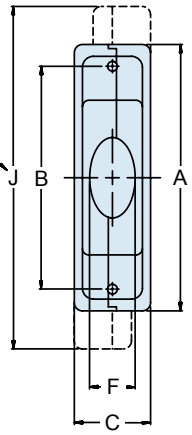


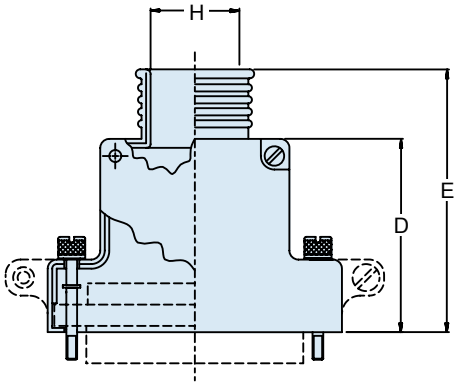
Sample Part Number					
507-178	M	25	06	K	F

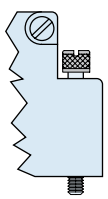
EMI/RFI Eliptical Split Shell Banding Backshell
507-178

MATERIALS (SEE ORDERING INFO FOR FINISH OPTIONS)	
Shell	Aluminum Alloy
Jackscrews, Washers, Jackposts	300 Series Stainless Steel, Passivated

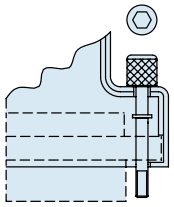
Shell size 09 may be supplied with optional configuration J Dimension of 1.140 (28.96) Max.



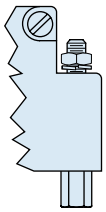




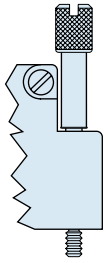
STANDARD SCREWLOCK NO HARDWARE CODE REQUIRED



CODE H HEX SOCKET HEAD



CODE FF FEMALE JACKPOST



CODE E EXTENDED

CABLE ENTRY			
	H		
Code	In. ± .010	mm. ± 0.25	Available on Shell Size
04	.250	6.35	09, 15, 21
05	.312	7.92	15 Thru 31
06	.375	9.53	21 Thru 51
07	.437	11.10	25 Thru 51
08	.500	12.70	25 Thru 51
09	.562	14.27	31 Thru 100
10	.625	15.88	31 Thru 100
11	.688	17.48	37 Thru 100
12	.750	19.05	37 Thru 100
13	.812	20.62	37,51-2,67,69,100
14	.875	22.23	51-2, 67, 69, 100
15	.938	23.83	51-2, 67, 69, 100
16	1.000	25.40	51-2, 67, 69, 100

DIMENSIONS

	A Max.		C Max.		B		F		F Max.		G Max.	
Size	In.	mm.	In.	mm.	In.	mm.	In. ± .010	mm. ± 0.25	In.	mm.	In.	mm.
09	.915	23.24	.450	11.43	.565	14.35	.160	4.06	1.033	26.24	.721	18.31
15	1.065	27.05	.450	11.43	.715	18.16	.190	4.83	1.096	27.84	.783	19.89
21	1.215	30.86	.450	11.43	.865	21.97	.220	5.59	1.127	28.63	.815	20.70
25	1.315	33.40	.450	11.43	.965	24.51	.260	6.60	1.190	30.23	.877	22.28
31	1.465	37.21	.450	11.43	1.115	28.32	.275	6.99	1.221	31.01	.908	23.06
37	1.615	41.02	.450	11.43	1.265	32.13	.285	7.24	1.283	32.59	.971	24.66
51	1.565	39.75	.495	12.57	1.215	30.86	.350	8.89	1.346	34.19	1.033	26.24
51-2	1.965	49.91	.450	11.43	1.615	41.02	.350	8.89	1.346	34.19	1.033	26.24
67	2.365	60.07	.450	11.43	2.015	51.18	.350	8.89	1.346	34.19	1.033	26.24
69	1.865	47.37	.495	12.57	1.515	38.48	.350	8.89	1.346	34.19	1.033	26.24
100	2.305	58.55	.540	13.72	1.800	45.72	.490	12.45	1.408	35.76	1.096	27.83

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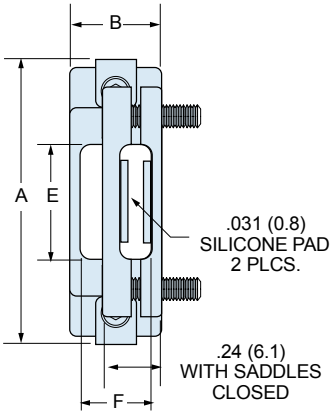
Saddle Bar Strain-Relief Backshell
507-198

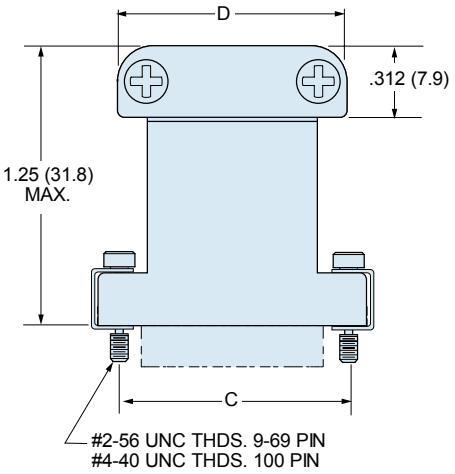
507-198 Strain Relief Backshells feature saddle bar cable clamps for easy installation.

MATERIALS	
Shell	Aluminum Alloy 6061 -T6
Clips	17-7PH Stainless Steel
Hardware	300 Series Stainless Steel

HOW TO ORDER 507-198 STRAIN RELIEF BACKSHELLS

Series	Shell Finish	Connector Size
507-198	E – Chem Film	09 51
	J – Cadmium, Yellow Chromate	15 51-2
	M – Electroless Nickel	21 67
	NF – Cadmium, Olive Drab	25 69
	Z2 – Gold	31 100
		37
Sample Part Number		
507-198	M	25





DIMENSIONS

Size	A Max.		B Max.		C		D Max.		E		F	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
09	.850	21.59	.420	10.67	.565	14.35	.840	21.34	.31	7.87	.31	7.87
15	1.000	25.40	.420	10.67	.715	18.16	.910	23.11	.38	9.65	.31	7.87
21	1.150	29.21	.420	10.67	.865	21.97	.970	24.64	.44	11.18	.31	7.87
25	1.250	31.75	.420	10.67	.965	24.51	1.030	26.16	.50	12.70	.31	7.87
31	1.400	35.56	.420	10.67	1.115	28.32	1.080	27.43	.55	13.97	.31	7.87
37	1.550	39.37	.420	10.67	1.265	32.13	1.130	28.70	.60	15.24	.31	7.87
51	1.500	38.10	.470	11.94	1.215	30.86	1.080	27.43	.55	13.97	.36	9.14
51-2	1.910	48.51	.420	10.67	1.615	41.02	1.480	37.59	.95	24.13	.31	7.87
67	2.310	58.67	.420	10.67	2.015	51.18	1.880	47.75	1.35	34.29	.31	7.87
69	1.810	45.97	.470	11.94	1.515	38.48	1.380	35.05	.85	21.59	.36	9.14
100	2.235	56.77	.510	12.95	1.800	45.72	1.650	41.91	1.00	25.40	.40	10.04

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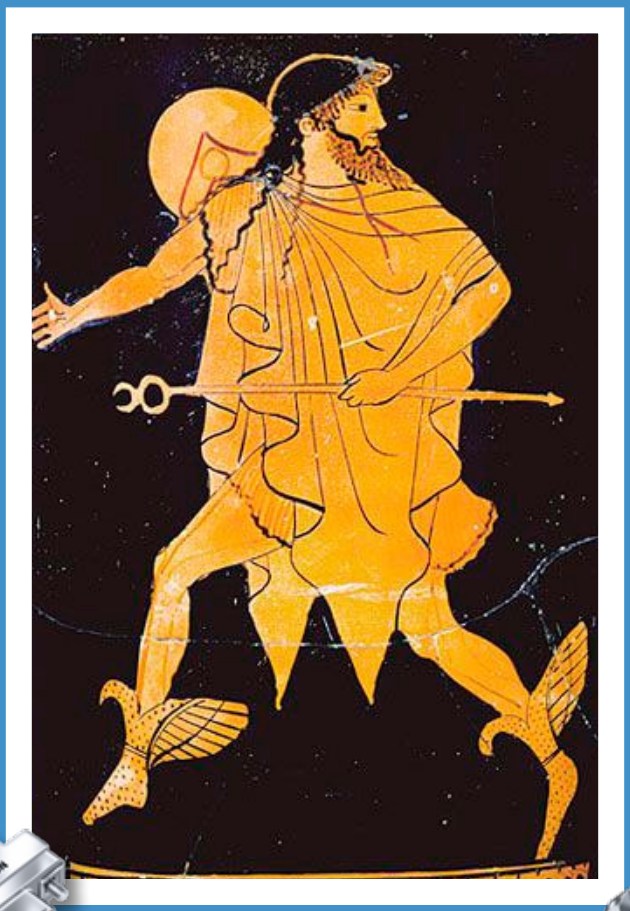
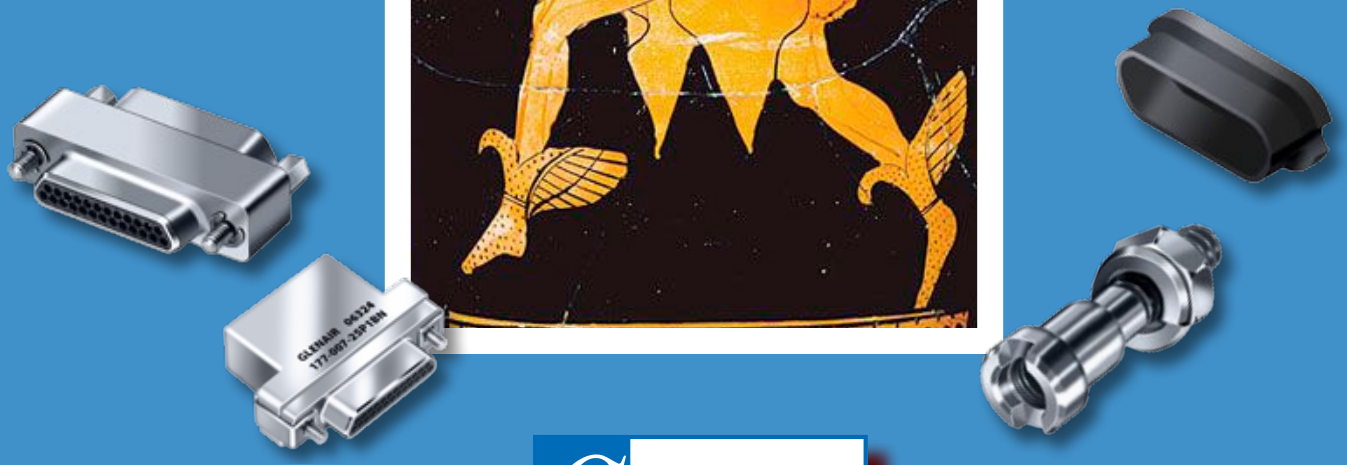
Fast Delivery!

On Glenair's Complete Selection of Micro-D Connector Savers, Hardware and Accessories





Glenair®

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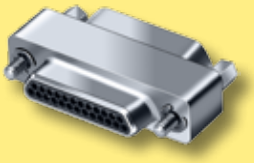
PRODUCT SELECTION GUIDE

Micro-D Uni-Saver
Always in stock,these feed-thru pin-socket adapters feature an innovative design using a single machined aluminum housing. Fully EMI protected, Uni-Savers protect expensive equipment from damage during testing and burn-in. Available in all sizes.

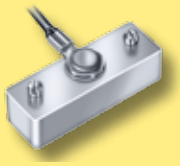


Uni-Saver
Page N-2

Micro-D Plastic Dust Caps
Always in stock,these anti-static black LDPE dust caps protect Micro-D connectors from debris and damage. All Glenair Micro-D connectors are furnished with these dust caps; however, these caps may be purchased separately for replacements.

Dust Caps
Page N-4

Micro-D Metal Protective Covers
These aluminum covers provide complete mechanical and environmental protection. A silicone gasket assures water-tight sealing. A variety of attachment styles are available.



Metal Covers
Page N-5

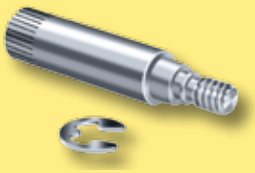
Bean Rubber Covers
For protection of Micro-D's used in tactical equipment, these synthetic rubber covers are friction-fit and attach with nylon cord and ring terminals.

Rubber Covers
Page N-7

Shorting Adapters
Combining a switching backshell and a Micro-D connector, these assemblies have all contacts shorted to each other. These shorting plugs provide ESD protection to sensitive instrumentation.

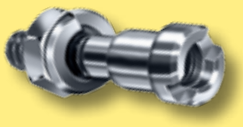
Shorting Adapters
Page N-3

Jackscrew Kits
These stainless steel kits are compatible with standard Micro-D connectors and meet the requirements of MIL-DTL-83513. Jackscrews are available with slot heads or hex heads. Choose low profile or extended length versions.



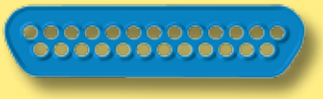
Jackscrew Kits
Page N-8

Jackpost Kits
Jackposts are available in various lengths to fit front and rear panel mounted connectors. These stainless steel jackposts fit all standard Micro-D connectors.



Jackpost Kits
Page N-10

Interfacial Seals
Replace damaged Micro-D socket connector interfacial seals with new ones. Sometimes these seals can tear or be contaminated. Held in place by an interference fit with the contacts, damaged seals can be removed with tweezers.



Interfacial Seals
Page N-4

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Sav-Con® Connector Saver MWDM2L

Compact Size reduces stress on mating connectors.

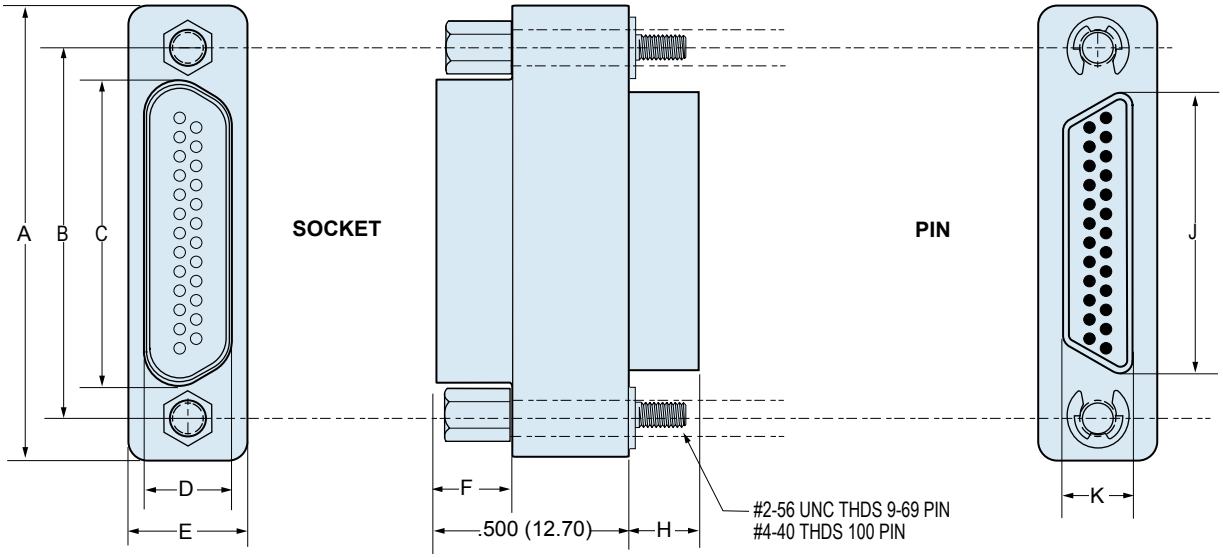
In Stock, No Waiting – All standard Uni-Saver sizes are in stock (9, 15, 21, 25, 31, 37, 51 and 100 pin).

EMI Protected one piece shell.

MATERIALS & FINISHES	
Shell	Aluminum Alloy 6061 -T6 Electroless Nickel Plated
Contacts	Gold-Plated Copper Alloy
Encapsulant	Epoxy
Insulators	Glass-Filled LCP
Hardware	300 Series Stainless Steel, Passivated

Protect Expensive Equipment With Glenair's Micro-D Uni-Saver

These connector savers feature a one-piece aluminum housing, TwistPin contacts and locking hardware. Typical applications include test equipment and space-grade instruments. The Uni-Saver prevents wear and tear on sensitive gear. Standard Uni-Savers are electroless nickel plated. Other plating finishes are available on request.



Size	Part Number	A Max. In.	A Max. mm.	B In. ±.003	B mm. ±0.08	C Max. In.	C Max. mm.	D Max. In.	D Max. mm.	E Max. In.	E Max. mm.	F In. ± .003	F mm. ± 0.08	H Max. In.	H Max. mm.	J Max. In.	J Max. mm.	K Max In.	K Max mm.
9	MWDM2L-9USP1	.785	19.94	.565	14.35	.400	10.16	.250	6.35	.308	7.82	.195	4.95	.183	4.65	.333	8.46	.184	4.67
15	MWDM2L-15USP1	.935	23.75	.715	18.16	.551	14.00	.250	6.35	.308	7.82	.195	4.95	.183	4.65	.483	12.27	.184	4.67
21	MWDM2L-21USP1	1.085	27.56	.865	21.97	.701	17.81	.250	6.35	.308	7.82	.195	4.95	.183	4.65	.633	16.08	.184	4.67
25	MWDM2L-25USP1	1.185	30.01	.965	24.51	.801	20.35	.250	6.35	.308	7.82	.195	4.95	.183	4.65	.733	18.62	.184	4.67
31	MWDM2L-31USP1	1.335	33.91	1.115	28.32	.951	24.16	.250	6.35	.308	7.82	.195	4.95	.183	4.65	.883	22.43	.184	4.67
37	MWDM2L-37USP1	1.485	37.72	1.265	32.13	1.101	27.96	.250	6.35	.308	7.82	.195	4.95	.183	4.65	1.033	26.24	.184	4.67
51	MWDM2L-51USP1	1.435	36.45	1.215	30.86	1.051	26.70	.296	7.52	.351	8.92	.195	4.95	.183	4.65	.983	24.97	.228	5.79
51-2	MWDM2L-51-2USP1	1.835	46.61	1.615	41.02	1.450	36.83	.250	6.35	.308	7.82	.195	4.95	.183	4.65	1.384	35.15	.184	4.67
67	MWDM2L-67USP1	2.235	56.77	2.015	51.18	1.850	46.99	.250	6.35	.308	7.82	.195	4.95	.183	4.65	1.784	45.31	.184	4.67
69	MWDM2L-69USP1	1.735	44.07	1.515	38.48	1.350	34.29	.296	7.52	.351	8.92	.195	4.95	.183	4.65	1.284	32.61	.228	5.79
100	MWDM2L-100USP1	2.170	55.12	1.800	45.72	1.451	36.86	.333	8.46	.394	10.01	.195	4.95	.183	4.65	1.383	35.13	.270	6.86

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Shorting Plug Assembly
177-007

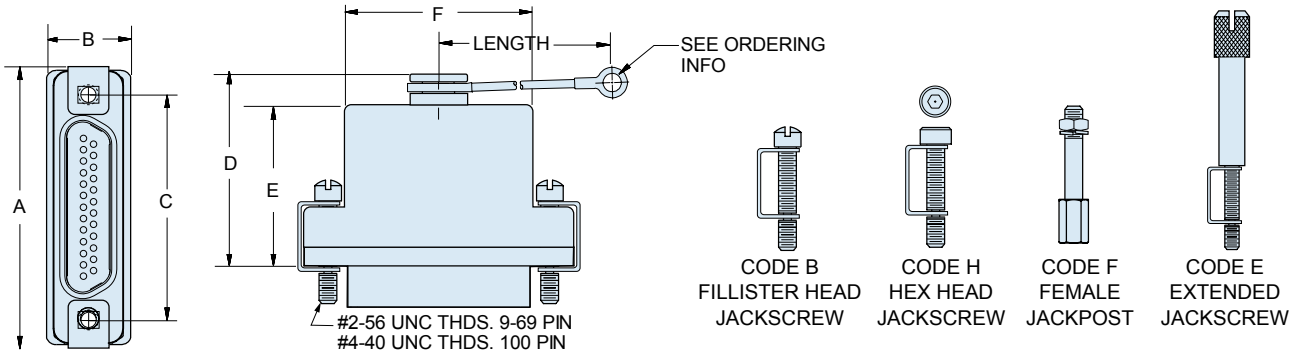
Shorting Plug Assemblies are Micro-D connectors with all contacts bussed/ shorted together. Enclosed in a backshell and fitted with jackscrews, these shorting plugs provide ESD protection to sensitive instrumentation.

MATERIALS & FINISHES

Shells	Aluminum Alloy 6061 -T6
Contacts	Gold-Plated Copper Alloy
Encapsulant	Epoxy
Insulators	Glass-Filled LCP
Interfacial Seal	Fluorosilicone
Hardware	300 Series Stainless Steel, Passivated

HOW TO ORDER 177-007 SHORTING PLUGS

Series	Connector Size	Contact Type	Shell Finish	Hardware Option	Lanyard Option	Lanyard Length	Ring Terminal Ordering Code
177-007	9 51 15 51-2 21 67 25 69 31 100 37	P – Pin S – Socket	1 – Cadmium, Yellow Chromate 2 – Electroless Nickel 4 – Black Anodize 5 – Gold 6 – Chem Film	B – Fillister Head Jackscrew H – Hex Head Jackscrew E – Extended Jackscrew F – Jackpost, Female N – No Hardware	N – No Lanyard G – Flexible Nylon Rope F – Wire Rope, Nylon Jacket H – Wire Rope, Teflon Jacket	Length in One Inch Increments Example: "6" equals six inches.	06 – .125 (3.2) 01 – .140 (3.6) 05 – .167 (4.2) 04 – .197 (5.0) I.D. of Ring Terminal
Sample Part Number							
177-007	– 25	S	2	H	F	4	– 06



Size	A Max.		B Max.		C		D Max.		E Max.		F Max.	
	In.	mm.	In .	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
9	.850	21.59	.370	9.40	.565	14.35	.600	15.24	.450	11.43	.410	10.41
15	1.000	25.40	.370	9.40	.715	18.16	.720	18.29	.570	14.48	.580	14.73
21	1.150	29.21	.370	9.40	.865	21.97	.840	21.34	.690	17.53	.740	18.80
25	1.250	31.75	.370	9.40	.965	24.51	.900	22.86	.750	19.05	.850	21.59
31	1.400	35.56	.370	9.40	1.115	28.32	.960	24.38	.810	20.57	.980	24.89
37	1.550	39.37	.370	9.40	1.265	32.13	1.000	25.40	.850	21.59	1.130	28.70
51	1.500	38.10	.410	10.41	1.215	30.86	1.030	26.16	.880	22.35	1.080	27.43
51-2	1.910	48.51	.370	9.40	1.615	41.02	1.030	26.16	.880	22.35	1.510	38.35
67	2.310	58.67	.370	9.40	2.015	51.18	1.030	26.16	.880	22.35	1.880	47.75
69	1.810	45.97	.410	10.41	1.515	38.48	1.030	26.16	.880	22.35	1.380	35.02
100	2.235	56.77	.460	11.68	1.800	45.72	1.090	27.69	.940	23.88	1.470	37.34

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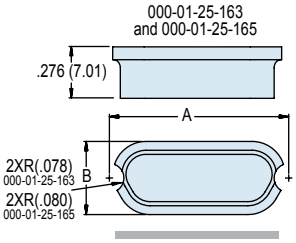
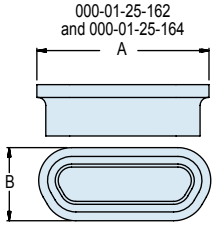
Anti-Static Thermoplastic Dust Caps and Fluorosilicone Interfacial Seals

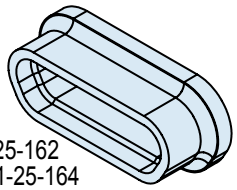
ANTI-STATIC DUST CAPS

Anti-Static Dust Caps offer protection to Micro-D connectors for storage and handling. Molded in black thermoplastic LDPE, these caps meet the anti-static decay rate specified in MIL-PRF-81705D. ***UL 94-V0*** rated, self-extinguishing

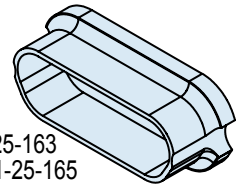
MWDM Metal Shell Connectors						MLDM and MWDL Metal Shell Connectors					
		A Ref.		B Ref.				A Ref.		B Ref.	
Part Number	Layout	In.	mm.	In .	mm.	Part Number	Layout	In.	mm.	In .	mm.
000-01-09-162	9P	.524	13.31	.250	6.35	000-01-09-164	9P	.491	12.47	.349	8.86
000-01-15-162	15P	.647	16.43	.320	8.13	000-01-15-164	15P	.639	16.23	.349	8.86
000-01-21-162	21P	.824	20.93	.250	6.35	000-01-21-164	21P	.789	20.04	.349	8.86
000-01-25-162	25P	.924	23.47	.320	8.13	000-01-25-164	25P	.889	22.58	.349	8.86
000-01-31-162	31P	1.074	27.28	.250	6.35	000-01-31-164	31P	1.039	26.39	.349	8.86
000-01-37-162	37P	1.224	31.09	.320	8.13	000-01-37-164	37P	1.189	30.20	.349	8.86
000-01-51-162	51P	1.174	29.82	.250	6.35	000-01-51-164	51P	1.139	28.93	.390	9.90
000-01-51-172	51-2P	1.574	39.98	.320	8.13	000-01-09-165	9S	.565	14.35	.392	9.96
000-01-67-162	67P	1.974	50.14	.250	6.35	000-01-15-165	15S	.715	18.16	.392	9.96
000-01-69-162	69P	1.474	37.44	.320	8.13	000-01-21-165	21S	.865	21.97	.392	9.96
000-01-00-162	100P	1.574	39.98	.250	6.35	000-01-25-165	25S	.965	24.51	.392	9.96
000-01-09-163	9S	.563	14.30	.320	8.13	000-01-31-165	31S	1.115	28.32	.392	9.96
000-01-15-163	15S	.713	18.11	.300	7.62	000-01-37-165	37S	1.265	32.13	.392	9.96
000-01-21-163	21S	.863	21.92	.360	9.14	000-01-51-165	51S	1.215	30.86	.435	11.05
000-01-25-163	25S	.963	24.45	.250	6.35						
000-01-31-163	31S	1.113	28.27	.320	8.13						
000-01-37-163	37S	1.263	32.08	.250	6.35						
000-01-51-163	51S	1.213	30.81	.320	8.13						
000-01-51-173	51-2S	1.612	40.94	.300	7.62						
000-01-67-163	67S	2.013	51.13	.360	9.14						
000-01-69-163	69S	1.512	38.40	.340	8.64						
000-01-00-163	100S	1.615	41.02	.410	10.41						





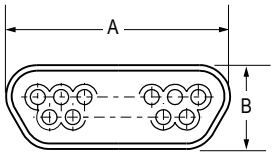


000-01-25-162
and 000-01-25-164



000-01-25-163
and 000-01-25-165

INTERFACIAL SEALS FOR METAL SHELL MICRO-D SOCKET CONNECTORS



Replacement Interfacial Seals fit Micro-D metal shell socket connectors. These blue fluorosilicone seals allow replacement of damaged seals.

Layout	Part Number	A Ref.		B Ref.	
		In.	mm.	In .	mm.
9S	000-01-09-132	.330	8.4	.180	4.6
15S	000-01-15-132	.480	12.2	.180	4.6
21S	000-01-21-132	.630	16.0	.180	4.6
25S	000-01-25-132	.730	18.5	.180	4.6
31S	000-01-31-132	.880	22.4	.180	4.6
37S	000-01-37-132	1.030	26.2	.180	4.6
51S	000-01-51-132	.976	24.8	.223	5.7
100S	000-01-100-132	1.386	35.2	.270	6.9

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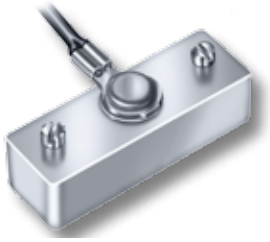
Metal Protective Covers with Silicone Rubber Gaskets
500-017 and 500-037



Choose Metal Protective Covers for full environmental protection.

Silicone Rubber Gasket provides a watertight seal.

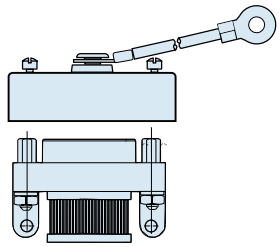
Use with M83513 Type Metal Shell Micro-D Connectors

MATERIALS & FINISHES

Shell	Aluminum Alloy 6061 -T6
Gasket	Silicone Rubber
Hardware	300 Series Stainless Steel, Passivated

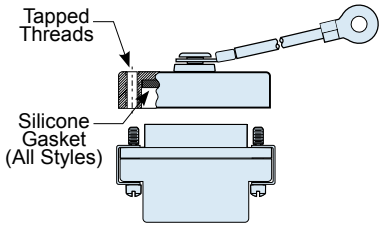
SELECT A PROTECTIVE COVER STYLE

Style 1



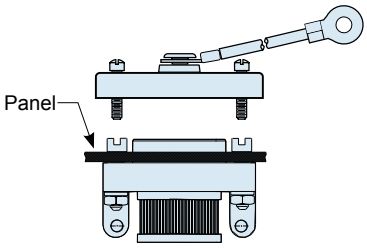
Use With Micro-D Connectors With Jackposts
Not for rear panel mounted connectors.

Style 2



Use With Micro-D Connectors With Jackscrews

Style 3



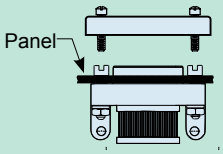
Use With Rear-Panel Mounted Micro-D Connectors

HOW TO ORDER STYLE 1 AND STYLE 2 PROTECTIVE COVERS

Series	Shell Finish	Connector Size	Hardware Option	Lanyard Option	Lanyard Length	Ring Terminal Ordering Code
500-017	C – Black Anodize E – Chem Film J – Cadmium, Yellow Chromate M – Electroless Nickel NF – Cadmium, Olive Drab Z2 – Gold	09 15 21 25 31 37 51 51-2 67 69 100	**STYLE 1** Fits Micro-D's With Jackposts Cover has Jackscrews MB – Fillister Head Jackscrew MH – Hex Head Jackscrew **STYLE 2** Fits Micro-D's With Jackscrews Cover has Tapped Female Threads F – Female Threads (STYLE 3: see next page)	N – No Lanyard G – Flexible Nylon Rope F – Wire Rope, Nylon Jacket H – Wire Rope, Hi-Temp Teflon Jacket	Length in One Inch Increments Example: "6" equals six inches.	06 – .125 (3.2) 01 – .140 (3.6) 05 – .167 (4.2) 04 – .197 (5.0) I.D. of Ring Terminal
Sample Part Number						
500-017	M	25	MB	F	4	– 06

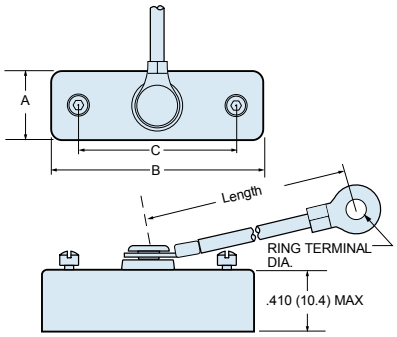
Metal Protective Covers with Silicone Rubber Gasket
500-017 and 500-037

HOW TO ORDER STYLE 3 PROTECTIVE COVERS FOR REAR MOUNT CONNECTORS

Series	Shell Finish	Connector Size	Panel Thickness Option	Hardware Option	Lanyard Option	Ring Terminal Ordering Code
500-037	C – Black Anodize E – Chem Film J – Cadmium, Yellow Chromate M – Electroless Nickel NF – Cadmium, Olive Drab Z2 – Gold	09 15 21 25 31 37 51 51-2 67 69 100	R1 – .031 (0.79) Panel R2 – .047 (1.19) Panel R3 – .062 (1.57) Panel R4 – .093 (2.36) Panel 	STYLE 3  Fits Micro-D's With Jackposts B – Fillister Head Jackscrew H – Hex Head Jackscrew	N – No Lanyard G – Flexible Nylon Rope F – Wire Rope, Nylon Jacket H – Wire Rope, Hi-TempTeflon Jacket	06 – .125 (3.2) 01 – .140 (3.6) 05 – .167 (4.2) 04 – .197 (5.0) I.D. of Ring Terminal
Sample Part Number						
500-037	J	31	R4	B	G	– 06

PROTECTIVE COVER DIMENSIONS

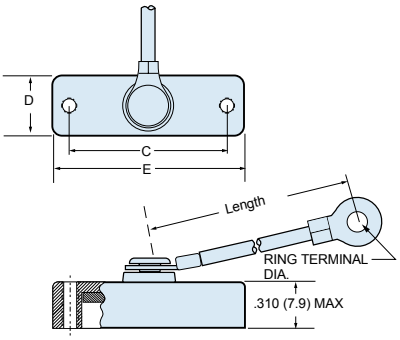
Style 1



#2-56 UNC THREADS SIZES 9-69
#4-40 UNC THREADS SIZE 100

For Micro-D Connectors With Jackposts

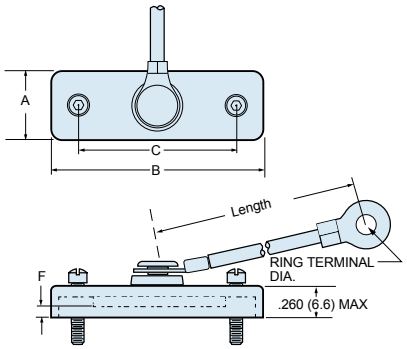
Style 2



#2-56 UNC THREADS SIZES 9-69
#4-40 UNC THREADS SIZE 100

For Micro-D Connectors With Jackscrews

Style 3



#2-56 UNC THREADS SIZES 9-69
#4-40 UNC THREADS SIZE 100

For Rear-Panel Mounted Micro-D

Size	A Max. In.	A Max. mm.	B Max. In .	B Max. mm.	C In.	C mm.	D Max. In.	D Max. mm.	E Max. In.	E Max. mm.	F Panel Thickness	F In.	F mm.
9	.453	11.5	.930	23.6	.565	14.35	.360	9.1	.775	19.7	R1	.126	3.2
15	.453	11.5	1.080	27.4	.715	18.16	.360	9.1	.925	23.5	R2	.110	2.8
21	.453	11.5	1.230	31.2	.865	21.97	.360	9.1	1.075	27.3	R3	.095	2.4
25	.453	11.5	1.330	33.8	.965	24.51	.360	9.1	1.175	29.8	R4	.064	1.6
31	.453	11.5	1.480	37.6	1.115	28.32	.360	9.1	1.325	33.7			
37	.453	11.5	1.630	41.4	1.265	32.13	.360	9.1	1.475	37.5			
51	.496	12.6	1.580	40.1	1.215	30.86	.400	10.2	1.425	36.2			
51-2	.453	11.5	1.980	50.3	1.615	41.02	.360	9.1	1.825	46.4			
67	.453	11.5	2.380	60.5	2.015	51.18	.360	9.1	2.225	56.5			
69	.496	12.6	1.880	47.8	1.515	38.48	.400	10.2	1.725	43.8			
100	.539	13.7	2.315	58.8	1.800	45.72	.450	11.4	2.160	54.9			

U.S. CAGE Code 06324
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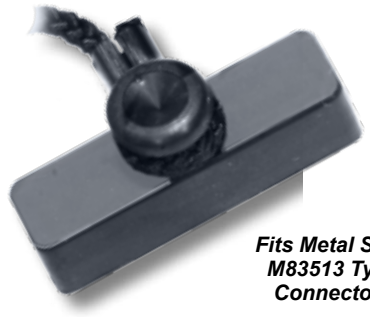
"Marshal Bean" Protective Rubber Covers with Tether Rope
780-555



Fits Metal Shell M83513 Type Connectors

Rubber Covers for Tactical Equipment and Field Instruments – These friction-fit covers provide dust and splash protection.

Two Tether Styles – Choose ring terminals for attachment to a panel, or choose slip knots for cable attachment.

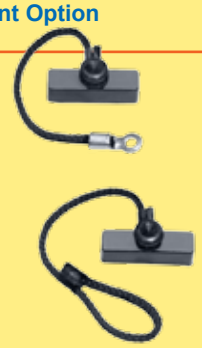
-55° to +125° Temperature Range

MATERIALS & FINISHES

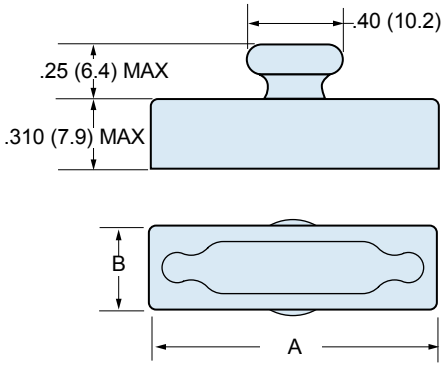
Cover	SBR Rubber Per ASTM D2000 Type C
Cord	Nylon Per MIL-C-43307
Ring Terminal	Stainless Steel
Slip Collar	Kynar
Crimp Ring	Copper, Black Oxide Finish

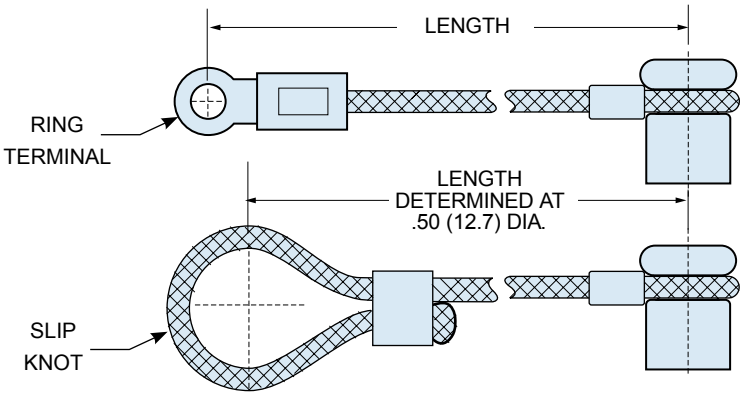
HOW TO ORDER 780-555 RUBBER PROTECTIVE COVERS

Series	Connector Layout	Nylon Cord Option	Nylon Cord Length	Attachment Option	Rubber Type
780-555	9P 9S 15P 15S 21P 21S 25P 25S 31P 31S 37P 37S 51P 51S 51-2P 51-2S 67P 67S 69P 69S 100P 100S	**Omit** – (leave blank) Cover only, no cord **G** – Nylon Cord	**Length in One Inch Increments** Example: "6" equals six inches. **± .250 Inches** **± 6.35 mm**	**Ring Terminal** **06** – .125 (3.2) I.D. **01** – .140 (3.6) I.D. **05** – .167 (4.2) I.D. **04** – .197 (5.0) I.D. **SK** – Slip Knot	**Omit** Standard Rubber **C** Conductive Rubber



Sample Part Number				
780-555	37P	G	4	– SK





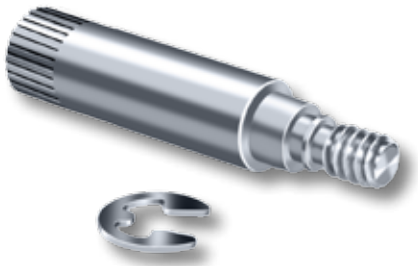
Layout	A Max. In.	A Max. mm.	B Max. In.	B Max. mm.
9P, 9S	.830	21.08	.370	9.40
15P, 15S	.980	24.89	.370	9.40
21P, 21S	1.130	28.70	.370	9.40
25P, 25S	1.230	31.24	.370	9.40
31P, 31S	1.380	35.05	.370	9.40
37P, 37S	1.530	38.86	.370	9.40

Layout	A Max. In.	A Max. mm.	B Max. In.	B Max. mm.
51P, 51S	1.480	37.59	.410	10.41
51-2P, 51-2S	1.880	47.75	.370	9.40
67P, 67S	2.770	70.36	.370	9.40
69P, 69S	1.780	45.21	.410	10.41
100P, 100S	2.215	56.26	.460	11.68

Standard material contains trace amounts of sulfur (a vulcanizing agent) which is known to contribute to degradation/corrosion of silver plated components such as braid, etc. Specify MOD Code suffix -675 for sulfur-free material.

U.S. CAGE Code 06324 Printed in U.S.A.

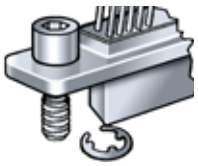
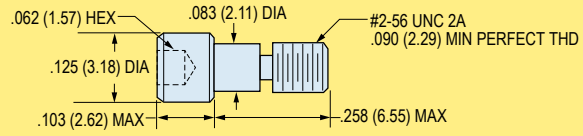
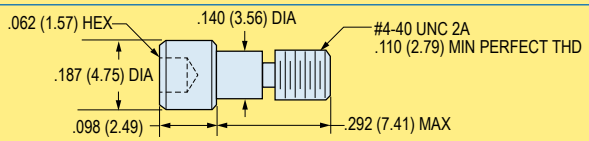
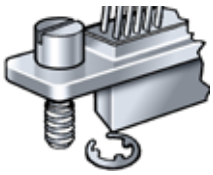
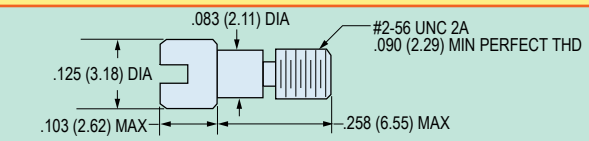
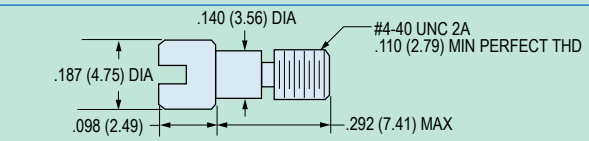
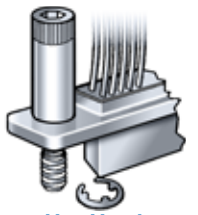
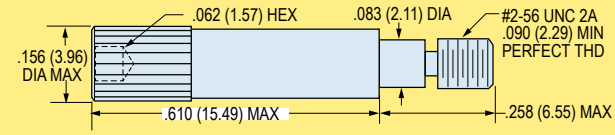
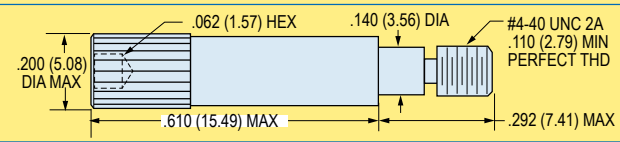
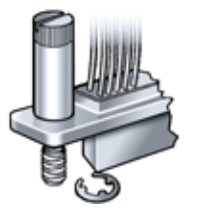
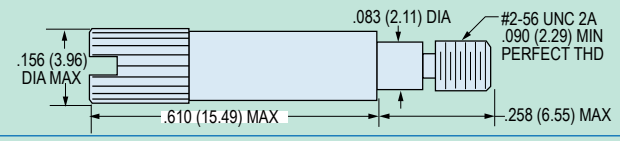
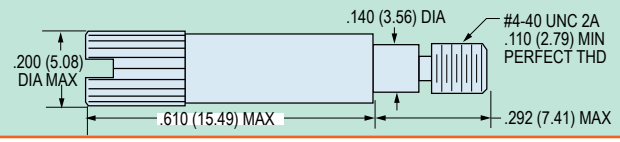
Stainless Steel Jackscrew Kits with E-Rings
080-00-00-5XX



Mil Spec Jackscrew Kits feature 300 series stainless steel and easily attach to Micro-D connectors with an e-ring.

Order One Kit Per Connector. Each kit contains two jackscrews and e-rings. Packaged one kit (two screws) per bag.

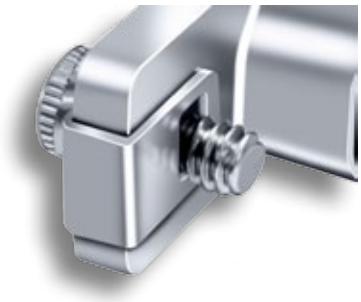
MIL SPEC JACKSCREW KITS

Configuration	Connector Size, Thread Size	Part Number: Mil Spec Part Number	Part Number: Glenair Part Number	Dimensions
 Hex Head Low Profile	Sizes 9 to 69 Contacts. Mil Spec Size A to G #2-56 UNC-2A	M83513/05-02	080-00-00-502	 .062 (1.57) HEX; .083 (2.11) DIA; #2-56 UNC 2A .090 (2.29) MIN PERFECT THD; .125 (3.18) DIA; .103 (2.62) MAX; .258 (6.55) MAX
	Size 100 Only Mil Spec Size H #4-40 UNC-2A	M83513/05-12	080-00-00-512	 .062 (1.57) HEX; .140 (3.56) DIA; #4-40 UNC 2A .110 (2.79) MIN PERFECT THD; .187 (4.75) DIA; .098 (2.49); .292 (7.41) MAX
 Slot Head Low Profile	Sizes 9 to 69 Contacts. Mil Spec Size A to G #2-56 UNC-2A	M83513/05-05	080-00-00-505	 .083 (2.11) DIA; #2-56 UNC 2A .090 (2.29) MIN PERFECT THD; .125 (3.18) DIA; .103 (2.62) MAX; .258 (6.55) MAX
	Size 100 Only Mil Spec Size H #4-40 UNC-2A	M83513/05-15	080-00-00-515	 .140 (3.56) DIA; #4-40 UNC 2A .110 (2.79) MIN PERFECT THD; .187 (4.75) DIA; .098 (2.49); .292 (7.41) MAX
 Hex Head Extended	Sizes 9 to 69 Contacts. Mil Spec Size A to G #2-56 UNC-2A	M83513/05-03	080-00-00-503	 .062 (1.57) HEX; .083 (2.11) DIA; #2-56 UNC 2A .090 (2.29) MIN PERFECT THD; .156 (3.96) DIA MAX; .610 (15.49) MAX; .258 (6.55) MAX
	Size 100 Only Mil Spec Size H #4-40 UNC-2A	M83513/05-13	080-00-00-513	 .062 (1.57) HEX; .140 (3.56) DIA; #4-40 UNC 2A .110 (2.79) MIN PERFECT THD; .200 (5.08) DIA MAX; .610 (15.49) MAX; .292 (7.41) MAX
 Slot Head Extended	Sizes 9 to 69 Contacts. Mil Spec Size A to G #2-56 UNC-2A	M83513/05-06	080-00-00-506	 .083 (2.11) DIA; #2-56 UNC 2A .090 (2.29) MIN PERFECT THD; .156 (3.96) DIA MAX; .610 (15.49) MAX; .258 (6.55) MAX
	Size 100 Only Mil Spec Size H #4-40 UNC-2A	M83513/05-16	080-00-00-516	 .140 (3.56) DIA; #4-40 UNC 2A .110 (2.79) MIN PERFECT THD; .200 (5.08) DIA MAX; .610 (15.49) MAX; .292 (7.41) MAX

 U.S. CAGE Code 06324 Printed in U.S.A.

Stainless Steel Jackscrew Kits with C Clips
179-013-XX

C CLIP JACKSCREW KITS



C Clip Jackscrew Kits offer an alternative to e-ring jackscrew kits. The c clip fits over the flange and, unlike e-rings, cannot be dislodged in handling or use.

Order Two Kits Per Connector. Each kit consists of one jackscrew and one c clip.

Corrosion-Resistant Steel – The clip is made from 17-7PH spring temper stainless steel. The jackscrew is made from 125 KPSI tensile strength stainless steel, passivated.

Application Note: The magnetic permeability of the c clip exceeds the 2.0 µ maximum of MIL-DTL-83513.

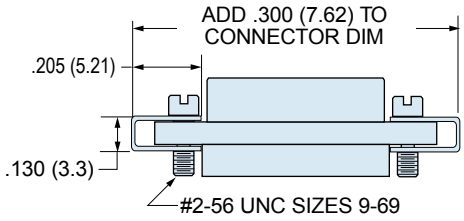


Figure 1
C Clip for Size 9 to Size 69 Pin Micro-D

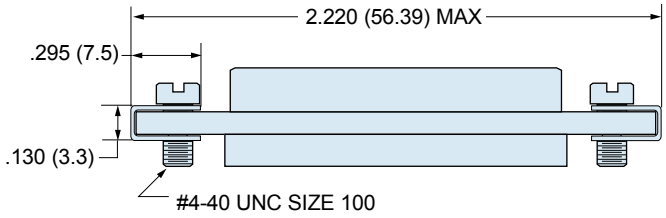


Figure 2
C Clip for Size 100 Micro-D

Part Number	Jackscrew Type	Thread Size	Configuration	Recommended Max.Torque	Max. Weight In Grams (2 Kits)
179-013-1S	Slot Head	#2-56 UNC	Figure 1	2.5 inch-pounds	1.0
179-013-1H	Hex head	#2-56 UNC	Figure 1	2.5 inch-pounds	1.0
179-013-2S	Slot Head	#4-40 UNC	Figure 2	4.0 inch-pounds	1.5
179-013-2H	Hex head	#4-40 UNC	Figure 2	4.0 inch-pounds	1.5

REPLACEMENT HARDWARE KITS FOR C CLIP MICRO-D BACKSHELLS

Replacement Hardware Kits for Standard Series 50 Micro-D Backshells.
Order Two Kits Per Connector.
Each Jackscrew kit consists of one jackscrew and one c clip.

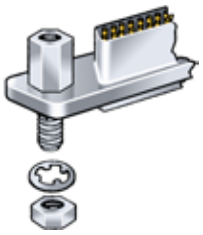
Corrosion-Resistant Steel – The clip is made from 17-7PH spring temper stainless steel. The jackscrew is made from 300 series stainless steel, passivated.

Fillister Head Jackscrew		*Hex Head Jackscrew*		*Extended Jackscrew*		*Jackpost*	
Part Number	Thread Size	Part Number	Thread Size	Part Number (dash # = size)	Overall Length	Part Number	Thread Size
687-152-01B	#2-56 (9-69 pin)	687-152-01	#2-56 (9-69 pin)	687-439-09	1.27 (32.3)	687-194	#2-56 (9-69 pin)
687-152-02B	#4-40 (100 pin)	687-152-02	#4-40 (100 pin)	687-439-15	1.40 (35.6)	687-194-1	#4-40 (100 pin)
				687-439-21	1.52 (38.6)		
				687-439-25	1.58 (40.1)		
				687-439-31	1.64 (41.7)		
				687-439-37	1.68 (42.7)		
				687-439-51	1.71 (43.3)		
				687-439-100	1.81 (46.0)		

U.S. CAGE Code 06324
Printed in U.S.A.

Stainless Steel Jackpost Kits
Standard Hex, Rear Panel or Rear Panel PCB
080-00-00-1XX, 500-069-X-X, 177-504-X-X and 177-505-X-X-X

Rear Panel Mount Micro-D Jackpost



Micro-D Jackpost Kits feature 300 series stainless steel. Select a style: standard hex posts, rear panel, or rear panel printed circuit board.

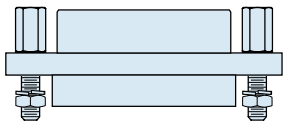
Order One Kit Per Connector. Each kit contains two jackposts.

JACKPOST GENERAL INFORMATION

1. Material and Finish:	Corrosion resistant steel in accordance with ASTM A484 and ASTM A582, passivated in accordance with ASTM A967.
2. Torque:	#2-56 threads= 2.5 inch-pounds, #4-40 threads = 4.0 inch-pounds. Maximum recommended torque for installation and operation.
3. Standard Package:	One kit consists of two jackposts, 2 washers and 2 nuts for styles 1 and 2. Style 3 kits contain two jackposts. One kit per bag.
4. Application:	Style 1 and 2 jackposts are compatible with any standard Micro-D connector. Style 3 jackposts for rear panel mounting Glenair printed circuit board connectors types BS, BR, and CBR only.

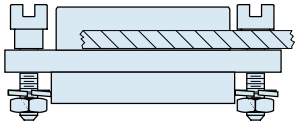
SELECT A JACKPOST STYLE

Style 1



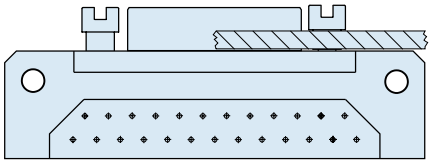
Use With Standard Solder Cup or Pigtail Micro-D Connectors

Style 2



Use With Rear Panel Mounted Solder Cup or Pigtail Micro-D Connectors

Style 3



Use With Rear Panel Mounted Printed Circuit Board Micro-D Connectors

STYLE 1 JACKPOST KITS

Style 1 Jackpost Kits are standard kits for installation on all standard Micro-D connectors. Each kit contains two jackposts, two hex nuts and two lockwashers.

Connector Sizes (THDS)	Mil Spec Part Number	Glenair Part Number	A Length In. ± .015	A Length mm. ± 0.4	Figure
9 — 69 M83513 sizes A thru G (#2-56)	M83513/05-07	080-00-00-100	.475	12.1	Figure 1
		500-069-2-1	.688	17.5	
		500-069-2-2	.813	20.7	
		500-069-2-3	.938	23.8	
		500-069-2-4	1.063	27.0	
		500-069-2-5	1.188	30.2	
100 M83513 size H (#4-40)	M83513/05-17	080-00-00-101	.475	12.1	Figure 2
		500-069-4-1	.680	17.3	
		500-069-4-2	.805	20.4	
		500-069-4-3	.930	23.6	
		500-069-4-4	1.055	26.8	
		500-069-4-5	1.180	30.3	

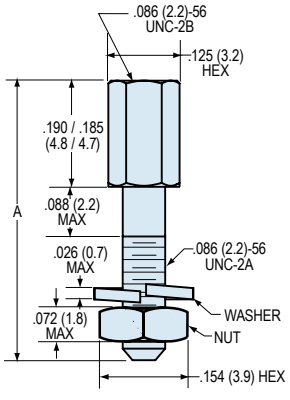


Figure 1
#2-56 Jackpost

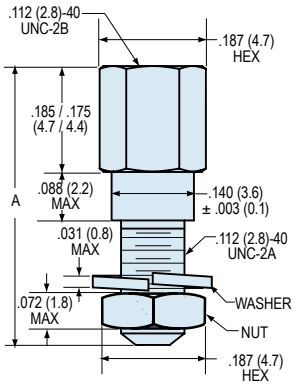


Figure 2
#4-40 Jackpost

Stainless Steel Jackpost Kits
Standard Hex, Rear Panel or Rear Panel PCB
080-00-00-1XX, 500-069-X-X, 177-504-X-X and 177-505-X-X-X

STYLE 2 JACKPOST KITS FOR REAR MOUNTED CONNECTORS

Style 2 Jackpost Kits are for rear panel mounted connectors. These round, slotted posts accommodate panel thickness from .031 inches (0.8 mm.) to .125 inches (3.2 mm.).

Connector Size (THDS)	Panel Thickness In.	Panel Thickness mm	Part Number	A In. ± .003	A mm. ± 0.08	Figure
9 — 69 M83513 sizes A thru G (#2-56)	.031	0.8	177-504-2-2	.024	0.61	Figure 1
	.047	1.2	177-504-2-3	.041	1.04	
	.062	1.6	177-504-2-4	.055	1.40	
	.094	2.4	177-504-2-5	.086	2.18	
	.125	3.2	177-504-2-6	.118	3.00	
	.080	2.0	177-504-2-7	.073	1.85	
100 M83513 size H (#4-40)	.031	0.8	177-504-4-2	.024	0.61	Figure 2
	.047	1.2	177-504-4-3	.041	1.04	
	.062	1.6	177-504-4-4	.055	1.40	
	.094	2.4	177-504-4-5	.086	2.18	
	.125	3.2	177-504-4-6	.118	3.00	
	.080	2.0	177-504-4-7	.073	1.85	

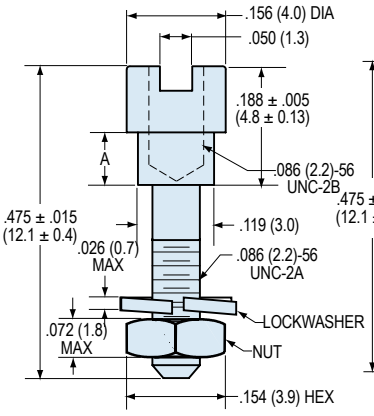


Figure 1
#2-56 Jackpost

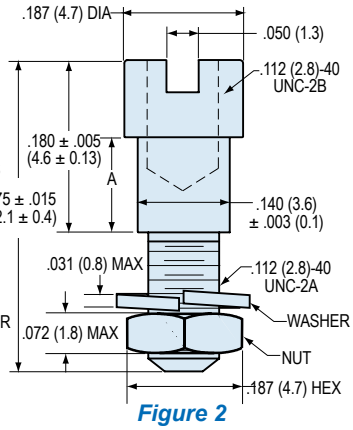


Figure 2
#4-40 Jackpost

STYLE 3 JACKPOST KITS FOR PRINTED CIRCUIT BOARD CONNECTORS

Style 3 Jackpost Kits are for rear panel mounted PCB connectors. Select the right post by choosing the connector style (BS, BR and CBR are the three standard PCB connector configurations).

Connector Size (THDS)	Connector Style, Overall Length	Panel Thickness In.	Panel Thickness mm.	Part Number	A In. ± .003	A mm. ± 0.08	Figure
9 — 69 M83513 sizes A thru G (#2-56)	BS, CBR .365 (9.3) OAL	.031	0.8	177-505-A-2-2	.024	0.61	Figure 1
		.047	1.2	177-505-A-2-3	.041	1.04	
		.062	1.6	177-505-A-2-4	.055	1.40	
		.094	2.4	177-505-A-2-5	.086	2.18	
		.125	3.2	177-505-A-2-6	.118	3.00	
	BR .398 (10.1) OAL	.031	0.8	177-505-B-2-2	.024	0.61	
		.047	1.2	177-505-B-2-3	.041	1.04	
		.062	1.6	177-505-B-2-4	.055	1.40	
		.094	2.4	177-505-B-2-5	.086	2.18	
		.125	3.2	177-505-B-2-6	.118	3.00	
100 M83513 size H (#4-40)	BR, CBR .475 (12.1) OAL	.031	0.8	177-505-C-4-2	.024	0.61	Figure 2
		.047	1.2	177-505-C-4-3	.041	1.04	
		.062	1.6	177-505-C-4-4	.055	1.40	
		.094	2.4	177-505-C-4-5	.086	2.18	
		.125	3.2	177-505-C-4-6	.118	3.00	
	BS .360 (9.1) OAL	.031	0.8	177-505-D-4-2	.024	0.61	
		.047	1.2	177-505-D-4-3	.041	1.04	
		.062	1.6	177-505-D-4-4	.055	1.40	
		.094	2.4	177-505-D-4-5	.086	2.18	
		.125	3.2	177-505-D-4-6	.118	3.00	

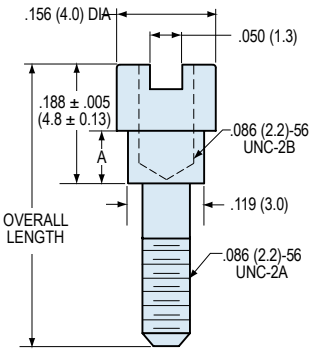


Figure 1
#2-56 Jackpost

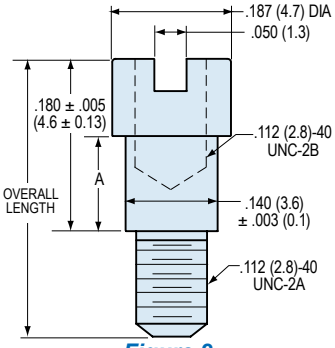


Figure 2
#4-40 Jackpost

For CBS Style Circuit Board Connectors—See Catalog Page C-16

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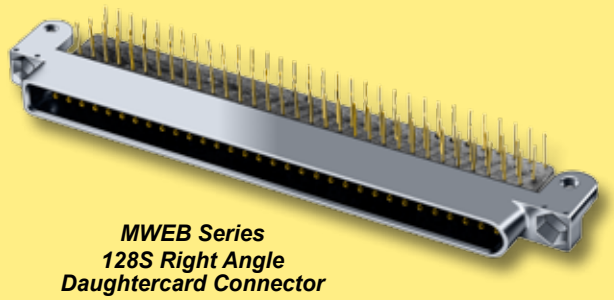
PRODUCT SELECTION GUIDE

Rugged Mil Spec Performance in a High-Density Backplane Connector System: The MWEB EdgeBoard



MWEB Series
128S Right Angle
Daughtercard Connector

MWEB EdgeBoard Connectors

These two row .050 inch (1.27 mm) pitch connectors are designed for motherboard-to-daughtercard applications. Available in four styles: surface mount cardedge for daughtercards, vertical thru-hole for motherboards, right angle thru-hole for daughtercards, and prewired cable connectors, these MWEB connectors feature rugged aluminum shells and TwistPin contacts. The single gang 128 pin and the two gang 184 pin (2 X 92 pin) are a ruggedized alternative to commercial board connectors.

MWKQ Micro Cicular Connectors Feature Quick Coupling and Quick Release

MWKQ Micro Circular Connectors

The MWKQ connector provides quick-disconnect capability combined with a high-performance contact system and rugged construction. Intended for panel-to-cord I/O applications, these connectors are found in tactical military equipment, weapons systems and various instrumentation applications.
Available in two sizes with 7 or 19 contacts, the MWKQ is factory-terminated to the wire of your choice. Shielded, overmolded cordsets and other custom versions are available.

MWKQ Series
19P Panel Mount
Receptacle

MWKQ Series
19S Cable Plug

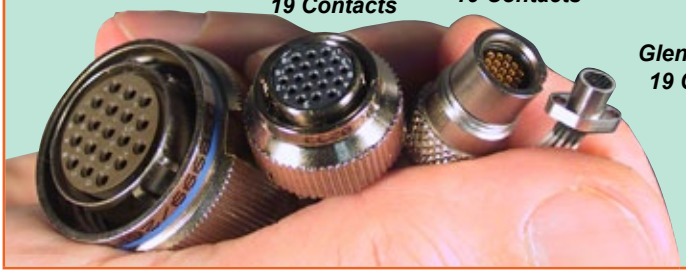
Page P-13

D38999
19 Contacts

Glenair Series 80
19 Contacts

MWKQ Series
19 Contacts

*Glenair Nano**
19 Contacts



*The Glenair Series 89 Nanominiature Connectors Catalog is available online at www.glenair.com

P

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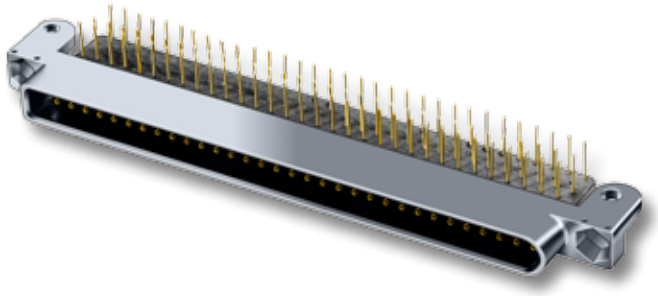
Glenair®

MWEB Series
EdgeBoard Connectors



Industry-Standard, Approved for Airborne Computers

MWEB EdgeBoard connectors meet the requirements of MIL-DTL-55302/120 thru /123. Available with 128 or 184 contacts.

Rugged Aluminum Shell and TwistPin Contacts

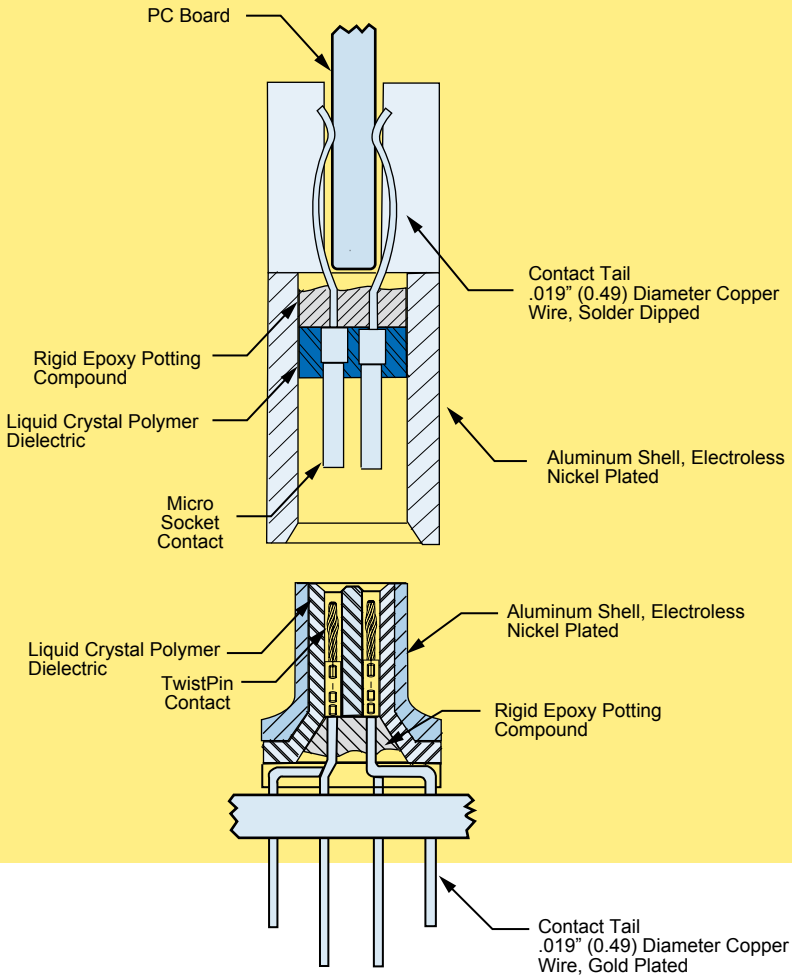
MWEB connectors share the same design and construction as the Glenair Micro-D M83513 connector.

Backplane, Daughtercard and Wired

Vertical mount thru-hole motherboard connectors and straddle mount daughtercard connectors are complemented by right angle thru-hole and pre-wired I/O versions.

Rugged Mil Spec Performance in a High-Density Backplane Connector System: The MWEB EdgeBoard

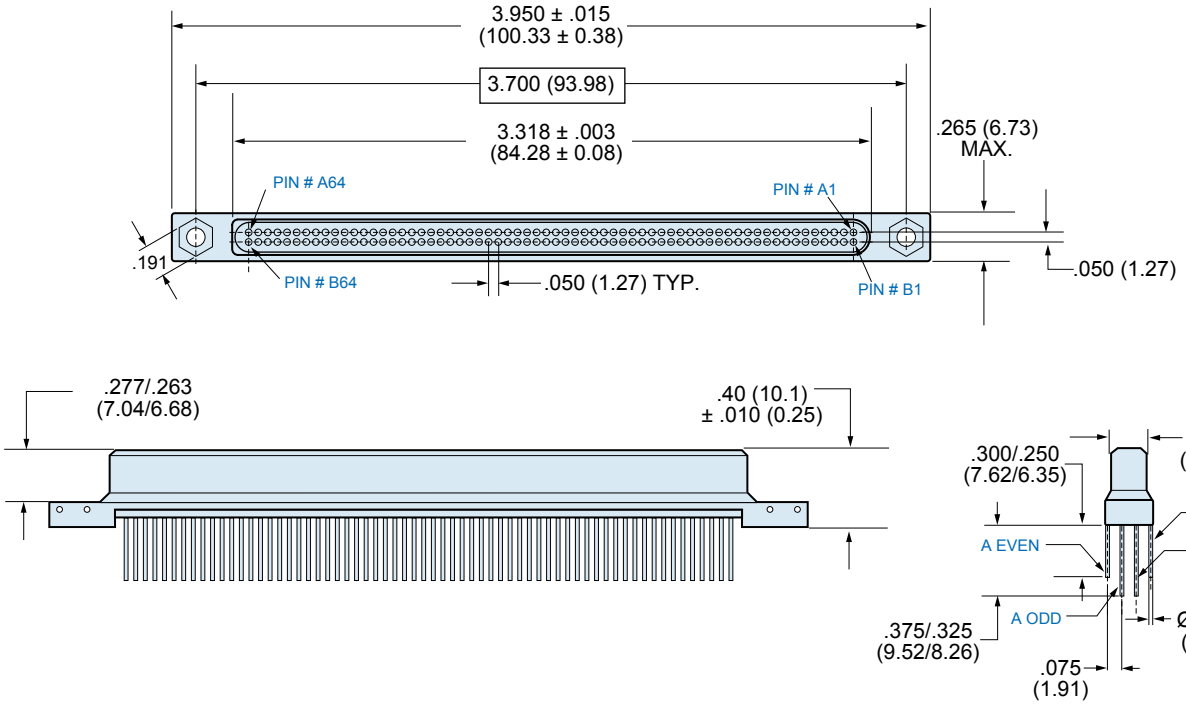
Featuring a width of only ¼ inch (6.4 mm.), MWEB Series connectors provide high-density in a rugged metal shell connector. Contacts are rated at 3 amps, and the DWV voltage rating is 300 volts AC RMS at 70,000 feet altitude. The two row, .050 inch (1.54 mm.) spacing is made possible by using TwistPin reverse gender contacts. Insert-molded LCP insulators are resistant to heat and chemicals. Contacts are beryllium copper with fifty microinches of gold plating. Shells are machined aluminum alloy. Hexagonal polarizing keys allow up to 36 keying options.



P

MWEB-128P BACKPLANE THRU-HOLE CONNECTOR

Part Number MWEB2L-128P5W4-.375



PATTERN SHOWN IS FOR CONNECTOR
MOUNTING SIDE OF PC BOARD

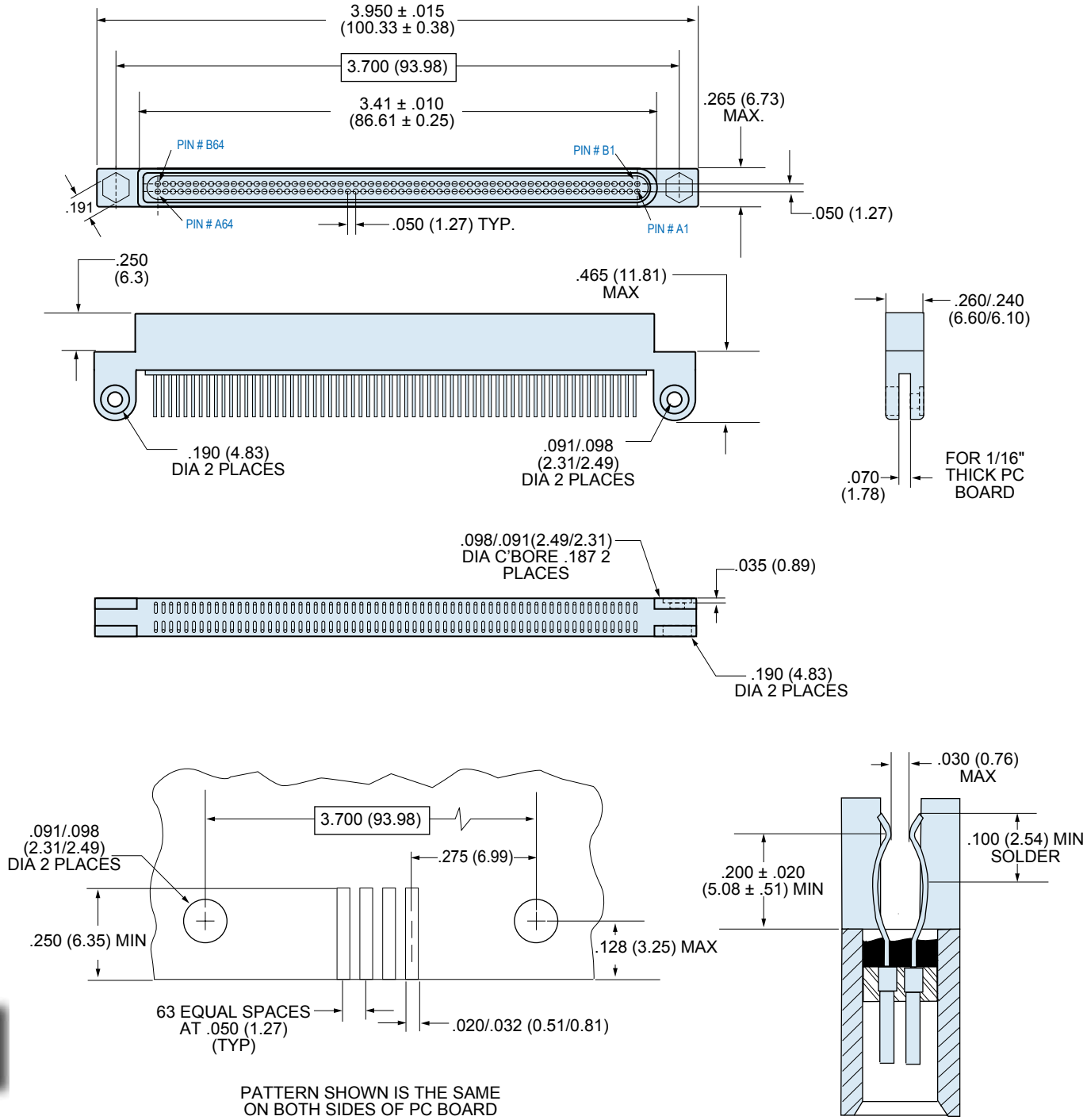
P

Glenair®

Straddle Mount
Card-Edge Connector
MWEB-128S

MWEB-128S STRADDLE MOUNT CARDEDGE CONNECTOR

Part Number MWEB2L-128S4BS3



P

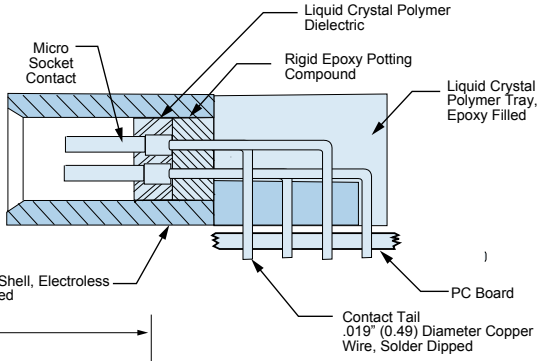
MWEB-128S RIGHT ANGLE PCB CONNECTOR

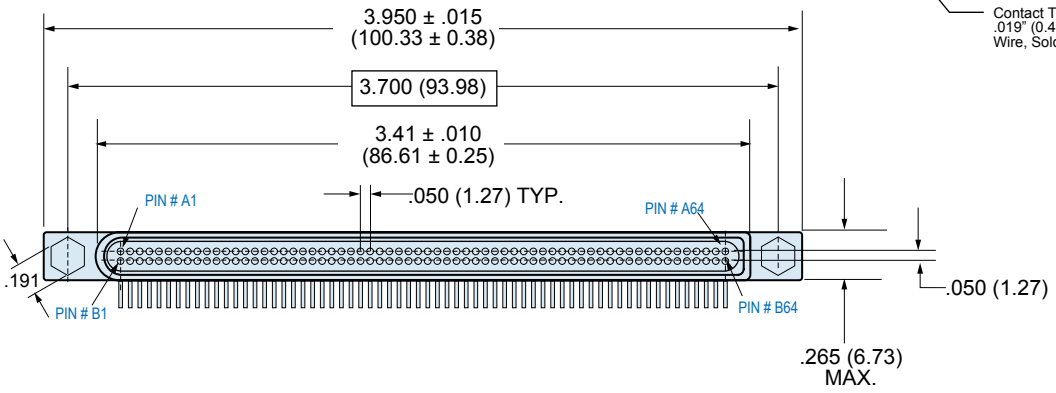
MWEB2L-128SBR-.125

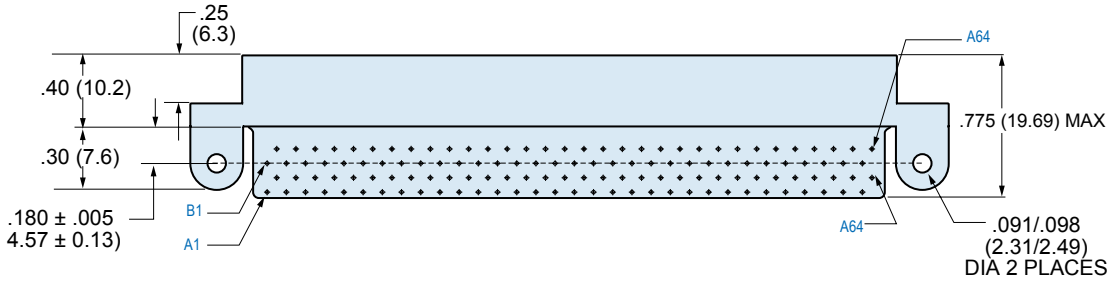
Base Part Number

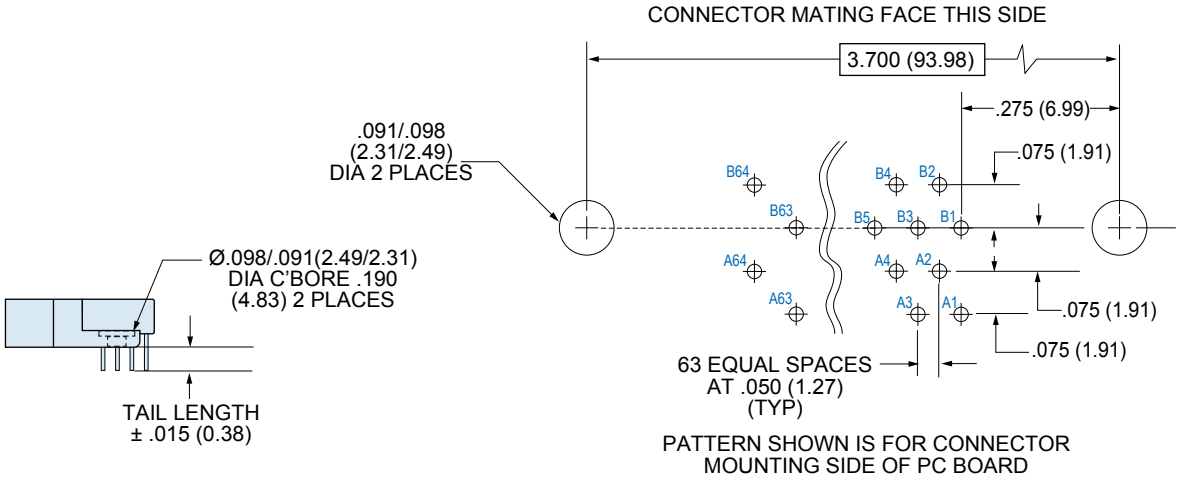
PC Tail Length

.090
.125
.190
.250







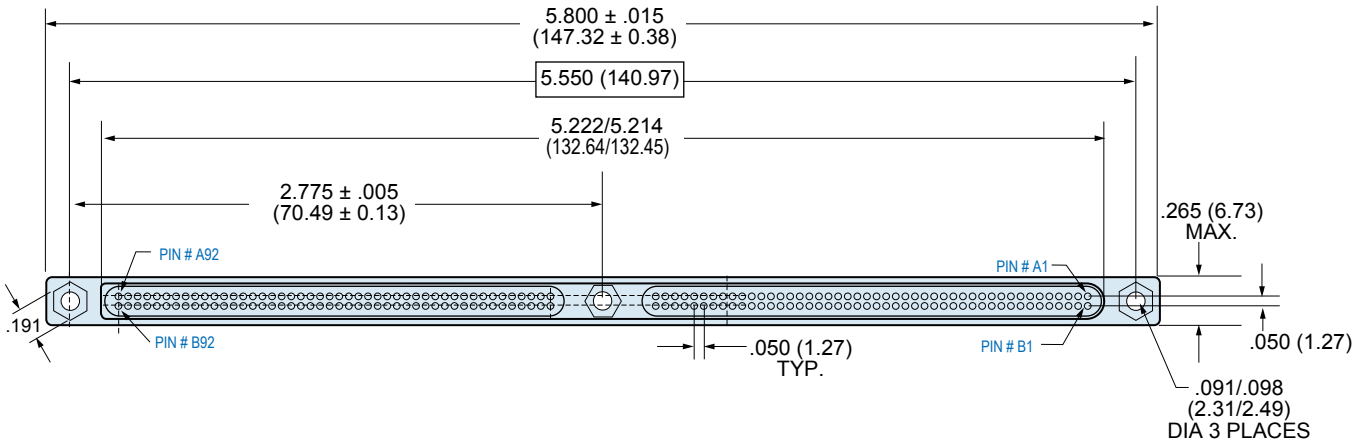


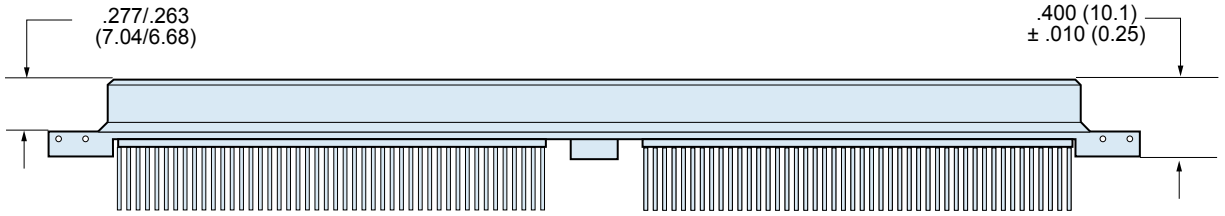
P

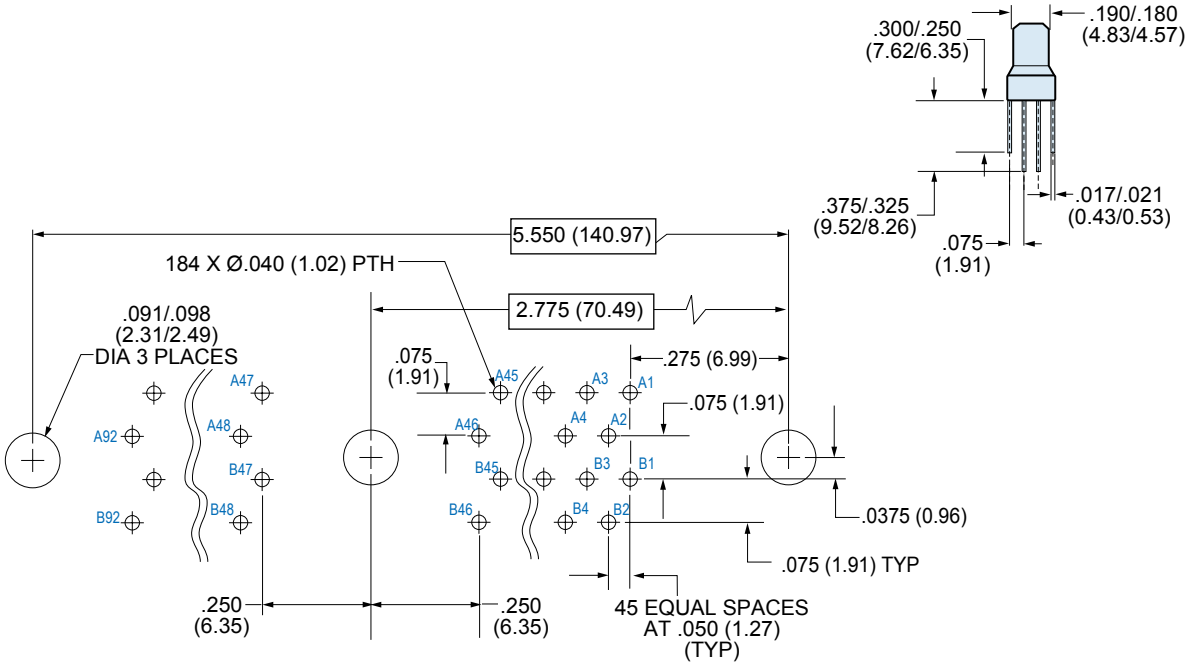
Vertical Mount
Backplane Connector
MWEB-184P

MWEB-184P BACKPLANE THRU-HOLE CONNECTOR

Part Number MWEB2L-184NP5W4-.375





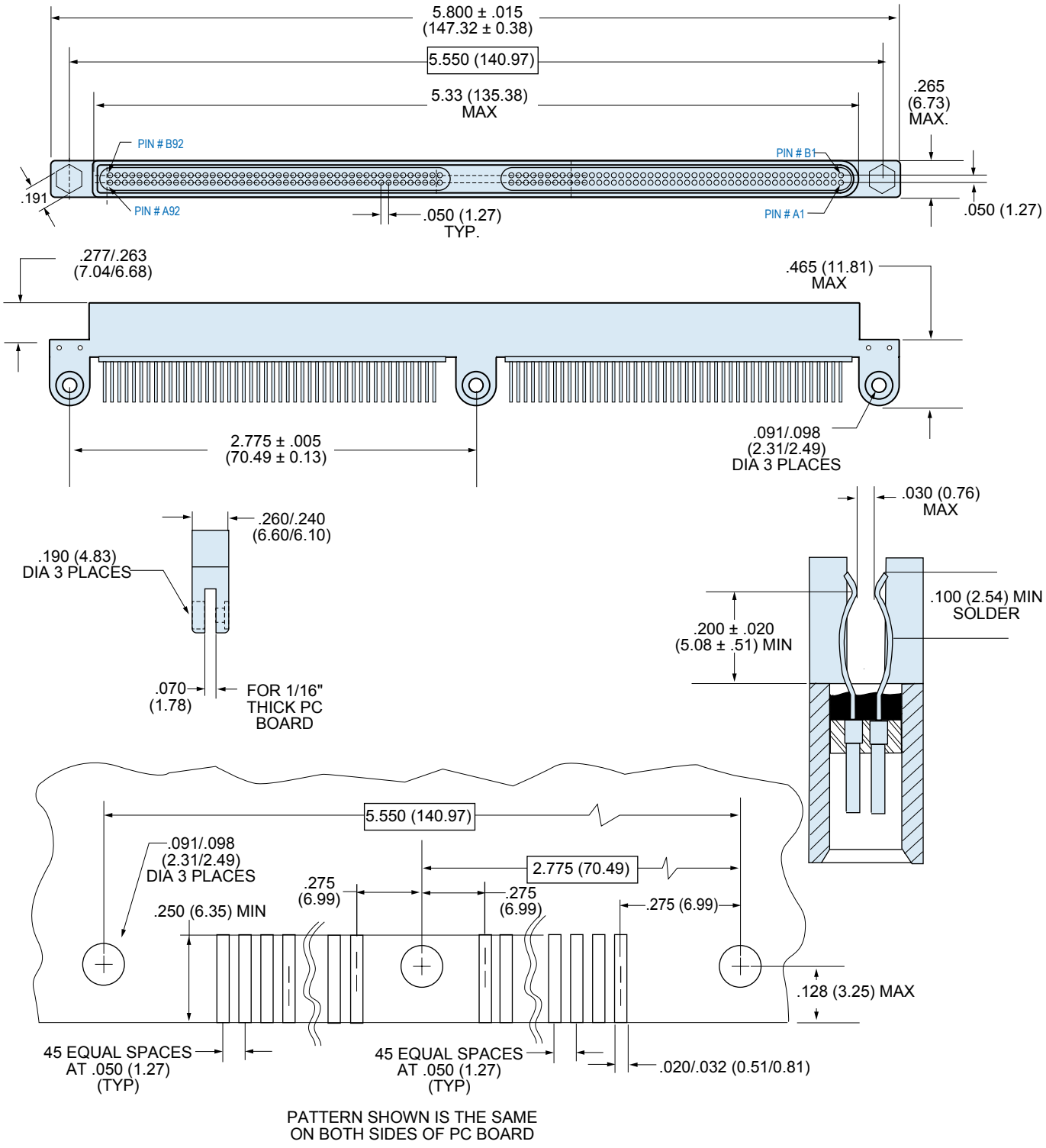


PATTERN SHOWN IS FOR CONNECTOR
MOUNTING SIDE OF PC BOARD

P

MWEB-184S STRADDLE MOUNT CARDEDGE CONNECTOR

Part Number MWEB2L-184NS4BS3



PATTERN SHOWN IS THE SAME
ON BOTH SIDES OF PC BOARD

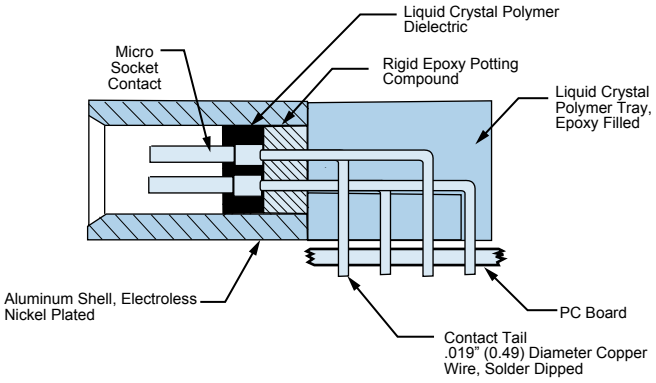
Right Angle Board Connector
MWEB-184S

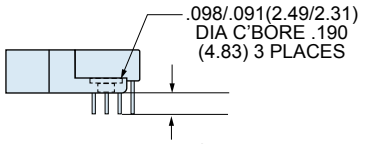
MWEB-184S RIGHT ANGLE PCB CONNECTOR

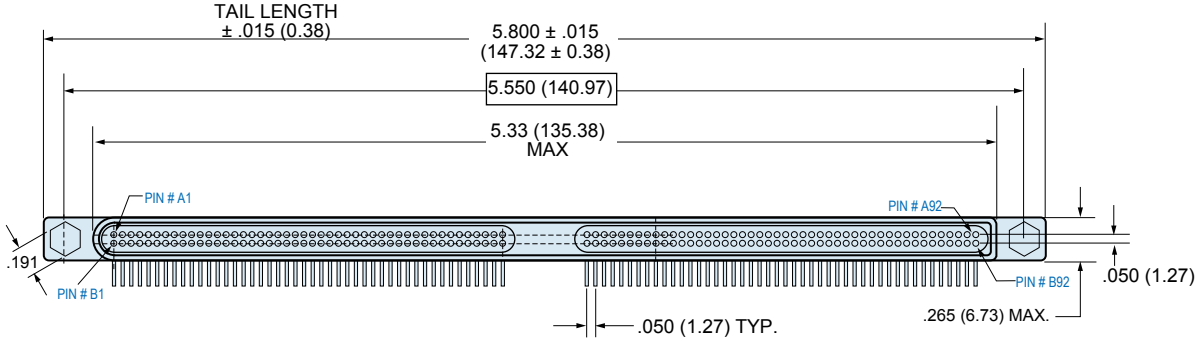
MWEB2L-184NSBR- .125

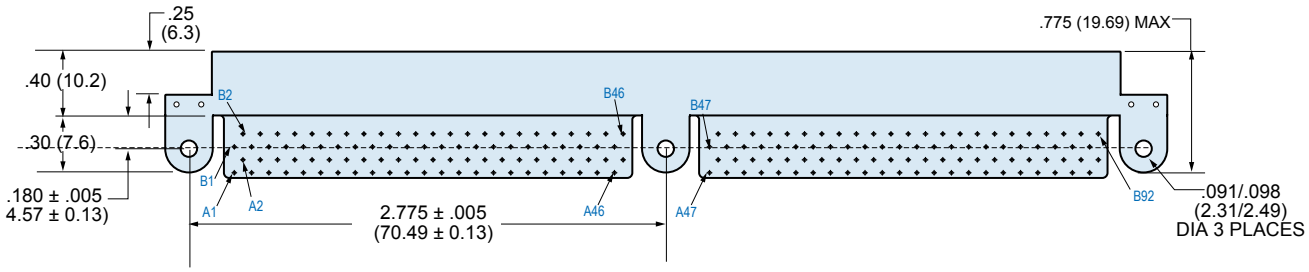
Base Part Number

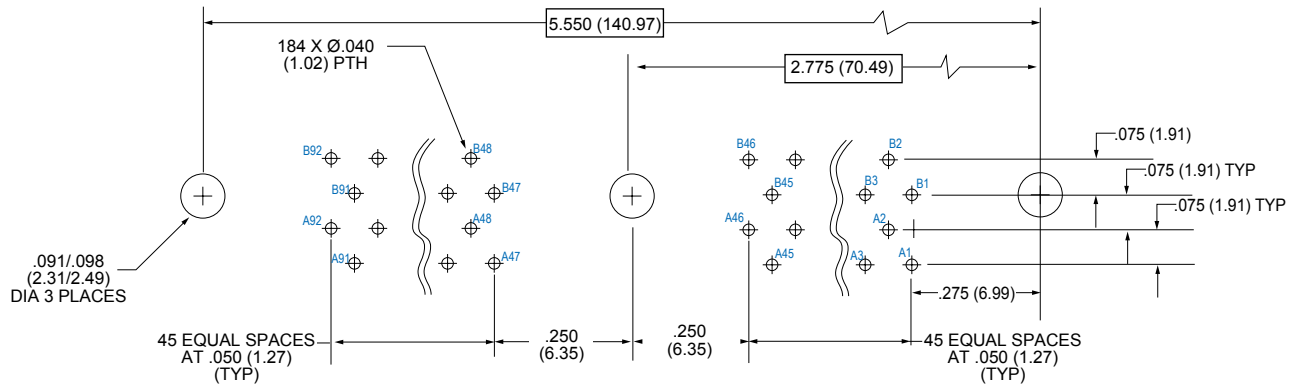
PC Tail Length
- **.090**
- **.125**
- **.190**
- **.250**











PATTERN SHOWN IS FOR CONNECTOR MOUNTING SIDE OF PC BOARD

MWEB Pre-Wired and Solder Cup Connectors
MWEB2L

MWEB EdgeBoard Connectors For Input/Output Wire-To-Board Applications

With 128 or 184 contacts, these narrow profile factory-terminated MWEB connectors provide a space-saving I/O wire to board solution. Connector width of .25 inch (6.4 mm.) allows for high-density card slots.

High Performance TwistPin Contacts

Suitable for airborne avionics processors and mission-critical computers, these pre-wired connectors feature interfacial seals and backpotting for improved environmental protection. Or, choose solder cup connectors for integration into wire harnesses.

HOW TO ORDER MWEB PIGTAIL CONNECTORS

Series	Layout	Contact Type	Wire Gage (AWG)	Wire Type	Wire Color	Wire Length Inches	Hardware Option
MWEB2L	128 184N	P – Pin S – Socket	4 – #24 6 – #26 8 – #28 0 – #30	K – M22759/11 600 Vrms Teflon® (TFE) J – M22759/33® 600 Vrms Modified Cross-Linked Tefzel (ETFE)	1 – White 2 – Yellow 7 – Ten Color Repeating	18 Total Length In Inches. "18" Specifies 18 Inches.	N – No hardware J – Jackscrews P – Jackposts
Sample Part Number							
MWEB2L	– 128	P	– 6	K	7	– 24	N

HOW TO ORDER MWEB SOLDER CUP CONNECTORS

Series	Layout	Contact Type	Termination Type	Hardware Option
MWEB2L	128 184N	P – Pin S – Socket	S – Solder Cup	N – No hardware J – Jackscrews P – Jackposts
Sample Part Number				
MWEB2L	– 128	P	S	N

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MWEB
Jackscrew and Jackpost Kits
080-00-00-810

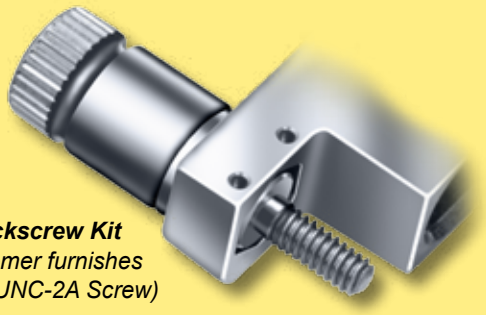
MWEB HARDWARE KITS

MWEB Jackscrew and Jackpost Kits

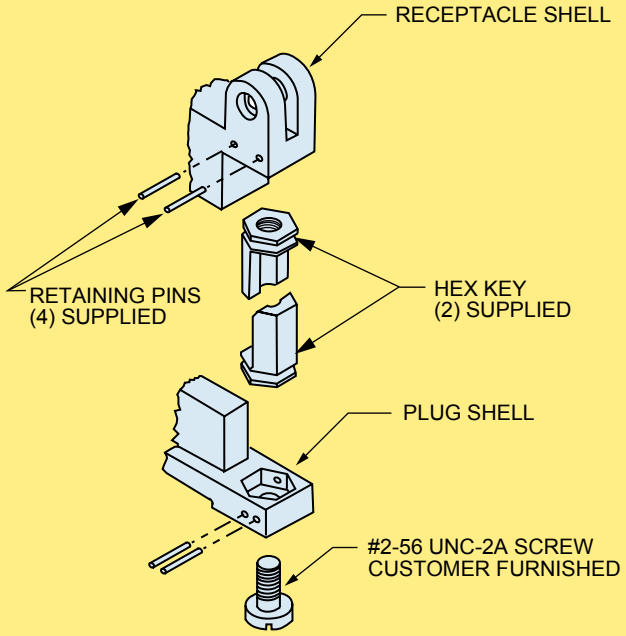
Stainless steel jackscrew kits are stainless steel and install with roll pins. Insert the stud through the flange from the mating side, then install the knurled head from the other side and attach to stud with a roll pin. Each kit contains two studs, two heads and two retainer pins.

Jackscrew Part Number (xx)

Jackpost Part Number (xx)



Jackscrew Kit
(Cutomer furnishes #2-56 UNC-2A Screw)



MWEB Polarizing Keys

These stainless steel pol keys meet the requirements of MIL-C-55302/124-01. (6) keying positions per end equals (36) total positions. Install with roll pins, supplied. Half-hex keys are tapped for optional #2-56 screw installation. Kit consists of (2) keys and (4) retainer pins.

Part Number 080-00-00-810

P

Quick Disconnect
Micro Circular Connectors
MWKQ2L7

Plug With Socket Contacts

Receptacle With Pin Contacts

MWKQ Micro Circular Connectors feature quick coupling and quick release. The plug has a knurled release sleeve. To unmate, just pull back on the sleeve, compressing the locking ring and free it from the receptacle.

Choose (7) or (19) Contacts – Connectors are supplied with hookup wires installed and potted.

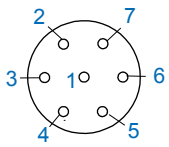
HOW TO ORDER PLUG (SOCKET) CONNECTORS

Series	No. of Contacts	Contact Type	Wire Gage (AWG)	Wire Type	Wire Color	Wire Length Inches
MWKQ2L6	7 19	S – Socket	4 – #24 6 – #26 8 – #28 0 – #30	K – M22759/11 600 Vrms Teflon® (TFE) J – M22759/33 600 Vrms Modified Cross-Linked Tefzel® (ETFE)	1 – White 2 – Yellow 5 – Color Coded Striped Wire Per MIL-STD-681 7 – Ten Color Repeating	18 Length In Inches. "18" Specifies 18 Inches.
Sample Part Number						
MWKQ2L6	– 19	S	– 6	K	7	– 24

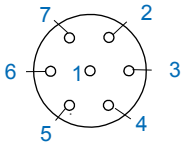
HOW TO ORDER RECEPTACLE (PIN) CONNECTORS

Series	No. of Contacts	Contact Type	Wire Gage (AWG)	Wire Type	Wire Color	Wire Length Inches
MWKQ2L7	7 19	P – Pin	4 – #24 6 – #26 8 – #28 0 – #30	K – M22759/11 600 Vrms Teflon (TFE) J – M22759/33 600 Vrms Modified Cross-Linked Tefzel (ETFE)	1 – White 2 – Yellow 7 – Ten Color Repeating	18 Length In Inches. "18" Specifies 18 Inches.
Sample Part Number						
MWKQ2L7	– 7	P	– 6	K	7	– 24

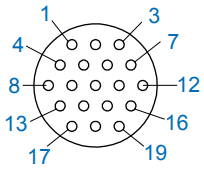
CONTACT ARRANGEMENTS



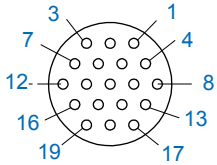
7 Contacts
Face View Pin Connector
(Receptacle)



7 Contacts
Face View Socket Connector
(Plug)



19 Contacts
Face View Pin Connector
(Receptacle)



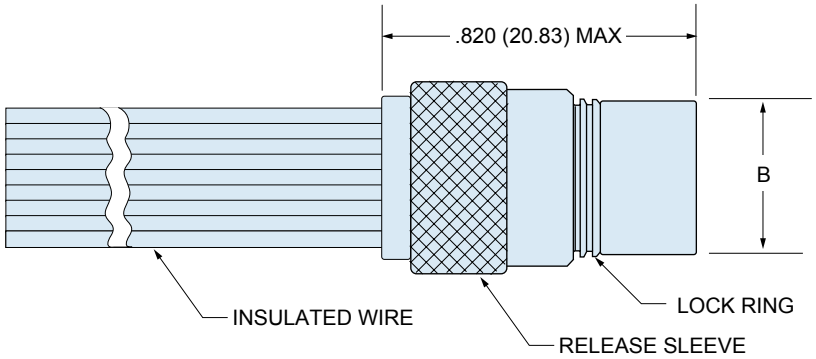
19 Contacts
Face View Socket Connector
(Plug)

P

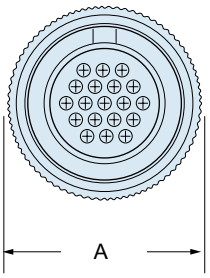
Quick Disconnect
Micro Circular Connectors
MWKQ2L7

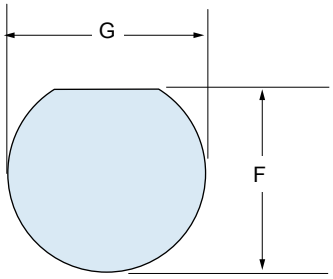
PERFORMANCE SPECIFICATIONS	
Current Rating	3 AMP
Dielectric Withstanding Voltage	600 VAC Sea Level 150 VAC 70,000 Feet
Insulation Resistance	5000 Megohms Minimum
Contact Resistance	8 Milliohms Maximum
Low Level CR	32 Milliohms Maximum
Operating Temperature	-55° C. to +150° C.
Shock	50 g.
Vibration	20 g.
Mating Force	(10 Ounces) X (# of Contacts)

MATERIALS AND FINISHES	
Connector Shell, Release Sleeve, Jam Nut	Aluminum Alloy 6061 with Electroless Nickel Plating
Insulator	Liquid Crystal Polymer (LCP)
Lock Ring	Stainless Steel
Pin Contact	Beryllium Copper With 50 Microinches Gold over Nickel Plating
Socket Contact	Copper Alloy With 50 Microinches Gold Over Nickel Plating
Encapsulant	Epoxy Resin Hysol EE4215

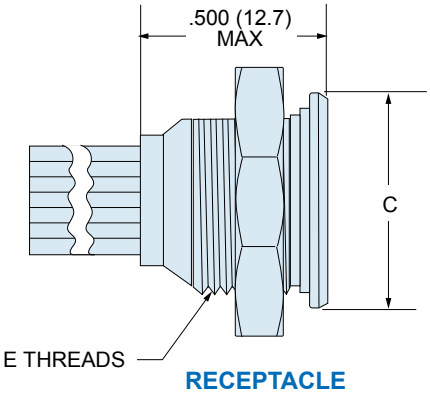


PLUG CONNECTOR

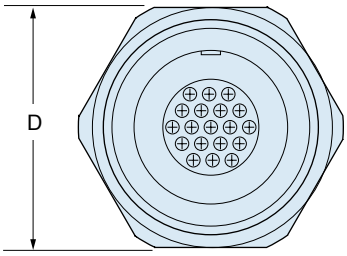




PANEL CUTOUT



RECEPTACLE CONNECTOR



P

DIMENSIONS

Layout	A Max. In.	A Max. mm.	B Max. In .	B Max. mm.	C Max. In.	C Max. mm.	D Hex. In.	D Hex. mm.	E Thds.	F In. ± .005	F mm. ± 0.13	G Dia. In.	G Dia. mm.
7	.385	9.78	.305	7.75	.500	12.7	.500	12.70	.3125-32 UNEF-2A	.364	9.25	.390	9.91
19	.515	13.08	.405	10.28	.570	14.48	.625	15.88	.500-28 UNEF-2A	.475	12.07	.515	13.08

Need Something Even Smaller?

Glenair Circular Nanominiature Connectors Offer Ultra-High Density Contact Spacing for Maximum Weight and Space Savings

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Holy Locking Micro!

Glenair Locking MicroStrips Deliver Reliable Performance and Durability in a Space-Saving, Single-Row Package

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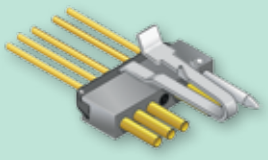
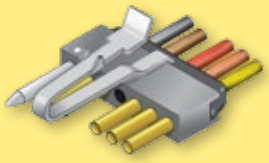
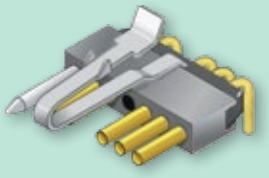
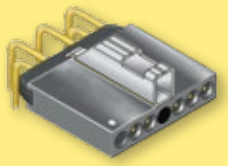
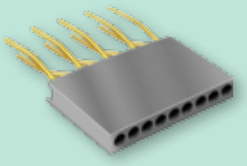
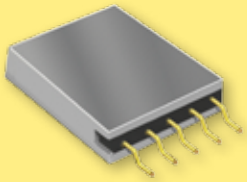
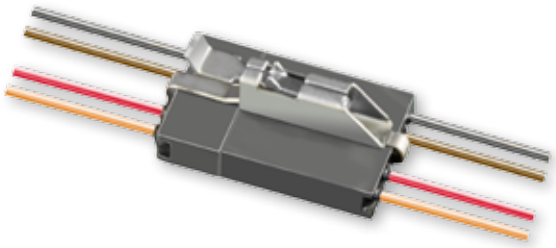
Section R Series 171 MicroStrips Product Selection Guide

Solder Cup MicroStrips **171-001** **Page Q-4**		**Single Row MicroStrips with Solder Cup Contacts** Solder cup contacts for termination to #24 to #30 solid or stranded wire. Available in 1 to 30 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. 3 Amp, 600 Vac,-55C to +150C.
Solid Wire MicroStrips **171-002** **Page Q-6**		**Single Row MicroStrips with Solid Wire** Factory-terminated to solid copper wire. Available in 1 to 30 positions. Optional pre-tinned leads or standard gold plated wire. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. 3 Amp, 600 Vac,-55C to +150C.
Pre-Wired MicroStrips **171-003** **Page Q-7**		**Single Row MicroStrips with Insulated Stranded Wire** Factory-terminated to mil spec high-temperature wire, size #24 to #30. Available in 2 to 30 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. 3 Amp, 600 Vac,-55C to +150C.
Right Angle PCB .050" Spacing **171-004** **Page Q-9**		**Single Row Right Angle PCB- .050" Board Spacing** Thru-hole mounting. Gold-plated .020" diameter right angle PC tails are on .050" centers for maximum density . Available in 1 to 30 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. 3 Amp, 600 Vac,-55C to +150C.
Right Angle PCB Staggered **171-005, 171-006** **Page Q-9**		**Right Angle PCB- Staggered** Thru-hole mounting. Gold-plated .020" diameter right angle PC tails are on staggered .050" or .100" spacing between rows. Available in 1 to 30 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. 3 Amp, 600 Vac,-55C to +150C.
Vertical Mount PCB Headers **171-007** **Page Q-9**		**Single Row Vertical PCB** Thru-hole mounting. Gold-plated .020" diameter PC tails are spread to .100" by .100" centers for easy placement. Available in 1 to 30 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. 3 Amp, 600 Vac,-55C to +150C.
Surface Mount **171-008** **Page Q-13**		**Surface Mount PCB- .050" Board Spacing** .013" diameter tails are formed to allow soldering to the surface of a PC board or flex circuit. Tails are solder-dipped in 63/37 tin-lead. Available in 1 to 30 positions. High performance M83513 TwistPin contact system. Contacts are factory-installed, non-removable and are encapsulated with epoxy. 3 Amp, 600 Vac,-55C to +150C.

Q

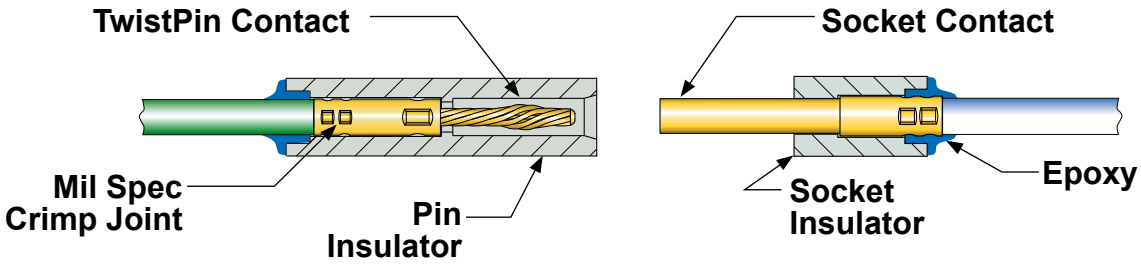
Series 171 MicroStrips
General Information



- High Reliability TwistPin Contact System
- #24-30 AWG Wire Size
- .050" Pitch Contact Spacing
- Solder Cup, Pre-Wired or PCB Headers
- 3 Amps, +150C, 600 Vac

Series 171 MicroStrips Deliver TwistPin Performance and Durability
In an Economical, Space-Saving Single Row Package

Series 171 MicroStrips are intended for high reliability board-to-wire I/O and wire-to-wire applications. These non-environmental strips are typically used inside ruggedized equipment where moisture ingress is not a factor. The MicroStrip connector provides significant advantages compared to commercial-grade headers and jumpers. The rugged, high force twistpin contact accepts up to #24 gage wire, the current rating is 3 Amps, the voltage rating is 600 Vac, and the temperature rating is -55C to +150C. The Series 171 strip connector meets all applicable requirements of MIL-DTL-83513. Choose solder cup, pre-wired, or printed circuit board versions. A stainless steel latch provides secure coupling.



Why Choose TwistPins?

The Glenair TwistPin contact system provides a superior wire attachment compared to stamped contacts. This translates into lower long-term contact resistance—and it does so under extreme conditions of vibration, shock and high heat. Plus, TwistPin connectors offer design flexibility without the penalty of longer delivery, setup charges or minimum order quantities.

Materials and Finishes	
Contacts	Copper alloy, 50 µInch gold plated
Insulators	Liquid crystal polymer (LCP)
Latch	Stainless Steel
Guide Pin	Stainless Steel
Potting Compound	Epoxy
Insulated Wire	Per MIL-W-22759/11 and /33
Solid Wire, PC Tails	Per A-A-59551, gold plated or tinned

Specifications	
Current Rating	3 Amps
Contact Resistance	8 milliohms maximum
Dielectric Withstanding Voltage	600 Vac sea level
Insulation Resistance	5000 megohms minimum
Operating Temperature	-55° C. to +150° C.
Shock	300 g.
Vibration	37 g.

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About Spring Latches, Guide Pins and Mounting Holes

Optional stainless steel latch clips provide secure mating when subjected to shock and vibration. A single center latch is suitable for most applications (Fig. 1 and Fig. 2). Dual end latches are also available (Fig. 3). The spring latch is always installed on the socket strip (Fig. 1). The latch receiver is installed on the pin strip (Fig. 2). To unmate the connectors, simply press the release tab while pulling the connectors apart. MicroStrips are available with stainless steel guide pins. A single guide pin provides circuit polarization. A guide pin on each end (Fig. 2) helps to align connectors when mating and prevents damage to contacts. For most applications the preferred configuration is a single center latch with no guide pins. Mounting holes are now available (Fig.3). Attach strips to circuit boards with size 0-80 screws (customer-supplied).

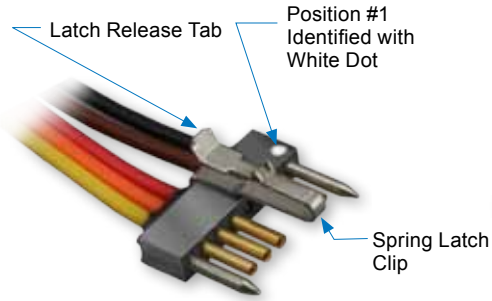


Figure 1
Socket Strip with Center Latch
Part Number 171-003-8S-6K7-18-PBCL
Spring latch installed in the center cavity of the socket MicroStrip. Ordering Code CL for Center Latch. This strip has 5 circuits plus one cavity for the latch and two for the guide pins, for a total of 8 cavities. Note the white paint dot on the insulator. This dot indicates position #1. The wire color code system is "10 Color Repeating". Wire #1 is black, followed by brown, red, orange, yellow, green, blue, violet, grey and white.

Figure 2
Pin Strip with Center Latch and Guide Pins at Both ends.
Part Number 171-003-8P-6K7-18-PBCL
Spring latch installed in the center cavity and guide pins installed in end cavities. This strip has five electrical circuits plus two positions for guide pins and one position for the latch for a total of eight cavities. The stainless steel guide pins are installed into the end cavities of the socket strip. The end cavities of the pin strip are opened up to accept the mating guide pins.

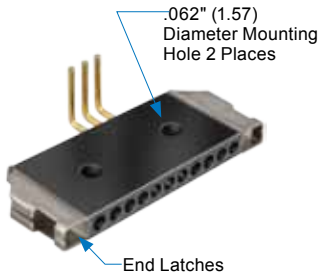


Figure 3
Right Angle PCB Header with End Latches and Mounting Holes.
Part Number 171-004-11P-.250-BLMH.
Latch clips installed into the end cavities of the MicroStrip. Ordering Code ***BL*** for Both end Latches. Note the mounting holes. These holes allow the strip to be attached to a circuit board. Each mounting hole requires three cavities. The board mount leads are formed into a single row on .050" centers.

About Board Mount Strips

Aerospace customers typically use MicroStrips for high reliability board-to-wire I/O applications. The pin strip is usually configured with right angle thru-hole PC tails. The strip is bonded to the PC board with epoxy, or attached to the board with screws installed in optional mounting holes. Surface mount and vertical mount versions are also available.

Figure 4
Right Angle Pin Strip with Staggered PC Tails, Mounting Holes and Center Latch
P/N 171-005-23P-.125-CLMH
Note that the board mounted strip has 23 cavities called out in the part number, but the mating socket strip (Fig. 1) has 17. Also note that three cavities are taken up by the mounting holes, and the position #1 white dot moves to the first electrical position.

Figure 5
Right Angle Socket Strip with Single Row PC Tails and Center Latch
P/N 171-004-30S-.172-CL
This full length strip has 30 positions including the latch. The PC tails are formed into a single row on .050 (1.27) centers.

Q

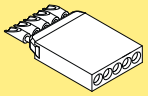
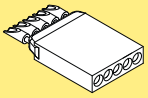
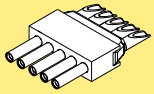
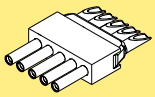
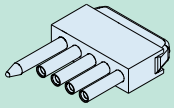
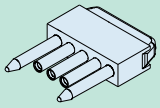
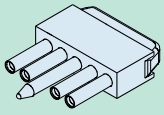
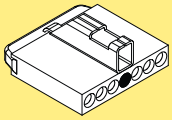
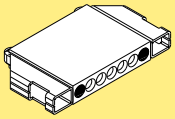
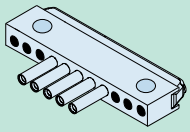
Series 171 MicroStrips
Single Row Strips with Solder Cups
171-001

171-001-7PS-P1CL

Single Row Solder Cup MicroStrips

These .050" pitch single row solder cup microstrips accept #26 to #30 gage wire with standard contacts and up to size #24 wire with "large bore" contacts. Contacts are factory-installed and potted. Available with 1 to 30 contacts. Optional stainless steel latching mechanism prevents de-mating. Guide pins provide circuit polarization. Contacts are twistpin type and are gold-plated. Housing is molded LCP thermoplastic. Suitable for high-reliability applications where long-term resistance to fretting corrosion is a necessity. 3 A., 600 Vac, -55C to +150C.

How To Order Solder Cup Microstrips

Series	Number of Cavities	Contact Gender and Solder Cup Size	Optional Guide Pin	Optional Latch	Optional Mounting Holes
171-001 Single Row MicroStrip, .050" Contact Spacing, Solder Cup Contacts	**-1 to -30** Total number of cavities including guide pins,latches and mounting holes. The number of cavities equals the number of electrical circuits plus 1 cavity for each guide pin and latch, plus 6 cavities for the mounting hole option.	**PS** Pin Contacts, Size #26 Solder Cup  **NS** Pin Contacts, Size #24 Solder Cup  **SS** Socket Contacts, Size #26 Solder Cup  **TS** Socket Contacts, Size #24 Solder Cup 	***Omit*** For No Guide Pin **-P1** Guide Pin in Cav. #1  **-PB** Guide Pin at Both Ends  **-P(X)** Replace (X) with guide pin location. P3 shown below: 	***Omit*** For No Latch **CL** Center Latch  **BL** Latch at Both Ends 	***Omit*** For No Mounting Holes **MH** Mounting Holes  The three cavities on each end are filled with epoxy. Two .062" (1.57mm) holes are cross-drilled to allow for attachment to a mounting surface.
Sample Part Number					
171-001	**- 7**	**PS**	**- P1**	**CL**	

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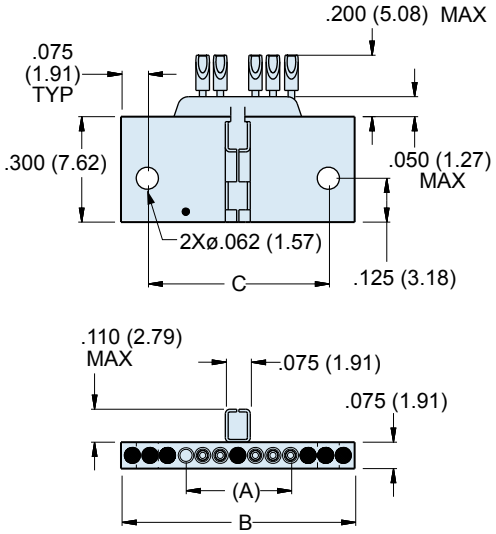
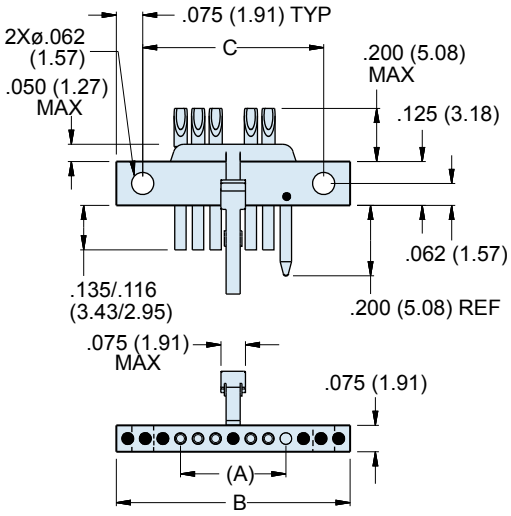
Series 171 MicroStrips
Single Row Solder Cup Strips
171-001

PIN CONNECTOR



SOCKET CONNECTOR



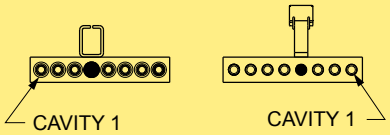
Dimensions

# of Cavities	(A) In.	(A) mm.	B Max. In.	B Max. mm.	C In.	C mm.	# of Cavities	(A) In.	(A) mm.	B Max. In.	B Max. mm.	C In.	C mm.
1	-	-	.085	2.16	N/A	N/A	**16**	.750	19.05	.835	21.21	.650	16.51
2	.050	1.27	.135	3.43	N/A	N/A	**17**	.800	20.32	.885	22.48	.700	17.78
3	.100	2.54	.185	4.70	N/A	N/A	**18**	.850	21.59	.935	23.75	.750	19.05
4	.150	3.81	.235	5.97	N/A	N/A	**19**	.900	22.86	.985	25.02	.800	20.32
5	.200	5.08	.285	7.24	N/A	N/A	**20**	.950	24.13	1.035	26.29	.850	21.59
6	.250	6.35	.335	8.51	N/A	N/A	**21**	1.000	25.40	1.085	27.56	.900	22.86
7	.300	7.62	.385	9.78	.200	5.08	**22**	1.050	26.67	1.135	28.83	.950	24.13
8	.350	8.89	.435	11.05	.250	6.35	**23**	1.100	27.94	1.185	30.10	1.000	25.4
9	.400	10.16	.485	12.32	.300	7.62	**24**	1.150	29.21	1.235	31.37	1.050	26.67
10	.450	11.43	.535	13.59	.350	8.89	**25**	1.200	30.48	1.285	32.64	1.100	27.94
11	.500	12.70	.585	14.86	.400	10.16	**26**	1.250	31.75	1.335	33.91	1.150	29.21
12	.550	13.97	.635	16.13	.450	11.43	**27**	1.300	33.02	1.385	35.18	1.200	30.48
13	.600	15.24	.685	17.40	.500	12.7	**28**	1.350	34.29	1.435	36.45	1.250	31.75
14	.650	16.51	.735	18.67	.550	13.97	**29**	1.400	35.56	1.485	37.72	1.300	33.02
15	.700	17.78	.785	19.94	.600	15.24	**30**	1.450	36.83	1.535	38.99	1.350	34.29

Center Latch Locations

Even Number of Cavities

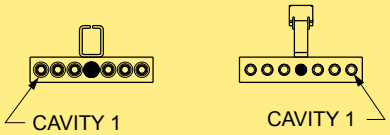
PIN CONNECTOR SOCKET CONNECTOR



Latch placed on next lower cavity prior to centerline.
Latch position = (# of Cavities) ÷ 2.

Odd Number of Cavities

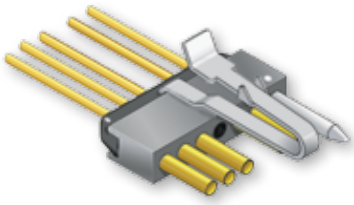
PIN CONNECTOR SOCKET CONNECTOR



Latch placed in cavity on centerline.
Latch Position = (# of Cavities+1) ÷ 2.

Q

Series 171 MicroStrips
Single Row Strips with Solid Wire
171-002

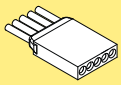
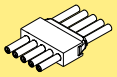
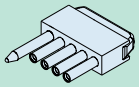
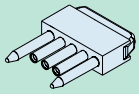
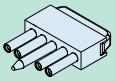
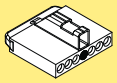
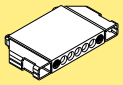
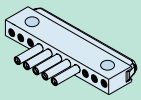


171-002-7S-5C4-1.000-P1CL

MicroStrips with Solid Wire

These .050" pitch single row microstrips are factory-crimped to gold-plated single strand copper wire. Available with 1 to 30 contacts. Can be used for PCB header. Solder-dipped versions have 63/37 tin-lead solder. Optional latching mechanism provides secure connection. Guide pins provide circuit polarization. Contacts are twistpin type and are gold-plated. Housing is molded LCP thermoplastic. Suitable for high-reliability applications where long-term resistance to fretting corrosion is a necessity. 3 A., 600 Vac, -55C to +150C.

How To Order Microstrips With Solid Wire

Series	Number of Cavities	Contact Type	Wire Gage	Wire Type	Wire Finish	Wire Length (Inches)	Optional Guide Pin	Optional Latch	Optional Mounting Holes
171-002 Single Row MicroStrip, .050" Contact Spacing, Solid Wire	**-1 TO -30** Total Number of Cavities including guide pins,latches and mounting holes. The number of cavities equals the number of electrical circuits plus 1 cavity for each guide pin and latch, plus 6 cavities for the mounting hole option.	**P** Pin Contacts  **S** Socket Contacts 	**-4** #24 AWG **-5** #25 AWG **-6** #26 AWG	**C** Single Strand Copper A-A-59551 Type S	**3** Solder Dipped in 63/37 Tin-Lead **4** Gold-plated	**.125** **.250** **.500** **1.000** **1.500** **2.000** Wire Length In Inches	***Omit*** For No Guide Pin **-P1** Guide Pin in Cav. #1  **-PB** Guide Pin at Both Ends  **-P(X)** Replace (X) with guide pin location. P3 shown below: 	***Omit*** For No Latch **CL** Center Latch  **BL** Latch at Both Ends 	***Omit*** For No Mounting Holes **MH** Mounting Holes  The three cavities on each end are filled with epoxy. Two .062" (1.57mm) holes are cross-drilled to allow for attachment to a mounting surface.
Sample Part Number									
171-002	**-7**	**S**	**-5**	**C**	**4**	**-1.000**	**-P1**	**CL**	

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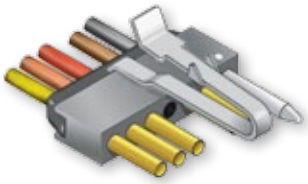
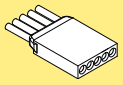
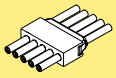
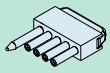
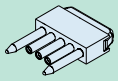
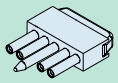
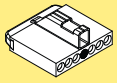
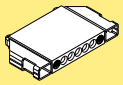
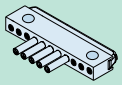


171-003-7P-6K7-18-P1CL

Single Row MicroStrips with Insulated Stranded Wire

These .050" pitch single row microstrips are factory-terminated to military-grade hookup wire. Crimp termination. Available with 1 to 30 contacts. Optional latching mechanism prevents de-mating. Guide pins provide circuit polarization. Contacts are twistpin type and are gold-plated. Housing is molded LCP thermoplastic. Available with standard M22759/11 ETFE wire, or upgrade to M22759/33 space grade wire. Suitable for high-reliability applications where long-term resistance to fretting corrosion is a necessity. 3 A., 600 Vac, -55C to +150C. Wire is 600V, 200C.

How To Order Single Row Microstrips With Insulated Wire

Series	Number of Cavities	Contact Type	Wire Gage	Wire Type	Wire Color Code	Wire Length	Optional Guide Pin	Optional Latch	Optional Mounting Holes
171-003 Single Row MicroStrip, .050" Contact Spacing, Pre-Wired, Stranded Wire	**-1 TO -30** Total Number of Cavities including guide pins,latches and mounting holes. The number of cavities equals the number of electrical circuits plus 1 cavity for each guide pin and latch, plus 6 cavities for the mounting hole option.	**P** Pin Contacts  **S** Socket Contacts 	**-4** #24 AWG **-6** #26 AWG **-8** #28 AWG **-0** #30 AWG	**K** Standard Wire Extruded PTFE per M22759/11, Silver-Plated Conductors (#30 AWG not available) **J** Space Grade Wire High Strength, Lightweight, Crosslinked Modified ETFE per M22759/33, Silver-Plated Conductors	**1** White **5** Color-Coded per MIL-STD-681 Wires 1-10 are solid color, 11-up are striped. **7** 10 Color Repeat Wires are solid color per MIL-STD-681 color code system. Wires #1, #11, #21 are black, wires #2, #12, #22 are brown, and so on.	Wire Length In Inches Example: **-18** 18 inches 6, 12 and 18 are frequently used lengths.	***Omit*** For No Guide Pin **-P1** Guide Pin in Cav. #1  **-PB** Guide Pin at Both Ends  **-P(X)** Replace (X) with guide pin location. P3 shown below: 	***Omit*** For No Latch **CL** Center Latch  **BL** Latch at Both Ends 	***Omit*** For No Mounting Holes **MH** Mounting Holes  The three cavities on each end are filled with epoxy. Two .062" (1.57mm) holes are cross-drilled to allow for attachment to a mounting surface.
Sample Part Number									
171-003	**-7**	**P**	**-6**	**K**	**7**	**-18**	**-P1**	**CL**	

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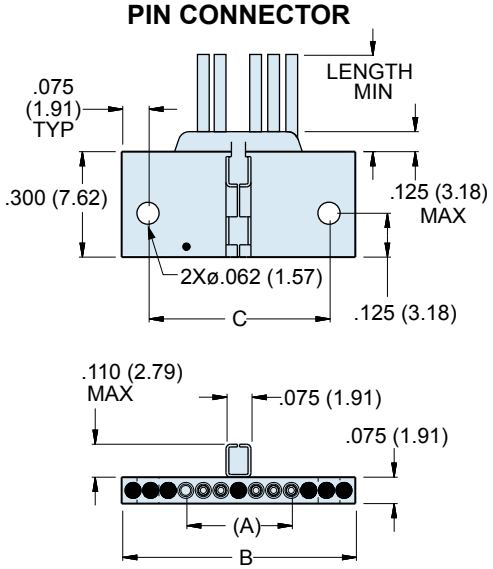
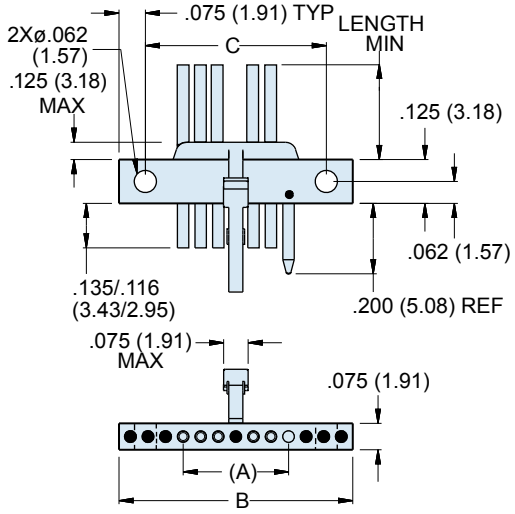
Series 171 MicroStrips
Single Row Strips with Solid or Stranded Wire
171-002 and 171-003

PIN CONNECTOR



SOCKET CONNECTOR

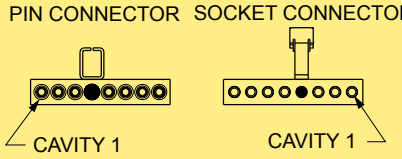


Dimensions

# of Cavities	(A)		B Max.		C		# of Cavities	(A)		B Max.		C	
	In.	mm.	In.	mm.	In.	mm.		In.	mm.	In.	mm.	In.	mm.
1	-	-	.085	2.16	N/A	N/A	16	.750	19.05	.835	21.21	.650	16.51
2	.050	1.27	.135	3.43	N/A	N/A	17	.800	20.32	.885	22.48	.700	17.78
3	.100	2.54	.185	4.70	N/A	N/A	18	.850	21.59	.935	23.75	.750	19.05
4	.150	3.81	.235	5.97	N/A	N/A	19	.900	22.86	.985	25.02	.800	20.32
5	.200	5.08	.285	7.24	N/A	N/A	20	.950	24.13	1.035	26.29	.850	21.59
6	.250	6.35	.335	8.51	N/A	N/A	21	1.000	25.40	1.085	27.56	.900	22.86
7	.300	7.62	.385	9.78	.200	5.08	22	1.050	26.67	1.135	28.83	.950	24.13
8	.350	8.89	.435	11.05	.250	6.35	23	1.100	27.94	1.185	30.10	1.000	25.4
9	.400	10.16	.485	12.32	.300	7.62	24	1.150	29.21	1.235	31.37	1.050	26.67
10	.450	11.43	.535	13.59	.350	8.89	25	1.200	30.48	1.285	32.64	1.100	27.94
11	.500	12.70	.585	14.86	.400	10.16	26	1.250	31.75	1.335	33.91	1.150	29.21
12	.550	13.97	.635	16.13	.450	11.43	27	1.300	33.02	1.385	35.18	1.200	30.48
13	.600	15.24	.685	17.40	.500	12.7	28	1.350	34.29	1.435	36.45	1.250	31.75
14	.650	16.51	.735	18.67	.550	13.97	29	1.400	35.56	1.485	37.72	1.300	33.02
15	.700	17.78	.785	19.94	.600	15.24	30	1.450	36.83	1.535	38.99	1.350	34.29

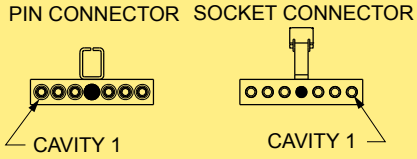
Center Latch Locations

Even Number of Cavities



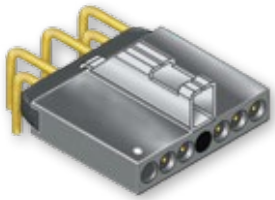
Latch placed on next lower cavity prior to centerline.
Latch position = (# of Cavities) ÷ 2.

Odd Number of Cavities



Latch placed in cavity on centerline.
Latch Position = (# of Cavities+1) ÷ 2.

Series 171 MicroStrips
Single Row Thru-Hole Board Mount Strips
171-004, 171-005, 171-006, and 171-007

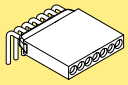
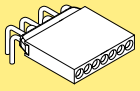
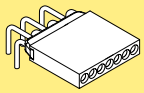
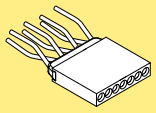
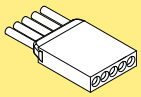
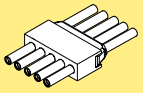
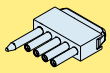
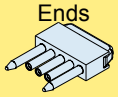
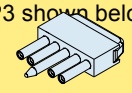
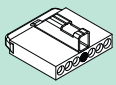
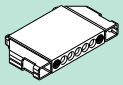
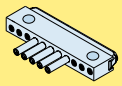


171-006-7P-.125-P1CL

Single Row Board Mount MicroStrips

These .050" pitch single row PCB thru-hole microstrips are available in four types-vertical mount, right angle single row and two right angle staggered versions. Available with 1 to 30 contacts. PC tails are .020" diameter. Optional latching mechanism prevents de-mating. Guide pins provide circuit polarization. Contacts are twistpin type and are gold-plated. Housing is molded LCP thermoplastic. Suitable for high-reliability applications where long-term resistance to fretting corrosion is a necessity. 3 A., 600 Vac, -55C to +150C.

How To Order Single Row Thru-Hole PCB MicroStrips

Series	Number of Cavities	Contact Type	PC Tail Length (Inches)	Optional Guide Pin	Optional Latch	Optional Mounting Holes
171-004 Right Angle, Single Row PC Tails  **171-005** Right Angle, Two Row PC Tails with .050" Between Rows  **171-006** Right Angle, Two Row PC Tails with .100" Between Rows  **171-007** Vertical Mount 	**-1 TO -30** Total Number of Cavities including guide pins,latches and mounting holes. The number of cavities equals the number of electrical circuits plus 1 cavity for each guide pin and latch, plus 6 cavities for the mounting hole option.	**P** Pin Contacts  **S** Socket Contacts 	**.080** **.110** **.125** **.150** **.172** **.190** **.250** Tail Length In Inches	***Omit*** For No Guide Pin **-P1** Guide Pin in Cav. #1  **-PB** Guide Pin at Both Ends  **-P(X)** Replace (X) with guide pin location. P3 shown below: 	***Omit*** For No Latch **CL** Center Latch  **BL** Latch at Both Ends 	***Omit*** For No Mounting Holes **MH** Mounting Holes  The three cavities on each end are filled with epoxy. Two .062" (1.57mm) holes are cross-drilled to allow for attachment to a mounting surface.
Sample Part Number						
171-006	**-7**	**P**	**-.125**	**-P1**	**CL**	

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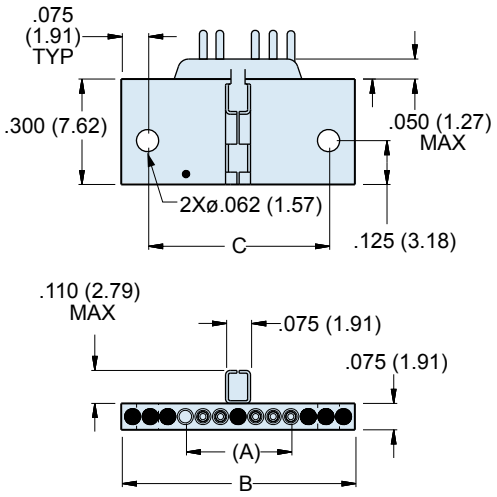
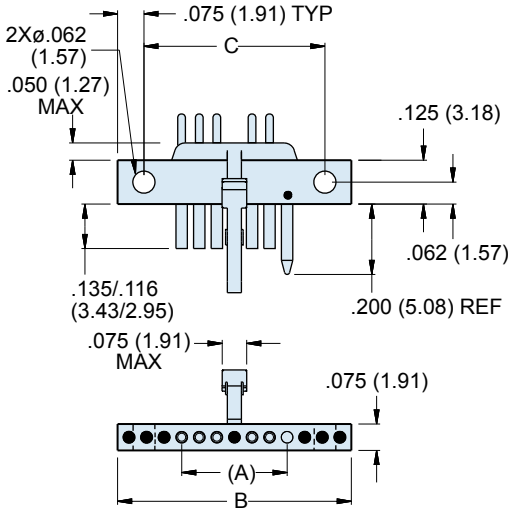
MWS MicroStrips
Single Row Thru-Hole Board Mount Strips
171-004, 171-005, 171-006, and 171-007

PIN CONNECTOR



SOCKET CONNECTOR

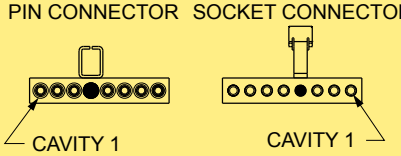


Dimensions

# of Cavities	(A) In.	(A) mm.	B Max. In.	B Max. mm.	C In.	C mm.	# of Cavities	(A) In.	(A) mm.	B Max. In.	B Max. mm.	C In.	C mm.
1	-	-	.085	2.16	N/A	N/A	16	.750	19.05	.835	21.21	.650	16.51
2	.050	1.27	.135	3.43	N/A	N/A	17	.800	20.32	.885	22.48	.700	17.78
3	.100	2.54	.185	4.70	N/A	N/A	18	.850	21.59	.935	23.75	.750	19.05
4	.150	3.81	.235	5.97	N/A	N/A	19	.900	22.86	.985	25.02	.800	20.32
5	.200	5.08	.285	7.24	N/A	N/A	20	.950	24.13	1.035	26.29	.850	21.59
6	.250	6.35	.335	8.51	N/A	N/A	21	1.000	25.40	1.085	27.56	.900	22.86
7	.300	7.62	.385	9.78	.200	5.08	22	1.050	26.67	1.135	28.83	.950	24.13
8	.350	8.89	.435	11.05	.250	6.35	23	1.100	27.94	1.185	30.10	1.000	25.4
9	.400	10.16	.485	12.32	.300	7.62	24	1.150	29.21	1.235	31.37	1.050	26.67
10	.450	11.43	.535	13.59	.350	8.89	25	1.200	30.48	1.285	32.64	1.100	27.94
11	.500	12.70	.585	14.86	.400	10.16	26	1.250	31.75	1.335	33.91	1.150	29.21
12	.550	13.97	.635	16.13	.450	11.43	27	1.300	33.02	1.385	35.18	1.200	30.48
13	.600	15.24	.685	17.40	.500	12.7	28	1.350	34.29	1.435	36.45	1.250	31.75
14	.650	16.51	.735	18.67	.550	13.97	29	1.400	35.56	1.485	37.72	1.300	33.02
15	.700	17.78	.785	19.94	.600	15.24	30	1.450	36.83	1.535	38.99	1.350	34.29

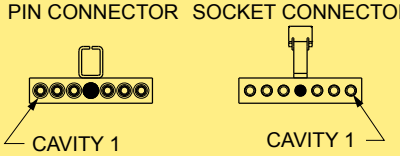
Center Latch Locations

Even Number of Cavities



Latch placed on next lower cavity prior to centerline.
Latch position = (# of Cavities) ÷ 2.

Odd Number of Cavities

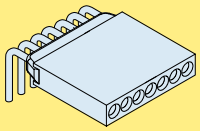
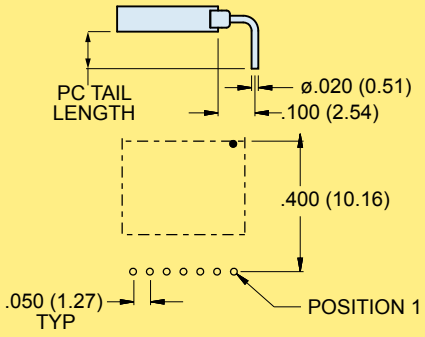
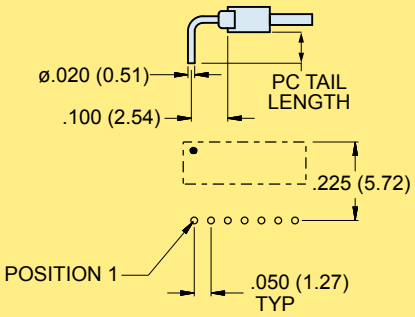
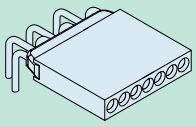
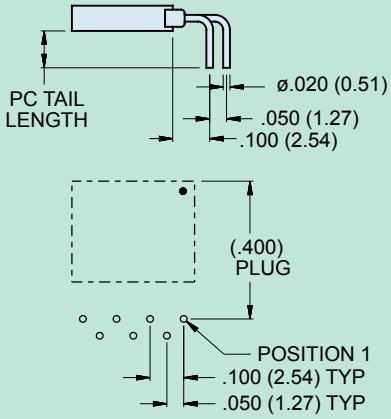
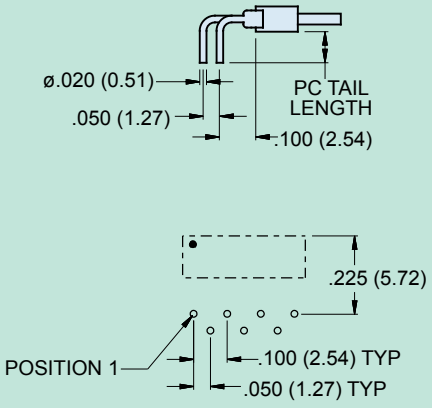


Latch placed in cavity on centerline.
Latch Position = (# of Cavities+1) ÷ 2.

Q

Series 171 MicroStrips
Single Row Board Mount Strips
PCB layouts: 171-004 and 171-005

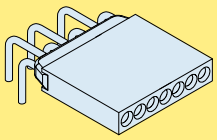
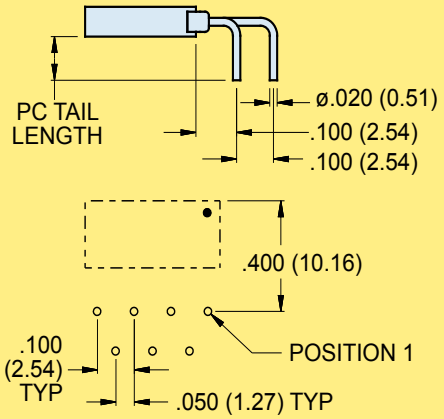
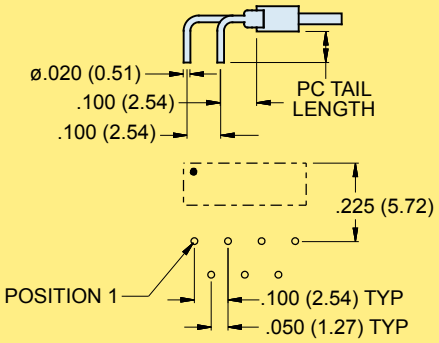
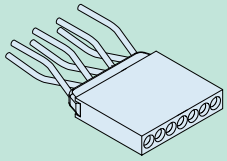
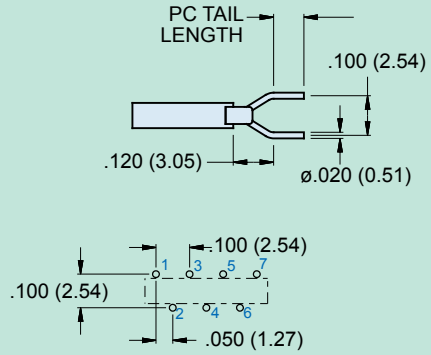
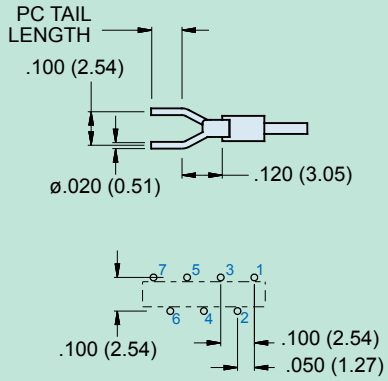
PRINTED CIRCUIT BOARD LAYOUTS

TYPE	PIN CONNECTOR	SOCKET CONNECTOR
171-004  **Right Angle Single Row .050" (1.27) Centers**		
171-005  **Right Angle Staggered .050" (1.27) Offset**		

Q

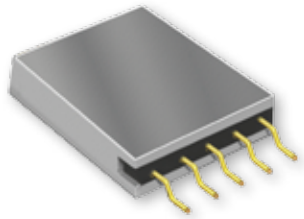
Series 171 MicroStrips
Single Row Board Mount Strips
PCB layouts: 171-006 and 171-007

PRINTED CIRCUIT BOARD LAYOUTS

TYPE	PIN CONNECTOR	SOCKET CONNECTOR
171-006  **Right Angle Staggered .100" (2.54) Offset**		
171-007  **Vertical Mount .100" (2.54) Spacing**		

Q

Series 171 MicroStrips
Single Row Surface Mount Strips
171-008

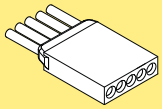
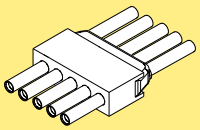
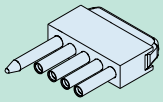
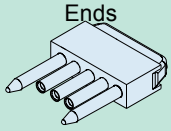
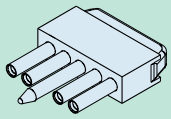
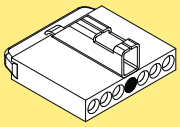
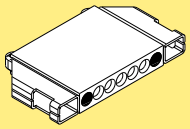
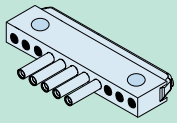


171-008-5P

Single Row Surface Mount MicroStrips

These .050" pitch single row surface mount microstrips are available with 1 to 30 contacts. SMT tails are .013" diameter and are solder dipped in 63/37 tin-lead. Optional latching mechanism provides secure connection. Optional guide pins provide circuit polarization. Contacts are twistpin type and are gold-plated. Housing is molded LCP thermoplastic. Suitable for high-reliability applications where long-term resistance to fretting corrosion is a necessity. 3 A., 600 Vac, -55C to +150C.

How To Order Surface Mount Strips

Series	Number of Cavities	Contact Type	Optional Guide Pin	Optional Latch	Optional Mounting Holes
171-008 Single Row MicroStrip, .050" Contact Spacing, Surface Mount Tails	**-1 to -30** Total number of cavities including guide pins,latches and mounting holes. The number of cavities equals the number of electrical circuits plus 1 cavity for each guide pin and latch, plus 6 cavities for the mounting hole option.	**P** Pin Contacts  **S** Socket Contacts 	***Omit*** For No Guide Pin **-P1** Guide Pin in Cav. #1  **-PB** Guide Pin at Both Ends  **-P(X)** Replace (X) with guide pin location. P3 shown below: 	***Omit*** For No Latch **CL** Center Latch  **BL** Latch at Both Ends 	***Omit*** For No Mounting Holes **MH** Mounting Holes  The three cavities on each end are filled with epoxy. Two .062" (1.57mm) holes are cross-drilled to allow for attachment to a mounting surface.
Sample Part Number					
171-008	**-5**	**P**			

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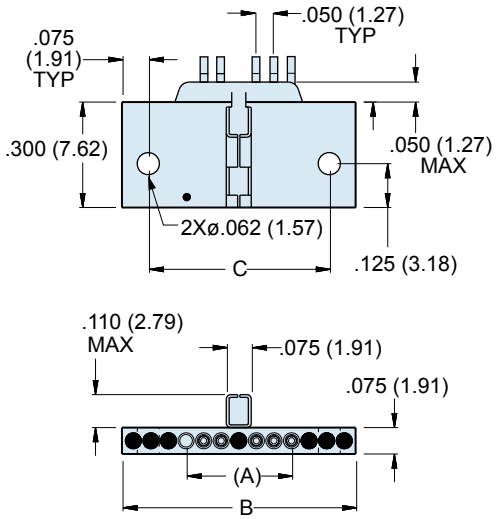
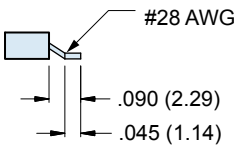
Series 171 MicroStrips
Single Row Surface Mount Strips
171-008

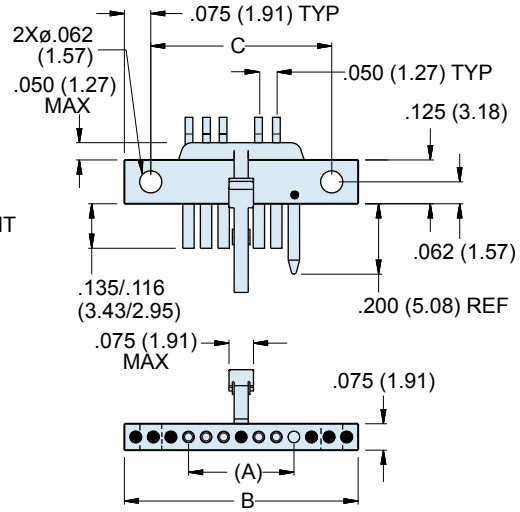
PIN CONNECTOR



TYPICAL SURFACE MOUNT CONFIGURATION



SOCKET CONNECTOR



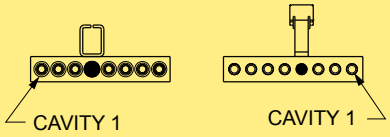
Dimensions

# of Cavities	(A) In.	(A) mm.	B Max. In.	B Max. mm.	C In.	C mm.	# of Cavities	(A) In.	(A) mm.	B Max. In.	B Max. mm.	C In.	C mm.
1	-	-	.085	2.16	N/A	N/A	16	.750	19.05	.835	21.21	.650	16.51
2	.050	1.27	.135	3.43	N/A	N/A	17	.800	20.32	.885	22.48	.700	17.78
3	.100	2.54	.185	4.70	N/A	N/A	18	.850	21.59	.935	23.75	.750	19.05
4	.150	3.81	.235	5.97	N/A	N/A	19	.900	22.86	.985	25.02	.800	20.32
5	.200	5.08	.285	7.24	N/A	N/A	20	.950	24.13	1.035	26.29	.850	21.59
6	.250	6.35	.335	8.51	N/A	N/A	21	1.000	25.40	1.085	27.56	.900	22.86
7	.300	7.62	.385	9.78	.200	5.08	22	1.050	26.67	1.135	28.83	.950	24.13
8	.350	8.89	.435	11.05	.250	6.35	23	1.100	27.94	1.185	30.10	1.000	25.4
9	.400	10.16	.485	12.32	.300	7.62	24	1.150	29.21	1.235	31.37	1.050	26.67
10	.450	11.43	.535	13.59	.350	8.89	25	1.200	30.48	1.285	32.64	1.100	27.94
11	.500	12.70	.585	14.86	.400	10.16	26	1.250	31.75	1.335	33.91	1.150	29.21
12	.550	13.97	.635	16.13	.450	11.43	27	1.300	33.02	1.385	35.18	1.200	30.48
13	.600	15.24	.685	17.40	.500	12.7	28	1.350	34.29	1.435	36.45	1.250	31.75
14	.650	16.51	.735	18.67	.550	13.97	29	1.400	35.56	1.485	37.72	1.300	33.02
15	.700	17.78	.785	19.94	.600	15.24	30	1.450	36.83	1.535	38.99	1.350	34.29

Center Latch Locations

Even Number of Cavities

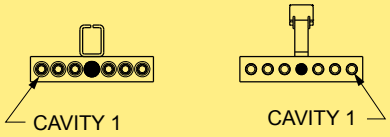
PIN CONNECTOR SOCKET CONNECTOR



Latch placed on next lower cavity prior to centerline.
Latch position = (# of Cavities) ÷ 2.

Odd Number of Cavities

PIN CONNECTOR SOCKET CONNECTOR



Latch placed in cavity on centerline.
Latch Position = (# of Cavities+1) ÷ 2.

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