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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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

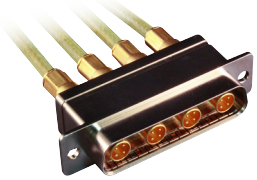
HiPer-D® connectors with O-ring and threaded mounting holes for watertight panel attachment. Guide pins are available for blind mate applications.

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

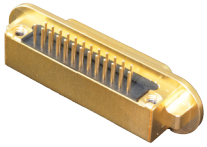


Improved EMI Performance

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.

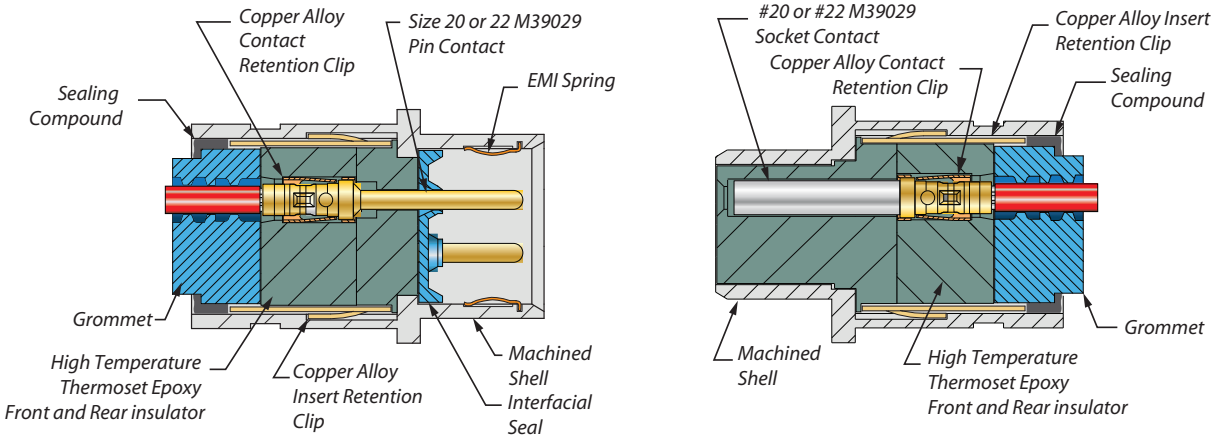


EMI backshells

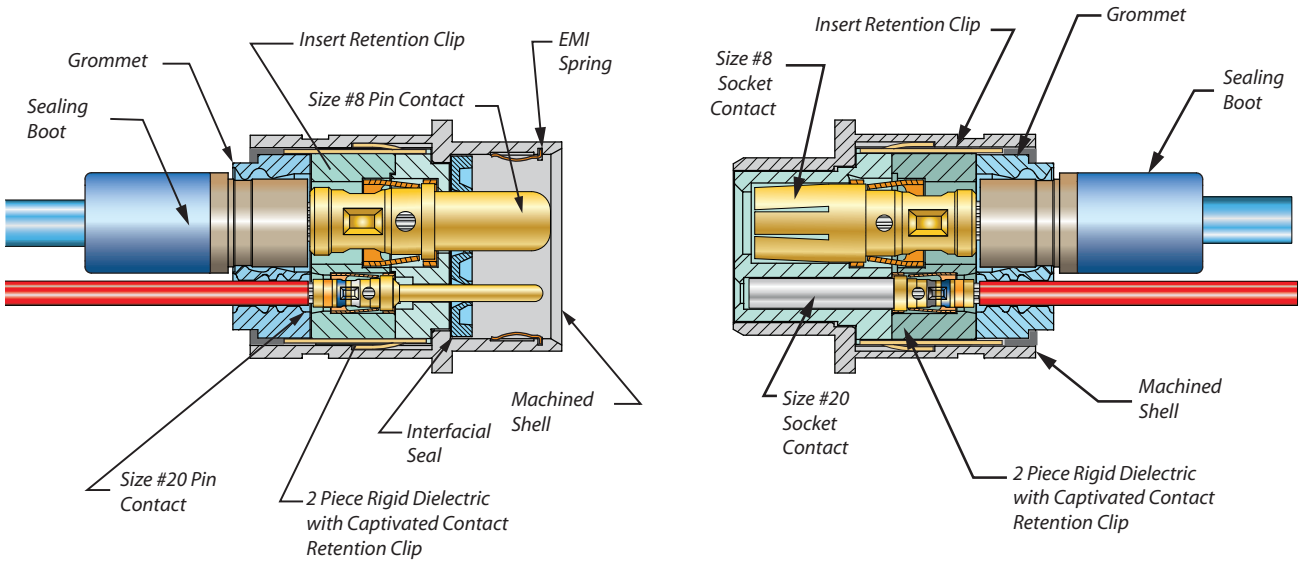
HiPer-D® backshells are designed to optimize EMI performance and save weight.

HiPer-D® Cutaway Views

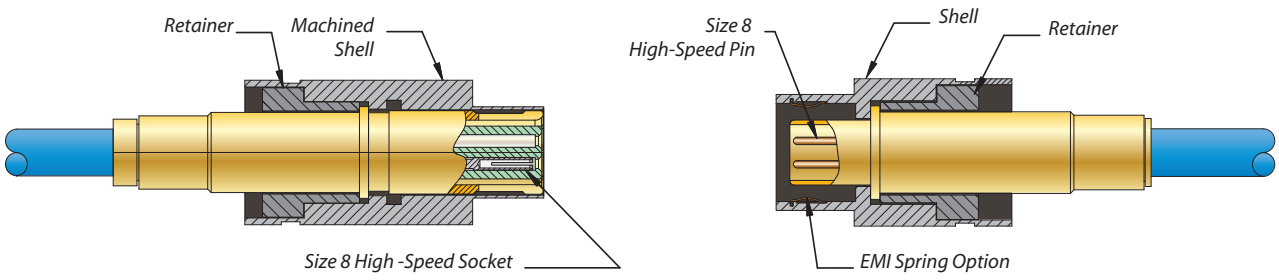
STANDARD AND HIGH DENSITY HIPER-D® - CUTAWAY



COMBO HIPER-D® - CUTAWAY



MONOBLOCK HIPER-D® - CUTAWAY



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.

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

Electrical

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

Electrical Performance Specification

Performance Specifications

Electrical

Description	Requirement		Procedure
Current Rating	**Contact Size**	**Max Current**	EIA-364-70 Method 1 IEC-60512-5 Test 9b
	8	40	
	20	7.5	
	22	5	
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 GHz**	**Min Attenuation (dB)**	EIA-364-66 IEC-60512-23-3 Pin Connector with Optional Grounding Spring, Electroless nickel plated shells
	0.1	100	
	0.4	90	
	0.8	85	
	1.0	80	
	3.0	55	
	6.0	40	
	10.0	30	

Performance Specifications		
Mechanical		
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 IEC-60512-6-4 100 milliamp test current 254 mm/sec from 10-50 Hz; 1.5 mm double amplitude from 50-140 Hz, and 60 G from 140-2,000 Hz
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 VI Letter J IEC-60512-6-4 100 milliamp test current 50- 2,000 Hz 43.92 g RMS
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.
21 Day Humidity (Damp heat, Long Term)	No deterioration which will adversely affect the connector. Following the drying period, connectors shall meet 100 meg-ohms minimum, contact resistance, shell-to-shell resistance, DWV, mating and un-mating 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

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Perfomance Specifications		
Mechanical		
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 / 25 / 111 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.

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

Space-Grade HiPer-D® Information

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.

SERIES 28

HiPer-D® Standard and High-Density Connectors

Product Selection Guide and Contact Arrangements

B

SERIES 28

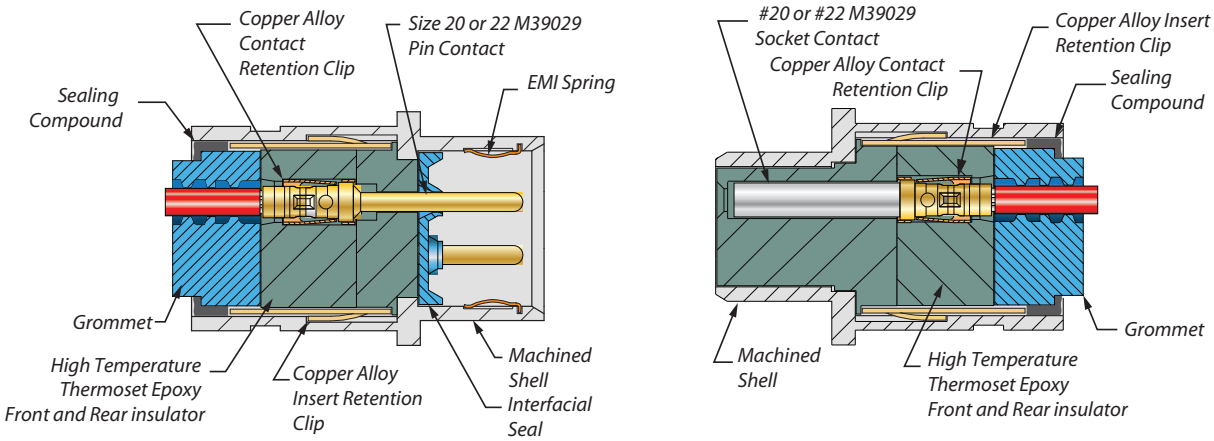
Hiper-D® Standard and High-Density Connectors

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.

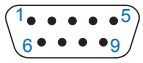
Product Features

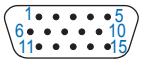
- **Environmental, crimp removable rectangular connector**
- **Advanced temperature, vibration and EMC/electrical performance**
- **M24308/D-Sub intermateable**
- **Fits panel and PCB footprint of M24308 D-Sub products**
- **Available in all 11 "standard" insert arrangements**
- **Standard Density (#20)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

STANDARD AND HIGH DENSITY HIPER-D® - CUTAWAY

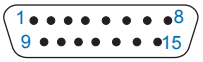


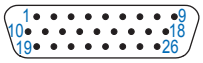
STANDARD AND HIGH DENSITY CONTACT ARRANGEMENTS *(face view of pin connector)*



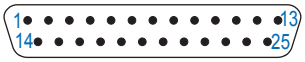


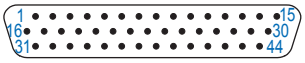
Arrangement	**1S9**	**1H15**
Shell Size	1	1
Contacts	9 #20	



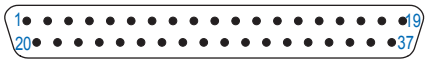


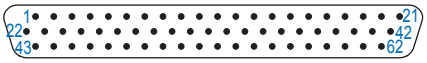
Arrangement	**2s15**	**2H26**
Shell Size	2	2
Contacts	15 #20	26 #22



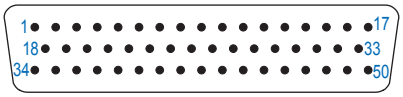


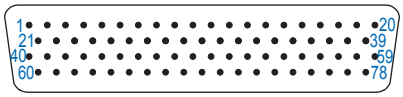
Arrangement	**3S25**	**3H44**
Shell Size	3	3
Contacts	25 #20	44 #22



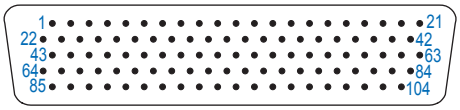


Arrangement	**4S37**	**4H62**
Shell Size	4	4
Contacts	37 #20	62 #22





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



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

B

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

Reference and Technical Data

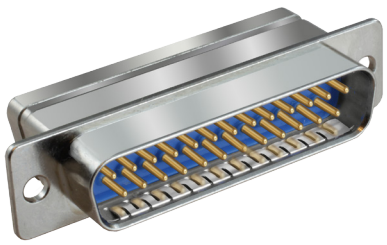
Performance specifications

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

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

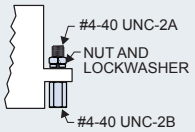
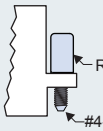
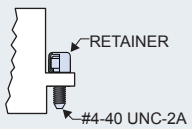
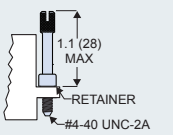
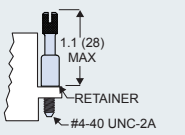
Sample Part Number	280-018P	3S25	ME	G	P

Basic Part Number	**280-018P**	
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table	
Shell Finish	**ME** = Electroless Nickel (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)
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

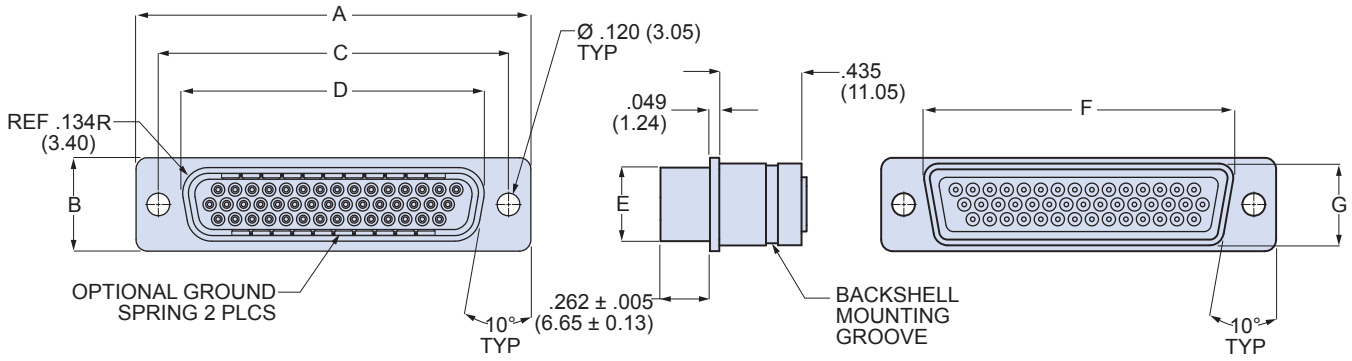
Specifications

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.

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***.

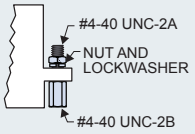
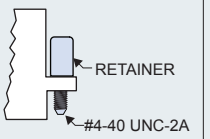
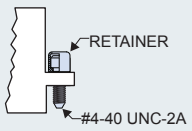
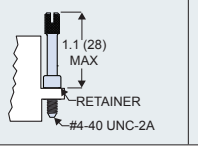
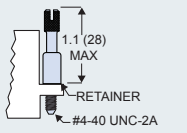
HiPer-D® Standard and High-Density Connectors

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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)		
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

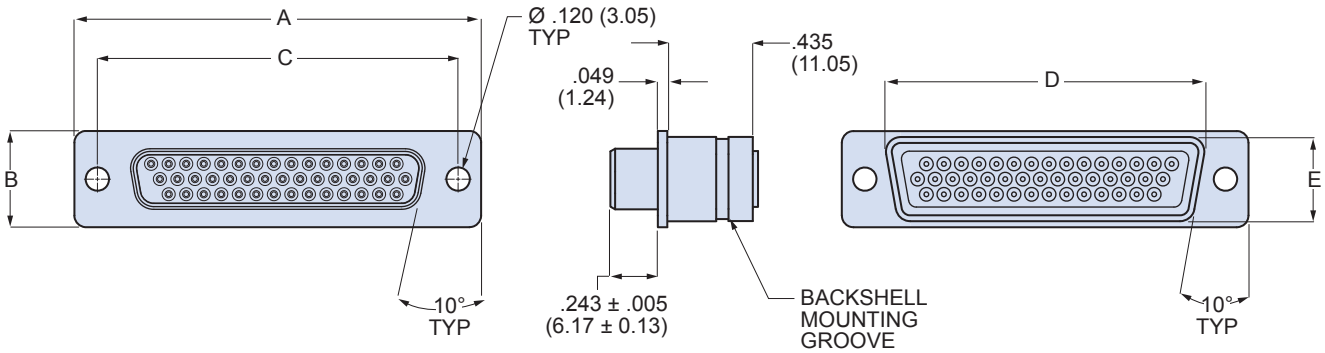
Mating Hardware	
N Thru-Hole No Hardware	**P** Female Jackpost
	
S Captive Screwlock, Hex Head	**L** Captive Jackscrew, Hex Head
	
K Slot-Head Extended Jackscrew	**T** Slot-Head Extended Captive Screwlock
	

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.

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

280-019S 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	.769	19.53	.432	10.97
2	1.541	39.14	.494	12.55	1.312	33.32	1.093	27.76	.432	10.97
3	2.088	53.04	.494	12.55	1.852	47.04	1.635	41.53	.432	10.97
4	2.729	69.32	.494	12.55	2.500	63.50	2.282	57.96	.432	10.97
5	2.635	66.93	.605	15.37	2.406	61.11	2.188	55.58	.544	13.82
6	2.729	69.32	.668	16.97	2.500	63.50	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***.

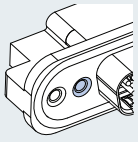
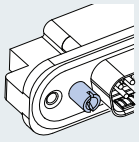
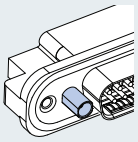
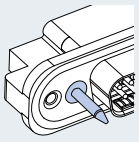
HiPer-D® Standard and High-Density Connectors

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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)				
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
	

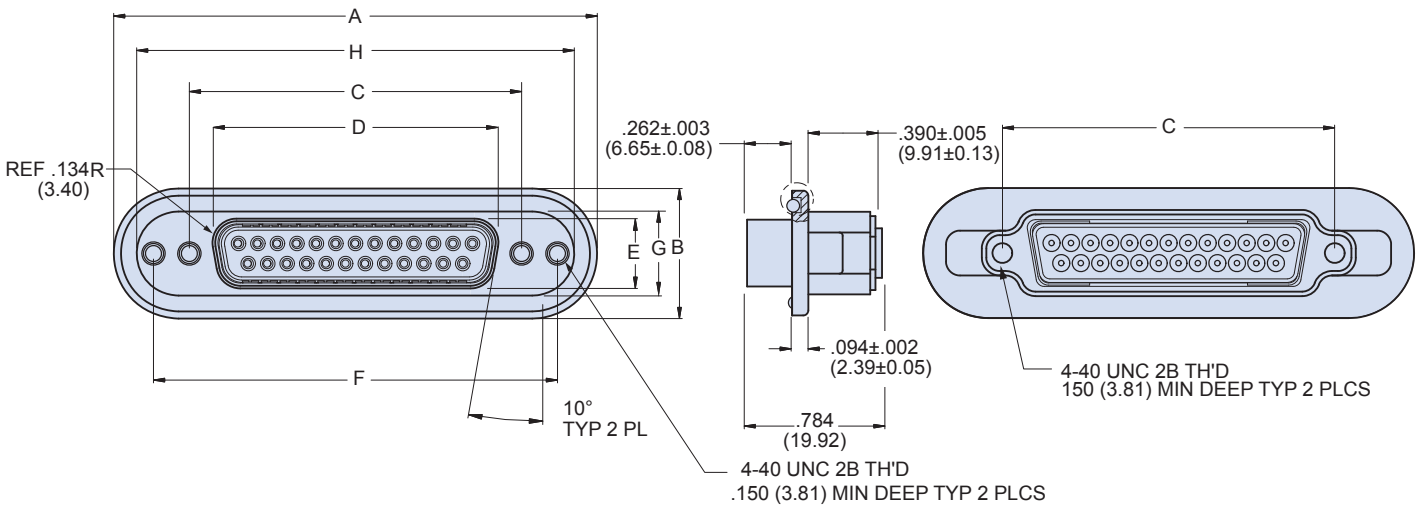
Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Beryllium copper alloy
O-ring, Grommet, Seal	Fluorosilicone rubber
EMI Spring	Copper alloy, nickel plated
Hardware	300 series stainless steel

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.

HiPer-D® Standard and High-Density Connectors

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

280-020P DIMENSIONS



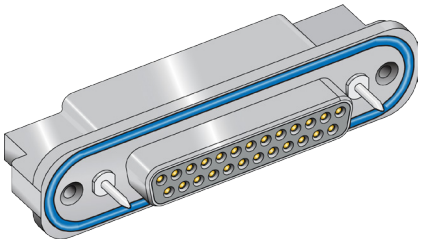
Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.726	18.44	.389	9.88	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	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***.

HiPer-D® Standard and High-Density Connectors

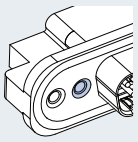
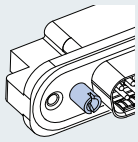
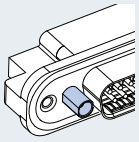
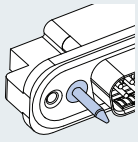
280-021S panel mount socket connectors with O-ring mounting flange, crimp termination



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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z1** = Passivated Stainless Steel (RoHS)		
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
	

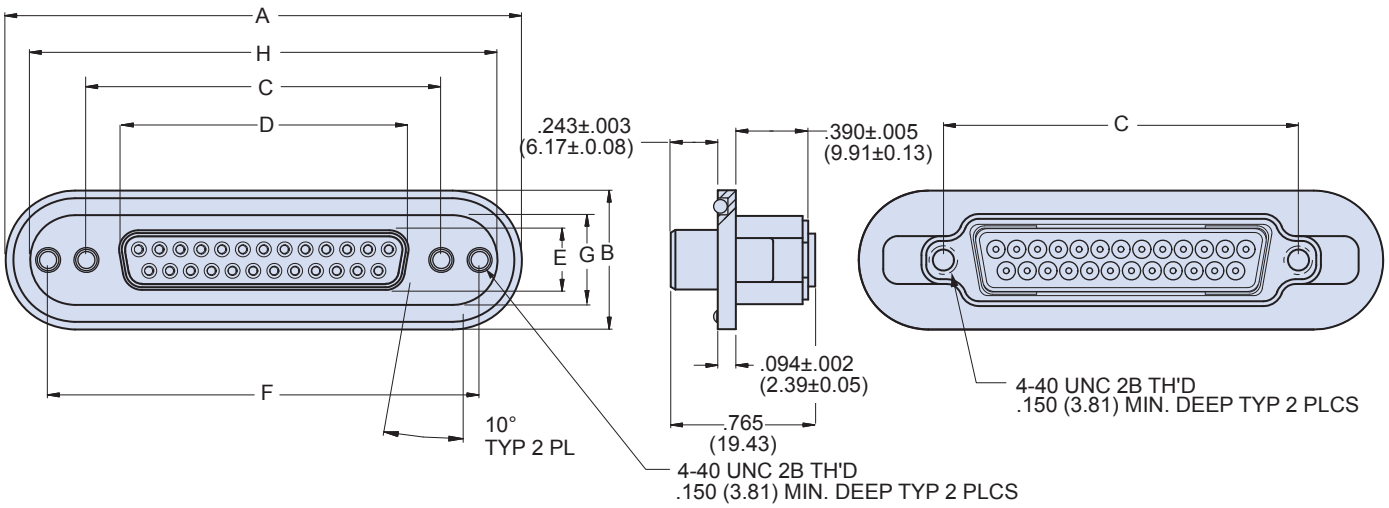
Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
O-ring, Grommet	Fluorosilicone rubber
Hardware	300 series stainless steel

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.

HiPer-D® Standard and High-Density Connectors

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

280-021S DIMENSIONS



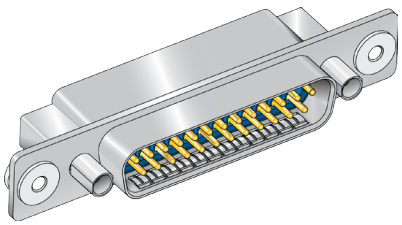
Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.643	16.33	.311	7.90	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	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***.

HiPer-D® Standard and High-Density Connectors

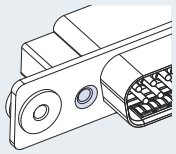
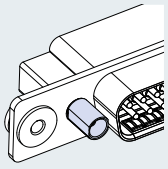
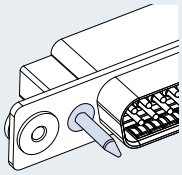
280-030P float mount pin connectors for blind mating, crimp termination



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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)				
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

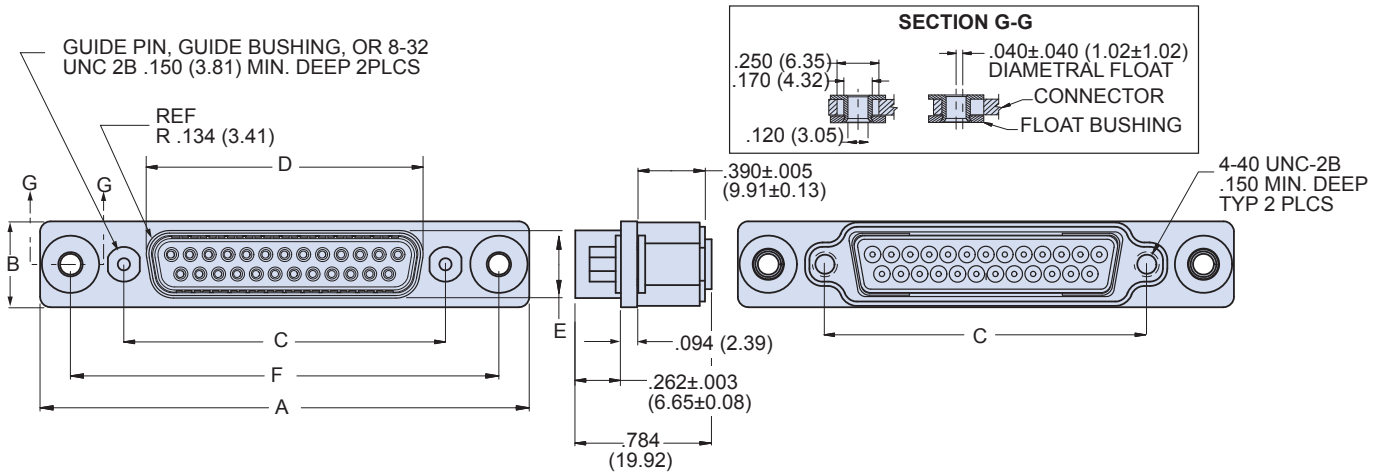
Mating Hardware
N No Hardware #8-32 tapped hole

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.

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

280-030P DIMENSIONS



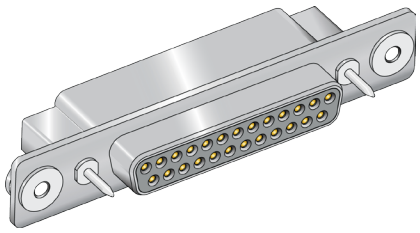
Shell Size	A		B		C Basic		D		E		F Basic	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm
1	1.986	50.44	.494	12.55	.984	24.99	.726	18.44	.389	9.88	1.636	41.55
2	2.314	58.78	.494	12.55	1.312	33.32	1.054	26.77	.389	9.88	1.964	49.89
3	2.854	72.49	.494	12.55	1.852	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

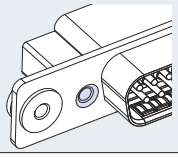
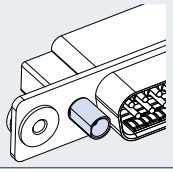
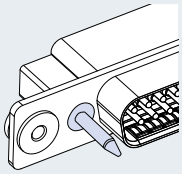
280-031S float mount socket connectors for blind mating, crimp termination



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 (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)			
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

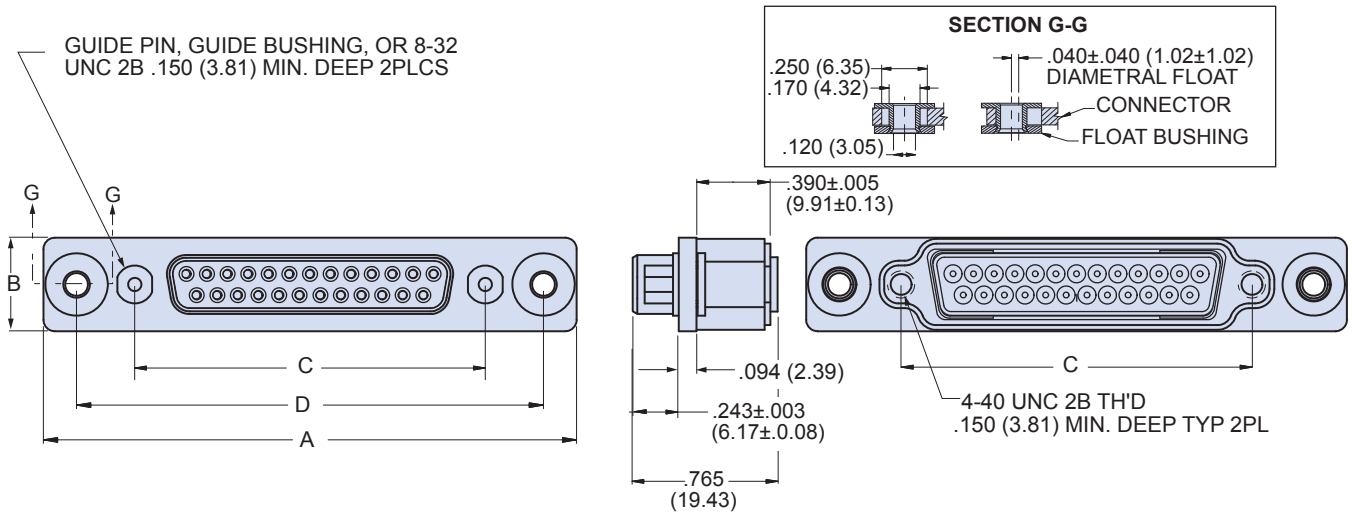
Mating Hardware
N No Hardware #8-32 tapped hole

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.

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

280-031S DIMENSIONS



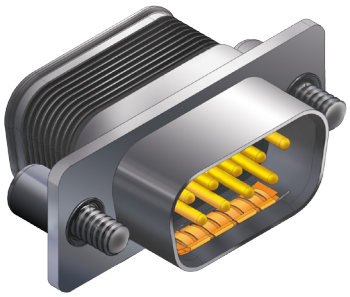
Shell Size	A		B		C Basic		D Basic	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in	mm
1	1.986	50.44	.494	12.55	.984	24.99	1.636	41.55
2	2.314	58.78	.494	12.55	1.312	33.32	1.964	49.89
3	2.854	72.49	.494	12.55	1.852	47.04	2.504	63.60
4	3.502	88.95	.494	12.55	2.500	63.50	3.152	80.06
5	3.408	86.56	.600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

HiPer-D® Standard and High-Density Connectors

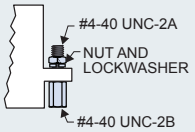
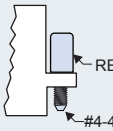
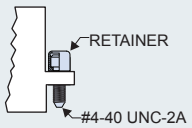
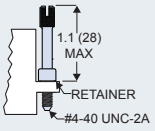
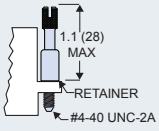
280-086 pin connectors with standard M24308 type mounting flange, integral banding platform and crimp termination



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 M39029/64-369 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		**280-086P**	**3S25**	**ME**	**G**	**P**
Basic Part Number	**280-086P**					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table					
Shell Finish	**ME** = Electroless Nickel (RoHS) **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **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
	

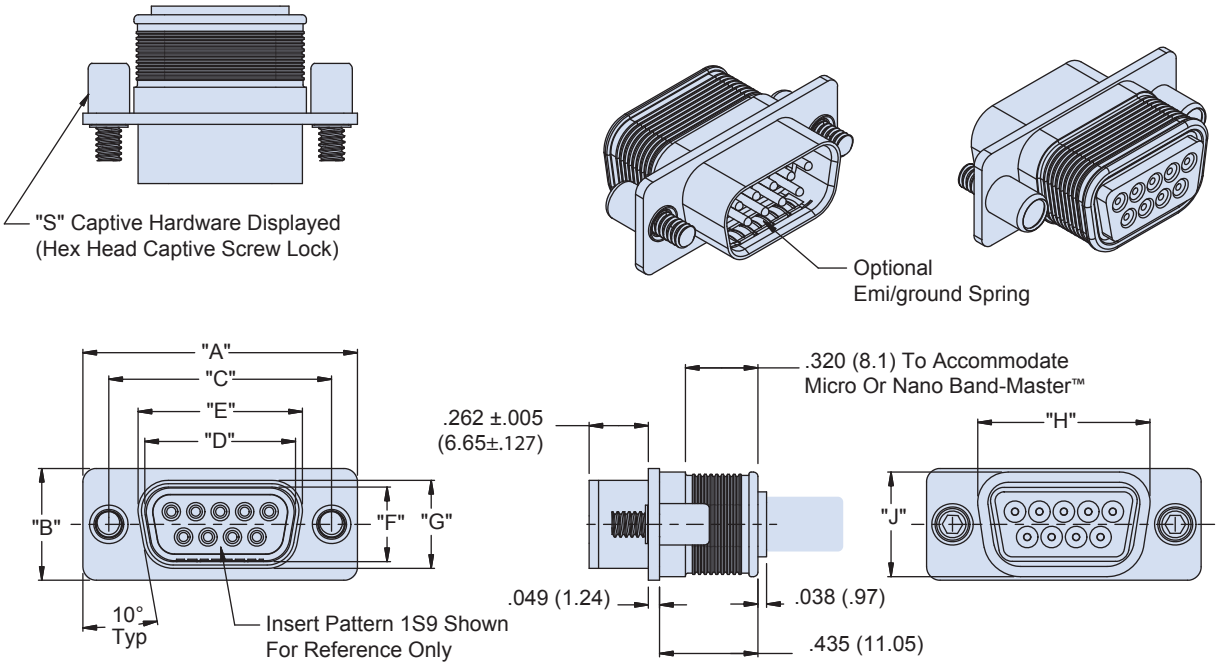
Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Copper alloy
Grommet and Seal	Fluorosilicone rubber
EMI Spring	Copper alloy, nickel plated
Hardware	300 series stainless steel

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.

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



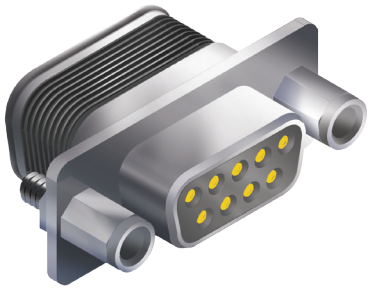
Shell Size	Insert Pattern	"A" ±.015		"B" ±.015		"C" ±.005		"D" ±.005		"E" ±005		"F" ±.005		"G" ±.005		"H"		"J"		Contact P/N
		in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.	
1	SD 9	1.213	30.81	0.494	12.55	0.984	24.99	0.666	16.92	0.726	18.44	0.329	8.36	0.389	9.88	0.760	19.30	0.462	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																			M39029/58-369
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***.

HiPer-D® Standard and High-Density Connectors

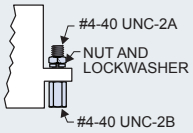
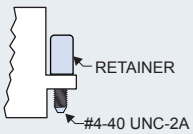
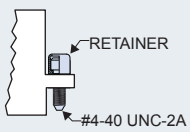
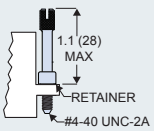
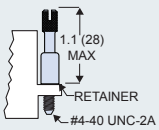
280-087 socket connectors with standard M24308 type mounting flange, integral banding platform and crimp termination



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 M39029/64-369 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		**280-087S**	**3S25**	**ME**	**P**
Basic Part Number	**280-087S**				
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel (RoHS) **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **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

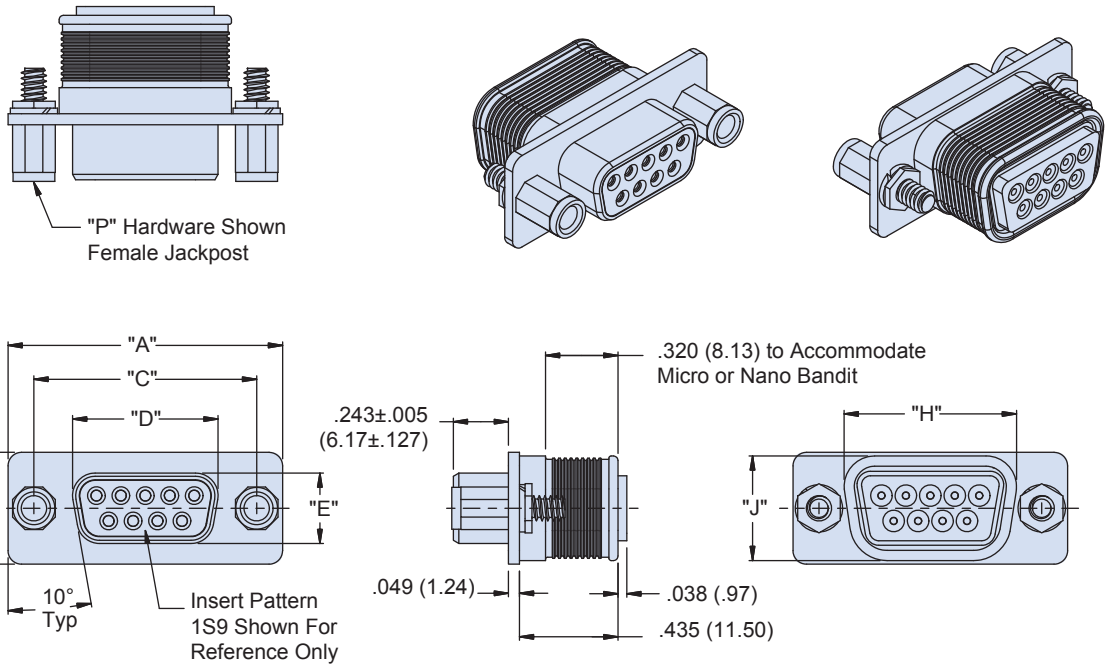
Mating Hardware	
N Thru-Hole No Hardware	**P** Female Jackpost
	
S Captive Screwlock, Hex Head	**L** Captive Jackscrew, Hex Head
	
K Slot-Head Extended Jackscrew	**T** Slot-Head Extended Captive Screwlock
	

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.

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

280-087S DIMENSIONS



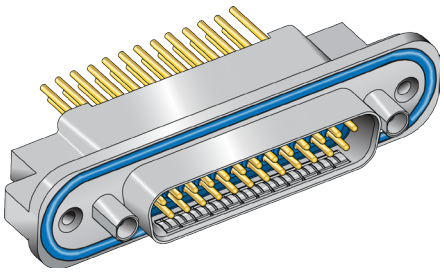
Shell Size	Insert Pattern	"A" ±.015		"B" ±.015		"C" ±.005		"D" ±.005		"E" ±005		"H"		"J"		Contact P/N
		In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	
1	SD 9	1.213	30.81	0.494	12.55	0.984	24.99	0.643	16.33	0.311	7.90	0.760	19.30	0.462	11.73	M39029/63-368
	HD 15															M39029/57-354
2	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***.

HiPer-D® Standard and High-Density Connectors

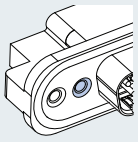
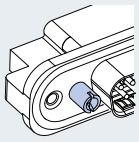
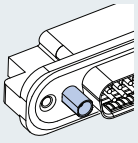
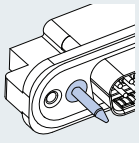
280-022P straight PC tail pin connectors with O-ring flange for rear panel mounting



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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)					
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
	

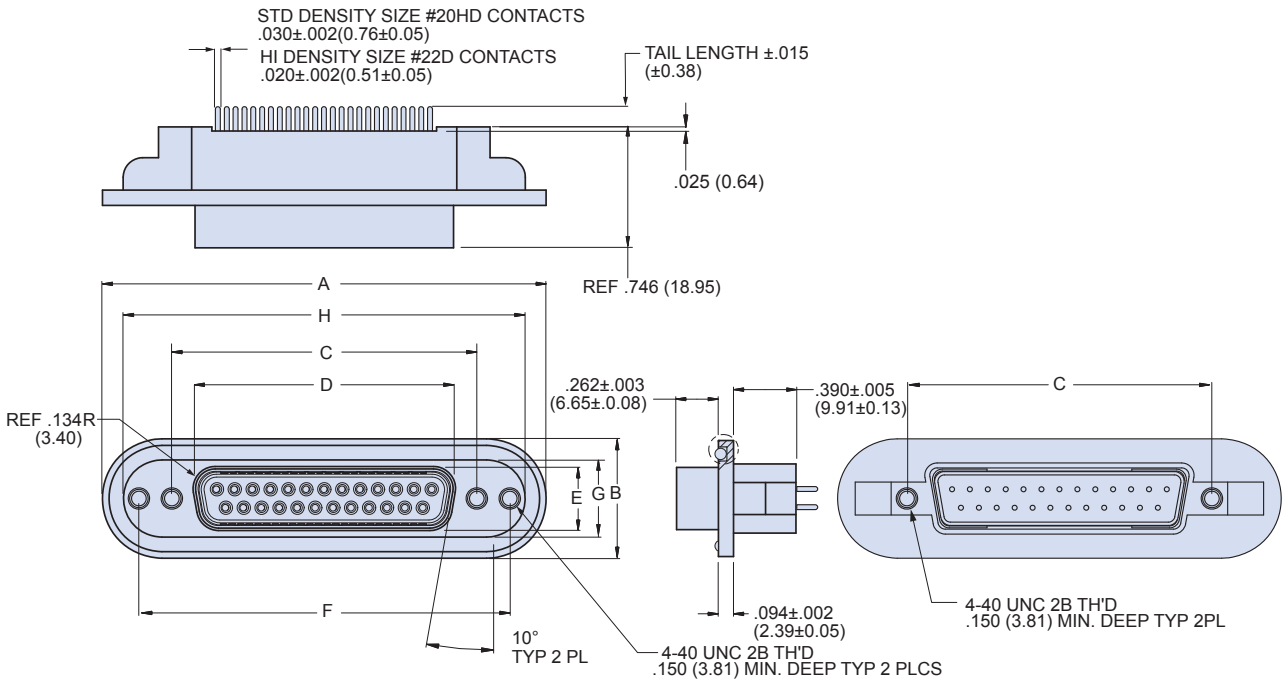
Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Retention Clips	Beryllium copper alloy
O-ring and Seal	Fluorosilicone rubber
EMI Spring	Copper alloy, nickel plated
Hardware	300 series stainless steel

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.

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



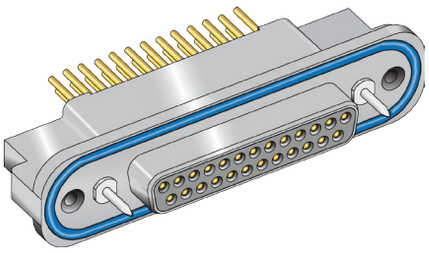
Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .005	mm ± 0.13	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.726	18.44	.389	9.88	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	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***.

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).

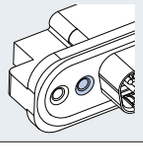
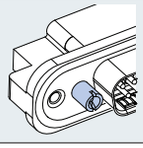
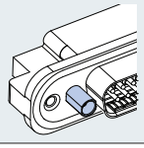
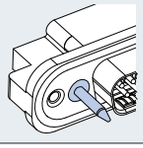
How To Order

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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS) **MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)				
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

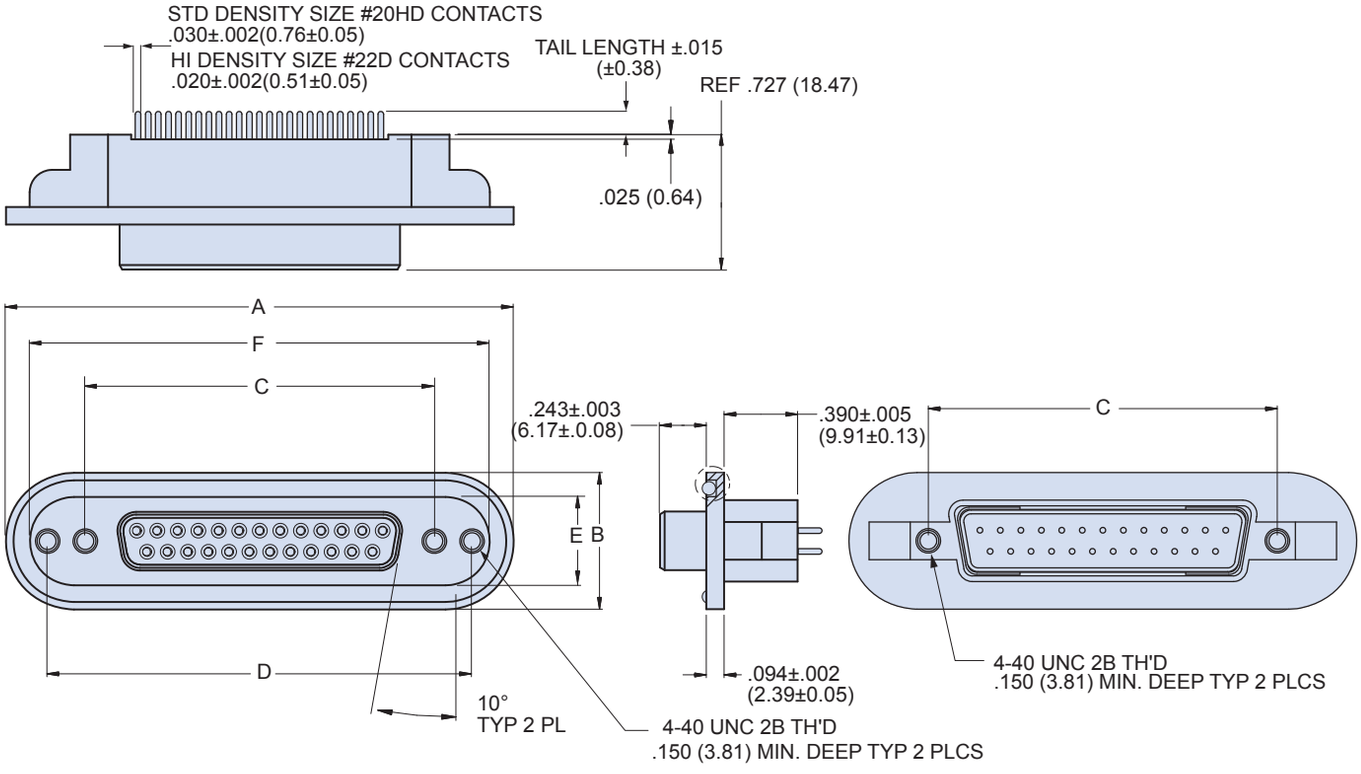
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulator	Thermoset epoxy
Potting Compound	Epoxy
O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

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.

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

280-023S DIMENSIONS



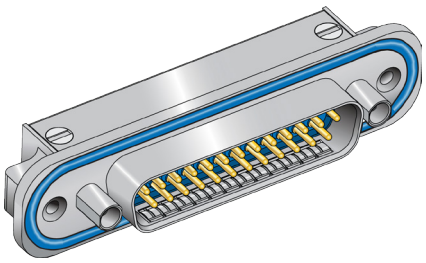
Shell Size	A		B		C Basic		D Basic		E		F	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in	mm	in ± .005	mm ± 0.13	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	33.32	1.752	44.50	.469	11.91	1.944	49.38
3	2.736	69.49	.725	18.42	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***.

HiPer-D® Standard and High-Density Connectors

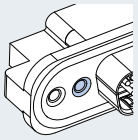
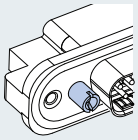
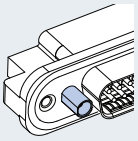
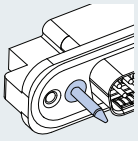
280-024P right angle PC tail pin connectors with O-ring flange for rear panel mounting



Right angle printed circuit board HiPer-D® pin connectors feature rugged one-piece machined aluminum shell and stainless steel shroud 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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)		**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)				
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
	

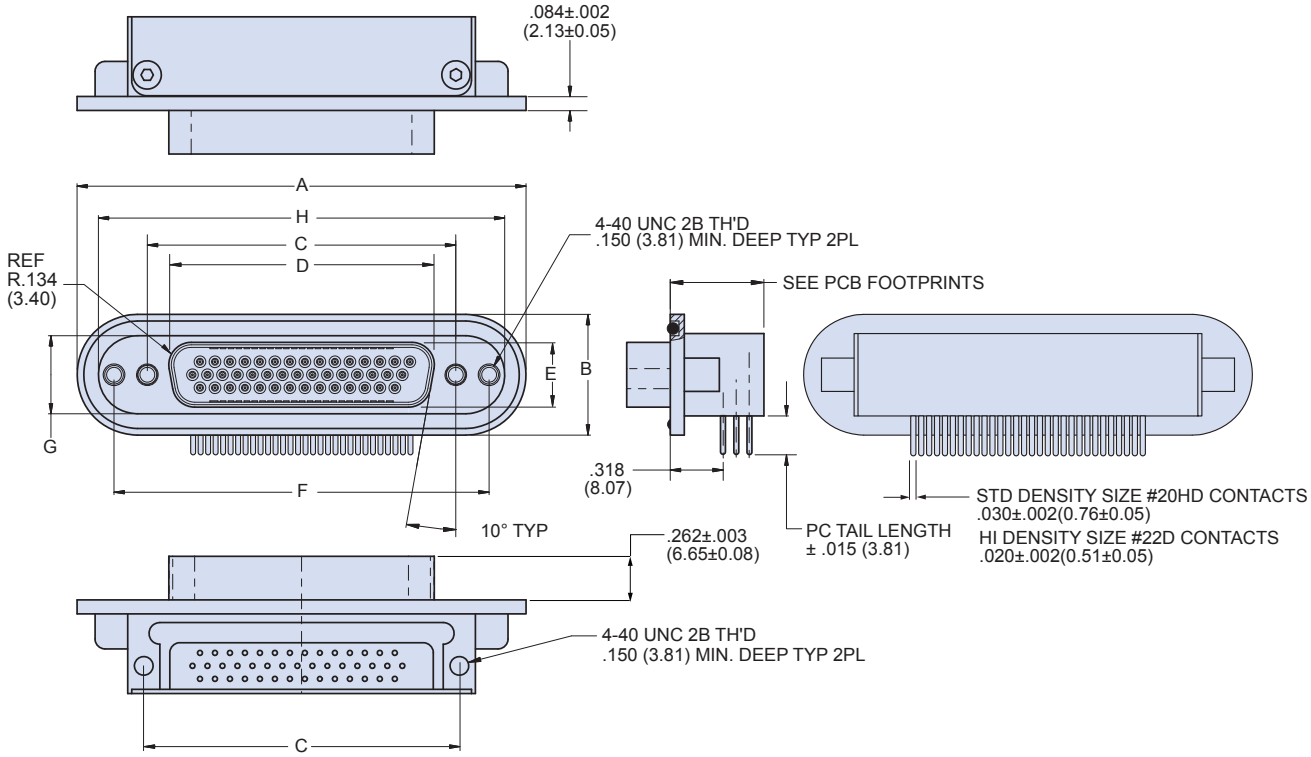
Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Potting Compound	Epoxy
Face Seal and O-ring	Fluorosilicone rubber
Hardware	300 series stainless steel

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.

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



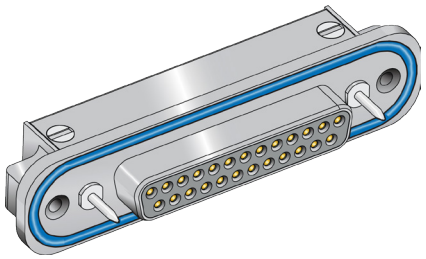
Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.726	18.44	.389	9.88	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	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***.

HiPer-D® Standard and High-Density Connectors

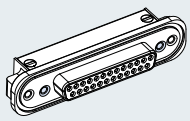
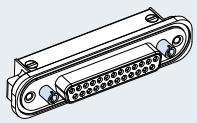
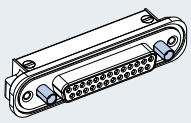
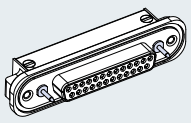
280-025S right angle PC tail socket connectors with O-ring flange for rear panel mounting



Rear panel mount HiPer-D® right angle PC tail socket connectors feature rugged one-piece machined aluminum shell and stainless steel shroud 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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)			
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

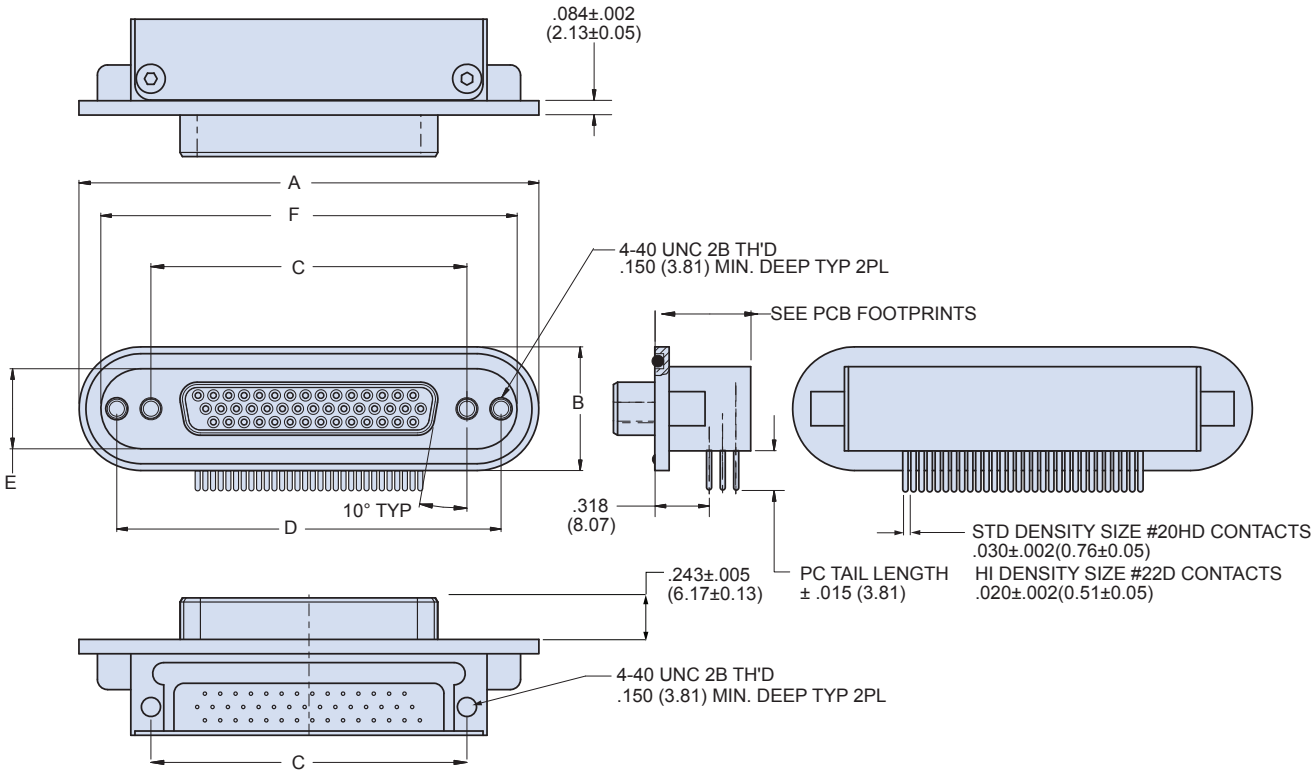
Mating Hardware	
N No Hardware #8-32 tapped hole	**P** #4-40 Female Jackposts
	
B Female Guide Bushings	**G** Male Guide Pins
	

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.

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

280-025S DIMENSIONS



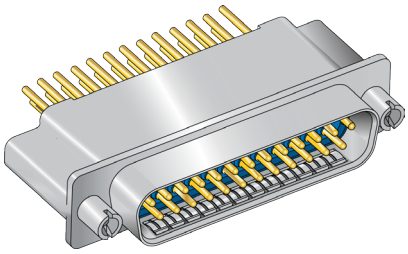
Shell Size	A		B		C Basic		D Basic		E		F	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in	mm	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	1.424	36.17	.469	11.91	1.609	40.87
2	2.200	55.88	.725	18.42	1.312	33.32	1.752	44.50	.469	11.91	1.944	49.38
3	2.736	69.49	.725	18.42	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***.

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

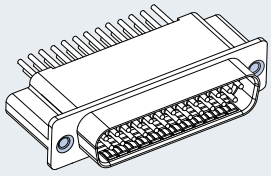
Basic Part Number	**280-026P**	
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table	
Shell Finish	**ME** = Electroless Nickel (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)
Ground Spring	**G** = 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

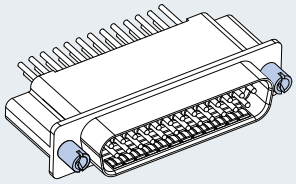
Mating Hardware

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

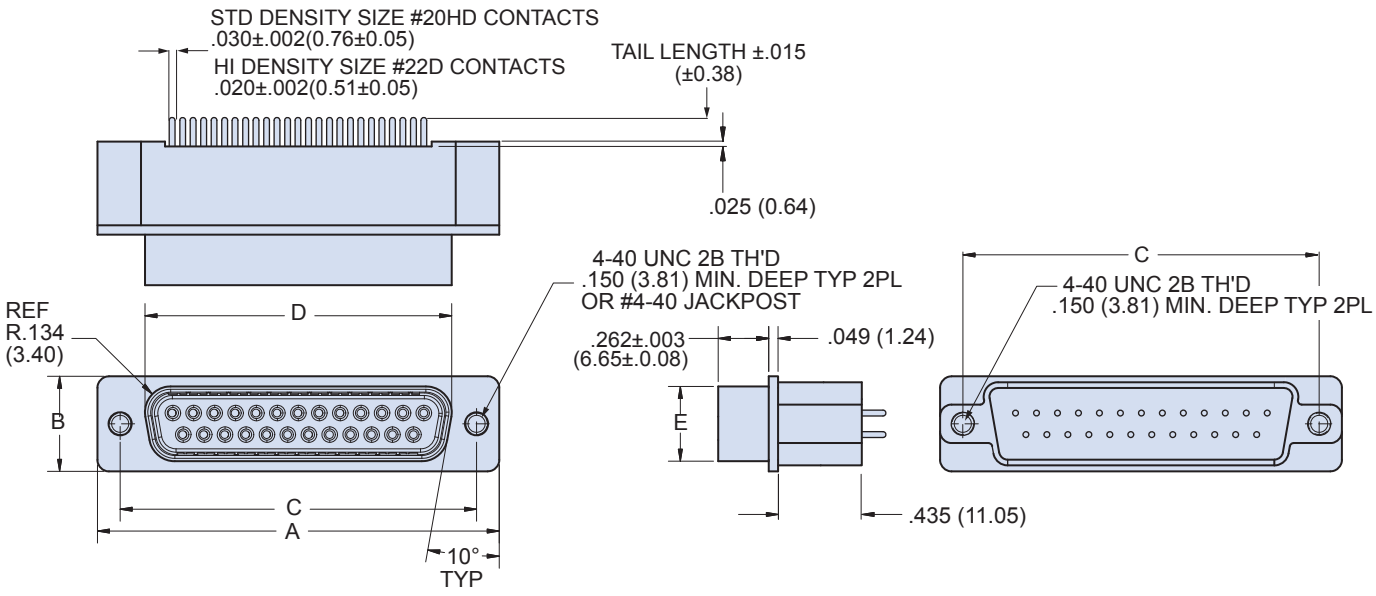
Specifications

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.

HiPer-D® Standard and High-Density Connectors

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

280-026P DIMENSIONS



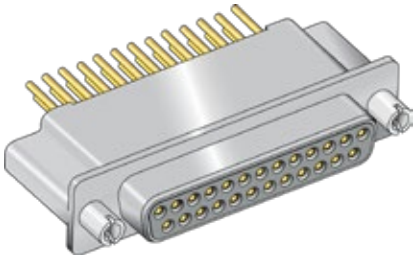
Shell Size	A		B		C Basic		D		E	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13
1	1.213	30.81	.494	12.55	.984	24.99	.726	18.44	.389	9.88
2	1.541	39.14	.494	12.55	1.312	33.32	1.054	26.77	.389	9.88
3	2.088	53.04	.494	12.55	1.852	47.04	1.594	40.49	.389	9.88
4	2.729	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***.

HiPer-D® Standard and High-Density Connectors

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



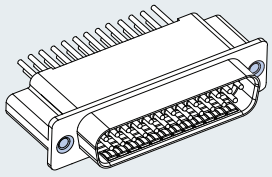
Low profile HiPer-D® straight PC tail socket connectors feature non-removable size #20 or #22 contacts. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a rugged machined shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic 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. 1000 VAC, 5 Amps (#22) or 7.5 Amps (#20).

How To Order					
Sample Part Number	**280-027S**	**1H15**	**ME**	**B**	**B**
Basic Part Number	**280-027S**				
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)				
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				

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

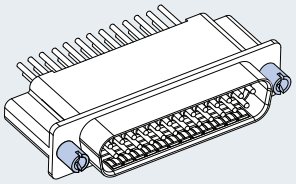
Mating Hardware

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

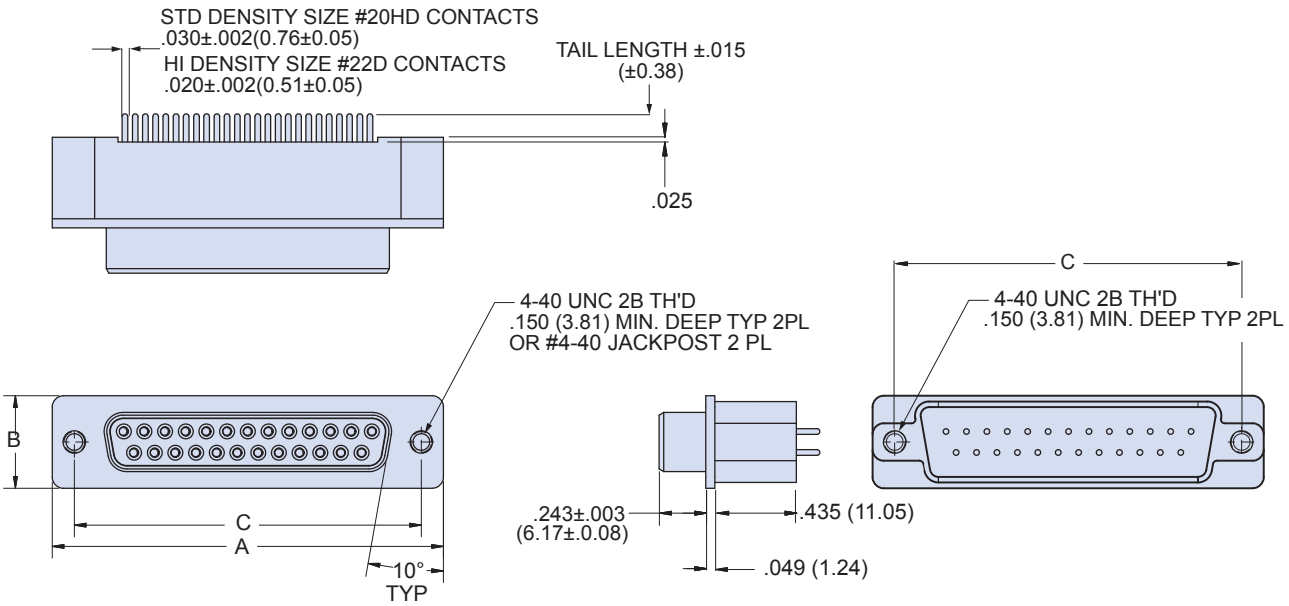


Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold plated
Insulator	Thermoset epoxy
Potting Compound	Epoxy
Hardware	300 series stainless steel

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.

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

280-027S DIMENSIONS



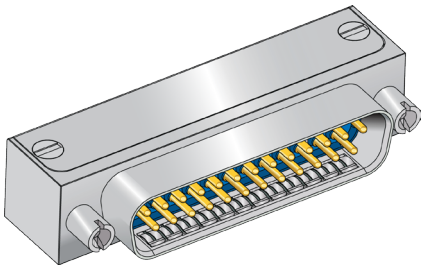
Shell Size	A		B		C Basic	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm
1	1.213	30.81	.494	12.55	.984	24.99
2	1.541	39.14	.494	12.55	1.312	33.32
3	2.088	53.04	.494	12.55	1.852	47.04
4	2.729	69.32	.494	12.55	2.500	63.50
5	2.635	66.93	.605	15.37	2.406	61.11
6	2.729	69.32	.668	16.97	2.500	63.50

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***.

HiPer-D® Standard and High-Density Connectors

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



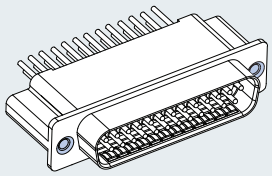
Low profile right angle PC tail HiPer-D® pin connectors feature rugged machined aluminum shell and stainless steel cover for improved EMI protection. Contacts are non-removable, size #20 or #22. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features a resilient face 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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)					
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

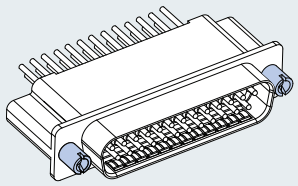
Mating Hardware

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

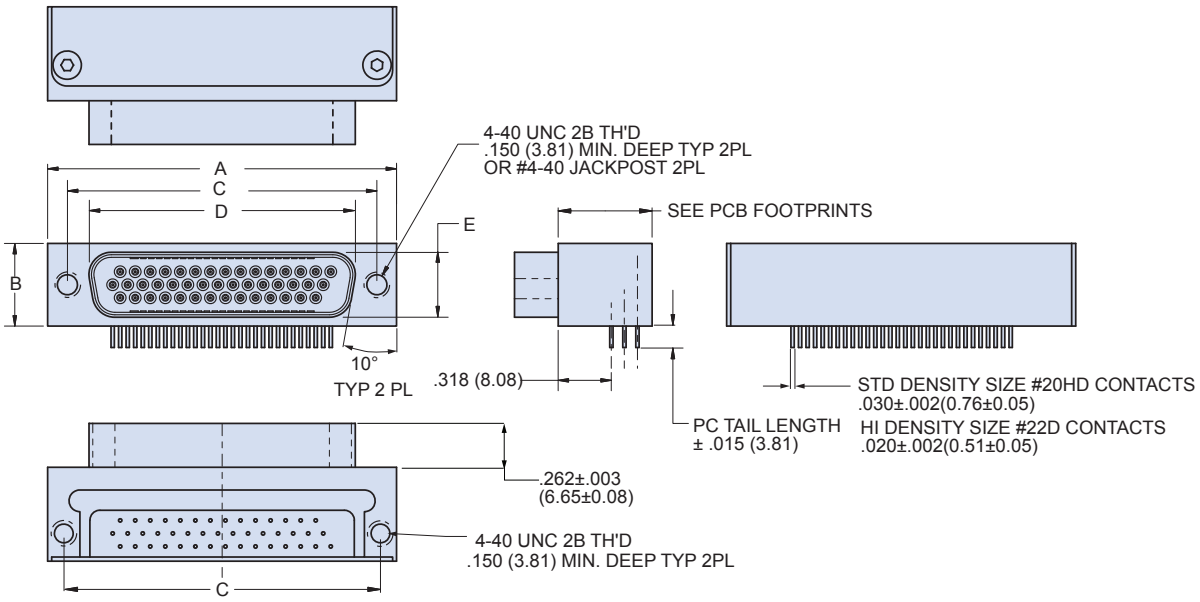


Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microin. gold plated
Insulators	Thermoset epoxy
Potting Compound	Epoxy
Interfacial Seal	Fluorosilicone rubber
Hardware	300 series stainless steel

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.

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

280-028P DIMENSIONS



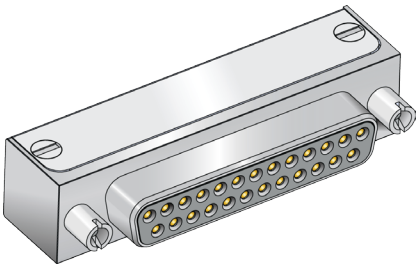
Shell Size	A		B		C Basic		D		E	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13
1	1.213	30.81	.494	12.55	.984	24.99	.726	18.44	.389	9.88
2	1.541	39.14	.494	12.55	1.312	33.32	1.054	26.77	.389	9.88
3	2.088	53.04	.494	12.55	1.852	47.04	1.594	40.49	.389	9.88
4	2.729	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***.

HiPer-D® Standard and High-Density Connectors

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



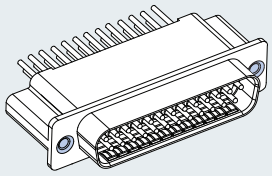
Low profile right angle PC tail HiPer-D® socket connectors feature rugged machined aluminum shell and stainless steel cover for improved EMI protection. Contacts are non-removable size, #20 or #22. Intermateable with standard M24308-type D-Subminiature connectors, the HiPer-D® features epoxy potting 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 (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)					
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

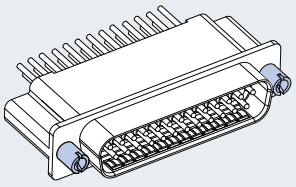
Mating Hardware

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

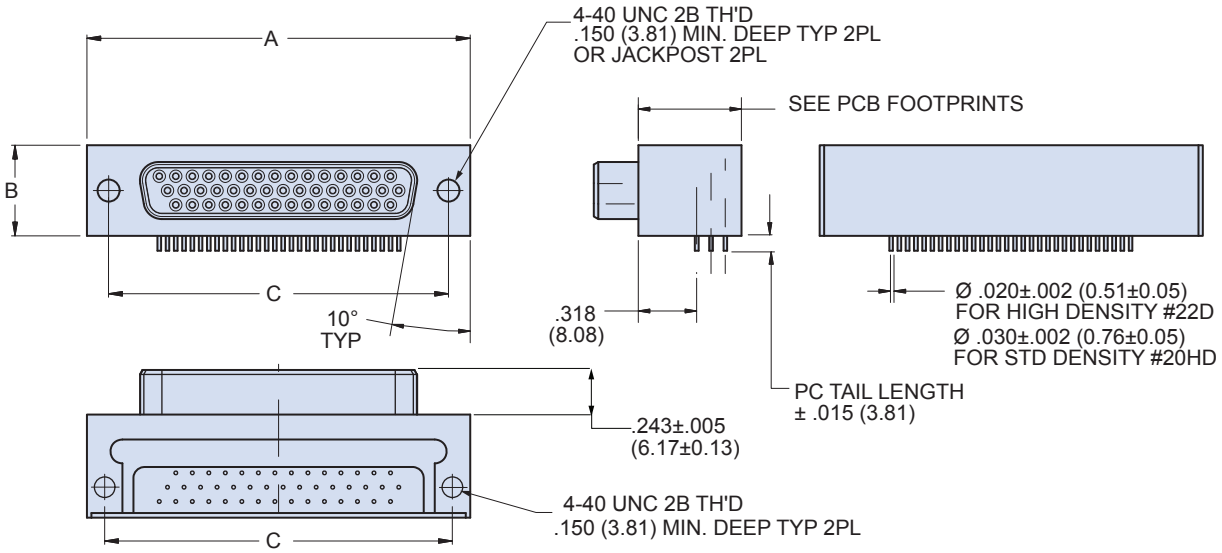


Materials and Finishes	
Shell	Aluminum alloy
Contacts	Copper alloy, 50 microinches gold plated
Insulator	Thermoset epoxy
Potting Compound	Epoxy
Hardware	300 series stainless steel

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.

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
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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.

Glenair, Inc.
1211 Air Way
Glendale, CA 91201-2497
818-247-6000
sales@glenair.com
www.glenair.com

SERIES 28

HiPer-D® Combo Connectors

Product Selection Guide

C

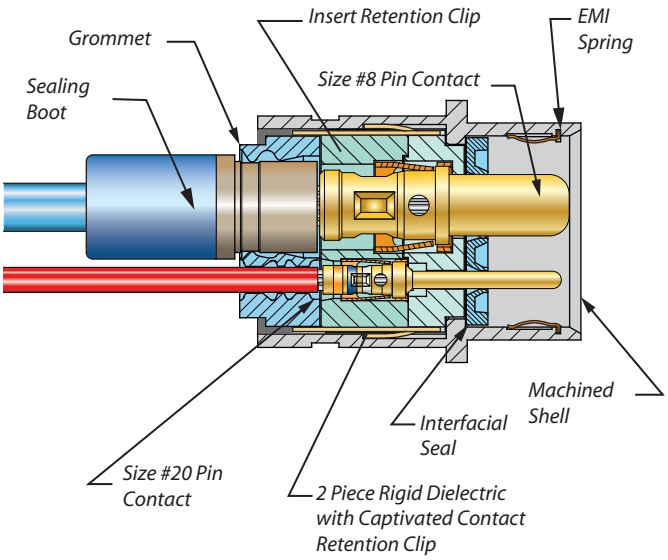
SERIES 28

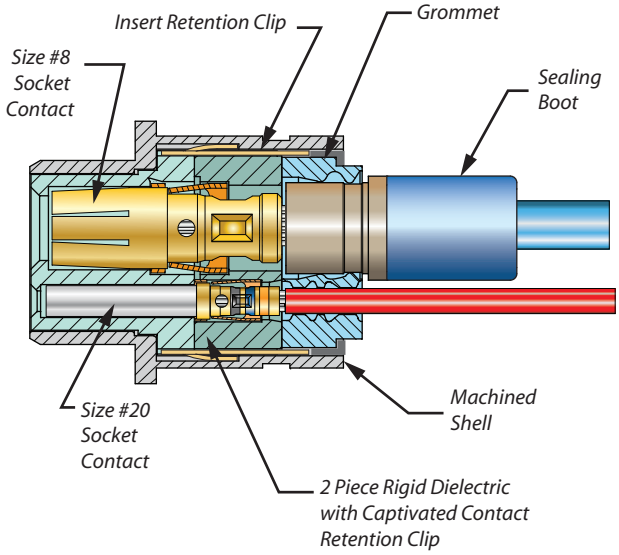
HiPer-D Combo Connectors

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**

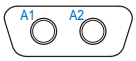
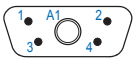
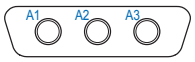
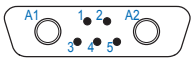
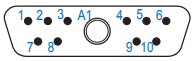




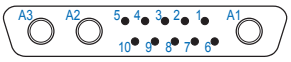
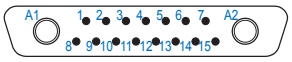
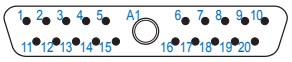
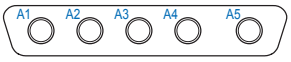
Reference and Technical Data

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

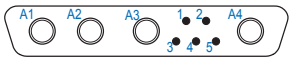
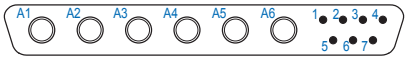
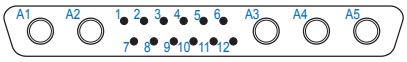
Mating face of pin connector. Socket connector numbers are reversed.

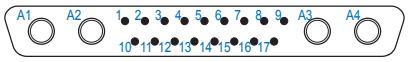
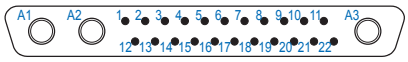
Arrangement	1-2W2	1-5W1	2-3W3	2-7W2	2-11W1
Shell Size	1	1	2	2	2
Contacts	2 #8	4 #20, 1 #8	3 #8	5 #20, 2 #8	10 #20, 1 #8

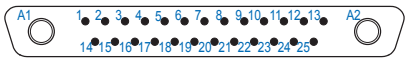
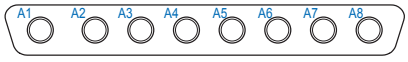
Arrangement	3-13W3	3-17W2	3-21W1	3-5W5
Shell Size	3	3	3	3
Contacts	10 #20, 3 #8	15 #20, 2 #8	20 #20, 1 #8	5 #8

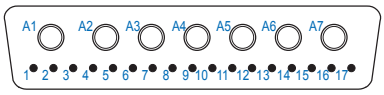
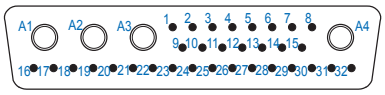
Arrangement	3-9W4	4-13W6	4-17W5
Shell Size	3	4	4
Contacts	5 #20, 4 #8	7 #20, 6 #8	12 #20, 5 #8

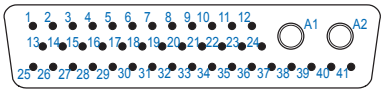
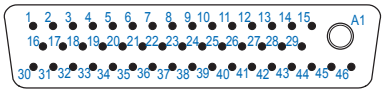
Arrangement	4-21WA4	4-25W3
Shell Size	4	4
Contacts	17 #20, 4 #8	22 #20, 3 #8

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

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

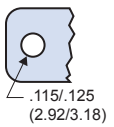
Basic Part Number	**280-046P**
Shell Size - Contact Arrangement	See Shell Size - Contact Arrangements Table
Shell Finish	**ME** = Electroless Nickel (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)
Ground Spring	**G** = 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

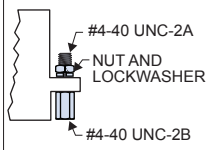
Shell Size-Contact Arr.	Contact Size and Qty	
	#20	#8
1-2W2		2
1-5W1	4	1
2-3W3		3
2-7W2	5	2
2-11W1	10	1
3-5W5		5
3-9W4	5	4
3-13W3	10	3
3-17W2	15	2
3-21W1	20	1
4-8W8		8
4-13W6	7	6
4-17W5	12	5
4-21WA4	17	4
4-25W3	22	3
4-27W2	25	2
5-24W7	17	7
5-36W4	32	4
5-43W2	41	2
5-47W1	46	1

Mating Hardware

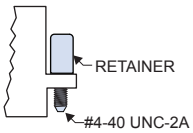
N Thru-Hole No Hardware



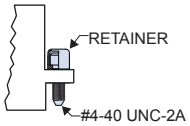
P Female Jackpost



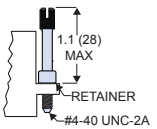
S Captive Screwlock, Hex Head



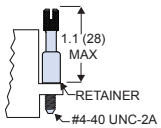
L Captive Jackscrew, Hex Head



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.

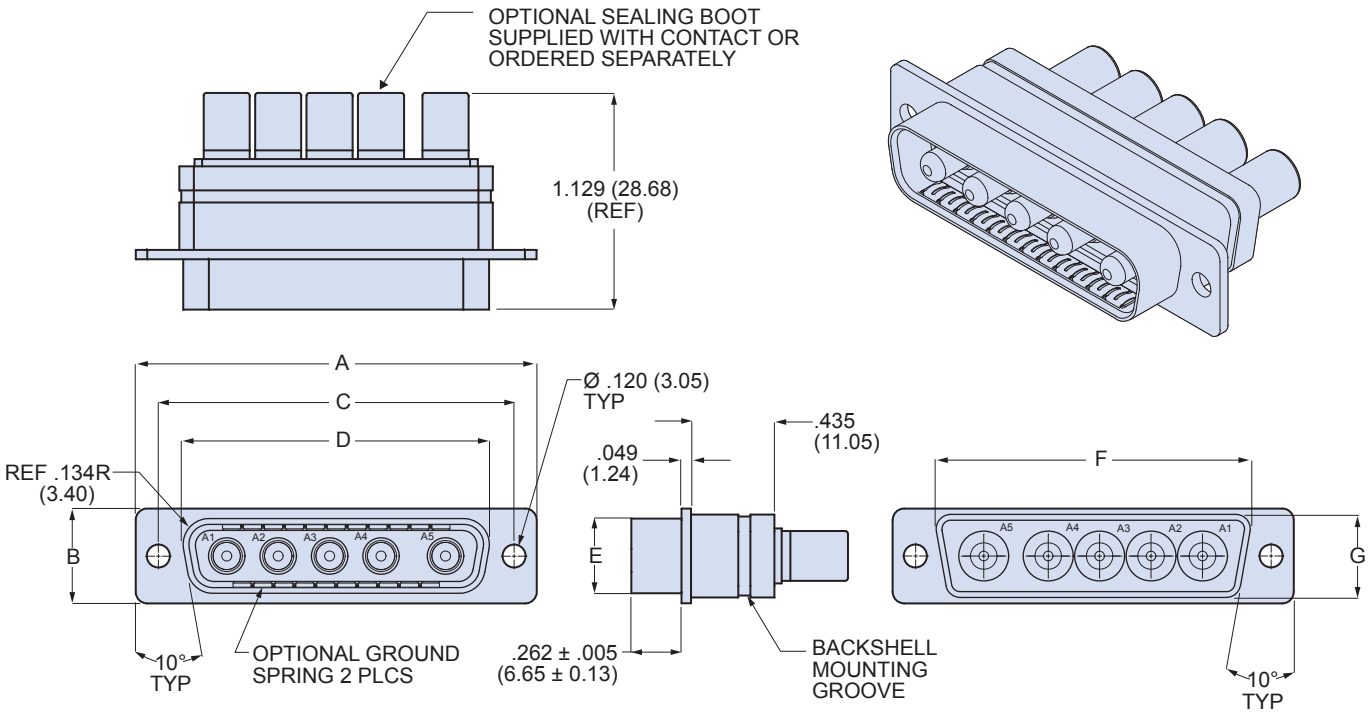
Materials and Finishes

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

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***.

HiPer-D® Combo Connectors

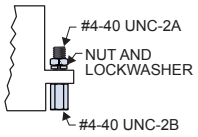
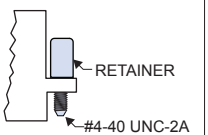
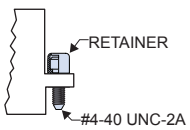
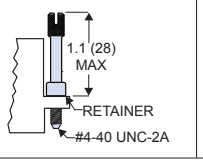
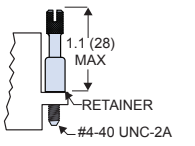
280-047S combo cable socket connectors with standard mounting flange, crimp termination

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 (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate		**Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)	
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

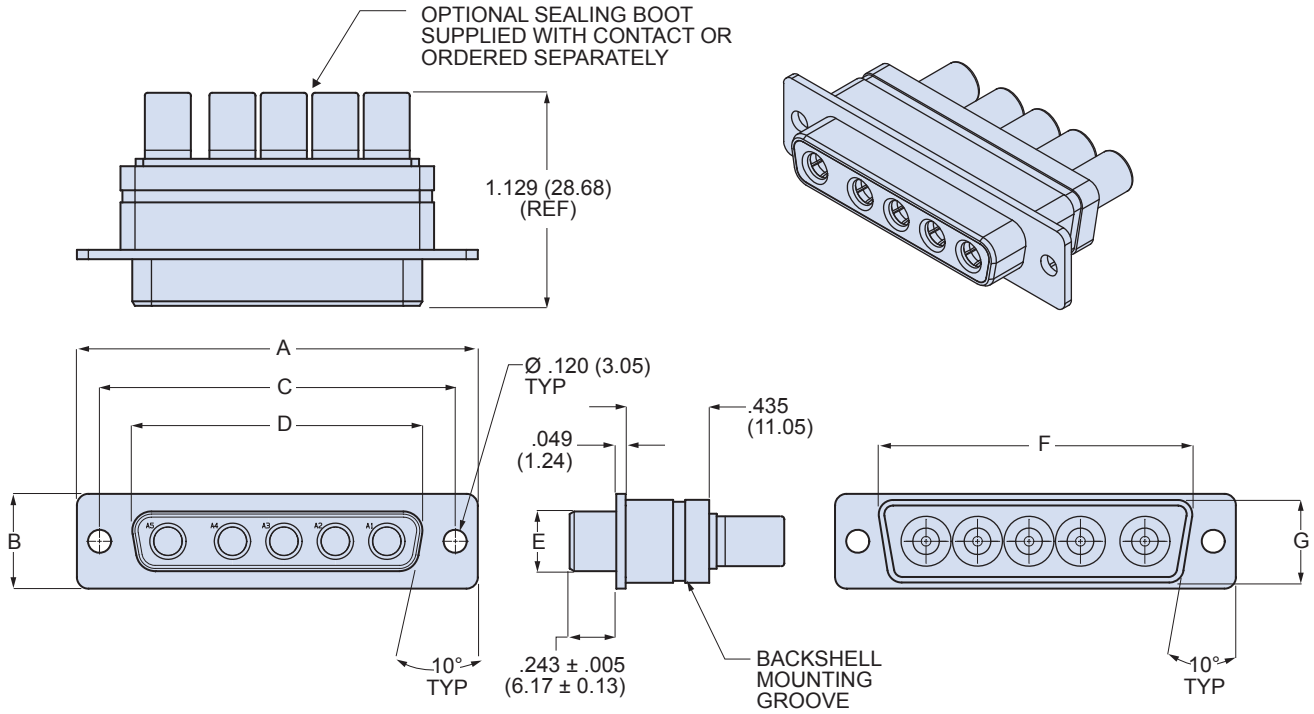
Mating Hardware	
N Thru-Hole No Hardware	**P** Female Jackpost
	
S Captive Screwlock, Hex Head	**L** Captive Jackscrew, Hex Head
	
K Slot-Head Extended Jackscrew	**T** Slot-Head Extended Captive Screwlock
	

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

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

280-047S DIMENSIONS



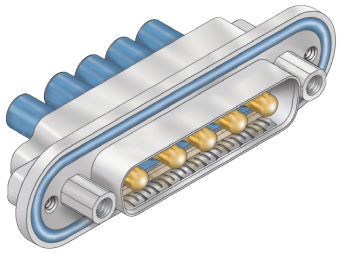
Dimensions														
Shell Size	A		B		C Basic		D		E		F		G	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13
1	1.213	30.81	.494	12.55	.984	24.99	.643	16.33	.311	7.90	.769	19.53	.432	10.97
2	1.541	39.14	.494	12.55	1.312	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***.

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

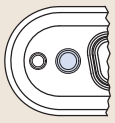
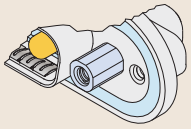
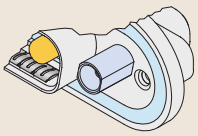
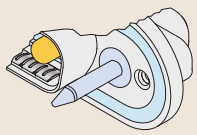
Sample Part Number	280-048P	4-8W8	JF	G	P

Basic Part Number	**280-048P**
Shell Size-Contact Arrangement	See Contact Arrangements Table
Shell Finish	**ME** = Electroless Nickel (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)
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.

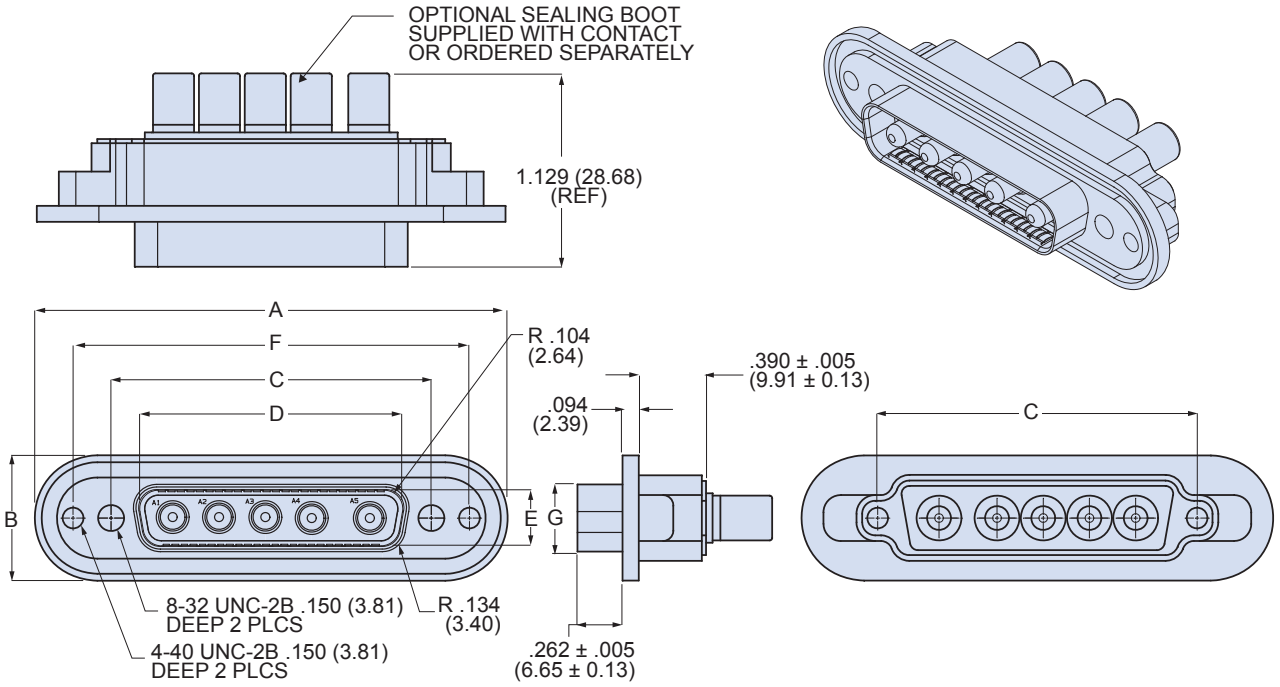
Materials and Finishes

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

HiPer-D® Combo Connectors

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

280-048P DIMENSIONS



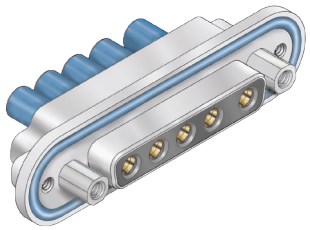
Dimensions														
Shell Size	A		B		C Basic		D		E		F Basic		G	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .015	mm ± 0.38
1	1.865	47.37	.725	18.42	.984	24.99	.726	18.44	.329	8.36	1.424	36.17	.389	9.88
2	2.200	55.88	.725	18.42	1.312	33.32	1.054	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***.

HiPer-D® Combo Connectors

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

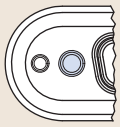
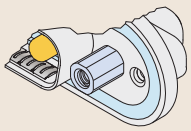
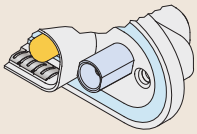
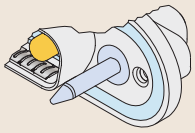


Combo HiPer-D® socket connectors feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell, wire grommet and panel O-ring for watertight sealing. Size #20 contacts are packaged with connector. 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 (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)			
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
	

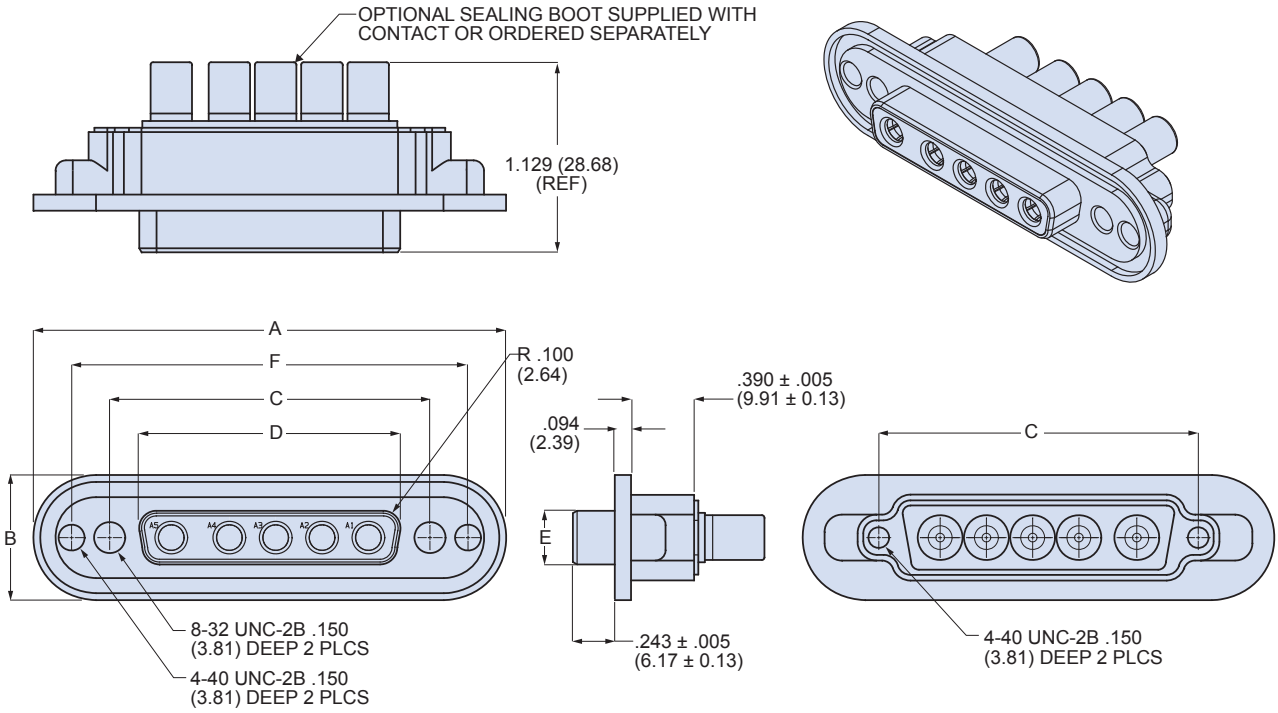
Specifications	
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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

HiPer-D® Combo Connectors

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

280-049S DIMENSIONS



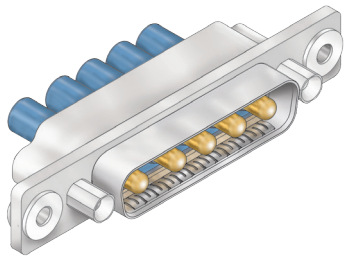
Dimensions												
Shell Size	A		B		C Basic		D		E		F Basic	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm
1	1.865	47.37	.725	18.42	.984	24.99	.643	16.33	.311	7.90	1.424	36.17
2	2.200	55.88	.725	18.42	1.312	33.32	.971	24.66	.311	7.90	1.752	44.50
3	2.736	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***.

HiPer-D® Combo Connectors

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

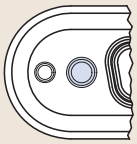
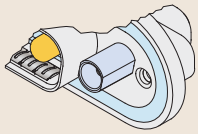
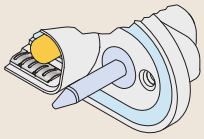


Combo HiPer-D® pin connectors feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell, waterproof sealing and optional ground springs for improved resistance to electromagnetic interference. 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.

C

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 (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)					
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

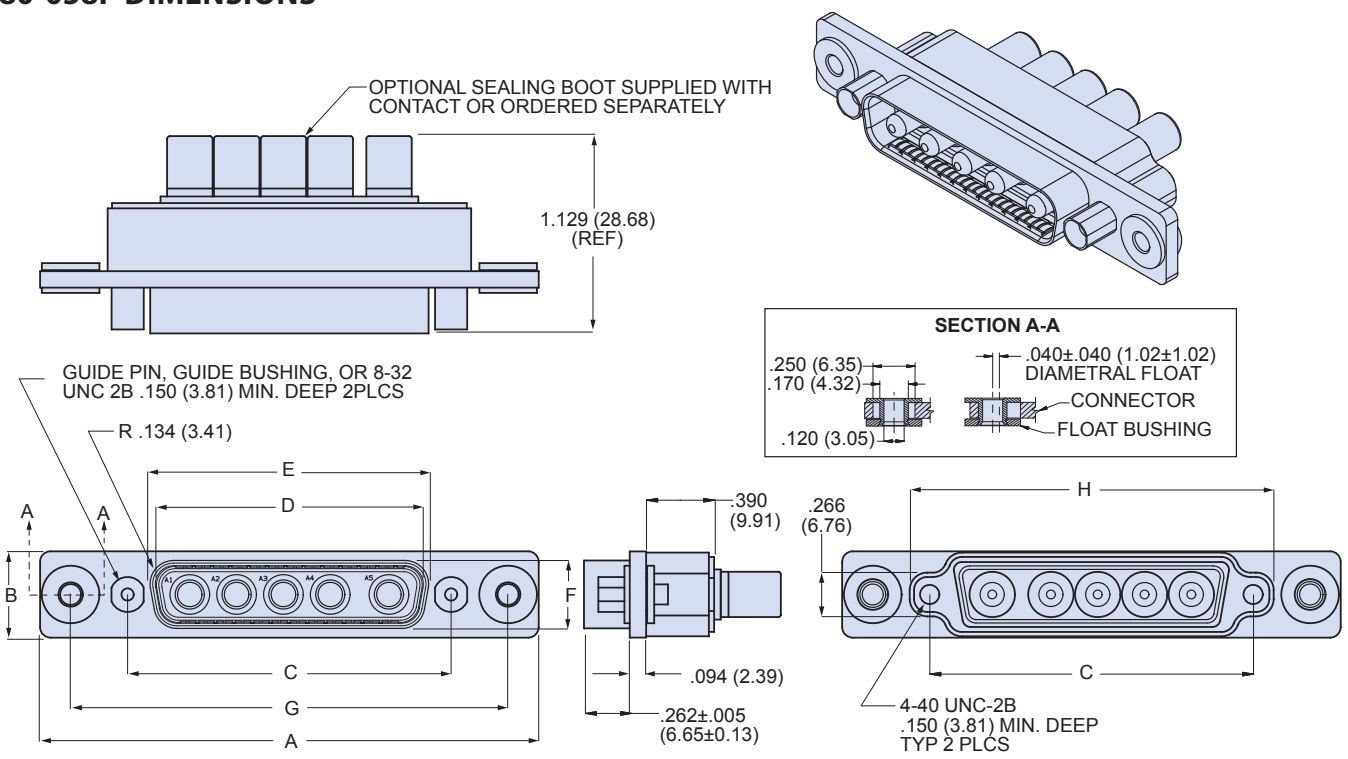
Mating Hardware
N No Hardware #8-32 tapped hole

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

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

280-058P DIMENSIONS



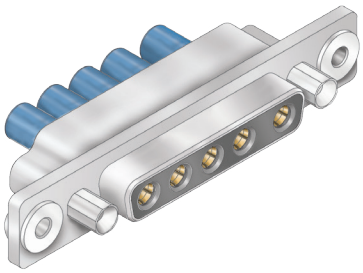
Dimensions														
Shell Size	A		B		C Basic		E		F		G Basic		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in ± .005	mm ± 0.13
1	1.986	50.44	.494	12.55	.984	24.99	.726	18.44	.329	8.36	1.636	41.55	1.213	30.81
2	2.314	58.78	.494	12.55	1.312	33.32	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***.

HiPer-D® Combo Connectors

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

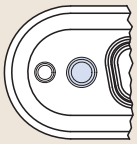
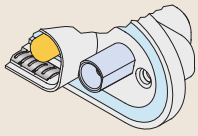
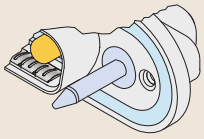


Combo HiPer-D® float mount connectors for blind mate applications feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell and wire grommet for environmental protection. Size #20 contacts 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 (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)			
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

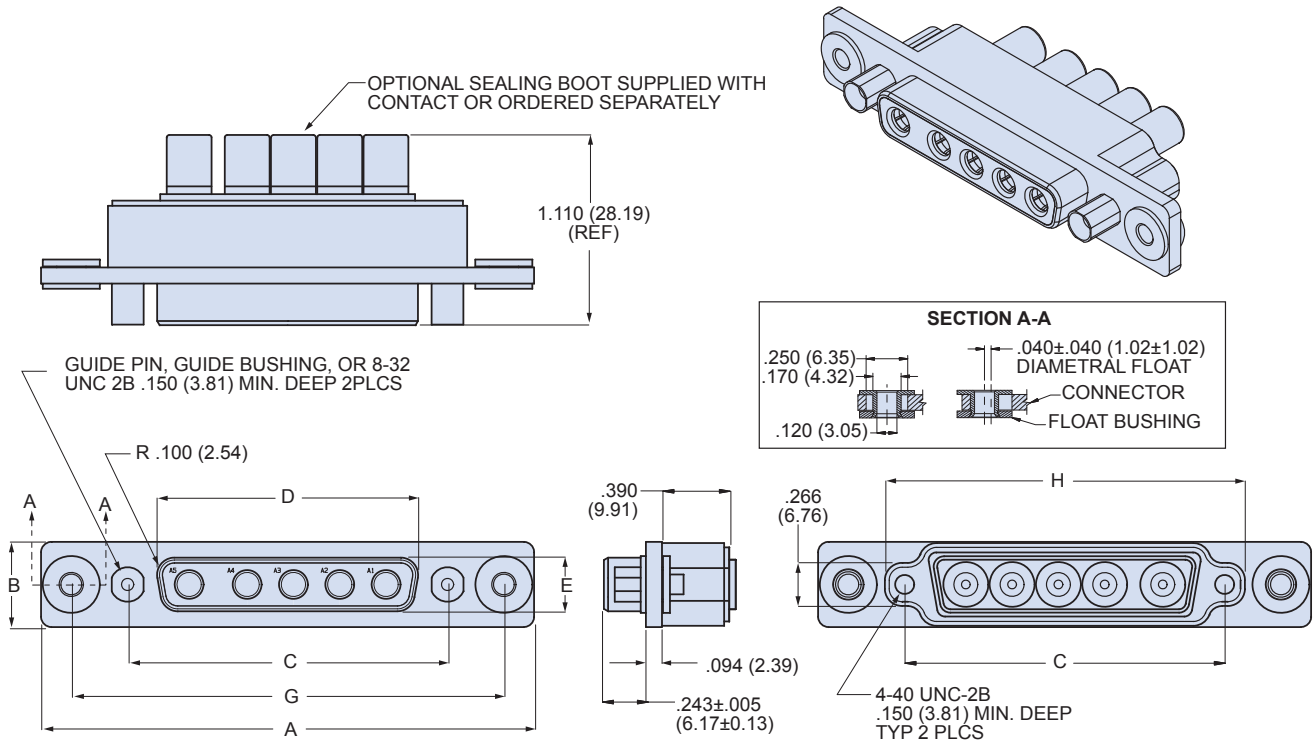
Mating Hardware
N No Hardware #8-32 tapped hole

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

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

280-059S DIMENSIONS



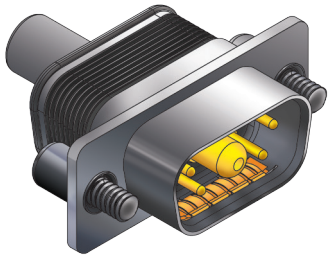
Dimensions												
Shell Size	A		B		C Basic		E		G Basic		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in	mm	in ± .005	mm ± 0.13
1	1.986	50.44	.494	12.55	.984	24.99	.311	7.90	1.636	41.55	1.213	30.81
2	2.314	58.78	.494	12.55	1.312	33.32	.311	7.90	1.964	49.89	1.541	39.14
3	2.854	72.49	.494	12.55	1.852	47.04	.311	7.90	2.504	63.60	2.081	52.86
4	3.502	88.95	.494	12.55	2.500	63.50	.311	7.90	3.152	80.06	2.729	69.32
5	3.408	86.56	.600	15.24	2.406	61.11	.423	10.74	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***.

HiPer-D® Combo Connectors

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



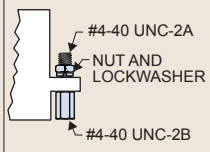
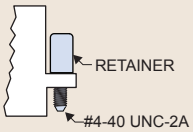
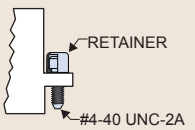
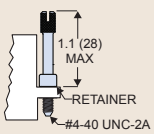
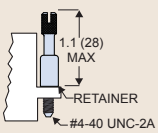
Combo HiPer-D® Combo-D connectors, with integral banding platform, feature size #20 signal contacts and size #8 power or coax contacts. ***Size #8 contacts are ordered separately***. The HiPer-D® features a rugged machined aluminum shell and wire grommet for environmental protection. Size #20 contacts 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 (RoHS) **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **ZM** = Nickel Over Stainless
Ground Option	**G** = EMI/Gronding	**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

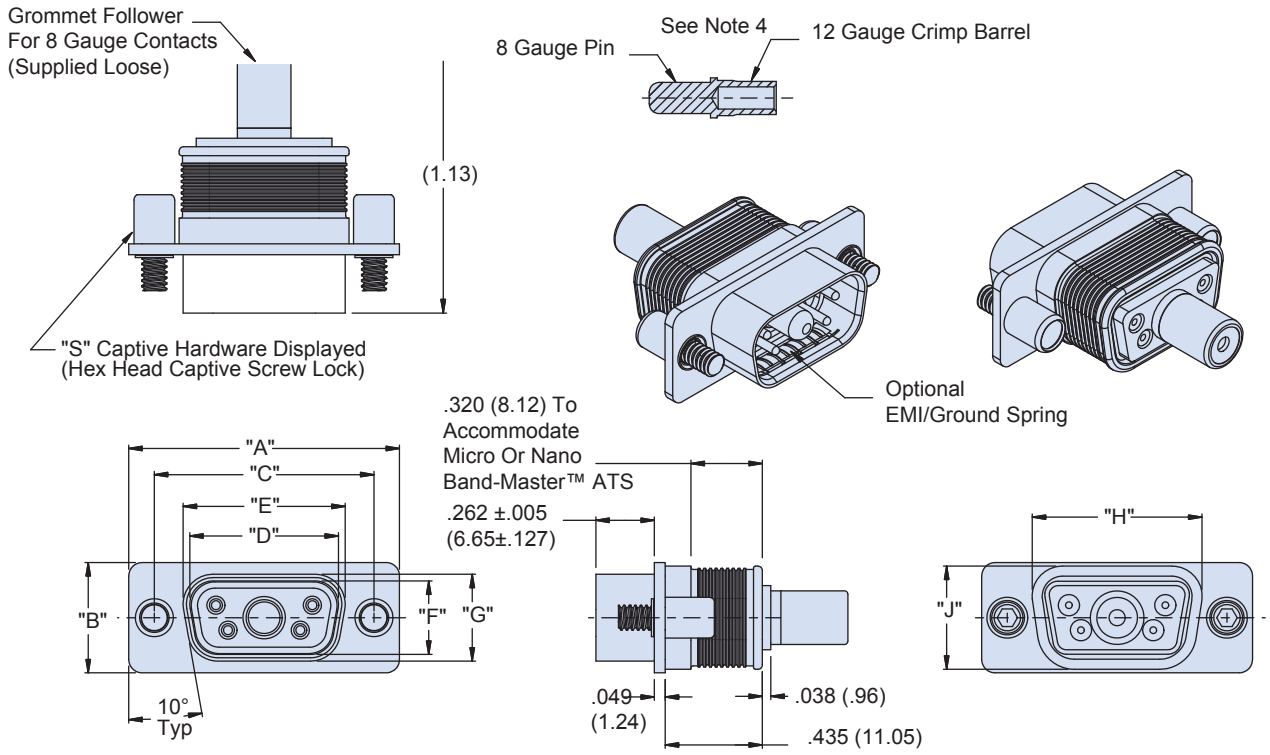
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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

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

280-088P DIMENSIONS



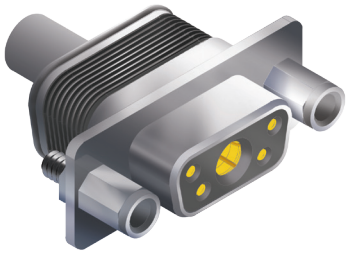
Dimensions																		
Shell Size	"A" ±.015		"B" ±.015		"C" ±.005		"D" ±.005		"E" ±005		"F" ±.005		"G" ±.005		"H"		"J"	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
1	1.213	30.81	0.494	12.55	0.984	24.99	0.666	16.92	0.726	18.44	0.329	8.36	0.389	9.88	0.760	19.30	0.462	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 (RoHS) **MT** = Nickel-PTFE (RoHS) **Z1** = Passivated Stainless Steel (RoHS) **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

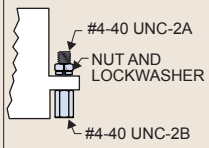
Contact Arrangements

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

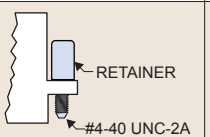
Mating Hardware

N Thru-Hole No Hardware

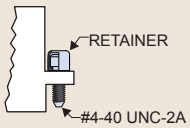
P Female Jackpost



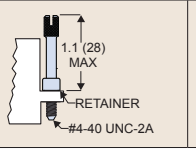
S Captive Screwlock, Hex Head



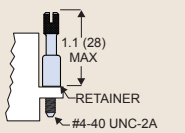
L Captive Jackscrew, Hex Head



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.

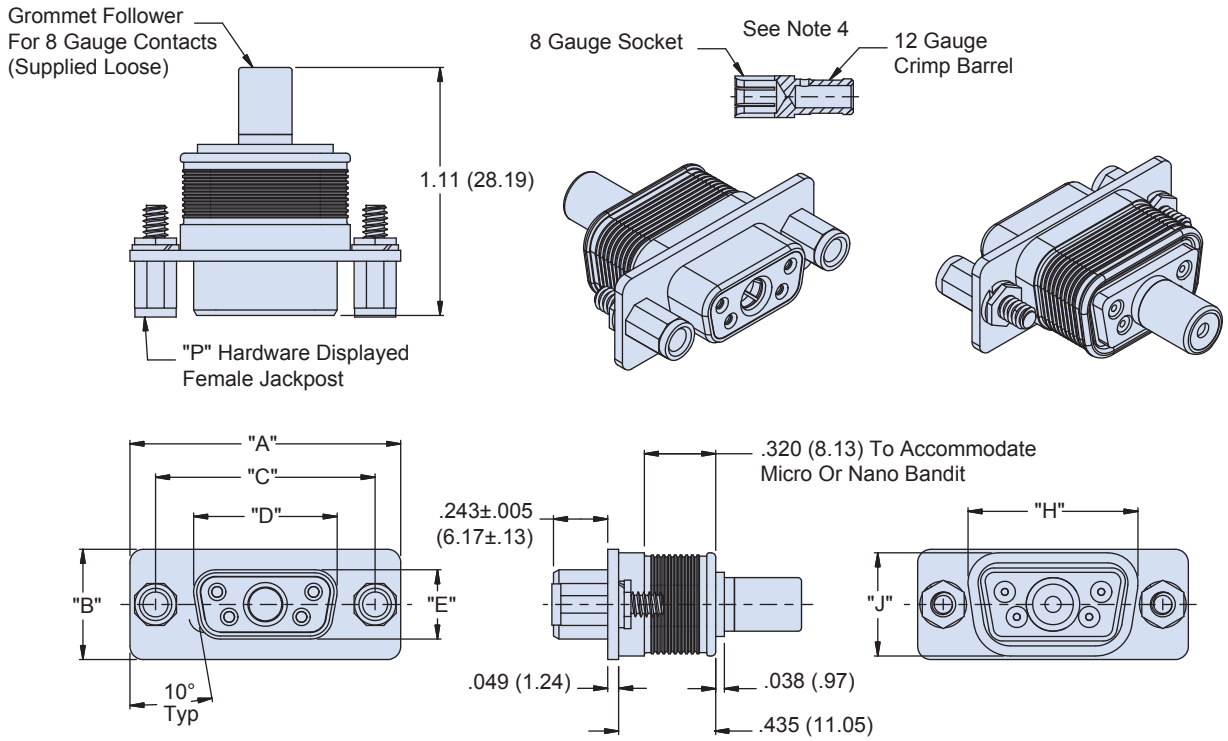
Materials and Finishes

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

HiPer-D® Combo Connectors

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

280-089S DIMENSIONS



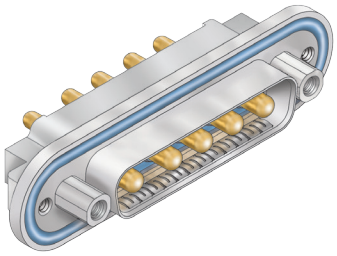
Dimensions														
Shell Size	"A" ±.015		"B" ±.015		"C" ±.005		"D" ±.005		"E" ±005		"H"		"J"	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
1	1.213	30.81	0.494	12.55	0.984	24.99	0.643	16.33	0.311	7.90	0.760	19.30	0.462	11.73
2	1.541	39.14	0.494	12.55	1.312	33.32	0.971	24.66	0.311	7.90	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***.

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

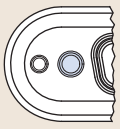
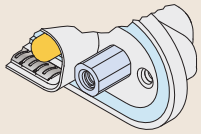
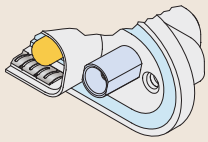
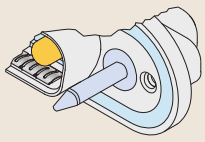
Sample Part Number	280-050P	3-5P5	MT	G	P	A

Basic Part Number	**280-050P**	
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table	
Shell Finish	**ME** = Electroless Nickel (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)	
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.

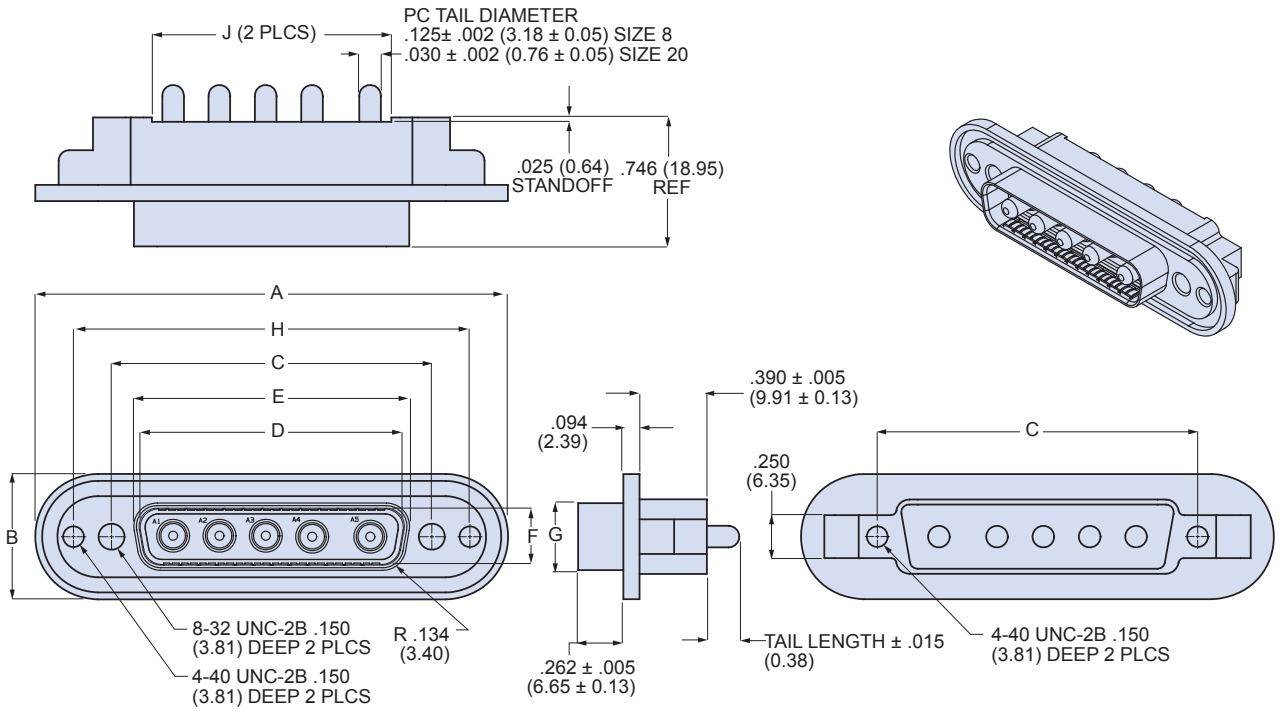
Materials and Finishes

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

HiPer-D® Combo Connectors

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

280-050P DIMENSIONS



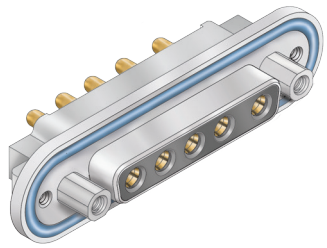
Dimensions																		
Shell Size	A		B		C Basic		D		E		F		G		H Basic		J	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .015	mm ± 0.38	in	mm	in	mm
1	1.865	47.37	.725	18.42	.984	24.99	.666	16.92	.726	18.44	.329	8.36	.389	9.88	1.424	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***.

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

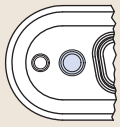
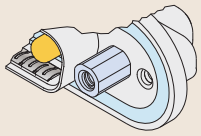
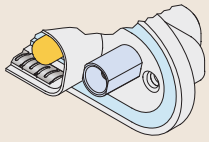
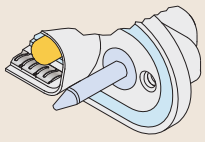
Sample Part Number	280-051S	3-13P3	ME	N	A

Basic Part Number	**280-051S**	
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table	
Shell Finish	**ME** = Electroless Nickel (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS)	**MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)
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

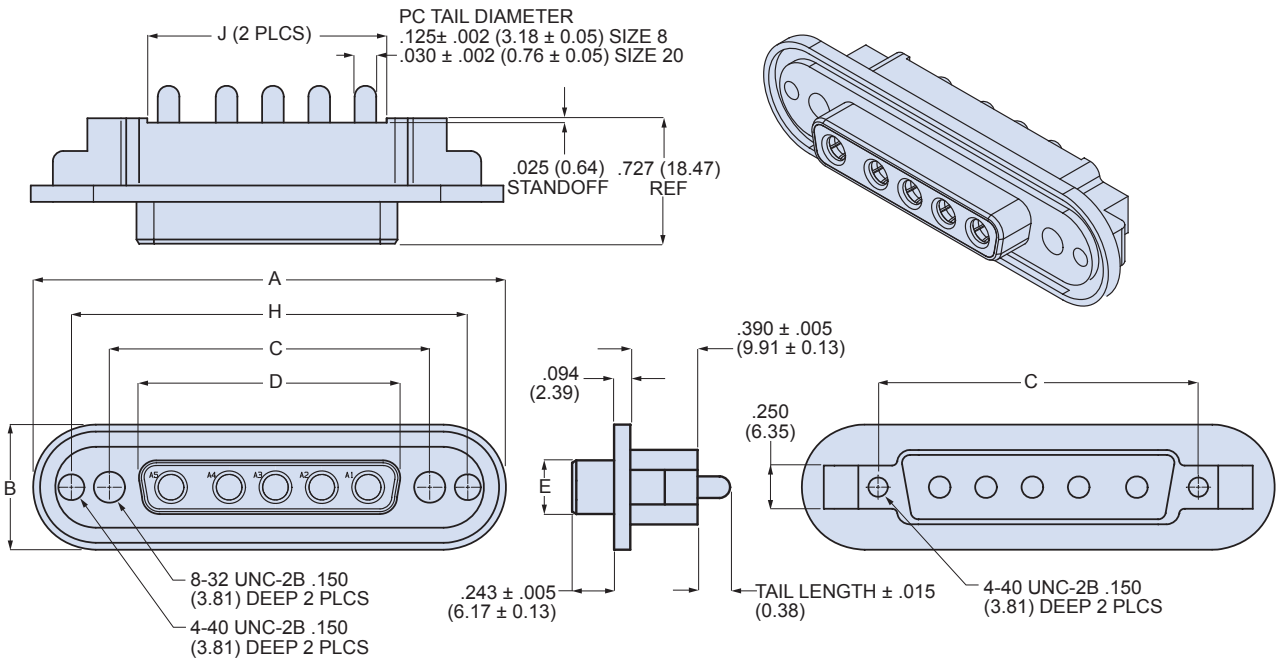
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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

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

280-051S DIMENSIONS



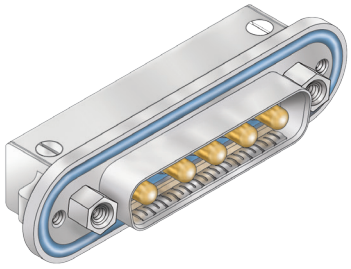
Dimensions														
Shell Size	A		B		C Basic		D		E		H Basic		J	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in	mm
1	1.865	47.37	.725	18.42	.984	24.99	.643	16.33	.311	7.90	1.424	36.17	.520	13.21
2	2.200	55.88	.725	18.42	1.312	33.32	.971	24.66	.311	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. Stainless steel EMI shroud. 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

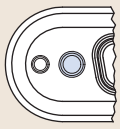
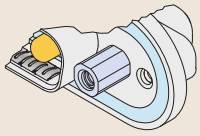
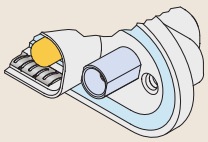
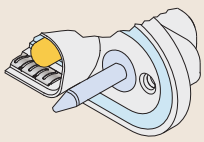
How To Order

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 (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS) **MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)					
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.

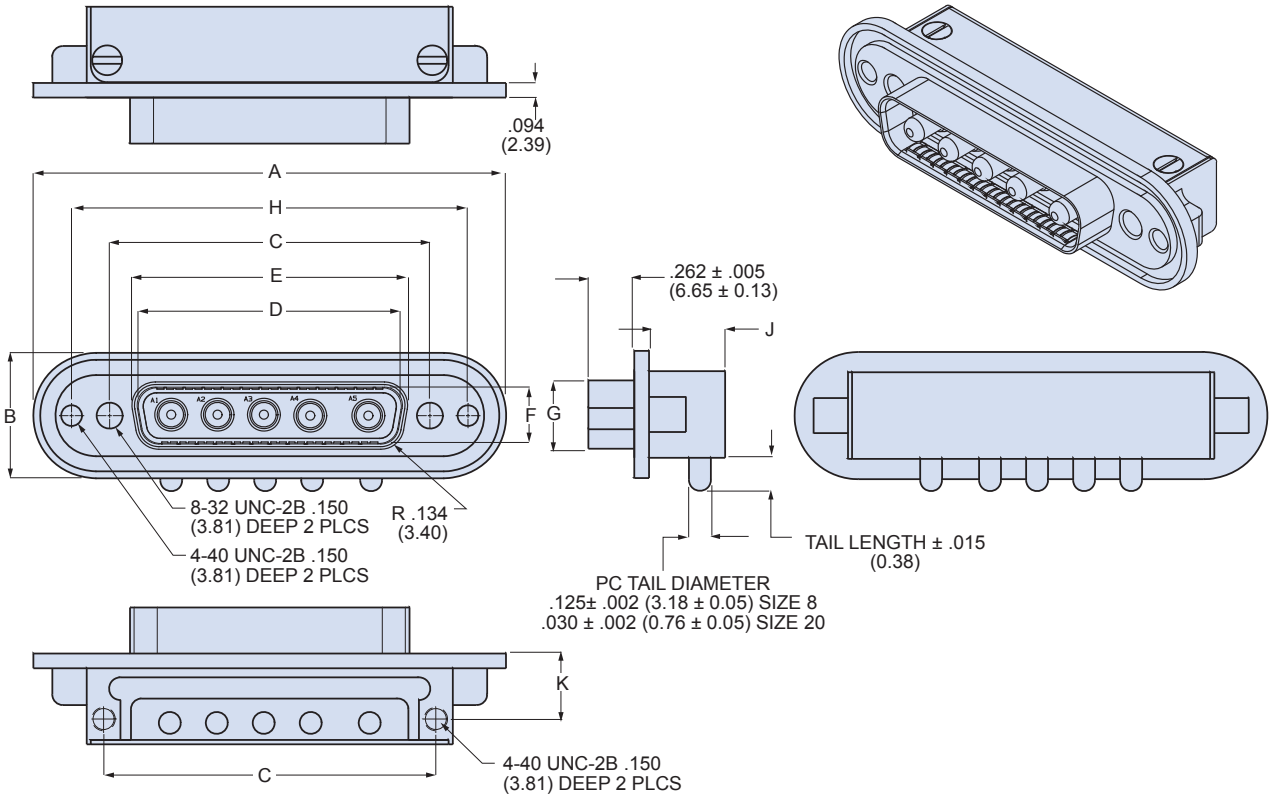
Materials and Finishes

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

HiPer-D® Combo Connectors

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

280-052P DIMENSIONS



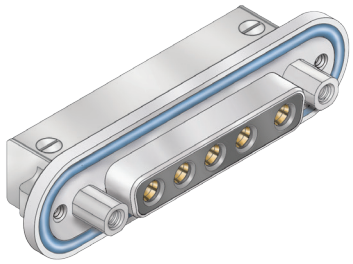
Dimensions																				
Shell Size	A		B		C Basic		D		E		F		G		H Basic		J		K	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .015	mm ± 0.38	in	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13
1	1.865	47.37	.725	18.42	.984	24.99	.666	16.92	.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***.

HiPer-D® Combo Connectors

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

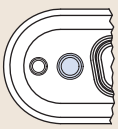
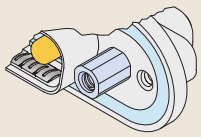
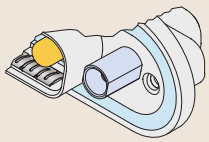
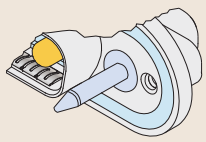


The HiPer-D® is a high performance version of the M24308-type D-Subminiature connector. HiPer-D® connectors feature improved EMI performance and environmental sealing and "closed entry" contact cavity for improved contact protection. Factory-installed PC tail contacts, integral board standoffs and threaded 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 (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)				
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
	

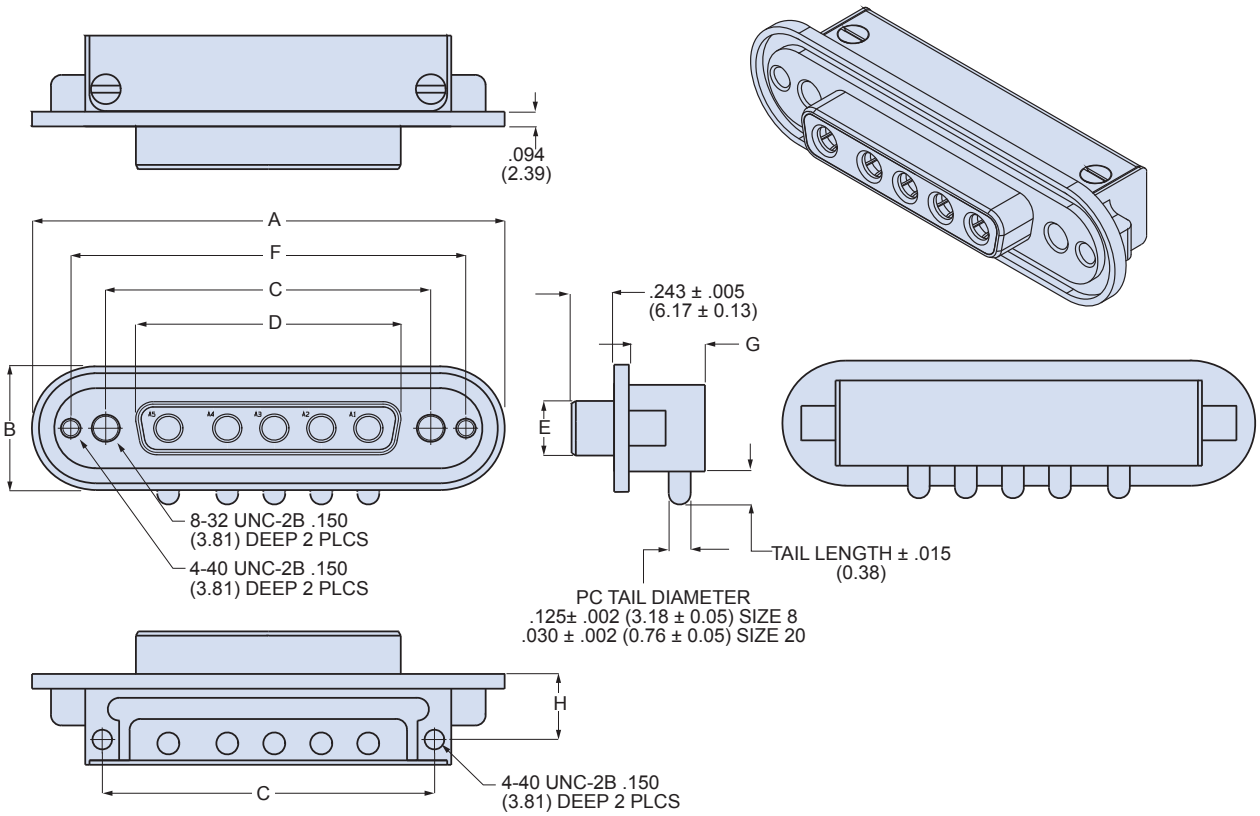
Specifications	
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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

HiPer-D® Combo Connectors

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

280-053S DIMENSIONS



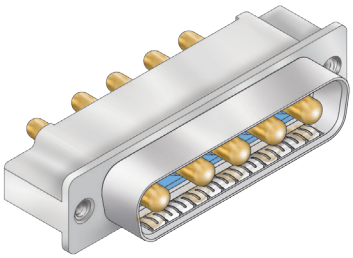
Dimensions																
Shell Size	A		B		C Basic		D		E		F Basic		G		H	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in	mm	in ± .005	mm ± 0.13
1	1.865	47.37	.725	18.42	.984	24.99	.643	16.33	.311	7.90	1.424	36.17	.518	13.16	.374	9.50
2	2.200	55.88	.725	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***.

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

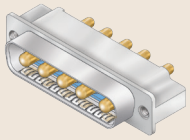
Sample Part Number	280-054P	5-43P2	JF	N	N	B
Basic Part Number	**280-054P**					
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table					
Shell Finish	**ME** = Electroless Nickel (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)					
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

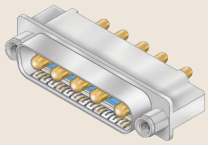
Mating Hardware

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.

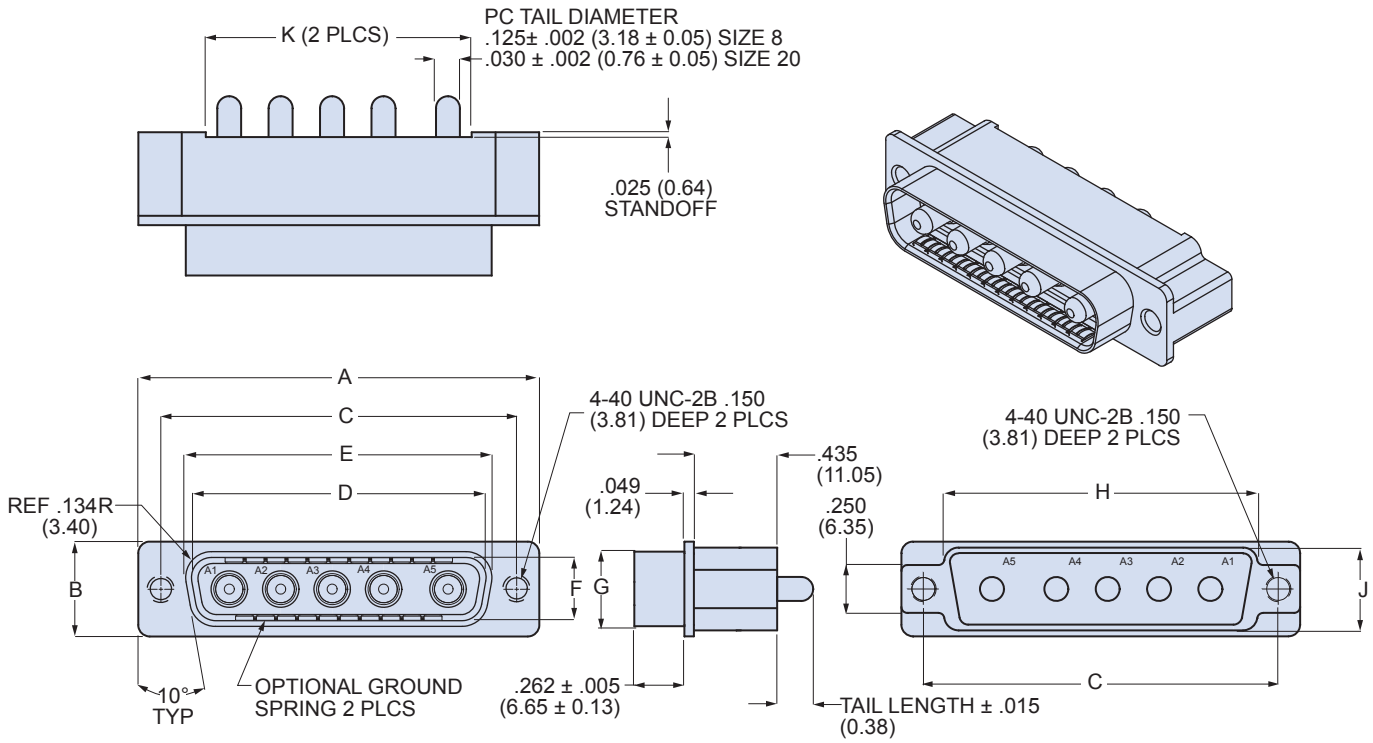
Materials and Finishes

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

HiPer-D® Combo Connectors

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

280-054P DIMENSIONS



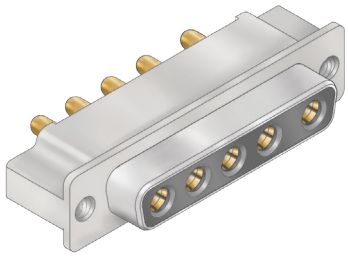
Dimensions																				
Shell Size	A		B		C Basic		D		E		F		G		H Max		J Max		K Max	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in	mm	in	mm	in	mm
1	1.213	30.81	.494	12.55	.984	24.99	.666	16.92	.726	18.44	.329	8.36	.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***.

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

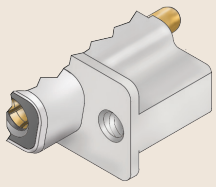
Sample Part Number	280-055S	1-2P2	ME	P	A
Basic Part Number	**280-055S**				
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel (RoHS) **JF** = Cadmium with Yellow Chromate **Z1** = Passivated Stainless Steel (RoHS) **MT** = Nickel-PTFE (RoHS) **Z2** = Gold (RoHS)				
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

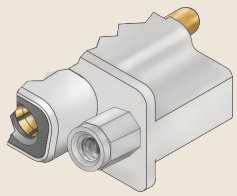
Mating Hardware

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.

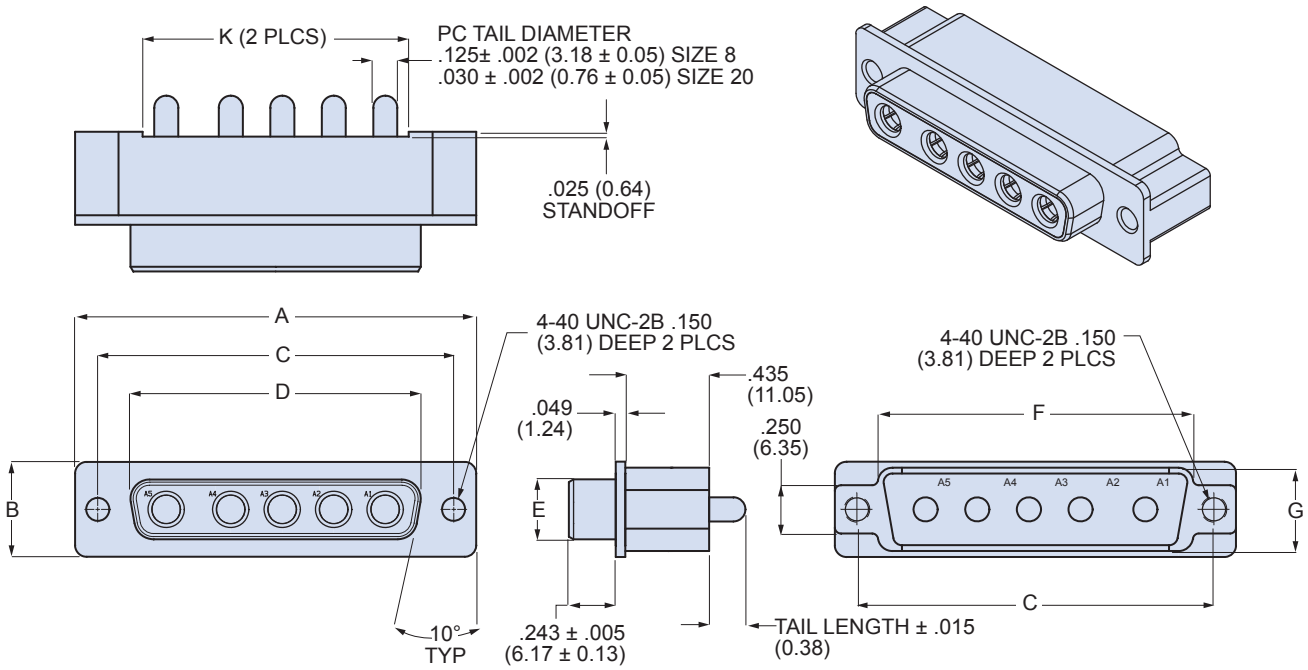
Materials and Finishes

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

HiPer-D® Combo Connectors

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

280-055S DIMENSIONS



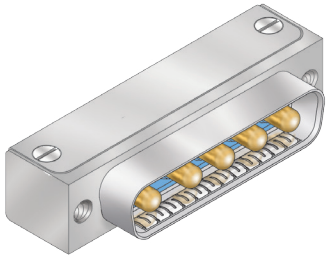
Dimensions																
Shell Size	A		B		C Basic		D		E		F Max		G Max		H Max	
	in ± .015	mm ± 0.38	in ± .015	mm ± 0.38	in.	mm	in ± .005	mm ± 0.13	in ± .005	mm ± 0.13	in.	mm	in.	mm	in.	mm
1	1.213	30.81	.494	12.55	.984	24.99	.643	16.33	.311	7.90	.769	19.53	.432	10.97	.520	13.21
2	1.541	39.14	.494	12.55	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***.

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

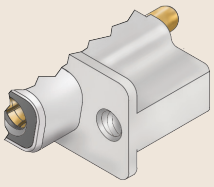
Basic Part Number	**280-056P**
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table
Shell Finish	**ME** = Electroless Nickel (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)
Ground Spring	**G** = 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

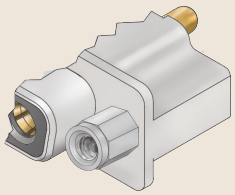
Mating Hardware

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

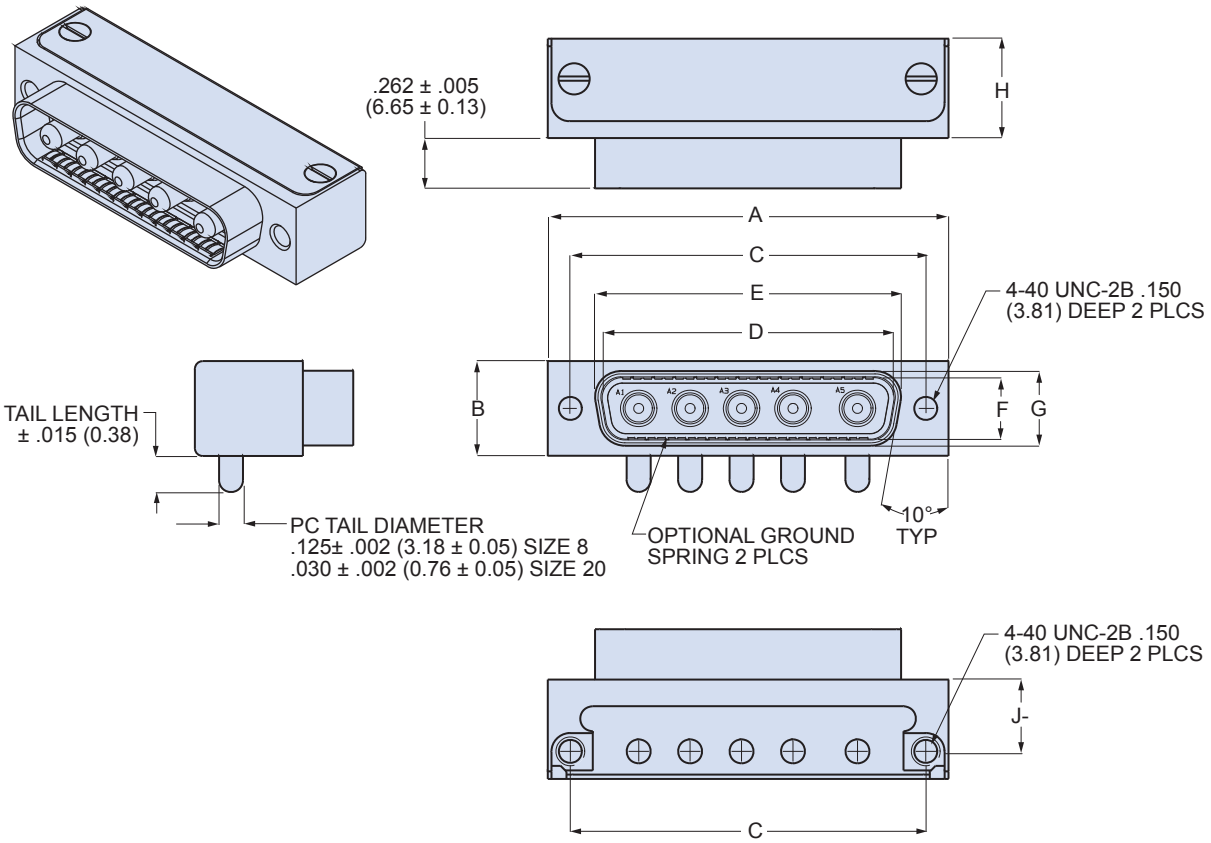
Current Rating	#20 7.5 AMPS, #8 40 AMPS
Test Voltage	1000 VAC RMS
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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

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

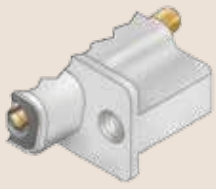
Sample Part Number	280-057S	4-27P2	JF	P	B
Basic Part Number	280-057S				
Shell Size-Contact Arrangement	See Shell Size - Contact Arrangements Table				
Shell Finish	**ME** = Electroless Nickel (RoHS) **MT** = Nickel-PTFE (RoHS) **JF** = Cadmium with Yellow Chromate **Z2** = Gold (RoHS) **Z1** = Passivated Stainless Steel (RoHS)				
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

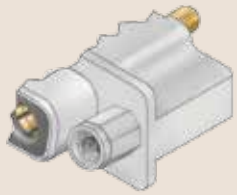
Mating Hardware

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

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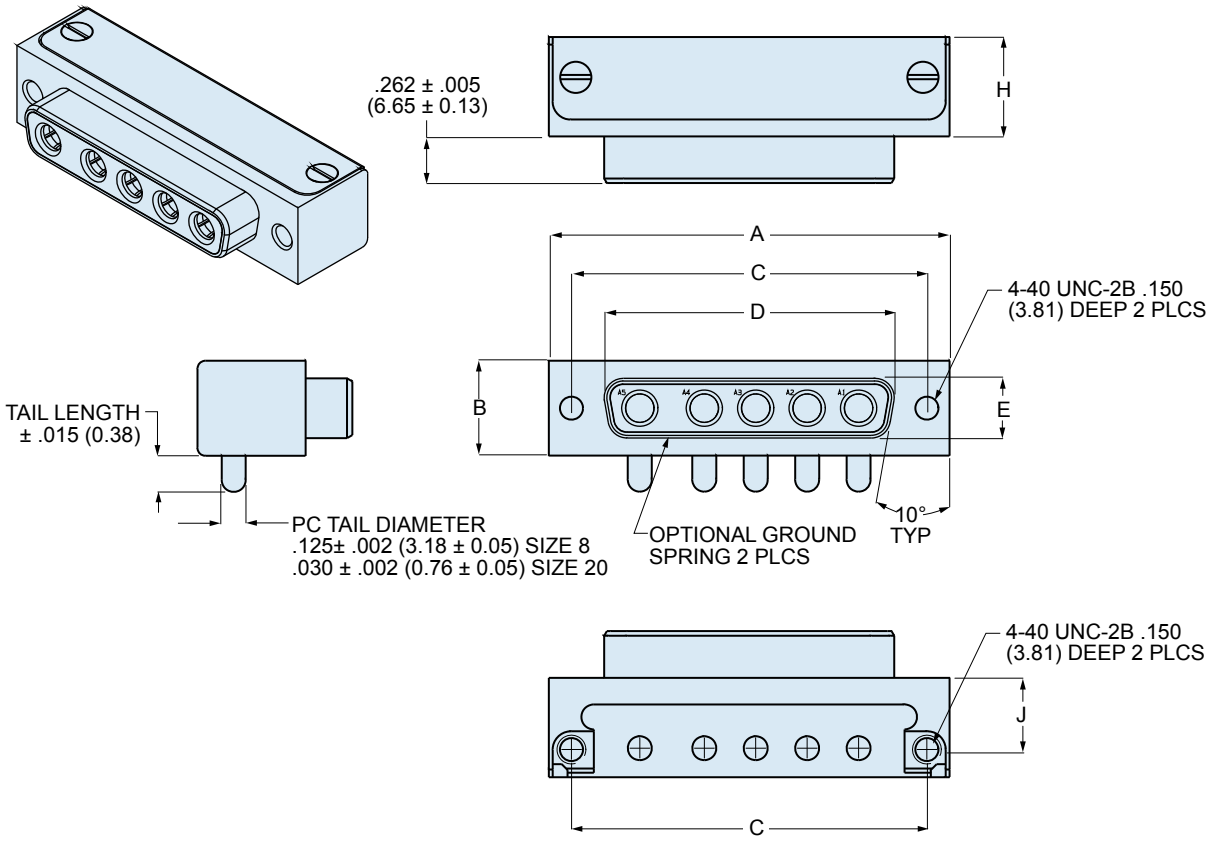
Insulation Resistance	5000 megohms minimum
Operating Temperature	-65° C. to +200° C.
Ingress Protection	IP 67
Shock	300 g.
Vibration, Random	43.92 g.

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

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
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NOTES

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