Glenair®





SERIES 28

HiPer-D® Connectors and Accessories

HIGH-PERFORMANCE M24308 INTERMATEABLE D-SUB CONNECTORS

DECEMBER 2015

SERIES 28

HiPer-D®



The MIL-DTL-24308 intermateable and intermountable connector with advanced environmental and EMI shielding performance



The Glenair Series 28 HiPer-D® connector is intermateable and intermountable with standard M24308 type D-Subs, and meets the need for improved performance in hostile environments. Unlike standard M24308 connectors with stamped steel shells, the HiPer-D® is precision-machined from aluminum or stainless steel. The dielectric inserts are made with thermoset epoxy for improved resistance to chemicals and are capable of withstanding 200°C continuous operating temperature. Aerospace-grade fluorosilicone grommets and face seals provide watertight sealing. Integrated grounding fingers provide superior electromagnetic compatibility. Best of all, the HiPer-D® is available in every standard and high-density M24308 layout as well as combo layouts integrating power and shielded contacts. Like all Glenair high-performance solutions, HiPer-D® is stocked for immediate same-day shipment.

Glenair®

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SERIES 28

HiPer-D® Connectors and Accessories

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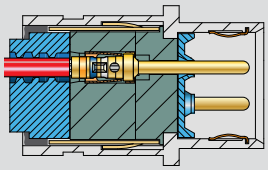


Introduction and Technical Reference

HiPer-D® product facts • shell plating options • materials and finishes • performance specification • space grade information



HiPer-D® Standard and High Density Connectors

Crimp and PC tail environmental connectors with standard density #20 contacts and high density #22 contacts



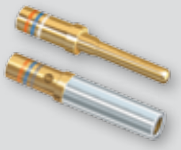
HiPer-D® Combo Connectors

Crimp and PC tail environmental connectors with #20 and #8 contacts for signal, power and RF applications



HiPer-D® High-Speed Connectors

Crimp contact non-environmental connectors with #8 contacts ideally suited for high speed data transmision.



HiPer-D® Contacts and Tools

Signal contacts, power contacts, coaxial contacts, crimp tools, insertion/extraction tools



HiPer-D® Backshells and Accessories

EMI backshells, environmental backshells, protective covers, Sav-Con® connector savers, gender changers, hardware kits, and heatshrink boots



HiPer-D® Panel Cutouts and Printed Circuit Board Footprints

Panel mounting dimensions and PC board mounting hole patterns for vertical, right angle signal and combo connectors

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HiPer-D

Subminiature Connector

The HiPer-D® connector is a M24308-type D-Subminiature connector with superior design features. Unlike standard M24308 connectors with stamped steel shells, the HiPer-D® connector features a one-piece machined shell. Rated for 200°C continuous operating temperature, the HiPer-D® features thermoset epoxy insulators. Aerospace grade fluorosilicone grommets and face seals provide environmental protection. The HiPer-D® is intermateable, intermountable and interchangeable with standard M24308 D-Sub connectors. A ground spring offers enhanced EMI/RFI protection.

Product Features

- **Environmental, crimp removable rectangulars**
- **Advanced temperature, vibration and EMC/electrical performance**
- **M24308/D-sub intermateable**
- **Standard and high density layouts**
- **Rugged machined one-piece shell**

Enhanced Panel Mount Features

HiPer-D® connectors with O-ring and threaded mounting holes for watertight panel attachment. Guide pins are available for blind mate applications.



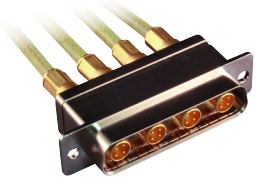
Combo HiPer-D®

HiPer-D® with mixed size #8 and size #20 contacts for signal, power and RF applications



Hi-Speed HiPer-D®

HiPer-D® with rear release, size #8: Coax, Twinax/Quadrax and El Ochito contacts for ***High-Speed*** applications



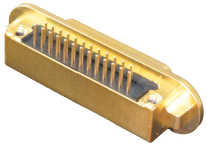
Improved EMI Performance

HiPer-D® pin connectors with ground spring for consistent mating forces and low shell-to-shell resistance .



Improved Board Mount Features

HiPer-D® PCB connectors feature threaded board attachment holes, integral standoffs and an EMI shroud on right angle tails.



EMI backshells

HiPer-D® backshells are designed to optimize EMI performance and save weight.



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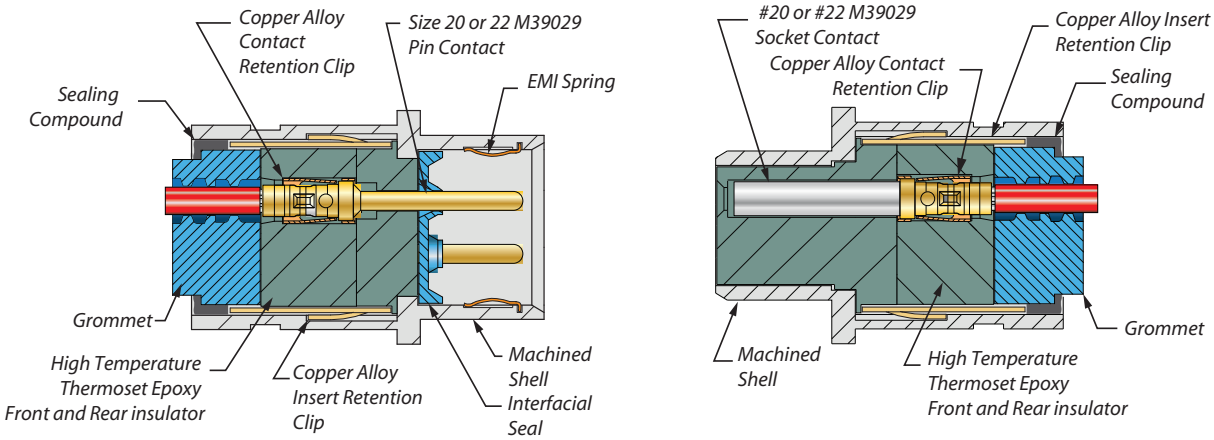
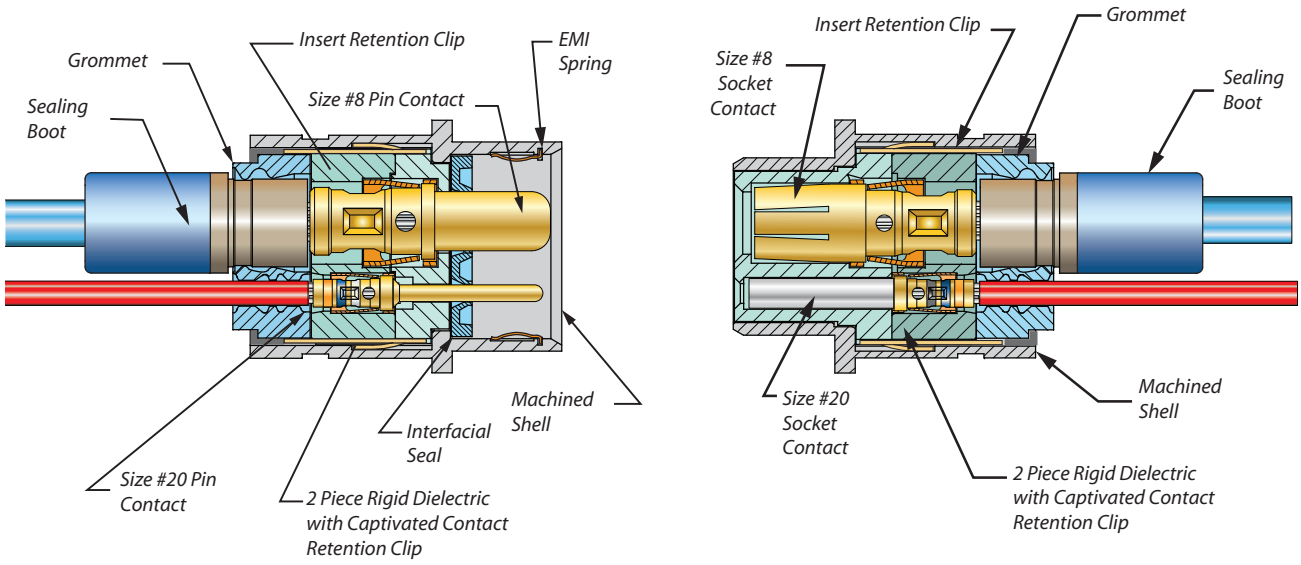
HiPer-D® Cutaway Views

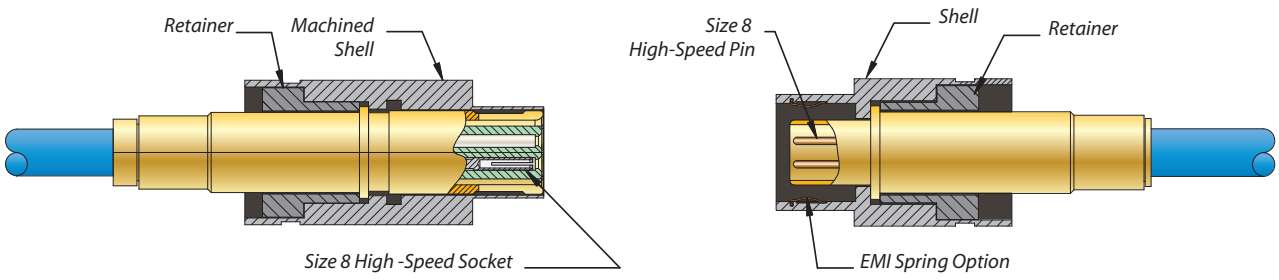
STANDARD AND HIGH DENSITY HIPER-D® - CUTAWAY



COMBO HIPER-D® - CUTAWAY



MONOBLOCK HIPER-D® - CUTAWAY



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ABOUT SERIES 28 HIPER-D® SHELL PLATING OPTIONS



HiPer-D® connectors are available with aluminum or stainless steel shells, plated with a variety of finishes to meet every application. These options include high performance cadmium-free finishes. The United States Department of Defense (DOD) has mandated the elimination of cadmium from DOD weapons systems because of toxicity concerns. The European Union has also restricted the use of cadmium on electronics equipment (RoHS).

In this catalog's ordering information you will find five preferred material and finish options: electroless nickel, yellow chromate over cadmium, nickel-PTFE, black zinc-nickel and passivated stainless steel. The table below shows selected additional options that are also available on any Series 28 HiPer-D® connector. Glenair offers the industry's widest selection of shell material and plating options with no minimum order quantity or setup charge.

HiPer-D® Aluminum Shell Plating Codes

Shell Plating	Glenair Plating Code	Salt Fog (Hours)	RoHS Compliant	Conductivity	Typical Applications
Electroless Nickel	**ME**	96	Yes	Excellent	Space vehicles, missiles, avionics, unmanned vehicles, instrumentation. Corresponds to MIL-DTL-24308 Class K.
Nickel-PTFE	**MT**	500	Yes	Excellent	Harsh environment, soldier systems, communications equipment. Corresponds to MIL-DTL-24308 Code T.
Zinc-Nickel with Black Chromate	**ZR**	500	Yes	Good	Harsh environment, soldier systems. Corresponds to MIL-DTL-24308 Code K.
Cadmium with Olive-Drab Chromate	**NF**	500	No	Excellent	Harsh environment, military equipment.
Cadmium with Yellow Chromate	**JF**	500	No	Excellent	General purpose military equipment. Comparable to MIL-DTL-24308 Code F.
Black Anodize	**C**	336	Yes	Non-Conductive	Applications where EMI shielding is not required.
Gold	**Z2**	48	Yes	Excellent	Space. Corresponds to M24308 Class M.
Chem Film	**E**	48	No	Excellent	Avionics
Stainless Steel, Electroless Nickel	**ZM**	500	Yes	Excellent	Extreme environments where stainless steel is preferred for strength, corrosion resistance,and where high conductivity is desired.
Stainless Steel, Passivated	**Z1**	500	Yes	Good	Extreme environments where stainless steel is preferred for strength, corrosion resistance. Corresponds to MIL-DTL-24308 Class P.

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Standard Materials and Finishes, Performance Specification

Material and Finish		
Description	**Material**	**Finish**
Contacts	Copper Alloy	Gold (50 microin.) over nickel
Socket Contact Hood (Size 20, 22)	Stainless steel	Passivated
Shell	Aluminum Alloy or stainless steel	See ordering information
Insulators	Thermoset epoxy resin per ASTM D-5948	None
Interfacial Seal	Fluorosilicone	None
Grommet	Fluorosilicone	None
EMI Spring	Copper alloy	Electroless nickel
Contact retention clips	Copper alloy	None
Insert retention clip	Copper alloy	None
Adhesive/Sealant	RTV silicone	None
Hardware	Stainless steel (300 series)	Passivated
O-ring	Fluorosilicone	None

Performance Specifications		
Description	**Requirement**	**Procedure**
Contact Resistance	SAE AS39029 Table V **Max Wire Size** / **Test Current** / **Voltage Drop** 8 / 46 / 26 10 / 33 / 33 12 / 23 / 42 14 / 17 / 40 16 / 13 / 49 20 / 7.5 / 55 22 / 5 / 73 24 / 3 / 45 26 / 2 / 52 28 / 1.5 / 54	EIA-364-06 IEC 60512-2-1 Test current in amperes. Voltage drop in milli-volts. Silver-coated copper wire, +25°C.
Low Level Contact Resistance	**Wire Size** / **Max. Milliohms** 20 / 9 22 / 15 24 / 20 26 / 31 28 / 50	EIA-364-23 100 milli-amperes maximum and 20 milli-volts maximum open circuit voltage
Insulation Resistance	5000 megohms minimum	EIA-364-21 IEC-60512-3-1 500 volts DC ± 50 volts. Test between adjacent contacts and contacts to shell.
Dielectric Withstanding Voltage	No breakdown or flashover	EIA-364-20 IEC-60512-4-1 Sea level AC RMS 50 or 60 Hz. One minute dwell. 1000 volts

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Performance Specification

Performance Specifications		
Description	**Requirement**	**Procedure**
Current Rating	**Contact Size** / **Max Current** 8 — 40 20 — 7.5 22 — 5	EIA-364-70 Method 1 IEC-60512-5 Test 9b
Shell-to-Shell Resistance (connectors with ground springs)	2.5 milli-volt drop maximum	EIA-364-83 IEC-60512-2-6 Electroless nickel plated connectors.
Shielding Effectiveness	**Frequency MHz** / **Min Attenuation (dB)** 100 — 75 200 — 70 300 — 65 400 — 60 800 — 55 1000 — 50 1500 — 48 2000 — 46 3000 — 44 4000 — 41 6000 — 38 10000 — 35	EIA-364-66 IEC-60512-23-3 Pin Connector with Optional Grounding Spring, Electroless nickel plated shells

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Performance Specifications		
Description	**Requirement**	**Procedure**
Water Immersion	No evidence of water penetration into mated connectors. No evidence of water penetration into an unmated panel mounted PCB receptacle. ≥ 100 MΩ insulation resistance.	MIL-STD-810F Method 512.4 1 meter immersion 1 hour
Air Pressure	No detectable moisture. ≥ 100 MΩ insulation resistance.	IEC-60512-7 Test 14b 0.4 bar overpressure 48 hours immersion at a depth of 150mm in 25° C tap water.
Ingress Protection	IP67 rating	IEC-60529
Vibration, Sine	No discontinuity of greater than 1 microseconds, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after vibration test.	EIA-364-28 Test Condition IV 100 milliamp test current 10-2,000 Hz 20 g, 196 m/s^2
Vibration, Random	No discontinuity of greater than 1 microseconds, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after vibration test.	EIA-364-28 Test Condition V Letter E 100 milliamp test current 50-2,000 Hz 16.91 g rms 8 hours each axis
Mechanical Shock	No discontinuity of greater than 1 microsecond, no cracking, breaking or loosening of parts, plug shall not become disengaged from receptacle. Connectors shall meet electrical requirements after shock test.	EIA-364-27 Condition D IEC-60512-6-3 3 shocks X 3 axes X 2 directions = 18 shocks 2941 m/s^2 (300 g's), 3 ms, half-sine
Thermal Shock	No mechanical damage or loosening of parts. Following thermal shock, connector shall meet contact resistance, DWV, insulation resistance and shell-to-shell resistance requirements.	EIA-364-32 Test Condition IV IEC-60512-11-4 5 cycles consisting of -65° C 30 minutes, +25° C 5 minutes max., + 200° C 30 minutes, +25° C 5 minutes max.
Humidity, Cyclic (Damp Heat, Cyclic) (Moisture Resistance)	No deterioration which will adversely affect the connector. 100 meg-ohms minimum insulation resistance during the final cycle. Following the recovery period, connectors shall meet contact resistance, shell-to-shell resistance and DWV requirements.	EIA-364-31 Condition B Method III IEC-60512-11-12 80-98% RH 10 cycles (10 days) +25° C to +65° C Step 7b vibration deleted. 24 hour recovery period.
Mechanical Durability, at Ambient Temperature	No deterioration which will adversely affect the connector after 500 cycles of mating and un-mating. Connectors shall meet contact resistance, insulation resistance, shell-to-shell resistance, DWV, and mating and un-mating force.	EIA-364-09 IEC-60512-5 Test 9a

A

Performance Specifications		
Description	**Requirement**	**Procedure**
Corrosion (Salt Mist)	No exposure of base metal. Connectors shall meet DWV and contact resistance requirements following the test.	EIA-364-26 IEC 60512-11-6 5% salt solution 35° C Unmated connectors Code ME: Electroless nickel 96 hours Code MT: Nickel-PTFE 500 hours Code JF: Cadmium 500 hours Code ZR: Zn-Ni 500 hours
Solderability, PC Tail Contacts	95% solder coverage. Smooth, bright and even finish.	EIA-364-52 Category 3 IEC-60512-12-1 IEC-68-2-20 Test Ta, method 1 8 hours steam aging prior to test 245° C 4-5 sec. dwell 10X magnification
Resistance To Soldering Heat	No damage to connector. Connectors shall meet insulation resistance and waterproof sealing requirements.	EIA-364-56 IEC-60512-12-5 Test 12e 260° C, 10 seconds (PC tail)
Impact, Cable Connectors	No impairment of function. Connector shall meet contact resistance, insulation resistance and waterproof sealing.	EIA-364-42 IEC-60512-5 Test 7b 1 meter, 8 drops
Fluid Immersion	No damage from immersion in various fuels and oils. Connector shall meet mating/un-mating force and dielectric withstanding voltage.	EIA-364-10
Altitude Immersion	No evidence of moisture on connector interface or contacts. Connector shall meet dielectric withstanding voltage.	EIA-364-03
Contact Retention	**Contact Size** / **Min. Pounds** / **Min. Newtons** 8 / 18 / 80 22 / 9 / 40 20 / 9 / 40	EIA-364-29 .012 inch maximum displacement, both axial directions
Contact Separation Force	**Contact Size** / **Min. Ounces** / **Min. Newtons** 22 / 0.7 / 0.19 20 / 0.7 / 0.19	SAE AS39029
Mating and Un-mating Force, connectors with size 20 or size 22 contacts	**Shell Size** / **Min. Unmating** / **Max. Mating** 1 / 0.75 / 10.0 2 / 1.00 / 17.0 3 / 1.75 / 28.0 4 / 2.50 / 39.0 5 / 3.25 / 49.0 6 / 4.50 / 65.0	EIA-364-13 Full complement of contacts 1 to 10 inches per minute travel rate
Maximum Mating Force, combo HiPer-D® connectors with size 8 and size 20 contacts	[(# of size 8 contacts) X 5.0 pounds] + [(# of size 20HD contacts) X .75 pounds] + [3.0 pounds]	EIA-364-13 Full complement of contacts 1 to 10 inches per minute travel rate
Magnetic Permeability	2 µ maximum.	EIA-364-54
Insert Retention	No dislocation of inserts from their original positions when subjected to an axial load of 60 pounds per square inch	EIA-364-35 Apply force at a rate of 10 pounds per square inch per second until specified pressure is reached.

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Space-Grade HiPer-D® Information

Outgassing

- **HiPer-D® connectors must be specially processed to meet ASTM E595 outgassing requirements.**
- **Modification codes are a convenient way to specify special outgassing bakeout or thermal vacuum outgassing.**

Space flight equipment requires low-outgassing components in order to prevent degradation to optics and other sensitive instruments. The space industry has adopted a standardized test procedure, ASTM E595, to evaulate outgassing properties. In the ASTM test, material samples are heated to 125° C at a vacuum of 5 X 10^{-5} torr for 24 hours. The test sample is then weighed to calculate the Total Mass Loss (TML), which may not exceed 1.0% of the total initial mass. A collector plate is used to determine the Collected Volatile Condensable Material (CVCM), which may not exceed 0.1% of the total original specimen mass. HiPer-D® connectors contain nonmetallic materials such as rubber, plastic, adhesives and potting compounds which can give off gasses when subjected to a vacuum or high heat. Unless the connector is specially processed, the TML and CVCM can exceed allowable limits. Glenair is able to offer two bakeout processes which assure all materials comply with ASTM E595: a 48 hour oven bakeout at 175º C or a 24 hour thermal vacuum outgassing at 125º C. The table below shows suffix codes which specify outgassing processing.

Connector Material and Finish for Space Applications

- **Cadmium and silver plating are prohibited in space.**
- **Specify electroless nickel plating or gold plating on connector shells**

Some types of metals are prohibited from space flight. "Cadmium, zinc, chemically coated cadmium or zinc, or silver shall not be used as a connector or contact finish" (NASA EEE-INST-002 Instructions for EEE Parts Selection, Screening, Qualification, and Derating). NASA recommends electroless nickel or gold plating on connector shells and gold plating for contacts.

NASA Screening

- **"Mission critical" connectors for space flight should undergo rigorous 100% final inspection.**
- **Modification codes are available to invoke special screening.**

NASA recommends that connectors for space flight be specially screened. NASA EEE-INST-002 Instructions for EEE Parts Selection, Screening, Qualification, and Derating contains three levels of screening: level 1 for highest reliabity, level 2 for high reliability and level 3 for standard reliability. Glenair suffix codes are available to invoke NASA screening. The table below shows these "Mod" codes which can also include outgassing processing.

NASA Screening Levels and Modification Codes

NASA Screening Level	Special Screening Only	Special Screening Plus Outgassing Processing	
		48 Hour Oven Bake 175° C.	Thermal Vacuum Outgassing 24 hrs. 125° C.
Level 1 Highest Reliability	Mod 429B	Mod 429J	Mod 429C
Level 2 High Reliability	Mod 429	Mod 429K	Mod 429A
Level 3 Standard Reliability	(Use standard part number)	Mod 186	Mod 186M

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Residual Magnetism versus Magnetic Permeability

- **HiPer-D® connectors have a magnetic permeability rating of 2 µ**
- **100% residual magnetism screening is available on request. NMB (200 gamma) is the preferred screening level.**

Ever since the dawn of the Space Age, D-Subminiature connectors have been used in satellites and space vehicles. However, standard D-Subs with cadmium-plated steel shells are not suitable for space. The space industry, led by the Goddard Space Flight Center (GSFC), created specifications for gold-plated brass D-Sub connectors. These specs called for 100% residual magnetism screening, because D-Subs were sometimes used on magnetically sensitive instruments. NMB (200 gamma residual magnetism) and NMC (20 gamma) became the most widely specified levels of residual magnetism. Meanwhile, M83513 Micro-D connectors and various military circular connectors were also widely used on space programs. Unlike the D-Sub connector and its special residual magnetism screening, these other connectors simply had to meet a 2 µ magnetic permeability requirement. This requirement is easily met with conventional nickel-plated aluminum alloy connectors. Glenair's HiPer-D® connector meets the 2 µ permeability rating now considered acceptable for most space instruments. However, if 100% residual magnetism screening is required, Glenair can furnish NMB-rated connectors. Please contact Glenair for ordering information.

Special Note on HiPer-D® Material Outgassing Properties

- **Standard HiPer-D® connectors contain RTV silicones DC3140 and DC3145. These materials slightly exceed ASTM E595 outgassing limits, even after bakeout.**
- **Mod Codes 186 and 429 replace standard RTV with Dow Corning 6-1125 CV space-approved RTV.**

Standard HiPer-D® connectors contain RTV silicone sealants. Testing has shown that these materials can exceed outgassing limits even when specially baked or thermal vacuum outgassed. All space-grade HiPer-D® connectors are manufactured with a special Dow Corning RTV specifically recommended for space flight. Whenever a space-grade modification code appears in the part number, the special RTV replaces the standard RTV. With this exception, a space-grade HiPer-D® is identical to a standard part except for screening and/or outgassing processing. Modification codes 186 and 429 assure that the RTV meets outgassing requirements.

Table 1: Outgassing Properties of Materials Used in Conjunction with Micro-D Connectors

Component	Material	Brand Name	% Total Mass Loss (TML)	% Collected Volatile Condensable Material (CVCM)	Test Report
Insulators and PCB Trays	Epiall	Epiall 1908	0.37	0.01	Glenair Test
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 Bakeout 24 hrs. 125° C.	Fluorosilicone	(none)	0.08	0.02	Glenair Test
Wire	Tefzel®	Tefzel®	0.22	0.01	NASA Test #GSC19998

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HiPer-D® Standard and High-Density Connectors

Product Selection Guide and Contact Arrangements

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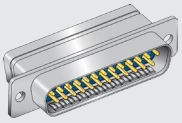
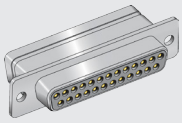
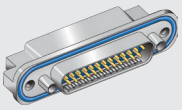
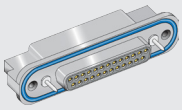
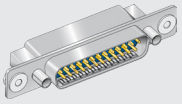
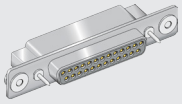
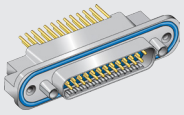
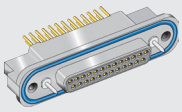
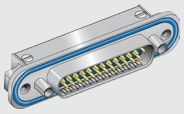
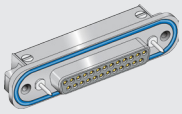
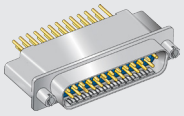
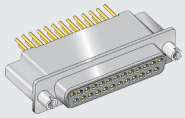
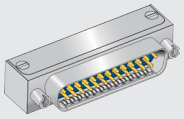
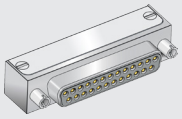
Inline		280-018 Page B-6		280-019 Socket Page B-8
Rear Panel Mount		280-020 Pin Page B-10		280-021 Socket Page B-12
Float Mount		280-030 Pin Page B-14		280-031 Socket Page B-16
Integral Banding Platform		280-086 Pin Page B-18		280-087 Socket Page B-20
PC Board - with Panel O-Ring				
Straight PCB		280-022 Pin Page B-22		280-023 Socket Page B-24
Right Angle PCB		280-024 Pin Page B-26		280-025 Socket Page B-28
PC Board - with Low Profile Flange				
Straight PCB		280-026 Pin Page B-30		280-027 Socket Page B-32
Right Angle PCB		280-028 Pin Page B-34		280-029 Socket Page B-36

B

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SERIES 28

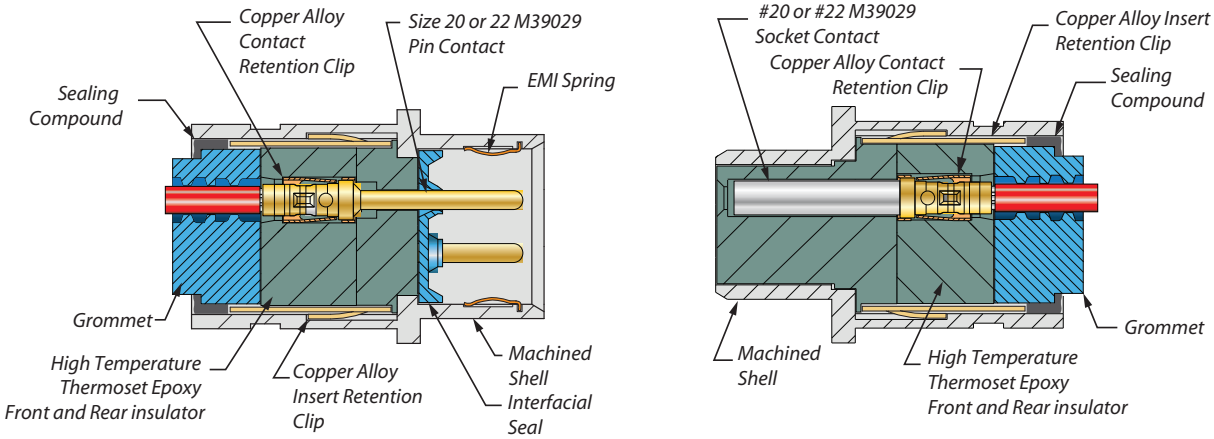
Hiper-D® Standard and High-Density Connectors

Glenair HiPer-D environmental connectors are intermatable with M24308/D-Sub style connectors featuring rugged one piece aluminum shells and optional EMI ground spring for improved signal integrity. Standard Density (#20) or High Density (#22) contacts are crimp terminated and rear releasable for easy replacement and offered on inline, rear panel mount and float mount connectors. Standard and low profile PC Board mount – straight and right angle – configurations are also available. 11 "standard" insert arrangements available. Mated connectors meet IP67 requirements.

Product Features

- **Environmental, crimp removable rectangular connector**
- **Advanced temperature, vibration and EMC/electrical performance**
- **M24308/D-Sub intermateable**
- **Fits panel and PCB footprint of M24308 D-Sub products**
- **Available in all 11 "standard" insert arrangements**
- **Standard Density (#20) and High Density (#22)**
- **EMI spring**
- **High temperature thermoset epoxy insulators**
- **Optional guide pins for blind mating**

STANDARD AND HIGH DENSITY HIPER-D® - CUTAWAY



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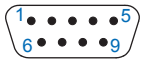
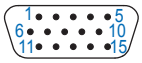
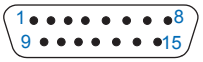
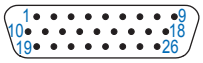
STANDARD AND HIGH DENSITY CONTACT ARRANGEMENTS *(face view of pin connector)*



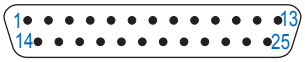


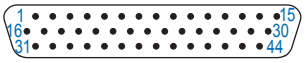
Arrangement	**1S9**	**1H15**
Shell Size	1	1
Contacts	9 #20	



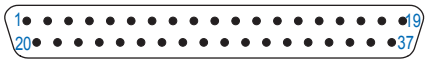


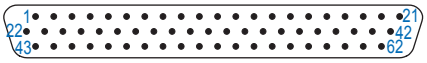
Arrangement	**2s15**	**2H26**
Shell Size	2	2
Contacts	15 #20	26 #22



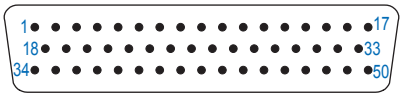


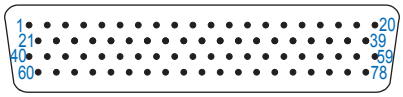
Arrangement	**3S25**	**3H44**
Shell Size	3	3
Contacts	25 #20	44 #22



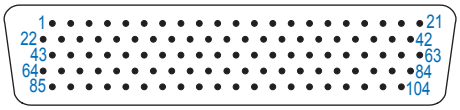


Arrangement	**4S37**	**4H62**
Shell Size	4	4
Contacts	37 #20	62 #22





Arrangement	**5S50**	**5H78**
Shell Size	5	5
Contacts	50 #20	78 #22



Arrangement	**6H104**
Shell Size	6
Contacts	104 #22

B

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B

Description	Material	Finish
Contacts	Copper Alloy	Gold (50 microin.) over nickel
Socket Contact Hood (Size 20, 22)	Stainless steel	Passivated
Shell	Aluminum Alloy or stainless steel	See ordering information
Insulators	Thermoset epoxy resin per ASTM D-5948	None
Interfacial Seal	Fluorosilicone	None
Grommet	Fluorosilicone	None
EMI Spring	Copper alloy	Electroless nickel
Contact retention clips	Copper alloy	None
Insert retention clip	Copper alloy	None
Sealant	RTV silicone	None
Hardware	Stainless steel (300 series)	Passivated
O-ring	Fluorosilicone	None

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

Reference and Technical Data

Performance specifications

Description	Requirement	Procedure
Voltage Rating (DWV)	1000 VAC Sea Level	EIA-364-20
Operating Temperature	-65º C. to +200º C.	
Insulation Resistance	5000 megohms minimum	EIA-364-21
Current Rating	Size #20 7.5A, #22 5A	
Contact Resistance	**Wire Size** / **Test Current** / **Millivolt Drop** 20 / 7.5 / 55 22 / 5 / 73 24 / 3 / 45	EIA-364-06
Low Level Contact Resistance	**Wire Size** / **Max Milliohms** 20 / 9 22 / 15 24 / 20	EIA-364-23
Shell-to-Shell Resistance	2.5 milliohm max (ground spring required)	EIA-364-83
Shielding Effectiveness	**Freq. GHz** / **Min Attenuation (dB)** 0.1 / 100 0.4 / 90 0.8 / 85 1.0 / 80 3.0 / 55 6.0 / 40 10.0 / 30	EIA-364-66 Electroless nickel plated shells with ground spring installed
Water Immersion, mated	1 hour immersion at a depth of 1 meter	MIL-STD-810F Method 512.4
Ingress Protection Rating	IP67, mated connectors	IEC-60529
Vibration, Sine	20 g's	EIA-364-28
Vibration, Random	43 g's	EIA-364-28
Mechanical Shock	300 g's	EIA-364-27
Thermal Shock	-65º C. to +200º C.	EIA-364-32
Humidity	10 cycles, 10 days, 25ºC to 65ºC	EIA-364-31
Altitude Immersion	75,000 feet	EIA-364-03
Fluid Immersion	No damage from solvents, oils, and fuels	EIA-364-10
Magnetic Permeability	2 µ maximum	EIA-364-54
Mechanical Durability	500 Mating Cycles	EIA-364-09

B

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HiPer-D® Standard and High-Density Connectors

280-018P pin connectors with standard M24308 type mounting flange, crimp termination



HiPer-D® pin connectors feature crimp, rear-releaseable size #20 or #22 contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined aluminum shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. Gold-plated size #20 contacts conform to M39029/64-369 and accept #20 to #24 AWG wire. Gold-plated size #22 contacts conform to M39029/58-360 and accept #22 to #28 AWG wire. Contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone face seal and rear grommet meet IP67 immersion requirement. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

Ordering Information

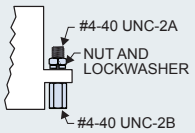
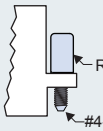
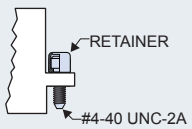
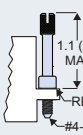
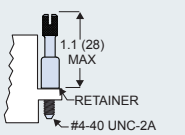
Sample Part Number	280-018P	3S25	ME	G	P

Basic Part Number	**280-018P**	
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table	
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **Z2** = Gold
Ground Spring	**G** = Supplied with EMI Ground Spring	**N** = No Ground Spring
Mating Hardware	**N** = No Hardware (Through-Hole) **L** = Jackscrew, Hex Head, Low Profile **S** = Screwlock, Male, Hex Head, Low Profile	**P** = #4-40 Female Jackpost **K** = Jackscrew, Slot Head, Extended Length **T** = Screwlock, Male, Slot Head, Extended Length

Shell Size - Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#22
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware

N Thru-Hole No Hardware	**P** Female Jackpost
	
S Captive Screwlock, Hex Head	**L** Captive Jackscrew, Hex Head
	
K Slot-Head Extended Jackscrew	**T** Slot-Head Extended Captive Screwlock
	

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet and Seal	Fluorosilicone rubber
EMI Spring	Copper alloy, nickel plated
Hardware	300 series stainless steel

Specifications

Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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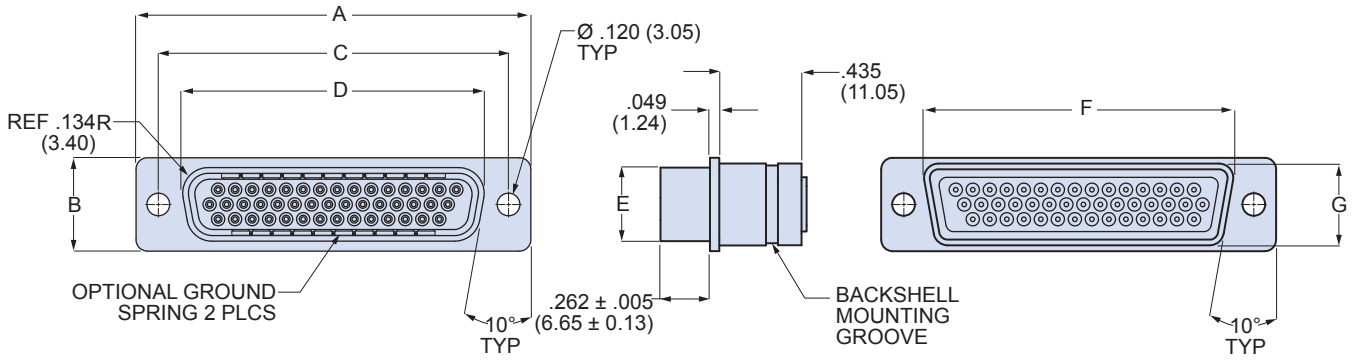
HiPer-D® Standard and High-Density Connectors

280-018P pin connectors with standard M24308 type mounting flange, crimp termination

280-018P DIMENSIONS



Shell Size	A		B		C Basic		D		E		F Max.		G Max.	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in.	mm	in.	mm
1	1.213	30.81	.494	12.55	.984	24.99	.726	18.44	.389	9.88	.769	19.53	.432	10.97
2	1.541	39.14	.494	12.55	1.312	33.32	1.054	26.77	.389	9.88	1.093	27.76	.432	10.97
3	2.088	53.04	.494	12.55	1.852	47.04	1.594	40.49	.389	9.88	1.635	41.53	.432	10.97
4	2.729	69.32	.494	12.55	2.500	63.50	2.242	56.95	.389	9.88	2.282	57.96	.432	10.97
5	2.635	66.93	.605	15.37	2.406	61.11	2.139	54.33	.501	12.73	2.188	55.58	.544	13.82
6	2.729	69.32	.668	16.97	2.500	63.50	2.272	57.71	.563	14.30	2.312	58.72	.606	15.39

NOTES

1. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
2. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Crimp Tools*** for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
5. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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HiPer-D® Standard and High-Density Connectors

280-019S socket connectors with standard M24308 type mounting flange, crimp termination



HiPer-D® socket connectors feature crimp, rear-releaseable size #20 or #22 contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined aluminum shell and waterproof sealing. Gold-plated size #20 contacts conform to M39029/63-368 and accept #20 to #24 AWG wire. Gold-plated size #22 contacts conform to M39029/57-354 and accept #22 to #28 AWG wire. Contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone rear grommet meets IP67 immersion requirement. Shell has backshell attachment groove. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

Ordering Information

Sample Part Number	280-019S	4H62	ME	L

Basic Part Number	**280-019S**	
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table	
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **Z2** = Gold
Mating Hardware	**N** = No Hardware (Through-Hole) **L** = Jackscrew, Hex Head, Low Profile **S** = Screwlock, Male, Hex Head, Low Profile	**P** = #4-40 Female Jackpost **K** = Jackscrew, Slot Head, Extended Length **T** = Screwlock, Male, Slot Head, Extended Length

Shell Size - Contact Arrangements

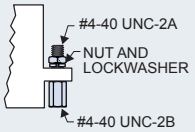
Shell Size-Contact Arr.	Contact Size and Qty #20	#22
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware

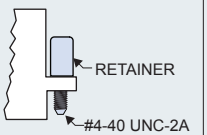
N
Thru-Hole
No Hardware



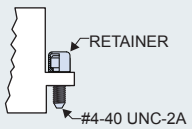
P
Female Jackpost



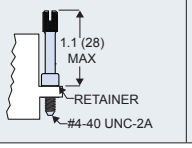
S
Captive Screwlock,
Hex Head



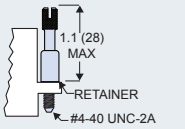
L
Captive Jackscrew,
Hex Head



K
Slot-Head Extended
Jackscrew



T
Slot-Head Extended
Captive Screwlock



Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet	Fluorosilicone rubber
Hardware	300 series stainless steel

Specifications

Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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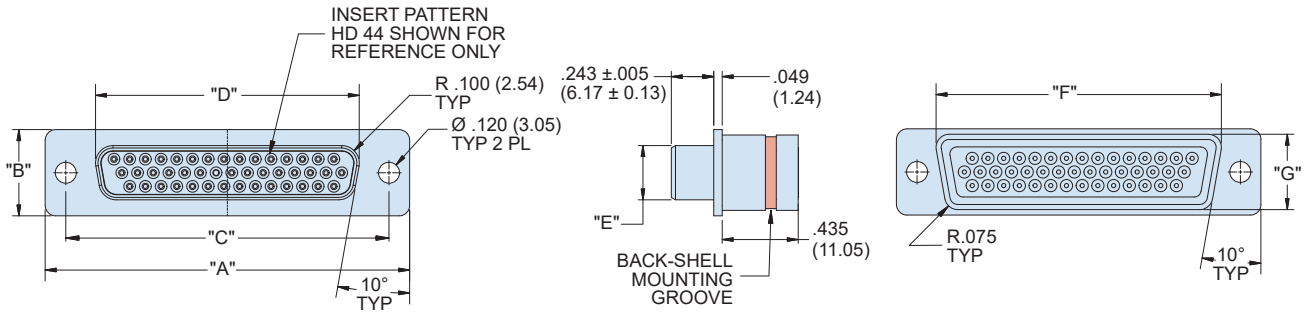
280-019S socket connectors with standard M24308 type mounting flange, crimp termination

280-019S DIMENSIONS



Shell Size	Insert Pattern	"A" ±.015		"B" ±.015		"C" ±.005		"D" ±.005		"E" ±.005		"F" ±.005		"G" ±.005		Contact P/N
		in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	
1	SD 9 HD 15	1.213	30.81	.494	12.55	.984	24.99	.643	16.33	.311	7.90	.769	19.53	.432	10.97	M39029/63-368
2	SD 15 HD 26	1.541	39.14	.494	12.55	1.312	33.32	.971	24.66	.311	7.90	1.093	27.76	.432	10.97	M39029/63-368
3	SD 25 HD 44	2.088	53.04	.494	12.55	1.852	47.04	1.511	38.38	.311	7.90	1.635	41.53	.432	10.97	M39029/63-368
4	SD 37 HD 62	2.729	69.32	.494	12.55	2.5	63.50	2.159	54.84	.311	7.90	2.282	57.96	.432	10.97	M39029/63-368
5	SD 50 HD 78	2.635	66.93	.605	15.37	2.406	61.11	2.064	52.43	.423	10.74	2.172	55.17	.534	13.56	M39029/63-368
6	HD 104	2.729	69.32	.668	16.97	2.5	63.50	2.189	55.60	.486	12.34	2.297	58.34	.596	15.14	M39029/57-354

NOTES

1. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
2. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Crimp Tools*** for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
5. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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HiPer-D® Standard and High-Density Connectors

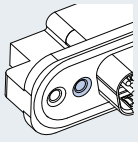
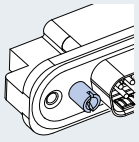
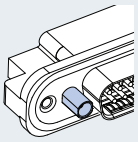
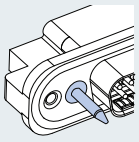
280-020P panel mount pin connectors with O-ring mounting flange, crimp termination



Rear panel mount HiPer-D® pin connectors feature crimp, rear-releaseable size #20 or #22 contacts and O-ring for a watertight panel seal. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined aluminum shell, environmental sealing and optional ground springs for improved resistance to electromagnetic interference. #4-40 threaded mounting holes simplify panel attachment. Threaded holes on the rear of the connector allow attachment of HiPer-D® EMI backshells. Contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone face seal and rear grommet meet IP67 immersion requirement (mated). 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

Ordering Information						
Sample Part Number		**280-020P**	**3H44**	**JF**	**G**	**P**
Basic Part Number	**280-020P**					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table					
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **Z2** = Gold				
Ground Spring	**G** = Supplied with EMI Ground Spring	**N** = No Ground Spring				
Mating Hardware	**N** = No Hardware (supplied with #8-32 tapped holes) **G** = Male Guide Pins	**P** = #4-40 Female Jackposts **B** = Female Guide Bushings				

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware	
N No Hardware #8-32 tapped hole	**P** #4-40 Female Jackposts
	
B Female Guide Bushings	**G** Male Guide Pins
	

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Beryllium copper alloy
O-ring, Grommet, Seal	Fluorosilicone rubber
EMI Spring	Copper alloy, nickel plated
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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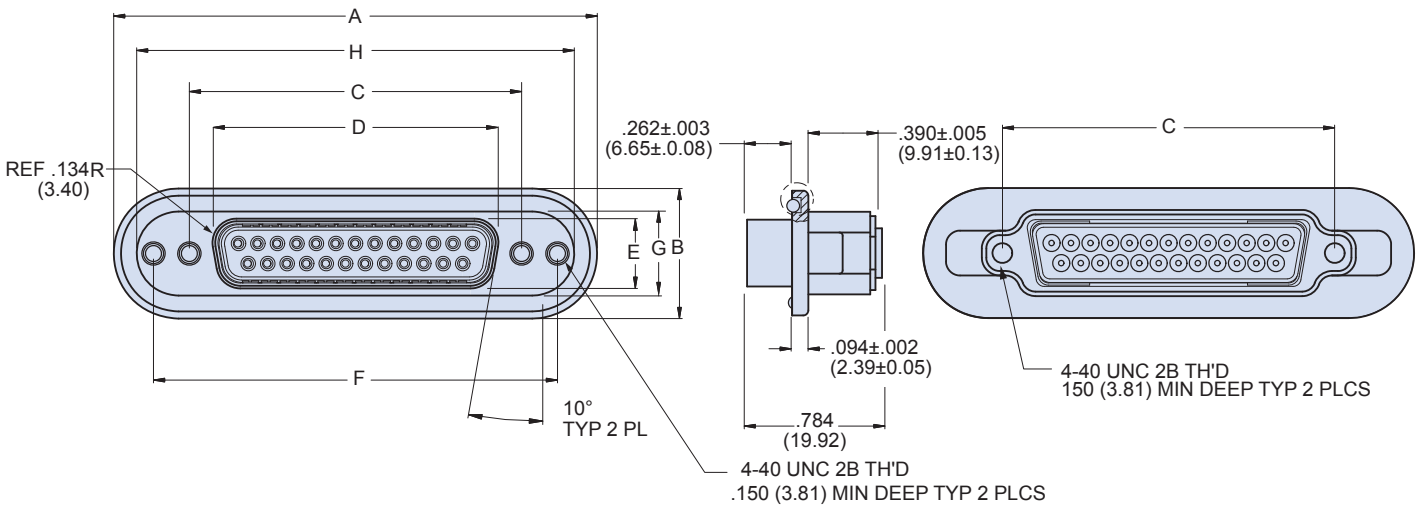
HiPer-D® Standard and High-Density Connectors

280-020P panel mount pin connectors with O-ring mounting flange, crimp termination

280-020P DIMENSIONS



Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.726	18.44	.389	9.88	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	33.32	1.054	26.77	.389	9.88	1.752	44.50	.469	11.91	1.944	49.38
3	2.736	69.49	.725	18.42	1.852	47.04	1.594	40.49	.389	9.88	2.292	58.22	.469	11.91	2.480	62.99
4	3.385	85.98	.725	18.42	2.500	63.50	2.242	56.95	.389	9.88	2.940	74.68	.469	11.91	3.129	79.48
5	3.289	83.54	.837	21.26	2.406	61.11	2.139	54.33	.501	12.73	2.846	72.29	.581	14.76	3.033	77.04
6	3.383	85.93	.899	22.83	2.500	63.50	2.272	57.71	.563	14.30	2.940	74.68	.643	16.33	3.127	79.43

NOTES

1. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
2. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Crimp Tools*** for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
5. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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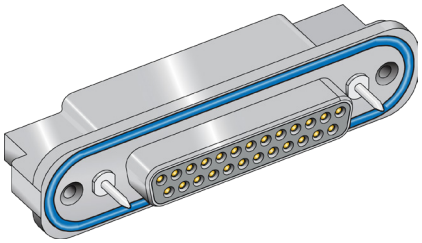
HiPer-D® Standard and High-Density Connectors

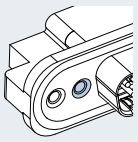
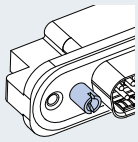
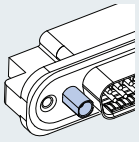
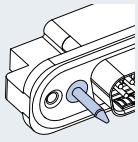
280-021S panel mount socket connectors with O-ring mounting flange, crimp termination



Rear panel mount HiPer-D® socket connectors feature crimp, rear-releaseable size #20 or #22 contacts and a flange O-ring for a watertight panel seal. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined aluminum shell and environmental sealing. #4-40 threaded mounting holes simplify panel attachment. Threaded holes on the rear of the connector allow attachment of HiPer-D® EMI backshells. Contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Connector meets IP67 immersion requirement (mated) . 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

Ordering Information				
Sample Part Number	**280-021S**	**2H26**	**Z2**	**G**
Basic Part Number	**280-021S**			
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table			
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z2** = Gold	**MT** = Nickel-PTFE **Z1** = Passivated Stainless Steel		
Mating Hardware	**N** = No Hardware (supplied with #8-32 tapped holes) **G** = Male Guide Pins	**P** = #4-40 Female Jackposts **B** = Female Guide Bushings		

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware	
N No Hardware #8-32 tapped hole	**P** #4-40 Female Jackposts
	
B Female Guide Bushings	**G** Male Guide Pins
	

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
O-ring, Grommet	Fluorosilicone rubber
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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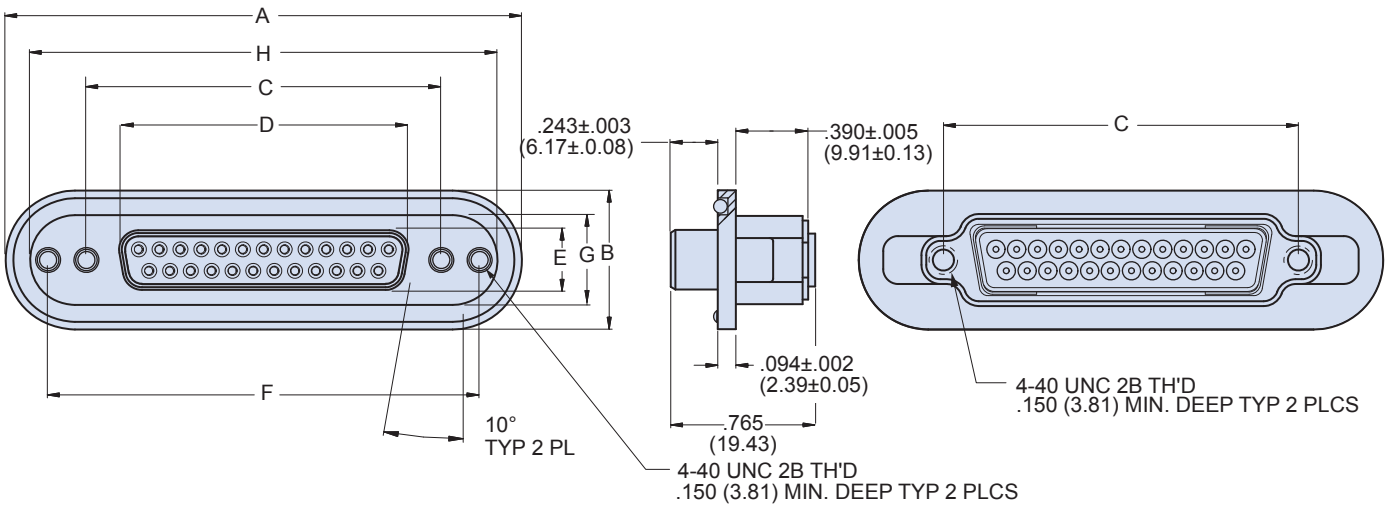
HiPer-D® Standard and High-Density Connectors

280-021S panel mount socket connectors with O-ring mounting flange, crimp termination

280-021S DIMENSIONS



Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.643	16.33	.311	7.90	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	33.32	.971	24.66	.311	7.90	1.752	44.50	.469	11.91	1.944	49.38
3	2.736	69.49	.725	18.42	1.852	47.04	1.511	38.38	.311	7.90	2.292	58.22	.469	11.91	2.480	62.99
4	3.385	85.98	.725	18.42	2.500	63.50	2.159	54.84	.311	7.90	2.940	74.68	.469	11.91	3.129	79.48
5	3.289	83.54	.837	21.26	2.406	61.11	2.064	52.43	.423	10.74	2.846	72.29	.581	14.76	3.033	77.04
6	3.383	85.93	.899	22.83	2.500	63.50	2.189	55.60	.485	12.32	2.940	74.68	.643	16.33	3.127	79.43

NOTES

1. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
2. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Crimp Tools*** for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
5. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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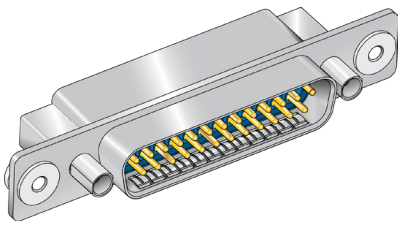
HiPer-D® Standard and High-Density Connectors

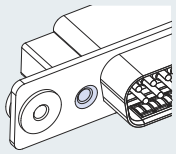
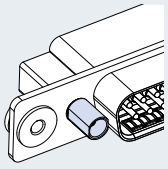
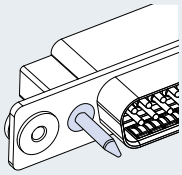
280-030P float mount pin connectors for blind mating, crimp termination



280-030P HiPer-D® pin connectors feature stainless steel float bushings for blind mating. Attach to panel with #4-40 screws (not supplied with connector). Crimp, rear-releaseable size #20 or #22 contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined aluminum shell, rubber seals and optional ground springs for improved resistance to electromagnetic interference. Threaded holes on the rear of the connector allow direct attachment of HiPer-D® EMI backshells. Contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone face seal and rear grommet meet IP67 immersion requirement (mated). 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

Ordering Information						
Sample Part Number		**280-030P**	**6H104**	**MT**	**N**	**N**
Basic Part Number	**280-030P**					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table					
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **Z2** = Gold				
Ground Spring	**G** = Supplied with EMI Ground Spring	**N** = No Ground Spring				
Mating Hardware	**N** = No Hardware (supplied with #8-32 tapped hole) **B** = Female Guide Bushings	**G** = Male Guide Pins				

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware
N No Hardware #8-32 tapped hole

B Female Guide Bushings

G Male Guide Pins


Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet, Seal, O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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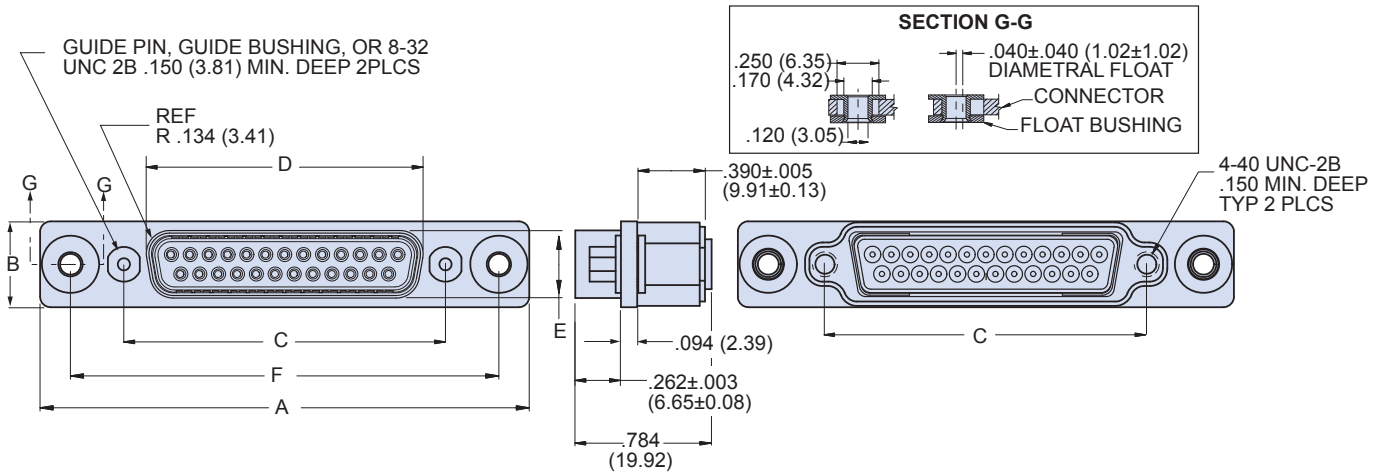
280-030P float mount pin connectors for blind mating, crimp termination

280-030P DIMENSIONS



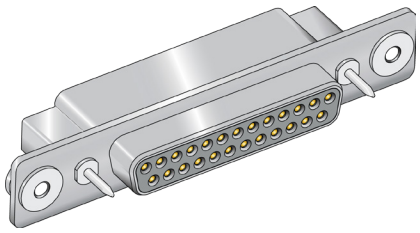
Shell Size	A		B		C Basic		D		E		F Basic	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm
1	1.986	50.44	.494	12.55	.984	24.99	.726	18.44	.389	9.88	1.636	41.55
2	2.314	58.78	.494	12.55	1.312	33.32	1.054	26.77	.389	9.88	1.964	49.89
3	2.854	72.49	.494	12.55	1.852	47.04	1.594	40.49	.389	9.88	2.504	63.60
4	3.502	88.95	.494	12.55	2.500	63.50	2.242	56.95	.389	9.88	3.152	80.06
5	3.408	86.56	.600	15.24	2.406	61.11	2.139	54.33	.501	12.73	3.058	77.67
6	3.502	88.95	.662	16.81	2.500	63.50	2.272	57.71	.563	14.30	3.152	80.06

NOTES

1. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
2. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Crimp Tools*** for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
5. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

HiPer-D® Standard and High-Density Connectors

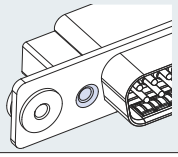
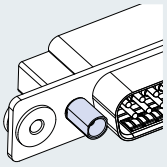
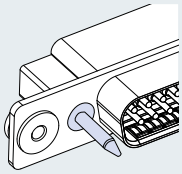
280-031S float mount socket connectors for blind mating, crimp termination



280-031S HiPer-D® socket connectors feature stainless steel floating bushings for blind mate applications. Attach to panel with #4-40 screws (not supplied with connector). Crimp, rear-releaseable size #20 or #22 contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined aluminum shell and rubber grommet. Threaded holes on the rear of the connector allow attachment of HiPer-D® EMI backshells. Contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Connector meets IP67 immersion requirement. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

Ordering Information				
Sample Part Number	**280-031S**	**2H26**	**Z2**	**G**
Basic Part Number	**280-031S**			
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table			
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel			
Mating Hardware	**N** = No Hardware (supplied with #8-32 tapped holes) **G** = Male Guide Pins **B** = Female Guide Bushings			

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware
N No Hardware #8-32 tapped hole

B Female Guide Bushings

G Male Guide Pins


Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet	Fluorosilicone rubber
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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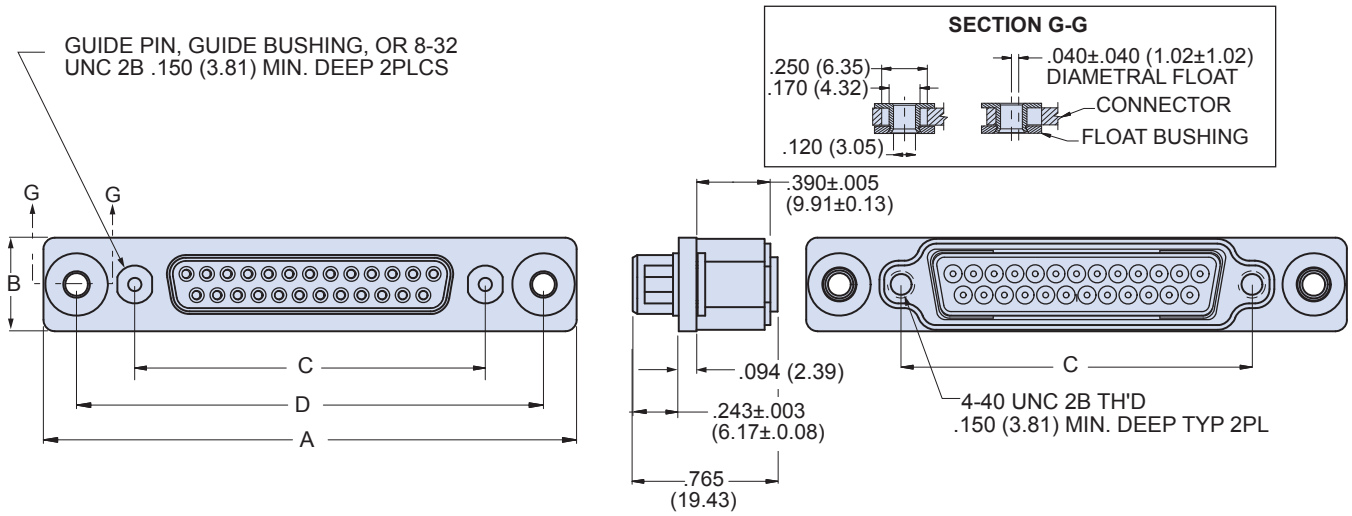
280-031S float mount socket connectors for blind mating, crimp termination

280-031S DIMENSIONS



Shell Size	A		B		C Basic		D Basic	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in	mm
1	1.986	50.44	.494	12.55	.984	24.99	1.636	41.55
2	2.314	58.78	.494	12.55	1.312	33.32	1.964	49.89
3	2.854	72.49	.494	12.55	1.852	47.04	2.504	63.60
4	3.502	88.95	.494	12.55	2.500	63.50	3.152	80.06
5	3.408	86.56	.600	15.24	2.406	61.11	3.058	77.67
6	3.502	88.95	.662	16.81	2.500	63.50	3.152	80.06

NOTES

1. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
2. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Crimp Tools*** for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
5. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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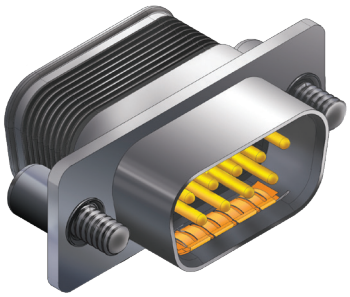
HiPer-D® Standard and High-Density Connectors

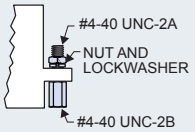
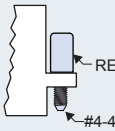
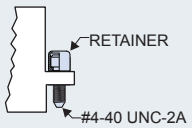
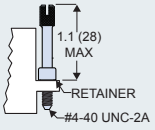
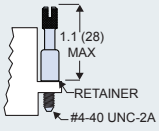
280-086 pin connectors with standard M24308 type mounting flange, integral banding platform and crimp termination



HiPer-D® pin connectors feature integrated banding platform, crimp, rear-releaseable size #20 or #22 contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined aluminum shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. Gold-plated size #20 contacts conform to M39029/63-368 and accept #20 to #24 AWG wire. Gold-plated size #22 contacts conform to M39029/57-354 and accept #22 to #28 AWG wire. Contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone face seal and rear grommet meet IP67 immersion requirement. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

Ordering Information						
Sample Part Number		**280-086P**	**3S25**	**ME**	**G**	**P**
Basic Part Number	**280-086P**					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table					
Shell Finish	**ME** = Electroless Nickel **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **ZM** = Nickel over Stainless				
Ground Spring	**G** = Supplied with EMI Ground Spring	**N** = No Ground Spring				
Mating Hardware	**N** = No Hardware (Through-Hole) **L** = Jackscrew, Hex Head, Low Profile **S** = Screwlock, Male, Hex Head, Low Profile	**P** = #4-40 Female Jackpost **K** = Jackscrew, Slot Head, Extended Length **T** = Screwlock, Male, Slot Head, Extended Length				

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware	
N Thru-Hole No Hardware	**P** Female Jackpost
	
S Captive Screwlock, Hex Head	**L** Captive Jackscrew, Hex Head
	
K Slot-Head Extended Jackscrew	**T** Slot-Head Extended Captive Screwlock
	

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet and Seal	Fluorosilicone rubber
EMI Spring	Copper alloy, nickel plated
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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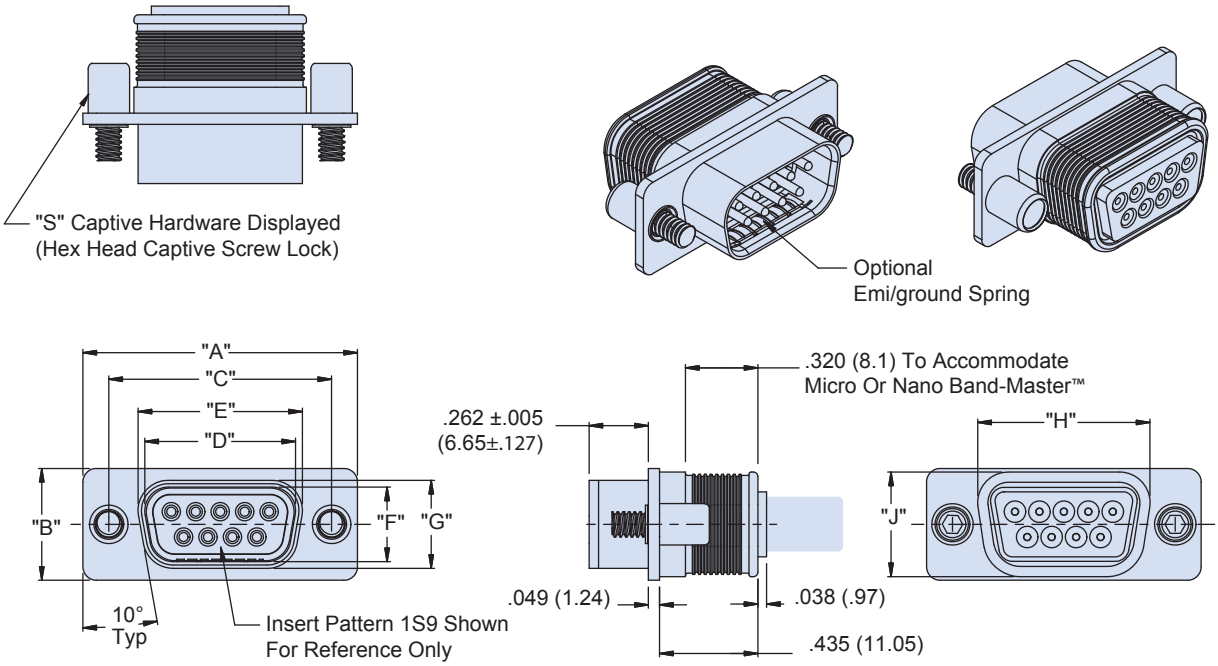
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Standard and High-Density Connectors

280-086 pin connectors with standard M24308 type mounting flange, integral banding platform and crimp termination

280-086P DIMENSIONS



Shell Size	Insert Pattern	"A" ±.015		"B" ±.015		"C" ±.005		"D" ±.005		"E" ±005		"F" ±.005		"G" ±.005		"H"		"J"		Contact P/N
		in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	
1	SD 9	1.213	30.81	0.494	12.55	0.984	24.99	0.666	16.92	0.726	18.44	0.329	8.36	0.389	9.88	0.760	19.30	0.462	11.73	M39029/64-369
	HD 15																			M39029/58-360
2	SD 15	1.541	39.14	0.494	12.55	1.312	33.32	0.994	25.25	1.054	26.77	0.329	8.36	0.389	9.88	1.089	27.66	0.462	11.73	M39029/64-369
	HD 26																			M39029/58-360
3	SD 25	2.088	53.03	0.494	12.55	1.852	47.04	1.534	38.96	1.594	40.49	0.329	8.36	0.389	9.88	1.629	41.38	0.462	11.73	M39029/64-369
	HD 44																			M39029/58-360
4	SD 37	2.729	69.32	0.494	12.55	2.5	63.50	2.182	55.42	2.242	56.95	0.329	8.36	0.389	9.88	2.277	57.84	0.462	11.73	M39029/64-369
	HD 62																			M39029/58-360
5	SD 50	2.635	66.93	0.605	15.37	2.406	61.11	2.079	52.81	2.139	54.33	0.441	11.20	0.501	12.73	2.182	55.42	0.474	12.04	M39029/64-369
	HD 78																			M39029/58-360
6	HD 104	2.729	69.32	0.668	16.97	2.5	63.50	2.212	56.18	2.272	57.71	0.503	12.78	0.563	14.30	2.307	58.60	0.626	15.90	M39029/58-360

NOTES

1. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
2. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. onnectors are supplied with crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Crimp Tools*** for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
5. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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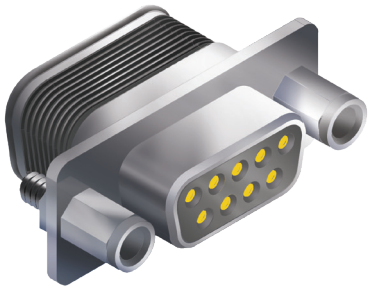
HiPer-D® Standard and High-Density Connectors

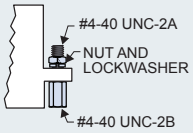
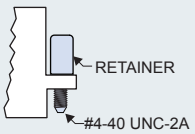
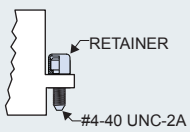
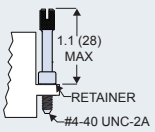
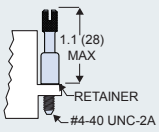
280-087 socket connectors with standard M24308 type mounting flange, integral banding platform and crimp termination



HiPer-D® socket connectors feature integrated banding platform, crimp, rear-releaseable size #20 or #22 contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined aluminum shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. Gold-plated size #20 contacts conform to M39029/63-368 and accept #20 to #24 AWG wire. Gold-plated size #22 contacts conform to M39029/57-354 and accept #22 to #28 AWG wire. Contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone face seal and rear grommet meet IP67 immersion requirement. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

Ordering Information				
Sample Part Number	**280-087S**	**3S25**	**ME**	**P**
Basic Part Number	**280-087S**			
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table			
Shell Finish	**ME** = Electroless Nickel **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **ZM** = Nickel over Stainless		
Mating Hardware	**N** = No Hardware (Through-Hole) **L** = Jackscrew, Hex Head, Low Profile **S** = Screwlock, Male, Hex Head, Low Profile	**P** = #4-40 Female Jackpost **K** = Jackscrew, Slot Head, Extended Length **T** = Screwlock, Male, Slot Head, Extended Length		

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware	
N Thru-Hole No Hardware	**P** Female Jackpost
	
S Captive Screwlock, Hex Head	**L** Captive Jackscrew, Hex Head
	
K Slot-Head Extended Jackscrew	**T** Slot-Head Extended Captive Screwlock
	

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet and Seal	Fluorosilicone rubber
EMI Spring	Copper alloy, nickel plated
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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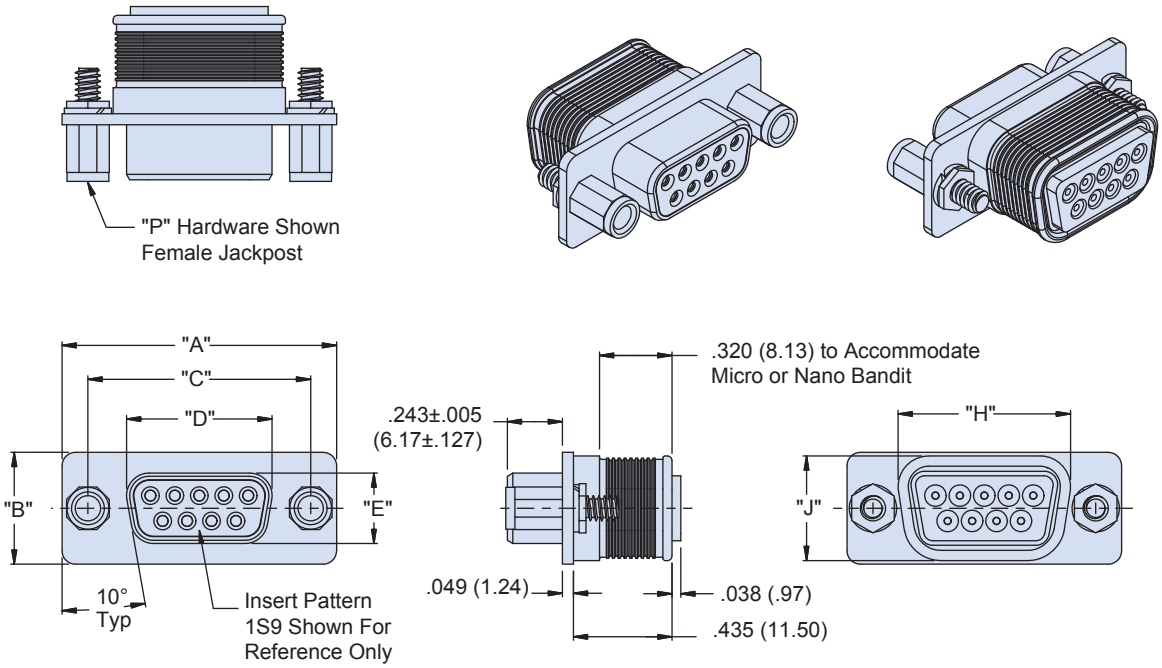
Dimensions in Inches (millimeters) are subject to change without notice.

280-087 socket connectors with standard M24308 type mounting flange, integral banding platform and crimp termination

280-087S DIMENSIONS



Shell Size	Insert Pattern	"A" ±.015		"B" ±.015		"C" ±.005		"D" ±.005		"E" ±005		"H"		"J"		Contact P/N
		In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	
1	SD 9	1.213	30.81	0.494	12.55	0.984	24.99	0.643	16.33	0.311	7.90	0.760	19.30	0.462	11.73	M39029/63-368
	HD 15															M39029/57-354
2	SD 15	1.541	39.14	0.494	12.55	1.312	33.32	0.971	24.66	0.311	7.90	1.089	27.66	0.462	11.73	M39029/63-368
	HD 26															M39029/57-354
3	SD 25	2.088	53.04	0.494	12.55	1.852	47.04	1.511	38..8	0.311	7.90	1.629	41.38	0.462	11.73	M39029/63-368
	HD 44															M39029/57-354
4	SD 37	2.729	69.32	0.494	12.55	2.5	63.50	2.159	54.84	0.311	7.90	2.277	57.84	0.462	11.73	M39029/63-368
	HD 62															M39029/57-354
5	SD 50	2.635	66.93	0.605	15.37	2.406	61.11	2.064	52.43	0.423	10.74	2.182	55.42	0.474	12.04	M39029/63-368
	HD 78															M39029/57-354
6	HD 104	2.729	69.32	0.668	16.97	2.5	63.50	2.189	55.60	0.486	12.34	2.307	58.60	0.626	15.90	M39029/57-354

NOTES

1. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
2. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Crimp Tools*** for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
5. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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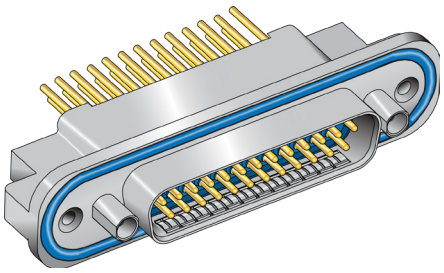
HiPer-D® Standard and High-Density Connectors

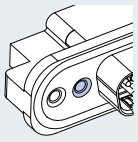
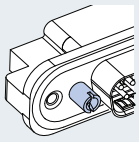
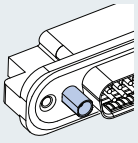
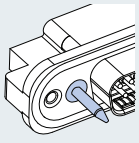
280-022P straight PC tail pin connectors with O-ring flange for rear panel mounting



Rear panel mount HiPer-D® pin connectors feature non-removable size #20 or #22 straight PC tail contacts and a flange O-ring for a watertight panel seal. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. #4-40 threaded mounting holes simplify panel attachment. Threaded holes on the rear of the connector allow attachment to circuit board. Contacts are gold plated and potted with epoxy. Aluminum shell. Glass-reinforced thermoset epoxy insulator, fluorosilicone face seal. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

How To Order							
Sample Part Number		**280-022P**	**2S15**	**ME**	**G**	**P**	**A**
Basic Part Number	**280-022P**						
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table						
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **Z2** = Gold					
Ground Spring	**G** = Supplied with EMI Ground Spring	**N** = No Ground Spring					
Mating Hardware	**N** = No Hardware (supplied with #8-32 tapped holes) **G** = Male Guide Pins	**P** = #4-40 Female Jackposts **B** = Female Guide Bushings					
PC Tail Length	**A** = .125 (3.18) Tail Length	**B** = .250 (6.35) Tail Length					

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware	
N No Hardware #8-32 tapped hole	**P** #4-40 Female Jackposts
	
B Female Guide Bushings	**G** Male Guide Pins
	

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Beryllium copper alloy
O-ring and Seal	Fluorosilicone rubber
EMI Spring	Copper alloy, nickel plated
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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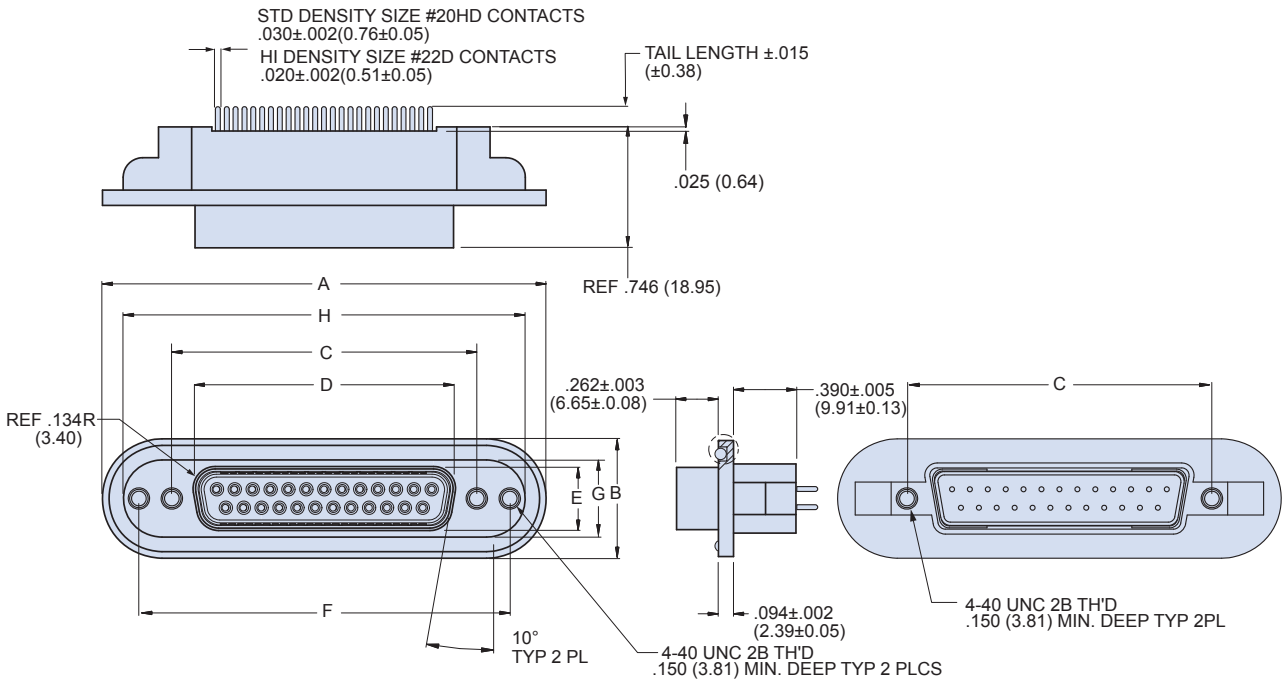
HiPer-D® Standard and High-Density Connectors

280-022P straight PC tail pin connectors with O-ring flange for rear panel mounting

280-022P DIMENSIONS



Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .005	mm ± 0.13	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.726	18.44	.389	9.88	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	33.32	1.054	26.77	.389	9.88	1.752	44.50	.469	11.91	1.944	49.38
3	2.736	69.49	.725	18.42	1.852	47.04	1.594	40.49	.389	9.88	2.292	58.22	.469	11.91	2.480	62.99
4	3.385	85.98	.725	18.42	2.500	63.50	2.242	56.95	.389	9.88	2.940	74.68	.469	11.91	3.129	79.48
5	3.289	83.54	.837	21.26	2.406	61.11	2.139	54.33	.501	12.73	2.846	72.29	.581	14.76	3.033	77.04
6	3.383	85.93	.899	22.83	2.500	63.50	2.272	57.71	.563	14.30	2.940	74.68	.643	16.33	3.127	79.43

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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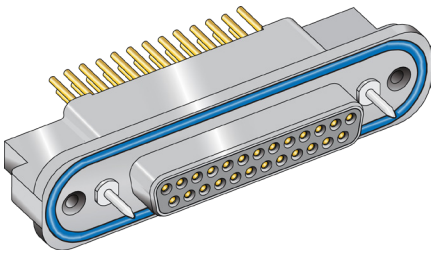
HiPer-D® Standard and High-Density Connectors

280-023S straight PC tail socket connectors with O-ring flange for rear panel mounting



Rear panel mount HiPer-D® socket connectors feature non-removable size #20 or #22 straight PC tail contacts and a flange O-ring for a watertight panel seal. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. #4-40 threaded mounting holes simplify panel attachment. Threaded holes on the rear of the connector allow attachment to circuit board. Contacts are potted with epoxy. Aluminum shell. Glass-reinforced thermoset epoxy insulators. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

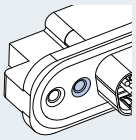
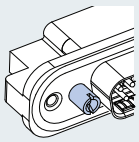
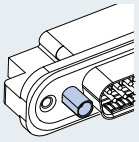
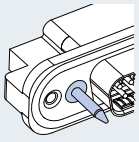
How To Order

Sample Part Number	280-023S	6H104	MT	P	B
Basic Part Number	**280-023S**				
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel **MT** = Nickel-PTFE **Z2** = Gold				
Mating Hardware	**N** = No Hardware (supplied with #8-32 tapped holes) **G** = Male Guide Pins **P** = #4-40 Female Jackposts **B** = Female Guide Bushings				
PC Tail Length	**A** = .125 (3.18) Tail Length **B** = .250 (6.35) Tail Length				

Shell Size - Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty #20	#22
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware

N No Hardware #8-32 tapped hole	**P** #4-40 Female Jackposts
	
B Female Guide Bushings	**G** Male Guide Pins
	

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulator	Thermoset epoxy
Potting Compound	Epoxy
O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

Specifications

Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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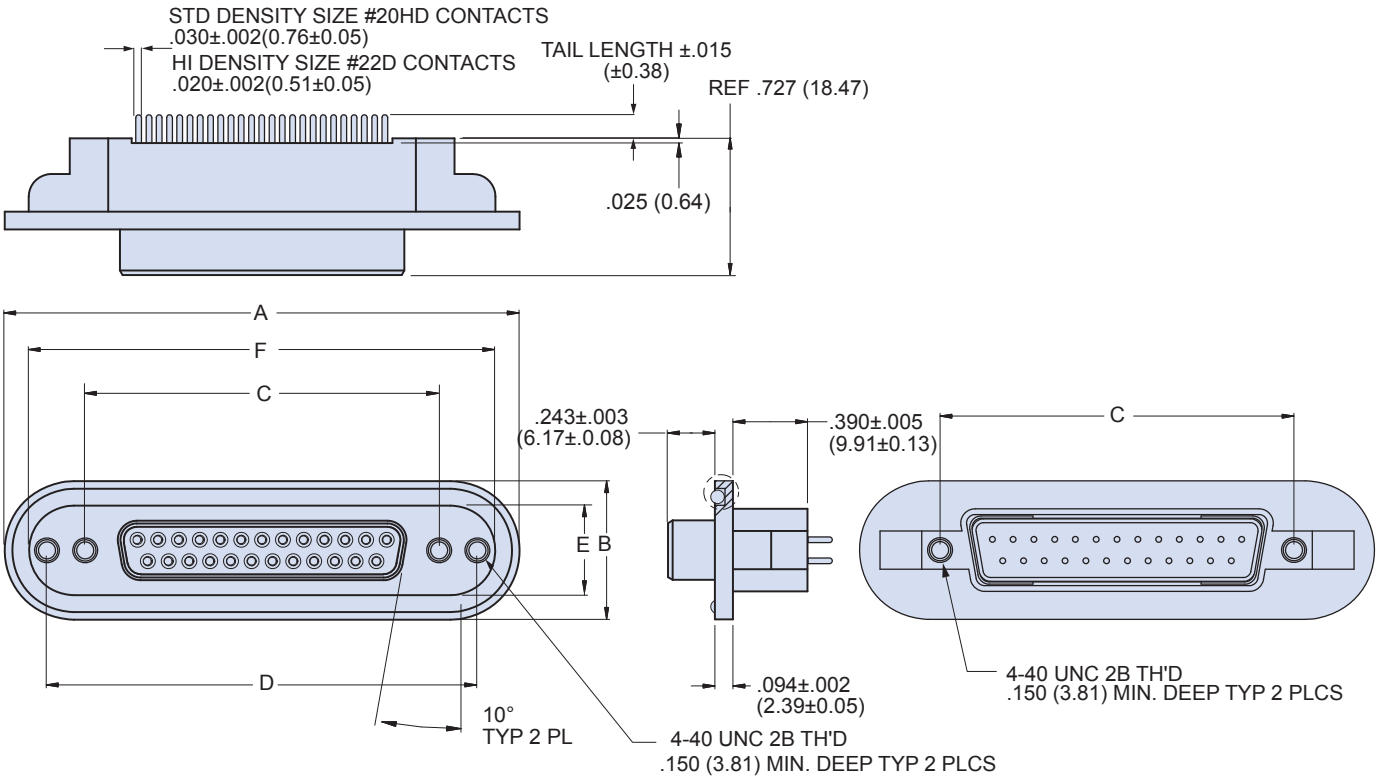
280-023S straight PC tail socket connectors with O-ring flange for rear panel mounting

280-023S DIMENSIONS



Shell Size	A		B		C Basic		D Basic		E		F	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in	mm	in ± .005	mm ± 0.13	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	33.32	1.752	44.50	.469	11.91	1.944	49.38
3	2.736	69.49	.725	18.42	1.852	47.04	2.292	58.22	.469	11.91	2.480	62.99
4	3.385	85.98	.725	18.42	2.500	63.50	2.940	74.68	.469	11.91	3.129	79.48
5	3.289	83.54	.837	21.26	2.406	61.11	2.846	72.29	.581	14.76	3.033	77.04
6	3.383	85.93	.899	22.83	2.500	63.50	2.940	74.68	.643	16.33	3.127	79.43

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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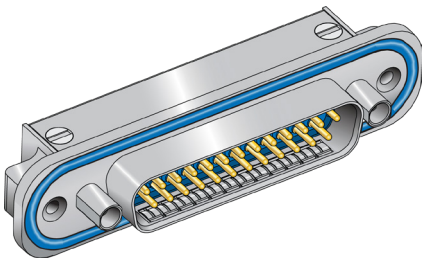
HiPer-D® Standard and High-Density Connectors

280-024P right angle PC tail pin connectors with O-ring flange for rear panel mounting



Right angle printed circuit board HiPer-D® pin connectors feature rugged one-piece machined aluminum shell and aluminum alloy cover for improved EMI protection. Contacts are non-removable size #20 or #22 PC tail contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features environmental sealing and optional ground springs for improved resistance to electromagnetic interference. #4-40 threaded mounting holes simplify panel attachment. Threaded holes on the bottom of connector allow attachment to circuit board. Contacts are potted with epoxy. Glass-reinforced thermoset epoxy insulators, fluorosilicone face seal. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

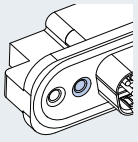
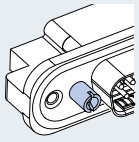
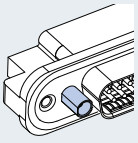
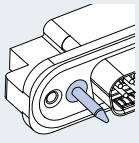
How To Order

Sample Part Number	280-024P	4S37	Z2	N	B	B
Basic Part Number	**280-024P**					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table					
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel **MT** = Nickel-PTFE **Z2** = Gold					
Ground Spring	**G** = Supplied with EMI Ground Spring **N** = No Ground Spring					
Mating Hardware	**N** = No Hardware (supplied with #8-32 tapped holes) **G** = Male Guide Pins **P** = #4-40 Female Jackposts **B** = Female Guide Bushings					
PC Tail Length	**A** = .125 (3.18) Tail Length **B** = .250 (6.35) Tail Length					

Shell Size - Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty #20	#22
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware

N No Hardware #8-32 tapped hole	**P** #4-40 Female Jackposts
	
B Female Guide Bushings	**G** Male Guide Pins
	

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Potting Compound	Epoxy
Face Seal and O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

Specifications

Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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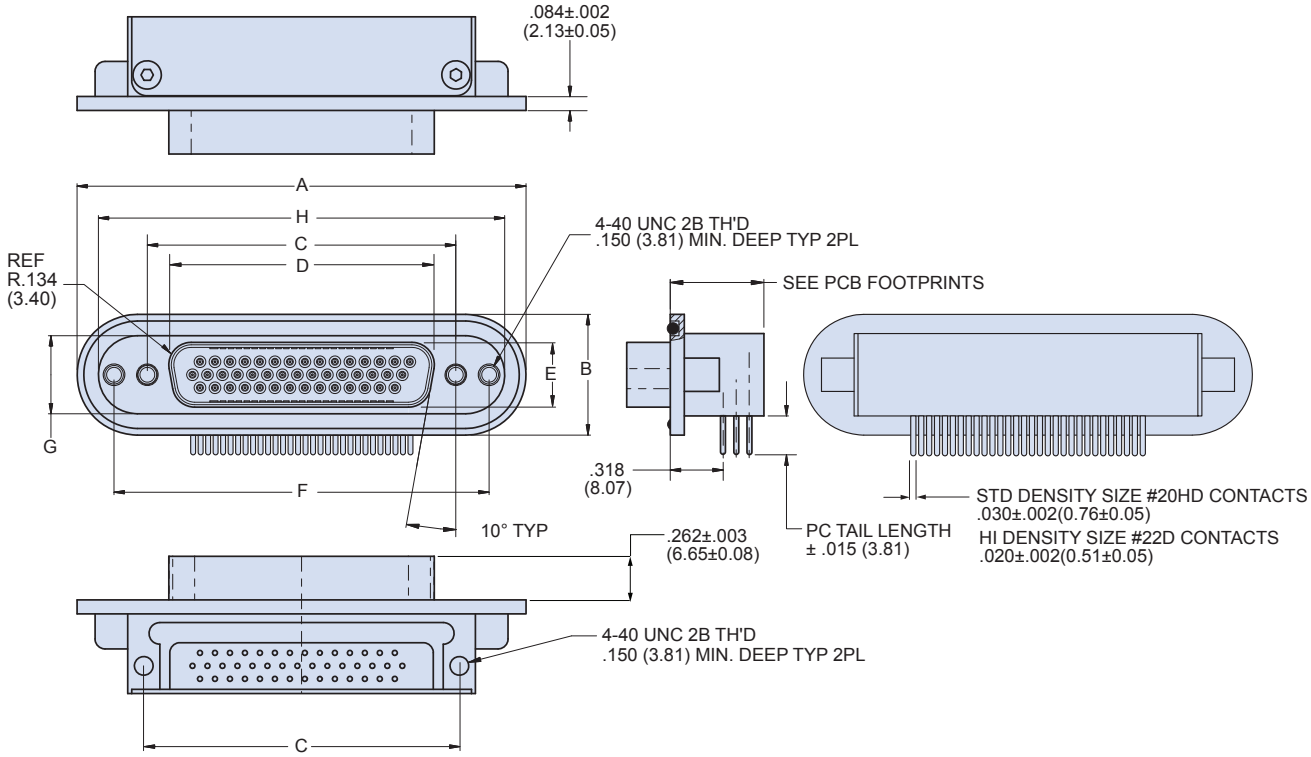
HiPer-D® Standard and High-Density Connectors

280-024P right angle PC tail pin connectors with O-ring flange for rear panel mounting

280-024P DIMENSIONS



Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.726	18.44	.389	9.88	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	33.32	1.054	26.77	.389	9.88	1.752	44.50	.469	11.91	1.944	49.38
3	2.736	69.49	.725	18.42	1.852	47.04	1.594	40.49	.389	9.88	2.292	58.22	.469	11.91	2.480	62.99
4	3.385	85.98	.725	18.42	2.500	63.50	2.242	56.95	.389	9.88	2.940	74.68	.469	11.91	3.129	79.48
5	3.289	83.54	.837	21.26	2.406	61.11	2.139	54.33	.501	12.73	2.846	72.29	.581	14.76	3.033	77.04
6	3.383	85.93	.899	22.83	2.500	63.50	2.272	57.71	.563	14.30	2.940	74.68	.643	16.33	3.127	79.43

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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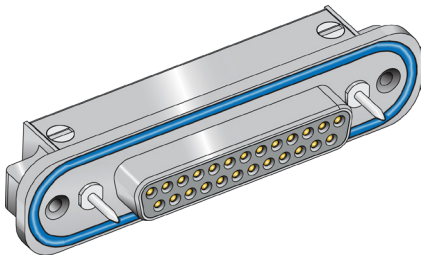
HiPer-D® Standard and High-Density Connectors

280-025S right angle PC tail socket connectors with O-ring flange for rear panel mounting



Rear panel mount HiPer-D® right angle PC tail socket connectors feature rugged one-piece machined aluminum shell and aluminum alloy cover for improved EMI protection. Contacts are non-removable size #20 or #22. Flange O-ring provides panel seal. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features environmental sealing and optional blind mate hardware. #4-40 threaded mounting holes simplify panel attachment. Threaded holes on the bottom of the connector allow attachment to circuit board. Contacts are potted with epoxy. Glass-reinforced thermoset epoxy insulators. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

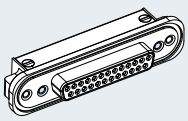
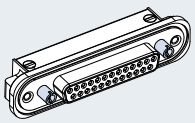
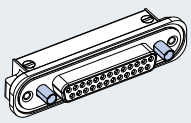
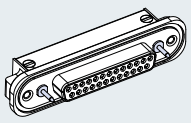
How To Order

Sample Part Number	280-025S	5H78	MT	G	B
Basic Part Number					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **Z2** = Gold			
Mating Hardware	**N** = No Hardware (supplied with #8-32 tapped holes) **G** = Male Guide Pins	**P** = #4-40 Female Jackposts **B** = Female Guide Bushings			
PC Tail Length	**A** = .125 (3.18) Tail Length	**B** = .250 (6.35) Tail Length			

Shell Size - Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty #20	#22
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Mating Hardware

N No Hardware #8-32 tapped hole	**P** #4-40 Female Jackposts
	
B Female Guide Bushings	**G** Male Guide Pins
	

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulator	Thermoset epoxy
Potting Compound	Epoxy
O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

Specifications

Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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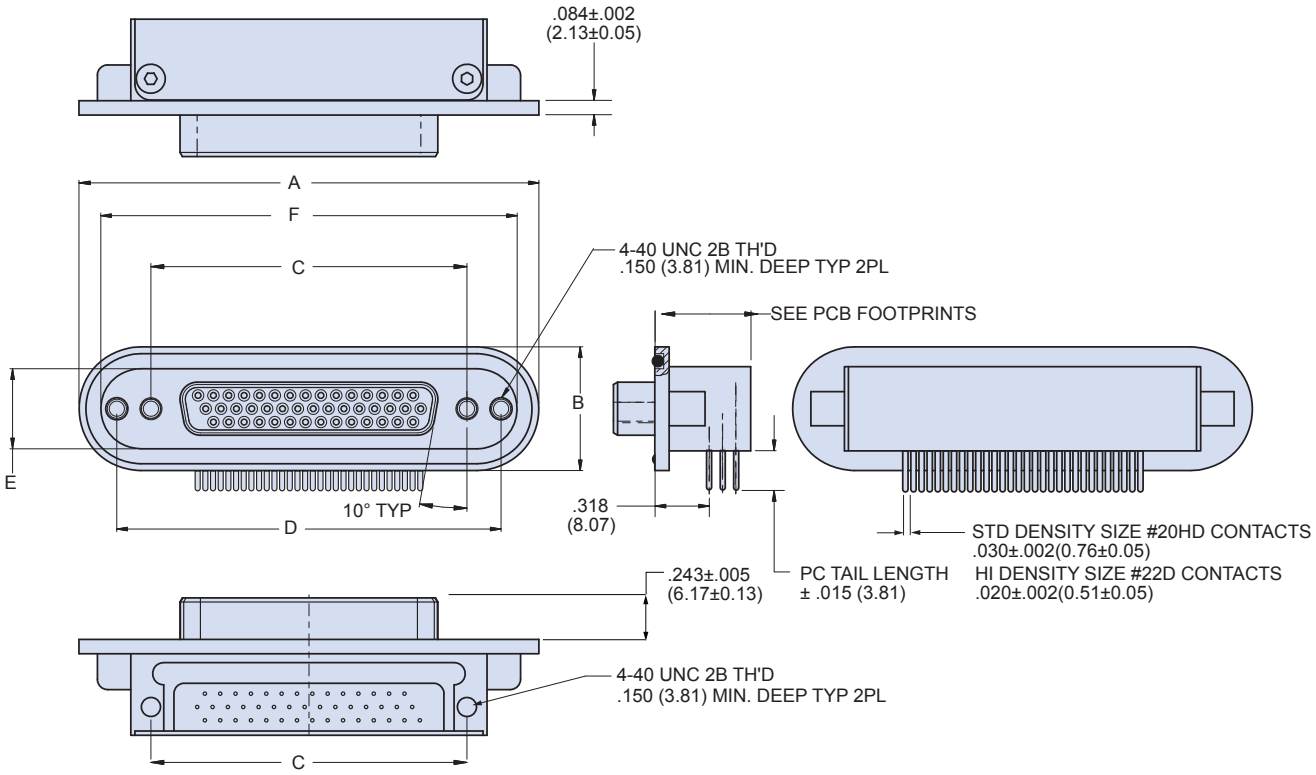
280-025S right angle PC tail socket connectors with O-ring flange for rear panel mounting

280-025S DIMENSIONS



Shell Size	A		B		C Basic		D Basic		E		F	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in	mm	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	33.32	1.752	44.50	.469	11.91	1.944	49.38
3	2.736	69.49	.725	18.42	1.852	47.04	2.292	58.22	.469	11.91	2.480	62.99
4	3.385	85.98	.725	18.42	2.500	63.50	2.940	74.68	.469	11.91	3.129	79.48
5	3.289	83.54	.837	21.26	2.406	61.11	2.846	72.29	.581	14.76	3.033	77.04
6	3.383	85.93	.899	22.83	2.500	63.50	2.940	74.68	.643	16.33	3.127	79.43

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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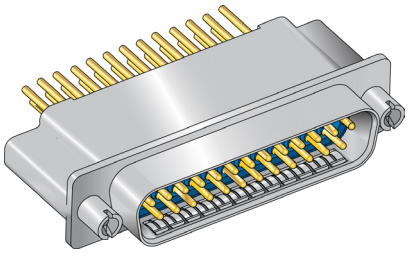
HiPer-D® Standard and High-Density Connectors

280-026P straight PC tail pin connectors with low profile mounting flange



Low profile HiPer-D® straight PC tail pin connectors feature non-removable size #20 or #22 contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. Threaded holes on the rear of the connector allow attachment to circuit board. Contacts are potted with epoxy. Aluminum shell. Glass-reinforced thermoset epoxy insulators, fluorosilicone face seal. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

How To Order

Sample Part Number	280-026P	5S50	JF	N	P	B

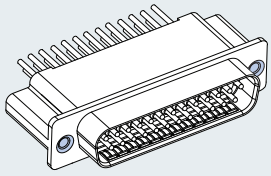
Basic Part Number	**280-026P**	
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table	
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **Z2** = Gold
Ground Spring	**G** = Supplied with EMI Ground Spring	**N** = No Ground Spring
Mating Hardware	**N** = No Hardware (supplied with #4-40 tapped holes)	**P** = #4-40 Female Jackposts
PC Tail Length	**A** = .125 (3.18) Tail Length	**B** = .250 (6.35) Tail Length

Shell Size - Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty #20	#22
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

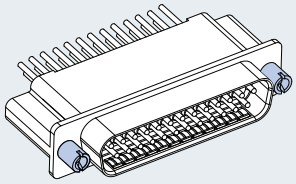
Mating Hardware

N
No Hardware
#4-40 Female Threads in Mounting Holes



Choose this option for rear panel mounting and order jackpost kit 289-016 separately.

P
#4-40 Female Jackposts



Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulator	Thermoset epoxy
Potting Compound	Epoxy
Face Seal	Fluorosilicone rubber
Hardware	300 series stainless steel

Specifications

Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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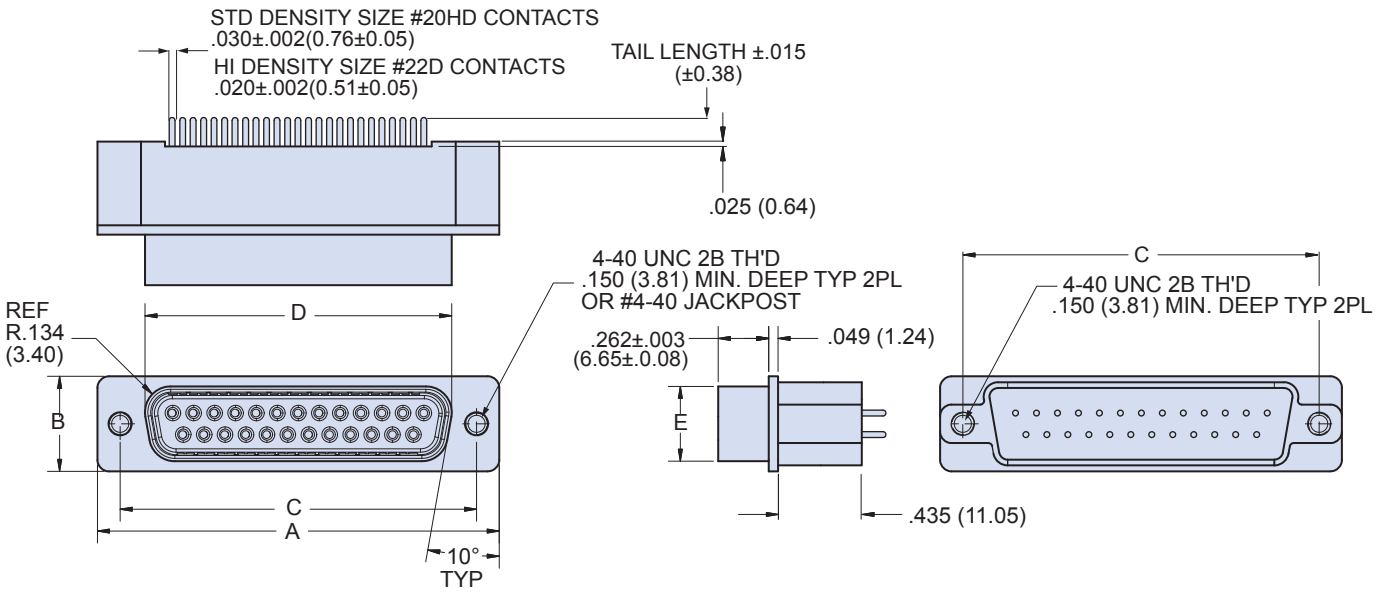
280-026P straight PC tail pin connectors with low profile mounting flange

280-026P DIMENSIONS



Shell Size	A		B		C Basic		D		E	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13
1	1.213	30.81	.494	12.55	.984	24.99	.726	18.44	.389	9.88
2	1.541	39.14	.494	12.55	1.312	33.32	1.054	26.77	.389	9.88
3	2.088	53.04	.494	12.55	1.852	47.04	1.594	40.49	.389	9.88
4	2.729	69.32	.494	12.55	2.500	63.50	2.242	56.95	.389	9.88
5	2.635	66.93	.605	15.37	2.406	61.11	2.139	54.33	.501	12.73
6	2.729	69.32	.668	16.97	2.500	63.50	2.272	57.71	.563	14.30

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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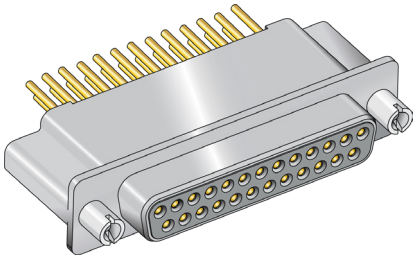
HiPer-D® Standard and High-Density Connectors

280-027S straight PC tail socket connectors with low profile mounting flange



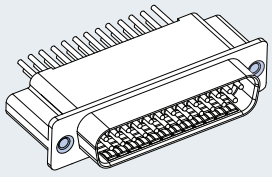
Low profile HiPer-D® straight PC tail socket connectors feature non-removable size #20 or #22 contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined shell and waterproof sealing for improved resistance to electromagnetic interference. Threaded holes on the rear of the connector allow attachment to circuit board. Contacts are potted with epoxy. Aluminum shell. Glass-reinforced thermoset epoxy insulators. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

How To Order							
Sample Part Number		**280-027S**	**C**	**3S25**	**ME**	**N**	**A**
Basic Part Number	**280-027S**						
Shell Style	**C** = Compact Flange (Omit for Standard Shell)						
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table						
Shell Finish	**ME** = Electroless Nickel Over Aluminum **MT** = Nickel Flourocarbon Over Aluminum **Z1** = Passivated Stainless **ZM** = Electroless Nickel Over Stainless **JF** = Yellow Chromate Over Cadmium						
Mating Hardware	**N** = None (Tapped) **S** = Captive Jackscrew **P** = Female Jack-Post **L** = Captive Jackscrew (S and L For Use Only with Compact Flange Shell Option)						
PC Tail Length	**A** = .125 (3.18) **E** = .165 (4.19) **B** = .250 (6.35) **F** = .188 (4.78) **C** = .375 (9.52) **G** = .425 (10.80) **D** = .150 (3.81)						

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

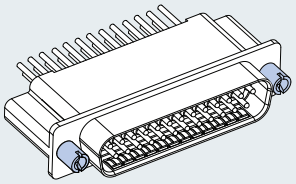
Mating Hardware

N
No Hardware
#4-40 Female Threads in Mounting Holes



Choose this option for rear panel mounting and order jackpost kit 289-016 separately.

P
#4-40 Female Jackposts



Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold plated
Insulator	Thermoset epoxy
Potting Compound	Epoxy
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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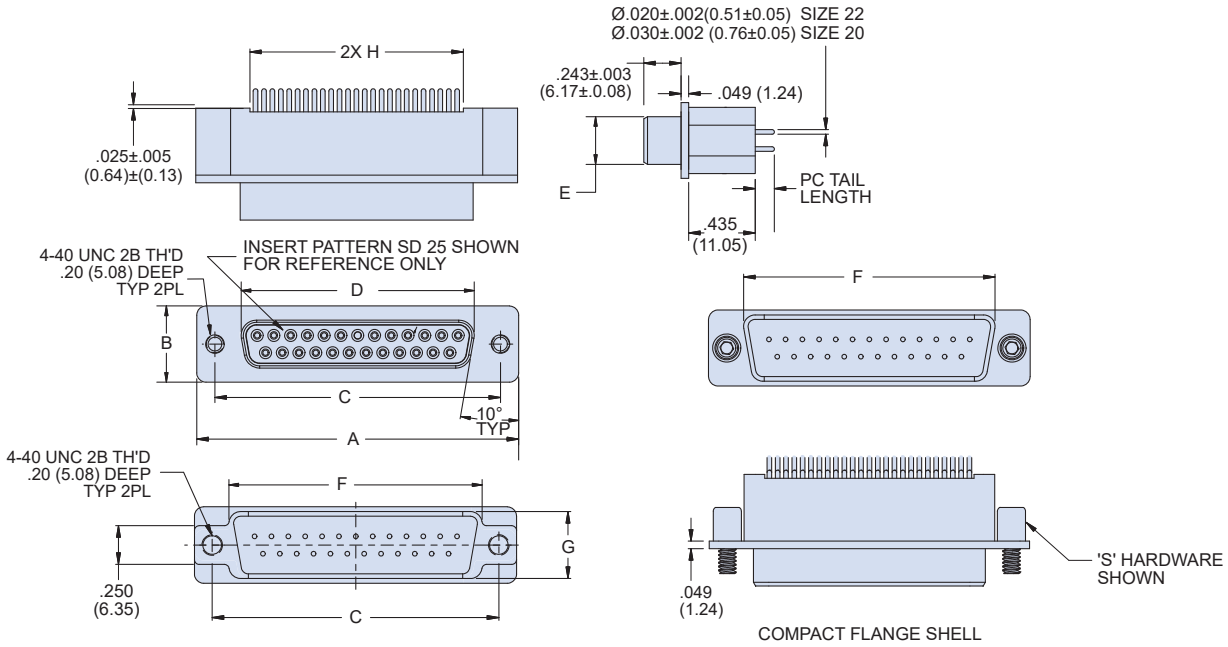
280-027S straight PC tail socket connectors with low profile mounting flange

280-027S DIMENSIONS



Shell Size	Insert Pattern	A		B		C		D		E		F		G		H	
		in ±.015	mm ±0.38	in ±.015	mm ±0.38	in ±.015	mm ±0.38	in ±.005	mm ±0.13	in ±.005	mm ±0.13	in ±.005	mm ±0.13	in ±.005	mm ±0.13	in ±.005	mm ±0.13
1	SD 9 HD 15	1.213	30.81	.494	12.55	.984	24.99	0.643	16.33	0.311	7.90	0.769	19.53	0.432	10.97	0.520	13.21
2	SD 15 HD 26	1.541	39.14	.494	12.55	1.312	33.32	0.971	24.66	0.311	7.90	1.093	27.76	0.432	10.97	0.844	21.44
3	SD 25 HD 44	2.088	53.04	.494	12.55	1.852	47.04	1.511	38.38	0.311	7.90	1.635	41.53	0.432	10.97	1.386	35.20
4	SD 37 HD 62	2.729	69.32	.494	12.55	2.500	63.50	2.159	54.84	0.311	7.90	2.282	57.96	0.432	10.97	2.034	51.66
5	SD 50 HD 78	2.635	66.93	.605	15.37	2.406	61.11	2.064	52.43	0.423	10.74	2.188	55.58	0.544	13.82	1.887	47.93
6	HD 104	2.729	69.32	.668	16.97	2.500	63.50	2.189	55.60	0.486	12.34	2.312	58.72	0.606	15.39	1.990	50.55

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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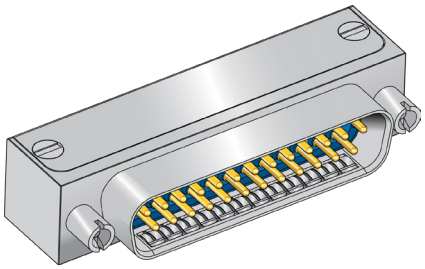
HiPer-D® Standard and High-Density Connectors

280-028P right angle PC tail pin connectors with low profile mounting flange



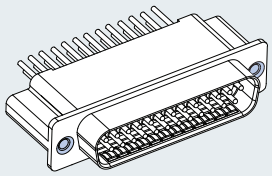
Low profile right angle PC tail HiPer-D® pin connectors feature rugged machined aluminum shell and aluminum alloy cover for improved EMI protection. Contacts are non-removable, size #20 or #22. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a resilient face seal for environmental protection and optional ground springs for improved resistance to electromagnetic interference. Threaded holes on the bottom of the connector allow attachment to circuit board. Contacts are potted with epoxy. Glass-reinforced thermoset epoxy insulators, fluorosilicone face seal. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

How To Order							
Sample Part Number		**280-028P**	**4H62**	**ME**	**G**	**N**	**A**
Basic Part Number	**280-028P**						
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table						
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **Z2** = Gold					
Ground Spring	**G** = Supplied with EMI Ground Spring	**N** = No Ground Spring					
Mating Hardware	**N** = No Hardware (supplied with #4-40 tapped holes)	**P** = #4-40 Female Jackposts					
PC Tail Length	**A** = .125 (3.18) Tail Length	**B** = .250 (6.35) Tail Length					

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

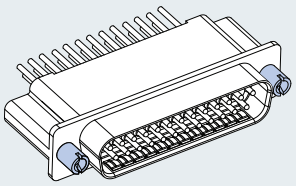
Mating Hardware

N
No Hardware
#4-40 Female Threads in Mounting Holes



Choose this option for rear panel mounting and order jackpost kit 289-016 separately.

P
#4-40 Female Jackposts



Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Potting Compound	Epoxy
Interfacial Seal	Fluorosilicone rubber
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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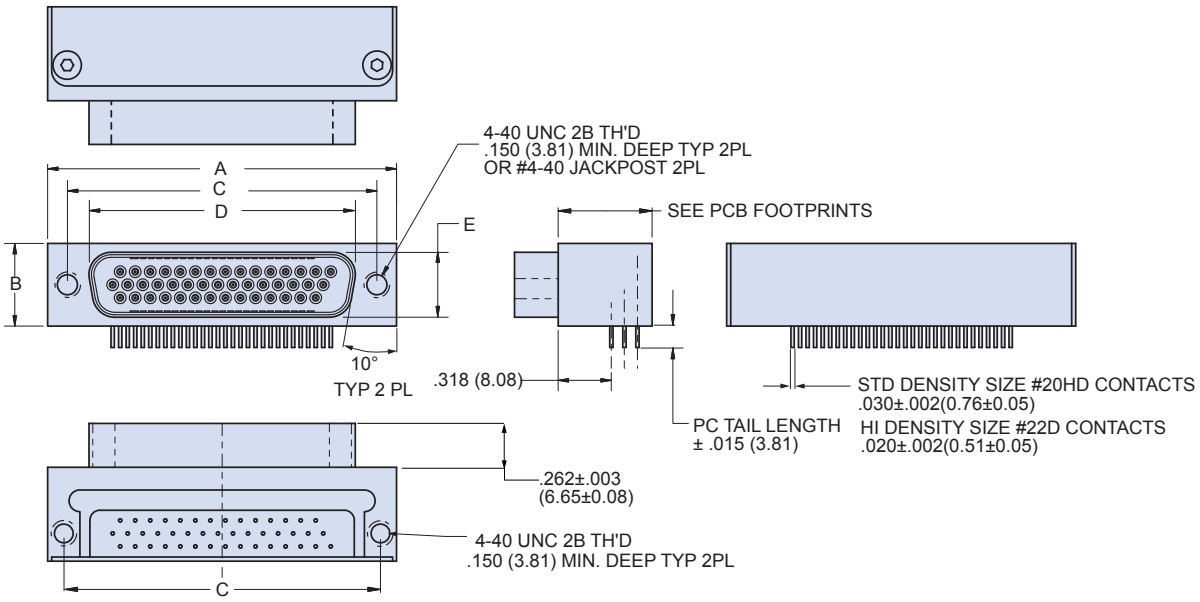
280-028P right angle PC tail pin connectors with low profile mounting flange

280-028P DIMENSIONS



Shell Size	A		B		C Basic		D		E	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13
1	1.213	30.81	.494	12.55	.984	24.99	.726	18.44	.389	9.88
2	1.541	39.14	.494	12.55	1.312	33.32	1.054	26.77	.389	9.88
3	2.088	53.04	.494	12.55	1.852	47.04	1.594	40.49	.389	9.88
4	2.729	69.32	.494	12.55	2.500	63.50	2.242	56.95	.389	9.88
5	2.635	66.93	.605	15.37	2.406	61.11	2.139	54.33	.501	12.73
6	2.729	69.32	.668	16.97	2.500	63.50	2.272	57.71	.563	14.30

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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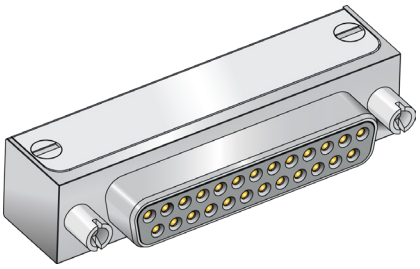
HiPer-D® Standard and High-Density Connectors

280-029S right angle PC tail socket connectors with low profile mounting flange



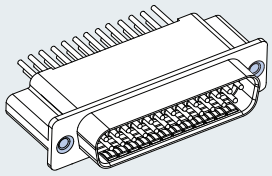
Low profile right angle PC tail HiPer-D® socket connectors feature rugged machined aluminum shell and aluminum alloy cover for improved EMI protection. Contacts are non-removable size, #20 or #22. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features epoxy potting for environmental sealing. Threaded holes on the rear of the connector allow attachment to circuit board. Glass-reinforced thermoset epoxy insulators. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

How To Order					
Sample Part Number	**280-029S**	**3S25**	**JF**	**P**	**A**
Basic Part Number	**280-029S**				
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel				
Mating Hardware	**N** = No Hardware (supplied with #4-40 tapped holes) **P** = #4-40 Female Jackposts				
PC Tail Length	**A** = .125 (3.18) Tail Length **B** = .250 (6.35) Tail Length				

Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

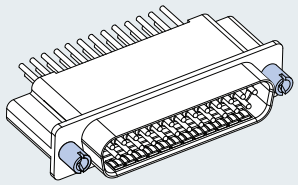
Mating Hardware

N
No Hardware
#4-40 Female Threads in Mounting Holes



Choose this option for rear panel mounting and order jackpost kit 289-016 separately.

P
#4-40 Female Jackposts



Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold plated
Insulator	Thermoset epoxy
Potting Compound	Epoxy
Hardware	300 series stainless steel

Specifications	
Current Rating	#22 5 AMPS, #20 7.5 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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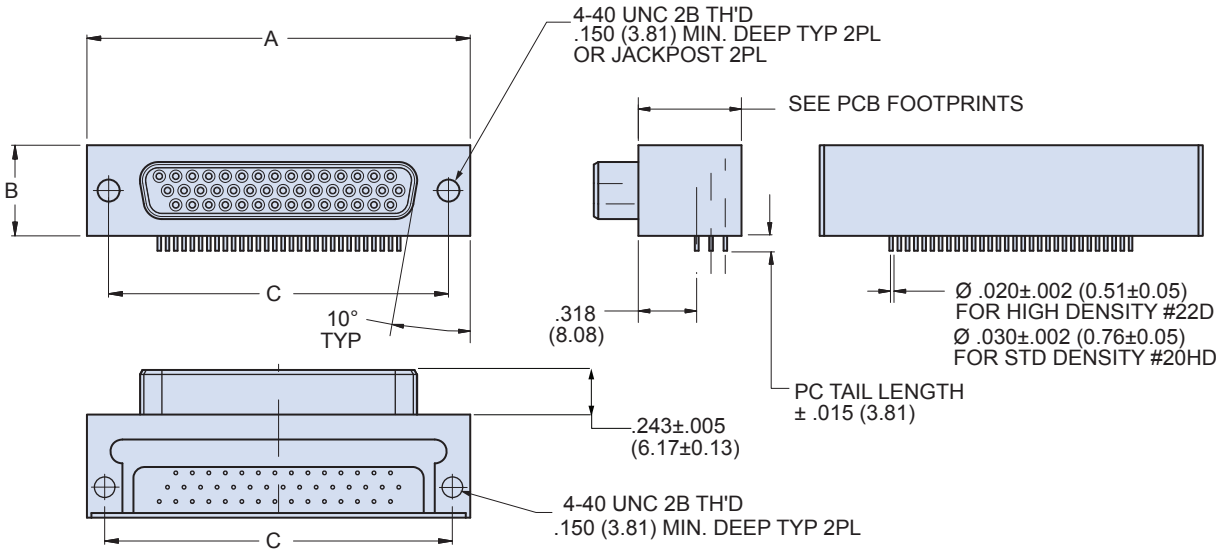
Dimensions in Inches (millimeters) are subject to change without notice.

280-029S right angle PC tail socket connectors with low profile mounting flange

280-029S DIMENSIONS



Shell Size	A		B		C Basic	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm
1	1.213	30.81	.494	12.55	.984	24.99
2	1.541	39.14	.494	12.55	1.312	33.32
3	2.088	53.04	.494	12.55	1.852	47.04
4	2.729	69.32	.494	12.55	2.500	63.50
5	2.635	66.93	.605	15.37	2.406	61.11
6	2.729	69.32	.668	16.97	2.500	63.50

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. HiPer-D® connectors meet the requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

SERIES 28

Combo HiPer-D®

Now available—twenty power, signal, and RF combo arrangements. Tooled and ready for immediate application.



Combo D-subminiature M24308 connectors are ideally suited for use in analog signal, power, and RF applications. Glenair HiPer-D® connectors with combo layouts deliver both the flexibility and convenience of mixed size #8 and size #20 contact arrangements, as well as the high performance attributes of this ruggedized, environmental version of the M24308. Over 20 insert arrangements are available, including native size #8 as well as mixed size #8 and size #20. Crimp contact and PC board terminations are available with both standard and low profile shells. Designed for use in power controllers, radar systems, video applications and other military and aerospace electronic equipment. All HiPer-D® combo arrangements are tooled and ready for immediate application.

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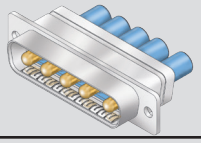
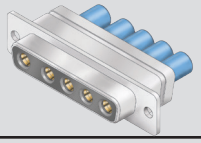
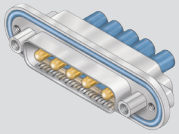
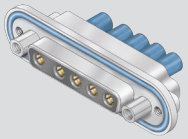
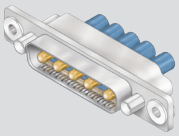
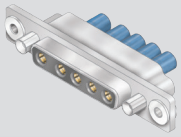
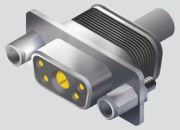
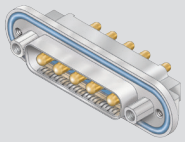
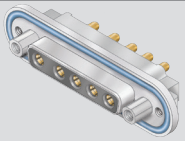
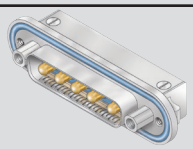
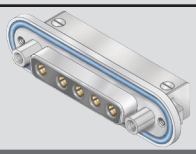
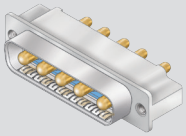
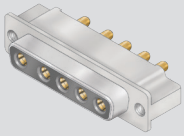
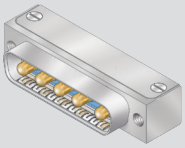
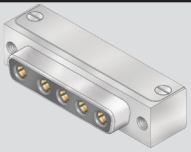
SERIES 28

HiPer-D® Combo Connectors

Product Selection Guide

Product Overview				
Introduction to Combo HiPer-D Connectors				Page C-2
Conntact Arrangements				Page C-3
Materials and Finishes				Page C-4
Product Specifications				Page C-5
Crimp Termination - for Attaching Wires				
Inline		280-046 Pin Page C-6		280-047 Socket Page C-8
Rear Panel Mount		280-048 Pin Page C-10		280-049 Socket Page C-12
Float Mount		280-058 Pin Page C-14		280-059 Socket Page C-16
Integral Banding Platform		280-088 Pin Page C-18		280-089 Socket Page C-20
PC Board - with Panel O-Ring				
Straight PCB		280-050 Pin Page C-22		280-051 Socket Page C-24
Right Angle PCB		280-052 Pin Page C-26		280-053 Socket Page C-28
PC Board - with Low Profile Flange				
Straight PCB		280-054 Pin Page C-30		280-055 Socket Page C-32
Right Angle PCB		280-056 Pin Page C-34		280-057 Socket Page C-36

C

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



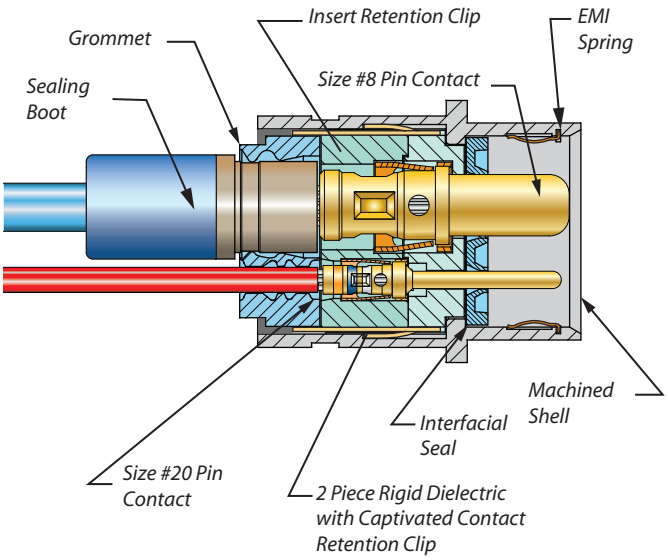
SERIES 28

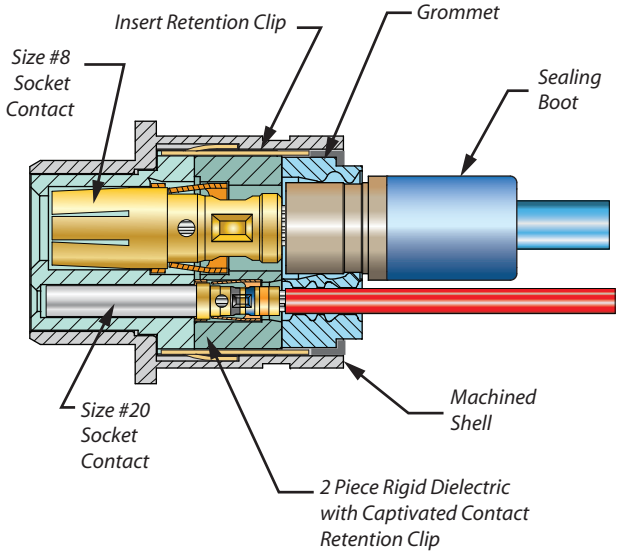
HiPer-D Combo Connectors

The Combo ***Hi-Per***formance D-Sub connector combines size #8 power or RF contacts with size #20 signal pins. The HiPer-D® meets the need for improved performance in hostile environments. Unlike standard M24308 connectors with stamped steel shells, the HiPer-D® connector features a one-piece machined aluminum shell. The thermoset epoxy insulators are capable of 200°C continuous operating temperature. Aerospace grade fluorosilicone grommets and face seals provide environmental protection.

Product Features

- **Size #8 Contacts**
- **20 Contact Arrangements**
- **Closed Entry Insulator Protects Socket Contacts**
- **EMI Protection**
- **High Temperature Thermoset Epoxy Insulators**
- **Watertight Sealing**
- **Rugged Machined One-Piece Shell**





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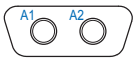
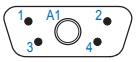
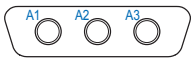
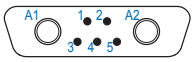
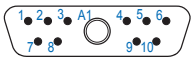
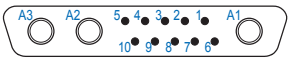
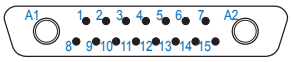
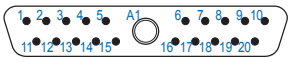
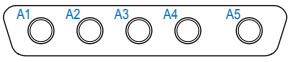
Reference and Technical Data

Combo HiPer-D® power, signal and RF contact arrangements

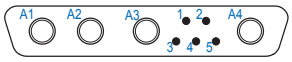
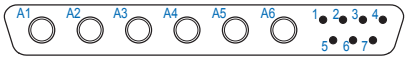
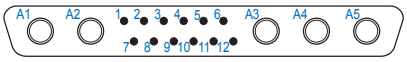
Mating face of pin connector. Socket connector numbers are reversed.

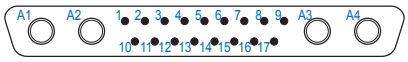
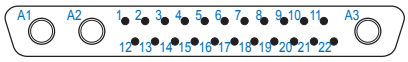
Arrangement	1-2W2	1-5W1	2-3W3	2-7W2	2-11W1
Shell Size	1	1	2	2	2
Contacts	2 #8	4 #20, 1 #8	3 #8	5 #20, 2 #8	10 #20, 1 #8

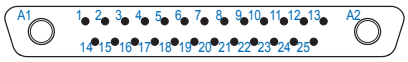
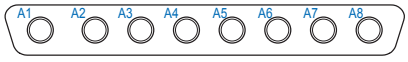
Arrangement	3-13W3	3-17W2	3-21W1	3-5W5
Shell Size	3	3	3	3
Contacts	10 #20, 3 #8	15 #20, 2 #8	20 #20, 1 #8	5 #8

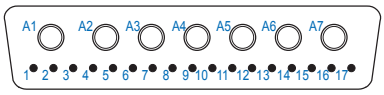
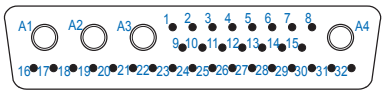
Arrangement	3-9W4	4-13W6	4-17W5
Shell Size	3	4	4
Contacts	5 #20, 4 #8	7 #20, 6 #8	12 #20, 5 #8

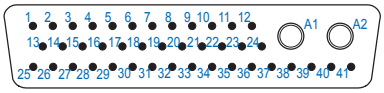
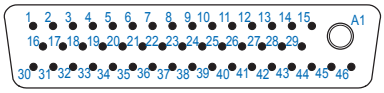
Arrangement	4-21WA4	4-25W3
Shell Size	4	4
Contacts	17 #20, 4 #8	22 #20, 3 #8

Arrangement	4-27W2	4-8W8
Shell Size	4	4
Contacts	25 #20, 2 #8	8 #8

Arrangement	5-24W7	5-36W4
Shell Size	4	5
Contacts	17 #20, 7 #8	32 #20, 4 #8

Arrangement	5-43W2	5-47W1
Shell Size	5	5
Contacts	41 #20, 2 #8	46 #20, 1 #8

C

Reference and Technical Data

Combo HiPer-D® materials and finishes

Description	Material	Finish
Contacts	Copper Alloy	Gold plated 50 microinches minimum over nickel underplate
Socket Contact Hood (Size 20)	Stainless steel	Passivated
Shell	Aluminum Alloy 6061 or stainless steel (300 series)	See ordering information
Insulators	Thermoset epoxy resin per ASTM D-5948	None
Interfacial Seal	Fluorosilicone	None
Grommet	Fluorosilicone	None
EMI Spring	Copper alloy	Electroless nickel
Contact retention clips	Copper alloy	None
Insert retention clip	Copper alloy	None
Sealant	RTV silicone	None
Hardware	Stainless steel (300 series)	Passivated
O-ring	Fluorosilicone	None

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

Description	Requirement	Procedure
Voltage Rating (DWV)	1000 VAC Sea Level	EIA-364-20
Operating Temperature	-65º C. to +200º C.	
Insulation Resistance	5000 megohms minimum	EIA-364-21
Current Rating	Size #20 contacts 7.5 Amps max. Size #8 contacts 40 Amps max.	
Contact Resistance	**Wire Size / Test Current / Millivolt Drop** 8 / 46 / 26 10 / 33 / 33 12 / 23 / 42 14 / 17 / 40 16 / 13 / 49 20 / 7.5 / 55 22 / 5 / 73 24 / 3 / 45	EIA-364-06
Low Level Contact Resistance	**Wire Size / Max Milliohms** 20 / 9 22 / 15 24 / 20	EIA-364-23
Shell-to-Shell Resistance (connectors with ground springs)	2.5 milli-volt drop maximum	EIA-364-83
Shielding Effectiveness	**Freq. GHz / Min Attenuation (dB)** 0.1 / 100 0.4 / 90 0.8 / 85 1.0 / 80 3.0 / 55 6.0 / 40 10.0 / 30	EIA-364-66 Electroless nickel plated shells with ground spring installed
Water Immersion, mated	1 hour immersion at a depth of 1 meter	MIL-STD-810F Method 512.4
Ingress Protection Rating	IP67, mated connectors	IEC-60529
Vibration, Sine	20 g's	EIA-364-28
Vibration, Random	43 g's	EIA-364-28
Mechanical Shock	300 g's	EIA-364-27
Thermal Shock	-65º C. to +200º C.	EIA-364-32
Humidity	10 cycles, 10 days, 25ºC to 65ºC	EIA-364-31
Salt Spray	**Shell Finish / Code / Hours** Yel Chromate/ Cadmium / JF / 500 Electroless Nickel / ME / 96 Nickel-PTFE / MT / 500 Gold / Z2 / 48 Passivated Stainless Steel / Z1 / 500	EIA-364-26
Altitude Immersion	75,000 feet	EIA-364-03
Fluid Immersion	No damage from solvents, oils, and fuels	EIA-364-10
Magnetic Permeability	2 µ maximum	EIA-364-54
Mating Force	[(# of size 8 contacts) X 5.0] + [(# of size 20 contacts) X .75] + 3 = (Maximum Mating Force in pounds)	EIA-364-13
Mechanical Durability	500 Mating Cycles	EIA-364-09

C

HiPer-D® Combo Connectors

280-046P combo cable pin connectors with standard mounting flange, crimp termination



Combo HiPer-D® pin connectors feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. Size #20 contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone face seal and rear grommet meet IP67 immersion requirement. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

How To Order

Sample Part Number	280-046P	3-5W5	MT	G	P

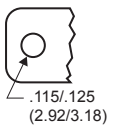
Basic Part Number	**280-046P**
Shell Size - Contact Arrangement	See Shell Size - Contact Arrangements Table
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel
Ground Spring	**G** = Supplied with EMI Ground Spring **N** = No Ground Spring
Mating Hardware	**N** = No Hardware (Through-Hole) **P** = #4-40 Female Jackpost **L** = Jackscrew, Hex Head, Low Profile **K** = Jackscrew, Slot Head, Extended Length **S** = Screwlock, Male, Hex Head, Low Profile **T** = Screwlock, Male, Slot Head, Extended Length

Contact Arrangements

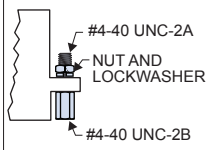
Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2W2		2
1-5W1	4	1
2-3W3		3
2-7W2	5	2
2-11W1	10	1
3-5W5		5
3-9W4	5	4
3-13W3	10	3
3-17W2	15	2
3-21W1	20	1
4-8W8		8
4-13W6	7	6
4-17W5	12	5
4-21WA4	17	4
4-25W3	22	3
4-27W2	25	2
5-24W7	17	7
5-36W4	32	4
5-43W2	41	2
5-47W1	46	1

Mating Hardware

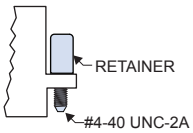
N Thru-Hole No Hardware



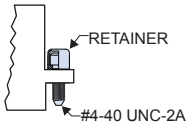
P Female Jackpost



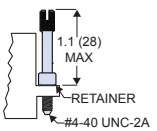
S Captive Screwlock, Hex Head



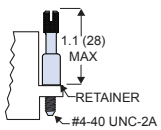
L Captive Jackscrew, Hex Head



K Slot-Head Extended Jackscrew



T Slot-Head Extended Captive Screwlock



Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulators	Thermoset epoxy
EMI Spring	Copper alloy, nickel plated
Retention Clips	Copper alloy
Grommet, Face Seal	Fluorosilicone rubber
Hardware	300 series stainless steel

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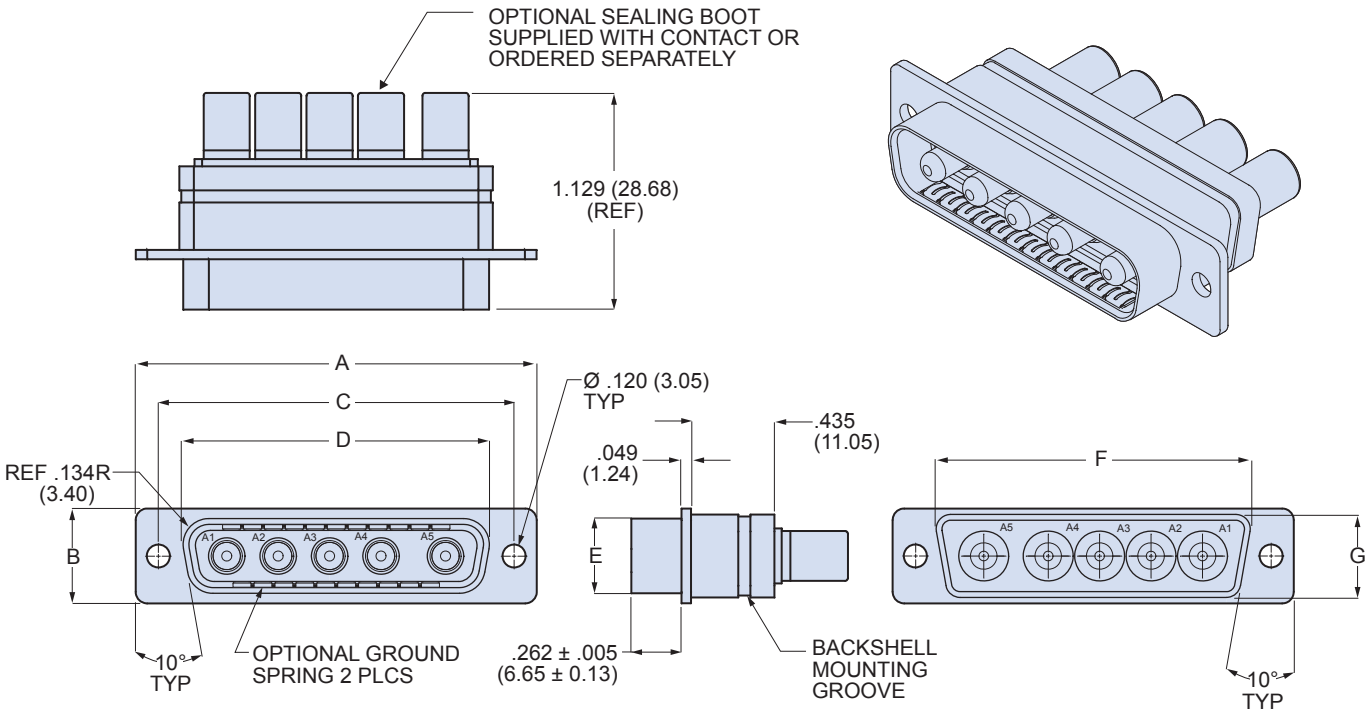
HiPer-D® Combo Connectors

280-046P combo cable pin connectors with standard mounting flange, crimp termination

280-046P DIMENSIONS



Dimensions														
Shell Size	A		B		C Basic		D		E		F Max.		G Max.	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in.	mm	in.	mm
1	1.213	30.81	.494	12.55	.984	24.99	.726	18.44	.389	9.88	.769	19.53	.432	10.97
2	1.541	39.14	.494	12.55	1.312	33.32	1.054	26.77	.389	9.88	1.093	27.76	.432	10.97
3	2.088	53.04	.494	12.55	1.852	47.04	1.594	40.49	.389	9.88	1.635	41.53	.432	10.97
4	2.729	69.32	.494	12.55	2.500	63.50	2.242	56.95	.389	9.88	2.282	57.96	.432	10.97
5	2.635	66.93	.605	15.37	2.406	61.11	2.139	54.33	.501	12.73	2.188	55.58	.544	13.82

NOTES

1. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional shell material and finish options. Glenair offers the industry's widest selection of plating options with no minimum order quantities or setup charges.
2. For panel cutouts, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with size #20 crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Tools*** section for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. ***Size 8 contacts are ordered separately***. Refer to ***HiPer-D® Contacts and Tools*** section for contact ordering information, specifications, crimp tool information, and insertion/extraction tools.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard non-environmental D Subminiature connectors with corresponding contact arrangements and type. ***Size 8 contacts from other manufacturers cannot be installed in HiPer-D® connectors.***
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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HiPer-D® Combo Connectors

280-047S combo cable socket connectors with standard mounting flange, crimp termination

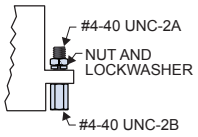
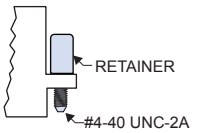
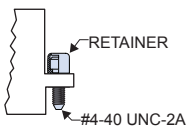
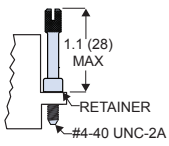
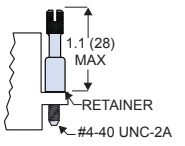


Combo HiPer-D® socket connectors feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. Size #20 contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone rear grommet meets IP67 immersion requirement. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order				
Sample Part Number	**280-047S**	**3-5W5**	**MT**	**P**
Basic Part Number	**280-047S**			
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table			
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate	**Z2** = Gold **Z1** = Passivated Stainless Steel		
Mating Hardware	**N** = No Hardware (Through-Hole) **P** = #4-40 Female Jackpost **L** = Jackscrew, Hex Head, Low Profile	**K** = Jackscrew, Slot Head, Extended Length **S** = Screwlock, Male, Hex Head, Low Profile **T** = Screwlock, Male, Slot Head, Extended Length		

Contact Arrangements		
Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2W2		2
1-5W1	4	1
2-3W3		3
2-7W2	5	2
2-11W1	10	1
3-5W5		5
3-9W4	5	4
3-13W3	10	3
3-17W2	15	2
3-21W1	20	1
4-8W8		8
4-13W6	7	6
4-17W5	12	5
4-21WA4	17	4
4-25W3	22	3
4-27W2	25	2
5-24W7	17	7
5-36W4	32	4
5-43W2	41	2
5-47W1	46	1

Mating Hardware	
N Thru-Hole No Hardware	**P** Female Jackpost
	
S Captive Screwlock, Hex Head	**L** Captive Jackscrew, Hex Head
	
K Slot-Head Extended Jackscrew	**T** Slot-Head Extended Captive Screwlock
	

Specifications	
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet	Fluorosilicone rubber
Hardware	300 series stainless steel

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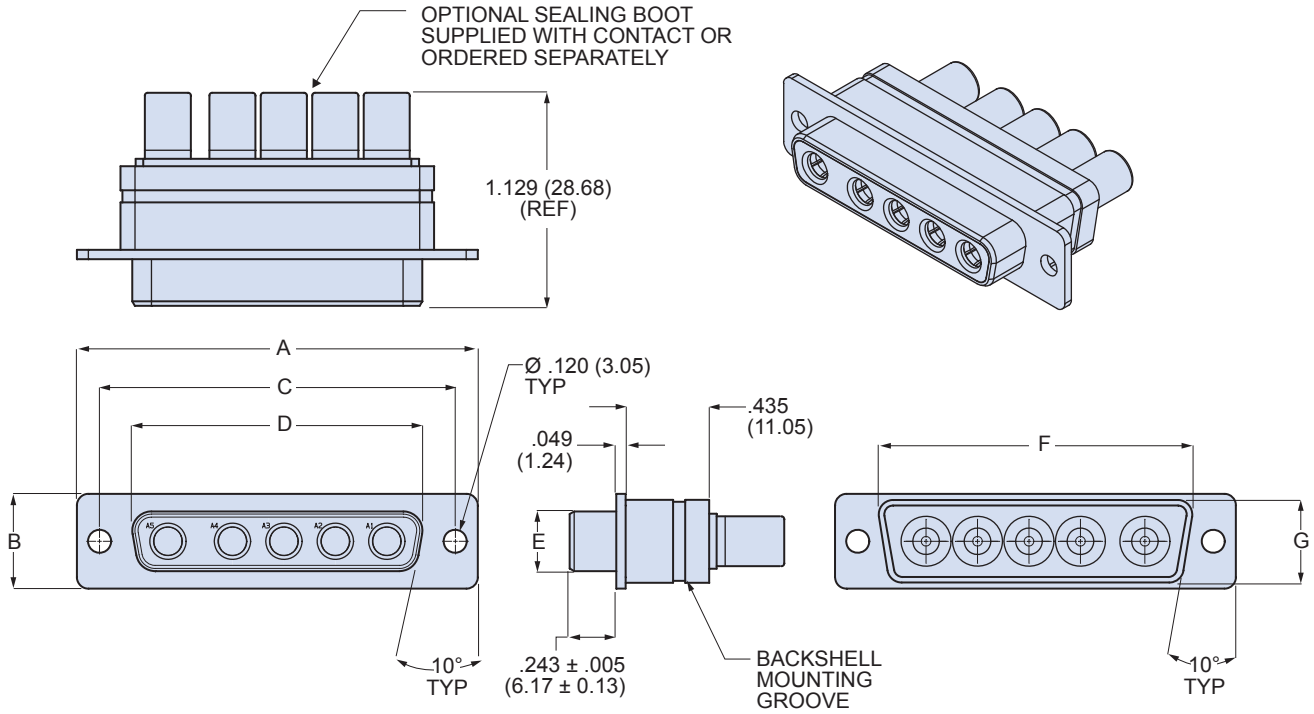
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-047S combo cable socket connectors with standard mounting flange, crimp termination

280-047S DIMENSIONS



Dimensions														
Shell Size	A		B		C Basic		D		E		F		G	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13
1	1.213	30.81	.494	12.55	.984	24.99	.643	16.33	.311	7.90	.769	19.53	.432	10.97
2	1.541	39.14	.494	12.55	1.312	33.32	.971	24.66	.311	7.90	1.093	27.76	.432	10.97
3	2.088	53.04	.494	12.55	1.852	47.04	1.511	38.38	.311	7.90	1.635	41.53	.432	10.97
4	2.729	69.32	.494	12.55	2.500	63.50	2.159	54.84	.311	7.90	2.282	57.96	.432	10.97
5	2.635	66.93	.605	15.37	2.406	61.11	2.054	52.17	.423	10.74	2.188	55.58	.544	13.82

NOTES

1. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional shell material and finish options. Glenair offers the industry's widest selection of plating options with no minimum order quantities or setup charges.
2. For panel cutouts, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with size #20 crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Tools*** section for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. ***Size 8 contacts are ordered separately***. Refer to ***HiPer-D® Contacts and Tools*** section for contact ordering information, specifications, crimp tool information, and insertion/extraction tools.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard non-environmental D Subminiature connectors with corresponding contact arrangements and type. ***Size 8 contacts from other manufacturers cannot be installed in HiPer-D® connectors.***
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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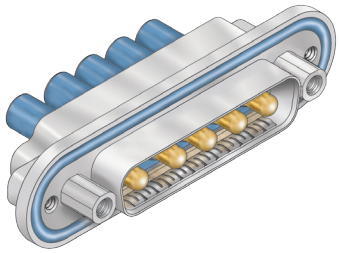
HiPer-D® Combo Connectors

280-048P panel mount pin combo connectors with O-ring mounting flange, crimp termination

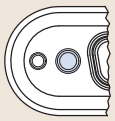
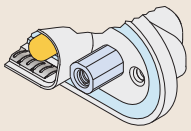
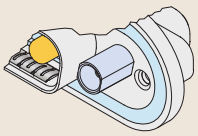
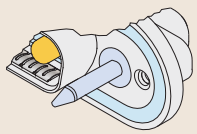


Combo HiPer-D® pin connectors feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. Size #20 contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone face seal and rear grommet meet IP67 immersion requirement. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order					
Sample Part Number	**280-048P**	**4-8W8**	**JF**	**G**	**P**
Basic Part Number	**280-048P**				
Shell Size-Contact Arrangement	See Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel				
Ground Spring	**G** = Supplied with EMI Ground Spring **N** = No Ground Spring				
Mating Hardware	**N** = No Hardware **P** = #4-40 Female Jackposts **G** = Male Guide Pins **B** = Female Guide Bushings				

Contact Arrangements		
Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2W2		2
1-5W1	4	1
2-3W3		3
2-7W2	5	2
2-11W1	10	1
3-5W5		5
3-9W4	5	4
3-13W3	10	3
3-17W2	15	2
3-21W1	20	1
4-8W8		8
4-13W6	7	6
4-17W5	12	5
4-21WA4	17	4
4-25W3	22	3
4-27W2	25	2
5-24W7	17	7
5-36W4	32	4
5-43W2	41	2
5-47W1	46	1

Mating Hardware	
N No Hardware #8-32 tapped hole	**P** Female Jackposts #4-40, Non-removable
	
B Female Guide Bushings Non-removable	**G** Male Guide Pins Non-removable
	

Specifications	
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulators	Thermoset epoxy
EMI Spring	Copper alloy, nickel plated
Retention Clips	Copper alloy
Grommet, Seal, O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

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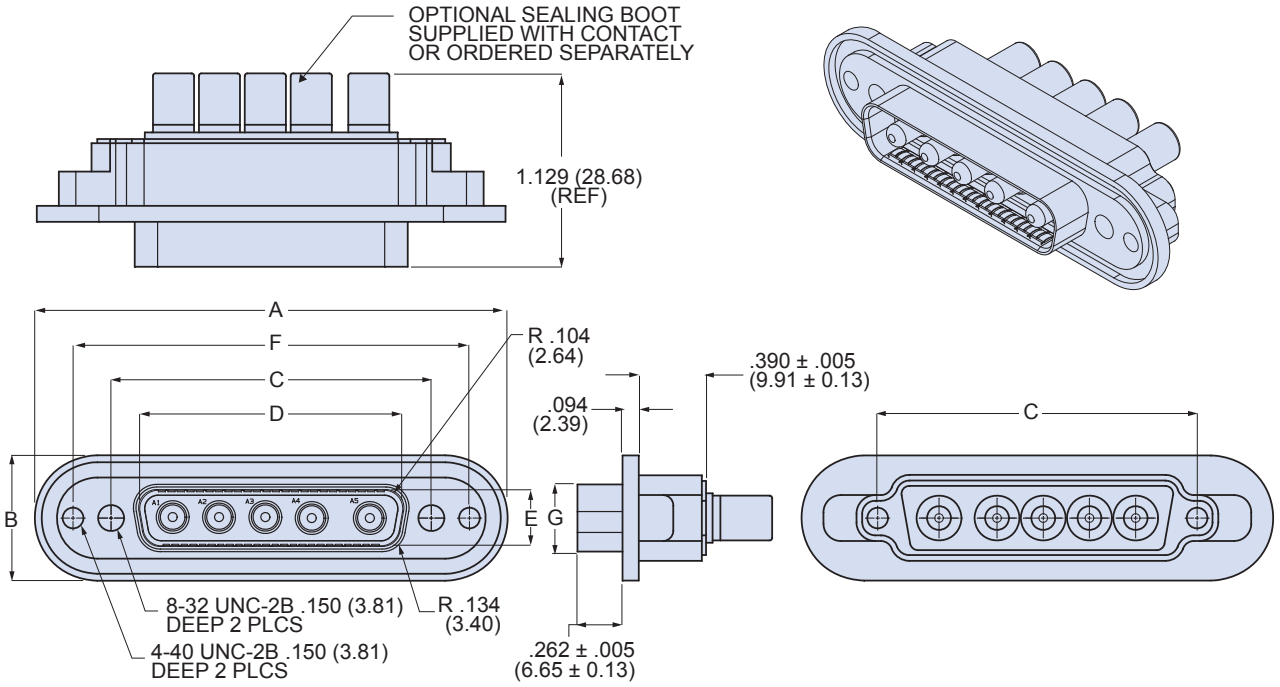
HiPer-D® Combo Connectors

280-048P panel mount pin combo connectors with O-ring mounting flange, crimp termination

280-048P DIMENSIONS



Dimensions														
Shell Size	A		B		C Basic		D		E		F Basic		G	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.726	18.44	.329	8.36	1.424	36.17	.389	9.88
2	2.200	55.88	.725	18.42	1.312	33.32	1.054	26.77	.329	8.36	1.752	44.50	.389	9.88
3	2.736	69.49	.725	18.42	1.852	47.04	1.594	40.49	.329	8.36	2.292	58.22	.389	9.88
4	3.385	85.98	.725	18.42	2.500	63.50	2.242	56.95	.329	8.36	2.940	74.68	.389	9.88
5	3.289	83.54	.837	21.26	2.406	61.11	2.139	54.33	.441	11.20	2.846	72.29	.501	12.73

NOTES

1. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional shell material and finish options. Glenair offers the industry's widest selection of plating options with no minimum order quantities or setup charges.
2. For panel cutouts, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with size #20 crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Tools*** section for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. ***Size 8 contacts are ordered separately***. Refer to ***HiPer-D® Contacts and Tools*** section for contact ordering information, specifications, crimp tool information, and insertion/extraction tools.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard non-environmental D Subminiature connectors with corresponding contact arrangements and type. ***Size 8 contacts from other manufacturers cannot be installed in HiPer-D® connectors.***
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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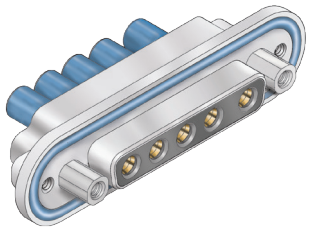
HiPer-D® Combo Connectors

280-049S panel mount socket combo connectors with O-ring mounting flange, crimp termination

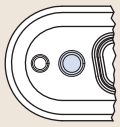
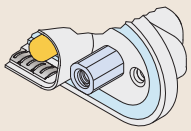
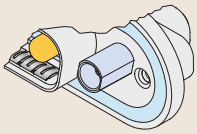
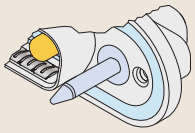


Combo HiPer-D® socket connectors feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell, wire grommet and panel O-ring for watertight sealing. Size #20 contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Suitable for aircraft and space vehicles. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order				
Sample Part Number	**280-049S**	**3-13W3**	**MT**	**N**
Basic Part Number	**280-049S**			
Shell Size- Contact Arrangement	See Contact Arrangements Table			
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel			
Mating Hardware	**N** = No Hardware **P** = #4-40 Female Jackposts **G** = Male Guide Pins **B** = Female Guide Bushings			

Contact Arrangements		
Shell Size- Contact Arr.	Contact Size and Qty	
	#20	#8
1-2W2		2
1-5W1	4	1
2-3W3		3
2-7W2	5	2
2-11W1	10	1
3-5W5		5
3-9W4	5	4
3-13W3	10	3
3-17W2	15	2
3-21W1	20	1
4-8W8		8
4-13W6	7	6
4-17W5	12	5
4-21WA4	17	4
4-25W3	22	3
4-27W2	25	2
5-24W7	17	7
5-36W4	32	4
5-43W2	41	2
5-47W1	46	1

Mating Hardware	
N No Hardware #8-32 tapped hole	**P** Female Jackposts #4-40, Non-removable
	
B Female Guide Bushings Non-removable	**G** Male Guide Pins Non-removable
	

Specifications	
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet, O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

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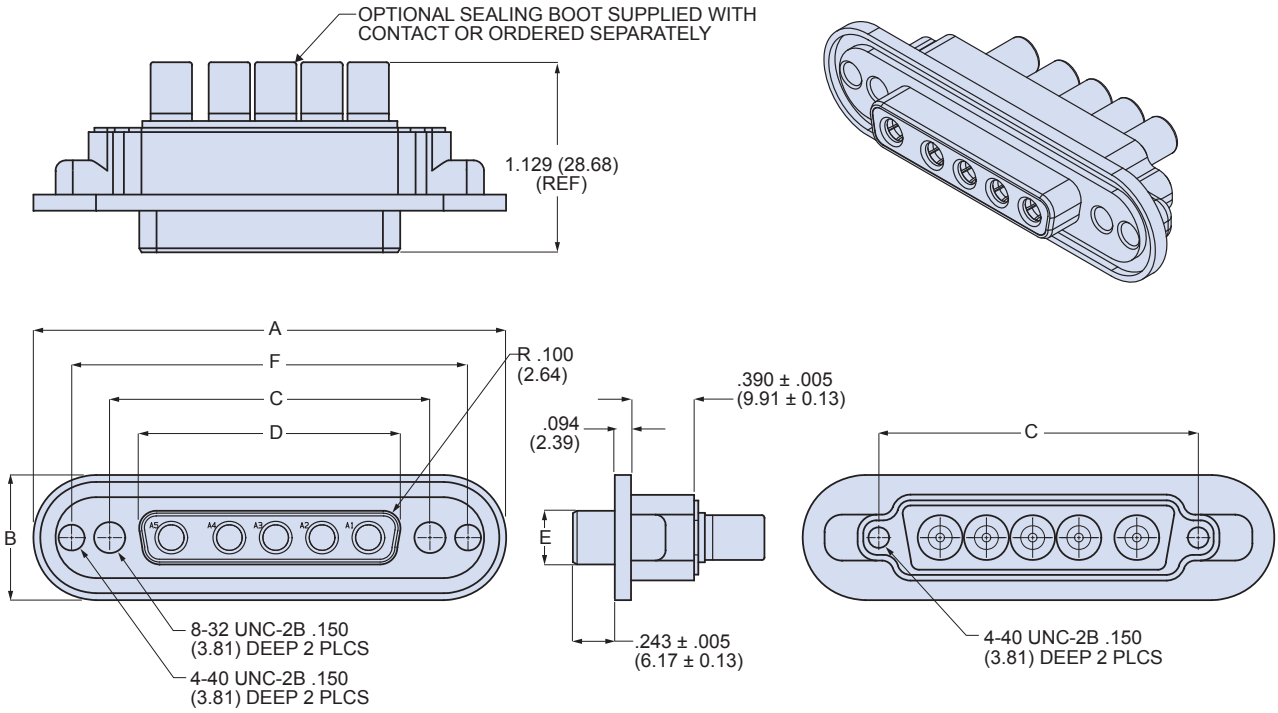
HiPer-D® Combo Connectors

280-049S panel mount socket combo connectors with O-ring mounting flange, crimp termination

280-049S DIMENSIONS



Dimensions												
Shell Size	A		B		C Basic		D		E		F Basic	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm
1	1.865	47.37	.725	18.42	.984	24.99	.643	16.33	.311	7.90	1.424	36.17
2	2.200	55.88	.725	18.42	1.312	33.32	.971	24.66	.311	7.90	1.752	44.50
3	2.736	69.49	.725	18.42	1.852	47.04	1.511	38.38	.311	7.90	2.292	58.22
4	3.385	85.98	.725	18.42	2.500	63.50	2.159	54.84	.311	7.90	2.940	74.68
5	3.289	83.54	.837	21.26	2.406	61.11	2.064	52.43	.423	10.74	2.846	72.29

NOTES

1. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional shell material and finish options. Glenair offers the industry's widest selection of plating options with no minimum order quantities or setup charges.
2. For panel cutouts, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with size #20 crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Tools*** section for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. ***Size 8 contacts are ordered separately***. Refer to ***HiPer-D® Contacts and Tools*** section for contact ordering information, specifications, crimp tool information, and insertion/extraction tools.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard non-environmental D Subminiature connectors with corresponding contact arrangements and type. ***Size 8 contacts from other manufacturers cannot be installed in HiPer-D® connectors.***
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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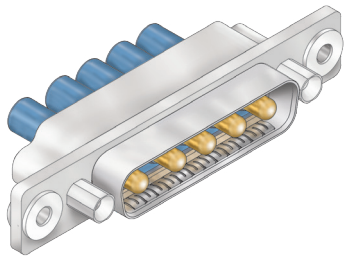
HiPer-D® Combo Connectors

280-058P float mount combo pin connectors for blind mating, crimp termination



Combo HiPer-D® pin connectors feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. Size #20 contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone face seal and rear grommet meet IP67 immersion requirement. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

How To Order

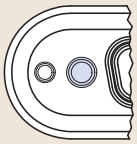
Sample Part Number	280-058P	4-25W3	JF	G	P
Basic Part Number	**280-058P**				
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel				
Ground Spring	**G** = Supplied with EMI Ground Spring **N** = No Ground Spring				
Mating Hardware	**N** = No Hardware **G** = Male Guide Pins **B** = Female Guide Bushings				

Contact Arrangements

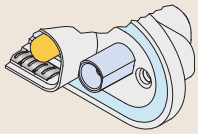
Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2W2		2
1-5W1	4	1
2-3W3		3
2-7W2	5	2
2-11W1	10	1
3-5W5		5
3-9W4	5	4
3-13W3	10	3
3-17W2	15	2
3-21W1	20	1
4-8W8		8
4-13W6	7	6
4-17W5	12	5
4-21WA4	17	4
4-25W3	22	3
4-27W2	25	2
5-24W7	17	7
5-36W4	32	4
5-43W2	41	2
5-47W1	46	1

Mating Hardware

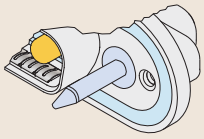
N
No Hardware
#8-32 tapped hole



B
Female Guide Bushings
Non-removable



G
Male Guide Pins
Non-removable



Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulators	Thermoset epoxy
EMI Spring	Copper alloy, nickel plated
Retention Clips	Copper alloy
Grommet, Seal	Fluorosilicone rubber
Hardware	300 series stainless steel

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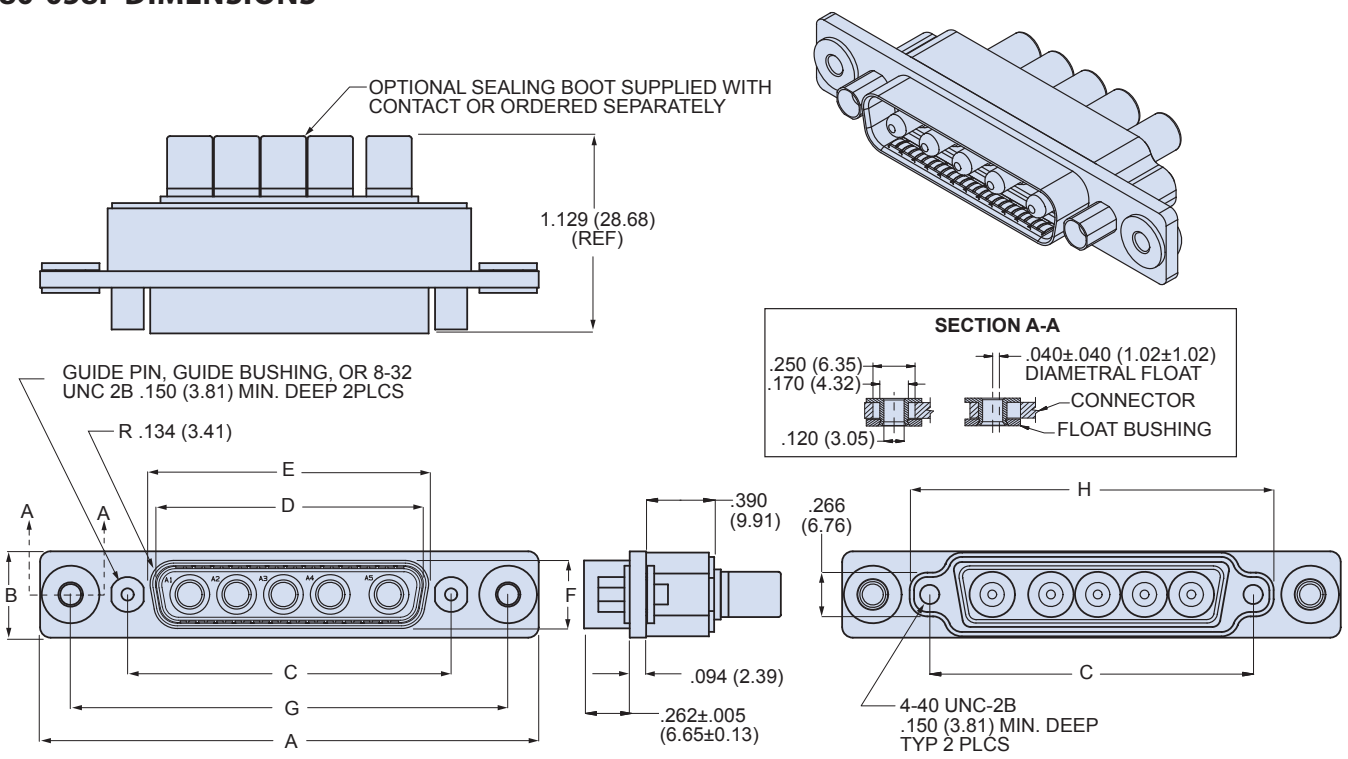
280-058P float mount combo pin connectors for blind mating, crimp termination

280-058P DIMENSIONS



Dimensions														
Shell Size	A		B		C Basic		E		F		G Basic		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .005	mm ± 0.13
1	1.986	50.44	.494	12.55	.984	24.99	.726	18.44	.329	8.36	1.636	41.55	1.213	30.81
2	2.314	58.78	.494	12.55	1.312	33.32	1.054	26.77	.329	8.36	1.964	49.89	1.541	39.14
3	2.854	72.49	.494	12.55	1.852	47.04	1.594	40.49	.329	8.36	2.504	63.60	2.081	52.86
4	3.502	88.95	.494	12.55	2.500	63.50	2.242	56.95	.329	8.36	3.152	80.06	2.729	69.32
5	3.408	86.56	.600	15.24	2.406	61.11	2.139	54.33	.441	11.20	3.058	77.67	2.635	66.93

NOTES

1. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional shell material and finish options. Glenair offers the industry's widest selection of plating options with no minimum order quantities or setup charges.
2. For panel cutouts, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with size #20 crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Tools*** section for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. ***Size 8 contacts are ordered separately***. Refer to ***HiPer-D® Contacts and Tools*** section for contact ordering information, specifications, crimp tool information, and insertion/extraction tools.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard non-environmental D Subminiature connectors with corresponding contact arrangements and type. ***Size 8 contacts from other manufacturers cannot be installed in HiPer-D® connectors.***
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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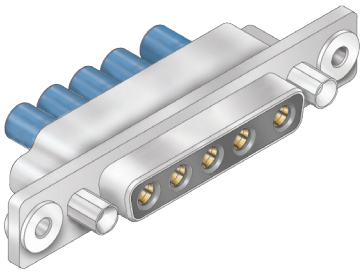
HiPer-D® Combo Connectors

280-059S float mount combo socket connectors for blind mating, crimp termination

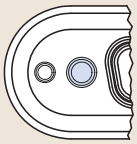
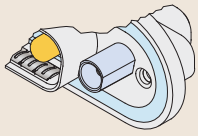
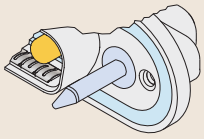


Combo HiPer-D® float mount connectors for blind mate applications feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell and wire grommet for environmental protection. Size #20 contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone rear grommet meets IP67 immersion requirement. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order				
Sample Part Number	**280-059S**	**5-24W7**	**ME**	**G**
Basic Part Number	**280-059S**			
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table			
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel			
Mating Hardware	**N** = No Hardware **G** = Male Guide Pins **B** = Female Guide Bushings			

Contact Arrangements		
Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2W2		2
1-5W1	4	1
2-3W3		3
2-7W2	5	2
2-11W1	10	1
3-5W5		5
3-9W4	5	4
3-13W3	10	3
3-17W2	15	2
3-21W1	20	1
4-8W8		8
4-13W6	7	6
4-17W5	12	5
4-21WA4	17	4
4-25W3	22	3
4-27W2	25	2
5-24W7	17	7
5-36W4	32	4
5-43W2	41	2
5-47W1	46	1

Mating Hardware
N No Hardware #8-32 tapped hole

B Female Guide Bushings Non-removable

G Male Guide Pins Non-removable


Specifications	
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet, O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

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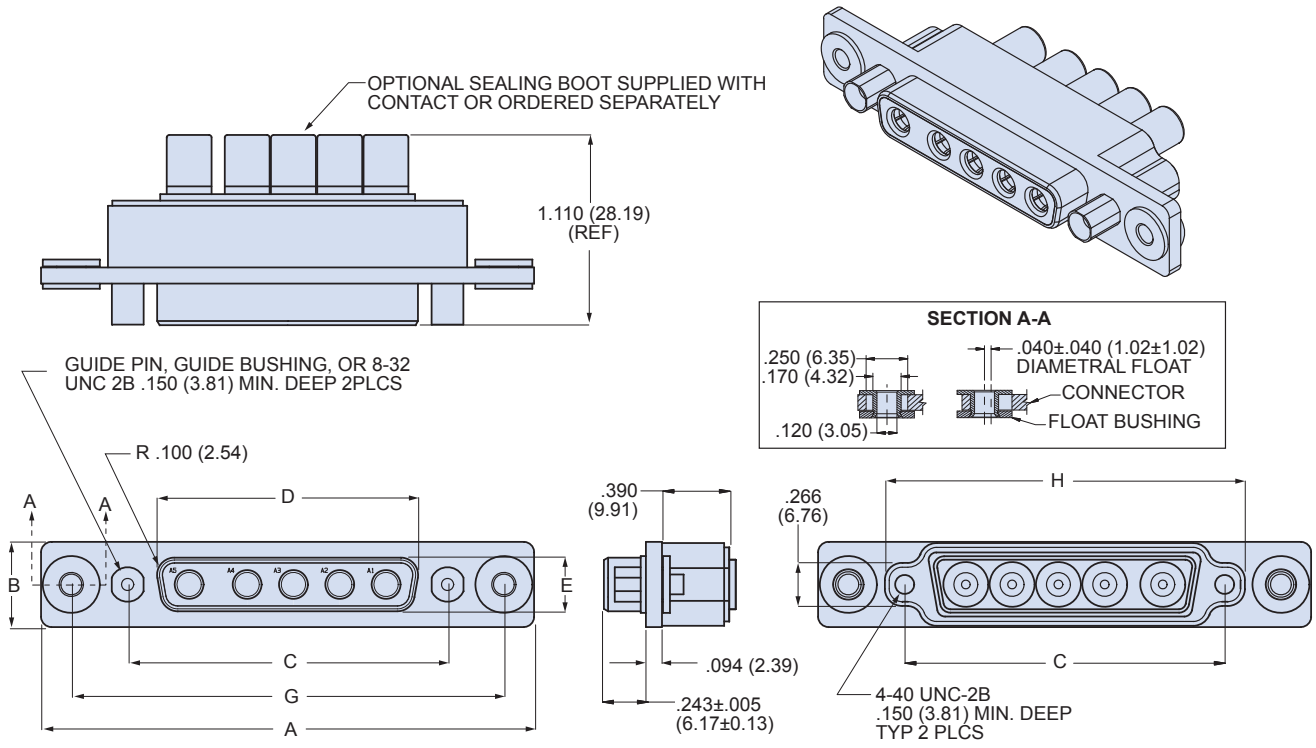
HiPer-D® Combo Connectors

280-059S float mount combo socket connectors for blind mating, crimp termination

280-059S DIMENSIONS



Shell Size	Dimensions													
	A		B		C Basic		D		E		G Basic		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .005	mm ± 0.13
1	1.986	50.44	.494	12.55	.984	24.99	.643	16.33	.311	7.90	1.636	41.55	1.231	31.27
2	2.314	58.78	.494	12.55	1.312	33.32	.971	24.66	.311	7.90	1.964	49.89	1.559	39.60
3	2.854	72.49	.494	12.55	1.852	47.04	1.511	38.38	.311	7.90	2.504	63.60	2.099	53.31
4	3.502	88.95	.494	12.55	2.500	63.50	2.159	54.84	.311	7.90	3.152	80.06	2.747	69.77
5	3.408	86.56	.600	15.24	2.406	61.11	2.064	52.43	.423	10.74	3.058	77.67	2.653	67.39
6	3.502	88.95	.662	16.81	2.500	63.50	2.189	55.60	.486	12.34	3.152	80.06	2.747	69.77

NOTES

1. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional shell material and finish options. Glenair offers the industry's widest selection of plating options with no minimum order quantities or setup charges.
2. For panel cutouts, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with size #20 crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Tools*** section for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. ***Size 8 contacts are ordered separately***. Refer to ***HiPer-D® Contacts and Tools*** section for contact ordering information, specifications, crimp tool information, and insertion/extraction tools.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard non-environmental D Subminiature connectors with corresponding contact arrangements and type. ***Size 8 contacts from other manufacturers cannot be installed in HiPer-D® connectors.***
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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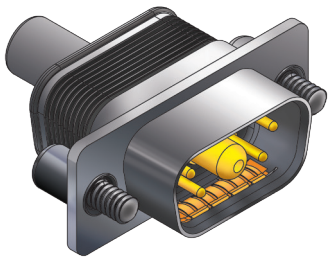
HiPer-D® Combo Connectors

280-088P combo cable pin connectors with standard mounting flange, integral banding platform and crimp termination



Combo HiPer-D® Combo-D connectors, with integral banding platform, feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell and wire grommet for environmental protection. Size #20 contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone rear grommet meets IP67 immersion requirement. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

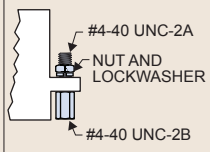
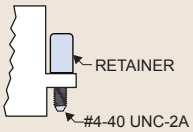
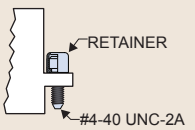
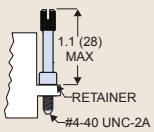
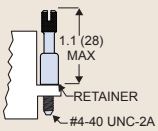
C

How To Order

Sample Part Number	280-088	P	1-5W1	ME	G	S

Basic Part Number	**280-088**	
Contact	**P** = Pin	**A** - Less contact
Shell Size-Contact Arrangement	Contact arrangements are shown in the adjacent table	
Shell Finish	**ME** = Electroless Nickel **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **ZM** = Nickel Over Stainless
Ground Option	**G** = EMI/Grounding	**N** = None
Mating Hardware	**N** = No Hardware **L** = Low Profile Hex Head Captive Jackscrew **S** = Hex Head Captive Screwlock	**P** = Female Jackpost **K** = Slot Head Extended Jackscrew **T** = Slot Head Extended Captive Screwlock

Mating Hardware

N Thru-Hole No Hardware	**P** Female Jackpost
	
S Captive Screwlock, Hex Head	**L** Captive Jackscrew, Hex Head
	
K Slot-Head Extended Jackscrew	**T** Slot-Head Extended Captive Screwlock
	

Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty		
	#22	#20	#8
1-2W2			2
1-5W1		4	1
2-3W3			3
2-7W2		5	2
2-11W1		10	1
3-5W5			5
3-9W4		5	4
3-13W3		10	3
3-17W2		15	2
3-21W1		20	1
4-8W8			8
4-13W6		7	6
4-17W5		12	5
4-21WA4		17	4
4-25W3		22	3
4-27W2		25	2
5-24W7		17	7
5-36W4		32	4
5-43W2		41	2
5-47W1		46	1

Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet, O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

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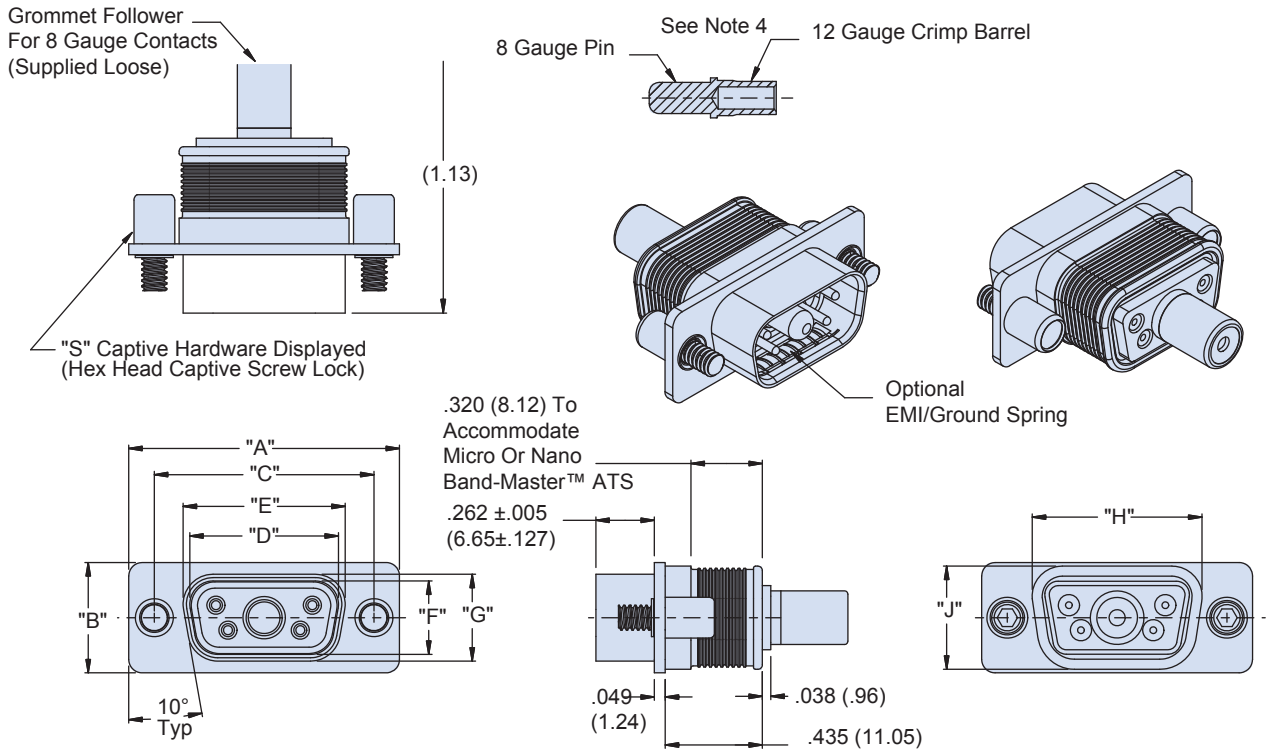
Dimensions in Inches (millimeters) are subject to change without notice.

280-088P combo cable pin connectors with standard mounting flange, integral banding platform and crimp termination

280-088P DIMENSIONS



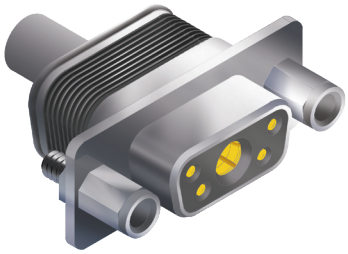
Dimensions																		
Shell Size	"A" ±.015		"B" ±.015		"C" ±.005		"D" ±.005		"E" ±005		"F" ±.005		"G" ±.005		"H"		"J"	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
1	1.213	30.81	0.494	12.55	0.984	24.99	0.666	16.92	0.726	18.44	0.329	8.36	0.389	9.88	0.760	19.30	0.462	11.73
2	1.541	39.14	0.494	12.55	1.312	33.32	0.994	25.25	1.054	26.77	0.329	8.36	0.389	9.88	1.089	27.66	0.462	11.73
3	2.088	53.04	0.494	12.55	1.852	47.04	1.534	38.96	1.594	40.48	0.329	8.36	0.389	9.88	1.629	41.38	0.462	11.73
4	2.729	69.32	0.494	12.55	2.5	63.50	2.182	55.42	2.242	56.94	0.329	8.36	0.389	9.88	2.277	57.84	0.462	11.73
5	2.635	66.93	0.605	15.37	2.406	61.11	2.079	52.81	2.139	54.33	0.441	11.20	0.501	12.73	2.182	55.42	0.474	12.04
6	2.729	69.32	0.668	16.97	2.5	63.50	2.212	56.18	2.272	57.71	0.503	12.77	0.563	14.30	2.307	58.60	0.626	15.90

NOTES

1. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional shell material and finish options. Glenair offers the industry's widest selection of plating options with no minimum order quantities or setup charges.
2. For panel cutouts, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with size #20 crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Tools*** section for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. ***Size 8 contacts are ordered separately***. Refer to ***HiPer-D® Contacts and Tools*** section for contact ordering information, specifications, crimp tool information, and insertion/extraction tools.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard non-environmental D Subminiature connectors with corresponding contact arrangements and type. ***Size 8 contacts from other manufacturers cannot be installed in HiPer-D® connectors.***
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

HiPer-D® Combo Connectors

280-089S combo cable socket connectors with standard mounting flange, integral banding platform and crimp termination



Combo HiPer-D® Combo-D connectors, with integral banding platform, feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell and wire grommet for environmental protection. Size #20 contacts are packaged with connector. Terminate contacts with crimp tools purchased separately. Glass-reinforced thermoset epoxy insulators, copper alloy retention clips. Fluorosilicone rear grommet meets IP67 immersion requirement. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order

Sample Part Number	280-089	S	1-5W1	ME	P

Basic Part Number	**280-089**
Contact	**S** = Socket **A** = Less contact
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **Z1** = Passivated Stainless Steel **ZM** = Nickel Over Stainless
Mating Hardware	**N** = No Hardware **P** = Female Jackpost **L** = Low Profile Hex Head Captive Jackscrew **K** = Slot Head Extended Jackscrew **S** = Hex Head Captive Screwlock **T** = Slot Head Extended Captive Screwlock

Contact Arrangements

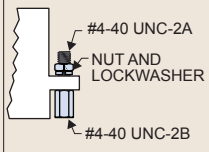
Shell Size-Contact Arr.	Contact Size and Qty		
	#22	#20	#8
1-2W2			2
1-5W1		4	1
2-3W3			3
2-7W2		5	2
2-11W1		10	1
3-5W5			5
3-9W4		5	4
3-13W3		10	3
3-17W2		15	2
3-21W1		20	1
4-8W8			8
4-13W6		7	6
4-17W5		12	5
4-21WA4		17	4
4-25W3		22	3
4-27W2		25	2
5-24W7		17	7
5-36W4		32	4
5-43W2		41	2
5-47W1		46	1

Mating Hardware

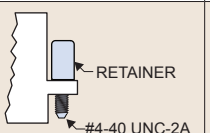
N Thru-Hole No Hardware



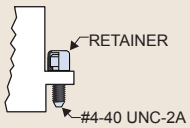
P Female Jackpost



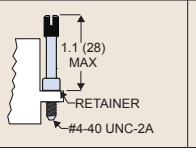
S Captive Screwlock, Hex Head



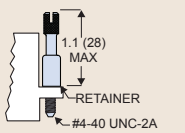
L Captive Jackscrew, Hex Head



K Slot-Head Extended Jackscrew



T Slot-Head Extended Captive Screwlock



Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet, O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

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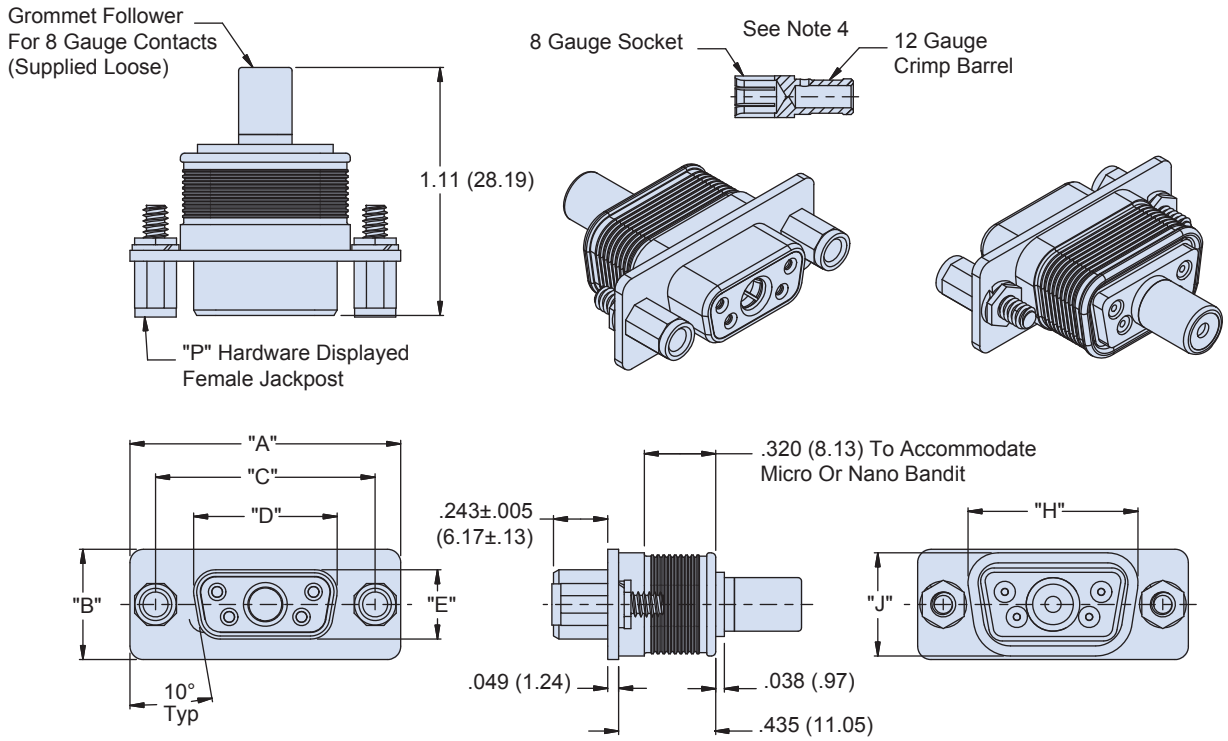
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-089S combo cable socket connectors with standard mounting flange, integral banding platform and crimp termination

280-089S DIMENSIONS



Dimensions														
Shell Size	"A" ±.015		"B" ±.015		"C" ±.005		"D" ±.005		"E" ±005		"H"		"J"	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
1	1.213	30.81	0.494	12.55	0.984	24.99	0.643	16.33	0.311	7.90	0.760	19.30	0.462	11.73
2	1.541	39.14	0.494	12.55	1.312	33.32	0.971	24.66	0.311	7.90	1.089	27.66	0.462	11.73
3	2.088	53.04	0.494	12.55	1.852	47.04	1.511	38.38	0.311	7.90	1.629	41.38	0.462	11.73
4	2.729	69.32	0.494	12.55	2.5	63.50	2.159	54.84	0.311	7.90	2.277	57.84	0.462	11.73
5	2.635	66.93	0.605	15.37	2.406	61.11	2.064	52.43	0.423	10.74	2.182	55.42	0.474	12.04
6	2.729	69.32	0.668	16.97	2.5	63.50	2.189	55.60	0.486	12.34	2.307	58.60	0.626	15.90

NOTES

1. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional shell material and finish options. Glenair offers the industry's widest selection of plating options with no minimum order quantities or setup charges.
2. For panel cutouts, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
3. Connectors are supplied with size #20 crimp contacts per M39029. Contacts are not installed. Refer to ***HiPer-D® Contacts and Tools*** section for contact part numbers, specifications, crimp tool information, and insertion/extraction tools.
4. ***Size 8 contacts are ordered separately***. Refer to ***HiPer-D® Contacts and Tools*** section for contact ordering information, specifications, crimp tool information, and insertion/extraction tools.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard non-environmental D Subminiature connectors with corresponding contact arrangements and type. ***Size 8 contacts from other manufacturers cannot be installed in HiPer-D® connectors.***
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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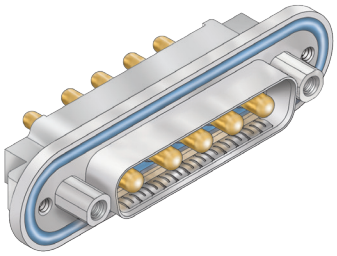
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-050P straight PC tail combo pin connectors with O-ring flange for rear panel mounting



The HiPer-D® is a high performance version of the M24308-type D-Subminiature connector. HiPer-D® connectors feature improved EMI performance and environmental sealing. Factory-installed PC tail contacts, integral board standoffs and threaded holes for attaching to circuit board. Optional ground springs for improved resistance to electromagnetic interference. Gold-plated copper alloy contacts, one-piece machined aluminum shell, glass-reinforced thermoset epoxy insulator, epoxy potting compound, fluorosilicone face seal and O-ring. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order

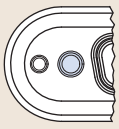
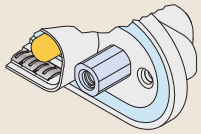
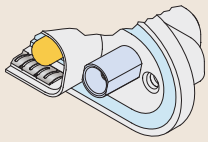
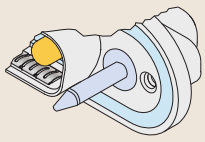
Sample Part Number	280-050P	3-5P5	MT	G	P	A

Basic Part Number	**280-050P**	
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table	
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel	
Ground Spring	**G** = Supplied with EMI Ground Spring **N** = No Ground Spring	
Mating Hardware	**N** = No Hardware **G** = Male Guide Pins	**P** = #4-40 Female Jackposts **B** = Female Guide Bushings
PC Tail Length	**A** = .125 (3.18) Tail Length	**B** = .250 (6.35) Tail Length

Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2P2		2
1-5P1	4	1
2-3P3		3
2-7P2	5	2
2-11P1	10	1
3-5P5		5
3-9P4	5	4
3-13P3	10	3
3-17P2	15	2
3-21P1	20	1
4-8P8		8
4-13P6	7	6
4-17P5	12	5
4-21PA4	17	4
4-25P3	22	3
4-27P2	25	2
5-24P7	17	7
5-36P4	32	4
5-43P2	41	2
5-47P1	46	1

Mating Hardware

N No Hardware #8-32 tapped hole	**P** Female Jackposts #4-40, Non-removable
	
B Female Guide Bushings Non-removable	**G** Male Guide Pins Non-removable
	

Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulator	Thermoset epoxy
Potting Compound	Epoxy
EMI Spring	Copper alloy, nickel plated
Face Seal, O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

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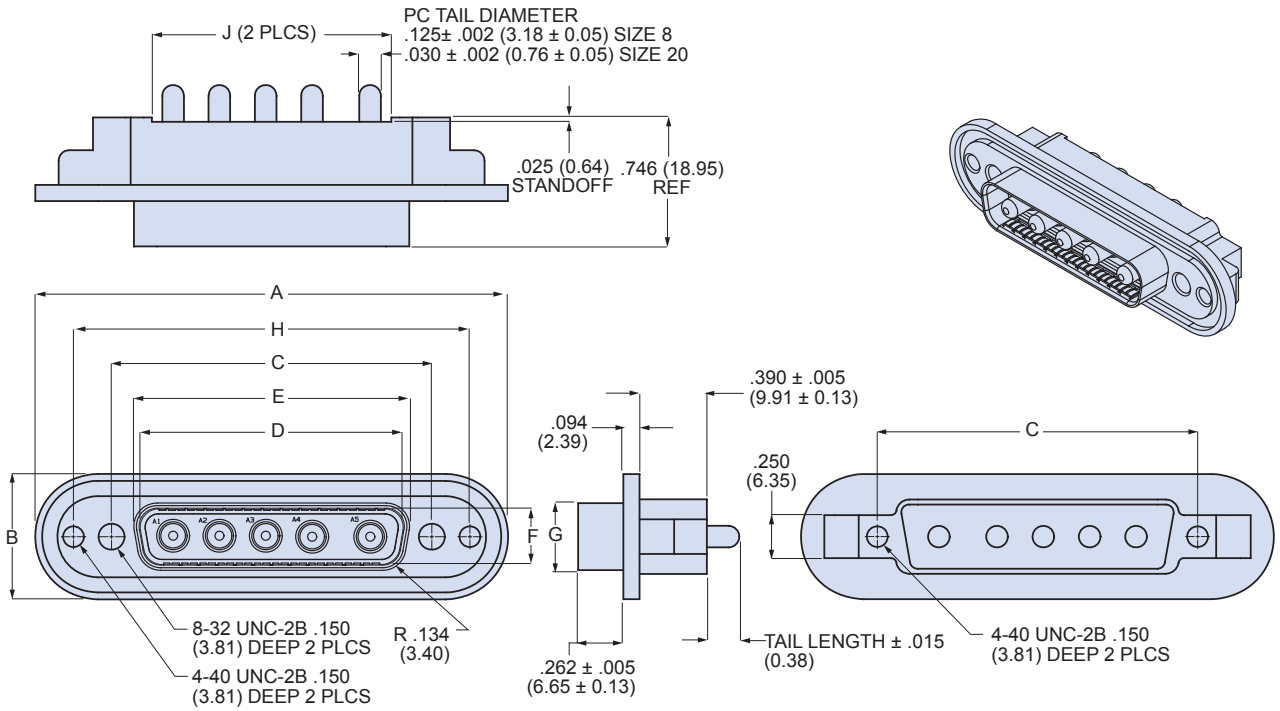
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-050P straight PC tail combo pin connectors with O-ring flange for rear panel mounting

280-050P DIMENSIONS



Dimensions																		
Shell Size	A		B		C Basic		D		E		F		G		H Basic		J	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .015	mm ± 0.38	in	mm	in	mm
1	1.865	47.37	.725	18.42	.984	24.99	.666	16.92	.726	18.44	.329	8.36	.389	9.88	1.424	36.17	.520	13.21
2	2.200	55.88	.725	18.42	1.312	33.32	.994	25.25	1.054	26.77	.329	8.36	.389	9.88	1.752	44.50	.844	21.44
3	2.736	69.49	.725	18.42	1.852	47.04	1.534	38.96	1.594	40.49	.329	8.36	.389	9.88	2.292	58.22	1.386	35.20
4	3.385	85.98	.725	18.42	2.500	63.50	2.182	55.42	2.242	56.95	.329	8.36	.389	9.88	2.940	74.68	2.034	51.66
5	3.289	83.54	.837	21.26	2.406	61.11	2.079	52.81	2.139	54.33	.441	11.20	.501	12.73	2.846	72.29	1.987	50.47

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature combo connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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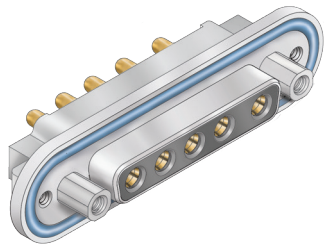
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-051S straight PC tail combo socket connectors with O-ring flange for rear panel mounting



The HiPer-D® is a high performance version of the M24308-type D-Subminiature connector. HiPer-D® connectors feature improved EMI performance and environmental sealing and "closed entry" contact cavity for improved contact protection. Factory-installed PC tail contacts, integral board standoffs and threaded holes for attaching to circuit board. Gold-plated copper alloy contacts, one-piece machined aluminum shell, glass-reinforced thermoset epoxy insulator, epoxy potting compound, fluorosilicone O-ring. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order

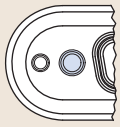
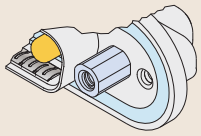
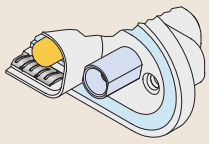
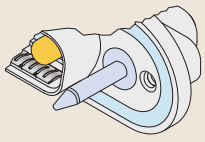
Sample Part Number	280-051S	3-13P3	ME	N	A

Basic Part Number	**280-051S**	
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table	
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel	**MT** = Nickel-PTFE **Z2** = Gold
Mating Hardware	**N** = No Hardware **G** = Male Guide Pins	**P** = #4-40 Female Jackposts **B** = Female Guide Bushings
PC Tail Length	**A** = .125 (3.18) Tail Length	**B** = .250 (6.35) Tail Length

Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2P2		2
1-5P1	4	1
2-3P3		3
2-7P2	5	2
2-11P1	10	1
3-5P5		5
3-9P4	5	4
3-13P3	10	3
3-17P2	15	2
3-21P1	20	1
4-8P8		8
4-13P6	7	6
4-17P5	12	5
4-21PA4	17	4
4-25P3	22	3
4-27P2	25	2
5-24P7	17	7
5-36P4	32	4
5-43P2	41	2
5-47P1	46	1

Mating Hardware

N No Hardware #8-32 tapped hole	**P** Female Jackposts #4-40, Non-removable
	
B Female Guide Bushings Non-removable	**G** Male Guide Pins Non-removable
	

Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulator	Thermoset epoxy
O-ring	Fluorosilicone rubber
Potting Compound	Epoxy
Hardware	300 series stainless steel

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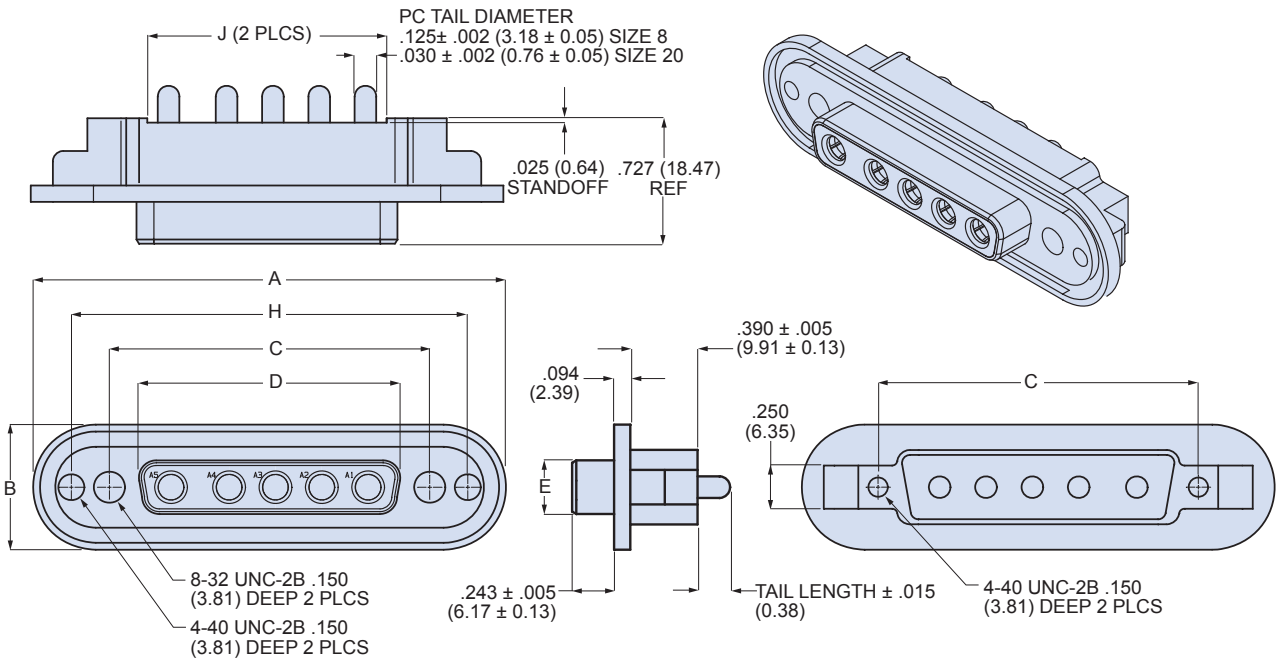
Dimensions in Inches (millimeters) are subject to change without notice.

280-051S straight PC tail combo socket connectors with O-ring flange for rear panel mounting

280-051S DIMENSIONS



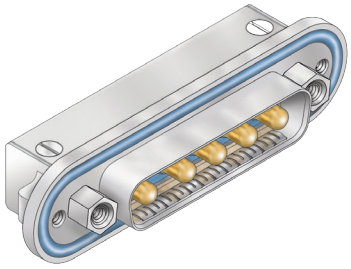
Dimensions														
Shell Size	A		B		C Basic		D		E		H Basic		J	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in	mm
1	1.865	47.37	.725	18.42	.984	24.99	.643	16.33	.311	7.90	1.424	36.17	.520	13.21
2	2.200	55.88	.725	18.42	1.312	33.32	.971	24.66	.311	7.90	1.752	44.50	.844	21.44
3	2.736	69.49	.725	18.42	1.852	47.04	1.511	38.38	.311	7.90	2.292	58.22	1.386	35.20
4	3.385	85.98	.725	18.42	2.500	63.50	2.159	54.84	.311	7.90	2.940	74.68	2.034	51.66
5	3.289	83.54	.837	21.26	2.406	61.11	2.064	52.43	.423	10.74	2.846	72.29	1.987	50.47

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices . Glenair offers the industry's widest selection of plating and material choices with no setup charge, no minimum order quantity and no schedule impact.
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature combo connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

HiPer-D® Combo Connectors

280-052P right angle PC tail combo pin connectors with O-ring flange for rear panel mounting



The HiPer-D® is a high performance version of the M24308-type D-Subminiature connector. HiPer-D® connectors feature improved EMI performance and environmental sealing. Factory-installed PC tail contacts, integral board standoffs and threaded holes for attaching to circuit board. Optional ground springs for improved resistance to electromagnetic interference. Aluminum alloy EMI cover. Gold-plated copper alloy contacts, one-piece machined aluminum shell, glass-reinforced thermoset epoxy insulator, epoxy potting compound, fluorosilicone face seal and O-ring. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

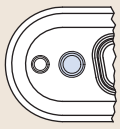
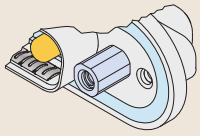
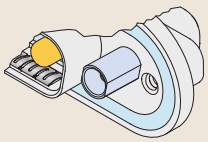
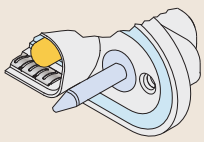
How To Order

Sample Part Number	280-052P	3-5P5	ME	G	B	B
Basic Part Number	**280-052P**					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table					
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel **MT** = Nickel-PTFE **Z2** = Gold					
Ground Spring	**G** = Supplied with EMI Ground Spring **N** = No Ground Spring					
Mating Hardware	**N** = No Hardware **G** = Male Guide Pins **P** = #4-40 Female Jackposts **B** = Female Guide Bushings					
PC Tail Length	**A** = .125 (3.18) Tail Length **B** = .250 (6.35) Tail Length					

Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2P2		2
1-5P1	4	1
2-3P3		3
2-7P2	5	2
2-11P1	10	1
3-5P5		5
3-9P4	5	4
3-13P3	10	3
3-17P2	15	2
3-21P1	20	1
4-8P8		8
4-13P6	7	6
4-17P5	12	5
4-21PA4	17	4
4-25P3	22	3
4-27P2	25	2
5-24P7	17	7
5-36P4	32	4
5-43P2	41	2
5-47P1	46	1

Mating Hardware

N	P
No Hardware #8-32 tapped hole	Female Jackposts #4-40, Non-removable
	
B	**G**
Female Guide Bushings Non-removable	Male Guide Pins Non-removable
	

Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulator	Thermoset epoxy
Potting Compound	Epoxy
EMI Spring	Copper alloy, nickel plated
Face Seal, O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel
Shroud	Stainless steel

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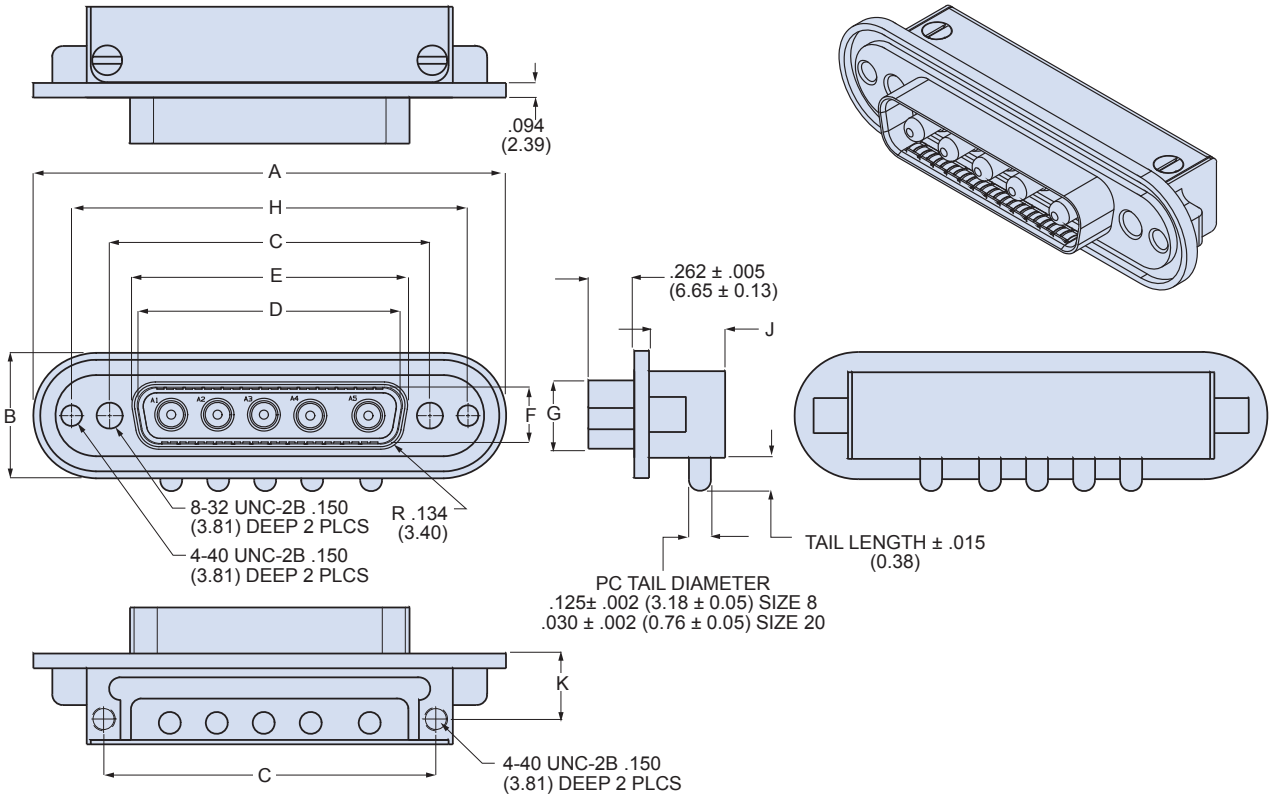
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-052P right angle PC tail combo pin connectors with O-ring flange for rear panel mounting

280-052P DIMENSIONS



Dimensions																				
Shell Size	A		B		C Basic		D		E		F		G		H Basic		J		K	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .015	mm ± 0.38	in	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13
1	1.865	47.37	.725	18.42	.984	24.99	.666	16.92	.726	18.44	.329	8.36	.389	9.88	1.424	36.17	.518	13.16	.374	9.50
2	2.200	55.88	.725	18.42	1.312	33.32	.994	25.25	1.054	26.77	.329	8.36	.389	9.88	1.752	44.50	.518	13.16	.374	9.50
3	2.736	69.49	.725	18.42	1.852	47.04	1.534	38.96	1.594	40.49	.329	8.36	.389	9.88	2.292	58.22	.518	13.16	.374	9.50
4	3.385	85.98	.725	18.42	2.500	63.50	2.182	55.42	2.242	56.95	.329	8.36	.389	9.88	2.940	74.68	.518	13.16	.374	9.50
5	3.289	83.54	.837	21.26	2.406	61.11	2.079	52.81	2.139	54.33	.441	11.20	.501	12.73	2.846	72.29	.630	16.00	.430	10.92

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices .
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature combo connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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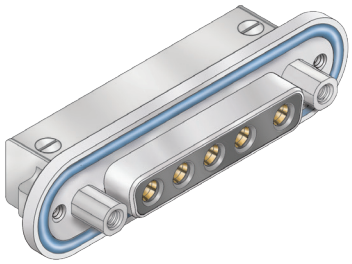
HiPer-D® Combo Connectors

280-053S right angle PC tail combo socket connectors with O-ring flange for rear panel mounting

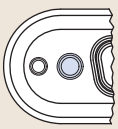
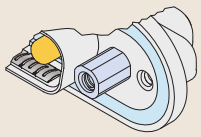
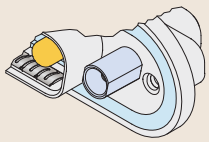
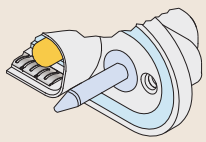


The HiPer-D® is a high performance version of the M24308-type D-Subminiature connector. HiPer-D® connectors feature improved EMI performance and environmental sealing and "closed entry" contact cavity for improved contact protection. Factory-installed PC tail contacts, integral board standoffs and threaded holes for attaching to circuit board. Gold-plated copper alloy contacts, one-piece machined aluminum shell, glass-reinforced thermoset epoxy insulator, epoxy potting compound, fluorosilicone O-ring. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order					
Sample Part Number	**280-053S**	**3-13P3**	**ME**	**N**	**A**
Basic Part Number	**280-053S**				
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel				
Mating Hardware	**N** = No Hardware **P** = #4-40 Female Jackposts **G** = Male Guide Pins **B** = Female Guide Bushings				
PC Tail Length	**A** = .125 (3.18) Tail Length **B** = .250 (6.35) Tail Length				

Contact Arrangements		
Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2P2		2
1-5P1	4	1
2-3P3		3
2-7P2	5	2
2-11P1	10	1
3-5P5		5
3-9P4	5	4
3-13P3	10	3
3-17P2	15	2
3-21P1	20	1
4-8P8		8
4-13P6	7	6
4-17P5	12	5
4-21PA4	17	4
4-25P3	22	3
4-27P2	25	2
5-24P7	17	7
5-36P4	32	4
5-43P2	41	2
5-47P1	46	1

Mating Hardware	
N No Hardware #8-32 tapped hole	**P** Female Jackposts #4-40, Non-removable
	
B Female Guide Bushings Non-removable	**G** Male Guide Pins Non-removable
	

Specifications	
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes	
Shell	Aluminum Alloy
Contacts	Copper Alloy, 50 Microinches Gold
Insulator	Thermoset Epoxy
O-Ring	Fluorosilicone Rubber
Potting Compound	Epoxy
Hardware	300 Series Stainless Steel
Shroud	Stainless Steel

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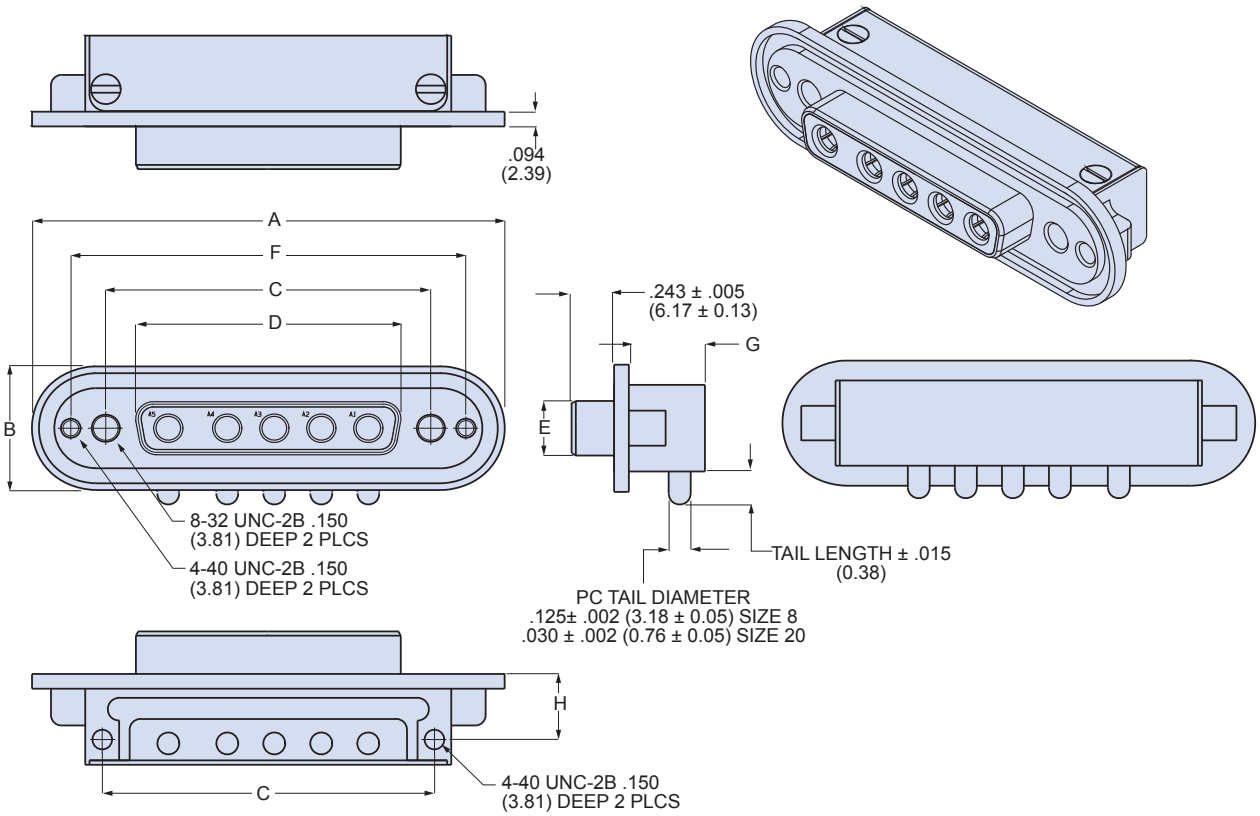
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-053S right angle PC tail combo socket connectors with O-ring flange for rear panel mounting

280-053S DIMENSIONS



Dimensions																
Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in	mm	in ± .005	mm ± 0.13
1	1.865	47.37	.725	18.42	.984	24.99	.643	16.33	.311	7.90	1.424	36.17	.518	13.16	.374	9.50
2	2.200	55.88	.725	18.42	1.312	33.32	.971	24.66	.311	7.90	1.752	44.50	.518	13.16	.374	9.50
3	2.736	69.49	.725	18.42	1.852	47.04	1.511	38.38	.311	7.90	2.292	58.22	.518	13.16	.374	9.50
4	3.385	85.98	.725	18.42	2.500	63.50	2.159	54.84	.311	7.90	2.940	74.68	.518	13.16	.374	9.50
5	3.289	83.54	.837	21.26	2.406	61.11	2.064	52.43	.423	10.74	2.846	72.29	.630	16.00	.430	10.92

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices .
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature combo connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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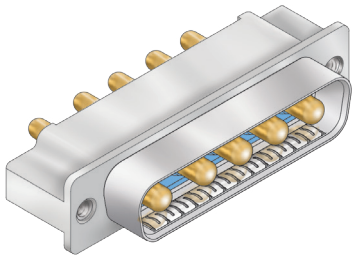
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-054P straight PC tail pin connectors with low profile mounting flange



The HiPer-D® is a high performance version of the M24308-type D-Subminiature connector. HiPer-D® connectors feature improved EMI performance and environmental sealing. Factory-installed PC tail contacts, integral board standoffs and threaded holes for attaching to circuit board. Optional ground springs for improved resistance to electromagnetic interference. Gold-plated copper alloy contacts, one-piece machined aluminum shell, glass-reinforced thermoset epoxy insulator, epoxy potting compound, fluorosilicone face seal. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order

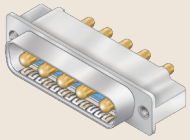
Sample Part Number	280-054P	5-43P2	JF	N	N	B
Basic Part Number	**280-054P**					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table					
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel					
Ground Spring	**G** = Supplied with EMI Ground Spring **N** = No Ground Spring					
Mating Hardware	**N** = No Hardware **P** = #4-40 Female Jackposts					
PC Tail Length	**A** = .125 (3.18) Tail Length **B** = .250 (6.35) Tail Length					

Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2P2		2
1-5P1	4	1
2-3P3		3
2-7P2	5	2
2-11P1	10	1
3-5P5		5
3-9P4	5	4
3-13P3	10	3
3-17P2	15	2
3-21P1	20	1
4-8P8		8
4-13P6	7	6
4-17P5	12	5
4-21PA4	17	4
4-25P3	22	3
4-27P2	25	2
5-24P7	17	7
5-36P4	32	4
5-43P2	41	2
5-47P1	46	1

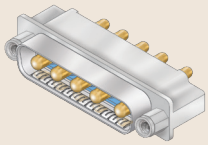
Mating Hardware

N
No Hardware
#4-40 Female Threads in Mounting Holes



Choose this option for rear panel mounting and order jackpost kit 289-016 separately.

P
#4-40 Female Jackposts



Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulator	Thermoset epoxy
EMI Spring	Copper alloy, nickel plated
Face Seal	Fluorosilicone rubber
Hardware	300 series stainless steel

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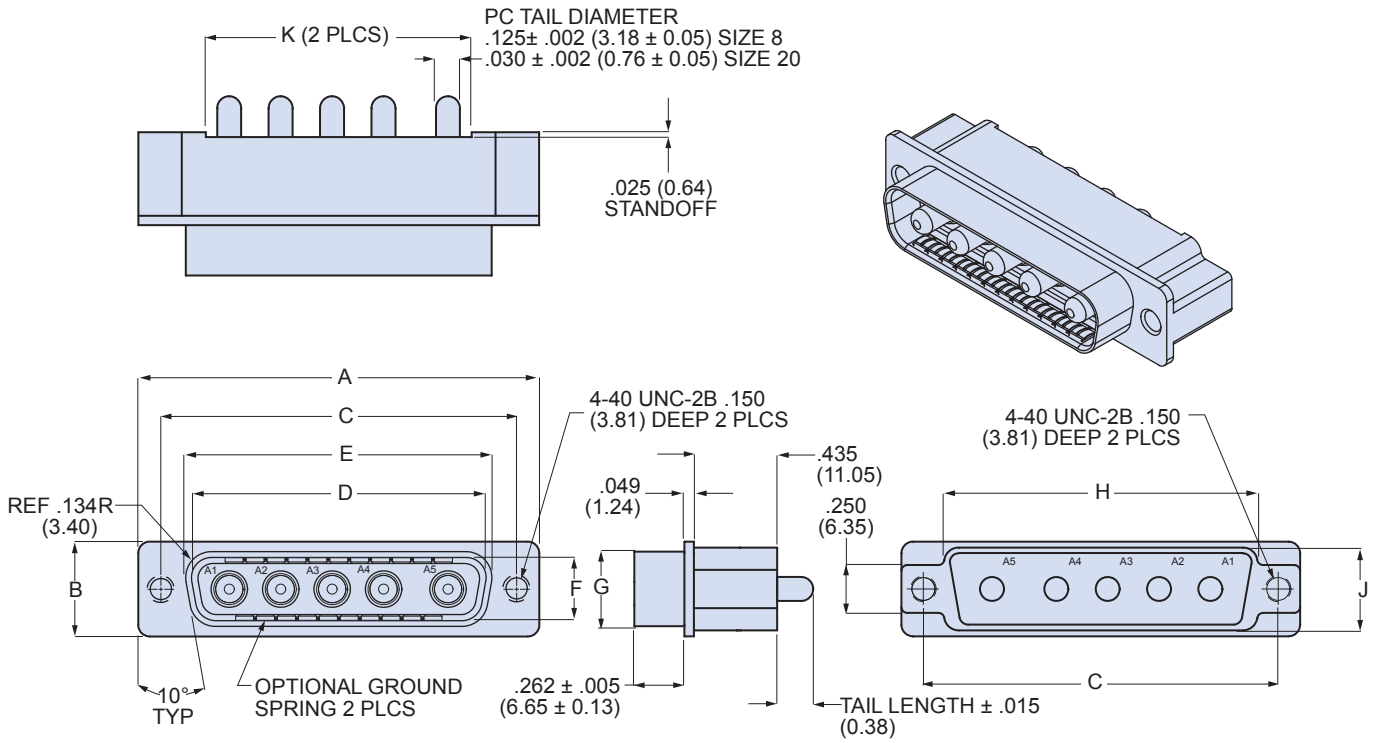
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-054P straight PC tail pin connectors with low profile mounting flange

280-054P DIMENSIONS



Dimensions																				
Shell Size	A		B		C Basic		D		E		F		G		H Max		J Max		K Max	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in	mm	in	mm
1	1.213	30.81	.494	12.55	.984	24.99	.666	16.92	.726	18.44	.329	8.36	.389	9.88	.769	19.53	.432	10.97	.520	13.21
2	1.541	39.14	.494	12.55	1.312	33.32	.994	25.25	1.054	26.77	.329	8.36	.389	9.88	1.093	27.76	.432	10.97	.844	21.44
3	2.088	53.04	.494	12.55	1.852	47.04	1.534	38.96	1.594	40.49	.329	8.36	.389	9.88	1.636	41.55	.432	10.97	1.386	35.20
4	2.729	69.32	.494	12.55	2.500	63.50	2.182	55.42	2.242	56.95	.329	8.36	.389	9.88	2.282	57.96	.432	10.97	2.034	51.66
5	2.635	66.93	.605	15.37	2.406	61.11	2.079	52.81	2.139	54.33	.441	11.20	.501	12.73	2.188	55.58	.544	13.82	1.887	47.93

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices .
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature combo connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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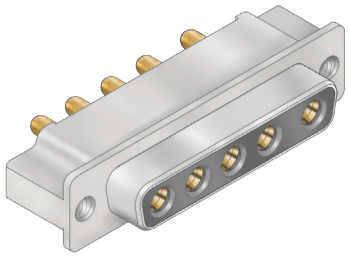
HiPer-D® Combo Connectors

280-055S straight PC tail socket connectors with low profile mounting flange



The HiPer-D® is a high performance version of the M24308-type D-Subminiature connector. HiPer-D® connectors feature improved EMI performance and environmental sealing and "closed entry" contact cavity for improved contact protection. Factory-installed PC tail contacts, integral board standoffs and threaded holes for attaching to circuit board. Gold-plated copper alloy contacts, one-piece machined aluminum shell, glass-reinforced thermoset epoxy insulator, epoxy potting compound. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

How To Order

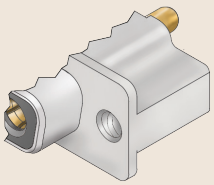
Sample Part Number	280-055S	1-2P2	ME	P	A
Basic Part Number	**280-055S**				
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel **MT** = Nickel-PTFE **Z2** = Gold				
Mating Hardware	**N** = No Hardware **P** = #4-40 Female Jackpost				
PC Tail Length	**A** = .125 (3.18) Tail Length **B** = .250 (6.35) Tail Length				

Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2P2		2
1-5P1	4	1
2-3P3		3
2-7P2	5	2
2-11P1	10	1
3-5P5		5
3-9P4	5	4
3-13P3	10	3
3-17P2	15	2
3-21P1	20	1
4-8P8		8
4-13P6	7	6
4-17P5	12	5
4-21PA4	17	4
4-25P3	22	3
4-27P2	25	2
5-24P7	17	7
5-36P4	32	4
5-43P2	41	2
5-47P1	46	1

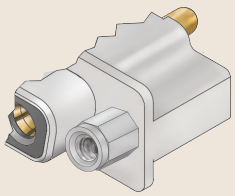
Mating Hardware

N
No Hardware
#4-40 Female Threads in Mounting Holes



Choose this option for rear panel mounting and order jackpost kit 289-016 separately.

P
#4-40 Female Jackposts



Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulator	Thermoset epoxy
Potting Compound	Epoxy
Hardware	300 series stainless steel

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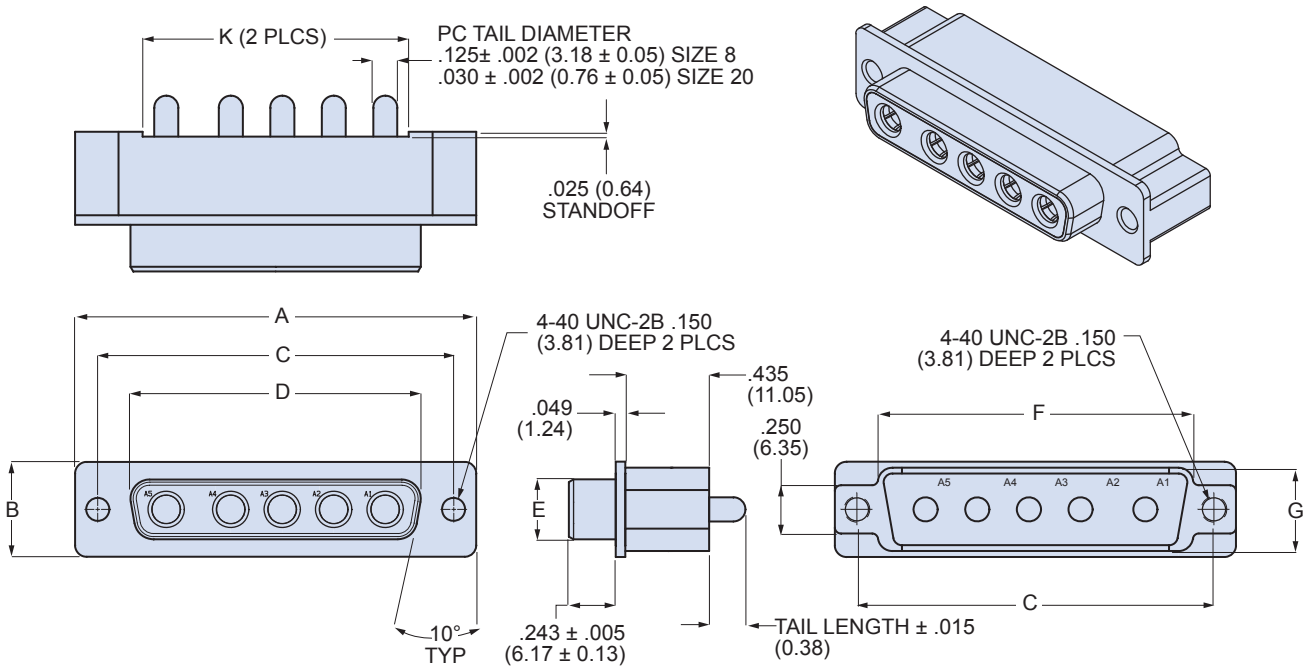
Dimensions in Inches (millimeters) are subject to change without notice.

280-055S straight PC tail socket connectors with low profile mounting flange

280-055S DIMENSIONS



Dimensions																
Shell Size	A		B		C Basic		D		E		F Max		G Max		H Max	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in.	mm	in.	mm	in.	mm
1	1.213	30.81	.494	12.55	.984	24.99	.643	16.33	.311	7.90	.769	19.53	.432	10.97	.520	13.21
2	1.541	39.14	.494	12.55	1.312	33.32	.971	24.66	.311	7.90	1.093	27.76	.432	10.97	.844	21.44
3	2.088	53.04	.494	12.55	1.852	47.04	1.511	38.38	.311	7.90	1.636	41.55	.432	10.97	1.386	35.20
4	2.729	69.32	.494	12.55	2.500	63.50	2.159	54.84	.311	7.90	2.282	57.96	.432	10.97	2.034	51.66
5	2.635	66.93	.605	15.37	2.406	61.11	2.054	52.17	.423	10.74	2.188	55.58	.544	13.82	1.887	47.93

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices .
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature combo connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

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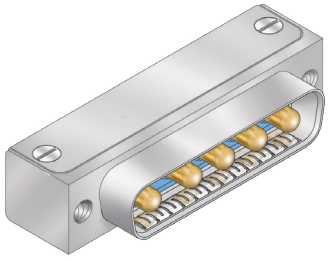
Dimensions in Inches (millimeters) are subject to change without notice.

HiPer-D® Combo Connectors

280-056P right angle PC tail pin connectors with low profile mounting flange



The HiPer-D® is a high performance version of the M24308-type D-Subminiature connector. HiPer-D® connectors feature improved EMI performance and environmental sealing. Factory-installed PC tail contacts, integral board standoffs and threaded holes for attaching to circuit board. Optional ground springs for improved resistance to electromagnetic interference. Gold-plated copper alloy contacts, one-piece machined aluminum shell, glass-reinforced thermoset epoxy insulator, epoxy potting compound, fluorosilicone face seal. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order

Sample Part Number	280-056P	3-5P5	Z2	G	P	A

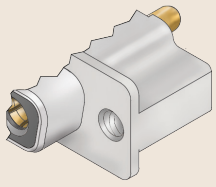
Basic Part Number	**280-056P**
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel
Ground Spring	**G** = Supplied with EMI Ground Spring **N** = No Ground Spring
Mating Hardware	**N** = No Hardware **P** = #4-40 Female Jackpost
PC Tail Length	**A** = .125 (3.18) Tail Length **B** = .250 (6.35) Tail Length

Contact Arrangements

Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2P2		2
1-5P1	4	1
2-3P3		3
2-7P2	5	2
2-11P1	10	1
3-5P5		5
3-9P4	5	4
3-13P3	10	3
3-17P2	15	2
3-21P1	20	1
4-8P8		8
4-13P6	7	6
4-17P5	12	5
4-21PA4	17	4
4-25P3	22	3
4-27P2	25	2
5-24P7	17	7
5-36P4	32	4
5-43P2	41	2
5-47P1	46	1

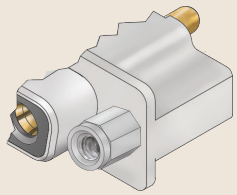
Mating Hardware

N
No Hardware
#4-40 Female Threads in Mounting Holes



Choose this option for rear panel mounting and order jackpost kit 289-016 separately.

P
#4-40 Female Jackposts



Specifications

Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes

Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulator	Thermoset epoxy
EMI Spring	Copper alloy, nickel plated
Face Seal	Fluorosilicone rubber
Hardware	300 series stainless steel
Shroud, Contact	Aluminum alloy

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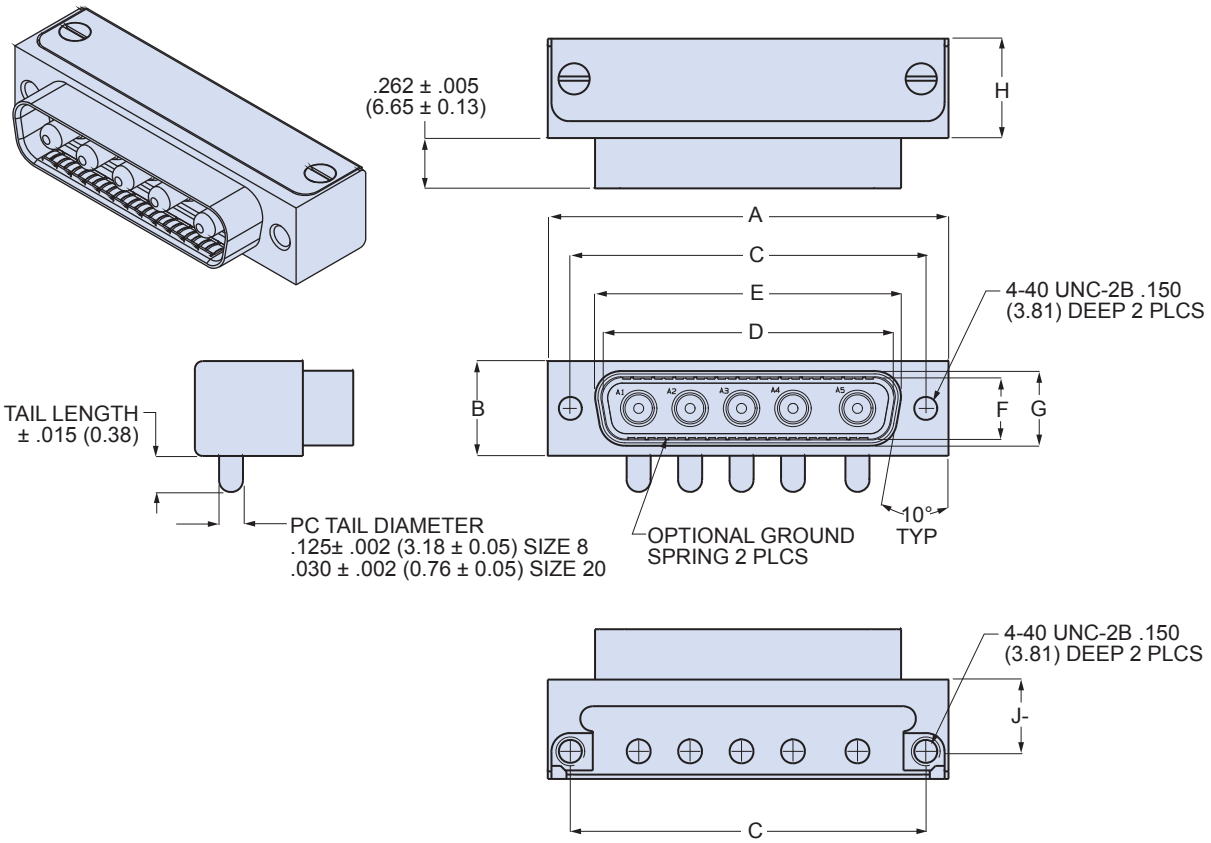
Dimensions in Inches (millimeters) are subject to change without notice.

280-056P right angle PC tail pin connectors with low profile mounting flange

280-056P DIMENSIONS



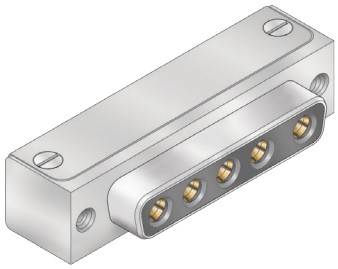
Dimensions																		
Shell Size	A		B		C Basic		D		E		F		G		H		J	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .005	mm ± 0.13
1	1.213	30.81	.494	12.55	.984	24.99	.666	16.92	.726	18.44	.329	8.36	.389	9.88	.518	13.16	.374	9.50
2	1.541	39.14	.494	12.55	1.312	33.32	.994	25.25	1.054	26.77	.329	8.36	.389	9.88	.518	13.16	.374	9.50
3	2.088	53.04	.494	12.55	1.852	47.04	1.534	38.96	1.594	40.49	.329	8.36	.389	9.88	.518	13.16	.374	9.50
4	2.729	69.32	.494	12.55	2.500	63.50	2.182	55.42	2.242	56.95	.329	8.36	.389	9.88	.518	13.16	.374	9.50
5	2.635	66.93	.605	15.37	2.406	61.11	2.079	52.81	2.139	54.33	.441	11.20	.501	12.73	.630	16.00	.430	10.92

NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices .
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature combo connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

HiPer-D® Combo Connectors

280-057S right angle PC tail socket connectors with low profile mounting flange

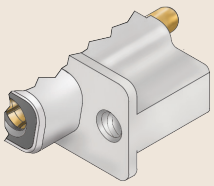
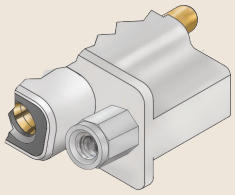


The HiPer-D® is a high performance version of the M24308-type D-Subminiature connector. HiPer-D® connectors feature improved EMI performance and environmental sealing and "closed entry" contact cavity for improved contact protection. Factory-installed PC tail contacts, integral board standoffs and threaded holes for attaching to circuit board. Gold-plated copper alloy contacts, one-piece machined aluminum shell, glass-reinforced thermoset epoxy insulator, epoxy potting compound. 1000 VAC, 7.5 Amps (#20), up to 40 Amps with size #8 power contacts.

C

How To Order						
Sample Part Number		**280-057S**	**4-27P2**	**JF**	**P**	**B**
Basic Part Number	**280-057S**					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table					
Shell Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel					
Hardware Option	**N** = No Hardware **P** = #4-40 Female Jackpost					
PC Tail Length	**A** = .125 (3.18) Tail Length **B** = .250 (6.35) Tail Length					

Contact Arrangements		
Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2P2		2
1-5P1	4	1
2-3P3		3
2-7P2	5	2
2-11P1	10	1
3-5P5		5
3-9P4	5	4
3-13P3	10	3
3-17P2	15	2
3-21P1	20	1
4-8P8		8
4-13P6	7	6
4-17P5	12	5
4-21PA4	17	4
4-25P3	22	3
4-27P2	25	2
5-24P7	17	7
5-36P4	32	4
5-43P2	41	2
5-47P1	46	1

Mating Hardware
N No Hardware #4-40 Female Threads in Mounting Holes

Choose this option for rear panel mounting and order jackpost kit 289-016 separately.
P #4-40 Female Jackposts


Specifications	
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulator	Thermoset epoxy
Potting Compound	Epoxy
Hardware	300 series stainless steel
Shroud	Stainless steel

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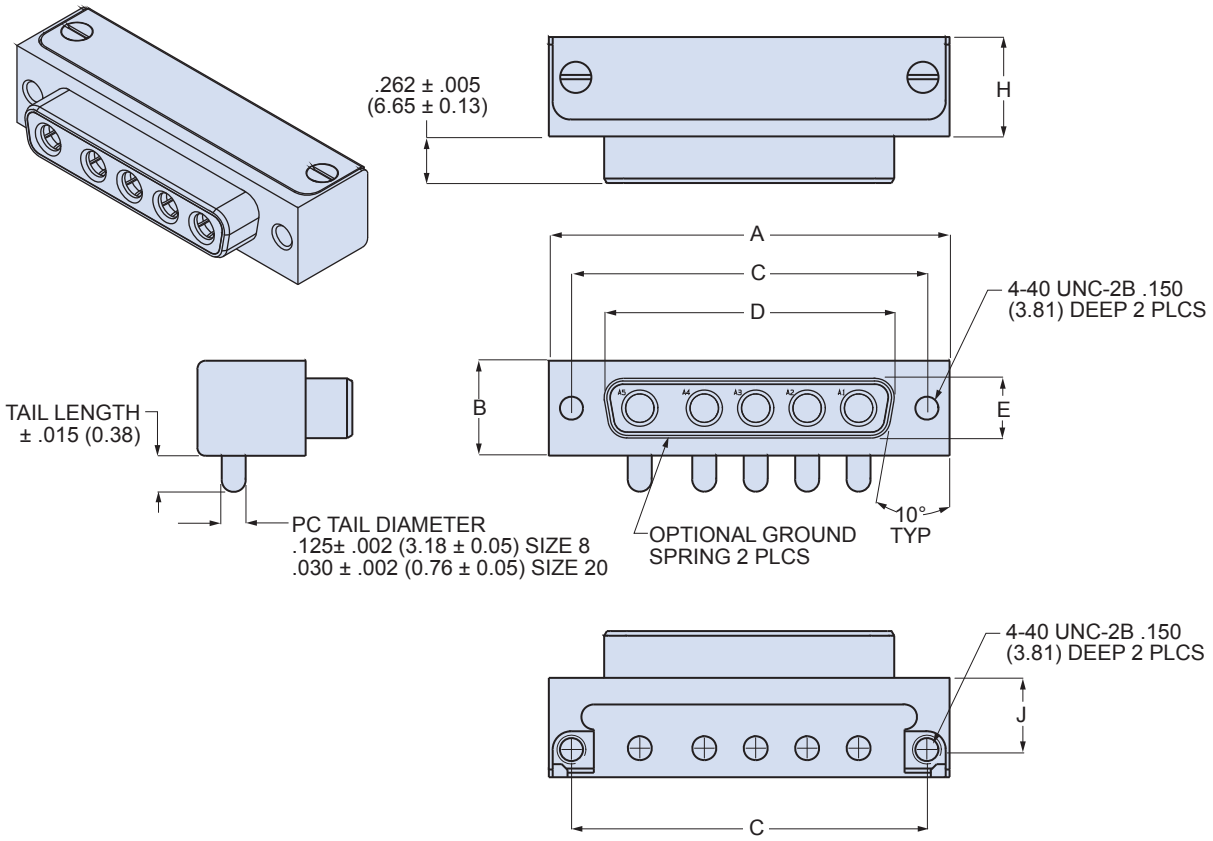
Dimensions in Inches (millimeters) are subject to change without notice.

280-057S right angle PC tail socket connectors with low profile mounting flange

280-057S DIMENSIONS



Dimensions														
Shell Size	A		B		C Basic		D		E		H Max		J	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in.	mm	in ± .005	mm ± 0.13
1	1.213	30.81	.494	12.55	.984	24.99	.643	16.33	.311	7.90	.518	13.16	.374	9.50
2	1.541	39.14	.494	12.55	1.312	33.32	.971	24.66	.311	7.90	.518	13.16	.374	9.50
3	2.088	53.04	.494	12.55	1.852	47.04	1.511	38.38	.311	7.90	.518	13.16	.374	9.50
4	2.729	69.32	.494	12.55	2.500	63.50	2.159	54.84	.311	7.90	.518	13.16	.374	9.50
5	2.635	66.93	.605	15.37	2.406	61.11	2.064	52.43	.423	10.74	.630	16.00	.430	10.92

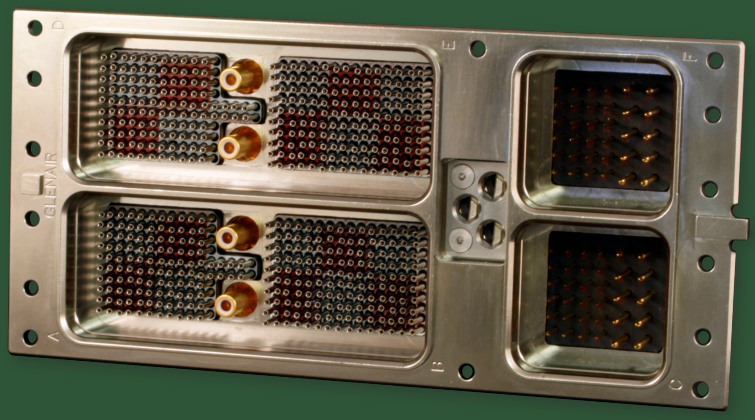
NOTES

1. Contacts are factory-installed, non-removable and are potted with epoxy.
2. HiPer-D® connectors are available with a wide variety of materials and finishes. See ***About Series 28 HiPer-D® Shell Plating Options*** for additional choices .
3. For panel cutout dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
4. For printed circuit board mounting dimensions, refer to ***Panel Cutouts and Printed Circuit Board Footprints***.
5. Combo HiPer-D® connectors meet the applicable requirements of MIL-DTL-24308 and are intermateable with standard M24308-type D-Subminiature combo connectors with corresponding contact arrangements and type.
6. Additional electrical, mechanical and environmental specifications are listed in ***HiPer-D® Product Specification***.

SERIES 28

HiPer-D® vs. ARINC 600

Smaller, lighter HiPer-Ds with robust EMI/grounding performance save weight, and reduce assembly time and complexity compared to conventional ARINC backplane/ motherboard configurations.



Legacy ARINC 600 type solutions are no longer optimized for the size and weight reduction requirements of today's aircraft industry.



High-performance HiPer-D® connectors with their advanced EMI shielding, grounding, environmental sealing, and guide-pin-managed blind mate capabilities allow designers to implement a distributed architecture model with significant performance advantages.

Available HiPer-D® insert arrangements, from 9 – 104 way and supported contact types including size #22 and #20 signal as well as size #8 power and coax.



The opportunity to replace big, bulky and expensive ARINC 600 type rack-and-panel connectors with a distributed architecture utilizing discrete D-subminiature connectors is finally realized with the high-performance Glenair HiPer-D®. With the outstanding performance of the HiPer-D, system designers are now able to optimize available space in equipment consoles and boxes without compromising EMC or temperature tolerances. Distributed interconnect architectures of this type also allow for easier troubleshooting, and the ability to eliminate expensive motherboards and of course, cumbersome rack-and-panel ARINC connectors. The ability to separate out intrinsically safe functions—for example segregating power circuits completely from signal circuits—allows designers to build handier systems which are easier to assemble and maintain.

Glenair®

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SERIES 28

Hi-Speed HiPer-D® Connectors

Product selection guide

Reference and Technical Data	
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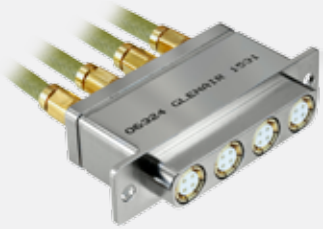
Hi-Speed HiPer-D Connectors



280-082P Page D-6

The Hi-Speed HiPer-D® pin connector features a one piece rugged machined aluminum shell and an optional ground spring for improved resistance to electromagnetic interference. Supplied with a choice of coax, twinax, quadrax or Ochito (octaxial) contacts. Hi-Speed HiPer-D connectors are nonenvironmental.



280-083S Page D-8

The Hi-Speed HiPer-D® socket connector features a one piece rugged machined aluminum shell. Supplied with a choice of coax, twinax, quadrax or Ochito (octaxial) contacts. Hi-Speed HiPer-D connectors are nonenvironmental.



280-101M and 280-098F Page D-14

The Hi-Speed HiPer-D® connectors with SpeedMaster™ 10G contact modules utilize industry standard size 22D contacts. In-line connector shells are made from machined aluminum and available with 2 or 4 cavities. 280-101M is a cable plug while 280-098F is a cable receptacle.



280-102M and 280-099F Page D-16

The Hi-Speed HiPer-D® connectors with SpeedMaster™ 10G contact modules utilize industry standard size 22D contacts. Rear panel mount connector shells are made from machined aluminum and available with 2 or 4 cavities. 280-102M is a panel mount plug while 280-099F is a panel mount receptacle..



280-103M and 280-100F Page D-18

The Hi-Speed HiPer-D® connectors with SpeedMaster™ 10G contact modules utilize industry standard size 22D contacts. Float mount connector shells are made from machined aluminum and available with 2 or 4 cavities. 280-103M is a panel mount plug while 280-100F is a panel mount receptacle..

D

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Series 28

Hi-Speed HiPerD Connectors

Now available, HiPer-D® Connectors for high speed applications. Available with one to five cavities, these connectors accept size 8 coax, twinax, quadrax and Ochito (octaxial) contacts. These M24308-style connectors fit standard D Subminiature panel cutouts. Rugged all-metal construction with optional EMI spring. Connector shell has keyway for contact orientation.



HiPer-D Pin



HiPer-D Socket

Product Facts

- **Ideally suited for high speed data applications**
- **Rugged machined one-piece aluminum shell**
- **For use with coax, twinax, quadrax, and ochito contacts**
- **Easy contact installation and removal**
- **Fits panel footprint of M24308 D-Sub products**
- **Available in 5 contact arrangements**
- **Optional EMI ground spring**

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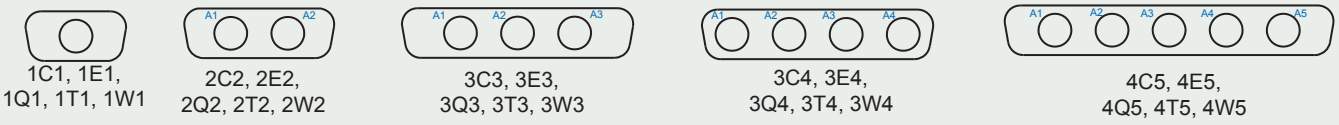
Hi-Speed HiPer-D® Connectors

Reference and Technical Data

Contact Arrangements, Product Features, Cutaway Views

Contact Arrangements



1C1, 1E1, 1Q1, 1T1, 1W1

2C2, 2E2, 2Q2, 2T2, 2W2

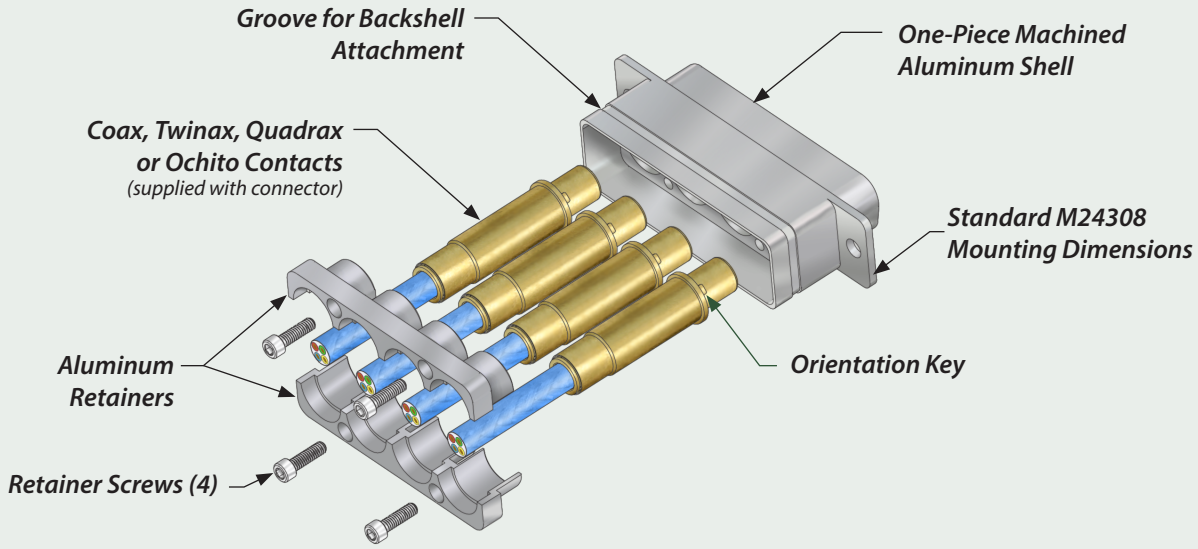
3C3, 3E3, 3Q3, 3T3, 3W3

3C4, 3E4, 3Q4, 3T4, 3W4

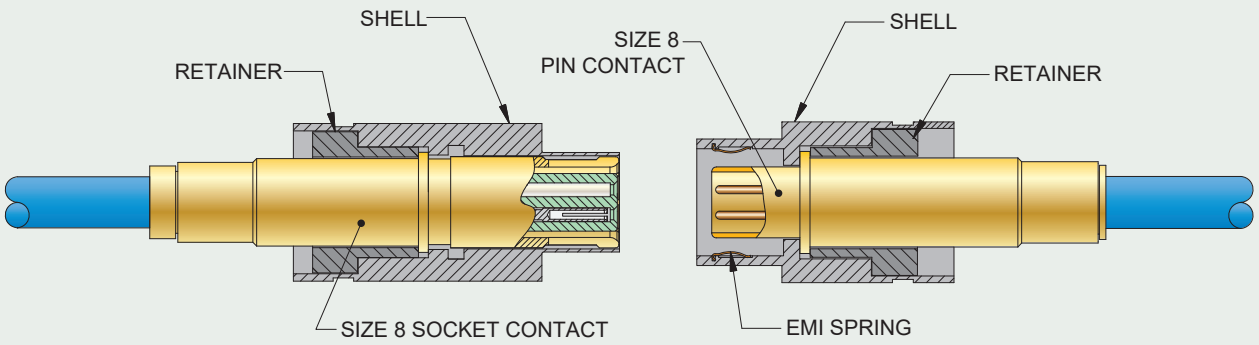
4C5, 4E5, 4Q5, 4T5, 4W5

Cavity identification is shown for the mating face of pin connector.

Product Features



Cutaway Views



Plug Connector **Receptacle Connector**

D

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Coax Contacts for Hi-Speed HiPer-D



Specifications

- Cable accommodation: RG316, RG316DS, RG142, RG400
- Operating temperature: -65 ºC. to +175 ºC.
- Nominal impedance: 50 ohms
- Frequency range: DC – 3 GHz
- DWV: 1300 Vac
- Durability: 500 mating cycles
- Shock: EIA-364-27 condition D
- Vibration: EIA-364-28 condition VI
- Meets applicable SAE AS39029 requirements

Construction

- Center contact, contact body, crimp ferrule: copper alloy, 50 microinches gold over nickel plating
- Insulator: fluoroplastic

Notes

1. Center contact is solder termination.
2. Shield ferrule is hex crimp termination.

Concentric Twinax Contacts for Hi-Speed HiPer-D



Specifications

- 77 ohm and 100 ohm versions
- Operating temperature: -65 ºC. to +175 ºC.
- Wire accommodation: M17/176-0002 (77 ohm), 0024A0024 (TE), GSC-02-81416-00 (Gore)
- DWV: 500 Vac (intermediate contact to outer body)
- Durability: 500 mating cycles
- Shock: MIL-DTL-38999 Series III
- Vibration: MIL-DTL-38999 Series III
- Meets applicable SAE AS39029 requirements

Construction

- Center contact, intermediate contact, outer contact, crimp ferrule: copper alloy, 50 microinches gold over nickel plating
- Insulator: PEEK and PTFE
- Socket contact hood: stainless steel

Notes

1. Crimp termination.

Differential Twinax Contacts for Hi-Speed HiPer-D



Specifications

- Wire accommodation: #24 and #26 AWG shielded twisted pair
- Frequency range: DC – 20 MHz
- Operating temperature: -65 ºC. to +175 ºC.
- DWV: 500 Vac (inner contact to outer body)
- Durability: 500 mating cycles
- Shock: MIL-DTL-38999 Series III
- Vibration: MIL-DTL-38999 Series III
- Meets applicable SAE AS39029 requirements

Construction

- Inner contact, outer contact, crimp ferrule: copper alloy, 50 microinches gold over nickel plating
- Insulator: PPS

Notes

1. Crimp termination.

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Quadrax Contacts for Hi-Speed HiPer-D



Specifications

- Wire accommodation: 22, 24, and 26 AWG shielded quad cable
- Operating temperature: -65 ºC. to +175 ºC.
- Characteristic impedance: 100 ohms
- Propagation delay: ANSI/TIA-568-C.2 paragraph 6.8.18 (Cat 5e)
- Insertion loss: ANSI/TIA-568-C.2 paragraph 6.8.7 (Cat 5e)
- Near-End Crosstalk: ANSI/TIA-568-C.2 paragraph 6.8.8 (Cat 5e)
- Far-End Crosstalk: ANSI/TIA-568-C.2 paragraph 6.8.10 (Cat 5e)
- Return Loss: ANSI/TIA-568-C.2 paragraph 6.8.6 (Cat 5e)
- Frequency range: DC – 3 GHz
- DWV: 500 Vac inner contacts to outer contact, 1000 Vac inner contact to inner contact
- Insulation resistance: 5000 megohms min.
- Durability: 500 mating cycles
- Shock: MIL-DTL-38999 Series III
- Vibration: MIL-DTL-38999 Series III
- Meets SAE AS39029/119 and /120 requirements

Construction

- Inner contacts, outer contact, shield crimp ferrule: copper alloy, 50 microinches gold over nickel plating
- Insulator: PPS

Notes

1. Crimp termination

El Ochito® Contacts for Hi-Speed HiPer-D



Specifications

- Wire accommodation: 22, 24, and 26 AWG shielded twisted pair cable
- Operating temperature: -65 ºC. to +175 ºC.
- Characteristic impedance: 100 ohms
- Propagation delay: ANSI/TIA-568-C.2 (Cat 6a, 10GBASE-T)
- Insertion loss: ANSI/TIA-568-C.2 (Cat 6a, 10GBASE-T)
- Near-End Crosstalk: ANSI/TIA-568-C.2 (Cat 6a, 10GBASE-T)
- Far-End Crosstalk: ANSI/TIA-568-C.2 (Cat 6a, 10GBASE-T)
- Return Loss: ANSI/TIA-568-C.2 (Cat 6a, 10GBASE-T)
- Frequency range: DC – 3 GHz
- DWV: 500 Vac inner contacts to outer contact, 1000 Vac inner contact to inner contact
- Insulation resistance: 5000 megohms min.
- Durability: 500 mating cycles
- Shock: MIL-DTL-38999 Series III
- Vibration: MIL-DTL-38999 Series III

Construction

- Inner contacts, outer contact, shield crimp ferrule: copper alloy, 50 microinches gold over nickel plating
- Insulator: PPS

Notes

1. Crimp termination

D

Hi-Speed HiPer-D® Connectors

280-082P pin connector with size #8 coax, twinax, quadrax and El Ochito® (octaxial) contacts



- **Rugged machined one-piece shell**
- **Coax, twinax, quadrax, and El Ochito® contacts**
- **Easy contact installation and removal**
- **Fits panel footprint of M24308 D-Sub products**

The Hi-Speed HiPer-D® is a M24308-type connector with keyed cavities for size 8 coax, twinax, quadrax and El Ochito® contacts. The Hi-Speed HiPer-D® pin connector features a one piece rugged machined aluminum metal housing and an optional ground spring for improved resistance to electromagnetic interference. Easy contact installation and removal, no tool required. Aluminum retainers captivate contacts. Available with 1, 2, 3, 4 or 5 cavities, these high-density connectors provide size and weight savings compared to circular connectors. Hi-Speed, HiPer-D® connectors fit standard M24308 panel cutouts. Hi-Speed, HiPer-D® connectors are non-environmental.

D

Technical Data

Specifications

- Operating temperature: -65 ºC. to +200 ºC.
- Durability: 500 mating cycles
- Shock: EIA-364-27 condition E
- Vibration: EIA-364-28 condition IV
- Humidity: EIA-364-31 condition 4
- Salt spray: EIA-364-26 condition B
- Maximum Mating Force:
  shell size 1: 10 lbs.
  shell size 2: 17 lbs.
  shell size 3: 28 lbs.
  shell size 4: 39 lbs.

Construction

- Shell: aluminum alloy
- Ground spring: beryllium copper, nickel plated
- Retainers: aluminum aluminum alloy
- Screws: stainless steel, passivated

Ordering Information

Sample Part Number	280-082P	2Q2	ME	G	N	-05

Basic Part Number	**280-082P**
Shell Size- Insert Arrangement	*See Table 1*
Shell Finish *(See Section A for Additional Finishes)*	**ME** = Electroless Nickel **MT** = Nickel-PTFE **Z2** = Gold over Electroless Nickel **JF** = Yellow Chromate over Cadmium
Ground Spring	**G** = Supplied with EMIGround Spring **N** = No Ground Spring
Mating Hardware *(See Table 3 for details)*	**N** = No Hardware (Through-Hole) **P** = #4-40 Female Jackpost **L** = Captive Jackscrew, Hex Head, Low Profile **K** = Slot Head Jackscrew, Extended Length **S** = Screwlock, Male, Hex Head, Low Profile **T** = Screwlock, Male, Slot Head, Extended Length
Hi-Speed Contact Option	*See Table 2 for contact dash numbers. Omit if ordered less contacts.*

Table 1
Shell Size – Insert Arrangement

Shell Size	No of Contacts	Coax	Differential Twinax	Concentric Twinax	Quadrax	Ochito (Octo-Ax)	Less Contacts
1	1	1C1	1D1	1T1	1Q1	1E1	1W1
2	2	2C2	2D2	2T2	2Q2	2E2	2W2
3	3	3C3	3D3	3T3	3Q3	3E3	3W3
3	4	3C4	3D4	3T4	3Q4	3E4	3W4
4	5	4C5	4D5	4T5	4Q5	4E5	4W5

Contact Arrangements



1Q1, 1T1, 1D1, 1C1, 1E1, 1W1

2Q2, 2T2, 2D2, 2C2, 2E2, 2W2

3Q3, 3T3, 3D3, 3C3, 3E3, 3W3

3Q4, 3T4, 3D4, 3C4, 3E4, 3W4

4Q5, 4T5, 4D5, 4C5, 4E5, 4W5

Cavity identification is shown for the mating face of pin connector.

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Hi-Speed HiPer-D® Connectors

280-082P pin connector with size #8 coax, twinax, quadrax and El Ochito® (octaxial) contacts

Table 2
Size 8 Pin Contacts for 280-082P Connectors

Contact Type	Dash No.	Cable Type	Ref. Contact Part Nmber*
Coax *(1C1, 2C2, 3C3, 3C4, 4C5)*	-01	RG316DS	852-110-01
	-02	RG316	852-110-02
	-03	RG142, RG400	852-110-03
Concentric Twinax *(1T1, 2T2, 3T3, 3T4, 4T5)*	-01	0024A0024 (TE) GSC-03-81416-00 (Gore)	853-011
	-02	M17/176-00002	853-003-08-625
Differential Twinax *(1D1, 2D2, 3D3, 3D4, 4D5)*	-01	RCN8945 (Gore)	853-014-01
	-02	GSC-03-83971-00 (Gore)	853-014-02
	-03	10612 (TE)	853-014-03
	-04	0024A0024 (TE)	853-014-04
	-05	M17/176-00002 5M2022-003	853-014-05
	-06	1350SB (Belden)	853-014-06
	-07	2525B0524 (TE)	853-014-07
Quadrax *(1Q1, 2Q2, 3Q3, 3Q4, 4Q5)*	-01	NF26Q100-01 (Carlisle)	854-001-01
	-02	E51424 (PIC) NF24Q100-01 (Carlisle)	854-001-02
	-03	NF26Q100-01 (Carlisle) E51426 (PIC)	854-001-03
	-04	F 4704-4 (Draka) E50424 (PIC)	854-001-04
	-05	NF22Q100-01	854-001-05
El Ochito® *(1E1, 2E2, 3E3, 3E4, 4E5)*	-01	E6A326 (PIC)	858-003-01
	-02	RCN9047-26 (Gore)	858-016-01

* Refer to the RF Datalink & Contacts Catalog for detailed information

280-082P DIMENSIONS

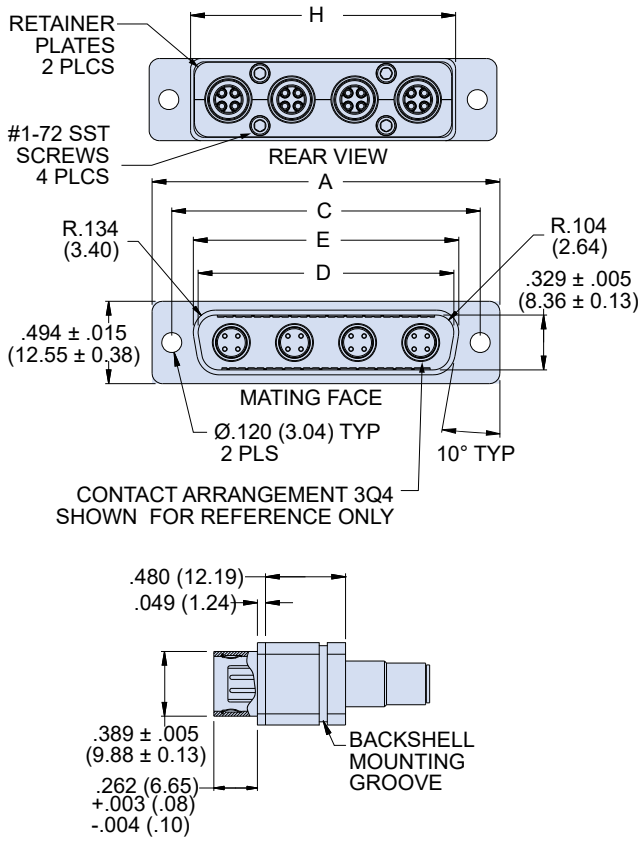
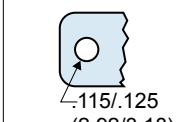
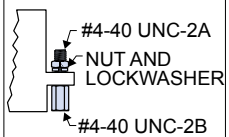
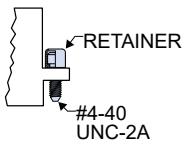
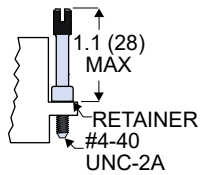
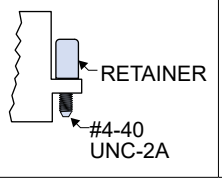
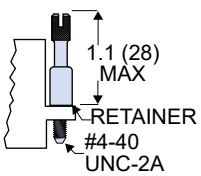


Table 3
Mating Hardware

N Thru-Hole, No Hardware	P Female Jackpost	L Captive Jackscrew, Hex Head, Low Profile
		
K Slot-Head Extended Jackscrew	**S** Captive Screwlock, Hex Head, Low Profile	**T** Slot-Head Extended Length, Screwlock
		

Dimensions

Shell Size	A		C Basic		D		E		H	
	In. ±.015	mm. ± 0.38			In. ±.005	mm. ± 0.13	In. ±.005	mm. ± 0.13	In. ±.005	mm. ± 0.13
1	1.213	30.81	0.984	24.99	0.666	16.92	0.726	18.44	0.745	18.92
2	1.541	39.14	1.312	33.32	0.994	25.25	1.054	26.77	1.075	27.31
3	2.088	53.04	1.852	47.04	1.534	38.96	1.594	40.49	1.615	41.02
4	2.729	69.32	2.500	63.50	2.182	55.42	2.242	56.95	2.260	57.40

NOTES

1. Connectors are supplied with unassembled contacts.
2. 280-082P pin connectors are intermateable with cable-mount 280-083S socket connectors and with 280-085S and 280-091S printed circuit board connectors.
3. When rear panel mounting, order connector without hardware (N option) and order jackpost kit 289-015 separately.
4. Connectors are compatible with HiPer-D® protective covers and 289T100 and 289T101 HiPer-D® backshells.

D

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Hi-Speed HiPer-D® Connectors

280-083S socket connector with for size 8 coax, twinax, quadrax and El Ochito® (octaxial) contacts



- **Rugged machined one-piece shell**
- **Coax, twinax, quadrax, and El Ochito® contacts**
- **Easy contact installation and removal**
- **Fits panel footprint of M24308 D-Sub products**

D

Technical Data

Specifications

- Operating temperature: -65 ºC. to +200 ºC.
- Durability: 500 mating cycles
- Shock: EIA-364-27 condition E
- Vibration: EIA-364-28 condition IV
- Humidity: EIA-364-31 condition 4
- Salt spray: EIA-364-26 condition B
- Maximum Mating Force:
  shell size 1: 10 lbs.
  shell size 2: 17 lbs.
  shell size 3: 28 lbs.
  shell size 4: 39 lbs.

Construction

- Shell: aluminum alloy
- Retainers: aluminum alloy
- Screws: stainless steel, passivated

The Hi-Speed HiPer-D® is a M24308-type connector with keyed cavities for size 8 coax, twinax, quadrax and El Ochito® contacts. The Hi-Speed HiPer-D® socket connector features a one piece machined aluminum shell. Easy contact installation and removal, no tool required. Aluminum retainers captivate contacts. Available with 1, 2, 3, 4 or 5 cavities, these connectors provide size and weight savings compared to circular connectors. Hi-Speed, HiPer-D® connectors fit standard M24308 panel cutouts. Hi-Speed HiPer-D® connectors are non-environmental.

Ordering Information

Sample Part Number	280-083S	4T5	MT	N	-01
Basic Part Number	**280-083S**				
Shell Size- Insert Arrangement	*See Table 1*				
Shell Finish *(See Section A for Additional Finishes)*	**ME** = Electroless Nickel **MT** = Nickel-PTFE **Z2** = Gold over Electroless Nickel **JF** = Yellow Chromate over Cadmium				
Mating Hardware *(See Table 3 for details)*	**N** = No Hardware (Through-Hole) **P** = #4-40 Female Jackpost **L** = Captive Jackscrew, Hex Head, Low Profile **K** = Slot Head Jackscrew, Extended Length **S** = Screwlock, Male, Hex Head, Low Profile **T** = Screwlock, Male, Slot Head, Extended Length				
Hi-Speed Contact Option	*See Table 2 for contact dash numbers. Omit if ordered less contacts.*				

Table 1
Shell Size – Insert Arrangement

Shell Size	No of Contacts	Coax	Differential Twinax	Concentric Twinax	Quadrax	Ochito (Octo-Ax)	Less Contacts
1	1	1C1	1D1	1T1	1Q1	1E1	1W1
2	2	2C2	2D2	2T2	2Q2	2E2	2W2
3	3	3C3	3D3	3T3	3Q3	3E3	3W3
3	4	3C4	3D4	3T4	3Q4	3E4	3W4
4	5	4C5	4D5	4T5	4Q5	4E5	4W5

Contact Arrangements



1Q1, 1T1, 1D1, 1C1, 1E1, 1W1

2Q2, 2T2, 2D2, 2C2, 2E2, 2W2

3Q3, 3T3, 3D3, 3C3, 3E3, 3W3

3Q4, 3T4, 3D4, 3C4, 3E4, 3W4

4Q5, 4T5, 4D5, 4C5, 4E5, 4W5

Cavity identification is shown for the mating face of pin connector.

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280-083S socket connector with size 8 coax, twinax, quadrax and El Ochito® (octaxial) contacts

Table 2
Size 8 Pin Contacts for 280-083S Connectors

Contact Type	Dash No.	Cable Type	Ref. Contact Part Nmber
Coax *(1C1, 2C2, 3C3, 3C4, 4C5)*	-01	RG316DS	852-111-01
	-02	RG316	852-111-02
	-03	RG142, RG400	852-111-03
Concentric Twinax *(1T1, 2T2, 3T3, 3T4, 4T5)*	-01	0024A0024 (TE) GSC-03-81416-00 (Gore)	853-012
	-02	M17/176-00002	853-004-08-628
Differential Twinax *(1D1, 2D2, 3D3, 3D4, 4D5)*	-01	RCN8945 (Gore)	853-013-01
	-02	GSC-03-83971-00 (Gore)	853-013-02
	-03	10612 (TE)	853-013-03
	-04	0024A0024 (TE)	853-013-04
	-05	M17/176-00002 5M2022-003	853-013-05
	-06	1350SB (Belden)	853-013-06
	-07	2525B0524 (TE)	853-013-07
Quadrax *(1Q1, 2Q2, 3Q3, 3Q4, 4Q5)*	-01	NF26Q100-01 (Carlisle)	854-002-01
	-02	E51424 (PIC) NF24Q100-01 (Carlisle)	854-002-02
	-03	NF26Q100-01 (Carlisle) E51426 (PIC)	854-002-03
	-04	F 4704-4 (Draka) E50424 (PIC)	854-002-04
	-05	NF22Q100-01 (Carlisle)	854-002-05
El Ochito® *(1E1, 2E2, 3E3, 3E4, 4E5)*	-01	E6A326 (PIC)	858-003-01
	-02	RCN9047-26 (Gore)	858-017-01

* Refer to the RF Datalink & Contacts Catalog for detailed information

280-083S DIMENSIONS

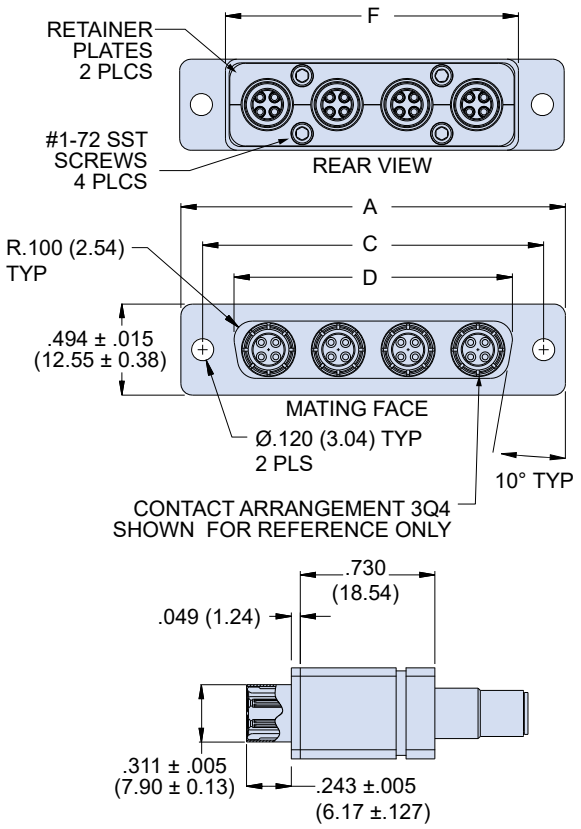
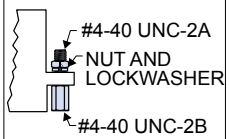
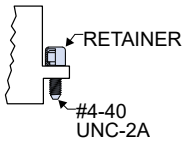
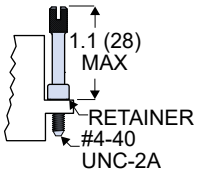
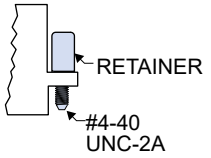
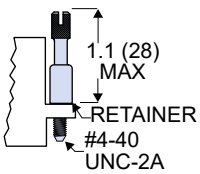


Table 3
Mating Hardware

N Thru-Hole, No Hardware	P Female Jackpost	L Captive Jackscrew, Hex Head, Low Profile
		
K Slot-Head Extended Jackscrew	**S** Captive Screwlock, Hex Head, Low Profile	**T** Slot-Head Extended Length, Screwlock
		

Dimensions

Shell Size	A		C Basic		D		F	
	In. ±.015	mm. ± 0.38			In. ±.003	mm. ± 0.08	In. ±.005	mm. ± 0.13
1	1.213	30.81	.984	24.99	.643	16.33	.745	18.92
2	1.541	39.14	1.312	33.32	.971	24.66	1.075	27.31
3	2.088	53.04	1.852	47.04	1.511	38.38	1.615	41.02
4	2.729	69.32	2.500	63.50	2.159	54.84	2.260	57.40

NOTES

1. Connectors are supplied with unassembled contacts.
2. 280-083S socket connectors are intermateable with cable-mount 280-082P pin connectors and with 280-084P and 280-090P printed circuit board connectors.
3. When rear panel mounting, order connector without hardware (N option) and order jackpost kit 289-015 separately.
4. Connectors are compatible with HiPer-D® protective covers and 289T100 and 289T101 HiPer-D® backshells.

D

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SPEEDMASTER™



NEXT-GENERATION

SpeedMaster™ 10G

High-speed, repairable IFEC connection system

Newly developed SpeedMaster™ 10G is purpose-designed to meet the performance requirements and installation/use preferences of aerospace industry IFEC manufacturers. Optimized for high-speed Cat 6A Ethernet performance, the SpeedMaster™ 10G system offers industry-leading NEXT, return loss and insertion loss performance due to its highly-engineered isolation and separation architecture. Easy to assemble, terminate, install and repair, the SpeedMaster™ 10G utilizes size #22D contacts, tools, and cable, and meets the broad range of aerospace industry requirements for vibration, temperature cycling, durability, and safety performance.

- **Utilizes aerospace industry standard #22D contacts, tools and widely available Ethernet flight cable**
- **Fast, easy termination**
- **Significant weight reduction compared to Quadrax solutions (reduces cable requirement by ½)**
- **High-density, repairable solution—ideally suited for today's networked IFEC environments**



Mighty Mouse Locking Push/Pull Plug and Receptacle



HiPer-D Rectangular (M24308)



SuperNine® Plug and Receptacle

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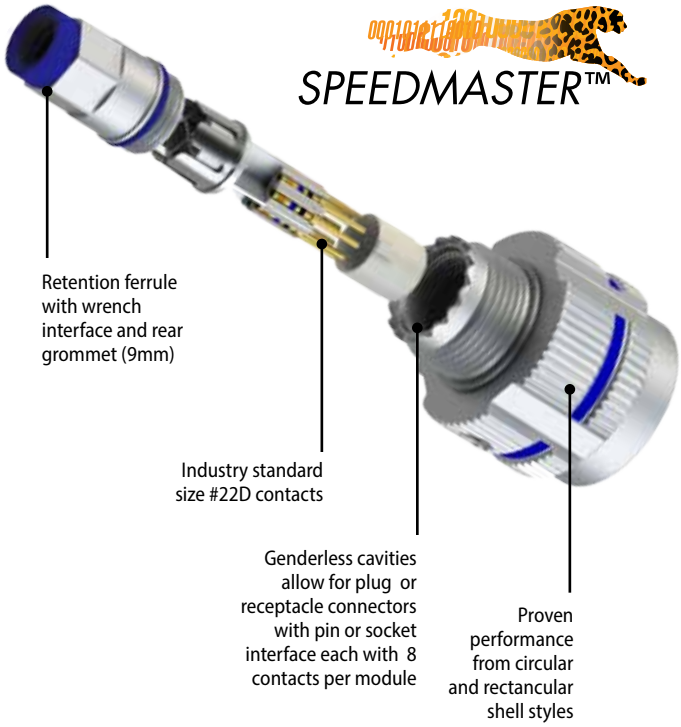
Hi-Speed HiPer-D® Connectors

Repairable IFEC 10G Connection System



The SpeedMaster™ Difference

SpeedMaster™ the high-speed multi-contact solution for the Mighty Mouse, HiPer-D, SuperNine 38999 type family of connectors. Each SpeedMaster™ module consists of 4 pairs of pins or sockets incorporating industry standard, size 22D contacts to provide 10G performance. Contacts are crimp terminated for easy replacement. Each module is individually sealed within the shell, and retained in place with a threaded ferrule. Additionally, module cavities are genderless allowing a pin or socket interface for plugs or receptacles. These features result in a two fold benefit. An easily removable and repairable contact makes this high-performance, robust connector an excellent choice for reducing network downtime and improving overall network performance. Additionally Glenair offers this robost connector in 3 connector packages, including our small form factor Mighty Mouse Series 824 Locking Push / Pull, HiPer-D (M24308) rectangular D-Sub, and our 38999 type "better than QPL" connectors allowing you to custom fit your application needs. Meet the demand for next generation IFEC networks with SpeedMaster™, the next generation contact system from Glenair.

D

SPEEDMASTER™ 10G NEXT-GENERATION IFEC CONNECTION SYSTEM



SpeedMaster™ 10G modular inserts are available for Series 23 SuperNine – 38999, Series 80 Mighty Mouse – Locking Push / Pull and Series 28 HiPer-D – M24308 rectangular D-Sub connectors



The SpeedMaster™ 10G is optimized for high-speed / Ethernet performance and incorporates standard M39029 #22D contacts isolated for superior NEXT, return loss and insertion loss performance

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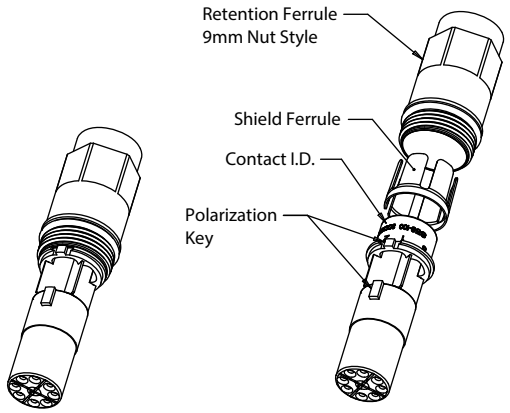
Hi-Speed HiPer-D® Connectors

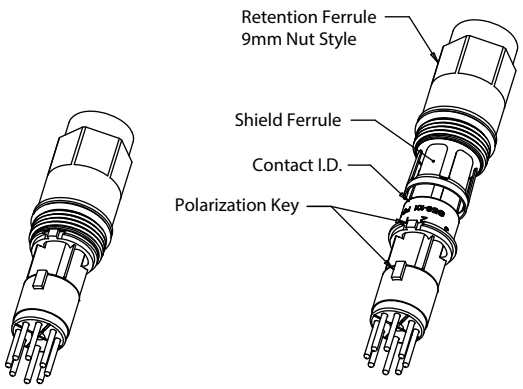
858-100 and 858-101, SpeedMaster™ 10GBase-T Cat 6a Contacts

858-100 SPEEDMASTER™ SOCKET MODULE



858	-100	-1
Product Code	Basic No	See Cable Size Table

858-101 SPEEDMASTER™ PIN MODULE

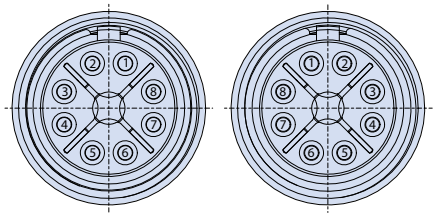


858	-101	-1
Product Code	Basic No	See Cable Size Table

D

Cable Size	
Cable Size	Cable Ø
1	.280 (7.11)
2	.270 (6.86)
3	.260 (6.60)
4	.250 (6.35)
5	.240 (6.10)
6	.230 (5.84)
7	.220 (5.59)

Speedmaster™ Module Inner Contact Pinout



Pin Out	
Location	Color
1	Orng/Wht
2	Orange
3	Blu/Wht
4	Blue
5	Brwn/Wht
6	Brown
7	Grn/White
8	Green

SPEEDMASTER™ MODULE MATERIAL/FINISH

1. **IMPORTANT: SpeedMaster™ high-speed modules are only designed to be installed in "Glenair SpeedMaster™ series connectors.**
2. High-speed module is designed to accommodate cable with wire insulation up to Ø.055 inches and cable jackets up to Ø.280 inches. See cables table for suggest list.
3. For cables in-between sizes, select smaller size.
4. See AI85082 for assembly instructions
5. Tools Needed:
   - M39029/57-354 contacts:
     Basic tool M22520/2-01 (Glenair P/N 809-015
     Positioner, Daniels PN K41 (Glenair P/N 859-019)
6. Material/Finish
   - Isolator body - copper alloy / electroless nickel.
   - Contacts - copper alloy / gold plated
   - Retention ferrule - copper alloy / electroless nickel.
   - Inner shield ferrule: copper alloy / electroless nickel.
   - Insulators - rigid dielectric / N.A.
   - O-rings/grommets - fluorosilicone blend / N.A

Cables*					
Cable P/N	Cable Category	Cable Construction	Wire Gage	Cable Ø	Assembly Instructions
963-003-24	CAT 6A	SF/UTP	24	.280 (7.11)	AI85082
963-003-26	CAT 6A	SF/UTP	26	.220 (5.59)	
963-037	CAT 6A	SF/UTP	24	.260 (6.60)	
963-038	CAT 6A	SF/UTP	24	.270 (6.86)	

*Consult factory for use with other cable

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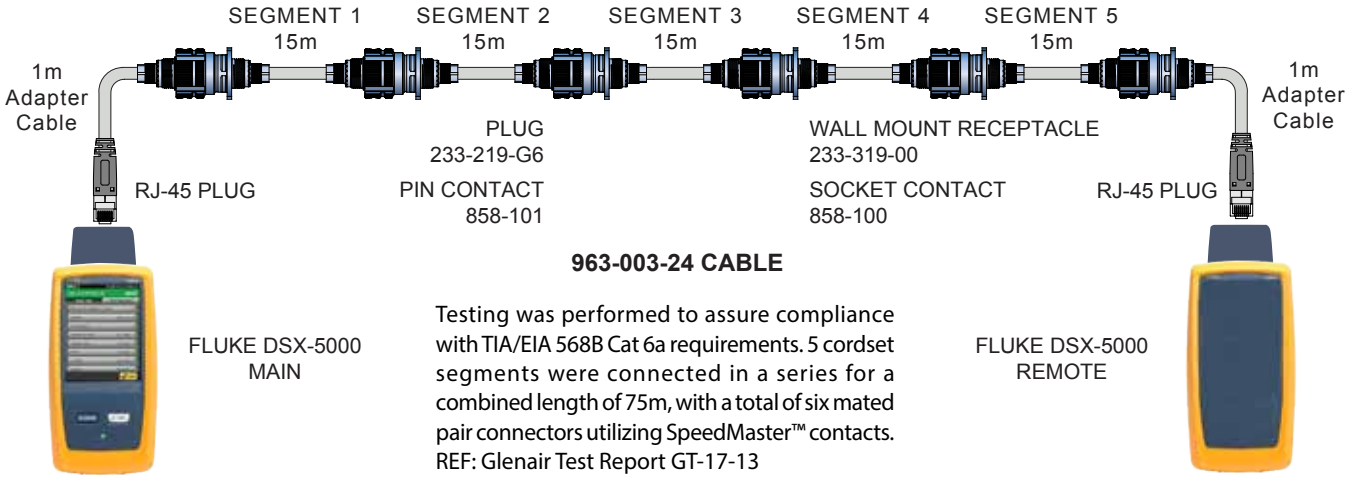
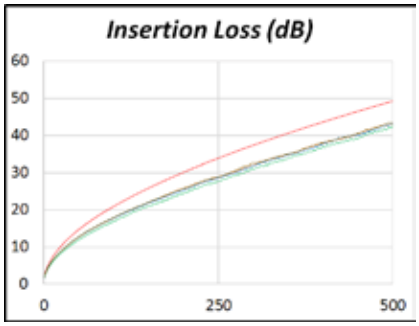
Hi-Speed HiPer-D® Connectors

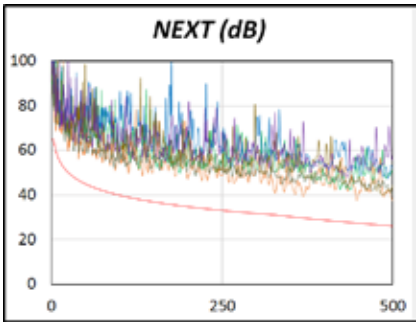
10GBase-T Cat 6A Compliance Testing Contacts

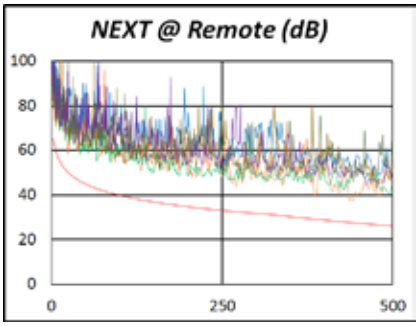


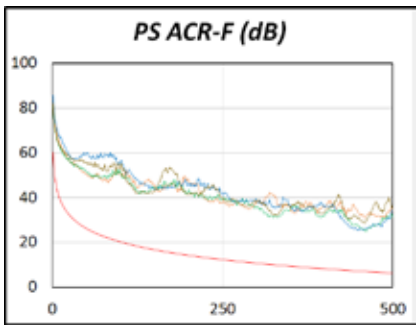
963-003-24 CABLE

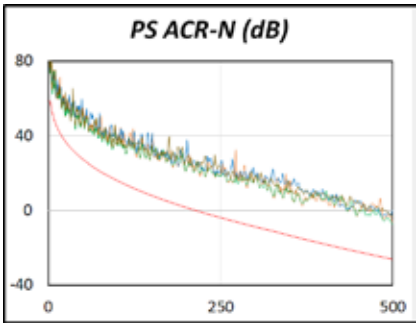
Testing was performed to assure compliance with TIA/EIA 568B Cat 6a requirements. 5 cordset segments were connected in a series for a combined length of 75m, with a total of six mated pair connectors utilizing SpeedMaster™ contacts. REF: Glenair Test Report GT-17-13

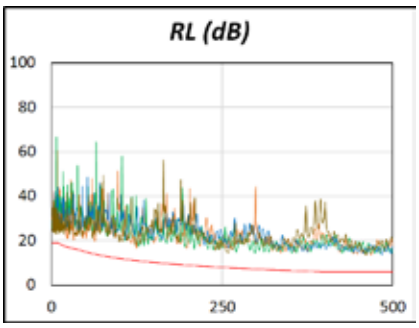


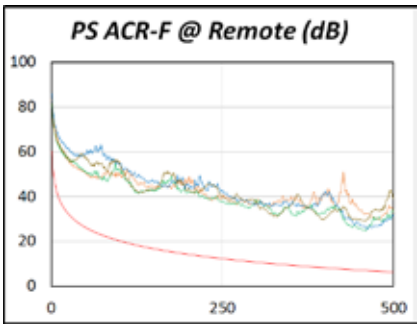


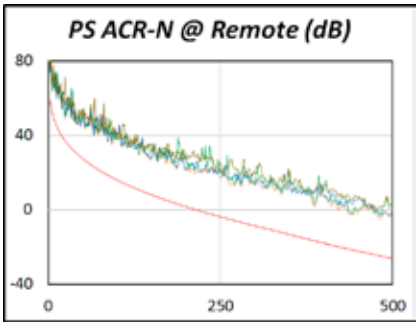


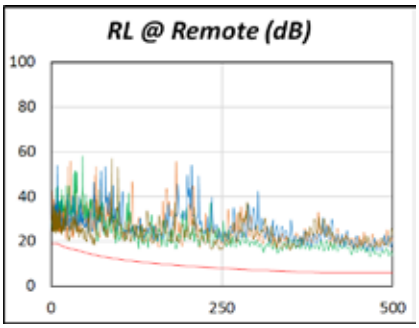












D

Hi-Speed HiPer-D® Connectors

280-101M plug or 280-098F receptacle, in-line connectors with SpeedMaster 10G contact modules

Part Number Development						
Sample Part Number	**280-101M**	**4**	**P**	**MT**	**N**	**-1**

Series	**280-101M** = In-line cable plug **280-098F** = In-line cable receptacle
Cavity Count	**2** = 2 Cavities **4** = 4 Cavities
Module Type	**P** = Pin **S** = Socket
Material and Finish	**NF** = Aluminum alloy / Cadmium olive drab over electroless nickel **MT** = Aluminum alloy / nickel-PTFE **ME** = Aluminum alloy / electroless nickel **ZR** = Aluminum alloy / zinc nickel black RoHs compliant
Hardware Options	**N, P, L, K, S, T**
Cable Size	See cable size table



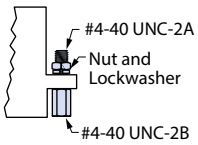


Cables*					
Cable P/N	**Cable Category**	**Cable Construction**	**Wire Gage**	**Cable Dia.**	**Assembly Instructions**
963-003-24	CAT 6A	SF/UTP	24	.280 (7.11)	AI85082
963-003-26	CAT 6A	SF/UTP	26	.220 (5.59)	
963-037	CAT 6A	SF/UTP	24	.260 (6.60)	
963-038	CAT 6A	SF/UTP	24	.270 (6.86)	

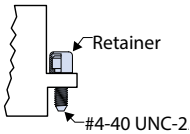
*Contact factory to inquire about use with other cables

Mating Hardware

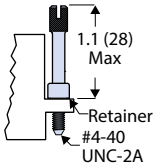
P — Female Jackpost



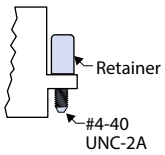
L — Captive Jackscrew, Hex Head, Low Profile



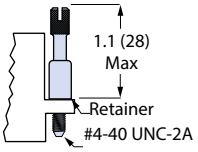
K — Slot-Head Extended Jackscrew



S — Captive Screwlock, Hex Head, Low Profile



T — Slot-Head Extended Length, Screwlock



Cable Size	
Cable Size	**Cable Diameter**
1	.280 (7.11)
2	.274 (6.96)
3	.260 (6.60)
4	.250 (6.35)
5	.240 (6.10)
6	.230 (5.84)
7	.220 (5.59)

NOTES

1. Spare high-speed modules (858-100, 858-101) may be ordered separately. Module wrench tool (607-011) supplied with each connector.
2. See Assembly instructions AI 85082 for high-speed module terminations. See assembly instructions AI85089 for module installation.
3. See page 6 for SpeedMaster™ module inner contact pinout
4. For cables in-between sizes, select smaller size. Maximum cable diameter is .280 (7.11)
5. Material / Finish:
   - Shells: see part number development table
   - Hardware: stainless steel - passivated
   - Grounding spring: BeCu alloy / electroless nickel
   - Seals, o-ring: fluorosilicone blend / N.A.

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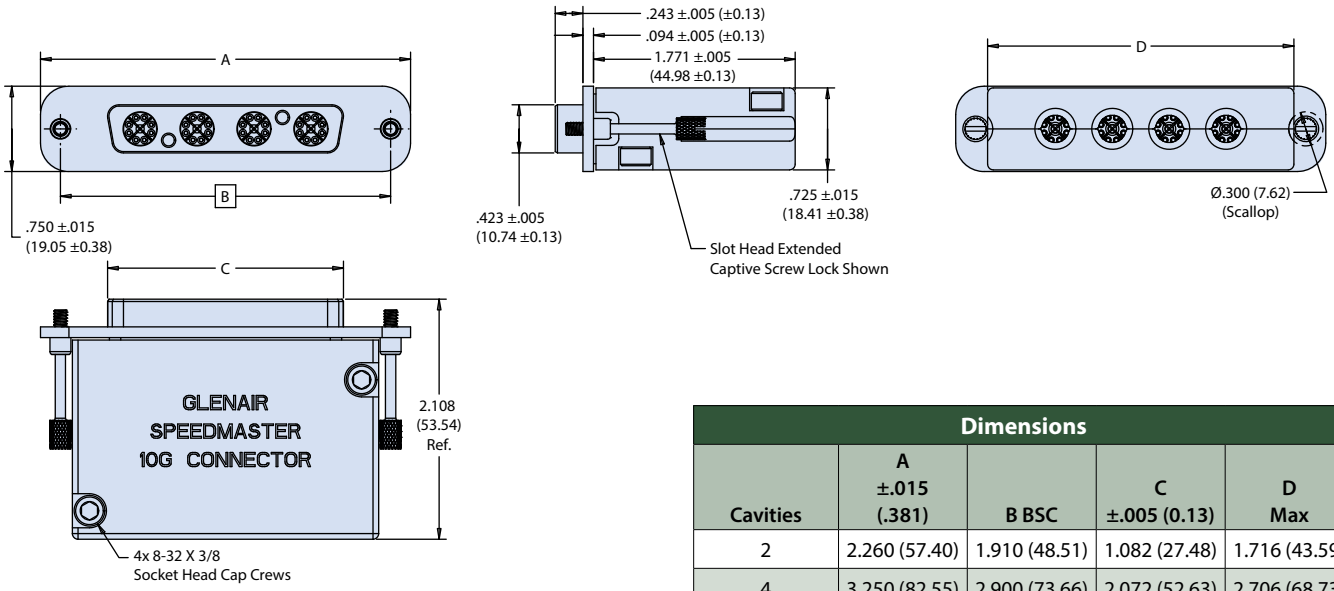
Hi-Speed HiPer-D® Connectors

280-101M plug or 280-098F receptacle, in-line connectors with SpeedMaster 10G contact modules

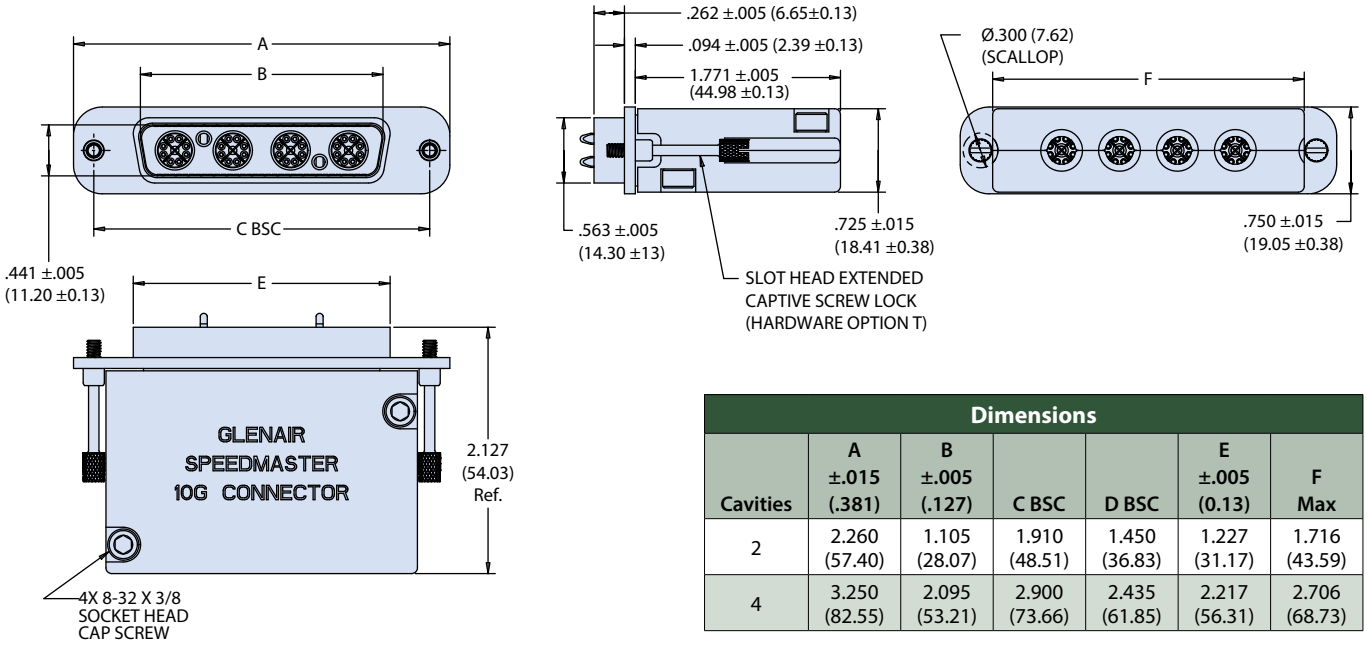
280-101 HIPER-D™ IN-LINE CONNECTOR, RECEPTACLE



Dimensions				
Cavities	A ±.015 (.381)	B BSC	C ±.005 (0.13)	D Max
2	2.260 (57.40)	1.910 (48.51)	1.082 (27.48)	1.716 (43.59)
4	3.250 (82.55)	2.900 (73.66)	2.072 (52.63)	2.706 (68.73)

D

280-098 HIPER-D™ IN-LINE CONNECTOR , PLUG



Dimensions						
Cavities	A ±.015 (.381)	B ±.005 (.127)	C BSC	D BSC	E ±.005 (0.13)	F Max
2	2.260 (57.40)	1.105 (28.07)	1.910 (48.51)	1.450 (36.83)	1.227 (31.17)	1.716 (43.59)
4	3.250 (82.55)	2.095 (53.21)	2.900 (73.66)	2.435 (61.85)	2.217 (56.31)	2.706 (68.73)

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Hi-Speed HiPer-D® Connectors

280-102M plug or 280-099F receptacle, rear panel mount connectors with SpeedMaster 10G contact modules

Part Number Development						
Sample Part Number	**280-102M**	**4**	**P**	**MT**	**P**	**-1**

Series	**280-102M** = rear panel mount plug **280-099F** = rear panel mount receptacle
Cavity Count	**2** = 2 Cavities **4** = 4 Cavities
Module Type	**P** = Pin **S** = Socket
Material and Finish	**NF** = Aluminum alloy / Cadmium olive drab over electroless nickel **MT** = Aluminum alloy / nickel-PTFE **ME** = Aluminum alloy / electroless nickel **ZR** = Aluminum alloy / zinc nickel black RoHs compliant
Hardware Options	**P** = Female jackpost
Cable Size	See cable size table

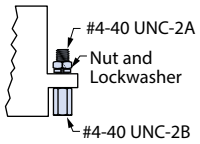




D

Mating Hardware

P
Female Jackpost



Cable Size

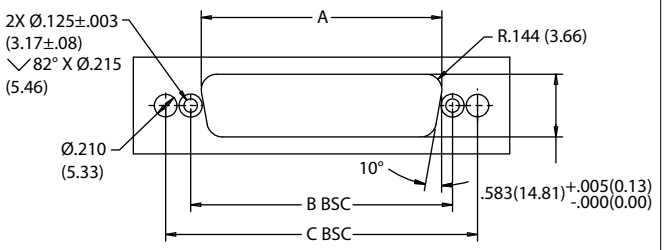
Cable Size	Cable Diameter
1	.280 (7.11)
2	.274 (6.96)
3	.260 (6.60)
4	.250 (6.35)
5	.240 (6.10)
6	.230 (5.84)
7	.220 (5.59)

Cables*

Cable P/N	Cable Category	Cable Construction	Wire Gage	Cable Dia.	Assembly Instructions
963-003-24	CAT 6A	SF/UTP	24	.280 (7.11)	AI85082
963-003-26	CAT 6A	SF/UTP	26	.220 (5.59)	
963-037	CAT 6A	SF/UTP	24	.260 (6.60)	
963-038	CAT 6A	SF/UTP	24	.270 (6.86)	

*Contact factory to inquire about use with other cables

Panel Cut-Out Dimensions



Cavities	A +.005 (.13) -.000 (.00)	B BSC	C BSC
2	1.247 (31.67)	1.450 (36.83)	1.910 (48.51)
4	2.237 (56.82)	2.435 (61.85)	2.900 (73.66)

NOTES

1. Spare high-speed modules (858-100, 858-101) may be ordered separately. Module wrench tool (607-011) supplied with each connector.
2. See Assembly instructions AI 85082 for high-speed module terminations. See assembly instructions AI85089 for module installation.
3. See page 6 for SpeedMaster™ module inner contact pinout
4. For cables in-between sizes, select smaller size. Maximum cable diameter is .280 (7.11)
5. Material / Finish:
   - Shells: part number development table
   - Hardware: stainless steel - passivated
   - Grounding spring: BeCu alloy / electroless nickel
   - Seals, o-ring: fluorosilicone blend / N.A.

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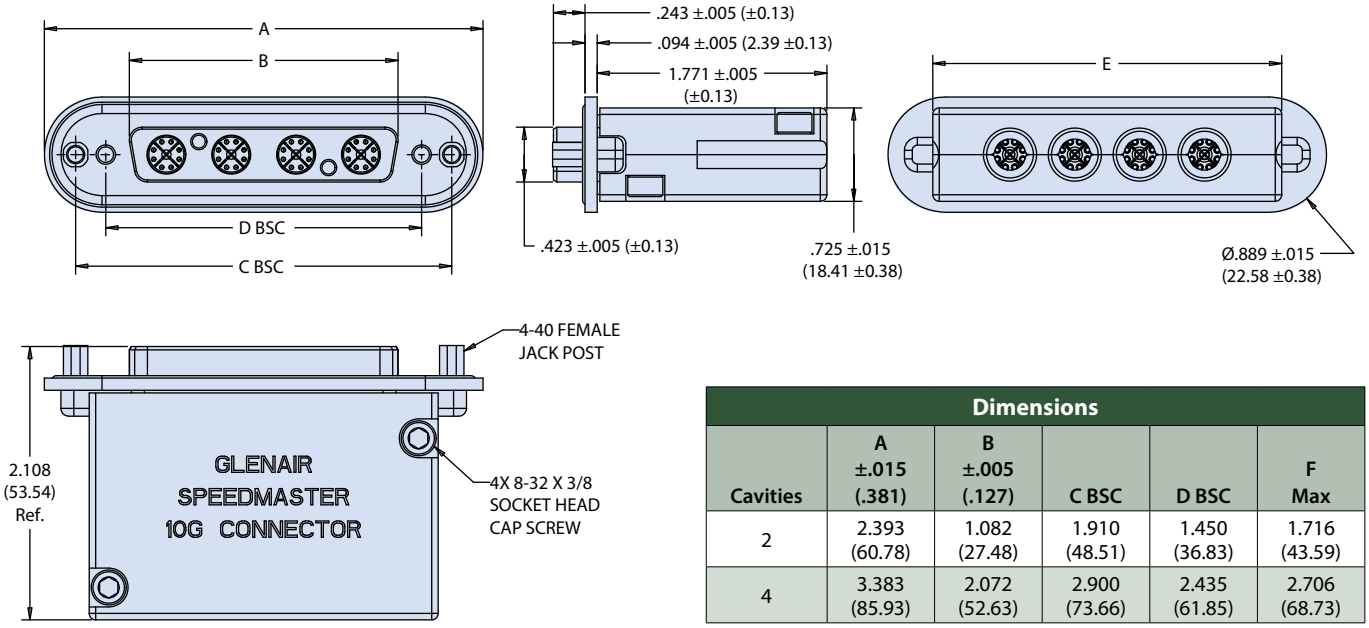
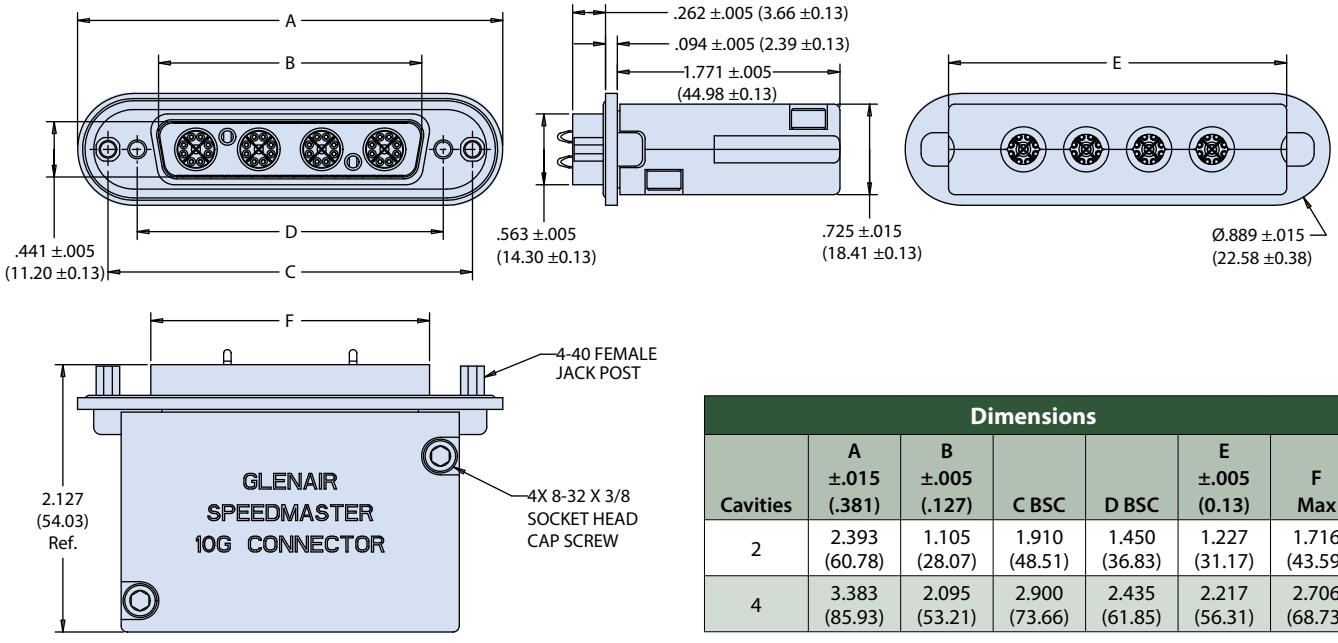
280-102M plug or 280-099F receptacle, rear panel mount connectors with SpeedMaster 10G contact modules

280-102 HIPER-D™ REAR PANEL MOUNT CONNECTOR , PLUG



Dimensions					
Cavities	A ±.015 (.381)	B ±.005 (.127)	C BSC	D BSC	F Max
2	2.393 (60.78)	1.082 (27.48)	1.910 (48.51)	1.450 (36.83)	1.716 (43.59)
4	3.383 (85.93)	2.072 (52.63)	2.900 (73.66)	2.435 (61.85)	2.706 (68.73)

280-099 HIPER-D™ REAR PANEL MOUNT CONNECTOR, RECEPTACLE



Dimensions						
Cavities	A ±.015 (.381)	B ±.005 (.127)	C BSC	D BSC	E ±.005 (0.13)	F Max
2	2.393 (60.78)	1.105 (28.07)	1.910 (48.51)	1.450 (36.83)	1.227 (31.17)	1.716 (43.59)
4	3.383 (85.93)	2.095 (53.21)	2.900 (73.66)	2.435 (61.85)	2.217 (56.31)	2.706 (68.73)

D

Hi-Speed HiPer-D® Connectors

280-103M plug or 280-100F receptacle, float mount connectors with SpeedMaster 10G contact modules

Part Number Development						
Sample Part Number	**280-103M**	**4**	**P**	**MT**	**N**	**-1**

Series	**280-103M** = Float mount plug **280-100F** = Float mount receptacle
Cavity Count	**2** = 2 Cavities **4** = 4 Cavities
Module Type	**P** = Pin **S** = Socket
Material and Finish	**NF** = Aluminum alloy / Cadmium olive drab over electroless nickel **MT** = Aluminum alloy / nickel-PTFE **ME** = Aluminum alloy / electroless nickel **ZR** = Aluminum alloy / zinc nickel black RoHs compliant
Hardware Options	**N** = No hardware
Cable Size	See cable size table



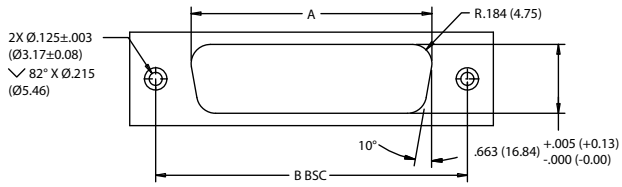


Cable Size	
Cable Size	**Cable Diameter**
1	.280 (7.11)
2	.274 (6.96)
3	.260 (6.60)
4	.250 (6.35)
5	.240 (6.10)
6	.230 (5.84)
7	.220 (5.59)

Cables*					
Cable P/N	**Cable Category**	**Cable Construction**	**Wire Gage**	**Cable Dia.**	**Assembly Instructions**
963-003-24	CAT 6A	SF/UTP	24	.280 (7.11)	AI85082
963-003-26	CAT 6A	SF/UTP	26	.220 (5.59)	
963-037	CAT 6A	SF/UTP	24	.260 (6.60)	
963-038	CAT 6A	SF/UTP	24	.270 (6.86)	

*Contact factory to inquire about use with other cables

Panel Cut-Out Dimensions



Cavities	A +.005 (+0.13) -.000 (-.00)	B BSC
2	1.327 (33.71)	2.010 (51.05)
4	2.317 (58.85)	3.000 (76.20)

NOTES

1. Spare high-speed modules (858-100, 858-101) may be ordered separately. Module wrench tool (607-011) supplied with each connector.
2. See Assembly instructions AI 85082 for high-speed module terminations. See assembly instructions AI85089 for module installation.
3. See page 6 for SpeedMaster™ module inner contact pinout
4. For cables in-between sizes, select smaller size. Maximum cable diameter is .280 (7.11)
5. Material / Finish:
   - Shells: part number development table
   - Hardware: stainless steel - passivated
   - Grounding spring: BeCu alloy / electroless nickel
   - Seals, o-ring: fluorosilicone blend / N.A.

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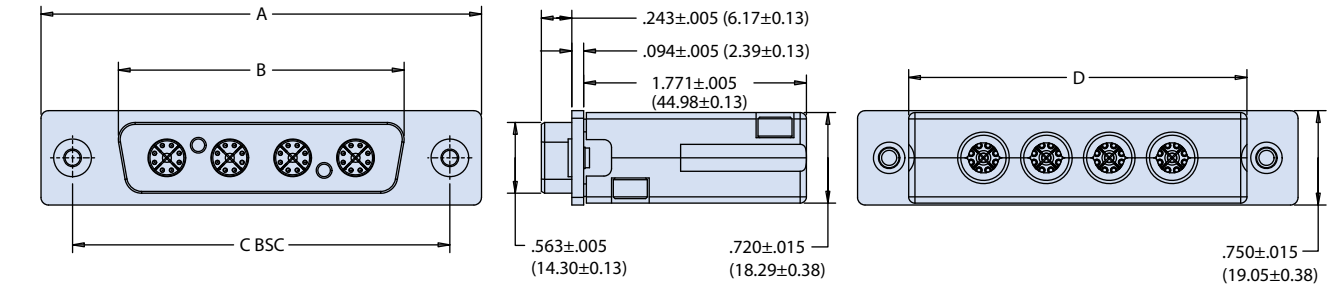
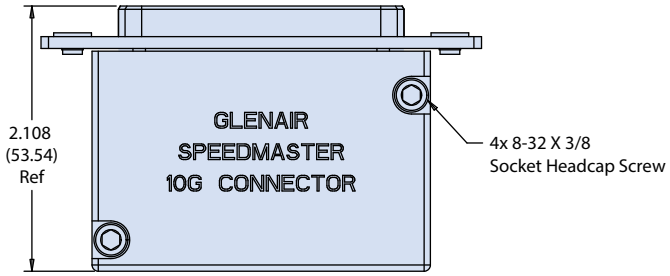
Hi-Speed HiPer-D® Connectors

280-103M plug or 280-100F receptacle, float mount connectors with SpeedMaster 10G contact modules

280-103 HIPER-D™ FLOAT MOUNT CONNECTOR , PLUG

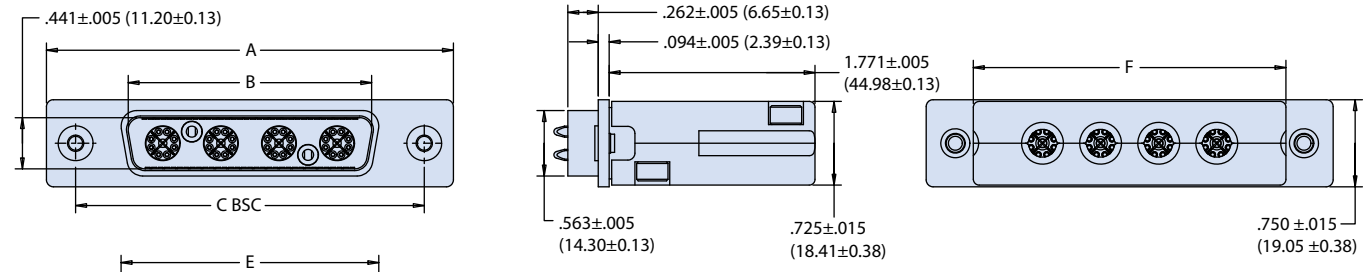


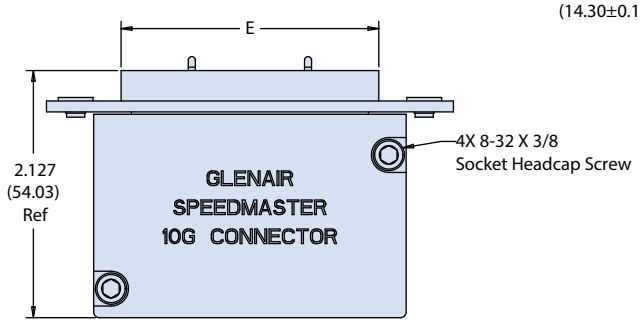


Dimensions				
Cavities	A ±.015 (.381)	B ±.005 (.127)	C BSC	D Max
2	2.512 (63.80)	1.227 (31.17)	2.010 (51.05)	1.716 (43.59)
4	3.502 (88.95)	2.217 (56.31)	3.000 (76.20)	2.706 (68.73)

D

280-100 HIPER-D™ FLOAT MOUNT CONNECTOR, RECEPTACLE





Dimensions						
Cavities	A ±.015 (.381)	B ±.005 (.127)	C BSC	D BSC	E ±.005 (0.13)	F Max
2	2.512 (63.80)	1.105 (28.07)	2.010 (51.05)	1.450 (36.83)	1.227 (31.17)	1.716 (43.59)
4	3.502 (88.95)	2.095 (53.21)	3.000 (76.20)	2.435 (61.85)	2.217 (56.31)	2.706 (68.73)

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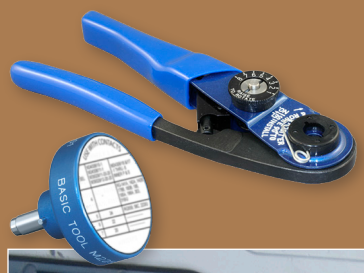
SERIES 28
CONTACTS AND CRIMP TOOLS

HiPer-D Accessories

Installation and removal tools for size #8 high-speed data and size #20 signal and power contacts





Glenair offers Mil-Spec M24308 rectangular connector compliant contacts and the tools neccessary to properly terminate, maintain, and replace them. Our high availablity business model ensures contacts are always in stock, helping you avoid costly equipment downtime – with no dollar or quantity minimums. In addition to the broadest selection and availability, Glenair also delivers outstanding interconnection compatibility. Glenair QPL SAEAS39029 contacts are guaranteed to mate properly and perform at the upper limits of application and specification requirements.



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SERIES 28

HiPer-D® Contacts and Tools

Product Selection Guide



#20 Contacts E-2

Crimp contacts for standard HiPer-D® connectors



#22 Contacts E-3

Crimp contacts for high density HiPer-D® connectors



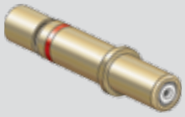
#8 Power Contacts for Combo HiPer-D® E-4

Crimp contacts for AWG #12 and #16 wire



50 Ohm Coax Contacts for Combo HiPer-D® E-5

Size #8 50 ohm coax contacts for RG316 and RG178 cable



75 Ohm Coax Contacts and Cable for Combo HiPer-D® E-6

75 ohm coax contacts for RG179, RS170 and SMPTE 292M applications



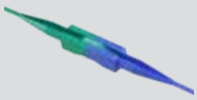
High Frequency 50 Ohm Coax Contacts for Combo HiPer-D® E-8

50 ohm coax contacts for M17/133-RG405 equivalent flexible cable



Crimp Tools E-9

Crimp tools for terminating #20, #22 and #8 power and #8 coax contacts



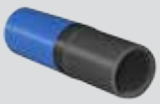
Contact Insertion and Removal Tools E-10

Plastic tools for inserting and extracting #8, #20 and #22 contacts



Grommet Sealing Plugs E-10

MS27488 hole filler plugs for unused connector cavities



Sealing Boot E-10

Sealing boot for #8 combo HiPer-D® contacts

E

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HiPer-D® Contacts and Tools

#20 crimp contacts for standard HiPer-D® connectors

#20 CRIMP CONTACTS



Fig. 1
Pin Contact



Fig. 2
Socket Contact

#20 contacts accept #20 to #24 AWG wire. These gold-plated copper alloy contacts meet the requirements of SAE AS39029. Use with all Series 28 HiPer-D® crimp connectors with size #20 cavities.

Contact Type	Fig.	Wire Size	Part Number	M39029 Part Number
Pin	*1*	#20-24	**850-022-20-369**	**M39029/64-369**
Socket	*2*	#20-24	**850-021-20-368**	**M39029/63-368**

Material and Finish

Copper alloy, 50-100 microinches gold plated per ASTM B488 Type II Code C Class 1,27 over nickel plate per QQ-N-290 Class 2, 50-150 microinches.
Socket contact hood: 305 CRES, passivated.

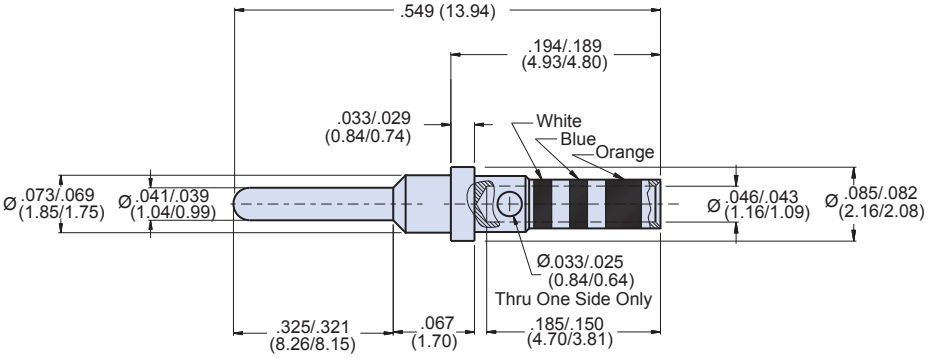
Specifications

AWG Wire Accommodation: #20 - #24
Current Rating: 7.5 Amps maximum
Voltage Drop (at 7.5 Amps and 25° C, #20AWG silver-plated wire): 55 millivolts maximum
Temperature Range: -65° to + 200° C.
Socket Min. Separation Force : 0.7 ounces
See SAE AS39029 for additional electrical, mechanical and environmental specifications.

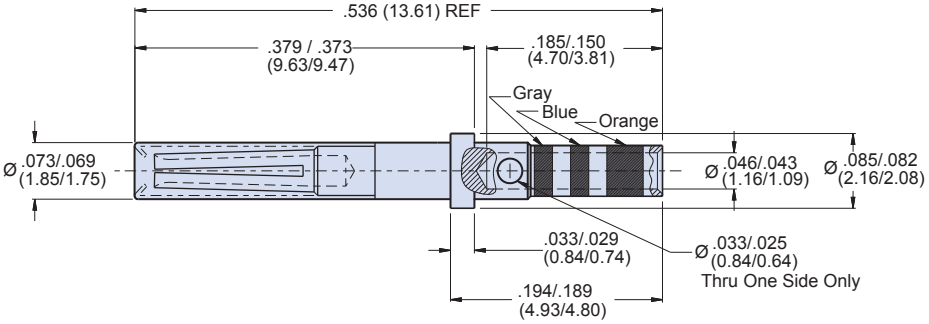
Crimp Tools and Insertion/ Removal Tools

Crimper: 809-015 (M22520/2-01)
Positioner: 859-016 (M22520/2-08)
Insertion/Removal Tool: 859-017 (M81969/39-01)

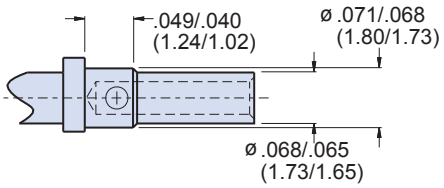
Crimp Tensile Strength Axial load in minimum pounds.		
Wire Gage	Silver or Tin Coated Copper Wire	Nickel Coated Copper Wire
#20	20	19
#22	12	8
#24	8	6



Pin Contact



Socket Contact



Pin and Socket Crimp Barrel Dimensions

E

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HiPer-D® Contacts and Tools

#22 crimp contacts for high density HiPer-D® connectors

#22 CRIMP CONTACTS



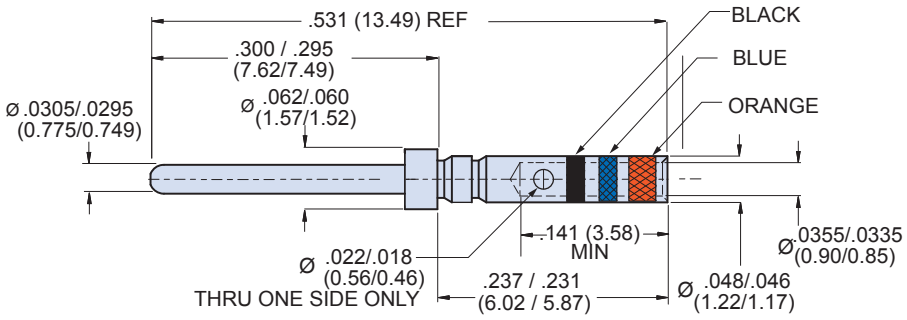
Fig. 1
Pin Contact



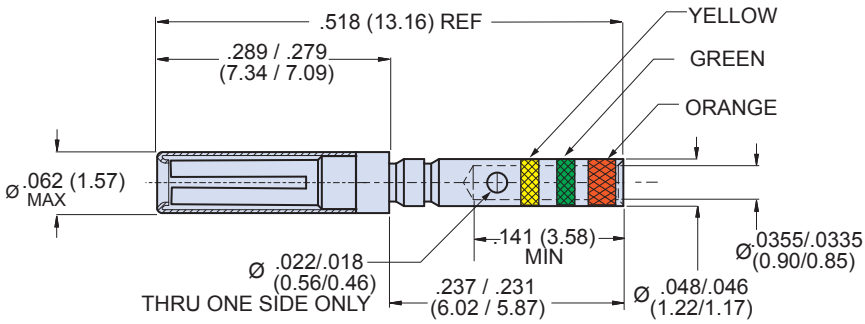
Fig. 2
Socket Contact

#22 contacts accept #22 to #28 AWG wire. These gold-plated copper alloy contacts meet the requirements of SAE AS39029. Use with all Series 28 HiPer-D® crimp connectors with size #22 cavities.

Contact Type	Fig.	Wire Size	Part Number	M39029 Part Number
Pin	*1*	#22-28	850-002-22-360	M39029/58-360
Socket	*2*	#22-28	850-003-22-354	M39029/57-354



Pin Contact



Socket Contact

Material and Finish

Copper alloy, 50-100 microinches gold plated per ASTM B488 Type II Code C Class 1,27 over nickel plate per QQ-N-290 Class 2, 50-150 microinches.
Socket contact hood: 305 CRES, passivated.

Specifications

AWG Wire Accommodation: #22 - #28
Current Rating: 5 Amps maximum
Voltage Drop (at 5 Amps and 25° C, #22 AWG silver-plated wire): 73 mV. maximum
Temperature Range: -65° to + 200° C.
Socket Minimum Sep. Force: 0.7 ounces
See SAE AS39029 for additional electrical, mechanical and environmental specifications.

Crimp Tools and Insertion/ Removal Tools

Crimper: 809-015 (M22520/2-01)
Positioner: Pin 859-018 (M22520/2-09)
Socket 859-019 (M22520/2-06)
Insertion/Removal Tool:
859-020 (M81969/14-01)

Crimp Tensile Strength Axial load in minimum pounds.		
Wire Gage	Silver or Tin Coated Copper Wire	Nickel Coated Copper Wire
#22	12	8
#24	8	6
#26	5	3
#28	3	2

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HiPer-D® Contacts and Tools

#8 power contacts for combo HiPer-D® connectors

#8 POWER CONTACTS FOR COMBO HIPER-D CONNECTORS

These size #8 contacts snap into Glenair combo HiPer-D® size #8 cavities and can be removed with a plastic extraction tool. Crimp termination. Two sizes are available, #0812 for AWG 12-14 wire, and #0816 for AWG 16-18 wire. Gold plated copper alloy, 1000 VAC DWV rating, 23 amp current rating. Optional sealing boot prevents moisture ingress. ***Intermateable with standard D-Subminiature size #8 power contacts.***



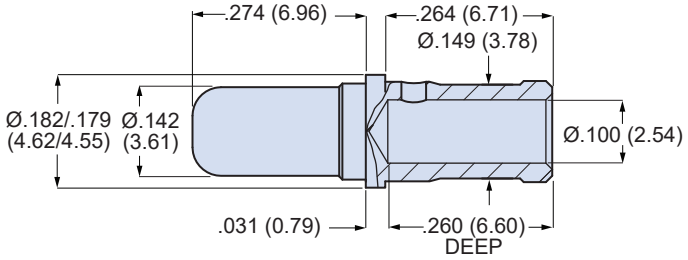
Fig. 1
Pin Contact
850-056



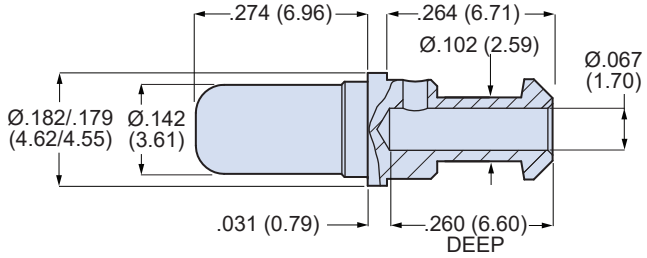
Fig. 2
Socket Contact
850-057

Fig.	Contact Type	Current Rating	AWG Wire Size	Part Number Contact Only	Part Number Contact and Sealing Boot
1	Pin	23 amp	#12, #14	850-056-0812	850-056-0812F
		13 amp	#16, #18	850-056-0816	850-056-0816F
2	Socket	23 amp	#12, #14	850-057-0812	850-057-0812F
		13 amp	#16, #18	850-057-0816	850-057-0816F

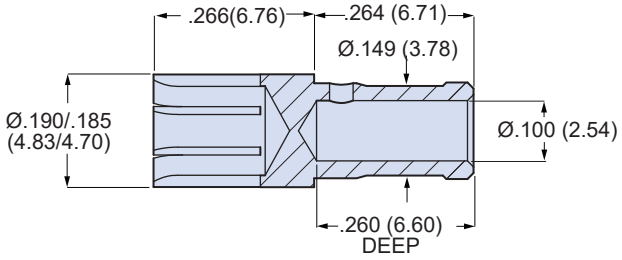
Pin Contact
850-056-0812



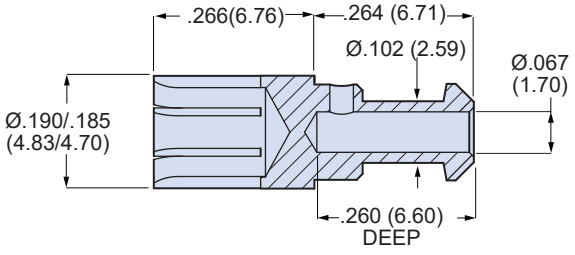
Pin Contact
850-056-0816



Socket Contact
850-057-0812



Socket Contact
850-057-0816



Material and Finish

Contact: Copper alloy, 50 microinches gold over nickel.

Sealing Boot: Thermoplastic and Fluorosilicone

Specifications

Current Rating: 23 Amps

Voltage Drop: 26 millivolts maximum (12 awg silver-plated wire)

Crimp Tensile Strength: AS39029 Table 10

Temperature Range: -65° to + 200° C.

Tools

Crimp Tool: 859-081 (Daniels M309)

Positioner for Crimp Tool: 859-083 (Daniels TP1711

Insertion/Extraction Tool: 809-132 (M81969/14-04)

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50 OHM COAX CONTACTS FOR COMBO HIPER-D CONNECTORS

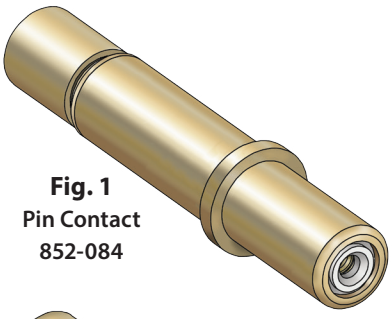


Fig. 1
Pin Contact
852-084

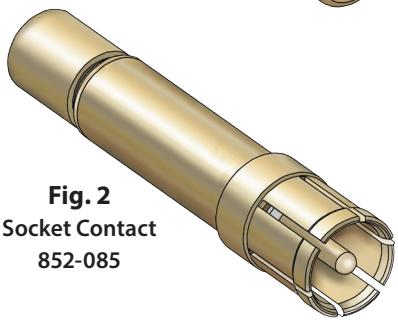


Fig. 2
Socket Contact
852-085

These coax contacts snap into Glenair combo HiPer-D® size #8 cavities and can be removed with a plastic extraction tool. Crimp termination. 50 ohm nominal impedance, DC - 3GHz frequency range. Gold plated copper alloy, Teflon® dielectric. 1000 VAC DWV rating, 5 Amp current rating. Optional sealing boot prevents moisture ingress. ***Intermateable with standard D-Subminiature size #8 socket coaxial contacts.***

Fig.	Contact Type	Cable Accommodation	Part Number Contact Only	Part Number Contact and Sealing Boot
1	Pin	M17/113-RG316	852-084-01	852-084-01F
		M17/93-RG178	852-084-02	852-084-02F
		M17/152-00001 (RG316DS)	852-084-03	852-084-03F
2	Socket	M17/113-RG316	852-085-01	852-085-01F
		M17/93-RG178	852-085-02	852-085-02F
		M17/152-00001 (RG316DS)	852-085-03	852-085-03F

Material and Finish

Contact and Crimp Sleeve: Copper alloy, 50 microinches gold over nickel.

Dielectric: Teflon®

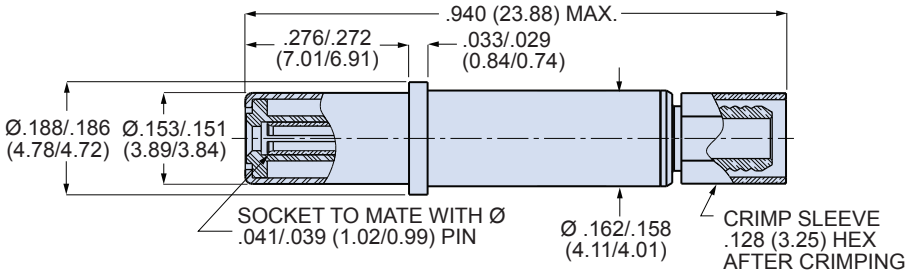
Sealing Boot: Thermoplastic and Fluorosilicone

Specifications

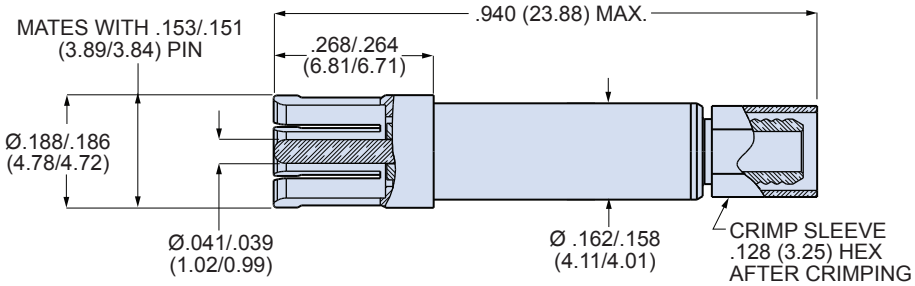
Impedance: 50 ohms
Frequency: DC – 3GHz
Current Rating: 5 Amps maximum
Contact Resistance: 10 milliohms
Temperature Range: -65° to + 200° C.
Dielectric Withstanding Voltage: 1000 VAC
Insulation Resistance: 5 gigohms

Tools

Crimp Tool for Inner Contact: 809-015 (M22520/2-01, Daniels AFM8)
Inner Contact Positioner: 859-099 (Daniels K264)
Hex Crimp Tool for Cable Shield: 809-129 (M22520/5-01, Daniels HX4)
Hex Die Set: 809-130 (M22520/5-03)
Insertion/Extraction Tool: 809-132 (M81969/14-04)



Pin Contact
852-084



Socket Contact
852-085

E

75 OHM COAX CONTACTS



Fig. 1
Pin Contact
852-086

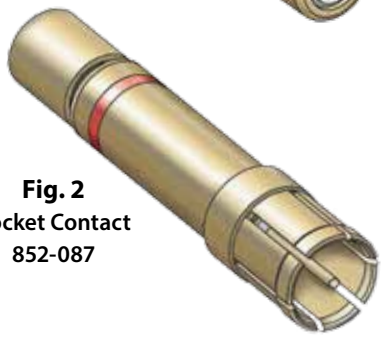
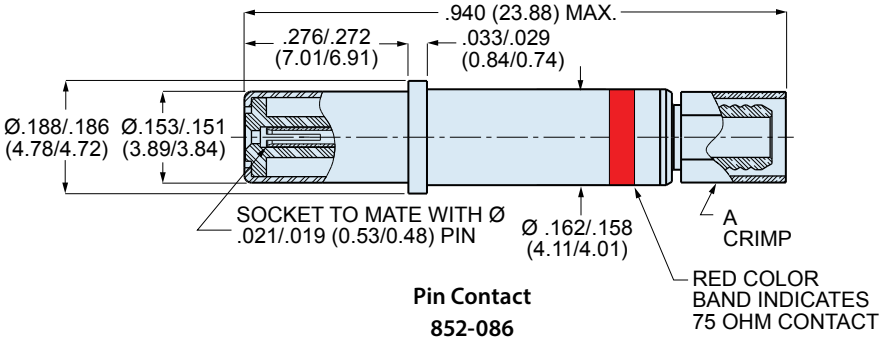


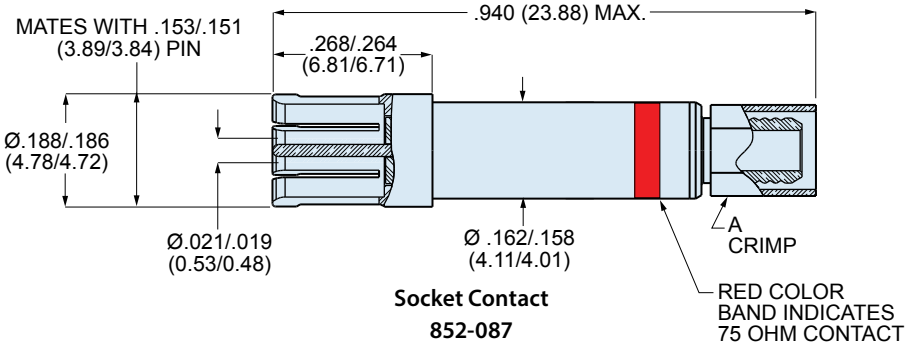
Fig. 2
Socket Contact
852-087

These coax contacts snap into Glenair combo HiPer-D® size #8 cavities and can be removed with a plastic extraction tool. Crimp termination. 75 ohm nominal impedance, DC - 3GHz frequency range. Use with RG179 coax cable or high bandwidth PIC cable for RS170 or SMPTE 292M video. Gold plated copper alloy, fluoropolymer dielectric. 1000 VAC DWV rating, 3 amp current rating. Optional sealing boot prevents moisture ingress. ***These contacts are designed for use only with Glenair Combo HiPer-D® connectors and cannot be installed in other connectors.***

Fig.	Contact Type	Cable Accommodation	Part Number Contact Only	Part Number Contact and Sealing Boot	A Crimp Size	
					In.	mm.
1	Pin	M17/964-RG179	852-086-01	852-086-01F	.128 Hex	3.25 Hex
		PIC™ V75268, V76261, V73263	852-086-02	852-086-02F	Ø .156	Ø 3.96
2	Socket	M17/964-RG179	852-087-01	852-087-01F	.128 Hex	3.25 Hex
		PIC™ V75268, V76261, V73263	852-087-02	852-087-02F	Ø .156	Ø 3.96



Pin Contact
852-086



Socket Contact
852-087

Material and Finish

Contact and Crimp Sleeve: Copper alloy, 50 microinches gold over nickel.

Dielectric: Fluoropolymer

Sealing Boot: Thermoplastic and Fluorosilicone

Specifications

Impedance: 75 ohms
Frequency: DC – 3GHz
Current Rating: 3 amps maximum
Contact Resistance: 10 milliohms
Temperature Range: -65° to + 200° C.
Dielectric Withstanding Voltage: 1000 VAC
Insulation Resistance: 5 gigohms

Insertion/Extraction Tool

Part Number
809-132 (M81969/14-04)

TOOLING INFORMATION FOR 75 OHM CONTACTS

Part Number	Type	Inner Contact Tooling		Shield Crimp Sleeve Tooling	
		Crimp Tool	Positioner	Crimp Tool	Positioner
852-086-01	PIN	809-015 (M22520/2-01)	859-098	809-129	809-130
852-086-02	PIN			809-133	859-100
852-087-01	SOCKET			809-129	809-130
852-087-02	SOCKET			809-133	859-100

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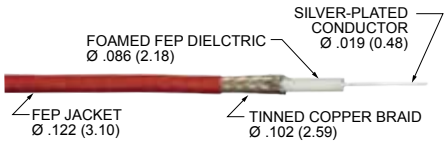
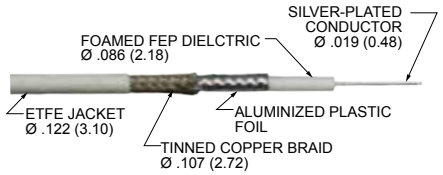
75 OHM HIGH PERFORMANCE COAXIAL CABLE

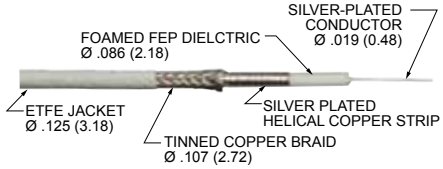
PIC™ brand video cable is specially designed and manufactured for reliable performance in aircraft systems and other harsh environments involving high temperature, EMI and corrosive materials. Improved strength, lower attenuation and better shielding compared with M17/94-RG179. Silver-plated conductor, foamed FEP dielectric, tinned copper braid, FEP or ETFE jacket. Skydrol resistant, RoHS compliant, meets FAA FAR Parts 23 and 25, Appendix F flammability, complies with MIL-DTL-17.



1 75 ohm coaxial cable for RS170 video applications. 50 dB shielding effectiveness. Tinned copper braid shield. Red FEP jacket.



2 75 ohm coaxial cable for RS170 video applications. 90 dB shielding effectiveness. 100% coverage aluminized plastic foil under tinned copper braid shield. ETFE jacket, white.



3 75 ohm coaxial cable for SMPTE 292M video applications. 110 dB shielding effectiveness. 100% coverage helical copper strip under tinned copper braid shield. ETFE jacket, white.

	Cable 1		Cable 2		Cable 3	
Glenair Part No.	960-130		960-131		960-132	
Ref. PIC™ Part No.	V75268		V76261		V73263	
Impedance (ohms)	75		*75*		*75*	
Shielding Effectiveness (dB)	50		90		110	
Video Application	RS170		RS170		SMPTE 292M	
First Shield	Tinned copper braid, 95% coverage					
Second Shield	None		Aluminized film, 100% coverage		Silver plated helical copper strip, 100%	
Temperature Rating	-55° to +150° C		-55° to +150° C		-55° to +150° C	
Minimum Bend Radius	0.6 in. (15mm.)		0.6 in. (15mm.)		0.65 in. (16.5mm.)	
Weight (lbs/100 ft.)	1.2 lbs		1.1 lbs		1.5 lbs	
Capacitance (pF/ft)	16.0		16.0		16.0	
Velocity of Propagation %	80		80		80	
Time Delay	1.28		1.28		1.28	
Attenuation (dB/100 ft)	**Nominal**	**Max**	**Nominal**	**Max**	**Nominal**	**Max**
1 MHz	0.51	0.55	0.49	0.52	0.43	0.58
10 MHz	1.70	1.77	1.6	1.71	1.4	1.6
100 MHz	5.3	5.7	5.1	5.5	4.5	5.0
400 MHz	11.1	11.8	10.6	11.3	9.6	10.6
1.45 GHz	23.0	24.6	21.9	23.4	20.0	22.0
3 GHz	35.0	37.4	33.7	36.1	30.9	34.0

E

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50 OHM COAXIAL CONTACTS FOR RG405 TYPE FLEXIBLE CABLE

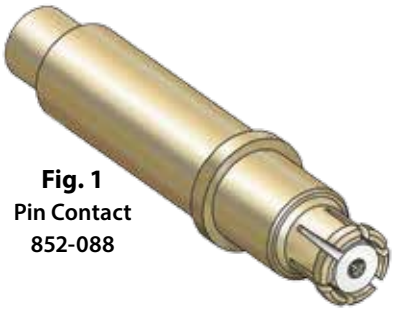


Fig. 1
Pin Contact
852-088

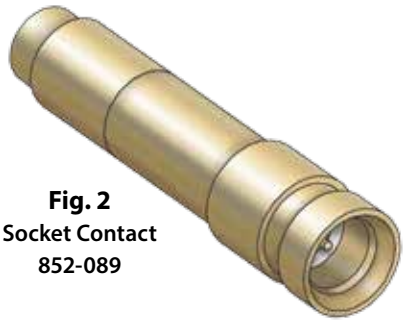
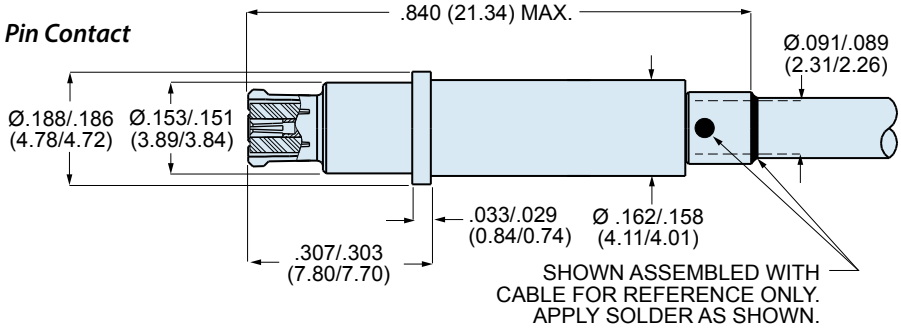
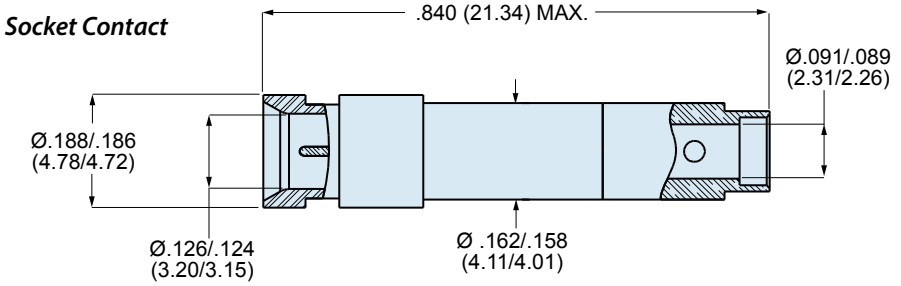


Fig. 2
Socket Contact
852-089

These coax contacts snap into Glenair combo HiPer-D® size #8 cavities and can be removed with a plastic extraction tool. Solder termination. 50 ohm nominal impedance, DC -18GHz frequency range. Use with LLF-1087 (Tensolite) or TFlex-405 (Times Microwave) coax cables. Gold plated copper alloy, fluoropolymer® dielectric. 1000 VAC DWV rating. Optional sealing boot prevents moisture ingress. ***These contacts are designed for use only with Glenair Combo HiPer-D® connectors and cannot be installed in other connectors.***

Fig.	Contact Type	Cable Accommodation	Part Number Contact Only	Part Number Contact and Sealing Boot
1	Pin	LLF-1087 (Tensolite), TFlex-405 (Times Microwave)	852-088-01	852-088-01F
2	Socket	LLF-1087 (Tensolite), TFlex-405 (Times Microwave)	852-089-01	852-089-01F





Material and Finish

Body andContact: Copper alloy, 50 microinches gold over nickel.

Dielectric: PTFE

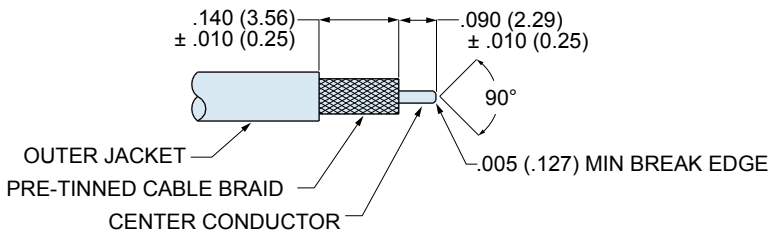
Cable Insert: Brass, 50 microinches gold over nickel.

Sealing Boot: Thermoplastic and Fluorosilicone

Specifications

Impedance: 50 ohms
Frequency: DC – 18 GHz
VSWR: 1.10 + (.01 X Freq GHz)
Insertion Loss: .06 X SQRT(Freq GHz)
RF Leakage: -(90 - Freq GHz)
Temperature Range: -65° to + 200° C.
Dielectric Withstanding Voltage: 1000 VAC
Insulation Resistance: 5 gigohms
Mechanical Durability: 500 Mating Cycles
Center Contact Retention: 2 lbs. min.
Maximum Engaging Force: 2.5 lbs.
Minimum Separation Force: 0.5 lbs.

ASSEMBLY INSTRUCTIONS



1. Slide sealing boot onto coaxial cable.
2. Strip cable as shown.
3. Pre-tin cable braid.
4. Break edge of center conductor as shown.
5. Push cable into contact body. Center conductor should be seated into center contact.
6. Solder cable braid to contact body as shown in Pin Contact illustration above.
7. Snap assembled contact into connector and slide sealing boot into place.

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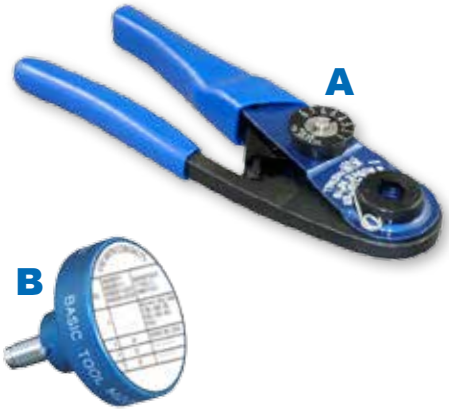
CRIMP TOOL FOR STANDARD HIPER-D® CONTACTS AND COAXIAL INNER CONTACTS



Precision mil spec crimp tool performs precision eight indent crimps for gas-tight wire terminations and excellent tensile strength. Adjustment wheel has 8 settings. Ratchet mechanism prevents improper crimps. Use with bayonet-type positioners, ordered separately. Check calibration with M22520/3 gages. Length is 6.75 inches, weight is approx. 10 oz.

Fig.	Descrip.	Application	Part Number	Military Part Number	Daniels Part Number (1)
A	Crimp Tool		809-015	M22520/2-01	AFM8
B	Positioner	#20 contacts	859-016	M22520/2-08	K13-1
B	Positioner	#22 pin contact	859-018	M22520/2-09	K42
B	Positioner	#22 socket contact	859-019	M22520/2-06	K41
B	Positioner	75 ohm contact	859-098	None	K1539
B	Positioner	50 ohm contact	859-099	None	K264

CRIMP TOOL FOR SIZE #8 POWER HIPER-D® CONTACTS



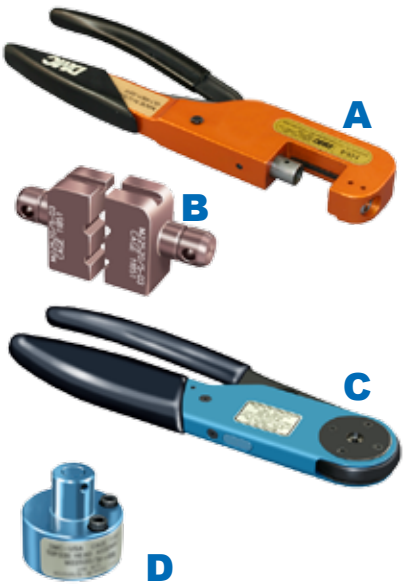
Heavy-duty M309 crimp tool for AWG size 8 to 18 wire. Adjustment wheel has 8 settings. Double action ratchet mechanism prevents improper crimps. Use with positioner, ordered separately.

A M309 crimper. Use with size #8 combo HiPer-D® contacts. Length is 9.75 inches, weight is 15 oz.

B TP1711 Positioner for use with M309 tool. Use with part number 850-056 and 850-057 size #8 power contacts.

Figure	Description	Part Number	Daniels Part Number (1)
A	Crimp Tool	859-081	M309
B	Positioner	859-083	TP1711

CRIMP TOOL FOR TERMINATING COAXIAL SHIELD CRIMP SLEEVE



A Parallel action tool for use with hex crimp dies. 11 inches OAL, 2.0 pounds. Anodized aluminum frame, steel mechanism, plastic handles. Includes tool for die set removal. Accepts all M22520/5 die sets.

B M22520/5-03 hex die set for terminating coaxial shield to outer body of coaxial contact. Set consists of upper and lower halves. Made of hardened steel with black oxide finish. Die set has two closures: .105 (2.67) hex across flats and .128 (3.25).

C Ratcheting crimp tool for terminating coaxial shield crimp sleeve. Use with 75 ohm contacts 852-086-02 and 852-087-02. 9.75 inches OAL, 1.25 pounds.

D Positioner for use with 809-133 crimper. Use with 75 ohm contacts 852-086-02 and 852-087-02.

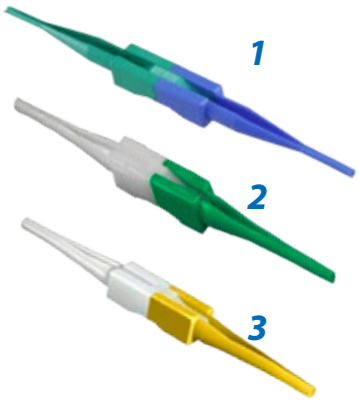
Ref. Coaxial Contact Part Number	Fig.	Descrip.	Part Number	Military Part Number	Daniels Part Number (1)
852-084, 852-085, 852-086-01, 852-087-01	A	Crimp Tool	809-129	M22520/5-01	HX4
	B	Hex Die Set	809-130	M22520/5-03	Y196
852-086-02 852-087-02	C	Crimp Tool	809-133	M22520/31-1	GS200-1
	D	Positioner	859-100	None	G2P1743

(1) Daniels Manufacturing Corporation, Orlando, Florida is the industry-leading supplier of mil spec contact termination tooling. In addition to the tools shown in this catalog, the Daniels product line includes a complete range of installation tools and semi-automatic equipment.

HiPer-D® Contacts and Tools

Contact insertion and removal tools, sealing plugs, sealing boot

CONTACT INSERTION AND REMOVAL TOOLS



1 Insertion/Extraction Tool for #20 contacts. This plastic tool features green insertion tip and blue extraction tip.

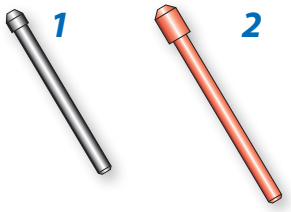
2 Insertion/Extraction Tool for #22 contacts. This plastic tool features green insertion tip and white extraction tip.

3 Insertion/Extraction Tool for #8 Combo HiPer-D® contacts. This plastic tool features yellow insertion tip and white extraction tip.

Figure	Size	Part Number	Military Part Number
1	#20	**809-203D**	(none)
2	#22	**859-020**	M81969/14-01
3	#12*	**809-132**	M81969/14-04

*Size 12 tool fits Combo HiPer-D® size #8 connectors and contacts

GROMMET SEALING PLUGS FOR SIZE #22 AND #20HD CONNECTORS



Grommet sealing plugs are used to seal unwired contact cavities. These plugs conform to MS27488 requirements. After installing unwired contacts into unused cavities, insert knob end of sealing plug into grommet until it bottoms against the unwired contact per illustration. Install sealing plugs with standard contact insertion/extraction tools .

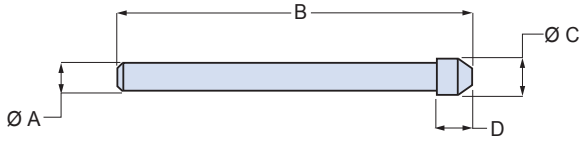


Fig.	Size	Color	Part Number	Military Part Number	Insertion/ Removal Tool	A Ref.		B Ref.		C Ref.		D Ref.	
						in.	mm	in.	mm	in.	mm	in.	mm
1	#22	Black	**859-021**	MS27488-22-2	859-020	.042	1.07	.51	13.0	.062	1.57	.125	3.18
2	#20	Red	**859-012**	MS27488-20-2	809-203D	.053	1.35	.82	20.8	.085	2.16	.125	3.18

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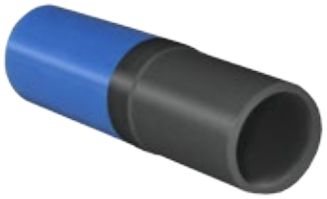
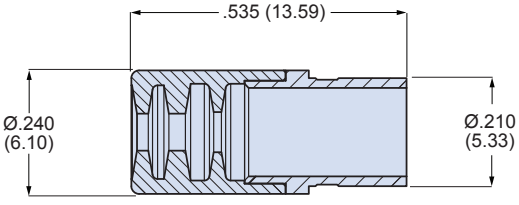
SEALING BOOT FOR COMBO HIPER-D



Sealing boot prevents moisture and contamination from entering combo HiPer-D® connectors. Slide onto wire before terminating contact. Install contact into connector, then slide sealing boot into connector grommet. Fluorosilicone grommet, thermoset epoxy follower. -65°C to +200°C.

Wire Dia. (in.)	Wire Dia. (mm.)	Part Number
.050 - .090	1.27 - 2.29	**859-093-01**
.090 - .130	2.29 - 3.30	**859-093-02**
.130 - .170	3.30 - 4.32	**859-093-03**



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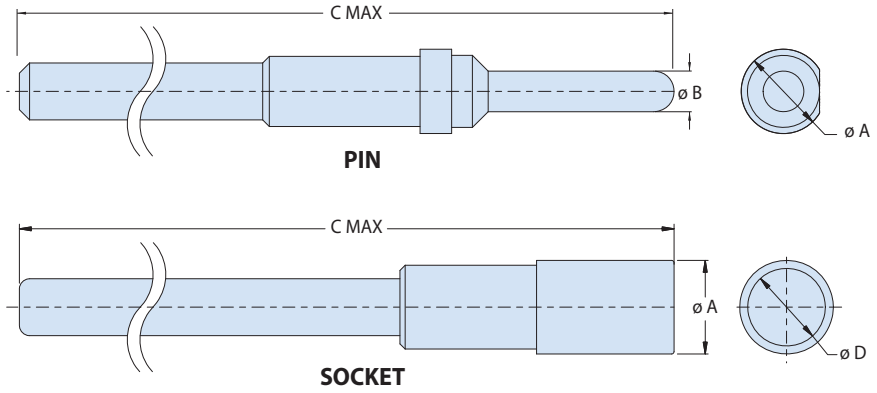
Dummy contact for unused crimp removable contact cavities

DUMMY CONTACT HIPER-D M24308

How to Order				
Sample Part Number		**680-150**	**-8P**	**B**
Series	**680-150** = Dummy contact			
Dash No.	See Table			
Boot Option	B = Boot supplied with assembly (Omit for none) (Dash No -8 only)			



Dash No.	Contact Type	Color Code	Ø A		Ø B		C Max		Ø D		Extraction Tool	Standard Order Quanity
			in.	mm	in.	mm	in.	mm	in.	mm		
-20	Universal	Red	.084	2.13	.040	1.02	1.18	29.97	-	-	M81969/1-02	1000
-8S	Socket	Black	.181	4.60	-	-	1.14	28.96	.150	3.81	M81969/14-04	N/A
-8P	Pin	Black	.181	4.60	.142	3.61	1.18	29.97	-	-	M81969/14-04	N/A

Material and Finish

Material: Molded plastic / N.A.
Dummy contacts designed to seal the unused crimp removable contact cavities of Hiper-D M24308 connector series.
Dummy contacts to be bagged and tagged.
Special rates may apply for non-standard order quantities. See table. No applicable to bag and tag quantities.

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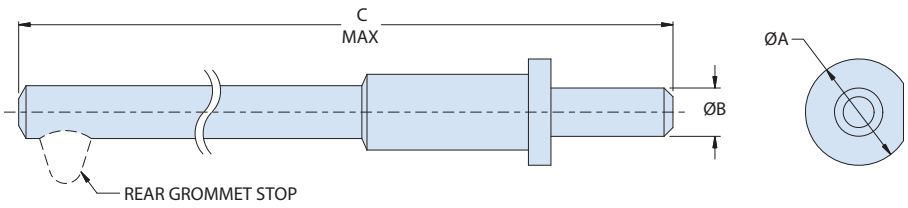
Dummy contact for high density contacts

SIZE 22HD DUMMY CONTACT FOR HD CONTACTS

How to Order			
Sample Part Number		**680-116**	**-22**
Series	**680-116** = Dummy contact		
Dash No.	**-22**		



Dash No.	Color Code	Ø A		Ø B		C Max		Extraction Tool	Standard Order Quanity
		in.	mm	in.	mm	in.	mm		
-22	Black	.061	1.5	.030	0.76	1.18	30.0	859-150	1000

E

Material and Finish

Material: Molded plastic (200°C minimum temp limit)

Dummy contacts are designed to seal the unused crimp removable contact cavities of hd contacts.

Dummy contacts to be bagged and tagged.

Special rates may apply for non-standard order quantities. See table. Not applicable to bag and tag quantities.

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SERIES 28

HiPer-D® Accessories

Product Selection Guide



Protective Covers F-2

Metal covers with lanyard attachments



Conductive Dust Caps F-4

ESD protected black plastic dust caps



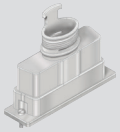
Low Profile EMI Banding Backshell for HiPer-D® Cable Connectors F-5

Two piece backshell fits into groove on HiPer-D® cable connector shell



Environmental EMI Banding Backshell for HiPer-D® Cable Connectors F-8

One piece backshell for HiPer-D® cable connectors



Environmental EMI Banding Backshell for Panel Mount Connectors F-11

One piece backshell attaches directly to panel mount HiPer-D® connectors



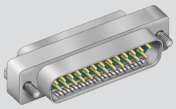
Jackpost Kits F-15

#4-40 stainless steel jackposts



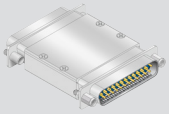
Guide Pins, Bushings and Jackposts F-16

Blind mate and locking hardware for panel mount HiPer-D® connectors



Sav-Con® Connector Savers F-17

Standard and high density connector savers



Gender Changers F-19

M-M and F-F gender changers



Band-Master Tool and Bands F-20

Terminate cable braid with precision banding tool



"Full Nelson" Elliptical Heatshrink Boots F-21

Specially designed boots fit HiPer-D® backshells with large elliptical cable entries

F

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HiPer-D® Accessories

Protective Covers for HiPer-D® connectors

289-003, 289-004, 289-019

HIPER-D® PROTECTIVE COVERS



289-003
289-019
289-004

Aluminum or stainless steel protective covers fit Glenair Series 28 HiPer-D® connectors and MIL-DTL-24308 connectors. Cover for pin connector fits inside connector shell and seats on connector face seal for watertight protection. Cover for socket connector fits over connector shell and has rubber gasket. Attach to panel with optional stainless steel lanyard and ring terminal.

Protective Cover Types		
Pin Cover	**Socket Cover**	**Socket Cover w/ EMI Spring**

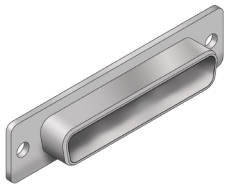
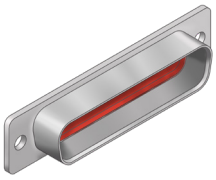
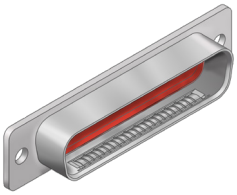
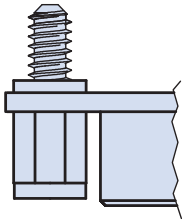
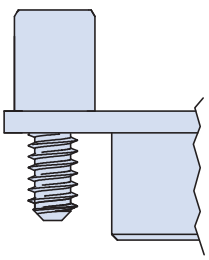

		

Fig. 1 Cover for use with HiPer-D® pin connectors. Part number 289-003.	***Fig. 2*** Cover for use with HiPer-D® socket connectors. Supplied without EMI spring. Fluorosilicone rubber gasket. Part number 289-019.	***Fig. 3*** Cover for use with HiPer-D® socket connectors. Supplied with EMI spring. Fluorosilicone rubber gasket. Part number 289-004.

Hardware Options
 ***Fig. 4*** **Female Jackposts (P)** #4-40 Thread Stainless Steel
 ***Fig. 5*** **Male Screwlocks (S)** #4-40 Thread Stainless Steel

Ordering Information						
Sample Part Number	**289-003**	**2**	**Z2**	**P**	**F**	**4**
Basic Part Number	**289-003** = Pin Connector Cover (*Fig. 1*) **289-019** = Socket Connector Cover (*Fig. 2*) **289-004** = Socket Connector Cover w/ EMI Spring (*Fig. 3*)					
Shell Size	**1** = Shell Size 1 **2** = Shell Size 2 **3** = Shell Size 3 **4** = Shell Size 4 **5** = Shell Size 5 **6** = Shell Size 6					
Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel					
Hardware	**N** = No Hardware **P** = #4-40 Stainless Steel Jackposts (*Fig. 4*) **S** = Captive SST Hex Head Male Screwlocks (*Fig. 5*)					
Lanyard Type	**N** = No Attachment **F** = Nylon-Coated SST Lanyard w/ Ring Terminal **H** = Fluoropolymer-Coated SST Lanyard w/ Ring Terminal					
Lanyard Length	(Omit for No Attachment) Length in Inches					

F

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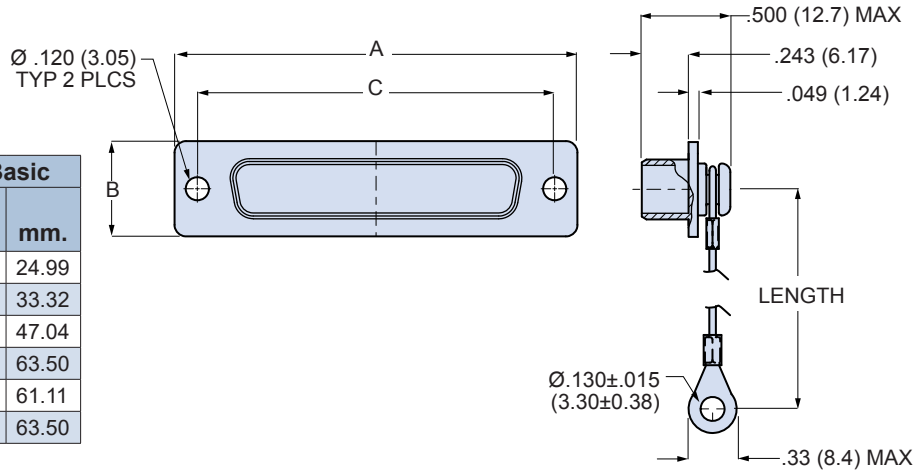
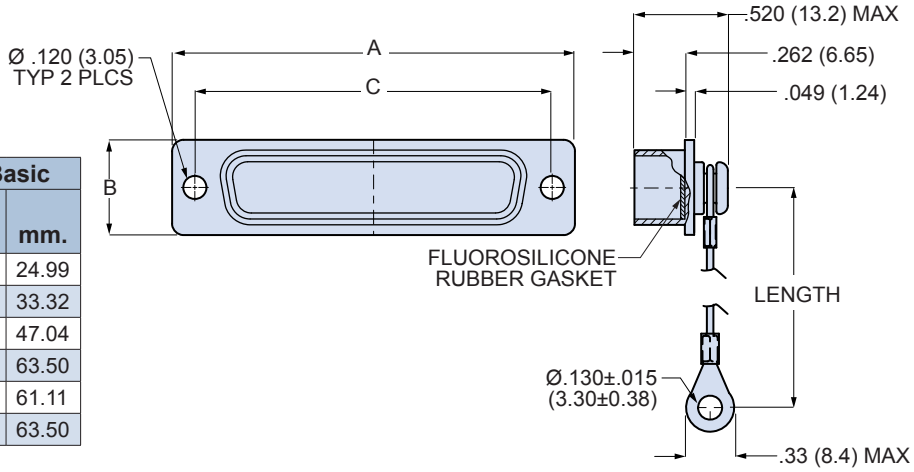
289-003 DIMENSIONS

Shell Size	A In. ± .015	A mm. ± 0.38	B In. ± .015	B mm. ± 0.38	C Basic In.	C Basic mm.
1	1.213	30.81	.494	12.55	.984	24.99
2	1.541	39.14	.494	12.55	1.312	33.32
3	2.088	53.04	.494	12.55	1.852	47.04
4	2.729	69.32	.494	12.55	2.500	63.50
5	2.635	66.93	.605	15.37	2.406	61.11
6	2.729	69.32	.668	16.97	2.500	63.50



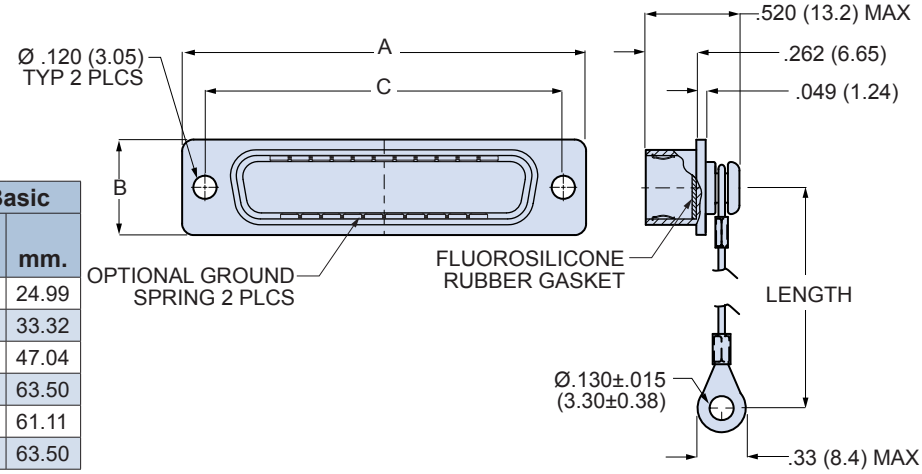
289-019 DIMENSIONS

Shell Size	A In. ± .015	A mm. ± 0.38	B In. ± .015	B mm. ± 0.38	C Basic In.	C Basic mm.
1	1.213	30.81	.494	12.55	.984	24.99
2	1.541	39.14	.494	12.55	1.312	33.32
3	2.088	53.04	.494	12.55	1.852	47.04
4	2.729	69.32	.494	12.55	2.500	63.50
5	2.635	66.93	.605	15.37	2.406	61.11
6	2.729	69.32	.668	16.97	2.500	63.50



289-004 DIMENSIONS

Shell Size	A In. ± .015	A mm. ± 0.38	B In. ± .015	B mm. ± 0.38	C Basic In.	C Basic mm.
1	1.213	30.81	.494	12.55	.984	24.99
2	1.541	39.14	.494	12.55	1.312	33.32
3	2.088	53.04	.494	12.55	1.852	47.04
4	2.729	69.32	.494	12.55	2.500	63.50
5	2.635	66.93	.605	15.37	2.406	61.11
6	2.729	69.32	.668	16.97	2.500	63.50



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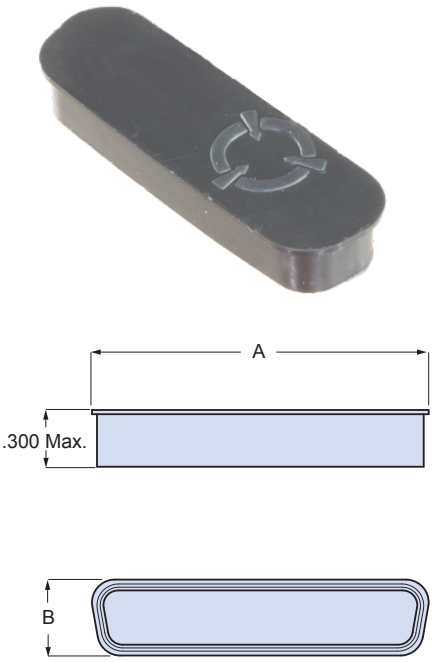
Conductive dust caps for HiPer-D® connectors

289-052

CONDUCTIVE DUST CAPS



Black plastic conductive dust caps fit HiPer-D® and M24308-type D-subminiature connectors. Molded in conductive polyethylene copolymer (EVA), these caps provide electrostatic discharge protection to sensitive equipment. 140ºF maximum service temperature. These caps meet the static decay requirement of MIL-PRF-81705. Surface resistivity is less than 1 x 10^5 ohms/square. Integral lip allows easy removal.

Conductive Dust Caps						
Shell Size	Type	Part Number	A		B	
			In.	mm.	In.	mm.
1	Pin	289-052-1-P	0.86	21.84	0.51	12.95
	Socket	289-052-1-S	0.79	20.07	0.45	11.43
2	Pin	289-052-2-P	1.19	30.23	0.51	12.95
	Socket	289-052-2-S	1.10	27.94	0.45	11.43
3	Pin	289-052-3-P	1.70	43.18	0.52	13.21
	Socket	289-052-3-S	1.66	42.16	0.46	11.68
4	Pin	289-052-4-P	2.37	60.20	0.52	13.21
	Socket	289-052-4-S	2.29	58.17	0.45	11.43
5	Pin	289-052-5-P	2.27	57.66	0.62	15.75
	Socket	289-052-5-S	2.21	56.13	0.56	14.22
6	Pin	289-052-6-P	2.40	60.96	0.69	17.53
	Socket	289-052-6-S	2.33	59.18	0.63	16.00

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Rev. 05.31.23
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HiPer-D® Accessories

Low-Profile EMI Backshell, two-piece, elliptical entry, non-environmental

289T005 top entry, 289S005 side entry



289T005
289S005

Lightweight, low profile space-saving two piece backshell fits securely into groove in HiPer-D® connectors. Fits standard HiPer-D® pin and socket connectors (280-018P, 280-019S) and Combo HiPer-D® connectors (280-046P and 280-047S). Terminate cable shield with optional Band-Master™ATS clamping band. Elliptical cable entry provides room for large wire bundles. Machined aluminum alloy or stainless steel backshell consists of two interlocking housings and two 300 series stainless steel screws. Overlapping seam improves EMI shielding performance. Compatible with Glenair Series 77 lipped heat-shrink boots. Non-environmental.

Entry Style

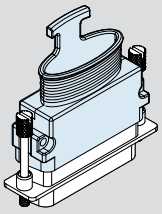


Fig. 1
Top Entry 289T005

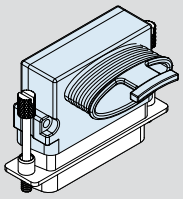


Fig. 2
Side Entry 289S005

Qwik Ty™ Option

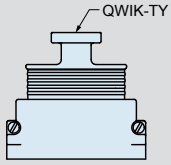


Fig. 3
Qwik Ty™

Slot Option

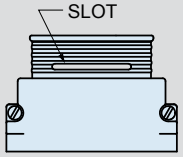


Fig. 4
Slots

Cable Entry Direction

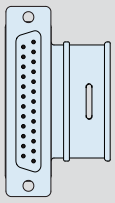


Fig. 5
Long Side Entry (1)

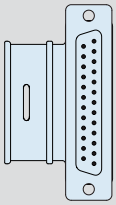
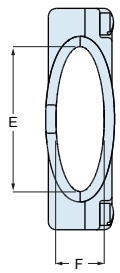


Fig. 6
Short Side Entry (2)

Ordering Information

Sample Part Number	289T005	MT	3	B	- N	N	K	
Basic Part Number	**289T005** = Top Entry (*Fig. 1*) **289S005** = Side Entry (*Fig. 2*)							
Finish	**ME** = Electroless Nickel (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)							
Shell Size	**1** = Shell Size 1 **2** = Shell Size 2 **3** = Shell Size 3 **4** = Shell Size 4 **5** = Shell Size 5 **6** = Shell Size 6							
Entry Size	**A, B, C or D** See Cable Entry Size Table Below							
Qwik Ty™ Option	**N** = Supplied without Qwik Ty™ **T** = With Qwik Ty™ Strain Relief (*Fig. 3*)							
Slot Option	**N** = Supplied without Slots **S** = With Slots for Terminating Individual Shields (*Fig. 4*)							
EMI/RFI Band	**N** = Supplied without Band **K** = Supplied with Pre-Coiled Band (600-052-1)							
Cable Entry Direction	***Omit for 289T005. Applies only to 289S005.*** **1** = Cable Exit on Long Side of Shell Keystone (*Fig. 5*) **2** = Cable Exit on Short Side of Shell Keystone (*Fig. 6*)							

Cable Entry Size



Shell Size	SIZE A				SIZE B				SIZE C				SIZE D			
	E		F		E		F		E		F		E		F	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	.143	3.63	.143	3.63	.195	4.95	.195	4.95	.242	6.15	.242	6.15	.438	11.13	.375	9.53
2	.188	4.78	.188	4.78	.256	6.50	.256	6.50	.480	12.19	.375	9.53	.688	17.48	.375	9.53
3	.245	6.22	.245	6.22	.550	13.97	.375	9.53	.780	19.81	.375	9.53	1.125	28.58	.375	9.53
4	.291	7.39	.291	7.39	.800	20.32	.375	9.53	1.260	32.00	.375	9.53	1.813	46.05	.375	9.53
5	.326	8.28	.326	8.28	.770	19.56	.485	12.32	1.250	31.75	.485	12.32	1.750	44.45	.485	12.32
6	.376	9.55	.376	9.55	.863	21.92	.550	13.97	1.323	33.60	.550	13.97	1.875	47.63	.550	13.97

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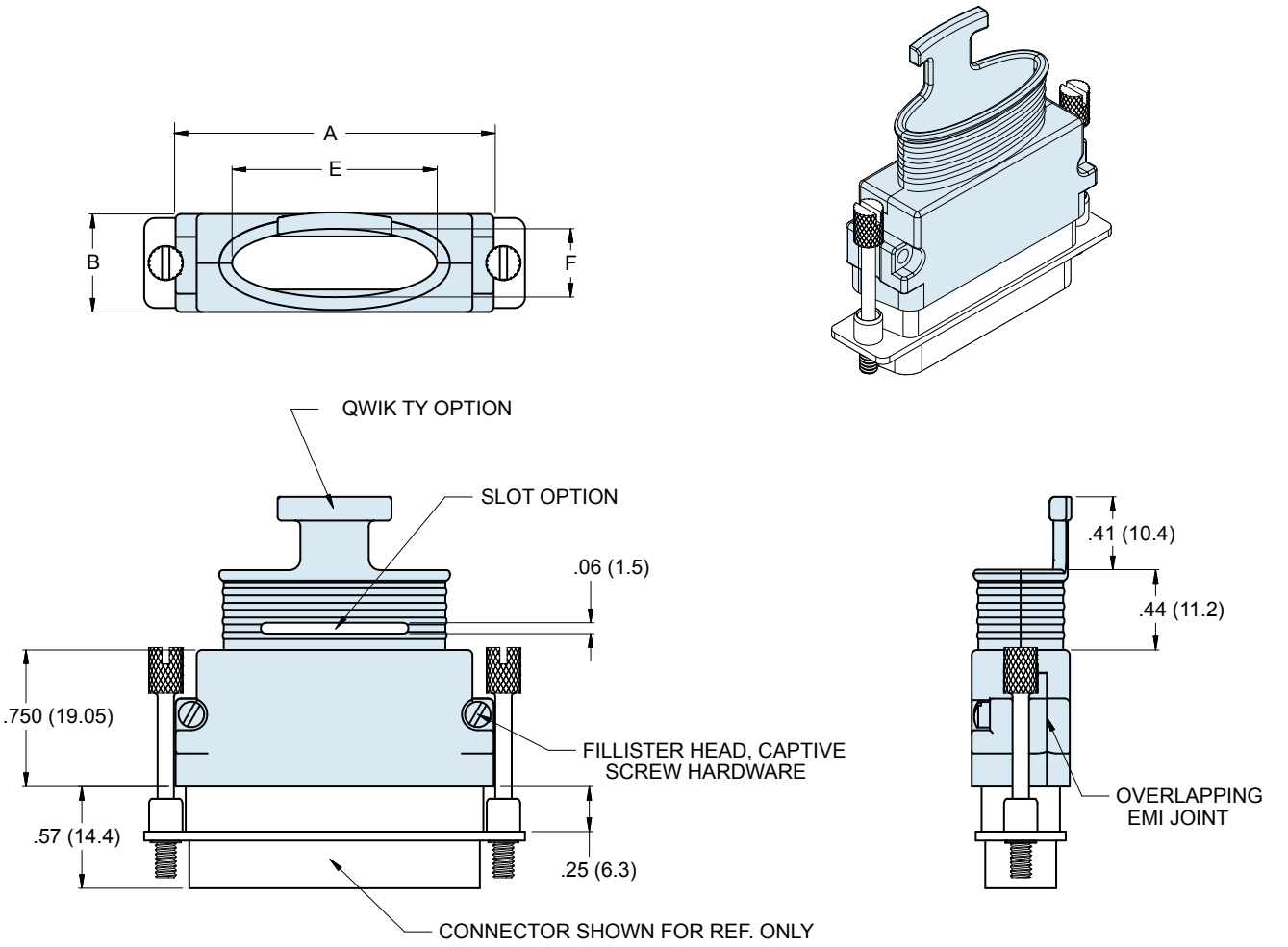
Low-Profile EMI Backshell, two-piece, elliptical entry, non-environmental

289T005 top entry

289T005 DIMENSIONS



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Shell Size	Dimensions																			
					Entry Size A				Entry Size B				Entry Size C				Entry Size D			
	A Max		B Max		E		F		E		F		E		F		E		F	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	.894	22.71	.550	13.97	.143	3.63	.143	3.63	.195	4.95	.195	4.95	.242	6.15	.242	6.15	.438	11.13	.375	9.53
2	1.218	30.94	.550	13.97	.188	4.78	.188	4.78	.256	6.50	.256	6.50	.480	12.19	.375	9.53	.688	17.48	.375	9.53
3	1.760	44.70	.550	13.97	.245	6.22	.245	6.22	.550	13.97	.375	9.53	.780	19.81	.375	9.53	1.125	28.58	.375	9.53
4	2.408	61.16	.550	13.97	.291	7.39	.291	7.39	.800	20.32	.375	9.53	1.260	32.00	.375	9.53	1.813	46.05	.375	9.53
5	2.297	58.34	.654	16.61	.326	8.28	.326	8.28	.770	19.56	.485	12.32	1.250	31.75	.485	12.32	1.750	44.45	.485	12.32
6	2.422	61.52	.716	18.19	.376	9.55	.376	9.55	.863	21.92	.550	13.97	1.323	33.60	.550	13.97	1.875	47.63	.550	13.97

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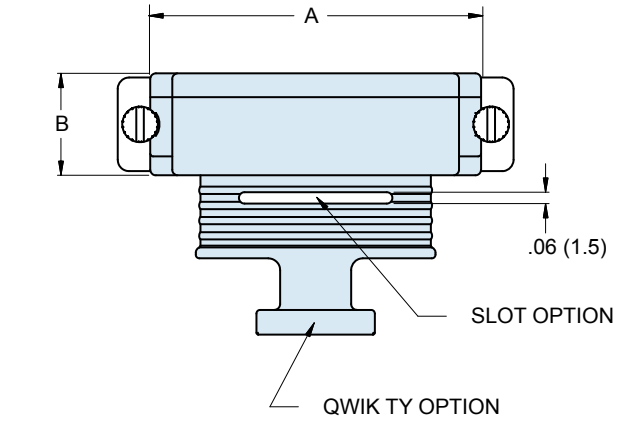
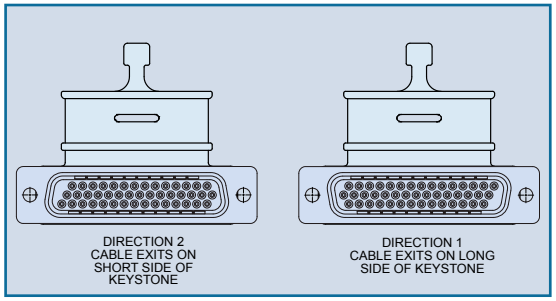
Low-Profile EMI Backshell, two-piece, elliptical entry, non-environmental

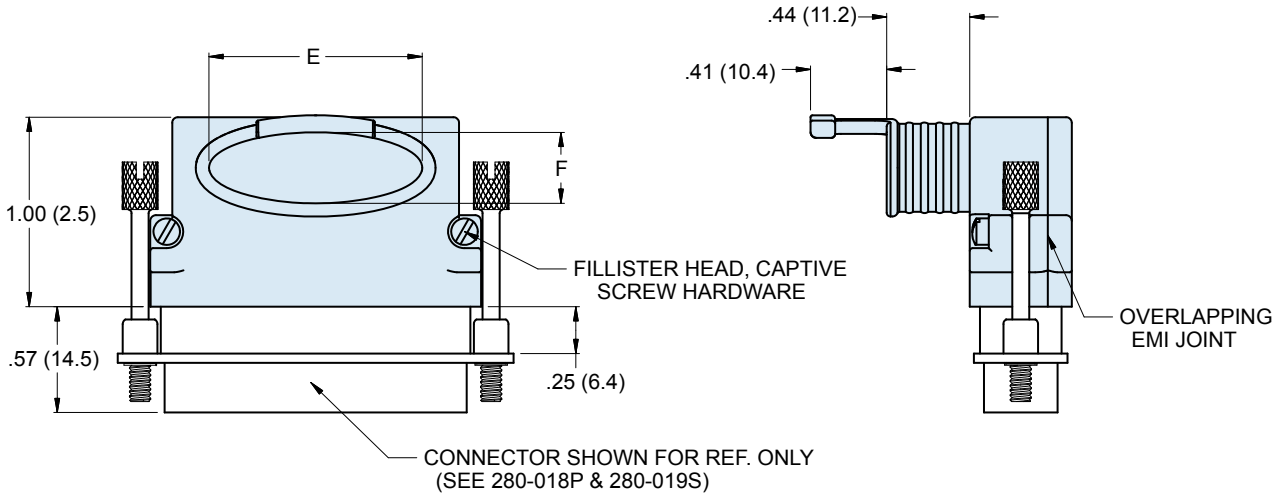
289S005 side entry

289S005 DIMENSIONS



Cable Exit Direction





Dimensions																				
Shell Size					Entry Size A				Entry Size B				Entry Size C				Entry Size D			
	A Max		B Max		E		F		E		F		E		F		E		F	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	.894	22.71	.550	13.97	.143	3.63	.143	3.63	.195	4.95	.195	4.95	.242	6.15	.242	6.15	.438	11.13	.375	9.53
2	1.218	30.94	.550	13.97	.188	4.78	.188	4.78	.256	6.50	.256	6.50	.480	12.19	.375	9.53	.688	17.48	.375	9.53
3	1.760	44.70	.550	13.97	.245	6.22	.245	6.22	.550	13.97	.375	9.53	.780	19.81	.375	9.53	1.125	28.58	.375	9.53
4	2.408	61.16	.550	13.97	.291	7.39	.291	7.39	.800	20.32	.375	9.53	1.260	32.00	.375	9.53	1.813	46.05	.375	9.53
5	2.297	58.34	.654	16.61	.326	8.28	.326	8.28	.770	19.56	.485	12.32	1.250	31.75	.485	12.32	1.750	44.45	.485	12.32
6	2.422	61.52	.716	18.19	.376	9.55	.376	9.55	.863	21.92	.550	13.97	1.323	33.60	.550	13.97	1.875	47.63	.550	13.97

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HiPer-D® Accessories

EMI Backshell, one-piece, environmental

289T008 top entry, 289S008 side entry



289T008
289S008

289-008 backshell provides watertight EMI protection for HiPer-D® connectors. Fits standard HiPer-D® pin and socket connectors (280-018P, 280-019S) and Combo HiPer-D® connectors (280-046P and 280-047S). Available with top entry or side entry. Terminate cable shield with optional Band-Master™ATS clamping band. Elliptical cable entry provides room for large wire bundles. Backshell consists of solid one piece housing, two stainless steel hex head jackscrews, two jackscrew retainer clips and silicone rubber sealing gasket. Aluminum or stainless steel. Use with Glenair Series 77 heat-shrink boot.

Entry Style

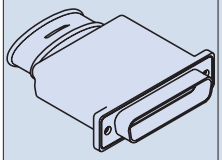


Fig. 1 **Top Entry** 289T008

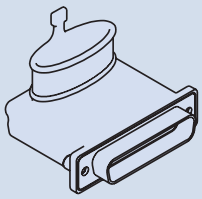


Fig. 2 **Side Entry** 289S008

Qwik Ty™ Option

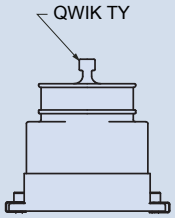


Fig. 3 **Qwik Ty™**

Slot Option

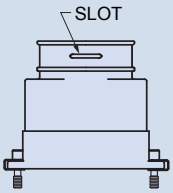


Fig. 4 **Slots**

Cable Entry Direction

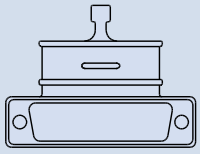


Fig. 5 **Long Side Entry (1)**

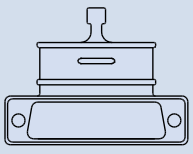


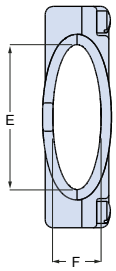
Fig. 6 **Short Side Entry (2)**

Ordering Information

Sample Part Number	289S008	JF	6	A	-T	S	K	2	T

Basic Part Number	**289T008** = Top Entry (*Fig. 1*) **289S008** = Side Entry (*Fig. 2*)
Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel
Shell Size	**1** = Shell Size 1 **2** = Shell Size 2 **3** = Shell Size 3 **4** = Shell Size 4 **5** = Shell Size 5 **6** = Shell Size 6
Entry Size	**A, B, C or D** See Cable Entry Size Table Below
Qwik Ty™ Option	**N** = Supplied without Qwik Ty™ **T** = With Qwik Ty™ Strain Relief (*Fig. 3*)
Slot Option	**N** = Supplied without Slots **S** = With Slots for Terminating Individual Shields (*Fig. 4*)
EMI/RFI Band	**N** = Supplied without Band **K** = Supplied with Pre-Coiled Band (600-052-1)
Cable Entry Direction	***Omit for 289T008. Applies only to 289S008.*** **1** = Cable Exit on Long Side of Shell Keystone (*Fig. 5*) **2** = Cable Exit on Short Side of Shell Keystone (*Fig. 6*)
Jack Screw Option	**T** = Slot head extended jackscrew **W** = Internal hex socket with safety wire hole **N** = None (through hole) Omit for internal hex socket

Cable Entry Size



Shell Size	Entry Size A				Entry Size B				Entry Size C				Entry Size D			
	E		F		E		F		E		F		E		F	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	.143	3.63	.143	3.63	.195	4.95	.195	4.95	.242	6.15	.242	6.15	.438	11.13	.375	9.53
2	.188	4.78	.188	4.78	.256	6.50	.256	6.50	.480	12.19	.375	9.53	.688	17.48	.375	9.53
3	.245	6.22	.245	6.22	.550	13.97	.375	9.53	.780	19.81	.375	9.53	1.125	28.58	.375	9.53
4	.291	7.39	.291	7.39	.800	20.32	.375	9.53	1.260	32.00	.375	9.53	1.813	46.05	.375	9.53
5	.326	8.28	.326	8.28	.770	19.56	.485	12.32	1.250	31.75	.485	12.32	1.750	44.45	.485	12.32
6	.376	9.55	.376	9.55	.863	21.92	.550	13.97	1.323	33.60	.550	13.97	1.875	47.63	.550	13.97

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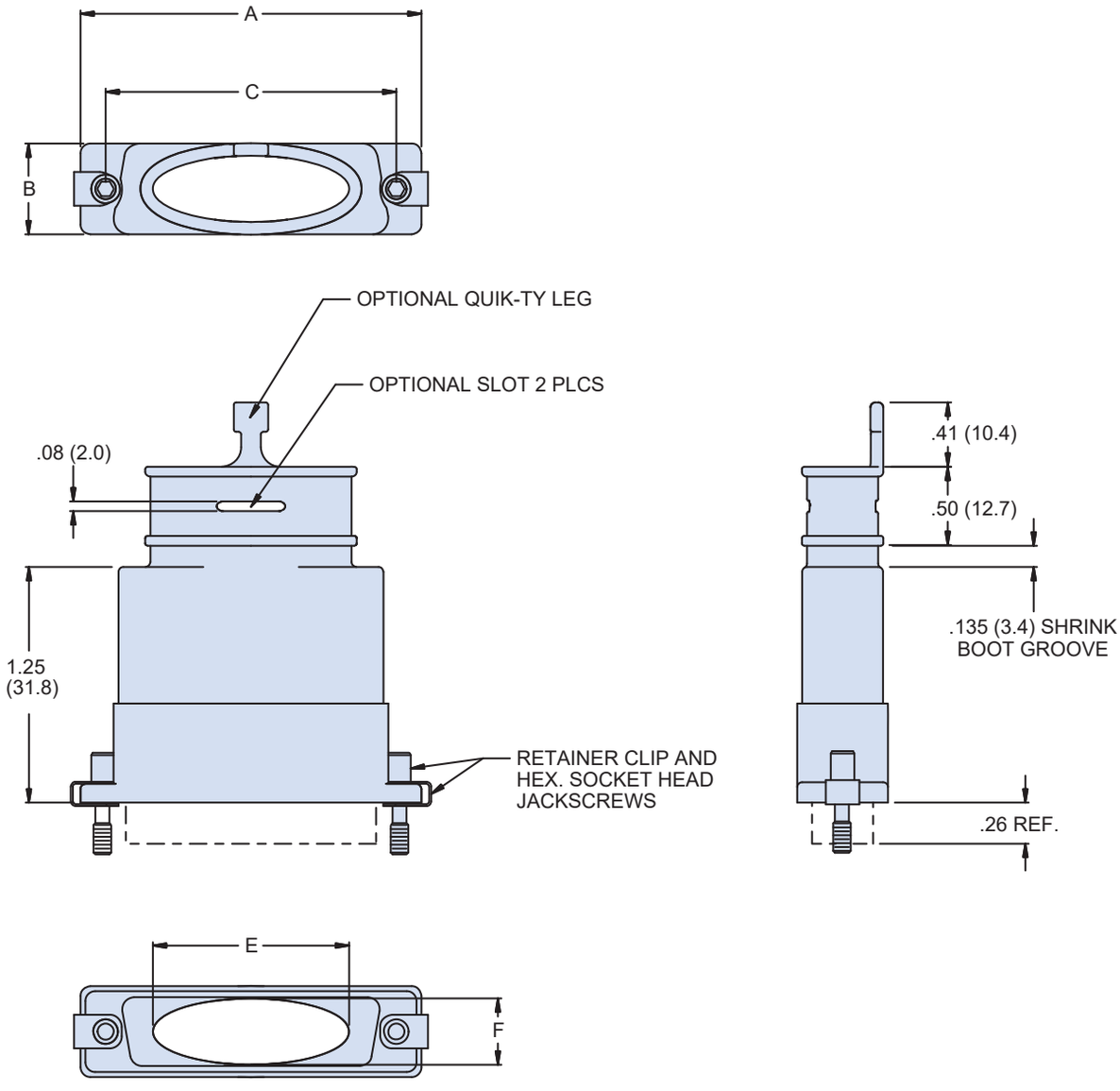
HiPer-D® Accessories

EMI Backshell, one-piece, environmental

289T008 top entry

289T008 DIMENSIONS



Dimensions																						
Shell Size	A Max		B Max		C Basic		Entry Size A				Entry Size B				Entry Size C				Entry Size D			
							E		F		E		F		E		F		E		F	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	1.395	35.43	.624	15.85	.984	24.99	.143	3.63	.143	3.63	.195	4.95	.195	4.95	.242	6.15	.242	6.15	.438	11.13	.375	9.53
2	1.706	43.33	.624	15.85	1.312	33.32	.188	4.78	.188	4.78	.256	6.50	.256	6.50	.480	12.19	.375	9.53	.688	17.48	.375	9.53
3	2.265	57.53	.624	15.85	1.852	47.04	.245	6.22	.245	6.22	.550	13.97	.375	9.53	.780	19.81	.375	9.53	1.125	28.58	.375	9.53
4	2.900	73.66	.624	15.85	2.500	63.50	.291	7.39	.291	7.39	.800	20.32	.375	9.53	1.260	32.00	.375	9.53	1.813	46.05	.375	9.53
5	2.800	71.12	.750	19.05	2.406	61.11	.326	8.28	.326	8.28	.770	19.56	.485	12.32	1.250	31.75	.485	12.32	1.750	44.45	.485	12.32
6	2.900	73.66	.844	21.44	2.500	63.50	.376	9.55	.376	9.55	.863	21.92	.550	13.97	1.323	33.60	.550	13.97	1.875	47.63	.550	13.97

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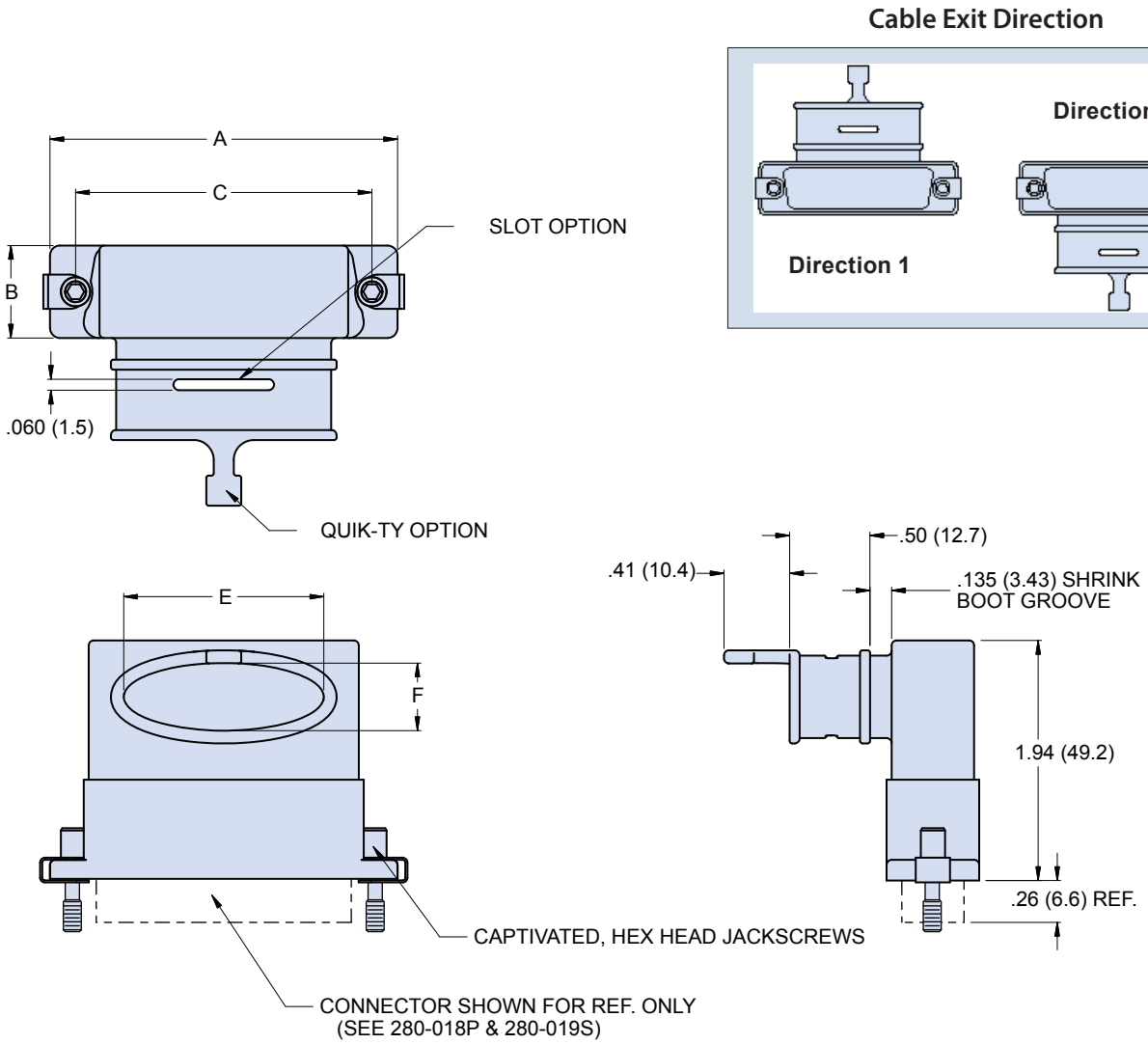
289S008 DIMENSIONS



Dimensions																						
Shell Size	A Max		B Max		C Basic		Entry Size A				Entry Size B				Entry Size C				Entry Size D			
							E		F		E		F		E		F		E		F	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	1.395	35.43	.624	15.85	.984	24.99	.143	3.63	.143	3.63	.195	4.95	.195	4.95	.242	6.15	.242	6.15	.438	11.13	.375	9.53
2	1.706	43.33	.624	15.85	1.312	33.32	.188	4.78	.188	4.78	.256	6.50	.256	6.50	.480	12.19	.375	9.53	.688	17.48	.375	9.53
3	2.265	57.53	.624	15.85	1.852	47.04	.245	6.22	.245	6.22	.550	13.97	.375	9.53	.780	19.81	.375	9.53	1.125	28.58	.375	9.53
4	2.900	73.66	.624	15.85	2.500	63.50	.291	7.39	.291	7.39	.800	20.32	.375	9.53	1.260	32.00	.375	9.53	1.813	46.05	.375	9.53
5	2.800	71.12	.750	19.05	2.406	61.11	.326	8.28	.326	8.28	.770	19.56	.485	12.32	1.250	31.75	.485	12.32	1.750	44.45	.485	12.32
6	2.900	73.66	.844	21.44	2.500	63.50	.376	9.55	.376	9.55	.863	21.92	.550	13.97	1.323	33.60	.550	13.97	1.875	47.63	.550	13.97

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HiPer-D® Accessories

EMI Backshell, one-piece, environmental, panel mount

289T007 top entry, 289B007 45º entry, 289S007 side entry



FOR USE WITH GLENAIR SERIES 28 HIPER-D CONNECTORS

289-007 backshell fits panel mount HiPer-D® connectors. Available in straight, right angle and 45° versions. Aluminum or stainless steel body, fluorosilicone rubber gasket and stainless steel screws. Design also features a boot groove for the attachment of Series 77 heatshrink boots. Terminate cable shield with optional Band-Master ATS® band. Optional slot allows easy termination of multiple individual cable shields. Attach cable ties to optional Qwik-Ty™ leg.

Entry Style

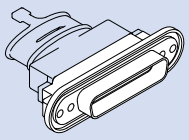

Fig. 1 **Top Entry** 289T007

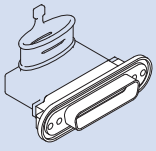

Fig. 2 **Side Entry** 289S007

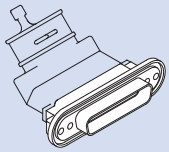

Fig. 3 **45º Entry** 289B007

Qwik-Ty™ Option

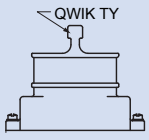

Fig. 4 **Qwik-Ty™**

Slot Option

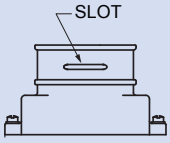

Fig. 5 **Slots**

Cable Entry Direction

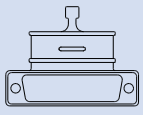

Fig. 6 **Long Side Entry (1)**

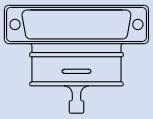

Fig. 7 **Short Side Entry (2)**

Ordering Information

Sample Part Number	289B007	ME	2	C	-T	N	N	1

Basic Part Number	**289T007** = Top Entry (*Fig. 1*) **289S007** = Side Entry (*Fig. 2*) **289B007** = 45º Entry (*Fig. 3*)
Finish	**ME** = Electroless Nickel **MT** = Nickel-PTFE **JF** = Cadmium with Yellow Chromate **Z2** = Gold **Z1** = Passivated Stainless Steel
Shell Size	**1** = Shell Size 1 **2** = Shell Size 2 **3** = Shell Size 3 **4** = Shell Size 4 **5** = Shell Size 5 **6** = Shell Size 6
Entry Size	**A, B, C or D** See Cable Entry Size Table Below
Qwik-Ty™ Option	**N** = Supplied without Qwik-Ty™ **T** = With Qwik-Ty™ Strain Relief (*Fig. 4*)
Slot Option	**N** = Supplied without Slots **S** = With Slots for Terminating Individual Shields (*Fig. 5*)
EMI/RFI Band	**N** = Supplied without Band **K** = Supplied with Pre-Coiled Band (600-052-1)
Cable Entry Direction	***Omit for 289T007. Applies only to 289S007 and 289B007.*** **1** = Cable Entry on Long Side of Shell Keystone (*Fig. 6*) **2** = Cable Entry on Short Side of Shell Keystone (*Fig. 7*)

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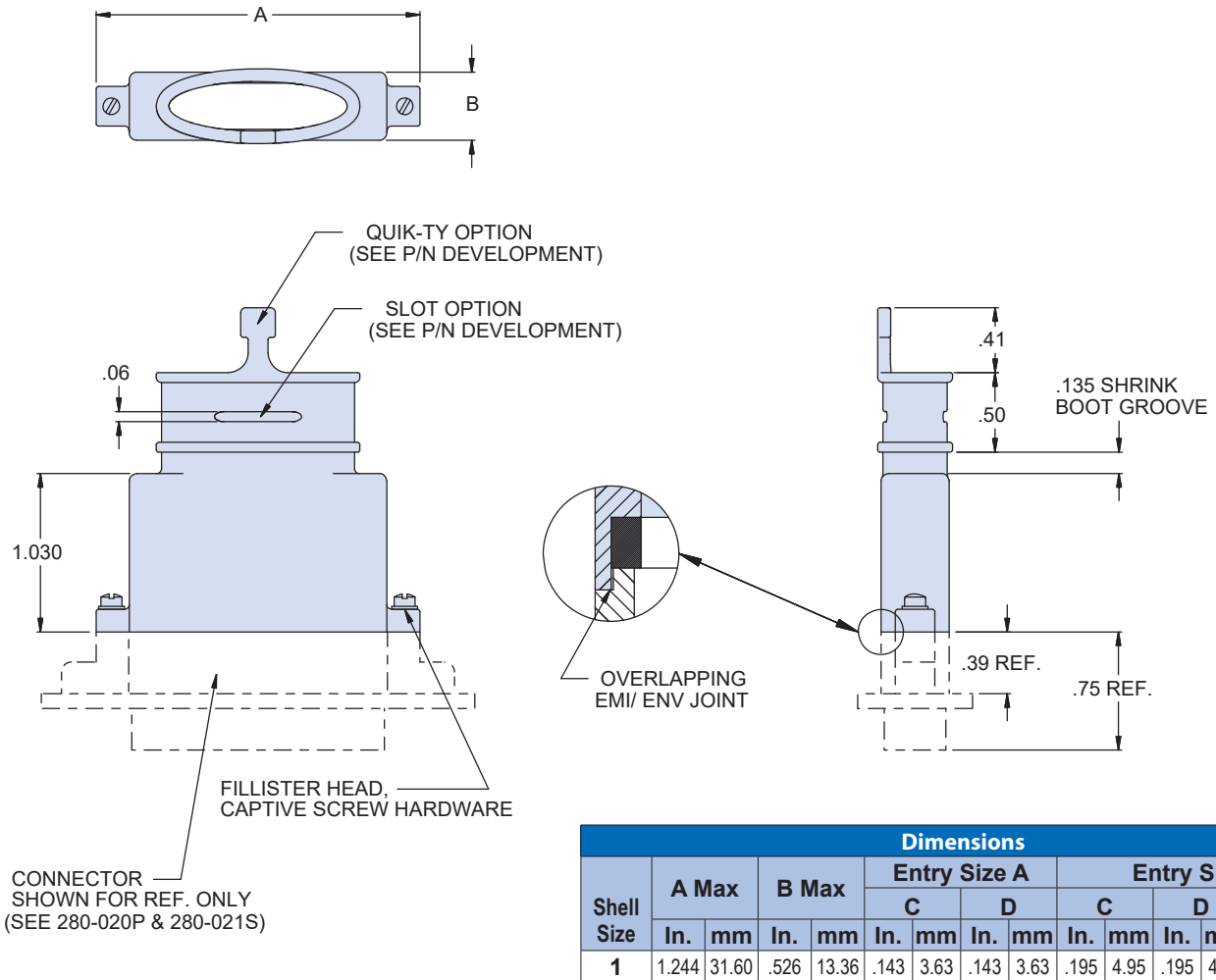
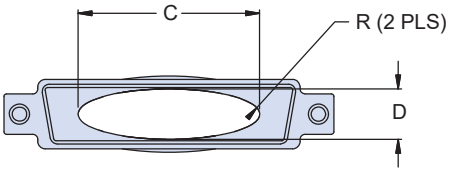
Rev. 06.12.23

289T007 DIMENSIONS





Dimensions																
Shell Size	A Max		B Max		Entry Size A				Entry Size B							
					C		D		C		D		R			
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm		
1	1.244	31.60	.526	13.36	.143	3.63	.143	3.63	.195	4.95	.195	4.95	N/A			
2	1.572	39.93	.526	13.36	.188	4.78	.188	4.78	.256	6.50	.256	6.50	N/A			
3	2.112	53.64	.526	13.36	.245	6.22	.245	6.22	.550	13.97	.375	9.53	.125	3.18		
4	2.760	70.10	.526	13.36	.291	7.39	.291	7.39	.800	20.32	.375	9.53	.125	3.18		
5	2.666	67.72	.628	15.92	.326	8.28	.326	8.28	.770	19.56	.485	12.32	.156	3.96		
6	2.760	70.10	.690	17.53	.376	9.55	.376	9.55	.863	21.92	.550	13.97	.188	4.78		

Dimensions continued																		
Shell Size	Entry Size C						Entry Size D						Entry Size E					
	C		D		R		C		D		R		C		D		R	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	.242	6.15	.242	6.15	N/A		.438	11.13	.375	9.53	.160	4.06	.625	15.88	.375	9.53	.130	3.30
2	.480	12.19	.375	9.53	.125	3.18	.688	17.48	.375	9.53	.130	3.30	.938	23.83	.375	9.53	.130	3.30
3	.780	19.81	.375	9.53	.125	3.18	1.125	28.58	.375	9.53	.109	2.77	1.438	36.53	.375	9.53	.109	2.77
4	1.260	32.00	.375	9.53	.125	3.18	1.813	46.05	.375	9.53	.109	2.77	2.125	53.98	.375	9.53	.109	2.77
5	1.250	31.75	.485	12.32	.156	3.96	1.750	44.45	.485	12.32	.125	3.18	2.000	50.80	.485	12.32	.125	3.18
6	1.323	33.60	.550	13.97	.156	3.96	1.875	47.63	.550	13.97	.125	3.18	2.125	53.98	.550	13.97	.125	3.18

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Rev. 05.11.20

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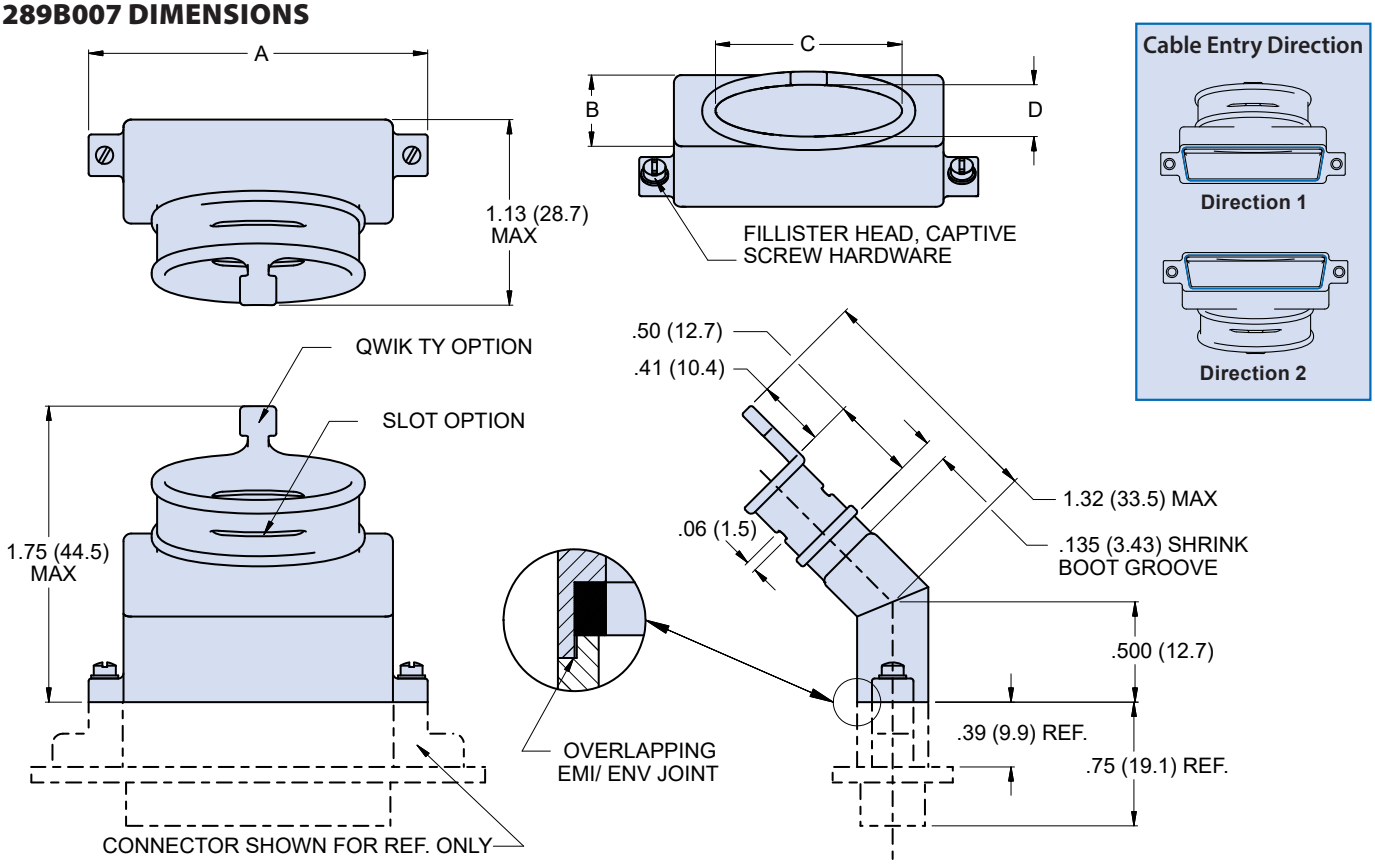
EMI Backshell, one-piece, environmental, panel mount

289B007 45º entry

289B007 DIMENSIONS



Dimensions														
Shell Size	A Max		B Max		Entry Size A				Entry Size B					
					C		D		C		D		R	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	1.229	31.22	.498	12.65	.143	3.63	.143	3.63	.195	4.95	.195	4.95	N/A	
2	1.557	39.55	.498	12.65	.188	4.78	.188	4.78	.256	6.50	.256	6.50	N/A	
3	2.097	53.26	.498	12.65	.245	6.22	.245	6.22	.550	13.97	.375	9.53	.125	3.18
4	2.745	69.72	.498	12.65	.291	7.39	.291	7.39	.800	20.32	.375	9.53	.125	3.18
5	2.651	67.34	.600	15.24	.326	8.28	.326	8.28	.770	19.56	.485	12.32	.156	3.96
6	2.745	69.72	.662	16.81	.376	9.55	.376	9.55	.863	21.92	.550	13.97	.188	4.78

Dimensions continued												
Shell Size	Entry Size C						Entry Size D					
	C		D		R		C		D		R	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	.242	6.15	.242	6.15	N/A		.438	11.13	.375	9.53	.160	4.06
2	.480	12.19	.375	9.53	.125	3.18	.688	17.48	.375	9.53	.130	3.30
3	.780	19.81	.375	9.53	.125	3.18	1.125	28.58	.375	9.53	.109	2.77
4	1.260	32.00	.375	9.53	.125	3.18	1.813	46.05	.375	9.53	.109	2.77
5	1.250	31.75	.485	12.32	.156	3.96	1.750	44.45	.485	12.32	.125	3.18
6	1.323	33.60	.550	13.97	.156	3.96	1.875	47.63	.550	13.97	.125	3.18

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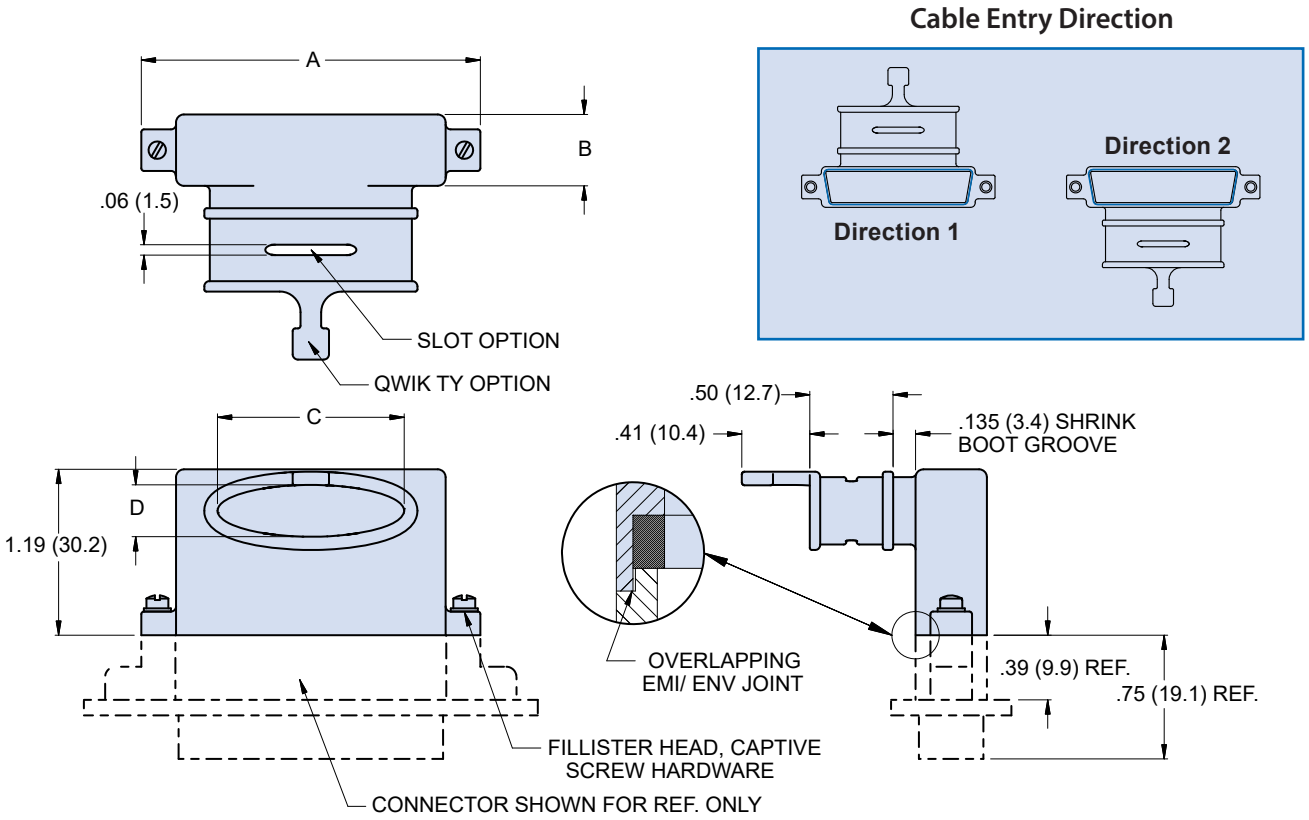
HiPer-D® Accessories

EMI Backshell, one-piece, environmental, panel mount

289S007 side entry

289S007 DIMENSIONS



Dimensions														
Shell Size	A Max		B Max		Entry Size A				Entry Size B					
					C		D		C		D		R	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	1.244	31.60	.526	13.36	.143	3.63	.143	3.63	.195	4.95	.195	4.95	N/A	
2	1.572	39.93	.526	13.36	.188	4.78	.188	4.78	.256	6.50	.256	6.50	N/A	
3	2.112	53.64	.526	13.36	.245	6.22	.245	6.22	.550	13.97	.375	9.53	.125	3.18
4	2.760	70.10	.526	13.36	.291	7.39	.291	7.39	.800	20.32	.375	9.53	.125	3.18
5	2.666	67.72	.628	15.95	.326	8.28	.326	8.28	.770	19.56	.485	12.32	.156	3.96
6	2.760	70.10	.690	17.53	.376	9.55	.376	9.55	.863	21.92	.550	13.97	.188	4.78

Dimensions continued												
Shell Size	Entry Size C						Entry Size D					
	C		D		R		C		D		R	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
1	.242	6.15	.242	6.15	N/A		.438	11.13	.375	9.53	.160	4.06
2	.480	12.19	.375	9.53	.125	3.18	.688	17.48	.375	9.53	.130	3.30
3	.780	19.81	.375	9.53	.125	3.18	1.125	28.58	.375	9.53	.109	2.77
4	1.260	32.00	.375	9.53	.125	3.18	1.813	46.05	.375	9.53	.109	2.77
5	1.250	31.75	.485	12.32	.156	3.96	1.750	44.45	.485	12.32	.125	3.18
6	1.323	33.60	.550	13.97	.156	3.96	1.875	47.63	.550	13.97	.125	3.18

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

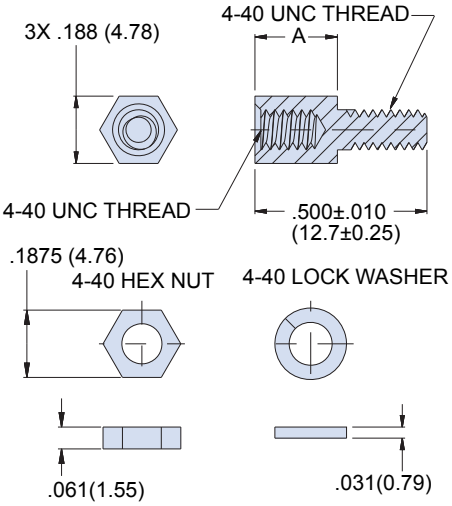
289-015 JACKPOST KIT FOR HIPER-D® CABLE CONNECTORS

Jackpost kits for panel mounting of HiPer-D® cable connectors. 289-015 jackposts fit HiPer-D® cable connectors 280-018P, 280-019S, 280-046P and 280-047S. For front-mounted and cable-mounted connectors, use 289-015-A. For rear panel mounted connectors, choose the correct jackpost based on panel thickness. #4-40 UNC 2B threads. One kit consists of (2) jackposts, (2) hex nuts and (2) split lockwashers. 300 series stainless steel, passivated.



289-015

Hiper-D Jackpost Kits for Cable Connectors				
Panel Thickness		Part Number	A	
In.	mm.		In.	mm.
(none)	(none)	289-015-A	.250	6.35
.031	0.79	289-015-B	.219	5.56
.047	1.19	289-015-C	.203	5.16
.062	1.57	289-015-D	.188	4.78
.093(1)	2.36 (1)	289-015-D	.188	4.78
.125 (1)	3.18 (1)	289-015-D	.188	4.78
Note (1) Panels thicker than .062 (1.57) must be counter-bored.				



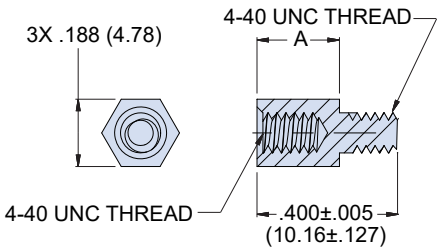
289-016 JACKPOST KIT FOR LOW PROFILE PCB CONNECTORS

289-016

Stainless steel jackposts for panel mounting of low profile HiPer-D® PCB connectors. For freestanding connectors, use 289-016-A. For rear panel mounted connectors, choose the correct jackpost based on panel thickness. #4-40 UNC 2B threads. 300 series stainless steel, passivated. One kit consists of (2) jackposts. Install into connector flange with threadlocking compound (not supplied).



Hiper-D Jackpost Kits for PCB Connectors				
Panel Thickness		Part Number	A	
In.	mm.		In.	mm.
(none)	(none)	289-016-A	.250	6.35
.031	0.79	289-016-B	.219	5.56
.047	1.19	289-016-C	.203	5.16
.062	1.57	289-016-D	.188	4.78
.093(1)	2.36 (1)	289-016-D	.188	4.78
.125 (1)	3.18 (1)	289-016-D	.188	4.78
Note (1) Panels thicker than .062 (1.57) must be counter-bored.				



Jackpost General information		
Mounting torque	4-40 thread	5.0 - 6.0 inch pounds
Mating torque	4-40 thread	3.5 – 4.0 inch pounds

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Guide pins, bushings and jackposts for panel mount connectors 289-014-B, 289-014-G, and 289-014-P

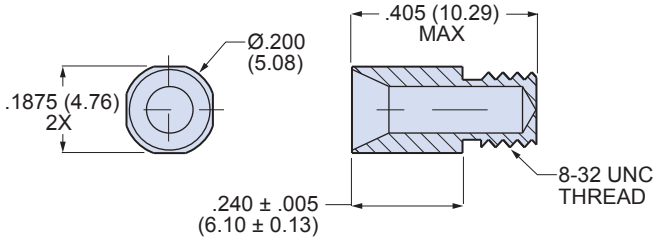
289-014-B GUIDE BUSHING KIT



289-014

Style "B" guide bushing for blind mate applications has #8-32 thread for installation into panel mount HiPer-D® connectors with corresponding #8-32 tapped flange. 300 series stainless steel, passivated. One kit consists of (2) bushings. Install with threadlocking compound. Mates with style "G" guide pin 289-014-G.

Part Number
289-014-B

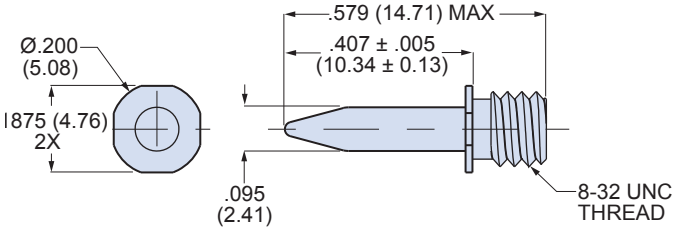


289-014-G GUIDE PIN KIT



Style "G" guide pin for blind mate applications has #8-32 thread for installation into panel mount HiPer-D® connectors with corresponding #8-32 tapped flange. 300 series stainless steel, passivated. One kit consists of (2) guide pins. Install with threadlocking compound. Mates with style "B" guide bushing 289-014-B.

Part Number
289-014-G

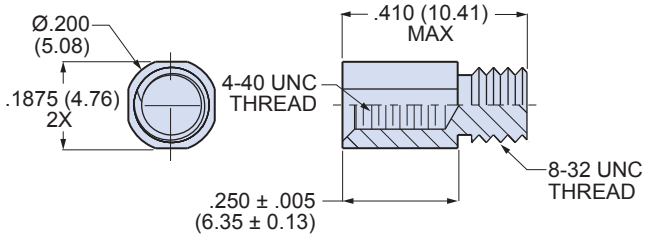


289-014-P JACKPOST KIT



Style "P" jackpost has #8-32 thread for installation into panel mount HiPer-D® connectors with corresponding #8-32 tapped flange. 300 series stainless steel, passivated. One kit consists of (2) jackposts. Install with threadlocking compound. Mates with all standard #4-40 male screw locks and jackscrews.

Part Number
289-014-P



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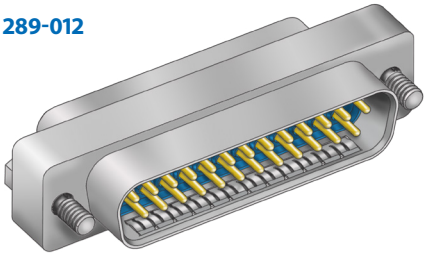
HiPer-D® Accessories

Sav-Con® D-subminiature connector saver

289-012

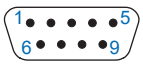
289-012



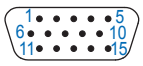
Prevent damage to expensive instruments and cables with Glenair HiPer-D® Sav-Cons®. One side is a pin connector and the other side is a socket connector. Low profile one-piece machined aluminum housing and ground spring protect circuits from EMI problems. Contacts are heavy gold plated for improved durability. Available in standard density and high density contact arrangements. Contacts are factory-installed. Pin mating face has fluorosilicone rubber seal. Choose electroless nickel or gold shell finish for avionics and space applications. Choose cadmium for compatibility with cadmium or zinc plated M24308 connectors, or choose nickel-PTFE for maximum corrosion protection. Other materials and finishes available on request.

Ordering Information					
Sample Part Number	**289-012**	**3S25**	**ME**	**G**	**R**
Basic Part Number	**289-012** Sav-Con® D-subminiature connector saver				
Shell Size/Insert Arrangements	See Contact Arrangement tables				
Shell Finish	**ME** - Electroless Nickel Over Aluminum **MT** - Nickel Flourocarbon Over Aluminum **Z1** - Passivated Stainless **ZM** - Electroless Nickel Over Stainless **JF** - Yellow Chromate Over Cadmium **Z2** - Gold Over Aluminum				
Grounding Option	**G** - EMI/Grounding **N** - None				
Hardware Options	**R** - Free Rotating Hardware **N** - No Hardware				

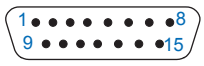
STANDARD AND HIGH DENSITY CONTACT ARRANGEMENTS *(face view of pin connector)*



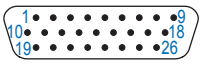
1S9
9 #20 Contacts



1H15
15 #22 Contacts



2S15
15 #20 Contacts



2H26
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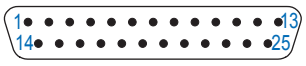

3S25
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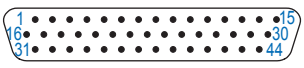
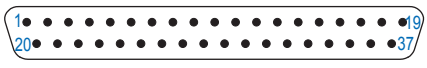
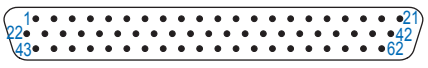


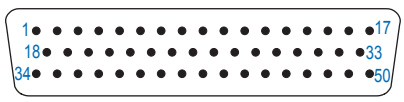
3H44
44 #22 Contacts



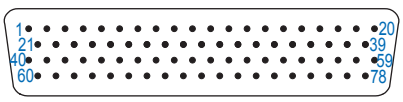
4S37
37 #20 Contacts



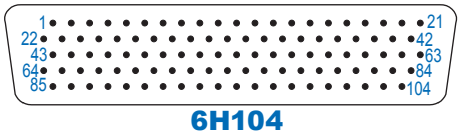
4H62
62 #22 Contacts



5S50
50 #20 Contacts



5H78
78 #22 Contacts



6H104
104 #22 Contacts

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HiPer-D® Accessories

Sav-Con® D-subminiature connector saver

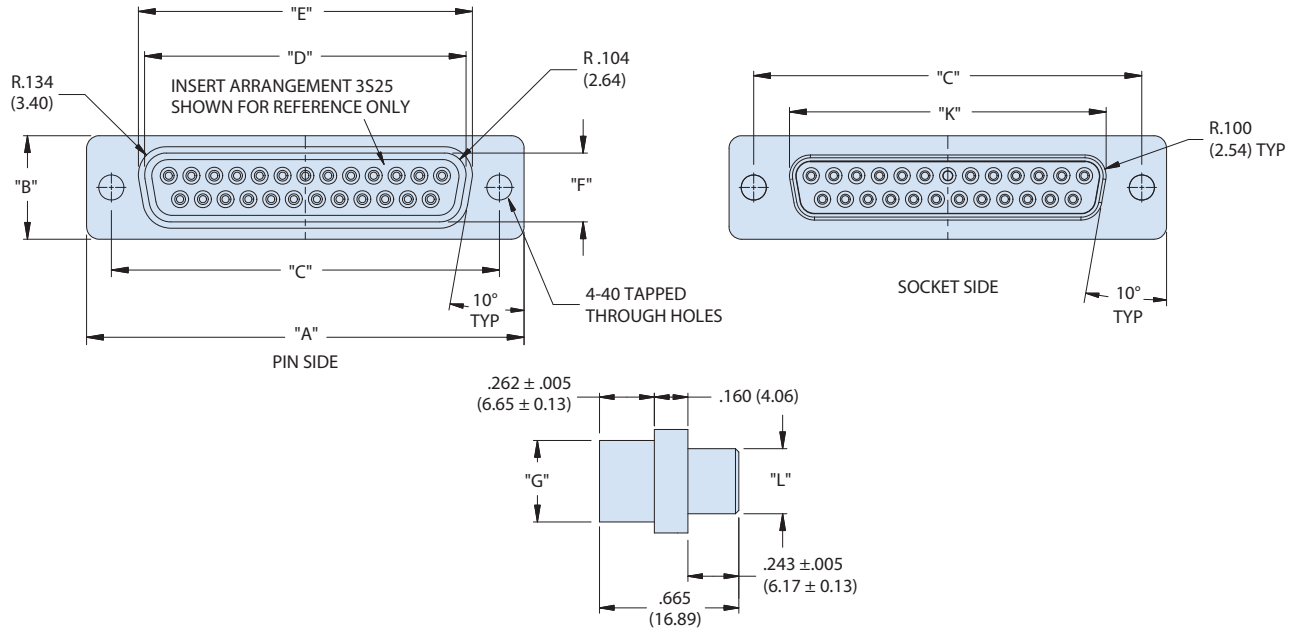
289-012

289-012 SAV-CON MATERIALS, FINISHES AND SPECIFICATIONS

Specifications	
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Shock	300 g.
Vibration, Random	43.92 g.

Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold
Insulator	Thermoset epoxy
EMI Spring	Copper alloy, nickel plated
Face Seal	Fluorosilicone rubber
Hardware	300 series stainless steel

289-012 SAV-CON DIMENSIONS



Shell Size	A		B		C		D		E		F		G		K		L	
	In . ± .015	mm. ± 0.38	In . ± .015	mm. ± 0.38	In . ± .005	mm. ± 0.13	In . ± .005	mm. ± 0.13	In . ± .005	mm. ± 0.13	In . ± .005	mm. ± 0.13	In . ± .005	mm. ± 0.13	In . ± .005	mm. ± 0.13	In . ± .005	mm. ± 0.13
1	1.213	30.81	.494	12.55	.984	24.99	.666	16.92	.726	18.44	.329	8.36	.389	9.88	.643	16.33	.643	7.90
2	1.541	39.14	.494	12.55	1.312	33.32	.994	25.25	1.054	26.77	.329	8.36	.389	9.88	.971	24.66	.971	7.90
3	2.088	53.04	.494	12.55	1.852	47.04	1.534	38.96	1.594	40.49	.329	8.36	.389	9.88	1.511	38.38	1.511	7.90
4	2.729	69.32	.494	12.55	2.500	63.50	2.182	55.42	2.242	56.95	.329	8.36	.389	9.88	2.159	54.84	2.159	7.90
5	2.635	66.93	.605	15.37	2.406	61.11	2.079	52.81	2.139	54.33	.441	11.20	.501	12.73	2.064	52.43	2.064	10.74
6	2.729	69.32	.668	16.97	2.500	63.50	2.212	56.18	2.272	57.71	.503	12.78	.563	14.30	2.189	55.60	2.189	12.34

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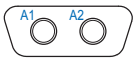
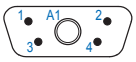
HiPer-D® Accessories

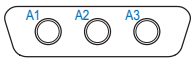
Sav-Con® D-subminiature connector saver

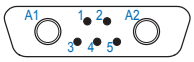
289-012

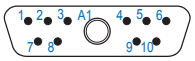
Mating face of pin connector. Socket connector numbers are reversed.



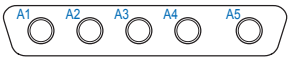


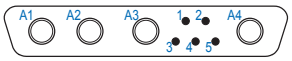


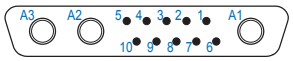


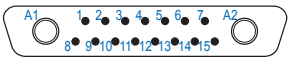


Arrangement	-2P2	-5P1	-3P3	-7P2	-11P1
Shell Size	1	1	2	2	2
Contacts	2 #8	4 #20, 1 #8	3 #8	5 #20, 2 #8	10 #20, 1 #8

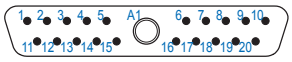


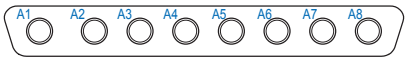


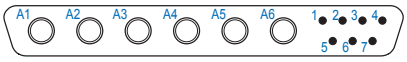




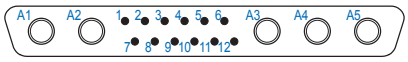
Arrangement	-5P5	-9P4	-13P3	-17P2
Shell Size	3	3	3	3
Contacts	5 #8	5 #20, 4 #8	10 #20, 3 #8	15 #20, 2 #8

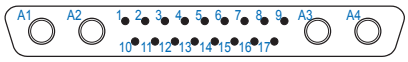




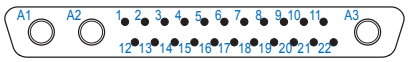


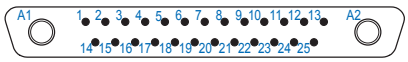
Arrangement	-21P1	-8P8	-13P6
Shell Size	3	4	4
Contacts	20 #20, 1 #8	8 #8	7 #20, 6 #8



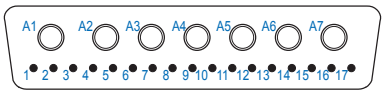


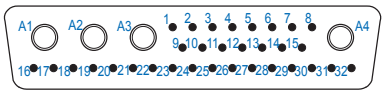
Arrangement	-17P5	-21PA4
Shell Size	4	4
Contacts	12 #20, 5 #8	17 #20, 4 #8



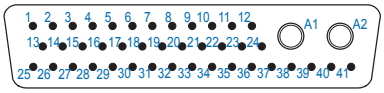


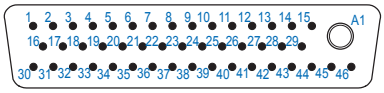
Arrangement	-25P3	-27P2
Shell Size	4	4
Contacts	22 #20, 3 #8	25 #20, 2 #8





Arrangement	-24P7	-36P4
Shell Size	4	5
Contacts	17 #20, 7 #8	32 #20, 4 #8





Arrangement	-43P2	-47P1
Shell Size	5	5
Contacts	41 #20, 2 #8	46 #20, 1 #8

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HiPer-D® Accessories

Shorting Plug Assembly

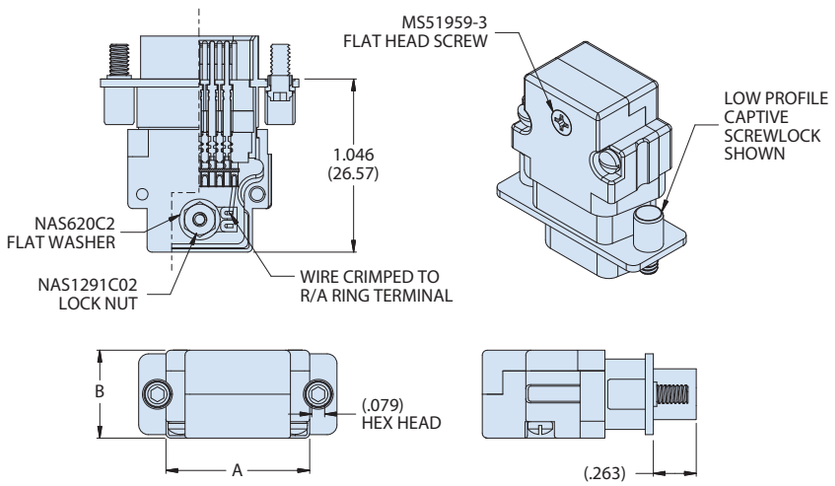
289-053

Ordering Information					
Sample Part Number	**289-053P**	**1H15**	**ME**	**N**	**S**
Basic Part Number	**289-053P** Hiper-D Shorting Plug with Pin Contacts				
Shell Size/Insert Arrangements	See Contact Arrangement tables				
Shell Finish	**ME** - Electroless Nickel Over Aluminum **MT** - Nickel Flourocarbon Over Aluminum **Z1** - Passivated Stainless **ZM** - Electroless Nickel Over Stainless **JF** - Yellow Chromate Over Cadmium				
Grounding Option	**G** - EMI/Grounding	**N** - None			
Hardware Options	**N** - None (Thru Hole) **L** - Low Profile Jackscrew **S** - Low Profile Jackpost	**P** - Female Jackpost **K** - Extended Jackscrew **T** - Extended Jackpost			

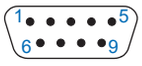
NOTES

1. Assembly identified with Glenair's name and part number, space permitting.
2. Material/finish
   Plug assembly - see plating in p/n development
   Hardware - CRES/passivated
3. See 280-018 for connector details.
4. HIPOT/DWV requirement: 5 ohms

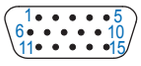
Dimensions					
Shell Size	Insert Pattern	A Max		B Max	
		In.	mm	In.	mm
1	S9; H15	.894	22.71	.550	13.97
2	S15; H26	1.218	30.94	.550	13.97
3	S25; H44	1.760	44.70	.550	13.97
4	S37; H62	2.408	61.16	.550	13.97
5	S50; H78	2.297	58.34	.654	16.61
6	H104	2.422	61.52	.716	18.19



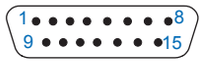
STANDARD AND HIGH DENSITY CONTACT ARRANGEMENTS *(face view of pin connector)*



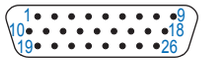
1S9
9 #20 Contacts



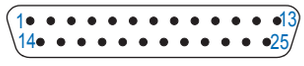
1H15
15 #22 Contacts



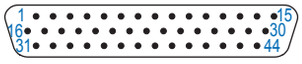
2S15
15 #20 Contacts



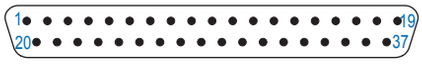
2H26
26 #22 Contacts



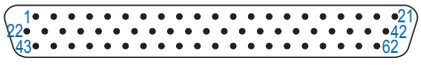
3S25
25 #20 Contacts



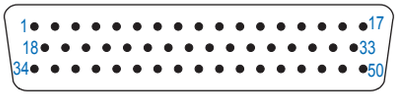
3H44
44 #22 Contacts



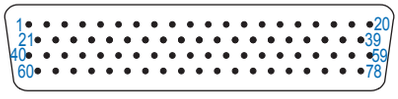
4S37
37 #20 Contacts



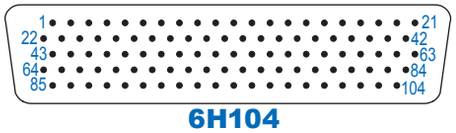
4H62
62 #22 Contacts



5S50
50 #20 Contacts



5H78
78 #22 Contacts



6H104
104 #22 Contacts

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HiPer-D® Accessories

Shorting Receptacle Assembly

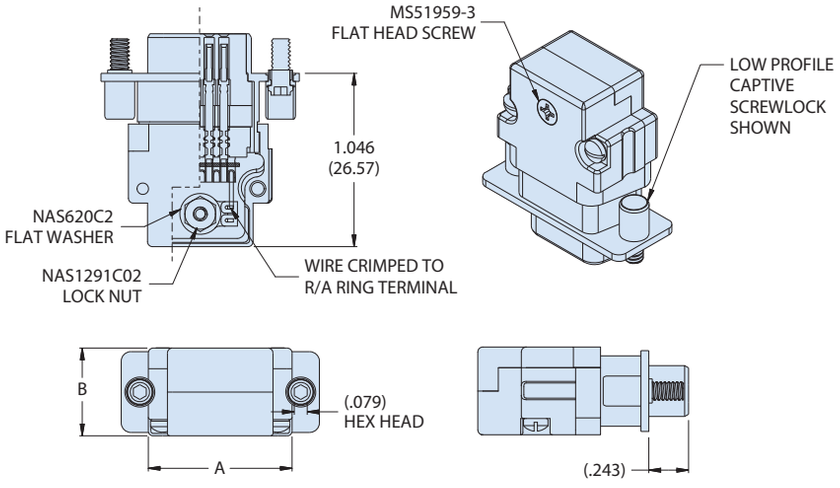
289-055

Ordering Information				
Sample Part Number	**289-055S**	**1H15**	**ME**	**S**
Basic Part Number	**289-055S** Hiper-D Shorting Plug with Socket Contacts			
Shell Size/Insert Arrangements	See Contact Arrangement tables			
Shell Finish	**ME** - Electroless Nickel Over Aluminum **MT** - Nickel Flourocarbon Over Aluminum **Z1** - Passivated Stainless **ZM** - Electroless Nickel Over Stainless **JF** - Yellow Chromate Over Cadmium			
Hardware Options	**N** - None (Thru Hole) **L** - Low Profile Jackscrew **S** - Low Profile Jackpost	**P** - Female Jackpost **K** - Extended Jackscrew **T** - Extended Jackpost		

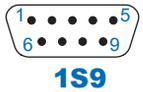
NOTES

1. Assembly identified with Glenair's name and part number, space permitting.
2. Material/finish
   Receptacle assembly - see plating in p/n development
   Hardware - CRES/passivated
3. See 280-019 for connector details.
4. HIPOT/DWV requirement: 5 ohms

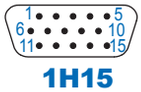
Dimensions					
Shell Size	Insert Pattern	A Max		B Max	
		In.	mm	In.	mm
1	S9; H15	.894	22.71	.550	13.97
2	S15; H26	1.218	30.94	.550	13.97
3	S25; H44	1.760	44.70	.550	13.97
4	S37; H62	2.408	61.16	.550	13.97
5	S50; H78	2.297	58.34	.654	16.61
6	H104	2.422	61.52	.716	18.19



STANDARD AND HIGH DENSITY CONTACT ARRANGEMENTS *(face view of pin connector)*



1S9
9 #20 Contacts



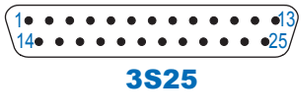
1H15
15 #22 Contacts



2S15
15 #20 Contacts



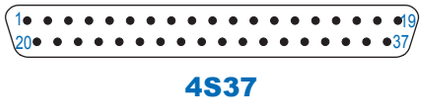
2H26
26 #22 Contacts



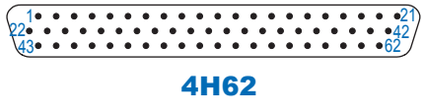
3S25
25 #20 Contacts



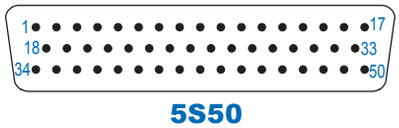
3H44
44 #22 Contacts



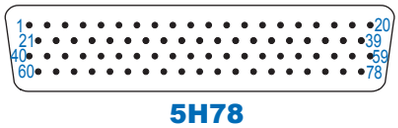
4S37
37 #20 Contacts



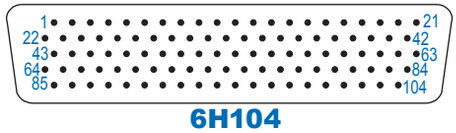
4H62
62 #22 Contacts



5S50
50 #20 Contacts



5H78
78 #22 Contacts



6H104
104 #22 Contacts

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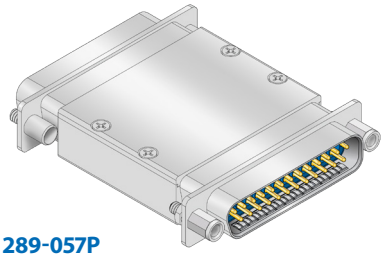
HiPer-D® Accessories

D-subminiature gender changer

289-057P, 289-058S



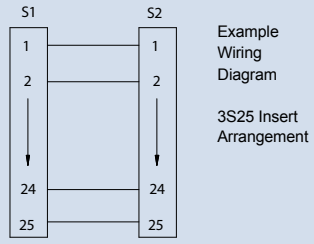
289-057P
289-058S

HiPer-D® Gender Changers provide a convenient way to change the gender of an interface to allow attachment of a mismatched cable. Two styles are available: male-male and female-female. Machined metal housing protects circuits from EMI problems. Contacts are heavy gold plated for improved durability. Available in standard density and high density contact arrangements. Intermateable with standard M24308-type connectors. Pin mating face has fluorosilicone rubber seal. Choose electroless nickel or gold shell finish for avionics and space applications. Choose cadmium for compatibility with cadmium or zinc plated M24308 connectors, or choose nickel-PTFE for maximum corrosion protection. Other materials and finishes available on request.

Ordering Information						
Sample Part Number		289-057P	3S25	ME	N	1
Basic Part Number	289-057P = Male-Male with Pin Contacts 289-058S = Female-Female with Socket Contacts					
Shell Size-Contact Arrangement	Contact Arrangements are shown in the adjacent table					
Finish	ME = Electroless Nickel MT = Nickel-PTFE JF = Cadmium with Yellow Chromate Z2 = Gold Z1 = Passivated Stainless Steel					
Ground Spring	**Omit for 289-058S. Applies to 289-057P Male-Male adapter only.** G = Supplied with EMI Ground Spring N = No Ground Spring					
Mating Hardware	1 = Captive #4-40 Male Screwlocks on Both Ends 2 = #4-40 Female Jackposts on Both Ends 3 = Captive #4-40 Male Screwlocks on One End, #4-40 Female Jackposts on One End					

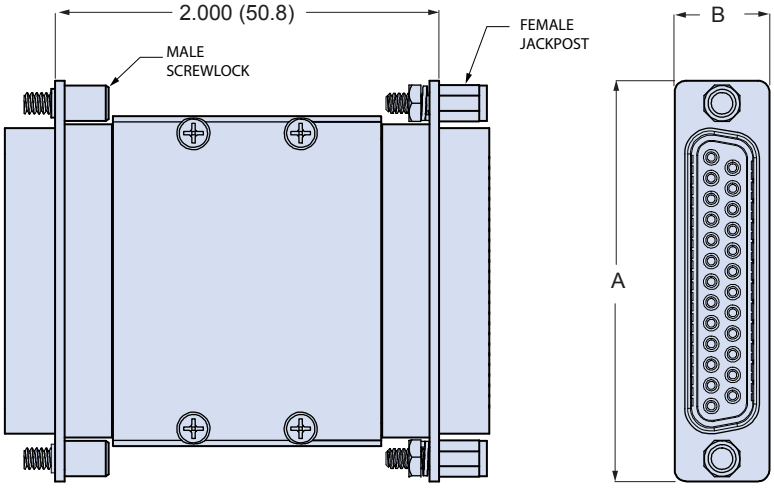
Shell Size - Contact Arrangements		
Shell Size-Contact Arr.	**Contact Size and Qty**	
	#20	**#22**
Standard Density		
1S9	9	
2S15	15	
3S25	25	
4S37	37	
5S50	50	
High Density		
1H15		15
2H26		26
3H44		44
4H62		62
5H78		78
6H104		104

Schematic



Example Wiring Diagram

3S25 Insert Arrangement



Dimensions				
	A		**B**	
Shell Size	**in** ± .015	**mm** ± 0.38	**in** ± .015	**mm** ± 0.38
1	1.213	30.81	.494	12.55
2	1.541	39.14	.494	12.55
3	2.088	53.04	.494	12.55
4	2.729	69.32	.494	12.55
5	2.635	66.93	.605	15.37
6	2.729	69.32	.668	16.97

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HiPer-D® Accessories

Band-Master™ ATS tool and bands for termination of cable braid

600-058 tool, 600-052 and 600-090 band straps

BAND-MASTER™ ATS TOOL AND BANDS





Fast, cost-effective shield termination. Attach cable shields to backshells with ***Band-Master™ ATS*** 300 series SST/passivate I.A.W. AMS 2700. The ***Band-Master™ ATS*** system offers fast termination and the flexibility to handle a wide range of parts with just one band size. Approved for aerospace and defense, these straps have successfully passed rigorous shock, vibration and environmental testing.

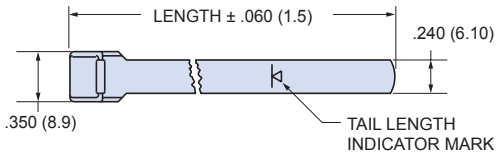
1 Band installation Tool. Use with .240" (6.10 mm) wide bands. 6.75 inches (172 mm) length, 1.2 pounds (0.6 Kg.)

2 Standard Band, .240" (6.10 mm) wide. Available in two lengths, flat or pre-coiled. Stainless steel.

Figure	Description	Part Number
1	Band installation Tool	**600-058**

Figure	Length		Part Number		Accommodates Diameter	
	in.	mm	Flat	Pre-Coiled	in.	mm
2	14.250	362.1	**600-052**	**600-052-1**	1.8	45.7
2	18.000	457.2	**600-090**	**600-090-1**	2.5	63.5

Contact Glenair or visit our website (glenair.com) to view our complete line of ***Band-Master™ ATS*** products, including pneumatic tools for high volume production and calibration kits.



BAND-MASTER™ ATS SHIELD TERMINATION INSTRUCTIONS

1. Prepare Cable Braid for termination process (Figure 1).
2. Push Braid forward over Adapter Retention Lip to the Adapter Incline Point (or .4" [10.2mm] minimum braid length). Milk Braid as required to remove slack and insure a snug fit around the shield termination area (Figure 2).
3. Prepare the Band in the following manner:

   IMPORTANT: Due to Connector/Adapter circumference, it may be necessary to prepare the Band around the Cable or Retention Area.

   A. Roll Band through the Buckle Slot twice. (Bands must be double-coiled.)

   B. Pull on Band until Mark (▷|) is within approximately .250 inch (6.4mm) of Buckle Slot (Figure 3). The Band may be tightened further if desired.

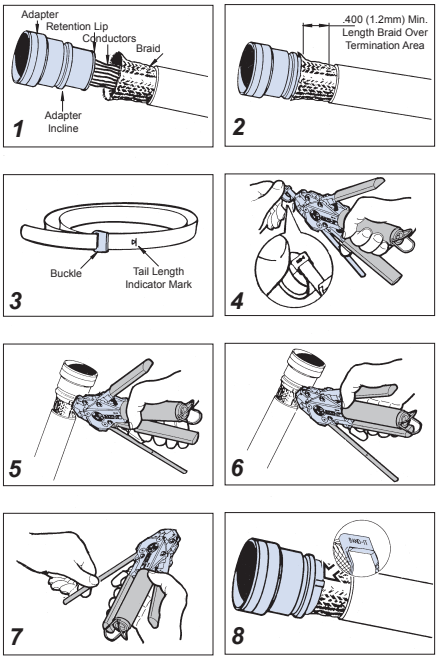
***NOTE: Prepared Band should have (▷|) Mark visible approximately where shown in Figure* 3.**

Shield Termination Clamping Process (Figures 4 thru 8)

NOTE: To free Tool Handles, move Holding Clips to center of Tool.

4. Squeeze Gripper Release Lever and insert Band into the front end opening of the Tool. (NOTE: Circular portion of looped band must always face downward.)
5. Aligning the Band and Tool with the Shield Termination Area, squeeze Black Pull-Up Handle repeatedly using short strokes until it locks against Tool Body. (This indicates the Band is compressed to the Tool Precalibrated Tension.)

   NOTE: If alignment of band and shield is unsatisfactory, tension on band can be relaxed by pushing on slotted release lever on top of tool. Make adjustments as necessary and again squeeze black pull-up handle.
6. Complete the Clamping Process by squeezing the Gray Cut-Off Handle.
7. Remove excess band from tool and dispose.
8. Inspect Shield Termination.



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HiPer-D® Accessories

Elliptical D-subminiature heatshrink boots

770-030



Elliptical heatshrink boots are designed for Glenair rectangular HiPer-D® backshells with large elliptical cable entries. Heatshrink boots provide strain relief and environmental protection. Shape-memory polymer returns to as-molded shape when heat is applied. Boot lip fits adapter groove for precise fit. Semi-rigid high performance elastomer resists high temperature and withstands exposure to petroleum-based fluids and fuels. Also available with non-halogenated flame-retardant polyolefin for use where limited fire hazard is required.

About User-Installed Adhesive

Heat-shrink boots are not watertight unless equipped with pre-coated or user-installed adhesives. When heat is applied to the boot, the adhesive melts and fixes the boot to the adapter and cable jacket to provide the necessary sealing as well as mechanical strain-relief. For maximum performance Glenair recommends Type U user-installed two-part epoxy adhesive which offers reduced boot installation time and easier installation. Pre-coated boots require additional care to install because the boot must be heated sufficiently to activate the epoxy, at the risk of overheating the overall assembly. A single 50 ml duo syringe can coat many boots. The duo syringe can be re-capped for re-use. Inexpensive mixing nozzles must be discarded after each use.

NOTE: Glenair high-performance two part epoxy meets VG95343 part 15.

See next page for ordering information on user-installed two part epoxy adhesive.



Series 77 "Full Nelson" Shrink Boot Catalog has additional boot styles, technical information, installation instructions and other heatshrink products. Contact Glenair or go to ***www.glenair.com***.

MATERIAL SELECTION GUIDE

1 **Type 1 High Performance Elastomer** -75°C to +150°C**.** Semi-rigid high performance elastomer combines excellent resistance to fuels, oils and solvents with superior performance at extreme temperatures. Material meets the requirements of VG95343 Type 6, BSG 198-5-DE, EN62329-102 and SAE AS5258 Type H. Recommended for demanding applications such as military vehicles and petrochemical exploration.

2 **Type 2 Zero Halogen Polyolefin** -30°C to +135°C**.** Low Smoke Zero Halogen (LSZH) polyolefin boots meet low smoke and toxicity requirements of shipboard, transit and aircraft systems. Oxygen index greater than 30%, smoke index less than 20, and toxicity index under 3 per 100 grams. Material meets requirements of NAVSEA 5617649, VG95343 Part 29, BSG 198-5-DF, EN62329-101 and SAE AS5258 Type G. Good resistance to oils, fuels and solvents.

PRE-COATED ADHESIVE SELECTION GUIDE

W1 **Low Smoke Zero Halogen (LSZH) polyamide hot melt adhesive Coating.** Bonds well to a variety of substrates. Good creep resistance at elevated temperatures. Excellent bond strength at low temperature. Good resistance to fuels and oils. -55°C to +105°C. Compatible with Type 1 and Type 2 boot materials.

R **High Temperature Epoxy Adhesive Coating**. Glenair's highest performance pre-coated adhesive. The material requires careful installation using trained operators. -75°C to 150°C. Withstands prolonged high temperature immersion in fuels and oils. Excellent peel adhesion. Compatible with Type 1 and Type 2 boot materials.

Ordering Information				
Sample Part Number	**770-030**	**1**	**05**	**R**
Basic Part Number	**770-030**			
Material	**1** = High Performance Elastomer **2** = Zero Halogen Polyolefin			
Boot Size	**05** = Size 05 **06** = Size 06 (see next page for dimensions)			
Adhesive Lining	**W1** = Low Smoke Zero Halogen Polyamide Hot Melt Adhesive **R** = High Temperature, High Strength Epoxy Adhesive Omit for boot with no adhesive lining			

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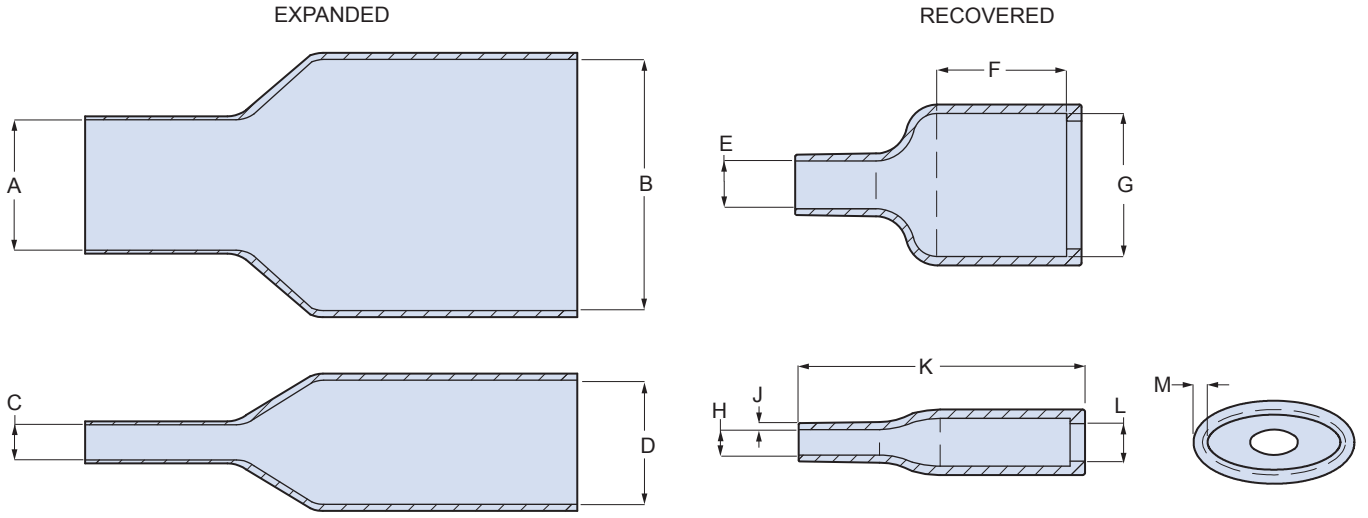
HiPer-D® Accessories

Elliptical D-subminiature heatshrink boots

770-030

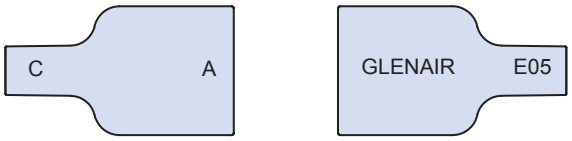
770-030 HEATSHRINK BOOT DIMENSIONS



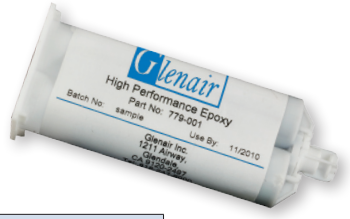
Boot Size	A Min		B Min		C Min		D Min		E Max		F ± 10%		G Max		H Max		J ± 10%		K ± 10%		L Max		M ± 10%	
	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm
05	1.50	38.1	2.00	50.8	.800	20.3	1.00	25.4	.375	9.53	1.062	27	1.125	28.6	.200	5.08	.060	1.52	2.29	58.2	.375	9.53	.070	1.78
06	1.80	45.7	2.50	63.5	.580	14.7	1.50	38.1	.450	11.43	1.062	27	1.637	41.6	.145	3.68	.060	1.52	3.05	77.5	.375	9.53	.070	1.78

770-030 HEATSHRINK BOOT IDENTIFICATION MARKINGS

Heatshrink boots are identified with molded-in lettering. This lettering shows the boot type, boot size and orientation. Position the boot so that the lipped "A" end is toward the adapter and the "C" end is toward the cable. Assembly instructions are in the ***Series 77 "Full Nelson" Environmental Shrink Boots*** catalog, available at www.glenair.com.



USER-INSTALLED BOOT ADHESIVE, DISPENSING GUN AND MIXING NOZZLE



Part Number
779-001

High performance flexible two part thermoset epoxy provides high strength flexible bond from -55° to 150°C. 50 mL duo syringe fits standard dispensing guns. Use with square green mixing nozzle sold separately. 12 hour cure time at 20°C, 1 hour at 85°C, 30 minutes at 150°C. Apply to inside of boot with wooden spatula. 18 month shelf life.



Part Number
779-002

Twin push-rod 1:1 ratio epoxy dispensing gun for use with duo syringe epoxy and mixing nozzle sold separately. Durable heavy-duty plastic. Gun type hand grip with ratcheting trigger to advance push-rods.



Part Number	Count Per Pack
779-003	12

1:1 ratio mixing nozzle attaches to duo syringe with 1/2 turn and locks into place. Nozzle provides consistent mixing of resin and hardener. Kit consists of (12) nozzles.

F

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Section F

HiPer-D® Panel Cutouts and PCB Footprints

Connector Part Number	Description	Panel Cutout Page No.	PCB Footprint Page No.
280-018P	Cable Connector, Pin Contacts	G-2	—
280-019S	Cable Connector, Socket Contacts	G-2	—
280-020P	Panel Mount, Pin Contacts	G-3	—
280-021S	Panel Mount, Socket Contacts	G-3	—
280-022P	Straight PCB, Pin Contacts	G-3	G-4 - G-6
280-023S	Straight PCB, Socket Contacts	G-3	G-7 - G-9
280-024P	Right Angle PCB, Pin Contacts	G-3	G-10 - G-12
280-025S	Right Angle PCB, Socket Contacts	G-3	G-13 - G-15
280-026P	Straight PCB, Pin Contacts	G-2	G-4 - G-6
280-027S	Straight PCB, Socket Contacts	G-2	G-7 - G-9
280-028P	Right Angle PCB, Pin Contacts	G-2	G-10 - G-12
280-029S	Right Angle PCB, Socket Contacts	G-2	G-13 - G-19
280-030P	Float Mount, Pin Contacts	G-3	—
280-031S	Float Mount, Socket Contacts	G-3	—
280-046P	Cable Connector, Pin Contacts	G-2	—
280-047S	Cable Connector, Socket Contacts	G-2	—
280-048P	Panel Mount, Pin Contacts	G-3	—
280-049P	Panel Mount, Socket Contacts	G-3	—
280-050P	Straight PCB, Pin Contacts	G-3	G-16 - G-19
280-051S	Straight PCB, Socket Contacts	G-3	G-20 - G-23
280-052P	Right Angle PCB, Pin Contacts	G-3	G-24 - G-28
280-053S	Right Angle PCB, Socket Contacts	G-3	G-29 - G-33
280-054P	Straight PCB, Pin Contacts	G-2	G-16 - G-19
280-055S	Straight PCB, Socket Contacts	G-2	G-20 - G-23
280-056P	Right Angle PCB, Pin Contacts	G-2	G-24 - G-28
280-057S	Right Angle PCB, Socket Contacts	G-2	G-29 - G-33
280-058P	Float Mount, Pin Contacts	G-3	—
280-059S	Float Mount, Socket Contacts	G-3	—
289-015	Rear Panel Mount, Jackpost Hardware Kit	G-4	—

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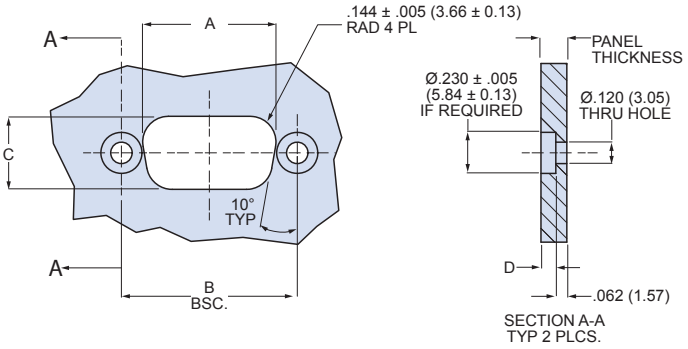
HiPer-D® Panel Cutouts and PCB Footprints

Panel cutout and mounting information for cable connectors and low profile PCB connectors

PANEL CUTOUT FOR REAR-MOUNTED CABLE CONNECTORS AND LOW PROFILE PCB CONNECTORS

Rear Mount Panel Cutout (1)



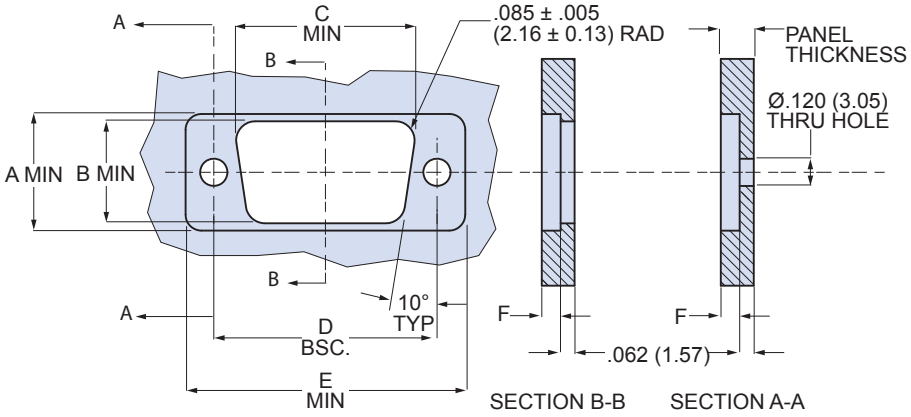
Shell Size	A in (+.005 -.000)	A in (+0.13 -0.00)	A mm (+.005 -.000)	A mm (+0.13 -0.00)	B Basic in	B Basic mm	C in. (+.005 -.000)	C in. (+0.13 -0.00)	C mm (+.005 -.000)	C mm (+0.13 -0.00)
1	.746		18.95		.984	24.99	.409		10.39	
2	1.074		27.28		1.312	33.32	.409		10.39	
3	1.614		41.00		1.852	47.04	.409		10.39	
4	2.262		57.45		2.500	63.50	.409		10.39	
5	2.159		54.84		2.406	61.11	.521		13.23	
6	2.288		58.22		2.500	63.50	.583		14.81	

Application Note for Rear Panel Mounting

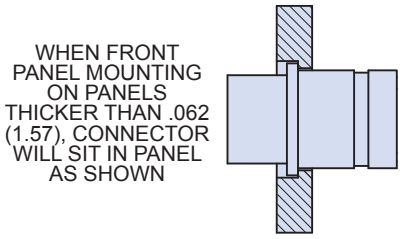
(1) For rear mounting with female Jackposts, use shortened jackposts per the table at right. For panel thickness greater than .062 (1.57), the panel must be counterbored.

Panel Thickness in	Panel Thickness mm	D in	D mm	Jackpost Part Number for Cable Connectors	Jackpost Part Number for Low Prof. PCB Connectors
No Panel		N/A	N/A	289-015-A	289-016-A
.031	0.79	N/A	N/A	289-015-B	289-016-B
.047	1.19	N/A	N/A	289-015-C	289-016-C
.062	1.57	N/A	N/A	289-015-D	289-016-D
.093	2.36	.031	0.79	289-015-D	289-016-D
.125	3.18	.063	1.60	289-015-D	289-016-D
.156	3.96	.094	2.39	289-015-D	289-015-D

PANEL CUTOUT FOR FRONT-MOUNTED CABLE CONNECTORS



Front Mount Panel Cutout



Shell Size	A in (+.005 -.000)	A in (+0.13 -0.00)	A mm (+.005 -.000)	A mm (+0.13 -0.00)	B in (+.005 -.000)	B in (+0.13 -0.00)	B mm (+.005 -.000)	B mm (+0.13 -0.00)	C in. (+.005 -.000)	C in. (+0.13 -0.00)	C mm (+.005 -.000)	C mm (+0.13 -0.00)	D Basic in	D Basic mm	E in. (+.005 -.000)	E in. (+0.13 -0.00)	E mm (+.005 -.000)	E mm (+0.13 -0.00)
1	.514		13.06		.450		11.43		.787		19.99		.984	24.99	1.233		31.32	
2	.514		13.06		.450		11.43		1.111		28.22		1.312	33.32	1.561		39.65	
3	.514		13.06		.450		11.43		1.653		41.99		1.852	47.04	2.108		53.54	
4	.514		13.06		.450		11.43		2.300		58.42		2.500	63.50	2.749		69.82	
5	.625		15.88		.552		14.02		2.190		55.63		2.406	61.11	2.655		67.44	
6	.688		17.48		.614		15.60		2.315		58.80		2.500	63.50	2.749		69.82	

Application Note for Front Panel Mounting

Panels thicker than .062 (1.57) should be machined as shown in order to prevent interference with mounting hardware and backshells. Front-mounted connectors are compatible with female Jackpost 289-015-A or M24308/26-1.

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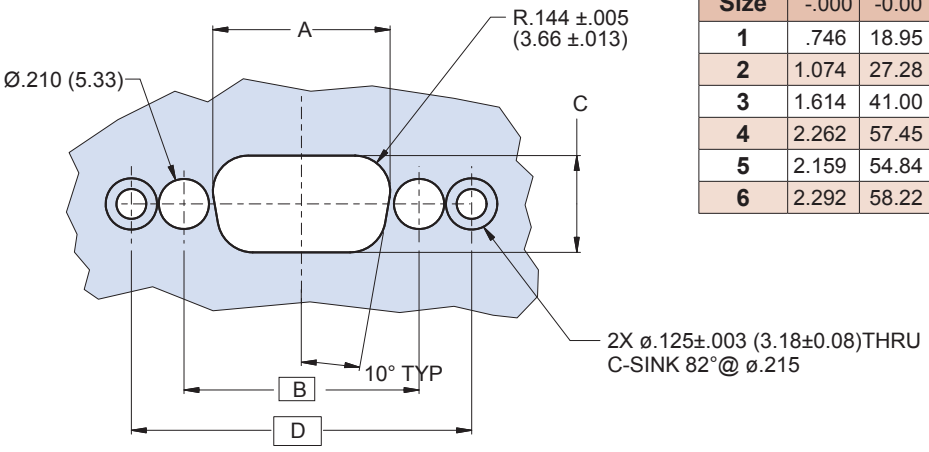
HiPer-D® Panel Cutouts and PCB Footprints

Panel cutout for panel mount connectors with O-ring and panel cutout for float mount connectors

PANEL CUTOUT FOR PANEL MOUNT CONNECTORS WITH O-RING

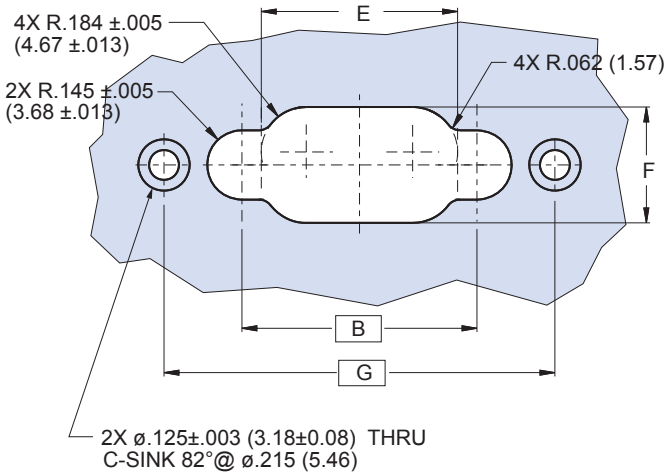
REAR PANEL MOUNT CUTOUT RECOMMENDATIONS
AS VIEWED FROM FRONT FACE OF PANEL



Shell Size	A		B Basic		C		D Basic	
	in	mm			in.	mm		
	+.005 -.000	+0.13 -0.00	in	mm	+.005 -.000	+0.13 -0.00	in	mm
1	.746	18.95	.984	24.99	.409	10.39	1.424	36.17
2	1.074	27.28	1.312	33.32	.409	10.39	1.752	44.50
3	1.614	41.00	1.852	47.04	.409	10.39	2.292	58.22
4	2.262	57.45	2.500	63.50	.409	10.39	2.940	74.68
5	2.159	54.84	2.406	61.11	.521	13.23	2.846	72.29
6	2.292	58.22	2.500	63.50	.583	14.81	2.940	74.68

PANEL CUTOUT FOR FLOAT MOUNT CONNECTORS

REAR PANEL CUTOUT VIEWED FROM FRONT OF PANEL



Shell Size	B Basic		E		F		G Basic	
			in	mm	in.	mm		
	in	mm	+.005 -.000	+0.13 -0.00	+.005 -.000	+0.13 -0.00	in	mm
1	.984	24.99	.826	20.98	.489	12.42	1.636	41.55
2	1.312	33.32	1.154	29.31	.489	12.42	1.964	49.89
3	1.852	47.04	1.694	43.03	.489	12.42	2.504	63.60
4	2.500	63.50	2.342	59.49	.489	12.42	3.152	80.06
5	2.406	61.11	2.239	56.87	.601	15.27	3.058	77.67
6	2.500	63.50	2.372	60.25	.663	16.84	3.152	80.06

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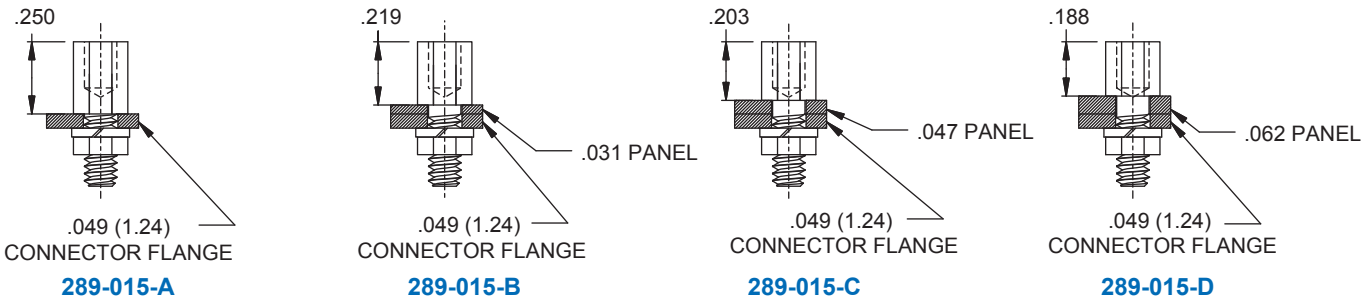
HiPer-D® Panel Cutouts and PCB Footprints

289-015 Rear panel mount, jackpost hardware kit

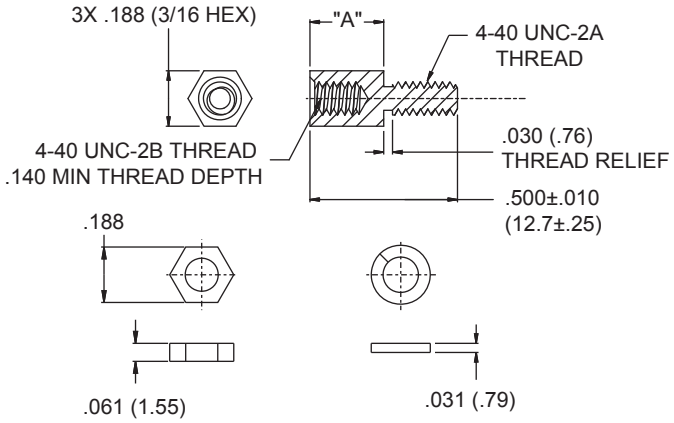
REAR PANEL MOUNTED CABLE CONNECTOR HARDWARE KITS

FOR REAR PANEL MOUNT, USE 289-015 CONFIGURED FOR PANEL THICKNESS PER TABLE I. MAX PANEL THICKNESS OF .062.
IF PANEL THICKER THAN .062, COUNTERBORE PER FIGURE 1.



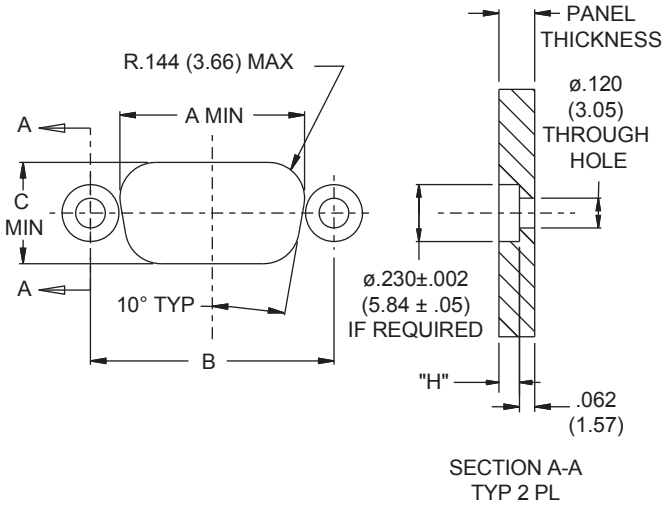
HARDWARE KIT

Dimension "A" changes to accomodate Different panel thicknesses



4-40 HEX NUT **4-40 LOCK WASHER**

FIGURE 1



REAR PANEL MOUNT CUTOUT RECOMMENDATIONS
AS VIEWED FROM FRONT FACE OF PANEL
ø.230 COUNTERBORE REQUIRED ON PANELS LARGER THAN .062

Table III: Panel Thickness

Panel Thickness	Jackpost to be used	RPM Counterbore		H	
		In	mm	In	mm
NO PANEL	289-015-A	N/A	N/A	N/A	N/A
0.031	289-015-B	N/A	N/A	N/A	N/A
0.047	289-015-C	N/A	N/A	N/A	N/A
0.062	289-015-D	N/A	N/A	N/A	N/A
0.093	289-015-D	ø.230±.005	ø5.84 ± .127	0.031	0.79
0.104	289-015-D	ø.230±.005	ø5.84 ± .127	0.042	1.07
0.125	289-015-D	ø.230±.005	ø5.84 ± .127	0.063	1.60
0.156	289-015-D	ø.230±.005	ø5.84 ± .127	0.094	2.39

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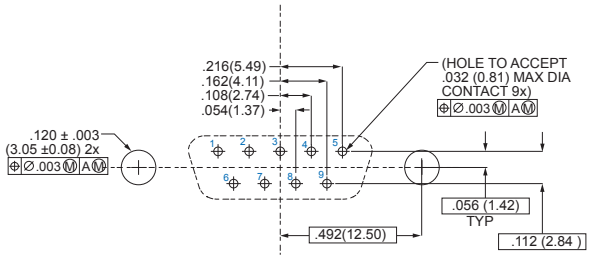
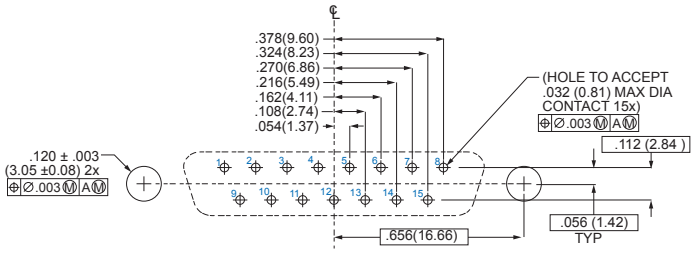
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for standard and high density pin connectors with straight PC tails

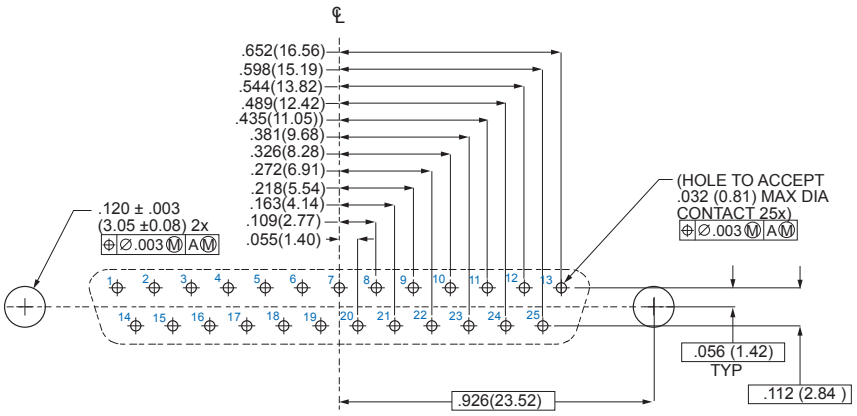
PCB FOOTPRINT FOR 280-022P AND 280-026P CONNECTORS



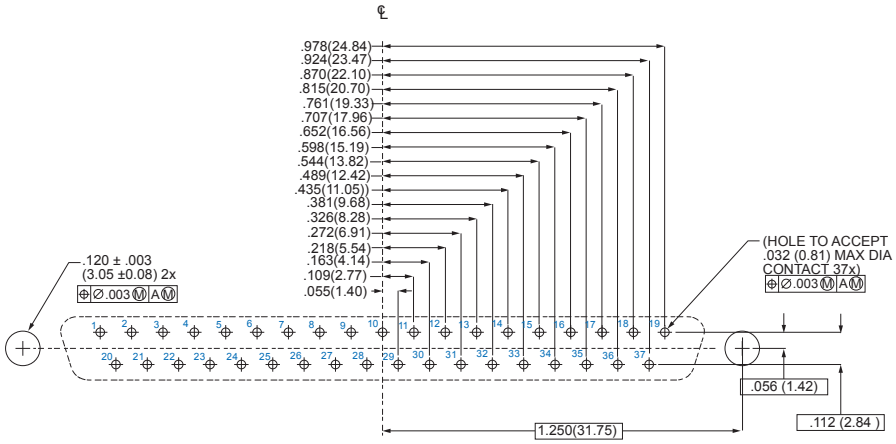
1S9
9 #20



2S15
15 #20



3S25
25 #20



4S37
37 #20

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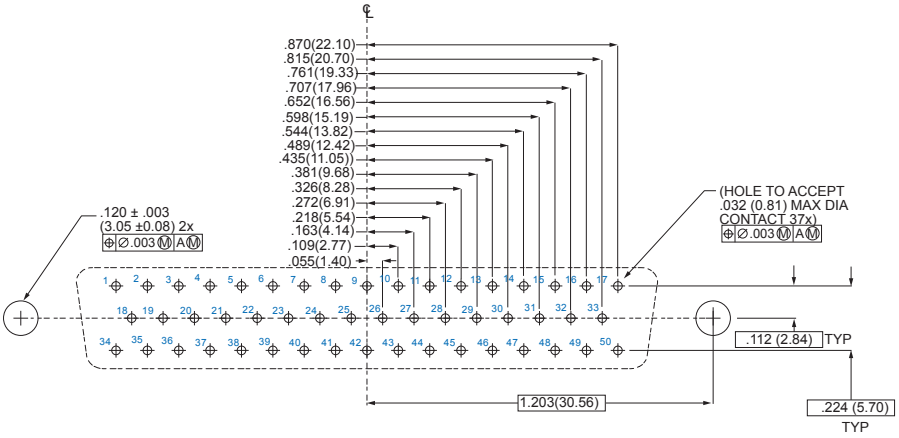
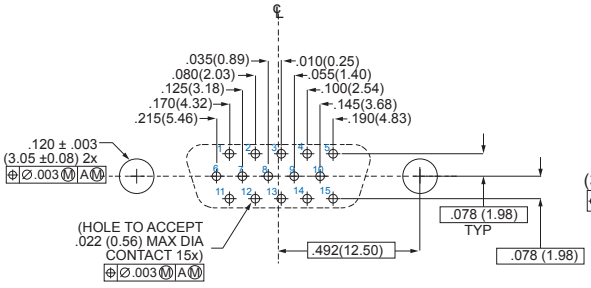
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for standard and high density pin connectors with straight PC tails

PCB FOOTPRINT FOR 280-022P AND 280-026P CONNECTORS



5S50
50 #20



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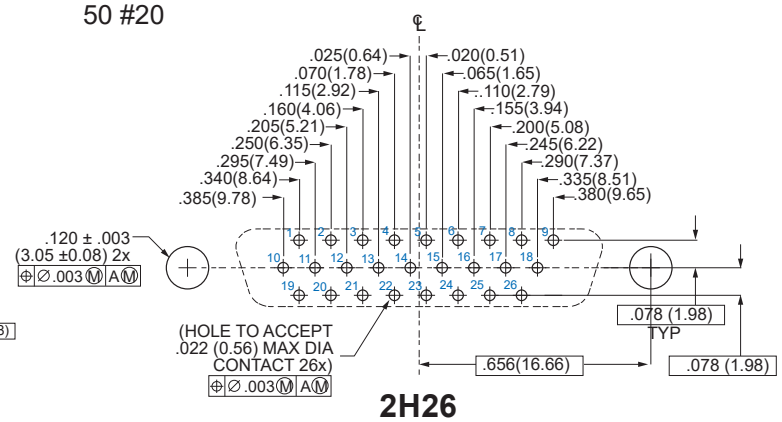
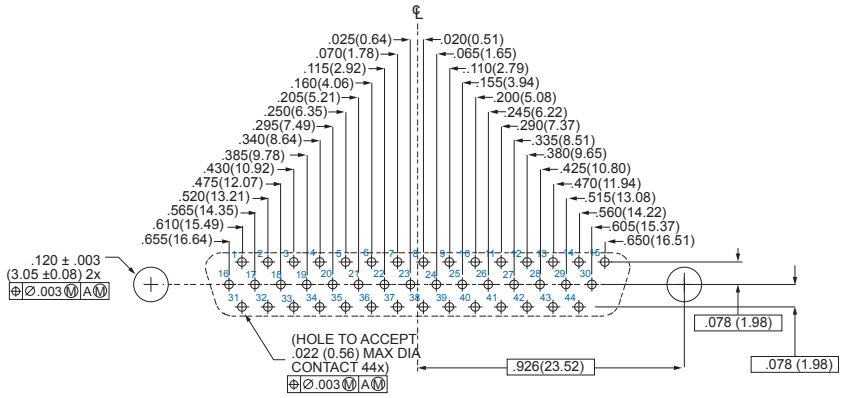


2H26
26 #22



3H44
44 #22

G

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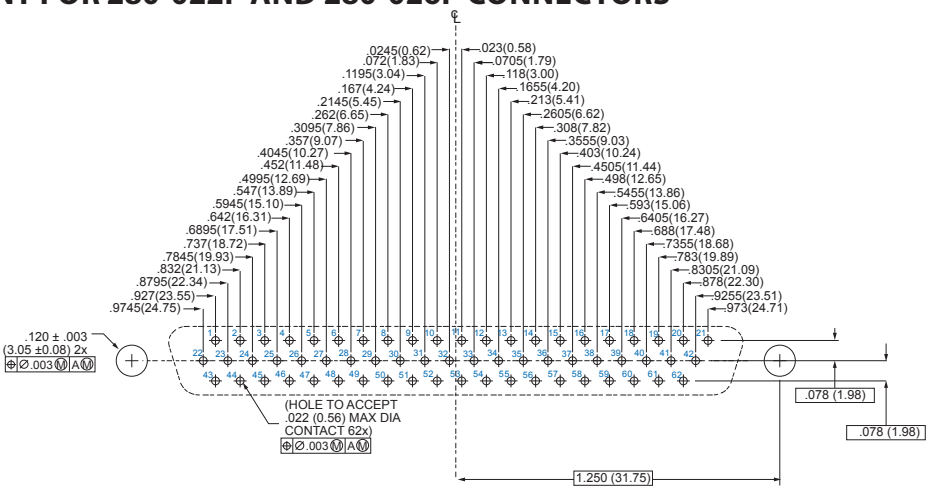
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for standard and high density pin connectors with straight PC tails

PCB FOOTPRINT FOR 280-022P AND 280-026P CONNECTORS

4H62
62 #22



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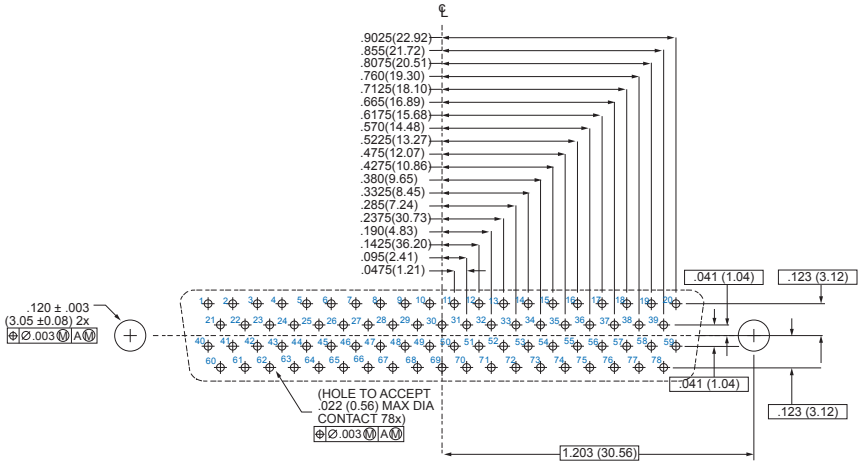
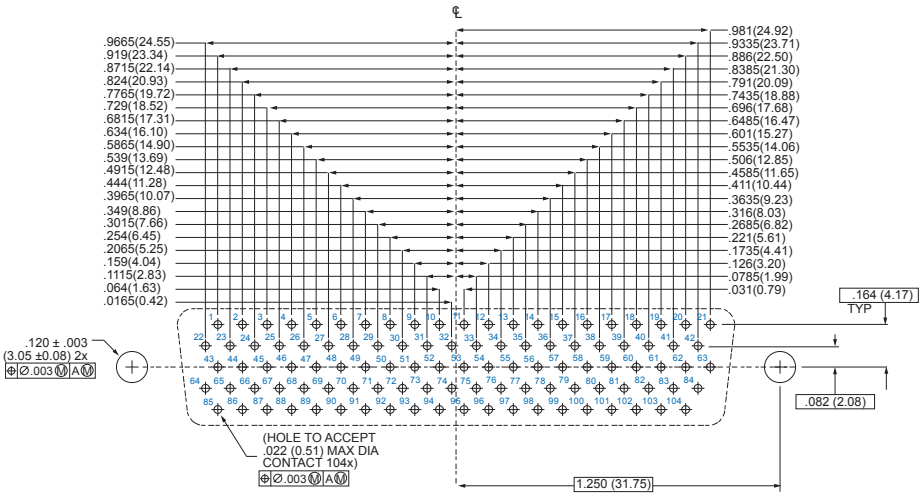
78 #22



6H104
104 #22



G

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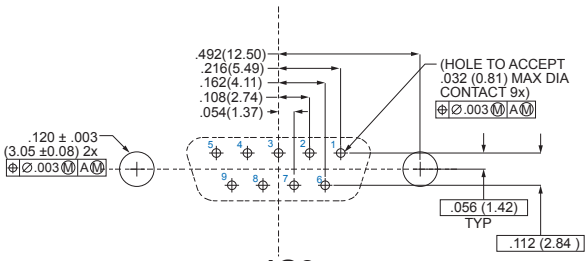
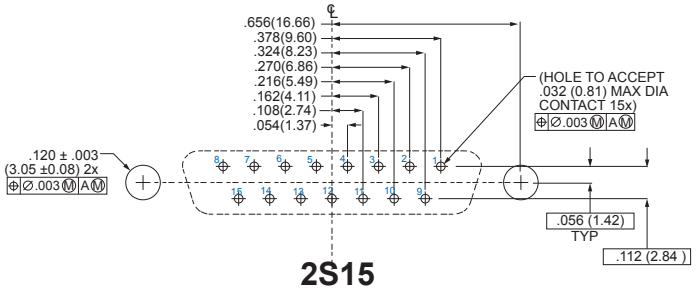
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for standard and high density socket connectors with straight PC tails

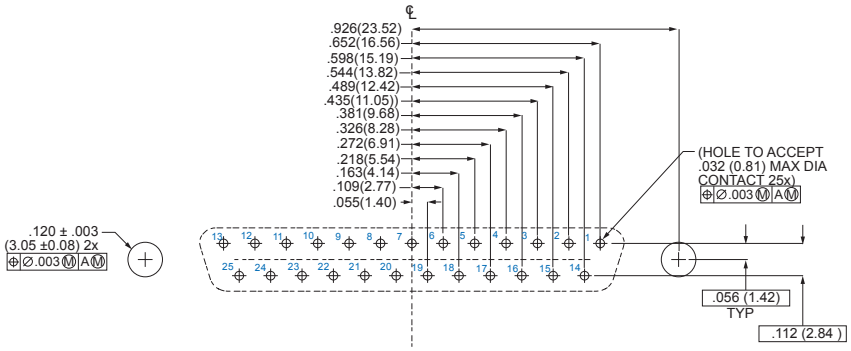
PCB FOOTPRINT FOR 280-023S AND 280-027S CONNECTORS



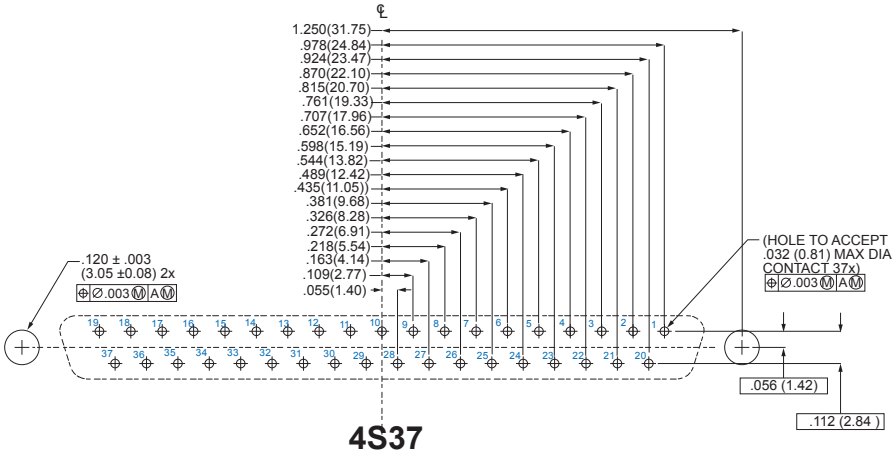
1S9
9 #20



2S15
15 #20



3S25
25 #20



4S37
37 #20

G

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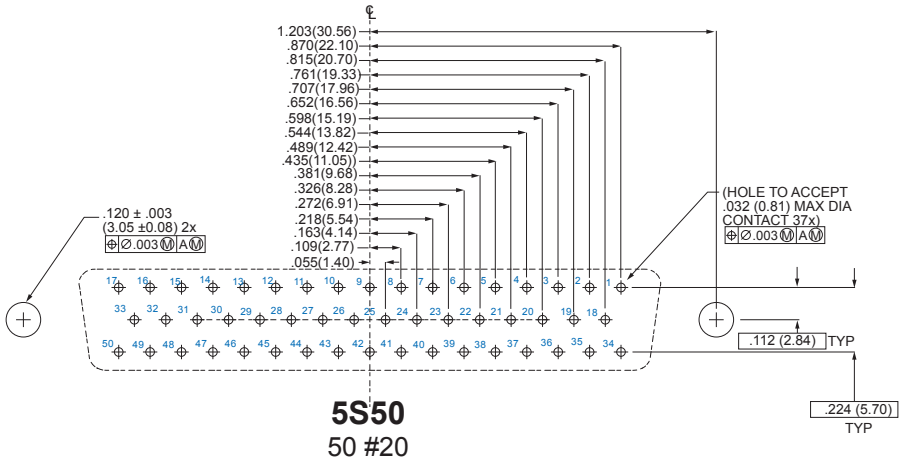
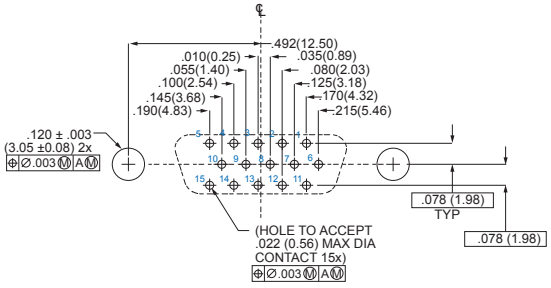
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for standard and high density socket connectors with straight PC tails

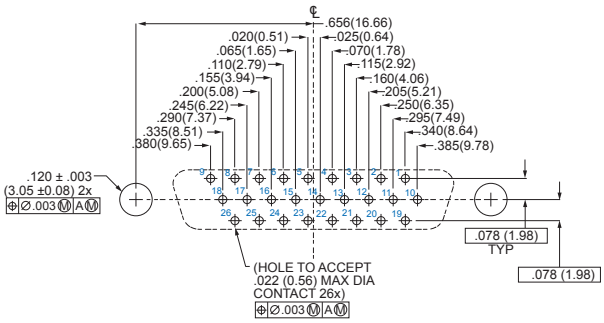
PCB FOOTPRINT FOR 280-023S AND 280-027S CONNECTORS



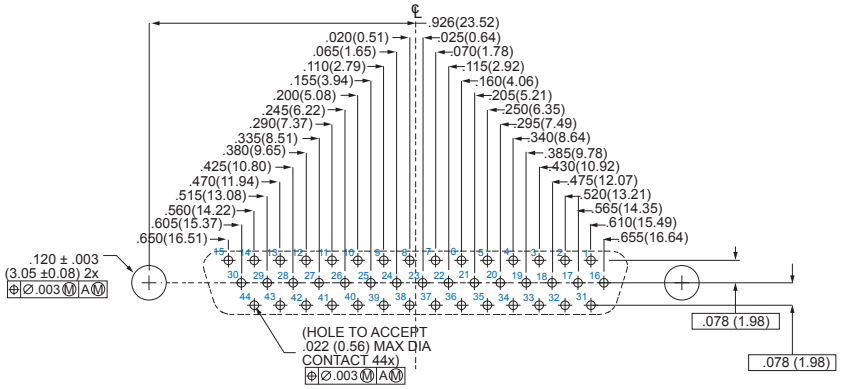
5S50
50 #20



1H15
15 #22



2H26
26 #22



3H44
44 #22

G

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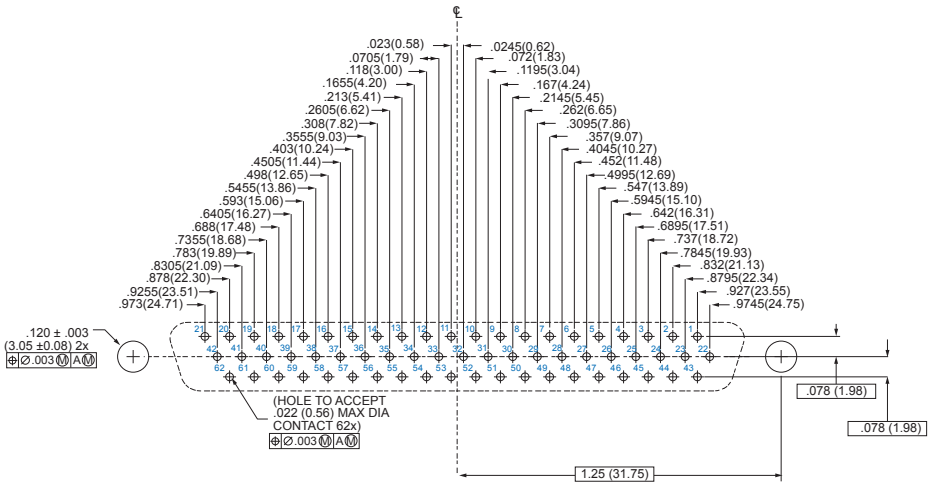
HiPer-D® Panel Cutouts and PCB Footprints

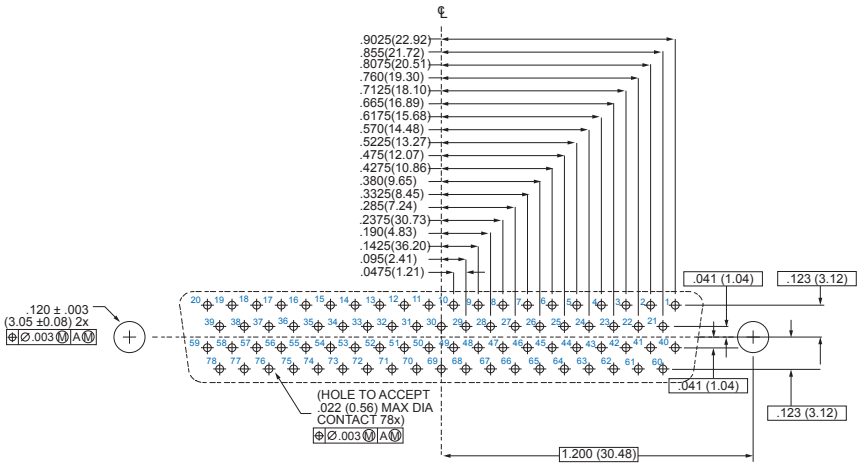
PCB footprints for standard and high density socket connectors with straight PC tails

PCB FOOTPRINT FOR 280-023S AND 280-027S CONNECTORS

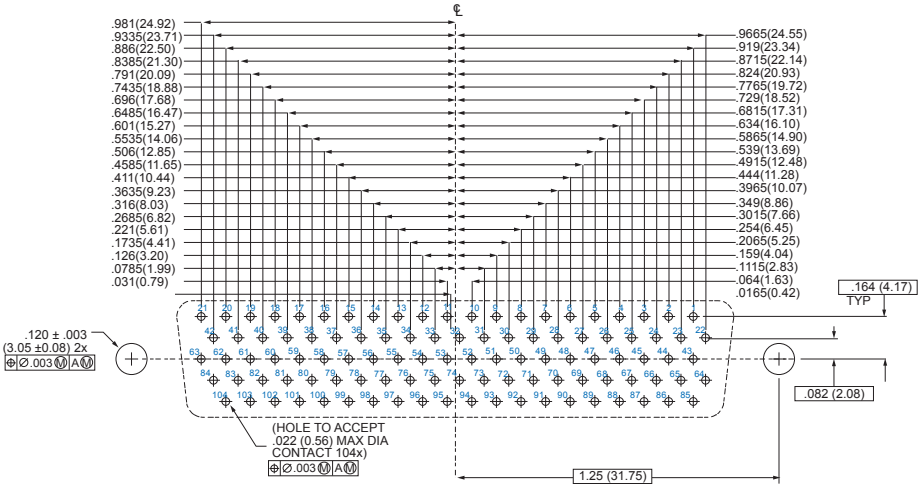
4H62
62 #22



5H78
78 #22



6H104
104 #22



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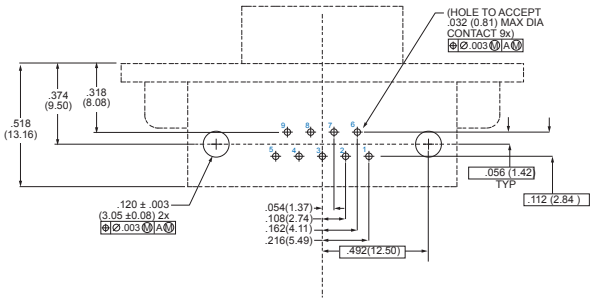
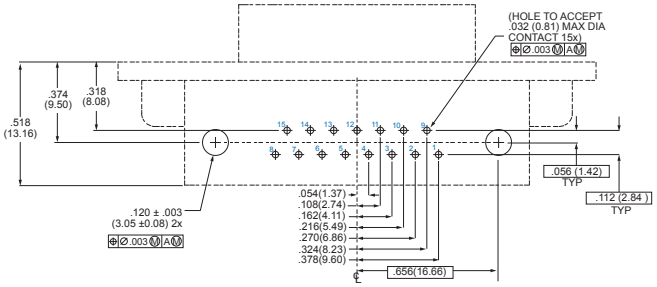
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for standard and high density pin connectors with right angle PC tails

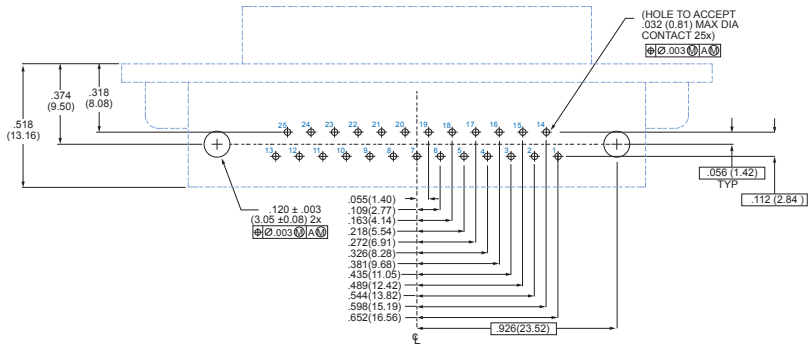
PCB FOOTPRINT FOR 280-024P AND 280-028P CONNECTORS



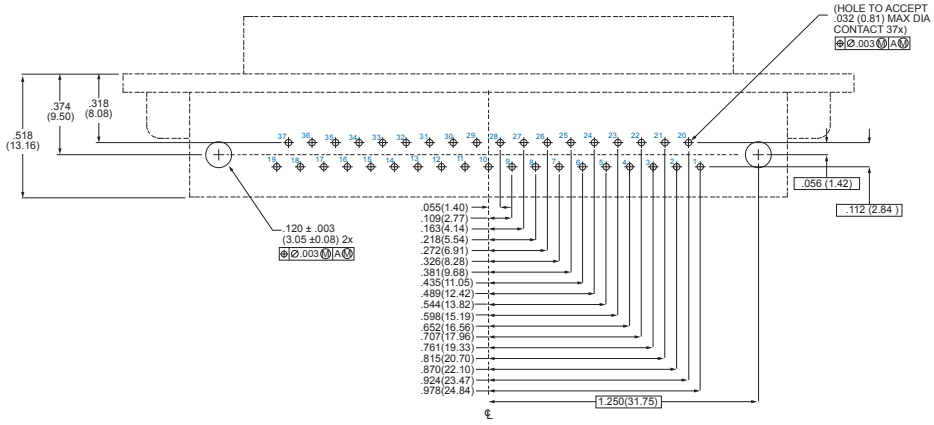
1S9
9 #20



2S15
15 #20



3S25
25 #20



4S37
37 #20

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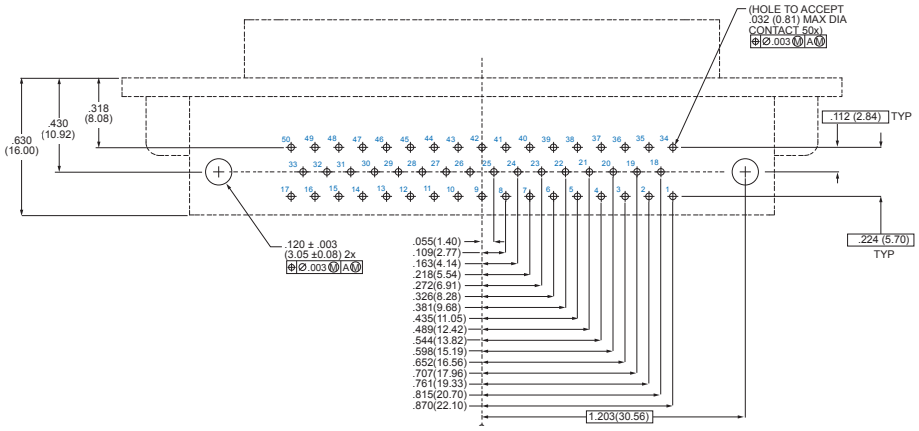
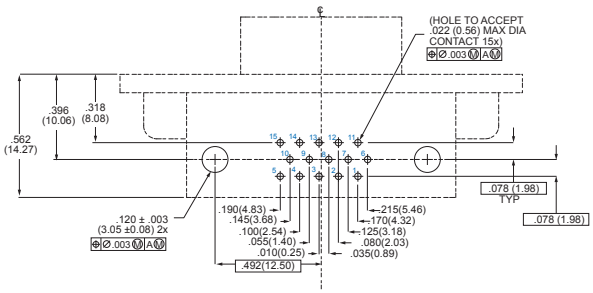
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for standard and high density pin connectors with right angle PC tails

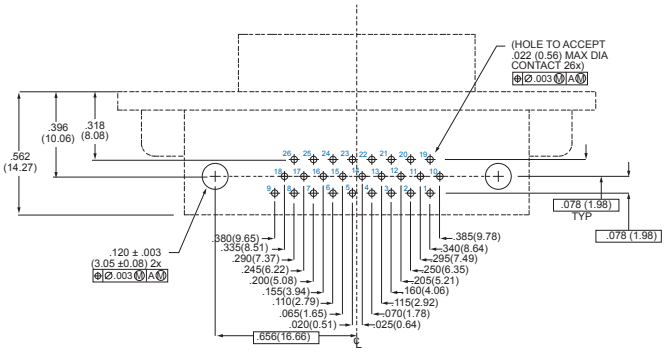
PCB FOOTPRINT FOR 280-024P AND 280-028P CONNECTORS



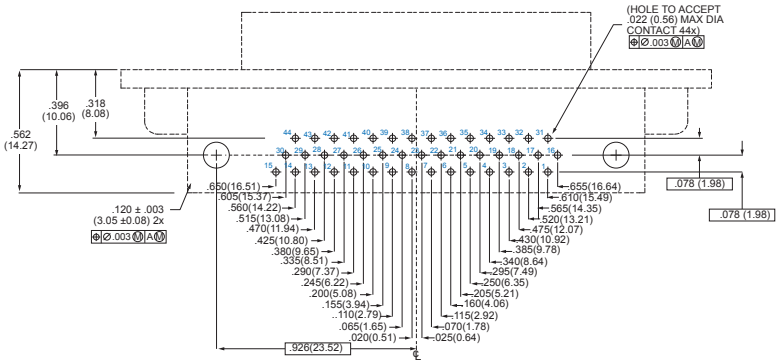
5S50
50 #20



1H15
15 #22



2H26
26 #22



3H44
44 #22

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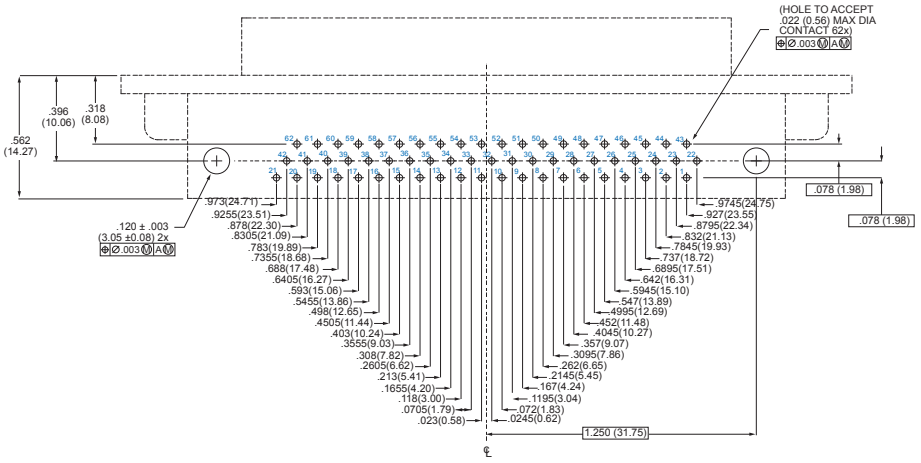
HiPer-D® Panel Cutouts and PCB Footprints

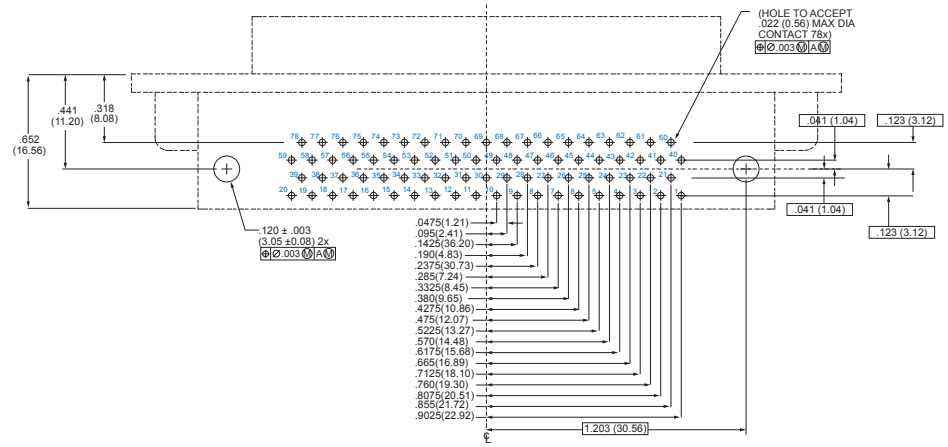
PCB footprints for standard and high density pin connectors with right angle PC tails

PCB FOOTPRINT FOR 280-024P AND 280-028P CONNECTORS

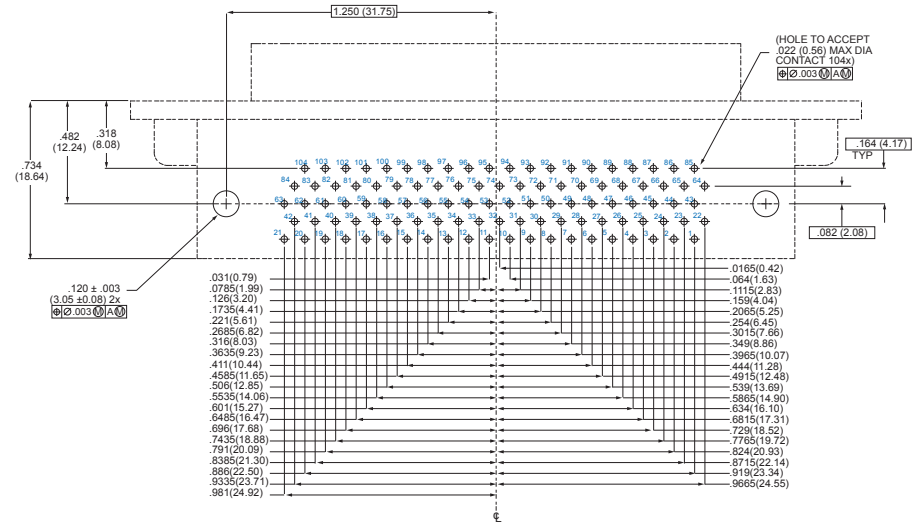
4H62
62 #22



5H78
78 #22



6H104
104 #22



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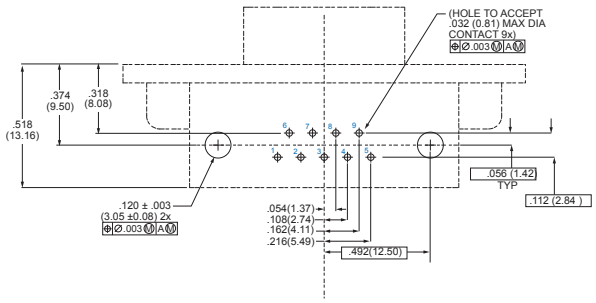
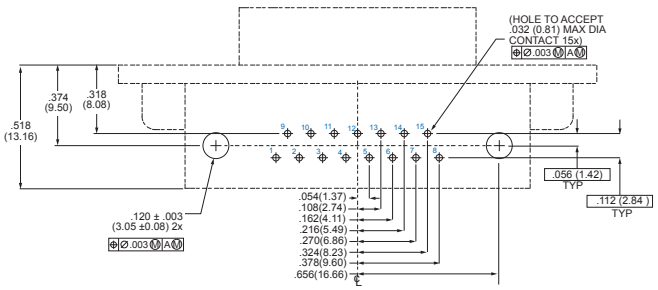
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for standard and high density socket connectors with right angle PC tails

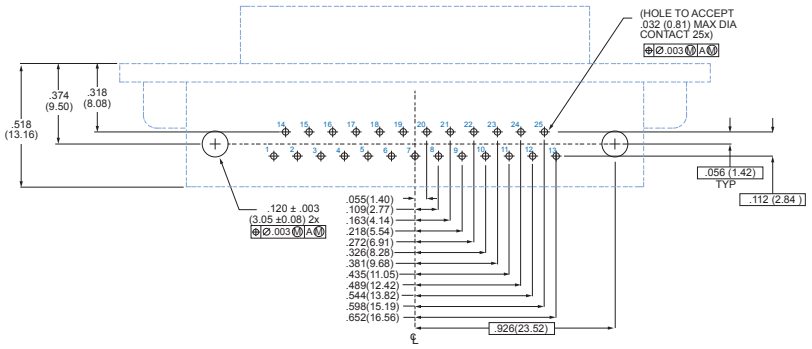
PCB FOOTPRINT FOR 280-025S AND 280-029S CONNECTORS



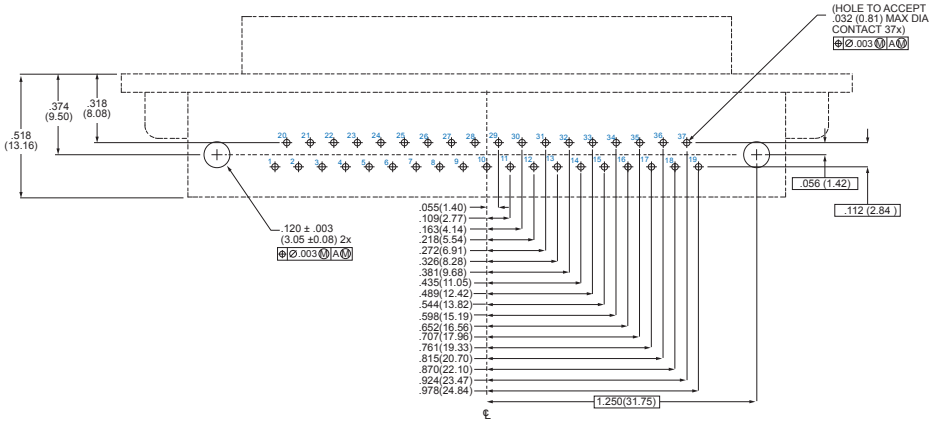
1S9
9 #20



2S15
15 #20



3S25
25 #20



4S37
37 #20

G

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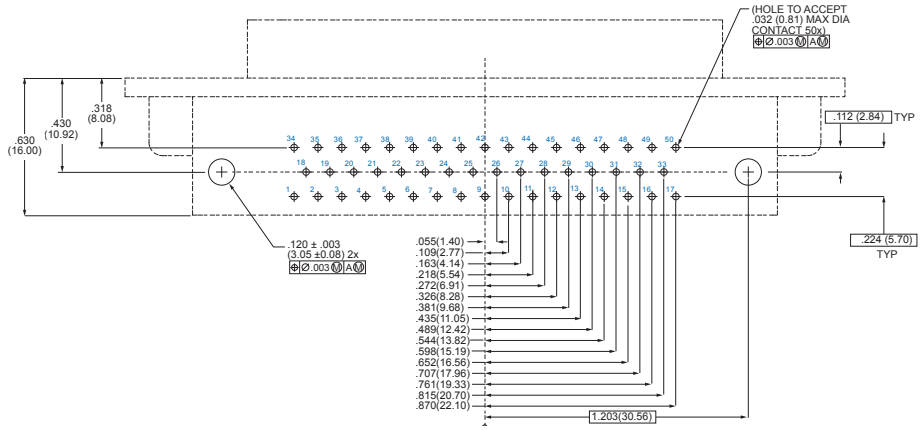
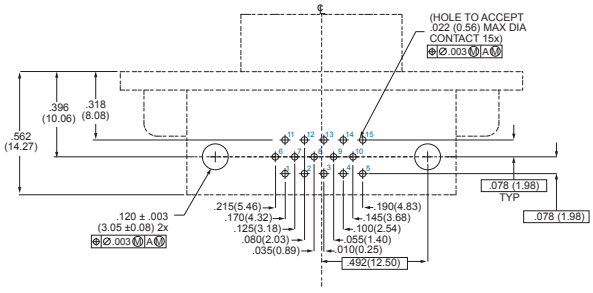
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for standard and high density socket connectors with right angle PC tails

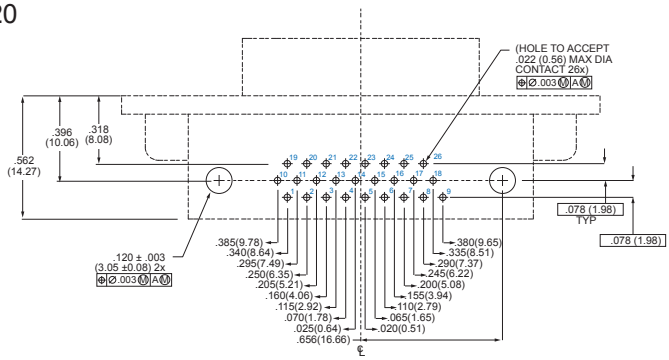
PCB FOOTPRINT FOR 280-025S AND 280-029S CONNECTORS



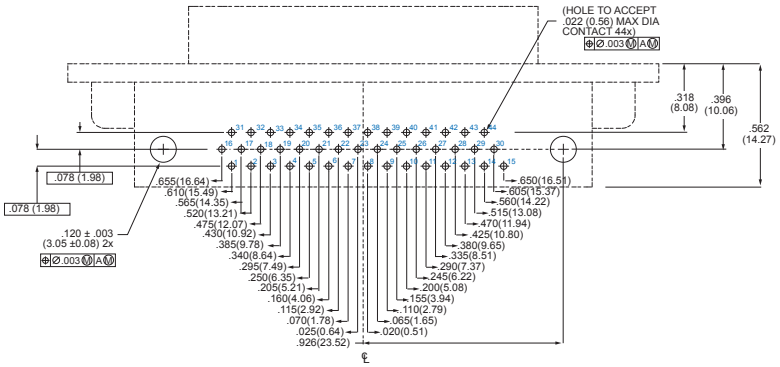
5S50
50 #20



1H15
15 #22



2H26
26 #22



3H44
44 #22

G

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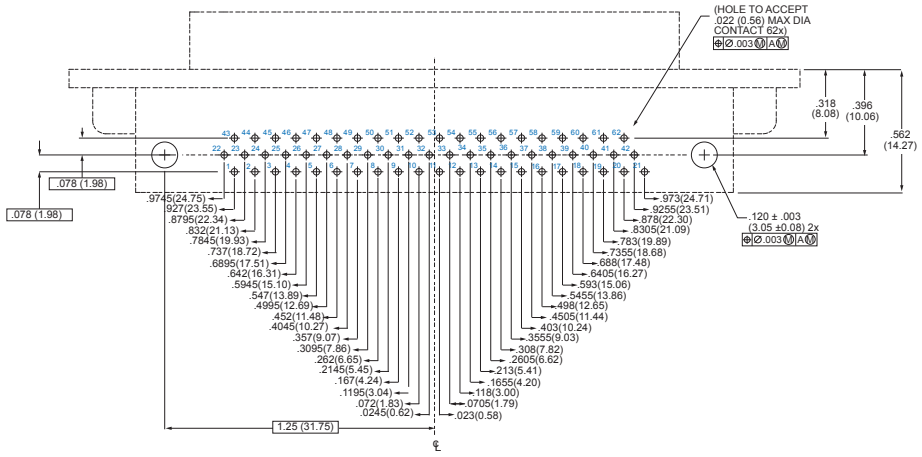
HiPer-D® Panel Cutouts and PCB Footprints

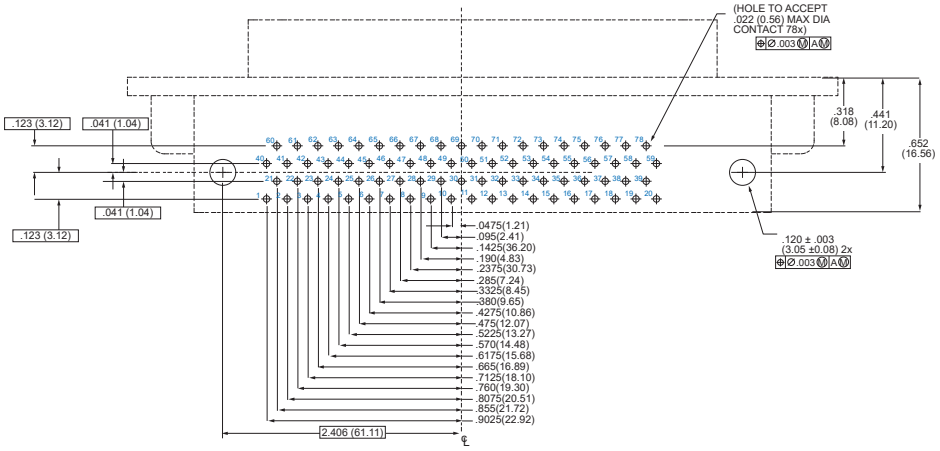
PCB footprints for standard and high density socket connectors with right angle PC tails

PCB FOOTPRINT FOR 280-025S AND 280-029S CONNECTORS

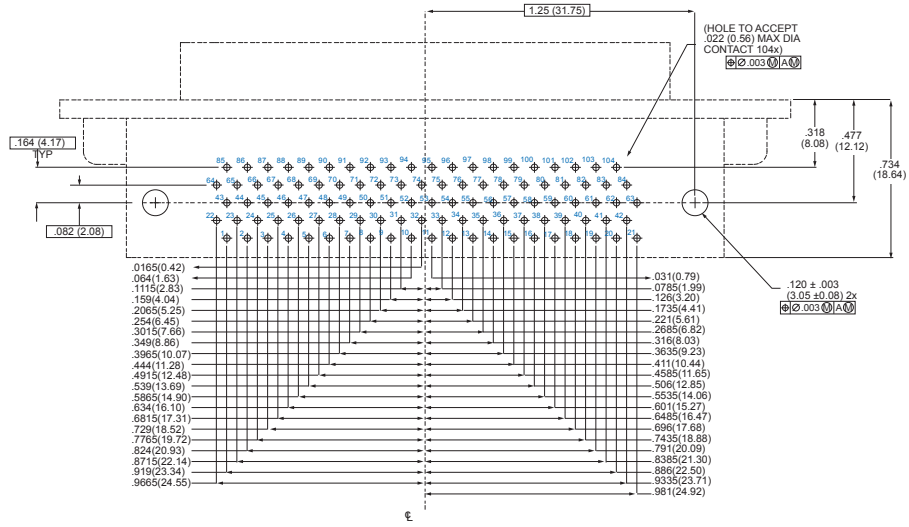
4H62
62 #22



5H78
78 #22



6H104
104 #22



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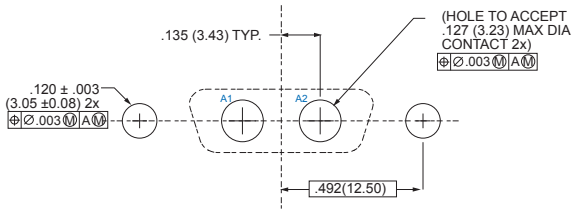
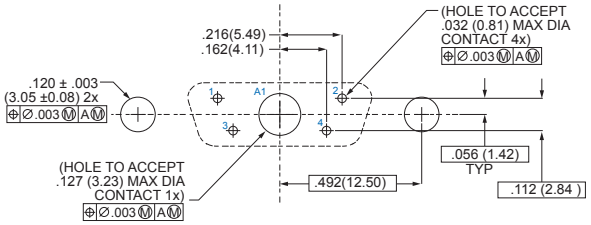
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for combo pin connectors with straight PC tails

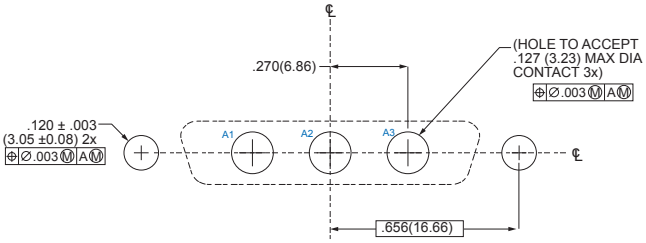
PCB FOOTPRINT FOR 280-050P AND 280-054P COMBO CONNECTORS



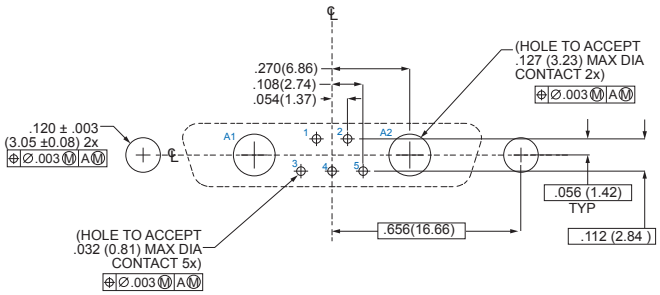
1-2P2
2 #8



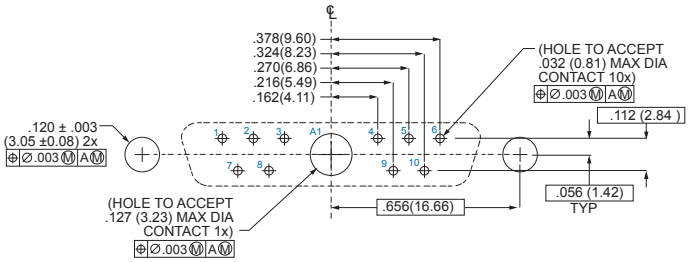
1-5P1
1 #8, 4 #20



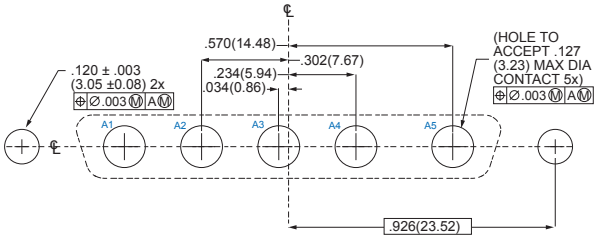
2-3P3
3 #8



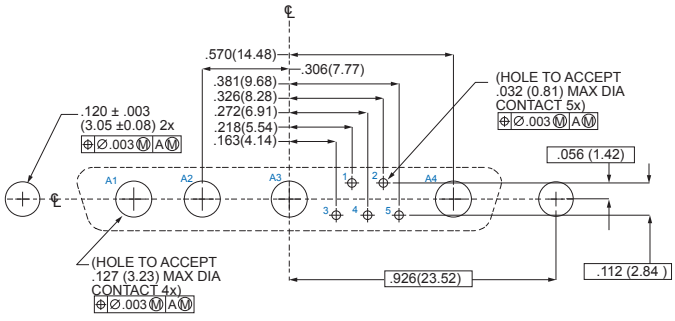
2-7P2
2 #8, 5 #20



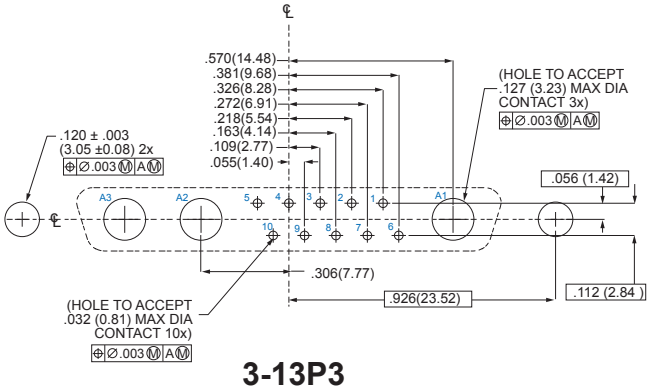
2-11P1
1 #8, 10 #20



3-5P5
5 #8



3-9P4
4 #8, 5 #20



3-13P3
3 #8, 10 #20

G

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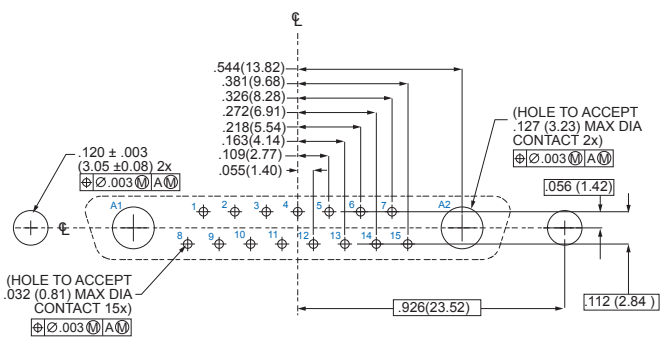
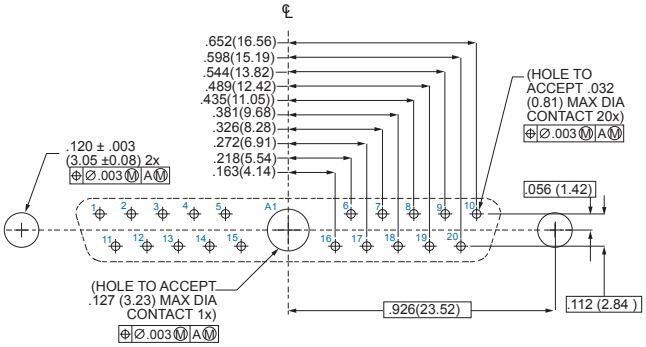
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for combo pin connectors with straight PC tails

PCB FOOTPRINT FOR 280-050P AND 280-054P COMBO CONNECTORS

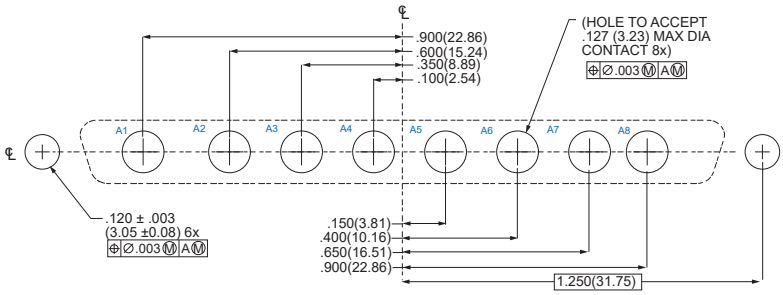


3-17P2
2 #8, 15 #20

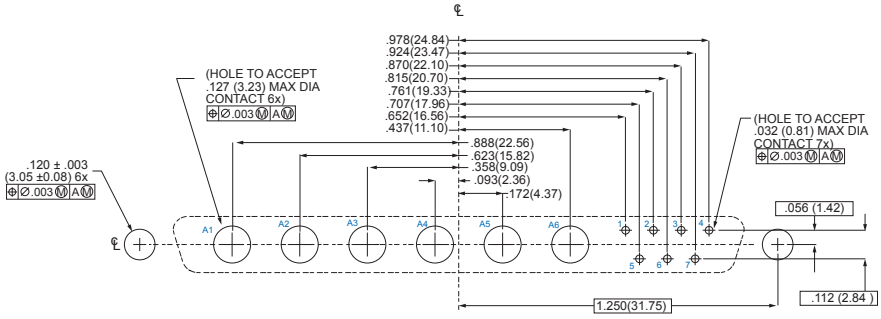


3-21P1
1 #8, 20 #20

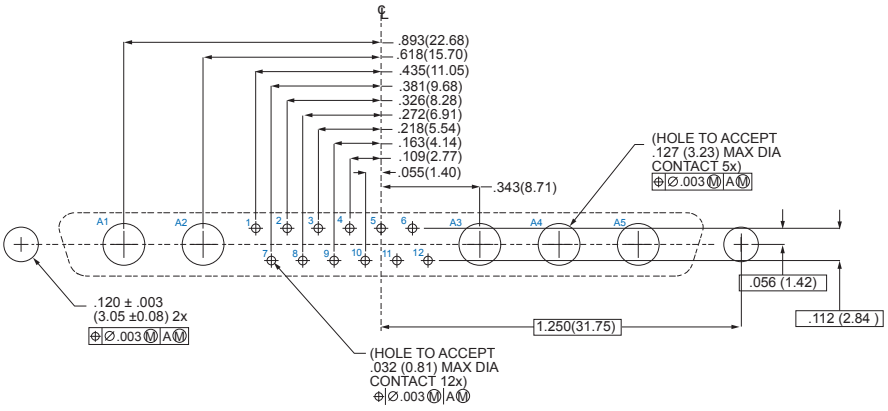
4-8P8
8 #8



4-13P6
6 #8, 7 #20



4-17P5
5 #8, 12 #20



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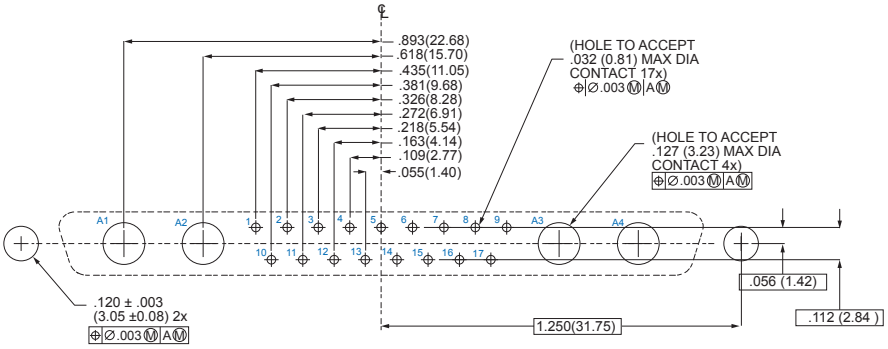
HiPer-D® Panel Cutouts and PCB Footprints

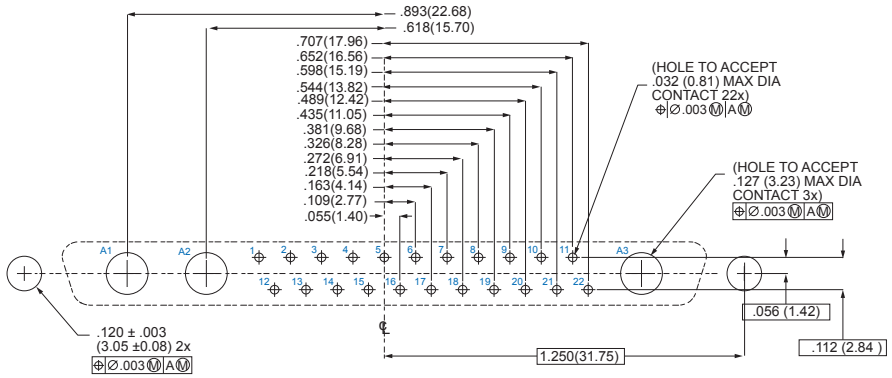
PCB footprints for combo pin connectors with straight PC tails

PCB FOOTPRINT FOR 280-050P AND 280-054P COMBO CONNECTORS

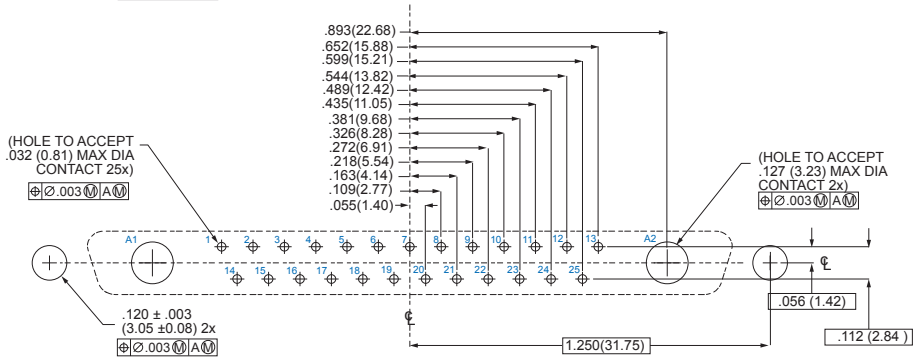
4-21PA4
4 #8, 17 #20



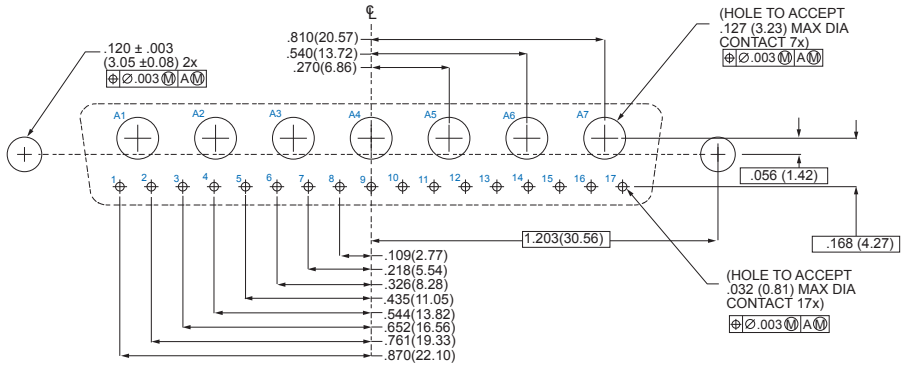
4-25P3
3 #8, 22 #20



4-27P2
2 #8, 25 #20



5-24P7
7 #8, 17 #20



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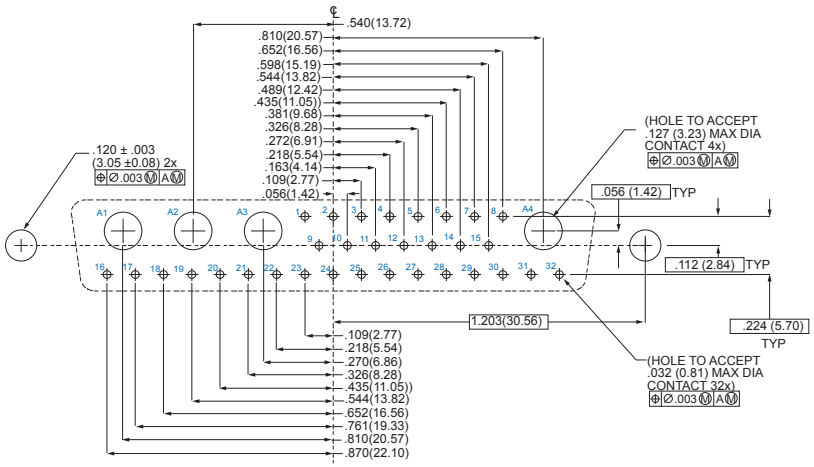
HiPer-D® Panel Cutouts and PCB Footprints

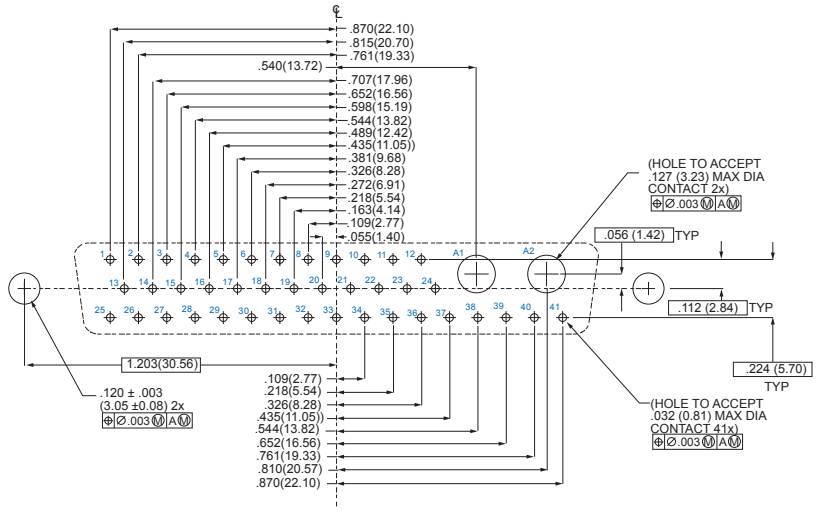
PCB footprints for combo pin connectors with straight PC tails

PCB FOOTPRINT FOR 280-050P AND 280-054P COMBO CONNECTORS

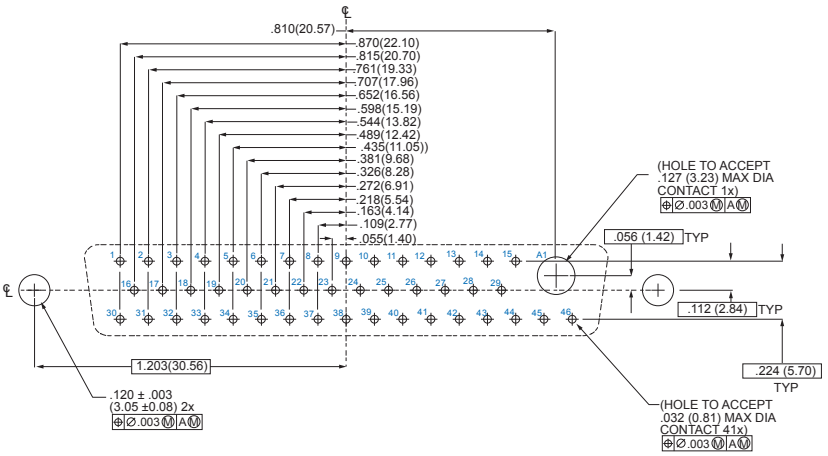
5-36P4
4 #8, 32 #20



5-43P2
2 #8, 41 #20



5-47P1
1 #8, 46 #20



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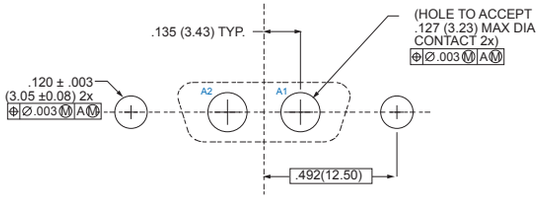
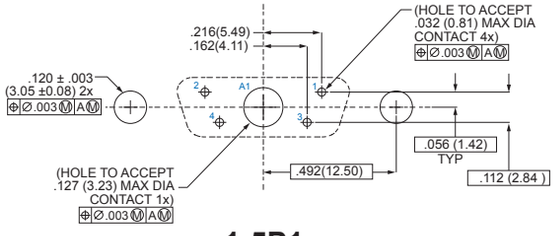
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for combo socket connectors with straight PC tails

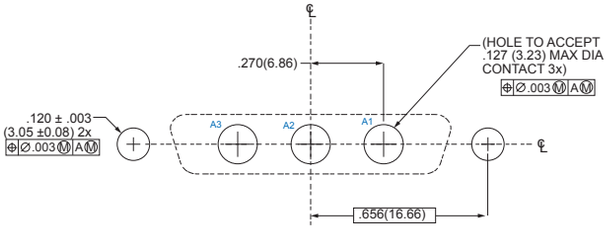
PCB FOOTPRINT FOR 280-051S AND 280-055S COMBO CONNECTORS



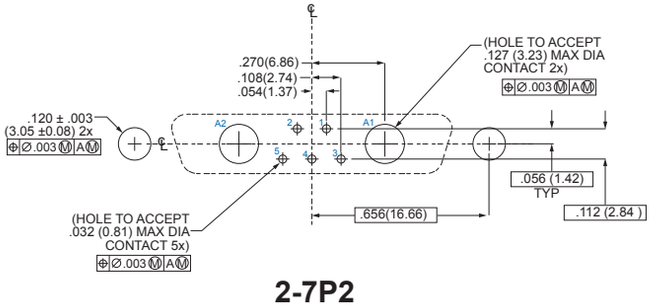
1-2P2
2 #8



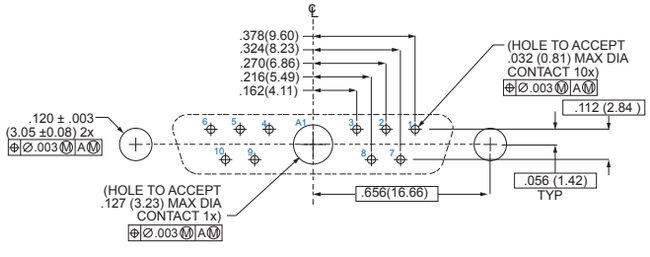
1-5P1
1 #8, 4 #20



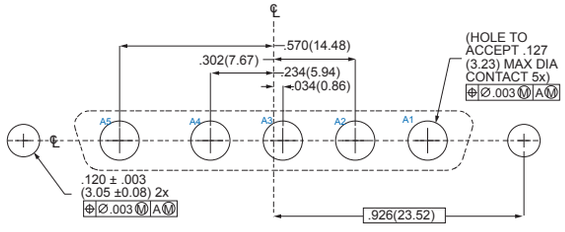
2-3P3
3 #8



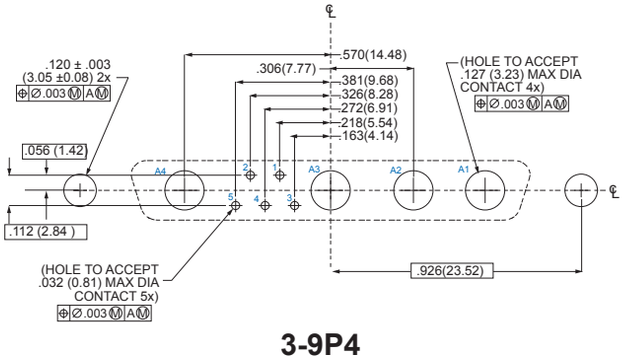
2-7P2
2 #8, 5 #20



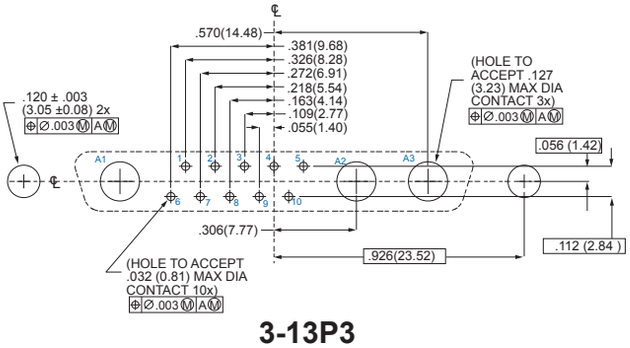
2-11P1
1 #8, 10 #20



3-5P5
5 #8



3-9P4
4 #8, 5 #20



3-13P3
3 #8, 10 #20

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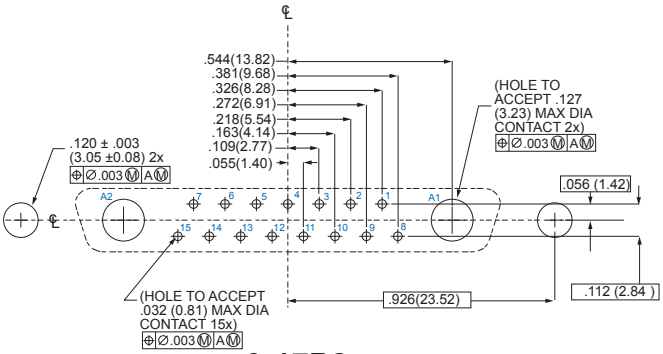
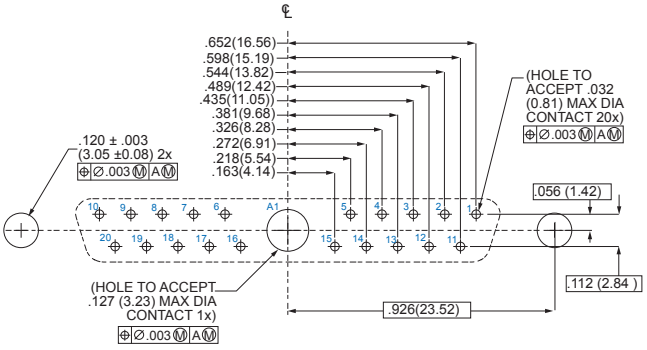
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for combo socket connectors with straight PC tails

PCB FOOTPRINT FOR 280-051S AND 280-055S COMBO CONNECTORS

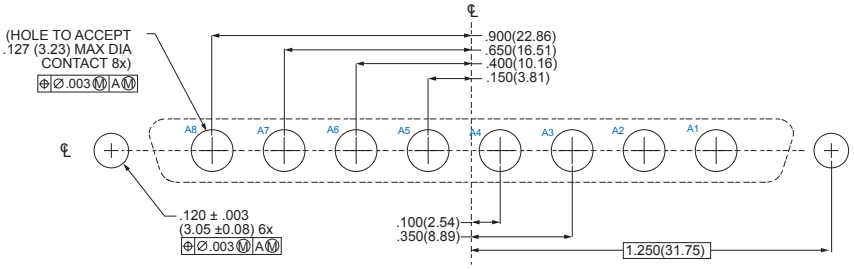


3-17P2
2 #8, 15 #20

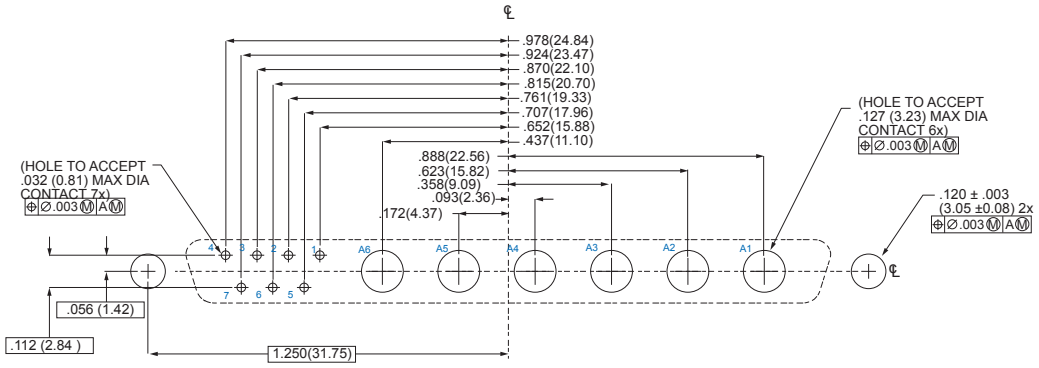


3-21P1
1 #8, 20 #20

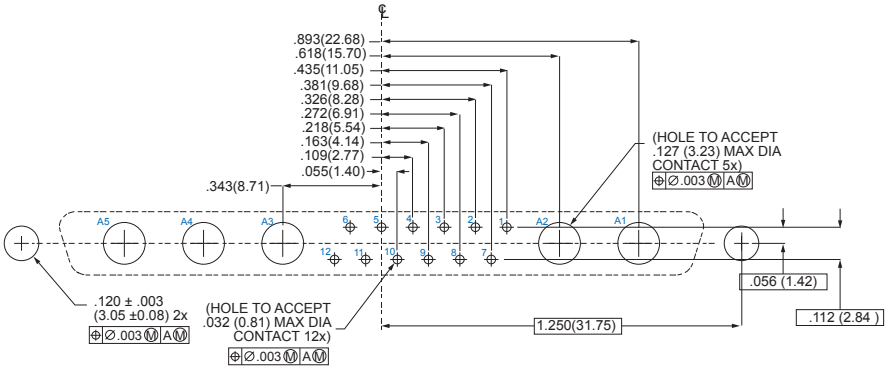
4-8P8
8 #8



4-13P6
6 #8, 7 #20



4-17P5
5 #8, 12 #20



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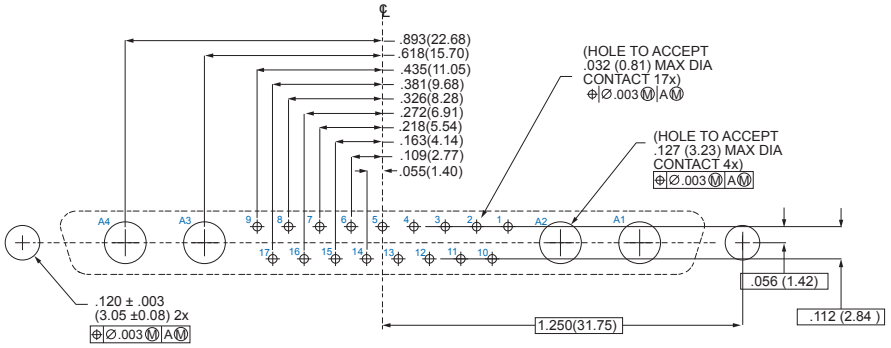
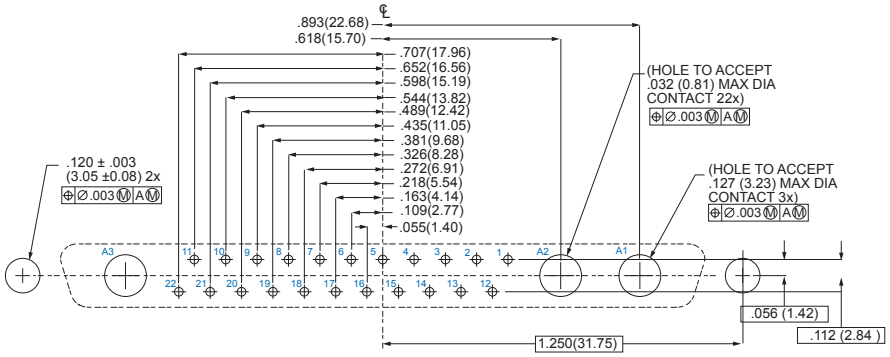
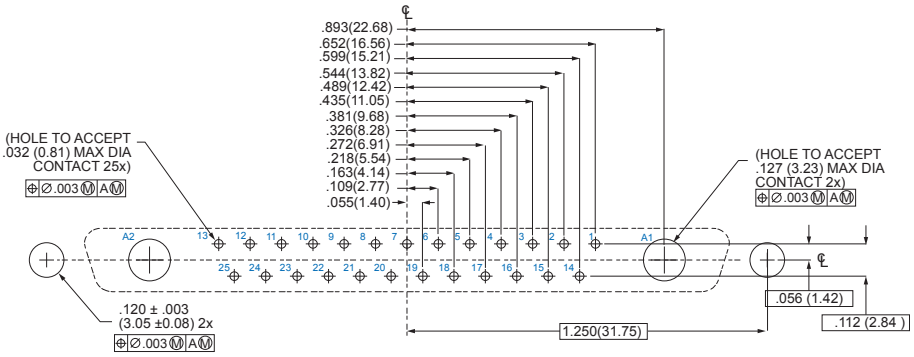
4-21PA4
4 #8, 17 #20



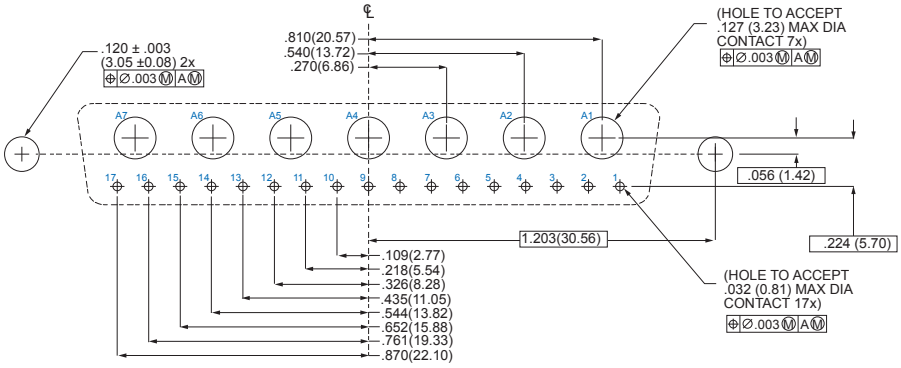
4-25P3
3 #8, 22 #20



4-27P2
2 #8, 25 #20



5-24P7
7 #8, 17 #20



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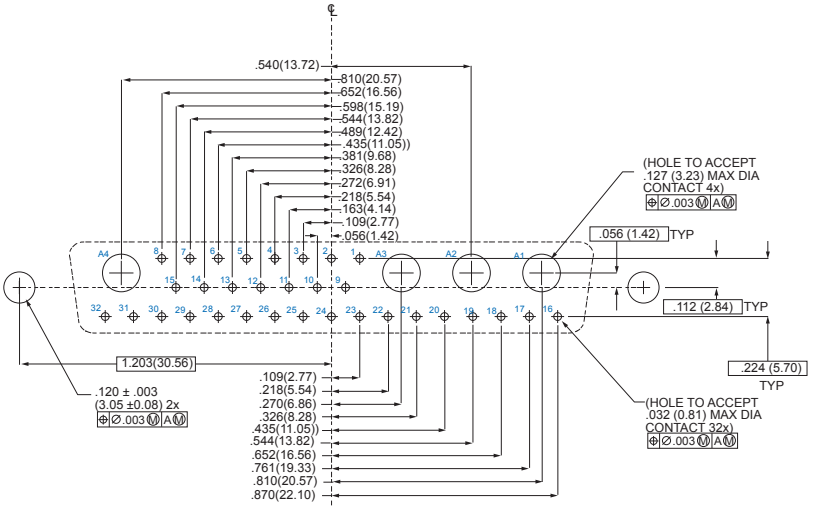
HiPer-D® Panel Cutouts and PCB Footprints

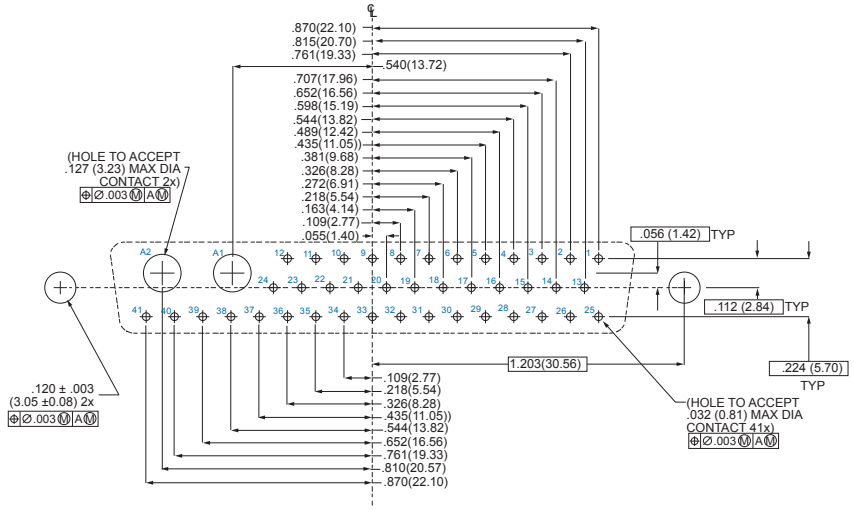
PCB footprints for combo socket connectors with straight PC tails

PCB FOOTPRINT FOR 280-051S AND 280-055S COMBO CONNECTORS

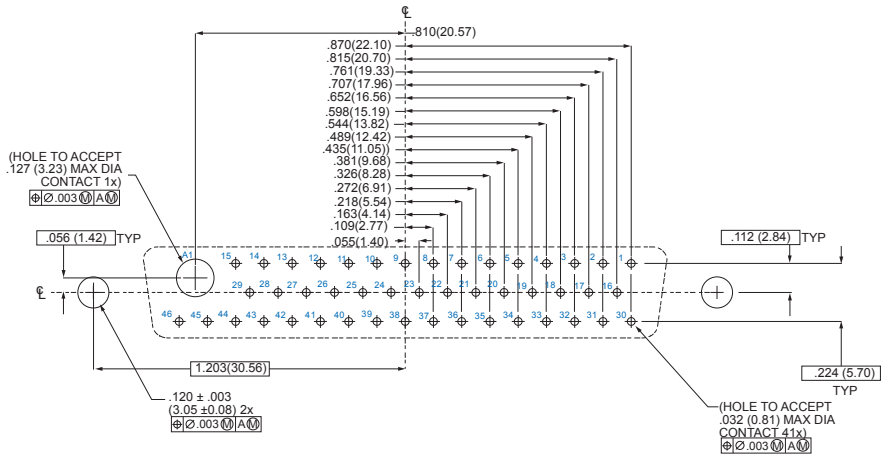
5-36P4
4 #8, 32 #20



5-43P2
2 #8, 41 #20



5-47P1
1 #8, 46 #20



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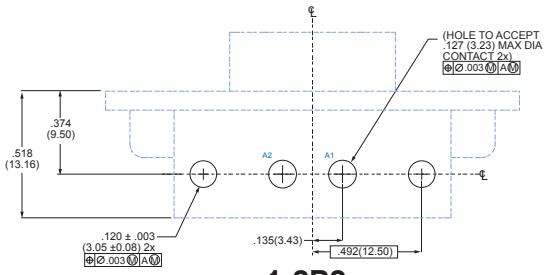
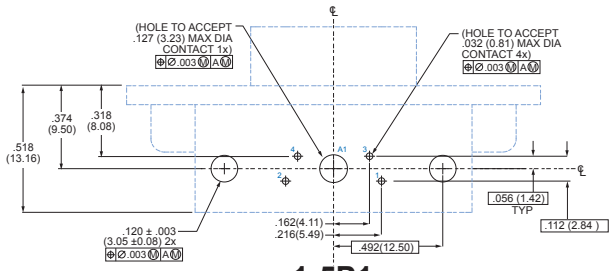
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for combo pin connectors with right angle PC tails

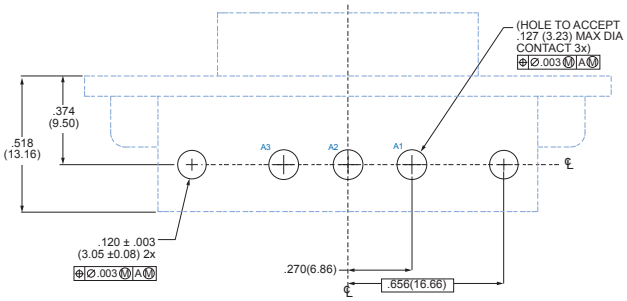
PCB FOOTPRINT FOR 280-052P AND 280-056P COMBO CONNECTORS



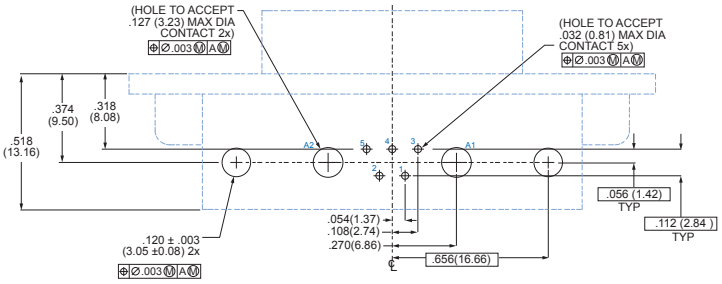
1-2P2
2 #8



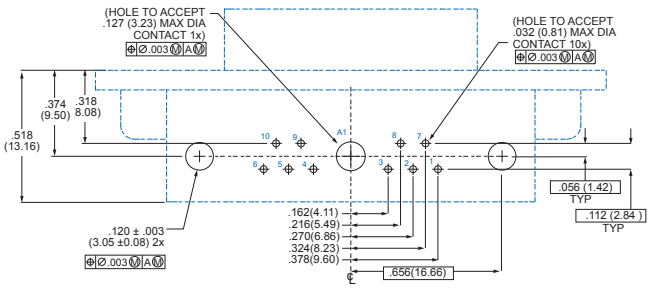
1-5P1
1 #8, 4 #20



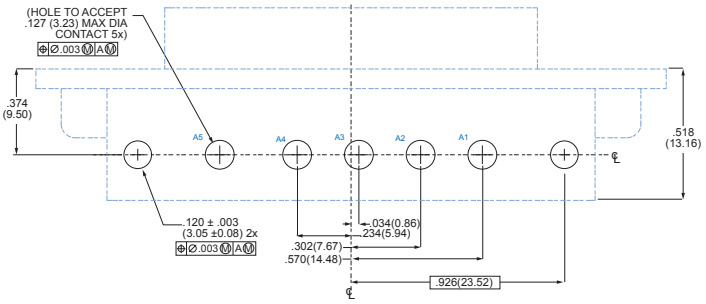
2-3P3
3 #8



2-7P2
2 #8, 5 #20

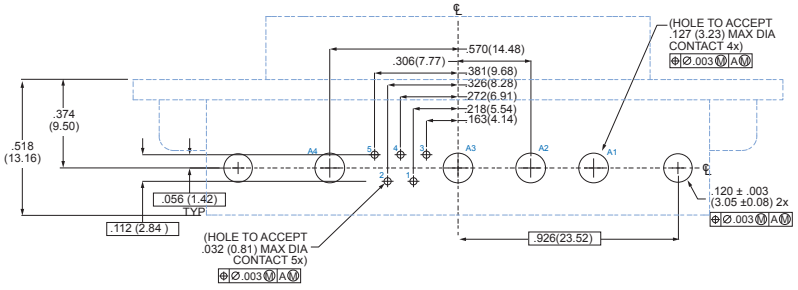


2-11P1
1 #8, 10 #20



3-5P5
5 #8

3-9P4
4 #8, 5 #20



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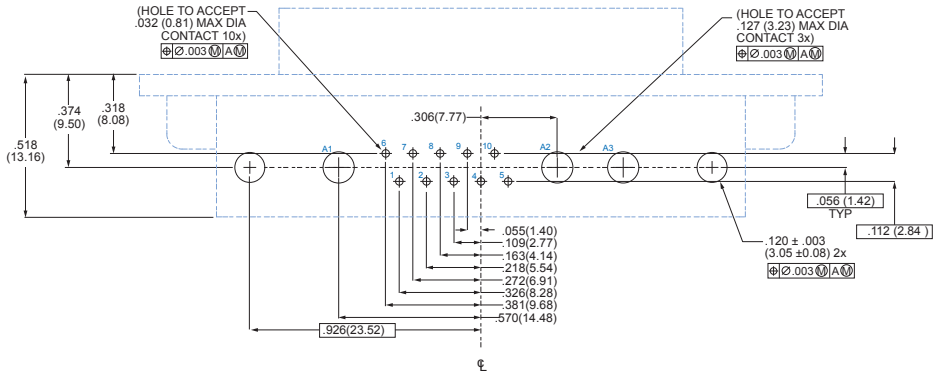
HiPer-D® Panel Cutouts and PCB Footprints

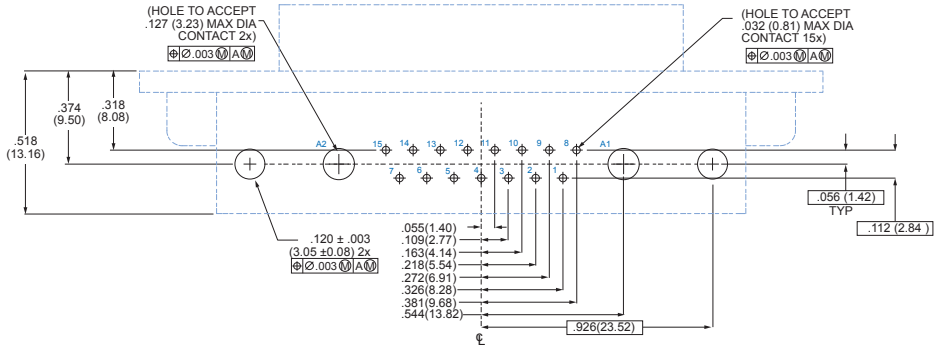
PCB footprints for combo pin connectors with right angle PC tails

PCB FOOTPRINT FOR 280-052P AND 280-056P COMBO CONNECTORS

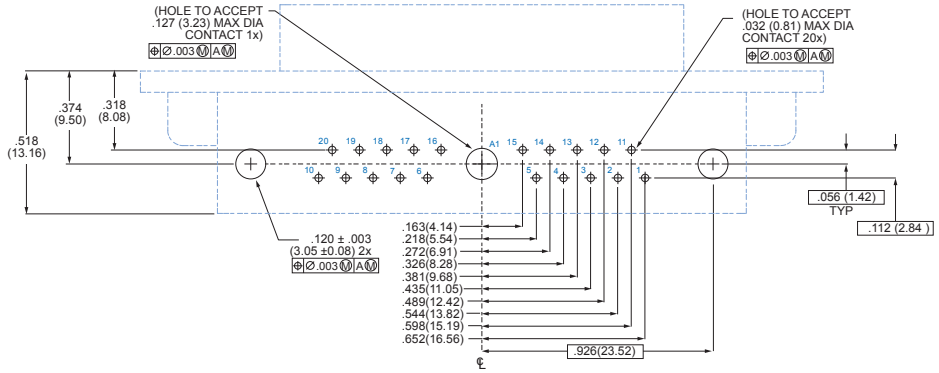
3-13P3
3 #8, 10 #20



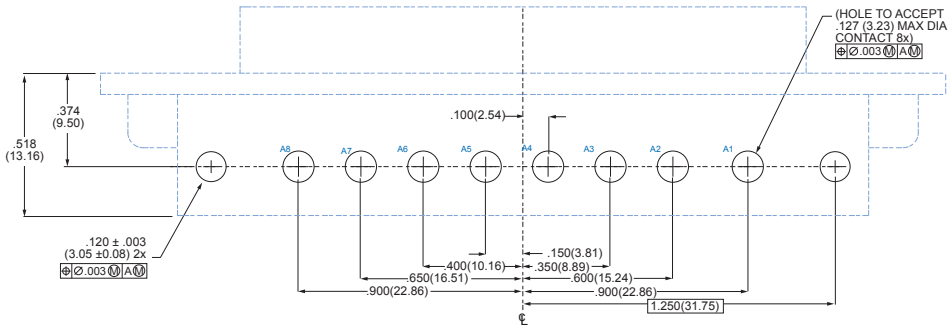
3-17P2
2 #8, 15 #20



3-21P1
1 #8, 20 #20



4-8P8
8 #8



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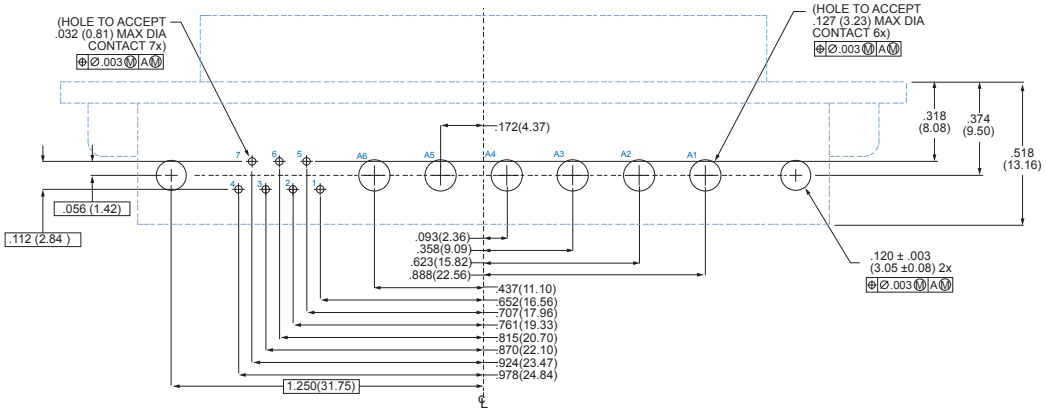
HiPer-D® Panel Cutouts and PCB Footprints

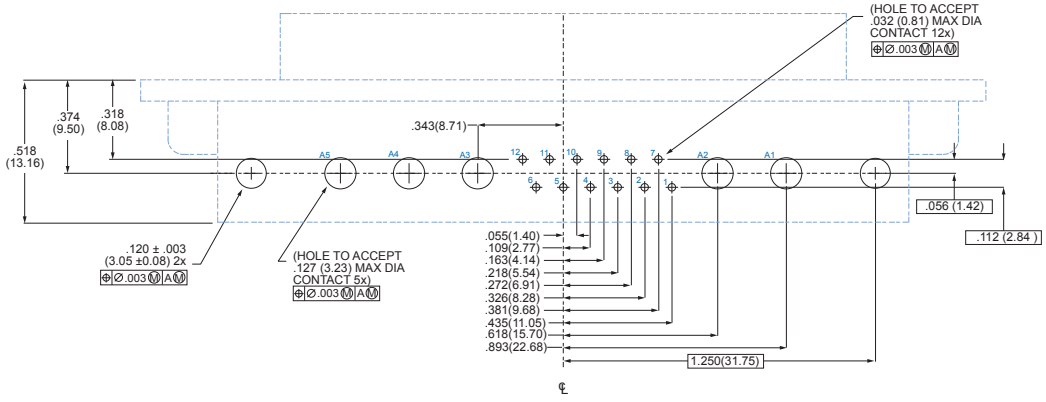
PCB footprints for combo pin connectors with right angle PC tails

PCB FOOTPRINT FOR 280-052P AND 280-056P COMBO CONNECTORS

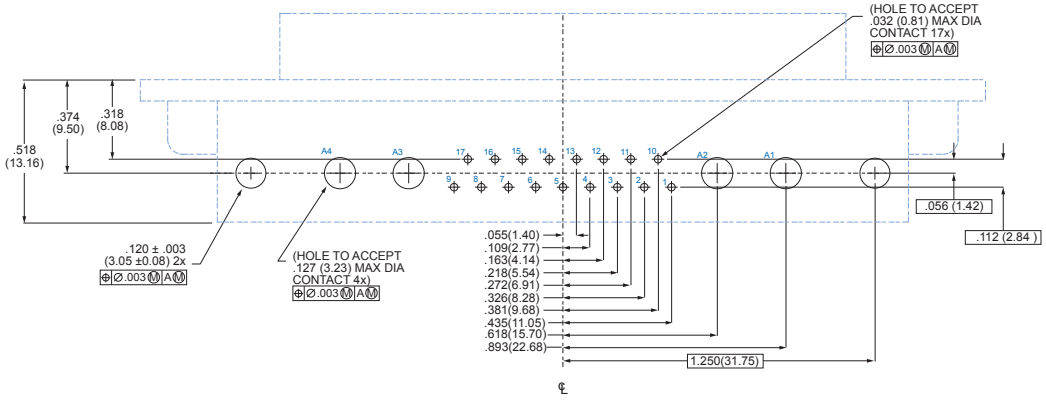
4-13P6
6 #8, 7 #20



4-17P5
5 #8, 12 #20



4-21PA4
4 #8, 17 #20



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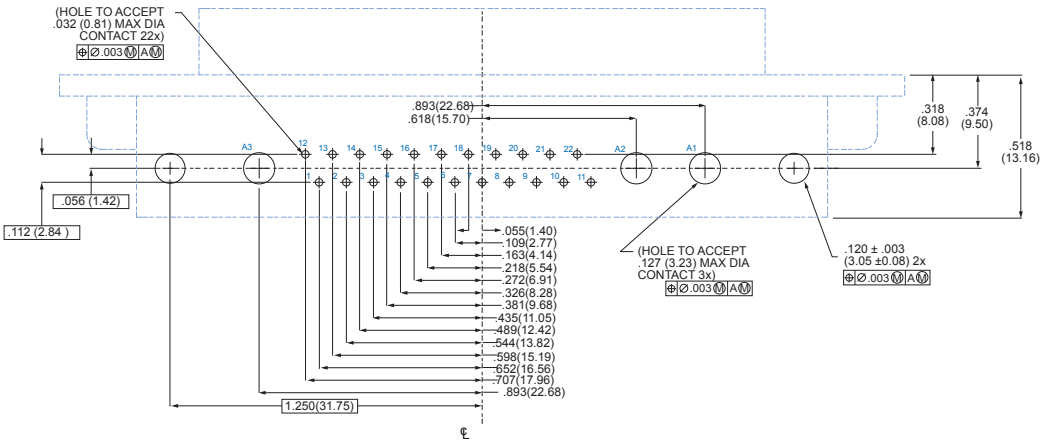
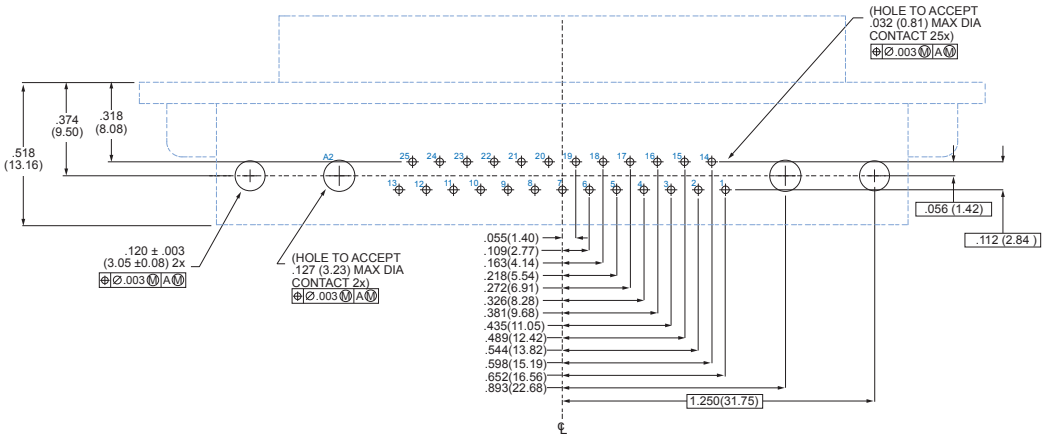
PCB footprints for combo pin connectors with right angle PC tails

PCB FOOTPRINT FOR 280-052P AND 280-056P COMBO CONNECTORS

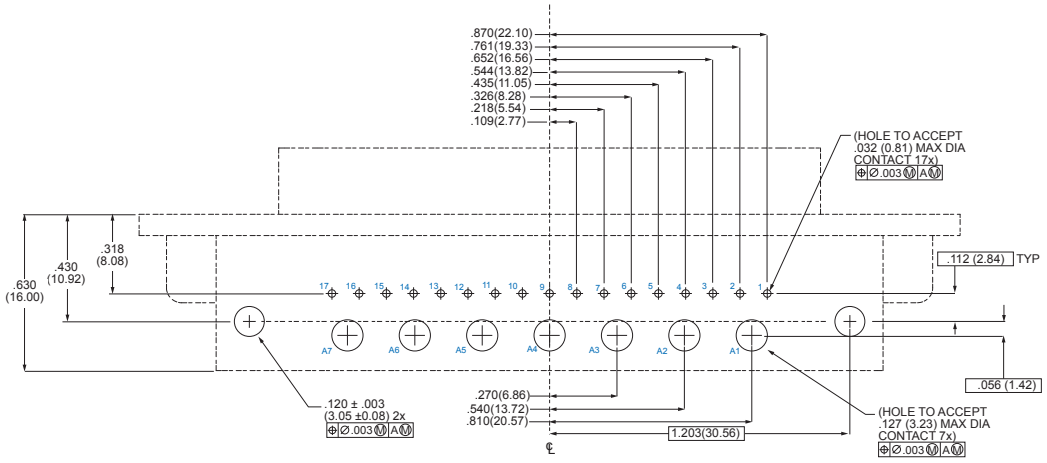
4-25P3
3 #8, 22 #20



4-27P2
2 #8, 25 #20



5-24P7
7 #8, 17 #20



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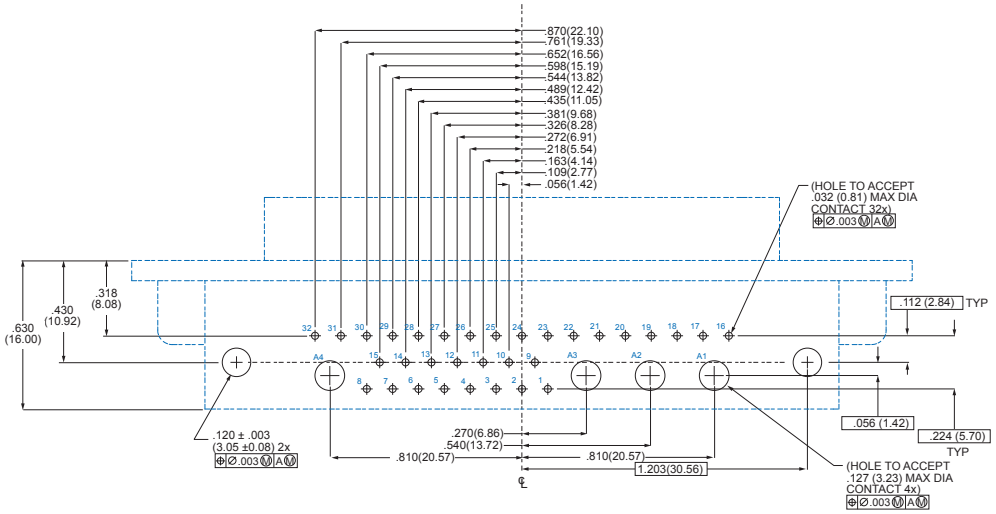
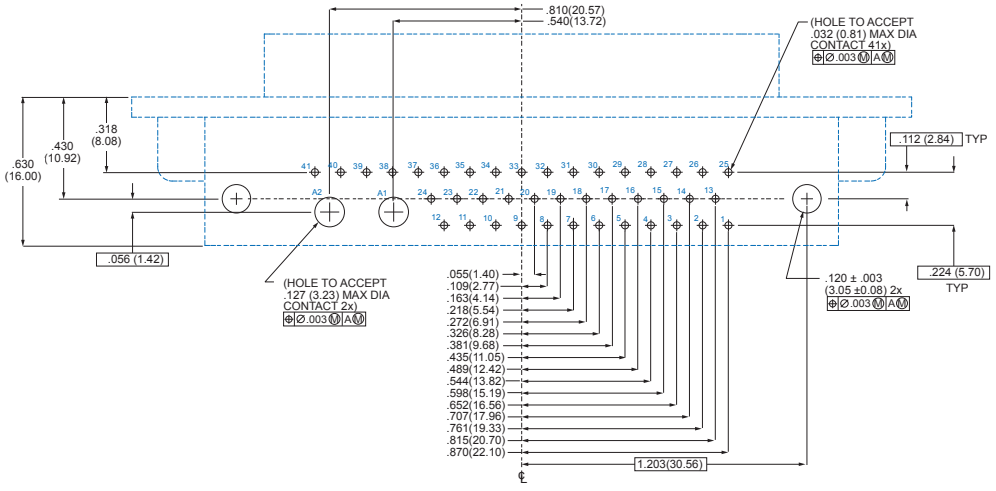
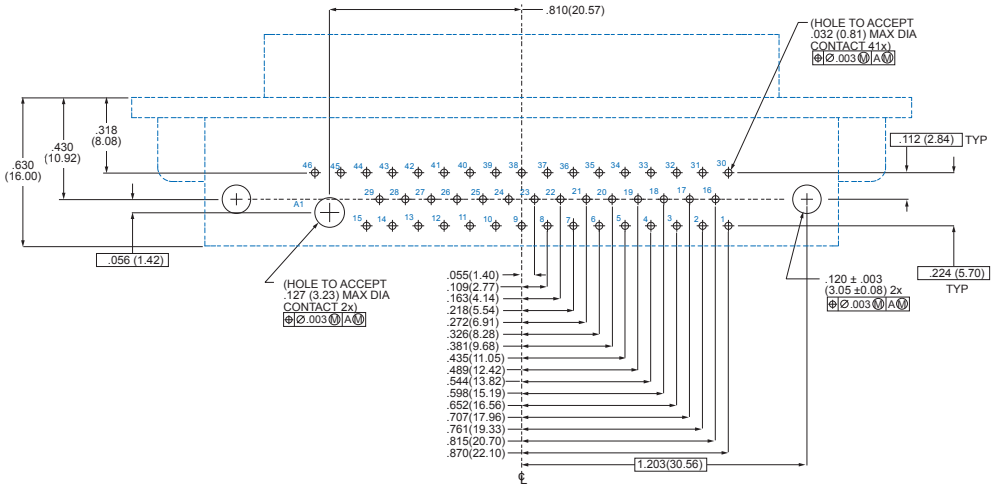
5-36P4
4 #8, 32 #20



5-43P2
2 #8, 41 #20



5-47P1
1 #8, 46 #20



G

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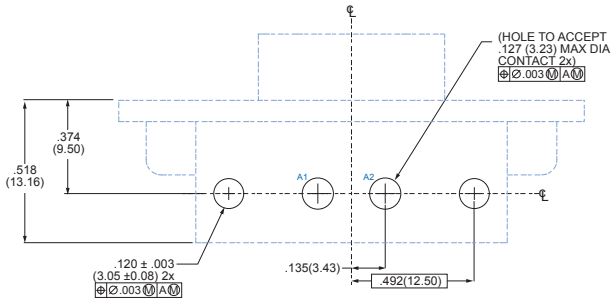
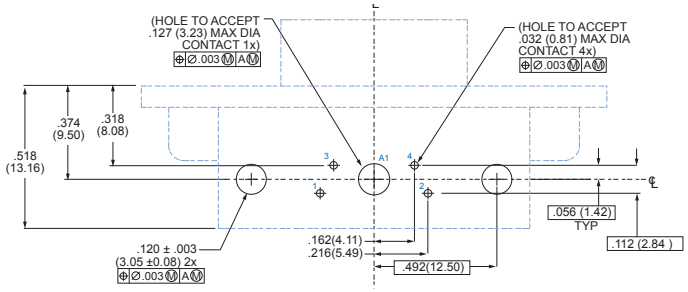
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for combo socket connectors with right angle PC tails

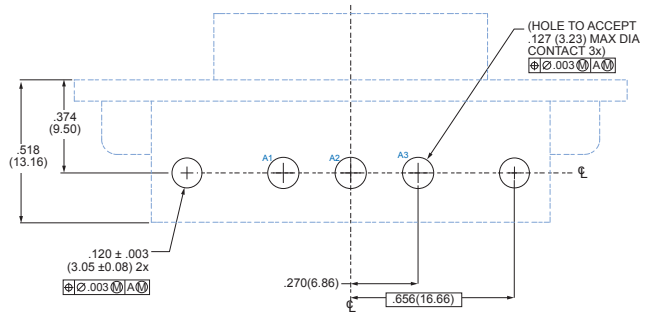
PCB FOOTPRINT FOR 280-053S AND 280-057S COMBO CONNECTORS



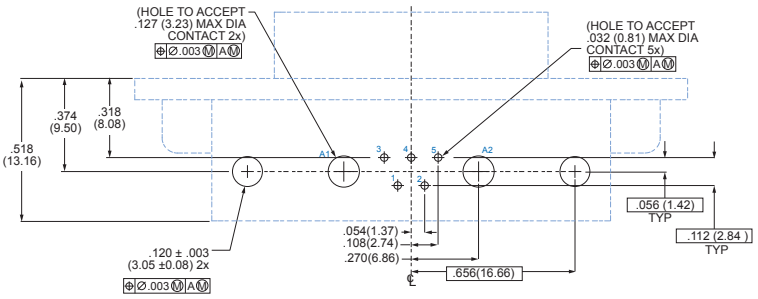
1-2P2
2 #8



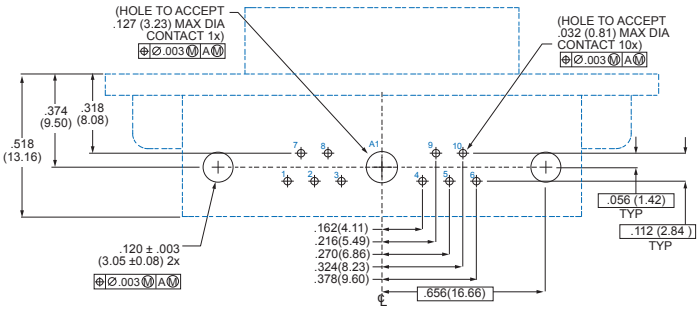
1-5P1
1 #8, 4 #20



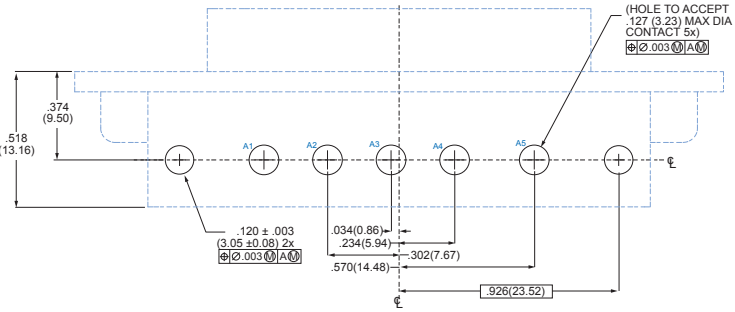
2-3P3
3 #8



2-7P2
2 #8, 5 #20

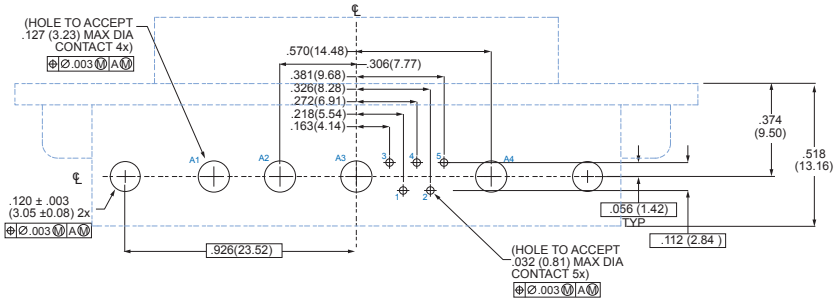


2-11P1
1 #8, 10 #20



3-5P5
5 #8

3-9P4
4 #8, 5 #20



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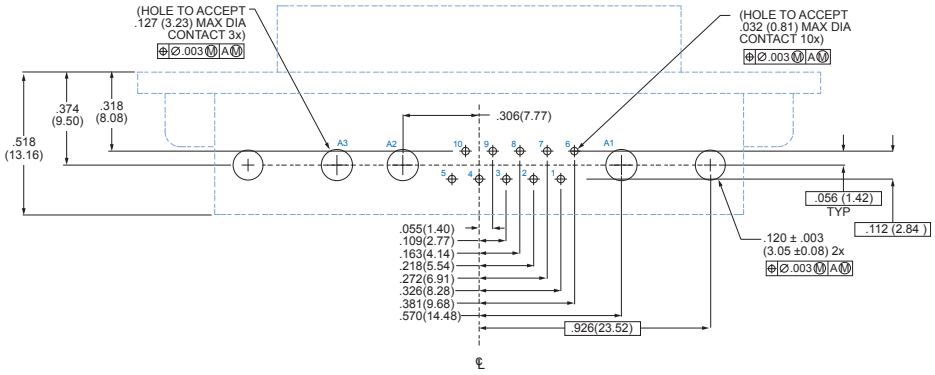
HiPer-D® Panel Cutouts and PCB Footprints

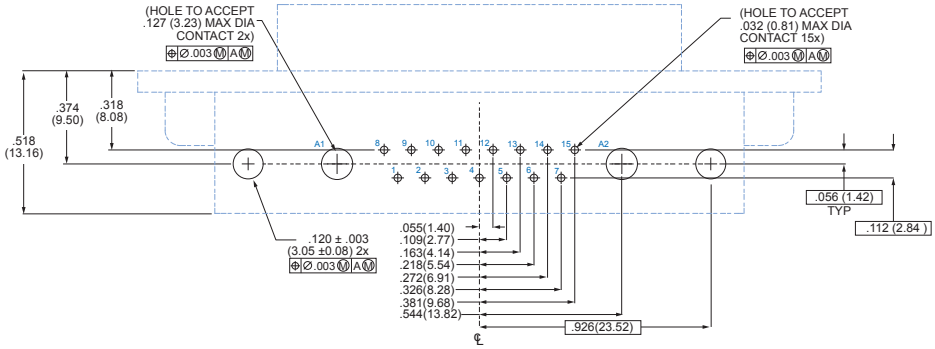
PCB footprints for combo socket connectors with right angle PC tails

PCB FOOTPRINT FOR 280-053S AND 280-057S COMBO CONNECTORS

3-13P3
3 #8, 10 #20



3-17P2
2 #8, 15 #20



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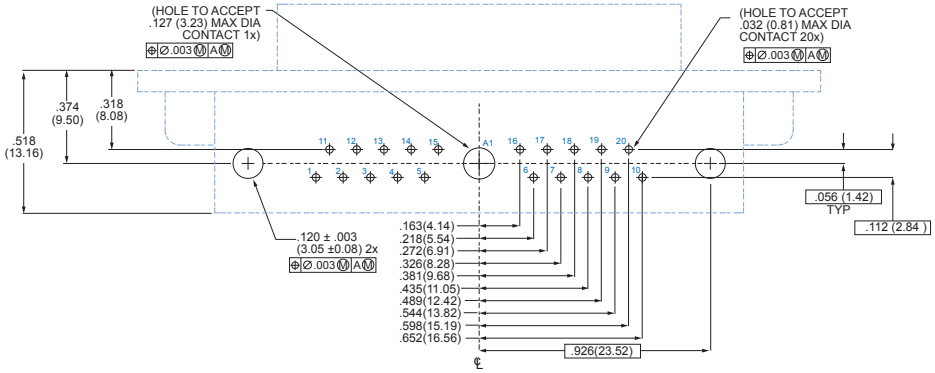
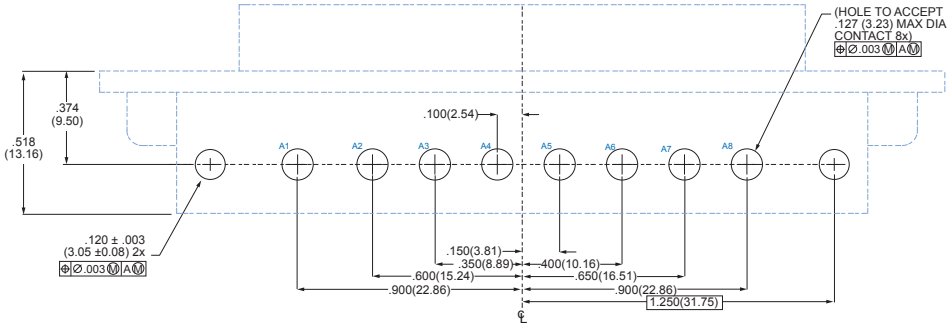
1 #8, 20 #20



4-8P8
8 #8



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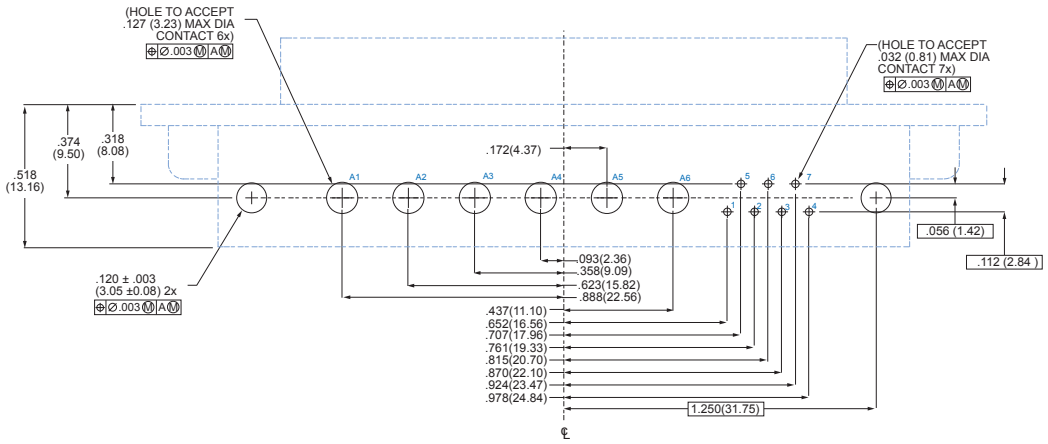
HiPer-D® Panel Cutouts and PCB Footprints

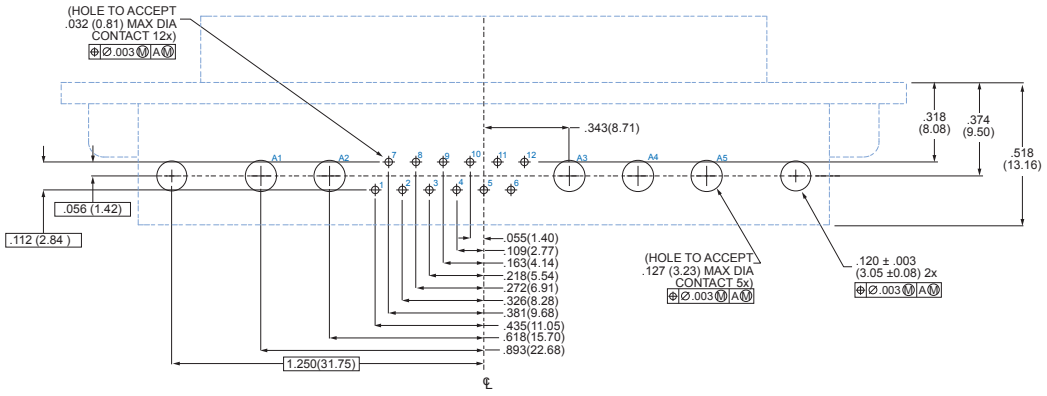
PCB footprints for combo socket connectors with right angle PC tails

PCB FOOTPRINT FOR 280-053S AND 280-057S COMBO CONNECTORS

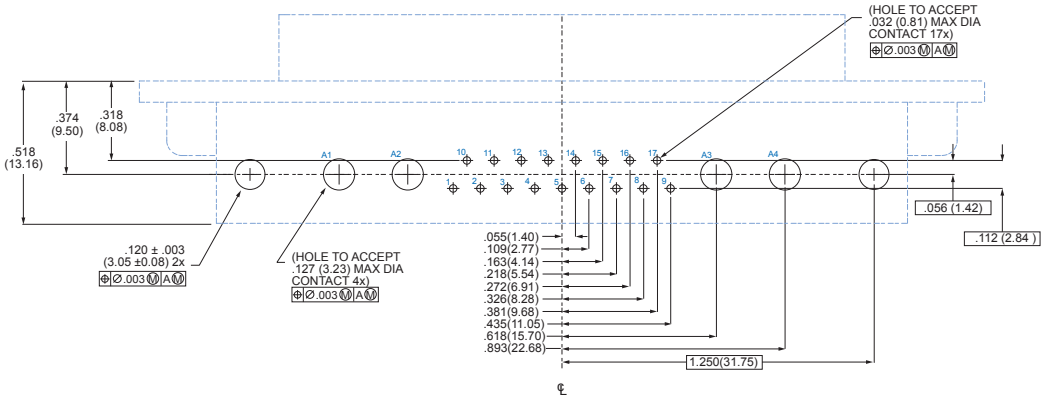
4-13P6
6 #8, 7 #20



4-17P5
5 #8, 12 #20



4-21PA4
4 #8, 17 #20



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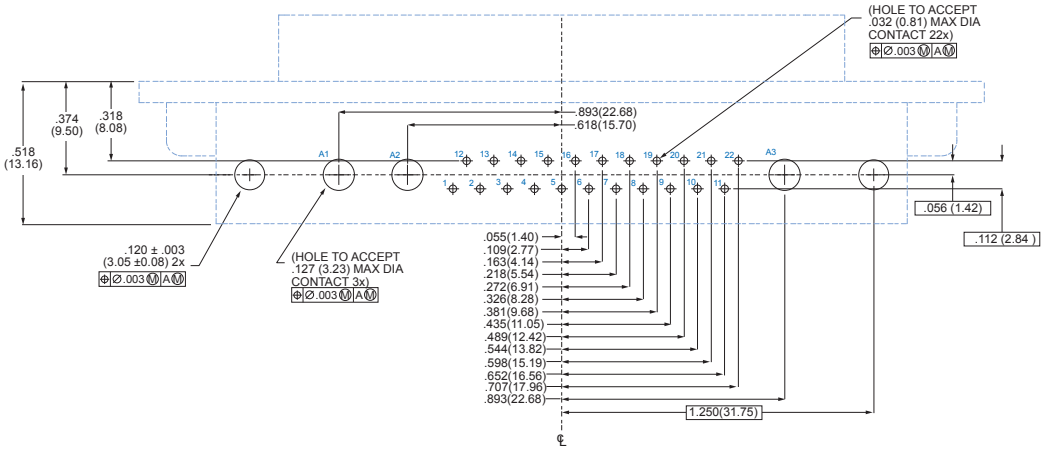
HiPer-D® Panel Cutouts and PCB Footprints

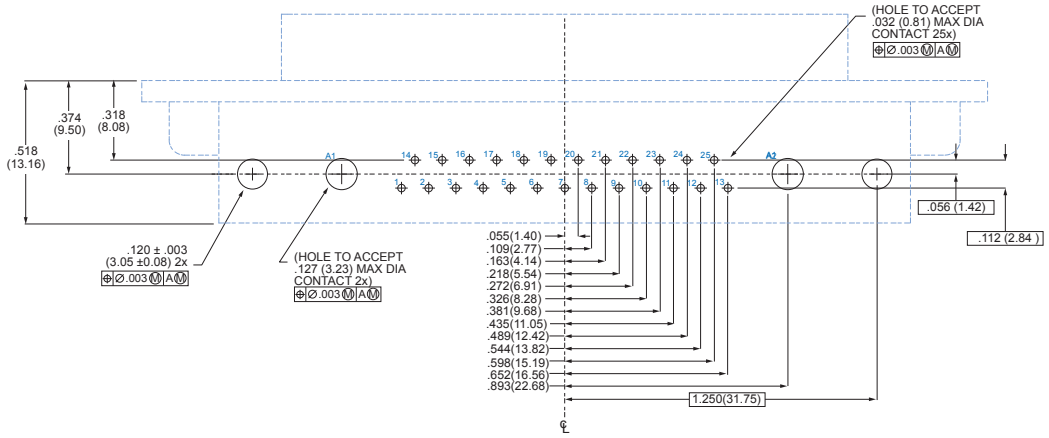
PCB footprints for combo socket connectors with right angle PC tails

PCB FOOTPRINT FOR 280-053S AND 280-057S COMBO CONNECTORS

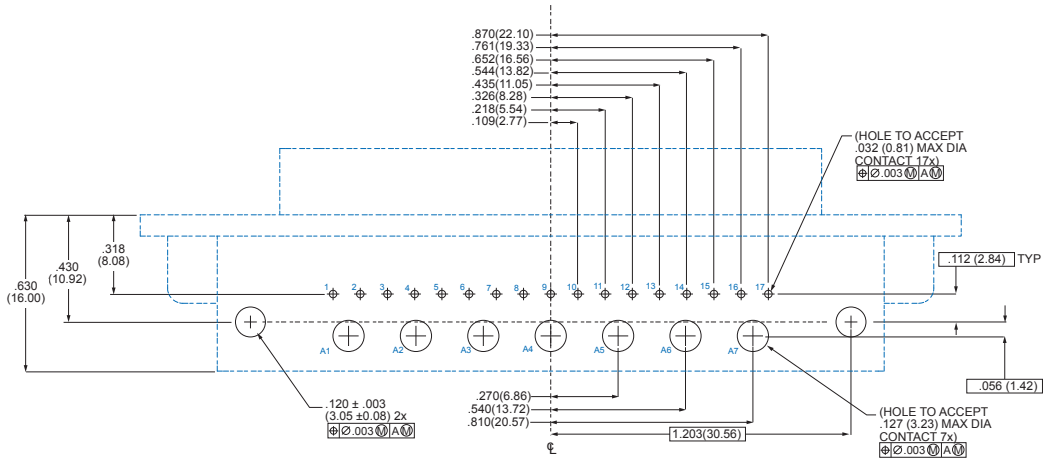
4-25P3
3 #8, 22 #20



4-27P2
2 #8, 25 #20



5-24P7
7 #8, 17 #20



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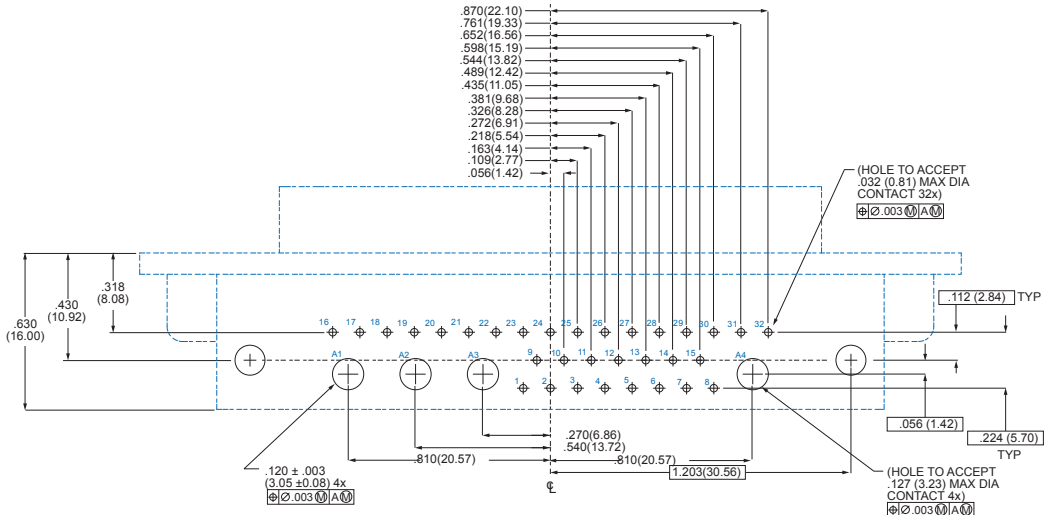
HiPer-D® Panel Cutouts and PCB Footprints

PCB footprints for combo socket connectors with right angle PC tails

PCB FOOTPRINT FOR 280-053S AND 280-057S COMBO CONNECTORS

5-36P4
4 #8, 32 #20



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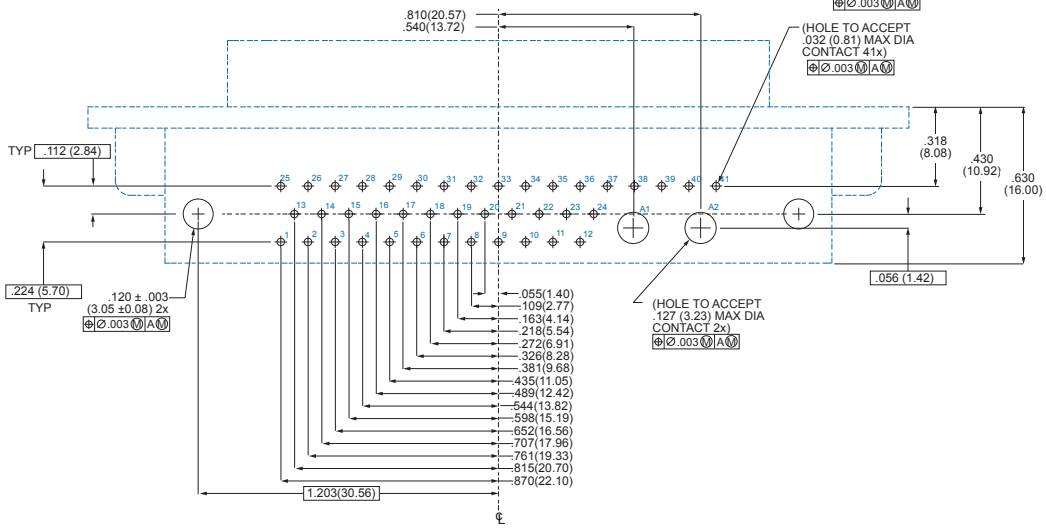
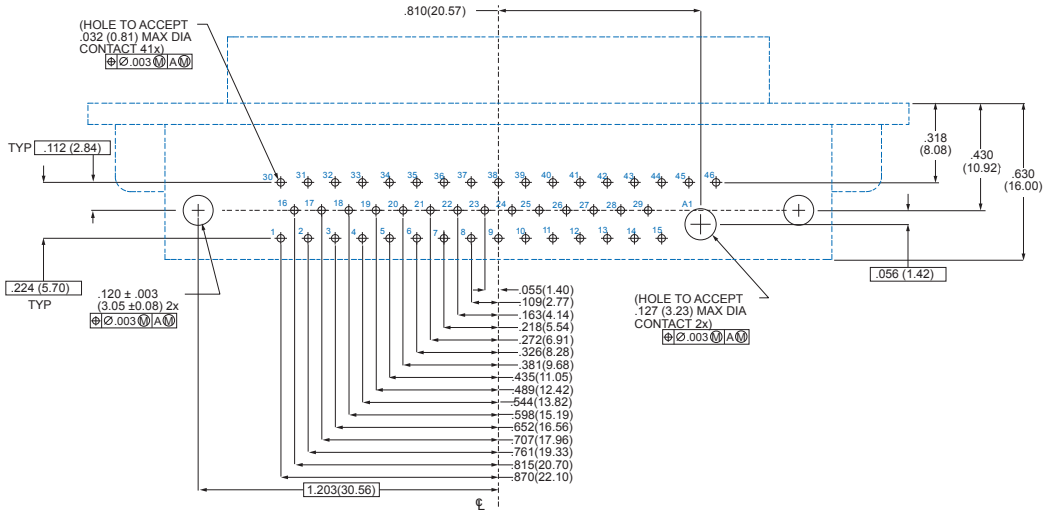
2 #8, 41 #20



5-47P1
1 #8, 46 #20



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280-018P B-6
280-019S B-8
280-020P B-10
280-021S B-12
280-022P B-22
280-023S B-24
280-024P B-26
280-025S B-28
280-026P B-30
280-027S B-32
280-028P B-34
280-029S B-36
280-030P B-14
280-031S B-16
280-046P C-6
280-047S C-8
280-048P C-10
280-049S C-12
280-050P C-22
280-051S C-24
280-052P C-26
280-053S C-28
280-054P C-30
280-055S C-32
280-056P C-34
280-057S C-36
280-058P C-14
280-059S C-16
280-082 . . . . . D-7
280-082P D-6
280-083 . . . . . D-5
280-083S D-8
280-086P B-18
280-087S B-20
280-088P C-18
280-089S C-20
289-003 . . . . . F-2
289-004 . . . . . F-2
289-012 . . . . . F-17
289-014 . . . . . F-16
289-015 . . . . . F-15
289-016 . . . . . F-15
289-019 . . . . . F-2
289-052 . . . . . F-4
289-057P F-19
289-058S F-19
289B007 . . . . . F-11
289S005 . . . . . F-5
289S007 . . . . . F-11
289S008 . . . . . F-8
289T005 . . . . . F-5
289T007 . . . . . F-11
289T008 . . . . . F-8
600-052 . . . . . F-20
600-058 . . . . . F-20
600-090 . . . . . F-20
770-030 . . . . . F-21
809-015 . . . . . E-9
809-129 . . . . . E-
809-130 . . . . . E-6
809-132 . . . . . E-10
809-133 . . . . . E-6
809-203 . . . . . E-10
850-002 . . . . . E-3
850-003 . . . . . E-3
850-021 . . . . . E-2
850-022 . . . . . E-2
850-056 . . . . . E-4
850-057 . . . . . E-4
85-021 . . . . . E-10
852-084 . . . . . E-5
852-085 . . . . . E-5
852-086 . . . . . E-6
852-088 . . . . . E-8
852-089 . . . . . E-8
859-012 . . . . . E-10
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859-081 . . . . . E-9
859-083 . . . . . E-9
859-093 . . . . . E-10
859-098 . . . . . E-6
859-099 . . . . . E-9
859-100 . . . . . E-9
960-130 . . . . . E-7
960-131 . . . . . E-7
960-132 . . . . . E-7

G



SERIES GMLM

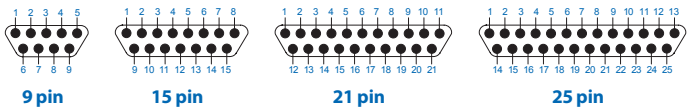
MasterLatch™

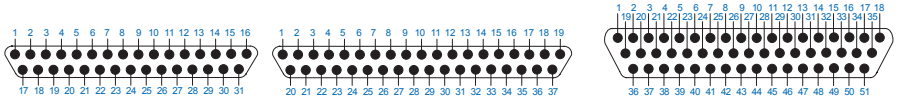
QUICK-DISCONNECT MICRO-D

MasterLatch (GMLM) Quick-release locking Micro-D connector pairs are equipped with a precision latching and locking mechanism. The single thumb latch on the plug side actuates a pair of locking latches that mate quickly and reliably to GMLM receptacles. These TwistPin equipped, low-insertion-force connectors meet all the standard performance requirements of MIL-DTL-8513 including vibration, shock, and mating durability. Choose from 7 different insert arrangements from 9 to 51 way. The unique ergonomic latching mechanism can be easily activated with a thumb and forefinger grip even when wearing gloves, or when difficult access to connector pairs makes the use of jacking hardware and tools impossible.

- **Precision latch meets MIL-DTL-83513 vibration and shock**
- **Low insertion force TwistPin contacts**
- **Easy-to-activate latching mechanism**

Face view pin connector - Micro-D contact arrangements





Glenair®

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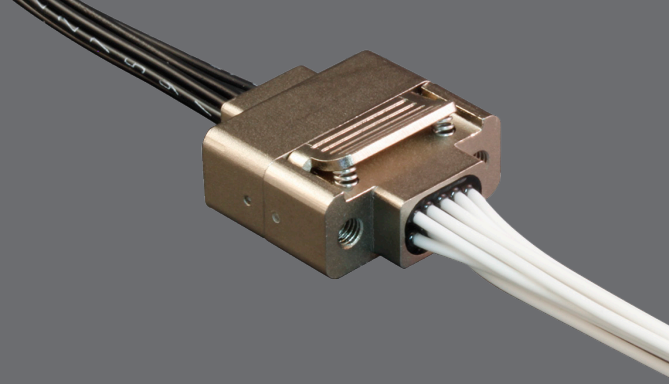
SERIES GMLM

MasterLatch™

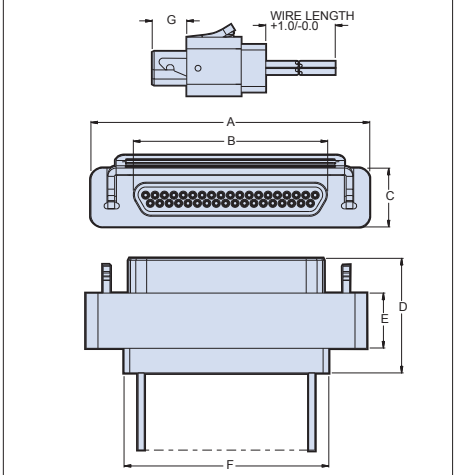
QUICK-DISCONNECT MICRO-D



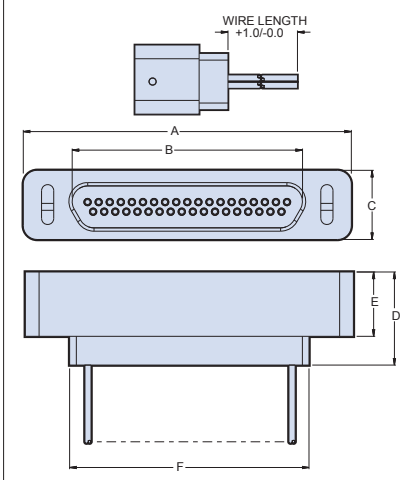
How To Order GMLM MasterLatch™									
Sample Part Number	**GMLM**	**2**	**L**	**-25**	**P**	**-6**	**K**	**7**	**-18**
Product Series	**GMLM** Glenair MasterLatch™ Micro-D								
Shell Plating	**1**- Cadmium **2** - Nickel **4** - Black Anodize **5** - Gold **6** - Chem Film								
Insulator Material	**L** - LCP or PPS								
Contact Layout	**9, 15, 21, 25, 31, 37, 51**								
Connector Type	**P** - Single Ended Pin (Plug) **S** - Pin (Plug) Connector Both Ends								
Wire Gauge	**4** - 24 AWG **6** - 26 AWG **8** - 28 AWG **0** - 30 AWG (30 AWG–Lab Only)								
Wire Type	**K** - M22759/11 600 Vrms Teflon (TFE) **J** - M22759/33 600 Vrms Modified Cross-Linked Tefzel (ETFE)								
Wire Color Code	**1** - White **2** - Yellow **5** - Color Coded **7** - Ten Color Repeating								
Cable Length In Inches	**18** - 18 inches								

Series GMLM MasterLatch™ Dimensions

Pin



Socket



Layout	A Max	B Max	C	D Max	E Max	F Max	G
9P	0.785	0.333	0.320	0.610	0.290	0.400	0.183
9S	0.785	0.342	0.320	0.429	0.295	0.400	0.183
15P	0.935	0.483	0.320	0.610	0.290	0.550	0.183
15S	0.935	0.492	0.320	0.429	0.295	0.550	0.183
21P	1.085	0.633	0.320	0.610	0.290	0.700	0.183
21S	1.085	0.642	0.320	0.429	0.295	0.700	0.183
25P	1.185	0.733	0.320	0.610	0.290	0.800	0.183
25S	1.185	0.742	0.320	0.429	0.295	0.800	0.183
31P	1.335	0.883	0.320	0.610	0.290	0.950	0.183
31S	1.335	0.892	0.320	0.429	0.295	0.950	0.183
37P	1.485	1.033	0.320	0.610	0.290	1.100	0.183
37S	1.485	1.042	0.320	0.429	0.295	1.100	0.183
51P	1.435	0.983	0.320	0.610	0.290	1.050	0.183
51S	1.435	0.992	0.320	0.429	0.295	1.050	0.183

MasterLatch™ GMLM connectors are sold as prewired pigtails only, with 18 inch wire leads. Contact factory for alternative lengths.

MATERIAL AND FINISH

- Insulator: Liquid crystal polymer or PPS
- Wire: M22759/11 600 Vrms Teflon (TFE) or M22759/33 600 Vrms Modified Cross-Linked Tefzel (ETFE)
- Pin Contacts: Gold-plated beryllium copper alloy
- Socket Contacts: Gold-plated phosphor bronze alloy
- Shell: Aluminum alloy with choice of cadmium plate, electroless nickel, black anodize, gold, or chem film
- Latching mechanism: Stainless steel

Glenair®

For more information contact Glenair at **818-247-6000** or visit our website at **www.glenair.com**

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Outstanding Customer Service!



In-House Assembly!



Abundant Machining Capacity!



Huge "Same-Day" Inventory!



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High-Production Injection Molding Equipment



State-of-the-Art Plating Capabilities



The Industry's Most Experienced EMI/RFI Braided Shielding Specialists

Glenair®



Largest CNC Milling Installations



Clean Rooms for Filter Array and Printed Circuit Board Assembly

Out of This World

INTERCONNECT SOLUTIONS

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www.glenair.com

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