

MISSION-CRITICAL  
INTERCONNECT  
SOLUTIONS



 SuperNine®



*BETTER THAN QPL*

# SuperNine D38999 Series III Type Connectors and Cables

High-Performance Crimp-Contact Environmental,  
Hermetic, High-Speed, and EMI/EMP Filter Connectors

MAY 2022





**SERIES 23 SUPERNINE®**

# Advanced-Performance MIL-DTL-38999 Series III

Improved electrical, mechanical, and environmental performance compared to mil-standard D38999



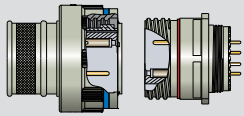
Better than QPL: the world's most comprehensive line of high-performance MIL-DTL-38999 Series III type connectors—environmental series, space-grade, EMI/RFI filters, hermetics, fiber optics, and more





# MIL-DTL-38999 Series III Type

## Catalog table of contents



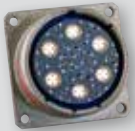
### Introducing SuperNine®

Glenair SuperNine™ MIL-DTL-38999 Series III type connector classes for environmental, hermetic, high-speed, high-pressure, space-grade and EMI/EMP applications



### SuperNine® Environmental I/O, Cable, and PCB Connectors

Crimp and PC tail connectors with optional banding platforms—plus high-durability contacts, piston-seal environmental versions and blind-mate space-grade solutions



### SuperNine® High-Speed Environmental Connectors

High-speed Ethernet, datalink, and video interconnect solutions incorporating Coax, Twinax, Quadrax and El Ochito® octaxial shielded contact technologies



### SuperNine® Hermetic Connectors

Box, wall, and solder mount glass-seal hermetics for high-pressure/low-leak applications—plus special crimp contact and lightweight CODE RED hermetic solutions



### SuperNine® Ruggedized RJ45 and USB Connectors

SuperSeal™ RJ45 and USB field connectors with superior sealing, grounding, and crimp contact termination



### SuperNine® EMI/EMP Filter Connectors

EMI/EMP planar array capacitor filters and TVS diode-equipped interconnects intermateable with all standard MIL-DTL-38999 Series III plugs and receptacles



### SuperNine® Fiber Optic Connectors

Fiber Optic interconnect solutions for long distance and high bandwidth applications, including Ethernet, video, and other forms of high-speed data



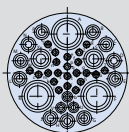
### SuperNine® Backshells and Accessories

High-performance metal and composite thermoplastic connector backshells and accessories optimized for use with SuperNine® high-performance connectors



### SuperNine® Contacts and Tools

MIL-DTL-39029 crimp, power and signal contacts, plus the industry's broadest range of shielded RF contacts including El Ochito®, Quadrax, Twinax and Coax designs



### Appendix

PCB Footprints  
Part Number List





## BETTER THAN QPL

# SuperNine<sup>®</sup>: The advanced-performance MIL-DTL-38999 Series III style connector

Better than QPL? SuperNine<sup>®</sup> is the interconnect industry's most complete and advanced D38999 Series III type connector family. From IP68 rated environmental-class connectors with improved durability and ease-of-use, to EMI/EMP filter connectors with innovative flange and PC tail termination configurations, SuperNine<sup>®</sup> offers military and commercial aerospace customers that have standardized on Series III technology the opportunity to improve interconnect system performance and resolve a wide range of persistent electrical, environmental, and mechanical performance problems—all with Catalog (COTS) connector solutions backed by Glenair's high-availability business model.

Better than QPL means significant innovation in every class of connector in the series. SuperNine<sup>®</sup> hermetics for example, offer many features not available in QPL hermetic solutions, such as crimp-removable socket contacts. Our fiber optic connector series is designed and built to tight-tolerances to ensure precise alignment of fiber optic termini, and superior optical performance.

SuperNine<sup>®</sup> offers improved durability, sealing, cost-of-ownership, ease of shield termination, a broader range of PC tail configurations, environmental and hermetic bulkhead feed-thrus, connector savers, off-the-shelf EMI/EMP filter connectors and more—all supported with Glenair's well-established reputation for service, support, and fast turnaround.

Glenair SuperNine<sup>®</sup> connectors in action: in this example, a pair of our advanced fiber optic interconnects cabled-up in a turnkey, environmentally sealed point-to-point jumper



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### THE SUPERNINE<sup>®</sup> TECHNOLOGY PROMISE

- **Across-the-board improvements in mating-cycle and contact durability**
- **Advanced ease-of-use features such as integrated band porches and PC-Tail standoffs**
- **Advanced-performance improvements in every connector class—from filters to fiber optics**



## MIL-DTL-38999 Series III Type

### Overview: SuperNine series connector classes and types

#### SuperNine® Environmental I/O, Cable and PCB Connectors



- Plug connectors with material class and banding porch options
- Complete range of IP68 PC tail receptacles with high-durability contacts
- Five different designs of printed circuit board connector standoffs
- All MIL-STD-1560 as well as high-density insert arrangements
- High-durability vibration and shock coupling

#### SuperNine® High-Speed Connectors



- Full range of hybrid insert arrangements incorporating size #22D signal contacts, plus size #16, #12 and #8 keyed shielded contacts
- El Ochito®: One full 10G Ethernet channel per standard size #8 cavity
- Supported applications: 10/100/1G/10G BASE-T Ethernet, analog/digital video, 1553 databus and general RF or differential data transmission
- Turnkey Quadrax and El Ochito® solutions—from contacts to connectors, wire and termination hardware

#### SuperNine® High-Pressure Hermetic Connectors



- Glass-to-metal seal hermetics with sealing up to  $1 \times 10^{-10}$  cc/sec
- DSCC qualified and derivative solutions with advanced mounting features
- Pressure resistance to 32,000+ psi
- Stainless steel, titanium, Kovar® and Inconel® shell material options
- Bulkhead feed-through and hull penetrator versions
- Lightweight CODE RED hermetics with  $1 \times 10^{-7}$  max sealing

#### SuperNine® Ruggedized RJ45 and USB Field Connectors



- Insert-to-shell grounding for superior EMC continuity and shielding
- Superior environmental sealing to IP67 compared to COTS solutions
- Advanced vibration and mechanical shock tolerance
- Full range of offerings for Cat 5e and 6A Ethernet: jacks, plugs, PC tail and crimp
- High-temperature rated  $-40^{\circ}$  to  $+125^{\circ}$ C

#### SuperNine® EMI/EMP Filter Connectors



- Planar, multilayer ceramic capacitive filters with and without TVS diodes
- C, L-C, C-L, and Pi filter electrical configurations
- Special high operating temperature solutions
- Industry's broadest range of capacitance: from 10 to 1,000,000 pF
- Fast and reliable in-house manufacturing of all filter elements and processes

#### SuperNine® Fiber Optic Connectors



- Ultra-lightweight composite thermoplastic connector solutions
- Qualified size #16 MIL-PRF-29504 pin-socket precision ceramic termini
- Ultra-tight tolerance shell and cavity dimensions for precise axial alignment
- Ultra-low insertion loss values for both singlemode and multimode
- Insert arrangements from 2 to 37 ways

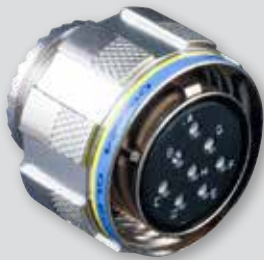


# MIL-DTL-38999 Series III Type

## Advanced mechanical features

The Series 23 SuperNine® advanced performance connector series rolls up many of the technology advances Glenair has pioneered in our environmental, hermetic, and filter connectors into a comprehensive high-performance connector series. SuperNine® is intermateable with all industry-standard D38999 solutions and accommodates Glenair’s broad range of connector designator “H” backshells, protective covers, shrink boots and lightweight composite accessories. SuperNine® combines innovative mechanical design and materials selection (see next page) resulting in the industry’s best performing aerospace-ready connector series.

### IMPROVED DURABILITY AND MECHANICAL/ENVIRONMENTAL PERFORMANCE



Tight Tolerance Ultra Low dB Loss Fiber Optics



1500 Mating Cycle Coupling Nut and Contact



High Vibration Performance IAW Bell Helicopter and Boeing Specs



Available Sav-Con® Connector Saver Go-Between

### IMPROVED EASE-OF-USE



High-density contact arrangements



Integrated Shield Termination Band Porch



Diverse Range of PC Tail Stand-Offs



Available Bulk Head Feed-Thrus

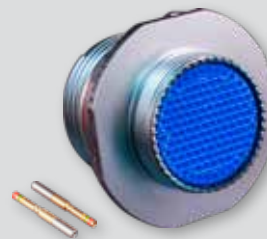
### EXPANDED FUNCTIONALITY



Zero Extraction Force Designs



Metal Ground Plane Inserts



Hermetic with Crimp Contacts



Quick-Disconnect Lanyard-Release Assemblies

**MIL-DTL-38999 Series III Type**  
Advanced material performance

**RoHS COMPLIANT FINISH OPTIONS**



**Electroless Nickel**

Cost \$ \$ \$ \$ \$  
 Conductivity + + + + +  
 Corrosion Resistance ⌚ ⌚ ⌚ ⌚ ⌚

-65 to +200°C  
 Glenair Code **ME**



**Black Zinc Nickel**

Cost \$ \$ \$ \$ \$  
 Conductivity + + + + +  
 Corrosion Resistance ⌚ ⌚ ⌚ ⌚ ⌚

-65 to +175°C  
 Glenair Code **ZR**



**Nickel-PTFE**

Cost \$ \$ \$ \$ \$  
 Conductivity + + + + +  
 Corrosion Resistance ⌚ ⌚ ⌚ ⌚ ⌚

-65 to +175°C  
 Glenair Code **MT, ZM**



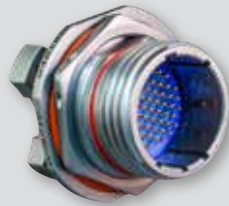
**Stainless Steel**

Cost \$ \$ \$ \$ \$  
 Conductivity + + + + +  
 Corrosion Resistance ⌚ ⌚ ⌚ ⌚ ⌚

-65 to +200°C  
 Glenair Code **Z1, ZL**



**IMPROVED MATERIAL SELECTION AND PERFORMANCE**



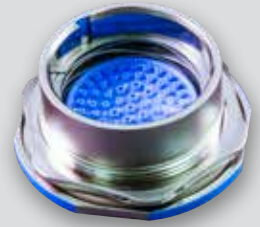
500 Hour Nickel-Teflon (Ni-PTFE) Plating Option



High-Performance Space-Grade Epoxy Potting Compound

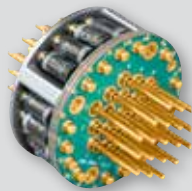


High-Performance EMI Ground Spring Attachment



Space-Grade Certified Materials

**MIL-DTL-38999 TYPE SPECIAL CLASS DERIVATIVES**



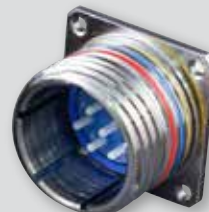
EMI/EMP Filter and TVS



RJ45 and USB Solutions



Fiber Optic



Hermetic

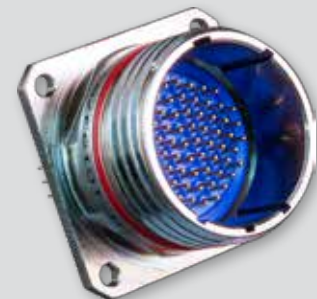
Connector Class	D38999 Sr. III	SuperNine®
Environmental	Yes	Yes
IP68 Mated Condition	No	Yes
Space-Grade	Yes	Yes
Hermetic	Yes	Yes
Lightweight Hermetic	No	Yes
EMI Filter	No	Yes
High Durability	No	Yes
ESD	No	Yes
Bulkhead Feed-Thru	No	Yes
Sav-con® Connector Saver	No	Yes



# MIL-DTL-38999 Series III Type Contact selection guide

Extended- Durability Crimp	Printed Circuit Board	#20 Signal	High Density #23 Signal
Solder Cup	#12 50 Ohm Matched Impedance Coaxial	#16 and #12 Coaxial	Concentric Twinax
#8 100 Ohm Quadrax	#8 100 Ohm El Ochoito®	#8 100 Ohm Differential Twinax	#8 Power
#8 Optoelectronic	Thermocouple	Pneumatic	Size #16 Fiber Optic

Glenair has developed an extensive range of innovative contacts for the SuperNine® connector series, including solutions for fiber optic and pneumatic applications. The development of our own range of high-performance contacts was a key step in gearing our many innovative connector solutions to meet any interconnection challenge. This page highlights a selection of these high-performance contacts, from special high-durability 1500 mating cycle crimp signal contacts to our own high-speed/high-frequency shielded Quadrax and differential Twinax contacts, miniaturized #16 fiber optic contacts and highly specialized gas and pneumatic contact solutions. All our contacts are supported with appropriate extraction and crimp tools—and Glenair can also supply appropriate wire and cable, particularly for short run prototype and production orders. As always, these Glenair technologies are available with no dollar or quantity minimums, and most are in-stock and ready for immediate, same-day shipment.

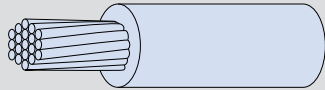


**Glenair MIL-DTL-38999 type SuperNine® connectors are supplied with extended-durability pin and socket contacts**

# MIL-DTL-38999 Series III Type

## Wire and cable selection guide

Consult factory for order information, or see Glenair's High Performance Wire and Cable Catalog.



**M22759/11 Silver Coated Copper Wire with Extruded PTFE Insulation**

For high temperature applications such as aircraft engines and where increased abrasion resistance is required



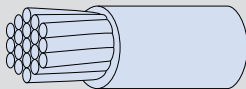
**M22759/16 Tin Coated Copper Wire with Extruded ETFE Insulation**

For high temperature applications such as aircraft engines and where increased abrasion resistance and solderability is required



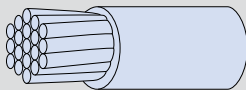
**M22759/18 Tin Coated Copper Wire with Thin-Wall Extruded ETFE Insulation**

For aerospace applications where light weight, abrasion resistance, mechanical durability and solderability are required



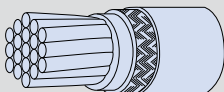
**M22759/32 Tin Coated Copper Wire with Crosslinked, Modified ETFE Insulation**

For high temperature, light weight aerospace applications where mechanical strength, abrasion resistance and solderability are required



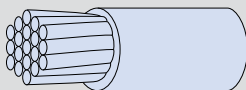
**M22759/33 Silver Coated Copper Wire with Crosslinked, Modified ETFE Insulation**

For high temperature, light weight aerospace applications where increased mechanical strength and abrasion resistance is required



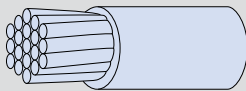
**M22759/34 Tin Coated Copper Wire with Overall Braid and Extruded ETFE Insulation**

For high temperature airframe and avionics applications where abrasion resistance, mechanical durability, and EMI/RFI shielding are required



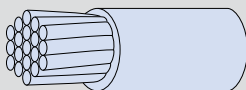
**M22759/44 Silver Coated Copper Wire with Crosslinked, Extruded ETFE Insulation**

For protected harness applications where high temperature resistance, mechanical durability and flexibility are required



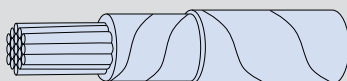
**M22759/45 Nickel Coated Copper Wire with Crosslinked, Extruded ETFE Insulation**

For protected harness applications where high temperature resistance, mechanical durability, corrosion resistance and flexibility are required



**M22759/46 Nickel Coated High Strength Copper Wire with Crosslinked, Extruded ETFE Insulation**

For high temperature applications where mechanical durability and, corrosion resistance are primary requirements



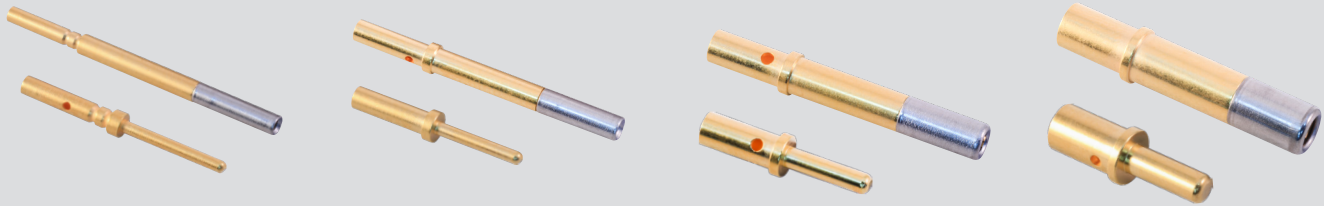
**M22759/90 Nickel Coated High Strength Copper Wire with Double Layer Tape Wrap Insulation**

For high temperature applications where mechanical durability, corrosion resistance and cable strength are primary requirements



# MIL-DTL-38999 Series III Type MIL-STD-1560 and other standard contact arrangements

All views are pin face



Size #22	Size #20	Size #16	Size #12
857-151-22 Pin	857-151-20 Pin	857-151-16 Pin	857-151-12 Pin
857-150-22 Socket	857-150-20 Socket	857-150-16 Socket	857-150-12 Socket

REFERENCE MATERIAL

Environmental and Hermetic Contact Arrangements					
Contact	Number of Contacts				Insert Arrangement
	#22D	#20	#16	#12	
Size #22D 5 Amp Max. Current #22-#28 AWG	6				9-35
	13				11-35
	22				13-35
	37				15-35
	55				17-35
	66				19-35
	67				19-45
	79				21-35
	100				23-35
	128				25-35
Size #20 7.5 Amp Max. Current #20-#24 AWG		2			9L-94*
		3			9-98
		4			11-4
		5			11-5
		6			11-98
		7			11-99
		8			13-8
		10			13-98
		18			15-18
		19			15-19
		26			17-26
		32			19-32
		24			21-24
		25			21-25
		27			21-27
		41			21-41
		32			23-32
		34			23-34
		36			23-36
		53			23-53
	55			23-55	
	61			25-61	

Environmental and Hermetic Contact Arrangements					
Contact	Number of Contacts				Insert Arrangement
	#22D	#20	#16	#12	
Size #16 Contacts 13 Amp Max. Current #16-#20 AWG			2		11-2
			4		13-4
			5		15-5
			8		17-8
			11		19-11
			16		21-16
			21		23-21
			16		23-97
			11		23-99
			29		25-29
Size #12 Contacts 23 Amp Max. Current #12-14 AWG				6	17-6
				11	21-11
				19	25-19

\*9L-94 non MIL-STD-1560 in  
See Appendix for PCB Footprints

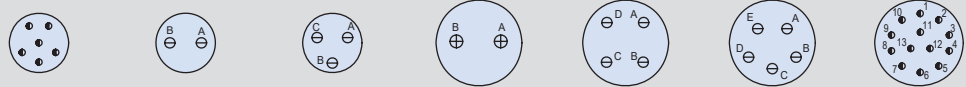
# MIL-DTL-38999 Series III Type

## MIL-STD-1560 and other standard contact arrangements

All views are pin face

REFERENCE MATERIAL

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊖



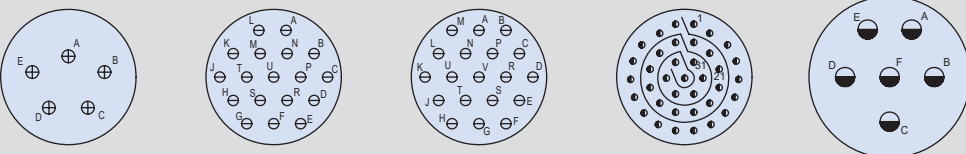
Insert Arrangement	9-35	9L-94	9-98	11-2	11-4	11-5	11-35
No. of Contacts	6	2	3	2	4	5	13
Contact Size	#22D	#20	#20	#16	#20	#20	#22D
Service Rating	M	M	I	I	I	I	M

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊖



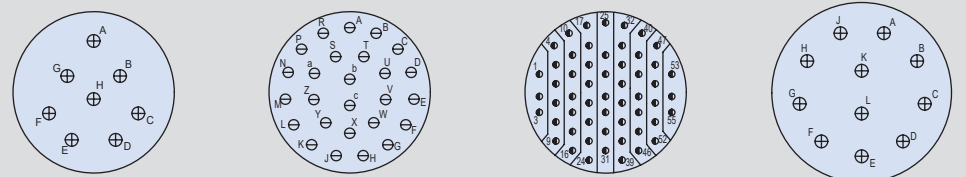
Insert Arrangement	11-98	11-99	13-4	13-8	13-98	13-35
No. of Contacts	6	7	4	8	10	22
Contact Size	#20	#20	#16	#20	#20	#22D
Service Rating	I	I	I	I	I	M

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊖



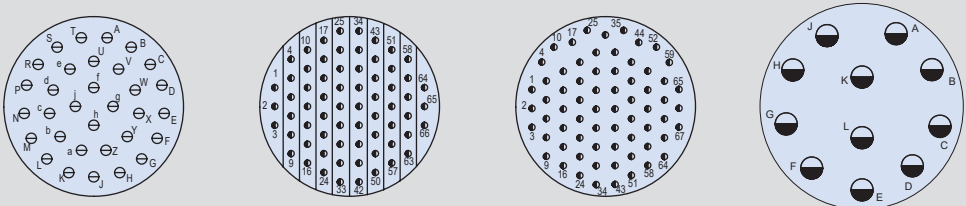
Insert Arrangement	15-5	15-18	15-19	15-35	17-6
No. of Contacts	5	18	19	37	6
Contact Size	#16	#20	#20	#22D	#12
Service Rating	II	I	I	M	I

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊖



Insert Arrangement	17-8	17-26	17-35	19-11
No. of Contacts	8	26	55	11
Contact Size	#16	#20	#22D	#16
Service Rating	II	I	M	II

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊖



Insert Arrangement	19-32	19-35	19-45	21-11
No. of Contacts	32	66	67	11
Contact Size	#20	#22D	#22D	#12
Service Rating	I	M	M	I



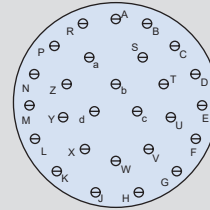
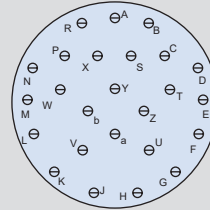
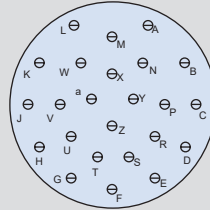
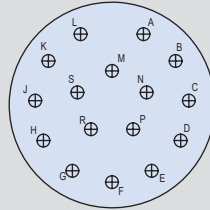
# MIL-DTL-38999 Series III Type

## MIL-STD-1560 and other standard contact arrangements

All views are pin face

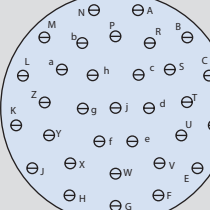
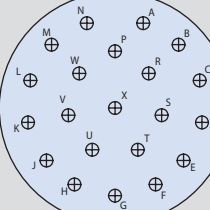
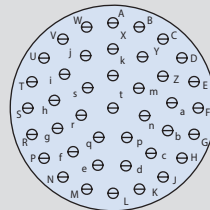
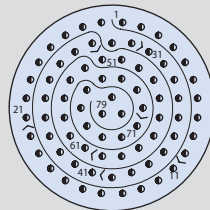
REFERENCE MATERIAL

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊖



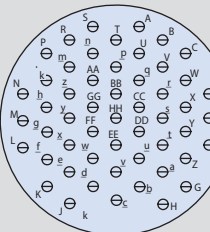
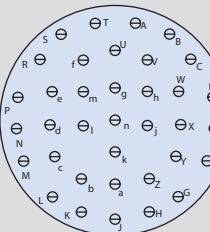
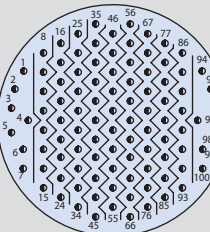
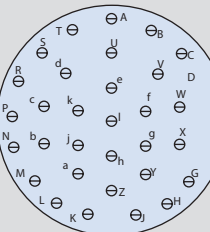
Insert Arrangement	21-16	21-24	21-25	21-27
No. of Contacts	16	24	25	27
Contact Size	#16	#20	#20	#20
Service Rating	II	I	I	I

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊖



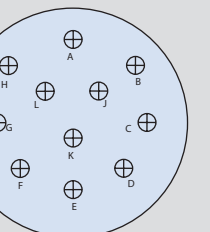
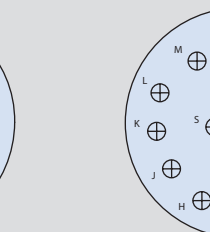
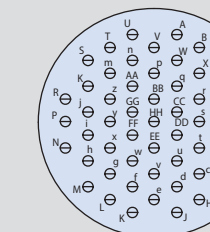
Insert Arrangement	21-35	21-41	23-21	23-32
No. of Contacts	79	41	21	32
Contact Size	#22D	#20	#16	#20
Service Rating	M	I	II	I

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊖



Insert Arrangement	23-34	23-35	23-36	23-53
No. of Contacts	34	100	36	53
Contact Size	#20	#22D	#20	#20
Service Rating	I	M	I	I

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊖

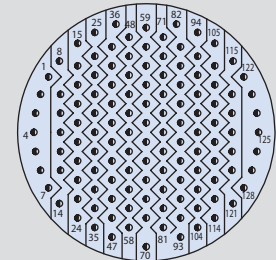
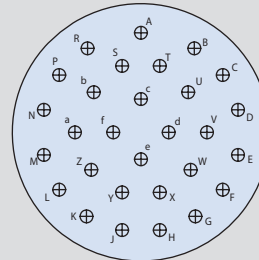
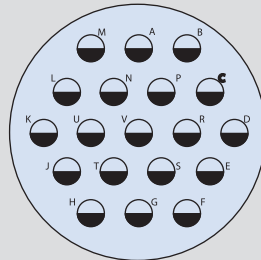


Insert Arrangement	23-55	23-97	23-99
No. of Contacts	55	16	11
Contact Size	#20	#16	#16
Service Rating	I	I	II

# MIL-DTL-38999 Series III Type MIL-STD-1560 and other standard contact arrangements

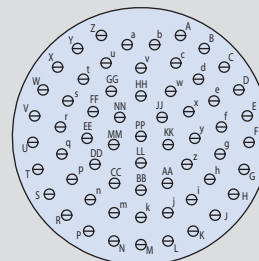
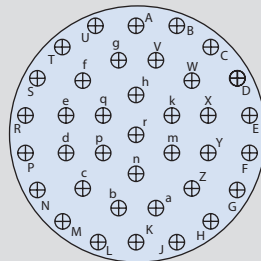
All views are pin face

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ◐



Insert Arrangement	25-19	25-29	25-35
No. of Contacts	19	29	128
Contact Size	#12	#16	#22D
Service Rating	I	I	M

Contact Legend  
 #22D • #16 ⊕  
 #20 ⊖ #12 ◐



Insert Arrangement	25-37	25-61
No. of Contacts	37	61
Contact Size	#16	#20
Service Rating	II	I

REFERENCE MATERIAL

Service Rating	Test Voltage AC RMS 60Hz IAW MIL-DTL-38999							
	Sea Level		50,000 Ft.		70,000 Ft.		100,000 Ft	
	unmated	mated	unmated	mated	unmated	mated	unmated	mated
M	1300	1300	550	800	350	800	200	800
N	1000	1000	400	600	260	600	200	600
I	1800	1800	600	1000	400	1000	200	1000
II	2300	2300	800	1000	500	1000	200	1000


**Note:** The provision of electrical safety factors in each particular application, including peak voltages, switching currents, transients, etc. is the responsibility of the electrical engineer.



# MIL-DTL-38999 Series III Type MIL-STD-1560 high-density contact arrangements

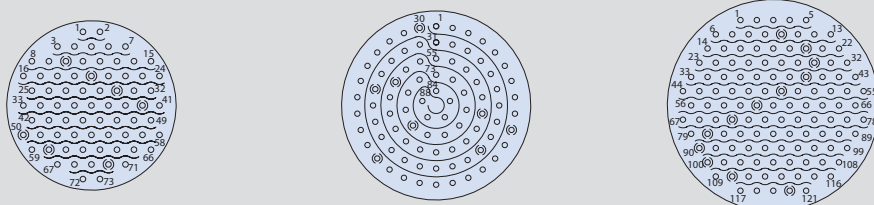
All views are pin face

REFERENCE MATERIAL

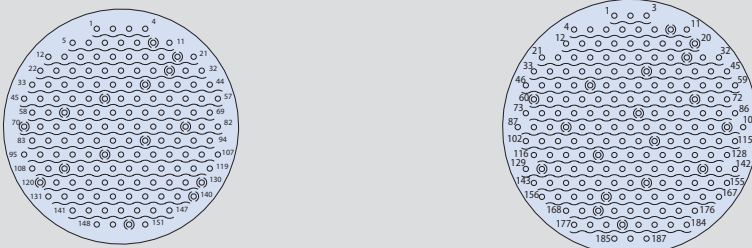
Environmental and Hermetic Contact Arrangements		
Contact	Number of Size 23 Contacts	Insert Arrangement
 <p>857-189 Pin and 857-190 Socket Size #23 High-Density (HD) 5 Amp Max. Current #22-#26 AWG</p>	9	9-23
	19	11-23
	32	13-23
	55	15-23
	73	17-23
	88	19-23
	121	21-23
	151	23-23
	187	25-23



Insert Arrangement	9-23	11-23	13-23	15-23
No. of Contacts	9	19	32	55
Contact Size	#23	#23	#23	#23
Service Rating	N	N	N	N



Insert Arrangement	17-23	19-23	21-23
No. of Contacts	73	88	121
Contact Size	#23	#23	#23
Service Rating	N	N	N



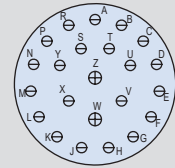
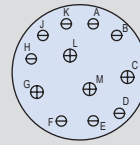
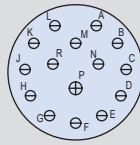
Insert Arrangement	23-23	25-23
No. of Contacts	151	187
Contact Size	#23	#23
Service Rating	N	N

# MIL-DTL-38999 Series III Type MIL-STD-1560 combo contact arrangements

All views are pin face

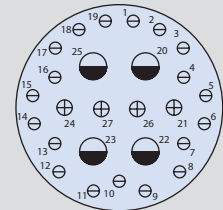
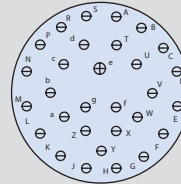
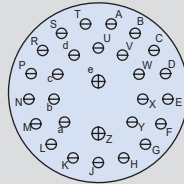
REFERENCE MATERIAL

Contact Legend  
#22D • #20 ⊖ #16 ⊕  
#12 ● #10 ⊙



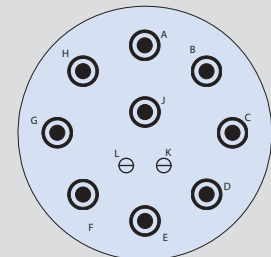
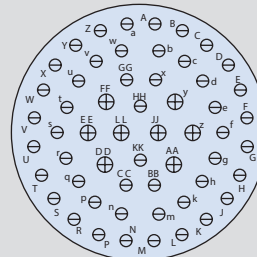
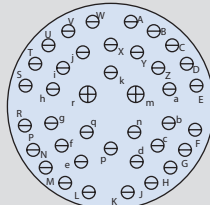
Insert Arrangement	15-15		15-97		17-99	
No. of Contacts and Size	1X #16	14X #20	4X #16	8X #20	2X #16	21X #20
Service Rating	I		I		I	

Contact Legend  
#22D • #20 ⊖ #16 ⊕  
#12 ● #10 ⊙



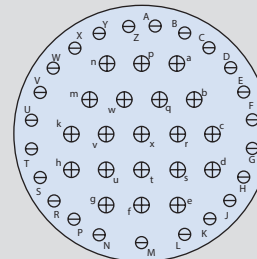
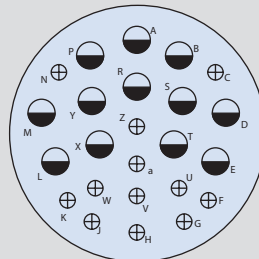
Insert Arrangement	19-28		19-30		21-29		
No. of Contacts and Size	2X #16	26X #20	1X #16	29X #20	4x #12	4X #16	19X #20
Service Rating	I		I		I		

Contact Legend  
#22D • #20 ⊖ #16 ⊕  
#12 ● #10 ⊙



Insert Arrangement	21-39		25-4		25-11	
No. of Contacts and Size	2X #16	37X #20	8X #16	48X #20	9X #10	2x #20
Service Rating	I		I		N	

Contact Legend  
#22D • #20 ⊖ #16 ⊕  
#12 ● #10 ⊙



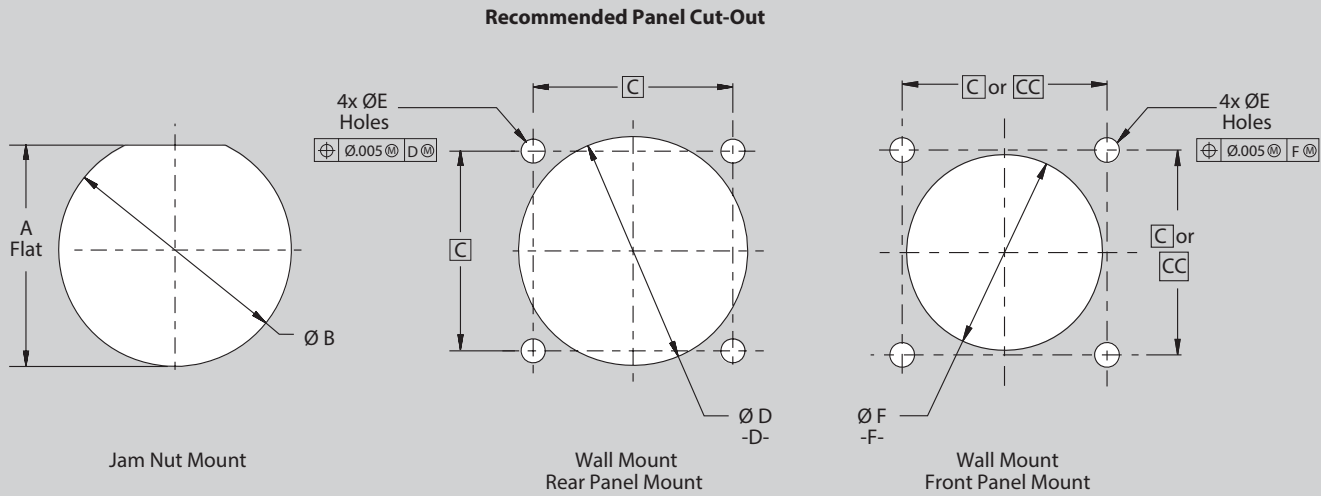
Insert Arrangement	25-24		25-43	
No. of Contacts and Size	12X #12	12X #16	20X #16	23X #20
Service Rating	I		I	

# MIL-DTL-38999 Series III Type

## Recommended panel cut-out dimensions

REFERENCE MATERIAL

### RECOMMENDED PANEL CUT-OUT



Panel Cut-Out Dimensions								
Shell Size Code	Shell Size	Jam Nut Mount		Wall Mount				
		A Flat	B Dia	C BSC	CC BSC	D Dia Min	E Dia Flange Holes	F Dia Min
A	9	.661 (16.79)	.703 (17.58)	.719 (18.26)	.594 (15.09)	.656 (16.66)	.133 (3.38) .123 (3.12)	.516 (13.12)
		.654 (16.61)	.693 (17.60)					
B	11	.771 (19.58)	.835 (21.21)	.812 (20.62)	.719 (18.26)	.796 (20.22)		.750 (19.05)
		.761 (19.33)	.825 (20.96)					
C	13	.955 (24.26)	1.020 (25.91)	.906 (23.01)	.812 (20.62)	.922 (23.42)		.906 (23.01)
		.945 (24.00)	1.010 (25.65)					
D	15	1.085 (27.56)	1.145 (29.08)	.969 (24.61)	.906 (23.01)	1.047 (26.59)		1.016 (25.81)
		1.075 (27.31)	1.135 (28.83)					
E	17	1.210 (30.73)	1.270 (32.26)	1.062 (26.97)	.969 (24.61)	1.219 (30.96)	1.141 (28.98)	
		1.200 (30.48)	1.260 (32.00)					
F	19	1.335 (33.91)	1.395 (35.43)	1.156 (29.36)	1.062 (26.97)	1.297 (32.94)	1.266 (32.16)	
		1.325 (33.66)	1.385 (35.18)					
G	21	1.460 (37.08)	1.520 (38.61)	1.250 (31.75)	1.156 (29.36)	1.422 (36.12)	1.375 (34.93)	
		1.450 (36.83)	1.510 (38.35)					
H	23	1.585 (40.26)	1.645 (41.78)	1.375 (34.93)	1.250 (31.75)	1.547 (39.29)	.159 (4.04) .149 (3.78)	
		1.575 (40.01)	1.635 (41.53)					
J	25	1.710 (43.43)	1.770 (44.96)	1.500 (38.10)	1.375 (34.92)	1.672 (42.47)	.155 (3.94) .145 (3.68)	
		1.700 (43.18)	1.760 (44.70)					

### RECOMMENDED PANEL THICKNESS FOR 233-205, 233-206, AND 233-207 THRU 233-211

**For All Jam-Nuts:**

Shell Size 9 Thru 25: .126/.062 (3.20/ 1.57)

**Square Flange (233-205 and 233-206):**

Shell Size 9 Thru 19: .228 (5.79)

Shell Size 21 Thru 25: .197 (5.00)

**Square Flange 233-207 To 233-211**

Front Panel Mount Shell Size 9 Thru 19: .228 (5.80)

Front Panel Mount Shell Size 21 Thru 25: .197 (5.00)

Rear Panel Mount Shell Size 9 Thru 19: .338 (8.59)

Rear Panel Mount Shell Size 21 Thru 25: .307 (7.80)

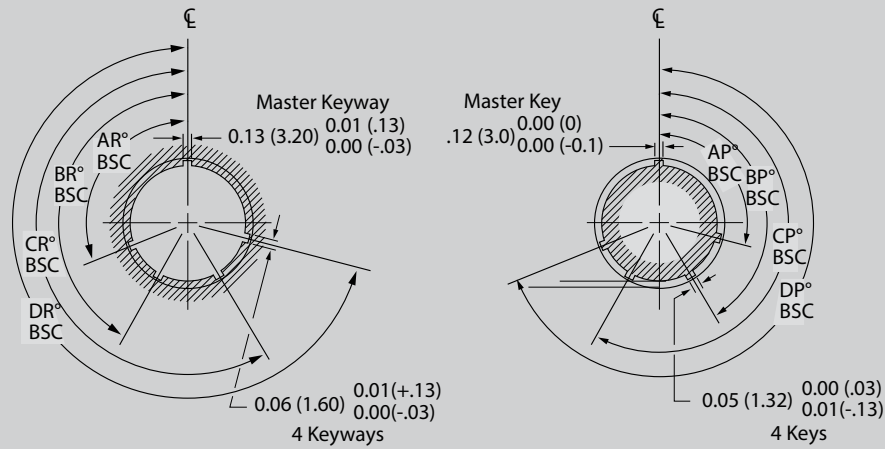


# MIL-DTL-38999 Series III Type

## Alternate key polarization

REFERENCE MATERIAL

### ALTERNATE POLARIZATIONS IAW MIL-DTL-38999 SERIES III



**Alternate Keyway, Receptacles**

**Alternate Key, Plugs**

Series III Alternate Key and Keyway Polarization					
Shell Size	Key and Keyway Code	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
	E	91	131	197	240
11 13 15	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
	E	51	141	184	242
17 19 21 23 25	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

Glenair's Universal Key is intermateable with all MIL-DTL-38999 Series III polarizations.



**SERIES 23 SUPERNINE®**

# Environmental Series MIL-DTL-38999 Series III

Environmental crimp contact, PC tail receptacles,  
connector savers, space-grade solutions, and more



Advanced-performance D38999  
series III environmental connectors  
for mission-critical applications—  
from ground vehicles to satellites  
and everything in-between.



## MIL-DTL-38999 Series III Type High Durability Connectors

### Product selection guide

**SuperNine®**

Features	B-3
Material/finish and Panel Cut-out Dimensions	B-4
Performance Summary and Specifications	B-5



**233-205** B-8  
**Crimp Contact Plug and Receptacle Connectors**  
 Jam nut, square flange, and in-line with accessory threads



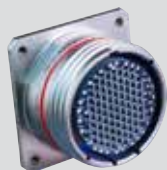
**233-206** B-12  
**Crimp Contact Plug and Receptacle Connectors**  
 Jam nut, square flange, and in-line with boot groove and banding porch



**233-221** B-16  
**COBRA Crimp Contact Wire Harness Connector**  
 Right angle 'Cobra' connector with integral banding porch



**233-215** B-18  
**1K PSI Piston Sealed, Crimp Contact Connectors**  
 Boot groove, banding platform or accessory thread options



**233PS215** B-22  
**Panel-Sealed Wall Mount Receptacle**  
 Dual O-ring panel sealed connector (for use with 233-215 plug)



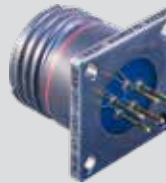
**233-274** B-24  
**1K PSI crimp-contact piston-sealed connectors**  
 Meets fuel resistant MIL-F-8615 testing and explosion proof test MIL-STD-810, Method 511.7



**253-393** B-29  
**64 MB, 128 MB, and 256 MB USB Memory Stick**  
 USB 2.0 memory stick



**233-216** B-30  
**Lanyard-Release Connectors**  
 Quick-release lanyard plug with EMI ground spring



**233-207**  
**Flush Flange PCB Receptacles**  
 Wall mount, slotted holes B-32  
 Wall mount, helicoils B-33  
 Jam-nut mount B-34



**233-208**  
**Stepped-Contact PCB Receptacles**  
 Wall mount B-36  
 Jam-nut mount B-38



**233-209**  
**Sealed 1 x 10<sup>-4</sup> PCB Receptacle with Washout Standoffs**  
 Wall mount B-40  
 Jam-nut B-42



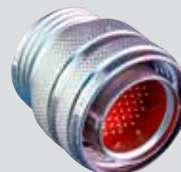
**233-210**  
**Threaded-Standoff PCB Receptacles**  
 Wall mount B-44  
 Jam-nut B-46



**233-211**  
**Dual-Flange Threaded-Standoff PCB Receptacles**  
 Wall mount B-48  
 Jam-nut B-50



**Sav-Con®** B-52  
**Connector Savers**  
 MIL-STD-1560 supported arrangements B-54



**233-213 Connector Saver, In-line** B-55  
 Pin/pin and socket/socket contact options available.



## MIL-DTL-38999 Series III Type Product selection guide

ENVIRONMENTAL CONNECTORS

	<b>233-214</b> <b>In-line Connector Saver</b> Plug-to-plug independent alternate polarizations. Pin/pin and socket/socket contact options available.	B-56
	<b>233-212 and 233-212-07</b> <b>Bulkhead Feed-thru</b> Wall mount Jam-nut mount	B-57 B-59
<b>SuperNine® Pulse Width Modulation (PWM)</b>		
Clean Sky Power Connector Features		B-61
Performance Specifications		B-62
Contacts		B-65
Crimp Tools		B-66
TurboFlex® Aerospace-Grade Power Cable		B-67
	<b>233-230-G6</b> <b>PWM High-Voltage Connectors</b> In-line Plug	B-63
	<b>233-230-00</b> <b>PWM High-Voltage Connectors</b> Square Flange, Receptacle	B-64
	<b>Space-Grade Blind-Mate Connectors</b> Outgassing and Screening Guidelines Blind-Mate Features	B-69 B-71
	<b>253-014 Blind-Mate Plug</b> Fixed mount jam-nut with roll-off nose and accessory threads	B-73
	<b>253-015 Blind-Mate Rcpt</b> Jam-nut mount; misalignment accommodation and optional sealing	B-74
	<b>253-016 Blind-Mate Plug</b> Fixed-mount plug, spring assist	B-75
	<b>253-017 Blind-Mate Rcpt</b> Float mount receptacle with adjustable separation force	B-76
	<b>253-018</b> <b>Blind-Mate Bulkhead Feed Thru</b> Jam-nut, blind-mate plug (A side) and 38999-type receptacle or plug mating interface (B side), with kick-off spring	B-77
	<b>253-019</b> <b>Blind-Mate Receptacle</b> Floating jam-nut mount with misalignment accommodation and optional sealing.	B-79
	<b>253-031</b> <b>Blind-Mate Plug, with Assisted Separation Waveform Springs</b> Fixed jam-nut mount with kick-off spring and accessory threads.	B-81
	<b>253-032</b> <b>Blind-Mate Receptacle</b> Floating jam-nut mount with misalignment accommodation and optional sealing. Mates with 253-031	B-83
	<b>253-033</b> <b>Blind-Mate Bulkhead Feed-Thru</b> Floating jam-nut mount receptacle (side A) and 38999 type plug mating interface (side B) with misalignment accommodation	B-85
	<b>253-025</b> <b>Locking Circuit and Test Mate Receptacle Connector</b> Mates with 253-016 plug	B-87

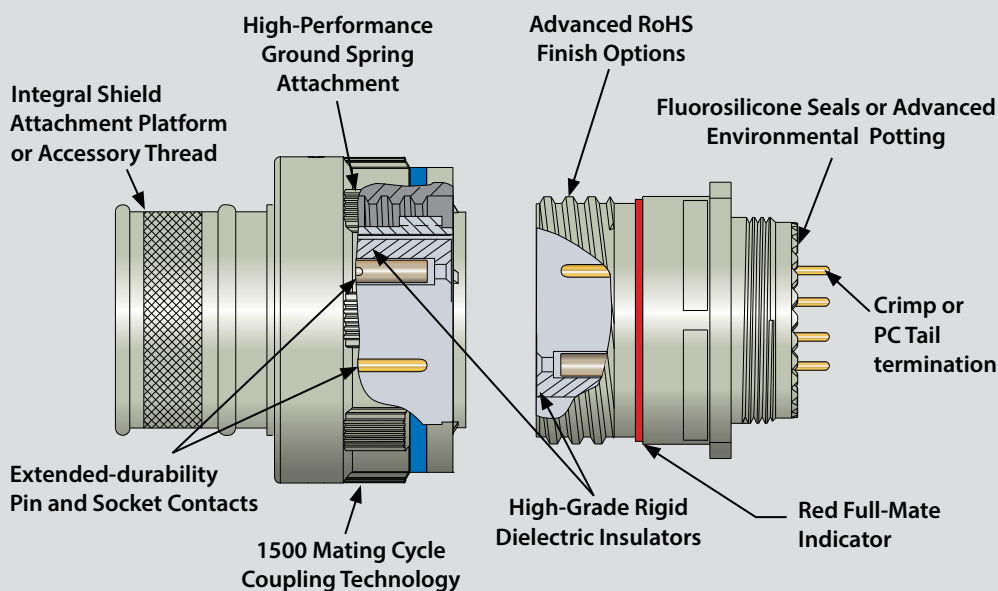


# ENVIRONMENTAL SERIES

# SuperNine®

The environmental class of the Glenair Series 23 SuperNine® includes IP68 (mated condition) MIL-DTL-38999, Series III crimp plugs and receptacles for cable and I/O applications, plus the interconnect industry's most advanced range of PCB termination receptacles, connector savers, and bulkhead feed-thrus. High performance options include extended durability contacts, integrated banding capability, high-density insert arrangements, and more. Rugged ratcheted coupling technology delivers reliable vibration and shock performance IAW the most stringent industry specifications. Insert arrangements are in accordance with MIL-STD-1560 and include special high-density arrangements.

- Integrated band porch
- Extended-durability contacts, finish and coupling nut: 1500 cycles
- Standard plus high-density contact arrangements
- Integrated EMI/RFI ground spring
- Extensive line of PC tail configurations with superior sealing
- Advanced RoHS compliant finish solutions
- IP68 in mated condition (10 meters, two hours)
- Available transition zone piston seal versions



850-006 and 850-007 Extended-duty socket and pin crimp contacts

## MIL-DTL-38999 Series III Type Material and finish / panel cut-out dimensions

ENVIRONMENTAL CONNECTORS

### SUMMARY OF MATERIALS AND SPECIFICATIONS (see performance spec for complete information)

#### Shell Type and Sizes

- Shell Type – D38999 Series III Type, sizes 9 through 25

#### Electrical Specifications:

- Operating Voltage Rating (Ground) – 400 to 1000 Volts VAC
- Operating Current Rating – 5 to 46 Amps

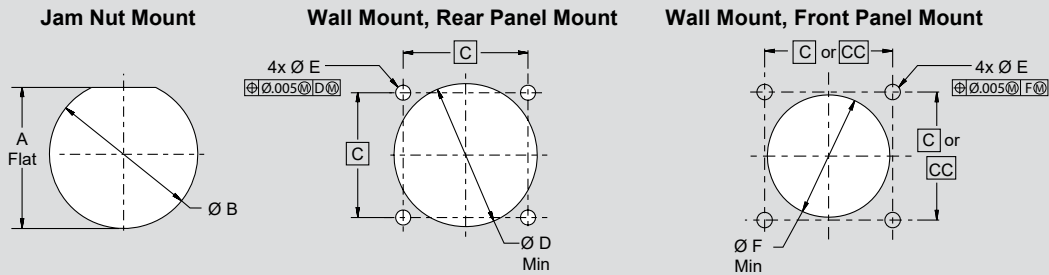
#### Environmental / Mechanical Performance

- Sealing – IP67 or better depending on family
- Flammability Toxicity – FAR25 compliant low smoke, zero halogen
- Leak Rate: connectors with fixed PC tail contacts < 1 x 10<sup>-4</sup> ccHe/sec in the unmated condition
- Operating Temperature Range – -65°C to +200°C (finish dependant)
- Mechanical Shock and Vibration – 43.9 g's @ 200°C, 3 axis, 300 Hz/300 g's
- Accessory – banding porch or thread
- Durability (Mating Cycles) – up to 1500
- Outgassing - See space information in this section

Material and Finish				
38999 Class Equiv.	Sym	Material	Finish Description	RoHS
F	ME	Aluminum	Electroless nickel	<input checked="" type="checkbox"/>
T	MT		Ni-PTFE 500 hour nickel fluorocarbon polymer	<input checked="" type="checkbox"/>
W	NF		Cadmium O.D. over electroless nickel	<input type="checkbox"/>
Z	ZR		Black zinc-nickel over electroless nickel	<input checked="" type="checkbox"/>
N/A	T0	Titanium	Natural, unplated	<input checked="" type="checkbox"/>
N/A	TP3		Electro-deposited nickel	<input checked="" type="checkbox"/>
K	Z1	Stainless Steel	Passivate	<input checked="" type="checkbox"/>
L	ZL		Electro-deposited nickel	<input checked="" type="checkbox"/>
N/A	AB	Marine Bronze	Unplated	<input checked="" type="checkbox"/>

Additional material/finish options available, consult factory

### PANEL CUT-OUT DIMENSIONS



Recommended Panel Cut-Out Dimensions									
Shell Size Code	Shell Size	Jam Nut Mount		Wall Mount					
		A Flat	B Dia	C BSC	CC BSC	D Dia Min	E Dia Flange Holes	F Dia Min	
A	9	.661/.654 (16.80/16.60)	.703/.693 (17.85/17.60)	.719 (18.26)	.594 (15.09)	.656 (16.66)	.133/.123 (3.38/3.12)	.516 (13.12)	
B	11	.771/.761 (19.58/19.34)	.835/.825 (21.21/20.96)	.812 (20.62)	.719 (18.26)	.796 (20.22)		.625 (15.88)	
C	13	.955/.945 (24.26/24.01)	1.020/1.010 (25.90/25.65)	.906 (23.01)	.812 (20.62)	.922 (23.42)		.750 (19.05)	
D	15	1.085/1.075 (27.56/27.31)	1.145/1.135 (29.08/28.83)	.969 (24.61)	.906 (23.01)	1.047 (26.59)		.906 (23.01)	
E	17	1.210/1.200 (30.73/30.48)	1.270/1.260 (32.26/32.00)	1.062 (26.97)	.969 (24.61)	1.219 (30.96)		1.016 (25.81)	
F	19	1.335/1.325 (33.91/33.66)	1.395/1.385 (35.43/35.18)	1.156 (29.36)	1.062 (26.97)	1.297 (32.94)		1.141 (28.98)	
G	21	1.460/1.450 (37.08/36.83)	1.520/1.510 (38.60/38.35)	1.250 (31.75)	1.156 (29.36)	1.422 (36.12)		1.266 (32.16)	
H	23	1.585/1.575 (40.26/40.01)	1.645/1.635 (41.78/41.53)	1.375 (34.93)	1.250 (31.75)	1.547 (39.29)		.159/.149 (4.04/3.78)	1.375 (34.93)
J	25	1.710/1.700 (43.43/43.18)	1.770/1.760 (44.99/44.74)	1.500 (38.10)	1.375 (34.92)	1.672 (42.47)		.155/.145 (3.94/3.68)	1.484 (37.69)



**MIL-DTL-38999 Series III Type  
Performance specification summary**

**GENERAL SUMMARY OF SUPERNINE® PERFORMANCE**

SuperNine® is a high-performance connector family designed for cable-to-panel, I/O and inline, applications in military aerospace and other demanding situations. Environmental class versions—with high-density insert arrangements (up to 187 contacts)—are available with crimp removable contacts, PC tails, and solid contact feed-thrus and connector savers. Glenair SuperNine® is a broad product family of MIL-DTL-38999 Series III type connectors including Class G space-grade designs, lanyard-release connectors and specialty metal cable plugs and receptacles, as well as metal-insert (ground plane) configurations for shielded contact equipped products. This table describes the most basic attributes for environmental class products supplied by Glenair.

<b>Series Description</b>	Scoop-Proof, Triple Start, Self-Locking
<b>Supported Contact Types and Gauges</b>	8, 12, 16, 20, and 22D gauge contacts, standard density and 23 gauge high density arrangements; 1 to 187 contacts. Crimp, solder and PCB tails
<b>Coupling/Mating Design</b>	Triple-start threaded coupling design, rapid advance, self-locking and full-mate indicator, keyed
<b>EMI Shielding</b>	Shell to shell bottoming, grounding fingers, conductive finish and thick shell wall cross-sections provide effective EMI shielding to 65 dB minimum up to 10 GHz
<b>Vibration and Shock</b>	Excellent resistance to vibration and shock with no electrical discontinuity and no disengagement of the mated connectors per MIL-DTL-38999 (paragraph 3.27 & 3.28); Qualification to Bell 299-100-829 vibration and mating durability (Glenair Test Report GT-18-106)
<b>Mating Speed</b>	360 ° or one full turn to full mate
<b>Materials</b>	Aluminum, CRES and Titanium Shells, Fluorosilicone/Silicone Blend Seals, Beryllium Copper Alloy, Gold Plated Contacts
<b>Durability</b>	500 to 1500 mating cycles, see individual data sheets for appropriate value
<b>IP Rating</b>	Receptacles with non-removable PC tail contacts IP67; Removable contacts in mated condition, IP68
<b>Outgassing</b>	See space-grade guide in this section

Performance Specifications, IAW MIL-DTL-38999 Series III REV. L									
Test	Test Requirement								
	Altitude	Service Rating M		Service Rating N		Service Rating I		Service Rating II	
		Mated	Unmated	Mated	Unmated	Mated	Unmated	Mated	Unmated
Dielectric Withstanding Voltage	Sea level	1300	1300	1000	1000	1800	1800	2300	2300
	50,000 feet	800	550	600	400	1000	600	1000	800
	70,000 feet	800	350	600	260	1000	400	1000	500
	100,000 feet	800	200	600	200	1000	200	1000	200
<b>Note:</b> The establishment of electrical safety factors is left entirely to the designer, as they are in the position to know exactly what peak voltages, switching currents, transients, etc. can be expected in a particular circuit.									
Insulation Resistance	Unmated connectors shall be tested as specified in test method EIA-364-21 5000 megohms min. at 25° C								



**MIL-DTL-38999 Series III Type  
Performance specifications**

ENVIRONMENTAL CONNECTORS

Performance Specifications, IAW MIL-DTL-38999 Series III REV. L						
Test	Test Requirement					
Shielding Effectiveness	Frequency (MHz)	Leakage Attenuation Minimum (dB)		Frequency (MHz)	Leakage Attenuation Minimum (dB)	
		Finishes L, F	Finishes T, W, Z		Finishes L, F	Finishes T, W, Z
	100	90	90	1,500	76	69
	200	88	88	2,000	70	65
	300	88	88	3,000	69	61
	400	87	87	4,000	68	58
	800	85	85	6,000	66	55
	1,000	85	85	10,000	65	50
Supported Wire Size	Contact Size	Wire Gauge		Contact Size	Wire Gauge	
	23	#22 - #28		16	#16 - #20	
	22D	#22 - #28		12	#12 - #14	
	20	#20 - #24		8	#8 - #10	
Mating / Unmating Forces	Coupling torque for mating and unmating of the counterpart connectors and protective covers					
	Shell size	Maximum engagement and disengagement		Minimum disengagement		
		Pound inch	Newton meters	Pound inch	Newton meters	
	9	8	0.9	2	0.2	
	11	12	1.4	2	0.2	
	13	16	1.8	2	0.2	
	15	20	2.3	3	0.3	
	17	24	2.7	3	0.3	
	19	28	3.2	3	0.3	
	21	32	3.6	5	0.6	
23	36	4.1	5	0.6		
25	40	4.6	5	0.6		
Physical Shock	No loosening of parts, cracking or other deleterious results hindering further part operation after 300 G's in each of 3 mutually perpendicular planes.					
Fluid Compatibility	Designed to function in all fluids encountered in any modern military or aerospace environment.					
High Impact Shock	Mated connectors, wired with MIL-C-915/60 or /63 cable and equipped with straight environmentally sealed backshells, withstand high impact shock per MIL-S-901.					
Vibration	No electrical discontinuity and no disengagement of the mated connectors, backing off of the coupling mechanism, evidence of cracking, breaking, or loosening of parts. See Glenair Test Report GT-18-106 for vibration profiles IAW Bell 299-100-829.					
Fungus	Materials used in the construction of these connectors shall be fungus inert per certification of method 508.4 of MIL-STD-810.					
Corrosion	When tested in accordance with EIA-364-26, meets appropriate electrical and mechanical requirements and shows no exposure of base metal.					



**MIL-DTL-38999 Series III Type**  
**Performance specifications**

ENVIRONMENTAL CONNECTORS

Performance Specifications, IAW MIL-DTL-38999 Series III REV. L				
Test	Test Requirement			
Durability	No electrical or mechanical defects after 1500 cycles of engagement and disengagement with appropriate finish, unless otherwise specified.			
Insert Retention	Unmated connectors shall retain their inserts in their proper location in the shell and there shall be no evidence of cracking, breaking, separation from the shell, or loosening of parts. 100 ±5 psi, 25 lb min force.			
Crimp Contact Retention	The axial displacement of the contact shall not exceed .012 inch (0.30 mm). No damage to contacts or inserts shall result.			
Current Rating	<b>Contact Size</b>	<b>Maximum Amps Crimp Contact</b>	<b>Contact Size</b>	<b>Maximum Amps Crimp Contact</b>
		<b>Environmental</b>		<b>Environmental</b>
	23	5	16	13
	22D	5	12	23
	20	7.5	8	46
Finish/Plating	<b>Finish/Plating</b>	<b>Operating Temperature Range</b>	<b>Corrosion Resistance</b>	<b>Shell to Shell Conductivity</b>
	Electroless Nickel (ME)	-65°C to +200°C	48 hrs	1.0 mv max.
	PTFE/Nickel (MT)	-65°C to +175°C	500 hrs	2.5 mv max.
	OD Cadmium (NF)	-65°C to +175°C	500 hrs	2.5 mv max.
	Black Zink-Nickel (ZR)	-65°C to +175°C	500 hrs	2.5 mv max.



## MIL-DTL-38999 Series III Type

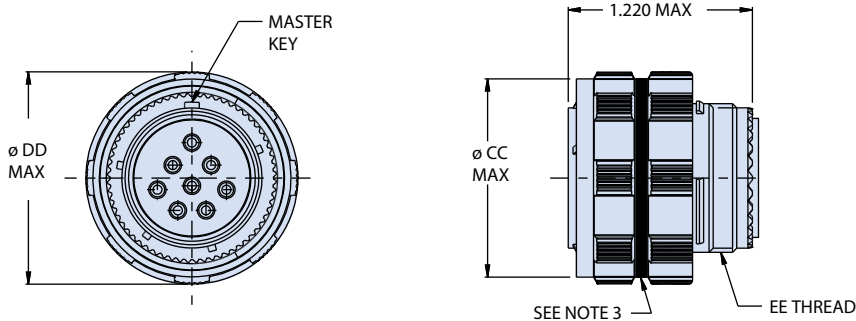
### 233-205 crimp-contact connectors with accessory threads

ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	233-205				-G6	MT	17-8	P	N
Series / Basic Part No.	233-205 = SuperNine crimp contact wire harness connectors								
Connector Style*	G6 = Plug, with EMI Spring 05 = Receptacle, In-Line 07 = Receptacle, Jam Nut 00 = Receptacle, Wall Mount with Slotted Holes HS = Receptacle, Wall Mount with Standard Helicoil HM = Receptacle, Wall Mount with Metric Helicoil CS = Receptacle, Wall Mount with Standard Clinch-Nuts CM = Receptacle, Wall Mount with Metric Clinch-Nuts								
Finish	NF = Aluminum alloy/Cadmium Olive Drab ME = Aluminum alloy/Electroless Nickel			MT = Aluminum alloy/Nickel PTFE ZR = Aluminum alloy/Black Zinc Nickel					
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	A = Pin insert, less contacts P = Pin, high durability 1500 cycles H = Pin, palladium nickel			B = Socket insert, less contacts S = Socket, high durability 1500 cycles J = Socket, palladium nickel					
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)								

\*Refer to Section A for complete details

### G6 - PLUG WITH ACCESSORY THREADS



#### NOTES

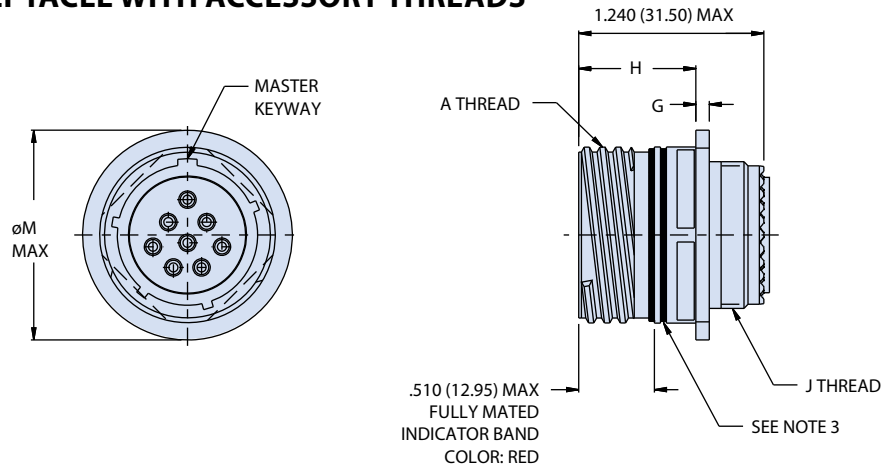
- 233-205 is designed to meet or exceed the mechanical, electrical, environmental and dimensional requirements of D38999/20, /24 & /26. Except as shown and/or noted.
- Insert arrangements IAW MIL-STD-1560, plus Glenair HD shielded contact specials.
- Blue color band indicates rear release retention system.
- Connector is supplied with contacts (including spares), insertion/removal tool and sealing plugs.
- Dimensions in inches (millimeters) are subject to change without notice.
- Consult factory for additional information.
- Front panel mount only
- Material/finish:
  - Shell, barrel, coupling nut jam nut - see part number development
  - ratchet ring, detent spring: stainless steel/passivated
  - grounding spring: BeCu alloy/electroless nickel
  - insulator: high grade rigid dielectric/n.a.
  - Seals, grommet: fluorosilicone blend/N/A.
  - Contacts: copper alloy/see part number development

Plug Dimensions				
Shell Size Code	Shell Size	øCC Max	øDD <sup>7</sup> Max	EE Thread
A	09	.811 (20.60)	.858 (21.79)	M12 X 1.0-6g 0.100R
B	11	.929 (23.60)	.984 (24.99)	M15 X 1.0-6g 0.100R
C	13	1.110 (28.19)	1.157 (29.39)	M18 X 1.0-6g 0.100R
D	15	1.232 (31.29)	1.280 (32.51)	M22 X 1.0-6g 0.100R
E	17	1.358 (34.49)	1.406 (35.71)	M25 X 1.0-6g 0.100R
F	19	1.469 (37.31)	1.516 (38.51)	M28 X 1.0-6g 0.100R
G	21	1.594 (40.49)	1.642 (41.71)	M31 X 1.0-6g 0.100R
H	23	1.720 (43.69)	1.768 (44.91)	M34 X 1.0-6g 0.100R
J	25	1.843 (46.81)	1.890 (48.01)	M37 X 1.0-6g 0.100R

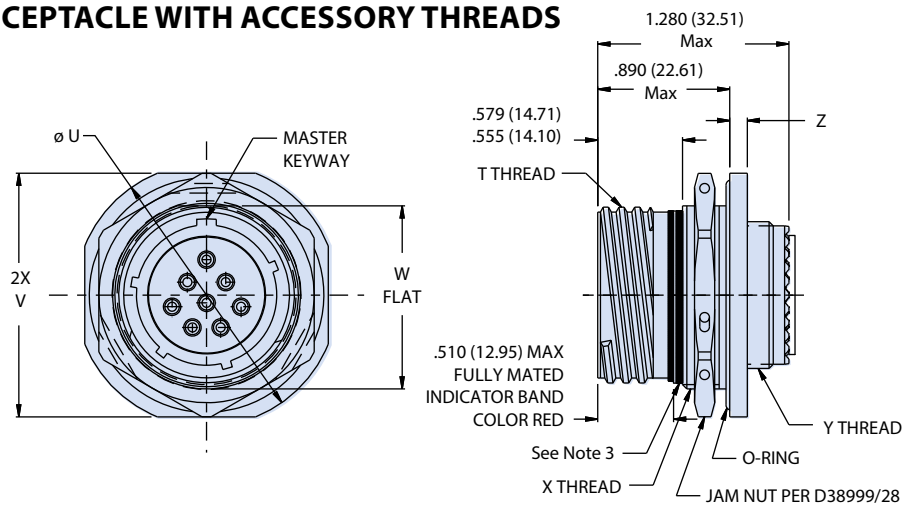
**MIL-DTL-38999 Series III Type**

**233-205 crimp-contact connectors with accessory threads**

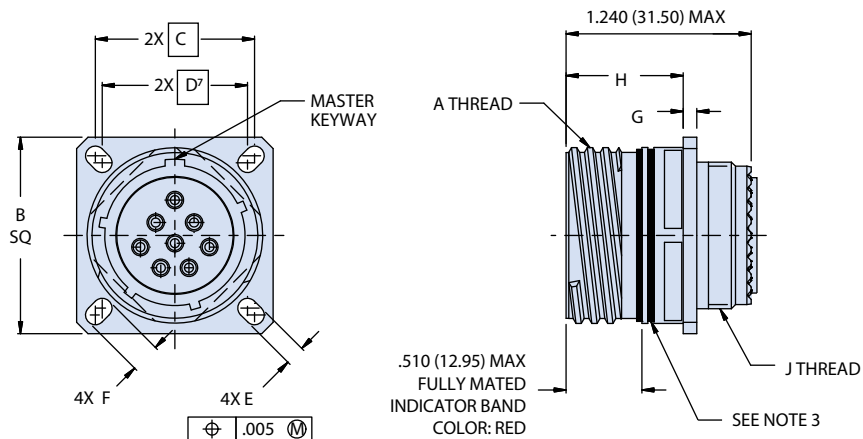
**05 - IN-LINE RECEPTACLE WITH ACCESSORY THREADS**



**07 - JAM NUT RECEPTACLE WITH ACCESSORY THREADS**



**00 - WALL MOUNT RECEPTACLE WITH ACCESSORY THREADS AND SLOTTED HOLES**

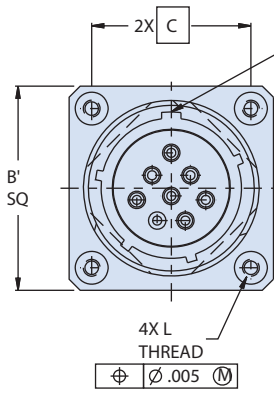


**MIL-DTL-38999 Series III Type**

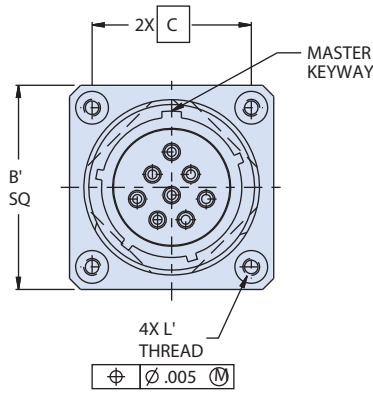
**233-205 Crimp-contact connectors with accessory threads**

ENVIRONMENTAL CONNECTORS

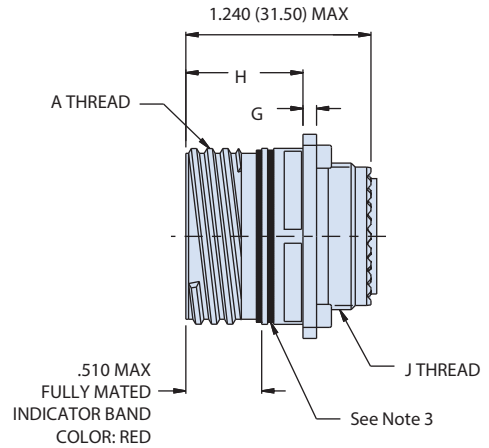
**CS AND CM - WALL MOUNT RECEPTACLE WITH METRIC OR STANDARD CLINCH NUTS**



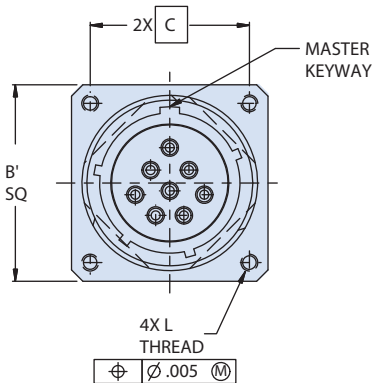
STANDARD CLINCH NUTS



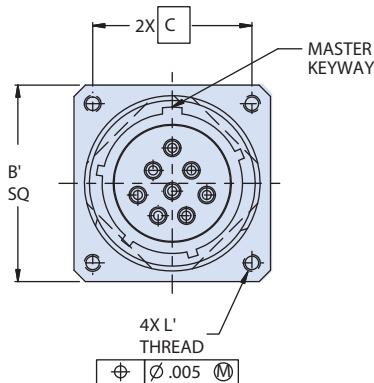
METRIC CLINCH NUTS



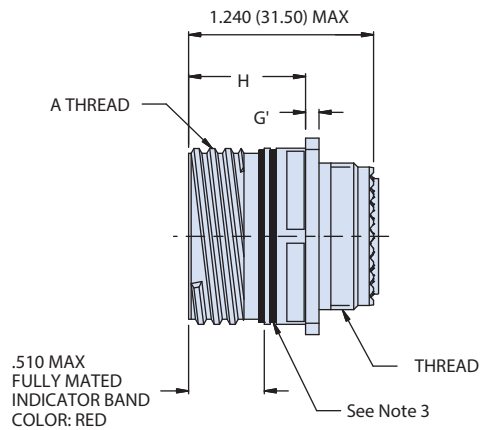
**HS AND HM - WALL MOUNT RECEPTACLE WITH METRIC OR STANDARD HELICOILS**



WITH STANDARD HELICOILS



WITH METRIC HELICOILS



**MIL-DTL-38999 Series III Type**

**233-205 crimp-contact connectors with accessory threads**

ENVIRONMENTAL CONNECTORS

Wall Mount and In-line Dimensions																			
Shell Size Code	Shell Size	A Thread -.1P-.3L- TS-2A	B Sq	B'	C Bsc	D Bsc <sup>7</sup>	E	F	G	G'	H	J Thread	L Thread	L' Thread	ØM Max				
A	9	.6250	.949 (24.10) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.098 (2.49) .083 (2.11)	.179 (4.55) .140 (3.56)	.820 (20.83) .771 (19.58)	M12 X 1.0-6g 0.100R	.112-40 UNC	M3X 0.5	.858 (21.79)				
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13)				M15 X 1.0-6g 0.100R			.984 (24.99)				
C	13	.8750	1.138 (28.91) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)		.186 (4.72)				M18 X 1.0-6g 0.100R			1.157 (29.39)				
D	15	1.0000	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.181 (4.60) .165 (4.19)				M22 X 1.0-6g 0.100R			1.280 (32.51)				
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)		.202 (5.13) .186 (4.72)				M25 X 1.0-6g 0.100R			1.406 (35.71)				
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)						M28 X 1.0-6g 0.100R			1.516 (38.51)				
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)						M31 X 1.0-6g 0.100R			1.642 (41.71)				
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)		.162 (4.11) .250 (6.35)				.083 (2.11) .170 (4.32)			.790 (20.07) .741 (18.82)	M34 X 1.0-6g 0.100R	.138-32 UNC	M4X0.7	1.768 (44.91)
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)		.146 (3.71) .234 (5.94)				M37 X 1.0-6g 0.100R			1.890 (48.01)				

Jam Nut Dimensions								
Shell Size Code	Shell Size	T Thread	Ø U	V	W Flat	X Thread	Y Thread	Z
A	09	.6250-.1P-.3L-TS-2A	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g 0.100R	M12 X 1.0-6g 0.100R	0.122 0.083
B	11	.7500-.1P-.3L-TS-2A	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g 0.100R	M15 X 1.0-6g 0.100R	
C	13	.8750-.1P-.3L-TS-2A	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g 0.100R	M18 X 1.0-6g 0.100R	
D	15	1.0000-.1P-.3L-TS-2A	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g 0.100R	M22 X 1.0-6g 0.100R	
E	17	1.1875-.1P-.3L-TS-2A	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g 0.100R	M25 X 1.0-6g 0.100R	
F	19	1.2500-.1P-.3L-TS-2A	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g 0.100R	M28 X 1.0-6g 0.100R	0.153 0.114
G	21	1.3750-.1P-.3L-TS-2A	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g 0.100R	M31 X 1.0-6g 0.100R	
H	23	1.5000-.1P-.3L-TS-2A	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g 0.100R	M34 X 1.0-6g 0.100R	
J	25	1.6250-.1P-.3L-TS-2A	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g 0.100R	M37 X 1.0-6g 0.100R	



## MIL-DTL-38999 Series III Type

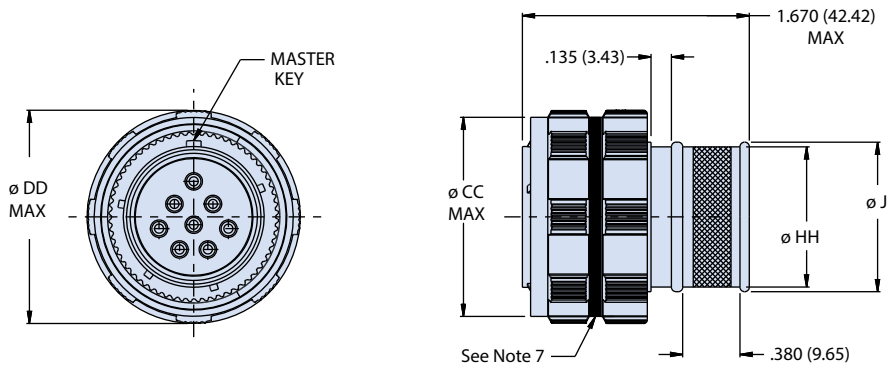
### 233-206 crimp-contact connectors with banding porch / boot groove

ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	233-206				-G6	MT	17-8	P	N
Series / Basic Part No.	233-206 = SuperNine crimp contact wire harness connectors								
Connector Style*	G6 = Plug, with EMI spring 05 = Receptacle, In-Line 07 = Receptacle, Jam Nut 00 = Receptacle, Wall Mount with Slotted Holes CM = Receptacle, Wall Mount with Metric Clinch Nuts CS = Receptacle, Wall Mount with Standard Clinch Nuts HM = Receptacle, Wall Mount with Metric Helicoils HS = Receptacle, Wall Mount with Standard Helicoils								
Finish	NF = Aluminum alloy/Cadmium Olive Drab ME = Aluminum alloy/Electroless Nickel				MT = Aluminum alloy/Nickel PTFE ZR = Aluminum alloy/Black Zinc Nickel				
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	P = Pin, Gold, 1500 cycles H = Pin, Pd/Ni, 1500 cycles A = Pin Insert, Less Pin Contacts				S = Socket, Gold, 1500 Cycles J = Socket, Pd/Ni, 1500 cycles B = Socket Insert, Less Socket Contacts				
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)								

\*Refer to Section A for complete details

### G6 - PLUG WITH BANDING PORCH AND BOOT GROOVE



Plug Dimensions			
Shell Size Code	Shell Size	Ø CC Max	Ø DD Max
A	09	.811 (20.60)	.858 (21.79)
B	11	.929 (23.60)	.984 (24.99)
C	13	1.110 (28.19)	1.157 (29.39)
D	15	1.232 (31.29)	1.280 (32.51)
E	17	1.358 (34.49)	1.406 (35.71)
F	19	1.469 (37.31)	1.516 (38.51)
G	21	1.594 (40.49)	1.642 (41.71)
H	23	1.720 (43.69)	1.768 (44.91)
J	25	1.843 (46.81)	1.890 (48.01)

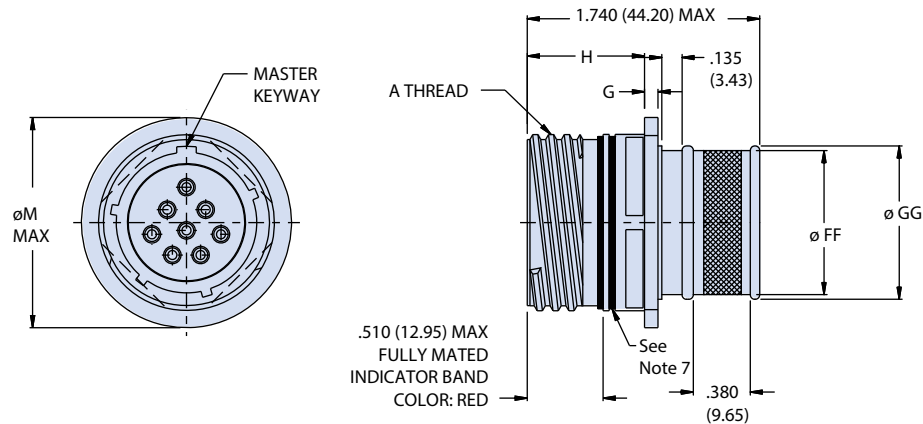
### NOTES

- 233-206 is designed to meet or exceed the mechanical, electrical, environmental and dimensional requirements of D38999/20, /24 & /26. Except as shown and/or noted. Connectors mate with any QPL manufacturer's MIL-DTL-38999, Series III connectors having the same shell size, insert arrangement, and polarization
- 233-206 connectors are designed to withstand a minimum of 1500 mating durability cycles when mated to a SuperNine® mating connector and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance.
- Insert arrangements IAW MIL-STD-1560 arrangements. Contact manufacturer for additional arrangement options.
- Alternate polarization 'U' is a non-standard/non-mil-spec option, allows mating to any QPL manufacturers MIL-DTL-38999 connector, intended for use in testing facilities.
- Connector is supplied with contacts (including spares), insertion/removal tool and sealing plugs.
- Insertion/removal tool and sealing plugs supplied.
- Blue color band indicates rear release retention system.
- Front panel mount only
- Material/finish
  - Shell, barrel, coupling nut jam nut: see part number development table
  - Ratchet Ring, detent spring: stainless steel/passivated
  - Grounding spring: BeCu alloy/electroless nickel
  - Insulator: high grade rigid dielectric/N.A.
  - Seals, grommet: fluorosilicone blend/N.A.
  - Contacts: copper alloy/see part number development table

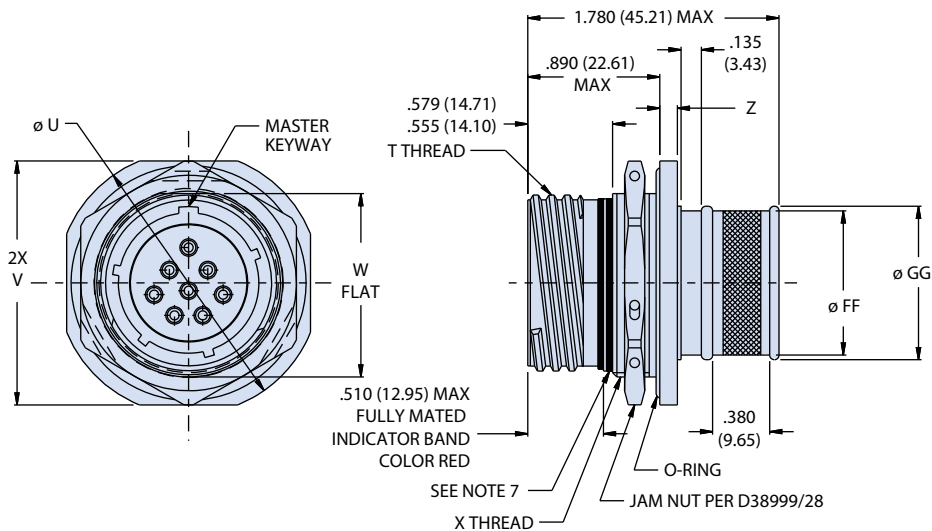
**MIL-DTL-38999 Series III Type**

**233-206 crimp-contact connectors with banding porch / boot groove**

**05 - IN-LINE RECEPTACLE WITH BANDING PORCH AND BOOT GROOVE**



**07 - JAM NUT RECEPTACLE WITH BANDING PORCH AND BOOT GROOVE**



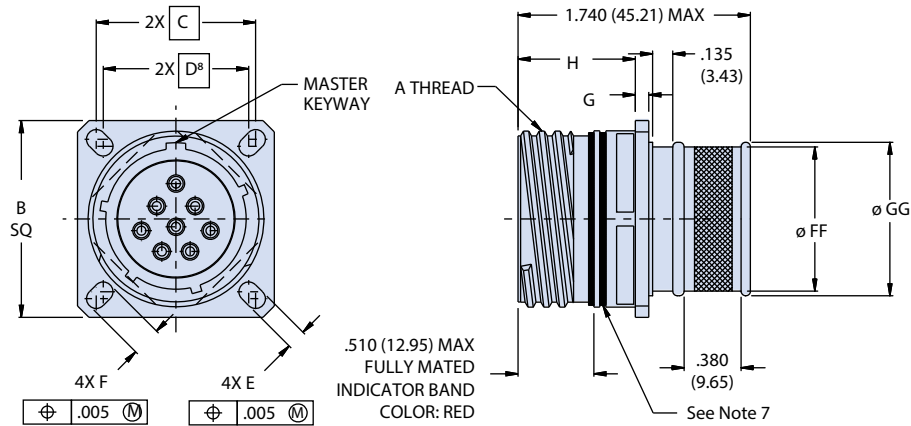
ENVIRONMENTAL CONNECTORS

**MIL-DTL-38999 Series III Type**

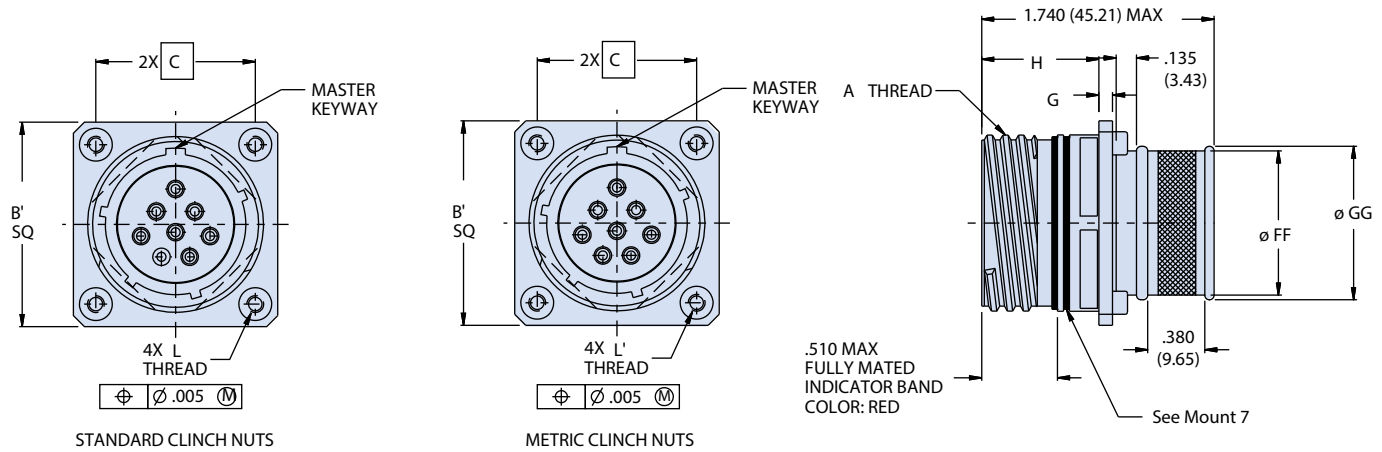
**233-206 crimp-contact connectors with banding porch / boot groove**

ENVIRONMENTAL CONNECTORS

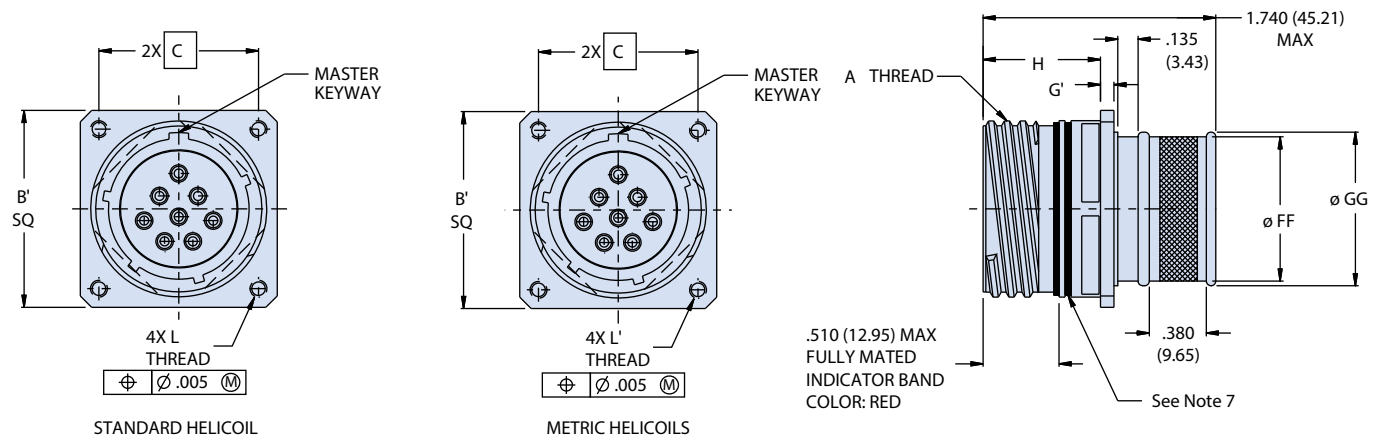
**00 - SQUARE FLANGE RECEPTACLE WITH BANDING PORCH AND BOOT GROOVE**



**CS AND CM - WALL MOUNT RECEPTACLE WITH BANDING PORCH AND BOOT GROOVE**



**HS AND HM - WALL MOUNT RECEPTACLE WITH BANDING PORCH AND BOOT GROOVE**



**MIL-DTL-38999 Series III Type**

**233-206 crimp-contact connectors with banding porch / boot groove**

ENVIRONMENTAL CONNECTORS

Wall Mount and In-Line Dimensions																		
Shell Size Code	Shell Size	A Thread	B Sq	B' Sq	C Bsc	D Bsc <sup>9</sup>	E	F	G	G'	H	L Thd	L' Thd	Ø M Max				
A	09	.6250-1P-3L-TS-2A	.949 (24.10) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) (3.05)	.224 (5.69) .208 (5.28)	.098 (2.49) .083 (2.11)	.179 (4.55) .140 (3.56)	.820 (20.83) .771 (19.58)	.112-40 UNC-2B	M3X0.5	.875 (22.23)				
B	11	.7500-1P-3L-TS-2A	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13)						.994 (25.25)				
C	13	.8750-1P-3L-TS-2A	1.138 (28.91) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)		.186 (4.72)						1.167 (29.64)				
D	15	1.0000-1P-3L-TS-2A	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.181 (4.60) .165 (4.19)						1.290 (32.77)				
E	17	1.1875-1P-3L-TS-2A	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)		.202 (5.13) .186 (4.72)						1.416 (35.97)				
F	19	1.2500-1P-3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)								1.526 (38.76)				
G	21	1.3750-1P-3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)		.126 (3.20) .083 (2.11)						.190 (4.83) .170 (4.32)	.790 (20.07) .741 (18.82)	.138-32 UNC-2B	M4X0.7	1.652 (41.96)
H	23	1.5000-1P-3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)								.162 (4.11) (6.35)	1.778 (45.16)			
J	25	1.6250-1P-3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)								.146 (3.71) (5.94)	1.900 (48.26)			

Jam Nut Dimensions							
Shell Size Code	Shell Size	T Thread	Ø U	V	W Flat	X Thread	Z
A	09	.6250-1P-3L-TS-2A	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	0.654 (16.61) 0.645 (16.38)	M17 X 1.0-6g 0.100R	0.122 (3.10) 0.083 (2.11)
B	11	.7500-1P-3L-TS-2A	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	0.755 (19.18) 0.745 (18.92)	M20 X 1.0-6g 0.100R	
C	13	.8750-1P-3L-TS-2A	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	0.942 (23.93) 0.932 (23.67)	M25 X 1.0-6g 0.100R	
D	15	1.0000-1P-3L-TS-2A	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g 0.100R	
E	17	1.1875-1P-3L-TS-2A	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g 0.100R*	
F	19	1.2500-1P-3L-TS-2A	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g 0.100R	
G	21	1.3750-1P-3L-TS-2A	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g 0.100R	
H	23	1.5000-1P-3L-TS-2A	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g 0.100R	
J	25	1.6250-1P-3L-TS-2A	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g 0.100R	

\* Modified major diameter 31.95 - 31.80 (1.257 - 1.252)

Integral Backshell Dimensions*					
Shell Size Code	Shell Size	Ø FF	Ø GG	Ø HH	Ø JJ
A	09	.475 (12.07)	.538 (13.67)	.420 (10.67)	.465 (11.81)
B	11	.600 (15.24)	.662 (16.81)	.550 (13.97)	.595 (15.11)
C	13	.700 (17.78)	.762 (19.35)	.670 (17.02)	.715 (18.16)
D	15	.835 (21.21)	.898 (22.81)	.815 (20.70)	.860 (21.84)
E	17	.960 (24.38)	1.022 (25.96)	.945 (24.00)	.990 (25.15)
F	19	1.062 (26.97)	1.125 (28.58)	1.050 (26.67)	1.100 (27.94)
G	21	1.188 (30.18)	1.250 (31.75)	1.170 (29.72)	1.220 (30.99)
H	23	1.275 (32.39)	1.338 (33.99)	1.290 (32.77)	1.340 (34.04)
J	25	1.475 (37.47)	1.538 (39.07)	1.400 (35.56)	1.450 (36.83)

See accessories section for bands and banding tools



## MIL-DTL-38999 Series III Type

### 233-221 Crimp-contact 90° “Cobra” plug with banding porch

ENVIRONMENTAL CONNECTORS

Part Number Development	
Sample Part Number	233-221 -G6 ME 25-35 S N -06
Series / Basic Part No.	233-221 = SuperNine crimp contact wire harness connectors
Connector Style*	G6 = 90° Low profile plug, with integral backshell
Finish	NF = Aluminum alloy/Cadmium Olive Drab MT = Aluminum alloy/Nickel PTFE ME = Aluminum alloy/Electroless Nickel ZR = Aluminum alloy/Black Zinc Nickel MN = Aluminum alloy, Tri-Nickel, 1,000 hrs salt spray
Shell Size-Insert Arrangement*	Per MIL-STD-1560, not all arrangements available for 233-221 connectors, contact factory
Contact Type	P = Pin S = Socket
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)
Cable Entry	See Cable Entry Code Table
Cable Exit Direction	See Figure 2, omit for 0° as shown in Figure 1

\*Refer to Section A for complete details

Plug Dimensions								
Shell Size	ØA Max	ØB Max	Coupling Nut Thread	C Max	Max Entry	PW1 Max	PW2 Max	PJ Max
9	.811 (20.60)	.858 (21.79)	.6250 -0.1P-0.3L-TS-2B	1.500 (38.10)	6	1.572 (39.93)	1.898 (48.21)	1.744 (44.30)
11	.929 (23.60)	.984 (24.99)	.7500 -0.1P-0.3L-TS-2B	1.560 (39.62)	8	1.632 (41.45)	1.958 (49.73)	1.804 (45.82)
13	1.110 (28.19)	1.157 (29.39)	.8750 -0.1P-0.3L-TS-2B	1.625 (41.28)	8	1.697 (43.10)	2.023 (51.38)	1.869 (47.47)
15	1.232 (31.29)	1.280 (32.51)	1.0000 -0.1P-0.3L-TS-2B	1.720 (43.69)	11	1.792 (45.52)	2.118 (53.80)	1.964 (49.89)
17	1.358 (34.49)	1.406 (35.71)	1.1875 -0.1P-0.3L-TS-2B	1.750 (44.45)	12	1.822 (46.28)	2.148 (54.56)	1.994 (50.65)
19	1.469 (37.31)	1.516 (38.51)	1.2500 -0.1P-0.3L-TS-2B	1.813 (46.05)	14	1.885 (47.88)	2.211 (56.16)	2.057 (52.25)
21	1.594 (40.49)	1.642 (41.71)	1.3750 -0.1P-0.3L-TS-2B	1.950 (49.53)	14	2.023 (51.38)	2.346 (59.59)	2.194 (55.73)
23	1.720 (43.69)	1.768 (44.91)	1.5000 -0.1P-0.3L-TS-2B	2.063 (52.40)	16	2.136 (54.25)	2.459 (62.46)	2.307 (58.60)
25	1.843 (46.81)	1.890 (48.01)	1.6250 -0.1P-0.3L-TS-2B	2.375 (60.33)	17	2.448 (62.18)	2.771 (70.38)	2.619 (66.52)

Cable Entry Code Table							
Code	Entry Size	Code	Entry Size	Code	Entry Size	Code	Entry Size
02	.125 (3.18)	06	.375(9.52)	10	.625(15.88)	14	.875(22.23)
03	.188 (4.78)	07	.438(11.13)	11	.688(17.48)	15	.938(23.83)
04	.250(6.35)	08	.500(12.70)	12	.750(19.05)	16	1.000(25.4)
05	.313(7.95)	09	.563(14.30)	13	.813(20.65)	17	1.063 (27.00)

Cable Exit Code Direction Table															
Code	D°	Code	D°	Code	D°	Code	D°	Code	D°	Code	D°	Code	D°	Code	D°
A	45	D	180	G	315	K	60	N	120	S	195	V	255	Y	330
B	90	E	225	H	15	L	75	P	150	T	210	W	285	Z	345
C	135	F	270	J	30	M	105	R	165	U	240	X	300		

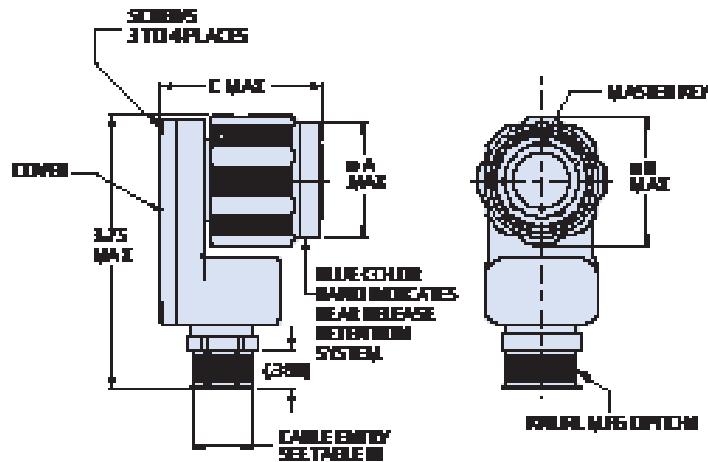
#### NOTES

- 233-221 Plug connector is designed to meet the general mechanical dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/26, and MIL-STD-1560, except as shown and/or noted. Plug mates with and QPL manufacturers receptacles having the same shell size, insert arrangement, polarization, and opposite contact style
- Standard insert arrangements are in accordance with MIL-STD-1560, contact manufacturer for available arrangements. Not all arrangements are available for 233-221 plug connectors.
- Connector is supplied with contacts (including spares), insertion/removal tool and sealing plugs
- Material/finish
  - Barrel, coupling nut, cover: see part number development
  - Insulator: high grade rigid dielectric/N.A.
  - Seals, grommet: fluorosilicone blend/N.A.
  - Contacts: copper alloy/gold plate

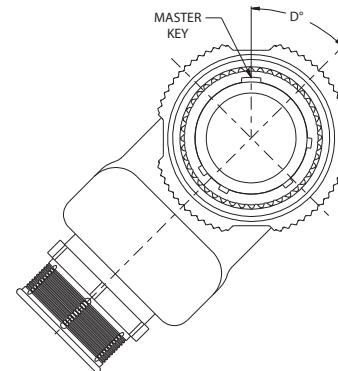
## MIL-DTL-38999 Series III Type

### 233-221 Crimp-contact 90° “Cobra” plug with banding porch

#### 233-221 DIMENSIONS AND CABLE EXIT DIRECTIONS

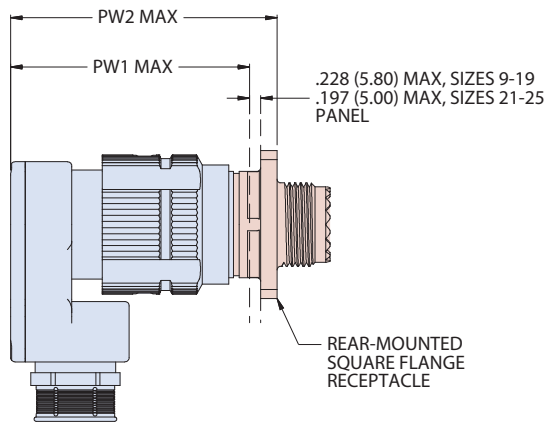


**FIGURE 1**

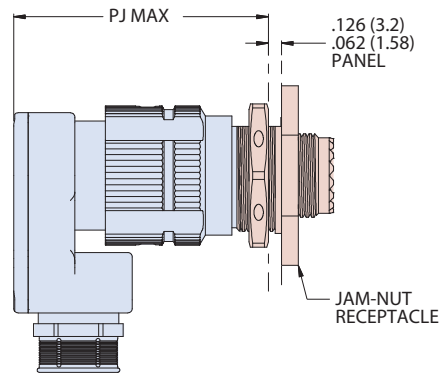


**FIGURE 2**

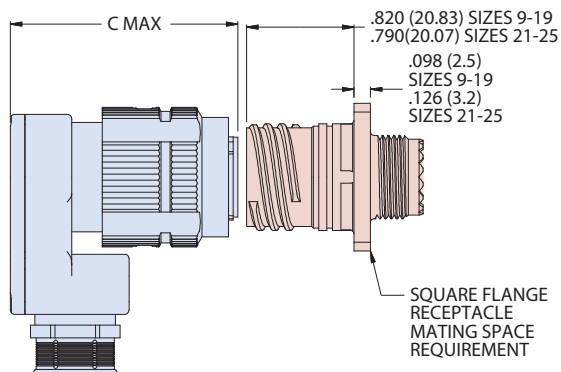
CABLE EXIT DIRECTION  
(DIRECTION A SHOWN)



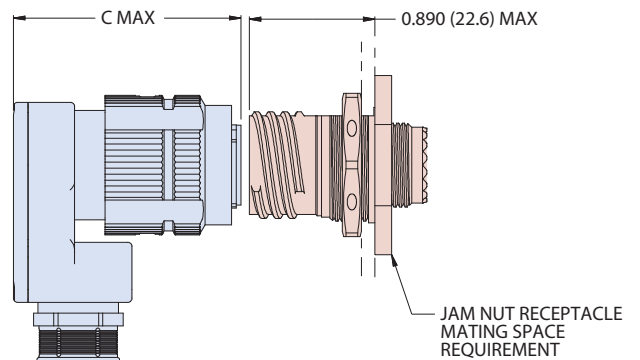
SHOWN MATED  
(SQUARE FLANGE)



SHOWN MATED  
(JAM NUT)



SQUARE FLANGE RECEPTACLE MATING SPACE REQUIREMENT



JAM NUT RECEPTACLE MATING SPACE REQUIREMENT

## MIL-DTL-38999 Series III Type

### 233-215 1K PSI crimp-contact piston-sealed connectors

ENVIRONMENTAL CONNECTORS

Part Number Development						
Sample Part Number	233-215					
Series / Basic Part No.	233-215 = Series 23 SuperNine, Standard MIL-DTL-38999 panel mount configuration					
Rear Accessory Option	See Rear Accessory Option table					
Connector Style*	See Connector Style table					
Finish	NF = Al alloy/cadmium olive drab MT = Al alloy/nickel PTFE		ME = Al alloy/electroless nickel ZR = Al alloy/black zinc nickel		AB = marine bronze/NA Z1 = SST, passivate	
Shell Size-Insert Arrangement*	Per MIL-STD-1560					
Contact Type	P = Pin, gold 1500 cycles S = Socket, gold 1500 cycles		A = Less pin contacts B = Less socket onctacts		H = Pin, Pd/Ni 1500 cycles J = Socket, Pd/Ni 1500 cycles	
Alternate Polarization	V, W, X, Y, Z, T = Normal (IAW MIL-DTL-38999 Series III); see key or keyway position tables					

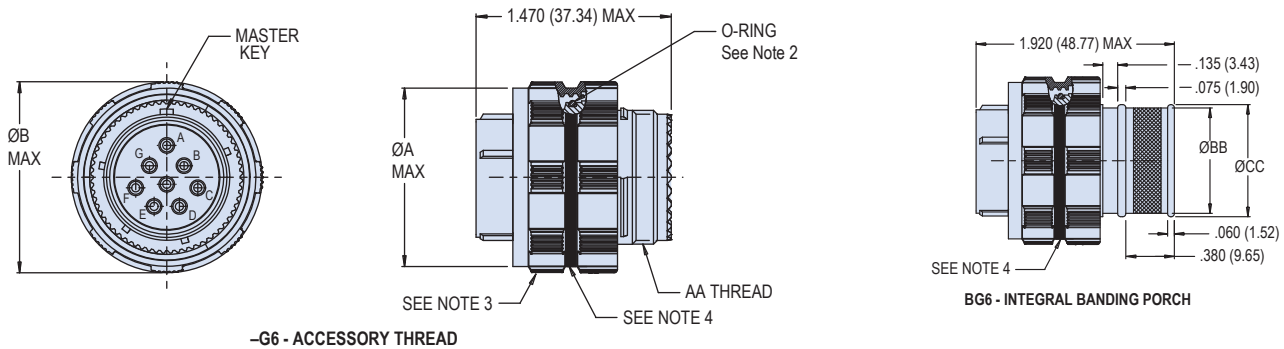
\*Refer to Section A for complete details

Rear Accessory Option	
Sym	Description
-	Accessory thread and teeth
B	Integral backshell, boot adaptor

Panel Mount Options	
Sym	Description
-	Standard MIL-DTL-38999 panel mount configuration

Connector Style	
Sym	Description
G6	Plug with EMI spring (D38999/26 type)
05	Inline receptacle
07	Jam nut receptacle (D38999/24 type)
HM	Wall mount receptacle with metric helicoils
HS	Wall mount receptacle with standard helicoils

### G6 AND BG6 PISTON SEAL PLUG, ACCESSORY THREAD OR INTEGRAL BACKSHELL



Plug requires a special protective cover to accommodate O-Ring seal. See Part Number 239-200 in accessories, section H of this catalog.

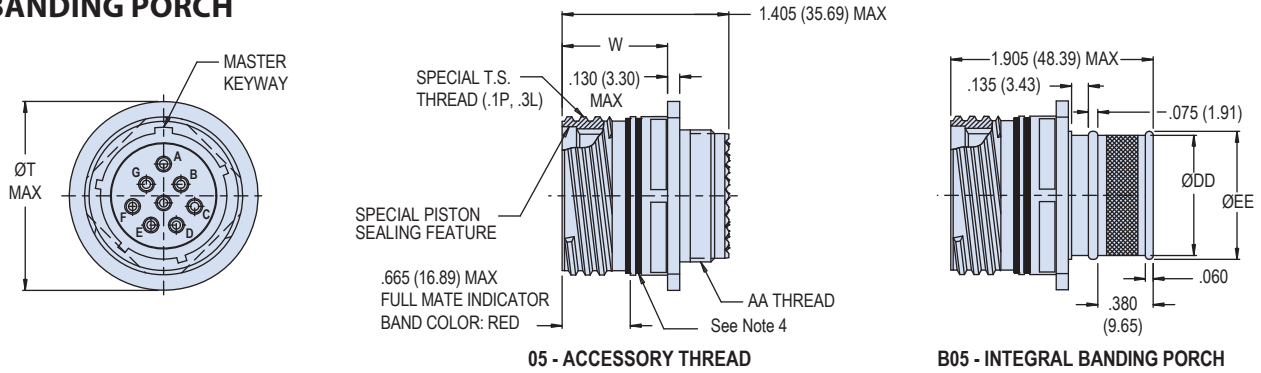
Plug Dimensions			
Shell Size	ØA	ØB	AA Thread
9	.815 (20.70)	.875 (22.23)	M12 X 1.0-6g 0.100R
11	.928 (23.57)	.988 (25.10)	M15 X 1.0-6g 0.100R
13	1.089 (27.66)	1.149 (29.18)	M18 X 1.0-6g 0.100R
15	1.214 (30.84)	1.274 (32.36)	M22 X 1.0-6g 0.100R
17	1.367 (34.72)	1.427 (36.25)	M25 X 1.0-6g 0.100R
19	1.464 (37.19)	1.524 (38.71)	M28 X 1.0-6g 0.100R
21	1.589 (40.36)	1.649 (41.88)	M31 X 1.0-6g 0.100R
23	1.714 (43.54)	1.774 (45.06)	M34 X 1.0-6g 0.100R
25	1.839 (46.71)	1.899 (48.23)	M37 X 1.0-6g 0.100R

Integral Backshell Dimensions		
Shell Size	ØBB	ØCC
9	.420 (10.67)	.465 (11.81)
11	.550 (13.97)	.595 (15.11)
13	.670 (17.02)	.715 (18.16)
15	.815 (20.70)	.860 (21.84)
17	.945 (24.00)	.990 (25.15)
19	1.050 (26.67)	1.100 (27.94)
21	1.170 (29.72)	1.220 (30.99)
23	1.290 (32.77)	1.340 (34.04)
25	1.400 (35.56)	1.450 (36.83)

## MIL-DTL-38999 Series III Type

### 233-215 1K PSI crimp-contact piston-sealed connectors

#### 05 AND B05 PISTON SEAL BANDING PORCH RECEPTACLE, ACCESSORY THREAD OR INTEGRAL BANDING PORCH



05 - ACCESSORY THREAD

B05 - INTEGRAL BANDING PORCH

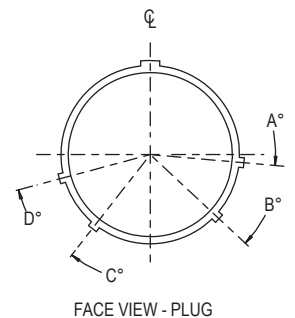
In-line with Integral Backshell Dimensions			
Shell Size	ØT MAX	W	AA THREAD
9	.858 (21.79)	.965 (24.51) .916 (23.27)	M12 X 1.0-6g 0.100R
11	.984 (24.99)		M15 X 1.0-6g 0.100R
13	1.157 (29.39)		M18 X 1.0-6g 0.100R
15	1.280 (32.51)		M22 X 1.0-6g 0.100R
17	1.406 (35.71)		M25 X 1.0-6g 0.100R
19	1.516 (38.51)		M28 X 1.0-6g 0.100R
21	1.642 (41.71)	.935 (23.75) .886 (22.50)	M31 X 1.0-6g 0.100R
23	1.768 (44.91)		M34 X 1.0-6g 0.100R
25	1.890 (48.01)		M37 X 1.0-6g 0.100R

In-line with Integral Backshell Dimensions		
Shell Size	ØDD	ØEE
	In	In
9	.475 (12.07)	.538 (13.67)
11	.600 (15.24)	.662 (16.81)
13	.700 (17.78)	.762 (19.35)
15	.835 (21.21)	.898 (22.81)
17	.960 (24.38)	1.022 (25.96)
19	1.062 (26.97)	1.125 (28.58)
21	1.188 (30.18)	1.250 (31.75)
23	1.275 (32.39)	1.338 (33.99)
25	1.475 (37.47)	1.538 (39.07)

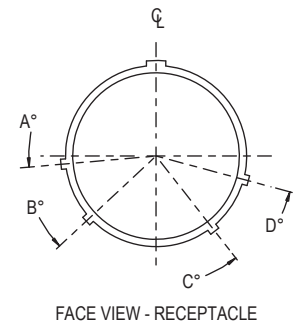
#### NOTES

- 233-215 is designed to meet the general requirements of D38999/20, /24 & /26 and MIL-STD-1560
  - Receptacles can be installed into standard panel cutouts.
  - Ingress protection IP68 or better expected
  - Connector accessory threads accept standard backshells
  - Connector accepts standard AS39029 type contacts
  - Connectors cannot be mated to standard MIL-DTL-38999 connectors or protective covers
- 233-215 piston seal interface is rated to 1000 PSI water submersion (2300 FT/700m) when fully mated or protected with 239-200 cover. Cable sealing and panel sealing capability dependent on customer installation
- Use with 233PS215 wall mount receptacle with dual O-ring sealing and tapped hole mounting for improved sealing
- Blue band indicates rear release retention system
- Supplied with contacts (including spares) and insertion/removal tool.
- Material/finish
  - Shell, barrel, coupling nut, jam-nut: see P/N development
  - Ratchet Ring, Detent spring: Stainless steel/passivated
  - insulator: high grade rigid dielectric/N.A.
  - Seals, grommet: fluorosilicone blend/N.A.
  - Contacts: copper alloy / see part P/N development

Key Positions (Plug)				
Alternate Key Code	A°	B°	C°	D°
T	95	135	220	275
V	92	127	253	325
W	70	113	235	322
X	35	135	210	285
Y	54	150	239	314
Z	81	126	202	250



Keyway Positions (Receptacle)				
Alternate Key Code	A°	B°	C°	D°
T	95	135	220	275
V	92	127	253	325
W	70	113	235	322
X	35	135	210	285
Y	54	150	239	314
Z	81	126	202	250



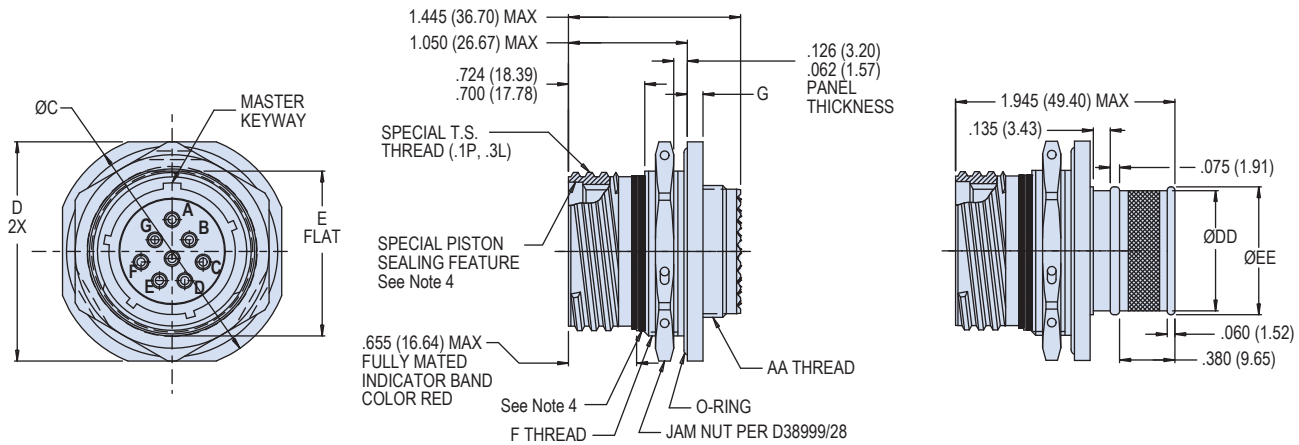


## MIL-DTL-38999 Series III Type

### 233-215 1K PSI crimp-contact piston-sealed connectors

ENVIRONMENTAL CONNECTORS

#### -07 AND B07 PISTON SEAL JAM NUT RECEPTACLE, WITH ACCESSORY THREADS OR INTEGRAL BANDING PORCH

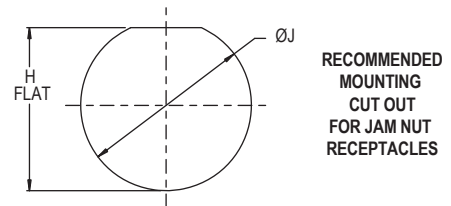


07 - ACCESSORY THREAD

B07 - INTEGRAL BANDING PORCH

Jam Nut Dimensions							
Shell Size	ØC	D	E Flat	F Thread	AA Thread	G	
9	1.200 (30.48)	1.078 (27.38)	.655 (16.64)	M17 X 1.0	M12 X 1.0	.122 (3.10) .083 (2.11)	
	1.178 (29.92)	1.048 (26.62)	.645 (16.38)	-6g 0.100R	-6g 0.100R		
11	1.386 (35.20)	1.268 (32.21)	.755 (19.18)	M20 X 1.0	M15 X 1.0		
	1.362 (34.59)	1.236 (31.39)	.745 (18.92)	-6g 0.100R	-6g 0.100R		
13	1.512 (38.40)	1.390 (35.31)	.942 (23.93)	M25 X 1.0	M18 X 1.0		
	1.488 (37.80)	1.358 (34.49)	.932 (23.67)	-6g 0.100R	-6g 0.100R		
15	1.638 (41.61)	1.516 (38.51)	1.066 (27.08)	M28 X 1.0	M22 X 1.0		
	1.614 (41.00)	1.484 (37.69)	1.056 (26.82)	-6g 0.100R	-6g 0.100R		
17	1.764 (44.81)	1.642 (41.71)	1.191 (30.25)	M32 X 1.0	M25 X 1.0		
	1.740 (44.20)	1.610 (40.89)	1.181 (30.00)	-6g 0.100R	-6g 0.100R		
19	1.949 (49.50)	1.827 (46.41)	1.316 (33.43)	M35 X 1.0	M28 X 1.0		.153 (3.89) .114 (2.90)
	1.925 (48.90)	1.795 (45.59)	1.306 (33.17)	-6g 0.100R	-6g 0.100R		
21	2.075 (52.71)	1.953 (49.61)	1.441 (36.60)	M38 X 1.0	M31 X 1.0		
	2.051 (52.10)	1.921 (48.79)	1.431 (36.35)	-6g 0.100R	-6g 0.100R		
23	2.201 (55.91)	2.079 (52.81)	1.566 (39.78)	M41 X 1.0	M34 X 1.0		
	2.177 (55.30)	2.047 (51.99)	1.556 (39.52)	-6g 0.100R	-6g 0.100R		
25	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	M44 X 1.0	M37 X 1.0		
	2.299 (58.39)	2.173 (55.19)	1.681 (42.70)	-6g 0.100R	-6g 0.100R		

Integral Banding Porch Dimensions		
Shell Size	ØC	D
9	.475 (12.07)	.538 (13.67)
11	.600 (15.24)	.662 (16.81)
13	.700 (17.78)	.762 (19.35)
15	.835 (21.21)	.898 (22.81)
17	.960 (24.38)	1.022 (25.96)
19	1.062 (26.97)	1.125 (28.58)
21	1.188 (30.18)	1.250 (31.75)
23	1.275 (32.39)	1.338 (33.99)
25	1.475 (37.47)	1.538 (39.07)



Panel Cut Out Dims.		
Shell Size	H Flat	ØJ
9	.703 (17.86)	.657 (16.69)
	.693 (17.60)	.648 (16.46)
11	.835 (21.21)	.771 (19.58)
	.825 (20.96)	.761 (19.33)
13	1.020 (25.91)	.955 (24.26)
	1.010 (25.65)	.945 (24.00)

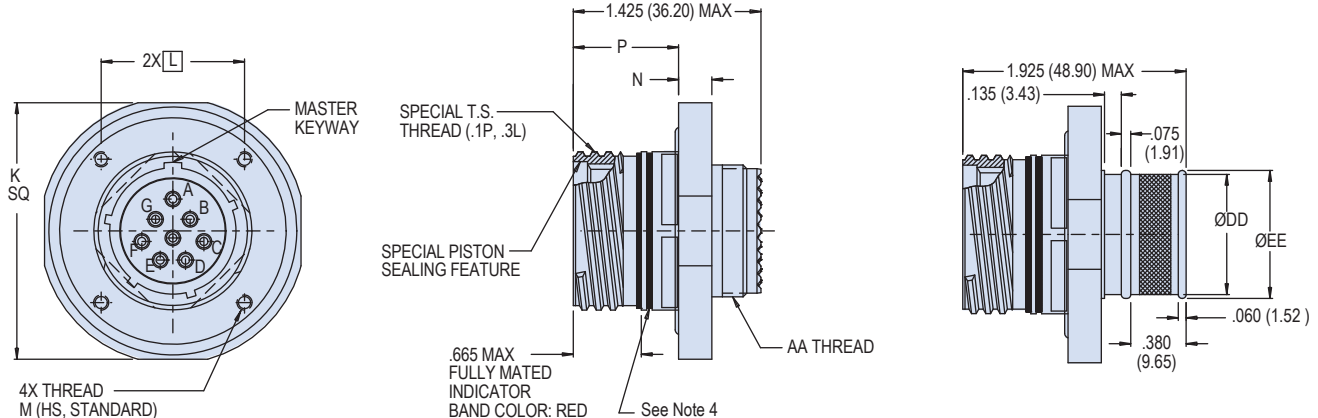
Panel Cut Out Dims.		
Shell Size	H Flat	ØJ
15	1.145 (29.08)	1.085 (27.56)
	1.135 (28.83)	1.075 (27.30)
17	1.270 (32.26)	1.210 (30.73)
	1.260 (32.00)	1.200 (30.48)
19	1.395 (35.43)	1.335 (33.91)
	1.385 (35.18)	1.325 (33.65)

Panel Cut Out Dims.		
Shell Size	H Flat	ØJ
21	1.520 (38.61)	1.460 (37.08)
	1.510 (38.35)	1.450 (36.83)
23	1.645 (41.78)	1.585 (40.26)
	1.635 (41.53)	1.575 (40.00)
25	1.770 (44.96)	1.710 (43.43)
	1.760 (44.70)	1.700 (43.18)

## MIL-DTL-38999 Series III Type

### 233-215 1K PSI crimp-contact piston-sealed connectors

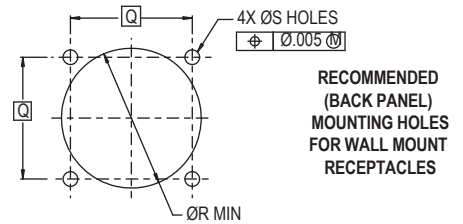
#### -HS, -HM, BHS AND BHM PISTON SEAL WALL MOUNT RECEPTACLE, WITH ACCESSORY THREAD OR INTEGRAL BANDING PORCH



**ACCESSORY THREAD**  
**HS - STANDARD HELICOILS**  
**HM - METRIC HELICOILS**

**INTEGRAL BANDING PORCH**  
**BHS - STANDARD HELICOIL**  
**BHM - METRIC HELICOIL**

Wall Mount Dimensions																							
Shell Size	K SQ	L BSC	M THD	M' THD	N	P	AA Thread																
9	1.516 (38.51)	.719 (18.26)	#4-40 UNC-2B ↓.220 (5.59)	M3-0.5 ↓.225 (5.72) ↓.220 (5.59)	.285 (7.24) .250 (6.35)	.968 (24.59) .913 (23.19)	M12 X 1.0 -6g 0.100R																
	1.484 (37.69)	.812 (20.62)					M15 X 1.0 -6g 0.100R																
11	1.642 (41.71)	.812 (20.62)					.275 (6.99) ↓.270 (6.86)	.350 (8.89) .315 (8.00)	.936 (23.77) .881 (22.38)	M18 X 1.0 -6g 0.100R													
	1.610 (40.89)	1.062 (26.97)								M22 X 1.0 -6g 0.100R													
13	1.827 (46.41)	.906 (23.01)					#6-32 UNC-2B ↓.275 (6.99) ↓.270 (6.86)	M4X0.7 ↓.275 (6.99) ↓.270 (6.86)	.350 (8.89) .315 (8.00)	.936 (23.77) .881 (22.38)	M25 X 1.0 -6g 0.100R												
	1.795 (45.59)	1.156 (29.36)									M28 X 1.0 -6g 0.100R												
15	1.953 (49.61)	.969 (24.61)									M4X0.7 ↓.275 (6.99) ↓.270 (6.86)	.350 (8.89) .315 (8.00)	.936 (23.77) .881 (22.38)	.936 (23.77) .881 (22.38)	M31 X 1.0 -6g 0.100R								
	1.921 (48.79)	1.250 (31.75)													M34 X 1.0 -6g 0.100R								
17	2.079 (52.81)	1.062 (26.97)													M4X0.7 ↓.275 (6.99) ↓.270 (6.86)	.350 (8.89) .315 (8.00)	.936 (23.77) .881 (22.38)	.936 (23.77) .881 (22.38)	M37 X 1.0 -6g 0.100R				
	2.047 (51.99)	1.375 (34.92)																	M37 X 1.0 -6g 0.100R				
19	2.205 (56.01)	1.156 (29.36)	M4X0.7 ↓.275 (6.99) ↓.270 (6.86)	.350 (8.89) .315 (8.00)	.936 (23.77) .881 (22.38)	.936 (23.77) .881 (22.38)													M37 X 1.0 -6g 0.100R				
	2.173 (55.19)	1.500 (38.10)																	M37 X 1.0 -6g 0.100R				
21	2.334 (59.28)	1.250 (31.75)																	M4X0.7 ↓.275 (6.99) ↓.270 (6.86)	.350 (8.89) .315 (8.00)	.936 (23.77) .881 (22.38)	.936 (23.77) .881 (22.38)	M37 X 1.0 -6g 0.100R
	2.302 (58.47)	1.500 (38.10)																					M37 X 1.0 -6g 0.100R
23	2.522 (64.06)	1.375 (34.92)					M4X0.7 ↓.275 (6.99) ↓.270 (6.86)	.350 (8.89) .315 (8.00)	.936 (23.77) .881 (22.38)	.936 (23.77) .881 (22.38)													M37 X 1.0 -6g 0.100R
	2.490 (63.25)	1.500 (38.10)																					M37 X 1.0 -6g 0.100R
25	2.709 (68.81)	1.500 (38.10)									M4X0.7 ↓.275 (6.99) ↓.270 (6.86)	.350 (8.89) .315 (8.00)	.936 (23.77) .881 (22.38)	.936 (23.77) .881 (22.38)									M37 X 1.0 -6g 0.100R
	2.677 (68.00)	1.500 (38.10)																					M37 X 1.0 -6g 0.100R



Panel Cut Out Dims.			
Shell Size	Q BSC	ØR MIN	ØS HOLES
9	.719 (18.26)	.656 (16.66)	
11	.812 (20.62)	.796 (20.22)	.133 (3.38)
13	.906 (23.01)	.922 (23.42)	.123 (3.12)
15	.969 (24.61)	1.047 (26.59)	

Panel Cut Out Dims.			
Shell Size	Q BSC	ØR MIN	ØS HOLES
17	1.062 (26.97)	1.219 (30.96)	
19	1.156 (29.36)	1.297 (32.94)	.133 (3.38)
21	1.250 (31.75)	1.422 (36.12)	.123 (3.12)

Panel Cut Out Dims.			
Shell Size	Q BSC	ØR MIN	ØS HOLES
23	1.375 (34.92)	1.547 (39.29)	.159 (4.04) .149 (3.78)
25	1.500 (38.10)	1.672 (42.47)	.155 (3.94) .145 (3.68)

## MIL-DTL-38999 Series III Type

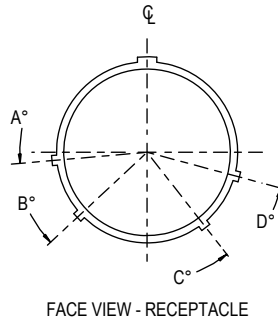
### 233PS215 1K PSI wall-mount receptacle with panel seal

ENVIRONMENTAL CONNECTORS

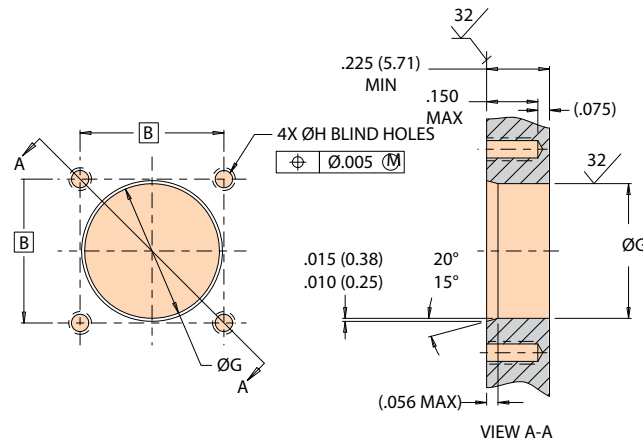
Part Number Development									
Sample Part Number	233PS215				G6	NF	17-8	P	T
Series / Basic Part No.	233PS215 = Improved panel sealing, Series 23 SuperNine with piston seal								
Connector Style*	D0 = Wall mount receptacle with round holes								
Finish	NF = Al alloy/Cadmium Olive Drab MT = Al alloy/Nickel PTFE		ME = Al alloy/electroless Nickel ZR = Al alloy/Black Zinc Nickel		AB = Marine Bronze/NA Z1 = SST, passivate				
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	P = Pin, gold 1500 cycles S = Socket, gold 1500 cycles		A = Less pin contacts B = Less socket contacts		H = Pin, Pd/Ni 1500 cycles J = Socket, Pd/Ni 1500 cycles				
Alternate Polarization	V, W, X, Y, Z, T = Normal (IAW MIL-DTL-38999 Series III); see key or keyway position tables								

\*Refer to Section A for complete details

Keyway Positions (Receptacle)				
Alternate Keyway Code	A°	B°	C°	D°
T	95	135	220	275
V	92	127	253	325
W	70	113	235	322
X	35	135	210	285
Y	54	150	239	314
Z	81	126	202	250



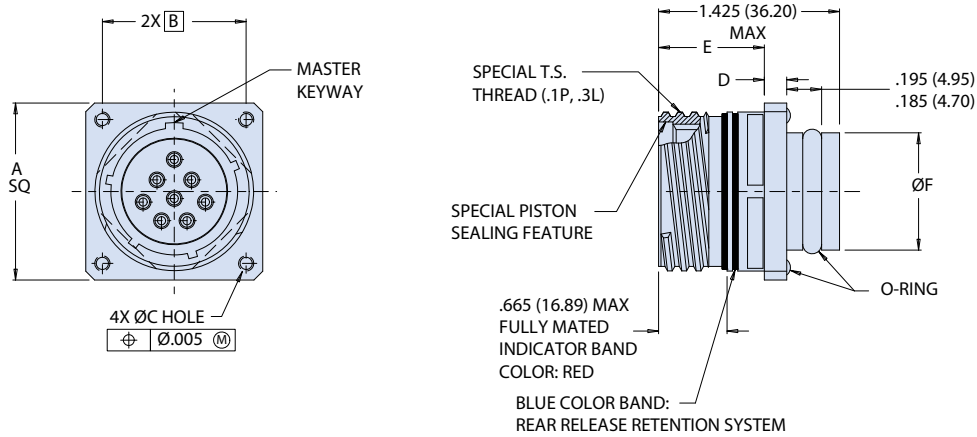
Mounting Holes			
Shell Size	B BSC	ØG	ØH Holes
09	.719 (18.26)	.564 (14.33) .562 (14.27)	#4-40 0.150 MAX
11	.812 (20.62)	.689 (17.50) .687 (17.45)	
13	.906 (23.01)	.814 (20.68) .812 (20.62)	
15	.969 (24.61)	.939 (23.85) .937 (23.80)	
17	1.062 (26.97)	1.064 (27.03) 1.062 (26.97)	
19	1.156 (29.36)	1.189 (30.20) 1.187 (30.15)	
21	1.250 (31.75)	1.252 (31.80) 1.250 (31.75)	
23	1.375 (34.92)	1.377 (34.98) 1.375 (34.92)	#6-32 0.150 MAX
25	1.500 (38.10)	1.502 (38.15) 1.500 (38.10)	



## MIL-DTL-38999 Series III Type

### 233PS215 1K PSI piston sealed wall-mount receptacle, panel sealed

#### PISTON SEALED WALL MOUNT RECEPTACLE WITH IMPROVED PANEL SEALING, AND CRIMP CONTACTS



D0 - WALL MOUNT RECEPTACLE, WITH ROUND HOLES, FLAT BACK

#### NOTES

- 233PS215 receptacle is designed to meet the general requirements of D38999/20 and MIL-STD-1560
  - Panel sealed wall mount receptacle requires special panel cutout.
  - Connector accessory threads accept standard backshells
  - Connector accepts standard AS39029 type contacts
  - Connectors cannot be mated to standard MIL-DTL-38999 plugs or protective covers
- 233PS215 piston seal interface is rated to 1000 PSI water submersion (2300 FT/700m) when fully mated or protected with 239-200 cover. Cable sealing and panel sealing capability dependent on customer installation
- Supplied with contacts (including spares) and insertion/removal tool.
- Material/finish
  - Shell: see part number development
  - Insulator: high grade rigid dielectric/ N.A.
  - seals grommet: fluorosilicone blend/N.A.
  - Contacts: copper alloy/see part number development

Dimensions									
Shell Size	A SQ	B BSC	ØC	D	E	ØF			
09	.949 (24.10)	.719 (18.26)	.136 (3.45) .120 (3.05)	.122 (3.10) .083 (2.11)	.968 (24.59)	.560 (14.22)			
	.925 (23.50)					.559 (14.20)			
11	1.043 (26.49)	.812 (20.62)				.935 (23.75)	.913 (23.19)	.685 (17.40)	
	1.020 (25.91)							.684 (17.37)	
13	1.138 (28.91)	.906 (23.01)				.120 (3.05)	.083 (2.11)	.913 (23.19)	.810 (20.57)
	1.114 (28.30)								.809 (20.55)
15	1.232 (31.29)	.969 (24.61)				.120 (3.05)	.083 (2.11)	.913 (23.19)	.934 (23.72)
	1.209 (30.71)								.934 (23.72)
17	1.323 (33.60)	1.062 (26.97)				.120 (3.05)	.083 (2.11)	.913 (23.19)	1.060 (26.92)
	1.299 (32.99)								1.059 (26.90)
19	1.449 (36.80)	1.156 (29.36)	.120 (3.05)	.083 (2.11)	.913 (23.19)	1.185 (30.10)			
	1.425 (36.20)					1.184 (30.07)			
21	1.575 (40.00)	1.250 (31.75)	.120 (3.05)	.083 (2.11)	.913 (23.19)	1.248 (31.70)			
	1.551 (39.40)					1.247 (31.67)			
23	1.701 (43.21)	1.375 (34.92)	.162 (4.11) .146 (3.71)	.153 (3.89) .114 (2.90)	.936 (23.77) .881 (22.38)	1.373 (34.87)			
	1.677 (42.60)					1.372 (34.85)			
25	1.823 (46.30)	1.500 (38.10)	.146 (3.71)	.114 (2.90)	.881 (22.38)	1.498 (38.05)			
	1.799 (45.69)					1.497 (38.02)			



## MIL-DTL-38999 Series III Type

233-274 1K PSI crimp-contact piston-sealed connectors, fuel-resistant

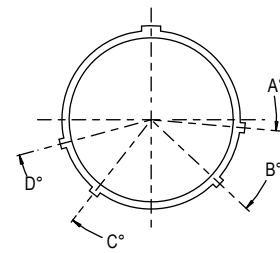
ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	233-274 - G6 NF 17 - 8 P T								
Series / Basic Part No.	233-274 = Improved panel sealing, Series 23 SuperNine with piston seal								
Panel Mount Option	See Panel Mount Option Table								
Connector Style*	G6 = Plug, EMI Spring, (D389999/26 Type) 05 = Receptacle In-Line 07 = Receptacle, Jam-Nut (D38999/24 Type) HM = Receptacle, Wall Mount with Metric Helicoils HS = Receptacle, Wall Mount with Standard Helicoils D0 = Wall mount receptacle with round holes								
Finish	NF = Al alloy/cadmium olive drab      ME = Al alloy/electroless nickel AB = Marine bronze/N.A.                  MT = Al alloy/nickel PTFE ZR = Al alloy/black zinc nickel        Z1 = SST, passivate								
Shell Size	A (9), B (11), C (13), D (15), E (17), F (19), G (21), H (23), J (25)								
Ground Option	G = Common Ground - (Dash) = None								
Insert Arrangements*	Per MIL-STD-1560								
Contact Type	P = Pin, gold over copper alloy      A = Pin insert less contacts      H = Pin, Pd/Ni 1500 cycles S = Socket, gold over copper alloy    B = Socket insert less contacts    J = Socket, Pd/Ni 1500 cycles								
Alternate Polarization	V, W, X, Y, Z, T = Normal (IAW MIL-DTL-38999 Series III); see key or keyway position tables								

\*Refer to Section A for complete details

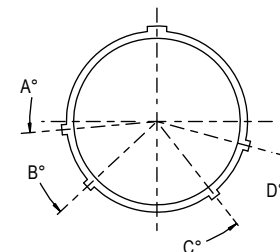
Panel Mount Option	
Code	Description
-	Standard MIL-DTL-38999 Panel Mount Configuration
PS	Improved Panel Sealing (Double O-Ring) Configuration; See 233PS274 Sales Drawing

Key Positions (Plug)				
Alternate Key Code	A°	B°	C°	D°
T	95	135	220	275
V	92	127	253	325
W	70	113	235	322
X	35	135	210	285
Y	54	150	239	314
Z	81	126	202	250



FACE VIEW - PLUG

Keyway Positions (Receptacle)				
Alternate Keyway Code	A°	B°	C°	D°
T	95	135	220	275
V	92	127	253	325
W	70	113	235	322
X	35	135	210	285
Y	54	150	239	314
Z	81	126	202	250

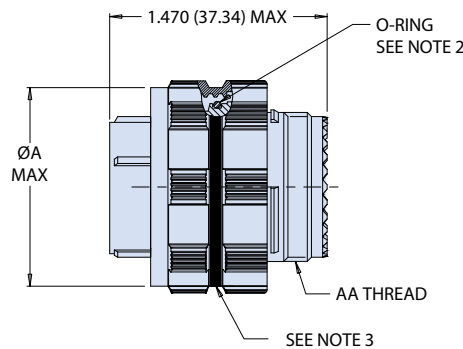
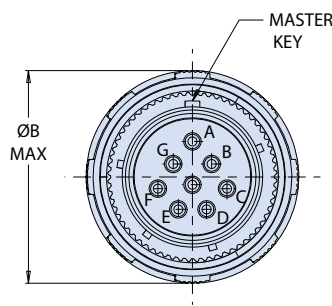


FACE VIEW - RECEPTACLE

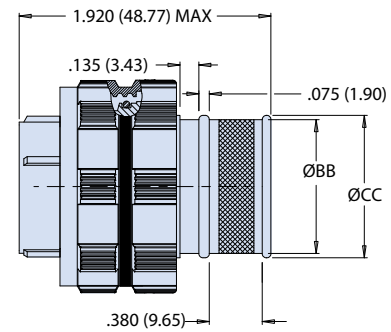
## MIL-DTL-38999 Series III Type

233-274 1K PSI crimp-contact piston-sealed connectors, fuel-resistant

### PISTON SEALED PLUG WITH CRIMP CONTACTS



ACCESSORY THREAD



INTEGRAL BANDING PORCH

Dimensions			
SHELL SIZE	øA MAX	øB MAX	AA THREAD
09	0.815	0.875	M12 X 1.0-6g 0.100R
11	0.928	0.988	M15 X 1.0-6g 0.100R
13	1.089	1.149	M18 X 1.0-6g 0.100R
15	1.214	1.274	M22 X 1.0-6g 0.100R
17	1.367	1.427	M25 X 1.0-6g 0.100R
19	1.464	1.524	M28 X 1.0-6g 0.100R
21	1.589	1.649	M31 X 1.0-6g 0.100R
23	1.714	1.774	M34 X 1.0-6g 0.100R
25	1.839	1.899	M37 X 1.0-6g 0.100R

Band Platform Dimensions			
SHELL SIZE CODE	SHELL SIZE	øBB	øCC
A	9	.420 (10.67)	.465 (11.81)
B	11	.550 (13.97)	.595 (15.11)
C	13	.670 (17.02)	.715 (18.16)
D	15	.815 (20.70)	.860 (21.84)
E	17	.945 (24.00)	.990 (25.15)
F	19	1.050 (26.67)	1.100 (27.94)
G	21	1.170 (29.72)	1.220 (30.99)
H	23	1.290 (32.77)	1.340 (34.04)
J	25	1.400 (35.56)	1.450 (36.83)

#### NOTES

- 233-274 connectors are designed to meet the general requirements of D38999/20, /24, /26 and MIL-STD-1560
  - Glenair 233-274 receptacles can be installed into standard panel cutouts (Note: special panel cutouts required for 233PS274 configuration)
  - Glenair 233-274-\*\*-\*\* connector accessory threads accept standard backshells
  - Glenair 233-274 connectors accept standard AS39029 type contacts
  - Glenair 233-274 connectors cannot be mated to standard MIL-DTL38999 connectors or protective covers
- 233-274 is designed to meet requirements of fuel resistance per MIL-F-8615 and explosion proof test MIL-STD-810, Method 511.7, procedure 1 when full mated or protected with 239-200 dust cover. Cable sealing and panel sealing capability dependent on customer installation. For full performance specification and complete list of compatible fluids, see GT-20-XXXX.
- Blue color band indicates rear release retention system.
- Connector is supplied with contacts (including spares), insertion/removal tool, and sealing plugs where indicated in table III. Consult factory for crimp tools and/or accessory selection.
- Ground plane option only available for insert arrangements where all contacts are shielded type and are ordered less contacts. for use with non-keyed shielded type contact only

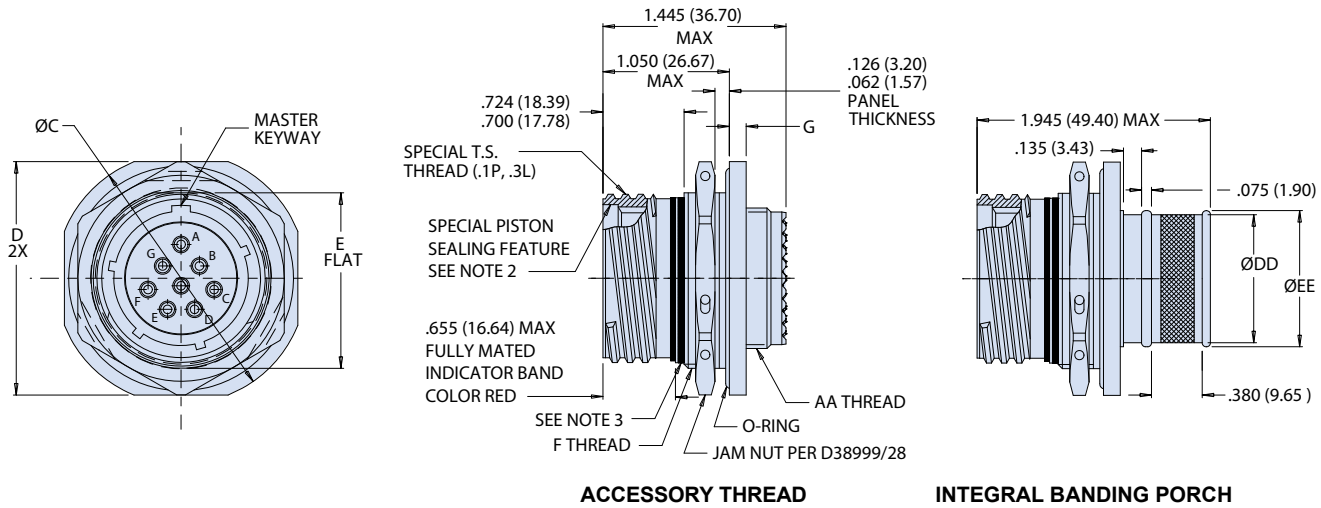
ENVIRONMENTAL CONNECTORS

## MIL-DTL-38999 Series III Type

233-274 1K PSI crimp-contact piston-sealed connectors, fuel-resistant

ENVIRONMENTAL CONNECTORS

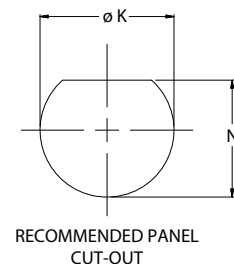
### JAM-NUT RECEPTACLE WITH ACCESSORY THREADS OR BANDING PORCH, CRIMP CONTACTS



Dimensions						
SHELL SIZE	ØC	D	E FLAT	F THREAD	AA THREAD	G
09	1.200 (30.48)	1.078 (27.38)	0.655 (16.64)	M17 X 1.0-6g 0.100R	M12 X 1.0-6g 0.100R	0.122 (3.10) 0.083 (2.11)
	1.178 (29.92)	1.048 (26.62)	0.645 (16.38)			
11	1.386 (35.20)	1.268 (32.21)	0.755 (19.18)	M20 X 1.0-6g 0.100R	M15 X 1.0-6g 0.100R	
	1.362 (34.59)	1.236 (31.39)	0.745 (18.92)			
13	1.512 (38.40)	1.390 (35.31)	0.942 (23.93)	M25 X 1.0-6g 0.100R	M18 X 1.0-6g 0.100R	
	1.488 (37.80)	1.358 (34.49)	0.932 (23.67)			
15	1.638 (41.61)	1.516 (38.51)	1.066 (27.08)	M28 X 1.0-6g 0.100R	M22 X 1.0-6g 0.100R	
	1.614 (41.00)	1.484 (37.69)	1.056 (26.82)			
17	1.764 (44.81)	1.642 (41.71)	1.191 (30.25)	M32 X 1.0-6g 0.100R	M25 X 1.0-6g 0.100R	
	1.740 (44.20)	1.610 (40.89)	1.181 (30.00)			
19	1.949 (49.50)	1.827 (46.41)	1.316 (33.43)	M35 X 1.0-6g 0.100R	M28 X 1.0-6g 0.100R	
	1.925 (48.90)	1.795 (45.59)	1.306 (33.17)			
21	2.075 (52.71)	1.953 (49.61)	1.441 (36.60)	M38 X 1.0-6g 0.100R	M31 X 1.0-6g 0.100R	
	2.051 (52.10)	1.921 (48.79)	1.431 (36.35)			
23	2.201 (55.91)	2.079 (52.81)	1.566 (39.78)	M41 X 1.0-6g 0.100R	M34 X 1.0-6g 0.100R	
	2.177 (55.30)	2.047 (51.99)	1.556 (39.52)			
25	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	M44 X 1.0-6g 0.100R	M37 X 1.0-6g 0.100R	
	2.299 (58.39)	2.173 (55.19)	1.681 (42.70)			

Band Platform Dimensions			
SHELL SIZE CODE	SHELL SIZE	ØDD	ØEE
A	9	.475 (12.07)	.538 (13.67)
B	11	.600 (15.24)	.662 (16.81)
C	13	.700 (17.78)	.762 (19.35)
D	15	.835 (21.21)	.898 (22.81)
E	17	.960 (24.38)	1.022 (25.96)
F	19	1.062 (26.97)	1.125 (28.58)
G	21	1.188 (30.18)	1.250 (31.75)
H	23	1.275 (32.39)	1.338 (33.99)
J	25	1.475 (37.47)	1.538 (39.07)

Jam-Nut Panel Cut-Out Dimensions							
SHELL SIZE CODE	SHELL SIZE	K DIA ±.005	N	SHELL SIZE CODE	SHELL SIZE	K DIA ±.005	N
A	9	.698 (17.73)	.661 (16.79) .656 (16.66)	E	17	1.265 (32.13)	1.205 (30.61)
				F	19	1.390 (35.31)	1.330 (33.78)
B	11	.830 (21.08)	.766 (19.46)	G	21	1.515 (38.48)	1.455 (36.96)
C	13	1.015 (25.78)	.950 (24.13)	H	23	1.640 (41.66)	1.580 (40.13)
D	15	1.140 (28.96)	1.080 (27.43)	J	25	1.765 (44.83)	1.705 (43.31)

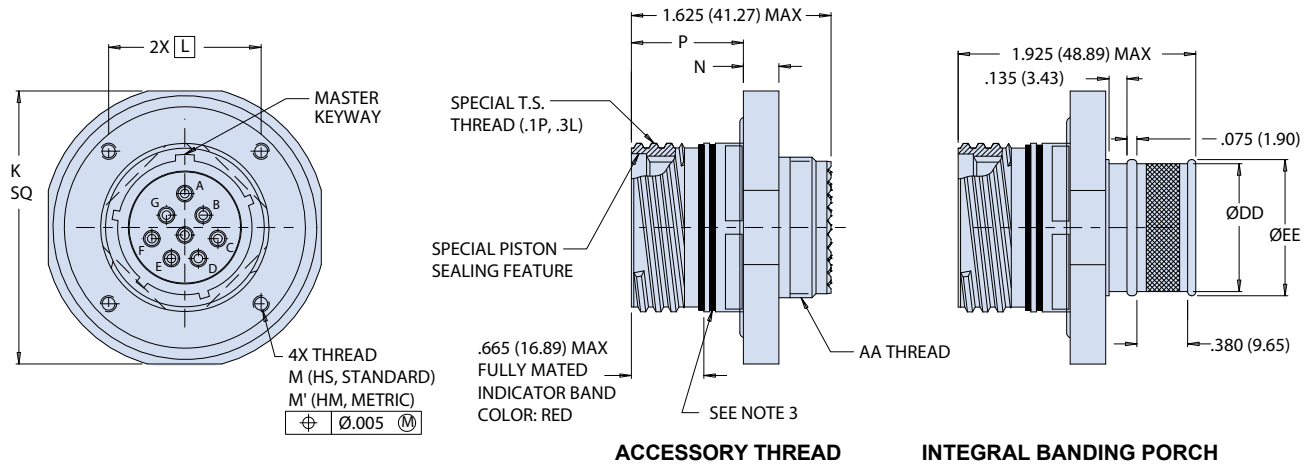


## MIL-DTL-38999 Series III Type

233-274 1K PSI crimp-contact piston-sealed connectors, fuel-resistant

ENVIRONMENTAL CONNECTORS

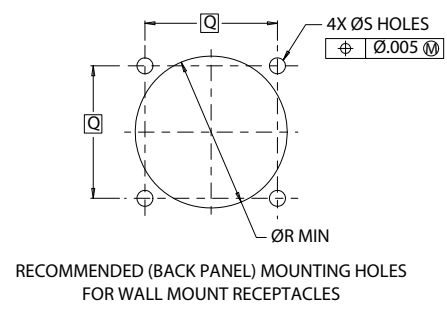
### WALL MOUNT RECEPTACLE WITH ACCESSORY THRDS OR BANDING PORCH, CRIMP CONTACTS



Dimensions							
SHELL SIZE	K SQ	L BSC	M THD	M' THD	N	P	AA THREAD
09	1.516 (38.51) 1.484 (37.69)	0.719 (18.26)	#4-40 UNC-2B ∇0.225 (5.72) 0.220 (5.59)	M3-0.5 ∇0.225 (5.72) 0.220 (5.59)	0.285 (7.24) 0.250 (6.35)	0.968 (24.59) 0.913 (23.19)	M12 X 1.0-6g 0.100R
11	1.642 (41.71) 1.610 (40.89)	0.812 (20.62)					M15 X 1.0-6g 0.100R
13	1.827 (46.41) 1.795 (45.59)	0.906 (23.01)					M18 X 1.0-6g 0.100R
15	1.953 (49.61) 1.921 (48.79)	0.969 (24.61)					M22 X 1.0-6g 0.100R
17	2.079 (52.81) 2.047 (51.99)	1.062 (26.97)					M25 X 1.0-6g 0.100R
19	2.205 (56.01) 2.173 (55.19)	1.156 (29.36)					M28 X 1.0-6g 0.100R
21	2.334 (59.28) 2.302 (58.47)	1.250 (31.75)					0.936 (23.77)
23	2.522 (64.06) 2.490 (63.25)	1.375 (34.92)	#6-32 UNC-2B ∇0.275 (6.99) 0.270 (6.86)	M4X0.7 ∇0.275 (6.99) 0.270 (6.86)	0.350 (8.89) 0.315 (8.00)	0.881 (22.38)	M34 X 1.0-6g 0.100R
25	2.709 (68.81) 2.677 (68.00)	1.500 (38.10)					M37 X 1.0-6g 0.100R

Band Platform Dimensions			
SHELL SIZE CODE	SHELL SIZE	ØDD	ØEE
A	9	.475 (12.07)	.538 (13.67)
B	11	.600 (15.24)	.662 (16.81)
C	13	.700 (17.78)	.762 (19.35)
D	15	.835 (21.21)	.898 (22.81)
E	17	.960 (24.38)	1.022 (25.96)
F	19	1.062 (26.97)	1.125 (28.58)
G	21	1.188 (30.18)	1.250 (31.75)
H	23	1.275 (32.39)	1.338 (33.99)
J	25	1.475 (37.47)	1.538 (39.07)

Wall Mount Panel Cut-Out Dimensions							
SHELL SIZE	Q BSC	ØR MIN	ØS HOLES	SHELL SIZE	Q BSC	ØR MIN	ØS HOLES
09	0.719 (18.26)	0.656 (16.66)	0.133 (3.38) 0.123 (3.12)	19	1.156 (29.36)	1.297 (32.94)	0.133 (3.38)
11	0.812 (20.62)	0.796 (20.22)		21	1.250 (31.75)	1.422 (36.12)	0.123 (3.12)
13	0.906 (23.01)	0.922 (23.42)		23	1.375 (34.92)	1.547 (39.29)	0.159 (4.04) 0.149 (3.78)
15	0.969 (24.61)	1.047 (26.59)		25	1.500 (38.10)	1.672 (42.47)	0.155 (3.94)
17	1.062 (26.97)	1.219 (30.96)					0.145 (3.68)

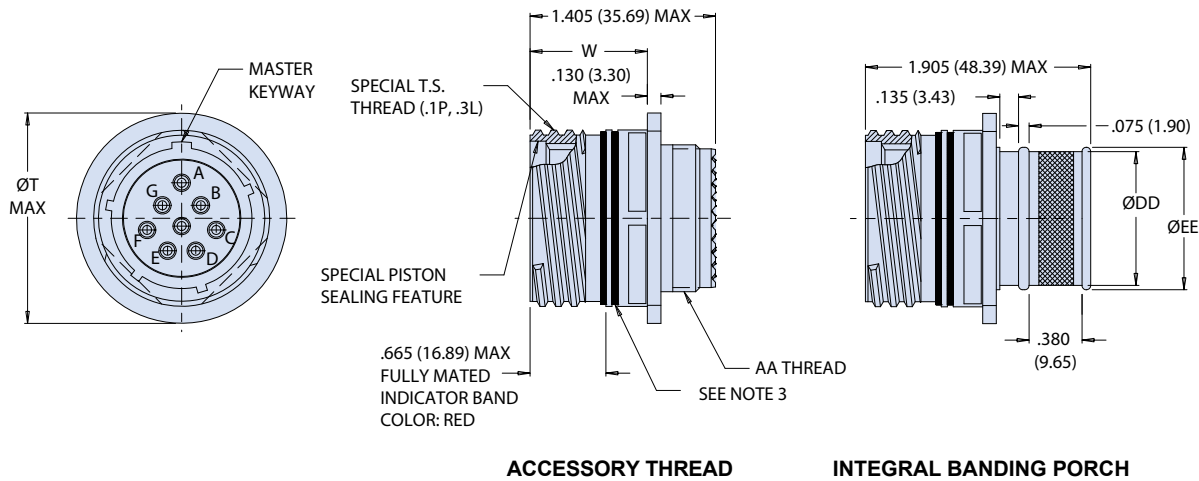


## MIL-DTL-38999 Series III Type

233-274 1K PSI crimp-contact piston-sealed connectors, fuel-resistant

ENVIRONMENTAL CONNECTORS

### IN-LINE RECEPTACLE WITH ACCESSORY THREADS OR BANDING PORCH, CRIMP CONTACTS



Dimensions			
Shell Size	ØT Max	W	AA Thread
09	0.858 (21.79)	0.965 (24.51) 0.916 (23.27)	M12 X 1.0-6g 0.100R
11	0.984 (24.99)		M15 X 1.0-6g 0.100R
13	1.157 (29.39)		M18 X 1.0-6g 0.100R
15	1.280 (32.51)		M22 X 1.0-6g 0.100R
17	1.406 (35.71)		M25 X 1.0-6g 0.100R
19	1.516 (38.51)	0.935 (23.75) 0.886 (22.50)	M28 X 1.0-6g 0.100R
21	1.642 (41.71)		M31 X 1.0-6g 0.100R
23	1.768 (44.91)		M34 X 1.0-6g 0.100R
25	1.890 (48.01)		M37 X 1.0-6g 0.100R

Band Platform Dimensions			
Shell Size Code	Shell Size	øDD	øEE
A	9	.475 (12.07)	.538 (13.67)
B	11	.600 (15.24)	.662 (16.81)
C	13	.700 (17.78)	.762 (19.35)
D	15	.835 (21.21)	.898 (22.81)
E	17	.960 (24.38)	1.022 (25.96)
F	19	1.062 (26.97)	1.125 (28.58)
G	21	1.188 (30.18)	1.250 (31.75)
H	23	1.275 (32.39)	1.338 (33.99)
J	25	1.475 (37.47)	1.538 (39.07)



**MIL-DTL-38999 Series III type**  
**233-393 USB 2.0 Memory Stick, 11 - 35 Arrangement**

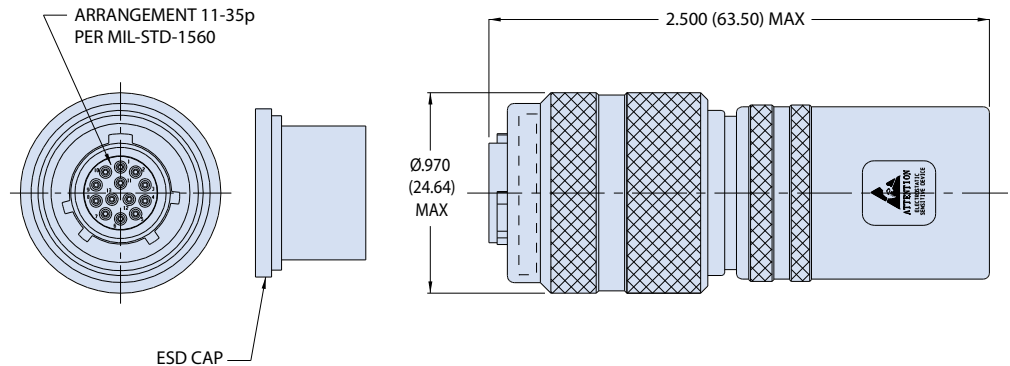
ENVIRONMENTAL CONNECTORS



Part Number Development					
Sample Part Number	233-393	NF	128	11	P N
Series / Basic Part No.	233-393 = SuperNine Memory Stick				
Finish	NF = Al alloy/cadmium olive drab ZR = Al alloy/black zinc nickel MT = Al alloy/nickel PTFE ME = Al alloy/electroless nickel Consult factory for additional finish options				
Storage Capacity Options (SLC)	64 = 64 GB 128 = 128 GB 256 = 256 GB				
Shell Size	11 = Shell Size 11				
Contact Type	P = Pin S = Socket				
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)				

\*Refer to Section A for complete details

11-35 Arrangement, Pin Assignment		
Pin	Name	Description
1	(D+)	Data +
2	(V Bus)	+5V
3	NC	(Dummy)
4	NX	(Dummy)
5	NC	(Dummy)
6	(GND)	Ground
7	NC	(Dummy)
8	NC	(Dummy)
9	NC	(Dummy)
10	(D-)	Data -
11	NC	(Dummy)
12	NC	(Dummy)
13	NC	(Dummy)



**NOTES**

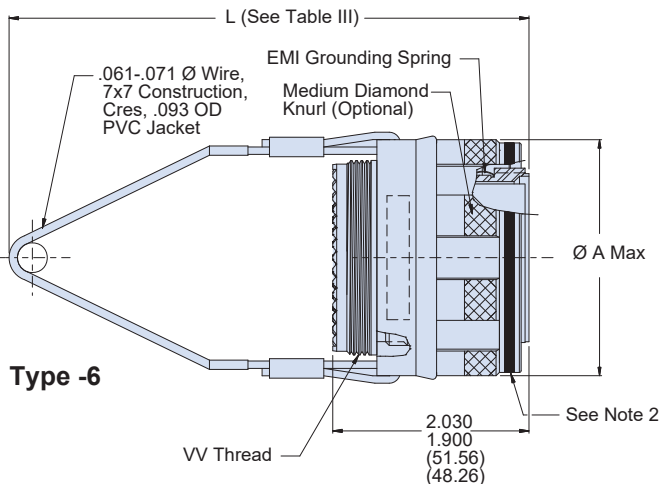
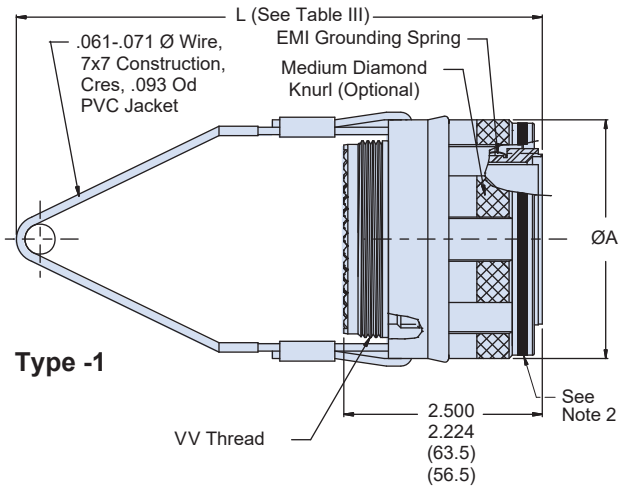
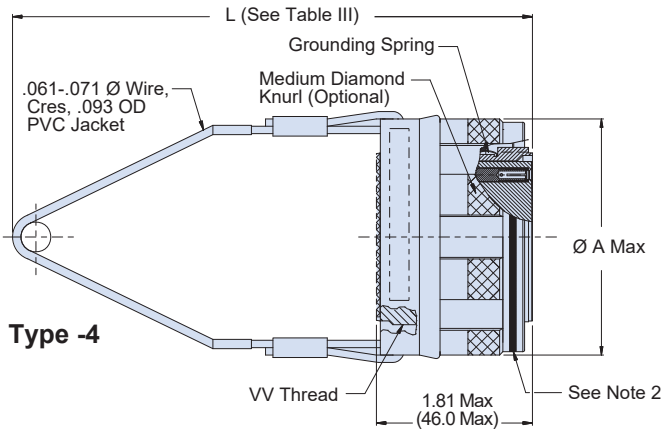
- Parts to be shipped with ESD caps (CEC-010) installed
- USB memory specifications:
  - Storage capacity: 64 GB, 128 GB, 256 GB
  - Compatible with:
    - Windows 7, Vista, XP, 2000, ME, 98SE
    - Linux Kernel 2.4 and above
    - Mac OS 9.x and above
  - Interface: D38999, Series III
  - Data Transfer Rate: up to 480 Mb/sec.
  - Write protection and AES encryption at host level
  - MTBF: more than 2,000,000 hours (dependent on configuration and testing environment)
  - Data retention: 10 years
- Environmental parameters:
  - Operating temperature 0°C to 70°C (MLC commercial)
  - Storage temperatures: -50°C to +85°C
  - Humidity: 5% to 95% non-condensing
- Material and finish
  - Barrel, coupling nut, locking: see how to order table
  - Insulators: high grade rigid dielectric/NA
  - EMI grounding spring: BeCu / electroless nickel plate

## MIL-DTL-38999 Series III Type 233-216 Lanyard-release plug

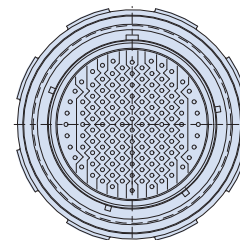
ENVIRONMENTAL CONNECTORS

Part Number Development								
Sample Part Number	233-216	-G6	ME	25-35	S	A	E	-4
Series / Basic Part No.	233-216 = Lanyard Release Plug							
Connector Style*	G6 = Plug with EMI Spring							
Finish	NF = Aluminum Alloy, Olive Drab-Cad over Nickel ZL = CRES, Electrodeposited Nickel Z1 = CRES, Passivated ME = Aluminum Alloy, Eletroless Nickel Consult factory for additional finish options							
Shell Size-Insert Arrangement*	Per MIL-STD-1560							
Contact Type	P = Pin S = Socket A = Pin Insert, Less Contact B = Socket Insert, Less Contact							
Alternate Key Position*	A, B, C, D, E, N = Normal (Per MIL-DTL-38999 Series III)							
Lanyard Length Code	See Lanyard Length Table							
Connector Type	1 = Type 1 4 = Type 4 6 = Type 6							

\*Refer to Section A for complete details



Insert arrangement is for reference only



**MIL-DTL-38999 Series III Type  
233-216 Lanyard-release plug**

**G6 - LANYARD RELEASE PLUG**

Dimensions			
Shell Size	Shell Size Code	ØA ±.06	VV Thread
9*	A	Consult Factory	M12 x1-6g-0.100R
11	B	1.180 (29.97)	M15 x1-6g-0.100R
13	C	1.310 (33.27)	M18 x1-6g-0.100R
15	D	1.437 (36.50)	M22 x1-6g-0.100R
17	E	1.560 (39.62)	M25 x1-6g-0.100R
19	F	1.690 (42.93)	M28 x1-6g-0.100R
21	G	1.760 (44.70)	M31 x1-6g-0.100R
23	H	1.900 (48.26)	M34 x1-6g-0.100R
25	J	2.000 (50.80)	M37 x1-6g-0.100R

Separation Pull Forces Maximum		
Shell Size	Straight Pull Lbs. (Newton)	15 Degree Pull Lbs. (Newton)
9	44.96 (200)	55.08 (245)
11	44.96 (200)	55.08 (245)
13	44.96 (200)	55.08 (245)
15	44.96 (200)	55.08 (245)
17	89.92 (400)	100.04 (445)
19	89.92 (400)	100.04 (445)
21	89.92 (400)	100.04 (445)
23	89.92 (400)	100.04 (445)
25	89.92 (400)	100.04 (445)

\*Size #9 is only available in type -4

Lanyard Length Code							
Code	L ± .236 (±6)	Code	L ± .236 (±6)	Code	L ± .236 (±6)	Code	L ± .236 (±6)
A	4.016(102)	G	7.007(178)	M	10.000(254)	U	13.031(331)
B	4.527(115)	H	7.519(191)	N	10.511(267)	V	14.015(356)
C	5.000(127)	I	7.992(203)	P	11.023(280)	W	15.000(381)
D	5.511(140)	J	8.503(216)	R	11.535(293)	X	16.023(407)
E	6.024(153)	K	9.015(229)	S	12.007(305)	Y	17.007(432)
F	6.535(166)	L	9.527(242)	T	12.519(318)	Z	18.031(458)

Supplied Components				
Contact	Contact Pin	Contact Socket	Sealing Plug	Insertion/Removal Tool
Size	Part Number	Part Number	Part Number	Part Number
22D	M39029/58-360	M39029/56-348	M27488-22	M81969/14-01
20	M39029/58-363	M39029/56-351	M27488-20	M81969/14-10
16	M39029/58-364	M39029/56-352	M27488-16	M81969/14-03
12	M39029/58-365	M39029/56-353	M27488-12	M81969/14-04
12	M39029/102-558 Coax	M39029/103-559 Coax	M27488-12	M81969/14-04
8	M39029/60-367 Coax	M39029/59-366 Coax	M27488-8	M81969/14-06
8	M39029/90-529 Twinax	M39029/91-530 Twinax	M27488-8	M81969/14-06

**NOTES**

- This connector mates with D38999/20, and 24.
- Blue color band indicates rear release retention system.
- Connectors to be supplied with contacts, insertion/removal tools and sealing plugs.
- Commercial equivalent of D38999/31 type 1, 4, and 6. Test data available.
- Material/finish
  - Barrel, coupling nut, lanyard ring: see part number development, finish
  - Ratchet ring, detent spring: stainless steel/passivated
  - Ground spring: BeCu alloy/electroless nickel
  - Wave spring: CRES/passivated
  - Insulator: high-grade rigid dielectric/N.A.
  - Seals, grommet: fluorosilicone blend/N.A.
  - Contacts: copper alloy

## MIL-DTL-38999 Series III Type

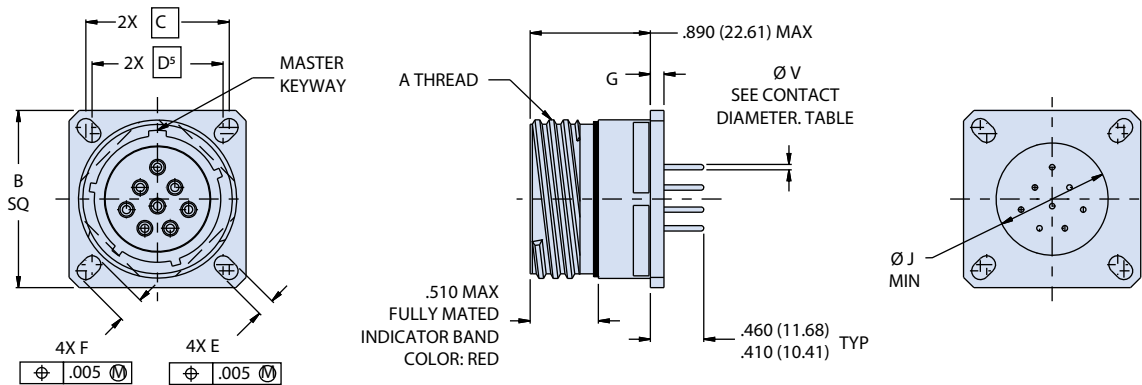
### 233-207 PCB wall-mount receptacle with flush flange

ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	233-207				-00	NF	17-8	P	N
Series / Basic Part No.	233-207 = SuperNine PCB receptacle with flush flange								
Connector Style*	<b>00</b> = Wall mount receptacle with slotted holes <b>HM</b> = Wall mount receptacle with metric helicoils <b>HS</b> = Wall mount receptacle with standard helicoils			Additional shell styles available in metric and standard, consult factory					
Finish	<b>NF</b> = Al alloy/cadmium Olive Drab <b>ME</b> = Al ally/Electroless Nickel		<b>MT</b> = Al alloy/nickel PTFE <b>ZR</b> = Al alloy/Black Zinc Nickel		Consult factory for additional finish options				
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	<b>P</b> = Pin, Gold, 1500 cycles <b>S</b> = Socket, Gold, 1500 cycles <b>H</b> = Pin, Pd/Ni, 1500 cycles <b>J</b> = Socket, Pd/Ni, 1500 cycles								
Alternate Polarization*	<b>A, B, C, D, E, N</b> = Normal (IAW MIL-DTL-38999 Series III)								

\*Refer to Section A for complete details

#### 00 - WALL MOUNT RECEPTACLE WITH SLOTTED HOLES



#### NOTES

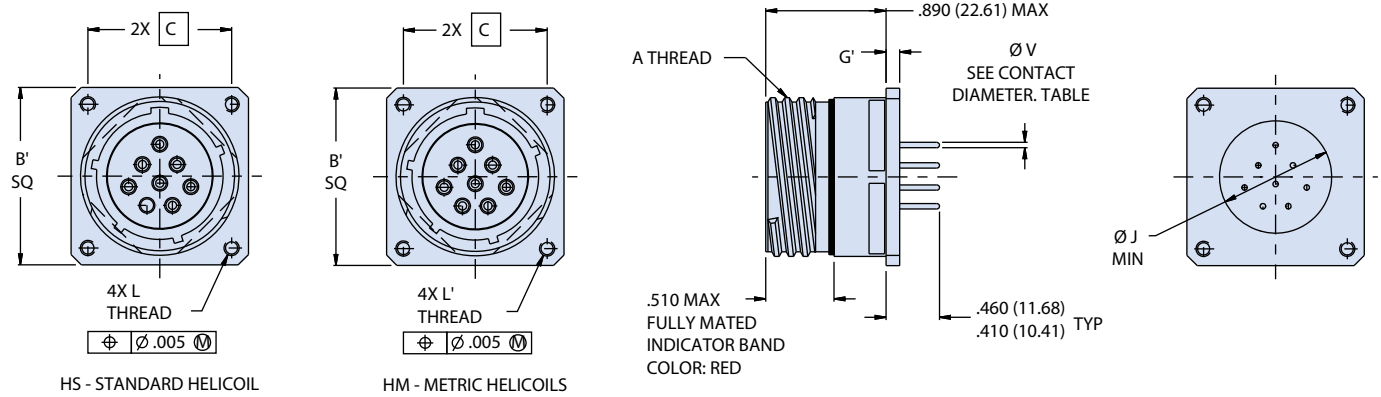
- 233-207 receptacle connector is designed to meet or exceed the mechanical, electrical, environmental and dimensional requirements of D38999/20 and MIL-STD-1560 except as shown and/or noted. Receptacle mates with any QPL manufacturer's D38999/26 Series III plug having the same shell size, insert arrangement and polarization.
- Insert arrangements IAW MIL-STD-1560, contact manufacturer for additional arrangements.
- 233-207 receptacle connector is designed with fixed PC tail contacts. Potting meets or exceeds ingress protection rating IP67 and is environmentally sealed with leak rate of  $< 1 \times 10^{-4}$  ccHe/sec in an unmated condition.
- 233-207 receptacle connector is designed to withstand a minimum of 1500 mating durability cycles when mated to a SuperNine® plug and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance.
- Front panel mount only
- Material/finish
  - Shell: see part number development, finish
  - Insulator: high-grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Contacts: copper alloy
  - Potting: epoxy/N.A.

PC Tail Diameter	
Contact Size	ØV
23	.020 (.51) .018 (.46)
22	.020 (.51) .018 (.46)
20	.030 (.76) .028 (.71)
16	.040 (1.02) .038 (.97)
12	.072 (1.83) .070 (1.78)

## MIL-DTL-38999 Series III Type

### 233-207 PCB wall-mount receptacle with flush flange

#### HS AND HM - WALL MOUNT RECEPTACLE WITH METRIC OR STANDARD MOUNTING HOLES



ENVIRONMENTAL CONNECTORS

Wall Mount Dimensions														
Shell Size Code	Shell Size	A Thread -0.1P-0.3L- TS-2A	B Sq	B' Sq	C Bsc	D Bsc <sup>5</sup>	E	F	G	G'	ØJ Min	L Thd	L' Thd	
A	9	.6250	.948 (24.08) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)		.224 (5.69) .208 (5.28)				.340 (8.64)		
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)				.468 (11.89)		
C	13	.8750	1.137 (28.88) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)			.122 (3.10) .083 (2.11)			.572 (14.53)		
D	15	1.0000	1.232 (31.29) 1.208 (3.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)	.136 (3.45) .120 (3.05)	.181 (4.60) .165 (4.19)			.179 (4.55) .140 (3.56)	.705 (17.91)	.112-40 UNC	M3X0.5
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)						.830 (21.08)		
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)		.202 (5.13) .186 (4.72)				.934 (23.72)		
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)			.153 (3.89) .114 (2.90)			1.055 (26.80)		
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)	.162 (4.11) .146 (3.71)	.250 (6.35) .234 (5.94)			.190 (4.83) .170 (4.32)	1.160 (29.46)	.138-32 UNC	M4X0.7
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)						1.307 (33.20)		



# SuperNine® Environmental Series



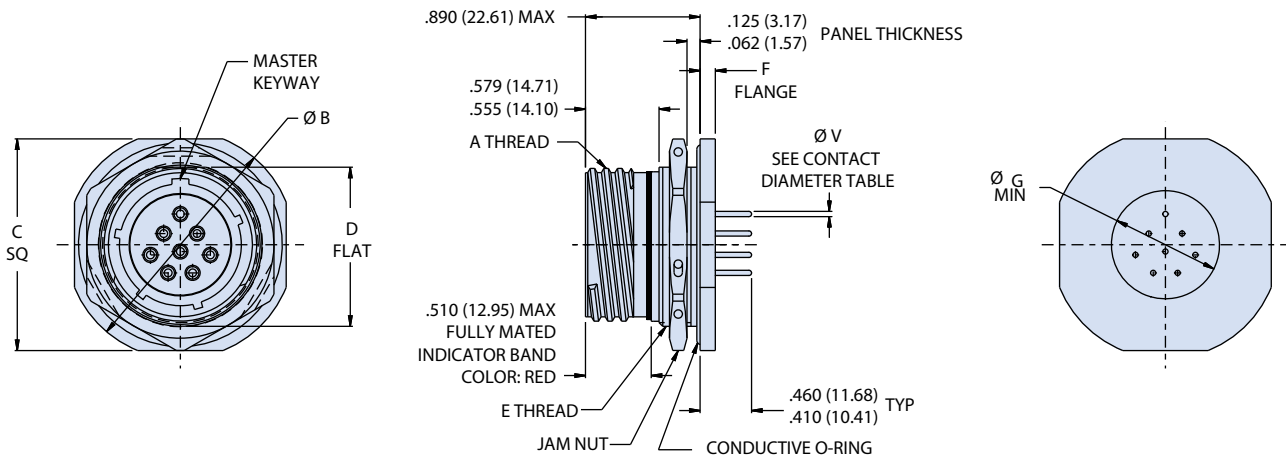
## MIL-DTL-38999 Series III Type

### 233-207-07 PCB receptacle with flush flange

ENVIRONMENTAL CONNECTORS

Part Number Development						
Sample Part Number	233-207	-07	NF	17-8	P	N
Series / Basic Part No.	233-207 = SuperNine PCB receptacle with flush flange					
Connector Style*	07 = Jam nut mount receptacle					
Finish	NF = Al alloy/cadmium Olive Drab MT = Al alloy/nickel PTFE ME = Al alloy/electroless Nickel ZR = Al alloy/black Zinc Nickel Consult factory for additional finish options					
Shell Size-Insert Arrangement*	Per MIL-STD-1560					
Contact Type	P = Pin, Gold, 1500 cycles    S = Socket, Gold, 1500 cycles H = Pin, Pd/Ni, 1500 cycles    J = Socket, Pd/Ni, 1500 cycles					
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)					

Contact Diameter	
Contact Size	ØV
23	.020 (.51) .018 (.46)
22	.020 (.51) .018 (.46)
20	.030 (.76) .028 (.71)
16	.040 (1.02) .038 (.97)
12	.072 (1.83) .070 (1.78)



PC Tail Diameter	
Contact Size	ØM
23	.020 (.51) .018 (.46)
22	.020 (.51) .018 (.46)
20	.030 (.76) .028 (.71)
16	.040 (1.02) .038 (.97)
12	.072 (1.83) .070 (1.78)

**MIL-DTL-38999 Series III Type**

**233-207-07 PCB receptacle with flush flange**

Jam Nut Dimensions											
Shell Size Code	Shell Size	A Thread -0.1P-0.3L-TS-2A	Ø B	C Sq	D Flat	E Thread ISO Metric	F	Ø G Min	Ø H	J Flat	
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g		.340 (8.64)	.703 (17.86) .693 (17.60)	.661 (16.79) .654 (16.61)	
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g		.468 (11.89)	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g		.122 (3.10) .083 (2.11)	.572 (14.53)	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g		.705 (17.91)	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g*		.830 (21.08)	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)	
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g			.934 (23.72)	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g	.153 (3.89) .114 (2.90)		1.055 (26.80)	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g	1.160 (29.46)		1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)	
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g	1.307 (33.20)		1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)	

Modified major diameter 31.95 - 31.80 (.257 - 1.252)

**NOTES**

- 233-207-07 receptacle connector is designed to withstand a minimum of 1500 mating durability cycles when mated to a SuperNine® plug and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance.
- 233-207-07 receptacle connector is designed with fixed PC tail contacts. Connector potting process meets or exceeds ingress protection rating IP67 and is environmentally sealed with a leak rate of < 1 X 10<sup>-4</sup> ccHe/sec in unmated condition.
- 233-207-07 receptacle connector is designed to meet or exceed the mechanical, electrical, environmental requirements of D38999/24 and MIL-STD-1560 except as shown and/or noted. Receptacle mates with any QPL manufacturer's D38999/26 Series III plug having same shell size, insert arrangement and polarization.
- Insert arrangements IAW MIL-STD-1560, contact manufacturer for additional arrangement options.
- Material/finish
  - Shell, jam-nut: see part number development, finish
  - Insulator: high-grade rigid dielectric/N.A.
  - Seals, grommet: fluorosilicone blend/N.A.
  - Potting: epoxy/N.A.
  - Contacts: copper alloy
  - O-ring: silver plated aluminum in fluorosilicone (cho-seal 1298 or equivalent)

# SuperNine® Environmental Series



## MIL-DTL-38999 Series III Type

### 233-208 Sealed PCB receptacle with stepped contacts

ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	233-208				-00	NF	17-8	P	N
Series / Basic Part No.	233-208 = SuperNine sealed PCB receptacle with washout standoffs								
Connector Style*	00 = Wall Mount Receptacle with Slotted Holes CM = Wall Mount Receptacle with Metric Clinch Nuts CS = Wall Mount Receptacle with Standard Clinch Nuts HM = Wall Mount Receptacle with Metric Helicoils HS = Wall Mount Receptacle with Standard Helicoils								
Finish	NF = Al alloy/Cadmium Olive Drab ME = Al alloy/Electroless Nickel			MT = Al alloy/Nickel PTFE ZR = Al alloy/Black Zinc Nickel			Consult factory for additional finish options		
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	P = Pin, Gold, 1500 cycles    S = Socket, Gold, 1500 cycles    H = Pin, Pd/Ni, 1500 cycles    J = Socket, Pd/Ni, 1500 cycles								
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)								

\*Refer to Section A for complete details

Wall Mount Receptacle Dimensions													
Shell Size Code	Shell Size	A Thread -0.1P-0.3L-TS-2A	B Sq	B'	C Bsc	D Bsc <sup>3</sup>	E	F	G	G'	Ø J Min	L Thd	L' Thd
A	9	.6250	.948 (24.08) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.122 (3.10) .083 (2.11)	.179 (4.55) .140 (3.56)	.340 (8.64)	.112-40 UNC	M3X0.5
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)			.468 (11.89)		
C	13	.8750	1.137 (28.88) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)		.181 (4.60) .165 (4.19)			.572 (14.53)		
D	15	1.0000	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.181 (4.60) .165 (4.19)			.705 (17.91)		
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)					.830 (21.08)		
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)		.202 (5.13) .186 (4.72)			.934 (23.72)		
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)					1.055 (26.80)		
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)	.162 (4.11) .146 (3.71)	.250 (6.35) .234 (5.94)	.114 (2.90)	.190 (4.83) .170 (4.32)	1.160 (29.46) 1.307 (33.20)	.138-32 UNC	M4X0.7
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)							

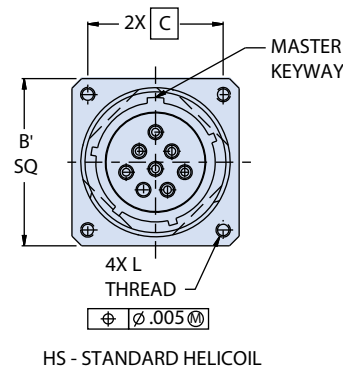
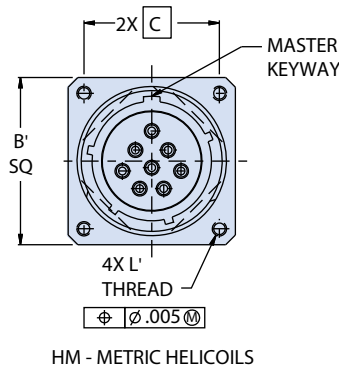
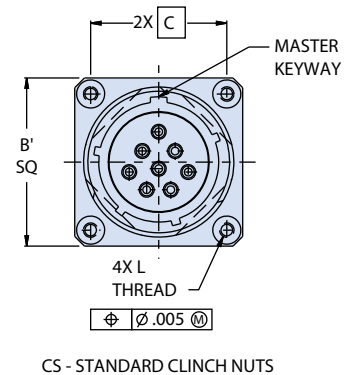
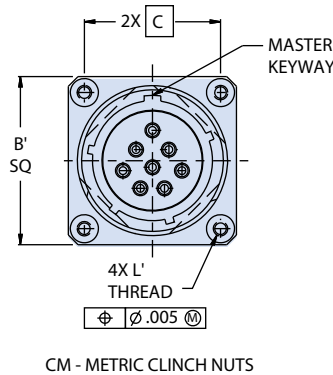
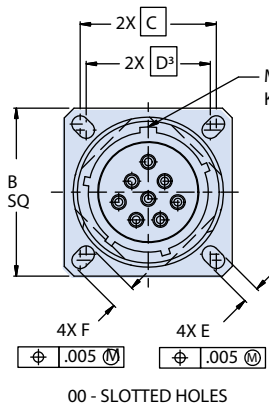
#### NOTES

- 233-208 receptacle connector is designed to meet or exceed the mechanical, electrical, environmental and dimensional requirements of D38999/20 or /24 and MIL-STD-1560 except as shown and/or noted. Receptacle mates with any QPL manufacturer's D38999/26 Series III plug having the same shell size, insert arrangement and polarization.
- Insert arrangements IAW MIL-STD-1560, contact factory for additional arrangement options
- Front panel mount only
- 233-208 receptacle connector is designed with fixed PC tail contacts. Connector potting meets or exceeds protection rating IP67 and is environmentally sealed with a leak rate <math>1 \times 10^{-4}</math> ccHe/sec in an unmated condition.
- 233-208 receptacle connector is designed to withstand a minimum of 1500 mating durability cycles when mated to a SuperNine plug and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance.

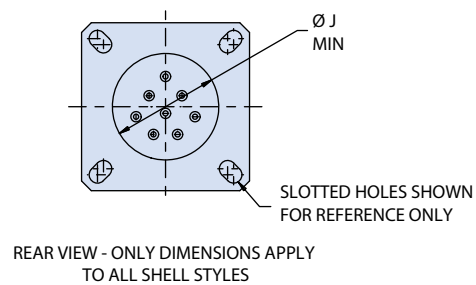
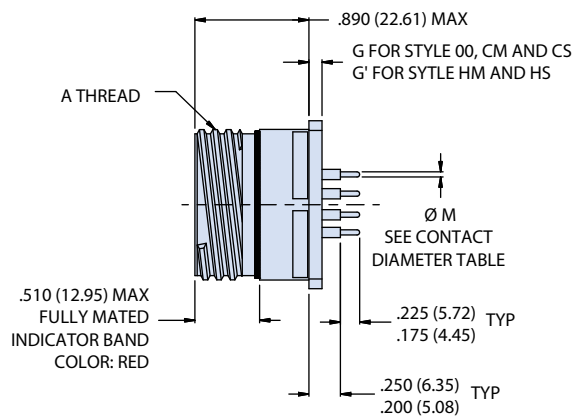
## MIL-DTL-38999 Series III Type

### 233-208 Sealed PCB receptacle with stepped contacts

#### 00, CM, CS, HM AND HS - WALL MOUNT RECEPTACLES



PC Tail Diameter	
Contact Size	ØV
23	.020 (.51) .018 (.46)
22	.020 (.51) .018 (.46)
20	.030 (.76) .028 (.71)
16	.040 (1.02) .038 (.97)
12	.072 (1.83) .070 (1.78)



#### NOTES (CONTINUED)

- Material/finish
  - Shell: see P/N development, finish
  - Contacts: copper alloy, see P/N development, contacts
  - insulators: high grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Potting: epoxy/N.A.



**MIL-DTL-38999 Series III Type**

**233-208-07 PCB jam nut receptacle with stepped contacts**

ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	233-208				-00	NF	17-8	P	N
Series / Basic Part No.	233-208 = SuperNine PCB receptacle with stepped contacts								
Connector Style*	07 = Jam Nut Mount Receptacle								
Finish	NF = Al alloy/cadmium Olive Drab ME = Al alloy/electroless Nickel		MT = Al alloy/nickel PTFE ZR = Al alloy/black Zinc Nickel		Consult factory for additional finish options				
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	P = Pin, Gold, 1500 cycles   S = Socket, Gold, 1500 cycles   H = Pin, Pd/Ni, 1500 cycles   J = Socket, Pd/Ni, 1500 cycles								
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)								

Jam Nut Receptacle Dimensions									
Shell Size Code	Shell Size	A Thread -0.1P-0.3L-TS-2A	Ø B	C Sq	D Flat	E Thd ISO Metric	F	Ø G Min	Ø H Max
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g	.122 (3.10) .083 (2.11)	.340 (8.64)	.470 (11.94)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g		.468 (11.89)	.590 (14.99)
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g		.572 (14.53)	.708 (17.98)
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g		.705 (17.91)	.865 (21.97)
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g*		.830 (21.08)	.985 (25.02)
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g	.153 (3.89) .114 (2.90)	.934 (23.72)	1.105 (28.07)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g		1.055 (26.80)	1.220 (30.99)
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g		1.160 (29.46)	1.340 (34.04)
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g		1.307 (33.20)	1.455 (36.96)

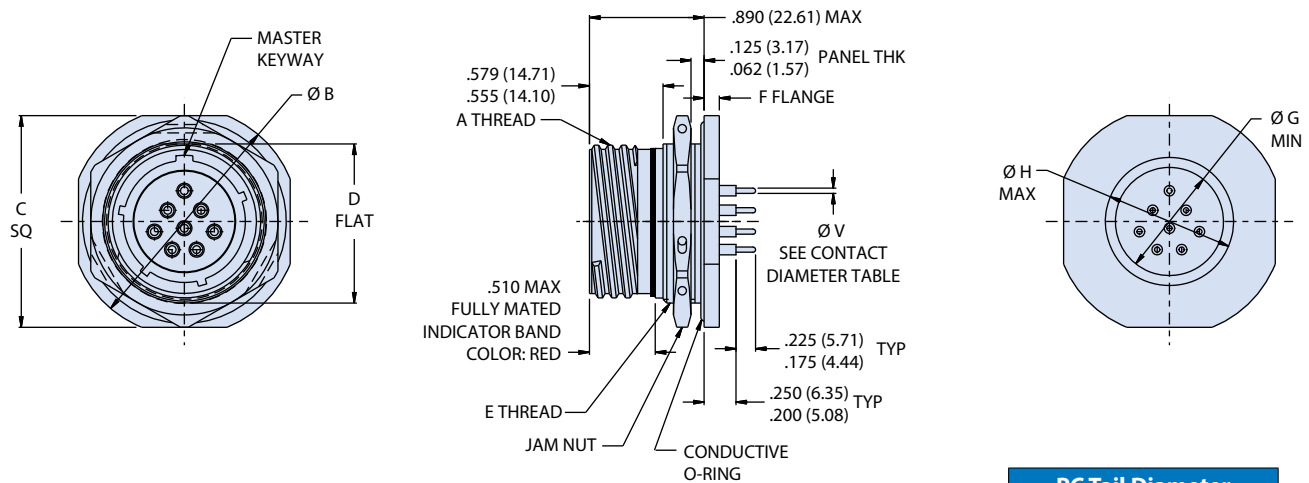
\* Modified major diameter 31.95 - 31.80 (1.257 - 1.252)



**MIL-DTL-38999 Series III Type**

**233-208-07 PCB jam nut receptacles with stepped contacts**

**07 - JAM NUT MOUNT RECEPTACLE**



PC Tail Diameter	
Contact Size	ØV
23	.020 (.51) .018 (.46)
22	.020 (.51) .018 (.46)
20	.030 (.76) .028 (.71)
16	.040 (1.02) .038 (.97)
12	.072 (1.83) .070 (1.78)

**NOTES**

- 233-208-07 receptacle connector is designed to withstand a minimum of 1500 mating durability cycles when mated to a SuperNine® plug and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance.
- 233-208-07 receptacle connector is designed with fixed PC tail contacts. Connector Potting process meets or exceeds ingress protection rating IP67 and is environmentally sealed with a leak rate of  $< 1 \times 10^{-4}$  ccHe/sec in unmated condition.
- 233-208-07 receptacle connector is designed to meet or exceed the mechanical, electrical, environmental requirements of D38999/24 and MIL-STD-1560 except as shown and/or noted. Receptacle mates with any QPL manufacturer's D38999/26, Series III plug having same shell size, insert arrangement and polarization.
- Insert arrangements IAW MIL-STD-1560, contact manufacturer for additional arrangement options.
- Material/finish
  - Shell, jam-nut: see part number development, finish
  - Contacts: copper alloy/see part number development, contact type
  - Insulators: high-grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Potting: epoxy/N.A.
  - O-ring: silver plated aluminum in fluorosilicone (cho-seal 1298 or equivalent)

## MIL-DTL-38999 Series III Type

### 233-209 Sealed 1 x 10<sup>-4</sup> PCB receptacle with washout standoffs

ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	233-209				-00	NF	17-8	P	N
Series / Basic Part No.	233-209 = SuperNine PCB receptacle with short standoff								
Connector Style*	00 = Wall mount receptacle with slotted holes HM = Wall mount receptacle with metric helicoils HS = Wall mount receptacle with standard helicoils CM = Wall mount receptacle with metric clinch nuts CS = Wall mount receptacle with standard clinch nuts								
Finish	NF = Al alloy/cadmium olive drab ME = Al alloy/electroless nickel		MT = Al alloy/nickel PTFE ZR = Al alloy/black zinc nickel		Consult factory for additional finish options				
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	P = Pin, Gold, 1500 cycles    S = Socket, Gold, 1500 cycles    H = Pin, Pd/Ni, 1500 cycles    J = Socket, Pd/Ni, 1500 cycles								
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)								

\*Refer to Section A for complete details

Dimensions														
Shell Size Code	Shell Size	A Thread -0.1P-0.3L-TS-2A	B Sq	B' Sq	C Bsc	D Bsc <sup>5</sup>	E	F	G	G'	ØH Min	ØJ Max	L Thd	L' Thd
A	9	.6250	.948 (24.08) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.122 (3.10) .083 (2.11)	.179 (4.55) .140 (3.56)	.340 (8.64)	.470 (11.94)	.112-40 UNC	M3X0.5
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)			.468 (11.89)	.590 (14.99)		
C	13	.8750	1.137 (28.88) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)		.181 (4.60) .165 (4.19)			.572 (14.53)	.708 (17.98)		
D	15	1.0000	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.202 (5.13) .186 (4.72)			.705 (17.91)	.865 (21.97)		
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)		.153 (3.89)			.830 (21.08)	.985 (25.02)		
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)		.190 (4.83)			.934 (23.72)	1.105 (28.07)		
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)		.170 (4.32)			1.055 (26.80)	1.220 (30.99)		
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)	.162 (4.11)	.114 (2.90)	.190 (4.83)	1.160 (29.46)	1.340 (34.04)	.138-32 UNC	M4X0.7	
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)	.146 (3.71)	.170 (4.32)	.170 (4.32)	1.307 (33.20)	1.455 (36.96)			

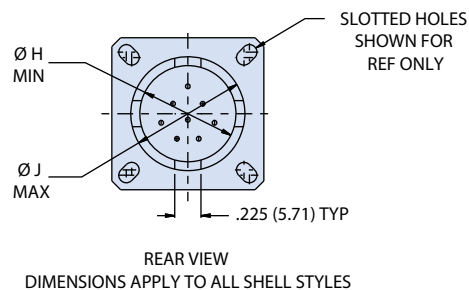
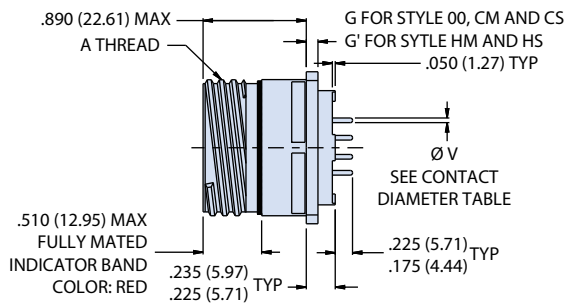
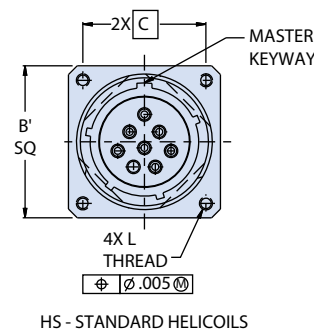
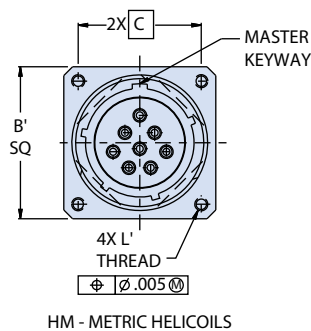
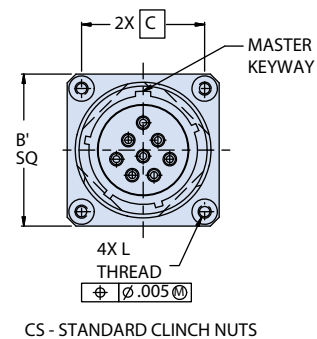
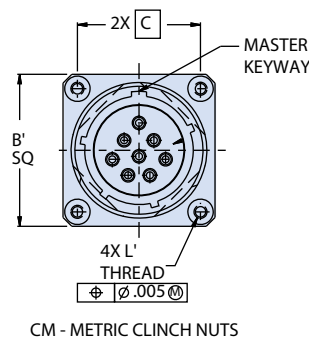
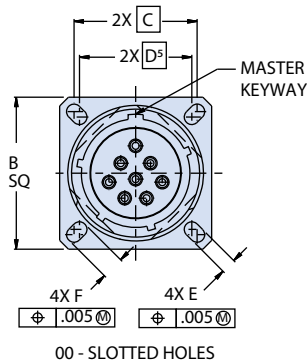
PC Tail Diameter	
Contact Size	ØV
23	.020 (.51)
	.018 (.46)
22	.020 (.51)
	.018 (.46)
20	.030 (.76)
	.028 (.71)
16	.040 (1.02)
	.038 (.97)
12	.072 (1.83)
	.070 (1.78)

**MIL-DTL-38999 Series III Type**

**233-209 Sealed 1 x 10<sup>-4</sup> PCB receptacle with washout standoffs**

ENVIRONMENTAL CONNECTORS

**00, CM, CS, HM AND HS - WALL MOUNT RECEPTACLES**



**NOTES**

- 233-209 receptacle connector is designed to meet or exceed the mechanical, electrical, environmental and dimensional requirements of D38999/20 and MIL-STD-1560 except as shown and/or noted.
- 233-209 receptacle connector mates with any QPL manufacturer's D38999/26 series III plug having the same shell size, insert arrangement and polarization.
- Insert arrangements IAW MIL-STD-1560. Contact factory for additional arrangement options
- 233-209 receptacle connector is designed with fixed PC tail contacts. Potting meets or exceeds ingress protection rating IP67 and is environmentally sealed to a leak rate of <math>1 \times 10^{-4}</math> ccHe/Sec in an unmated condition.
- Front panel mount only
- Material/finish
  - Shell size: see part number development, finish
  - Contacts: copper alloy/see part number development, contact type
  - insulators: high grade rigid dielectric/N.A.
  - Seals: Fluorosilicone blend/N.A.
  - Potting: Epoxy/N.A.

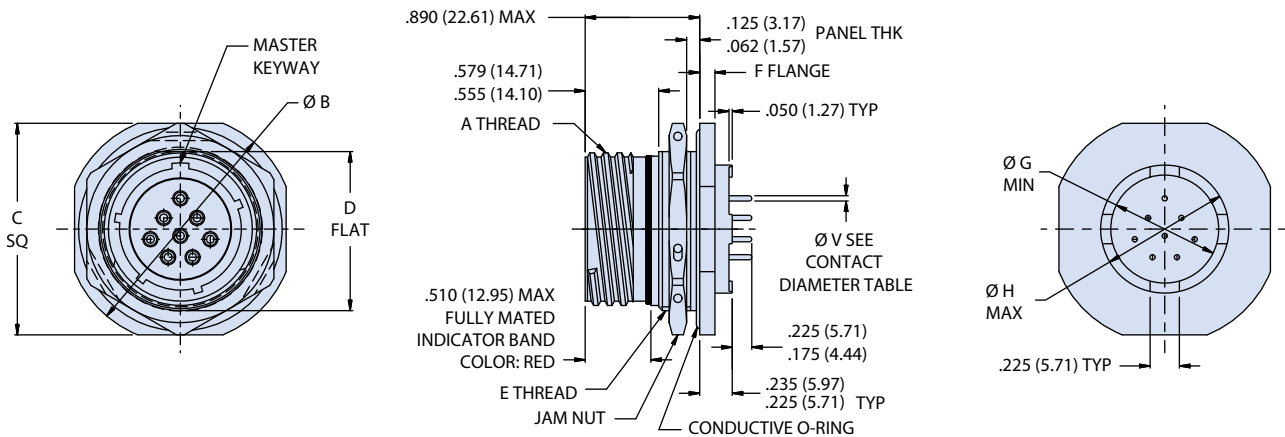
## MIL-DTL-38999 Series III Type

### 233-209-00 PCB jam nut receptacles with short standoff

ENVIRONMENTAL CONNECTORS

Part Number Development						
Sample Part Number	233-209	-07	NF	17-8	P	N
Series / Basic Part No.	233-209 = SuperNine PCB receptacle with short standoff					
Connector Style*	07 = Jam Nut Mount Receptacle					
Finish	NF = Al alloy/cadmium Olive Drab      MT = Al alloy/nickel PTFE ME = Al alloy/electroless Nickel      ZR = Al alloy/black zinc Nickel Consult factory for additional finish options					
Shell Size-Insert Arrangement*	Per MIL-STD-1560					
Contact Type	P = Pin, Gold, 1500 cycles    S = Socket, Gold, 1500 cycles    H = Pin, Pd/Ni, 1500 cycles    J = Socket, Pd/Ni, 1500 cycles					
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)					

\*Refer to Section A for complete details



PC Tail Diameter	
Contact Size	$\varnothing V$
23	.020 (.51)
	.018 (.46)
22	.020 (.51)
	.018 (.46)
20	.030 (.76)
	.028 (.71)
16	.040 (1.02)
	.038 (.97)
12	.072 (1.83)
	.070 (1.78)

**MIL-DTL-38999 Series III Type**

**233-209-00 PCB jam nut receptacles with short standoff**

Dimensions									
Shell Size Code	Shell Size	A Thread	Ø B	C Sq	D Flat	E Thread ISO Metric	F	Ø G Min	Ø H Max
A	9	.6250 -0.1P-0.3L-TS-2A	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g	.122 (3.10) .083 (2.11)	.340 (8.64)	.470 (11.94)
B	11	.7500 -0.1P-0.3L-TS-2A	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g		.468 (11.89)	.590 (14.99)
C	13	.8750 -0.1P-0.3L-TS-2A	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g		.572 (14.53)	.708 (17.98)
D	15	1.0000-0.1P-0.3L-TS-2A	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g		.705 (17.91)	.865 (21.97)
E	17	1.1875 -0.1P-0.3L-TS-2A	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g*		.830 (21.08)	.985 (25.02)
F	19	1.2500 -0.1P-0.3L-TS-2A	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g	.153 (3.89) .114 (2.90)	.934 (23.72)	1.105 (28.07)
G	21	1.3750 -0.1P-0.3L-TS-2A	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g		1.055 (26.80)	1.220 (30.99)
H	23	1.5000 -0.1P-0.3L-TS-2A	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g		1.160 (29.46)	1.340 (34.04)
J	25	1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g		1.307 (33.20)	1.455 (36.96)

\* Modified major diameter 31.95 - 31.80 (1.257 - 1.252)

**NOTES**

- 233-209-07 receptacle connector is designed to withstand a minimum of 1500 mating durability cycles when mated to a SuperNine plug and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance.
- 233-209-07 receptacle connector is designed with fixed PC tail contacts. Connector potting process meets or exceeds ingress protection rating IP67 and is environmentally sealed with a leak rate of  $< 1 \times 10^{-4}$  ccHe/sec in unmated condition.
- 233-209-07 receptacle connector is designed to meet or exceed the mechanical, electrical, environmental requirements of D38999/24 and MIL-STD-1560 except as shown and/or noted. Receptacle mates with any QPL manufacturer's D38999/26, Series III plug having same shell size, insert arrangement and polarization.
- Insert arrangements IAW MIL-STD-1560. Contact manufacturer for additional arrangement options.
- Material/finish
  - Shell, jam-nut: see part number development, finish
  - Contacts: copper alloy/see part number development, contact type
  - Insulators: high-grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Potting: epoxy/N.A.
  - O-ring: silver plated aluminum in fluorosilicone (cho-seal 1298 or equivalent)



## MIL-DTL-38999 Series III Type

### 233-210 PCB wall-mount receptacles with threaded standoffs

ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	233-210				-00	NF	17-8	P	N
Series / Basic Part No.	233-210 = SuperNine PCB receptacle with threaded standoffs								
Connector Style*	00 = Wall Mount Receptacle with Slotted Holes, Standard Stand-off Thread 10 = Wall Mount Receptacle with Slotted Holes, Metric Stand-off Thread CM = Wall Mount Receptacle with Metric Clinch Nuts CS = Wall Mount Receptacle with Standard Clinch Nuts HM = Wall Mount Receptacle with Metric Helicoils HS = Wall Mount Receptacle with Standard Helicoils								
Finish	NF = Al alloy/cadmium olive drab ME = Al alloy/electroless nickel			MT = Al alloy/nickel PTFE ZR = Al alloy/black zinc nickel			Consult factory for additional finish options		
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	P = Pin, Gold, 1500 cycles   S = Socket, Gold, 1500 cycles   H = Pin, Pd/Ni, 1500 cycles   J = Socket, Pd/Ni, 1500 cycles								
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)								

\*Refer to Section A for complete details

Dimensions														
Shell Size code	Shell Size	A Thd -0.1P-0.3L- TS-2A	B Sq	B' Sq	C Bsc	D Bsc <sup>3</sup>	E	F	G	G'	H Bsc	ØJ Min	L Thd	L' Thd
A	9	.6250	.948 (24.08) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)		.224 (5.69) .208 (5.28)			.594 (15.09)	.340 (8.64)		
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)			.122 (3.10)	.179 (4.55)		
C	13	.8750	1.137 (28.88) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)	.136 (3.45)	.181 (4.60) .165 (4.19)	.083 (2.11)	.140 (3.56)	.812 (20.62)	.572 (14.53)	.112-40 UNC	M3X0.5
D	15	1.0000	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.120 (3.05)			.140 (3.56)	.1030 (26.16)		
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)		.202 (5.13) .186 (4.72)			1.030 (26.16)	.830 (21.08)		
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)		.153 (3.89)			.114 (2.90)	.190 (4.83)		
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)		.250 (6.35) .234 (5.94)			1.221 (31.01)	1.055 (26.80)		
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)		.162 (4.11)			.114 (2.90)	.190 (4.83)		
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)	.146 (3.71)	.234 (5.94)			1.475 (37.47)	1.307 (33.20)	.138-32 UNC	M4X0.7

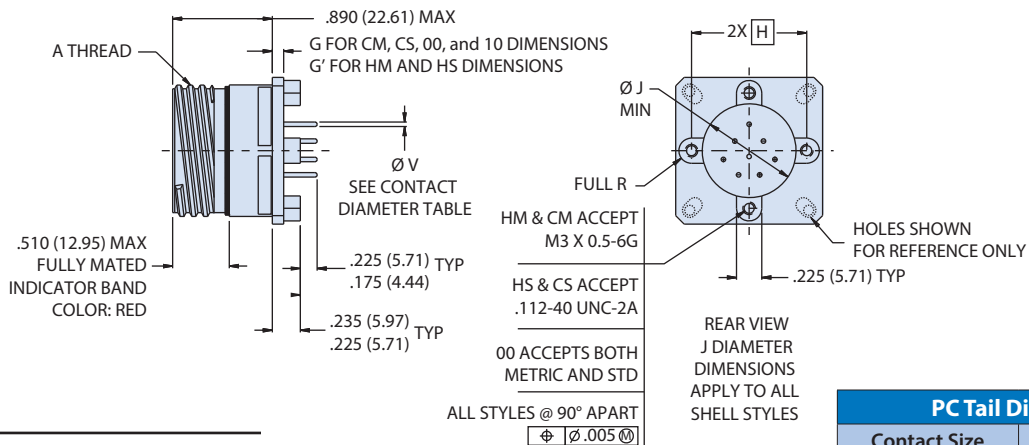
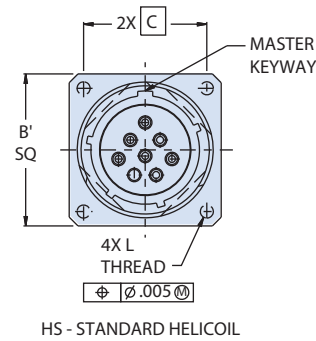
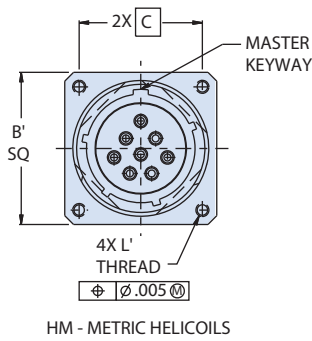
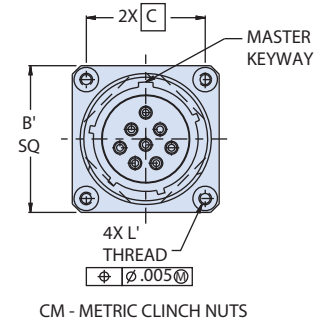
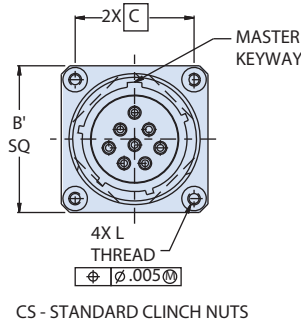
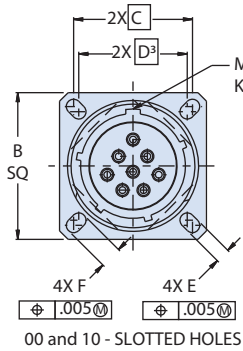
#### NOTES

- 233-210 receptacle connector is designed to meet or exceed the mechanical, dimensional, electrical, environmental requirements of D38999/20 and MIL-STD-1560 except as shown and/or noted. Receptacle mates with 233-205/206 or any QPL manufacturer's D38999/26 Series III plug having the same shell size, insert arrangement and polarization.
- Insert arrangements IAW MIL-STD-1560. Contact manufacturer for additional arrangement options
- Front panel mount only
- 233-210 receptacle connector is designed with fixed PC tail contacts. Connector potting process meets or exceeds ingress protection rating IP67 and is environmentally sealed with a leak rate of < 1 X 10<sup>-4</sup> ccHe/sec in an unmated condition.
- 233-210 receptacle connector is designed to withstand a minimum of 1500 mating durability cycles when mated to a SuperNine® plug and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance.

**MIL-DTL-38999 Series III Type**

**233-210 PCB wall-mount receptacles with threaded standoffs**

**00, 10, CM, CS, HM AND HS - WALL MOUNT RECEPTACLES**



**NOTES (CONTINUED)**

6. Material/finish
  - Shell, jam-nut: see part number development, finish
  - Contacts: copper alloy/see part number development, finish
  - Insulators: high grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Potting: epoxy/N.A.

PC Tail Diameter	
Contact Size	ØV
23	.020 (.51) .018 (.46)
22	.020 (.51) .018 (.46)
20	.030 (.76) .028 (.71)
16	.040 (1.02) .038 (.97)
12	.072 (1.83) .070 (1.78)

# SuperNine® Environmental Series



## MIL-DTL-38999 Series III Type

### 233-210-07 PCB jam nut receptacles with threaded standoffs

ENVIRONMENTAL CONNECTORS

Part Number Development					
Sample Part Number	233-210	-07	NF	17-8	P N
Series / Basic Part No.	233-210 = SuperNine PCB receptacle with threaded standoffs				
Connector Style*	07 = Jam-Nut Mount Receptacle with Standard Stand-off Thread 17 = Jam-Nut Mount Receptacle with Metric Stand-off Thread				
Finish	NF = Al alloy/cadmium olive drab      MT = Al alloy/nickel PTFE      Consult factory for additional finish options ME = Al alloy/electroless nickel      ZR = Al alloy/black zinc nickel				
Shell Size-Insert Arrangement*	Per MIL-STD-1560				
Contact Type	P = Pin, Gold, 1500 cycles    S = Socket, Gold, 1500 cycles    H = Pin, Pd/Ni, 1500 cycles    J = Socket, Pd/Ni, 1500 cycles				
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)				

Dimensions											
Shell Size Code	Shell Size	A Thd -0.1P-0.3L- TS-2A	Ø B	C Sq	D Flat	E Thread ISO Metric	F	G Bsc	ØH Min	Threads	
										M	M'
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g	.122 (3.10) .083 (2.11)	.594 (15.09)	.340 (8.64)	.112-40 UNC	M3 x .05
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g		.719 (18.26)	.468 (11.89)		
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g		.812 (20.62)	.572 (14.53)		
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g	.906 (23.01)	.705 (17.91)			
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g*	1.030 (26.16)	.830 (21.08)			
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g	1.150 (29.21)	.934 (23.72)			
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g	.153 (3.89) .114 (2.90)	1.221 (31.01)	1.055 (26.80)		
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g	1.360 (34.54)	1.160 (29.46)			
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g	1.475 (37.47)	1.307 (33.20)			

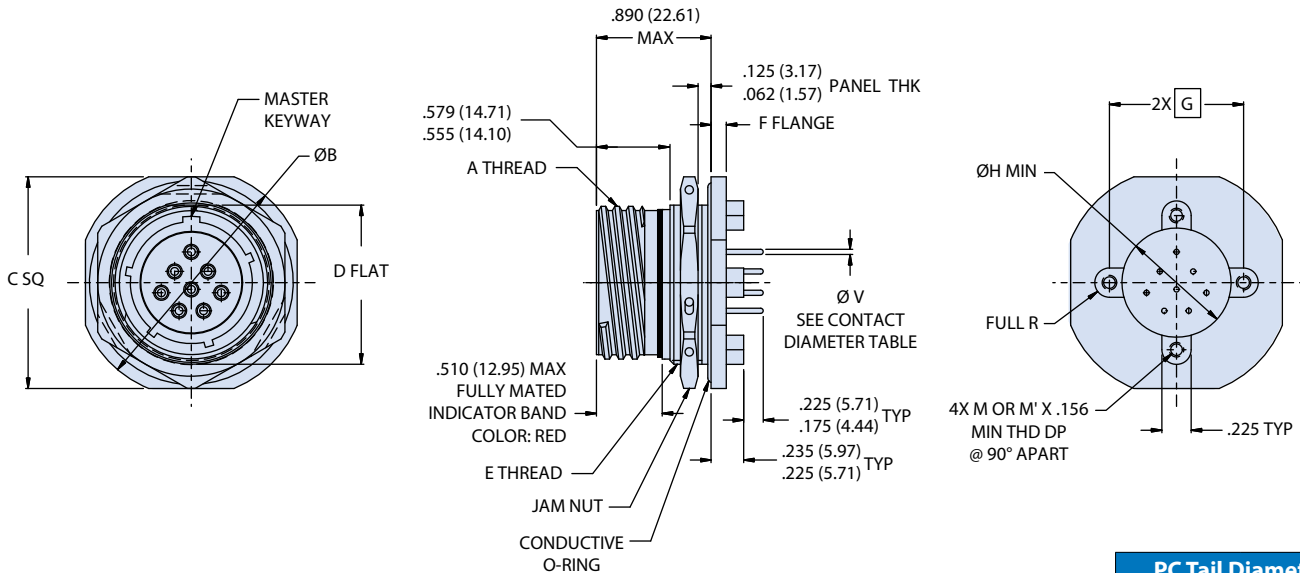
\* Modified major diameter 31.95 - 31.80 (1.257 - 1.252).

**MIL-DTL-38999 Series III Type**

**233-210-07 PCB jam nut receptacles with threaded standoff**

ENVIRONMENTAL CONNECTORS

**07 - JAM-NUT MOUNT RECEPTACLE**



PC Tail Diameter	
Contact Size	ØK
23	.020 (.51) .018 (.46)
22	.020 (.51) .018 (.46)
20	.030 (.76) .028 (.71)
16	.040 (1.02) .038 (.97)
12	.072 (1.83) .070 (1.78)

**NOTES**

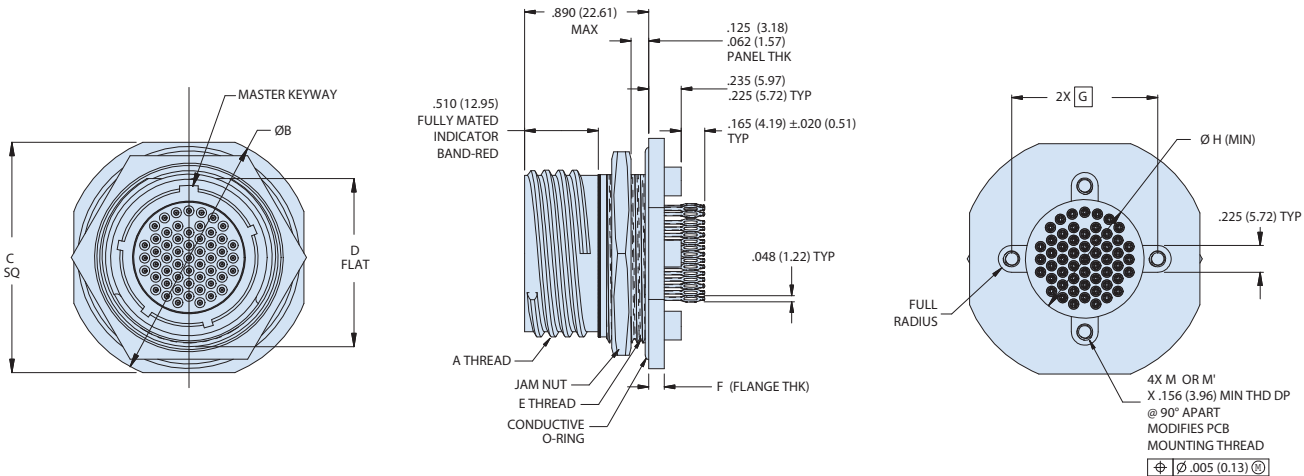
- 233-210-07 receptacle connector is designed to withstand a minimum of 1500 mating durability cycles when mated to a "SuperNine" plug and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance.
- 233-210-07 is designed to meet or exceed the mechanical, dimensional, electrical, environmental requirements of D38999/24 and MIL-STD-1560 except as shown and/or noted.
- Receptacle mates with 233-205/206 or any QPL manufacturer's D38999/26 Series III plug having the same shell size, insert arrangement and polarization.
- Insert arrangements IAW MIL-STD-1560.
- Supplied with fixed PC tail contacts. Potting meets or exceeds IP67 in unmated condition.
- Dimensions in Inches (millimeters) are subject to change without notice.
- Consult factory for additional information.
- Material/finish
  - Shell, lockring, jam-nut: see part number development, finish
  - Contacts: copper alloy/see part number development, contact type
  - Insulators: high-grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Potting: epoxy/N.A.
  - O-ring: silver plated aluminum in fluorosilicone (cho-seal 1298 or equivalent)

## MIL-DTL-38999 Series III Type

### 233-292 PCB receptacle with thd standoffs and press fit contacts

ENVIRONMENTAL CONNECTORS

Part Number Development						
Sample Part Number	233-292	-07	NF	25-35	P	N
Series / Basic Part No.	233-292 = SuperNine PCB mount receptacle with press fit contacts					
Connector Style	07 = Receptacle, Jam Nut, Standoff Std Thd		17 = Receptacle, Jam Nut, Standoff Metric Thd			
Material/Finish	See Material/Finish Table					
Shell Size-Insert Arrangement*	See Table I; Per MIL-STD-1560					
Contact Type	P = Pin, Gold, 500 Cycles		S = Socket, Gold, 500 Cycle			
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)					



Material/Finish		
SYM	Material	Finish
NF	Aluminum Alloy	Cad/O.d. Over Electroless Nickel
MA		Electroless Nickel, Matte
ME		Electroless Nickel
MT		Nickel-Ptfe
ZN		Zinc-Nickel Olive Drab
ZR		Zinc Ni, Black (Tri-Valent Cr)
TZ		Tin-Zinc
TD	Titanium	Natural - No Plate
ZI		Passivate
ZL	Stainless Steel	Electrodeposited Nickel
AB	Marine Bronze	None (Clean Only)

#### NOTES:

- Material/ finish:
  - Shell, locking, jam nut - See Table III
  - CONTACTS - copper alloy / see table V
  - Insulators - high grade rigid dielectric / N.A.
  - Seals - fluorosilicone blend / N.A.
  - Potting - epoxy / N.A.
  - O-ring - silver plated aluminum in fluorosilicone (CHO-SEAL 1298 or equivalent)
- GLENAIR'S 233-292 receptacle connector is designed to meet or exceed the mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/24, and MIL-STD-1560 except as shown and/or noted. receptacle mates with any QPL manufacturer's MIL-DTL-38999, Series III plug connector, D38999/26, having the same shell size, insert arrangement, and polarization.
- Glenair's 233-292 receptacle connector is designed to withstand a maximum of 500 mating durability cycles when mated to a "SuperNine" plug and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance.
- Press fit contact designed for use with .040±.003 plated thru hole.



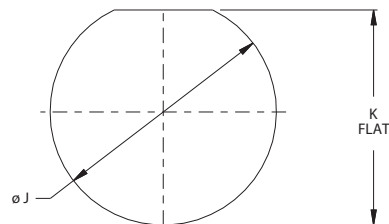
**MIL-DTL-38999 Series III Type**

**233-292 PCB receptacle with thd standoffs and press fit contacts**

ENVIRONMENTAL CONNECTORS

Dimensions															
Shell Size Code	Shell Size	A Thread	Ø B	C SQ	D Flat	E Thread ISO Metric	F	G BSC	Ø H Min	Threads		Insert Arrangement			
										M	M'				
A	9	.6250 -0.1P-0.3L-TS-2A	1.200 (30.48)	1.078 (27.38)	.654 (16.61)	M17 X 1.0-6g	.113 .108	.594 (15.09)	.340 (8.64)	A2-CNU 04-211 STPECCA	96-5.0 X 3M STPECCA	9-35			
			1.178 (29.92)	1.048 (26.62)	.645 (16.38)			.719 (18.26)	.468 (11.89)			11-35			
B	11	.7500 -0.1P-0.3L-TS-2A	1.386 (35.20)	1.268 (32.21)	.755 (19.18)	M20 X 1.0-6g	.113 .108	.812 (20.62)	.572 (14.53)	A2-CNU 04-211 STPECCA	96-5.0 X 3M STPECCA	13-35			
			1.488 (37.80)	1.358 (34.49)	.932 (23.67)			.906 (23.01)	.705 (17.91)			15-35			
C	13	.8750 -0.1P-0.3L-TS-2A	1.512 (38.40)	1.390 (35.31)	.942 (23.93)	M25 X 1.0-6g	.145 .133	1.030 (26.16)	.830 (21.08)	A2-CNU 04-211 STPECCA	96-5.0 X 3M STPECCA	17-35			
			1.638 (41.61)	1.516 (38.51)	1.066 (27.08)			1.150 (29.21)	.934 (23.72)			19-35			
D	15	1.0000 -0.1P-0.3L-TS-2A	1.638 (41.61)	1.516 (38.51)	1.066 (27.08)	M28 X 1.0-6g	.145 .133	1.221 (31.01)	1.055 (26.80)	A2-CNU 04-211 STPECCA	96-5.0 X 3M STPECCA	21-35			
			1.614 (41.00)	1.484 (37.69)	1.056 (26.82)			1.360 (34.54)	1.160 (29.46)			23-35			
E	17	1.1875 -0.1P-0.3L-TS-2A	1.949 (49.50)	1.827 (46.41)	1.316 (33.43)	M35 X 1.0-6g	.145 .133	1.475 (37.47)	1.307 (33.20)	A2-CNU 04-211 STPECCA	96-5.0 X 3M STPECCA	25-35			
			1.925 (48.90)	1.795 (45.59)	1.306 (33.17)			1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00)			2.205 (56.01)	1.691 (42.95)	2.299 (58.39)	2.173 (55.19)
F	19	1.2500 -0.1P-0.3L-TS-2A	2.075 (52.71)	1.953 (49.61)	1.441 (36.60)	M38 X 1.0-6g	.145 .133	1.360 (34.54)	1.160 (29.46)	A2-CNU 04-211 STPECCA	96-5.0 X 3M STPECCA	19-35			
			2.051 (52.10)	1.921 (48.79)	1.431 (36.35)			1.475 (37.47)	1.307 (33.20)			21-35			
G	21	1.3750 -0.1P-0.3L-TS-2A	2.201 (55.91)	2.079 (52.81)	1.566 (39.78)	M41 X 1.0-6g	.145 .133	1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	2.299 (58.39)	2.173 (55.19)	1.6 (40.64)	M44 X 1.0-6g
			2.177 (55.30)	2.047 (51.99)	1.556 (39.52)			1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	2.299 (58.39)	2.173 (55.19)	1.6 (40.64)	M44 X 1.0-6g
H	23	1.5000 -0.1P-0.3L-TS-2A	2.201 (55.91)	2.079 (52.81)	1.566 (39.78)	M41 X 1.0-6g	.145 .133	1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	2.299 (58.39)	2.173 (55.19)	1.6 (40.64)	M44 X 1.0-6g
			2.177 (55.30)	2.047 (51.99)	1.556 (39.52)			1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	2.299 (58.39)	2.173 (55.19)	1.6 (40.64)	M44 X 1.0-6g
J	25	1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	M44 X 1.0-6g	.145 .133	1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	2.299 (58.39)	2.173 (55.19)	1.6 (40.64)	M44 X 1.0-6g
			2.299 (58.39)	2.173 (55.19)	1.6 (40.64)			1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	2.299 (58.39)	2.173 (55.19)	1.6 (40.64)	M44 X 1.0-6g

Panel Cut-Out			
Shell Size Code	Shell Size Ref	Ø J	K Flat
A	9	.703	.661
		.693	.654
B	11	.835	.771
		.825	.761
C	13	1.020	.955
		1.010	.945
D	15	1.145	1.085
		1.135	1.075
E	17	1.270	1.210
		1.260	1.200
F	19	1.395	1.335
		1.385	1.325
G	21	1.520	1.460
		1.510	1.450
H	23	1.645	1.585
		1.635	1.575
J	25	1.770	1.710
		1.760	1.700



**Recommended Cut-Out Panel**

# SuperNine® Environmental Series



## MIL-DTL-38999 Series III Type

### 233-211-00 PCB dual-flange wall-mount receptacles

ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	233-211				-00	NF	17-8	P	N
Series / Basic Part No.	233-211 = SuperNine PCB receptacle with dual flange								
Connector Style*	00 = Wall Mount Receptacle with Slotted Holes and Standard Stand-Off Thread 10 = Wall Mount Receptacle with Slotted Holes and Metric Stand-Off Thread CM = Wall Mount Receptacle with Metric Clinch Nuts CS = Wall Mount Receptacle with Standard Clinch Nuts HM = Wall Mount Receptacle with Metric Helicoils HS = Wall Mount Receptacle with Standard Helicoils								
Finish	NF = Al alloy/cadmium olive drab		MT = Al alloy/nickel PTFE		Consult factory for additional finish options				
	ME = Al alloy/electroless nickel		ZR = Al alloy/black zinc nickel						
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	P = Pin, Gold, 1500 cycles   S = Socket, Gold, 1500 cycles   H = Pin, Pd/Ni, 1500 cycles   J = Socket, Pd/Ni, 1500 cycles								
Alternate Polarization*	A, B, C, D, E, N = Normal, U = Universal (IAW MIL-DTL-38999 Series III)								

\*Refer to Section A for complete details

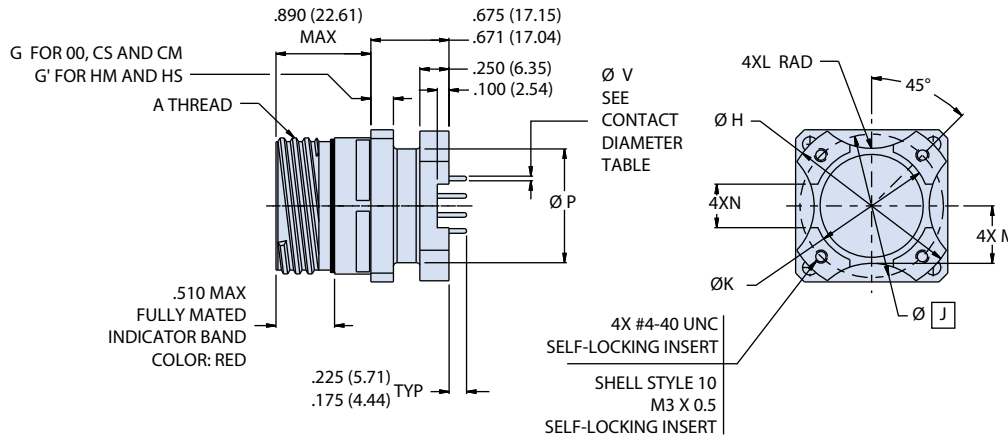
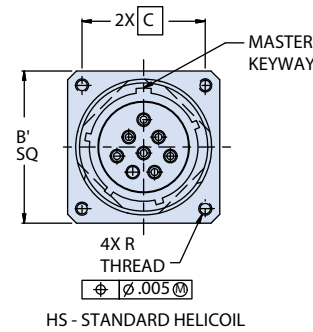
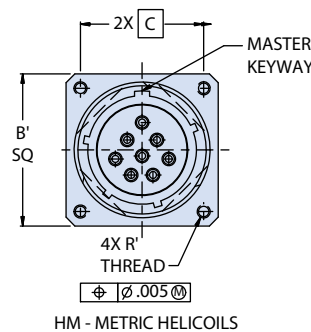
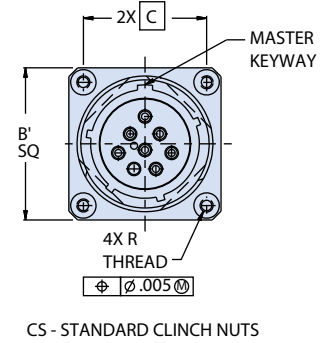
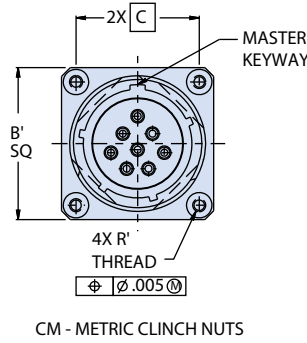
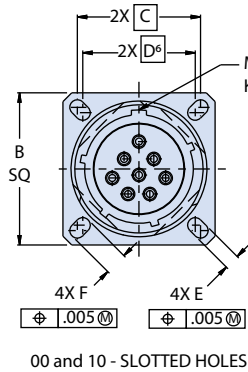
Dimensions										
Shell Size Code	Shell Size	A Thd 0.1P-0.3L-TS-2A	B Sq	B'	C Bsc	D Bsc <sup>6</sup>	E	G	G	G'
A	9	.6250	.948 (24.08) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.122 (3.10) .083 (2.11)	.179 (4.55) .140 (3.56)
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)		
C	13	.8750	1.137 (28.88) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)		.181 (4.60) .165 (4.19)		
D	15	1.0000	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.202 (5.13) .186 (4.72)	.153 (3.89) .114 (2.90)	
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)				
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)		.162 (4.11) .146 (3.71)	.250 (6.35) .234 (5.94)	
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)				
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)	.190 (4.83) .170 (4.32)			
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)				

Dimensions (Continued)										
Shell Size Code	Shell Size	ØH ±.005	ØJ Bsc	Ø K ±.005	L Rad ±.020	M ±.020	N ±.010	ØP ±.005	R Thd	R' Thd
A	9	1.016 (25.81)	.752 (19.10)	.532 (13.51)	.225 (5.72)	.275 (6.99)	.225 (5.72)	.535 (13.59)	.112-40 UNC	M3X0.5
B	11	1.062 (26.97)	.850 (21.59)	.595 (15.11)	.250 (6.35)	.290 (7.37)	.250 (6.35)	.560 (14.22)		
C	13	1.250 (31.75)	.994 (25.25)	.720 (18.29)	.375 (9.52)	.370 (9.40)	.250 (6.35)	.700 (17.78)		
D	15	1.375 (34.92)	1.119 (28.42)	.843 (21.41)	.438 (11.13)	.440 (11.18)	.325 (8.25)	.857 (21.77)		
E	17	1.500 (38.10)	1.237 (31.42)	1.000 (25.40)	.562 (14.27)	.495 (12.57)	.375 (9.52)	.980 (24.89)		
F	19	1.625 (41.28)	1.379 (35.03)	1.125 (28.58)	.875 (22.23)	.540 (13.72)	.500 (12.70)	1.060 (26.92)		
G	21	1.750 (44.45)	1.489 (37.82)	1.240 (31.50)	1.170 (29.72)	.625 (15.88)	.562 (14.27)	1.210 (30.73)		
H	23	1.875 (47.63)	1.619 (41.12)	1.328 (33.73)	1.250 (31.75)	.660 (16.76)	.688 (17.48)	1.310 (33.27)	.138-32 UNC	M4X0.7
J	25	2.000 (50.80)	1.744 (44.30)	1.453 (36.91)	1.375 (34.92)	.740 (18.80)	.750 (19.05)	1.460 (37.08)		

## MIL-DTL-38999 Series III Type

### 233-211-00 PCB dual-flange wall-mount receptacles

#### 00,10, CM, CS, HM, HS - WALL MOUNT RECEPTACLE



PC Tail Diameter	
Contact Size	ØV
23	.020 (.51) .018 (.46)
22	.020 (.51) .018 (.46)
20	.030 (.76) .028 (.71)
16	.040 (1.02) .038 (.97)
12	.072 (1.83) .070 (1.78)

#### NOTES

- 233-211 is designed to meet or exceed the mechanical, electrical, environmental and dimensional requirements of D38999/20 or /24 and MIL-STD-1560 except as shown and/or noted.
- Receptacle mates with 233-205/206 or any QPL manufacturer's D38999/26 series III plug having the same shell size, insert arrangement and polarization.
- Insert arrangements IAW MIL-STD-1560.
- 233-211 receptacle connector is designed with fixed PC tail contacts. Potting meets or exceeds ingress protection rating IP67 and is environmentally sealed with a leak rate of  $< 1 \times 10^{-4}$  ccHe/sec in an unmated condition.
- Alternate polarization 'U' is a non-standard/non-mil-spec option, allows mating to any QPL manufacturers MIL-DTL-38999 connector, intended for use in testing facilities.
- Front panel mount only

# SuperNine® Environmental Series



## MIL-DTL-38999 Series III Type

### 233-211-07 PCB dual-flange jam nut receptacles

ENVIRONMENTAL CONNECTORS



Part Number Development						
Sample Part Number	233-211	-07	NF	17-8	P	N
Series / Basic Part No.	233-211 = SuperNine PCB receptacle with dual flange					
Connector Style*	07 = Rear panel mount, jam-nut receptacle					
Finish	NF = Al alloy/cadmium olive drab ZR = Al alloy/black zinc nickel MT = Al alloy/nickel PTFE ME = Al alloy/electroless nickel Consult factory for additional finish options					
Shell Size-Insert Arrangement*	Per MIL-STD-1560					
Contact Type	P = Pin, Gold, 1500 cycles    S = Socket, Gold, 1500 cycles H = Pin, Pd/Ni, 1500 cycles    J = Socket, Pd/Ni, 1500 cycles					
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)					

\*Refer to Section A for complete details

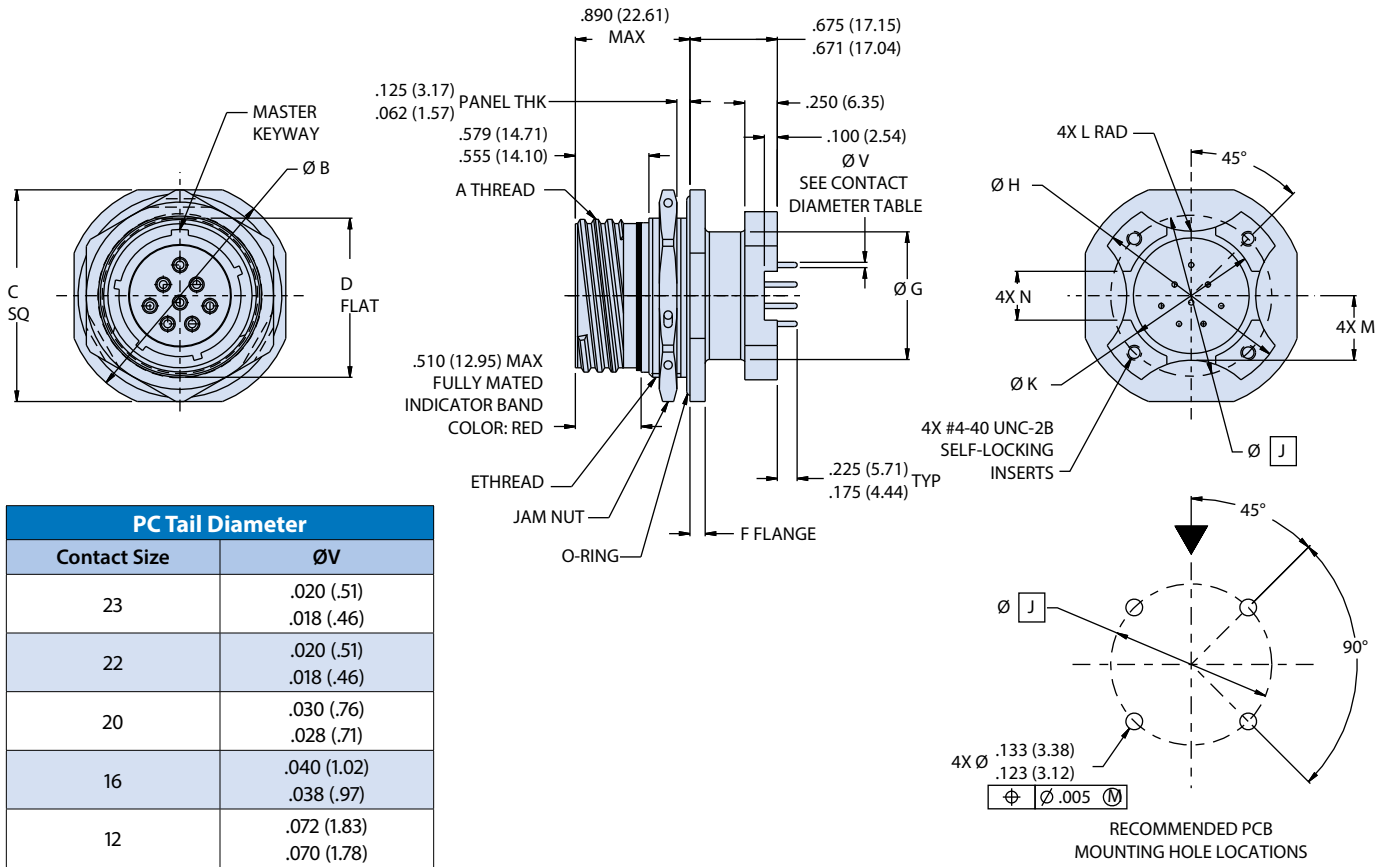
Dimensions														
Shell Size Code	Shell Size	A Thread -0.1P-0.3L- TS-2A	Ø B	C Sq	D Flat	E Thd ISO metric 1.0-6g 0.100R	F	Ø G ±.005	Ø H ±.005	Ø J Bsc	Ø K ±.005	L Rad ±.020	M ±.020	N ±.010
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17	.122 (3.10) .083 (2.11)	.535 (13.59)	1.016 (25.81)	.752 (19.10)	.532 (13.51)	.225 (5.72)	.275 (6.99)	.225 (5.72)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20		.560 (14.22)	1.062 (26.97)	.850 (21.59)	.595 (15.11)	.250 (6.35)	.290 (7.37)	.250 (6.35)
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25		.700 (17.78)	1.250 (31.75)	.994 (25.25)	.720 (18.29)	.375 (9.52)	.370 (9.40)	.250 (6.35)
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28		.857 (21.77)	1.375 (34.92)	1.119 (28.42)	.843 (21.41)	.438 (11.13)	.440 (11.18)	.325 (8.25)
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 *	.153 (3.89)	.980 (24.89)	1.500 (38.10)	1.237 (31.42)	1.000 (25.40)	.562 (14.27)	.495 (12.57)	.375 (9.52)
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35		1.060 (26.92)	1.625 (41.28)	1.379 (35.03)	1.125 (28.58)	.875 (22.23)	.540 (13.72)	.500 (12.70)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38	.114 (2.90)	1.210 (30.73)	1.750 (44.45)	1.489 (37.82)	1.240 (31.50)	1.170 (29.72)	.625 (15.88)	.562 (14.27)
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41	1.310 (33.27)	1.875 (47.63)	1.619 (41.12)	1.328 (33.73)	1.250 (31.75)	.660 (16.76)	.688 (17.48)	
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44	1.460 (37.08)	2.000 (50.80)	1.744 (44.30)	1.453 (36.91)	1.375 (34.92)	.740 (18.80)	.750 (19.05)	

\* Modified major diameter 31.95 - 31.80 (1.257 - 1.252)

## MIL-DTL-38999 Series III Type

### 233-211-07 PCB dual-flange jam nut receptacles

#### 07 - JAM-NUT MOUNT RECEPTACLE



PC Tail Diameter	
Contact Size	ØV
23	.020 (.51)
	.018 (.46)
22	.020 (.51)
	.018 (.46)
20	.030 (.76)
	.028 (.71)
16	.040 (1.02)
	.038 (.97)
12	.072 (1.83)
	.070 (1.78)

#### NOTES

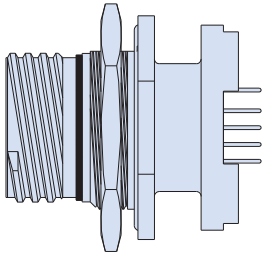
- 233-211 is designed to meet or exceed the mechanical, electrical, environmental and dimensional requirements of D38999/24 and MIL-STD-1560 except as shown and/or noted. Receptacle mates with any QPL manufacturer's D38999/26 series III plug having the same shell size, insert arrangement and polarization.
- 233-211-07 receptacle connector is designed with fixed PC tail contacts. Connector potting process meets or exceeds ingress protection rating IP67 and is environmentally sealed with a leak rate of  $< 1 \times 10^{-4}$  ccHe/sec in an unmated condition.
- 233-211-07 receptacle connector is designed to withstand a minimum of 1500 mating durability cycles when mated to a SuperNine® plug and appropriate contacts. Contact finish should be the same for both mating connectors to optimize performance
- Insert arrangements IAW MIL-STD-1560. Contact manufacturer for additional arrangement options.
- Material/finish
  - Shell: see part number development, finish
  - Contacts: copper alloy/see part number development, contact type
  - Insulators: high-grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Potting: epoxy/N.A.
  - O-ring: silver plated aluminum in fluorosilicone (cho-seal 1298) or equivalent)



## MIL-DTL-38999 Series III Type

### 2333-2007 dual flange, jam-nut mount receptacle with PC tails

ENVIRONMENTAL CONNECTORS



Part Number Development						
Sample Part Number	2333-2007	NF	17-8	P	N	L
Series / Basic Part No.	2333-2007 = SuperNine dual flange receptacle with epoxy sealed PC tails					
Finish	NF = Al alloy/cadmium olive drab ZR = Al alloy/black zinc nickel MT = Al alloy/nickel PTFE ME = Al alloy/electroless nickel Consult factory for additional finish options					
Shell Size-Insert Arrangement*	Per MIL-STD-1560					
Contact Type	P = Pin, P.C. termination    S = Socket, P.C. termination					
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)					
PC Tail Length	L = .280 (7.11) min    Omit for basic .142 (3.61)					

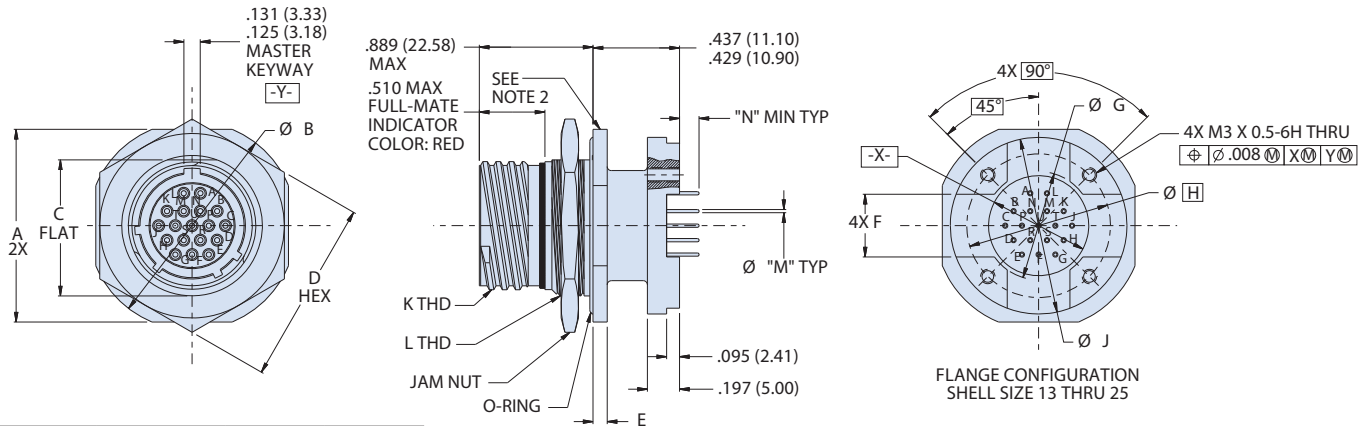
#### NOTES

- Glenair's 2333-2007 receptacle connector is designed with fixed PC tail contacts. Connector potting process meets or exceeds ingress protection rating IP67 and is environmentally sealed with a leak rate of  $< 1 \times 10^{-4}$  ccHe/sec in an unmated condition
- Insert arrangement is in accordance with MIL-STD-1560. Contact manufacturer for additional arrangement options. Insert arrangement shown is for reference only.
- Glenair P/N 2333-2007 receptacle is designed to meet or exceed the mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/24, and MIL-STD-1560 except as shown and/or noted. Receptacle mates with any QPL manufacturer's MIL-DTL-38999, Series III plug connector, D38999/26, having the same shell size, insert arrangement and polarization.
- Modified major diameter 31.95 - 31.80 (1.257 - 1.252).
- Material / finish:
  - Shell, jam-nut - see P/N development
  - Contacts - copper alloy / gold plate
  - Insulator - rigid dielectric
  - Seals - fluorosilicone blend
  - Potting - epoxy
  - O-ring - silver plated aluminum in fluorosilicone
  - (Cho-seal 1298 or equivalent)

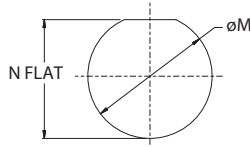
**MIL-DTL-38999 Series III Type**

**2333-2007 dual flange, jam-nut mount receptacle with PC tails**

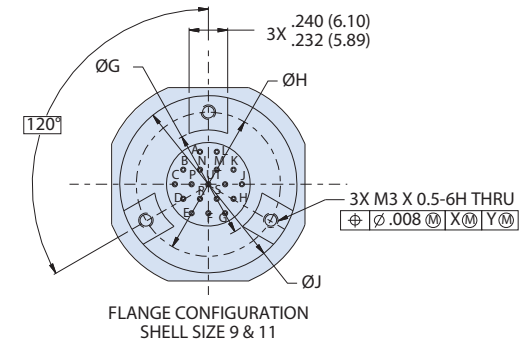
**07 - DUAL FLANGE JAM-NUT MOUNT RECEPTACLE**



PC Tail Diameter			
Contact Size	PC Tail Ø "M"	"N" Min Length	
		Basic	"L"
22	.022 (0.56) .018 (.46)	.142 (3.61)	.280 (7.11)
20	.032 (0.81) .027 (0.69)	.142 (3.61)	.280 (7.11)
16	.042 (1.07) .038 (0.97)	.142 (3.61)	.280 (7.11)
12	.096 (2.44) .092 (2.34)	.142 (3.61)	.280 (7.11)



**Recommended Panel Cut-out**



Dimensions														
SHELL SIZE CODE	SHELL SIZE REF	A ±.016	Ø B ±.012	C FLAT ±.005	D HEX ±.015	E ±.016	F ±.004	Ø G ±.006	Ø H BSC	Ø J ±.006	K THREAD CLASS 2A .1P-.3L-TS (PLATED)	L THREAD METRIC (PLATED)	Ø M	N FLAT
A	9	1.063 (27.00)	1.189 (30.20)	0.650 (16.51)	0.945 (24.00) 0.859 (21.82)	0.098 (2.49)		0.594 (15.09)	0.807 (20.50)	1.024 (26.01)	0.625 (15.88)	M17 x 1-6g-0.10R	0.703 (17.86) 0.693 (17.60)	0.661 (16.79) 0.654 (16.61)
B	11	1.252 (31.80)	1.374 (34.90)	0.750 (19.05)	1.063 (27.00) 0.984 (24.99)	0.098 (2.49)		0.783 (19.89)	0.992 (25.20)	1.213 (30.81)	0.7500 (19.05)	M20 x 1-6g-0.10R	0.835 (21.21) 0.825 (20.96)	0.771 (19.58) 0.761 (19.33)
C	13	1.374 (34.90)	1.500 (38.10)	0.937 (23.80)	1.260 (32.00) 1.172 (29.77)	0.098 (2.49)	0.476 (12.09)	0.783 (19.89)	0.994 (25.25)	1.213 (30.81)	0.8750 (22.23)	M25 x 1-6g-0.10R	1.020 (25.91) 1.010 (25.65)	0.955 (24.26) 0.945 (24.00)
D	15	1.500 (38.10)	1.626 (41.30)	1.061 (26.95)	1.417 (35.99) 1.296 (32.92)	0.098 (2.49)	0.555 (14.10)	0.906 (23.01)	1.119 (28.42)	1.335 (33.91)	1.0000 (25.40)	M28 x 1-6g-0.10R	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.31)
E	17	1.626 (41.30)	1.752 (44.50)	1.186 (30.12)	1.457 (37.01) 1.422 (36.12)	0.098 (2.49)	0.634 (16.10)	1.024 (26.01)	1.237 (31.42)	1.449 (36.80)	1.1875 (30.16)	M32 x 1-6g-0.10R*	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)
F	19	1.811 (46.00)	1.937 (49.20)	1.311 (33.30)	1.614 (41.00) 1.545 (39.24)	0.130 (3.30)	0.713 (18.11)	1.161 (29.49)	1.379 (35.03)	1.591 (40.41)	1.2500 (31.75)	M35 x 1-6g-0.10R	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.66)
G	21	1.937 (49.20)	2.063 (52.40)	1.436 (36.47)	1.811 (46.00) 1.672 (42.47)	0.130 (3.30)	0.791 (20.09)	1.268 (32.21)	1.489 (37.82)	1.701 (43.21)	1.3750 (34.93)	M38 x 1-6g-0.10R	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)
H	23	2.063 (52.40)	2.189 (55.60)	1.561 (39.65)	1.969 (50.01) 1.796 (45.62)	0.130 (3.30)	0.909 (23.09)	1.398 (35.51)	1.619 (41.12)	1.831 (46.51)	1.5000 (38.10)	M41 x 1-6g-0.10R	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.01)
J	25	2.189 (55.60)	2.311 (58.70)	1.686 (42.82)	2.017 (51.23) 1.939 (49.25)	0.130 (3.30)	0.988 (25.10)	1.520 (38.61)	1.744 (44.30)	1.953 (49.61)	1.6250 (41.28)	M44 x 1-6g-0.10R	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)

\*See note 4



# SAV-CON<sup>®</sup> Connector Savers

The smart solution for preventing contact damage and extending the service life of cable assemblies and box and panel-mount receptacles.



Glenair Sav-Con<sup>®</sup> Connector Savers are designed to protect connectors that are subject to repeated mating and unmating cycles. Sav-Con<sup>®</sup> Connector Savers prevent costly repair or replacement of expensive connectors and cables while preserving the quality and integrity of connector performance. Sav-Con<sup>®</sup> Connector Savers take the abuse of repeated connection cycles instead of "black box" or other equipment connectors. Equipment connectors that are mated and unmated frequently during manufacturing, check-out phases and environmental test programs can be protected by Glenair Sav-Con<sup>®</sup> Connector Savers at considerable savings in time and money.

## Features:

- SuperNine series Sav-Con<sup>®</sup>s are available in space-grade (Class G) for both laboratory test and flight applications
- Available for every standard 1560 insert arrangement
- Broad range of finish platings
- High-reliability performance
- 500 mating cycles
- Gender changers
- Independent pin and socket contact selection
- Independent keyed polarization
- Wall mount and jam-nut mount bulkhead feed-thrus



Gender changers provide a simple solution to mismatched connector interfaces and are available in bulkhead feed-through or in-line configurations



High-reliability connector savers prevent mating cycle damage to receptacle connectors during qualification and test, significantly reducing wear and the possibility of damage prior to delivery





# Sav-Con® connector savers

Circular, rectangular, and special application  
Military standard and commercial connectors



## FULL RANGE OF SUPERNINE SERIES ENVIRONMENTAL SAV-CON®S



SuperNine MIL-DTL-38999  
Series III Type In-Line Plug/  
Receptacle Sav-Con



SuperNine MIL-DTL-38999  
Series III Type Bulkhead Feed-  
Thru Gender Changer / Sav-Con



SuperNine MIL-DTL-38999  
Series III Type In-Line Sav-Con  
Gender Changer



SuperNine Special Application  
Sav-Con's Solving Unique  
Customer Problems

## SAV-CON® RECTANGULAR D-SUBMINIATURE, MICRO, AND NANO MINIATURE CONNECTOR SERIES



M24308  
D-subminiature



Micro-D



Nano-Miniature™



HiPer-D®

## SAV-CON® SPECIAL APPLICATION CONNECTOR SERIES



MIL-DTL-38999 Series I  
Bayonet-Lock Sav-Con



MIL-DTL-38999 Series III  
Type Filtered Adapter



HiPer-D® Gender  
Changer



Micro-D Filter

Each Glenair Sav-Con® Connector Saver meets the military specification performance requirements of its mating connector. Glenair manufactures and supplies a Sav-Con® connector saver for most every military standard connector currently in use including:

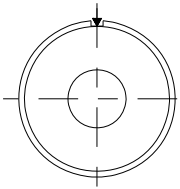
- MIL-DTL-26482 Series I and II
- MIL-DTL-28840
- MIL-DTL-38999 Series I, II and III
- MIL-DTL-83723 LN 29729 (SJT)
- PATT 105 and PATT 602
- Series 801 and 805 Mighty Mouse
- M24308 D-Subminiature
- MIL-DTL-83513 Micro-D Subminiature
- MIL-DTL-5015
- Series 28 HiPer-D® M24308 intermateable
- Series 89 Nano Miniature™ M32139
- Series 79 Micro-Crimp®

Comprehensive materials, plating, and polarization options available

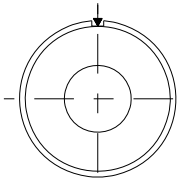
**MIL-DTL-38999 Series III Type**

**MIL-STD-1560 supported insert arrangements for Sav-Con®**

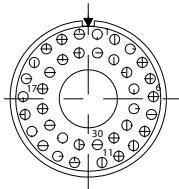
ENVIRONMENTAL CONNECTORS



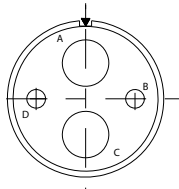
ARRANGEMENT 9G5  
1 X SIZE 8  
(COMMON GROUND ONLY)  
see note 1



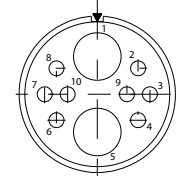
ARRANGEMENT 11-01  
1 X SIZE 8  
see note 1



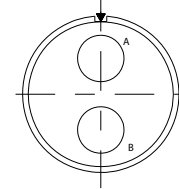
ARRANGEMENT 17-02  
1X SIZE 8  
38X SIZE 22



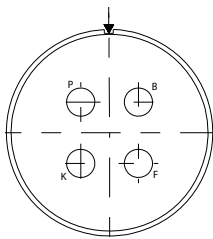
ARRANGEMENT 17-22  
2X SIZE 8  
2X SIZE 12



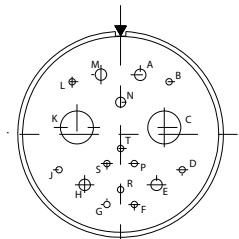
ARRANGEMENT 17-602X  
SIZE 8  
8X SIZE 22



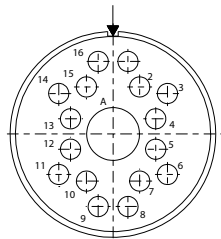
ARRANGEMENT 17-75  
2X SIZE 8  
see note 1



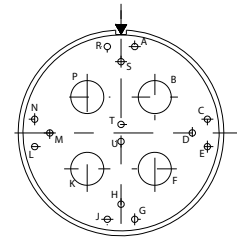
ARRANGEMENT 19-4  
4X SIZE 8  
see note 1



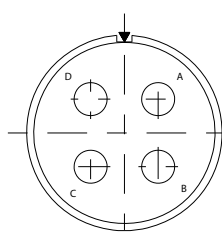
ARRANGEMENT 19-17  
10X SIZE 22D  
1X SIZE 20  
4X SIZE 16  
2X SIZE 8



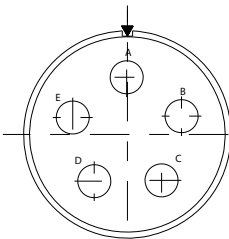
ARRANGEMENT 19A-17  
20X SIZE 16  
1X SIZE 8



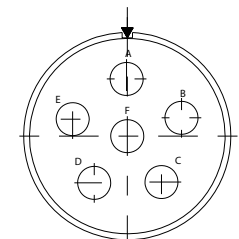
ARRANGEMENT 19-18  
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4X SIZE 8



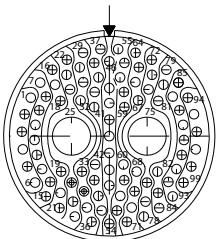
ARRANGEMENT 21-75  
4X SIZE 8  
see note 1



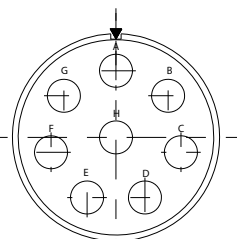
ARRANGEMENT 23-5  
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see note 1



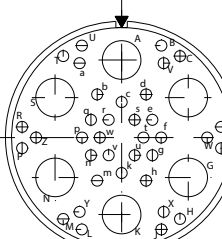
ARRANGEMENT 23-6  
6X SIZE 8  
see note 1



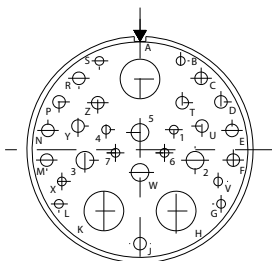
ARRANGEMENT 25-7  
97X SIZE 22  
2X SIZE 8



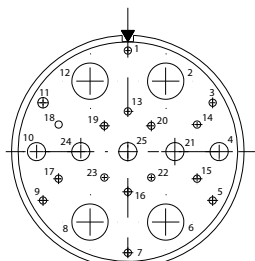
ARRANGEMENT 25-8  
8X SIZE 8  
see note 1



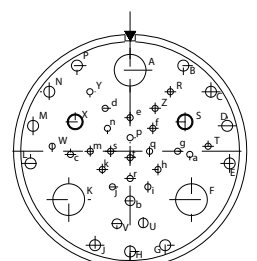
ARRANGEMENT 25-17  
36X SIZE 22  
6X SIZE 8



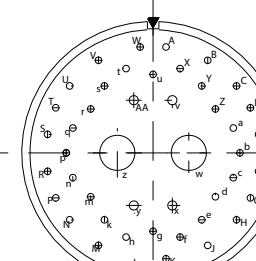
ARRANGEMENT 25-20  
10X SIZE 20  
13X SIZE 16  
4X SIZE 12  
3X SIZE 8



ARRANGEMENT 25-26  
16X SIZE 20  
5X SIZE 12  
4X SIZE 8



ARRANGEMENT 25-41  
22X SIZE 22D, 3X SIZE 20  
11X SIZE 16, 2X SIZE 12  
3X SIZE 8



ARRANGEMENT 25-46  
40X SIZE 20  
4X SIZE 16  
2X SIZE 8

1. Ground plane option only available for insert arrangements where all contacts are shielded type.
2. Arrangements shown support signal/power contacts only. Contact factory for special requirements.

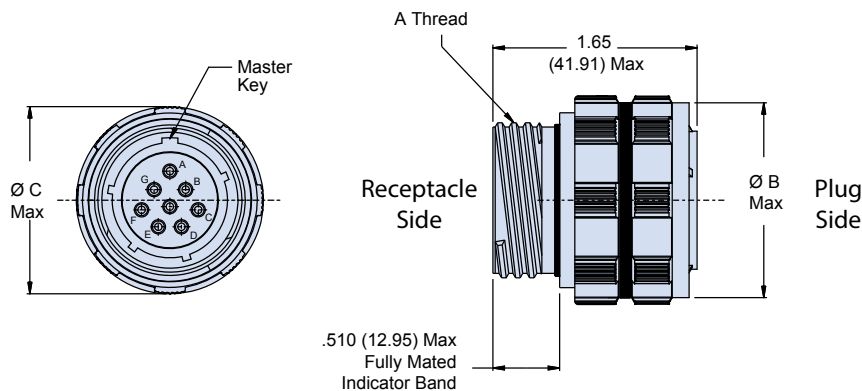


## MIL-DTL-38999 Series III Type 233-213 Sav-Con® in-line connector saver

### ENVIRONMENTAL IN-LINE WITH PIN/PIN AND SOCKET/SOCKET OPTIONS PLUS INDEPENDENT ALTERNATE POLARIZATION

Part Number Development							
Sample Part Number	233-213	-NF	17-8	P	N	S	N
Series / Basic Part No.	233-213 = Sav-Con Connector Saver, High Reliability class						
Finish	NF = Cadmium Olive Drab ME = Electroless Nickel MT = Nickel PTFE ZR = Black Zinc Nickel						
Shell Size - Insert Arrangement*	Per MIL-STD-1560; see page 54						
Contact Style (Plug Side)	P = Pin, gold, 500 cycles   S = Socket, gold, 500 cycles See Notes 3 and 4						
Alternate Polarization* (Plug Side)	A, B, C, D, E, N = Normal, U = Universal see note 6						
Contact Style (Receptacle Side)	P = Pin, gold, 500 cycles   S = Socket, gold, 500 cycles See Notes 3 and 4						
Alternate Polarization* (Receptacle Side)	A, B, C, D, E, N = Normal, U = Universal; See Note 6						

\*Refer to Section A for complete details



Dimensions				
Shell Size Code	Shell Size	A Thread	Ø B Max	Ø C Max
A	9	.6250 - 0.1P - 0.3L - TS-2A	.811 (20.60)	.858 (21.79)
B	11	.7500 - 0.1P - 0.3L - TS-2A	.929 (23.60)	.984 (24.99)
C	13	.8750 - 0.1P - 0.3L - TS-2A	1.110 (28.19)	1.157 (29.39)
D	15	1.0000 - 0.1P - 0.3L - TS-2A	1.232 (31.29)	1.280 (32.51)
E	17	1.1875 - 0.1P - 0.3L - TS-2A	1.358 (34.49)	1.406 (35.71)
F	19	1.2500 - 0.1P - 0.3L - TS-2A	1.469 (37.31)	1.516 (38.51)
G	21	1.3750 - 0.1P - 0.3L - TS-2A	1.594 (40.49)	1.642 (41.71)
H	23	1.5000 - 0.1P - 0.3L - TS-2A	1.720 (43.69)	1.768 (44.91)
J	25	1.6250 - 0.1P - 0.3L - TS-2A	1.843 (46.81)	1.890 (48.01)

#### NOTES

- Glenair's 233-213 connector savers are designed to meet or exceed the mechanical dimensional, electrical, and environmental, requirements of MIL-DTL-38999, D38999/20, D38999/26, and MIL-STD-1560 except as shown and /or noted.
- Glenair connector savers mate with any QPL manufacturer's MIL-DTL-38999, series III plugs and receptacles that have the same shell size, insert arrangement, and polarization.
- For pin/pin and socket/socket, symmetrical insert layouts only.
- Power to a given contact on one end will result in power to a contact directly opposite, regardless of identification letter.
- Electrical safety limits must be established by user. Peak voltage, switching surge, transient, etc. should be used to determine the safety application.
- Alternate polarization 'U' (universal) is a non-standard/non-mil-spec option intended for test lab use only which allows for mating to any QPL manufacturer's MIL-DTL-38999, series III connector having the same shell size, insert arrangement, and mating contact size.
- Material/finish:
  - Barrel, coupling nut: see part number development, finish
  - detent spring: stainless steel/passivated
  - insulator: high grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Contacts: copper alloy/gold plated
- Signal power inserts only, see Section C, part number 233-228 for size 8 cavity options.

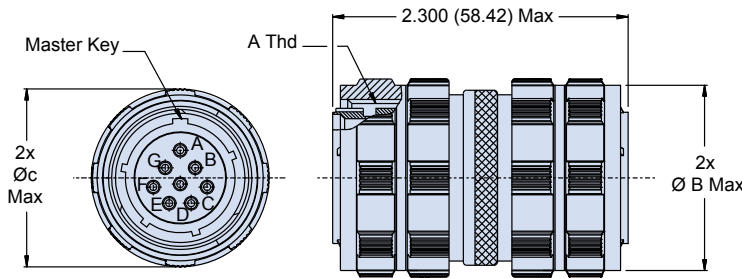
## MIL-DTL-38999 Series III Type

### 233-214 Sav-Con® in-line plug / plug connector saver

ENVIRONMENTAL CONNECTORS

Part Number Development											
Sample Part Number	233-214					-NF	17-8	P	N	S	N
Series / Basic Part No.	233-214 = Sav-Con Connector Saver with polarization options										
Finish	NF = Cadmium Olive Drab		ME = Electroless Nickel								
	MT = Nickel PTFE		ZR = Black Zinc Nickel								
Shell Size - Insert Arrangement*	Per MIL-STD-1560, see page 54 for supported layouts; see note 7										
Contact Style (Plug Side)	P = Pin, gold, 500 cycles		S = Socket, gold, 500 cycles								
	See notes 2 and 3										
Alternate Polarization* (Plug Side)	A, B, C, D, E, N = Normal, U = Universal; See Note 5										
Contact Style (Plug Side)	P = Pin, gold, 500 cycles		S = Socket, gold, 500 cycles								
	See notes 2 and 3										
Alternate Polarization* (Plug Side)	A, B, C, D, E, N = Normal, U = Universal; See Note 5										

\*Refer to Section A for complete details



Dimensions				
Shell Size Code	Shell Size	A Thread .1P-.3I-TS-2B	ØB Max	ØC Max
A	9	.6250	0.811 (20.6)	0.858 (21.8)
B	11	.7500	0.929 (23.6)	0.984 (25.0)
C	13	.8750	1.110 (28.2)	1.157 (29.4)
D	15	1.0000	1.232 (31.3)	1.280 (32.5)
E	17	1.1875	1.358 (34.5)	1.406 (35.7)
F	19	1.2500	1.469 (37.3)	1.516 (38.5)
G	21	1.3750	1.594 (40.5)	1.642 (41.7)
H	23	1.5000	1.720 (43.7)	1.768 (44.9)
J	25	1.6250	1.843 (46.8)	1.890 (48.0)

#### NOTES

- Glenair's 233-214 connector savers are designed to meet or exceed the mechanical dimensional, electrical, and environments, requirements of MIL-DTL-38999, D38999/20 and /24 and MIL-STD-1560 except as shown and /or noted. Glenair connector savers mate with any QPL manufacturer's MIL-DTL-38999, series III plugs and receptacles have the same shell size, insert arrangement, and polarization.
- For pin/pin and socket/socket, symmetrical layout only.
- Power to a given contact on one end will result in power to a contact directly opposite, regardless of identification letter.
- Electrical safety limits must be established by user. Peak voltage, switching surge, transient, etc. should be used to determine the safety application.
- Alternate polarization 'U' (universal) is a non-standard/non-mill-spec option intended for test lab use only which allows for mating to any QPL manufacturer's MIL-DTL-38999, series III connector having the same shell size, insert arrangement, and mating contact size. Universal connectors are intended for use in testing facilities only and should be highly evaluated before consideration in another environment.
- Signal/power inserts only.
- Material/finish
  - Barrel, coupling nut: see part number development, finish
  - Detent spring: stainless steel/passivated
  - Insulator: high grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - contacts: copper alloy/gold plated



**MIL-DTL-38999 Series III Type**

**233-212-00 Wall-mount bulkhead feed-thrus**

ENVIRONMENTAL CONNECTORS

Part Number Development														
Sample Part Number	233-212						-00	NF	17-8	P	N	S	N	-01
Series / Basic Part No.	233-212 = SuperNine Environmental Bulkhead feedthru													
Connector Style	00 = Wall Mount Receptacle with Slotted Holes CM = Wall Mount Receptacle with Metric Clinch Nuts CS = Wall Mount Receptacle with Standard Clinch Nuts HM = Wall Mount Receptacle with Metric Helicoils HS = Wall Mount Receptacle with Standard Helicoils													
Finish*	NF = Cadmium Olive Drab      ME = Electroless Nickel MT = Nickel PTFE                ZR = Black Zinc Nickel													
Shell Size-Insert Arrangement*	Per MIL-STD-1560, see page 54 for supported layouts; see note 7													
Contact Type (Panel Side) See Note 1	P = Pin, Panel Side; 500 Cycles    S = Socket, Panel Side; 500 Cycles													
Alternate Polarization*	A, B, C, D, E, N = Normal, U = Universal													
Contact Type (Flange Side) See Note 1	P = Pin, Flange Side; 500 Cycles    S = Socket, Flange Side; 500 Cycles													
Alternate Polarization*	A, B, C, D, E, N = Normal, U = Universal													
Panel Accommodation	-01 = .062/.125			-02 = .062/.250			-03 = .062/.500							

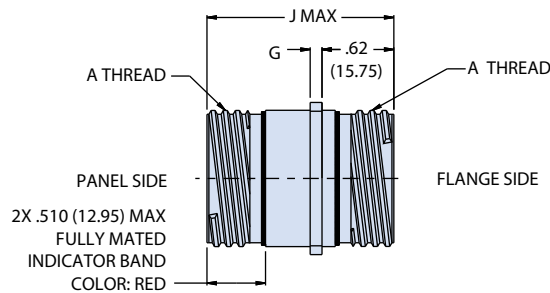
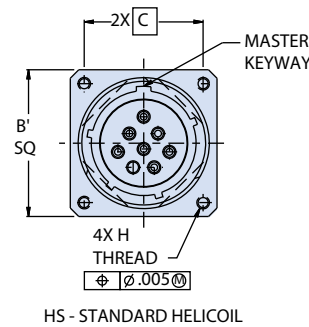
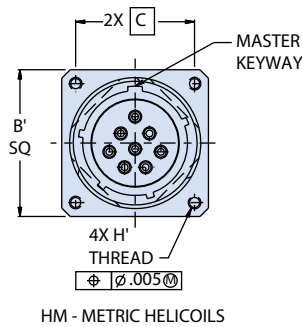
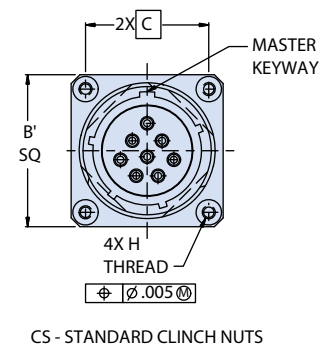
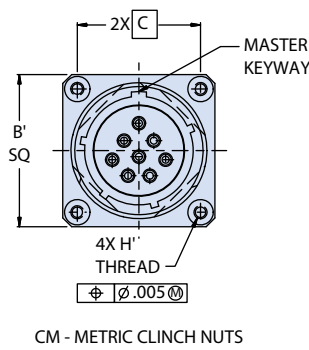
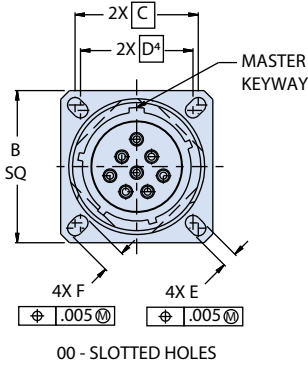
\*Refer to Section A for complete details

Dimensions													
Shell Size Code	Shell Size	A Thread -0.1P-0.3L-TS-2A	B Sq	B' Sq	C Bsc	D Bsc <sup>4</sup>	E	F	G	G'	H Thd	H' Thd	
A	9	.6250	.949 (24.10) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.122 (3.10) .083 (2.11)	.179 (4.55) .140 (3.56)	.112-40	M3X0.5	
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)					
C	13	.8750	1.138 (28.91) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)		.181 (4.60) .165 (4.19)					
D	15	1.0000	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)							
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)							
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)		.202 (5.13) .186 (4.72)					
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)		.153 (3.89) .114 (2.90)					
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)	.162 (4.11) .146 (3.71)	.250 (6.35) .234 (5.94)		.190 (4.83) .170 (4.32)	.138-32	M4X0.7	
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)							

## MIL-DTL-38999 Series III Type 233-212-00 Wall-mount bulkhead feed-thrus

ENVIRONMENTAL CONNECTORS

### 00, CM, CS, HM, HS - WALL MOUNT RECEPTACLES



Panel Accommodation		
Sym	Panel Thickness	J Max
01	.125 (3.18) .062 (1.57)	1.70 (43.18)
02	.250 (6.35) .062 (1.57)	1.83 (46.48)
03	.500 (12.70) .062 (1.57)	2.08 (52.83)

#### NOTES:

- 233-212 feed-thru connector is designed to meet or exceed the mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/20, and MIL-STD-1560 except as shown and/or noted. Feed-thru mates with any QPL manufacturer's MIL-DTL-38999, Series III plug connector, D38999/26, having the same shell size, insert arrangement, and polarization.
- For pin/pin and socket/socket, symmetrical layouts only, consult factory for available symmetrical insert arrangements.
- Power to a given contact on one end will result in power to a given contact directly opposite, regardless of identification letter.
- Front panel mount only
- Alternate polarization 'U' is a non-standard/non-mil-spec option, allows mating to any QPL manufacturers MIL-DTL-38999 connector, intended for use in testing facilities.
- Electrical safety limits must be established by user. Peak voltage, switching surge, transient, etcetera should be determined the safety application.
- Signal/power inserts only, see Section C, P/N 233-277 for size 8 cavity options.
- Material/finish
  - Shell: see P/N development, finish
  - Contacts: copper alloy/gold plated
  - Insulators: high-grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.

**MIL-DTL-38999 Series III Type**  
**233-212-07 Jam-nut bulkhead feed-thru**

ENVIRONMENTAL CONNECTORS

Part Number Development														
Sample Part Number	233-212						-07	NF	17-8	P	N	S	N	-01
Series / Basic Part No.	233-212 = SuperNine Environmental Bulkhead Feed-thru													
Connector Style	07 = Jam-nut Receptacle													
Finish*	NF = Cadmium Olive Drab		ME = Electroless Nickel											
	MT = Nickel PTFE		ZR = Black Zinc Nickel											
Shell Size-Insert Arrangement*	Per MIL-STD-1560, see page 54 for supported layouts; see note 7													
Contact Type (Panel Side) See Note 1	P = Pin, gold, 500 Cycles			S = Socket, gold, 500 Cycles										
Alternate Polarization* (Panel Side)	A, B, C, D, E, N = Normal, U = Universal													
Contact Type (Flange Side) See Note 1	P = Pin, gold, 500 Cycles			S = Socket, gold, 500 Cycles										
Alternate Polarization* (Flange Side)	A, B, C, D, E, N = Normal, U = Universal													
Panel Accommodation	See Panel Accommodation Table													

\*Refer to Section A for complete details

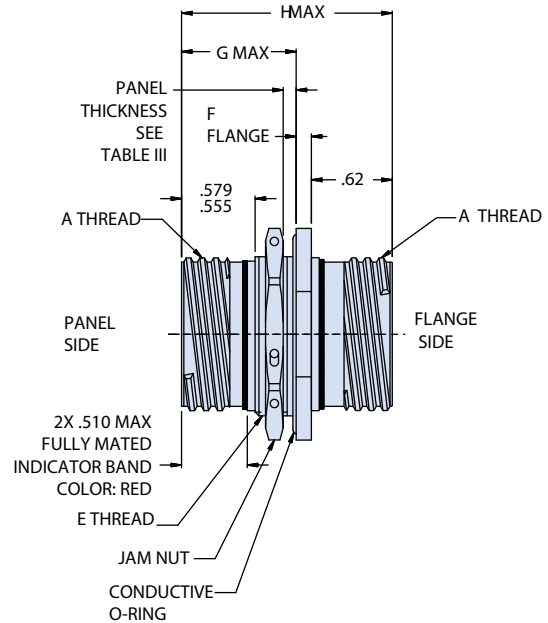
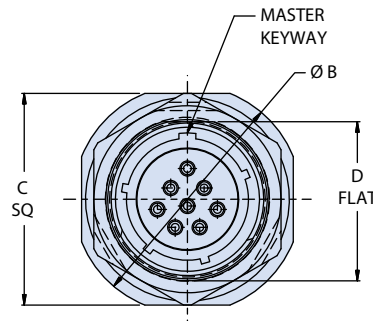
Dimensions							
Shell Size Code	Shell Size	A Thd	Ø B	C Sq	D Flat	E Thd ISO Metric	F
A	9	.6250 -0.1P-0.3L-TS-2A	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g	.122 (3.10) .083 (2.11)
B	11	.7500 -0.1P-0.3L-TS-2A	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g	
C	13	.8750 -0.1P-0.3L-TS-2A	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g	
D	15	1.0000-0.1P-0.3L-TS-2A	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g	
E	17	1.1875 -0.1P-0.3L-TS-2A	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g*	
F	19	1.2500 -0.1P-0.3L-TS-2A	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g	.153 (3.89) .114 (2.90)
G	21	1.3750 -0.1P-0.3L-TS-2A	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g	
H	23	1.5000 -0.1P-0.3L-TS-2A	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g	
J	25	1.6250 -0.1P-0.3L-TS-2A	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g	

\* Modified major diameter 31.95 - 31.80 (1.257 - 1.252).



## MIL-DTL-38999 Series III Type 233-212-07 Jam-nut bulkhead feed-thru

ENVIRONMENTAL CONNECTORS



Panel Accommodation			
Sym	Panel Thickness	G Max	H Max
01	.125 (3.18) .062 (1.57)	.890 (22.61)	1.70 (43.18)
02	.250 (6.35) .062 (1.57)	1.015 (25.78)	1.83 (46.48)
03	.500 (12.70) .062 (1.57)	1.265 (32.13)	2.08 (52.83)

**NOTES:**

- 233-212-07 feed-thru connector is designed to meet or exceed the mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/24, and MIL-STD-1560 except as shown and/or noted. Feed-thru mates with any QPL manufacturer's MIL-DTL-38999, series III plug connector, D38999/26, having the same shell size, insert arrangement, and polarization.
- For pin/pin and socket/socket, symmetrical layouts only, consult factory for available symmetrical insert arrangements.
- Power to a given contact on one end will result in power to a given contact directly opposite, regardless of identification letter. Alternate polarization 'U' is a non-standard/non-mil-spec option, allows mating to any QPL manufacturers MIL-DTL-38999 connector, intended for use in testing facilities.
- Electrical safety limits must be established by user. Peak voltage, switching surge, transient, etc. should be used to determine the safety application.
- Signal/power inserts only, see Section C, part number 233-277 for size 8 cavity options.
- Material/finish
  - Shell, jam-nut: see part number development table, finish
  - contacts: copper alloy/gold plated
  - insulators: high-grade rigid dielectric/N.A.
  - seals: fluorosilicone blend/N.A.
  - O-ring: silver plated aluminum in fluorosilicone (cho-seal 1298 or equivalent)



# SuperNine® PWM

## Aerospace-grade connectors for PWM and other high-voltage, high-temperature applications

High-voltage power connectors optimized for pulse width modulation applications (PWM) require unique capabilities including the ability to withstand PWM inverter electrical stresses far different from standard 50/60 Hz AC conditions. Designed in collaboration with the Clean Sky Consortium, Glenair SuperNine® PWM power connectors have been optimized for PWM switch frequencies, 1000V working voltages, and temperature range tolerance from -65° to +200°C. In addition to its high-performance, heavy gold crimp power contacts, the SuperNine® PWM features stainless steel connector shells and temperature-tolerant PEEK (polyetheretherketone) dielectric inserts. Engineered contact-to-contact spacing and contact-to-shell grounding contributes to this connector's unique capability in MEA (More Electric Aircraft) and other power-intensive commercial and military applications.

SuperNine® PWM is the latest offering in Glenair's high-performance MIL-DTL-38999 Series III connector family. Glenair is a qualified (QPL) supplier of MIL-DTL-38999 Series III connectors (EN3645-001: 23 type). SuperNine® rolls up many of the technology advances Glenair has pioneered in our commercial environmental, hermetic, and filter D38999 connectors from our over 60 years in the interconnect industry.

SuperNine® is intermateable with all industry-standard D38999 solutions and accommodates Glenair's broad range of connector designator "H" backshells, protective covers, shrink boots and lightweight composite accessories.



- 1000 VAC RMS/VDC working voltage
- IAW EN3645-001: 23
- Certified for Clean Sky PWM inverters
- SuperNine® high-performance MIL-DTL-38999 type
- High-vibration / anti-decoupling performance
- Shell-to-shell grounding plus integral EMI grounding fingers
- High-temperature tolerant PEEK inserts
- Heavy gold-plated size #8 power crimp contacts
- Wide range of supported cables
- Available strain relief and shield termination backshells

## MIL-DTL-38999 Series III Type

### Pulse Width Modulation (PWM) connectors IAW EN3645-01:23

ENVIRONMENTAL CONNECTORS

#### TECHNICAL CHARACTERISTICS AND MATERIALS

- Shell size according to EN3645-001: 23
- Four size #8 crimp contacts
- Working voltage: 1000 Vac RMS/Vdc
- Voltage proof test: see table below
- Contact current rating (4 contacts loaded): 125A @20°C; 70A @ 135°C
- Max. contact resistance: 2 mΩ
- Min. insulating resistance: 5000 MΩ
- Working temperature (continuous): (-65 to +200) °C
- Max. working temperature for short time (60s): 260°C
- Max. ambient temperature: 135°C
- IP rating (mated): IP67 IAW EN 60529
- 500 mating cycles

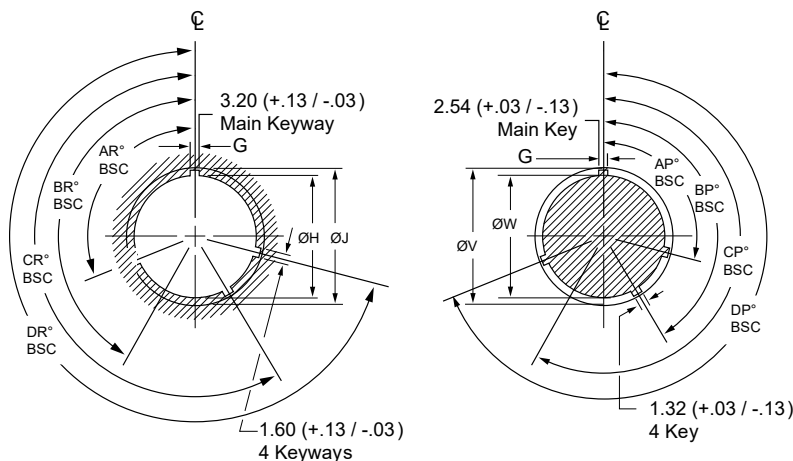
Materials	
Component	Material
Contacts	High Conductivity Copper Alloy Gold Over Nickel Plated
Insert	Plastic Peek Material
Interfacial Seal and Grommet	Silicone Elastomer
Metallic Parts	Passivated Stainless Steel

#### ELECTRICAL PERFORMANCE

Voltage Proof Test		
Pressure	Rating	
	Mated (Vac RMS)	Unmated (Vac RMS)
Sea Level	3000	3000
12.1 kPa (15000 meters)	1000	900
4.7 kPa (21000 meters)	1000	540
1.1 kPa (30000 meters)	1000	270

Voltage Proof with Partial Discharge Measurement	
Description	Requirement
Measurement of partial discharge (one minute at 1.5 kVac RMS)	< 10 pC
PDIV (Partial discharge ignition voltage)	> 1080 Vac RMS
PDEV (Partial discharge extinction voltage)	> 950 Vac RMS

#### ALTERNATE POLARIZATIONS IAW MIL-DTL-38999 SERIES III



Alternate Key and Keyway Receptacles

Alternate Key and Keyway Plugs

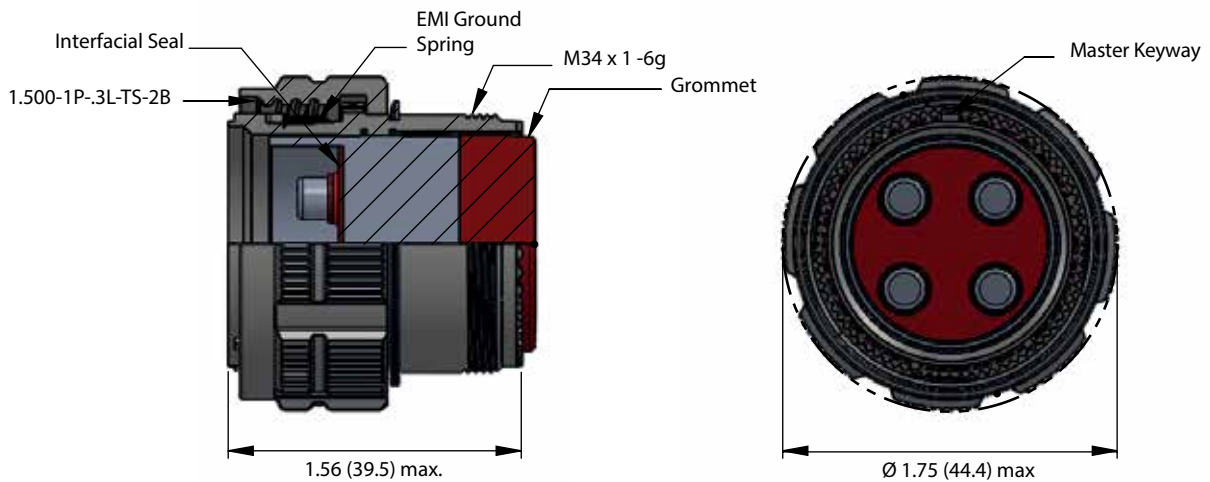
Series III Alternate Key and Keyway Polarization					
Shell Size	Key and Keyway Code	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
23	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

## MIL-DTL-38999 Series III Type IAW EN3645-01:23 233-230-G6 Pulse Width Modulation plug connector

### PLUG CONNECTOR



Part Number Development						
Sample Part Number	233-230	-G6	Z1	23R48	P	N
Product Series	233-230 = SuperNine HV					
Connector Style	G6 = Plug, with EMI spring					
Finish	Z1 = CRES, passivated					
Insert Arrangement	23R48					
Contact Type	A = Less pin contacts P = Pin		B = Less socket contacts S = Socket			
Alternate Polarization	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III) See page 3					



Materials	
Item	Material
Interfacial Seal	Silicone Elastomer
Spring EMI Contact	Copper Alloy
Plug	Passivated Stainless Steel
Coupling Nut with Ratched Spring	Passivated Stainless Steel
Retaining Ring	Stainless Steel
Pin Insert	Thermoplastic
Contact Retaining Clip	Copper Alloy
Seal Grommet	Silicone Elastomer
Ring Retaining Insert	Thermoplastic
Pin Crimp Contact	Gold Plated Copper Alloy

ENVIRONMENTAL CONNECTORS

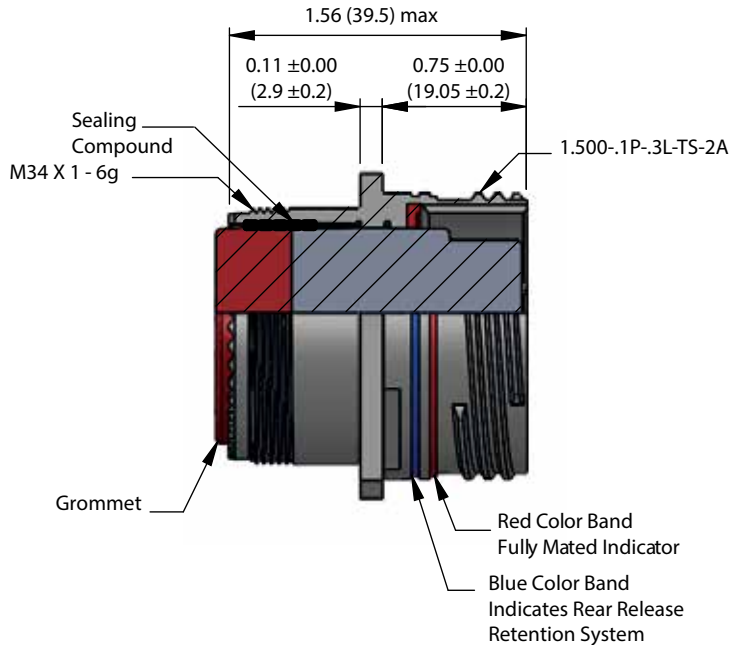
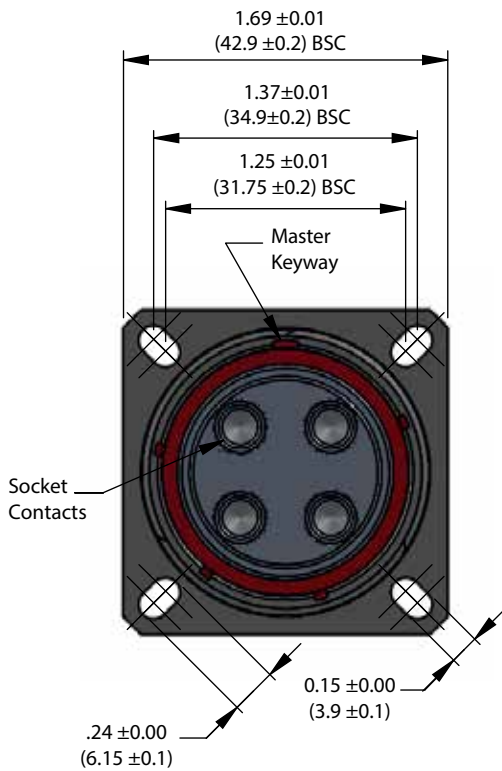
## MIL-DTL-38999 Series III Type IAW EN3645-01:23 233-230-00 Pulse Width Modulation receptacle connector

ENVIRONMENTAL CONNECTORS

### SQUARE FLANGE RECEPTACLE CONNECTOR



Part Number Development						
Sample Part Number	233-230	-00	Z1	23R48	P	N
Product Series	233-230 = SuperNine HV					
Connector Style	00 = Receptacle, square flange with slotted holes					
Finish	Z1 = CRES, passivated					
Insert Arrangement	23R48					
Contact Type	A = Less pin contacts		B = Less socket contacts			
	P = Pin		S = Socket			
Alternate Polarization	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III) See page 3					



Materials	
Item	Material
Pheripheral Seal	Silicone Elastomer
Receptacle	Passivated Stainless Steel
Socket Insert	Thermoplastic
Contact Retaining Clip	Copper Alloy
Ring Retaining Insert	Thermoplastic
Seal Grommet	Silicone Elastomer
Socket Crimp Contact	Gold Plated Copper Alloy, Stainless Steel Hood



**CONTACTS**

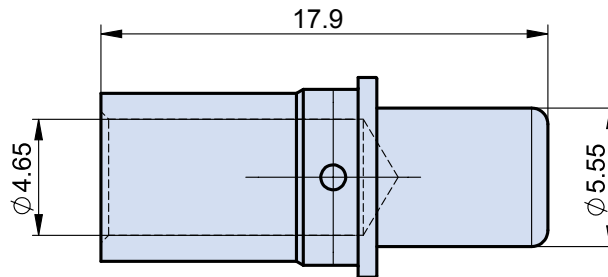
Glenair has developed new high-performance contacts for high-voltage / high-temperature applications made from high electrical conductivity copper alloy with outstanding mechanical performance up to 260°C (excursions). Special heavy gold plating resists corrosion, improves mating cycle durability, and contributes to high-temperature application requirements. Contacts are terminated to wire using precision crimp tools, and are snapped into place by hand or with a handheld insertion tool. Damaged or miswired contacts may be removed from the connector using standard extraction tools.

**PIN CONTACT**

High temperature pin contact, gold plated. Terminate to wire with standard crimp tools. IAW SAE AS39029.



Contact Type	Conductor Size	Part Number
Pin	#8	10-13033-102-8PG122

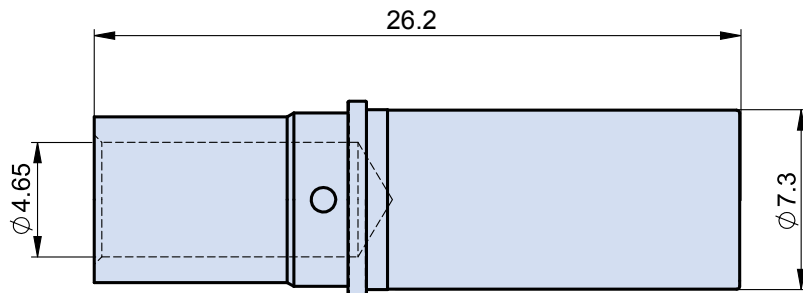


**SOCKET CONTACT**

High temperature socket contact, gold plated, passivated CRES hood. Terminate to wire with standard crimp tools. IAW SAE AS39029.



Contact Type	Conductor Size	Part Number
Socket	#8	10-13033-103-8SG122-H

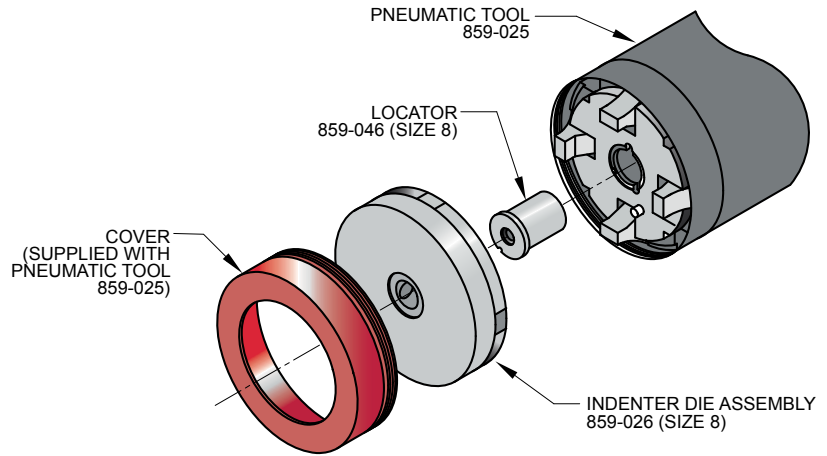


**MIL-DTL-38999 Series III Type IAW EN3645-01:23  
Assembly tools for Pulse Width Modulation connectors**

ENVIRONMENTAL CONNECTORS

**PNEUMATIC CRIMP TOOL FOR SIZE #8 POWER CONTACTS EXPLODED VIEW**

The Daniels WA23 pneumatic crimp tool size #8 sets the standard for heavy-duty crimping. This four-indent tool accommodates large power contacts ranging from size #8 through size 0000. Die plates and locators are purchased separately. Qualified to M22520/23, the WA23 tool is specified for use with SAE AS39029 closed barrel copper alloy contacts.



**PNEUMATIC CRIMP TOOL**

Bench-mount heavy-duty pneumatic indenter crimp tool. Four-indent crimp termination. Use with closed barrel contact sizes 8 through 4/0. Attach to air supply with quick-disconnect fitting or install 1/4 NPT fitting into tapped port. 90-120 psi air supply. Requires die assembly and locator, sold separately. Hand actuate with push-button valve trigger on handle. Steel with black wrinkle enamel coating. 13 inches overall length, 9.2 inches tall, 17 pounds (7.7 Kg).

Description	Part Number	Military Part Number	Daniels Part Number
Pneumatic Crimper	859-025	M22520/23-01	WA23

**DIE ASSEMBLY FOR SIZE #8 CONTACTS**

Indenter Die Assembly. Precision four-indent die with hardened tool steel indenters, stainless steel housing, aluminum cap. Use with size #8 contacts. Go/No Go calibration dimensions are stamped on face of tool. Approximately 3.3 inches (84 mm.) diameter.

Description	Part Number	Military Part Number	Daniels Part Number
Die Assembly, Size #8	859-026	M22520/23-02	WA23-2

**LOCATOR FOR SIZE #8 CONTACTS**

Aluminum locator holds contact at correct depth for crimping.

Description	Part Number	Military Part Number	Daniels Part Number
Locator, #8, Special	859-046	(none)	WA23-395L

# SuperNine® Environmental Series



## MIL-DTL-38999 Series III Type IAW EN3645-01:23

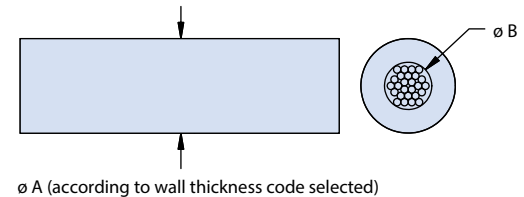
### TurboFlex® aerospace-grade power cable for PWM connectors



Ultra-flexible rope lay construction

TurboFlex® cable is constructed from highly flexible conductors and high-performance insulation for optimized flexibility, durability, and weight reduction. Amazingly durable and flexible—especially in cold weather—the 16 AWG to 450 MCM TurboFlex cable features high strand count rope lay inner conductors made with tin-, nickel- and silver-plated copper. TurboFlex is jacketed with Glenair’s unique low-smoke, zero-halogen Duraelectric™ compound that provides outstanding flexibility and resistance to environmental and chemical exposure.

Part Number Development	
<b>Sample Part Number</b>	<b>961</b> -001    -T    -G    -2
<b>Basic No.</b>	<b>961</b> = TurboFlex with Duraelectric Jacket
<b>Wall Thickness</b>	<b>001</b> = .125" <b>002</b> = .093" <b>003</b> = .062" <b>004</b> = .032"
<b>Conductor Material</b>	<b>T</b> = Tin/Copper (-60 -150°C) <b>S</b> = Silver/Copper (-60 -200°C) <b>N</b> = Nickel/Copper (-60 -260°C)
<b>Wire Size (See Table I)</b>	See Table I: -001 = <b>G, H, I, J, K, L</b> -002 = <b>D, E, F, G, H, I, J, K, L</b> -003 = <b>A, B, C, D, E, F, G, H</b> -004 = <b>R, S, A, B, C, D, E, F, G</b>
<b>Duraelectric Jacket Color</b>	See Table II



Voltage Ratings	
961-004	2000 VAC
961-003	3000 VAC
961-002	3500 VAC
961-001	4500 VAC

Table I: TurboFlex Wire Size, Dimensions, DC Resistance and Ampacity Ratings									
AWG Code	AWG	Strand / Count / AWG	Cir Mil (nom)	ø B in. (mm)	DC Resistance @ 20°C (Ohms / 1000 ft.)			Ampacity (Amps) 40°C Ambient	
					Nickel Copper	Tin Copper	Silver Copper	Nickel Copper	Tin/Silver Copper
R	16	7 X 15 X 36	2625	.0 63 (1.60)	4.5510	4.5930	4.2780	40	36
S	14	7 X 24 X 36	4200	.080 (2.03)	2.8450	2.8710	2.6740	59	54
A	12	7 X 37/36	6475	.099 (2.51)	1.8450	1.8620	1.7340	78	68
B	10	7 X 59/36	10325	.126 (3.20)	1.1570	1.1680	1.0880	107	90
C	8	7 X 95/36	16625	.159 (4.04)	.7188	.7252	.6755	142	124
D	6	7 X 150/36	26250	.200 (5.08)	.4551	.4593	.4278	205	165
E	4	7 X 7 X 34/36	41650	.271 (6.88)	.2979	.3006	.2800	278	220
F	2	7 X 7 X 54/36	66150	.342 (8.69)	.1876	.1893	.1763	381	293
G	1/0	7 X 7 X 86/36	105350	.431 (10.95)	.1178	.1188	.1107	532	399
H	2/0	7 X 7 X 108/36	132300	.483 (12.27)	.0938	.0946	.0882	591	467
I	3/0	19 X 7 X 51/36	169575	.547 (13.89)	.0738	.0745	.0694	708	546
J	4/0	19 X 7 X 64/36	212800	.613 (15.57)	.0588	.0594	.0553	830	629
K	250 MCM	19 X 7 X 75/36	249375	.663 (16.84)	.0479	.0483	.0450	910	705
L	450 MCM	19 X 7 X 135/36	448875	.890 (22.61)	.0266	.0263	.0250	1320	1020

#### NOTES

- Bend radius is 3X the outer diameter
- Cable will be marked with "Glenair TurboFlex", wire gauge, part number, CAGE code.
- Jacket thickness tolerance is ±10% (±.005 for 961-004)Notes
- Duraelectric™ environmental performance
- Temperature rating: -60°C to 260°C
- Halogen free per IEC 60614-1
- Accelerated weathering and simulated solar radiation at ground level per IEC 60068-2-5; 56 Days exposure, suitable for greater than 50 years of service in direct sunlight
- Flame resistant per IEC 60614-1
- Flame resistant per UL 1685, section 12 (FT4/IEEE120), vertical-tray fire-propagation and smoke release test
- Flame resistant per far 25.853 (A) amendment 25-116, appendix F part I

ENVIRONMENTAL CONNECTORS

**961-001 TURBOFLEX, .125 WALL, 4500 VAC**

961-001 Wire Weight and Outer Diameter			
AWG Code	Weight lbs/1000 ft. (nom.)	Ø A In. (mm)	Jacket wall thickness In. (mm)
G	494.50	.681 (17.30)	.125 (3.18)
H	600.00	.733 (18.62)	
I	749.50	.797 (20.24)	
J	916.00	.863 (21.92)	
K	1055.60	.913 (23.19)	
L	1806.20	1.140 (28.96)	

**961-002 TURBOFLEX, .093 WALL, 3500 VAC**

961-002 Wire Weight and Outer Diameter			
AWG Code	Weight lbs/1000 ft. (nom.)	Ø A In. (mm)	Jacket wall thickness In. (mm)
D	138.40	.386 (9.80)	.093 (2.36)
E	207.40	.457 (11.61)	
F	304.60	.528 (13.41)	
G	455.80	.617 (15.67)	
H	558.20	.649 (16.48)	
I	703.90	.733 (18.62)	
J	866.50	.799 (20.29)	
K	1003.10	.849 (21.56)	
L	1740.10	1.076 (27.33)	

**961-003 TURBOFLEX, .062 WALL, 3000 VAC**

961-003 Wire Weight and Outer Diameter			
AWG Code	Weight lbs/1000 ft. (nom.)	Ø A In. (mm)	Jacket wall thickness In. (mm)
A	40.20	.223 (5.66)	.062 (1.57)
B	56.20	.250 (6.35)	
C	81.00	.283 (7.19)	
D	117.90	.324 (8.23)	
E	182.80	.395 (10.03)	
F	275.90	.466 (11.84)	
G	422.00	.555 (14.10)	
H	521.40	.607 (15.42)	

**961-004 TURBOFLEX, .032 WALL, 2000 VAC**

961-004 Wire Weight and Outer Diameter			
AWG Code	Weight lbs/1000 ft. (nom.)	Ø A In. (mm)	Jacket wall thickness In. (mm)
R	14.40	.127 (3.23)	.032 (.81)
S	20.70	.144 (3.66)	
A	29.40	.163 (4.14)	
B	43.90	.190 (4.83)	
C	66.90	.223 (5.66)	
D	101.40	.264 (6.71)	
E	162.40	.335 (8.51)	
F	251.60	.406 (10.31)	
G	392.70	.495 (12.57)	

- (A) (1) (i), 60 second vertical burn test
- 11. Limiting oxygen index of 45 per ISO 4589-2:1999
- 12. Low smoke per NES 711, smoke density of 11.75
- 13. Smoke density class F1 per NF F 16-101 IAW Din EN 60695-2-11:2011
- 14. Low smoke toxicity per NES 713, tested value of 1.9
- 15. Fungus rating of 0 per MIL-STD-810g method 508.5, Does not support fungal growth
- 16. ASTM D624, die B tear strength, 150 pounds per inch minimum on jacket material
- 17. Low outgassing per ASTM e595 after post curing, .06%, CVCM .006%, WVR .02%
- 18. Resistant to fluids per MIL-STD-810F, method 504
- 19. JP-8 per MIL-DTL-83133 (NATO type 34)
  - MIL-H-5606 hydraulic fluid
  - MIL-PRF-23699 lubricating oil
  - MIL-C-85570 cleaner
  - TT-I-735 Isopropyl alcohol
  - AMS 1432 potassium acetate deicing/anti-icing fluid
  - MIL-C-87252 coolant
  - Amerex AFF fire extinguishing foam

Jacketing Options		
Weatherproof, halogen free, flame resistant, functional to 260°C		
0	Black	Fed-Std-595C #17038
1	Desert Tan	Fed-Std-595C #33446
2	Red	Fed-Std-595C #11120
3	Orange	Fed-Std-595C #12300
4	Yellow	Fed-Std-595C #13591
5	Green	Fed-Std-595C #14193
6	Blue	Fed-Std-595C #15125
7	Violet	Fed-Std-595C #17142
8	Gray	Fed-Std-595C #26270
9	White	Fed-Std-595C #17875
Consult factory for other specific Fed Std colors		
Abrasion Resistance		Good
Wear Resistance		Good
Flame Resistance		Excellent
Sunlight Resistance		Excellent
Flex Resistance		Excellent





## ENVIRONMENTAL SERIES 23

# Space-Grade Guidelines for SuperNine® Connectors

### Outgassing

Space flight equipment requires low-outgassing components in order to prevent degradation to optics and other sensitive instruments. SuperNine® 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. The space industry has adopted a standardized test procedure, ASTM E595, to evaluate outgassing properties. The MIL-DTL-38999 specification Class G also details specific TVM and CVCM values in addition to finish specifications. In Glenair's 186T process, for example, connectors and connector materials are heated to 175° C at a vacuum of  $5 \times 10^{-6}$  Torr for 48 hours. Items under test are 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 for Class G rated connectors. Glenair is able to offer outgas processing which assures all materials comply with their respective standards.

### Note on Connector Material and Finish Options

Some types of metals are prohibited for space flight. "Pure Tin, Cadmium and Zinc shall not be used as a final finish on EEE parts." (NASA EEE-INST-002 Instructions for EEE Parts Selection, Screening, Qualification, and Derating). NASA recommends electroless nickel or gold finish on connector shells and gold finish for contacts.

- SuperNine® environmental series connectors may be subjected to outgas processing and/or NASA screening IAW MIL-DTL-38999 Class G
- Modification codes are a convenient way to specify outgassing / screening requirements per NASA specifications and/or D38999 Class G
- Cadmium and silver finish are prohibited in space
- Specify electroless nickel finish on connector shells and gold finish on contacts



## MIL-DTL-38999 Series III Type Class G and NASA space-grade guidelines

ENVIRONMENTAL CONNECTORS

### NASA and Class G Screening

The MIL-DTL-38999 specification defines TML and CVCM values for Class G space flight. Glenair modification code 186T assures parts are outgassed to meet the Class G requirements for outgassing.

Additionally, 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 for space-grade components. These outgassing and screening modification codes are listed at right. To add a modification code append code to end of part number: **253-016-00ME25-35PNMS-429C**.

- **“Mission critical” connectors for space flight should undergo rigorous 100% final inspection**
- **Modification codes are available to invoke special screening for both MIL-DTL-38999 and NASA applications**
- **Outgassing properties of materials used in Glenair SuperNine® connectors are detailed in the table below**

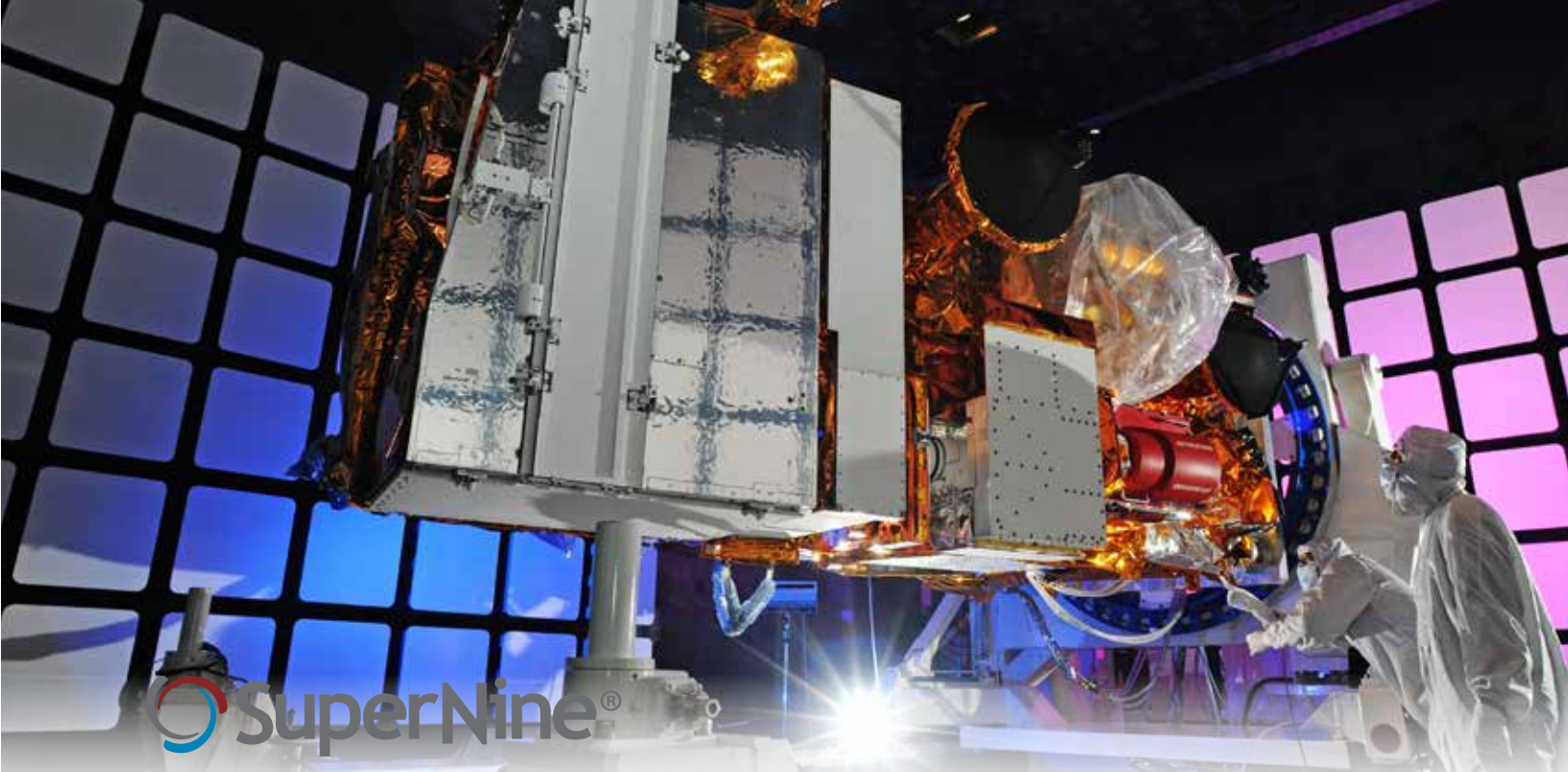
Screening Level and Available Outgassing Modification Codes				
Screening Level	Screening Only	48 Hour Oven Bake 175° C	Thermal Vacuum Outgassing (10 <sup>-6</sup> Torr)	
			24 Hour 125° C	48 Hour 175° C
NASA, Level 1 Highest Reliability	429B	429J	429C	
NASA, Level 2 High Reliability	429	429K	429A	429AA
NASA, Level 3 Standard Reliability	Use Standard Part Number		429L	
38999, Class G or H (Group A and B inspection, no screening)				186T

Table II: NASA EEE-INST-02, Table 2A Screening Levels			
Inspection	Level 1	Level 2	Level 3
Visual	100%	100%	100%
Mechanical	2(0)	2(0)	
Dielectric Withstanding Voltage	2(0)	2(0)	
Insulation Resistance	2(0)	2(0)	
Contact Engagement & Separation Force	2(0)		
Hermeticity (Sealed Receptacles Only)	100%	100%	
Coupling Force	2(0)		

Required inspection quantity shown. Number in parenthesis indicates acceptance of failures allowed for all quantities inspected.

Outgassing Properties of Materials Used in MIL-DTL-38999 Type SuperNine® Connectors				
Component	Material	TML %	CVCM %	Test Reference
Front and Rear Insulator	Epiall 1908	0.84	0.0	NASA Test # GSC15435 (48 hours at 180°C)
Rear Grommet, Interfacial Seal, Peripheral Seal, and Special Auxiliary Seals	Blended fluorosilicone/silicone elastomer	0.04	0.0	Glenair test
Front-To-Rear Insulator Bonding Material	Eccobond 104 A/B	0.52	0.08	Emerson & Cuming Data Sheet
Insulator-to-Rubber Bonding Material	RTV, per MIL-A-46146	<1.0	<0.1	Glenair Test
White Epoxy Ink for Silk-screening	Markem 7224 White	0.49	0.03	NASA Test #GSC19899
Potting Compound	High-performance space-grade epoxy	<1.0	<0.1	Glenair Test

MIL-DTL-38999 Type SuperNine® Connector Materials Approved for Space Flight		
Component	Material	Notes
Shells, Coupling Nuts, Jam Nuts	Aluminum alloy	Approved for Space Flight
Rigid Insulators	Glass reinforced thermoset plastic, Epiall 1908	Approved for Space Flight
Contact Retention Clip	Beryllium copper, heat-treated, unplated	Approved for Space Flight
Grommet, Peripheral Seal, Interfacial Seal, Special Auxiliary Seals, O-ring	Blended fluorosilicone/silicone elastomer	Requires outgassing processing
Pin/Socket Contact	Gold plated beryllium copper alloy	Approved for Space Flight
Socket Contact Hood	Stainless steel	Approved for Space Flight
Potting Compounds and Adhesives	RTV and epoxies	Requires outgassing processing



# Space-Grade Circular Blind-Mate Connectors



**Application:** Glenair Series 253 blind-mate connectors are designed to meet applicable environmental, electrical and mechanical performance characteristics of D38999 Series III. The technology is well suited for use in commercial rack-and-panel instrumentation applications, as well as a blind-mate solution for satellite deployment, scientific research and development payloads, interstage, UAV, and munitions release and more.

- Blind-mate, fixed and float-mount interconnects for non-ITAR commercial as well as military/defense applications
- Adjustable separation force, AKA assisted-release, zero extraction force (ZEF) solutions
- Misalignment accommodation and special auxiliary sealing for trouble-free blind mating in space applications
- Available in most symmetrical MIL-STD-1560 insert arrangements with contacts sizes from #23 to #8
- Selected materials offer low outgassing properties and high resistance to both corrosion and stress corrosion cracking
- NASA outgassing bake-out process available
- Designed to withstand the rigors of launch and flight—including shock, vibration, thermal vacuum, acceleration, and temperature extremes
- Standard accessory threads and teeth per MIL-DTL-38999 accommodate a wide range of backshell accessories
- Crimp-removable contacts standard. Consult factory for PC tails, dual-flange standoffs, custom blind-mate configurations, and hermetically sealed options

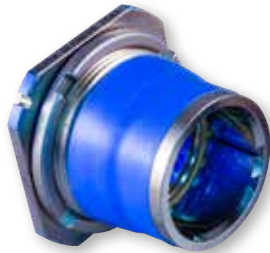
Current Rating	
Size Contact	Amps
23	5
22D	5
20	7.5
16	13
12	23

Altitude (Feet)	Unmated Test Voltages, AC RMS, 60 Hz			
	Service Rating M	Service Rating N	Service Rating I	Service Rating II
Sea Level	1300	1000	1800	2300
50,000	550	400	600	800
70,000	350	260	400	500
100,000	200	260	200	200

#### CRITICAL MECHANICAL FEATURES OF BLIND-MATE AND ADJUSTABLE SEPARATION FORCE (ZEF) CONNECTORS



**Roll-off nose:** allows for the smooth disconnection of blind mate plugs and receptacles. Without this feature, connectors can catch or hang during mate and demate.



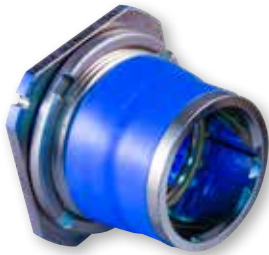
**Float mounting:** allows for a modicum of coplanar movement of the receptacle during rack-and-panel and other blind mate applications, preventing both contact and shell damage.



**Misalignment accommodation:** Additional radial, axial, and angular misalignment during mating is accounted for in the receptacle design with integral wave springs.



**Sealing:** Misalignment accommodation makes environmental sealing difficult in blind-mate connectors. The problem is solved with auxiliary external seals.



**EMI shielding:** Glenair incorporates ground springs in receptacle connectors as well as grounding fingers in special coupling nut-equipped plugs (253-018-G6 feed-thru shown) to optimize 360° shell-to-shell continuity.



**Assisted separation force:** Glenair supplies two styles of spring-loaded blind-mate connectors. **Adjustable kick-off styles** feature spring-loaded posts on the plug and an adjustment ring on the receptacle used to calibrate separation force. A second style uses wave springs on the shell body.



Available non-ITAR environmental blind-mate and adjustable separation force solutions		
Basic Part No.	Description	Mates With
<a href="#">253-014</a>	Fixed jam-nut and square flange mount plug with roll-on/roll-off nose and accessory threads	<a href="#">253-015</a>
<a href="#">253-015</a>	Floating jam-nut and square flange mount receptacle with misalignment accommodation and optional sealing	<a href="#">253-014</a>
<a href="#">253-016</a>	Fixed wall mount plug with spring assist (zero separation force)	<a href="#">253-017</a>
<a href="#">253-017</a>	Floating wall mount receptacle with adjustable separation force and misalignment accommodation	<a href="#">253-016</a>
<a href="#">253-018-07</a>	Blind-mate feed-thru, jam-nut mount plug with B-side D38999 type receptacle mating interface and assisted kick-off (spring force)	<a href="#">253-019</a>
<a href="#">253-018-G6</a>	Blind-mate in-line feed-thru with B-side D38999 type plug mating interface and assisted kick-off (spring force)	<a href="#">253-019</a>
<a href="#">253-019</a>	Floating jam-nut mount receptacle with misalignment accommodation and optional sealing	<a href="#">253-018</a>
<a href="#">253-031</a>	Blind-mate jam-nut mount plug with kick-off spring and accessory threads	<a href="#">253-032</a>
<a href="#">253-032</a>	Floating jam-nut mount receptacle with misalignment accommodation	<a href="#">253-031</a>
<a href="#">253-033</a>	Float mount feed-thru, jam nut mount receptacle to 38999 type Series III plug mating interface	<a href="#">253-019</a>
<a href="#">253-025</a>	Locking circuit and test mate connector	<a href="#">253-016</a>



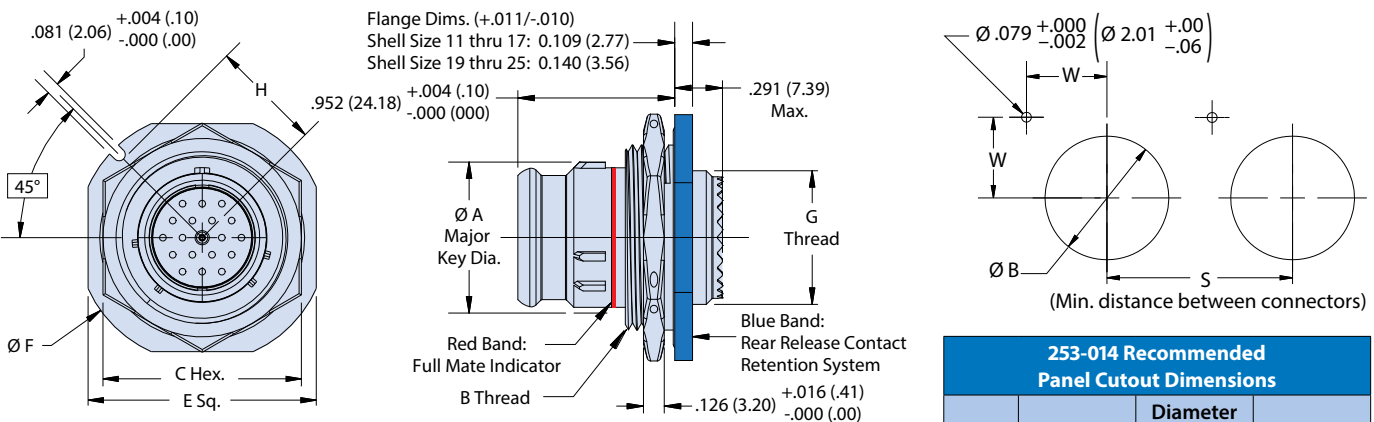
# MIL-DTL-38999 Series III Type space-grade blind-mate 253-014, 253-015 jam-nut mount plug and receptacle

ENVIRONMENTAL CONNECTORS

Part Number Development										
Sample Part Number	253-014			-07	ME	25-35	P	N	NS	H
Series / Basic Part No.	253 = Blind-mate -014 = Plug (fixed mount) -015 = Receptacle (float mount)									
Connector Style	07 = Jam nut mount; contact factory for wall mount receptacles									
Material/Finish	ME = Aluminum, electroless nickel ZL = CRES, electrodeposited nickel MT = Aluminum, nickel PTFE Z1 = CRES, passivated									
Shell Size - Insert Arrangement*	Per MIL-STD-1560; symmetrical layouts only, consult factory for complete details									
Contact Type	P = Pin, crimp removable S = Socket, crimp removable A = Pin insert, less contacts B = Socket insert, less contacts									
Alternate Polarization	A, B, C, D, E, N = Normal (Polarization for intermateability with 253-014 is per MIL-DTL-38999 Series I)									
Non Sealing	NS = Non-Sealing (omit for external elastomer seal version, applies to 253-015 only)									
Jam-Nut Type	H = Hex S = Spanner with wire holes (applies to 015 only)									

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 60 and 61. Modification codes may be added directly to the end of any valid part number

## 253-014 FIXED JAM-NUT MOUNT PLUG WITH ROLL-ON/ROLL-OFF NOSE AND ACCESSORY THREADS



Shell Size	A Max Dia.	Thread B Class 2A	C Max	E (±.016)	F Max Dia.	G Thread Class 2A	H (+0/- .008)
11	.673 (17.09)	.8125-20 UNEF	1.016 (25.81)	1.250 (31.75)	1.386 (35.20)	.5625-24	.604 (15.34)
13	.798 (20.27)	1.0000-20 UNEF	1.181 (30.00)	1.375 (34.92)	1.511 (38.38)	.6875-24	.666 (16.92)
15	.923 (23.44)	1.1250-18 UNEF	1.300 (33.02)	1.500 (38.10)	1.636 (41.55)	.8125-20	.729 (18.52)
17	1.048 (26.62)	1.2500-18 UNEF	1.457 (37.01)	1.625 (41.28)	1.761 (44.73)	.9375-20	.791 (20.09)
19	1.173 (29.79)	1.3750-18 UNEF	1.575 (40.00)	1.812 (46.02)	1.949 (49.50)	1.0625-18	.893 (22.68)
21	1.298 (32.97)	1.5000-18 UNEF	1.693 (43.00)	1.938 (49.23)	2.073 (52.65)	1.1875-18	.955 (24.26)
23	1.423 (36.14)	1.6250-18 UNEF	1.880 (47.75)	2.062 (52.37)	2.200 (55.88)	1.3125-18	1.017 (25.83)
25	1.548 (39.32)	1.7500-18 UNS	2.016 (51.21)	2.187 (55.55)	2.323 (59.00)	1.4375-18	1.096 (27.84)

Shell Size	W	Diameter B ±.004	S
11	.460 (11.68)	0.821 (20.85)	1.282 (32.56)
13	.504 (12.80)	1.007 (25.58)	1.417 (35.99)
15	.549 (13.94)	1.134 (28.80)	1.559 (39.60)
17	.593 (15.06)	1.259 (31.98)	1.705 (43.31)
19	.665 (16.89)	1.384 (35.15)	1.850 (46.99)
21	.709 (18.01)	1.507 (38.28)	1.992 (50.60)
23	.753 (19.13)	1.634 (41.50)	2.134 (54.20)
25	.797 (20.24)	1.759 (44.68)	2.350 (59.69)

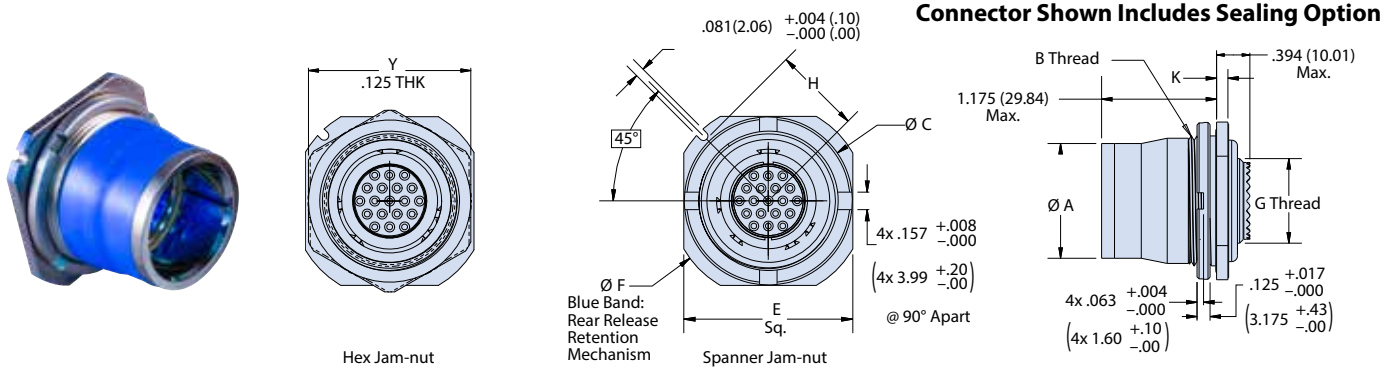
**NOTES:**

- Glenair 253-014 is designed to mate with 253-015 with same insert arrangement.
- Stainless steel locating pin to be shipped with connector
- Misalignment capabilities are possible with 253-014, when mated to 253-015.
- Contact manufacturer for outgassing options.
- Material/finish
- Shell, jam-nut: see P/N development, finish
- Insulator: high grade rigid dielectric/N.A.
- Seals: fluorosilicone blend/N.A.
- contacts: copper alloy/gold plated

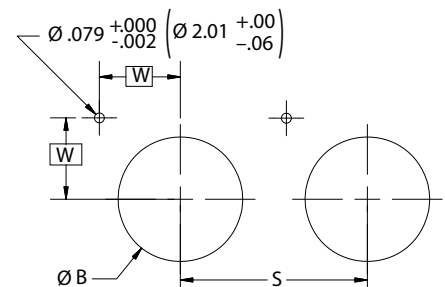
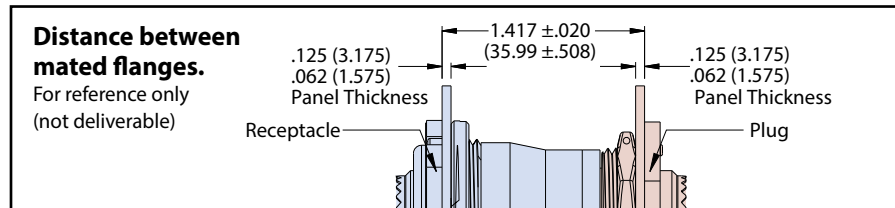
## MIL-DTL-38999 Series III Type space-grade blind-mate 253-014, 253-015 jam-nut mount plug and receptacle

ENVIRONMENTAL CONNECTORS

### 253-015 FLOATING JAM-NUT MOUNT RECEPTACLE WITH MISALIGNMENT ACCOMMODATION AND OPTIONAL SEALING

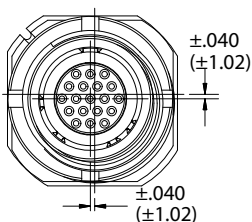


253-015 Dimensions									
Shell Size	A Max Dia.	Thread B Class 2A	C Max.	Y Hex	E ±.016(.41)	F Max Dia.	G Thd Class 2A	K +.011/.010 (+.28/.25)	H +0/--.008 (+0/--.20)
11	.853 (21.67)	1.0000-20 UNEF	1.264 (32.11)	1.181 (30.00)	1.266 (32.16)	1.500 (38.10)	.5625-24	.109 (2.77)	.666 (16.92)
13	.978 (24.84)	1.1250-18 UNEF	1.388 (35.26)	1.300 (33.02)	1.391 (35.33)	1.641 (41.68)	.6875-24	.109 (2.77)	.729 (18.52)
15	1.103 (28.02)	1.2500-18 UNEF	1.512 (38.40)	1.457 (37.01)	1.516 (38.51)	1.750 (44.45)	.8125-20	.109 (2.77)	.791 (20.09)
17	1.228 (31.19)	1.3750-18 UNEF	1.638 (41.61)	1.575 (40.00)	1.641 (41.68)	1.938 (49.23)	.9375-20	.109 (2.77)	.893 (22.68)
19	1.353 (34.37)	1.5000-18 UNEF	1.823 (46.30)	1.693 (43.00)	1.828 (46.43)	2.062 (52.37)	1.0625-18	.140 (3.56)	.955 (24.26)
21	1.478 (37.54)	1.6250-18 UNEF	1.953 (49.61)	1.880 (47.75)	1.954 (49.63)	2.188 (55.58)	1.1875-18	.140 (3.56)	1.017 (25.83)
23	1.603 (40.72)	1.7500-18 UNS	2.075 (52.71)	2.010 (51.05)	2.078 (52.78)	2.312 (58.72)	1.3125-18	.140 (3.56)	1.080 (27.43)
25	1.728 (43.89)	1.8750-16 UNS	2.122 (53.90)	2.125 (53.97)	2.128 (54.05)	2.327 (59.11)	1.4375-18	.140 (3.56)	1.086 (27.58)

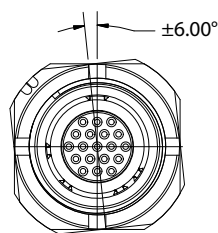


### 253-015 Misalignment Capabilities

Axial Misalignment

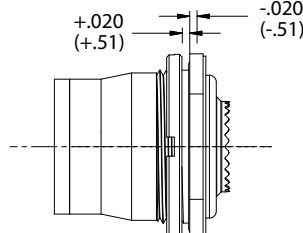


Angular Misalignment



Reference Only (Not Deliverable)

Longitudinal Misalignment



253-015 Recommended Panel Cutout Dimensions			
Shell Size	W	B Dia. ±.004 (.10)	S
11	.504 (12.80)	1.007 (25.58)	1.282 (32.56)
13	.549 (13.94)	1.134 (28.80)	1.417 (35.99)
15	.593 (15.06)	1.259 (31.98)	1.559 (39.60)
17	.665 (16.89)	1.384 (35.15)	1.705 (43.31)
19	.709 (18.01)	1.507 (38.28)	1.850 (46.99)
21	.753 (19.13)	1.634 (41.50)	1.992 (50.60)
23	.797 (20.24)	1.759 (44.68)	2.134 (54.20)
25	.842 (21.39)	1.884 (47.85)	2.262 (57.45)



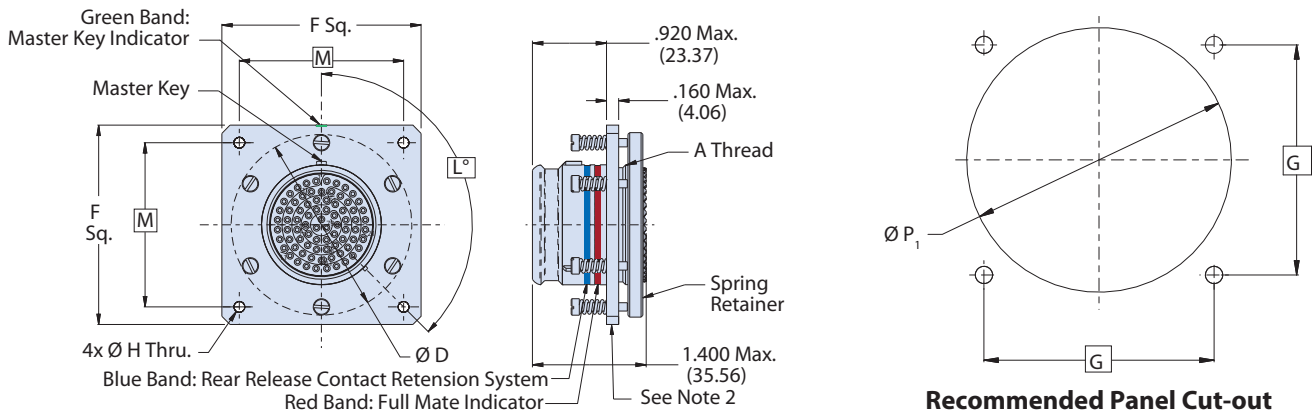
**MIL-DTL-38999 Series III Type space-grade blind-mate  
253-016, 253-017 Wall-nut mount plug and receptacle, ASF**

ENVIRONMENTAL CONNECTORS

Part Number Development	
Sample Part Number	253-016 -00 ME 21-35 S N MS A
Series / Basic Part No.	253 = Blind-mate connector with adjustable assisted separation force -016 = Plug (fixed mount) -017 = Receptacle (float mount)
Connector Style	-00 = Wall mount
Material/Finish	ME = Aluminum, electroless nickel ZL = CRES, electrodeposited nickel MT = Aluminum, nickel PTFE Z1 = CRES, passivated
Shell Size-Insert Arrangement	Per MIL-STD-1560
Contact Type	P = Pin, crimp removable S = Socket, crimp removable
Alternate Polarization	A = 40°, B = 65°, C = 80°, D = 210°, E = 250°, F = 280°, G = 310°, H = 330°, N = 135° (Normal) Per L°
Contact Type	MS = Military specification
Adjustment Ring Material	(253-017 receptacle only) A = Aluminum C = Corrosion-resistant steel

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 60 and 61. Modification codes may be added directly to the end of any valid part number

**253-016 FIXED WALL MOUNT PLUG WITH SPRING ASSIST (ZERO SEPARATION FORCE)**

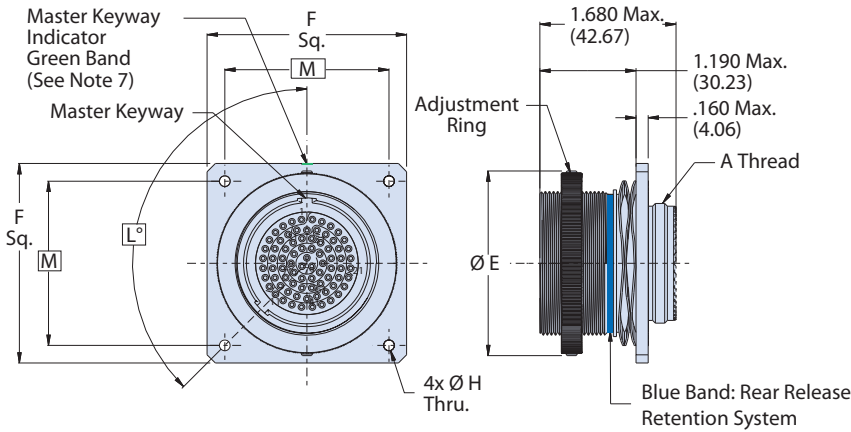


Dimensions for 253-016 and 253-017									
Shell Size	F Flange ±.010 (±.25)	M Square	Ø H ±.005 (±.13)	Ø D Max.	Ø E Max.	A Thread	Ø P <sub>1</sub> ±.005 (±.13)	Ø P <sub>2</sub> ±.005 (±.13)	G Square
9	1.430(36.32)	1.000(25.40)	.128(3.25)	1.250(31.75)	1.300 (33.02)	M12 X 1.0-6g-0.100R	1.300(33.02)	1.330 (33.78)	1.150 (29.21)
11	1.555(39.50)	1.200(30.48)	.128(3.25)	1.375(34.93)	1.425 (36.20)	M15 X 1.0-6g-0.100R	1.425(36.20)	1.455 (36.96)	1.200 (30.48)
13	1.680(42.67)	1.250(31.75)	.128(3.25)	1.500(38.10)	1.550 (39.37)	M18 X 1.0-6g-0.100R	1.550(39.37)	1.580 (40.13)	1.250 (31.75)
15	1.805(45.85)	1.375(34.93)	.128(3.25)	1.625(41.28)	1.675 (42.55)	M22 X 1.0-6g-0.100R	1.675(42.55)	1.705 (43.31)	1.375 (34.92)
17	1.930(49.02)	1.500(38.10)	.128(3.25)	1.750(44.45)	1.800 (45.72)	M25 X 1.0-6g-0.100R	1.800(45.72)	1.830 (46.48)	1.500 (38.10)
19	2.055(52.20)	1.625(41.28)	.128(3.25)	1.875(47.63)	1.925 (48.90)	M28 X 1.0-6g-0.100R	1.925(48.90)	1.955 (49.66)	1.625 (41.28)
21	2.180(55.37)	1.750(44.45)	.128(3.25)	2.000(50.80)	2.050 (52.07)	M31 X 1.0-6g-0.100R	2.050(52.07)	2.080 (52.83)	1.750 (44.45)
23	2.305(58.55)	1.875(47.63)	.154(3.91)	2.125(53.98)	2.175 (55.25)	M34 X 1.0-6g-0.100R	2.175(55.25)	2.205 (56.01)	1.875 (47.63)
25	2.430(61.72)	2.000(50.80)	.150(3.81)	2.250(57.15)	2.300 (58.42)	M37 X 1.0-6g-0.100R	2.300(58.42)	2.330 (59.18)	2.000 (50.80)

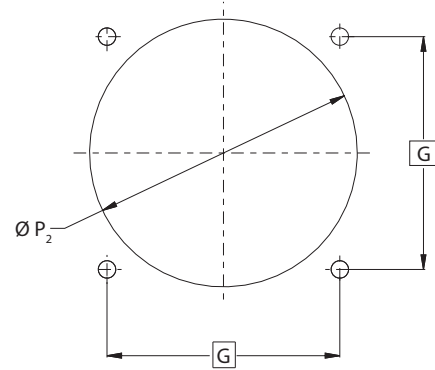
**MIL-DTL-38999 Series III Type space-grade blind-mate  
253-016, 253-017 Wall-nut mount plug and receptacle, ZEF**

ENVIRONMENTAL CONNECTORS

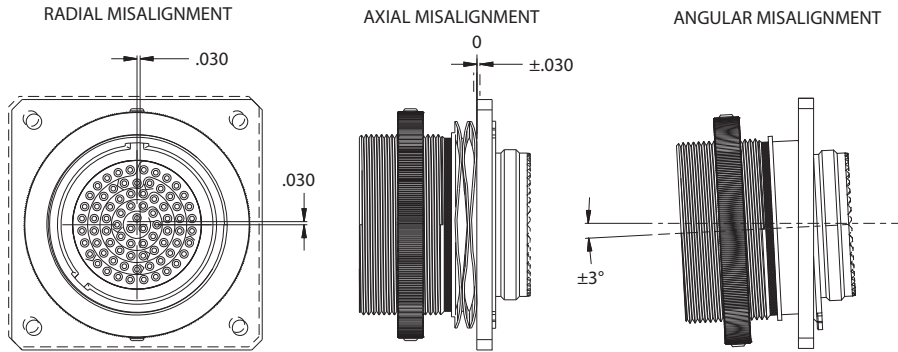
**253-017 FLOATING WALL MOUNT RECEPTACLE WITH ADJUSTABLE SEPARATION FORCE AND MISALIGNMENT ACCOMMODATION**



**Recommended Panel Cut Out**

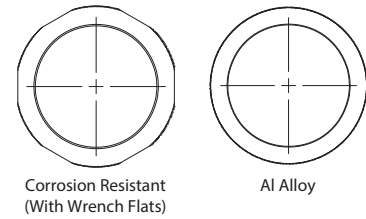


**253-017 Misalignment Capabilities**



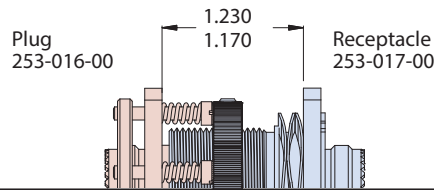
**Adjustment Ring Geometry and Material Options**

Contact manufacturer for other options



**Distance between mated flanges.**

For reference only (not deliverable)



**NOTES:**

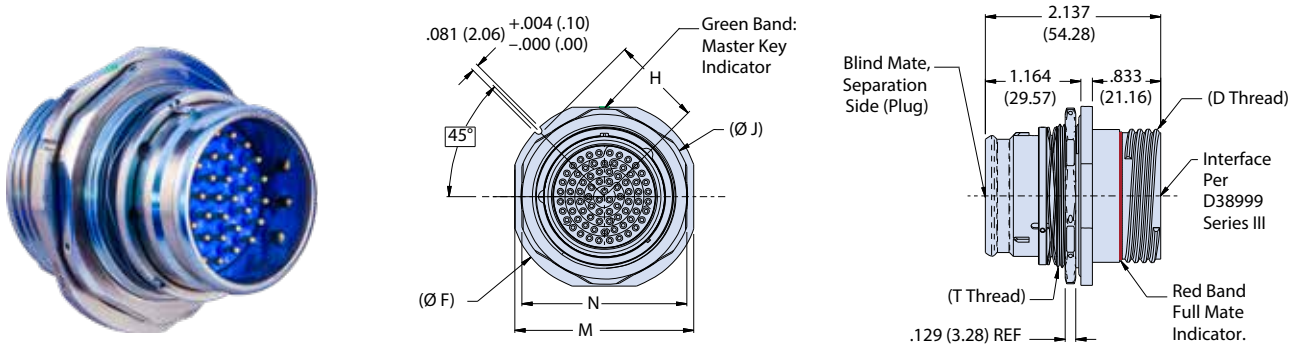
- 253-017 mates with 253-016 fixed series.
- Distance between mated mounting flanges: 1.170/1.230. Consult manufacturer other distance between mounting flanges is required
- Separation force is adjustable ± 5 lbs when mated with 253-016 and 253-017 pairs have adjustable separation force of ±5 lbs
- See Space-Grade guidelines material, in this section, for outgassing/screening options available
- Spares: pin or socket contacts IAW AS39029 or per Glenair part number if controlled force contacts
- Contact factory for PC tail versions
- Material/finish
  - Shell (016 and 017), ring (017), retainer ring (016): see P/N development, finish
  - Wave spring(017), springs and spring retainer (016): CRES/passivated
  - Insulators: high grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.

## MIL-DTL-38999 Series III Type space-grade blind-mate 253-018 bulkhead feed-thru, ZEF plug, D38999 B-side

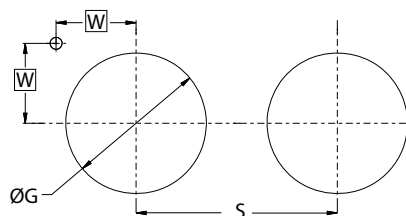
Part Number Development									
Sample Part Number	253-018				-07	ME	25-35	PP	N
Series / Basic Part No.	253-018 = Blind-mate feed-thru								
Connector Style	-07 = Jam-nut mount, feed-thru plug (fixed) with rear D38999 type receptacle interface -G6 = In-line plug with rear D38999 type plug interface and EMI spring								
Material/Finish	ME = Aluminum, electroless nickel MT = Aluminum, nickel PTFE		ZL = CRES, electrodeposited nickel Z1 = CRES, passivated						
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	PP = Pin on both sides SS = Socket on both sides		BBDP = Blind-mate side socket - D38999 side pin BPDS = Blind-mate side pin - D38999 side socket						
Alternate Polarization*	A = 40°, B = 65°, C = 80°, D = 210°, E = 250°, F = 280°, G = 310°, H = 330°, N = 135° (Normal) Per L°. G6 only Refers to blind mate side. Plug/Receptacle side per MIL-DTL-38999								

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 60 and 61. Modification codes may be added directly to the end of any valid part number

### 253-018-07 BLIND-MATE FEED-THRU, JAM-NUT MOUNT PLUG WITH B-SIDE D38999 TYPE RECEPTACLE MATING INTERFACE AND ASSISTED KICK-OFF (SPRING FORCE)



Dimensions							
Shell Size	F Flange	H (End of Slot) [+0/-0.008 (-.20)]	Ø J, Jam Nut	N, Jam Nut Flat	M, Flange Flats ±.010 (±.25)	T Thread Class 2A	D Thread 0.1P-0.3L-TS-2
13	1.515 (38.48)	.666 (16.92)	1.375 (34.93)	1.175 (29.85)	1.430 (36.32)	1.000-20 UNEF	0.875 (22.23)
15	1.636 (41.55)	.729 (18.52)	1.500 (38.10)	1.300 (33.02)	1.500 (38.10)	1.125-18 UNEF	1.000 (25.40)
21	2.065 (52.45)	.955 (24.26)	1.875 (47.63)	1.688 (42.88)	1.930 (49.02)	1.500-18 UNEF	1.375 (34.92)
23	2.200 (55.88)	1.017 (25.83)	2.063 (52.40)	1.875 (47.63)	2.060 (52.32)	1.625-18 UNEF	1.500 (38.10)
25	2.316 (58.83)	1.096 (27.84)	2.141 (54.38)	2.010 (51.05)	2.180 (55.37)	1.750-18 UNS	1.625 (41.28)

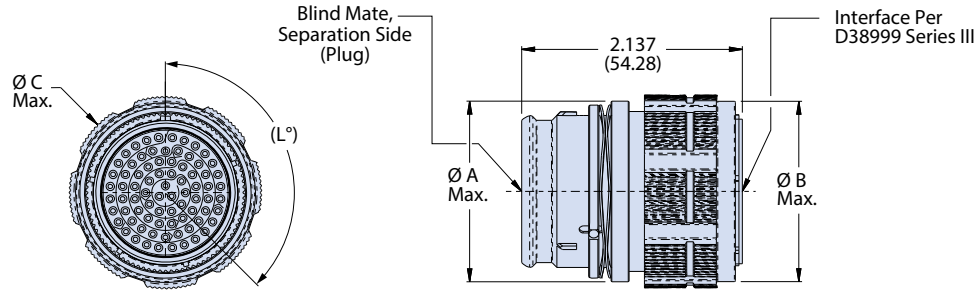


Panel Cut-Out			
Shell Size	Ø G, Thru Hole ±.004	W (Basic)	S
13	1.009 (25.63)	.504 (12.80)	1.460 (37.08)
15	1.134 (28.80)	.549 (13.94)	1.545 (39.24)
21	1.509 (38.33)	.709 (18.01)	1.995 (50.67)
23	1.634 (41.50)	.753 (19.13)	2.120 (53.85)
25	1.759 (44.68)	.809 (20.55)	2.315 (58.80)

**MIL-DTL-38999 Series III Type space-grade blind-mate  
253-018 bulkhead feed-thru, ZEF plug, D38999 B-side**

ENVIRONMENTAL CONNECTORS

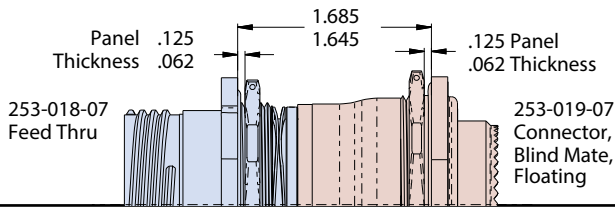
**253-018-G6 BLIND-MATE IN-LINE PLUG WITH B-SIDE D38999 TYPE PLUG MATING INTERFACE AND ASSISTED KICK-OFF (SPRING FORCE)**



Dimensions for 253-018-G6 Plug			
Shell Size	Ø A Max	Ø B Max.	Ø C Max
13	1.020 (25.91)	1.025 (26.03)	1.175 (29.85)
15	1.145 (29.08)	1.155 (29.34)	1.295 (32.89)
21	1.520 (38.61)	1.525 (38.73)	1.660 (42.16)
23	1.645 (41.78)	1.645 (41.78)	1.765 (44.83)
25	1.770 (44.96)	1.770 (44.96)	1.890 (48.01)

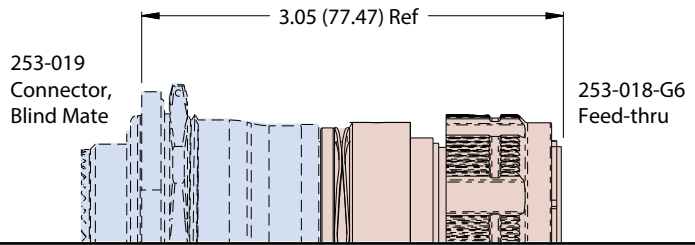
**Distance between mated flanges.**

For reference only (not deliverable)



**Distance between mated connectors.**

For reference only (not deliverable)



**NOTES:**

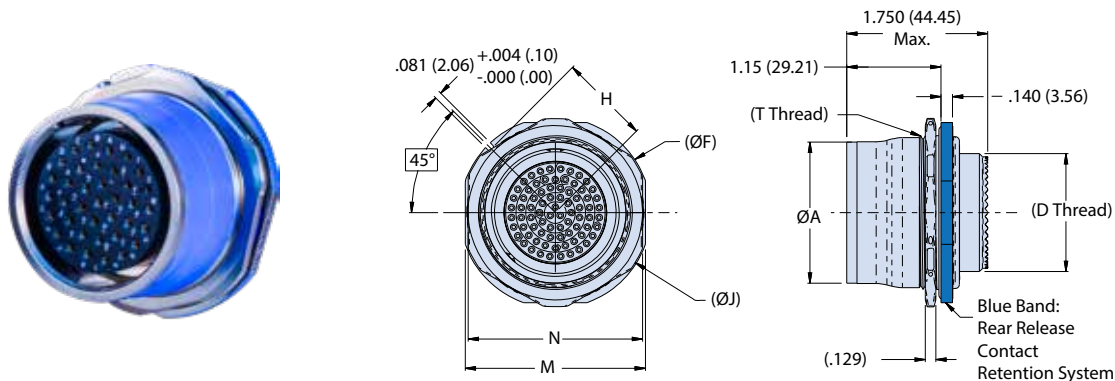
- Mates with 253-019 and D38999 series III connectors with same insert arrangement and polarization
- Distance between mated mounting flanges: 1.685/1.645. Consult manufacturer if other distance between mated mounting flanges is required
- Misalignment capabilities are possible with mated pair reference Glenair connector 253-019.
- See Space-Grade guidelines material, in this section, for outgassing/screening options available
- Stainless steel locating pin (Ø.079) shipped with each -07 jam-nut receptacle connector
- For feed-thru connector configurations that are either pin/pin or socket/socket, the position identification/ marking on the D38999 side of the connector will be as shown in MIL-STD-1560. The blind mate separation side will be the reverse identification marking
- Blind mate side mates with 253-019 with reverse silkscreen marking for contact type PP (pin on both sides) or SS (socket on both sides)
- Kick-off spring is not intended to offset all of the contact retention force for each insert arrangement
- Material/finish
  - Shell, jam-nut coupling nut: see part number development, finish
  - Spring: CRES/passivated
  - Insulators: high grade rigid dielectric/N.A.
  - O-ring: fluorosilicone blend
  - Contacts: copper alloy/gold plated

**MIL-DTL-38999 Series III Type space-grade blind-mate 253-019 jam-nut receptacle, mates with 253-018 BFT**

Part Number Development									
Sample Part Number	253-019				-07	ME	25-35	S	N
Series / Basic Part No.	253-019 = Blind-mate receptacle for use with 253-018 & 253-053-07 bulkhead feed-thru								
Connector Mounting	07 = Jam-nut mount (float mount), receptacle 007 = Jam-nut mount (float mount), receptacle; reverse silkscreen marking								
Material/Finish	ME = Aluminum, electroless nickel    ZL = CRES, electrodeposited nickel MT = Aluminum, nickel PTFE        Z1 = CRES, passivated								
Shell Size-Insert Arrangement*	Per MIL-STD-1560; symmetrical layouts only, consult factory for complete details								
Contact Type	S = Socket, crimp removable    P = Pin, crimp removable								
Alternate Polarization*	A = 40°, B = 65°, C = 80°, D = 210°, E = 250°, F = 280°, G = 310°, H = 330°, N = 135° (Normal) Per L°. G6 only Refers to blind mate side. Plug/Receptacle side per MIL-DTL-38999								

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 60 and 61. Modification codes may be added directly to the end of any valid part number

**253-019 FLOATING JAM-NUT MOUNT RECEPTACLE WITH MISALIGNMENT ACCOMMODATION AND OPTIONAL SEALING: MATES WITH 253-018 BULKHEAD FEED-THRU**



Dimensions for 253-019-07 Jam Nut Receptacle								
Shell Size	F Flange	H (End of Slot) 0.0/-0.008(0.0/-0.20)	Ø J Jam Nut	N, Jam Nut Flat ±.010 (±.25)	M, Flange Flats ±.010 (±.25)	T Thread Class 2A	D Thread Class 2A	Ø A ±.010 (±.25)
13	1.640 (41.66)	0.729 (18.52)	1.500 (38.10)	1.300 (33.02)	1.390 (35.31)	1.125-18 UNEF	.6875-24	.970 (24.64)
15	1.750 (44.45)	0.791 (20.09)	1.625 (41.28)	1.450 (36.83)	1.515 (38.48)	1.250-18 UNEF	.8125-20	1.105 (28.07)
21	2.180 (55.37)	1.017 (25.83)	2.063 (52.40)	1.875 (47.63)	1.955 (49.66)	1.625-18 UNEF	1.1875-18	1.475 (37.47)
23	2.315 (58.80)	1.076 (27.33)	2.141 (54.38)	2.010 (51.05)	2.080 (52.83)	1.750-18 UNS	1.3125-18	1.595 (40.51)
25	2.330 (59.18)	1.100 (27.94)	2.300 (58.42)	2.125 (53.98)	2.195 (55.75)	1.875-16 UN	1.4375-18	1.720 (43.69)

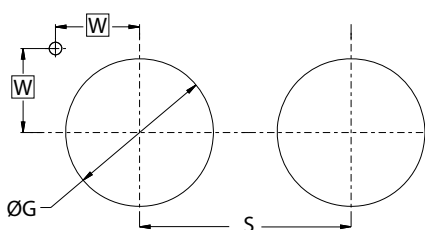


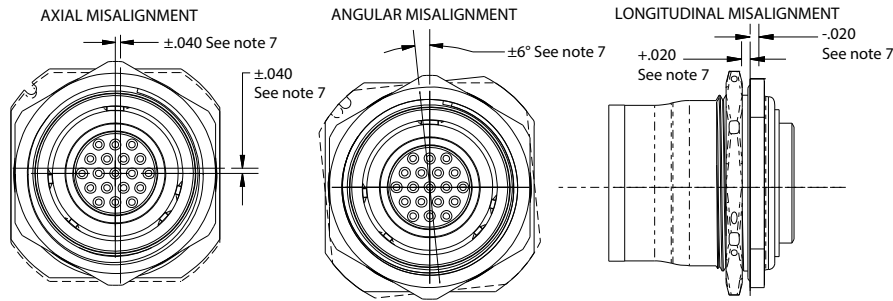
Table IV 253-019-07 Panel Cut-Out		
Shell Size	Ø G, Thru-Hole ±.004	W (Basic)
13	1.134 (28.80)	.549 (13.94)
15	1.259 (31.98)	.593 (15.06)
21	1.634 (41.50)	.753 (19.13)
23	1.759 (44.68)	.797 (20.24)
25	1.884 (47.85)	.810 (20.57)



**MIL-DTL-38999 Series III Type space-grade blind-mate  
253-019 jam-nut receptacle, mates with 253-018 BFT**

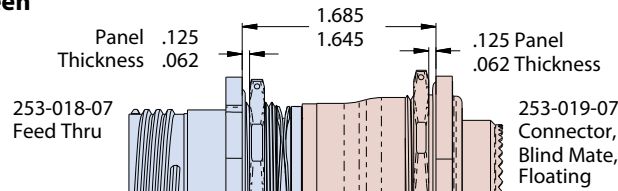
ENVIRONMENTAL CONNECTORS

**253-019 Misalignment Capabilities**



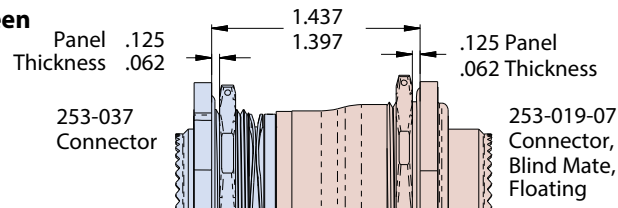
**Distance between mated flanges.**

For reference only (not deliverable)



**Distance between mated flanges.**

For reference only (not deliverable)



**NOTES:**

- Connector mates with Glenair 253-018 and 253-037 fixed series connectors having same insert arrangement and polarization.
- Distance between mated mounting flanges as shown. Consult manufacturer if other distance between mated mounting flanges is required.
- Misalignment capability as shown.
- See Space-Grade guidelines material, in this section, for outgassing/screening options available
- Stainless steel locating pin ( $\varnothing .079$ ) shipped with each connector
- Contact factory for PC tail versions.
- Dimensions and features are intended for customer use only. Dimensions are reference only and not measured during final inspection at factory.
- Connector style 007, jam nut mount with reverse silkscreen marking is used when mating to 253-018 feed-thru connector that is contact type PP (pin on both sides) or SS (socket on both sides).
- Hermetic version available (253-018-H7), consult factory for details
- Material/finish
  - Shell, jam-nut: see part number development, finish
  - Spring: CRES/passivated
  - Insulators: high grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend, silicone
  - Contacts: copper alloy/gold plated

**MIL-DTL-38999 Series III Type space-grade blind-mate 253-031 jam-nut plug with assisted kick-off**

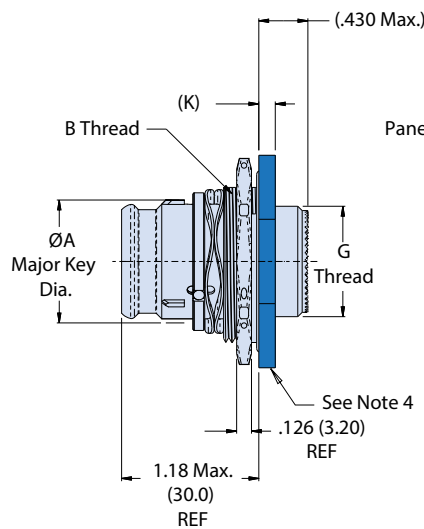
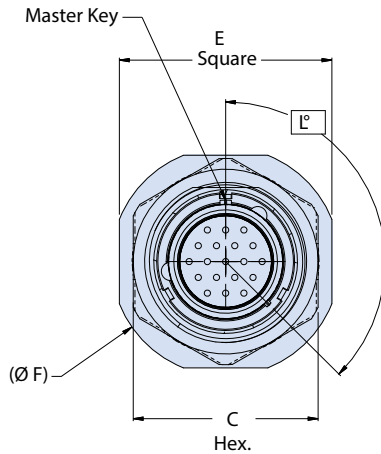
ENVIRONMENTAL CONNECTORS

Part Number Development					
Sample Part Number	253-031	-07	ME	25-35	P N
Series / Basic Part No.	253-031 Blind-mate plug with non-adjustable assisted separation				
Connector Mounting	-07 = Fixed jam-nut mount plug				
Material/Finish	ME = Aluminum, electroless nickel    ZL = CRES, electrodeposited nickel MT = Aluminum, nickel PTFE        Z1 = CRES, passivated				
Shell Size-Insert Arrangement*	Per MIL-STD-1560				
Contact Type	P = Pin, crimp removable        A = Pin insert less contacts S = Socket, crimp removable    B = Socket insert less contacts				
Alternate Polarization*	A = 40°, B = 65°, C = 80°, D = 210°, E = 250°, F = 280°, G = 310°, H = 330°, N = 135° (Normal) Per L° BSC. Refers to blind mate side.				

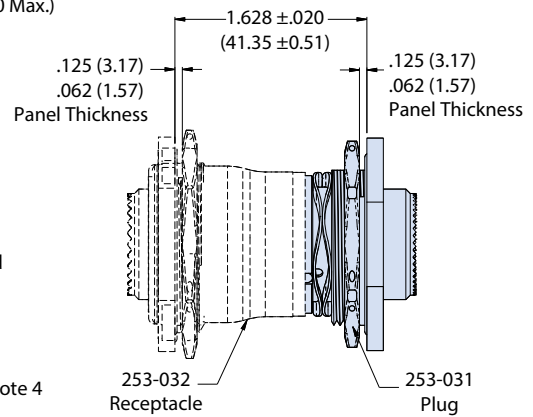
\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 60 and 61. Modification codes may be added directly to the end of any valid part number

**253-031 BLIND-MATE JAM-NUT MOUNT PLUG WITH KICK-OFF SPRING AND ACCESSORY THREADS**

07 - Receptacle, Jam Nut Mount



Mated Jam Mount Connectors



\*Dimensions shown are for reference only and not intended to be verified during final inspection

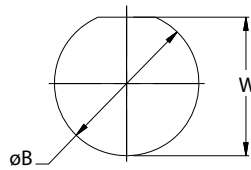
**NOTES:**

- Connector mates with Glenair 253-032 series connector, having the same insert arrangement and polarization.
- Insert arrangement is in accordance with MIL-STD-1560 arrangements only. Contact manufacturer for availability.
- See Space-Grade guidelines material, in this section, for outgassing/screening options available
- Blue color band indicates rear release contact retention mechanism.
- Kick-off spring is not intended to offset all of the contact retention force for each insert arrangement
- Material/ finish:
  - Shell, jam-nut: see part number development table, finish
  - Insulators: high grade rigid dielectric / N.A.
  - Contacts: copper alloy/gold plated
  - O-ring: fluorosilicone blend / N.A.

**MIL-DTL-38999 Series III Type space-grade blind-mate  
253-031 jam-nut plug with assisted kick-off**

ENVIRONMENTAL CONNECTORS

Dimensions							
Shell Size	ØA Max	Thd B Class 2A	C Max	E ±.016(0.4)	ØF Max	G Thd Class 2A	K .011/-010 (.28/.25)
11	.673 (17.09)	1.0000-20 UNEF	1.181 (30.00)	1.375 (34.92)	1.511 (38.38)	.5625-24	.109 (2.77)
13	.798 (20.27)	1.1250-18 UNEF	1.300 (33.02)	1.500 (38.10)	1.636 (41.55)	.6875-24	.109 (2.77)
15	.923 (23.44)	1.2500-18 UNEF	1.457 (37.01)	1.625 (41.28)	1.761 (44.73)	.8125-20	.109 (2.77)
17	1.048 (26.62)	1.3750-18 UNEF	1.575 (40.00)	1.812 (46.02)	1.949 (49.50)	.9375-20	.140 (3.56)
19	1.173 (29.79)	1.5000-18 UNEF	1.693 (43.00)	1.938 (49.23)	2.073 (52.65)	1.0625-18	.140 (3.56)
21	1.298 (32.97)	1.6250-18 UNEF	1.811 (46.00)	2.062 (52.37)	2.200 (55.88)	1.1875-18	.140 (3.56)
23	1.423 (36.14)	1.7500-18 UNS	2.016 (51.21)	2.187 (55.55)	2.323 (59.00)	1.3125-18	.140 (3.56)
25	1.548 (39.32)	1.8750-16 UNS	2.125 (53.97)	2.312 (58.72)	2.448 (62.18)	1.4375-18	.140 (3.56)



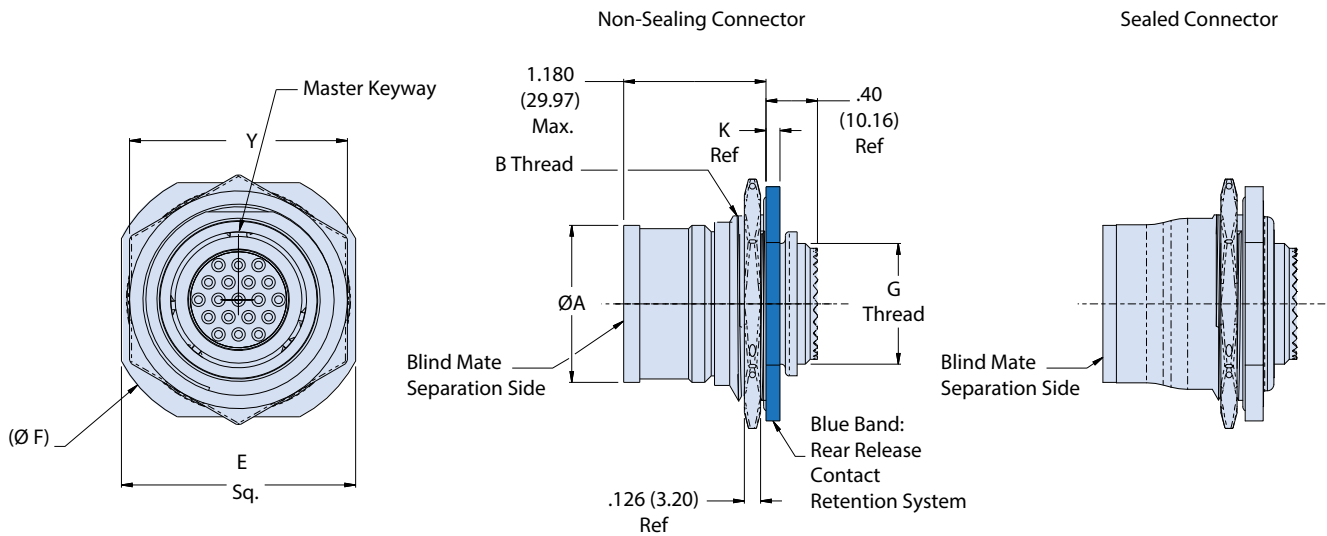
Recommended Panel Cutout		
Shell Size	Ø B .010/-000 (0.25/.00)	W +.000/-010 (.00/-25)
11	1.010	0.955
13	1.135	1.085
15	1.260	1.210
17	1.385	1.335
19	1.510	1.460
21	1.635	1.585
23	1.760	1.710
25	1.885	1.835

**MIL-DTL-38999 Series III Type space-grade blind-mate 253-032 jam-nut receptacle, mates with 253-031 plug**

Part Number Development						
Sample Part Number	253-032	-07	ME	25-35	S	N NS
Series / Basic Part No.	253-032 = Blind-mate receptacle for use with 253-031 plug					
Connector Mounting	-07 = Floating jam nut mount receptacle					
Material/Finish	ME = Aluminum, electroless nickel    ZL = CRES, electrodeposited nickel MT = Aluminum, nickel PTFE        Z1 = CRES, passivated					
Shell Size-Insert Arrangement*	Per MIL-STD-1560; Symmetrical layouts only, consult factory for complete details.					
Contact Type	P = Pin, crimp removable            A = Pin insert less contacts S = Socket, crimp removable        B = Socket insert less contacts					
Alternate Polarization*	A = 40°, B = 65°, C = 80°, D = 210°, E = 250°, F = 280°, G = 310°, H = 330°, N = 135° (Normal) Per L° BSC. Refers to blind mate side.					
Non Sealing	NS = Non-Sealing (omit for external elastomer seal version)					

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 60 and 61. Modification codes may be added directly to the end of any valid part number

**253-032 FLOATING JAM-NUT MOUNT RECEPTACLE WITH MISALIGNMENT ACCOMMODATION; MATES WITH 253-031 ONLY**



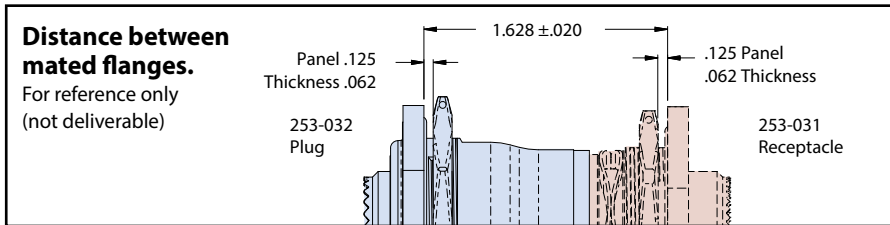
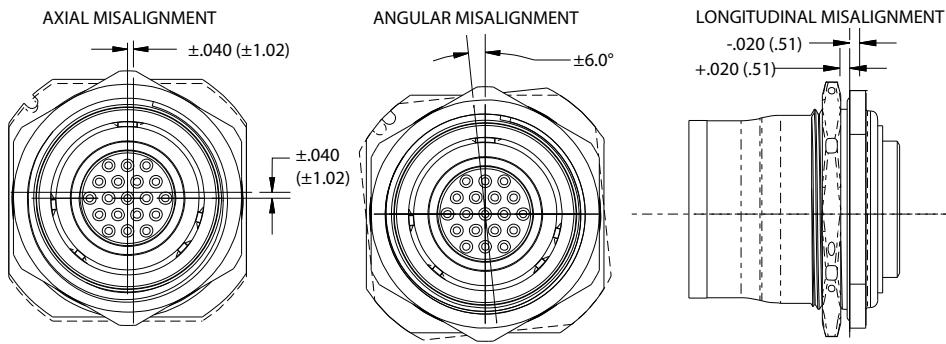
**NOTES:**

- Connector mates with Glenair 253-031 series connector, having the same insert arrangement and polarization.
- Insert arrangement is in accordance with MIL-STD-1560 arrangements only. Contact manufacturer for availability.
- Misalignment capabilities are possible when mated with Glenair connector 253-031
- See Space-Grade guidelines material, in this section, for outgassing/screening options available
- Material/ finish:
  - Shell, flange, jam-nut: see part number development, finish
  - Wave spring: CRES 17-7PH/passivate
  - Insulators: high grade rigid dielectric/N.A.
  - Contacts: copper alloy/gold plated
  - O-ring: fluorosilicone blend/N.A.

## MIL-DTL-38999 Series II Type space-grade blind-mate 253-032 jam-nut receptacle, mates with 253-031 plug

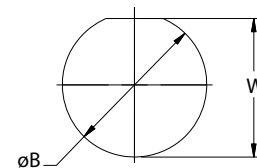
ENVIRONMENTAL CONNECTORS

### Misalignment Capabilities



Dimensions							
Shell Size	ØA Max	B Thd, Class 2A	Y Hex	E ±.016 (0.41)	Ø F Max	Thd G, Class 2A	K .011/-.010 (0.28/ 0.25)
11	.853 (21.67)	1.1250-18 UNEF	1.300 (33.02)	1.391 (35.33)	1.641 (41.68)	.5625-24	.109 (2.77)
13	.978 (24.84)	1.2500-18 UNEF	1.457 (37.01)	1.516 (38.51)	1.750 (44.45)	.6875-24	.109 (2.77)
15	1.103 (28.02)	1.3750-18 UNEF	1.575 (40.00)	1.641 (41.68)	1.938 (49.23)	.8125-20	.109 (2.77)
17	1.228 (31.19)	1.5000-18 UNEF	1.693 (43.00)	1.828 (46.43)	2.062 (52.37)	.9375-20	.140 (3.56)
19	1.353 (34.37)	1.6250-18 UNEF	1.811 (46.00)	1.954 (49.63)	2.188 (55.58)	1.0625-18	.140 (3.56)
21	1.478 (37.54)	1.7500-18 UNS	2.010 (51.05)	2.078 (52.78)	2.312 (58.72)	1.1875-18	.140 (3.56)
23	1.603 (40.72)	1.8750-16 UNS	2.209 (56.11)	2.128 (54.05)	2.327 (59.11)	1.3125-18	.140 (3.56)
25	1.728 (43.89)	2.0000-16 UN	2.334 (59.28)	2.253 (57.23)	2.452 (62.28)	1.4375-18	.140 (3.56)

Recommended Panel Cutout		
Shell Size	Ø B .010/-.000 (0.25/.00)	W +.000/-.010 (.00/-.25)
11	1.135 (28.83)	1.085 (27.56)
13	1.260 (32.00)	1.210 (30.73)
15	1.385 (35.18)	1.335 (33.91)
17	1.510 (38.35)	1.460 (37.08)
19	1.635 (41.53)	1.585 (40.26)
21	1.760 (44.70)	1.710 (43.43)
23	1.885 (47.88)	1.835 (46.61)
25	2.010 (51.05)	1.960 (49.78)



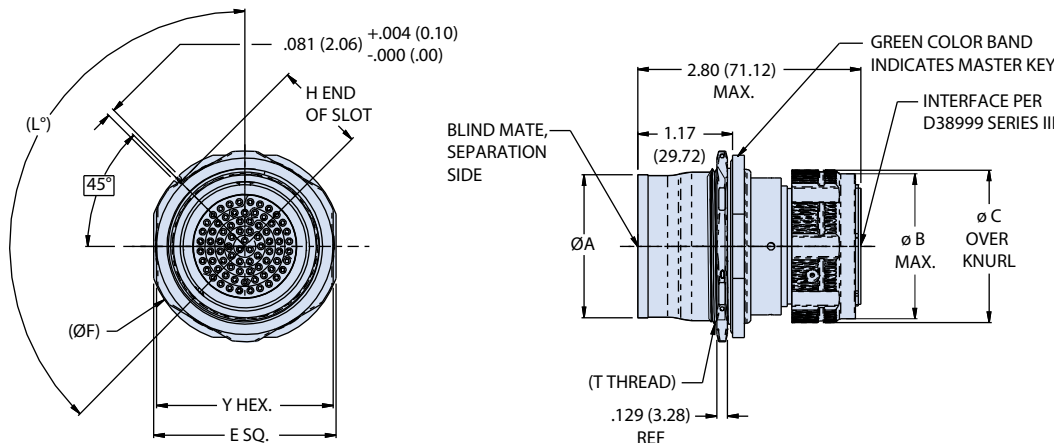


**MIL-DTL-38999 Series III Type space-grade blind-mate 253-033 bulkhead feed-thru jam-nut receptacle, D38999 B-side**

Part Number Development					
Sample Part Number	253-033	-07	ME	25-35	PP N
Series / Basic Part No.	253-033 = Floating jam-nut mount, feed-thru receptacle with rear D38999 Series III plug interface. Receptacle interface also available, contact factory				
Connector Style	-07 = Jam-nut mount, float mount				
Material/Finish	ME = Aluminum, electroless nickel    ZL = CRES, electrodeposited nickel MT = Aluminum, nickel PTFE        Z1 = CRES, passivated				
Shell Size-Insert Arrangement*	Per MIL-STD-1560; symmetrical layouts only, consult factory for complete details				
Contact Type	PP = Pin on both sides            BSDP = Blind-mate side socket - D38999 side pin SS = Socket on both sides      BPDS = Blind-mate side pin - D38999 side socket				
Alternate Polarization*	A = 40°, B = 65°, C = 80°, D = 210°, E = 250°, F = 280°, G = 310°, H = 330°, N = 135° (Normal) Per L°. Refers to blind mate side. Plug side per MIL-DTL-38999. See alternate polarizations table				

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 60 and 61. Modification codes may be added directly to the end of any valid part number

**253-033 FLOAT MOUNT FEED-THRU, JAM NUT MOUNT RECEPTACLE TO 38999 TYPE SERIES III PLUG MATING INTERFACE**



Alternate Polarizations	
ID	L°
N	135°
A	40°
B	65°
C	80°
D	210°
E	250°

Dimensions for 253-033								
Shell Size	Ø A Max	T Thread Class 2A	Y Hex Flats	E flange ±.016	ØF Flange	H End of Slot +0/-0.008	ØB Max	ØC Max
13	.978	1.1250-18 UNEF	1.300 (33.02)	1.391 (35.33)	1.6441 (41.76)	.729 (18.52)	1.050 (26.67)	1.200 (30.48)
15	1.103	1.2500-18 UNEF	1.457 (37.01)	1.516 (38.51)	1.750 (44.45)	.791 (20.09)	1.180 (29.97)	1.320 (33.53)
23	1.603	1.7500-18 UNEF	2.010 (51.05)	2.078 (52.78)	2.312 (58.72)	1.072 (27.23)	1.670 (42.42)	1.790 (45.47)
25	1.728	1.8750-18 UNEF	2.125 (53.97)	2.200 (55.88)	2.327 (59.11)	1.096 (27.84)	1.800 (45.72)	1.920 (48.77)

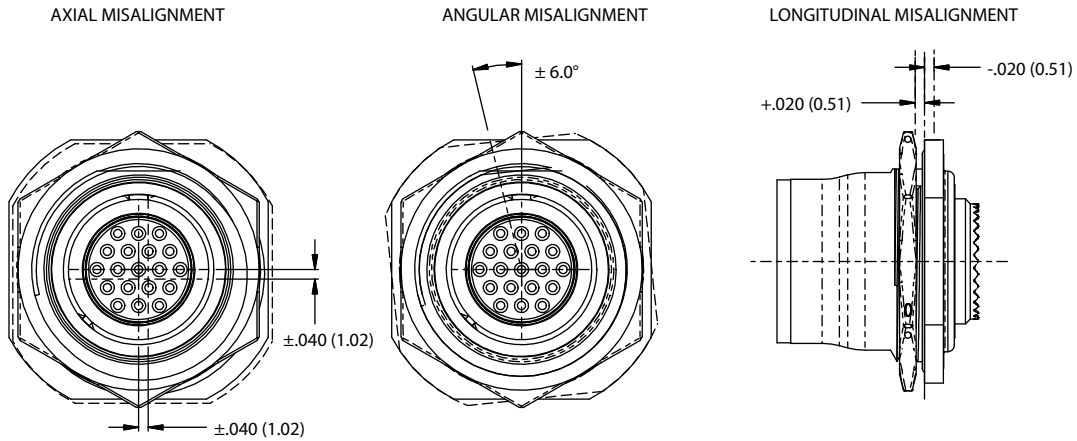
**NOTES:**

- Distance between mated mounting flanges: 1.808 Consult manufacturer other distance between mounting flanges is required
- See Space-Grade guidelines material, in this section, for outgassing/screening options available
- Stainless steel locating pin (Ø.079) shipped with each connector
- Misalignment capabilities are possible with mated pair reference Glenair connector 253-019

**MIL-DTL-38999 Series III Type space-grade blind-mate  
253-033 bulkhead feed-thru jam-nut receptacle, D38999 B-side**

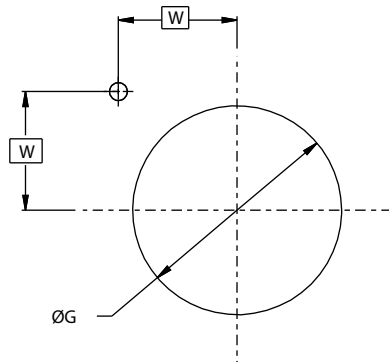
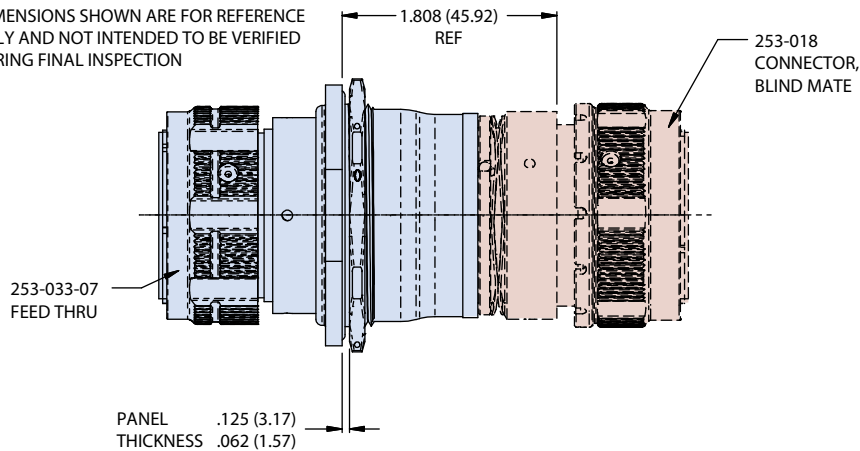
ENVIRONMENTAL CONNECTORS

**MISALIGNMENT CAPABILITIES** (see note 4)



**Distance Between Mated Flanges**

\*DIMENSIONS SHOWN ARE FOR REFERENCE ONLY AND NOT INTENDED TO BE VERIFIED DURING FINAL INSPECTION



Recommended Panel Cut-out		
Shell Size	ØG, Thru Hole ±0004 (0.10)	W Basic
13	1.134 (28.80)	.549 (13.94)
15	1.259 (31.98)	.593 (15.06)
23	1.759 (44.68)	.797 (20.24)
25	1.884 (47.85)	.809 (20.55)

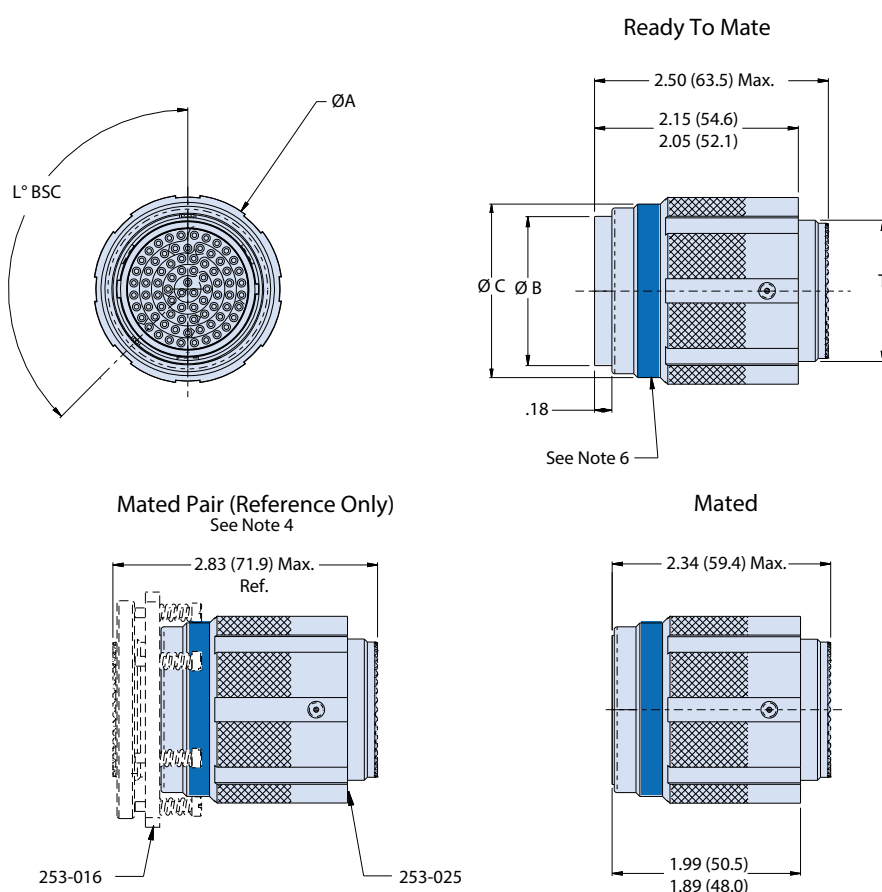
## MIL-DTL-38999 Series III Type space-grade blind-mate 253-025 Locking circuit and test-mate, mates with 253-016

ENVIRONMENTAL CONNECTORS

Part Number Development									
Sample Part Number	253-025				-G6	ME	23-43	P	N
Series / Basic Part No.	253-025 = Locking circuit and test mate connector								
Connector Mounting	-G6 = In-line								
Material/Finish	ME = Aluminum, electroless nickel MT = Aluminum, nickel PTFE		ZL = CRES, electrodeposited nickel Z1 = CRES, passivated						
Shell Size-Insert Arrangement*	Per MIL-STD-1560								
Contact Type	P = Pin, crimp removable S = Socket, crimp removable		A = Pin insert less contacts B = Socket insert less contacts						
Alternate Polarization*	A = 40°, B = 65°, C = 80°, D = 210°, E = 250°, F = 280°, G = 310°, H = 330°, N = 135° (Normal) Per L° Basic. Refers to blind mate side. Plug side per MIL-DTL-38999. See alternate polarizations table								

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 60 and 61. Modification codes may be added directly to the end of any valid part number

### 253-025 LOCKING CIRCUIT AND TEST MATE CONNECTOR, MATES WITH 253-016 PLUG



Dimensions				
Shell Size	Ø A Max	Ø B	Ø C	T Thd 1.0-6g -0.100R
17	1.55 (39.37)	1.10 (27.94)	1.29 (32.77)	M25
25	2.05 (52.07)	1.54 (39.12)	1.79 (45.47)	M37

**NOTES:**

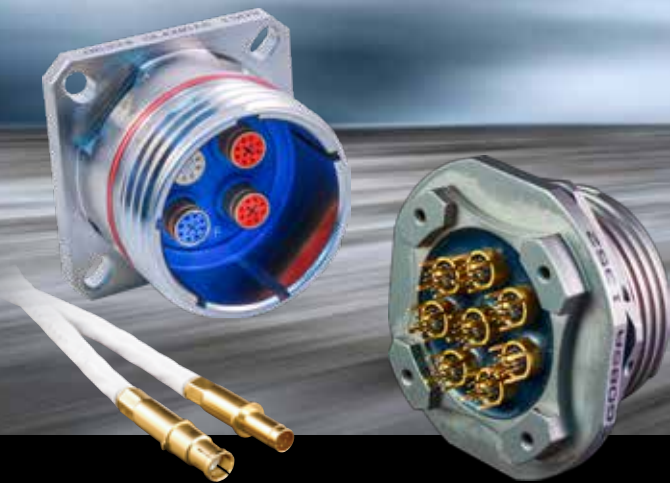
- Material/ finish:
  - Shell, coupling ring, segments - see part number development, finish
  - Insulators - high grade rigid dielectric / N.A.
  - Contacts - copper alloy / gold plated
- Connector mates with Glenair 253-016 series connector, having the same insert arrangement and polarization.
- Insert arrangement is in accordance with MIL-STD-1560 arrangements only. Contact manufacturer for availability.
- Connector mated with Glenair 253-016 is shown for reference only.
- See Space-Grade guidelines material, in this section, for outgassing and screening options available
- Blue color band indicates rear release contact retention system



**SERIES 23 SUPERNINE®**

# High-Speed Series MIL-DTL-38999 Series III

Shielded contact connectors for 10GbE, HDMI, DisplayPort, USB 3.0, SATA and other high-speed digital datalink application protocols



Glenair signature octaxial El Ochito® contact solutions, industry-standard quadrax, and next-generation SpeedMaster™ connectors for high-speed matched impedance cables



**MIL-DTL-38999 Series III Type Environmental Connectors**

**Product selection guide**

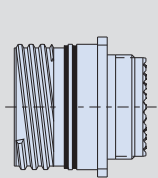
**SuperNine® High-Speed Connectors**

High-Speed Technology Overview	C-3
Contacts and insert arrangements	C-4
Contact layouts	C-6
Performance Summary, Material/Finish and Panel Cutout Dimensions	C-8

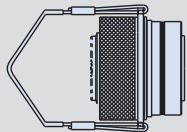
**RF and El Ochito® Contacts**

*High-Speed, Keyed Crimp Contacts*

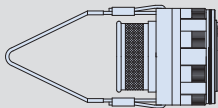
Technology Overview	C-9
Specifications	C-11
Signal Integrity Data	C-16
Contact Dimensions	C-14
PCB footprints	C-16
Mod Code 909	C-19
El Ochito Assembly Tools	C-20
Shielded Contacts, Cables and Assembly Tools	C-22
Cables	C-23
Cable Assemblies, Jumpers Single and Ended	C-26
Ethernet Test Adapters	C-35



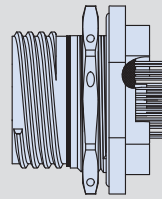
**233-217 and 233-224** C-36  
 SuperNine® Plug and Receptacle Connectors with Accessory Threads or Integral Banding Porch and Removable el Ochito®, RF, Signal and Power Crimp Contact Options



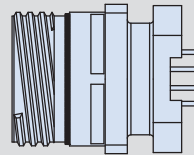
**233-260** C-42  
 SuperNine® Quick-Disconnect Plug with Rear Release, Crimp Removable el Ochito®, RF, Signal and Power Contact Options.



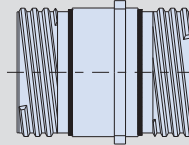
**233-226** C-45  
 SuperNine® PC Tail Dual Flange Receptacle Connectors with Potted, Non-Removable el Ochito®, RF, Signal and Power PC Tail Contact Options.



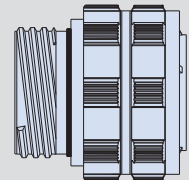
**233-218** C-49  
 SuperNine® PC Tail Receptacle Connectors with Potted Non-Removable, el Ochito®, RF, Signal and Power PC Tail Contact Options.



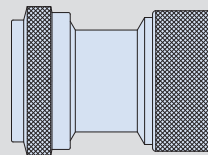
**233-225** C-54  
 SuperNine® PC Tail Dual Flange Receptacle Connectors with Potted, Non-Removable el Ochito®, RF, Signal and Power PC Tail Contact Options.



**233-227** C-60  
 SuperNine® Panel Mount Bulkhead Feed-thru Receptacle with and High-Speed el Ochito®, RF, Signal and Power Contact Options.



**233-228** C-65  
 SuperNine® High-Speed Sav-Con® Connector Saver with and High-Speed el Ochito®, RF, Signal and Power Contact Options.



**377HS121** C-68  
 Extender Backshell with Keyed Grommet Seal for use with Size #8 El Ochito Contact Cables.

**Space Grade Connectors with El Ochito® Octaxial RF, Power and Signal Contacts**

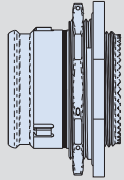
Space-Grade Guidelines for SuperNine® High-Speed Connectors	C-69
Space-Grade, High-Speed Circular, Blind-Mate Connectors	C-71



**MIL-DTL-38999 Series III Type Environment Connectors**

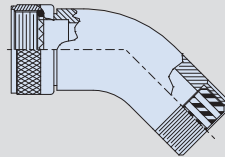
**Product selection guide**

HIGH-SPEED CONNECTORS



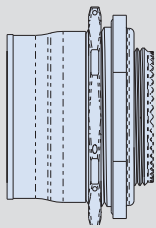
**253-044** C-73

SuperNine® Fixed Mount Blind-Mate Plug Connectors with High-Speed el Ochito®, RF, Signal and Power Contact Options.



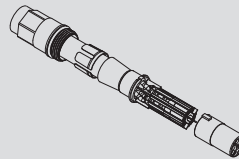
**377N119** C-104

SuperNine® SpeedMaster™ Multi-Function Cable-Sealing Backshell Adapter. Straight, 45°, or 90°

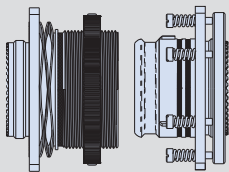


**253-045** C-77

SuperNine® Float Mount Blind-Mate Receptacle Connectors with Mis-Alignment Capabilities and High-Speed el Ochito®, RF, Signal and Power Contact Options.



**SpeedMaster Assembly Instructions** C-106



**253-047 & 253-048** C-83

SuperNine® Fixed Mount Plug and Float Mount Receptacle Connectors with Mis-Alignment Capabilities and High-Speed el Ochito®, RF, Signal and Power Contact Options

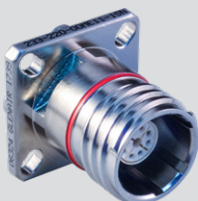
**SpeedMaster 10G Octaxial Contact System**

Technology Overview	C-87
Specifications	C-89
Signal Integrity Data	C-91
How-to-Order SpeedMaster™ Contacts	C-92
Pre-Wired SpeedMaster™ Assemblies	C-93
Assembly Instructions	C-106



**233-219** C-95

SuperNine® SpeedMaster™ Plug and Receptacle Connectors.



**233-220** C-101

SuperNine® SpeedMaster™ Receptacle with PC Tail Contacts.



## MIL-DTL-38999 TYPE

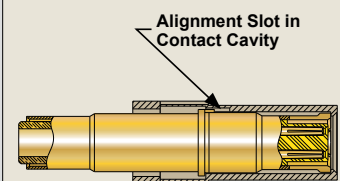
# Mil-Aero Ethernet, Video, and High-Speed Data Solutions

SuperNine® plug and receptacle connectors with special inserts to accommodate high-speed, shielded contacts

- **Tooled and ready-to-ship high-speed hybrid insert arrangement connectors for size #8, #12, and #16 shielded contacts. Nineteen layouts for High-Speed Coax, Twinax, Quadrax and El Ochito® contact solutions**
- **Supported applications: 10/100/1G/10G BASE-T Ethernet, analog/digital video, 1553 databus and general RF or differential data transmission**
- **El Ochito® contact technology: El Ochito® for 10G Ethernet (El Ochito® white), USB 3.0 (El Ochito® blue), and Multi gigabit datalink (El Ochito® red) applications such as HDMI, SATA and Displayport**
- **SpeedMaster™ 10G Ethernet contact solution featuring industry standard size 22D contacts for fast easy termination and repairability**
- **Size 22D SpeedMaster™ solutions from one to seven contact insert arrangements**

### About Keyed Contacts

Glenair SuperNine® high-speed connector size #8 contact cavities are equipped with internal alignment slots. differential twinax, quadrax and El Ochito® contacts have a corresponding alignment key to properly orient the contact within the contact cavity.



Size #8 Quadrax and El Ochito® contacts with alignment keys



**MIL-DTL-38999 Series III Type Environmental Connectors**

Ethernet, video, and high-speed data applications

HIGH-SPEED SPACE-GRADE CONNECTORS

Size #8 Shielded Contact Quick Reference Guide						
Available Contacts (ordered separately)	Glenair P/N		Contact Size	Accommodates AWG Size	Cable Type	Application Notes
<p>Coax</p>	Pin: 852-007 Socket: 852-006	Coax 50 ohm (M39029/59 & /60)	8	22 - 28	M17/95-RG180	Analog radio frequency or microwave applications
	Pin: 852-056-01 & -02 Socket: 852-057-01 & 02	75 ohm	8	26	-01: V73263, V75268, V76261, -02: M17/94-RG179	
<p>Differential Twinax</p>	Pin: 853-014-05 Socket: 853-013-05		8	24	M17/176-00002	1553 Databus/ Differential Signal
<p>El Ochito® Octaxial</p>	Pin: 858-003, Type I Socket: 858-004, Type I	el Ochito® White	8	26 - 28	963-033-26	1G/10G BaseT Ethernet
	Pin: 858-005, Type II Socket: 858-006, Type II	el Ochito® White	8	24 - 26	963-033-24	
	Pin: 858-028, Type I Socket: 858-029, Type I	el Ochito® Blue	8	26 - 28	963-110	USB 3.0
	Pin: 858-030-01, Type I Socket: 858-031, Type I	el Ochito® Red	8	26 - 28	Varies	SATA, HDMI, Display Port
<p>Quadrax</p>	Pin: 854-001 Socket: 854-002		8	22 - 26	Varies	10/BASE-T Ethernet
<p>Triax/Concentric Twinax</p>	Pin: 853-003 Socket: 853-004		8	22 - 28	M17/176-00002	1553 Databus

**HIGH-SPEED INSERT ARRANGEMENTS IN CRIMP-CONTACT AND PC TAIL CONFIGURATIONS**



233-217 G6 Plug featuring SuperNine® 500 mating-cycle ratcheted coupling technology



233-217 CM Square-Flange Crimp Receptacle with metric clinch nut mounting



233-218 07 Jam-Nut Receptacle with PC tail termination and threaded standoffs

## MIL-DTL-38999 Series III Type Environmental Connectors

Signal, power, and RF contacts plus insert arrangements

HIGH-SPEED CONNECTORS

Crimp Contacts										
Size #22 - #12 Contacts										
Contact Size	#23		#22D		#20		#16		#12	
Wire Gauge	#22 - #28 AWG		#22 - #28 AWG		#20-#24 AWG		#16 - #20 AWG		#12 - #14 AWG	
Max Current	5 amps		5 amps		7.5 amps		13 amps		23 amps	
Pin	857-189		857-151-22		857-151-20		857-151-16		857-151-12	
Socket	857-190		857-150-22		857-150-20		857-150-16		857-150-12	
Size #8 Contacts										
Contact Size	#8 Coax 50Ω	#8 Coax 75Ω*	#12 Coax	#16 Coax	#8 Conc. Twinax	#8 Diff. Twinax	#8 Quadrax	#12 Pneumatic	#8 Optoelectronic	
Pin	Depends on Cable	Depends on Cable	Depends on Cable	852-008	853-003	853-014	854-001	830-003	050-301 Tx	
Socket	Depends on Cable	Depends on Cable	Depends on Cable	852-009	853-004	853-013	854-002	830-005	050-301 Rx	
Size #8 El Ochito Contacts										
Contact Size	#8 El Ochito White, Type I		#8 El Ochito White, Type II		#8 El Ochito Blue, Type I		#8 El Ochito Blue, Type II		#8 El Ochito Red, Type I	
Pin	858-003		858-005		858-028		858-069		858-030	
Socket	858-004		858-006		858-029		858-070		858-031	

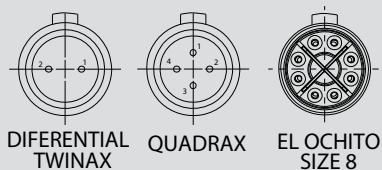
\*Contact factory for ordering details

Size 8 High-Speed Insert Arrangements*		
Shell Size	#8	Shell Size - Insert Arr.
9	1	9G5
11	1	11-1
17	2	17-75
19	4	19-4
21	4	21-75
23	5	23-5
23	6	23-6
25	8	25-8

\*Note that any size #8 High-Speed contact can be substituted for size #8 power contact. See page C-4 for typical High-Speed contact applications.

Combo High-Speed Insert Arrangements*							
Shell Size	Number of Contacts						Shell Size - Insert Arr.
	#23	#22D	#20	#16	#12	#8	
13	14					1	13-14
17		38		2		1	17-2
17					2	2	17-22
17		8				2	17-60
19		10	1	4		2	19-17
19		14				4	19-18
25		97				2	25-7
25		36				6	25-17
25			10	13	4	3	25-20
25			16		5	4	25-26
25		22	3	11	2	3	25-41
25			40	4		2	25-46

**FIGURE 2: CONTACT INNER PIN ORIENTATION**





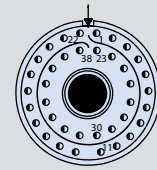
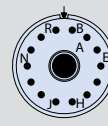
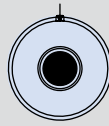
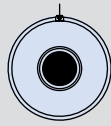
## MIL-DTL-38999 Series III Type Environmental Connectors

### Signal, power, and RF contact layouts

HIGH-SPEED CONNECTORS

Contact Legend

#23	•	#22D	◦
#16	⊕	#20	⊖
#12	◐	#10	◑
#8	●		

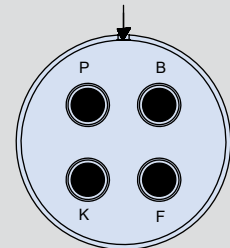
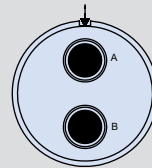
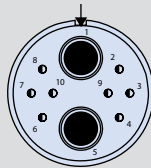
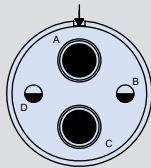


Insert Arrangement	9G5*	11-1	13-14	17-2
No. of Contacts	1x #8	1x #8	1x #8   14x #23	1x #8   38x #22D

\*Only available with ground plane option

Contact Legend

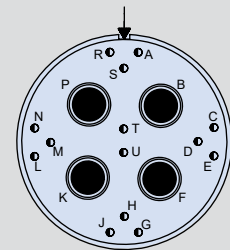
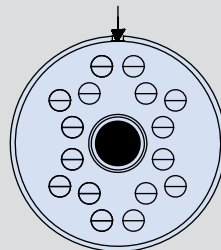
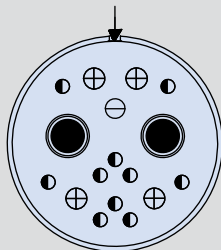
#23	•	#22D	◦
#16	⊕	#20	⊖
#12	◐	#10	◑
#8	●		



Insert Arrangement	17-22	17-60	17-75	19-4
No. of Contacts	2x #8   2x #12	2x #8   8x #22D	2x #8	4x #8

Contact Legend

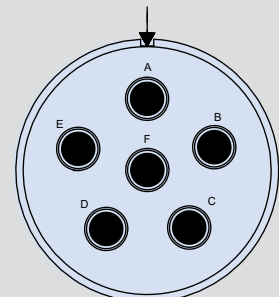
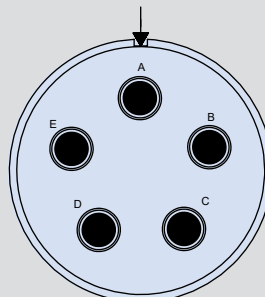
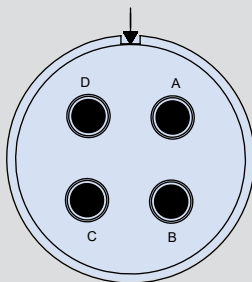
#23	•	#22D	◦
#16	⊕	#20	⊖
#12	◐	#10	◑
#8	●		



Insert Arrangement	19-17	19A-17	19-18
No. of Contacts	2x #8   4x #16   1x #20   10x #22D	1x #8   16x #20	4x #8   14x #22D

Contact Legend

#23	•	#22D	◦
#16	⊕	#20	⊖
#12	◐	#10	◑
#8	●		



Insert Arrangement	21-75	23-5	23-6
No. of Contacts and Size	4x #8	5x #8	6x #8

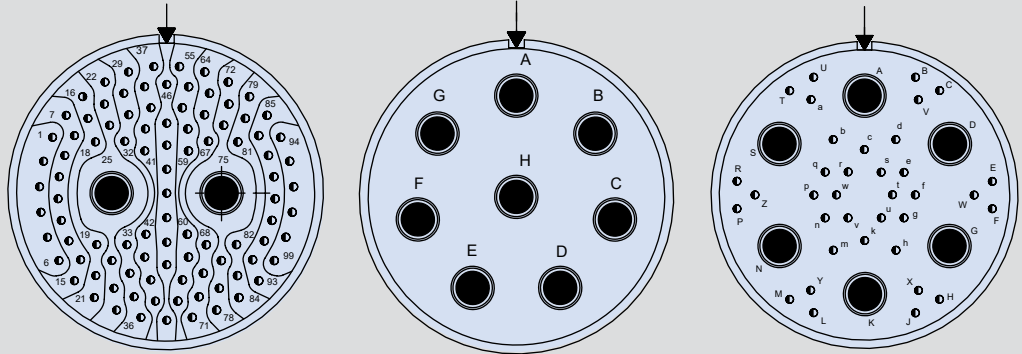


## MIL-DTL-38999 Series III Type Environmental Connectors

### Signal, power, and RF contact layouts

HIGH-SPEED CONNECTORS

- Contact Legend**
- #23 ● #22D ◦
  - #16 ⊕ #20 ⊖
  - #12 ◐ #10 ◑
  - #8 ●



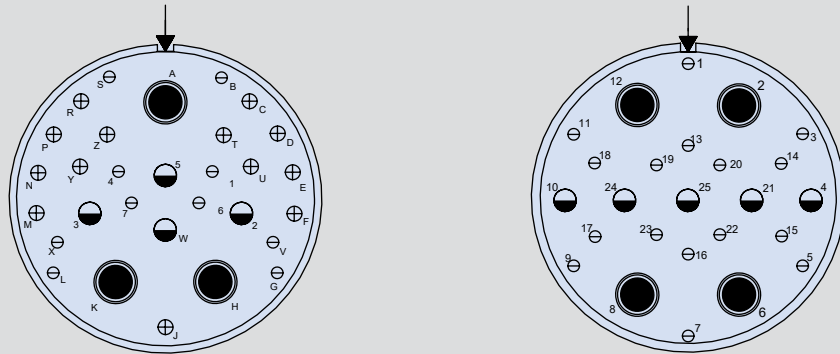
**Insert Arrangement**  
No. of Contacts and Size

25-7	
2x #8	97x #22D

25-8
8x #8

25-17	
6x #8	36x #22D

- Contact Legend**
- #23 ● #22D ◦
  - #16 ⊕ #20 ⊖
  - #12 ◐ #10 ◑
  - #8 ●

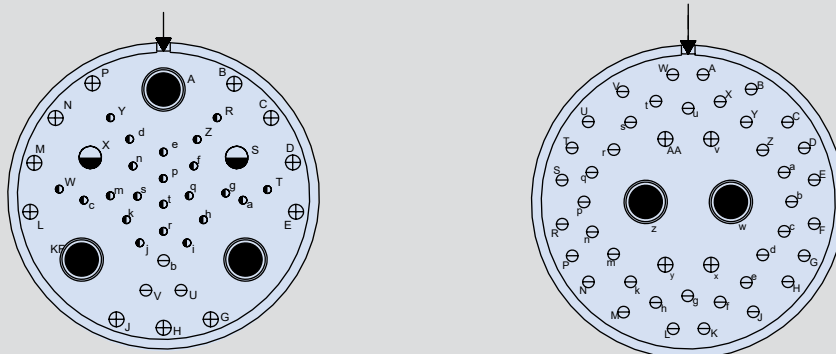


**Insert Arrangement**  
No. of Contacts and Size

25-20			
3x #8	4x #12	13x #16	10x #20

25-26		
4x #8	5x #12	16x #20

- Contact Legend**
- #23 ● #22D ◦
  - #16 ⊕ #20 ⊖
  - #12 ◐ #10 ◑
  - #8 ●



**Insert Arrangement**  
No. of Contacts and Size

25-41				
3x #8	2x #12	11x #16	3x #20	22x #22D

25-46 and 25-90		
2x #8	4x #16	40x #20

**PERFORMANCE SUMMARY**

**Standard Material and Finishes**

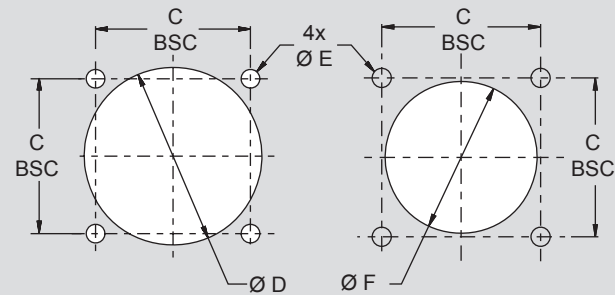
- Shell, barrel and coupling nut: aluminum alloy 6061 per ASTM-B211. Composite jam-nut mount connector is provided with aluminum alloy jam-nut.
- Grounding spring: BeCu alloy/electroless nickel finish
- Insulator: high-grade rigid dielectric. For common ground option, aluminum alloy.
- Seals, grommet, O-ring: fluorosilicone
- Contact: grommet follower ordered separately
- Stainless steel and other materials and finishes available

**Shell Type and Sizes**

- Shell Type: D38999 Series III Type
- Shell sizes: 9, 11, 13, 17, 19, 21, 23, 25

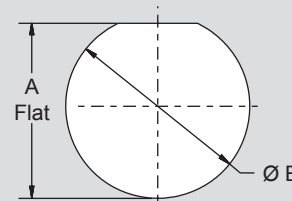
**Environmental / Mechanical Performance**

- Sealing: IP67 mated condition, when proper backshell is used
- Outgassing: UL94 V0 low smoke, zero halogen
- Operating Temperature Range: -65°C to +200°C
- Vibration: 43.9g's, 3 Axis, 50 - 2000 Hz
- Mechanical Shock: 300 g's
- Backshell Interface: MIL-DTL-38999
- Durability (Mating Cycles): 500



**Square Flange Rear Panel Mount**

**Square Flange Front Panel Mount**



**Jam Nut**

Available Non-Standard Mounting Options	
Sym	Description
00	Receptacle, wall mount with slotted holes
D0	Receptacle, wall mount with round holes
CM	Receptacle, wall mount with metric clinch nuts
CS	Receptacle, wall mount with standard clinch nuts
HM	Receptacle, wall mount with metric helicoil
HS	Receptacle, wall mount with standard helicoil
TM	Receptacle, wall mount with metric tapped holes
TS	Receptacle, wall mount with standard tapped holes

Materials and Finishes		
Sym	Material	Finish Description
ME	Aluminum	Electroless nickel
MT		Ni-PTFE 500 hour nickel fluorocarbon polymer
NF		Cadmium O.D. Over electroless nickel
ZR		Black zinc-nickel over electroless nickel
T0	Titanium	Natural, unplated
TP3		Electro-deposited nickel
Z1	Stainless Steel	Passivate
ZL		Electro-deposited nickel
AB	Marine Bronze	Unplated

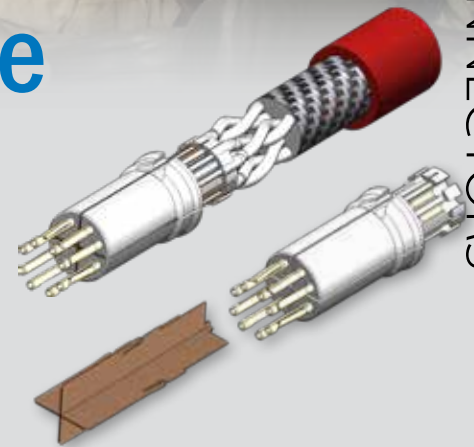
Recommended Panel Cut-Out Dimensions								
Shell Size Code	Shell Size	Jam-nut Mount		Square Flange Mount				
		A Flat	B Dia	C BSC	D Dia Min	E Dia Flange Holes	F Dia Min	
A	9	.661/.654 (16.79/16.61)	.703/.693 (17.58/17.60)	.719 (18.26)	.656 (16.66)	.133/.123 (3.38/3.12)	.516 (13.12)	
B	11	.771/.761 (19.58/19.33)	.835/.825 (21.21/20.96)	.812 (20.62)	.796 (20.22)		.625 (15.88)	
C	13	.955/.945 (24.26/24.00)	1.020/1.010 (25.91/25.65)	.906 (23.01)	.922 (23.42)		.750 (19.05)	
D	15	1.085/1.075 (27.56/27.31)	1.145/1.135 (29.08/28.83)	.969 (24.61)	1.047 (26.59)		.906 (23.01)	
E	17	1.210/1.200 (30.73/30.48)	1.270/1.260 (32.26/32.00)	1.062 (26.97)	1.219 (30.96)		1.016 (25.81)	
F	19	1.335/1.325 (33.91/33.66)	1.395/1.385 (35.43/35.18)	1.156 (29.36)	1.297 (32.94)		1.141 (28.98)	
G	21	1.460/1.450 (37.08/36.83)	1.520/1.510 (38.61/38.35)	1.250 (31.75)	1.422 (36.12)		1.266 (32.16)	
H	23	1.585/1.575 (40.26/40.01)	1.645/1.635 (41.78/41.53)	1.375 (34.93)	1.547 (39.29)		.159/.149 (4.04/3.78)	1.375 (34.93)
J	25	1.710/1.700 (43.43/43.18)	1.770/1.760 (44.96/44.70)	1.500 (38.10)	1.672 (42.47)		.155/.145 (3.94/3.68)	1.484 (37.69)



# El Ochito®: The Ultimate High-Speed Contact

“The Little Eight”: Eight miniaturized contacts in a standard size #8 shielded module, with dramatic size and weight reduction compared to all other available solutions

- El Ochito® for 10G Ethernet (white), USB 3.0 (blue), and Multi gigabit datalink applications such as HDMI, SATA and Displayport (red).
- Fast and easy crimp termination of wires to contacts—PC Tails available
- 100% drop-in solution for installed Glenair High-Speed connectors—no redesign or reinstallation of interfaces
- Supplied as crimp contacts, wire pigtails, or in PC tail configurations in the connector of your choice—up to 8 El Ochito® modules in a size #25 D38999
- Integral spline and short termination maximizes interconnect/cable performance and minimizes crosstalk
- El Ochito® delivers the highest density contact system available—twice the density of Quadrax, split Quadrax, or other shielded contact solutions
- Tested, qualified, and in-stock for immediate shipment



El Ochito® exploded view: High mating durability, lightweight contact system with 100 Ohm shielded performance. Note wire twist maintained to contact pair to minimize characteristic impedance mismatch. Also, Conductive isolation shield dramatically reduces crosstalk



El Ochito® is a drop-in solution for D38999 Series III, as well as, Series 80 Mighty Mouse, EN4165, EN3645, Series 792 and other ARINC standards and is ideally suited for Ethernet, high-definition video, high-speed data loading, and other high speed applications.



## MIL-DTL-38999 Series III Type Environmental Connectors

### El Ochito® octaxial aerospace-grade contacts

# El Ochito®

The Octaxial Contact with Patented Data Pair Isolator Technology



- 10GBASE-T, SuperSpeed USB, and multi-gigabit shielded pairs
- Data pair isolation technology
- Snap-in, rear release
- Environmentally protected
- Aerospace-grade performance

El Ochito® contacts are intended for harsh environment military and aerospace data networks. El Ochito® “White” octaxial contacts simplify the task of upgrading military and aerospace platforms to meet the high data rate demands of 1000BASE-T and 10GBASE-T. Metal spline isolates data pairs for improved signal integrity. “Ochito Red” contacts support multi-gigabit data protocols such as HDMI and DisplayPort. 90 ohm Ochito “Blue” contacts support SuperSpeed USB. El Ochito® contacts are compatible with Series 23 SuperNine® (MIL-DTL-38999 Series III) connectors with keyed size 8 contact cavities.



“Ochito White”  
1000BASE-T  
10GBASE-T

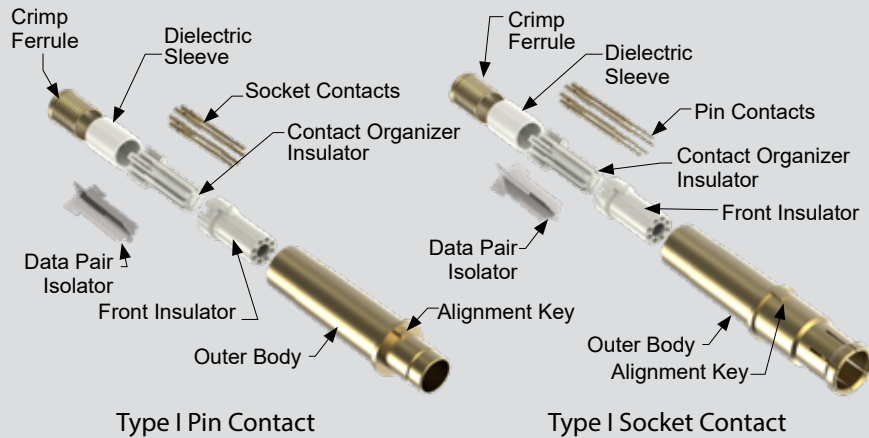


“Ochito Red”  
Multi-Gigabit Datalinks  
HDMI, SATA  
Displayport

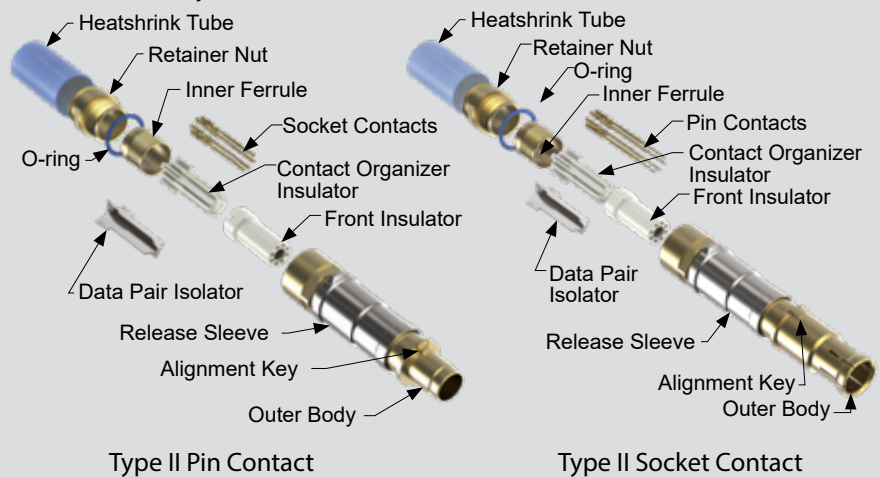


“Ochito Blue”  
SuperSpeed USB

#### TYPE I EL OCHITO: 26 AWG, NON-SERVICEABLE, CRIMP SHIELD TERMINATION



#### TYPE II EL OCHITO: 24-26 AWG, SERVICEABLE, THREADED SHIELD TERMINATION, INTEGRAL RELEASE SLEEVE



HIGH-SPEED CONNECTORS

## MIL-DTL-38999 Series III Type Environmental Connectors

### El Ochito® octaxial “White,” “Blue,” and “Red” contact specifications

HIGH-SPEED CONNECTORS

#### Ochito “White”



#### 1000BASE-T/10GBASE-T

El Ochito® “White” octaxial contacts provide 10 Gigabit Ethernet in the same size as 100BASE-T Quadrx contact

- -65°C to +175°C
- 100 ohms
- 24 and 26 AWG
- Type I and Type II

#### Ochito “Blue”



#### SuperSpeed USB

*Low-dielectric material. Up to 5 Gbps. 90 ohms.* El Ochito® “Blue” octaxial contacts provide an aerospace-grade solution for SuperSpeed USB.

- -65°C to +125°C
- 90 ohms
- Type I only

#### Ochito “Red”



#### HDMI, Displayport, SATA

*Low-dielectric material. Up to 5 Gbps. 100 ohms.* El Ochito® “Red” octaxial contacts provide an aerospace-grade solution for multi-gigabit data rates.

- -65°C to +125°C
- 100 ohms
- 26 AWG
- Type I only

#### Specifications

##### Specifications

- **Operating temperature:**  
El Ochito® White: -65° to +175°C  
El Ochito® Blue: -65° to +125°C  
El Ochito® Red: -65° to +125°C
- **Impedance:**  
El Ochito® White: 100 ohms  
El Ochito® Blue: 90 ohms  
El Ochito® Red: 100 ohms
- **DWV:** 500 Vrms
- **Current Rating:** 1.5 A
- **IR:** 5000 megohms min.
- **Durability:** 500 mating cycles
- **Vibration:** MIL-DTL-38999 Series III
- **Shock:** MIL-DTL-38999 Series III

##### Construction

- **Inner contacts, outer contact, ferrules, retaining nut:** copper alloy, 50 microinches gold over nickel plating
- **Insulators:**  
El Ochito® White: PPS, natural color  
El Ochito® Blue: low-dielectric constant thermoplastic, blue  
El Ochito® Red: low-dielectric constant thermoplastic, red
- **O-ring:** fluorosilicone
- **Heatshrink tubing:** PVDF
- **Contact release sleeve:** stainless steel, passivated
- **Sealing boot grommet:** fluorosilicone
- **Sealing boot body:** rigid thermoplastic, PEI or equivalent
- **Spline, El Ochito® White:** copper alloy, nickel plating
- **Spline, El Ochito® Red and Blue:** Polyimide

#### Contacts, Cable Options, and Protocols

Wire Size	Cable Type	Cable		Type I Ochito		Type II Ochito	
		Glenair Part No. (Mfgr. P/N)	Cable Dia.	Pin Contact Assembly Instr.	Skt Contact Assembly Instr.	Pin Contact Assembly Instr.	Skt Contact Assembly Instr.
		<b>1000BASE-T, 10GBASE-T; el Ochito “White”</b>					
24	S/UTP	963-037-24 (PIC E6A3824)	.260 (6.60)	--	--	858-005-03B AI85097-03	858-006-03B AI85097-03
	S/FTP	963-033-24 (Gore RCN9047-24)	.260 (6.60)	--	--	858-005-04B AI85097-04	858-006-04B AI85097-04
26	S/UTP	963-003-26 (PIC E6A3826)	.220 (5.56)	858-003-01F AI85048-01	858-004-01F AI85048-01	858-005-01B AI85097-01	858-006-01B AI85097-01
	S/FTP	963-033-26 (Gore RCN9047-26)	.220 (5.56)	858-003-02F AI85048-02	858-004-02F AI85048-02	858-005-02B AI85097-01	858-006-02B AI85097-01
<b>SuperSpeed USB; el Ochito “Blue”</b>							
26	USB 3.0	963-118	.217 (5.51)	858-028-01F AI85114-02	858-029-01F AI85114-02	858-069-01B AI85158-01	858-070-01B AI85158-01
	USB 3.0	963-110	.236 (5.99)	858-028-02F AI85090-01	858-029-02F AI85090-01	858-069-02B AI85158-02	858-070-02B AI85158-02
<b>HDMI, Displayport and SATA; el Ochito “Red”</b>							
26	Cat 6a S/FTP	963-033-26 (Gore RCN9047-26)	.220 (5.56)	858-030-02F AI85048-02	858-031-02F AI85048-02	858-063-01B AI85149-02	858-064-01B AI85149-02
24	Cat 6a S/FTP	963-033-24	.217 (5.51)	--	--	858-063-02B AI85149-04	858-064-02B AI85149-04

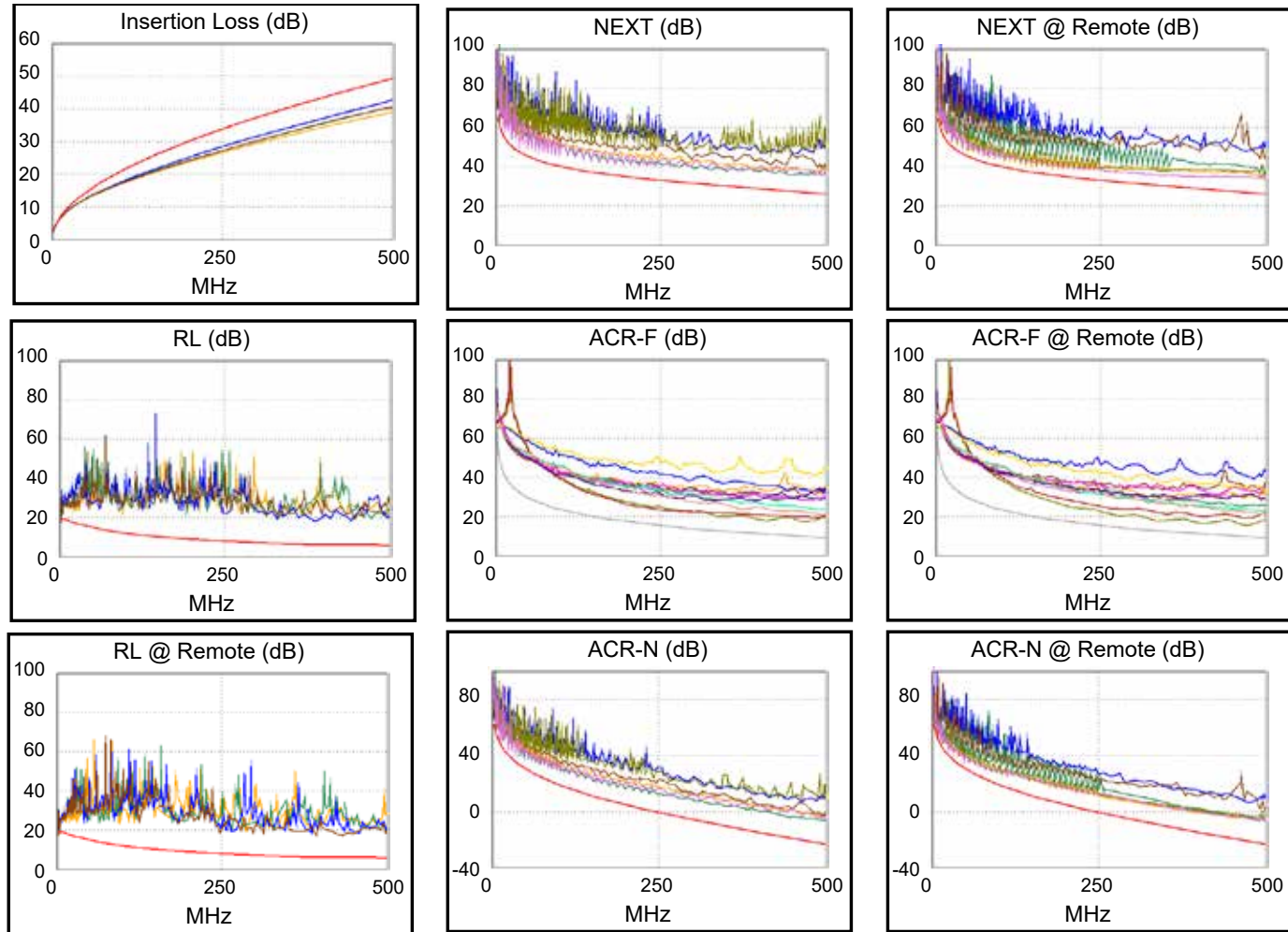
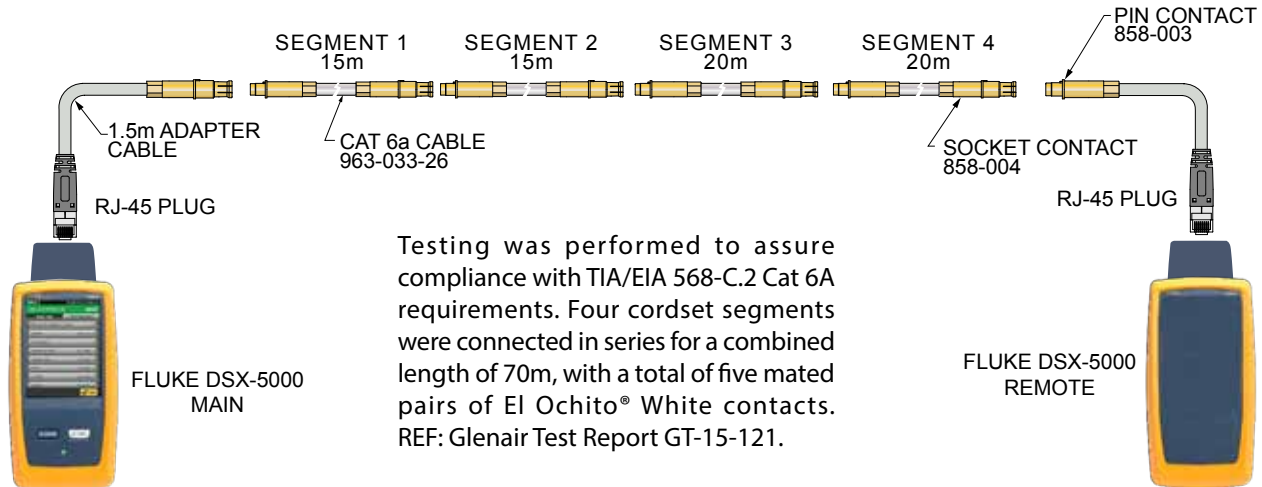


## MIL-DTL-38999 Series III Type Environmental Connectors

### El Ochito® “White” signal integrity data

HIGH-SPEED CONNECTORS

10GBase-T Category 6A Compliance Testing for El Ochito® White

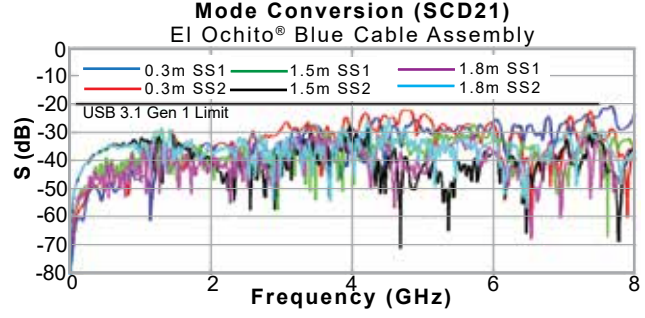
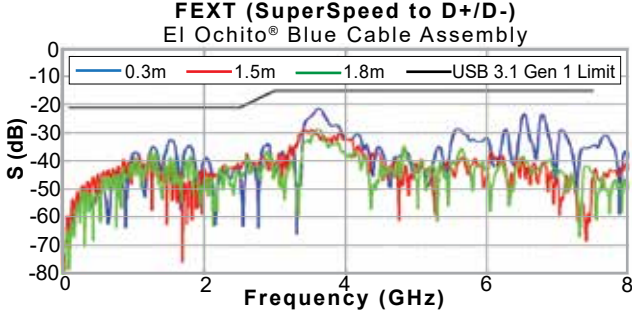
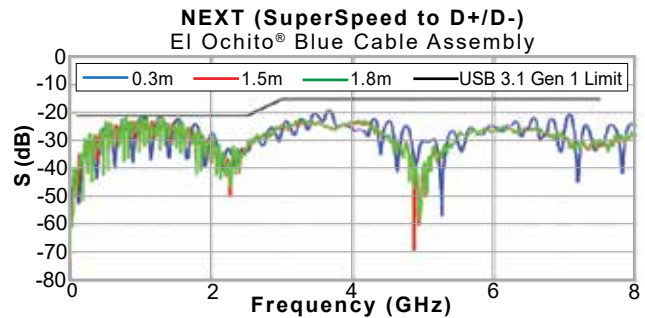
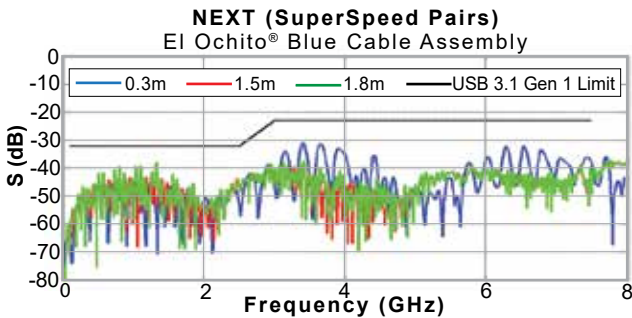
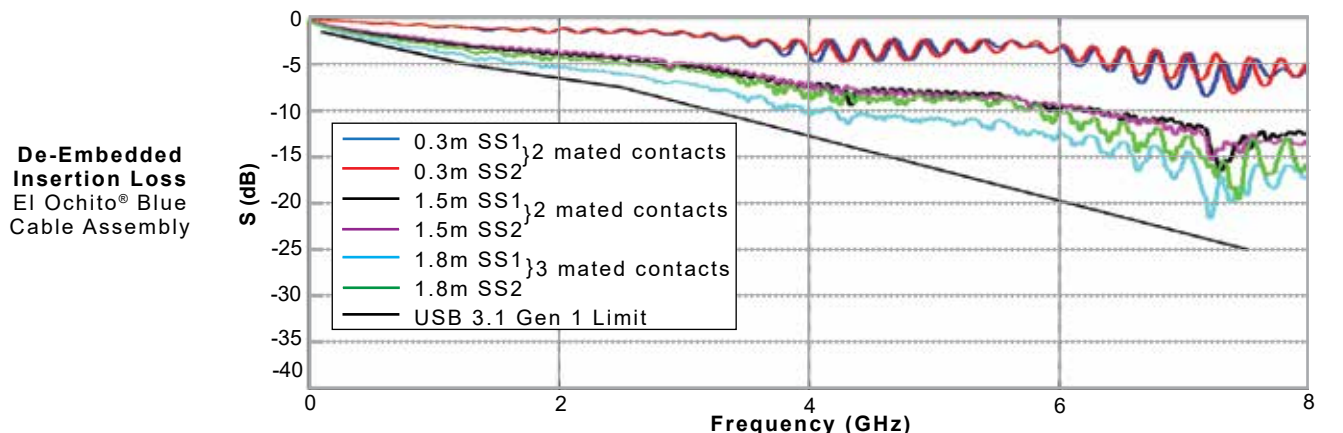
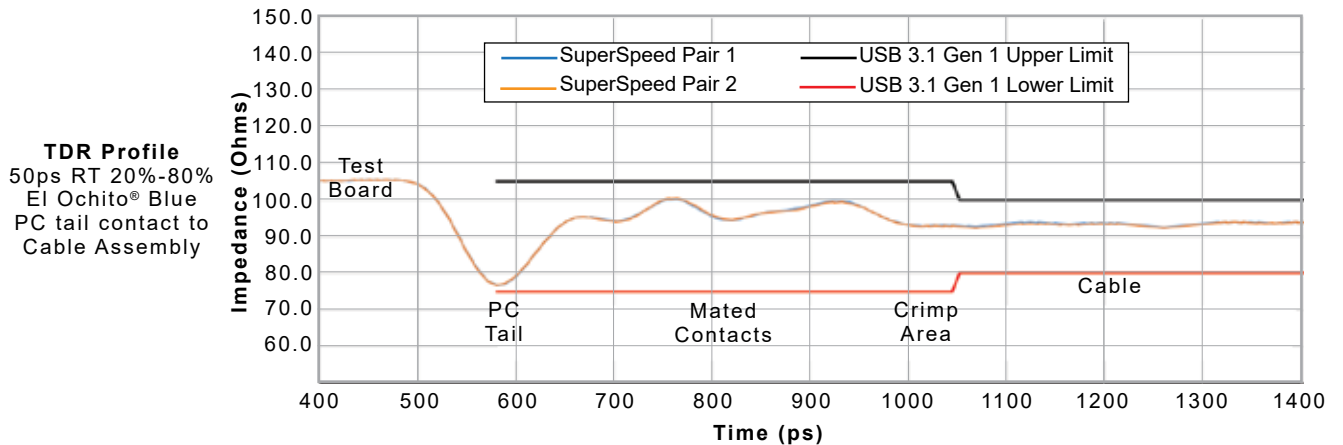


**MIL-DTL-38999 Series III Type Environmental Connectors**

**EI Ochito® “Blue” signal integrity data**

HIGH-SPEED CONNECTORS

**SuperSpeed USB Compliance Testing for EI Ochito® Blue**

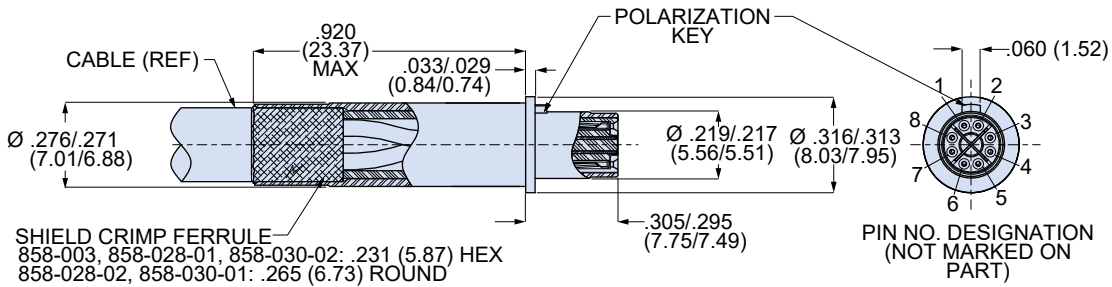


**MIL-DTL-38999 Series III Type Environmental Connectors**

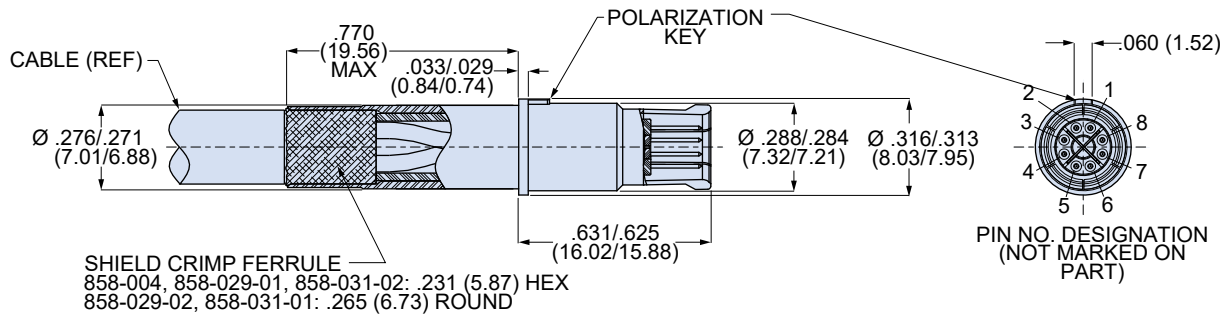
**El Ochito® octaxial pin and socket contacts**

HIGH-SPEED CONNECTORS

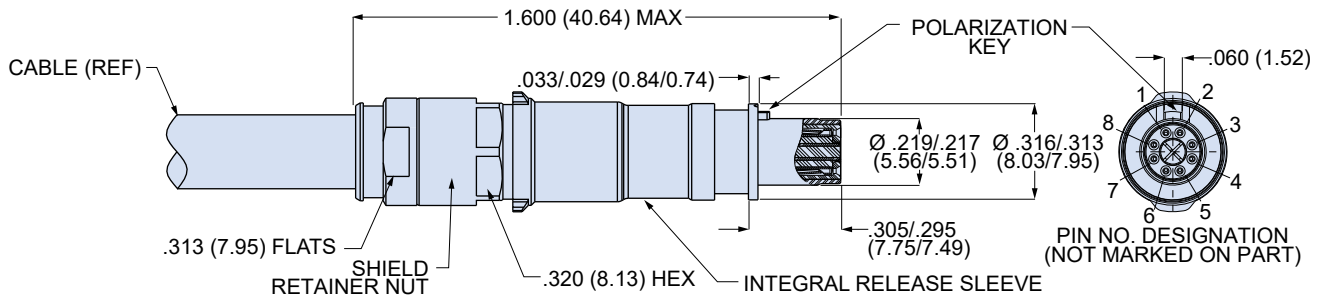
**El Ochito® Type I Pin Contact 858-003, 858-028, and 858-030**



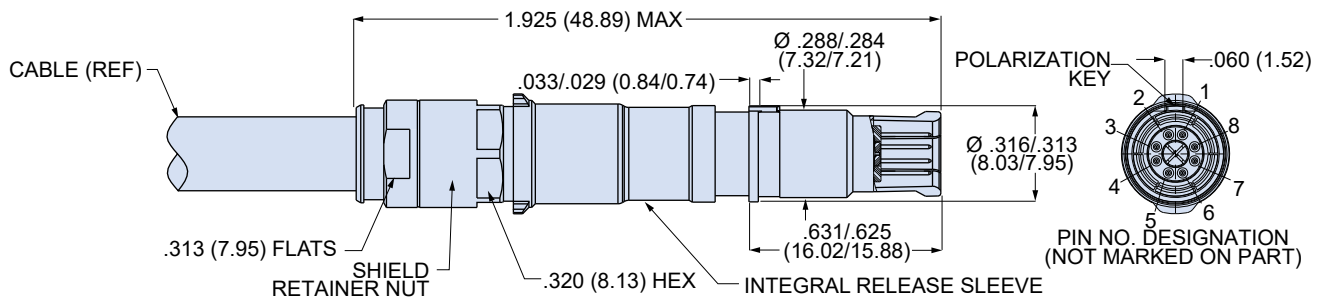
**El Ochito® Type I Socket Contact 858-004, 858-029, and 858-031**



**El Ochito® Type II Pin Contact 858-005**



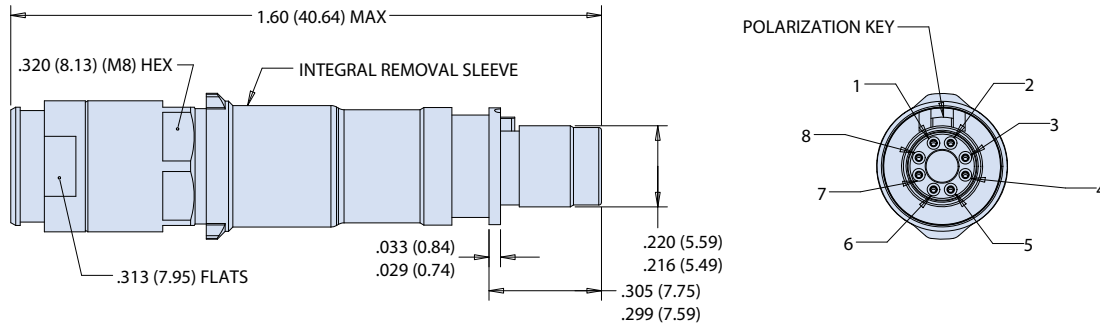
**El Ochito® Type II Socket Contact 858-006**



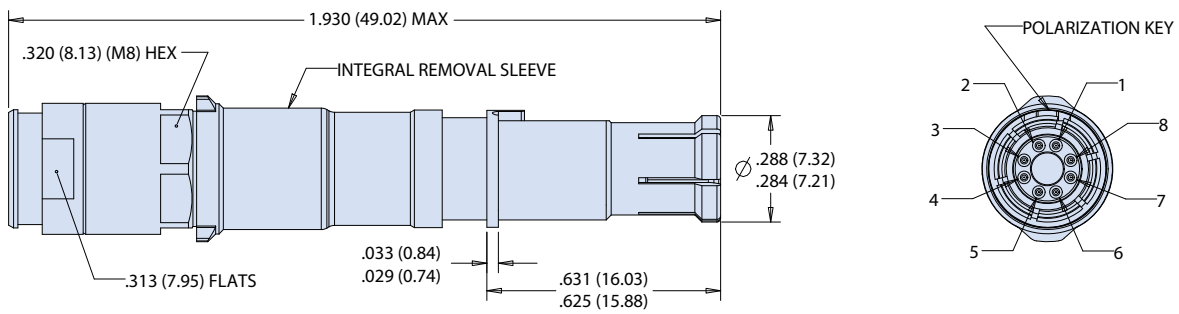
**MIL-DTL-38999 Series III Type Environmental Connectors**  
**EI Ochito® octaxial pin and socket contacts**

HIGH-SPEED CONNECTORS

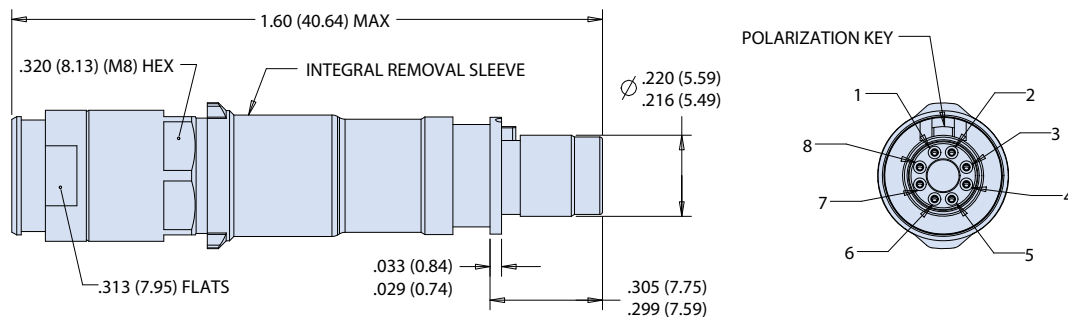
**EI Ochito® Blue Type II Pin Contact 858-069**



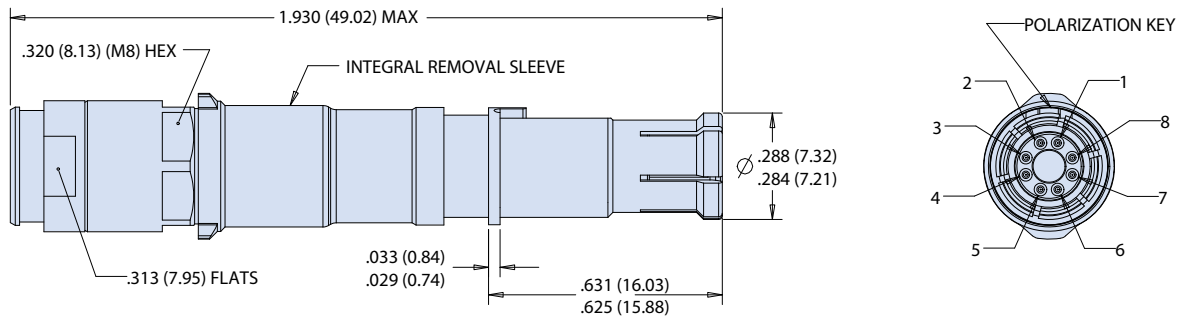
**EI Ochito® Blue Type II Pin Contact 858-070**



**EI Ochito® Red Type II Pin Contact 858-063**



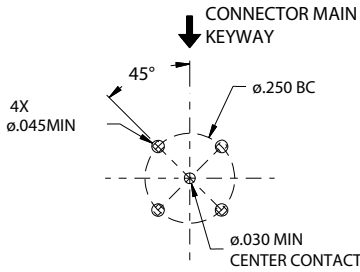
**EI Ochito® Red Type II Socket Contact 858-064**



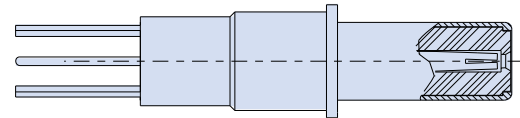
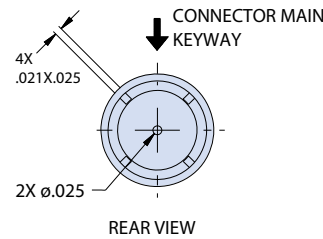
**MIL-DTL-38999 Series III Type Environmental Connectors**  
**Shielded PC tail contacts - PCB footprints**

HIGH-SPEED CONNECTORS

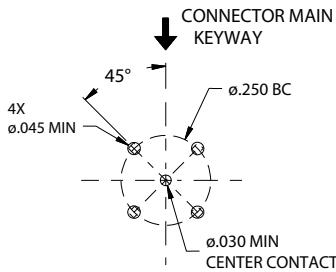
**SIZE 8 COAX CONTACT**



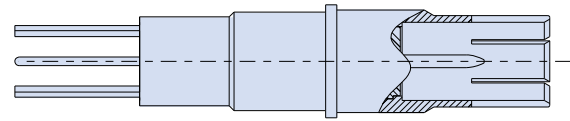
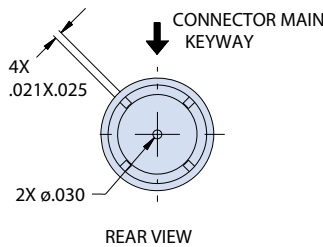
RECOMMENDED CO-AX PCB LAYOUT



SIZE #8 CO-AX PIN, PC TAIL DETAIL  
 C = INTERFACE PER M39029/60 (50 OHM)  
 C1 = INTERFACE PER 852-056 (75 OHM)

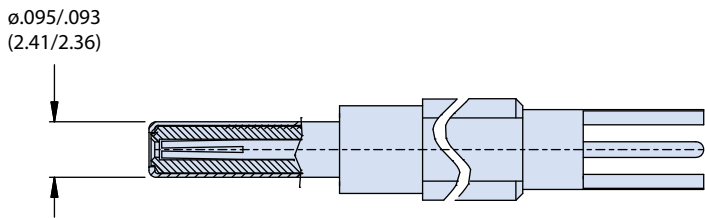


RECOMMENDED CO-AX PCB LAYOUT



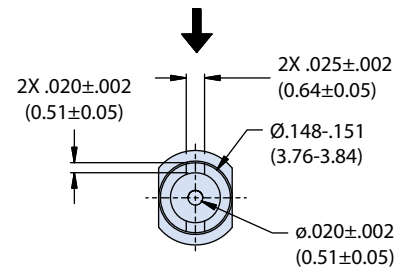
SIZE #8 CO-AX SOCKET, PC TAIL DETAIL  
 C = INTERFACE PER M39029/59 (50 OHM)  
 C1 = INTERFACE PER 852-057 (75 OHM)

**SIZE 12 COAX CONTACT**

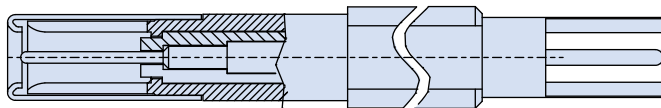


SIZE #12 COAX CONTACT PIN, PC TAIL DETAIL  
 INTERFACE PER M39029/102

CONNECTOR MAIN KEYWAY

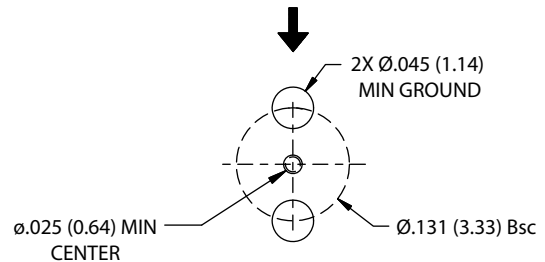


CONTACT REAR VIEW AND INTERFACE REQUIREMENTS



SIZE #12 COAX CONTACT SOCKET, PC TAIL DETAIL  
 INTERFACE PER M39029/103

CONNECTOR MAIN KEYWAY



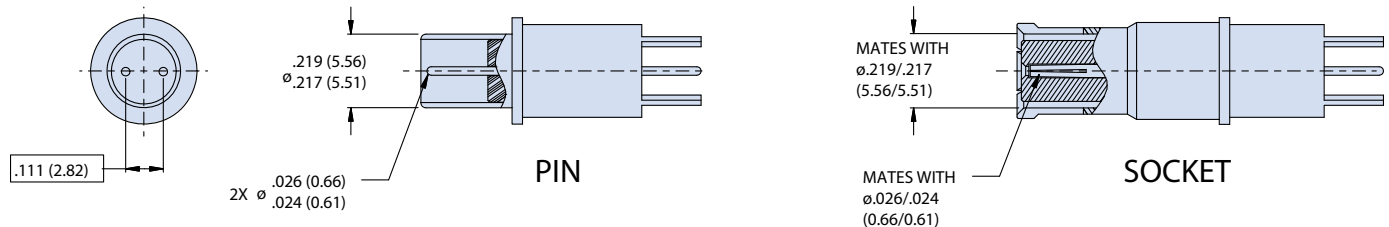
RECOMMENDED PCB FOOTPRINT



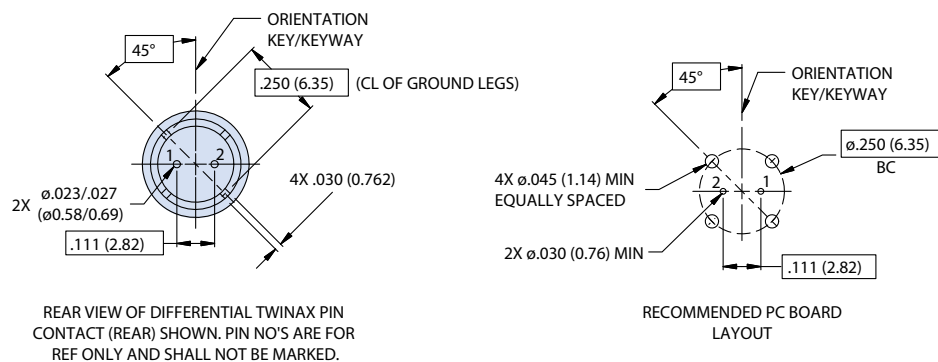
**MIL-DTL-38999 Series III Type Environmental Connectors**  
**Shielded PC tail contact - PCB footprints**

HIGH-SPEED CONNECTORS

**DIFFERENTIAL TWINAX**



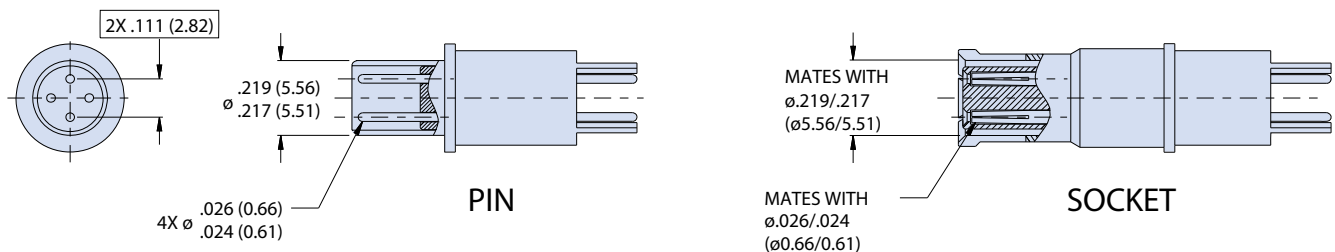
**TWINAX CONTACT DETAILS**



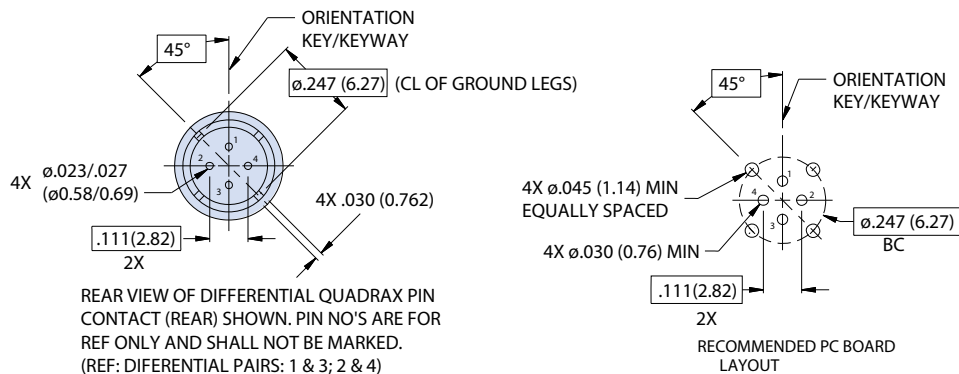
REAR VIEW OF DIFFERENTIAL TWINAX PIN CONTACT (REAR SHOWN. PIN NO'S ARE FOR REF ONLY AND SHALL NOT BE MARKED.)

RECOMMENDED PC BOARD LAYOUT

**QUADRAX**



**QUADRAX CONTACT DETAILS**



REAR VIEW OF DIFFERENTIAL QUADRAX PIN CONTACT (REAR SHOWN. PIN NO'S ARE FOR REF ONLY AND SHALL NOT BE MARKED. (REF: DIFFERENTIAL PAIRS: 1 & 3; 2 & 4)

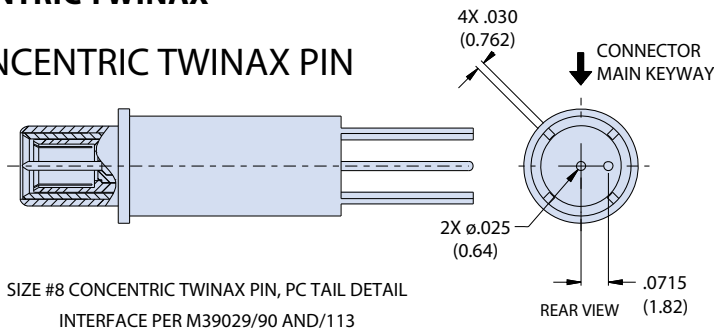
RECOMMENDED PC BOARD LAYOUT

**MIL-DTL-38999 Series III Type Environmental Connectors**  
**Shielded PC tail contacts - dimensions and footprints**

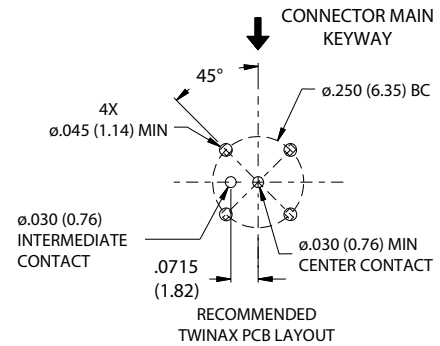
HIGH-SPEED CONNECTORS

**CONCENTRIC TWINAX**

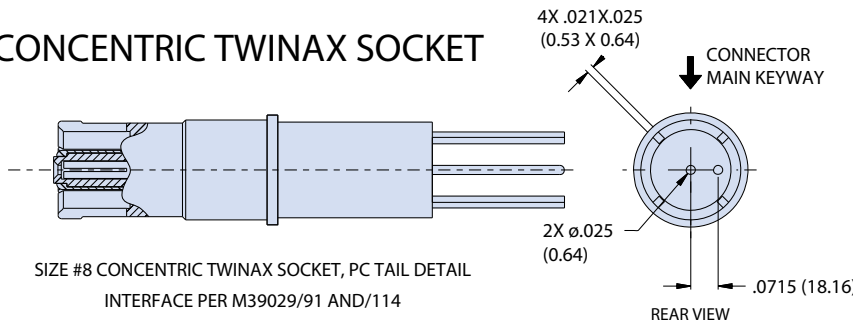
**CONCENTRIC TWINAX PIN**



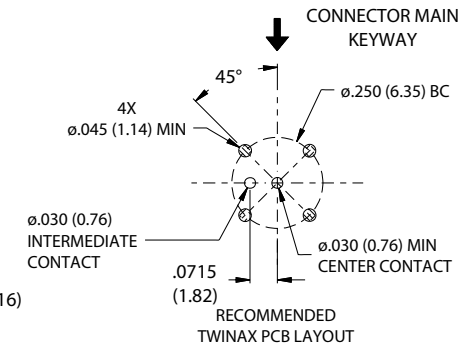
SIZE #8 CONCENTRIC TWINAX PIN, PC TAIL DETAIL  
 INTERFACE PER M39029/90 AND/113



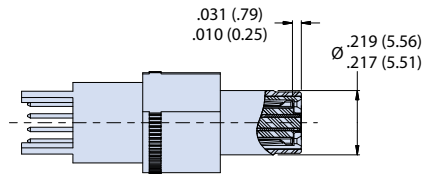
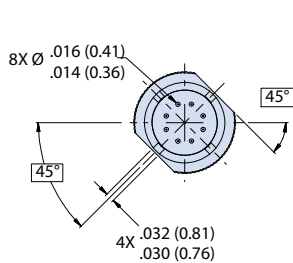
**CONCENTRIC TWINAX SOCKET**



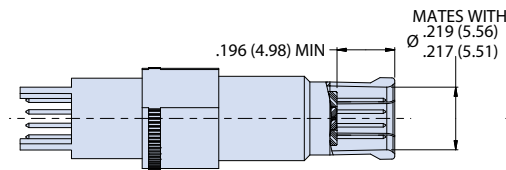
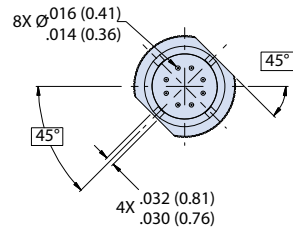
SIZE #8 CONCENTRIC TWINAX SOCKET, PC TAIL DETAIL  
 INTERFACE PER M39029/91 AND/114



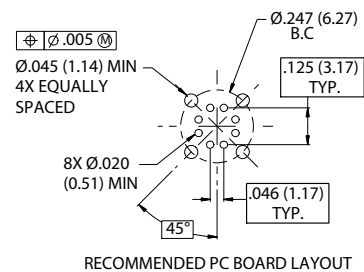
**EL OCHITO®**



SIZE #8 EL OCHITO PIN, PC TAIL DETAIL



SIZE #8 EL OCHITO SOCKET, PC TAIL DETAIL



For optimal performance, see Glenair Application Note AN0002.

# MIL-DTL-38999 Series III Type Environmental Connectors

## El Ochito® contact configuration and Mod Code 909

HIGH-SPEED CONNECTORS

El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W

El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

R= Red B = Blue W = White

**Modification Code 909**

Modification code 909xx is used to supply D38999 Series III Type connectors (Glenair 233, 257, and 2570 families) featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs. See example below.

**233-217-G6NF25-8AN 909 C P**

Basic Part No.

Modification Code 909

Contact Type Symbol (See Contact Type Table)  
C, D, E, P, Q, T

Contact Gender (Optional)  
P = Pin, S = Skt

Sym	Description	Glenair P/N	Contact Size	AWG Size	Wire Type	Grommet Follower	Application Notes
C	Coax per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	16	Coax Cable	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Coax per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	12	Coax Cable	RG174, RG316, RG179	N/A	
	Coax per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	8	Coax Cable	M17 /95-RG180	859-042-02	
C1	Coax per 75 ohm	Pin: 852-103-01 Skt: 852-106-01	12	Coax Cable	V73263, V75268, V76261	N/A	Aerospace-grade digital video
		Pin: 852-056-01F Skt: 852-057-01F	8			859-042-01	
D	Differential twinax	Pin: 853-014-05 Skt: 853-013-05	8	24	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	El Ochito®	White Pin: 858-003-02F Skt: 858-004-02F	8	26	963-003-26 963-033-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	El Ochito®	Blue Pin: 858-028-02F Skt: 858-029-02F	8	24/26 to 30	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	El Ochito®	Red Pin: 858-030-02F Skt: 858-031-02F	8	26 to 30	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
P	Power	Pin: 850-014F Skt: 850-013F	8	8	M22759/11 or equivalent	859-042-03	Power
Q	Quadrax	Pin: 854-001-02 Skt: 854-002-02	8	24	963-020	859-042-02	10/100Base-T ethernet
T	Triax/Concentric Twinax	Pin: 853-003-08-625 Skt: 853-004-08-628	8	Twinax Cable	M17 /176-00002	859-042-01	1553 Databus

\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

## MIL-DTL-38999 Series III Type Environmental Connectors

### El Ochito® octaxial contact and cable assembly tools and accessories

HIGH-SPEED CONNECTORS

Assembly Tools									
Contact PN	Inner Contact Crimp		Cable Shield Hex Crimp		Cable Shield Round Crimp			Key Alignment Tool	Rear Ferrule Insertion Tool
	Tool	Positioner	Tool	Hex Die	Tool	Positioner 1	Positioner 2		
858-003	809-015	859-101	809-129	859-007				600-236	600-242
858-004	809-015	859-101	809-129	859-007				600-235	600-242
858-005	809-015	859-101						600-236	
858-006	809-015	859-101						600-235	
858-028-01	809-015	859-101	809-129	859-007				600-236	600-242
858-028-02	809-015	859-101			859-134	859-184-2	859-184-3	600-236	600-242
858-029-01	809-015	859-101	809-129	859-007				600-235	600-242
858-029-02	809-015	859-101			859-134	859-184-1	859-184-2	600-235	600-242
858-030-02	809-015	859-101	809-129	859-007				600-236	600-242
858-031-02	809-015	859-101	809-129	859-007				600-235	600-242

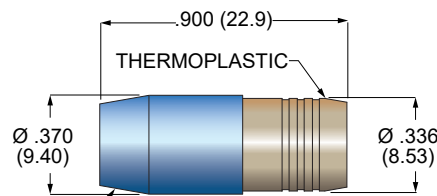
Inner Contact Crimp Tools		Cable Shield Crimp Tools				Removal Tool	
809-015 (M22520/2-01)	859-101 (K1906)	809-129 (M22520/5-01)	859-007 (M22520/5-45)	859-134 (GS206)	859-184	859-049 (M81969/14-12)	

Key Alignment Tools		Rear Ferrule Insertion Tool
<b>600-235</b> <b>600-243</b> Socket contact	<b>600-236</b> <b>600-244</b> Pin contact	<b>600-242</b>

Contact factory for available alignment inspection tools for use with existing assemblies.

**Sealing Boot**

An "F" suffix in the contact part number indicates the contact is supplied with a sealing boot. To order these contacts without sealing boots, delete the "F" suffix from the part number. Sealing boots are not supplied with 858-005, 858-006, 858-009, 858-010, 858-035, 858-037, 858-038 and 858-039 contacts.



**SEALING BOOT FOR OCHITO CONTACTS**

- 687-754-8-8**  
FOR .220 (5.56) DIAMETER CABLES
- 687-754-8-9**  
FOR .236 (6.0) DIAMETER CABLES

**MIL-DTL-38999 Series III Type Environmental Connectors**

**600-280 El Ochito® installation kit**

HIGH-SPEED CONNECTORS



**600-028 tool kit** combines all the tools necessary to terminate El Ochito red, blue, and white contacts. Great for customers looking to terminate el Ochito® contacts to cables. Unit includes portable protective case with cutout foam for ease of transportation. Order by kit level for simplified ordering. Customize tool kit contents to meet your specific requirements. Additional foam cutout cavities allow for easy to upgrade your kit as you increase your el Ochito tool collection.

Part Number Development			
<b>Sample Part Number</b>	<b>600-280</b>	<b>-01</b>	
<b>Product</b>	600-280 = El Ochito Installation Tool Kit		
<b>Kit Number</b>	-01 = Basic Assembly -04 = Basic Assembly + Crimp Dies, and Positioners -07 = Basic Assembly+ Crimp Dies, Positioners and Crimp Tools		
<b>Modifier</b>	Omit = None H = Hex Crimp Only (See Table I)		

Kit 01: Basic Kit	
-01	
Tool Description	P/N
Socket El Ochito Alignment Tool	600-235
Pin El Ochito Alignment Tool	600-236
Ferrule Inserter	600-242

Kit -04: Basic Kit + Crimp Dies & Positioners	
-04	
Tool Description	P/N
Socket El Ochito Alignment Tool	600-235
Pin El Ochito Alignment Tool	600-236
Ferrule Inserter	600-242
Contact Positioner (K1906)	859-101
Body Hex Crimp Die (M22520/5-45)	859-007
859-134 (GS206) Positioner 1	859-184-1
859-134 (GS206) Positioner 2	859-184-2
859-134 (GS206) Positioner 3	859-184-3
Removal Tool (M81969/14-12)	859-049

Kit -07: Basic Kit + Crimp Dies & Positioners, and Crimp Tools	
-07	
Tool Description	P/N
Socket El Ochito Alignment Tool	600-235
Pin El Ochito Alignment Tool	600-236
Ferrule Inserter	600-242
Contact Positioner (K1906)	859-101
Body Hex Crimp Die (M22520/5-45)	859-007
859-134 (GS206) Positioner 1	859-184-1
859-134 (GS206) Positioner 2	859-184-2
859-134 (GS206) Positioner 3	859-184-3
Removal Tool (M81969/14-12)	859-049
Contact Crimper (M22520/2-01)	809-015
Hex Body Crimper (M22520/5-01)	809-129
Circle Body Crimper (GS206)	859-134

Table I: Items Removed By Modifier "H"	
Tool Description	P/N
859-134 (GS206) Positioner 1	859-184-1
859-134 (GS206) Positioner 2	859-184-2
859-134 (GS206) Positioner 3	859-184-3
Circle Body Crimper (GS206)	859-134

Notes
Modifier "H" Removes all tools and dies associated with the circle body crimp. See Table II. Not applicable to "-01".



**MIL-DTL-38999 Series III Type Environmental Connectors**

Shielded contacts, cable accommodation and assembly tools

HIGH-SPEED CONNECTORS

Shielded Contact Assembly Tools								
Contact PN	Size	Cable Accomodated	Max Freq. (MHz)	Inner Contact		Cable Shield Hex		Insertion/ Removal Tool
				Tool	Positioner	Tool	Hex Die	
<b>852-008</b> M39029/76	16	RG174, RG316, RG178, RG179	500	809-015	809-125	809-127	809-126	809-131
<b>852-009</b> M39029/77	16	RG174, RG316, RG178, RG179	500	809-015	809-125	809-127	809-126	
<b>852-004</b> M39029/102	12	RG174, RG179, RG180, RG316	3K	809-128	859-006	809-129	809-130	809-132
<b>852-005</b> M39029/103	12	RG174, RG179, RG180, RG316	3K	809-128	859-006	809-129	809-130	809-132
<b>852-007</b> M39029/60-637	8	RG180	700	809-015	859-050	809-129	859-051	859-022
<b>852-006</b> M39029/59-366	8	RG180	700	809-015	859-050	809-129	859-051	859-022
<b>852-056-01</b> 75 ohm	8	V75268, V76261, V73263	4K	809-015	809-240	809-129	859-047	859-049
<b>852-056-02</b> 75 ohm	8	RG179	4K	809-015	809-240	809-129	809-130	859-049
<b>852-057-01</b> 75 ohm	8	V75268, V76261, V73263	4K	809-015	809-240	809-129	859-047	859-049
<b>852-057-02</b> 75 ohm	8	RG179	4K	809-015	809-240	809-129	809-130	859-049
<b>853-014</b>	8	M17/176-00002	20	809-015	809-240	809-129	859-007	859-049
<b>853-013</b>	8	M17/176-00002	20	809-015	809-240	809-129	859-007	859-049
<b>854-001</b>	8	Tensolite NF26Q100	3K	809-015	809-240	809-129	859-007	859-049
	8	Tensolite NF24Q100, PIC E51424	3K	809-015	809-240	809-129	859-007	859-049
	8	Draka Fileca F 4704-6	3K	809-015	809-240	809-129	859-007	859-049
	8	Draka Fileca F 4704-4	3K	809-015	809-240	809-129	859-007	859-049
	8	Tensolite NF22Q100	3K	809-015	809-240	809-129	859-007	859-049
<b>854-002</b>	8	Tensolite NF26Q100	3K	809-015	809-240	809-129	859-007	859-049
	8	Tensolite NF24Q100, PIC E51424	3K	809-015	809-240	809-129	859-007	859-049
	8	Draka Fileca F 4704-6	3K	809-015	809-240	809-129	859-007	859-049
	8	Draka Fileca F 4704-4	3K	809-015	809-240	809-129	859-007	859-049
	8	Tensolite NF22Q100	3K	809-015	809-240	809-129	859-007	859-049
<b>853-003</b> M39029/113-625	8	M17/176-00002	10K	809-015	809-240	809-129	859-048	859-048
<b>853-004</b> M39029/114-628	8	M17/176-00002	10K	809-015	809-240	809-129	859-048	859-048

Please refer to section J for power and signal contact assembly tools

# MIL-DTL-38999 Series III Type Environmental Connectors 24 AWG Category 6A Ethernet Cables 963-037 and 963-033

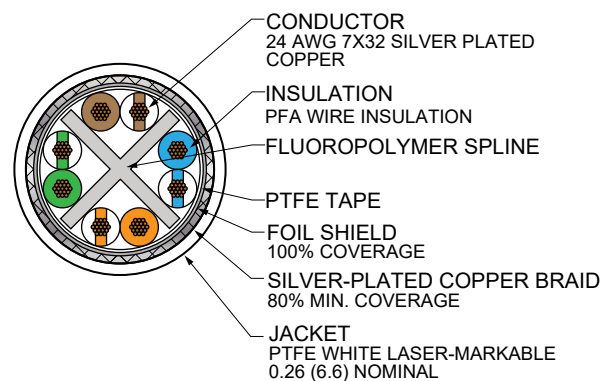
HIGH-SPEED CONNECTORS

## 24 AWG S/UTP Cat 6A Cable

Glenair Part Number	963-037-24
Manufacturer Part Number	E6A3824
Manufacturer	PIC

S/UTP 24 AWG cable is specially designed for airborne 10 Gigabit Ethernet applications. Twisted pairs are separated by a fluoropolymer spline for reduced crosstalk and attenuation. This 200°C rated cable is Skydrol resistant, RoHS compliant and meets FAA FAR Parts 23 and 25 Appendix F flammability requirements. Laser-markable white PTFE jacket withstands abrasion and chemicals. Meets ANSI/TIA-568-C.2 Category 6A performance up to 246 feet.

### Construction Details



### Color Code

Pair #1 Blue, White/Blue · Pair #2 Orange, White/Orange · Pair #3 Green, White/Green · Pair #4 Brown, White/Brown

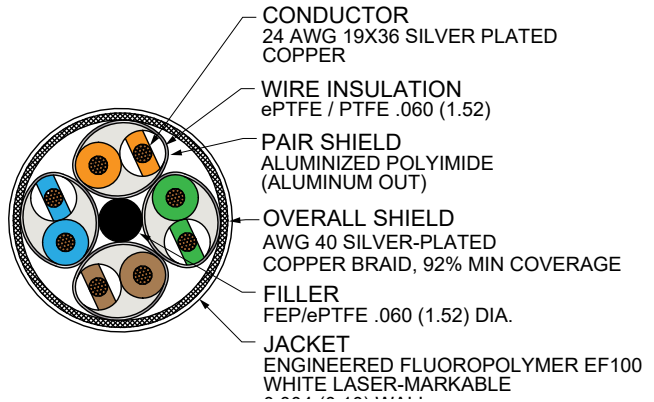
Specifications		
Impedance (ohms)	100 ±15	
Temperature Rating	-55° to +200°C	
Weight (lbs/100 ft.)	4.5	
Capacitance (pF/ft)	14.5	
Minimum Bend Radius (inches)	.78	
Velocity of Propagation %	70	
Dielectric Voltage Rating (kV rms)	1.5	
DC Resistance, Max (ohms/1000 ft.)	28.5	
Max Distance in Feet (m)	246 (75)	
Attenuation Nom / Max	Frequency	dB/100 ft.
	10 MHz	2.3 / 2.6
	100 MHz	7.0 / 8.4
	250 MHz	11.4 / 13.7
	500 MHz	16.5 / 20.0

## 24 AWG S/FTP Cat 6A Cable

Glenair Part Number	963-033-24
Manufacturer Part Number	RCN9034-24
Manufacturer	Gore

S/FTP 24 AWG cable has an individual foil shield around each data pair for reduced crosstalk and attenuation. This high data rate Ethernet cable features a unique cable jacket material and high-density construction that significantly reduces weight and diameter. Meets ANSI/TIA 568-C.2 Category 6A requirements up to 80 meters (262 feet). **Qualified to SAE AS6070.**

### Construction Details



### Color Code

Pair #1 Blue, White/Blue · Pair #2 Orange, White/Orange · Pair #3 Green, White/Green · Pair #4 Brown, White/Brown

Specifications		
Impedance (ohms)	100 (+10 -5)	
Temperature Rating	-65° to +200°C	
Weight (lbs/100 ft.)	4.2	
Capacitance (pF/ft)	12.5	
Time Delay	1.24 ns/ft	
Maximum Attenuation at 80m Length	Frequency	dB
	10 MHz	5.9
	100 MHz	19.1
	250 MHz	31.1
	500 MHz	45.3
NEXT (minimum)	Frequency	dB
	1 MHz	74.3
	10 MHz	59.2
	100 MHz	52.3
	250 MHz	47.9
	500 MHz	42.2

**MIL-DTL-38999 Series III Type Environmental Connectors  
26 AWG Category 6A Ethernet Cables 963-003 and 963-033**

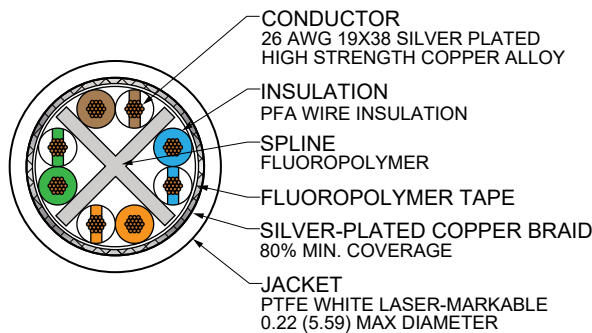
HIGH-SPEED CONNECTORS

**26 AWG S/UTP Cat 6A Cable**

Glenair Part Number	963-003-26
Manufacturer Part Number	E6A3826
Manufacturer	PIC

S/UTP 26 AWG cable is small, lightweight and flexible. Twisted pairs are separated by a fluoropolymer spline for reduced crosstalk and attenuation. This 200°C rated cable is Skydrol resistant, RoHS compliant and meets FAA FAR Parts 23 and 25 Appendix F flammability requirements. Rugged, laser-markable PTFE jacket withstands abrasion and chemicals. Meets ANSI/TIA-568-C.2 Category 6A performance up to 188 feet.

**Construction Details**



**Color Code**

Pair #1 Blue, White/Blue · Pair #2 Orange, White/Orange ·  
Pair #3 Green, White/Green · Pair #4 Brown, White/Brown

**Specifications**

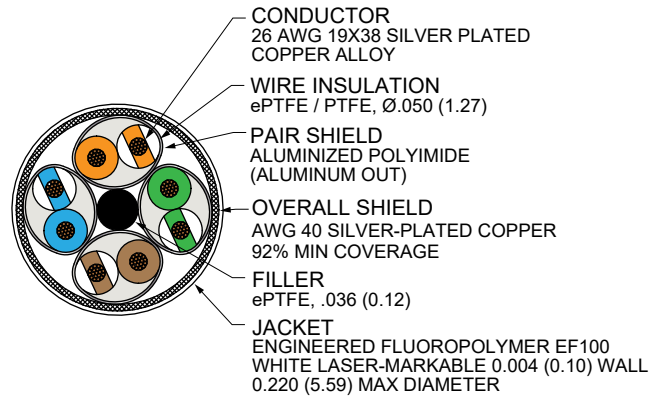
Impedance (ohms)	100 ±10	
Temperature Rating	-55° to +200°C	
Weight (lbs/100 ft.)	3.05	
Capacitance (pF/ft)	14.5	
Minimum Bend Radius (inches)	0.66	
Velocity of Propagation %	70	
Dielectric Voltage Rating (kV rms)	1.5	
DC Resistance, Max (ohms/1000 ft.)	44.8	
Max Distance in Feet (m)	188 (57)	
Attenuation Max	Frequency	dB/100 ft.
	10 MHz	3.7
	100 MHz	11.2
	250 MHz	17.4
	500 MHz	24.0

**26 AWG S/FTP Cat 6A Cable**

Glenair Part Number	963-033-26
Manufacturer Part Number	RCN9047-26
Manufacturer	Gore

S/FTP 26 AWG cable has an individual foil shield around each data pair for reduced crosstalk and attenuation. This high data rate Ethernet cable features a unique cable jacket material and high-density construction that significantly reduces weight and diameter. Meets ANSI/TIA 568-C.2 Category 6A requirements up to 65 meters (213 feet). **Qualified to SAE AS6070.**

**Construction Details**



**Color Code**

Pair #1 Blue, White/Blue · Pair #2 Orange, White/Orange ·  
Pair #3 Green, White/Green · Pair #4 Brown, White/Brown

**Specifications**

Impedance (ohms)	100 (+10 -5)	
Temperature Rating	-65° to +200°C	
Weight (lbs/100 ft.)	3.2 (.32)	
Capacitance (pF/ft)	12.5	
Time Delay	1.24 ns/ft	
Maximum Attenuation at 65m Length	Frequency	dB
	10 MHz	5.9
	100 MHz	19.1
	250 MHz	31.1
	500 MHz	45.3
NEXT (minimum)	Frequency	dB
	1 MHz	74.3
	10 MHz	59.2
	100 MHz	52.3
	250 MHz	47.9
500 MHz	42.2	

## MIL-DTL-38999 Series III Type Environmental Connectors

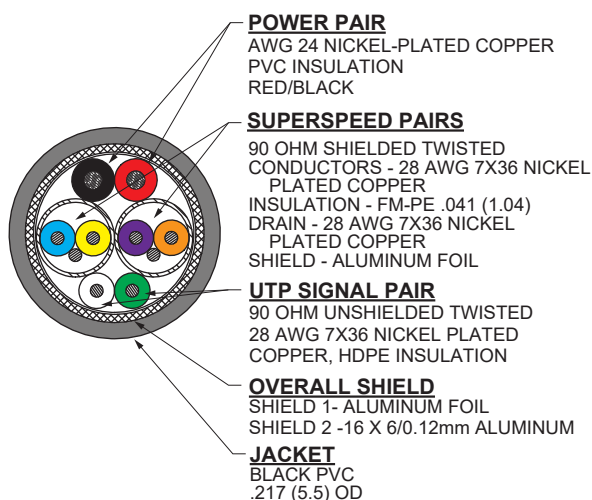
### SuperSpeed USB Cables 963-118 and 963-110

#### Commercial Grade SuperSpeed USB Cable

Glenair Part Number **963-118**

90 ohm commercial-grade cable features PVC jacket. SuperSpeed data pairs feature low dielectric constant foamed PE insulation. Each SuperSpeed pair has an aluminized polyester shield. Overall shield is aluminum foil and aluminum wire braid.

#### Construction Details



#### Color Code

SuperSpeed pairs VIO/ORN and BLU/YEL · Power wires RED, BLK · Low speed pair WHT/GRN.

#### Specifications

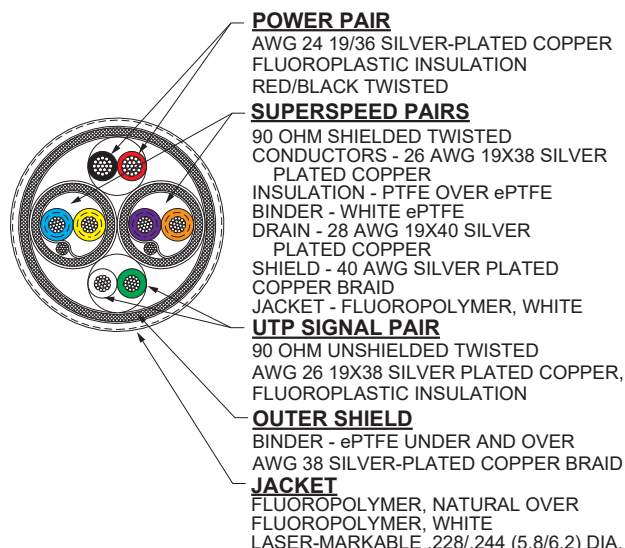
<b>Impedance (ohms)</b>		
High speed pairs	90 ± 7	
Low-speed pair	90 ±15%	
<b>Temperature Rating</b>		
0° to +80°C		
<b>Voltage Rating</b>		
30V		
<b>Frequency (GHz)</b>	<b>IL (dB/m)</b>	<b>NEXT (dB)</b>
0.1	1.5	32
1.25	5.0	N/A
2.5	7.5	32
3.0	N/A	23
7.5	25	23

#### Aerospace Grade SuperSpeed USB Cable

Glenair Part Number **963-110**

High performance, high temperature cable delivers dependable signal integrity over longer cable lengths. Fluoropolymer jacket can be laser-marked. Low-skew SuperSpeed data pairs have individual braid shields.

#### Construction Details



#### Color Code

SuperSpeed pairs VIO/ORN and BLU/YEL · Power wires RED, BLK · Low speed pair WHT/GRN.

#### Specifications

<b>Impedance (ohms)</b>			90 ± 5	
<b>Temperature Rating</b>			-65° to +200°C	
<b>Voltage Rating</b>			< 50 Vac	
<b>Dielectric Withstanding Voltage</b>			100 Vac rms	
<b>Weight</b>			57 g/m nominal	
<b>Bend Radius (min.)</b>	<b>Static</b>		<b>Dynamics</b>	
	0.591 (15)			2.362 (60)
<b>Attenuation (S0021)</b>	<b>Freq. (GHz)</b>		<b>dB/m max.</b>	
	.625			1.2
	1.25			1.7
	2.5			2.5
	5.0			3.9
7.5		5.0		

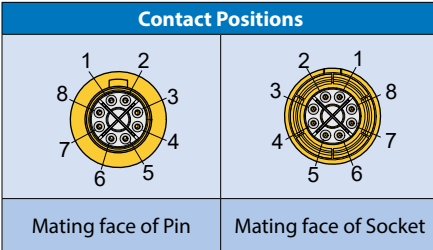
## MIL-DTL-38999 Series III Type Environmental Connectors

### 8571-0001 Pre-wired CAT 6A El Ochito® contacts, single-ended



El Ochito "White" for 10GBASE-T Ethernet Pin contact mating face

#### Contact Positions

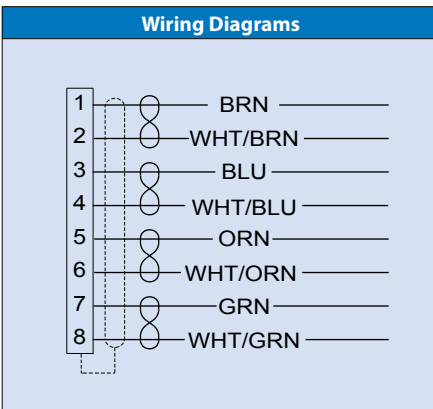


HIGH-SPEED CONNECTORS

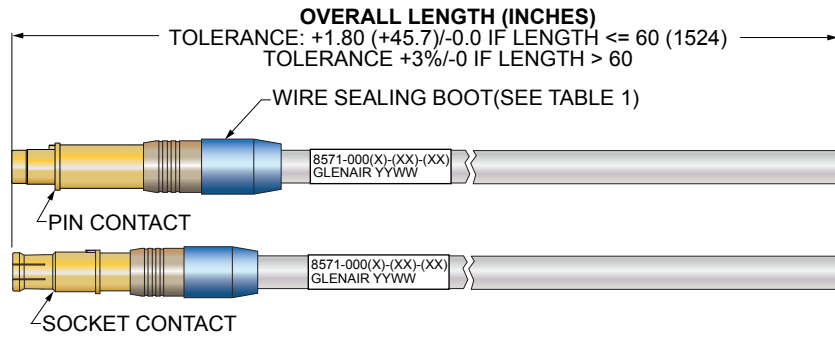
#### Technical Data

- ❑ Refer to individual contact and cable data sheets for construction details
- ❑ 100% tested for shorts, continuity and IR
- ❑ **Operating temp.:** -65 to +175°C
- ❑ **Impedance:** 100 ohms
- ❑ **DWV:** 500 Vrms
- ❑ **Current Rating:** 1.5 A
- ❑ **IR:** 200 megohms min.
- ❑ **Durability:** 500 mating cycles

#### Wiring Diagrams



Save assembly time and cost with pre-wired, 100% tested El Ochito® "White" assemblies. These single-ended cables have Ochito "White" contacts terminated to Category 6A aerospace-grade shielded cable. Supplied with cable sealing boot if applicable. Compatible with Glenair Series 23 connectors. Designed to meet the requirements of MIL-DTL-38999, SAE AS39029. *El Ochito contacts should be installed in keyed connectors before mating to prevent misalignment and contact damage.*



#### Part Number Development

<b>Sample Part Number</b>	<b>8571-0001</b>	<b>-10</b>	<b>-60</b>
<b>Series / Basic Part No.</b>	8571-0001 = Pre-wired El Ochito® contact, single-ended CAT 6A		
<b>Order Code</b>	See Table 1		
<b>Length</b>	Length in inches (12 inch minimum)		

Table I: Order Code

Order Code	Contact Part Number	Pin/Skt	Sealing Boot	Cable Type	Cable Part Number
01	858-003-01F	Pin	Yes	S/UTP CAT6A #26 .220	963-003-26
02	858-004-01F	Skt	Yes	S/UTP CAT6A #26 .220	963-003-26
03	858-005-01	Pin	No	S/UTP CAT6A #26 .220	963-003-26
04	858-005-02	Pin	No	S/FTP CAT6A #26 .220	963-033-26
05	858-005-04	Pin	No	S/FTP CAT6A #24 .220	963-033-24
06	858-006-01	Skt	No	S/UTP CAT6A #26 .220	963-003-26
07	858-006-02	Skt	No	S/FTP CAT6A #26 .220	963-033-26
08	858-006-04	Skt	No	S/FTP CAT6A #24 .220	963-033-24
09	858-003-02F	Pin	Yes	S/FTP CAT6A #26 .220	963-033-26
10	858-004-02F	Skt	Yes	S/FTP CAT6A #26 .220	963-033-26

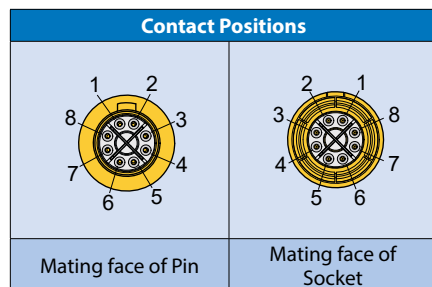


## MIL-DTL-38999 Series III Type Environmental Connectors

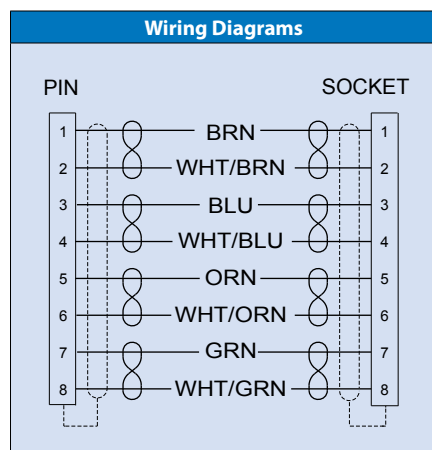
### 8571-0002 Pre-wired CAT 6A El Ochito® contacts, pin-to-socket



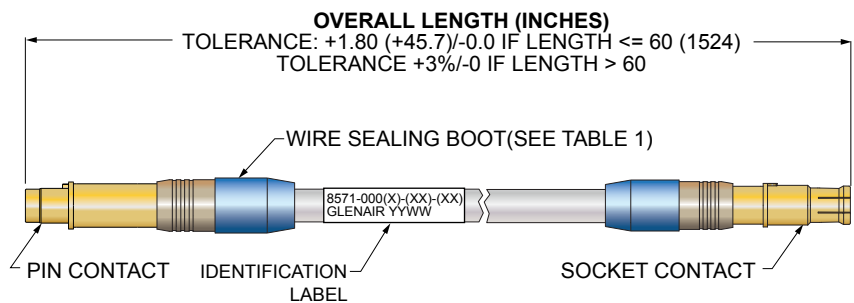
El Ochito "White" for 10GBASE-T Ethernet Pin contact mating face



Technical Data
<ul style="list-style-type: none"> <li>Refer to individual contact and cable data sheets for construction details</li> <li>100% tested for shorts, continuity and IR</li> </ul>
<ul style="list-style-type: none"> <li><b>Operating temp.:</b> -65 to +175°C</li> <li><b>Impedance:</b> 100 ohms</li> <li><b>DWV:</b> 500 Vrms</li> <li><b>Current Rating:</b> 1.5 A</li> <li><b>IR:</b> 200 megohms min.</li> <li><b>Durability:</b> 500 mating cycles</li> </ul>



**Lower installed cost. 100% tested.** Save assembly time and cost with pre-wired El Ochito® "White" assemblies. These pin-to-socket cables have El Ochito "White" contacts terminated to Category 6A aerospace-grade shielded cable. Supplied with cable sealing boot if applicable. These pre-wired El Ochito contacts snap into connector body without requiring an insertion tool. Remove contacts with plastic tool 859-049. Compatible with Glenair Series 23 connectors. Designed to meet the requirements of MIL-DTL-38999, SAE AS39029. *El Ochito contacts should be installed in keyed connectors before mating to prevent misalignment and contact damage.*



Part Number Development			
Sample Part Number	8571-0002	-01	-36
Series / Basic Part No.	8571-0002 = Pre-wired El Ochito® contacts, pin-to-socket		
Order Code	See Table 1		
Length	Length in inches (12 inch minimum)		

Table 1: Order Code						
Connector Type	Order Code	Pin Contact Part No.	Skt Contact Part No.	Sealing Boot	Cable Type	Cable Part Number
Series 23	01	858-003-01F	858-004-01F	Yes	S/UTP CAT6A #26 .220	963-003-26
	02	858-005-01	858-006-01	No	S/UTP CAT6A #26 .220	963-003-26
	03	858-005-02	858-006-02	No	S/FTP CAT6A #26 .220	963-033-26
	04	858-005-04	858-006-04	No	S/FTP CAT6A #24 .260	963-033-24
	05	858-003-02F	858-004-02F	Yes	S/FTP CAT6A #26 .220	963-033-26

HIGH-SPEED CONNECTORS

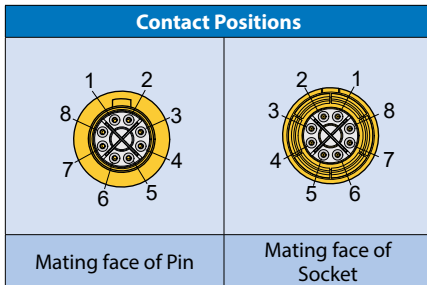
## MIL-DTL-38999 Series III Type Environmental Connectors

### 8571-0003 and -0004 cable assembly, El Ochito®-to-RJ45

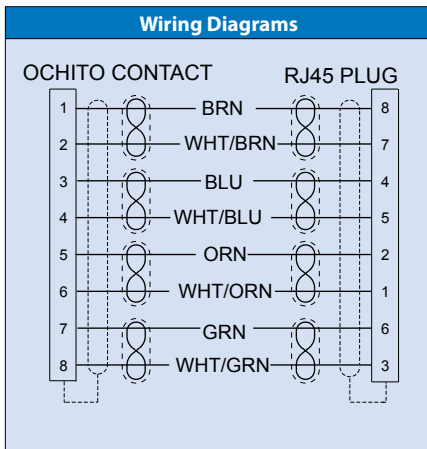


El Ochito "White" for 10GBASE-T Ethernet Pin contact mating face

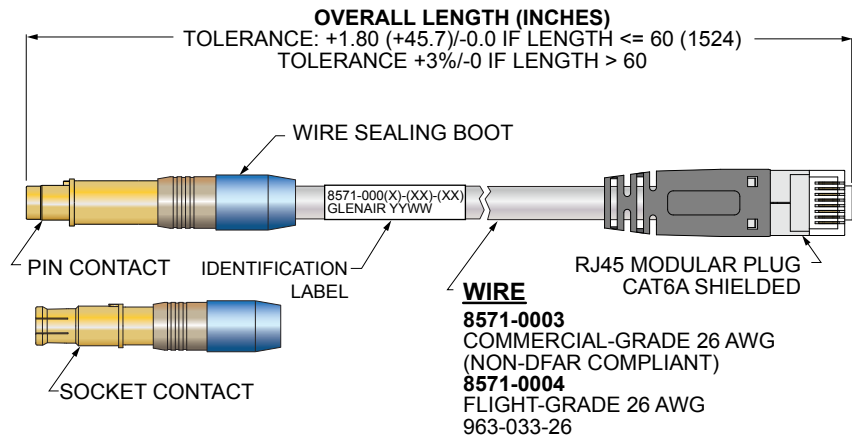
HIGH-SPEED CONNECTORS



Technical Data
<ul style="list-style-type: none"> <li>Refer to individual contact and cable data sheets for construction details</li> <li>100% tested for shorts, continuity and IR</li> </ul>
<ul style="list-style-type: none"> <li><b>Operating temp.:</b> -40° to +70°C</li> <li><b>Wire Size:</b> 26 AWG</li> <li><b>Impedance:</b> 100 ohms</li> <li><b>DWV:</b> 500 Vrms</li> <li><b>Current Rating:</b> 1.5 A</li> <li><b>IR:</b> 200 megohms min.</li> <li><b>Durability:</b> 500 mating cycles</li> </ul>



*El Ochito-to-RJ45. Two cable options: commercial grade (8571-0003) or flight-grade (8571-0004) Cat6A. Save assembly time and cost with pre-wired El Ochito® "White" assemblies. Cost-effective commercial grade assemblies are perfect for LAN testers and de-bugging. High performance engineered fluoropolymer aerospace grade assemblies have foil shields on each wire pair. Compatible with Glenair Series 23 connectors. Operating temperature -40 to +70°C. **Ochito contacts should be installed in keyed connectors before mating to prevent misalignment and contact damage.***



El Ochito®-to-RJ45 Cable Assemblies, Commercial-grade Wire			
Sample Part Number	8571-0003	-01	-24
Series / Basic Part No.	8571-0003 = Cable Assy, El Ochito to RJ45 Plug, Commercial Grade Wire		
ElOchito Contact Part Number	01 = 858-003-01F Pin 02 = 858-004-01F Socket		
Length	Length in inches (12 inch minimum)		

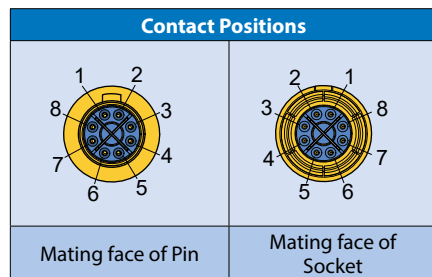
El Ochito®-to-RJ45 Cable Assemblies, Flight-grade Wire			
Sample Part Number	8571-0004	-01	-24
Series / Basic Part No.	8571-0004 = Cable Assy, El Ochito to RJ45 Plug, Aerospace Grade Wire		
El Ochito Contact Part Number	01 = 858-003-02F Pin 02 = 858-004-02F Socket		
Length	Length in inches (12 inch minimum)		

## MIL-DTL-38999 Series III Type Environmental Connectors

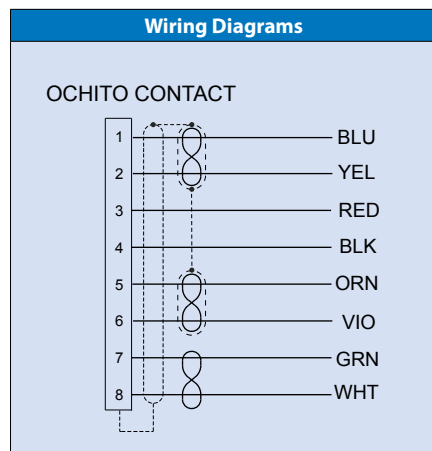
### 8572-0001 Pre-wired El Ochito® USB 3.0 contacts, single-ended



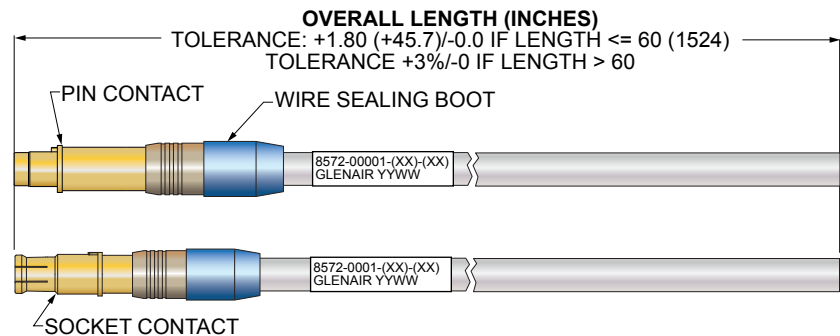
Ochito "Blue" for SuperSpeed USB  
Pin contact mating face



Technical Data	
<ul style="list-style-type: none"> <li>Refer to individual contact and cable data sheets for construction details</li> <li>100% tested for shorts, continuity and IR</li> </ul>	
<ul style="list-style-type: none"> <li><b>Operating temperature</b> Aero: -65° to +125°C Commercial: 0 to 80°C</li> </ul>	
<ul style="list-style-type: none"> <li><b>Impedance:</b> 90 ohms</li> <li><b>DWV:</b> 500 Vrms</li> <li><b>Current Rating:</b> 1.5 A</li> <li><b>IR:</b> 200 megohms min.</li> <li><b>Durability:</b> 500 mating cycles</li> </ul>	



*Two cable options: commercial grade or flight-grade. 100% tested. Save assembly time and cost with pre-wired El Ochito® "Blue" SuperSpeed USB assemblies. These single-ended assemblies have Ochito "Blue" contacts terminated to USB 3 shielded cables. Supplied with cable sealing boot. Commercial-grade version has PVC jacket. Aerospace-grade version has high temperature fluoropolymer construction and braided shields on SuperSpeed pairs. Compatible with Glenair Series 23 connectors. **Ochito contacts should be installed in keyed connectors before mating to prevent misalignment and contact damage.***



Part Number Development			
Sample Part Number	8572-0001	-01	-36
Series / Basic Part No.	8572-0001 = Pre-wired El Ochito® contact, with USB 3.0 cable		
Order Code	See Table I		
Length	Length in inches (12 inch minimum)		

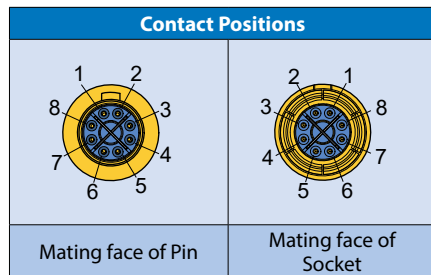
Table I: Order Code						
Connector Type	Order Code	Pin Contact Part No.	Order Code	Skt. Contact Part No.	Cable Type	Cable Part Number
Series 23	01	858-028-01F	03	858-029-01F	Commercial-grade PVC Jacket 0° to +80°C	963-118
	02	858-028-02F	04	858-029-02F	Aerospace-grade Fluoropolymer Jacket -65° to +125°C	963-110

HIGH-SPEED CONNECTORS

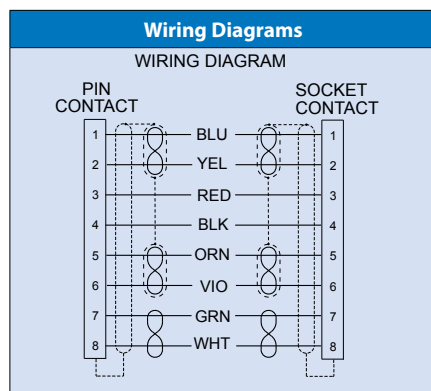
## MIL-DTL-38999 Series III Type Environmental Connectors 8572-0002 Back-to-Back El Ochito® cable assembly



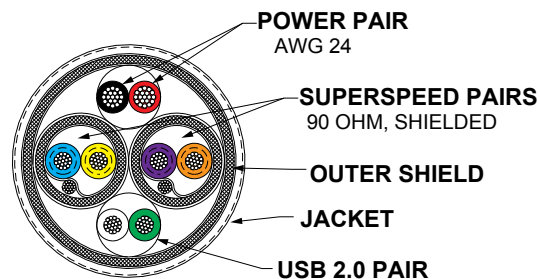
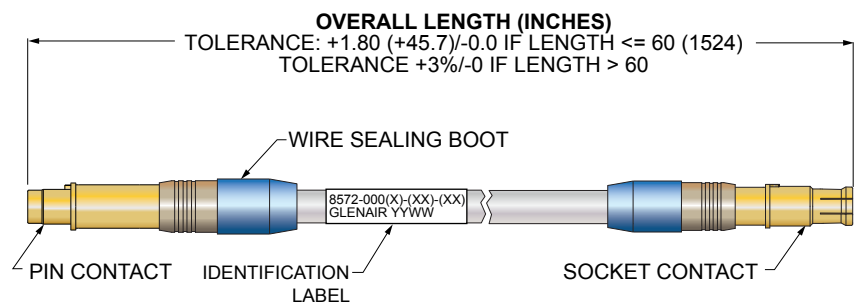
Ochito "Blue" for SuperSpeed USB  
Pin contact mating face



Technical Data
<ul style="list-style-type: none"> <li>Refer to individual contact and cable data sheets for construction details</li> <li>100% tested for shorts, continuity and IR</li> </ul>
<ul style="list-style-type: none"> <li><b>Operating temperature</b> Aero: -65° to +125°C Commercial: 0° to 80°C</li> <li><b>Wire Size:</b> 26 AWG</li> <li><b>Impedance:</b> 90 ohms</li> <li><b>DWV:</b> 500 Vrms</li> <li><b>Current Rating:</b> 1.5 A</li> <li><b>IR:</b> 200 megohms min.</li> <li><b>Durability:</b> 500 mating cycles</li> </ul>



**Aerospace-grade or commercial-grade cable. 100% tested.** Save assembly time and cost with pre-wired El Ochito® "Blue" SuperSpeed USB assemblies. These assemblies have a pin contact on one end and a socket contact on the other end. Aerospace-grade high temperature cable has fluoropolymer construction. Commercial-grade version has PVC jacket. Compatible with Glenair Series 23 connectors. Supplied with cable sealing boot. *Ochito contacts should be installed in keyed connectors before mating to prevent misalignment and contact damage.*



Part Number Development			
Sample Part Number	8572-0002	-01	-36
Series / Basic Part No.	8572-0002 = Pre-wired El Ochito® contact, with USB 3 cable		
Order Code	See Table I		
Length	Length in inches (12 inch minimum)		

Table I: Order Code				
Order Code	Pin Contact Part No	Skt Contact Part No	Cable Type	Cable Part No
01	858-028-01F	858-029-01F	Commercial-grade, PVC Jacket, -0°C to +80°C	963-118
02	858-028-02F	858-029-02F	Aerospace-grade, Fluoropolymer Jacket, -65°C to +125°C	963-110

HIGH-SPEED CONNECTORS

## MIL-DTL-38999 Series III Type Environmental Connectors

### 8572-0003 El Ochito® cable assemblies with USB 3 connectors

**USB 3.0 Connectors. Commercial grade. 100% tested.** Save assembly time and cost with pre-wired El Ochito® “Blue” SuperSpeed USB assemblies. These assemblies have El Ochito “Blue” contacts wired to USB 3.0 connectors. Supplied with cable sealing boot. Compatible with Glenair Series 23 connectors. *El Ochito contacts should be installed in keyed connectors before mating to prevent misalignment and contact damage.*

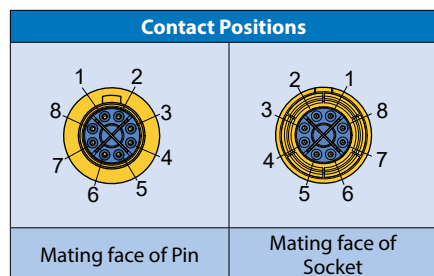
HIGH-SPEED CONNECTORS

Part Number Development			
Sample Part Number	8572-0003	-01	-36
Series / Basic Part No.	8572-0003 = Pre-wired Ochito contacts, with USB 3 connectors		
Order Code	See Table I		
Length	Length in inches (12 inch minimum)		

Table I: Order Code				
Connector Type	Order Code	Contact Part No.	Pin/Skt	USB 3.0 Connector
Series 23	01	858-028-01F	Pin	A Plug
	02	858-029-01F	Socket	A Recep
	03	858-029-01F	Socket	B Plug
	04	858-029-01F	Socket	Micro-B Plug

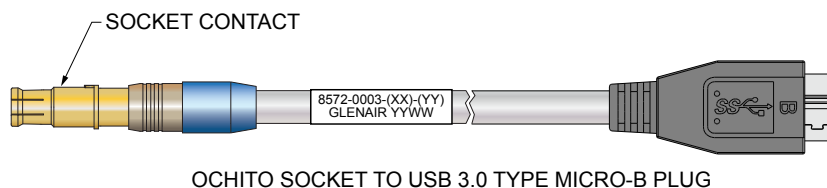
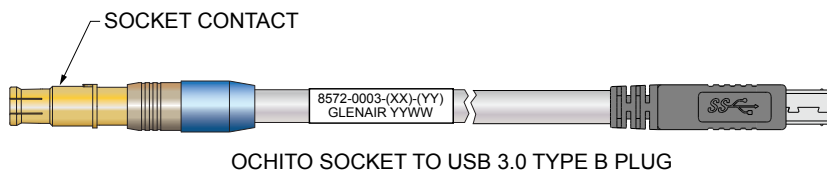
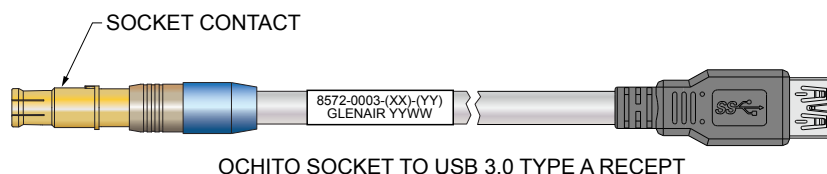
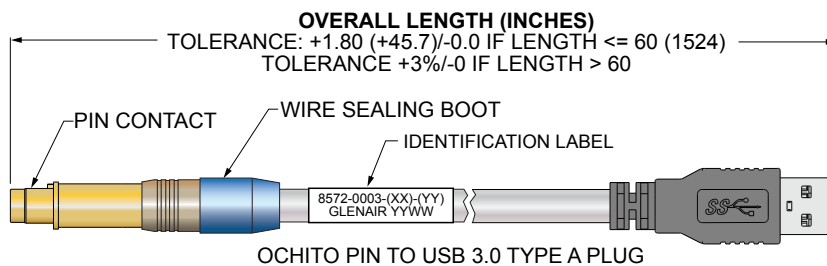


Ochito “Blue” for SuperSpeed USB  
Pin contact mating face



Technical Data
<ul style="list-style-type: none"> <li>❑ <b>Operating temp.:</b> 0° to +80°C</li> <li>❑ <b>Impedance:</b> 90 ohms</li> <li>❑ <b>DWV:</b> 100 Vrms</li> <li>❑ <b>Current Rating:</b> 1.5 A</li> <li>❑ <b>IR:</b> 100 megohms min.</li> <li>❑ <b>Durability:</b> 500 mating cycles</li> </ul>

Construction
<ul style="list-style-type: none"> <li>❑ Refer to individual contact data sheets for additional details</li> <li>❑ 100% tested for shorts, continuity and IR</li> <li>❑ <b>Cable:</b> commercial-grade, PVC jacket, non-DFAR compliant</li> </ul>



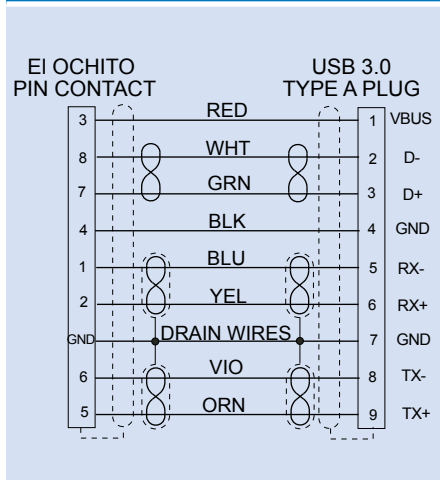


**MIL-DTL-38999 Series III Type Environmental Connectors**

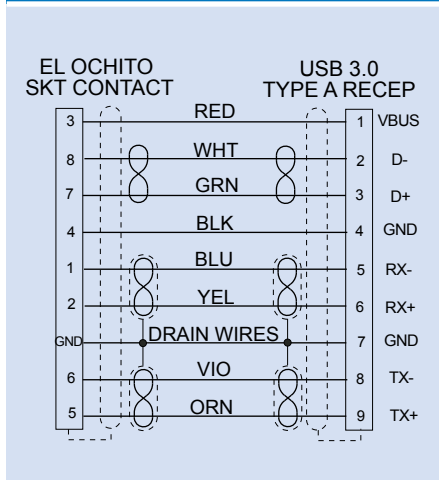
**8572-0003 El Ochito® cable assemblies with USB 3 connectors**

HIGH-SPEED CONNECTORS

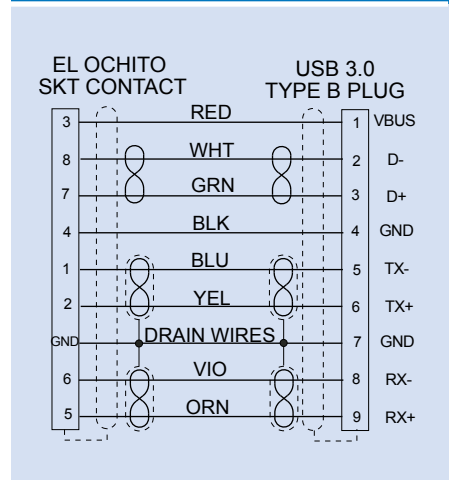
**Wiring Diagram**  
**8572-0003-01**  
 El Ochito Pin to USB 3.0 A Plug



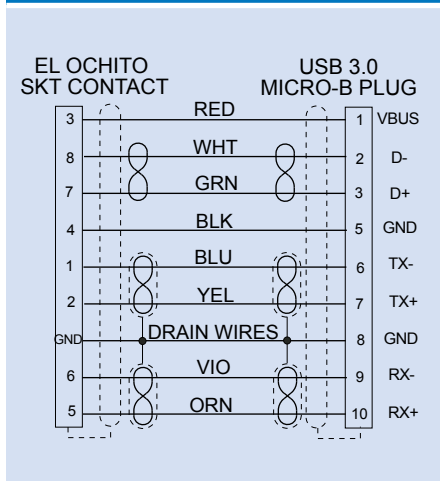
**Wiring Diagram**  
**8572-0003-02**  
 El Ochito Socket to USB 3.0 A Recep



**Wiring Diagram**  
**8572-0003-03**  
 El Ochito Socket to USB 3.0 B Plug



**Wiring Diagram**  
**8572-0003-04**  
 El Ochito Skt to USB 3.0 Micro-B Plug

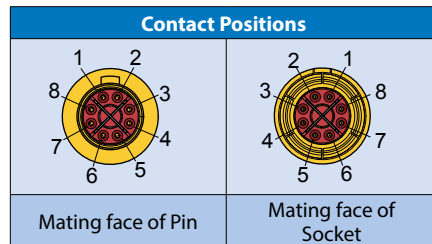


## MIL-DTL-38999 Series III Type Environmental Connectors

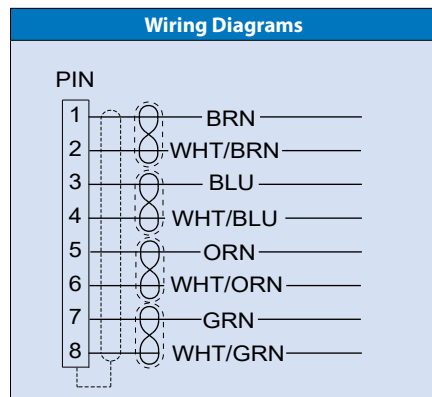
### 8573-0001 Pre-wired El Ochito® contacts, single-ended



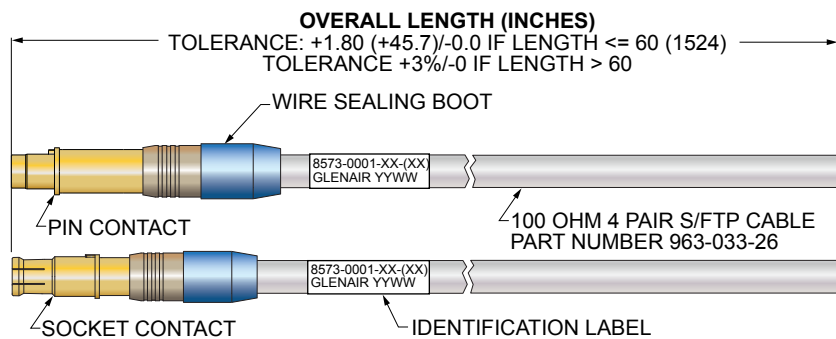
Ochito "Red" for Multi-Gigabit  
100 Ohm Datalinks



Technical Data	
<ul style="list-style-type: none"> <li>Refer to individual contact and cable data sheets for construction details</li> <li>100% tested for shorts, continuity and IR</li> </ul>	
<ul style="list-style-type: none"> <li><b>Operating temp.:</b> -55° to +175°C</li> <li><b>Impedance:</b> 100 ohms</li> <li><b>DWV:</b> 500 Vrms</li> <li><b>Current Rating:</b> 1.5 A</li> <li><b>IR:</b> 200 megohms min.</li> <li><b>Durability:</b> 500 mating cycles</li> </ul>	



Save assembly time and cost with pre-wired, 100% tested El Ochito® "Red" assemblies for multi-gigabit datalinks. These single-ended cables have Ochito "Red" contacts terminated to high performance flight-grade 100 ohm shielded twisted pair cable. Supplied with cable sealing boot. Compatible with Glenair Series 23 connectors. Designed to meet the requirements of MIL-DTL-38999 and SAE AS39029. *Ochito contacts should be installed in keyed connectors before mating to prevent misalignment and contact damage.*



Part Number Development			
Sample Part Number	8573-0001	-01	-36
Series / Basic Part No.	8573-0001 = Pre-wired El Ochito® contact, single-ended, Multi-Gigabit		
El Ochito Contact Part No.	See Table I		
Length	Length in inches (12 inch minimum)		

Table I: Order Code				
Connector Type	Order Code	Contact Part No.	Pin/Skt	Cable
Series 23	01	858-030-02F	Pin	963-033-26 (-55° to +175°C)
	02	858-031-02F	Socket	963-033-26 (-55° to +175°C)

HIGH-SPEED CONNECTORS

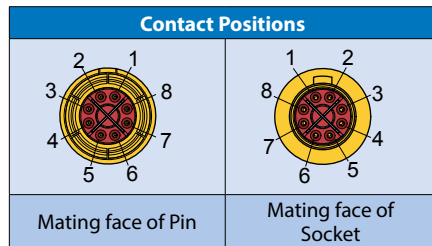
## MIL-DTL-38999 Series III Type Environmental Connectors

### 8573-0002 Pre-wired EI Ochito® contacts, pin-socket

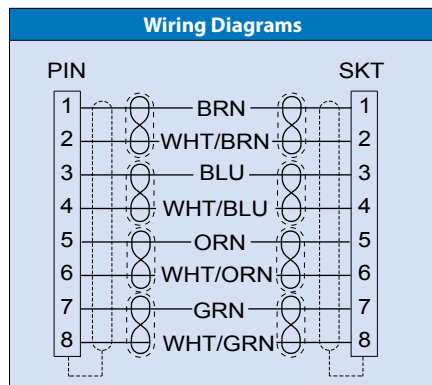


EI Ochito "Red" for Multi-Gigabit 100 Ohm Datalinks, pin contact mating face

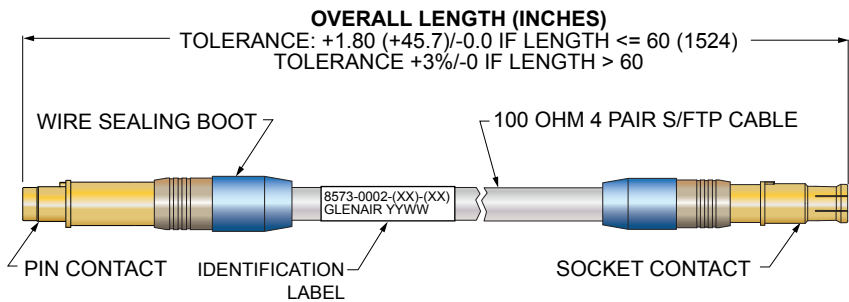
HIGH-SPEED CONNECTORS



Technical Data
<ul style="list-style-type: none"> <li>Refer to individual contact and cable data sheets for construction details</li> <li>100% tested for shorts, continuity and IR</li> </ul>
<ul style="list-style-type: none"> <li><b>Operating temp.:</b> -55° to +175°C</li> <li><b>Impedance:</b> 100 ohms</li> <li><b>DWV:</b> 500 Vrms</li> <li><b>Current Rating:</b> 1.5 A</li> <li><b>IR:</b> 200 megohms min.</li> <li><b>Durability:</b> 500 mating cycles</li> </ul>



Save assembly time and cost with pre-wired, 100% tested EI Ochito® "Red" assemblies for multi-gigabit datalinks. These pin-to-socket cables have EI Ochito "Red" contacts terminated to high performance flight-grade 100 ohm shielded twisted pair cable. Supplied with cable sealing boots. Compatible with Glenair Series 23 connectors. Designed to meet the requirements of MIL-DTL-38999 and SAE AS39029. *EI Ochito contacts should be installed in keyed connectors before mating to prevent misalignment and contact damage.*



Part Number Development			
Sample Part Number	8573-0002	-01	-48
Series / Basic Part No.	8573-0002 = Pre-wired EI Ochito® "Red" pin-to-socket, assemblies with 963-033-26 cable		
EI Ochito Contact P/N	See Table I		
Length	Length in inches (12 inch minimum)		

Table I: Order Code				
Connector Type	Order Code	Pin Contact Part No.	Skt Contact Part No.	Cable
Series 23	01	858-030-02F	858-031-02F	963-033-26 (-55° to +175°C)

## MIL-DTL-38999 Series III Type Environmental Connectors

### El Ochito® El Ochito® Test Adapters for SuperNine® Connectors



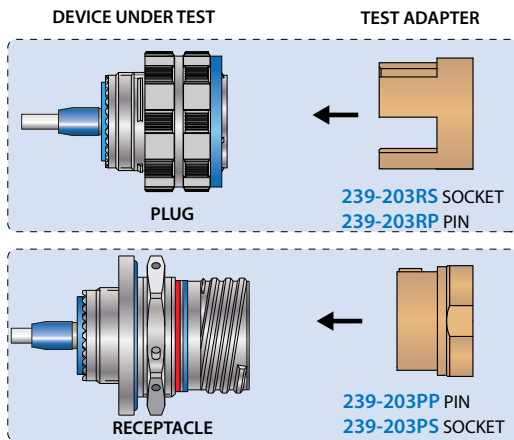
Plug Adapter



Receptacle Adapter

Test your system or cable while preventing damage to expensive cables with El Ochito® test adapters. These test adapters properly align test contacts without the added expense and time-consuming labor of mating connectors. Insert adapter cable into adapter, then push test adapter into Device Under Test (DUT). No tool is required to insert and remove adapter cable.

HIGH-SPEED CONNECTORS



Test Adapters for SuperNine® Connectors				
Sample Part Number	239-203	-P	S	19-18
Product	239-203 = Test adapter for SuperNine with El Ochito Contacts			
Fixture Shell Style	P = Plug R = Receptacle			
Contact Gender	P = Pin S = Socket			
Insert Arrangement	9G5 <sup>1</sup> , 11-1 <sup>1</sup> , 13-14 <sup>1</sup> , 17-2 <sup>1</sup> , 17-22, 17-60, 17-75, 19-4, 19-17, 19-18, 21-75, 23-5, 23-6, 25-7, 25-8, 25-17, 25-20, 25-26, 25-41, 25-46			

**Connector Compatibility**

- Glenair connectors such as 233-217, -218, -224, -225 SuperNine® connectors with size 8 data contacts

**Construction**

- Receptacle adapter (239-203R):** copper alloy retention clip, rigid dielectric and universally keyed
- Plug adapter (239-203P):** copper alloy retention clip and rigid dielectric

**Notes**

- 9G5, 11-1, 14-14, and 17-2 do not have any clips installed.
- Retention clips are only placed in size 8 cavity of arrangements with multiple size 8 cavities
- Fixtures use SuperNine El Ochito contacts. Consult catalog for part number. See Page 10

239-203 Plug Adapter			
Shell Size	ØA		
09 (A)	.645 (16.38)		
11 (B)	.775 (19.68)		
13 (C)	.895 (22.73)		
17 (E)	1.195 (30.35)		
19 (F)	1.260 (32.00)		
21 (G)	1.385 (35.18)		
23 (H)	1.515 (38.48)		
25 (J)	1.630 (41.40)		

239-203 Receptacle Adapter			
Shell Size	ØB		
09 (A)	.546 (13.87)		
11 (B)	.674 (17.12)		
13 (C)	.786 (19.96)		
17 (E)	1.036 (26.31)		
19 (F)	1.141 (28.98)		
21 (G)	1.266 (32.16)		
23 (H)	1.391 (35.33)		
25 (J)	1.516 (38.51)		

## MIL-DTL-38999 Series III Type Environmental Connectors 233-217/233-224 With shielded, crimp removable contacts

HIGH-SPEED CONNECTORS

Part Number Development	
<b>Sample Part Number</b>	233-217 -G6 NF 25 - 08 A N -909XX
<b>Series / Basic Part No.</b>	233-217 with Accessory Thread 233-224 Integral Banding Porch
<b>Connector Style</b>	See Table I, Connector Style
<b>Material/Finish</b>	NF = Cadmium Olive Drab ME = Electroless Nickel MT = Nickel PTFE ZR = Black Zinc Nickel
<b>Shell Size</b>	9, 11, 13, 17, 19, 21, 23, 25
<b>Ground Option</b>	G = Common Ground; See Note 11 - = None
<b>Insert Arrangement</b>	Per MIL-STD-1560 and custom layouts; See Page C-5 and C-6
<b>Insert Designator</b>	A = Pin insert, less contacts B = Socket insert, less contacts
<b>Alternate Polarization</b>	A, B, C, D, E, N = Normal
<b>Optional Mod Code<sup>9</sup></b>	909XX = Supplies connector with contacts Can be added to include contacts listed in the Contact Type table. Combo layouts shall include signal contacts IAW M39029/56 & /58 1213 = Supplies connectory with contacts per MIL-STD-1560

Table I: Connector Style*	
Sym	Description
-G6	Plug, with EMI spring
-05	Receptacle, in-line
-07	Receptacle, jam-nut
-00	Receptacle, wall mount with slotted holes
-CM	Receptacle, wall mount with metric clinch nuts
-CS	Receptacle, wall mount with standard clinch nuts
-D0	Receptacle, wall mount with thru holes
-HM	Receptacle, wall mount with metric helicoils
-HS	Receptacle, wall mount with standard helicoils

\*Refer to Section A for recommended panel cutout.

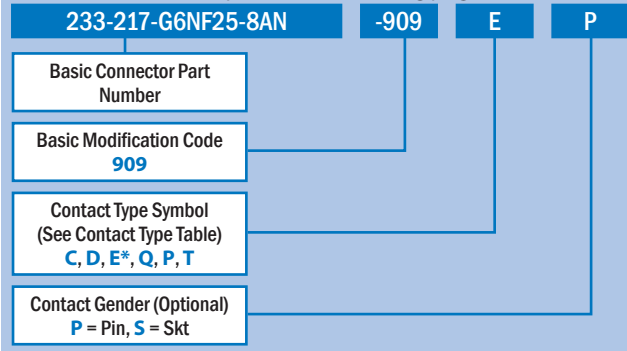
### NOTES

1. Insert arrangements IAW MIL-STD-1560. Contact Glenair for additional arrangement options.
2. All contacts, insertion/removal tool, and sealing plugs to be ordered separately. See section J for ordering information.
3. Dimensions in inch (millimeter) are subject to change without notice.
4. See reference information in this section for recommended mounting holes for wall mount and jam-nut receptacles.
5. Consult factory for additional information.
6. Blue color band indicates rear release retention system.
7. All contacts, insertion/removal tool, and sealing plugs to be ordered separately.
8. For contacts with boot, add F suffix.
9. See figure 2 for reference orientation of the inner pins relative to connector main key/keyway.
10. Front panel mount only
11. Ground plane option only available for insert arrangements where all contacts are shielded type

### GROMMET FOLLOWER

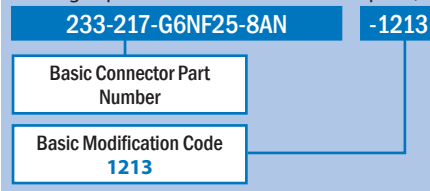
Grommet followers provide wire sealing. Slide boot onto wire before terminating contact. After contact is installed slide boot forward into connector to seal the contact cavity.

**Modification code 909xx** is used to supply D38999 Series III Type connectors featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs.



\*Refer to Table III, el Ochito contact positions table for orientation.

**Modification code 1213** is used to supply D38999 Series III Type connectors (233-217 and 233-224) featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs.





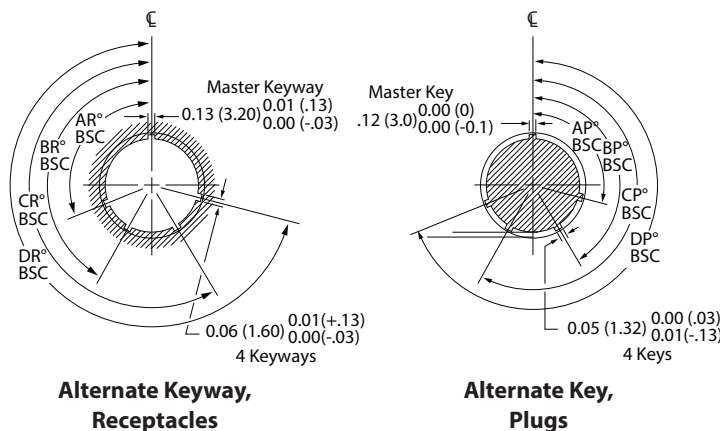
**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-217/233-224 With shielded, crimp removable contacts**

HIGH-SPEED CONNECTORS

Table II: Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, differential twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/40G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

**ALTERNATE KEY AND KEYWAY POLARIZATION**



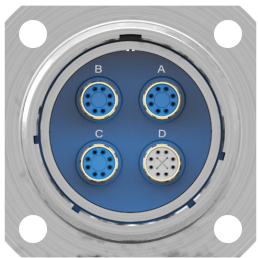
Series III Alternate Key and Keyway Polarization					
Shell Size	Key and Keyway Code	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
11 13 15	E	91	131	197	240
	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
17 19 21 23 25	D	119	146	176	298
	E	51	141	184	242
	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

## MIL-DTL-38999 Series III Type Environmental Connectors

233-217/233-224 With shielded, crimp removable contacts

HIGH-SPEED CONNECTORS

EI Ochito Protocols		
<b>WHITE</b>	<b>BLUE</b>	<b>RED</b>
40GBASE-T	USB 3.0	Multi Gigabit 100 ohm protocols HDMI, SATA, DisplayPort 1.4



Example Code E7



Example Code E5

FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY

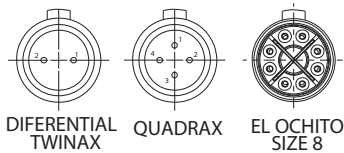


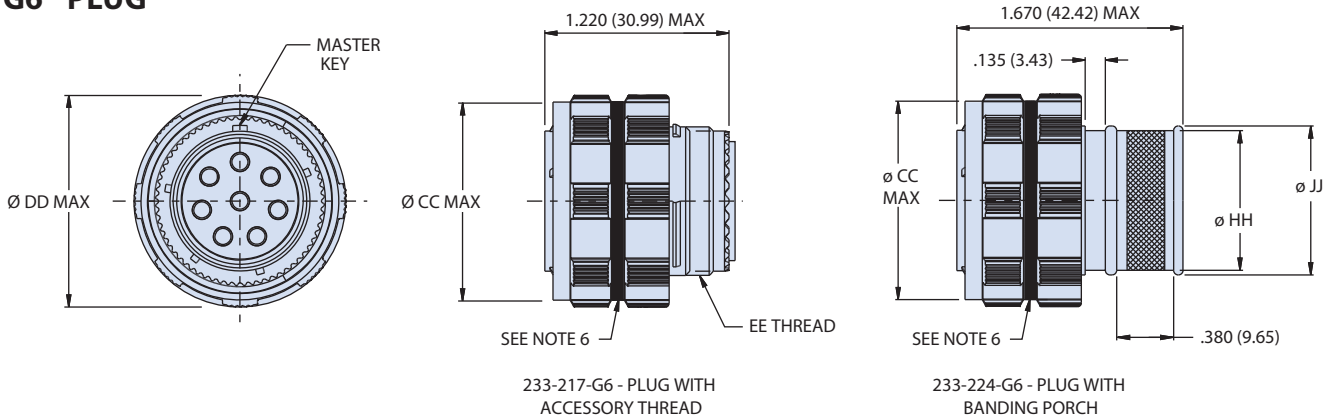
Table III: EI Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

**MIL-DTL-38999 Series III Type Environmental Connectors**

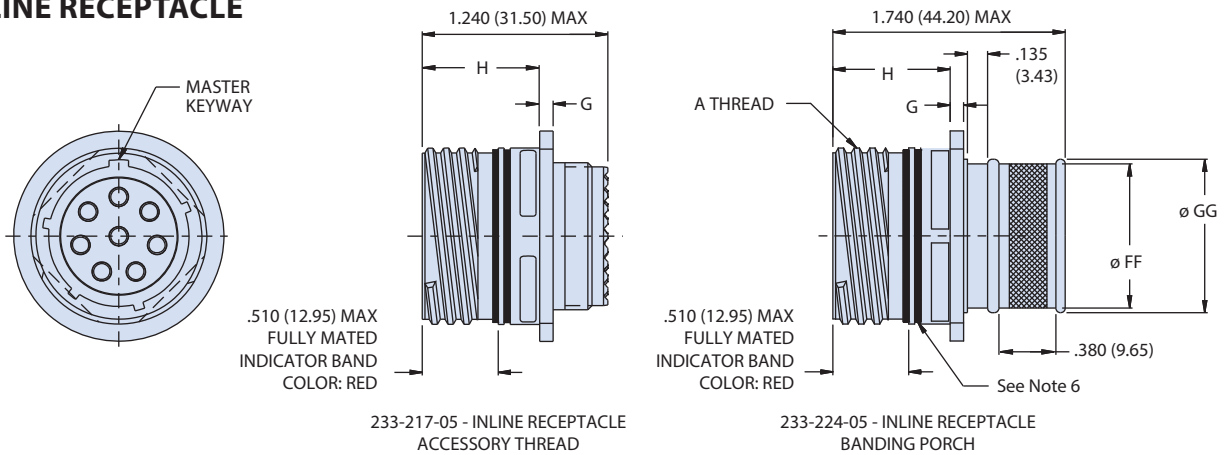
**233-217/233-224 With shielded, crimp removable contacts**

HIGH-SPEED CONNECTORS

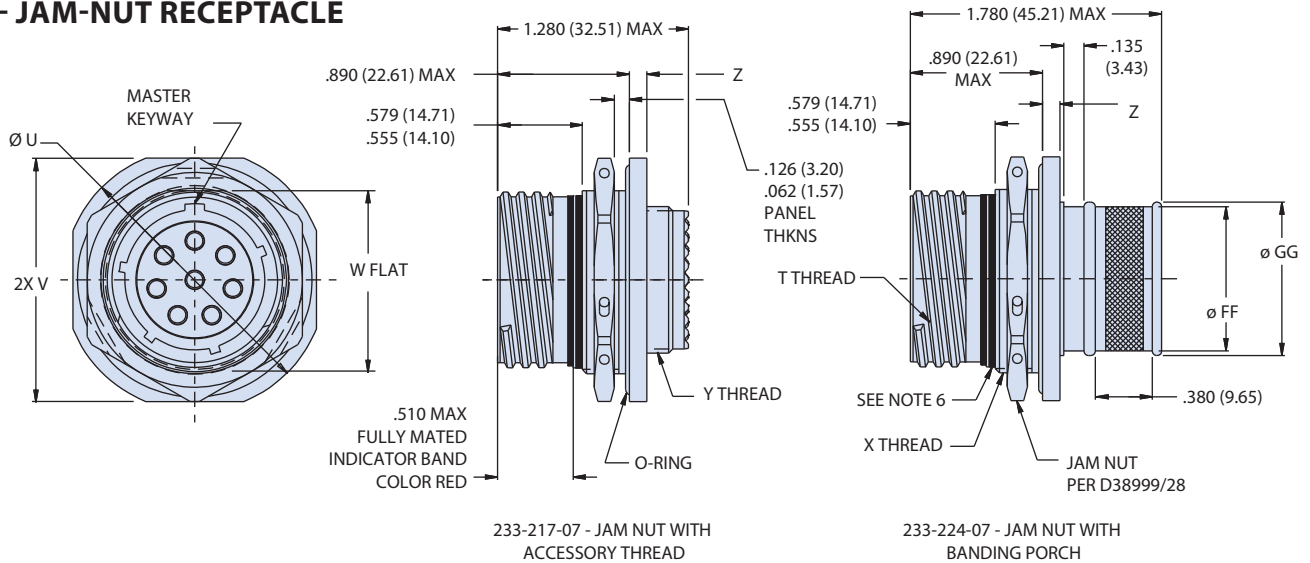
**G6 - PLUG**



**05 - IN-LINE RECEPTACLE**



**07 - JAM-NUT RECEPTACLE**

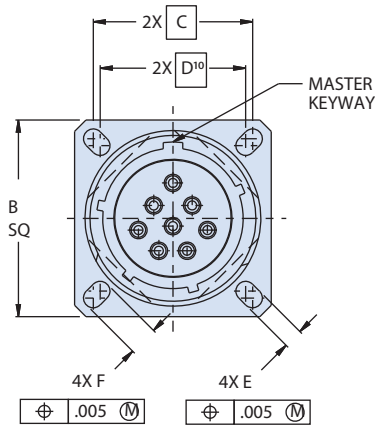


MIL-DTL-38999 Series III Type Environmental Connectors

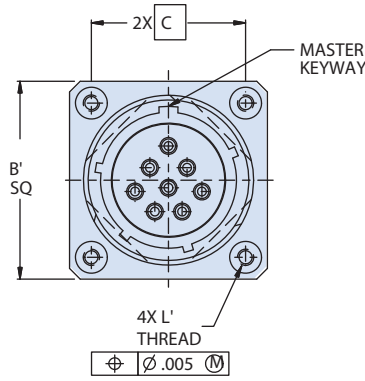
233-217/233-224 With shielded, crimp removable contacts

HIGH-SPEED CONNECTORS

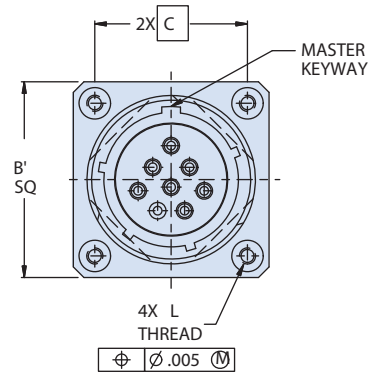
00, CM, CS, DO, HM AND HS WALL MOUNT RECEPTACLES WITH ACCESSORY THREAD OR INTEGRAL BANDING PORCH



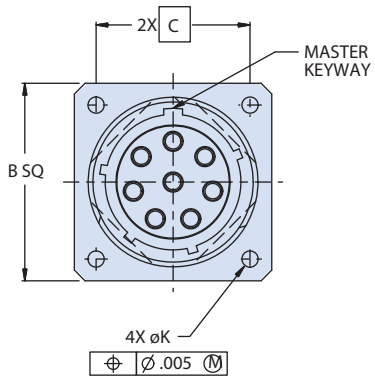
00 - WALL MOUNT RECEPTACLE WITH SLOTTED HOLES



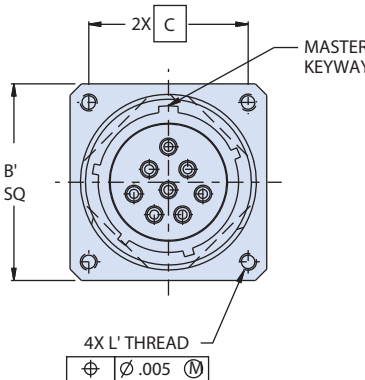
CM - WALL MOUNT RECEPTACLE WITH METRIC CLINCH NUTS



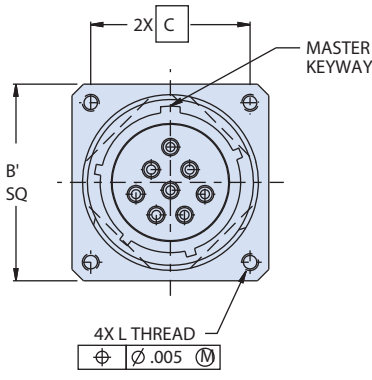
CS - WALL MOUNT RECEPTACLE WITH STANDARD CLINCH NUTS



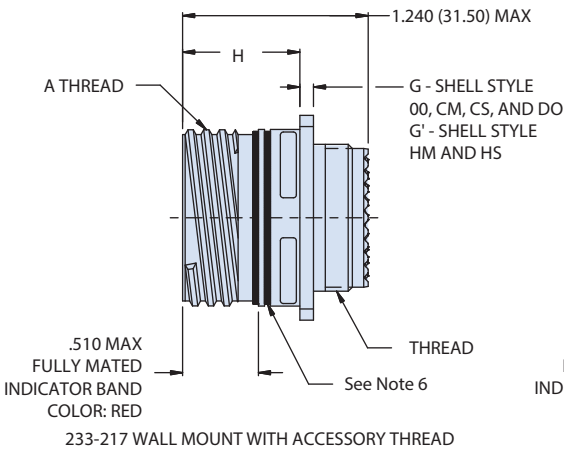
DO - WALL MOUNT RECEPTACLE WITH THRU HOLES



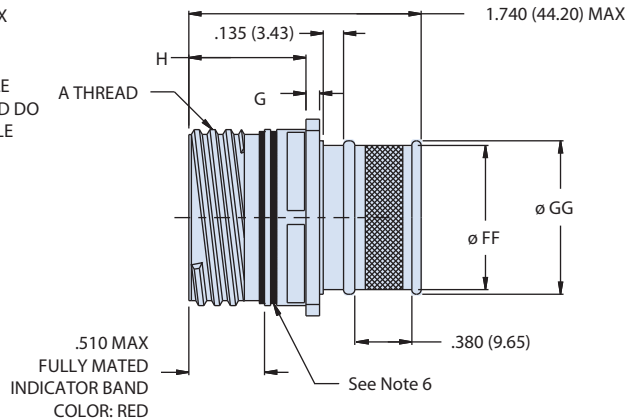
HM - WALL MOUNT RECEPTACLE WITH METRIC HELICOILS



HS - WALL MOUNT RECEPTACLE WITH STANDARD HELICOIL



233-217 WALL MOUNT WITH ACCESSORY THREAD



233-224 WALL MOUNT WITH INTEGRAL BANDING PORCH

**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-217/233-224 With shielded, crimp removable contacts**

HIGH-SPEED CONNECTORS

Plug Dimension				
Shell Size Code	Shell Size	Ø CC Max	Ø DD Max	EE Thd
A	9	.811 (20.60)	.858 (21.79)	M12 X 1.0-6g 0.100R
B	11	.929 (23.60)	.984 (24.99)	M15 X 1.0-6g 0.100R
C	13	1.008 (25.60)	1.157 (29.39)	M18 X 1.0-6g 0.100R
E	17	1.358 (34.49)	1.406 (35.71)	M25 X 1.0-6g 0.100R
F	19	1.469 (37.31)	1.516 (38.51)	M28 X 1.0-6g 0.100R
G	21	1.594 (40.49)	1.642 (41.71)	M31 X 1.0-6g 0.100R
H	23	1.720 (43.69)	1.768 (44.91)	M34 X 1.0-6g 0.100R
J	25	1.843 (46.81)	1.890 (48.01)	M37 X 1.0-6g 0.100R

Jam-nut Dimensions								
Shell Size Code	Shell Size	T Thd .1P-.3L-TS-2A	ØU	V	W Flat	X Thd (1.0-6g 0.100R)	Y Thd (1.0-6g 0.100R)	Z
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X	M12 X	.122 (3.10) .083 (2.11)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	0.755 (19.18) 0.745 (18.92)	M20 X	M15 X	
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X	M18 X	
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X	M25 X	.153 (3.89) .114 (2.90)
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X	M28 X	
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X	M31 X	
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X	M34 X	
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X	M37 X	

Wall Mount Dimensions																
Shell Size Code	Shell Size	A Thd .1P-.3L-TS-2A	B Sq	B' Sq	C Bsc	D Bsc <sup>7</sup>	E	F	G	G'	H	J Thd 1.0-6g 0.100R	ØK	L Thd	L' Thd	ØM
A	9	.6250	.949 (24.10) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.098 (2.49) .083 (2.11)	.179 (4.55) .140 (3.56)	.820 (20.83) .771 (19.58)	M12	.136 (3.45) .120 (3.05)	.112-40 UNC	M3X0.5	.858 (21.79)
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		M15				.984 (24.99)				
C	13	.8750	1.138 (28.91) 1.114 (28.30)	1.226 (31.14) 1.186 (30.12)	.906 (23.01)	.812 (20.62)		M18				1.157 (29.39)				
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)		M25				1.406 (35.71)				
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)		M28				1.516 (38.51)				
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)		M31				1.642 (41.71)				
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)		M34				1.768 (44.91)				
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)	M37	1.890 (48.01)								

Integral Banding Porch Dimensions					
Shell Size Code	Shell Size	Ø FF	Ø GG	Ø HH	Ø JJ
A	09	.475 (12.07)	.538 (13.67)	.420 (10.67)	.465 (11.81)
B	11	.600 (15.24)	.662 (16.81)	.550 (13.97)	.595 (15.11)
C	13	.700 (17.78)	.762 (19.35)	.670 (17.02)	.715 (18.16)
D	15	.835 (21.21)	.898 (22.81)	.815 (20.70)	.860 (21.84)
E	17	.960 (24.38)	1.022 (25.96)	.945 (24.00)	.990 (25.15)
F	19	1.062 (26.97)	1.125 (28.58)	1.050 (26.67)	1.100 (27.94)
G	21	1.188 (30.18)	1.250 (31.75)	1.170 (29.72)	1.220 (30.99)
H	23	1.275 (32.39)	1.338 (33.99)	1.290 (32.77)	1.340 (34.04)
J	25	1.475 (37.47)	1.538 (39.07)	1.400 (35.56)	1.450 (36.83)



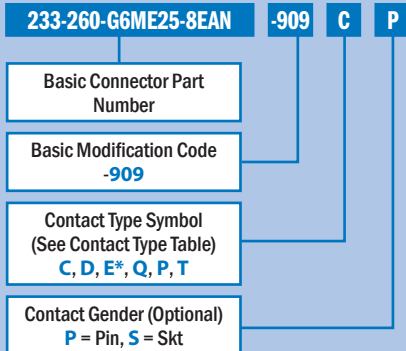
## MIL-DTL-38999 Series III Type Environmental Connectors 233-260 QDC Plug with shielded crimp removable contacts

HIGH-SPEED CONNECTORS

Part Number Development	
Sample Part Number	233-260 -G6 ME 25 - 8 E A N -909CP
Series / Basic Part No.	233-260 High-Speed Quick Disconnect
Connector Style	-G6 = Quick Disconnect Plug
Material/Finish	NF = Aluminum/Cad. Olive Drab MT = Aluminum/Nickel PTFE ME = Aluminum/ Electroless Nickel Z1 = SST, Passivated
Shell Size	9, 11, 13, 17, 19, 21, 23, 25
Ground Option	G = Common Ground - = None; See Note 8
Insert Arrangement	Per MIL-STD-1560, See page C-5 and C-6
Lanyard Length	See Table I for Lanyard Length
Contact Style	A = Pin Less Contact B = Socket Less Contact
Alternate Polarization*	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)
Optional Mod Code	909** = Supplies connector with contacts; See modification code example below for details.

\*Refer to Section A for complete details

**Modification code 909xx** is used to supply D38999 Series III Type connectors featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs. See example below.



\*For El Ochito see Table II, Contact Configuration Table on following page for appropriate code and dash number symbol.

Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	Aerospace-grade digital video
D	Size 8, differential twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/40G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/ concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

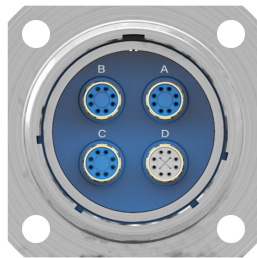
\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

# MIL-DTL-38999 Series III Type Environmental Connectors

## 233-260 QDC Plug with shielded crimp removable contacts

HIGH-SPEED CONNECTORS

El Ochito Protocols		
<b>WHITE</b>	<b>BLUE</b>	<b>RED</b>
40GBASE-T	USB 3.0	Multi Gigabit 100 ohm protocols HDMI, SATA, DisplayPort 1.4



Example Code E7



Example Code E5

FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY

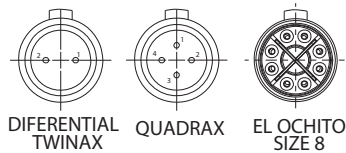


Table I: Lanyard Length					
Sym	L ±.236 (±6)	Sym	L ±.236 (±6)	Sym	L ±.236 (±6)
A	4.016 (102.01)	I	7.992 (203.00)	S	12.007 (304.98)
B	4.527 (114.99)	J	8.503 (215.98)	T	12.519 (317.98)
C	5.000 (127.00)	K	9.015 (228.98)	U	13.031 (330.99)
D	5.511 (139.98)	L	9.527 (241.99)	V	14.015 (355.98)
E	6.024 (153.01)	M	10.000 (254.00)	W	15.000 (381.00)
F	6.535 (165.99)	N	10.511 (266.98)	X	16.023 (406.98)
G	7.007 (177.98)	P	11.023 (279.98)	Y	17.007 (431.98)
H	7.519 (190.98)	R	11.535 (292.99)	Z	18.031 (457.99)

El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

## MIL-DTL-38999 Series III Type Environmental Connectors 233-260 QDC Plug with shielded crimp removable contacts

HIGH-SPEED CONNECTORS

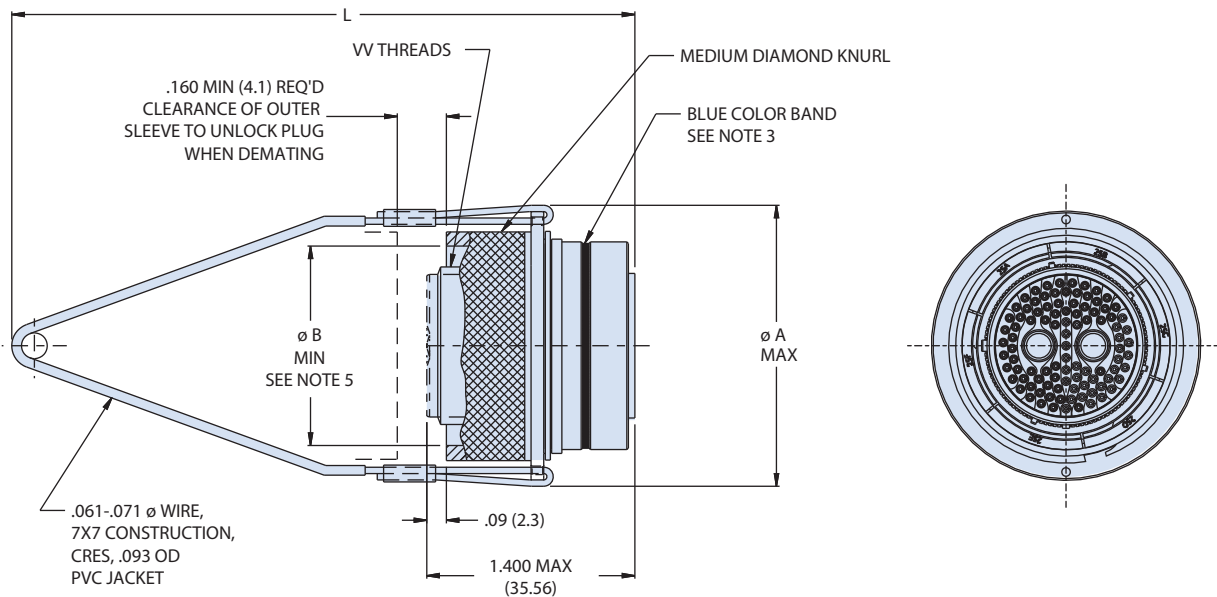
Separation Forces Max		
Shell Size	Straight Pull Pound (Newton)	15 Degree Pull Pound (Newton)
09	44.96 (200)	55.08 (245)
11	44.96 (200)	55.08 (245)
17	89.92 (400)	100.04 (445)
19	89.92 (400)	100.04 (445)
21	89.92 (400)	100.04 (445)
23	89.92 (400)	100.04 (445)
25	89.92 (400)	100.04 (445)

Dimensions				
Shell Size	Shell Size Code	A Max	B Min	VV Thread 1-6g-.0100R
09	A	1.720 (43.69)	.977 (24.82)	M12 x1-6g-0.100R
11	B	1.746 (44.35)	1.003 (25.48)	M15 x1-6g-0.100R
17	C	2.204 (55.98)	1.425 (36.20)	M25 x1-6g-0.100R
19	D	2.230 (56.64)	1.535 (38.99)	M28 x1-6g-0.100R
21	E	2.472 (62.79)	1.661 (42.19)	M31 x1-6g-0.100R
23	F	2.374 (60.30)	1.787 (45.39)	M34 x1-6g-0.100R
25	G	2.494 (63.35)	1.909 (48.49)	M37 x1-6g-0.100R

### NOTES

- Material/Finish
  - Shell, coupling sleeve, lanyard ring inner sleeve, locking: aluminum alloy or CRES/see part number development
  - Contacts: copper alloy / gold plated
  - Insulators: high grade rigid dielectric/ N.A.
  - Seals: fluorosilicone blend / N.A.
- Connector is designed to mate with Glenair part number 233-217 and 233-224 with same size, same arrangement, and polarization.
- Blue color band indicates rear release retention system
- For backshell extender consult factory.
- Dimension B is clearance to accommodate MIL-C-85049 accessories.
- All contacts, insertion/ removal tool, and sealing plug to be ordered separately
- Connector 233-260 is commercial equivalent of D38999/29, /30 and /31 type 2
- Ground plane option only available for insert arrangements where all contacts are shielded type.
- Modification code 909 can be added to the end of part number to include contacts. See contact reference guide table.

All remaining combo contact arrangements for size #22, 20, 16 and 12 are to be power.



## MIL-DTL-38999 Series III Type Environmental Connectors 233-226 QDC Plug with shielded crimp removable contacts

HIGH-SPEED CONNECTORS

Part Number Development	
<b>Sample Part Number</b>	233-226 B -G6 ME 25 - 8 B A E -4 -909CP
<b>Series / Basic Part No.</b>	233-226 High-Speed, Quick Disconnect Plug
<b>Rear Accessory Options</b>	- = Accessory Thread and Teeth B = Integrated Backshell, Boot Adapter S = Integrated Backshell Single Band
<b>Connector Style</b>	-G6 = Plug, EMI
<b>Material/Finish</b>	NF = Aluminum/Cad. Olive Drab MT = Aluminum/Nickel PTFE ME = Aluminum/ Electroless Nickel Z1 = SST, Passivated
<b>Shell Size</b>	9, 11, 13, 17, 19, 21, 23, 25
<b>Ground Option</b>	G = Common Ground - = None; See Note 8
<b>Insert Arrangement</b>	Per MIL-STD-1560, See page C-5 and C-6
<b>Contact Style</b>	A = Pin Insert, Less Contacts B = Socket Insert, Less Contacts
<b>Alternate Polarization*</b>	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)
<b>Lanyard Length</b>	See Table I, Lanyard Length
<b>Connector Type</b>	1 = Type 1 4 = Type 4 6 = Type 6
<b>Optional Mod Code</b>	909** = Supplies connector with contacts; See modification code example for details.

\*Refer to Section A for complete details

**Modification code 909xx** is used to supply D38999 Series III Type connectors featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs. See example below.

**233-226B-G6ME25-8BAE-4 -909 C P**

- Basic Connector Part Number: 233-226
- Basic Modification Code: 909
- Contact Type Symbol (See Contact Type Table): C, D, E\*, Q, P, T
- Contact Gender (Optional): P = Pin, S = Skt

\*For El Ochito see Table II, Contact Configuration Table on following page for appropriate code and dash number symbol.

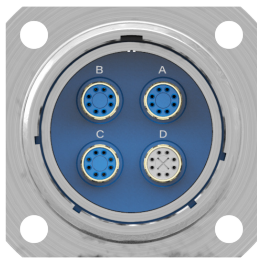
Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, differential twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/40G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/ concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

## MIL-DTL-38999 Series III Type Environmental Connectors 233-226 QDC Plug with shielded crimp removable contacts

HIGH-SPEED CONNECTORS

EI Ochito Protocols		
<b>WHITE</b>	<b>BLUE</b>	<b>RED</b>
40GBASE-T	USB 3.0	Multi Gigabit 100 ohm protocols HDMI, SATA, DisplayPort 1.4

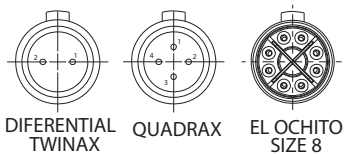


Example Code E7



Example Code E5

**FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY**



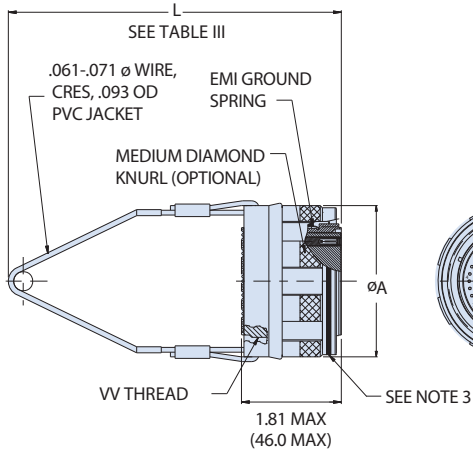
Sym	L ±.236 (±6)	Sym	L ±.236 (±6)
A	4.016 (102.01)	M	10.000 (254.00)
B	4.527 (114.99)	N	10.511 (266.98)
C	5.000 (127.00)	P	11.023 (279.98)
D	5.511 (139.98)	R	11.535 (292.99)
E	6.024 (153.01)	S	12.007 (304.98)
F	6.535 (165.99)	T	12.519 (317.98)
G	7.007 (177.98)	U	13.031 (330.99)
H	7.519 (190.98)	V	14.015 (355.98)
I	7.992 (203.00)	W	15.000 (381.00)
J	8.503 (215.98)	X	16.023 (406.98)
K	9.015 (228.98)	Y	17.007 (431.98)
L	9.527 (241.99)	Z	18.031 (457.99)

EI Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

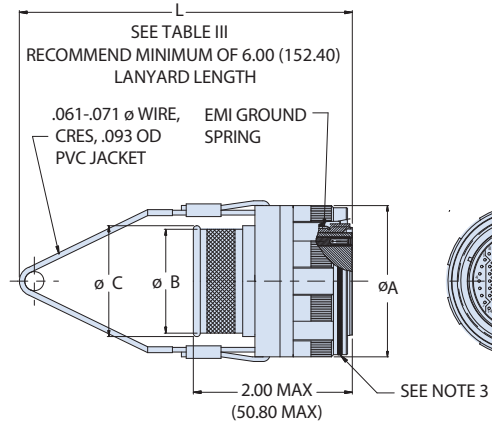


**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-226 QDC Plug with shielded crimp removable contacts**

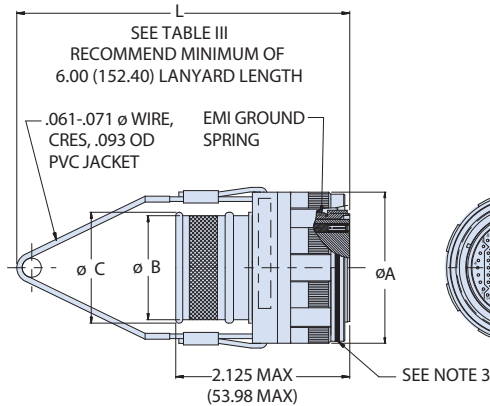
HIGH-SPEED CONNECTORS



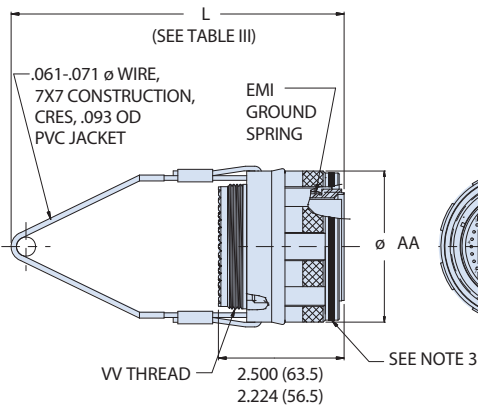
**TYPE -4**



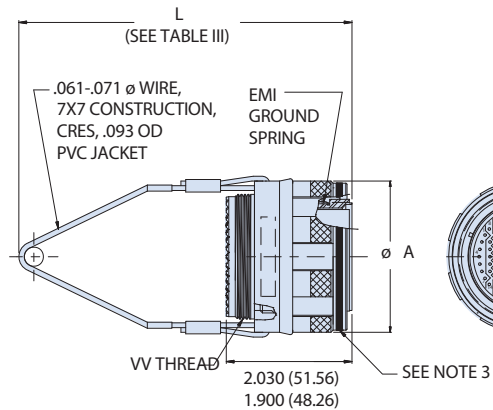
**TYPE -4  
S - SINGLE BAND**



**TYPE -4  
B - BOOT GROOVE**



**TYPE -1**



**TYPE -6**

\*Refer to el Ochito contact positions table for orientation.

**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-226 QDC Plug with shielded crimp removable contacts**

HIGH-SPEED CONNECTORS

General Dimensions				
Shell Size	Shell Size Code	ø A ±.06 (1.52)	ø AA ±.06 (1.52)	VV Thread
09	A	1.060 (26.92)	N/A	M12x1-6g-0.100R
11	B	1.180 (29.97)	1.242 (31.55)	M15x1-6g-0.100R
13	C	1.310 (33.27)	1.325 (33.65)	M18x1-6g-0.100R
15	D	1.437 (36.50)	1.499 (38.07)	M22x1-6g-0.100R
17	E	1.560 (39.62)	1.622 (41.20)	M25x1-6g-0.100R
19	F	1.690 (42.93)	1.752 (44.50)	M28x1-6g-0.100R
21	G	1.760 (44.70)	1.822 (46.28)	M31x1-6g-0.100R
23	H	1.900 (48.26)	1.962 (49.83)	M34x1-6g-0.100R
25	J	2.000 (50.80)	2.125 (53.97)	M37x1-6g-0.100R

Integral Backshell Dimensions		
Shell Size	ø B	ø C
11	0.550 (13.97)	0.595 (15.11)
13	0.670 (17.02)	0.715 (18.16)
15	0.815 (20.70)	0.860 (21.84)
17	0.945 (24.00)	0.990 (25.15)
19	1.050 (26.67)	1.100 (27.94)
21	1.170 (29.72)	1.220 (30.99)
23	1.290 (32.77)	1.340 (34.04)
25	1.400 (35.56)	1.450 (36.83)

Size #9 only available on Type -4

Separation Pull Forces Maximum			
Shell Size	Shell Size Code	Straight Pull Lbs (Newton)	15 Degree Pull Lbs (Newton)
09	A	44.96 (200)	55.08 (245)
11	B	44.96 (200)	55.08 (245)
13	C	44.96 (200)	55.08 (245)
15	D	44.96 (200)	55.08 (245)
17	E	44.96 (200)	100.04 (445)
19	F	89.92 (400)	100.04 (445)
21	G	89.92 (400)	100.04 (445)
23	H	89.92 (400)	100.04 (445)
25	J	89.92 (400)	100.04 (445)

**NOTES**

- Material/Finish
  - Barrel, coupling nut, lanyard ring: see part number development
  - Ratchet ring, detent spring: stainless steel/passivated
  - Grounding spring: BeCu alloy / eletroless nickel
  - Wave spring: CRES / passivated
  - Insulators: high grade rigid dielectric/ N.A.
  - Seals: fluorosilicone blend / N.A.
- 233-226 Connector is designed to mate with any QPL manufacturer's MIL-DTL-38999, Series III receptacle connector with the same shell size, insert arrangement, polarization and mating contact
- Blue color band indicates rear release retention system
- For backshell extender consult factory.
- Dimension B is clearance to accommodate MIL-C-85049 accessories.
- All contacts, insertion/ removal tool, and sealing plug to be ordered separately
- Connector 233-260 is commercial equivalent of D38999/29, /30 and /31 type 2
- Ground plane option only available for insert arrangements where all contacts are shielded type
- Modification code 909 can be added to the end of part number to include contacts. See contact reference guide table. All remaining combo contact arrangements for size #22, 20, 16 and 12 are to be power.

## MIL-DTL-38999 Series III Type Environmental Connectors 233-218 PC tail receptacle with shielded contacts

HIGH-SPEED CONNECTORS

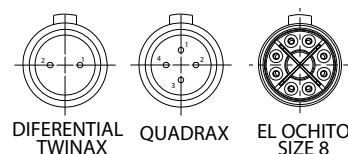
Part Number Development	
<b>Sample Part Number</b>	233-218 -00 M 17 E - 2 S N
<b>Series / Basic Part No.</b>	SuperNine® High-Speed PC tail wall mount receptacles with threaded standoffs
<b>Connector Style</b>	-07= Receptacle, Jam-Nut -00 = Receptacle, Wall-Mount with Slotted Holes -CM = Receptacle, Wall Mount with Metric Clinch Nuts -CS = Receptacle, Wall Mount with Standard Clinch Nuts -HM = Receptacle, Wall Mount with Metric Helicoils -HS = Receptacle, Wall Mount with Standard Helicoils
<b>Material/Finish</b>	NF = Cadmium Olive Drab MT = Nickel PTFE ME = Electroless Nickel ZR = Black Zinc Nickel
<b>Shell Size</b>	9, 11, 13, 17, 19, 21, 23, 25
<b>Contact Type (Table I)</b>	C = Coax C1 = Coax, 75 ohm D = Differential Twinax E = El Ochito <sup>7</sup> Q = Quadrax P = Power T = Triax/Concentric Twinax Omit = Per MIL-STD-1560 PCB footprints on pgs. C-15 thru C-17
<b>Ground Option</b>	G = Common Ground - = None
<b>Insert Arrangement</b>	Per MIL-STD-1560, see page C-5 and C-6
<b>Contact Style</b>	P = Pin, PC Tail S = Socket, PC Tail
<b>Alternate Polarization*</b>	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)

\*Refer to Section A for alternate key polarization options and recommended panel cutout dimensions

Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, diff. twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

Contact Size	PC Tail ØV
No. 22	.020 (0.51) .018 (0.46)
No. 20	.030 (0.76) .028 (0.71)
No. 16	.040 (1.02) .038 (0.97)
No. 12	.072 (1.78) .070 (1.78)
No. 8	.182 (4.62) .178 (4.52)

FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY



\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-218 PC tail receptacle with shielded contacts**

HIGH-SPEED CONNECTORS



Example Code E7



Example Code E5

**NOTES**

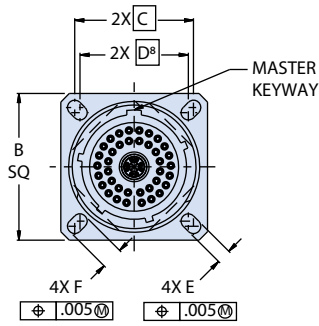
- Coax contact mating interfaces shall be in accordance with the following:
  - size #16 per M39029/76 & /77
  - size #12 per M39029/102 & 103
  - size #8 per M39029/59 & 60
- Ground plane option only available for insert arrangements where all contacts are shielded type.
- See figure 2 for reference orientation of the inner pins relative to connector main keyway.
- Insert arrangement IAW MIL-STD-1560 and figure 1. Contact manufacturer for additional arrangement options
- Glenair 233-218 wall mount and jam-nut receptacle connectors should be mated to Glenair 233-217 or 233-224 plug with appropriate contacts to optimize performance.
- Glenair 233-218 receptacle connectors are designed to meet or exceed the applicable mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/20, D38999/24 and MIL-STD-1560 except as shown and/or noted. Receptacle mates with any QPL manufacturer's MIL-DTL-38999, Series III plug connector, D38999/26, having the same shell size, insert arrangement, polarization, and mating contact.
- El Ochito mating contact shall be in accordance with El Ochito contact configuration table
- Front panel mount only.
- For optimal El Ochito performance, see Glenair application note AN0002.
- Material/finish:
  - Shell, lockring, jam-nut: see part number development
  - Contacts: copper alloy / gold plated
  - Insulators: high grade rigid dielectric / N.A.
  - Seals: fluorosilicone blend / N.A.
  - Potting: epoxy / N.A.
  - O-ring: silver plated aluminum in fluorosilicone (cho-seal 1298 or equivalent)

El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

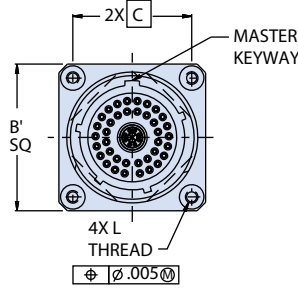
**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-218 PC tail receptacle with shielded contacts**

HIGH-SPEED CONNECTORS

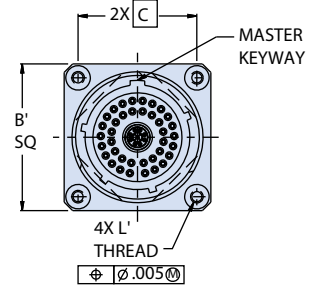
**00, CM, CS, HM, HS - WALL MOUNT RECEPTACLES**



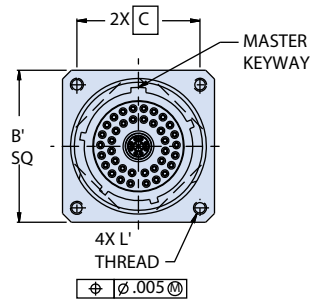
00 - WALL MOUNT RECEPTACLE WITH SLOTTED HOLES



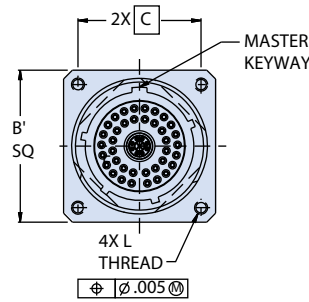
CS - WALL MOUNT RECEPTACLE WITH STANDARD CLINCH NUTS



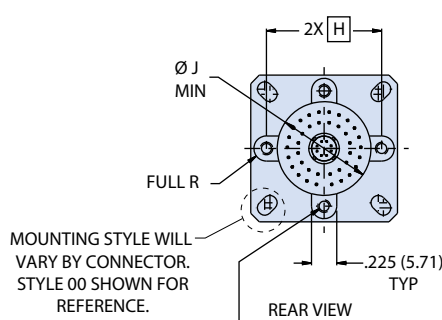
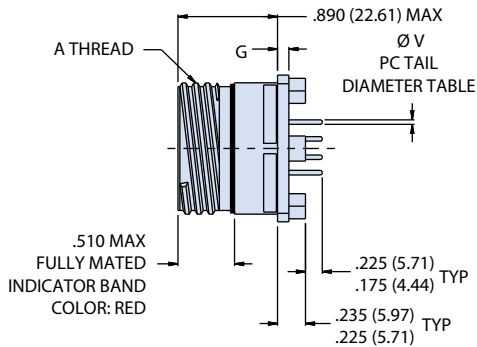
CM - WALL MOUNT RECEPTACLE WITH METRIC CLINCH NUTS



HM - WALL MOUNT RECEPTACLE WITH METRIC HELICOILS



HS - WALL MOUNT RECEPTACLE WITH STANDARD HELICOIL



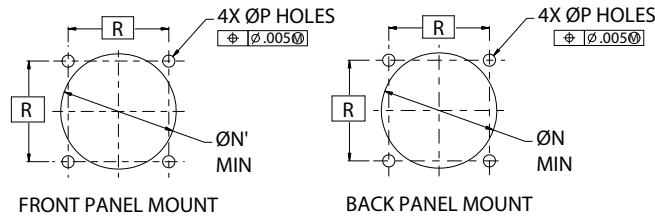
SHELL STYLE 00, CS & HS 4X #4-40 UNC-2B X .156 MIN THD DP @ 90° APART	SHELL STYLE CM & HM 4X M3 X 0.5 X .156 MIN THD DP @ 90° APART
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**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-218 PC tail receptacle with shielded contacts**

HIGH-SPEED CONNECTORS

Dimensions															
Shell Size Code	Shell Size	A Thd -0.1P-0.3L- TS-2A	B Sq	B' Sq	C Bsc <sup>8</sup>	D Bsc	E	F	G	G'	H Bsc	Ø J Min	L Thd	L' Thd	
A	9	.6250	.949 (24.10) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.122 (3.10) .083 (2.11)	.179 (4.56) .140 (3.56)	.594 (15.09)	.340 (8.64)	.112-40 UNC	M3X0.5	
B	11	.7500	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)			.719 (18.26) .812 (20.62)	.468 (11.89) .572 (14.53)			
C	13	.8750	1.138 (28.91) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)		.181 (4.60) .165 (4.19)			.906 (23.01) 1.030 (26.16)	.705 (17.91) .830 (21.08)			
D	15	1.0000	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.202 (5.13) .186 (4.72)			1.150 (29.21) 1.221 (31.01)	.934 (23.72) 1.055 (26.80)			
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)		.153 (3.89) .114 (2.90)			.190 (4.83) .170 (4.32)	1.360 (34.54) 1.475 (37.47)			1.160 (29.46) 1.307 (33.20)
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)									
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)									
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)		.162 (4.11)			.250 (6.35)	.190 (4.83)			1.360 (34.54)
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)	.146 (3.71)	.234 (5.94)	.170 (4.32)	1.475 (37.47)	1.307 (33.20)				



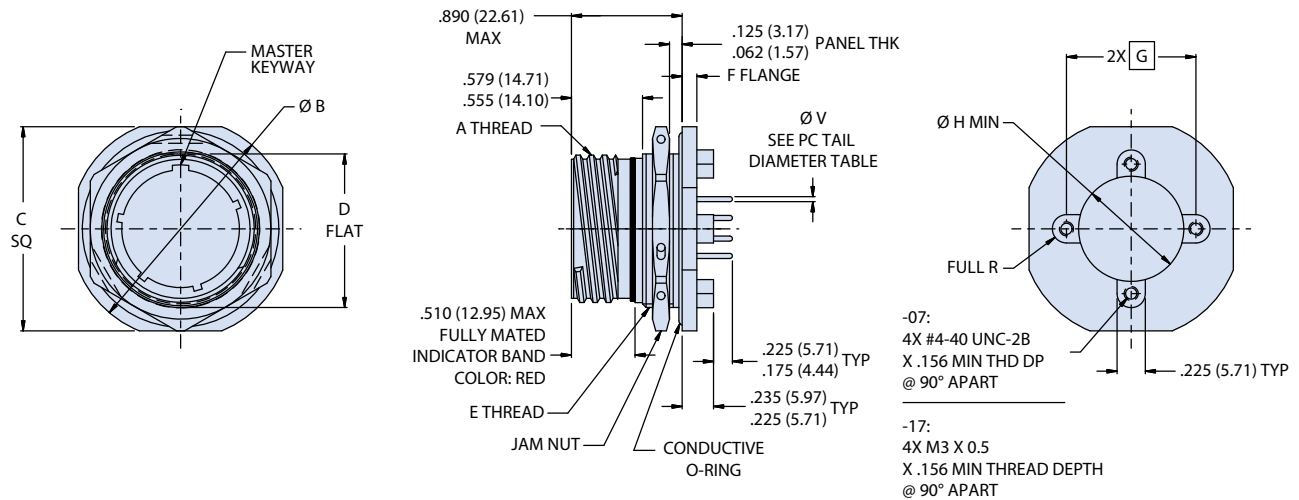
RECOMMENDED MOUNTING HOLES FOR WALL MOUNT RECEPTACLES

Wall Mount Mounting Hole Dimensions					
Shell Size Code	Shell Size	ØN Min	ØN' Min <sup>8</sup>	ØP Holes	R Bsc
A	9	.656 (16.66)	.516 (13.11)	.133 (3.38) .123 (3.12)	.719 (18.26)
B	11	.796 (20.22)	.625 (15.88)		.812 (20.62)
C	13	.922 (23.42)	.750 (19.05)		.906 (23.01)
D	15	1.047 (26.59)	.906 (23.01)		.969 (24.61)
E	17	1.219 (30.96)	1.016 (25.81)		1.062 (26.97)
F	19	1.297 (32.94)	1.141 (28.98)		1.156 (29.36)
G	21	1.422 (36.12)	1.266 (32.16)		1.250 (31.75)
H	23	1.547 (39.29)	1.375 (34.92)	.159 (4.04) .149 (3.78)	1.375 (34.92)
J	25	1.672 (42.47)	1.484 (37.69)	.155 (3.94) .145 (3.68)	1.500 (38.10)

# MIL-DTL-38999 Series III Type Environmental Connectors

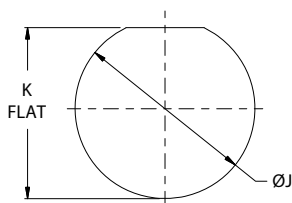
## 233-218 PC tail receptacle with shielded contacts

### 07 - JAM-NUT MOUNT RECEPTACLE



HIGH-SPEED CONNECTORS

Dimensions									
Shell Size Code	Shell Size	A Thd -0.1P-0.3L-TS-2A	ØB	C Sq	D Flat	E Thd ISO Metric	F	G Bsc	Ø H
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	0.654 (16.61) 0.645 (16.38)	M17 X 1.0-6g	0.122 (3.10) 0.083 (2.11)	0.594 (15.09)	0.340 (8.64)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	0.755 (19.18) 0.745 (18.92)	M20 X 1.0-6g		0.719 (18.26)	0.468 (11.89)
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.484 (37.69)	0.942 (23.93) 0.932 (23.67)	M25 X 1.0-6g		0.812 (20.62)	0.572 (14.53)
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g		0.906 (23.01)	0.705 (17.91)
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g		1.030 (26.16)	0.830 (21.08)
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g	0.153 (3.89) 0.114 (2.90)	1.150 (29.21)	0.934 (23.72)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g		1.221 (31.01)	1.055 (26.80)
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g		1.360 (34.54)	1.160 (29.46)
J	25	1.6250	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	M44 X 1.0-6g		1.475 (37.47)	1.307 (33.20)
			2.299 (58.39)	2.173 (55.19)	1.681 (42.70)			1.760 (44.70)	1.700 (43.18)



RECOMMENDED PANEL CUT-OUT

Jam-Nut Mount Mounting Hole Dimensions							
Shell Size Code	Shell Size	ØJ	ØK Flat	Shell Size Code	Shell Size	ØJ	ØK Flat
A	9	.703 (17.86)	.661 (16.79)	E	17	1.270 (32.26)	1.210 (30.73)
		.693 (17.60)	.654 (16.61)			1.260 (32.00)	1.200 (30.48)
B	11	.835 (21.21)	.771 (19.58)	F	19	1.395 (35.43)	1.335 (33.91)
		.825 (20.96)	.761 (19.33)			1.385 (35.18)	1.325 (33.65)
C	13	1.020 (25.91)	.955 (24.26)	G	21	1.520 (38.61)	1.460 (37.08)
		1.010 (25.65)	.945 (24.00)			1.510 (38.35)	1.450 (36.83)
D	15	1.145 (29.08)	1.085 (27.56)	H	23	1.645 (41.78)	1.585 (40.26)
		1.135 (28.83)	1.075 (27.30)			1.635 (41.53)	1.575 (40.00)
J	25	1.770 (44.96)	1.710 (43.43)	J	25	1.770 (44.96)	1.710 (43.43)
		1.760 (44.70)	1.700 (43.18)			1.760 (44.70)	1.700 (43.18)

## MIL-DTL-38999 Series III Type Environmental Connectors 233-225 dual flange receptacle with PC tail contacts

HIGH-SPEED CONNECTORS

Part Number Development	
<b>Sample Part Number</b>	233-225 -00 NF 17 E - 2 P N
<b>Series / Basic Part</b>	SuperNine® High-Speed, dual flange wall-mount receptacle
<b>Connector Style*</b>	-07 = Receptacle, Jam-Nut with Standard Standoff Thread -17 = Receptacle, Jam-Nut, with Metric Standoff Thread -00 = Receptacle, Wall-Mount with Slotted Holes and Stand Off with Standard Threads -10 = Receptacle, Wall-Mount with Slotted Holes and Stand Off with Metric Threads -CM = Receptacle, Wall-Mount with Metric Clinch Nuts -CS = Receptacle, Wall Mount with Standard Clinch Nuts -HM = Receptacle, Wall Mount with Metric Helicoils -HS = Receptacle, Wall Mount with Standard Helicoils
<b>Material/Finish</b>	NF = Cadmium Olive Drab      MT = Nickel PTFE ME = Electroless Nickel      ZR = Black Zinc Nickel
<b>Shell Size</b>	9, 11, 13, 17, 19, 21, 23, 25
<b>Contact Type (See Table I)</b>	C = Coax, 50 ohm <sup>1</sup> C1 = Coax, 75 ohm <sup>1</sup> D = Differential Twinax E = El Ochito <sup>7</sup> P = Power      Q = Quadrax T = Triax/Concentric Twinax      Omit = Per MIL-STD-1560 PCB footprints on pgs. C-15 thru C-17
<b>Ground Option</b>	G = Common Ground      - = None
<b>Insert Arrangement</b>	Per MIL-STD-1560, see page C-5 and C-6
<b>Contact Style</b>	P = Pin, PC Tail      S = Socket, PC Tail
<b>Alternate Polarization*</b>	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)

\*Refer to Section A for alternate key polarization options and recommended panel cutout dimensions

Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, diff. twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

Contact Size	PC Tail ØV
No. 22	.020 (0.51) .018 (0.46)
No. 20	.030 (0.76) .028 (0.71)
No. 16	.040 (1.02) .038 (0.97)
No. 12	.072 (1.78) .070 (1.78)
No. 8	.182 (4.62) .178 (4.52)

\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

## MIL-DTL-38999 Series III Type Environmental Connectors

### 233-225 dual flange receptacle with PC tail contacts

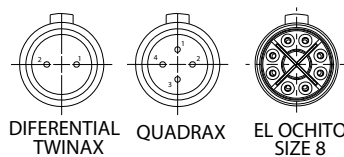


Example Code E7



Example Code E5

**FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY**



**NOTES**

- Coax contact mating interfaces in accordance with the following:
  - Size #16 per M39029/76 & /77
  - Size #12 per M39029/102 & /103
  - Size #8, 50 ohm per M39029/50 & /60
- Ground plane option only available for insert arrangements where all contacts are shielded type.
- See page C-4, figure 2 for reference orientation of the inner pins relative to connector main keyway
- Glenair 233-225 wall mount (/20) and jam-nut (/24) receptacle connectors should be mated to Glenair's 233-217 plug with appropriate contacts to optimize performance.
- Glenair's 233-225 receptacle connector is designed to meet or exceed the mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/20, D38999/24 and MIL-STD-1560 except as shown and/or noted.
- All contacts are potted and non-removable.
- Front panel mount only
- El Ochito mating contact shall be in accordance with El Ochito Contact Position Table
- Material/Finish
  - Shell: see part number development
  - Contacts: copper alloy / gold plated
  - Insulators: high grade rigid dielectric/ N.A.
  - For common ground option: aluminum alloy/ manufactures option
  - Seals: fluorosilicone blend / N.A.
  - Potting: epoxy / N.A.

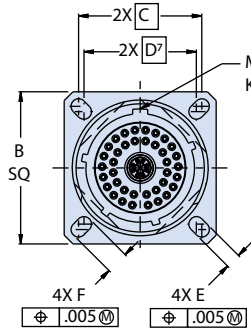
El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

HIGH-SPEED CONNECTORS

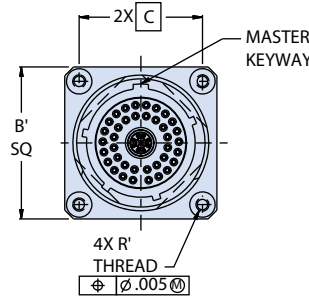
## MIL-DTL-38999 Series III Type Environmental Connectors 233-225 dual flange receptacle with PC tail contacts

HIGH-SPEED CONNECTORS

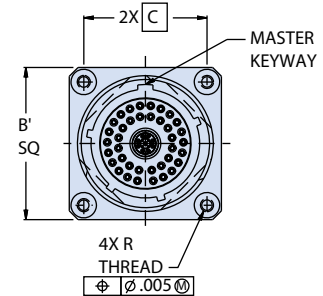
### 00, CM, CS, HM, HS - WALL MOUNT RECEPTACLES



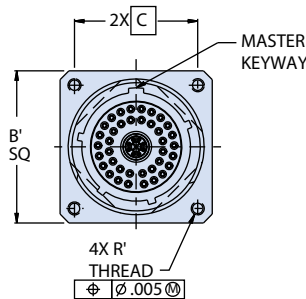
00 - WALL MOUNT RECEPTACLE WITH SLOTTED HOLES



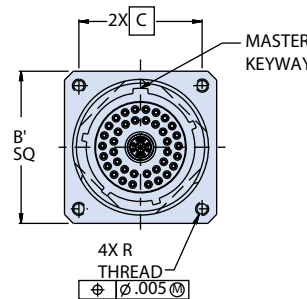
CM - WALL MOUNT RECEPTACLE WITH METRIC CLINCH NUTS



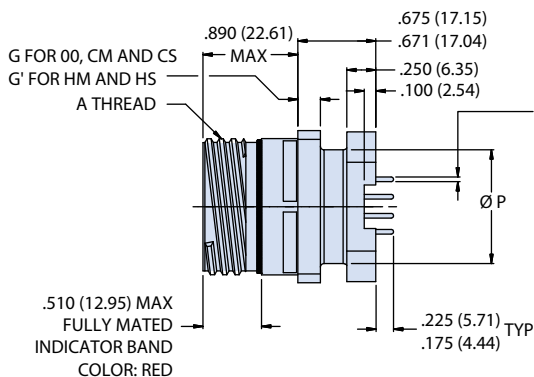
CS - WALL MOUNT RECEPTACLE WITH STANDARD CLINCH NUTS (SEE TABLE IV)



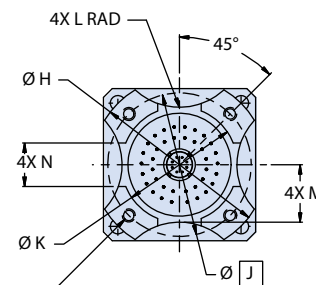
HM - WALL MOUNT RECEPTACLE WITH METRIC HELICOILS (SEE TABLE IV)



HS - WALL MOUNT RECEPTACLE WITH STANDARD HELICOIL (SEE TABLE IV)



Ø V  
SEE PC TAIL  
DIAMETER  
TABLE



STYLE 00 4X R OR R' SELF-LOCKING INSERTS	STYLE CM AND HM 4X M3 X 0.5 SELF-LOCKING INSERTS	STYLE CS AND HS 4X #4-40 UNC-2B SELF-LOCKING INSERTS
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STYLE 00 SHOWN FOR REFERENCE ONLY



# MIL-DTL-38999 Series III Type Environmental Connectors

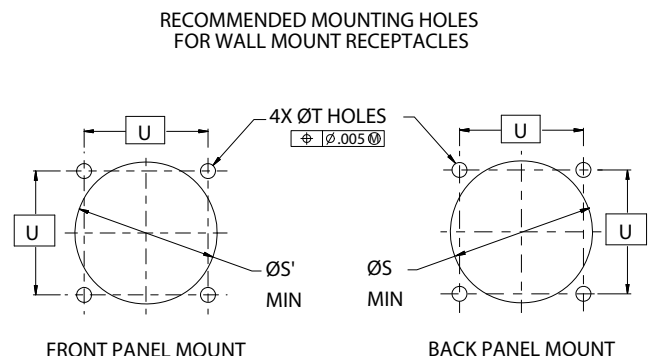
## 233-225 dual flange receptacle with PC tail contacts

HIGH-SPEED CONNECTORS

Dimensions											
Shell Size Code	Shell Size	A Thread	B Sq	B' Sq	C Bsc	D Bsc <sup>8</sup>	E	F	G	G'	
A	9	.6250 -0.1P-0.3L-TS-2A	.948 (24.08) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.122 (3.10) .083 (2.11)	.179 (4.55) .140 (3.56)	
B	11	.7500 -0.1P-0.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)			
C	13	.8750 -0.1P-0.3L-TS-2A	1.137 (28.88) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)		.181 (4.60) .165 (4.19)			
D	15	1.0000 -0.1P-0.3L-TS-2A	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.202 (5.13) .186 (4.72)			
E	17	1.1875 -0.1P-0.3L-TS-2A	1.299 (32.99) 1.323 (33.60)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)		.153 (3.89) .114 (2.90)			
F	19	1.2500 -0.1P-0.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)					
G	21	1.3750 -0.1P-0.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)		.162 (4.11) .146 (3.71)			.250 (6.35) .234 (5.94)
H	23	1.5000 -0.1P-0.3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)					
J	25	1.6250 -0.1P-0.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)			.190 (4.83) .170 (4.32)		

Dimensions (Continued)										
Shell Size Code	Shell Size	ØH ±.005 (0.13)	ØJ Bsc	ØK ±.005 (0.13)	L Rad ±.020 (0.51)	M ±.020 (0.51)	N ±.010 (0.25)	ØP ±.005 (0.13)	R Thd	R' Thd
A	9	1.016 (25.81)	.752 (19.10)	.532 (13.51)	.225 (5.72)	.275 (6.99)	.225 (5.72)	.535 (13.59)	.112-40 UNC	M3X0.5
B	11	1.062 (26.97)	.850 (21.59)	.595 (15.11)	.250 (6.35)	.290 (7.37)	.250 (6.35)	.560 (14.22)		
C	13	1.250 (31.75)	.994 (25.25)	.720 (18.29)	.375 (9.52)	.370 (9.40)	.250 (6.35)	.700 (17.78)		
D	15	1.375 (34.92)	1.119 (28.42)	.843 (21.41)	.438 (11.13)	.440 (11.18)	.325 (8.25)	.857 (21.77)		
E	17	1.500 (38.10)	1.237 (31.42)	1.000 (25.40)	.562 (14.27)	.495 (12.57)	.375 (9.52)	.980 (24.89)		
F	19	1.625 (41.28)	1.379 (35.03)	1.125 (28.58)	.875 (22.23)	.540 (13.72)	.500 (12.70)	1.060 (26.92)		
G	21	1.750 (44.45)	1.489 (37.82)	1.240 (31.50)	1.170 (29.72)	.625 (15.88)	.562 (14.27)	1.210 (30.73)		
H	23	1.875 (47.63)	1.619 (41.12)	1.328 (33.73)	1.250 (31.75)	.660 (16.76)	.688 (17.48)	1.310 (33.27)	.138-32 UNC	M4X0.7
J	25	2.000 (50.80)	1.744 (44.30)	1.453 (36.91)	1.375 (34.92)	.740 (18.80)	.750 (19.05)	1.460 (37.08)		

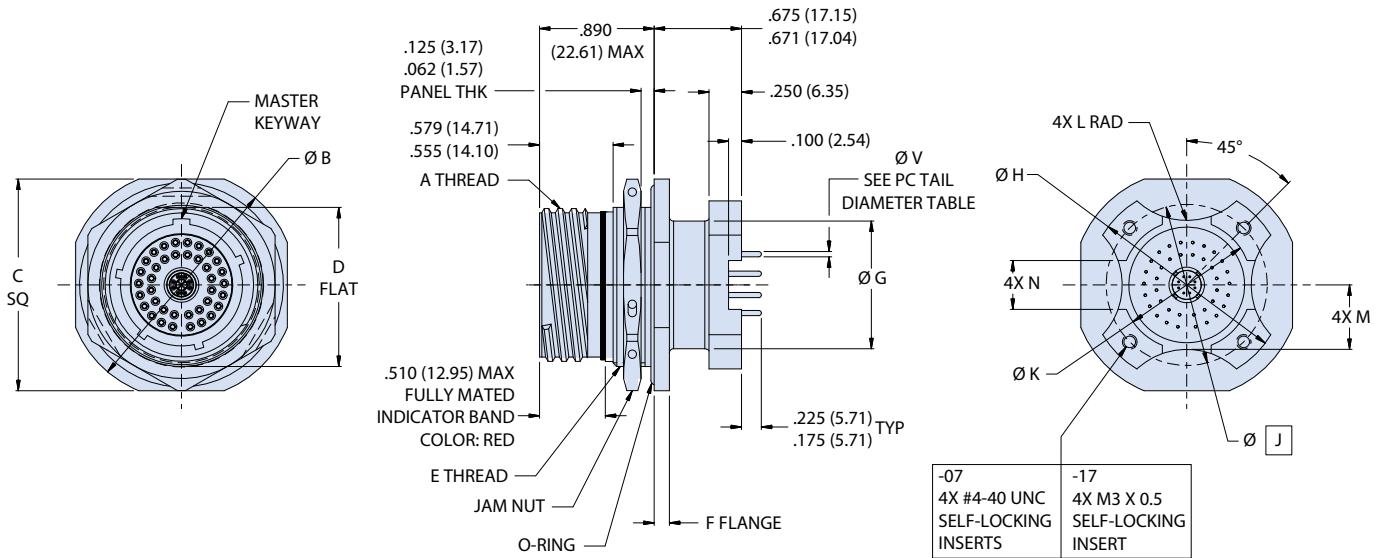
Wall Mount, Mounting Hole Dimensions					
Shell Size Code	Shell Size	ØS Min	ØS' Min <sup>8</sup>	ØT Holes	U Bsc
A	9	.656 (16.66)	.516 (13.11)	.133 (3.38) .123 (3.12)	.719 (18.26)
B	11	.796 (20.22)	.625 (15.88)		.812 (20.62)
C	13	.922 (23.42)	.750 (19.05)		.906 (23.01)
D	15	1.047 (26.59)	.906 (23.01)		.969 (24.61)
E	17	1.219 (30.96)	1.016 (25.81)		1.062 (26.97)
F	19	1.297 (32.94)	1.141 (28.98)		1.156 (29.36)
G	21	1.422 (36.12)	1.266 (32.16)		1.250 (31.75)
H	23	1.547 (39.29)	1.375 (34.92)		.159 (4.04) .149 (3.78)
J	25	1.672 (42.47)	1.484 (37.69)	.155 (3.94) .145 (3.68)	1.500 (38.10)



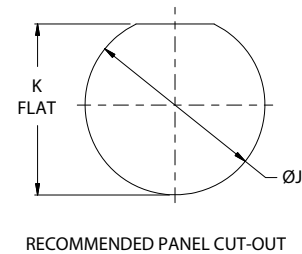
## MIL-DTL-38999 Series III Type Environmental Connectors 233-225 dual flange receptacle with PC tail contacts

HIGH-SPEED CONNECTORS

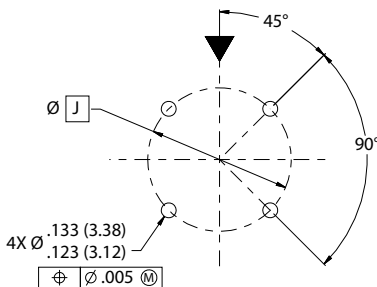
### 07 AND 17 - JAM-NUT MOUNT RECEPTACLE



Jam-Nut Mount, Mounting Hole Dimensions							
Shell Size Code	Shell Size	ØJ	ØK Flat	Shell Size Code	Shell Size	ØJ	ØK Flat
A	9	.703 (17.86) .693 (17.60)	.661 (16.79) .654 (16.61)	E	17	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)
B	11	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	F	19	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)
C	13	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)	G	21	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)
D	15	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	H	23	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)
				J	25	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)



### RECOMMENDED PCB FOOTPRINT FOR WALL MOUNT AND JAM-NUT RECEPTACLES



RECOMMENDED PCB MOUNTING HOLE LOCATIONS

**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-225 dual flange receptacle with PC tail contacts**

HIGH-SPEED CONNECTORS

Dimensions							
Shell Size Code	Shell Size	A Thread -0.1P-0.3L-TS-2A	ØB	C Sq	D Flat	E Thread ISO Metric	F
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	0.654 (16.61) 0.645 (16.38)	M17 X 1.0-6g 0.100R	.122 .083
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	0.755 (19.18) 0.745 (18.92)	M20 X 1.0-6g 0.100R	
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	0.942 (23.93) 0.932 (23.67)	M25 X 1.0-6g 0.100R	
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g 0.100R	
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g 0.100R*	
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g 0.100R	.153 .114
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g 0.100R	
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g 0.100R	
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g 0.100R	

\* Modified major diameter 31.95 31.80 (1.257 - 1.252)

Dimensions								
Shell Size Code	Shell Size	Ø G ±.005 (0.00)	Ø H ±.005 (0.00)	Ø J Bsc	Ø K ±.005 (0.00)	L Rad ±.020 (0.00)	M ±.020 (0.00)	N ±.010 (0.00)
A	9	.535 (13.59)	1.016 (25.81)	.752 (19.10)	.532 (13.51)	.225 (5.72)	.275 (6.99)	.225 (5.72)
B	11	.560 (14.22)	1.062 (26.97)	.850 (21.59)	.595 (15.11)	.250 (6.35)	.290 (7.37)	.250 (6.35)
C	13	.700 (17.78)	1.250 (31.75)	.994 (25.25)	.720 (18.29)	.375 (9.52)	.370 (9.40)	.250 (6.35)
D	15	.857 (21.77)	1.375 (34.92)	1.119 (28.42)	.843 (21.41)	.438 (11.13)	.440 (11.18)	.325 (8.25)
E	17	.980 (24.89)	1.500 (38.10)	1.237 (31.42)	1.000 (25.40)	.562 (14.27)	.495 (12.57)	.375 (9.52)
F	19	1.060 (26.92)	1.625 (41.28)	1.379 (35.03)	1.125 (28.58)	.875 (22.23)	.540 (13.72)	.500 (12.70)
G	21	1.210 (30.73)	1.750 (44.45)	1.489 (37.82)	1.240 (31.50)	1.170 (29.72)	.625 (15.88)	.562 (14.27)
H	23	1.310 (33.27)	1.875 (47.63)	1.619 (41.12)	1.328 (33.73)	1.250 (31.75)	.660 (16.76)	.688 (17.48)
J	25	1.460 (37.08)	2.000 (50.80)	1.744 (44.30)	1.453 (36.91)	1.375 (34.92)	.740 (18.80)	.750 (19.05)

## MIL-DTL-38999 Series III Type Environmental Connectors 233-227 Bulkhead feed-thru connectors

HIGH-SPEED CONNECTORS

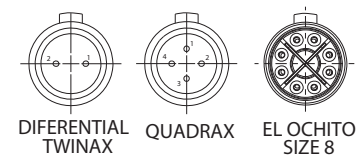
Part Number Development	
Sample Part Number	233-227 -00 NF 17 E - 2 P N S N 01
Series / Basic Part No.	SuperNine® High-Speed bulkhead feed-thru
Connector Style	-00 = Receptacle, Wall-Mount with Slotted Holes -07 = Jam Nut Mount Receptacle -CM = Receptacle, Wall Mount with Metric Clinch Nuts -CS = Receptacle, Wall Mount with Standard Clinch Nuts -HM = Receptacle, Wall Mount with Metric Helicoils -HS = Receptacle, Wall Mount with Standard Helicoils
Material/Finish	NF = Cadmium Olive Drab MT = Nickel PTFE ME = Electroless Nickel ZR = Black Zinc Nickel
Shell Size	9, 11, 13, 17, 19, 21, 23, 25
Contact Type	C = Coax C1 = Coax, 75 ohm D = Differential Twinax E = El Ochito <sup>7</sup> Q = Quadrax P = Power T = Triax/Concentric Twinax See Table I
Ground Option	G = Common Ground <sup>7</sup> - = None
Insert Arrangement	Per MIL-STD-1560, see page C-5 and C-6
Contact Style (Panel Side)	P = Pin, Gold, 500 Cycles S = Socket, Gold, 500 Cycles (See note 8 and 9)
Alternate Polarization* (Panel Side)	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)
Contact Style (Flange Side)	P = Pin, Gold, 500 Cycles S = Socket, Gold, 500 Cycles (See note 8 and 9)
Alternate Polarization* (Flange Side)	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)
Panel Accommodation	See Table III

\*Refer to Section A for alternate key polarization options and recommended panel cutout dimensions

Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, diff. twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E**	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

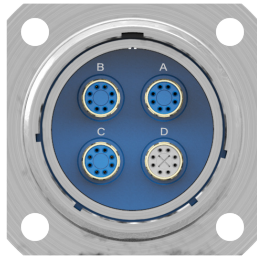
Sym	Panel Thickness	J Max
01	.125 (3.18) .062 (1.57)	1.70 (43.18)
02	.250 (6.35) .062 (1.57)	1.83 (46.48)
03	.500 (12.70) .062 (1.57)	2.08 (52.83)

**FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY**



\*\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-227 Bulkhead feed-thru connectors**



Example Code E7



Example Code E5

**NOTES**

1. Coax contact mating interfaces shall be in accordance with the following:
  - size #16 per M39029/76 & /77
  - size #12 per M39029/102 & 103
  - size #8, 50 ohm per M39029/59 & 60
  - size #8, 75 ohm per 852-056 and -057
2. See page C-4, figure 2 for reference orientation of the inner pins relative to connector main keyway.
3. Insert arrangement is in accordance with MIL-STD-1560 and figure 1. Contact manufacturer for additional arrangement options
4. Glenair 233-227 feedthru connectors are designed to meet or exceed the applicable mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/20, and MIL-STD-1560 except as shown and/or noted. Feedthru mates with any QPL manufacturer's MIL-DTL-38999, Series III plug connector, D38999/26, having the same shell size, insert arrangement, polarization, and mating contact.
5. El Ochito mating contact shall be in accordance with El Ochito contact configuration table on C-12. For optimal El Ochito performance, see Glenair application note AN0002.
6. Front panel mount only.
7. Ground plane option only available for insert arrangements where all contacts are shielded type.
8. Power to a given contact on one end will result in power to a contact directly opposite, regardless of identification letter
9. For pin/pin and socket/socket, symmetrical layout only. Consult factory for available insert arrangements
10. Material/finish:
  - Shell: see part number development
  - Contacts: copper alloy / gold plated
  - Insulators: high grade rigid dielectric / N.A.
  - Seals: fluorosilicone blend / N.A.

El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

HIGH-SPEED CONNECTORS

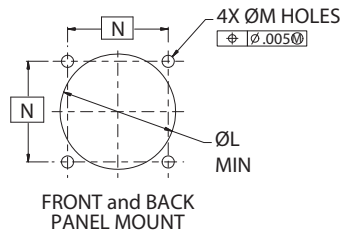


**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-227 Bulkhead feed-thru connectors**

HIGH-SPEED CONNECTORS

Dimensions																	
Shell Size Code	Shell Size	A Thread	B Sq	B' Sq	C Bsc	D Bsc (See Note 8)	E	F	G	G'	H Thd	H' Thd					
A	9	.6250 -0.1P-0.3L-TS-2A	.948 (24.08) .925 (23.50)	1.094 (27.79) 1.054 (26.77)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.122 (3.10) .083 (2.11)	.179 (4.55) .140 (3.56)	.112-40 UNC	M3X0.5					
B	11	.7500 -0.1P-0.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)									
C	13	.8750 -0.1P-0.3L-TS-2A	1.137 (28.88) 1.114 (28.30)	1.281 (32.54) 1.241 (31.52)	.906 (23.01)	.812 (20.62)		.181 (4.60) .165 (4.19)									
D	15	1.0000-0.1P-0.3L-TS-2A	1.232 (31.29) 1.208 (30.68)	1.344 (34.14) 1.304 (33.12)	.969 (24.61)	.906 (23.01)		.202 (5.13) .186 (4.72)									
E	17	1.1875 -0.1P-0.3L-TS-2A	1.299 (32.99) 1.323 (33.60)	1.437 (36.50) 1.397 (35.48)	1.062 (26.97)	.969 (24.61)											
F	19	1.2500 -0.1P-0.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)	1.062 (26.97)		.153 (3.89) .114 (2.90)									
G	21	1.3750 -0.1P-0.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	1.156 (29.36)											
H	23	1.5000 -0.1P-0.3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.750 (44.45) 1.710 (43.43)	1.375 (34.92)	1.250 (31.75)		.162 (4.11) .146 (3.71)					.250 (6.35) .234 (5.94)	.190 (4.83) .170 (4.32)	.138-32 UNC	M4X0.7	
J	25	1.6250 -0.1P-0.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)	1.375 (34.92)											

Wall Mount Mounting Hole Dimensions				
Shell Size Code	Shell Size	ØL Min	ØM Holes	N Bsc
A	9	.656 (16.66)	.133 (3.38) .123 (3.12)	.719 (18.26)
B	11	.796 (20.22)		.812 (20.62)
C	13	.922 (23.42)		.906 (23.01)
D	15	1.047 (26.59)		.969 (24.61)
E	17	1.219 (30.96)		1.062 (26.97)
F	19	1.297 (32.94)		1.156 (29.36)
G	21	1.422 (36.12)		1.250 (31.75)
H	23	1.547 (39.29)	.159 (4.04) .149 (3.78)	1.375 (34.92)
J	25	1.672 (42.47)	.155 (3.94) .145 (3.68)	1.500 (38.10)

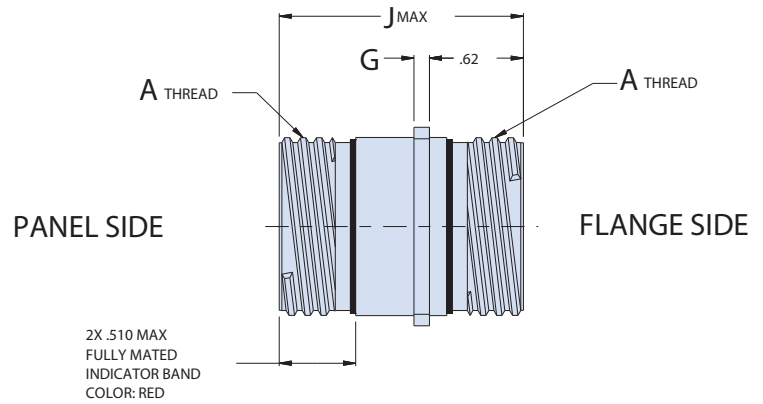
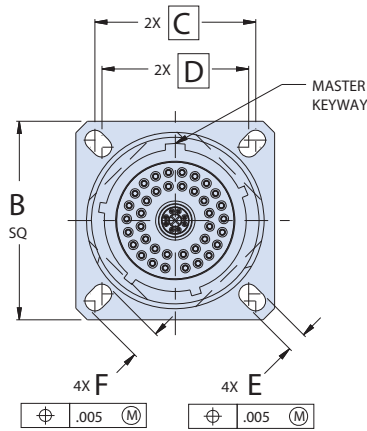


RECOMMENDED MOUNTING HOLES FOR WALL MOUNT RECEPTACLES

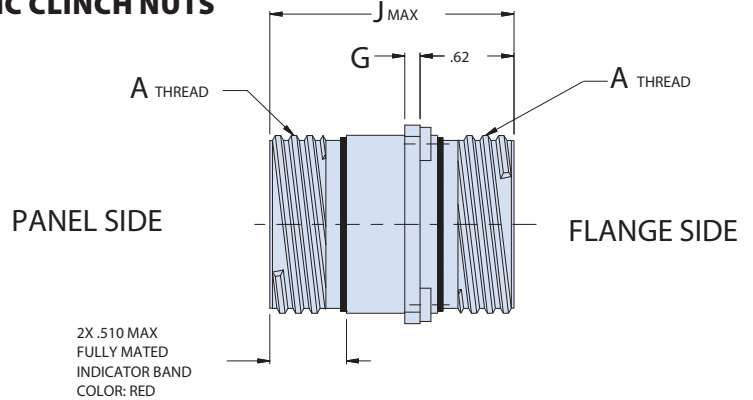
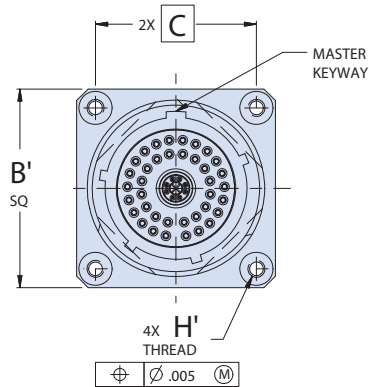
**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-227 Bulkhead feed-thru connectors**

HIGH-SPEED CONNECTORS

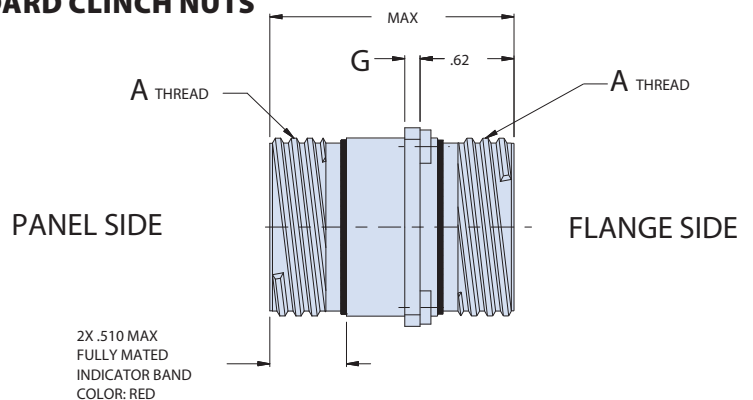
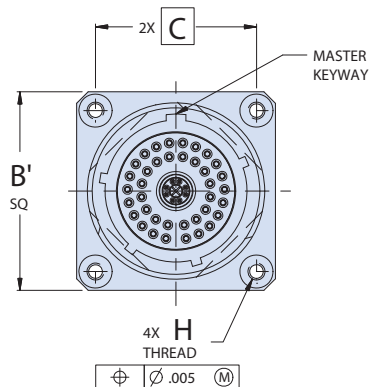
**00 - WALL-MOUNT RECEPTACLE WITH SLOTTED HOLES**



**CM - WALL-MOUNT RECEPTACLE WITH METRIC CLINCH NUTS**



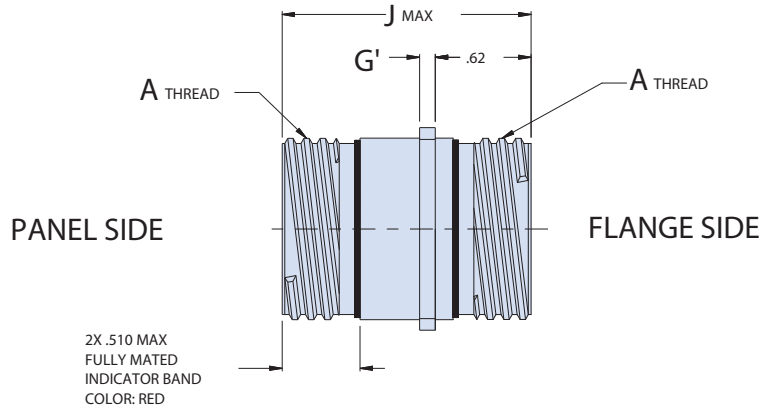
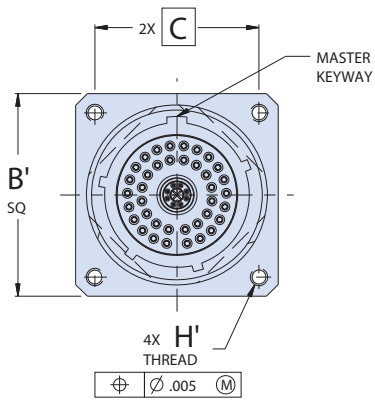
**CS - WALL-MOUNT RECEPTACLE WITH STANDARD CLINCH NUTS**



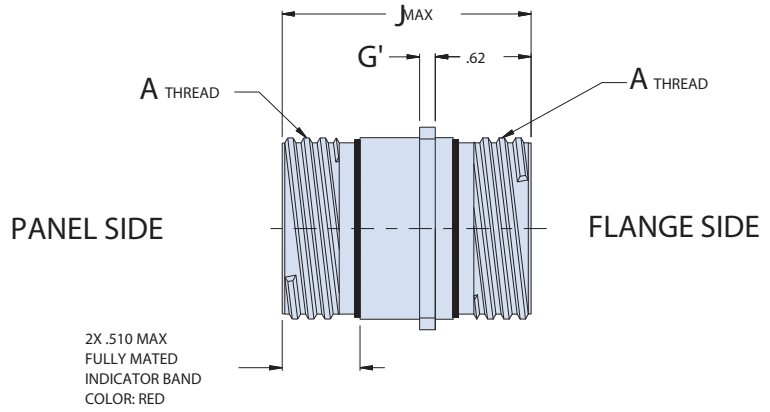
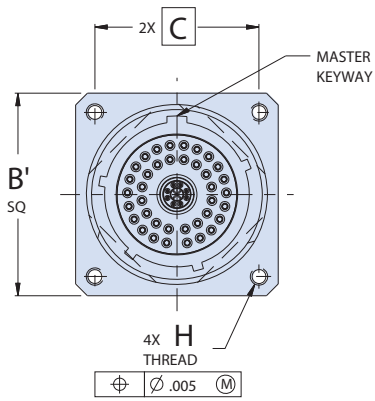
**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-227 Bulkhead feed-thru connectors**

HIGH-SPEED CONNECTORS

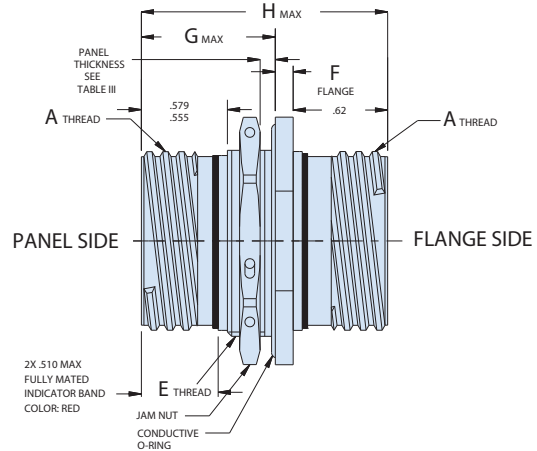
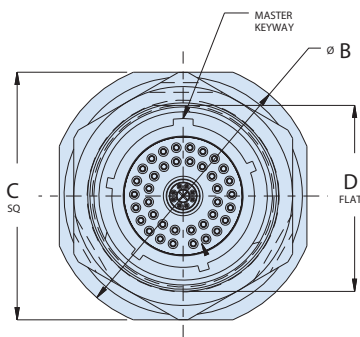
**HM - WALL-MOUNT RECEPTACLE WITH METRIC HELICOILS**



**HS - WALL-MOUNT RECEPTACLE WITH STANDARD HELICOILS**



**07 -**



**MIL-DTL-38999 Series III Type Environmental Connectors**

**233-228 Sav-Con® Connector Saver**

HIGH-SPEED CONNECTORS

Part Number Development											
<b>Sample Part Number</b>	233-228				-NF	17	E	-	2	P	N S N
<b>Series / Basic Part No.</b>	SuperNine® High-Speed Sav-Con® Connector Saver										
<b>Material/Finish</b>	-NF = Cadmium Olive Drab -ME = Electroless Nickel		-MT = Nickel PTFE -ZR = Black Zinc Nickel								
<b>Shell Size</b>	9, 11, 13, 17, 19, 21, 23, 25										
<b>Contact Type (Table I)</b>	C = Coax, 50 ohm D = Differential Twinax E = El Ochito <sup>5</sup> Q = Quadrax (100 ohm)		C1 = Coax, 75 ohm P = Power T = Triax/Concentric Twinax (per /90 and /91) Omit = Contact interface IAW MIL-STD-1560								
<b>Ground Option</b>	G = Common Ground		- = None								
<b>Insert Arrangement</b>	Per MIL-STD-1560, see page C-5 and C-6										
<b>Contact Style (Plug Side)</b>	P = Pin, Gold, 500 Cycles		S = Socket, Gold, 500 Cycles								
<b>Alternate Polarization* (Plug Side)</b>	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)										
<b>Contact Style (Receptacle Side)</b>	P = Pin, Gold, 500 Cycles		S = Socket, Gold, 500 Cycles								
<b>Alternate Polarization* (Flange Side)</b>	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III)										

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 80 and 81. Modification codes may be added directly to the end of any valid part number

Table I: Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, differential twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

## MIL-DTL-38999 Series III Type Environmental Connectors

### 233-228 Sav-Con® Connector Saver

HIGH-SPEED CONNECTORS

El Ochito Protocols		
<b>WHITE</b>	<b>BLUE</b>	<b>RED</b>
10GBASE-T	USB 3.0	Multi Gigabit 100 ohm protocols HDMI, SATA, DisplayPort

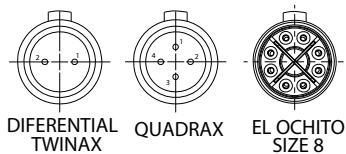


Example Code E7



Example Code E5

FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY

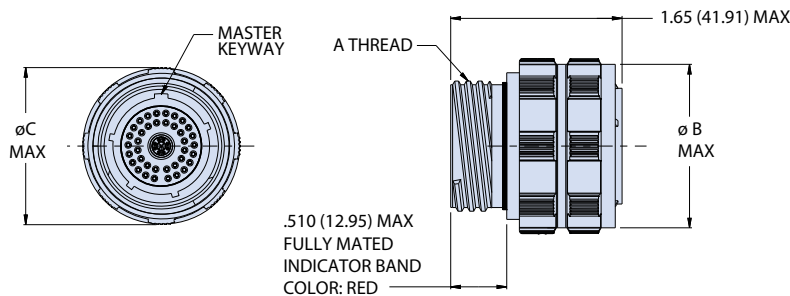


El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

\*Refer to Table II, el Ochito contact positions table for orientation.

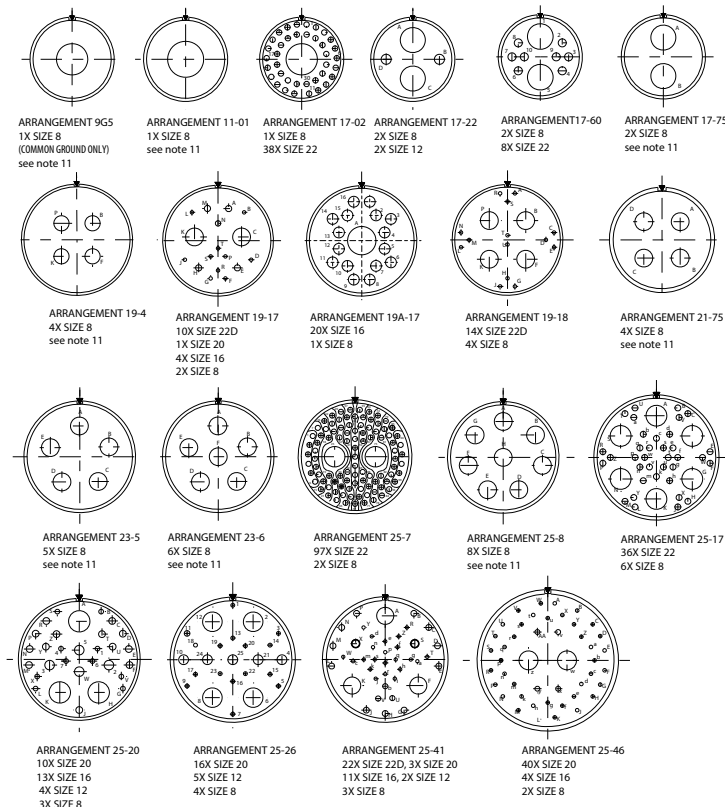


## MIL-DTL-38999 Series III Type Environmental Connectors 233-228 Sav-Con® Connector Saver



Dimensions				
Shell Size Code	Shell Size	A Thread	ØB Max	ØC Max
A	9	.6250 -0.1P-0.3L-TS-2A	.811 (20.60)	.858 (21.79)
B	11	.7500 -0.1P-0.3L-TS-2A	.929 (23.60)	.984 (24.99)
C	13	.8750 -0.1P-0.3L-TS-2A	1.008 (25.60)	1.157 (29.39)
D	15	1.0000 -0.1P-0.3L-TS-2A	1.232 (31.29)	1.280 (32.51)
E	17	1.1875 -0.1P-0.3L-TS-2A	1.358 (34.49)	1.406 (35.71)
F	19	1.2500 -0.1P-0.3L-TS-2A	1.469 (37.31)	1.516 (38.51)
G	21	1.3750 -0.1P-0.3L-TS-2A	1.594 (40.49)	1.642 (41.71)
H	23	1.5000 -0.1P-0.3L-TS-2A	1.720 (43.69)	1.768 (44.91)
J	25	1.6250 -0.1P-0.3L-TS-2A	1.843 (46.81)	1.890 (48.01)

FIGURE 1: INSERT ARRANGEMENTS



### NOTES

- Coax contact mating interfaces shall be in accordance with the following:
  - size #16 per M39029/76 & /77
  - size #12 per M39029/102 & 103
  - size #8 per M39029/59 & 60
- See page C-4, figure 2 for reference orientation of the inner pins relative to connector main keyway.
- Insert arrangement is in accordance with MIL-STD-1560 and figure 1. Contact manufacturer for additional arrangement options
- Glenair 233-228 connector savers are designed to meet or exceed the applicable mechanical, dimensional, electrical, and environmental requirements of MIL-DTL-38999, D38999/20, D38999/26, and MIL-STD-1560 except as shown and/or noted. Feedthru mates with any QPL manufacturer's MIL-DTL-38999, Series III plugs and receptacles, having the same shell size, insert arrangement, polarization, and mating contact.
- EI Ochito mating contact shall be in accordance with EI Ochito contact configuration table on C-12. For optimal EI Ochito performance, see Glenair application note AN0002.
- Front panel mount only.
- For pin/pin and socket/socket, symmetrical layout only
- Power to a given contact on one end will result in power to a contact directly opposite, regardless of identification letter
- Electrical safety limits must be established by the user. Peak voltage, switching surge, transient, etc. should be used to determine the safety application.
- Alternate polarization U (universal) is a non-standard/non-mil-spec option which allows for mating to any QPL mfg's MIL-DTL-38999 Sr. III connector with the same size, insert arrangement, and mating contact size. Intended for use in testing facilities only.
- Ground plane options available only for shielded contacts.
- Material/finish:
  - Barrel, Coupling Nut: see part number development
  - Detent Spring: stainless steel, passivated
  - Insulator: high grade rigid dielectric / N.A.
  - Seals: fluorosilicone blend / N.A.
  - Contacts: copper alloy / gold plated

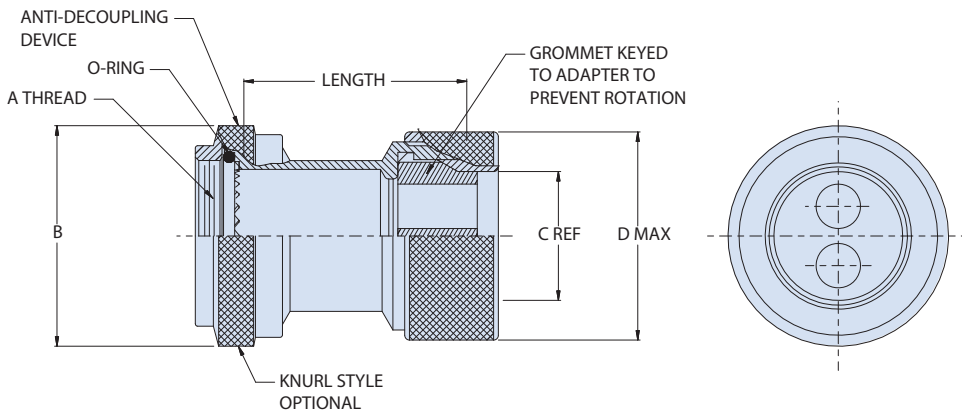
HIGH-SPEED CONNECTORS

**MIL-DTL-38999 Series III Type Environmental Connectors**

**377HS121 Environmental Extender Backshell for #8 El Ochito Cables**

HIGH-SPEED CONNECTORS

Part Number Development											
Sample Part Number	377					H	S	121	NF	17-75	4
Series	377 = Series 37 Aluminum Alloy Backshells										
Connector Designator*	H = MIL-DTL-38999 Series III & IV										
Angular Function	S = Straight										
Basic No.	121										
Material/Finish	See Finish Table										
Shell Size-Insert Arrangement	11, 19, 21, 25										
Length	In 1/2 Inch Increments; e.g. 4 = 2 inches; omit for standard 1.50 inches										



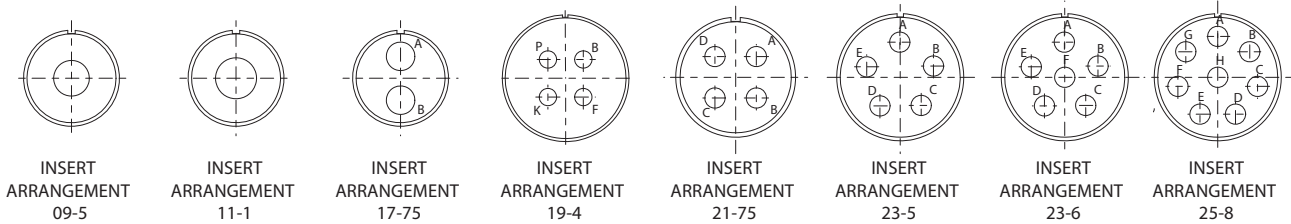
**NOTES**

- Glenair 600 series backshell assembly tools are recommended for assembly and installation
- Material:
  - Adapter, ferrule, coupling nut: see finish table
  - Grommet, O-ring: fluorosilicone/N.A.
  - Anti-rotation device: corrosion resistant material/N.A.

Dimensions				
SHELL SIZE	A THREAD ISO METRIC	B DIA	C REF	D MAX
09	M12 X 1.0 - 6H	0.89 (22.61)	0.562 (14.27)	1.03 (26.16)
11	M15 X 1.0 - 6H	1.01 (25.65)	0.562 (14.27)	1.03 (26.16)
17	M25 X 1.0 - 6H	1.42 (36.07)	0.812 (20.62)	1.34 (34.04)
19	M28 X 1.0 - 6H	1.50 (38.10)	0.812 (20.62)	1.34 (34.04)
21	M31 X 1.0 - 6H	1.67 (42.42)	1.062 (26.97)	1.90 (48.26)
23	M34 X 1.0 - 6H	1.78 (45.21)	1.062 (26.97)	1.90 (48.26)
25	M37 X 1.0 - 6H	1.91 (48.51)	1.312 (33.32)	2.20 (55.88)

Finish Table	
Sym	Finish Description
M	Electroless nickel
MT	Nickel - PTFE
NF	Aluminum alloy Cad/O.D. over electroless nickel (100 hour salt spray)
ZR	Zinc-nickel, black (1000 hour salt spray)

**INSERT ARRANGEMENTS**





# ENVIRONMENTAL SERIES 23 Space-Grade Guidelines for SuperNine<sup>®</sup> High-Speed Connectors

## Outgassing

Space flight equipment requires low-outgassing components in order to prevent degradation to optics and other sensitive instruments. SuperNine<sup>®</sup> 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. The space industry has adopted a standardized test procedure, ASTM E595, to evaluate outgassing properties. The MIL-DTL-38999 specification Class G also details specific TVM and CVCM values in addition to finish specifications. In Glenair's 186T process, for example, connectors and connector materials are heated to 175° C at a vacuum of  $5 \times 10^{-6}$  Torr for 48 hours. Items under test are 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 for Class G rated connectors. Glenair is able to offer outgas processing which assures all materials comply with their respective standards.

## Note on Connector Material and Finish Options

Some types of metals are prohibited for space flight. "Pure Tin, Cadmium and Zinc shall not be used as a final finish on EEE parts." (NASA EEE-INST-002 Instructions for EEE Parts Selection, Screening, Qualification, and Derating). NASA recommends electroless nickel or gold finish on connector shells and gold finish for contacts.

- SuperNine<sup>®</sup> environmental series connectors may be subjected to outgas processing and/or NASA screening IAW MIL-DTL-38999 Class G
- Modification codes are a convenient way to specify outgassing / screening requirements per NASA specifications and/or D38999 Class G
- Cadmium and silver finish are prohibited in space
- Specify electroless nickel finish on connector shells and gold finish on contacts



**NASA and Class G Screening**

The MIL-DTL-38999 specification defines TML and CVCM values for Class G space flight. Glenair modification code 186T assures parts are outgassed to meet the Class G requirements for outgassing.

Additionally, 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 for space-grade components. These outgassing and screening modification codes are listed at right. To add a modification code append code to end of part number: 253-016-00ME25-35PNMS-429C.

- **“Mission critical” connectors for space flight should undergo rigorous 100% final inspection**
- **Modification codes are available to invoke special screening for both MIL-DTL-38999 and NASA applications**
- **Outgassing properties of materials used in Glenair SuperNine® connectors are detailed in the table below**



Screening Level and Available Outgassing Modification Codes				
Screening Level	Screening Only	48 Hour Oven Bake 175° C	Thermal Vacuum Outgassing (10 <sup>-6</sup> Torr)	
			24 Hour 125° C	48 Hour 175° C
NASA, Level 1 Highest Reliability	429B	429J	429C	
NASA, Level 2 High Reliability	429	429K	429A	429AA
NASA, Level 3 Standard Reliability	Use Standard Part Number		429L	
38999, Class G or H (Group A and B inspection, no screening)				186T

Table II: NASA EEE-INST-02, Table 2A Screening Levels			
Inspection	Level 1	Level 2	Level 3
Visual	100%	100%	100%
Mechanical	2(0)	2(0)	
Dielectric Withstanding Voltage	2(0)	2(0)	
Insulation Resistance	2(0)	2(0)	
Contact Engagement & Separation Force	2(0)		
Hermeticity (Sealed Receptacles Only)	100%	100%	
Coupling Force	2(0)		

Required inspection quantity shown. Number in parenthesis indicates acceptance of failures allowed for all quantities inspected.

Outgassing Properties of Materials Used in MIL-DTL-38999 Type SuperNine® Connectors				
Component	Material	TML %	CVCM %	Test Reference
Front and Rear Insulator	Epiall 1908	0.84	0.0	NASA Test # GSC15435 (48 hours at 180°C)
Rear Grommet, Interfacial Seal, Peripheral Seal, and Special Auxiliary Seals	Blended fluorosilicone/silicone elastomer	0.04	0.0	Glenair test
Front-To-Rear Insulator Bonding Material	Eccobond 104 A/B	0.52	0.08	Emerson & Cuming Data Sheet
Insulator-to-Rubber Bonding Material	RTV, per MIL-A-46146	<1.0	<0.1	Glenair Test
White Epoxy Ink for Silk-screening	Markem 7224 White	0.49	0.03	NASA Test #GSC19899

MIL-DTL-38999 Type SuperNine® Connector Materials Approved for Space Flight		
Component	Material	Notes
Shells, Coupling Nuts, Jam Nuts	Aluminum alloy	Approved for Space Flight
Rigid Insulators	Glass reinforced thermoset plastic, Epiall 1908	Approved for Space Flight
Contact Retention Clip	Beryllium copper, heat-treated, unplated	Approved for Space Flight
Grommet, Peripheral Seal, Interfacial Seal, Special Auxiliary Seals, O-ring	Blended fluorosilicone/silicone elastomer	Requires outgassing processing
Pin/Socket Contact	Gold plated beryllium copper alloy	Approved for Space Flight
Socket Contact Hood	Stainless steel	Approved for Space Flight
Potting Compounds and Adhesives	RTV and epoxies	Requires outgassing processing



# Space-Grade, High-Speed Circular, Blind-Mate Connectors



**Application:** Glenair Series 253 blind-mate connectors are designed to meet applicable environmental, electrical and mechanical performance characteristics of D38999 Series III. The technology is well suited for use in commercial rack-and-panel instrumentation applications, as well as a blind-mate solution for satellite deployment, scientific research and development payloads, interstage, UAV, and munitions release and more.

- **Blind-mate, fixed and float-mount interconnects for non-ITAR commercial as well as military/defense applications**
- **Adjustable separation force (AKA assisted-release, zero extraction force) solutions**
- **Misalignment accommodation and special auxiliary sealing for trouble-free blind mating in environmental applications**
- **Available in most symmetrical MIL-STD-1560 insert arrangements with contacts sizes from #23 to #8**
- **Selected materials offer low outgassing properties and high resistance to both corrosion and stress corrosion cracking**
- **NASA outgassing bake-out process available**
- **Designed to withstand the rigors of launch and flight—including shock, vibration, thermal vacuum, acceleration, and temperature extremes**
- **Standard accessory threads and teeth per MIL-DTL-38999 accommodate a wide range of backshell accessories**
- **Crimp-removable contacts standard. Consult factory for PC tails, dual-flange standoffs, custom blind-mate configurations, and hermetically sealed options**

Current Rating	
Size Contact	Amps
23	5
22D	5
20	7.5
16	13
12	23

Unmated Test Voltages, AC RMS, 60 Hz				
Altitude (Feet)	Service Rating M	Service Rating N	Service Rating I	Service Rating II
Sea Level	1300	1000	1800	2300
50,000	550	400	600	800
70,000	350	260	400	500
100,000	200	260	200	200



**CRITICAL MECHANICAL FEATURES OF BLIND-MATE AND ADJUSTABLE SEPARATION FORCE (ZEF) FLOAT RECEPTACLE AND FIXED MOUNT PLUG CONNECTORS**



**Roll-off nose:** allows for the smooth disconnection of blind mate plugs and receptacles. Without this feature, connectors can catch or hang during mate and demate.



**Float mounting:** allows for a modicum of coplanar movement of the receptacle during rack-and-panel and other blind mate applications, preventing both contact and shell damage.



**Misalignment accommodation:** Additional radial, axial, and angular misalignment during mating is accounted for in the receptacle design with integral wave springs.



**Sealing:** Misalignment accommodation makes environmental sealing difficult in blind-mate connectors. The problem is solved with auxiliary external seals.



**EMI shielding:** Glenair incorporates ground springs in receptacle connectors as well as grounding fingers in special coupling nut-equipped plugs (253-018-G6 feed-thru shown) to optimize 360° shell-to-shell continuity.



**Assisted separation force:** Glenair supplies two styles of spring-loaded blind-mate connectors. **Adjustable kick-off styles** feature spring-loaded posts on the plug and an adjustment ring on the receptacle used to calibrate separation force. A second style uses wave springs on the shell body.



Available non-ITAR environmental, high-speed blind-mate and adjustable separation force solutions		
Basic Part No.	Description	Mates With
<a href="#">253-044</a>	Fixed jam-nut and square flange mount plug with roll-on/roll-off nose and accessory threads	<a href="#">253-045</a>
<a href="#">253-045</a>	Floating jam-nut and square flange mount receptacle with misalignment accommodation and optional sealing	<a href="#">253-044</a>
<a href="#">253-047</a>	Fixed wall mount plug with spring assist (adjustable separation force)	<a href="#">253-048</a>
<a href="#">253-048</a>	Floating wall mount receptacle with adjustable separation force and misalignment accommodation	<a href="#">253-047</a>

## MIL-DTL-38999 Series III Type Space-Grade Connectors

### 253-044 Fixed mount plug with roll off nose an crimp contacts

HIGH-SPEED SPACE-GRADE CONNECTORS

Part Number Development										
Sample Part Number	253-044 - 07 ME 25 - 8 A N -909CP									
Series / Basic Part No.	253-044 = Blind-mate Plug (fixed mount)									
Accessory Style	B = Integral Backshell - (Dash) = Accessory Thread									
Connector Style	L7 = Jam nut (locating pin) 00 = Wall mount rcpt; slotted holes 07 = Jam nut mount DO = Wall mount rcpt; through holes									
Material/Finish	ME = Al, electroless nickel ZL = CRES, electrodeposited nickel MT = Al, nickel PTFE Z1 = CRES, passivated									
Shell Size	9 11 13 17 19 21 23 25									
Ground Option	G = Common ground - (dash) = None									
Insert Arrangement	Per MIL-STD-1560 plus custom layouts; symmetrical layouts only, consult factory for complete details									
Insert Designator	A = Pin insert, less contacts B = Socket insert, less contacts									
Alternate Polarization	A, B, C, D, E, N = Normal (Polarization for intermateability with 253-014 is per MIL-DTL-38999 Series I)									
Optional Mod Code	909** = See Mod Code specifications below									

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 80 and 81. Modification codes may be added directly to the end of any valid part number

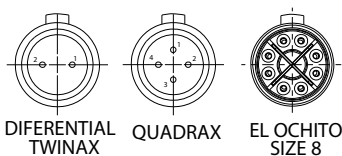
**Modification code 909xx** is used to supply D38999 Series III Type connectors featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs. See example below.

**253-044-07ME25-8AN -909 C P**

- Basic Connector Part Number: 253-044-07ME25-8AN
- Basic Modification Code: 909
- Contact Type Symbol (See Contact Type Table): C, D, E\*, Q, P, T
- Contact Gender (Optional): P = Pin, S = Skt

\*For El Ochito see Contact Configuration Table on following page for appropriate code and dash number symbol.

**FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY**



Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, diff. twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/ concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

HIGH-SPEED SPACE-GRADE CONNECTORS

El Ochito Protocols		
<b>WHITE</b>	<b>BLUE</b>	<b>RED</b>
10GBASE-T	USB 3.0	Multi Gigabit 100 ohm protocols HDMI, SATA, DisplayPort

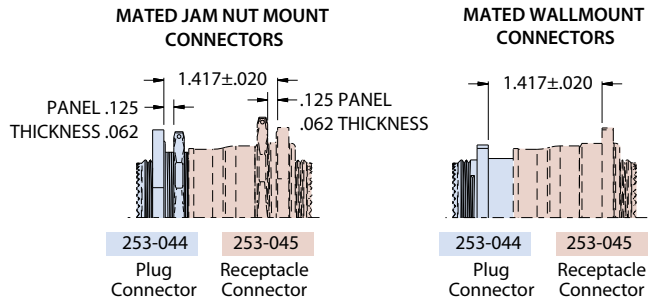


Example Code E7



Example Code E5

#### PANEL TO PANEL DIMENSIONS

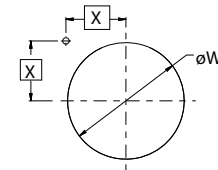
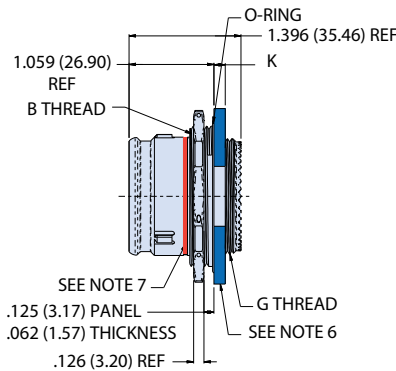
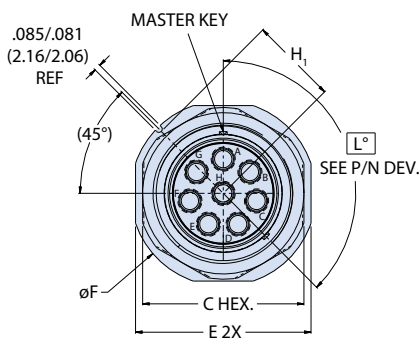


#### NOTES:

- Glenair 253-044 is designed to mate with 253-045 with same insert arrangement and polarization
- Stainless steel locating pin to be shipped with L7 jam-nut connector
- Misalignment capabilities are possible with 253-044, when mated to 253-045.
- See page 80 for outgassing options
- 253-044 connectors are rear panel mount only. Panel to panel dimensions the same for all configurations. Tolerance as shown
- See page 80 for outgassing options
- Material/finish
  - Shell, jam-nut: see P/N development, finish
  - Insulator: high grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Contacts: copper alloy/gold plated

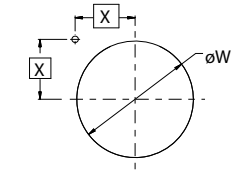
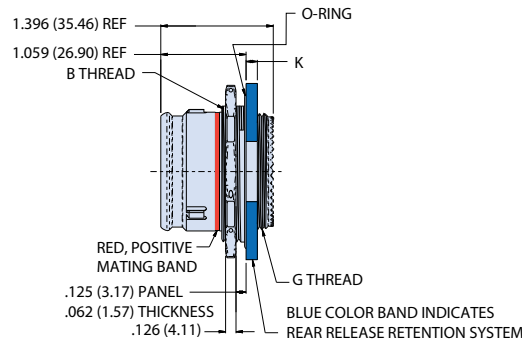
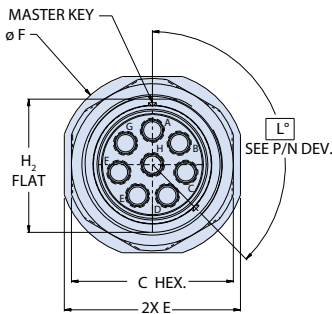
El Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

**253-044-L7 JAM-NUT MOUNT PLUG WITH LOCATING PIN, ROLL-ON/ROLL-OFF NOSE, ACCESSORY THREADS AND SIZE 8 HIGH-SPEED CONTACTS**



RECOMMENDED PANEL CUT OUT FOR JAM NUT PLUG, LOCATING PIN

**253-044-07 JAM-NUT MOUNT PLUG WITH ROLL-ON/ROLL-OFF NOSE, ACCESSORY THREADS AND SIZE 8 HIGH-SPEED CONTACTS**



RECOMMENDED PANEL CUT OUT FOR JAM NUT PLUG, LOCATING PIN

**Plug, Jam Nut Mount L7 (Locating Pin) and 07 (Standard)**

Shell Size	B Thread Class 2A	C ±.015	E ±.015	ø F	H <sub>1</sub> +.000/-0.008	H <sub>2</sub> Flat +.000/-0.006	G Thread UNEF Class 2A	K Flange Thickness	Panel Cut-out	
									øW +.010/0.000	X
11	.8125-20 UNEF	1.010 (25.65)	1.250 (31.75)	1.386 (35.20)	0.604 (15.34)	0.754 (19.15)	.5625-24	0.109 (2.77)	0.823 (20.90)	0.460 (11.68)
13	1.0000-20 UNEF	1.175 (29.85)	1.375 (34.92)	1.511 (38.38)	0.666 (16.92)	0.936 (23.77)	.6875-24	0.109 (2.77)	1.010 (25.65)	0.504 (12.80)
15	1.1250-18 UNEF	1.294 (32.87)	1.500 (38.10)	1.636 (41.55)	0.729 (18.52)	1.066 (27.08)	.8125-20	0.109 (2.77)	1.135 (28.83)	0.549 (13.94)
17	1.2500-18 UNEF	1.451 (36.86)	1.625 (41.28)	1.761 (44.73)	0.791 (20.09)	1.191 (30.25)	.9375-20	0.109 (2.77)	1.260 (32.00)	0.593 (15.06)
19	1.3750-18 UNEF	1.569 (39.85)	1.812 (46.02)	1.949 (49.50)	0.893 (22.68)	1.316 (33.43)	1.0625-18	0.140 (3.56)	1.385 (35.18)	0.665 (16.89)
21	1.5000-18 UNEF	1.687 (42.85)	1.938 (49.23)	2.073 (52.65)	0.955 (24.26)	1.441 (36.60)	1.1875-18	0.140 (3.56)	1.510 (38.35)	0.709 (18.01)
23	1.6250-18 UNEF	1.875 (47.63)	2.062 (52.37)	2.200 (55.88)	1.017 (25.83)	1.566 (39.78)	1.3125-18	0.140 (3.56)	1.635 (41.53)	0.753 (19.13)
25	1.7500-18 UNS	2.010 (51.05)	2.187 (55.55)	2.323 (59.00)	1.096 (27.84)	1.691 (42.95)	1.4375-18	0.140 (3.56)	1.760 (44.70)	0.806 (20.47)

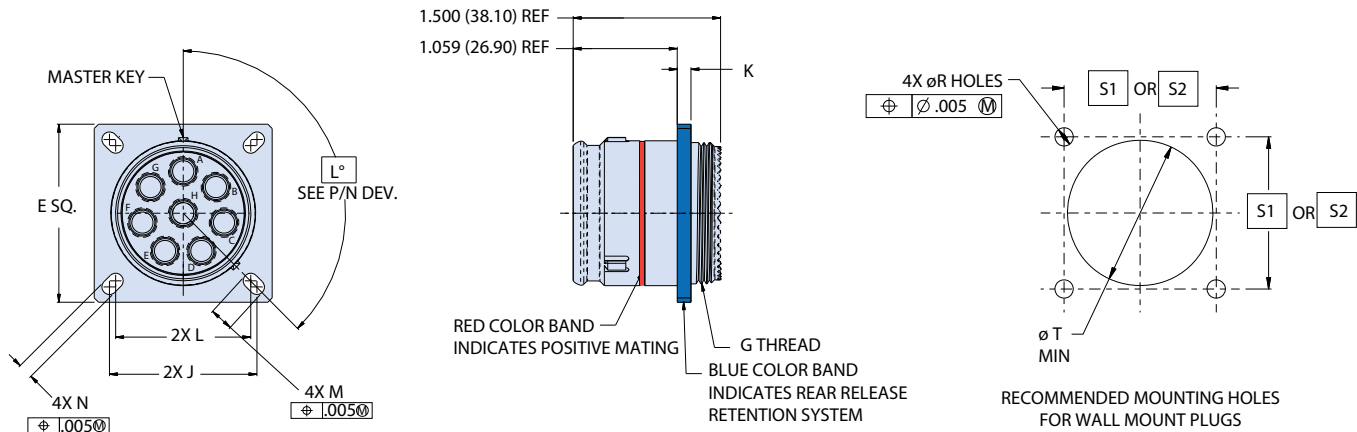


**MIL-DTL-38999 Series III Type Space-Grade Connectors**

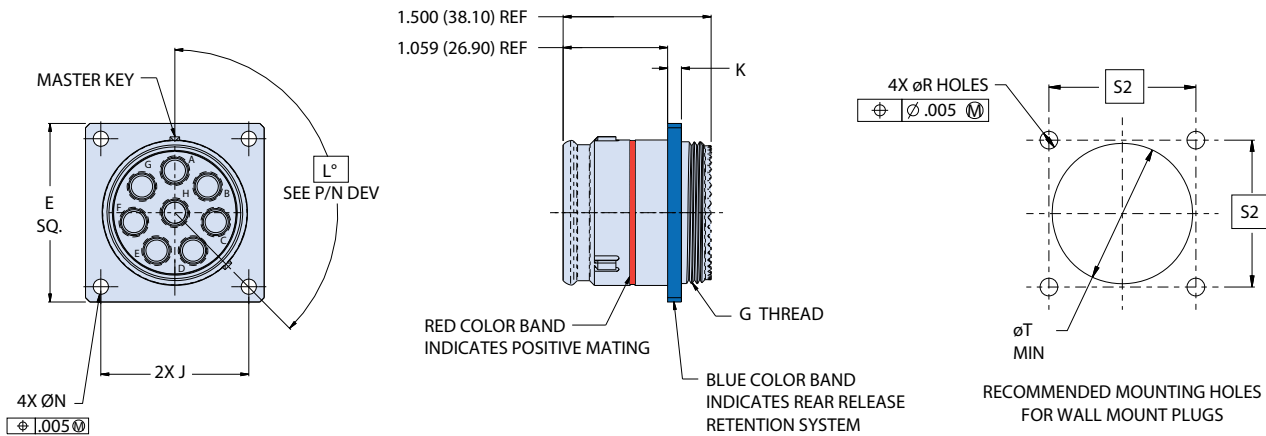
**253-044 Fixed mount plug with roll off nose an crimp contacts**

HIGH-SPEED SPACE-GRADE CONNECTORS

**253-044-00 WALL MOUNT MOUNT PLUG WITH SLOTTED HOLLS, ROLL-ON/ROLL-OFF NOSE, ACCESSORY THREADS AND SIZE 8 HIGH-SPEED CONTACTS**



**253-044-D0 WALL MOUNT MOUNT PLUG WITH SLOTTED HOLLS, ROLL-ON/ROLL-OFF NOSE, ACCESSORY THREADS AND SIZE 8 HIGH-SPEED CONTACTS**



Shell Size	Wall Mount Plug with Slotted Holes and Round Holes							Panel Mount			
	E	L	J	M	N	G Thd UNEF Class 2A	Flange Thickness	S1	S2	T Dia.	R Dia.
11	1.031 (26.19)	0.719 (18.26)	0.812 (20.62)	0.194 (4.93)	0.128 (3.25)	.5625-24	0.109 (2.77)	0.719 (18.26)	0.812 (20.62)	0.718 (18.24)	0.133 (3.38) 0.123 (3.12)
13	1.126 (28.60)	0.812 (20.62)	0.906 (23.01)	0.194 (4.93)	0.128 (3.25)	.6875-24	0.109 (2.77)	0.812 (20.62)	0.906 (23.01)	0.844 (21.44)	
15	1.220 (30.99)	0.906 (23.01)	0.969 (24.61)	0.173 (4.39)	0.128 (3.25)	.8125-20	0.109 (2.77)	0.906 (23.01)	0.969 (24.61)	0.968 (24.59)	
17	1.311 (33.30)	0.969 (24.61)	1.062 (26.97)	0.194 (4.93)	0.128 (3.25)	.9375-20	0.109 (2.77)	0.969 (24.61)	1.062 (26.97)	1.096 (27.84)	
19	1.437 (36.50)	1.062 (26.97)	1.156 (29.36)	0.194 (4.93)	0.128 (3.25)	1.0625-18	0.140 (3.56)	1.062 (26.97)	1.156 (29.36)	1.222 (31.04)	
21	1.563 (39.70)	1.156 (29.36)	1.250 (31.75)	0.194 (4.93)	0.128 (3.25)	1.1875-18	0.140 (3.56)	1.156 (29.36)	1.250 (31.75)	1.344 (34.14)	0.159 (4.04) 0.149 (3.78) 0.155 (3.94) 0.145 (3.68)
23	1.689 (42.90)	1.250 (31.75)	1.375 (34.92)	0.242 (6.15)	0.154 (3.91)	1.3125-18	0.140 (3.56)	1.250 (31.75)	1.375 (34.92)	1.468 (37.29)	
25	1.811 (46.00)	1.375 (34.92)	1.500 (38.10)	0.242 (6.15)	0.154 (3.91)	1.4375-18	0.140 (3.56)	1.375 (34.92)	1.500 (38.10)	1.594 (40.49)	



## MIL-DTL-38999 Series III Type Space-Grade Connectors

### 253-045 Float mount receptacle with mis-alignment capabilities

HIGH-SPEED SPACE-GRADE CONNECTORS

Part Number Development											
Sample Part Number	253-045 - 07 ME 25 - 8 A N NS -909CP										
Series / Basic Part No.	253-045 = Blind-mate receptacle (float mnt)										
Accessory Style	B = Integral Backshell - (Dash) = Accessory Thread										
Connector Style	L7 = Jam nut (locating pin) 00 = Wall mount rcpt; slotted holes 07 = Jam nut mount (flat thread) D0 = Wall mount rcpt; through holes										
Material/Finish	ME = Alum./electroless nickel MT = Alum./nickel PTFE ZL = CRES/electrodeposited nickel Z1 = CRES/passivated										
Shell Size	9 11 13 17 19 21 23 25										
Ground Option	G = Common ground - (dash) = None										
Insert Arrangement	Per MIL-STD-1560 plus custom layouts; symmetrical layouts only, consult factory for complete details										
Insert Designator	A = Pin insert, less contacts B = Socket insert, less contacts										
Alternate Polarization (L°)	A = 40°, B = 65°, C = 80°, D = 210°, E = 250°, N = 135° Normal										
Non Sealing	NS = Non sealing version Omit = Sealing version										
Optional Mod Code	909** = See Mod Code specifications below										

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 80 and 81. Modification codes may be added directly to the end of any valid part number

**Modification code 909xx** is used to supply D38999 Series III Type connectors featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs. See example below.

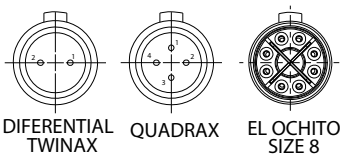
**253-045-07ME25-8ANNS -909 C P**

- Basic Connector Part Number: 253-045-07ME25-8ANNS
- Basic Modification Code: 909
- Contact Type Symbol (See Contact Type Table): C, D, E\*, Q, P, T
- Contact Gender (Optional): P = Pin, S = Skt

\*For El Ochito see Contact Configuration Table on following page for appropriate code and dash number symbol.

Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, diff. twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

**FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY**



\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

## MIL-DTL-38999 Series III Type Space-Grade Connectors

253-044 Fixed mount plug with roll off nose an crimp contacts

HIGH-SPEED SPACE-GRADE CONNECTORS

EI Ochito Protocols		
<b>WHITE</b>	<b>BLUE</b>	<b>RED</b>
10GBASE-T	USB 3.0	Multi Gigabit 100 ohm protocols HDMI, SATA, DisplayPort

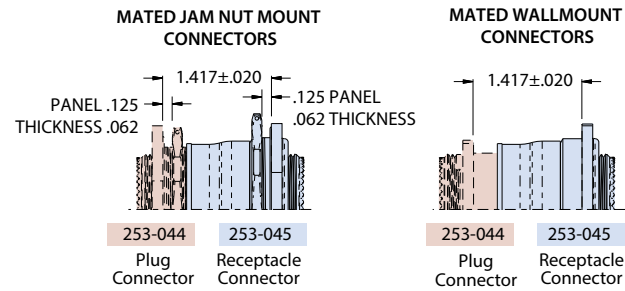


Example Code E7



Example Code E5

### PANEL TO PANEL DIMENSIONS

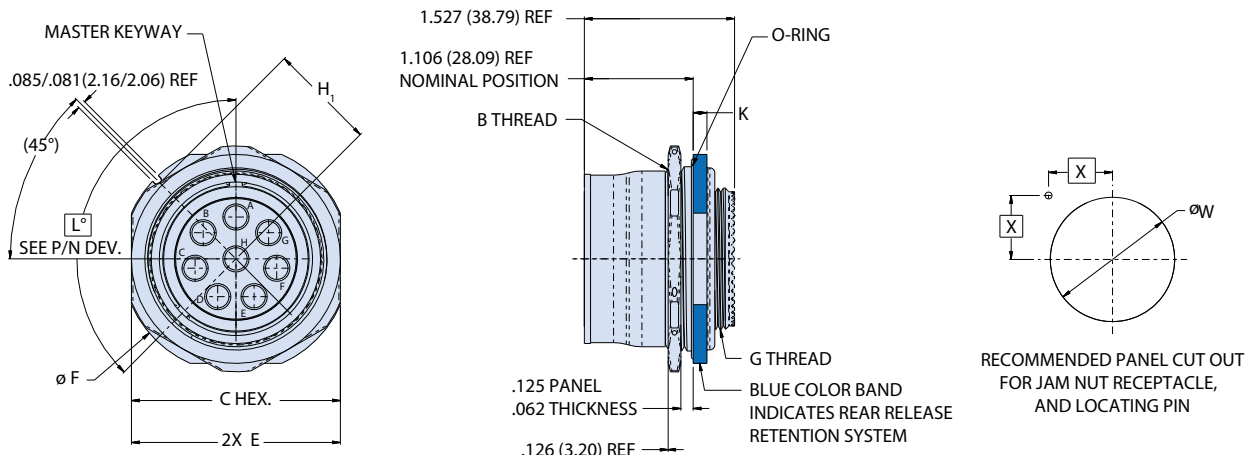


### NOTES:

- Glenair 253-044 is designed to mate with 253-045 with same insert arrangement and polarization
- Stainless steel locating pin to be shipped with L7 jam-nut connector
- Misalignment capabilities are possible with 253-045, when mated to 253-044.
- See page 80 for outgassing options
- 253-045 connectors are rear panel mount only. Panel to panel dimensions the same for all configurations. Tolerance as shown
- Contact Manufacturer for outgassing options
- Material/finish
  - Shell, jam-nut: see P/N development, finish
  - Insulator: high grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.
  - Contacts: copper alloy/gold plated

EI Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

**253-045-L7 JAM-NUT MOUNT, FLOAT MOUNT RECEPTACLE WITH LOCATING PIN, ROLL-ON/ROLL-OFF NOSE, ACCESSORY THREADS AND SIZE 8 HIGH-SPEED CONTACTS**

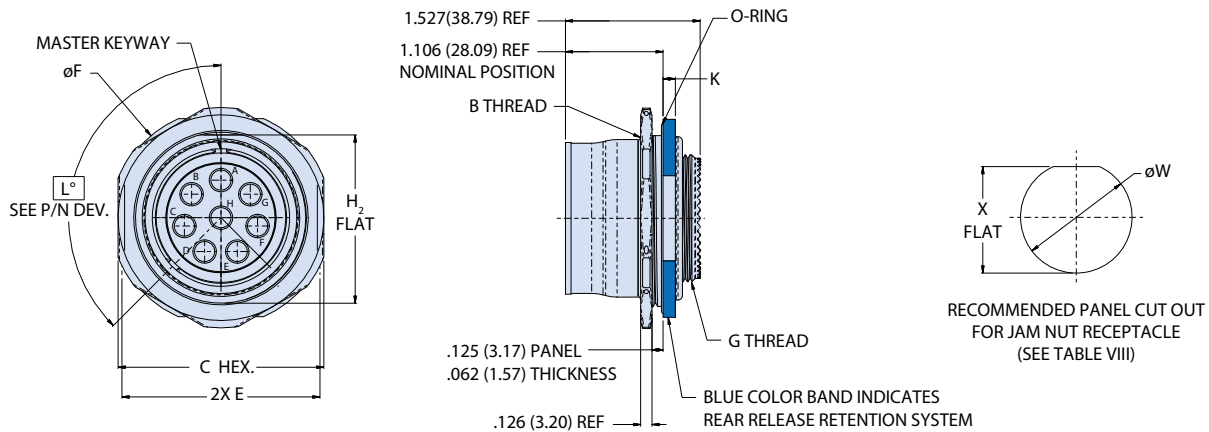


HIGH-SPEED SPACE-GRADE CONNECTORS

253-045-L7 Dimensions							
SHELL SIZE	B THREAD CLASS 2A	C ±.015	E ±.015	ø F	H <sub>1</sub> +.000/-0.008	G THREAD UNEF CLASS 2A	K FLANGE THICKNESS
11	1.0000-20 UNEF	1.175 (29.85)	1.266 (32.16)	1.500 (38.10)	0.666 (16.92)	.5625-24	0.109 (2.77)
13	1.1250-18 UNEF	1.294 (32.87)	1.391 (35.33)	1.641 (41.68)	0.729 (18.52)	.6875-24	0.109 (2.77)
15	1.2500-18 UNEF	1.451 (36.86)	1.516 (38.51)	1.750 (44.45)	0.791 (20.09)	.8125-20	0.109 (2.77)
17	1.3750-18 UNEF	1.569 (39.85)	1.641 (41.68)	1.938 (49.23)	0.893 (22.68)	.9375-20	0.109 (2.77)
19	1.5000-18 UNEF	1.687 (42.85)	1.828 (46.43)	2.062 (52.37)	0.955 (24.26)	1.0625-18	0.140 (3.56)
21	1.6250-18 UNEF	1.875 (47.63)	1.954 (49.63)	2.188 (55.58)	1.017 (25.83)	1.1875-18	0.140 (3.56)
23	1.7500-18 UNS	2.010 (51.05)	2.078 (52.78)	2.312 (58.72)	1.080 (27.43)	1.3125-18	0.140 (3.56)
25	1.8750-16 UN	2.125 (53.97)	2.128 (54.05)	2.327 (59.11)	1.086 (27.58)	1.4375-18	0.140 (3.56)

Panel Mount Dimensions		
SHELL SIZE	ø W +.010/0.000	X
11	1.010 (25.65)	0.504 (12.80)
13	1.135 (28.83)	0.549 (13.94)
15	1.260 (32.00)	0.593 (15.06)
17	1.385 (35.18)	0.665 (16.89)
19	1.510 (38.35)	0.709 (18.01)
21	1.635 (41.53)	0.753 (19.13)
23	1.760 (44.70)	0.797 (20.24)
25	1.885 (47.88)	0.799 (20.29)

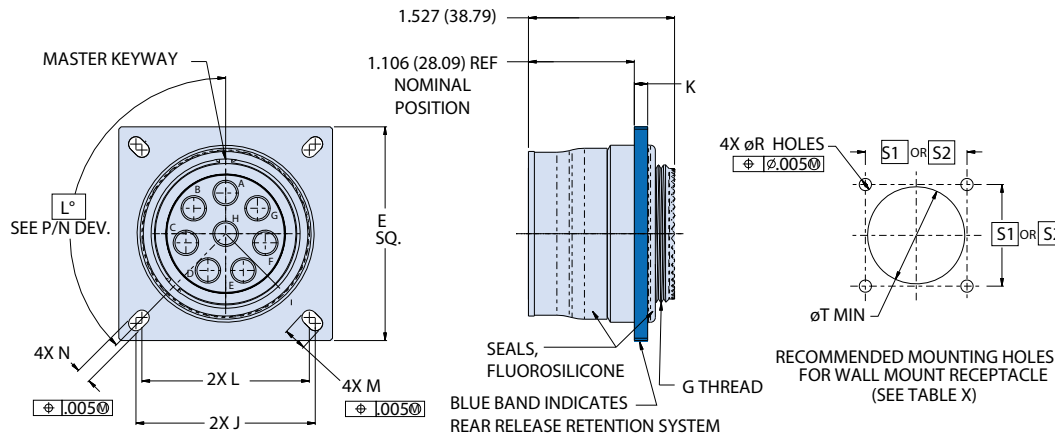
**253-045-07 JAM-NUT MOUNT, FLOAT MOUNT RECEPTACLE WITH LOCATING PIN, ROLL-ON/ROLL-OFF NOSE, ACCESSORY THREADS AND SIZE 8 HIGH-SPEED CONTACTS**



253-045-L7 Dimensions								
SHELL SIZE	B THREAD CLASS 2A	C ±.015	E ±.015	ø F	H <sub>1</sub> +.000/-0.008	H <sub>2</sub> +.000/-0.006	G THREAD UNEF CLASS 2A	K FLANGE THICKNESS
11	1.0000-20 UNEF	1.175 (29.85)	1.266 (32.16)	1.500 (38.10)	0.666 (16.92)	1.066 (27.08)	.5625-24	0.109 (2.77)
13	1.1250-18 UNEF	1.294 (32.87)	1.391 (35.33)	1.641 (41.68)	0.729 (18.52)	1.191 (30.25)	.6875-24	0.109 (2.77)
15	1.2500-18 UNEF	1.451 (36.86)	1.516 (38.51)	1.750 (44.45)	0.791 (20.09)	1.316 (33.43)	.8125-20	0.109 (2.77)
17	1.3750-18 UNEF	1.569 (39.85)	1.641 (41.68)	1.938 (49.23)	0.893 (22.68)	1.441 (36.60)	.9375-20	0.109 (2.77)
19	1.5000-18 UNEF	1.687 (42.85)	1.828 (46.43)	2.062 (52.37)	0.955 (24.26)	1.566 (39.78)	1.0625-18	0.140 (3.56)
21	1.6250-18 UNEF	1.875 (47.63)	1.954 (49.63)	2.188 (55.58)	1.017 (25.83)	4.691 (119.15)	1.1875-18	0.140 (3.56)
23	1.7500-18 UNS	2.010 (51.05)	2.078 (52.78)	2.312 (58.72)	1.080 (27.43)	1.816 (46.13)	1.3125-18	0.140 (3.56)
25	1.8750-16 UN	2.125 (53.97)	2.128 (54.05)	2.327 (59.11)	1.086 (27.58)	1.941 (49.30)	1.4375-18	0.140 (3.56)

Panel Mount Dimensions		
SHELL SIZE	ø W +.010/0.000	X FLAT +.000/-0.010
11	1.135 (28.83)	1.085 (27.56)
13	1.260 (32.00)	1.210 (30.73)
15	1.385 (35.18)	1.335 (33.91)
17	1.510 (38.35)	1.460 (37.08)
19	1.635 (41.53)	1.585 (40.26)
21	1.760 (44.70)	1.710 (43.43)
23	1.885 (47.88)	1.835 (46.61)
25	2.010 (51.05)	1.960 (49.78)

**253-045-00 WALL MOUNT FLOAT MOUNT RECEPTACLE WITH SLOTTED HOLES, ROLL-ON/ROLL-OFF NOSE, ACCESSORY THREADS AND SIZE 8 HIGH-SPEED CONTACTS**



Panel Mount		
SHELL SIZE	T DIA. +.010 0.000	R DIA.
11	0.970 (24.64)	0.133 (3.38)
13	1.095 (27.81)	0.123 (3.12)
15	1.200 (30.48)	0.155 (3.94)
17	1.335 (33.91)	0.145 (3.68)
19	1.450 (36.83)	
21	1.575 (40.00)	
23	1.720 (43.69)	
25	1.845 (46.86)	

**253-045-00 Dimensions with Sealing**

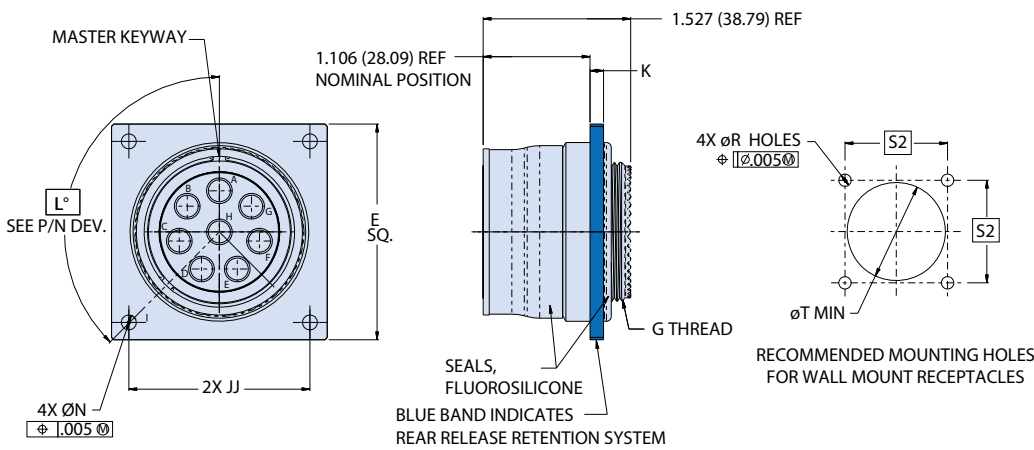
SHELL SIZE	E	L	J	M	N	G THREAD UNEF CLASS 2A	K FLANGE THICKNESS	S1	S2
11	1.311 (33.30)	0.969 (24.61)	1.062 (26.97)	0.194 (4.93)	0.128 (3.25)	.5625-24	0.109 (2.77)	0.969 (24.61)	1.062 (26.97)
13	1.437 (36.50)	1.062 (26.97)	1.156 (29.36)	0.194 (4.93)	0.128 (3.25)	.6875-24	0.109 (2.77)	1.062 (26.97)	1.156 (29.36)
15	1.563 (39.70)	1.156 (29.36)	1.250 (31.75)	0.194 (4.93)	0.128 (3.25)	.8125-20	0.109 (2.77)	1.156 (29.36)	1.250 (31.75)
17	1.689 (42.90)	1.250 (31.75)	1.375 (34.92)	0.216 (5.49)	0.128 (3.25)	.9375-20	0.109 (2.77)	1.250 (31.75)	1.375 (34.92)
19	1.811 (46.00)	1.375 (34.92)	1.500 (38.10)	0.242 (6.15)	0.154 (3.91)	1.0625-18	0.140 (3.56)	1.375 (34.92)	1.500 (38.10)
21	1.952 (49.58)	1.500 (38.10)	1.625 (41.28)	0.242 (6.15)	0.154 (3.91)	1.1875-18	0.140 (3.56)	1.500 (38.10)	1.625 (41.28)
23	2.093 (53.16)	1.625 (41.28)	1.750 (44.45)	0.242 (6.15)	0.154 (3.91)	1.3125-18	0.140 (3.56)	1.625 (41.28)	1.750 (44.45)
25	2.234 (56.74)	1.750 (44.45)	1.875 (47.63)	0.242 (6.15)	0.154 (3.91)	1.4375-18	0.140 (3.56)	1.750 (44.45)	1.875 (47.63)

**253-045-00 Dimensions without Sealing**

SHELL SIZE	EE	LL	JJ	MM	NN	GG THREAD UNEF CLASS 2A	KK FLANGE THICKNESS	SS1	SS2
11	1.126 (28.60)	0.812 (20.62)	0.906 (23.01)	0.194 (4.93)	0.128 (3.25)	.5625-24	0.109 (2.77)	0.812 (20.62)	0.906 (23.01)
13	1.220 (30.99)	0.906 (23.01)	0.969 (24.61)	0.173 (4.39)	0.128 (3.25)	.6875-24	0.109 (2.77)	0.906 (23.01)	0.969 (24.61)
15	1.311 (33.30)	0.969 (24.61)	1.062 (26.97)	0.194 (4.93)	0.128 (3.25)	.8125-20	0.109 (2.77)	0.969 (24.61)	1.062 (26.97)
17	1.437 (36.50)	1.062 (26.97)	1.156 (29.36)	0.194 (4.93)	0.128 (3.25)	.9375-20	0.109 (2.77)	1.062 (26.97)	1.156 (29.36)
19	1.563 (39.70)	1.156 (29.36)	1.250 (31.75)	0.220 (5.59)	0.154 (3.91)	1.0625-18	0.140 (3.56)	1.156 (29.36)	1.250 (31.75)
21	1.689 (42.90)	1.250 (31.75)	1.375 (34.92)	0.242 (6.15)	0.154 (3.91)	1.1875-18	0.140 (3.56)	1.250 (31.75)	1.375 (34.92)
23	1.811 (46.00)	1.375 (34.92)	1.500 (38.10)	0.242 (6.15)	0.154 (3.91)	1.3125-18	0.140 (3.56)	1.375 (34.92)	1.500 (38.10)
25	1.952 (49.58)	1.500 (38.10)	1.625 (41.28)	0.242 (6.15)	0.154 (3.91)	1.4375-18	0.140 (3.56)	1.500 (38.10)	1.625 (41.28)



**253-045-D0 WALL MOUNT FLOAT MOUNT RECEPTACLE WITH ROUND HOLES, ROLL-ON/ROLL-OFF NOSE, ACCESSORY THREADS AND SIZE 8 HIGH-SPEED CONTACTS**



Panel Mount		
SHELL SIZE	T DIA. +.010 0.000	R DIA.
11	0.970	0.133 0.123
13	1.095	
15	1.200	
17	1.335	0.155 0.145
19	1.450	
21	1.575	
23	1.720	
25	1.845	

253-045-D0 Dimensions with Sealing						
SHELL SIZE	E	J	N	G THREAD UNEF CLASS 2A	K FLANGE THICKNESS	S2
11	1.311 (33.30)	1.062 (26.97)	0.128 (3.25)	.5625-24	0.109 (2.77)	1.062 (26.97)
13	1.437 (36.50)	1.156 (29.36)	0.128 (3.25)	.6875-24	0.109 (2.77)	1.156 (29.36)
15	1.563 (39.70)	1.250 (31.75)	0.128 (3.25)	.8125-20	0.109 (2.77)	1.250 (31.75)
17	1.689 (42.90)	1.375 (34.92)	0.128 (3.25)	.9375-20	0.109 (2.77)	1.375 (34.92)
19	1.811 (46.00)	1.500 (38.10)	0.154 (3.91)	1.0625-18	0.140 (3.56)	1.500 (38.10)
21	1.952 (49.58)	1.625 (41.28)	0.154 (3.91)	1.1875-18	0.140 (3.56)	1.625 (41.28)
23	2.093 (53.16)	1.750 (44.45)	0.154 (3.91)	1.3125-18	0.140 (3.56)	1.750 (44.45)
25	2.234 (56.74)	1.875 (47.63)	0.154 (3.91)	1.4375-18	0.140 (3.56)	1.875 (47.63)

253-045-D0 Dimensions without Sealing						
SHELL SIZE	EE	JJ	NN	GG THREAD UNEF CLASS 2A	KK FLANGE THICKNESS	SS2
11	1.126 (28.60)	0.906 (23.01)	0.128 (3.25)	.5625-24	0.109 (2.77)	0.906 (23.01)
13	1.220 (30.99)	0.969 (24.61)	0.128 (3.25)	.6875-24	0.109 (2.77)	0.969 (24.61)
15	1.311 (33.30)	1.062 (26.97)	0.128 (3.25)	.8125-20	0.109 (2.77)	1.062 (26.97)
17	1.437 (36.50)	1.156 (29.36)	0.128 (3.25)	.9375-20	0.109 (2.77)	1.156 (29.36)
19	1.563 (39.70)	1.250 (31.75)	0.154 (3.91)	1.0625-18	0.140 (3.56)	1.250 (31.75)
21	1.689 (42.90)	1.375 (34.92)	0.154 (3.91)	1.1875-18	0.140 (3.56)	1.375 (34.92)
23	1.811 (46.00)	1.500 (38.10)	0.154 (3.91)	1.3125-18	0.140 (3.56)	1.500 (38.10)
25	1.952 (49.58)	1.625 (41.28)	0.154 (3.91)	1.4375-18	0.140 (3.56)	1.625 (41.28)

## MIL-DTL-38999 Series III Type Space-Grade Connectors

### 253-047 & -048 Mis-alignment capable plug and receptacle

HIGH-SPEED CONNECTORS

Part Number Development	
<b>Sample Part Number</b>	<b>253-047</b> <span style="float: right;">D0 ME 25-8 A N -909 A</span>
<b>Series / Basic Part No.</b>	<b>253</b> = Blind-mate connector with adjustable assisted separation force <b>-047</b> = Plug (fixed mount) <b>-048</b> = Receptacle (float mount)
<b>Connector Style</b>	<b>-D0</b> = Wall mount, round holes
<b>Material/Finish</b>	<b>ME</b> = Aluminum, electroless nickel <b>ZL</b> = CRES, electrodeposited nickel <b>MT</b> = Aluminum, nickel PTFE <b>Z1</b> = CRES, passivated
<b>Shell Size-Insert Arrangement</b>	Per MIL-STD-1560
<b>Contact Type</b>	<b>P</b> = Pin, crimp removable <b>S</b> = Socket, crimp removable
<b>Alternate Polarization (Per L°)</b>	<b>A</b> = 40°, <b>B</b> = 65°, <b>C</b> = 80°, <b>D</b> = 210°, <b>E</b> = 250°, <b>F</b> = 280°, <b>G</b> = 310°, <b>H</b> = 330°, <b>N</b> = 135° (Normal)
<b>Optional Mod Code</b>	<b>909**</b> = Supplies connector with contacts
<b>Adjustment Ring Material</b>	(Available for 253-048 receptacle only) <b>A</b> = Aluminum <b>C</b> = Corrosion-resistant steel

\*Refer to section A for complete details. Refer to Space-Grade Guidelines material (IAW NASA EEE INST-002) for outgassing and screening modification codes, on pages 60 and 61. Modification codes may be added directly to the end of any valid part number

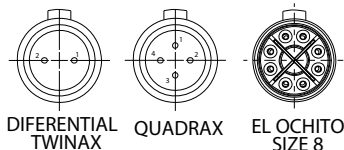
**Modification code 909xx** is used to supply D38999 Series III Type connectors featuring crimp removable type contacts with high-speed contact kits. Kits include spares, tools, and sealing plugs. See example below.

**253-045-07ME25-8ANNS -909 C P**

- Basic Connector Part Number: 253-045-07ME25-8ANNS
- Basic Modification Code: 909
- Contact Type Symbol (See Contact Type Table): C, D, E\*, Q, P, T
- Contact Gender (Optional): P = Pin, S = Skt

\*For El Ochito see Contact Configuration Table on following page for appropriate code and dash number symbol.

**FIGURE 2: REFERENCE ORIENTATION OF INNER PINS RELATIVE TO CONNECTOR MAIN KEY/KEYWAY**



Contact Type					
Sym	Description	Glenair P/N	Wire Type	Grommet Follower	Application Notes
C	Size 16, contact for coax cable, per M39029/76 & /77;	Pin: 852-008-16-424 Skt: 852-009-16-428	RG174, RG316, RG179	N/A	Analog radio frequency or microwave applications
	Size 12, contact for coax cable, per M39029/102 & /103	Pin: 852-004-12-558 Skt: 852-005-12-559	RG174, RG316, RG179	N/A	
	Size 8, contact for coax cable, per M39029/59 & /60	Pin: 852-007-08-367 Skt: 852-006-08-366	M17 /95-RG180	859-042-02	
C1	Size 8, contact for 75 ohm coax cable	Pin: 852-056-01 Skt: 852-057-01	V73263, V75268, V76261	859-042-01	aerospace-grade digital video
D	Size 8, diff. twinax contact for 24 AWG twinax cable	Pin: 853-014-05 Skt: 853-013-05	M17 /176-00002	859-042-01	1553 databus / differential signal
E*	Size 8, El Ochito® contact for 26 AWG	White Pin: 858-003-02 Skt: 858-004-02	963-003-26 963-033-26	687-643-8-2	1G/10G Base-T Ethernet (white)
	Size 8, El Ochito® contact for 24/26-30 AWG Cable	Blue Pin: 858-028-02 Skt: 858-029-02	963-110 & 963-118	687-643-8-2	USB 3.0 (Blue)
	Size 8, El Ochito® contact for 26-30 AWG Cable	Red Pin: 858-030-02 Skt: 858-031-02	963-033-26	687-643-8-2	SATA 3.0 General High Speed (red)
Q	Size 8, contact for 24 AWG Quadrax	Pin: 854-001-02 Skt: 854-002-02	963-020	859-042-02	10/100Base-T ethernet
P	Size 8, power contact for 8 AWG	Pin: 850-014 Skt: 850-013	M22759/11 or equivalent	859-042-03	Power
T	Size 8, triax/ concentric twinax for twinax cable	Pin: 853-003-08-625 Skt: 853-004-08-628	M17 /176-00002	859-042-01	1553 Databus

\* See Table II for Contact Positions. See Figure 2 for orientation of inner pins relative to connector main key/keyway.

# SuperNine® High-Speed Series



## MIL-DTL-38999 Series III Type Space-Grade Connectors

### 253-047 & -048 Mis-alignment capable plug and receptacle

HIGH-SPEED CONNECTORS

EI Ochito Protocols		
<b>WHITE</b>	<b>BLUE</b>	<b>RED</b>
10GBASE-T	USB 3.0	Multi Gigabit 100 ohm protocols HDMI, SATA, DisplayPort

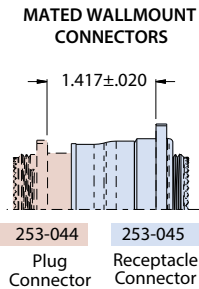
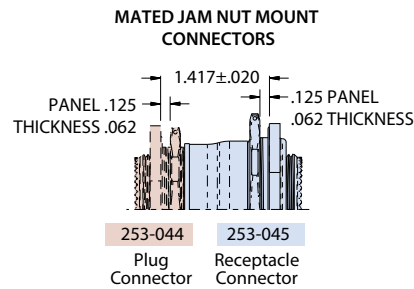


Example Code E7



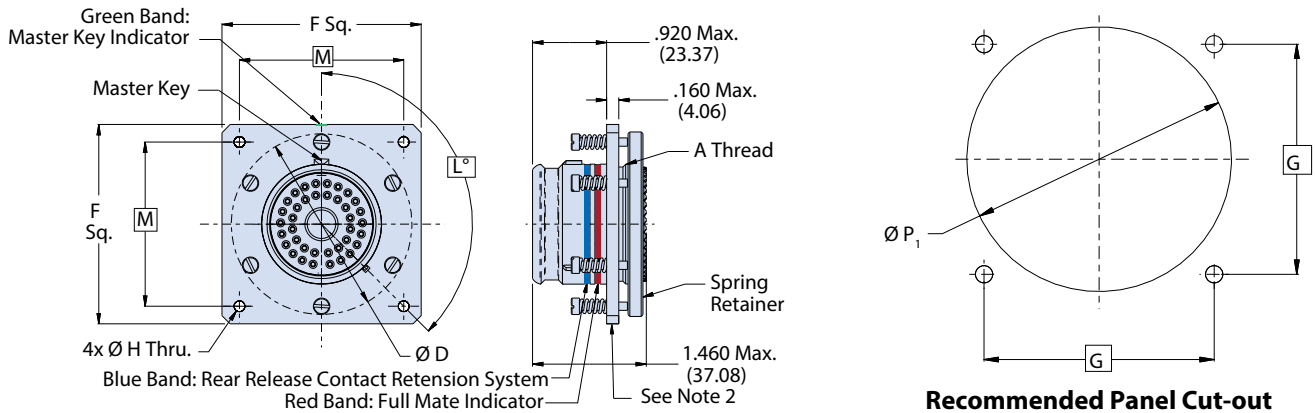
Example Code E5

#### PANEL TO PANEL DIMENSIONS

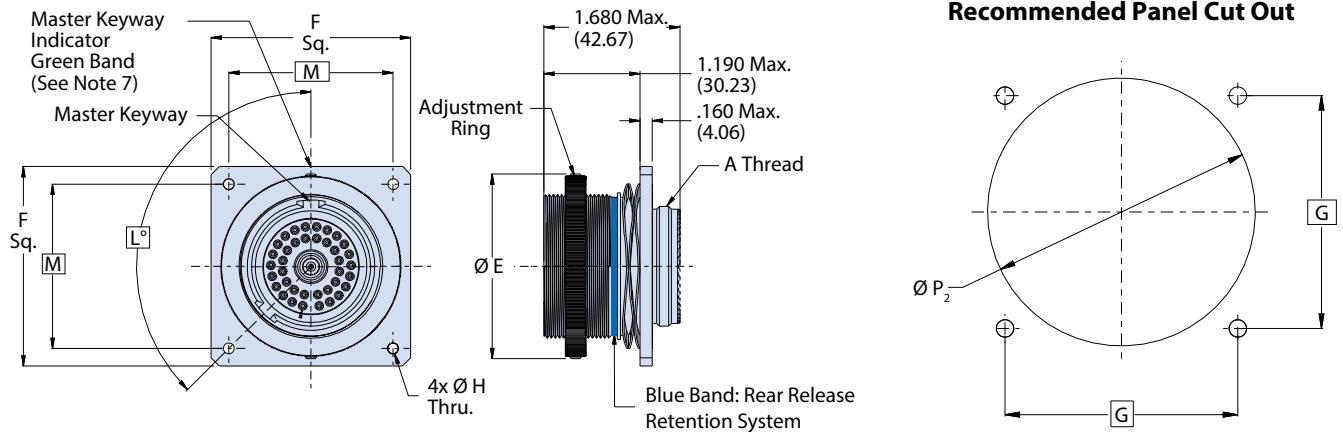


EI Ochito Contact Configuration								
SYM	CAVITY A	CAVITY B	CAVITY C	CAVITY D	CAVITY E	CAVITY F	CAVITY G	CAVITY H
E	W	W	W	W	W	W	W	W
E2	B	W	W	W	W	W	W	W
E3	R	W	W	W	W	W	W	W
E4	B	B	W	W	W	W	W	W
E5	R	B	W	W	W	W	W	W
E6	R	R	W	W	W	W	W	W
E7	B	B	B	W	W	W	W	W
E8	R	B	B	W	W	W	W	W
E9	R	R	B	W	W	W	W	W
E10	R	R	R	W	W	W	W	W
E11	B	B	B	B	W	W	W	W
E12	R	B	B	B	W	W	W	W
E13	R	R	B	B	W	W	W	W
E14	R	R	R	B	W	W	W	W
E15	R	R	R	R	W	W	W	W
E16	B	B	B	B	B	W	W	W
E17	R	B	B	B	B	W	W	W
E18	R	R	B	B	B	W	W	W
E19	R	R	R	B	B	W	W	W
E20	R	R	R	R	B	W	W	W
E21	R	R	R	R	R	W	W	W
E22	B	B	B	B	B	B	W	W
E23	R	B	B	B	B	B	W	W
E24	R	R	B	B	B	B	W	W
E25	R	R	R	B	B	B	W	W
E26	R	R	R	R	B	B	W	W
E27	R	R	R	R	R	B	W	W
E28	R	R	R	R	R	R	W	W
E29	B	B	B	B	B	B	B	W
E30	R	B	B	B	B	B	B	W
E31	R	R	B	B	B	B	B	W
E32	R	R	R	B	B	B	B	W
E33	R	R	R	R	B	B	B	W
E34	R	R	R	R	R	B	B	W
E35	R	R	R	R	R	R	B	W
E36	R	R	R	R	R	R	R	W
E37	B	B	B	B	B	B	B	B
E38	R	B	B	B	B	B	B	B
E39	R	R	B	B	B	B	B	B
E40	R	R	R	B	B	B	B	B
E41	R	R	R	R	B	B	B	B
E42	R	R	R	R	R	B	B	B
E43	R	R	R	R	R	R	B	B
E44	R	R	R	R	R	R	R	B
E45	R	R	R	R	R	R	R	R

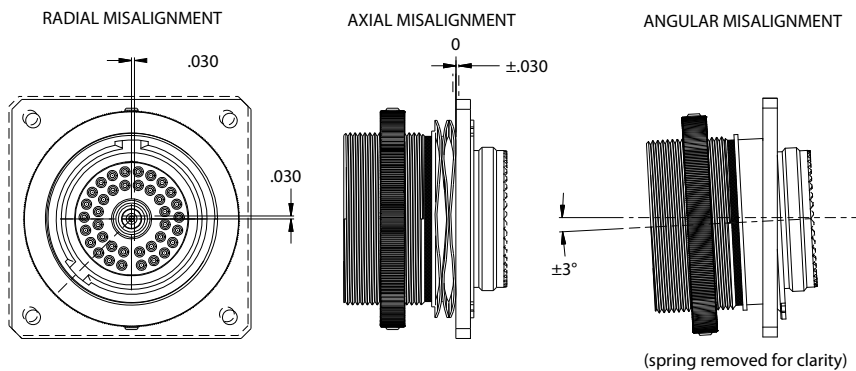
**253-047-D0 FIXED WALL MOUNT PLUG WITH SPRING ASSIST (ZERO SEPARATION FORCE)**



**253-048-D0 FLOATING WALL MOUNT RECEPTACLE WITH ADJUSTABLE SEPARATION FORCE AND MISALIGNMENT ACCOMMODATION**

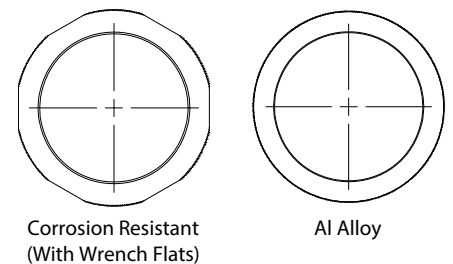


**253-017 Misalignment Capabilities**

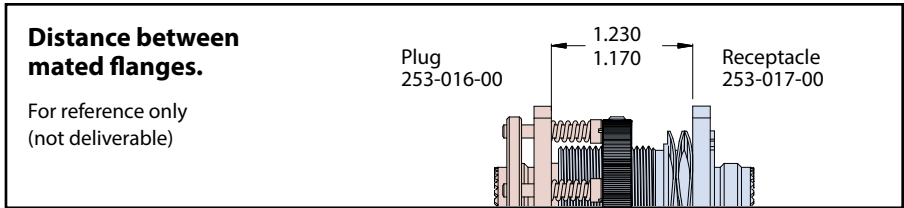


**Adjustment Ring Geometry and Material Options**

Contact manufacturer for other options



Dimensions for 253-047 and 253-048									
Shell Size	F Flange ±.010 (±.25)	M Square	Ø H ±.005 (±.13)	Ø D, Max.	Ø E Max.	A Thread	Ø P <sub>1</sub> ±.005 (±.13)	Ø P <sub>2</sub> ±.005 (±.13)	G Square
9	1.430(36.32)	1.150 (29.21)	.128(3.25)	1.250(31.75)	1.300 (33.02)	M12 X 1.0-6g-0.100R	1.300(33.02)	1.330 (33.78)	1.150 (29.21)
11	1.555(39.50)	1.200(30.48)	.128(3.25)	1.375(34.93)	1.425 (36.20)	M15 X 1.0-6g-0.100R	1.425(36.20)	1.455 (36.96)	1.200 (30.48)
13	1.680(42.67)	1.250(31.75)	.128(3.25)	1.500(38.10)	1.550 (39.37)	M18 X 1.0-6g-0.100R	1.550(39.37)	1.580 (40.13)	1.250 (31.75)
15	1.805(45.85)	1.375(34.93)	.128(3.25)	1.625(41.28)	1.675 (42.55)	M22 X 1.0-6g-0.100R	1.675(42.55)	1.705 (43.31)	1.375 (34.92)
17	1.930(49.02)	1.500(38.10)	.128(3.25)	1.750(44.45)	1.800 (45.72)	M25 X 1.0-6g-0.100R	1.800(45.72)	1.830 (46.48)	1.500 (38.10)
19	2.055(52.20)	1.625(41.28)	.128(3.25)	1.875(47.63)	1.925 (48.90)	M28 X 1.0-6g-0.100R	1.925(48.90)	1.955 (49.66)	1.625 (41.28)
21	2.180(55.37)	1.750(44.45)	.128(3.25)	2.000(50.80)	2.050 (52.07)	M31 X 1.0-6g-0.100R	2.050(52.07)	2.080 (52.83)	1.750 (44.45)
23	2.305(58.55)	1.875(47.63)	.154(3.91)	2.125(53.98)	2.175 (55.25)	M34 X 1.0-6g-0.100R	2.175(55.25)	2.205 (56.01)	1.875 (47.63)
25	2.430(61.72)	2.000(50.80)	.150(3.81)	2.250(57.15)	2.300 (58.42)	M37 X 1.0-6g-0.100R	2.300(58.42)	2.330 (59.18)	2.000 (50.80)



**NOTES:**

- 253-047 mates with 253-048 fixed series.
- Distance between mated mounting flanges: 1.170/1.230. Consult manufacturer other distance between mounting flanges is required
- Separation force of 253-048 is adjustable ± 5 lbs when mated with 253-047. Contact factory for additional force tolerances as they are based on insert arrangements per MIL-DTL-1560
- See Space-Grade guidelines material, in this section, for outgassing/screening options available
- Spares: pin or socket contacts IAW AS39029 or per Glenair part number if controlled force contacts
- Contact factory for PC tail versions
- Ground plane option only available for insert arrangements where all contacts are shielded type
- 253-047 and 253-048 connectors are rear panel mount only. Tolerance is as shown
- Material/finish
  - Shell (016 and 017), ring (017), retainer ring (016): see P/N development, finish
  - Wave spring (017), springs and spring retainer (016): CRES/passivated
  - Insulators: high grade rigid dielectric/N.A.
  - Seals: fluorosilicone blend/N.A.





10G ETHERNET PER CHANNEL

# SpeedMaster™ Contact System

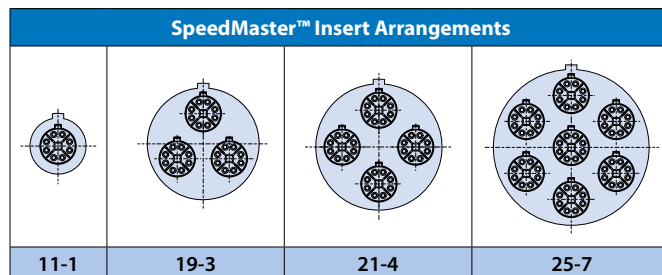
## High-speed contact modules and inserts for use in MIL-DTL-38999 Series III connectors

**S**peedMaster™ 10G is a dedicated contact module and interconnect insert package designed for use in MIL-DTL-38999 Series III type SuperNine™ connectors. SpeedMaster™ meets the unique installation, performance requirements, and use preferences of the aerospace industry. Optimized for high-speed Cat 6A Ethernet, the SpeedMaster™ 10G system offers industry-leading NEXT, return loss and insertion loss performance due to its highly-engineered isolation and separation architecture. Easy to assemble, terminate, install, and repair, the SpeedMaster™ 10G utilizes size #22D contacts, tools, and cable, and meets the broad range of aerospace industry requirements for vibration, temperature cycling, durability, and safe, reliable performance. Applications include defense, military and commercial aircraft electronics, in-flight entertainment, medical equipment, rail electronics systems, and industrial automation/robotics.

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



SuperNine® Plug and Receptacle with SpeedMaster™ high-speed insert and contact modules



Available SpeedMaster™ insert arrangements for use in MIL-DTL-38999 Series III type SuperNine® connectors

ADVANCED PERFORMANCE

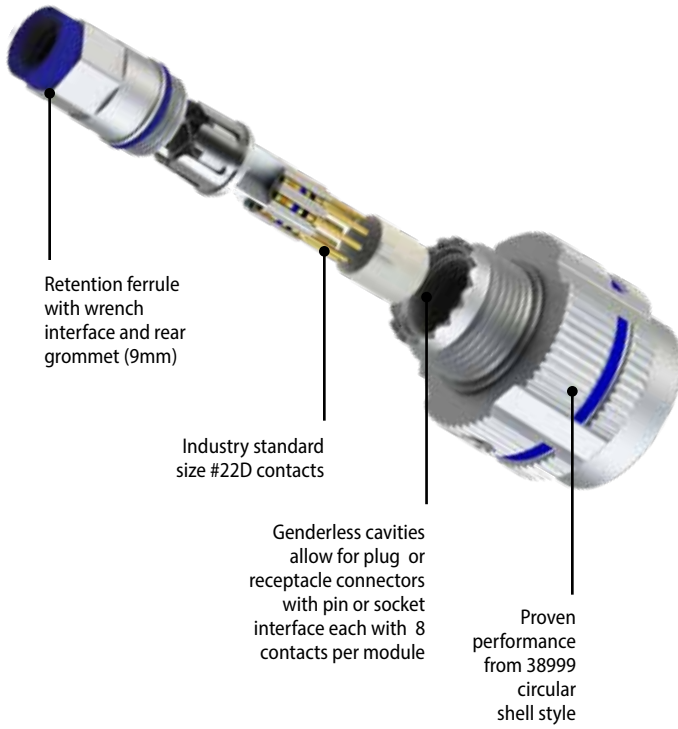
# SuperNine® High-Speed Series



## MIL-DTL-38999 Series III Type Environmental Connectors

### SpeedMaster™ octaxial 10G, Cat 6A, size #22 contact system

HIGH-SPEED CONNECTORS



### The SpeedMaster™ Difference

SpeedMaster™ is a high-speed shielded contact and insert solution for SuperNine 38999 type connectors. SpeedMaster™ shielded contact modules incorporate 4 pairs of size #22D pins or sockets for full 10G Ethernet performance per module. Each module is individually shielded within the special shell insert, and retained in place with a threaded ferrule. Module cavities in the special SpeedMaster™ insert are genderless allowing both pin and socket interfaces for plugs or receptacles. Contact modules are easily removable and repairable, helping to reduce network downtime and improve network function and performance. Meet the demand for the next generation Cat 6A networks with SpeedMaster™, the next generation contact / connector system from Glenair. Hermetic versions also available see section D.

### SPEEDMASTER™ 10G NEXT-GENERATION CONNECTION SYSTEM



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



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

# MIL-DTL-38999 Series III Type Environmental Connectors Performance Specifications

HIGH-SPEED CONNECTORS

Performance Specification, IAW MIL-DTL-32546, MIL-DTL-38999 Series III Rev. M, TIA-568-C.2, and Glenair SpeedMaster™						
Test	Test Requirement				Requirement Met	
High-speed Performance*	Individual contact modules meet the performance requirements of TIA-568-C.2: • Return Loss      • Insertion Loss      • NEXT      • PS NEXT • ACR-F      • PS ACR-F      • ACR-N				Meets TIA-568-C.2, section 6.2	
Temperature Cycling†	Mated connectors shall be tested as specified in EIA-364-32, Method A, Condition VI -65°C to +200°C					
Mating/Unmating Forces	Maximum Engagement & Disengagement		Minimum Disengagement		Meets MIL-DTL-38999, paragraph 3.11	
	Shell Size	Pound inch	Newton meters	Pound inch		Newton meters
	11*	12	1.4	2		0.2
	19‡	28	3.2	3		0.3
	21‡	32	3.6	5		0.6
25*	40	4.6	5	0.6		
Durability*	No electrical or mechanical defects after 500 cycles of engagement and disengagement				Meets MIL-DTL-32546, paragraph 3.11	
Altitude Immersion	Mated connectors shall be tested as specified in EIA-364-03 75,000 ft equivalent					
Insulation Resistance at Ambient Temperature*	Unmated connectors shall be tested as specified in EIA-364-21 5000 megaohms min. at 25°C				Meets MIL-DTL-32546, paragraph 3.13.1	
Insulation Resistance at Elevated Temperature*	Unmated connectors shall be tested as specified in EIA-364-21 1000 megaohms min. at 200°C					
Salt Spray‡	Finish		Corrosion Resistance		MIL-DTL-32546, paragraph 3.16 Finish ME: Meets Finishes MT, NF, & ZR: Exceeds	
	Electroless Nickel (ME)		48 hrs			
	PTFE/Nickel (MT)		500 hrs			
	OD Cadmium (NF)		500 hrs			
	Black Zinc-Nickel (ZR)		500 hrs			
Vibration, Sine	No discontinuity greater than 1 microsecond, no cracking, breaking, or loosening of parts, plug shall not become disengaged from the receptacle. Connectors shall meet electrical requirements after test. 60 G's					
Vibration, Random at Ambient Temperature*	No discontinuity greater than 1 microsecond, no cracking, breaking, or loosening of parts, plug shall not become disengaged from the receptacle. Connectors shall meet electrical requirements after test. 49 G's rms				Meets MIL-DTL-32546, paragraph 3.21	
Standard Shock*	No loosening of parts, cracking, or other deleterious results hindering further part operation after 300 G's in each of 3 mutually perpendicular planes				Meets MIL-DTL-32546, paragraph 3.22	
High Impact Shock	Mated connectors equipped with straight environmentally sealed backshells shall withstand high impact shock per MIL-S-901, lightweight, Grade A					
Shell-to-Shell Conductivity‡	Finish		Maximum Millivolt Drop		Exceeds MIL-DTL-32546, paragraph 3.23	
	Electroless Nickel (ME)		1.0 mv			
	PTFE/Nickel (MT)		2.5 mv			
	OD Cadmium (NF)		2.5 mv			
	Black Zinc-Nickel (ZR)		2.5 mv			

**MIL-DTL-38999 Series III Type Environmental Connectors  
Performance Specifications**

HIGH-SPEED CONNECTORS

**Performance Specification, IAW MIL-DTL-32546, MIL-DTL-38999 Series III Rev. M, TIA-568-C.2, and Glenair SpeedMaster™**

Humidity*	Testing shall be performed as specified in EIA-364-21, Method IV						Meets MIL-DTL-32546, paragraph 3.25	
Shielding Effectiveness‡	Leakage Attenuation Min (dB)			Leakage Attenuation Min (dB)			Meets MIL-DTL-32546, paragraph 3.27	
	Frequency (MHz)	Finish ME	Finishes MT, NF, ZR	Frequency (MHz)	Finish ME	Finishes MT, NF, ZR		
	100	90	90	1,500	76	69		
	200	88	88	2,000	70	65		
	300	88	88	3,000	69	61		
	400	87	87	4,000	68	58		
	800	85	85	6,000	66	55		
	1,000	85	85	10,000	65	50		
	Fluid Immersion	No visible damage from immersion in various fuels and oils. Electrical performance requirements shall still be met.						

\* Indicates that test has been performed/data is available  
 † Thermal cycling has been done from -55°C to +200°C  
 ‡ Qualification by similarity

**38999 SPEEDMASTER SUMMARY**

**Standard Material and Finishes**

- Shell, Barrel, Coupling Nut, Jam-nut: Aluminum alloy per ASTM-B211.
- Grounding spring: BeCu alloy/electroless nickel finish
- Seals, O-Ring: Fluorosilicone Blend

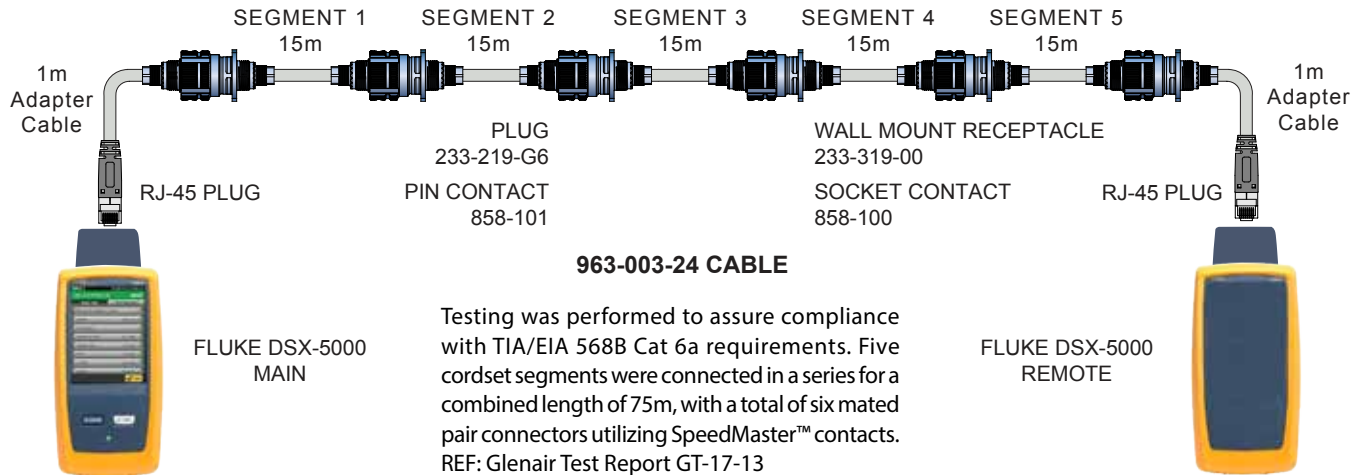
**Shell Type and Sizes**

- Shell Type: D38999 Series III Type, sizes 11, 19, 21, 25

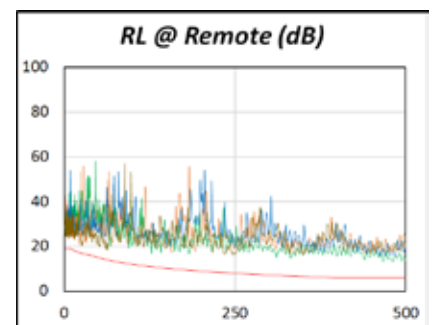
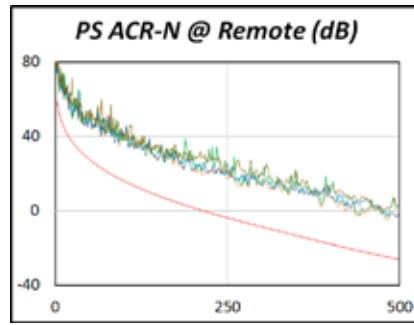
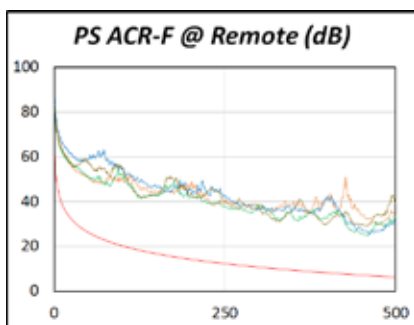
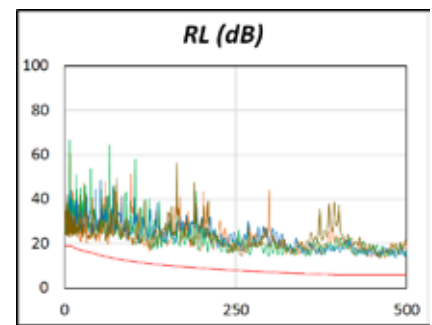
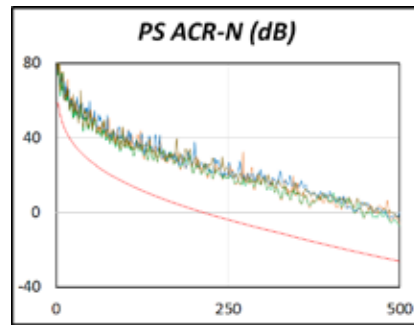
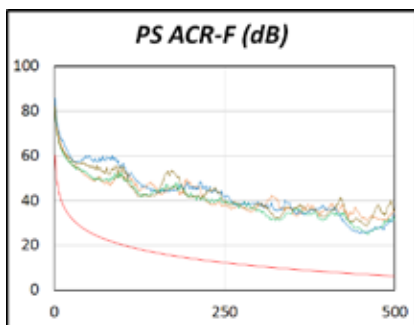
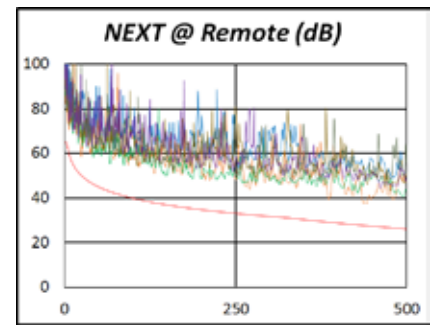
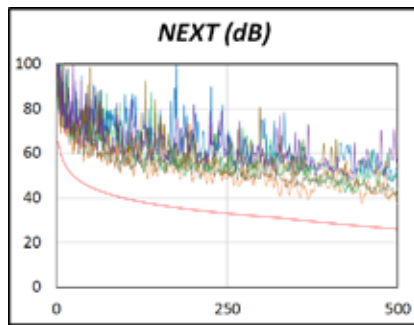
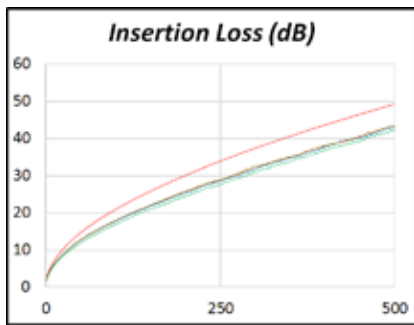


# MIL-DTL-38999 Series III Type Environmental Connectors 10GBASE-T Cat 6A Compliance Testing Contacts

HIGH-SPEED CONNECTORS



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

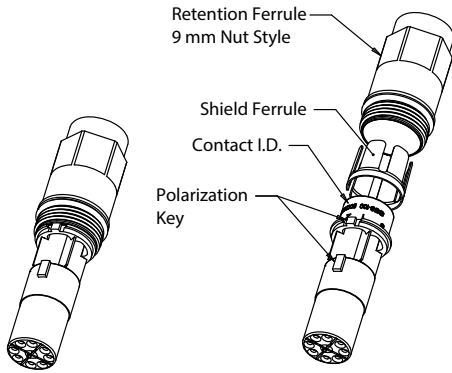




## MIL-DTL-38999 Series III Type Environmental Connectors 858-100 and 858-101 SpeedMaster Cat 6A contacts

HIGH-SPEED CONNECTORS

### 858-100 SPEEDMASTER™ SOCKET MODULE

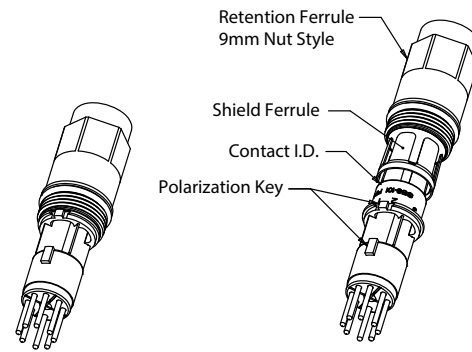


<b>858</b>	<b>-100</b>	<b>-1</b>
Product Code	Basic No	See Cable Size Table

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

Speedmaster™ Module Inner Contact Pinout		Pin Out	
SOCKET MODULE FACE 858-100	PIN MODULE FACE 858-101	Location	Color
		1	Orng/Wht
2	Orange		
3	Blu/Wht		
4	Blue		
5	Brwn/Wht		
6	Brown		
7	Grn/White		
8	Green		

### 858-101 SPEEDMASTER™ PIN MODULE



<b>858</b>	<b>-101</b>	<b>-1</b>
Product Code	Basic No	See Cable Size Table

#### NOTES

- IMPORTANT: SpeedMaster high-speed modules can only be installed in Glenair SpeedMaster series connectors.**
- High-speed module is designed to accommodate cable with wire insulation up to Ø.055 inches and cable jackets up to Ø.280 inches. See cables table for suggest list.
- For cables in-between sizes, select smaller size.
- See AI85082 for assembly instructions
- Tools Needed:
  - M39029/57-354 socket contacts:
    - Basic tool M22520/2-01 (Glenair P/N 809-015)
    - Positioner M22520/2-06 (Glenair P/N 859-019)
  - M39029/58-360 pin contacts:
    - Basic tool M22520/2-01 (Glenair P/N 809-015)
    - Positioner M22520/2-09 (Glenair P/N 859-018)
- SpeedMaster insert arrangements are exclusive to SpeedMaster and are unrelated to other insert patterns of the same size and arrangement
- Material/Finish
  - Isolator body - copper alloy / electroless nickel.
  - Contacts - copper alloy / gold plated
  - Retention ferrule - copper alloy / electroless nickel.
  - Inner shield ferrule: copper alloy / electroless nickel.
  - Insulators - rigid dielectric / N.A.
  - O-rings/grommets - fluorosilicone blend / N.A

Cables					
Cable P/N	Cable Category	Cable Construction	Wire Gage	Cable Ø	Assembly Instructions
963-003-24	CAT 6A	SF/UTP	24	.280 (7.11)	AI85082
963-003-26	CAT 6A	SF/UTP	26	.220 (5.59)	
963-037	CAT 6A	SF/UTP	24	.260 (6.60)	
963-033-24	CAT 6A	S/FTP	24	.260 (6.60)	
933-033-26	CAT 6A	S/FTP	26	.220 (5.59)	

\*Consult factory for use with other cable

## MIL-DTL-38999 Series III Type Environmental Connectors 8575-0001 SpeedMaster™ Cat 6A contacts, pre-wired

HIGH-SPEED CONNECTORS



Pre-wired SpeedMaster assemblies are 100% tested and ready for use. For use with Series 23 SuperNine connectors with keyed size #8 cavities, these assemblies are available with three termination options: single-ended SpeedMaster contacts on one end, SpeedMaster contacts on both ends, or SpeedMaster contact on one end and RJ45 plug on the other end.

### Technical Data Specifications

- Operating temperature: -65°C to +200°C (SpeedMaster) or -40°C to +85°C (RJ45); cable dependent
- Meets EIA/TIA 568C.2-10 and IEC 60603-7-51 Cat 6A 500 MHz
- Characteristic Impedance: 100 ohms
- Insulation resistance: 200 megohms min.
- Durability: 500 mating cycles

### SpeedMaster Construction

- Isolator body:** copper alloy/electroless nickel
- Contacts:** copper alloy, gold plated
- Retention ferrule and shield ferrule:** copper alloy/electroless nickel
- Insulator:** rigid plastic/N.A.
- O-rings/grommets:** fluorosilicone blend/N.A.

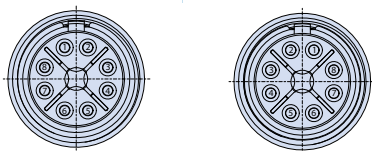
### RJ45 Construction

- Body:** UL 94-V0 polycarbonate
- Grommet:** UL 94-V0 polycarbonate
- Contacts:** copper alloy, 50 microinches selective gold plating
- Shield:** nickel-plated copper alloy

### Connector Compatibility

- Glenair 824-009 and -010 Mighty Mouse
- Glenair 280-098 thru -103 HiPer-D
- Glenair 233-219 SuperNine

### Contact Positions



Mating Face of Pin Contacts

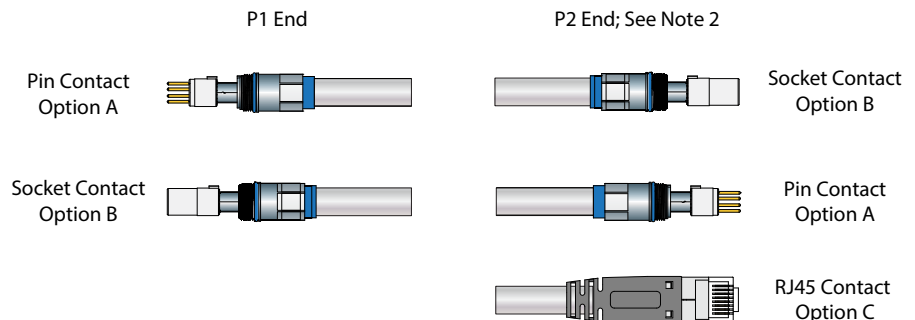
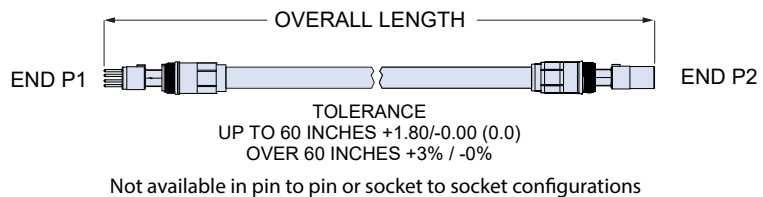
Mating Face of Socket Contacts

### Notes

- 100% tested for continuity, DWV and IR.
- Not available in pin to pin or socket to socket configurations..

Part Number Development					
Sample Part Number	8575-0001	-A	C	-1	-12
Product	8575-0001				
End A Contact Type*	-A = 858-101-X SpeedMaster pin -B = 858-100-X SpeedMaster socket				
End B Contact/Connector*	A = SpeedMaster pin B = SpeedMaster socket C = RJ45 plug N = No connector				
Cable Option	-1 = 963-003-24      -5 = 963-033-24 -2 = 963-003-26      -6 = 963-033-26 -4 = 963-037				
Length	Overall length in inches				

\* Not available in pin to pin or socket to socket configurations

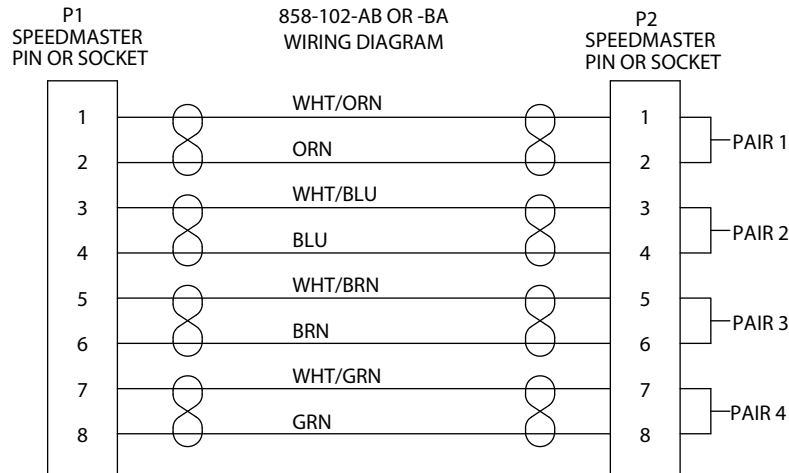


**MIL-DTL-38999 Series III Type Environmental Connectors**

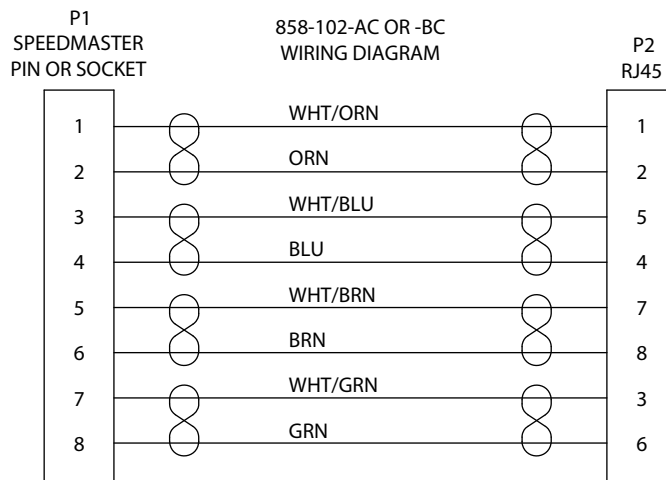
**8575-0001 SpeedMaster™ Cat 6A contacts, pre-wired**

HIGH-SPEED CONNECTORS

**8575-0001 SPEEDMASTER™ WIRING DIAGRAMS**



SPEEDMASTER TO SPEEDMASTER IS 1 TO 1.  
MUST BE PIN TO SOCKET OR SOCKET TO PIN  
OMIT P2 FOR 858-102-AN OR -BN

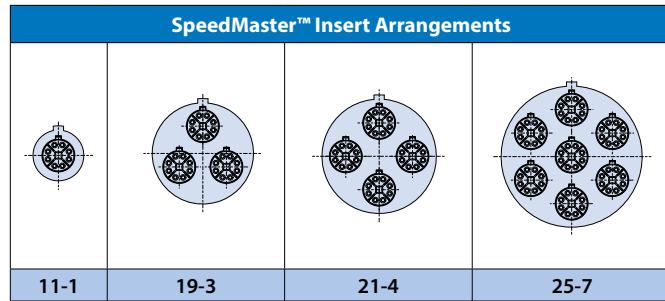


SPEEDMASTER PIN OR SOCKET TO RJ45 PLUG

## MIL-DTL-38999 Series III Type Environmental Connectors 233-219 SpeedMaster™ plug and receptacle connectors

HIGH-SPEED CONNECTORS

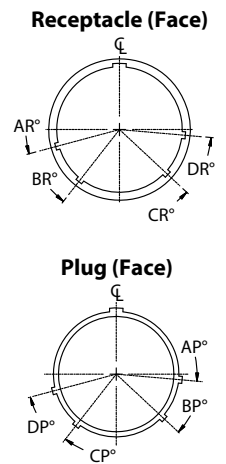
SpeedMaster™ Connector Part Number Development	
<b>Sample Part Number</b>	233-219 -G6 ME 25 -7 P N -1
<b>Series / Basic Part No.</b>	SuperNine Environmental High-Speed connector
<b>SpeedMaster™ Connector Style*</b>	<b>G6</b> = Plug 38999/26 <b>05</b> = Receptacle, in-line <b>07</b> = Receptacle, jam-nut <b>38999/24</b> <b>00</b> = Receptacle, wall mount 38999/20 <b>CM</b> = Receptacle, wall mount, metric clinch nuts <b>CS</b> = Receptacle, wall mount, standard clinch nuts <b>D0</b> = Receptacle, wall mount, thru holes <b>T0</b> = Receptacle, wall mount, tapped holes <b>HM</b> = Receptacle, wall mount, metric helicoils <b>HS</b> = Receptacle, wall mount, standard helicoils
<b>Material/Finish</b>	<b>NF</b> = Cadmium Olive Drab <b>ZR</b> = Black Zinc Nickel <b>MT</b> = Nickel PTFE <b>ME</b> = Electroless Nickel
<b>Shell Size</b>	11, 19, 21, 25
<b>Insert Arrangement</b>	See Insert Arrangement Table
<b>Module Type</b>	P = Pin    S = Socket    A = Less contacts; see note 1
<b>Alternate Polarization</b>	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III); See alternate positions table.
<b>Cable Size</b>	See Cable Size Table for details; omit for pre-terminated contact modules



**NOTES**

1. Spare High-Speed modules (858-100, 858-101) may be ordered separately. Module wrench tool (607-011) supplied with each connector. Select the "less contacts (A)" option when ordering pre-terminated cable to SpeedMaster contacts listed on page C-52. Omit cable size from part number development when selecting the "less contact" option from the module type of the part number development.
2. See assembly instructions A185082 for high-speed module assembly. See assembly instructions A185086 for module installation.
3. Unless otherwise specified, all dimensions are per MIL-DTL-38999/20, /24 and /26
4. For cables in between sizes, select the smaller size
5. See page 8 for SpeedMaster module inner contact pinout
6. Glenair 233-219 connectors only accommodate Glenair SpeedMaster contacts.
7. SpeedMaster insert arrangements are exclusive to SpeedMaster and are unrelated to other insert patterns of the same size and arrangement

Alternate Positions						
Shell Size	Shell Code	Position Code	AR° AP°	BR° BP°	CR° CP°	DR° DP°
B	11	N	95	141	208	236
		A	113	156	182	292
		B	90	145	195	252
		C	53	156	220	255
		D	119	146	176	298
F	19	N	80	142	196	293
		A	135	170	200	310
		B	49	169	200	244
		C	66	140	200	257
		D	62	145	180	280
G	21	E	79	153	197	272
		J	25			



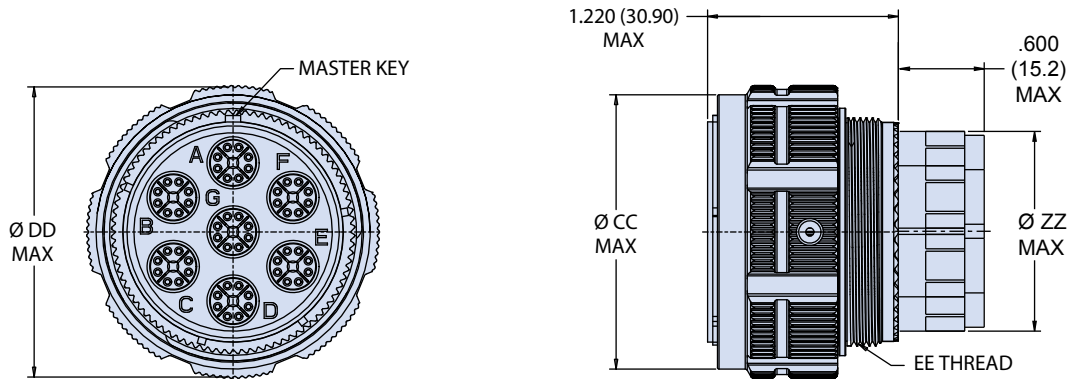
Cable Size			
Cable Size	Cable Ø	Cable Size	Cable Ø
1	.280 (7.11)	5	.240 (6.10)
2	.270 (6.86)	6	.230 (5.84)
3	.260 (6.60)	7	.220 (5.59)
4	.250 (6.35)		

SpeedMaster™ High-Speed Cable					
Cable P/N	Cabel Category	Cable Construction	Wire Gage	Cable Dia.	Assembly Instruction
963-003-24	Cat 6A	SF/UTP	24	.280	A185082
963-003-26	Cat 6A	SF/UTP	26	.220	
963-037	Cat 6A	SF/UTP	24	.260	
963-033-24	CAT 6A	S/FTP	24	.260	
933-033-26	CAT 6A	S/FTP	26	.220	

**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-219 SpeedMaster™ plug and receptacle connectors**

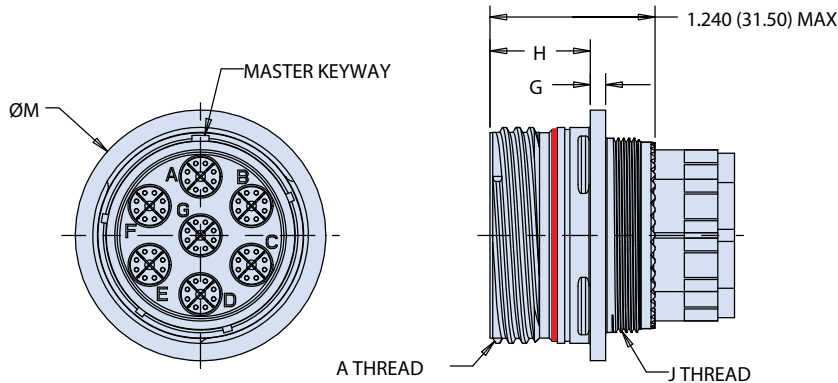
HIGH-SPEED CONNECTORS

**233-219-G6 PLUG D38999/26 TYPE**



G6 Plug Per MIL-DTL-38999/26					
Shell Size Code	Shell Size	Ø CC Max	Ø DD Max	EE Thread	Ø ZZ Max
B	11	.929 (23.60)	.984 (24.99)	M15x1.0-6g 0.100R	.405 (10.29)
F	19	1.469 (37.31)	1.516 (38.51)	M28x1.0-6g 0.100R	.885 (22.48)
G	21	1.594 (40.49)	1.642 (41.71)	M31x1.0-6g 0.100R	.845 (21.46)
J	25	1.843 (46.81)	1.890 (48.01)	M37x1.0-6g 0.100R	1.285 (32.64)

**233-219-05 IN-LINE RECEPTACLE**

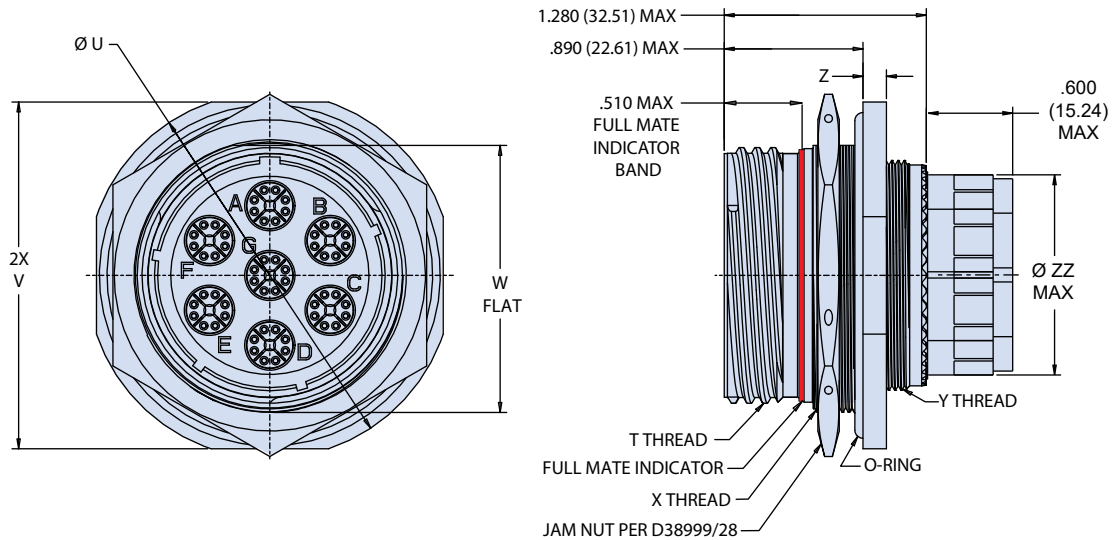


05 In-Line Receptacle						
Shell Size Code	Shell Size	A Thread	G	H	J THREAD	ØM
B	11	.7500-1P-.3L-TS-2A	.098 (2.49)	.820 (20.83)	M15x1.0-6g 0.100R	.984 (24.99)
F	19	1.2500-1P-.3L-TS-2A	.083 (2.11)	.771 (19.58)	M28x1.0-6g 0.100R	1.516 (38.51)
G	21	1.3750-1P-.3L-TS-2A	.126 (3.20)	.790 (20.07)	M31x1.0-6g 0.100R	1.642 (41.71)
J	25	1.6250-1P-.3L-TS-2A	.083 (2.11)	.741 (18.82)	M37x1.0-6g 0.100R	1.890 (48.01)



**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-219 SpeedMaster™ plug and receptacle connectors**

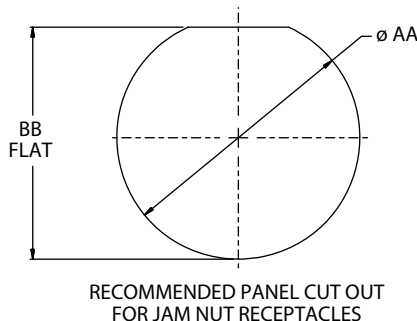
**233-219-07 JAM-NUT MOUNT RECEPTACLE, D38999/24 TYPE**



HIGH-SPEED CONNECTORS

07 Jam-Nut Per MIL-DTL-38999/24

Shell Size Code	Shell Size	T Thread	U	V	W Flat	X Thread	Y Thread	Z	ZZ Max
B	11	.7500-.1P-.3L-TS-2A	1.385 (35.18) 1.363 (34.62)	1.267 (32.18) 1.237 (31.42)	0.756 (19.20) 0.746 (18.95)	M20x1.0-6g 0.100R	M15x1.0-6g 0.100R	.122 (3.10) .083 (2.11)	.405 (10.29)
F	19	1.2500-.1P-.3L-TS-2A	1.949 (49.50) 1.925 (48.89)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35x1.0-6g 0.100R	M28x1.0-6g 0.100R	.153 (3.89) .114 (2.90)	.885 (22.48)
G	21	1.3750-.1P-.3L-TS-2A	2.075 (52.70) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38x1.0-6g 0.100R	M31x1.0-6g 0.100R		.845 (21.46)
J	25	1.6250-.1P-.3L-TS-2A	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44x1.0-6g 0.100R	M37x1.0-6g 0.100R		1.285 (32.64)



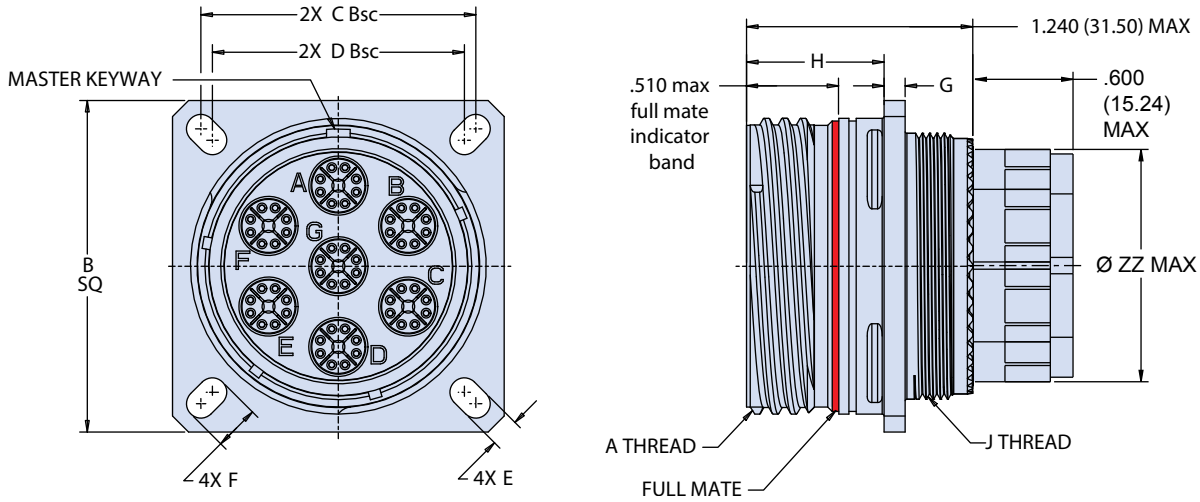
Mounting Holes Per MIL-DTL-38999

Shell Size	Shell Size	$\varnothing AA$	BB Flat
B	11	0.835 (21.21) 0.825 (20.95)	0.771 (19.58) 0.761 (19.33)
F	19	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)
G	21	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)
J	25	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)

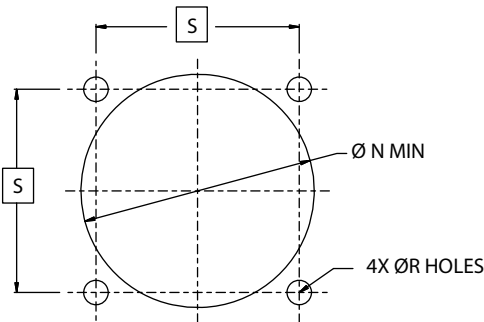
MIL-DTL-38999 Series III Type Environmental Connectors  
233-219 SpeedMaster™ plug and receptacle connectors

HIGH-SPEED CONNECTORS

233-219-00 SLOTTED HOLE, D38999/20 TYPE



00 Wall Mount Per MIL-DTL-38999/20												
Shell Size Code	Shell Size	A Thread	B SQ	C BSC	D BSC	E	F	G	H	J THREAD	ZZ Max	
B	11	.7500-.1P-.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	.812 (20.62)	.719 (18.26)	.136 (3.45) .120 (3.05)	.198 (5.03) .190 (4.83)	.098 (2.49) .083 (2.11)	.820 (20.83) .771 (19.58)	M15x1.0-6g 0.100R	.405 (10.29)	
F	19	1.2500-.1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)		.202 (5.13)			.186 (4.72)	.126 (3.20) .083 (2.11)	.790 (20.07) .741 (18.82)
G	21	1.3750-.1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)							
J	25	1.6250-.1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)		.162 (4.11) .142 (3.61)	.250 (6.35) .234 (5.94)			M37x1.0-6g 0.100R	1.285 (32.64)



Mounting Holes Per MIL-DTL-38999				
Shell Size	Shell Size	Ø N Min	Ø R Holes	S BSC
B	11	.796 (20.22)	.133 (3.38) .123 (3.12)	.812 (20.62)
F	19	1.297 (32.94)		1.156 (29.36)
G	21	1.422 (36.12)		1.250 (31.75)
J	25	1.672 (42.47)	.155 (3.94) .145 (3.68)	1.500 (38.10)

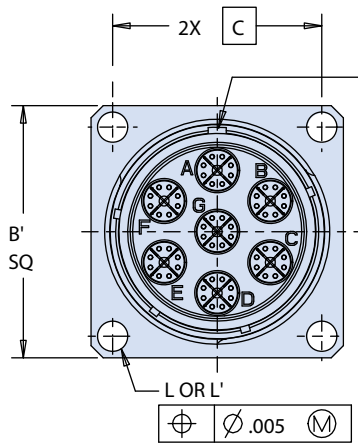
RECOMMENDED MOUNTING HOLES FOR WALL MOUNT (00) RECEPTACLES PER MIL-DTL-38999.

# MIL-DTL-38999 Series III Type Environmental Connectors

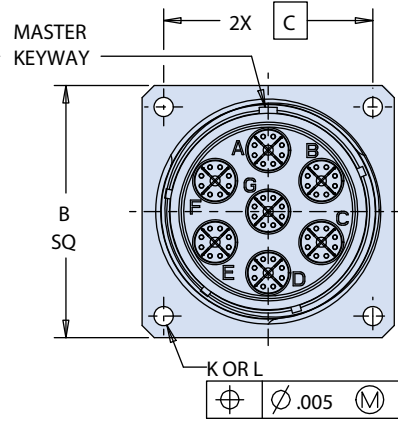
## 233-219 SpeedMaster™ plug and receptacle connectors

HIGH-SPEED CONNECTORS

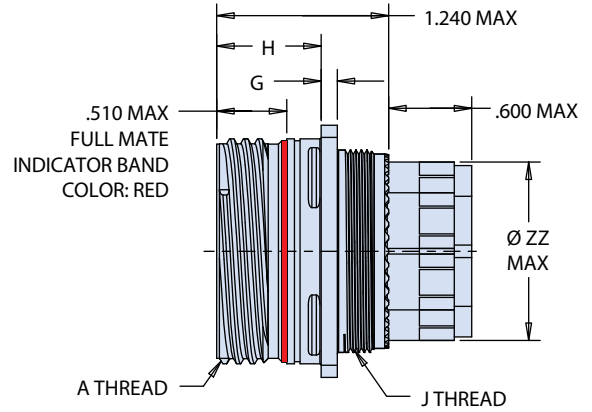
**233-219-CS CLINCH NUT STANDARD OR 233-219-CM CLINCH NUT METRIC AND 233-219-DO DRILLED HOLES AND 233-219-T0 TAPPED HOLES**



CM & CS STYLE

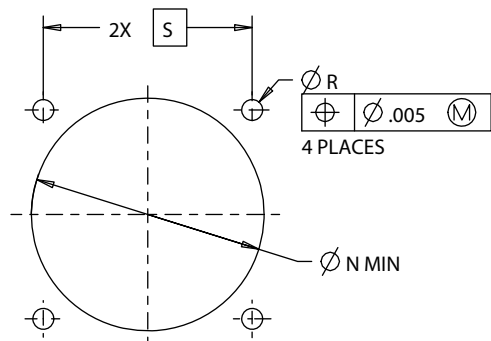


DO & T0 STYLE



CM, CS, DO, & T0 STYLE

CM, CS, DO and T0 Wall Mount												
Shell Size Code	Shell Size	A Thread	B SQ	B' SQ	C BSC	G	H	J THREAD	ØK	L Standard	L' Metric	ZZ Max
B	11	.7500-.1P-.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	1.187 (30.15) 1.147 (29.13)	.812 (20.62)	.098 (2.49) .083 (2.11)	.820 (20.83) .771 (19.58)	M15x1.0-6g 0.100R	.136 (3.45) .120 (3.05)	.112-40 UNC-2B	M3 x 0.5	.405 (10.29)
F	19	1.2500-.1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.531 (38.89) 1.491 (37.87)	1.156 (29.36)			M28x1.0-6g 0.100R				.885 (22.48)
G	21	1.3750-.1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.625 (41.28) 1.585 (40.26)	1.250 (31.75)	.126 (3.20) .083 (2.11)	.790 (20.07) .741 (18.82)	M31x1.0-6g 0.100R				.845 (21.46)
J	25	1.6250-.1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.875 (47.63) 1.835 (46.61)	1.500 (38.10)			M37x1.0-6g 0.100R	.162 (4.11) .146 (3.71)	.138-32 UNC-2B	M4 x 0.7	1.285 (32.64)

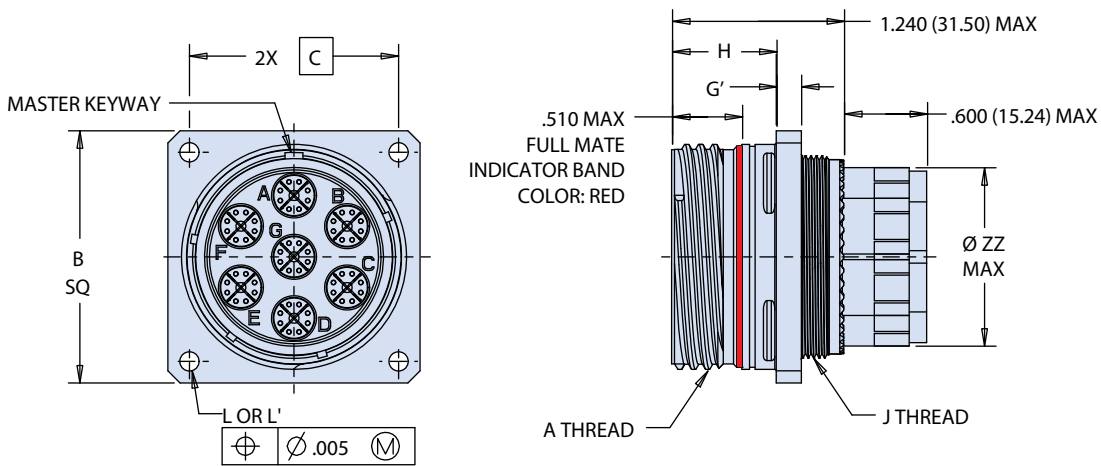


Mounting Holes				
Shell Size Size	Shell Size	Ø N Min	Ø R Holes	S BSC
B	11	.796 (20.22)	.133 (3.38) .123 (3.12)	.812 (20.62)
F	19	1.297 (32.94)		1.156 (29.36)
G	21	1.422 (36.12)		1.250 (31.75)
J	25	1.672 (42.47)	.155 (3.94) .145 (3.68)	1.500 (38.10)

**MIL-DTL-38999 Series III Type Environmental Connectors**  
**233-219 SpeedMaster™ plug and receptacle connectors**

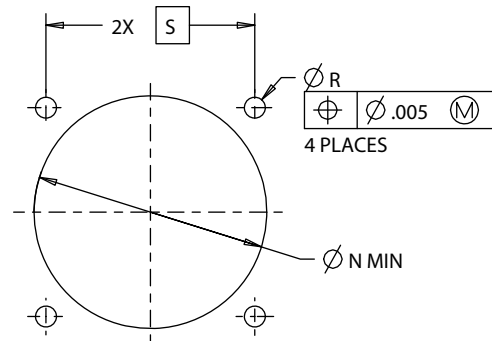
HIGH-SPEED SPACE-GRADE CONNECTORS

**HELICOILS STANDARD (HS) AND METRIC (HM)**



**HM & HS STYLE**

HM and HS Wall Mount										
Shell Size Code	Shell Size	A Thread	B SQ	C BSC	G'	H	J THREAD	L Thread (Standard)	L' Thread (Metric)	ZZ Max
B	11	.7500-.1P-.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	.812 (20.62)	.179 (4.55) .140 (3.56)	.820 (20.83)	M15x1.0-6g 0.100R	.112-40 UNC-2B	M3 x 0.5	.405 (10.29)
F	19	1.2500-.1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)		.771 (19.58)	M28x1.0-6g 0.100R			.885 (22.48)
G	21	1.3750-.1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)		.790 (20.07)	M31x1.0-6g 0.100R			.845 (21.46)
J	25	1.6250-.1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	.190 (4.83) .170 (4.32)	.741 (18.82)	M37x1.0-6g 0.100R	.138-32 UNC-2B	M4 x 0.7	1.285 (32.64)



Mounting Holes				
Shell Size Size	Shell Size	Ø N Min	Ø R Holes	S BSC
B	11	.796 (20.22)	.133 (3.38) .123 (3.12)	.812 (20.62)
F	19	1.297 (32.94)		1.156 (29.36)
G	21	1.422 (36.12)		1.250 (31.75)
J	25	1.672 (42.47)	.155 (3.94) .145 (3.68)	1.500 (38.10)

## MIL-DTL-38999 Series III Type Environmental Connectors 233-220 Receptacle with SpeedMaster™ 10G PC tail contacts

Part Number Development										
Sample Part Number	233-220				-07	ME	25	-7	P	N
Series / Basic Part No.	SuperNine Environmental High-Speed connector									
Connector Style*	See connector type table									
Material/Finish	NF = Cadmium Olive Drab ZR = Black Zinc Nickel		MT = Nickel PTFE ME = Electroless Nickel							
Shell Size	11, 19, 21, 25									
Insert Arrangement	See Insert Arrangement Table									
Module Type	P = Pin    S = Socket									
Alternate Polarization	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III); See alternate positions table.									



Socket Module

Pin Module

Connector Style	
Symbol	Description
00	Wall mount receptacle with slotted holes, standard standoff threads
10	Wall mount receptacle with slotted holes, metric standoff threads
CM	Wall mount receptacle with metric clinch nuts
CS	Wall mount receptacle with standard clinch nuts
HM	Wall mount receptacle with metric helicoils
HS	Wall mount receptacle with standard helicoils
07	Jam-nut receptacle

Alternate Positions						
Keyway Positions (Receptacle)						
Shell Size Code	Shell Size	Alternate Position Code	AR°	BR°	CR°	DR°
B	11	N	95	141	208	236
		A	113	156	182	292
		B	90	145	195	252
		C	53	156	220	255
		D	119	146	176	298
F G J	19 21 25	N	80	142	196	293
		A	135	170	200	310
		B	49	169	200	244
		C	66	140	200	257
		D	62	145	180	280
		E	79	153	197	272

Insert Arrangements			
11-1	19-3	21-4	25-7

### NOTES

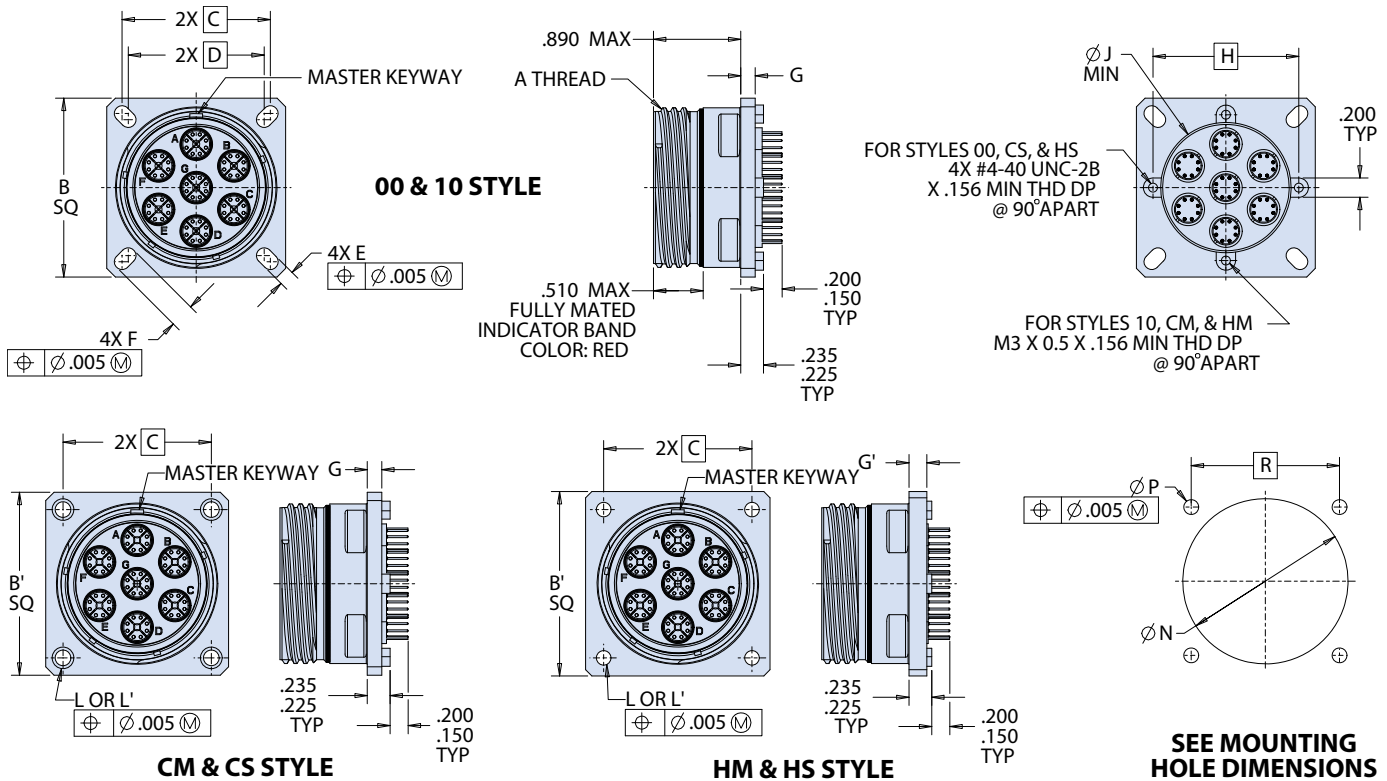
- Mates with Glenair 233-216-G6, D38999 SpeedMaster plug of same keying and insert arrangement. Mating connector must be 1.5 meter minimum cable length
- Material/finish
  - Shell, jam-nut: see part number development
  - Insert: Aluminum alloy/ silver
  - Seals, o-ring: Fluorosilicone blend/n.a.
  - Insulators: rigid dielectric/n.a.
  - Contacts: copper alloy/gold
  - Potting: epoxy/n.a.



## MIL-DTL-38999 Series III Type Environmental Connectors 233-220 Receptacle with SpeedMaster™ 10G PC tail contacts

HIGH-SPEED CONNECTORS

**233-263 WALL MOUNT WITH SLOTTED HOLES AND STANDARD (00) OR METRIC (10) STANDOFF THREADS, STANDARD (CS) OR METRIC (CM) CLINCH NUTS, OR STANDARD HELICOILS (HS) OR METRIC HELICOILS (HM)**



Dimensions													
Shell Size	A Thread	B Sq	B' Sq	C Bsc	D Bsc	E	F	G	G'	H	Ø J Min	Thread	
												L	L'
11	.7500	1.043 (26.49)	1.187 (30.15)	.812 (20.62)	.719 (18.26)			.122 (3.10)					
	-0.1P-0.3L-TS-2A	1.019 (25.88)	1.147 (29.13)					.083 (2.11)					
19	1.2500	1.449 (36.80)	1.531 (38.89)	1.156 (29.36)	1.062 (26.97)	.136 (3.45)	.202 (5.13)		.179 (4.55)				
	-0.1P-0.3L-TS-2A	1.425 (36.20)	1.491 (37.87)			.120 (3.05)	.186 (4.72)						
21	1.3750	1.575 (40.00)	1.625 (41.28)	1.250 (31.75)	1.156 (29.36)			.153 (3.89)					
	-0.1P-0.3L-TS-2A	1.551 (39.40)	1.585 (40.26)					.114 (2.90)					
25	1.6250	1.823 (46.30)	1.875 (47.63)	1.500 (38.10)	1.375 (34.92)	.162 (4.11)	.250 (6.35)		.190 (4.83)				
	-0.1P-0.3L-TS-2A	1.799 (45.69)	1.835 (46.61)			.146 (3.71)	.235 (5.97)						

Mounting Hole Dimensions			
Shell Size	Ø N Min	Ø P Holes	R Bsc
11	0.796 (20.22)	0.133 (3.38) 0.123 (3.12)	0.812 (20.62)
19	1.297 (32.94)		1.156 (29.36)
21	1.422 (36.12)		1.250 (31.75)
25	1.672 (42.47)	0.155 (3.94) 0.145 (3.68)	1.500 (38.10)

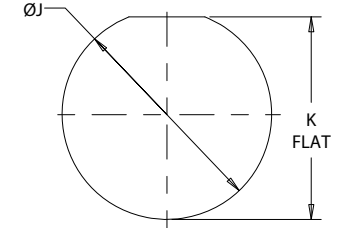
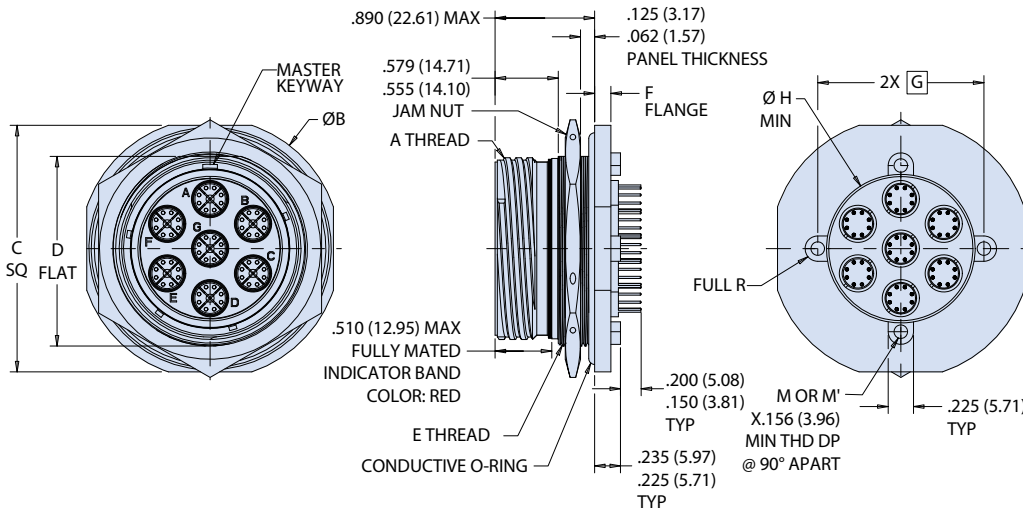
## MIL-DTL-38999 Series III Type Environmental Connectors

### 233-220 Receptacle with SpeedMaster™ 10G PC tail contacts

HIGH-SPEED CONNECTORS

#### 233-220-07- JAM-NUT MOUNT RECEPTACLE D38999/24 TYPE

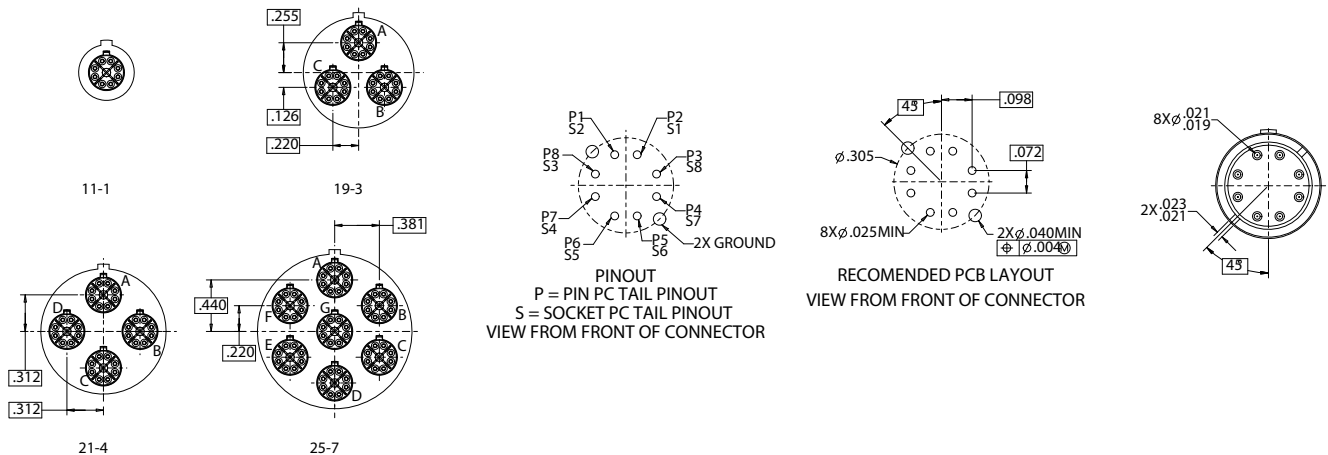
#### PANEL CUT-OUT



Dimensions		
Shell Size	ØJ ±0.010	K Flat
11	.830 (21.08)	.766 (19.46)
19	1.390 (35.31)	1.330 (33.78)
21	1.515 (38.48)	1.455 (36.96)
25	1.765 (44.83)	1.705 (43.31)

Dimensions										
Shell Size	A Thread -0.1P-0.3L-TS-2A	Ø B	C Sq	D Flat	E Thread ISO Metric	F	G	ØH Min	Threads	
									M	M'
11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.263 (32.08)	0.755 (19.18) 0.745 (18.92)	M20 X 1.0-6g	0.122 (3.10) 0.083 (2.11)	0.719 (18.26)	0.468 (11.89)	.112-40 UNC-2B	M3 X .05
19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g	0.153 (3.89) 0.114 (2.90)	1.150 (29.21)	0.934 (23.72)		
21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g		1.221 (31.01)	1.055 (26.80)		
25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g	1.475 (37.47)	1.307 (33.20)			

#### PCB FOOTPRINTS



**MIL-DTL-38999 Series III Type Environmental Connectors**  
**377-119 SpeedMaster™ multi-function backshell adapter**

HIGH-SPEED CONNECTORS

Part Number Development													
Sample Part Number	377				N	S	119	MT	11	06	4	G	01
Series	377 = Series 37 Aluminum Alloy Backshells												
Connector Designator*	N = Glenair SpeedMaster™ Connector												
Angular Function	S = Straight N = 90° Solid Elbow M = 45° Solid Elbow												
Basic No.	119												
Material/Finish	See Finish Table												
Shell Size	11, 19, 21, 25												
Optional Entry Size	See Optional Entry Size Table												
Length	In 1/2 Inch Increments; e.g. 4 = 2 inches (see note 2)												
Adapter Style	G = Gland Nut K = Tubing Adapter with Nut, Glenair PEEK B = Banding Adapter 601 Series Band Supplied with Backshell												
Cable Diameter	See Cable Diameter Table												

Dimensions											
Shell Size	A Thread ISO Metric	B Max	D Max	E Max	F Max	G Max	H Ref	J Flats	Conduit Size Ref	Insert Identification	No. of Holes
11	M15 X 1 - 6H	1.06 (26.92)	1.78 (45.21)	1.93 (49.02)	1.33 (33.78)	1.56 (39.62)	.54 (13.72)	.938 (23.83)	7/16	11-1	1
19	M28 X 1 - 6H	1.54 (39.12)	2.11 (53.59)	2.18 (55.37)	1.54 (39.12)	1.77 (44.96)	1.00 (25.40)	1.250 (31.75)	3/4	19-3	3
21	M31 X 1 - 6H	1.67 (42.42)	2.07 (52.58)	2.25 (57.15)	1.61 (40.89)	1.84 (46.74)	1.00 (25.40)	1.500 (38.10)	7/8	21-4	4
25	M37 X 1 - 6H	2.12 (53.85)	2.19 (55.63)	2.19 (55.63)	1.73 (43.94)	1.96 (49.78)	1.27 (32.26)	1.812 (46.02)	1	25-7	7

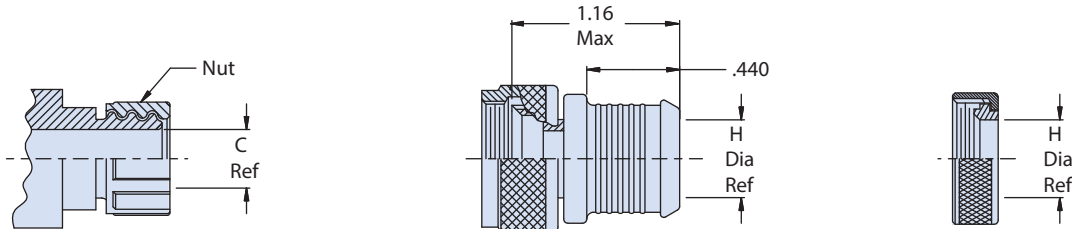
Optional Entry Size		
Entry Size	C Ref Sym K	Opt. Conduit Size Ref.
06	.330 (8.38)	7/16
07	.390 (9.91)	1/2
08	.515 (13.10)	5/8
10	.640 (16.26)	3/4
11	.640 (16.26)	3/4
13	.765 (19.43)	7/8
15	.890 (22.61)	1
17	1.125 (28.58)	1 1/4

Cable Diameter		
Entry Size	P Approx	Cable Accomodation (Ref)
01	.280 (7.11)	963-003-24, 963-037, 963-033-24
07	.220 (5.59)	963-003-26, 963-033-26

Finish Table		
Sym	Finish Description	
M	Aluminum alloy	Electroless nickel
MT		Nickel - PTFE
NF		Cad/O.D. over electroless nickel (100 hour salt spray)

**MIL-DTL-38999 Series III Type Environmental Connectors  
377-119 SpeedMaster™ multi-function backshell adapter**

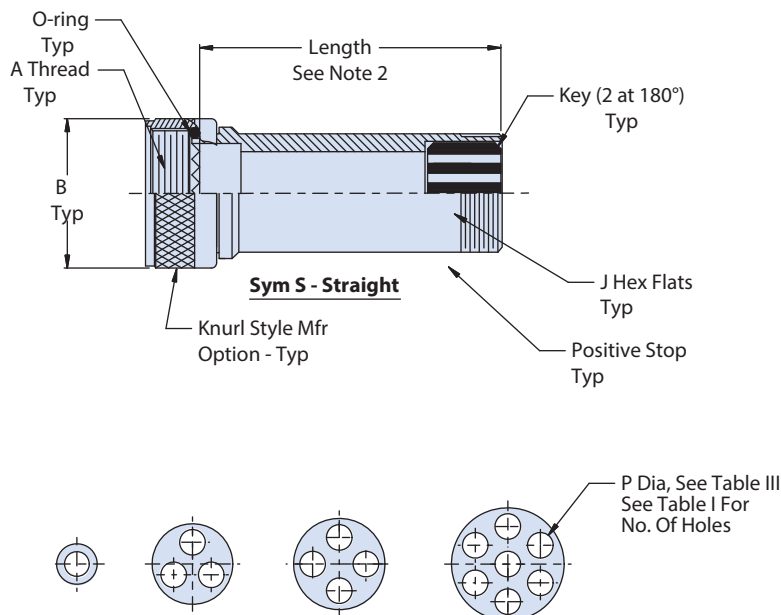
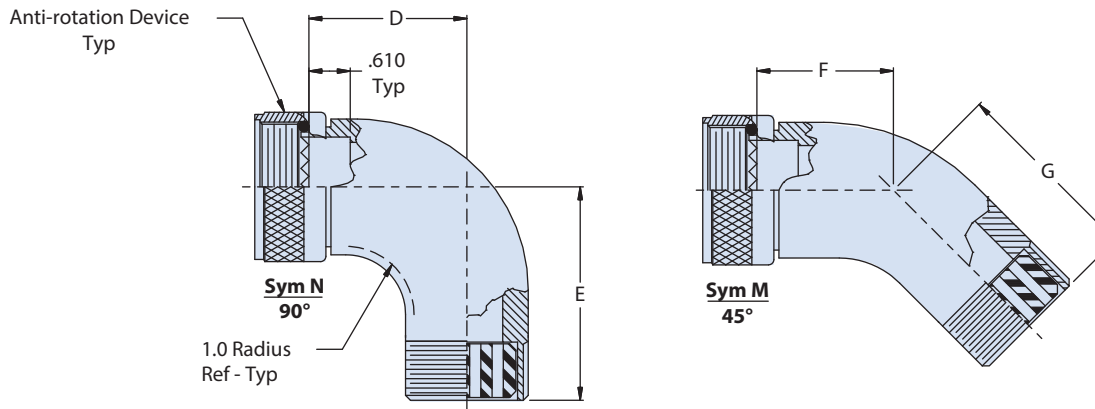
HIGH-SPEED CONNECTORS



**K - Peek Tubing Adapter with Nut**

**B - Banding Adapter**

**G - Gland Nut**

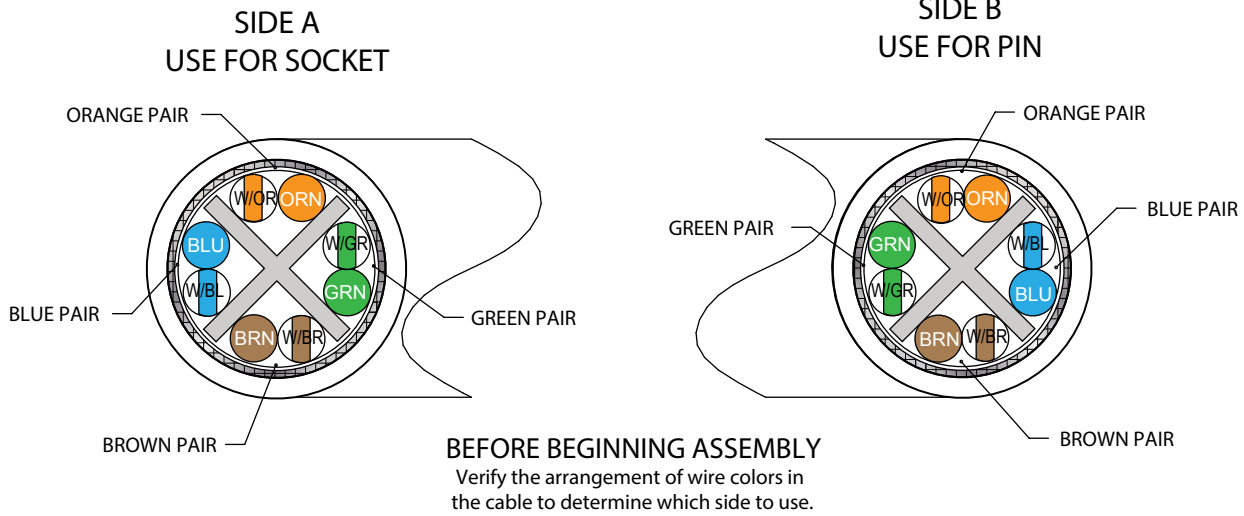


**NOTES**

- Glenair 600 series backshell assembly tools are recommended for assembly and installation
- Standard min. order length 1.5 inch, consult factory for shorter lengths
- Material:
  - Adapters, elbows, ferrules, coupling nut, nut: aluminum alloy/see finish table
  - Grommet, O-ring: fluorosilicone/N.A.
  - Anti-rotation device: corrosion resistant material/N.A.

**MIL-DTL-38999 Series III Type Environmental Connectors  
AI85082 Speed Master™ Assembly Instructions**

HIGH-SPEED CONNECTORS



**STEP 1**

- A. Place O-ring onto thread ferrule so that it is seated behind the thread. (Figure 1)
- B. Slide retention ferrule with O-ring onto cable.

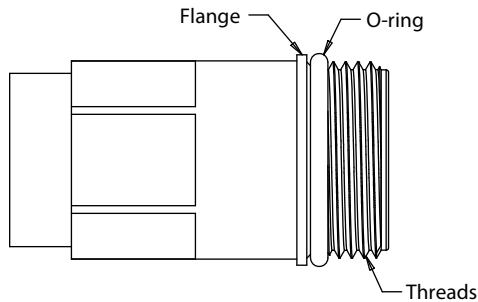


FIGURE 1

**STEP 2**

- A. Slide shield ferrule onto cable.
- B. Use proper tool to remove cable outer jacket to approximately .75 Inch.
- C. Comb braid out straight, and trim it to approximately .3 Inches. Fold braid back afterward.
- D. Trim outer tape, cable splice, and filler if any as close to the folded back braid shield as possible. (Figure 2)
- E. Use appropriate tool to strip the individual wires to .130 Inches max.

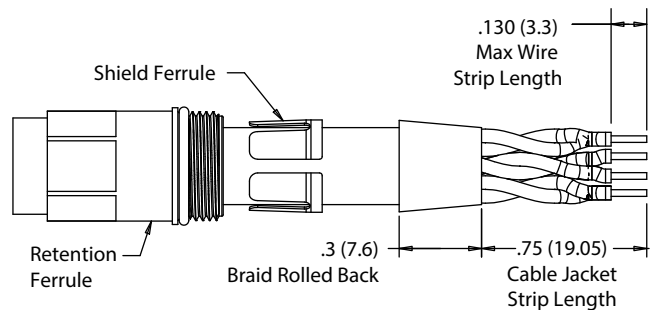


FIGURE 2



# MIL-DTL-38999 Series III Type Environmental Connectors AI85082 Speed Master™ Assembly Instructions

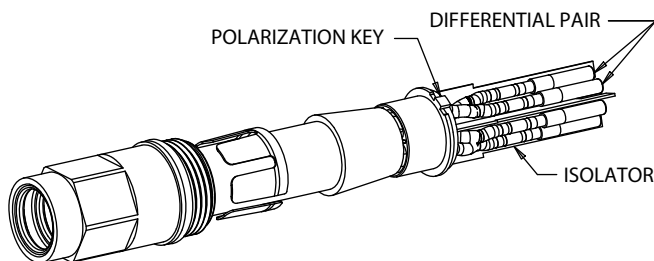
## STEP 3

**Maintain twist of pairs as best as possible. If needed – undo half a twist, do not over twist**

- A. Crimp contacts onto each individual wire using Daniels crimp tool M22520/2-01 (Glenair P/N 809-015) and Daniels positioner K41 (Glenair P/N 80-019) for sockets, and positioner K42 (Glenair P/N 809-018) for pins.
- B. Insert each pair of wires into the appropriate quadrant on the isolator according to figure 3 for socket modules, and figure 4 for pin modules.

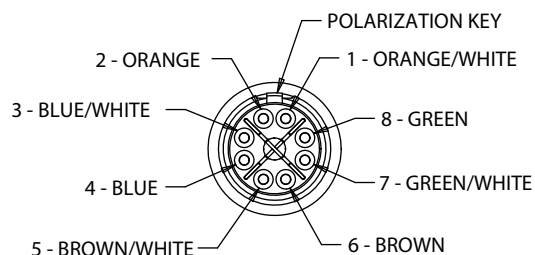
### NOTES:

- C. Crossing of pairs is not recommended. (cables should only be terminated as pin to socket).
- D. Assembly instructions use socket module (858-100) for illustrations. Pin module (858-101) is assembled in the same fashion.



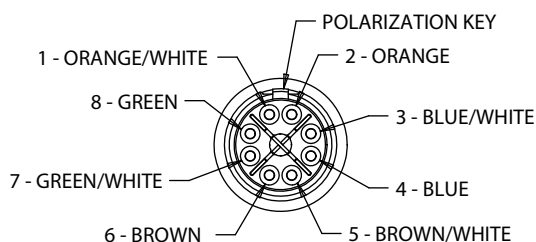
**FIGURE 3**

SOCKET MODULE PIN-OUT FROM FRONT



**FIGURE 4**

PIN MODULE PIN-OUT FROM FRONT

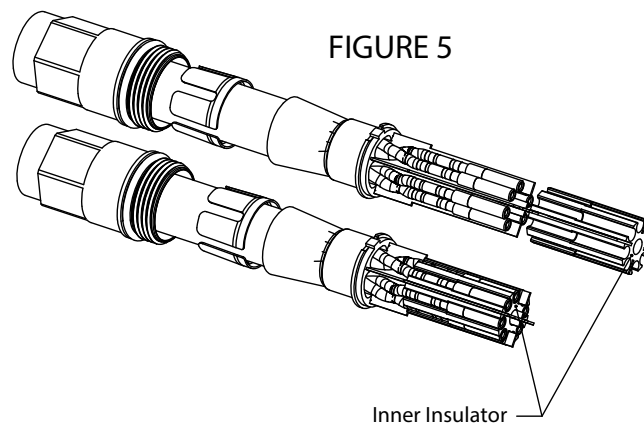


## STEP 4

- A. Push the cable all the way into the isolator so the wire pairs can be spread out easily
- B. Move the wires/contacts out of the way and insert the inner insulator on the isolator. Slide the inner insulator all the way onto the isolator.
- C. Snap each pair into the appropriate position on the inner insulator. Refer to figure 2 for sockets and figure 3 for pins.

### Notes:

Be sure to maintain twist of each pair as close to the insulator as possible to improve signal. Do not over twist



**FIGURE 5**

**MIL-DTL-38999 Series III Type Environmental Connectors  
AI85082 Speed Master™ Assembly Instructions**

HIGH-SPEED CONNECTORS

**STEP 5**

- A. Slide outer insulator onto module assembly. Be sure to align the slots/fins and polarization keys. (Figure 6 and 7)
- B. Fold braid shield forward onto termination zone. (Figure 7)
- C. Slide thread ferrule over shield ferrule and move both to the main shoulder. (Figure 8)
- D. Trim excessive braid to behind main shoulder. (Figure 8)

FIGURE 6

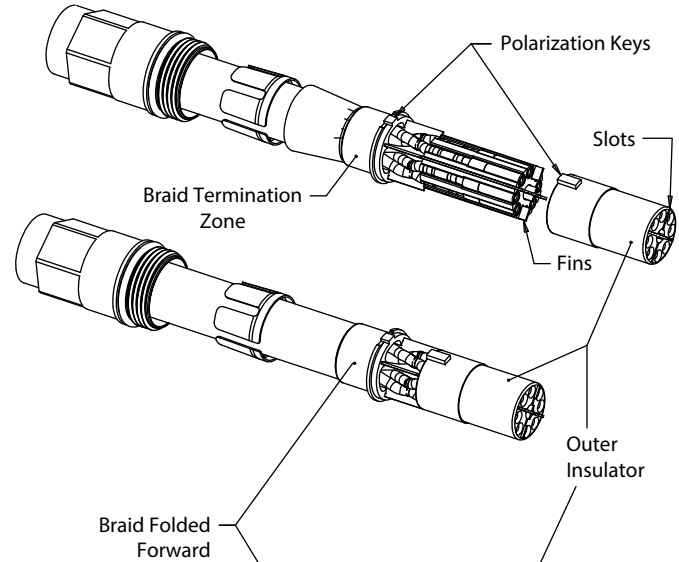
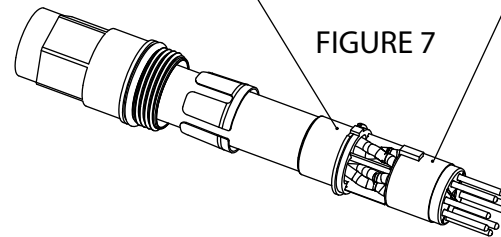
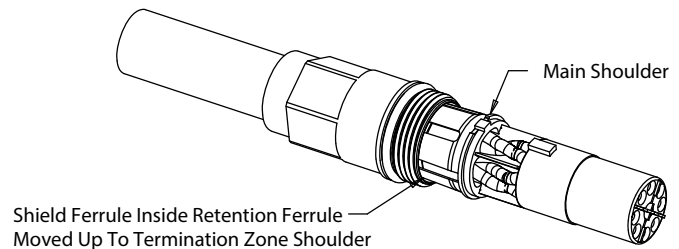


FIGURE 7



Pin Module (858-101) Shown For Reference

FIGURE 8



**MIL-DTL-38999 Series III Type Environmental Connectors  
AI85082 Speed Master™ Assembly Instructions**

**INSTALLATION**

- A. Slide completed module into the insert cavity, making sure to align the module polarization keys with the cavity keyway. (Figure 1)
- B. Using the retention ferrule tool (Glenair P/N 607-011), and a 3/8": wrench, tighten the retention ferrule to a torque of 5 in-lb. (Figure 2)
- C. Install remaining modules in the same manner (figure 3)

**Notes:**

Figures 1-3 show installation into a 4 cavity female rear panel mount. For other shell types and arrangements contact factory.

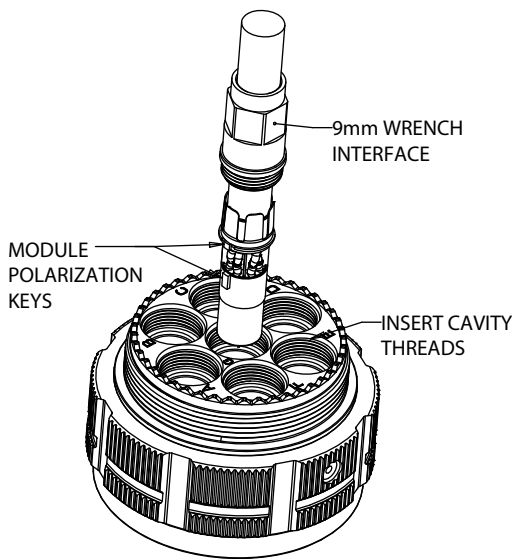


FIGURE 1

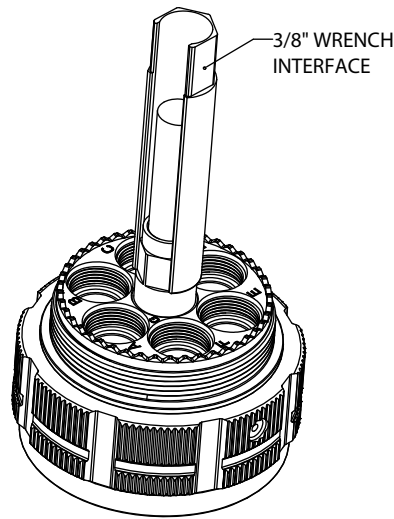


FIGURE 2

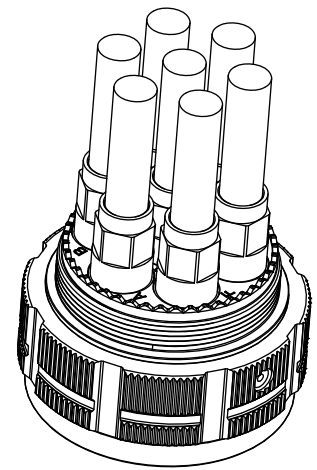


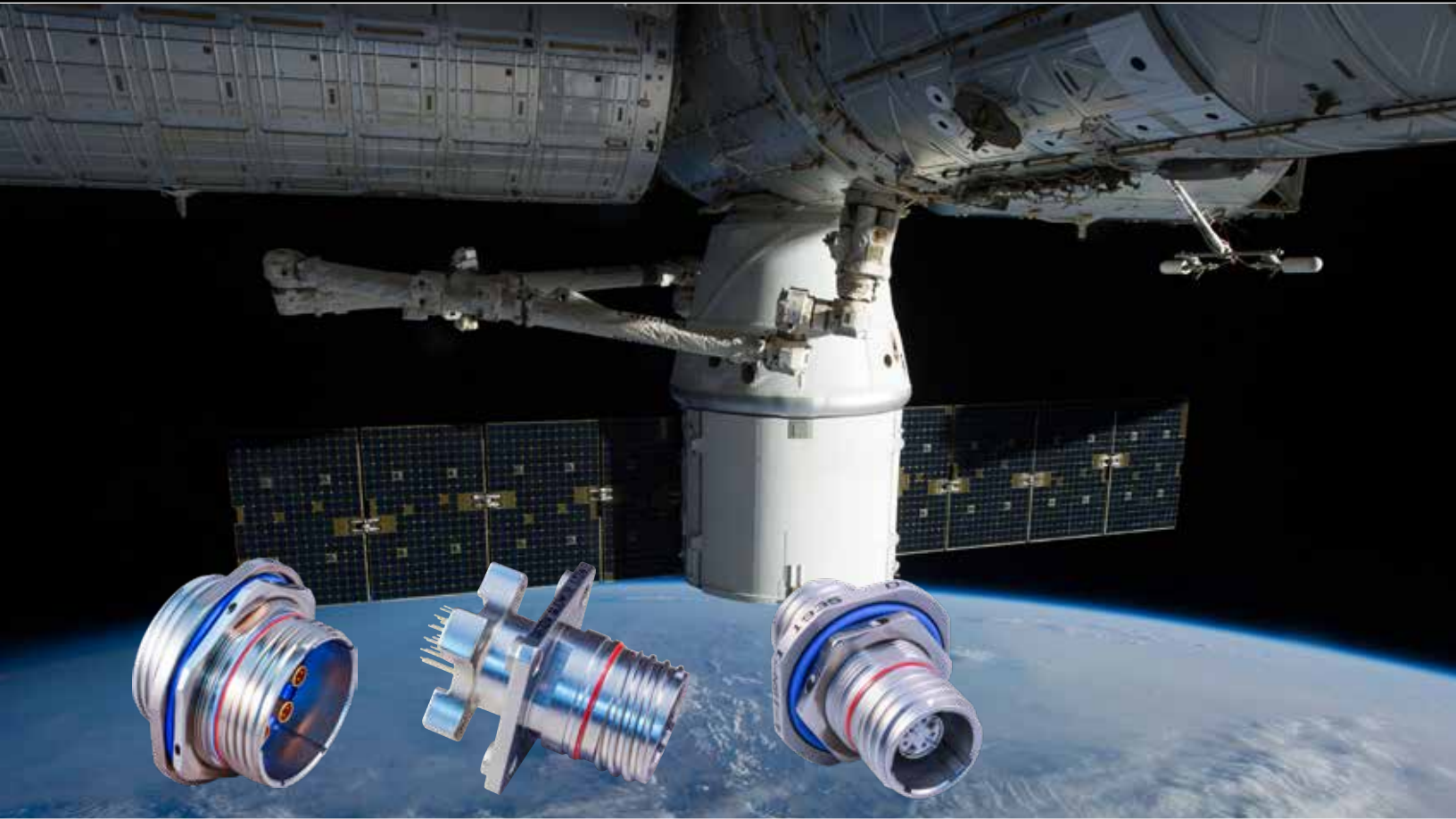
FIGURE 3



**SERIES 23 SUPERNINE®**

# Hermetic Series MIL-DTL-38999 Series III

Glass-to-metal sealed hermetic connectors in both pin and socket configurations. Available sealing (helium leak rate) from  $<1 \times 10^{-7}$  to  $1 \times 10^{-10}$  cc/sec



## Features

- DSCC qualified MIL-DTL-38999 Series III glass-sealed hermetics in both pin and socket configurations
- No material breakdown or aging over time
- Matched and compression seal glass-to-metal technologies
- Pressure resistance to 32,000+ PSI
- Available CODE RED lightweight aluminum hermetics with low-resistance copper contacts



## MIL-DTL-38999 Series III Type

### Product selection guide

**SuperNine Hermetic Connector Overview**  
**Materials and Specifications Summary**  
**Screening and Outgassing**  
**Special Shielded Contact Arrangements**  
**(233-261 and 233-262 Only)**  
**Performance Specifications**

D-3  
 D-5  
 D-6  
 D-7  
 D-11



**233-267 PC Tail, Receptacle** D-31  
 Box Mount  
 Jam-Nut Mount, Single and Dual O-ring  
 Glass sealed solution with pin or socket  
 feed-thru contacts and threaded standoff



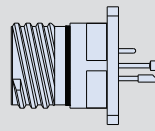
**233-265 Hermetic Receptacle** D-15  
 Jam-Nut Mount  
 Box Mount  
 Glass sealed solution with removable  
 socket contacts accessory threads



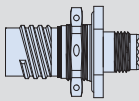
**233-268 Dual Flange, PC Tail** D-35  
 Box Mount  
 Jam-Nut Mount, Single and Dual O-ring  
 Glass sealed solution with pin or socket  
 feed-thru contacts and threaded standoff



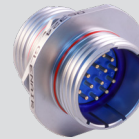
**233-266 Solder Cup, Receptacle** D-17  
 Jam-Nut Mount  
 Glass sealed solution with accessory  
 thread or banding porch



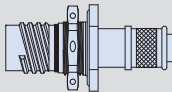
**233-271 Hermetic Receptacle** D-39  
 Flange Mount, Jam-Nut Mount,  
 Solder Mount, and Weld Mount  
 Receptacles with Thermocouple  
 Contacts



**233-277 Solder Cup, Receptacle** D-19  
 Jam-Nut Mount  
 Piston Sealing, 1000 PSI Rated, Solder Cup,  
 Banding Porch or Accessory Thread



**233-103 Bulkhead Feed-thru** D-44  
 Box Mount  
 Jam-Nut Mount, Single and Dual O-ring  
 Weld Mount  
 Pin, socket, pin-pin or socket-socket



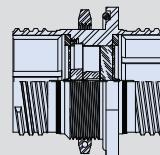
**233-278 Solder Cup, Receptacle** D-21  
 Jam-Nut Mount  
 Piston Sealing, 1000 PSI Rated, Removable  
 Crimp Contacts, Banding Porch or  
 Accessory Thread Version



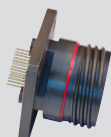
**233-261 Bulkhead Feed-thru** D-48  
 Box Mount  
 Jam-Nut Mount, Single and Dual O-ring  
 Weld Mount  
 Special shielded contacts



**233-263 Receptacle with 10G High-Speed Contacts** D-23  
 Square Flange Mount  
 Jam-Nut Mount, Single or Dual O-ring  
 Weld Mount



**233-284 Hermetic Bulkhead Feed-thru** D-52  
 Jam-Nut Mount Connector with  
 Thermocouple



**233-262 PC Tail, Receptacle** D-27  
 Box Mount  
 Jam-Nut Mount, Single or Dual O-ring  
 Weld Mount  
 Shielded contacts, short threaded standoff



**233-103 Sav-Con® Feed-thru** D-57  
 Jam-Nut Mount, Bulkhead Feed-thru  
 Gender Changer



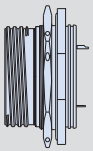
## MIL-DTL-38999 Series III Type

### Product selection guide

## CODE RED

SuperNine® Lightweight Hermetic Connectors with CODE RED™ Encapsulant, Overview

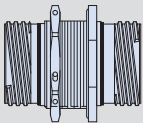
D-61



### 233-250 Lightweight Hermetic Receptacle

D-63

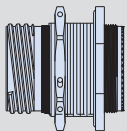
Jam-Nut Mount  
PC tail or solder cup contacts



### 233-251 Lightweight Hermetic Bulkhead Feed-thru

D-64

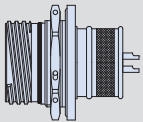
Jam-Nut Mount



### 233-252 Lightweight Hermetic Receptacle

D-66

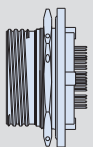
Jam-Nut Mount  
Crimp removable contacts



### 233-253 Lightweight Hermetic Receptacle

D-68

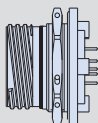
Jam-Nut Mount  
Solder cup contacts with banding porch and boot groove



### 233-254 Lightweight Hermetic Receptacle

D-70

Jam-Nut Mount  
High-speed quadrax PC tail contacts with standard or metric threaded standoff



### 233-255 Lightweight Hermetic Receptacle

D-72

Jam-Nut Mount  
PC tail contacts with threaded standoff



# SuperNine<sup>®</sup> Hermetic Connectors

## 38999 Series III type hermetic connectors with MIL-STD-1560 insert arrangements

SuperNine hermetic-class MIL-DTL-38999 type Series III connectors go beyond the standard mil-spec offerings with additional features and options. These include dual O-ring jam-nut designs, dual-flange PC tail receptacles, bulkhead feed-thrus, high-speed shielded RF contacts and removable socket contacts. Hermetically sealed connectors are ideally suited for harsh vacuum environments which must remain free of air or gas impurities or the ingress of foreign chemical substances to prevent corrosive condensation, dielectric breakdown, or the loss of insulation resistance between conductors. Typical applications include medical, geophysical, military aerospace, and industrial applications.

Glenair is unique in the interconnect industry in offering both conventional glass-sealed hermetic connector solutions as well as lightweight and low contact resistance designs. Shell styles for both types include box mount, jam-nut mount, and weld mount. MIL-DTL-38999 equivalent finishes for Y (CRES, passivated) and N (CRES, electrodeposited nickel) are available, as well as additional finish options. Contact arrangements available per MIL-STD-1560. All standard and alternate polarizations are fully supported.



### Features:

- **10<sup>-7</sup> ccHe per sec at 1 atmosphere differential**
- **Highest performance and quality**
- **Available for every standard 1560 insert arrangement**
- **High-reliability performance**
- **Gender changers**
- **Shielded RF Feed-thrus**
- **Independent keyed polarization**
- **Box mount, weld mount and jam-nut mount bulkhead feedthroughs**



ADVANCED PERFORMANCE

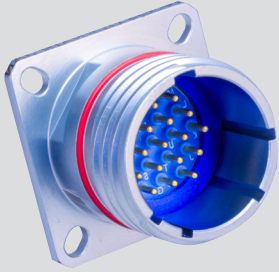
# SuperNine® Hermetic connectors



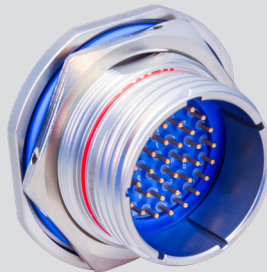
## MIL-DTL-38999 Series III Type Innovative hermetic solutions

HERMETIC CONNECTORS

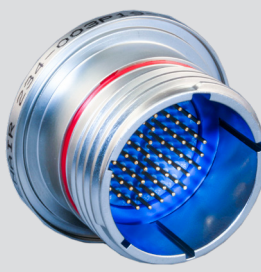
### STANDARD SHELL STYLE CONFIGURATIONS



Box Mount



Jam-Nut Mount

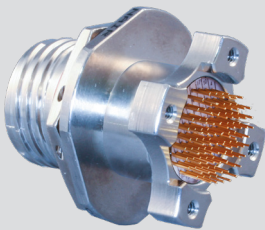


Weld Mount



Sav-Con Feed-thrus and Gender Changers

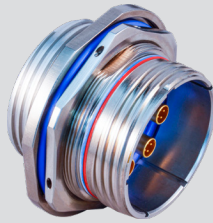
### UNIQUE SUPERNINE® SOLUTIONS



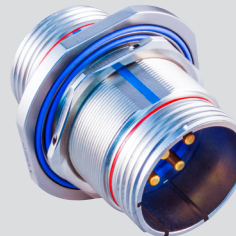
Dual Flange PC Tail



Banding Porch or Accessory Thread



Shielded RF Contact Feed-thrus



Dual O-ring Jam-Nut



**CODE RED**

Lightweight Hermetic Receptacle

### ADDITIONAL CAPABILITIES



Crimp Removable Contacts



Custom Applications



Bulkhead Penetrators



Combo Insert Arrangements

Glenair SuperNine hermetic connectors are designed to meet or exceed military specification performance requirements. Glenair also manufactures and supplies hermetic connectors for most every military standard connector currently in use including:

- MIL-DTL-26482 Series I and II
- MIL-DTL-28840
- MIL-DTL-38999 Series I, II, III and IV
- MIL-DTL-5015
- MIL-DTL-83723 LN 29729 (SJT)
- Series 801 and 805 Mighty Mouse
- M24308 D-Subminiature
- Series 79 Micro-Crimp®
- MIL-DTL-83513 Micro-D Subminiature
- Series 28 HiPer-D® M24308 intermateable

Comprehensive materials, plating, and polarization options available

## MIL-DTL-38999 Series III Type Materials and specifications summary



### Standard Materials and Finishes

- Shell, barrel coupling jam nut, coupling nut – CRES/passivate or CRES/nickel plate
- Contact, pin - nickel-iron alloy/gold plate
- Contact, Socket - copper alloy/gold plate
- Insulator, pin - vitreous glass
- Insulator, socket - high-grade rigid dielectric
- Ground spring - copper alloy/gold plate
- O-rings and seals - fluorosilicone blend

### Test Requirements

- DWV - per DWV Voltage Level table
- I.R. - 5 gigohms min @ 500 VDC
- Hermeticity -  $<1 \times 10^{-7}$  ccHe/sec @ 1 ATM Differential

### Shell Type and Sizes

- Shell Type – D38999 Series III Type, sizes 9 through 25

## SUMMARY OF MATERIALS AND SPECIFICATIONS FOR GLASS-TO-METAL HERMETICS

Hermetic Class Materials	
Shell, Barrel, Coupling and Jam Nut (Hermetic)	Stainless steel per AMS-QQ-S-763
Front and Rear Insulators	Glass-filled liquid crystal polymer (LCP) in accordance with MIL-M-24519, Type GLP-30F
Grommet, Peripheral Seal and Interfacial Seal	Blended elastomer, 30% silicone per ZZ-R-765, 70% fluorosilicone per MIL-R-25988
Hermetic Insert	Vitreous glass
Pin Contact (Hermetic)	Nickel-iron alloy per ASTM F30 (Alloy 52), 50 microinches gold plated per ASTM B488 Type II Code C Class 1, 27 over nickel plate per QQ-N-290 Class 2, 50-100 microinches
Socket Contact (Hermetic)	Copper Alloy, Gold Plated IAW ASTM B488, Type II, Code C
Adhesives	Silicone and epoxy

Additional Hermetic Finishes				
Glenair	Mil-Spec	Material	Finish	Specification
Z1	Y	Stainless Steel	Passivate	AMS-QQ-P-35
ZL	N	Stainless Steel	Electrodeposited Nickel	SAE-AMS-QQ-N-290, Class 2
ZMT*	N/A	Stainless Steel	Nickel-PTFE	SAE AMS2454
ZW*	N/A	Stainless Steel	Cadmium, Olive Drab	SAE-AMS-QQ-P-416 Type II Class 2 over electroless nickel
TD*	N/A	Titanium	Titanium	ASTM B348/AMS4928

\*Contact factory for specific performance restrictions

DWV Voltage Levels	
Service Rating	Voltage AC RMD 60 Hz
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000VAC

Hermetic Leak Rate and Shell Material Mod Codes	
Designator	Required Leak Rate
-585A	$1 \times 10^{-10}$ cc's Helium per second
-585B	$1 \times 10^{-9}$ cc's Helium per second
-585C	$1 \times 10^{-8}$ cc's Helium per second
-185C	Changes receptacle shell/plug barrel to "Inconel 625" material (UNS N06625) per ASTM B446/SAE-AMS-5666
-185D	Changes receptacle shell/plug barrel to "Inconel X750" material (UNS N07725) per ASTM B637/SAE-AMS-5670

# MIL-DTL-38999 Series III Type Class H and NASA space-grade application guides

HERMETIC CONNECTORS

## NASA and Class H Screening and Outgassing Requirements

NASA requires that connectors for space flight be specially screened. NASA EEE-INST-002 standards for EEE parts are divided into 3 levels of screening for space-grade components; refer to Table II for details. For space applications, begin by selecting the desired NASA screening level and outgassing modification code from Table I. MIL-DTL-38999 specification defines TML and CVCM values for Class H space flight rated hermetic connectors. Glenair modification code 186T provides Class H outgassing equivalency for SuperNine commercial hermetic part numbers without screening.

To add a modification code append code to end of part number, for example: 233-265-H2Z117-26PN02-429C. Additional screening may be added and will appear as separate line item on customers order.

- **“Mission critical” connectors for space flight should undergo rigorous 100% final inspection**
- **Modification codes are available to invoke special screening for both MIL-DTL-38999 and NASA applications**
- **Outgassing properties of materials used in Glenair Series 23 SuperNine® glass-seal hermetic connectors are detailed in the table below**

Table I: Screening Level and Available Outgassing Modification Codes				
Screening Level	Screening Only	48 Hour Oven Bakeout +175° C	Thermal Vacuum Outgassing <sup>2</sup>	
			24 Hour +125° C	48 Hour +175° C
<b>NASA, Level 1</b> Highest Reliability	429B	429J	429C	
<b>NASA, Level 2</b> High Reliability	429	429K	429A	
<b>NASA, Level 3</b> Standard Reliability	Use Standard Part Number		429L	
<b>D38999 Class H<sup>1</sup></b> No Screening				186T

1. Class H is **only** applicable to QPL part numbers. Mod code 186T provides equivalent outgassing processing of non-qualified parts. Additional screening available as a separate line item on the customer's purchase order. 2. Thermal vacuum of 10<sup>-6</sup> Torr.

Table II: NASA EEE-INST-02, Screening Levels			
Inspection	Level 1	Level 2	Level 3
Visual	100%	100%	100%
Mechanical	2(0)	2(0)	
Dielectric Withstanding Voltage	2(0)	2(0)	
Insulation Resistance	2(0)	2(0)	
Contact Engagement & Separation Force	2(0)		
Hermeticity (Sealed Receptacles Only)	100%	100%	
Coupling Force	2(0)		

Required inspection quantity shown. Number in parenthesis indicates acceptance of failures allowed for all quantities inspected.

Outgassing Properties of Materials Used in MIL-DTL-38999 Type SuperNine Hermetic Connectors				
Component	Material	TML %	CVCM %	Test Reference
Front and Rear Insulator	Front: high-grade rigid dielectric Rear: Epiall®	0.84	0.0	NASA Test # GSC15435 (48 hours at 180°C)
Grommet, Peripheral Seal and Interfacial Seal	Blended fluorosilicone/silicone elastomer	0.04	0.0	Glenair test
Insulator-to-Rubber Bonding Material	RTV, per MIL-A-46146	<1.0	<0.1	Glenair Test
White Epoxy Ink for Silk-screening	Markem 7224 White	0.49	0.03	NASA Test #GSC19899

MIL-DTL-38999 Type SuperNine Hermetic Connector Materials Approved for Space Flight		
Component	Material	Notes
Shells, Coupling Nuts, Jam Nuts	Stainless Steel	Approved for Space Flight
Rigid Insulators	Glass reinforced thermoset plastic, Epiall 1908	Approved for Space Flight
Contact Retention Clip	Beryllium copper, heat-treated, unplated	Approved for Space Flight
Grommet, Peripheral Seal, Interfacial Seal, O-ring	Blended fluorosilicone/silicone elastomer	Requires outgassing processing
Pin/Socket Contact	Gold plated beryllium copper alloy	Approved for Space Flight
Socket Contact Hood	Stainless steel	Approved for Space Flight
Potting Compounds and Adhesives	RTV and epoxies	Requires outgassing processing
Hermetic Insert	Vitreous Glass	Approved for Space Flight



**MIL-DTL-38999 Series III Type  
Special shielded contact arrangement table**

Arrangement No. (See Notes)	Size 22	Cont Type	Size 20	Cont Type	Size 16	Cont Type	Size 12	Cont Type	Size 8	Cont Type
11-2	---	---	---	---	2	Coax	---	---	---	---
13-4	---	---	---	---	4	Coax	---	---	---	---
15-15	---	---	14	S/P	1	Coax	---	---	---	---
15-21	17	S/P	3	S/P	---	---	1	Coax	---	---
15-97	---	---	8	S/P	4	Coax	---	---	---	---
17-2*	38	S/P	---	---	---	---	---	---	---	Twinax
17-3*	38	S/P	---	---	---	---	---	---	1	Twinax
17-6	---	---	---	---	---	---	6	Coax	---	---
17-8	---	---	---	---	8	Coax	---	---	---	---
17-11	---	---	8	S/P	---	---	3	Coax	---	---
17-99	---	---	21	S/P	2	Coax	---	N/A	---	---
19-11	---	---	---	---	11	Coax	---	---	---	---
19-19	14	S/P	---	---	---	---	---	---	4	Twinax
19-28	---	---	26	S/P	2	Coax	---	---	---	---
19-30	---	---	29	S/P	1	Coax	---	---	---	---
21-11	---	---	---	---	---	---	11	Coax	---	---
21-16	---	---	---	---	16	Coax	---	---	---	---
21-29	---	---	19	S/P	4	S/P	4	Coax	---	---
21-39	---	---	37	S/P	2	Coax	---	---	---	---
21-75**	---	---	---	---	---	---	---	---	4	Twinax
21-76**	---	---	---	---	---	---	---	---	4	Twinax
23-21	---	---	---	---	21	Coax	---	---	---	---
23-97	---	---	---	---	---	---	---	---	---	---
23-99	---	---	---	---	---	---	---	---	---	---
25-4	---	---	48	S/P	8	Coax	---	---	---	---
25-7\	97	S/P	---	---	---	---	---	---	2	Twinax
25-8+	---	---	---	---	---	---	---	---	8	Twinax
25-9\	97	S/P	---	---	---	---	---	---	2	Twinax
25-10+	---	---	---	---	---	---	---	---	8	Twinax
25-19	---	---	---	---	---	---	19	Coax	---	---
25-20^	---	---	10	S/P	13	S/P	4	Coax	3	Twinax
25-21^	---	---	10	S/P	13	S/P	4	Coax	3	Twinax
25-24	---	---	12	S/P	12	Coax	---	---	---	---
25-29	---	---	---	---	29	Coax	---	---	---	---
25-37	---	---	---	---	37	Coax	---	---	---	---
25-43	---	---	23	S/P	20	Coax	---	---	---	---
25-46@	---	---	40	S/P	4	S/P	---	---	2	Coax
25-47@	---	---	40	S/P	4	S/P	---	---	2	Coax
25-90#	---	---	40	S/P	4	S/P	---	---	2	Twinax
25-91#	---	---	40	S/P	4	S/P	---	---	2	Twinax

Notes

1. S/P = signal/power contacts (non-RF type).
2. Arrangements are per MIL-STD-1560, and contact types are per the standard, or specified option. #16 contacts are only available as coax. Consult factory for other contact options.
3. Arrangements marked with like symbols (I.E. 17-2\* and 17-3\*) are identical. Contact sealing boots are different for environmental connectors

# SuperNine® Hermetic connectors



## MIL-DTL-38999 Series III Type Special shielded contact arrangements

HERMETIC CONNECTORS

<p>Contact Legend</p> <p>#22D • #16 ⊕</p> <p>#20 ⊖ #12 ⊖</p> <p>#8 ●</p>										
Insert Arrangement		11-2	13-4	15-15		15-21		15-97		
Contact Size		#16	#16	#16	#20	#12	#20	#22D	#16	#20
No. of Contacts		2	4	1	14	1	3	17	4	8
Service Rating		Coax	Coax	Coax	I	Coax			Coax	I

<p>Contact Legend</p> <p>#22D • #16 ⊕</p> <p>#20 ⊖ #12 ⊖</p> <p>#8 ●</p>								
Insert Arrangement		17-2 and 17-3	17-6	17-8	17-11		17-99	
Contact Size		#22D	#12	#16	#12	#20	#16	#20
No. of Contacts		38	6	8	3	8	2	21
Service Rating		M	Coax	Coax	Coax	N	Coax	I

<p>Contact Legend</p> <p>#22D • #16 ⊕</p> <p>#20 ⊖ #12 ⊖</p> <p>#8 ●</p>								
Insert Arrangement		19-11	19-19		19-28		19-30	
Contact Size		#16	#8	#22D	#16	#20	#16	#20
No. of Contacts		11	4	14	2	26	1	29
Service Rating		Coax	Twinax	M	Coax	I	Coax	I

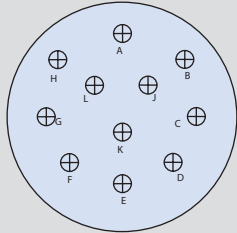
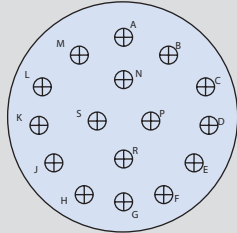
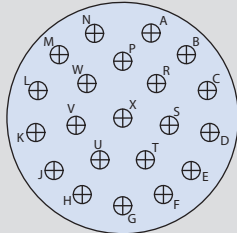
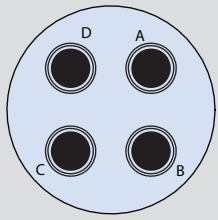
<p>Contact Legend</p> <p>#22D • #16 ⊕</p> <p>#20 ⊖ #12 ⊖</p> <p>#8 ●</p>								
Insert Arrangement		21-11	21-16	21-29		21-39		
Contact Size		#12	#16	#12	#16	#20	#16	#20
No. of Contacts		11	16	4	4	19	2	37
Service Rating		Coax	Coax	Coax			Coax	I

## MIL-DTL-38999 Series III Type

## MIL-STD-1560 Special shielded contact arrangements

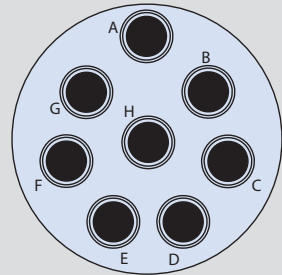
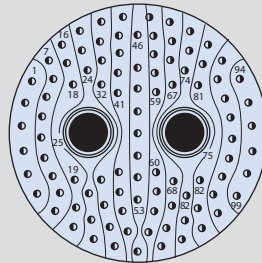
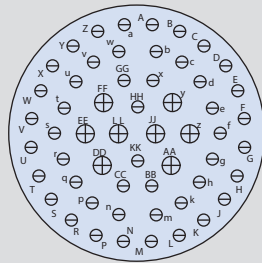
HERMETIC CONNECTORS

**Contact Legend**  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊙  
 #8 ⊚



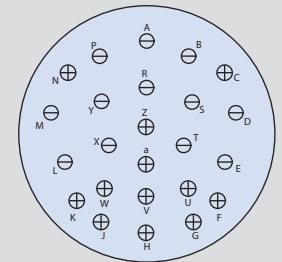
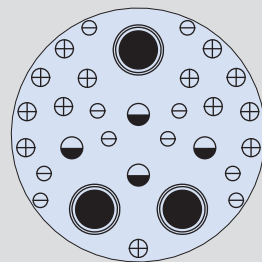
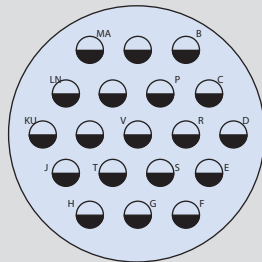
Insert Arrangement	21-75 and 21-76	23-21	23-97	23-99
Contact Size	#8	#16	#16	#16
No. of Contacts	4	21	16	11
Service Rating	Twinax	Coax	Coax	Coax

**Contact Legend**  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊙  
 #8 ⊚



Insert Arrangement	25-4	25-7 and 25-9	25-8 and 25-10
Contact Size	#16 #20	#8 #22D	#8
No. of Contacts	8 48	2 97	8
Service Rating	Coax I	Twinax M	Twinax

**Contact Legend**  
 #22D • #16 ⊕  
 #20 ⊖ #12 ⊙  
 #8 ⊚



Insert Arrangement	25-19	25-20 and 25-21	25-24
Contact Size	#12	#8 #12 #16 #20	#12 #16
No. of Contacts	19	3 4 13 10	12 12
Service Rating	Coax	Twinax Coax N	I Coax

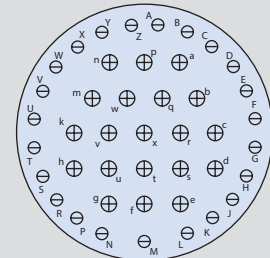
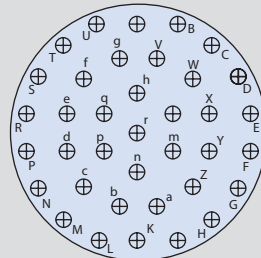
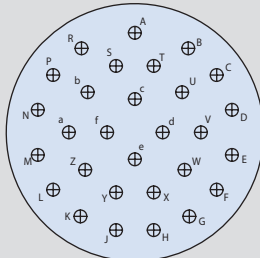
## MIL-DTL-38999 Series III Type

## MIL-STD-1560 Special shielded contact arrangements

HERMETIC CONNECTORS

Contact Legend

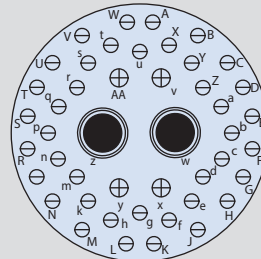
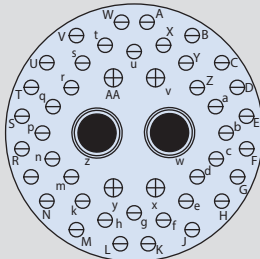
- #22D • #16 ⊕
- #20 ⊖ #12 ⊙
- #8 ⊚



Insert Arrangement	25-29		25-37		25-43	
Contact Size	#16		#16		#16	#20
No. of Contacts	29		37		20	23
Service Rating	Coax		Coax		Coax	I

Contact Legend

- #22D • #16 ⊕
- #20 ⊖ #12 ⊙
- #8 ⊚



Insert Arrangement	25-46 and 25-47			25-90 and 25-91		
Contact Size	#8	#16	#20	#8	#16	#20
No. of Contacts	2	4	40	2	4	40
Service Rating	Coax		I	Twinax		I



**MIL-DTL-38999 Series III Type  
Performance specifications**

Performance Specifications, IAW MIL-DTL-38999 Series III REV. M, Glenair SuperNine							
Test	Test Requirements						
Fungus	Materials used in the construction of these connectors shall be fungus inert per certification of method 508.4 of MIL-STD-810						
Contact Plating Thickness	Plating thickness of contacts used in hermetic connectors shall be in accordance with MIL-DTL-45204						
Supported Wire Size	<b>Contact Size</b>	23-22	22D	20	16	12	10
	<b>Wire Gauge</b>	26, 24, 22	28, 26, 24, 22	24, 22, 20	20, 18, 16	14, 12	10
Thermal Shock	Unmated receptacles shall be subjected to 10 cycles of thermal shock						
Air Leakage	When tested as specified, there shall be no evidence of leakage in excess of .01 micron ft <sup>3</sup> /h (1E-7 cm <sup>3</sup> /s).						
Coupling and Uncoupling Torque	The coupling torque for mating and unmating of the counterpart connectors and protective covers shall meet the requirements of the table shown below.						
	<b>Coupling and Uncoupling Torque</b>						
	Shell Size	Maximum Engagement and Disengagement			Minimum Disengagement		
		Pound inch			Pound inch		
	9	8			2		
	11	12			2		
	13	16			2		
	15	20			3		
	17	24			3		
	19	28			3		
21	32			5			
23	36			5			
25	40			5			
Durability	No electrical or mechanical defects after 500 cycles of engagement and disengagement						
Insulation Resistance	<b>At Ambient Temperature</b> insulation resistance between any pair of contacts and between any contact and the shell shall be greater than 5,000 megohms. Insulation resistance after altitude immersion shall be 1,000 megohms minimum. Insulation resistance after humidity shall be 100 megohms minimum. IAW EIA-364-21.						
	<b>At Elevated Temperature</b> Unmated connectors shall be greater than 200 megohms when tested in accordance with test procedure EIA/ECA-364-21						



**MIL-DTL-38999 Series III Type  
Performance specifications**

HERMETIC CONNECTORS

Performance Specifications, IAW MIL-DTL-38999 Series III REV. M, Glenair SuperNine						
Test	Test Requirements					
Dielectric Withstanding Voltage	When tested as specified, the maximum leakage current shall be 2 milliamperes, and there shall be no evidence of electric breakdown or flashover. The magnitude of the test voltage shall be as specified below (see MIL-STD-1560 for service rating of insert arrangement)					
	<b>Test Voltages, AC RMS, 60 Hz</b>					
	<b>Altitude</b>	<b>Service Rating M</b>	<b>Service Rating N</b>	<b>Service Rating I</b>	<b>Service Rating II</b>	
	Sea level	1300	1000	1800	2300	
	50,000 feet	550	400	600	800	
	70,000 feet	350	260	400	500	
	100,000 feet	200	200	200	200	
Insert Retention	Unmated connectors shall retain their inserts in their proper location in the shell and there shall be no evidence of cracking, breaking, separation from the shell, or loosening of parts when subjected to 100 psi with a 25 psi minimum force.					
Salt Spray (Corrosion)	When tested in accordance with EIA-364-26, meets appropriate electrical and mechanical requirements and shows no exposure of base metal after 500 hours of salt spray					
Contact Resistance at 25° C	Contacts in the mated condition shall meet the contact resistance requirements of the table shown below. Appropriate compensation may be made for resistance in the measured value which is due to an additional length of wire included in the measurement.					
	<b>Class</b>	<b>Contact Size</b>	<b>Wire Size</b>	<b>Test Amperes</b>	<b>Millivolt Drop Maximum</b>	
					<b>Initial</b>	<b>After Conditioning</b>
	H, N and Y	12	12	17	85	100
		16	16	10	85	100
		20	20	5	60	75
22D		22	3	85	95	
23-22		22	3	85	95	
Contact Retention	The axial displacement of the contact shall not exceed .012 inch (0.30 mm). No damage to contacts or inserts shall result.					
Vibration	There shall be no electrical discontinuity and there shall be no disengagement of the mated connectors, backing off of the coupling mechanism, evidence of cracking, breaking, or loosening of parts.					
Shock	There shall be no electrical discontinuity and there shall be no disengagement of mated connectors, evidence of cracking, breaking, or loosening of parts <b>Standard shock</b> (all series). Connectors shall be tested in accordance with test procedure EIA-364-27 and any additional details noted. <b>High-impact shock.</b> Applicable to series I, III and IV only. Wired and mated connectors shall be tested in accordance with MIL-S-901, grade A and in accordance with any modifications or additions noted. The wire bundle shall be provided with a straight, environmental, backshell, category 2B in accordance with SAE-AS85049, the longest length available per shell size. Discontinuity monitoring shall be performed in accordance with EIA-364-46.					

**MIL-DTL-38999 Series III Type  
Performance specifications**

Performance Specifications, IAW MIL-DTL-38999 Series III REV. M, Glenair SuperNine					
Test	Test Requirements				
EMI Ground Spring Forces	The forces necessary to engage and separate EMI plugs with receptacle shells shall be within the values specified in the table shown below:				
	<b>Axial force for Series III</b>				
	Shell size	Maximum	Minimum	Maximum	Minimum
		Pounds	Newtons	Pounds	Newton
	8/9	25	111	0.5	2
	10/11	25	111	0.5	2
	12/13	30	133	0.5	2
	14/15	30	133	0.5	2
	16/17	35	156	0.5	2
	18/19	35	156	0.5	2
20/21	35	156	0.5	2	
22/23	35	156	0.5	2	
24/25	35	156	0.5	2	
EMI Shielding	Effective over a range of 100 MHz to 10 GHz with a minimum 50dB effectiveness at 10GHz, in accordance with test method EIA-364-10				
	Frequency MHz	Leakage Attenuation (dB) Minimum			
		Series III & IV (Class H & Y)			
	100	80			
	200	75			
	300	73			
	400	71			
	800	66			
	1,000	65			
	1,500	59			
	2,000	55			
3,000	52				
4,000	50				
6,000	48				
10,000	45				
Fluid Immersion	Designed to function in all fluids encountered in any modern military or aerospace environment. Tested in accordance with test procedure EIA-364-10. Connectors shall be tested for coupling torque and dielectric withstanding voltage at sea level within 3 hours of fluid immersion cycles.				
Contact Engagement and Separating Forces	Contact engagement and separating forces shall be within the limits, applicable to hermetically sealed connectors with sockets only. As specified in SAE-AS39029.				
Resistance to Probe Damage	Contacts shall withstand the bending moment and depth of test probe insertion without evidence of damage that would interfere with the mechanical or electrical performance.				

**MIL-DTL-38999 Series III Type  
Performance specifications**

HERMETIC CONNECTORS

MIL-DTL-38999 Contact Materials and Specifications		
Component	Material	Notes
Pin Contact, Hermetic	Nickel-iron alloy per ASTM F30 (Alloy 52), 50 microinches gold plated per ASTM B488 Type II Code C Class 1, 27 over nickel plate per QQ-N-290 Class 2, 50-100 microinches	Ferromagnetic material.
Socket Contact	Beryllium copper alloy per ASTM B197, 50 microinches gold plated per ASTM B488 Type II Code C Class 1, 27 over nickel plate per QQ-N-290 Class 2, 50-100 microinches.	Approved for Space Flight
Socket Contact Hood	Stainless steel, passivated per AMS-QQ-P-35	Approved for Space Flight

**COAX, TWINAX AND QUADRAX CONTACT PERFORMANCE**

Contact Performance	
Size and Type	Frequency
16 Coax	up to - 500 Mhz
12 Coax	up to - 2 GHz
8 Coax	up to - 1 GHz
8 Twinax (Conc.)	up to - 20 MHz
8 Quadrax	up to - 1 GHz

Contact performance varies and is dependent on wire type and contact selection. Due to the wide selection of wire and contact combinations available, Glenair recommends contacting the factory regarding your specific application and setup.

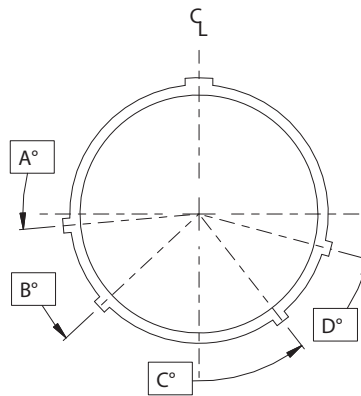
**MIL-DTL-38999 Series III Type**

**233-265 Receptacles with removable crimp contacts**

Part Number Development									
Sample Part Number	233-265				-H2	Z1	17-26	P	N
Series / Basic Part No.	Series 23 SuperNine Hermetic								
Connector Style	H2 = Wall Mount with Accessory Threadds BH2 = Wall Mount with integral Banding Porch H8 = Weld Mount with Accessory Threadds BH8 = Weld Mount with Banding Porch								
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish								
Shell Size/Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560								
Contact Style	P = Pin                      S = Socket								
Polarization*	A, B, C, D, E, N = Normal								

\*Refer to Section A for standard insert arrangements and pages D-8 thru D-10 for special shielded contact arrangements, consult factory for additional options  
 Modification codes may be added directly to the end of any valid part number

Minor Keyway Position					
Shell Sizes	POS	A°	B°	C°	D°
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
11 13 15	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
17 19 21 23 25	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
E	79	153	197	272	



FACE VIEW - RECEPTACLE

**Material/finish:**

- Shell receptacle - 300 series CRES/see part number development
- Pin contact - alloy 52/gold plated
- Socket contact - copper alloy/gold plated
- Insulator hermetic - fused vitreous glass
- Insulators - high grade rigid dielectric
- Seals - fluorosilicone

**NOTES**

1. Hermeticity: <math>1 \times 10^{-7}</math> ccHe/sec @ 1 ATM, delta pressure
2. Crimp removable socket contacts to conform to SAE AS39029/57-359 (# 12), AS39029/57-358 (# 16), AS39029/57-357 (# 20) and AS39029/57-354 (# 22D) or Glenair 809-002 socket (#23) (supplied loose).

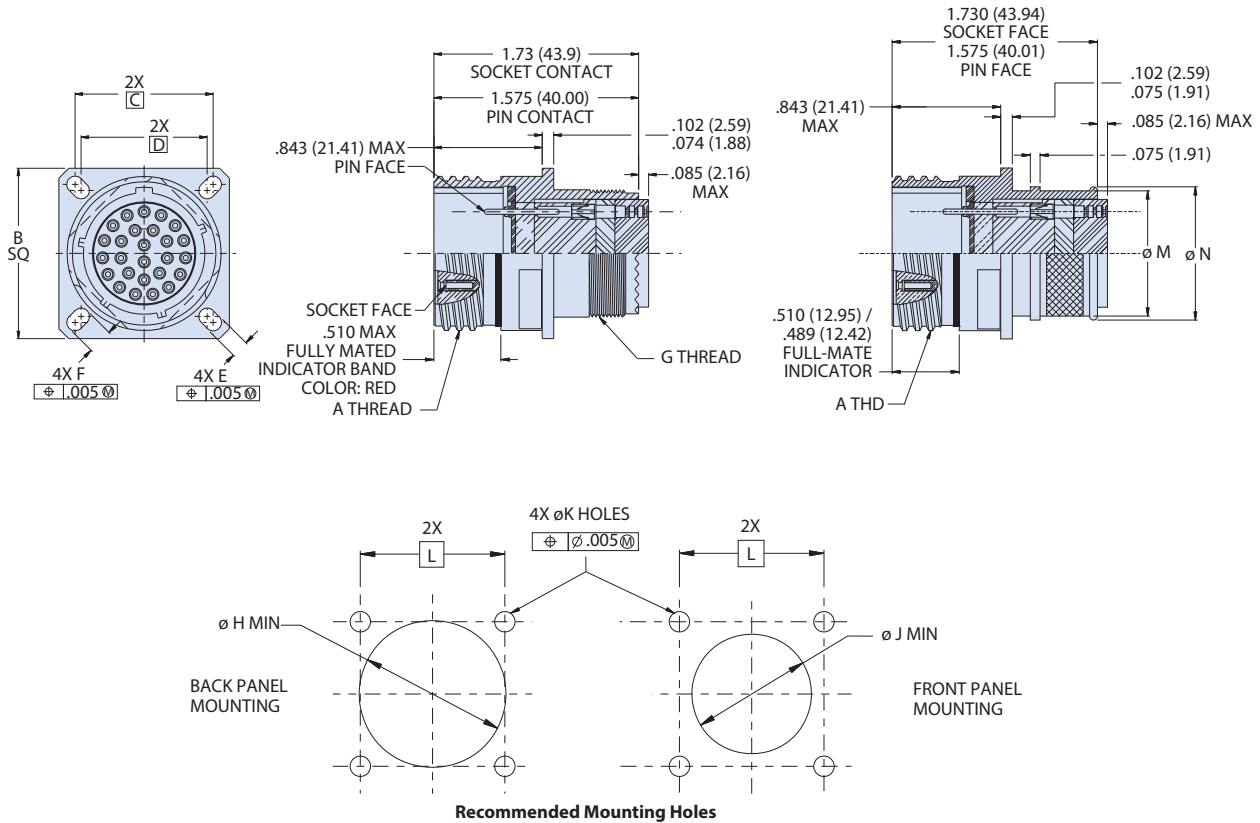
DWV Voltage Levels At Sea Level	
SERVICE RATING	VOLTAGE AC RMS 60HZ
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

## MIL-DTL-38999 Series III Type

### 233-265 Receptacles with removable crimp contacts

HERMETIC CONNECTORS

#### 233-265-H2 AND BH2 BOX MOUNT RECEPTACLE



Recommended Mounting Holes

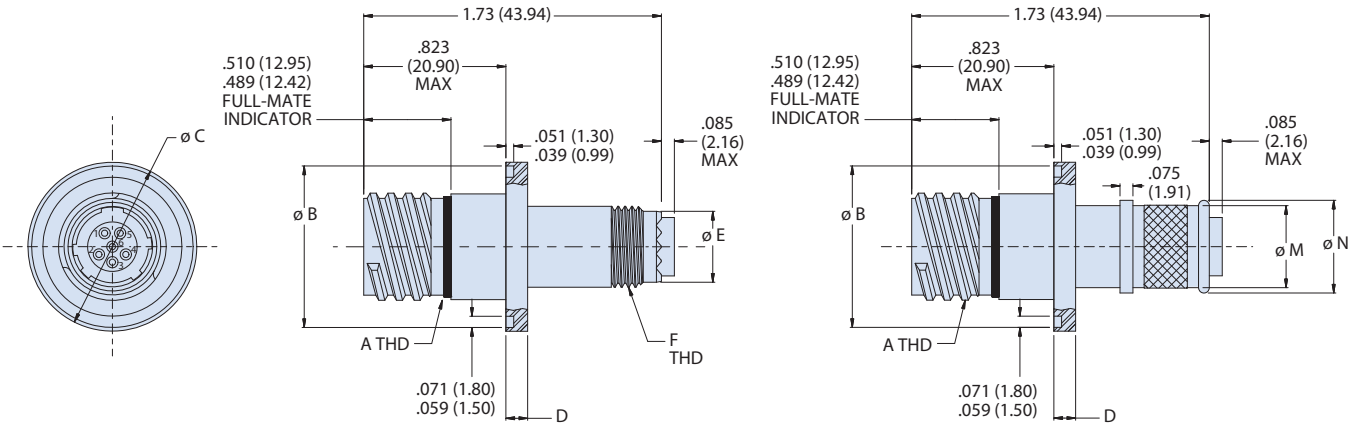
Dimensions														
SHELL SIZE CODE	SHELL SIZE	A THREAD	B SQ	C BSC	D BSC	E	F	G THREAD	ØH MIN	ØJ MIN	ØK HOLES	L BSC	ØM	ØN
A	9	.6250-1P-.3L-TS-2A	.949 (24.10) .925 (23.50)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	M12 X 1.0-6g .100R	.656 (16.66)	.516 (13.11)	.133 (3.38) .123 (3.12)	.719 (18.26)	.475 (12.07)	.538 (13.67)
B	11	.7500-1P-.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	.812 (20.62)	.719 (18.26)		.202 (5.13)	M15 X 1.0-6g .100R	.796 (20.22)	.625 (15.88)		.812 (20.62)	.600 (15.24)	.662 (16.81)
C	13	.8750-1P-.3L-TS-2A	1.138 (28.91) 1.114 (28.30)	.906 (23.01)	.812 (20.62)		.186 (4.72)	M18 X 1.0-6g .100R	.922 (23.42)	.750 (19.05)		.906 (23.01)	.700 (17.78)	.762 (19.35)
D	15	1.0000-1P-.3L-TS-2A	1.232 (31.29) 1.208 (30.68)	.969 (24.61)	.906 (23.01)		.181 (4.60) .165 (4.19)	M22 X 1.0-6g .100R	1.047 (26.59)	.906 (23.01)		.969 (24.61)	.835 (21.21)	.898 (22.81)
E	17	1.1875-1P-.3L-TS-2A	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	.969 (24.61)		.202 (5.13) .186 (4.72)	M25 X 1.0-6g .100R	1.219 (30.96)	1.016 (25.81)		1.062 (26.97)	.960 (24.38)	1.022 (25.96)
F	19	1.2500-1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)		.202 (5.13) .186 (4.72)	M28 X 1.0-6g .100R	1.297 (32.94)	1.141 (28.98)		1.156 (29.36)	1.062 (26.97)	1.125 (28.58)
G	21	1.3750-1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)		.162 (4.11) .146 (3.71)	M31 X 1.0-6g .100R	1.422 (36.12)	1.266 (32.16)		1.250 (31.75)	1.188 (30.18)	1.250 (31.75)
H	23	1.5000-1P-.3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	.250 (6.35)	M34 X 1.0-6g .100R	1.547 (39.29)	1.375 (34.92)	1.375 (34.92)	.159 (4.04) .149 (3.78)	1.375 (34.92)	1.275 (32.39)	1.338 (33.99)
J	25	1.6250-1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	.146 (3.71)	.234 (5.94)	M37 X 1.0-6g .100R	1.672 (42.47)	1.484 (37.69)	.155 (3.94) .145 (3.68)	1.500 (38.10)	1.475 (37.47)	1.538 (39.07)



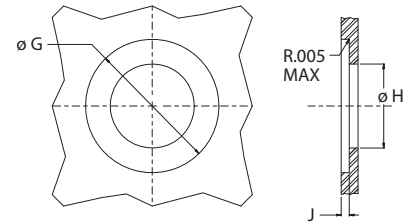
**MIL-DTL-38999 Series III Type**

**233-265 Receptacles with removable crimp contacts**

**233-265-H8 AND BH8 WELD MOUNT RECEPTACLE**



Panel Cutout Dimensions				
SHELL SIZE CODE	SHELL SIZE	Ø G	ØH MIN	DEPTH J ±.005
A	9	.990 (25.15)/.985 (25.02)	.525 (13.34)	.126 (3.20)
B	11	1.112 (28.24)/1.107 (28.12)	.635 (16.14)	.126 (3.20)
C	13	1.238 (31.45)/1.233 (31.32)	.760 (19.30)	.126 (3.20)
D	15	1.364 (34.65)/1.359 (34.52)	.925 (23.50)	.126 (3.20)
E	17	1.451 (36.86)/1.446 (36.73)	1.035 (26.29)	.126 (3.20)
F	19	1.597 (40.56)/1.592 (40.44)	1.155 (29.34)	.126 (3.20)
G	21	1.738 (44.15)/1.733 (44.02)	1.275 (32.39)	.126 (3.20)
H	23	1.894 (48.11)/1.899 (48.23)	1.395 (35.43)	.157 (3.99)
J	25	1.990 (50.55)/1.985 (50.42)	1.525 (38.74)	.157 (3.99)



Dimensions									
SHELL SIZE CODE	SHELL SIZE	A THREAD	ØB ±.006	ØC ±.006	D	ØE ±.003	F THD ISO METRIC	ØM	ØN
A	9	.6250-1P-3L-TS-2A	.935 (23.75)	.978 (24.84)	.131 (3.33)/.121 (3.07)	.413 (10.49)	M12 X 1.0-6G	.475 (12.07)	.538 (13.67)
B	11	.7500-1P-3L-TS-2A	1.057 (26.85)	1.100 (27.94)	.131 (3.33)/.121 (3.07)	.531 (13.49)	M15 X 1.0-6G	.600 (15.24)	.662 (16.81)
C	13	.8750-1P-3L-TS-2A	1.183 (30.05)	1.226 (31.14)	.131 (3.33)/.121 (3.07)	.650 (16.51)	M18 X 1.0-6G	.700 (17.78)	.762 (19.35)
D	15	1.0000-1P-3L-TS-2A	1.309 (33.25)	1.352 (34.34)	.131 (3.33)/.121 (3.07)	.807 (20.50)	M22 X 1.0-6G	.835 (21.21)	.898 (22.81)
E	17	1.1875-1P-3L-TS-2A	1.396 (35.46)	1.438 (36.53)	.131 (3.33)/.121 (3.07)	.925 (23.50)	M25 X 1.0-6G	.390 (9.91)	1.022 (25.96)
F	19	1.2500-1P-3L-TS-2A	1.541 (39.14)	1.585 (40.26)	.131 (3.33)/.121 (3.07)	1.043 (26.49)	M28 X 1.0-6G	1.062 (26.97)	1.125 (28.58)
G	21	1.3750-1P-3L-TS-2A	1.683 (42.75)	1.726 (43.84)	.131 (3.33)/.121 (3.07)	1.161 (29.49)	M31 X 1.0-6G	1.188 (30.18)	1.250 (31.75)
H	23	1.5000-1P-3L-TS-2A	1.848 (46.94)	1.892 (48.06)	.162 (4.11)/.152 (3.86)	1.279 (32.49)	M34 X 1.0-6G	1.275 (32.39)	1.338 (33.99)
J	25	1.6250-1P-3L-TS-2A	1.935 (49.15)	1.978 (50.24)	.162 (4.11)/.152 (3.86)	1.397 (35.48)	M37 X 1.0-6G	1.475 (37.47)	1.538 (39.07)

## MIL-DTL-38999 Series III Type

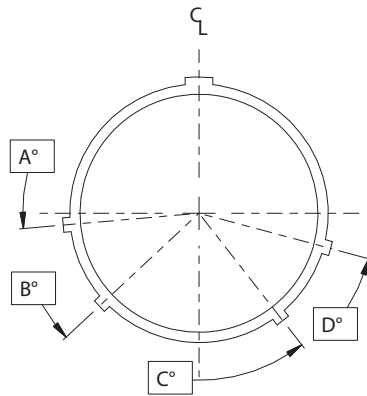
### 233-265 Receptacles with removable crimp contacts

HERMETIC CONNECTORS

Part Number Development							
Sample Part Number	233-265	-H2	Z1	17-26	P	N	02
Series / Basic Part No.	Series 23 SuperNine Hermetic						
Connector Style	H7 = Jam-Nut Mount with Accessory Threads BH7 = Jam-Nut Mount with Integral Banding Porch DH7 = Dual O-ring Jam-Nut Mount with Accessory Threads DBH7 = Dual O-ring Jam-Nut Mount with Integral Banding Porch						
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish						
Shell Size/Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560						
Contact Style	P = Pin    S = Socket						
Polarization*	A, B, C, D, E, N = Normal						
Panel Thickness	01 = .200 inches max 02 = .375 inches max						

\*Refer to Section A for standard insert arrangements and pages D-8 thru D-10 for special shielded contact arrangements, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

Minor Keyway Position					
Shell Sizes	POS	A°	B°	C°	D°
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
11 13 15	E	91	131	197	240
	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
17 19 21 23 25	D	119	146	176	298
	E	51	141	184	242
	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272



FACE VIEW - RECEPTACLE

**Material/finish:**

- Shell receptacle, jam nut - 300 series CRES/see part number development
- Pin contact - alloy 52/gold plated
- Socket contact - copper alloy/gold plated
- Insulator - fused vitreous glass
- Insulators - high grade rigid dielectric
- Seals - fluorosilicone

**NOTES**

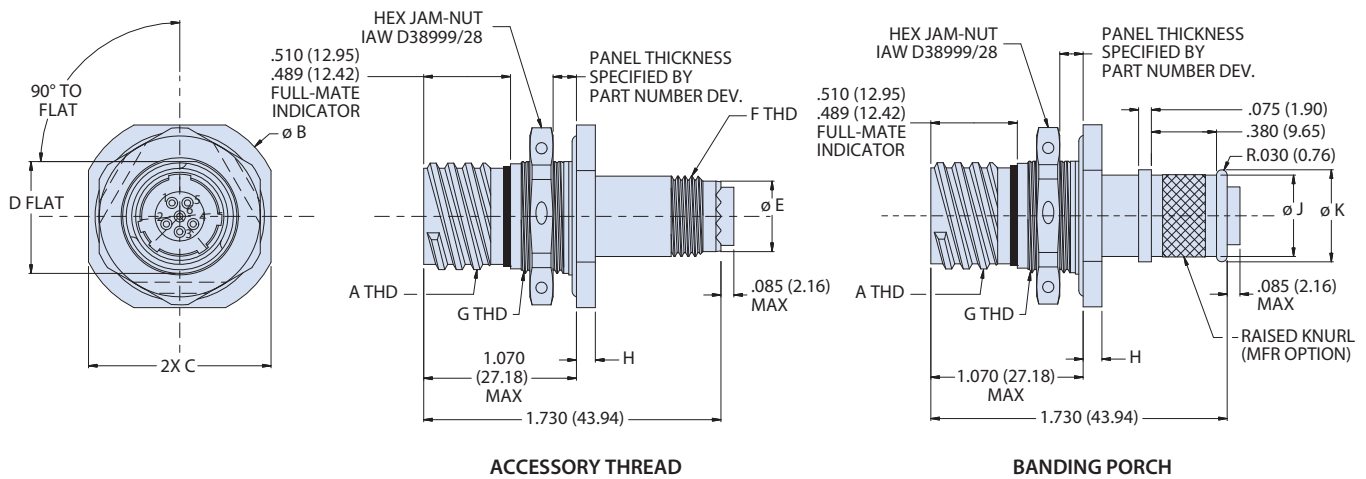
1. Hermeticity:  $<1 \times 10^{-7}$  ccHe/sec @ 1 ATM, delta pressure
2. Crimp removable socket contacts to conform to SAE AS39029/57-359 (# 12), AS39029/57-358 (# 16), AS39029/57-357 (# 20) and AS39029/57-354 (# 22D) or Glenair 809-002 socket (#23) (supplied loose).

DWV Voltage Levels At Sea Level	
SERVICE RATING	VOLTAGE AC RMS 60HZ
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

## MIL-DTL-38999 Series III Type

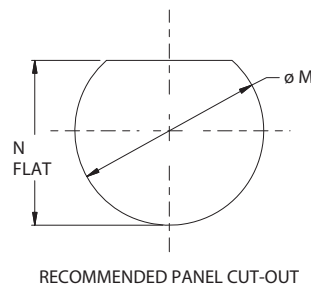
### 233-265 Receptacles with removable crimp contacts

#### 233-265-H7 AND BH7 JAM NUT RECEPTACLE WITH ACCESSORY THREAD OR BANDING PORCH



Dimensions											
SHELL SIZE	SHELL SIZE CODE	A THREAD -0.1P-0.3L-TS	ØB	C A/F ±.015	D FLAT ±0.016	ØE +.003	G THREAD ISO METRIC	F THREAD ISO METRIC	H ±.008	ØJ	ØK
9	A	.625	1.500 (38.10)	1.375 (34.93)	1.062 (26.97)	.413 (10.49)	M17 X 1.0-6G	M12 X 1.0-6G	.106 (2.69)	.475 (12.07)	.538 (13.67)
11	B	.750	1.625 (41.28)	1.500 (38.10)	1.252 (31.80)	.531 (13.49)	M20 X 1.0-6G	M15 X 1.0-6G	.106 (2.69)	.600 (15.24)	.662 (16.81)
13	C	.875	1.752 (44.50)	1.626 (41.30)	1.374 (34.90)	.650 (16.51)	M25 X 1.0-6G	M18 X 1.0-6G	.106 (2.69)	.700 (17.78)	.762 (19.35)
15	D	1.000	1.937 (49.20)	1.811 (46.00)	1.500 (38.10)	.807 (20.50)	M28 X 1.0-6G	M22 X 1.0-6G	.106 (2.69)	.835 (21.21)	.898 (22.81)
17	E	1.1875	2.063 (52.40)	1.937 (49.20)	1.626 (41.30)	.925 (23.50)	M32 X 1.0-6G	M25 X 1.0-6G	.106 (2.69)	.960 (24.38)	1.022 (25.96)
19	F	1.250	2.189 (55.60)	2.063 (52.40)	1.811 (46.00)	1.043 (26.49)	M35 X 1.0-6G	M28 X 1.0-6G	.138 (3.51)	1.062 (26.97)	1.125 (28.58)
21	G	1.375	2.311 (58.70)	2.189 (55.60)	1.937 (49.20)	1.161 (29.49)	M38 X 1.0-6G	M31 X 1.0-6G	.138 (3.51)	1.188 (30.18)	1.250 (31.75)
23	H	1.500	2.500 (63.50)	2.300 (58.42)	2.063 (52.40)	1.279 (32.49)	M41 X 1.0-6G	M34 X 1.0-6G	.138 (3.51)	1.275 (32.39)	1.338 (33.99)
25	J	1.625	2.625 (66.68)	2.400 (60.96)	2.189 (55.60)	1.397 (35.48)	M44 X 1.0-6G	M37 X 1.0-6G	.138 (3.51)	1.475 (37.47)	1.538 (39.07)

Panel Cut-out			
SHELL SIZE	SHELL SIZE CODE	ØM ±.005	N FLAT ±.005 EX SIZE 9
9	A	.703 (17.86)/.693 (17.60)	.661 (16.79)/.655 (16.64)
11	B	.835 (21.21)/.825 (20.96)	.771 (19.58)/.761 (19.33)
13	C	1.020 (25.91)/1.010 (25.65)	.955 (24.26)/.945 (24.00)
15	D	1.145 (29.08)/1.135 (28.83)	1.085 (27.56)/1.075 (27.30)
17	E	1.270 (32.26)/1.260 (32.00)	1.210 (30.73)/1.200 (30.48)
19	F	1.395 (35.43)/1.385 (35.18)	1.335 (33.91)/1.325 (33.65)
21	G	1.520 (38.61)/1.510 (38.35)	1.460 (37.08)/1.450 (36.83)
23	H	1.645 (41.78)/1.635 (41.53)	1.585 (40.26)/1.575 (40.00)
25	J	1.770 (44.96)/1.760 (44.70)	1.710 (43.43)/1.700 (43.18)

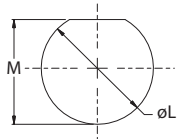
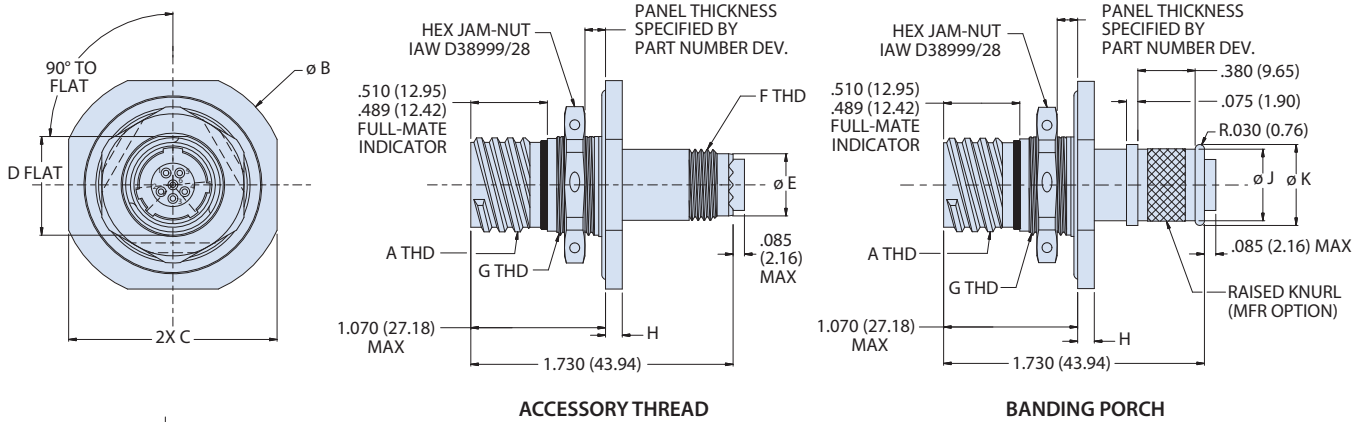


**MIL-DTL-38999 Series III Type**

**233-265 Receptacles with removable crimp contacts**

HERMETIC CONNECTORS

**233-265-DH7 AND DBH7 JAM-NUT MOUNT RECEPTACLE**



Recommended Panel Cutout

Panel Cutout Dimensions		
SHELL SIZE	ø L ±.005	M ±.005 EX SZ 9
9	0.698 (17.73)	.661/.656 (16.79/ 16.66)
11	0.830 (21.08)	0.766 (19.46)
13	1.015 (25.78)	0.950 (24.13)
15	1.140 (28.96)	1.080 (27.43)
17	1.265 (32.13)	1.205 (30.61)
19	1.390 (35.31)	1.330 (33.78)
21	1.515 (38.48)	1.455 (36.96)
23	1.640 (41.66)	1.580 (40.13)
25	1.765 (44.83)	1.705 (43.31)

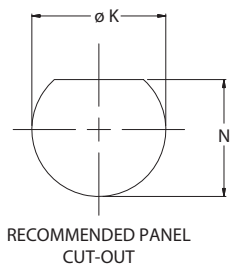
Dimensions										
SHELL SIZE	A THREAD -0.1P-0.3L-TS	ø B	C A/F ±.015	D FLAT ±.005	ø E ±.003	F THREAD ISO METRIC	G THREAD ISO METRIC	H ±.008	ø J	ø K
9	0.625 (15.88)	1.500 (38.10)	1.375 (34.93)	0.650 (16.51)	.413 (10.49)	M12 X 1.0-6G	M17 X 1.0-6g	0.106 (2.69)	0.475 (12.07)	0.538 (13.67)
11	0.750 (19.05)	1.625 (41.28)	1.500 (38.10)	0.750 (19.05)	.513 (13.03)	M15 X 1.0-6G	M20 X 1.0-6g	0.106 (2.69)	0.600 (15.24)	0.662 (16.81)
13	0.875 (22.23)	1.752 (44.50)	1.626 (41.30)	0.937 (23.80)	.650 (16.51)	M18 X 1.0-6G	M25 X 1.0-6g	0.106 (2.69)	0.700 (17.78)	0.762 (19.35)
15	1.000 (25.40)	1.937 (49.20)	1.811 (46.00)	1.061 (26.95)	.807 (20.50)	M22 X 1.0-6G	M28 X 1.0-6g	0.106 (2.69)	0.835 (21.21)	0.898 (22.81)
17	1.187 (30.15)	2.063 (52.40)	1.937 (49.20)	1.186 (30.12)	.925 (23.50)	M25 X 1.0-6G	M32 X 1.0-6g	0.106 (2.69)	0.960 (24.38)	1.022 (25.96)
19	1.250 (31.75)	2.189 (55.60)	2.063 (52.40)	1.311 (33.30)	1.043 (26.49)	M28 X 1.0-6G	M35 X 1.0-6g	0.138 (3.51)	1.062 (26.97)	1.125 (28.58)
21	1.375 (34.92)	2.311 (58.70)	2.189 (55.60)	1.436 (36.47)	1.161 (29.49)	M31 X 1.0-6G	M38 X 1.0-6g	0.138 (3.51)	1.188 (30.18)	1.250 (31.75)
23	1.500 (38.10)	2.500 (63.50)	2.300 (58.42)	1.561 (39.65)	1.279 (32.49)	M34 X 1.0-6G	M41 X 1.0-6g	0.138 (3.51)	1.275 (32.39)	1.338 (33.99)
25	1.625 (41.28)	2.625 (66.68)	2.400 (60.96)	1.686 (42.82)	1.397 (35.48)	M37 X 1.0-6G	M44 X 1.0-6g	0.138 (3.51)	1.475 (37.47)	1.538 (39.07)

## MIL-DTL-38999 Series III Type

### 233-266 Receptacle with accessory thread or banding porch

Part Number Development					
Sample Part Number	233-266	-H7	Z1	9-35	P N
Series / Basic Part No.	Series 23 SuperNine Hermetic				
Connector Style	H7 = Jam-Nut Mount with Accessory Thread 07 = Jam-Nut Mount with Single Band, Banding Porch				
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish				
Shell Size/Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560				
Contact Style	P = Pin, Solder Cup X = Pin, Eyelet S = Socket, Solder Cup Z = Socket, Eyelet				
Polarization*	A, B, C, D, E, N = Normal				

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number



Jam-Nut Panel Cut-Out Dimensions			
SHELL SIZE CODE	SHELL SIZE	K DIA	N
A	9	.703 (17.86)	.661 (16.79)
		.693 (17.60)	.655 (16.64)
B	11	.835 (21.21)	.771 (19.58)
		.825 (20.96)	.761 (19.33)
C	13	1.020 (25.91)	.955 (24.26)
		1.010 (25.65)	.945 (24.00)
D	15	1.145 (29.08)	1.085 (27.56)
		1.135 (28.83)	1.075 (27.30)
E	17	1.270 (32.26)	1.210 (30.73)
		1.260 (32.00)	1.200 (30.48)
F	19	1.395 (35.43)	1.335 (33.91)
		1.385 (35.18)	1.325 (33.65)
G	21	1.520 (38.61)	1.460 (37.08)
		1.510 (38.35)	1.450 (36.83)
H	23	1.645 (41.78)	1.585 (40.26)
		1.635 (41.53)	1.575 (40.00)
J	25	1.770 (44.96)	1.710 (43.43)
		1.760 (44.70)	1.700 (43.18)

Band Platform Dimensions			
SHELL SIZE CODE	SHELL SIZE	øFF	øGG
A	9	.475 (12.07)	.538 (13.67)
B	11	.600 (15.24)	.662 (16.81)
C	13	.700 (17.78)	.762 (19.35)
D	15	.835 (21.21)	.898 (22.81)
E	17	.960 (24.38)	1.022 (25.96)
F	19	1.062 (26.97)	1.125 (28.58)
G	21	1.188 (30.18)	1.250 (31.75)
H	23	1.275 (32.39)	1.338 (33.99)
J	25	1.475 (37.47)	1.538 (39.07)

**Material/finish:**

- Shell and jam-nut: 300 series CRES per part number development
- Contacts: nickel iron alloy 52/gold plated
- Insulator, hermetic: fused vitreous glass/N.A.
- Insulator, socket: high grade rigid dielectric/N.A.
- O-ring and Seals: fluorosilicone/N.A

**NOTES**

1. Hermeticity: <math>1 \times 10^{-7}</math> ccHe/sec @ 1 ATM, delta pressure
2. Glenair 233-266-H7 and 233-266-07 receptacle connector is designed to mate with any QPL manufacturer's MIL-DTL-38999 series III plug connector having the same insert arrangement, polarization, and opposite contact gender.

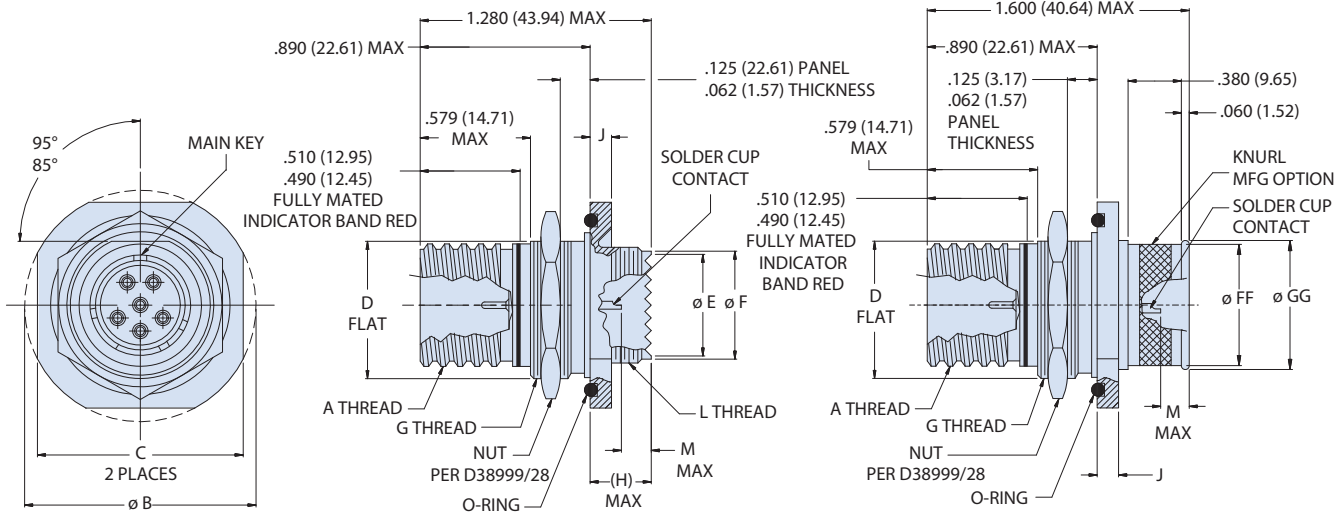


## MIL-DTL-38999 Series III Type

### 233-266 Receptacle with accessory thread or banding porch

HERMETIC CONNECTORS

#### 233-266-H7 JAM-NUT RECEPTACLE



H7 - JAM NUT WITH ACCESSORY THREADS

O7 - JAM NUT WITH SINGLE BAND

Dimensions											
SHELL SIZE CODE/ SHELL SIZE REF	A THREAD -0.1P-0.03L-TS	B DIA	C A/F	D FLAT	E DIA MAX	F DIA	ISO METRIC	H MAX	J	L THREAD ISO METRIC	M MAX
a/9	.6250	1.200 (30.48) 1.177 (29.90)	1.078 (27.38) 1.047 (26.59)	.654 (16.61) .645 (16.38)	.346 (8.79)	.416 (10.57) .410 (10.41)	M17 X 1-6g 0.100R	.390 (9.91)	.122 (3.10) .083 (2.11)	M12 X 1-6g 0.100R	.200 (5.08)
11/B	.7500	1.385 (35.18) 1.362 (34.59)	1.267 (32.18) 1.236 (31.39)	.754 (19.15) .745 (18.92)	.475 (12.07)	.534 (13.56) .528 (13.41)	M20 X 1-6g 0.100R	.390 (9.91)		M15 X 1-6g 0.100R	.200 (5.08)
13/C	.8750	1.511 (38.38) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.941 (23.90) .932 (23.67)	.589 (14.96)	.653 (16.59) .647 (16.43)	M25 X 1-6g 0.100R	.390 (9.91)		M18 X 1-6g 0.100R	.200 (5.08)
15/D	1.0000	1.637 (41.58) 1.614 (41.00)	1.515 (38.48) 1.484 (37.69)	1.065 (27.05) 1.056 (26.82)	.714 (18.14)	.810 (20.57) .804 (20.42)	M28 X 1-6g 0.100R	.390 (9.91)		M22 X 1-6g 0.100R	.200 (5.08)
17/E	1.1875	1.763 (44.78) 1.740 (44.20)	1.641 (41.68) 1.610 (40.89)	1.190 (30.23) 1.181 (30.00)	.839 (21.31)	.928 (23.57) .922 (23.42)	M32 X 1-6g 0.100R	.390 (9.91)		M25 X 1-6g 0.100R	.200 (5.08)
19/F	1.2500	1.949 (49.50) 1.925 (48.90)	1.826 (46.38) 1.795 (45.59)	1.315 (33.40) 1.306 (33.17)	.945 (24.00)	1.046 (26.57) 1.040 (26.42)	M35 X 1-6g 0.100R	.390 (9.91)	.153 (3.89) .114 (2.90)	M28 X 1-6g 0.100R	.200 (5.08)
21/G	1.3750	2.075 (52.71) 2.051 (52.10)	1.952 (49.58) 1.921 (48.79)	1.440 (36.58) 1.431 (36.35)	1.070 (27.18)	1.164 (29.57) 1.158 (29.41)	M38 X 1-6g 0.100R	.390 (9.91)		M31 X 1-6g 0.100R	.200 (5.08)
23H	1.5000	2.200 (55.88) 2.177 (55.30)	2.078 (52.78) 2.047 (51.99)	1.565 (39.75) 1.556 (39.52)	1.194 (30.33)	1.282 (32.56) 1.276 (32.41)	M41 X 1-6g 0.100R	.390 (9.91)		M34 X 1-6g 0.100R	.200 (5.08)
25/J	1.6250	2.323 (59.00) 2.299 (58.39)	2.204 (55.98) 2.173 (55.19)	1.690 (42.93) 1.681 (42.70)	1.320 (33.53)	1.400 (35.56) 1.394 (35.41)	M44 X 1-6g 0.100R	.390 (9.91)	M37 X 1-6g 0.100R	.200 (5.08)	

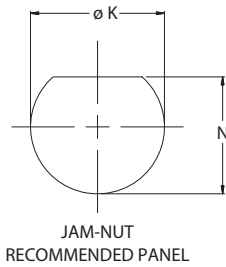
**MIL-DTL-38999 Series III Type**

**233-266 Jam-nut mount with accessory thread or banding porch**

Part Number Development								
Sample Part Number	233-266			-H7	Z1	9-35	P	N
Series / Basic Part No.	Series 23 SuperNine Hermetic							
Connector Style	H7 = Jam-nut Mount with Accessory Thread 07 = Jam-nut Mount Single Band							
Finish*	Z1 = CRES, Passivated ZL = CRES, Electro Depositednickel Finish							
Shell Size/Insert Arrangement*	Shell Sizes: <b>A, B, C, D, E, F, G, H, J</b> Insert Arrangements per MIL-STD-1560. Contact factory for additional arrangement options.							
Contact Style	P = Pin, Solder Cup   X = Pin, Eyelet   S = Socket, Solder Cup   Z = Socket, Eyelet							
Polarization*	A, B, C, D, E, N = Normal							

\*Refer to Section A for standard insert arrangements and pages D-8 thru D-10 for special shielded contact arrangements, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

**PANEL CUTOUT DIMENSIONS**



**NOTES**

- Test requirements:
  - DWV: per MIL-STD-160 service rating
  - I.R.: 5000 megOhms at 500 VDC
  - Hermeticity:  $1 \times 10^{-7}$  ccHe/sec @ 1 ATM delta pressure
- Glenair 233-266-H7 is designed to mate to any QPL manufacturer's MIL-DTL-38999 series III plug having the same shell size, insert arrangement, polarization, and opposite contact gender.

DWV Voltage Levels at Sea Level	
Service Rating	Voltage AC RMS 60HZ
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

Jam-Nut Mount Panel Cutout Dimensions		
SHELL SIZE	K DIA	N
9	.703 (17.86)	.661 (16.79)
	.693 (17.60)	.655 (16.64)
11	.835 (21.21)	.771 (19.58)
	.825 (20.96)	.761 (19.33)
13	1.020 (25.91)	.955 (24.26)
	1.010 (25.65)	.945 (24.00)
15	1.145 (29.08)	1.085 (27.56)
	1.135 (28.83)	1.075 (27.30)
17	1.270 (32.26)	1.210 (30.73)
	1.260 (32.00)	1.200 (30.48)
19	1.395 (35.43)	1.335 (33.91)
	1.385 (35.18)	1.325 (33.65)
21	1.520 (38.61)	1.460 (37.08)
	1.510 (38.35)	1.450 (36.83)
23	1.645 (41.78)	1.585 (40.26)
	1.635 (41.53)	1.575 (40.00)
25	1.770 (44.96)	1.710 (43.43)
	1.760 (44.70)	1.700 (43.18)

**Material/finish:**

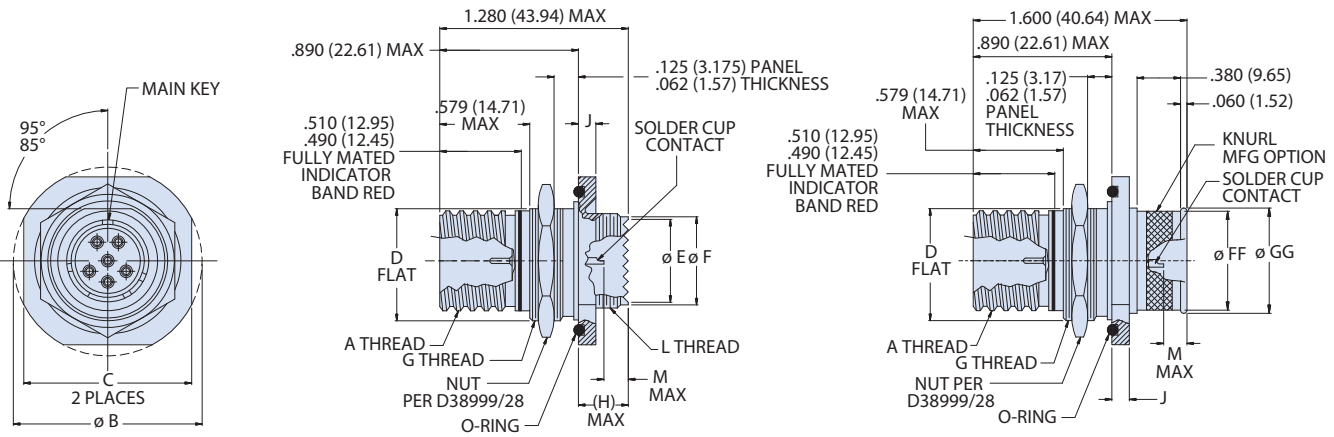
- Shell: 300 series CRES per part number development
- Contacts, hermetic: nickel iron alloy/gold plated
- Contacts, socket: copper alloy/gold plated
- Insulator, hermetic: fused vitreous glass/N.A.
- Insulator, socket: rigid dielectric/N.A.
- Seals: fluorosilicone/N.A
- O-ring, inner: fluorosilicone rubber
- O-ring, outer: silver plated aluminum in fluorosilicone (choseal 1298 equivalent)

## MIL-DTL-38999 Series III Type

### 233-266 Jam-nut mount with accessory thread or banding porch

HERMETIC CONNECTORS

#### 233-266-H7 AND -07 JAM-NUT MOUNT RECEPTACLE



H7 - JAM NUT WITH ACCESSORY THREADS

07 - JAM NUT WITH SINGLE BAND

Dimensions											
SHELL SIZE/ CODE	A THREAD -0.1P-0.03L-TS	B DIA	C A/F	D FLAT	E DIA MAX	F DIA	G THD ISO METRIC	H MAX	J	L THREAD ISO METRIC	M MAX
9/A	.6250	1.200 (30.48) 1.177 (29.90)	1.078 (27.38) 1.047 (26.59)	.654 (16.61) .645 (16.38)	.346 (8.79)	.416 (10.57) .410 (10.41)	M17 X 1-6g 0.100R	.390 (9.91)	.122 (3.10) .083 (2.11)	M12 X 1-6g 0.100R	.200 (5.08)
11/B	.7500	1.385 (35.18) 1.362 (34.59)	1.267 (32.18) 1.236 (31.39)	.754 (19.15) .745 (18.92)	.475 (12.07)	.534 (13.56) .528 (13.41)	M20 X 1-6g 0.100R	.390 (9.91)		M15 X 1-6g 0.100R	.200 (5.08)
13/C	.8750	1.511 (38.38) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.941 (23.90) .932 (23.67)	.589 (14.96)	.653 (16.59) .647 (16.43)	M25 X 1-6g 0.100R	.390 (9.91)		M18 X 1-6g 0.100R	.200 (5.08)
15/D	1.0000	1.637 (41.58) 1.614 (41.00)	1.515 (38.48) 1.484 (37.69)	1.065 (27.05) 1.056 (26.82)	.714 (18.14)	.810 (20.57) .804 (20.42)	M28 X 1-6g 0.100R	.390 (9.91)		M22 X 1-6g 0.100R	.200 (5.08)
17/E	1.1875	1.763 (44.78) 1.740 (44.20)	1.641 (41.68) 1.610 (40.89)	1.190 (30.23) 1.181 (30.00)	.839 (21.31)	.928 (23.57) .922 (23.42)	M32 X 1-6g 0.100R	.390 (9.91)		M25 X 1-6g 0.100R	.200 (5.08)
19/F	1.2500	1.949 (49.50) 1.925 (48.90)	1.826 (46.38) 1.795 (45.59)	1.315 (33.40) 1.306 (33.17)	.945 (24.00)	1.046 (26.57) 1.040 (26.42)	M35 X 1-6g 0.100R	.390 (9.91)		M28 X 1-6g 0.100R	.200 (5.08)
21/G	1.3750	2.075 (52.71) 2.051 (52.10)	1.952 (49.58) 1.921 (48.79)	1.440 (36.58) 1.431 (36.35)	1.070 (27.18)	1.164 (29.57) 1.158 (29.41)	M38 X 1-6g 0.100R	.390 (9.91)		M31 X 1-6g 0.100R	.200 (5.08)
23H	1.5000	2.200 (55.88) 2.177 (55.30)	2.078 (52.78) 2.047 (51.99)	1.565 (39.75) 1.556 (39.52)	1.194 (30.33)	1.282 (32.56) 1.276 (32.41)	M41 X 1-6g 0.100R	.390 (9.91)		M34 X 1-6g 0.100R	.200 (5.08)
25/J	1.6250	2.323 (59.00) 2.299 (58.39)	2.204 (55.98) 2.173 (55.19)	1.690 (42.93) 1.681 (42.70)	1.320 (33.53)	1.400 (35.56) 1.394 (35.41)	M44 X 1-6g 0.100R	.390 (9.91)	M37 X 1-6g 0.100R	.200 (5.08)	

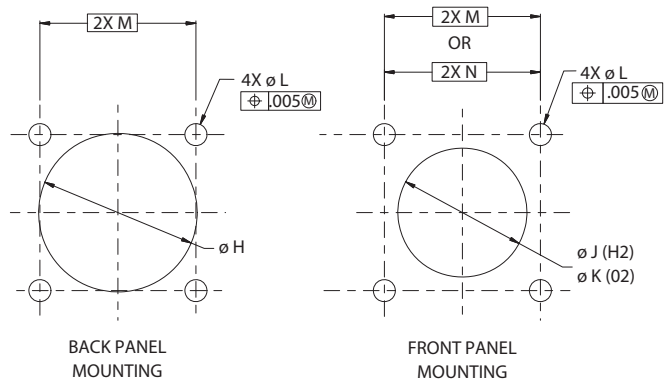
Dimensions		
SHELL SIZE/CODE	ØFF	ØGG
9/A	.475 (12.07)	.538 (13.67)
11/B	.600 (15.24)	.662 (16.81)
13/C	.700 (17.78)	.762 (19.35)
15/D	.835 (21.21)	.898 (22.81)
17/E	.960 (24.38)	1.022 (25.96)
19/F	1.062 (26.97)	1.125 (28.58)
21/G	1.188 (30.18)	1.250 (31.75)
23H	1.275 (32.39)	1.338 (33.99)
25/J	1.475 (37.47)	1.538 (39.07)

**MIL-DTL-38999 Series III Type**

**233-266 Box mount with accessory thread or banding porch**

Part Number Development										
Sample Part Number	233-266					-H7	Z1	9-35	P	N
Series / Basic Part No.	Series 23 SuperNine Hermetic									
Connector Style	H2 = Box Mount with Accessory Threads O2 = Box Mount with Band Porch									
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish									
Shell Size/Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560									
Contact Style	P = Pin, Solder Cup   X = Pin, Eyelet   S = Socket, Solder Cup   Z = Socket, Eyelet									
Polarization*	A, B, C, D, E, N = Normal									

\*Refer to Section A for standard insert arrangements and pages D-8 thru D-10 for special shielded contact arrangements, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number



**NOTES**

- Test parameters:
  - DWV: per MIL-STD-160 service rating
  - I.R.: 5000 megOhms minimum at 500 VDC
  - Hermeticity:  $1 \times 10^{-7}$  ccHe/sec @ 1 ATM delta pressure
- Glenair 233-266-H7, O7, H2, and O2 is designed to mate to any QPL manufacturer's MIL-DTL-38999 series III plug connector having the same shell size, insert arrangement, polarization, and opposite contact gender.

**Material/finish:**

- Shell: 300 series CRES per part number development
- Contacts, hermetic: nickel iron alloy/gold plated
- Contacts, socket: copper alloy/gold plated
- Insulator, hermetic: fused vitreous glass/N.A.
- Insulator, socket: rigid dielectric/N.A.
- Seals: fluorosilicone/N.A

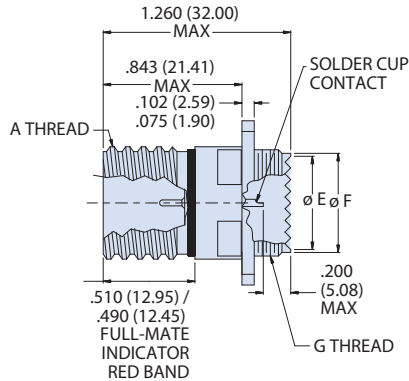
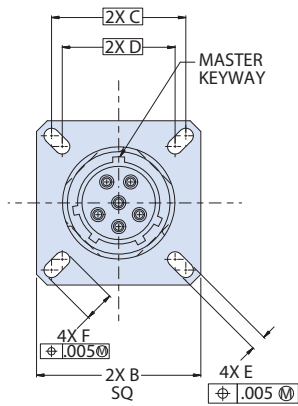
Box Mount Panel Cutout Dimensions						
SHELL SIZE	ø H MIN	ø J MIN	ø K MIN	ø L HOLES	M BSC	N BSC
9	0.656 (16.66)	0.516 (13.11)	0.575 (14.60)	0.133 (3.38) 0.123 (3.12)	0.719 (18.26)	0.594 (15.09)
11	0.796 (20.22)	0.625 (15.88)	0.695 (17.65)	0.133 (3.38) 0.123 (3.12)	0.812 (20.62)	0.719 (18.26)
13	0.922 (23.42)	0.750 (19.05)	0.795 (20.19)	0.133 (3.38) 0.123 (3.12)	0.906 (23.01)	0.812 (20.62)
15	1.047 (26.59)	0.906 (23.01)	0.930 (23.62)	0.133 (3.38) 0.123 (3.12)	0.969 (24.61)	0.906 (23.01)
17	1.219 (30.96)	1.016 (25.81)	1.050 (26.67)	0.133 (3.38) 0.123 (3.12)	1.062 (26.97)	0.969 (24.61)
19	1.297 (32.94)	1.141 (28.98)	1.155 (29.34)	0.133 (3.38) 0.123 (3.12)	1.156 (29.36)	1.062 (26.97)
21	1.422 (36.12)	1.266 (32.16)	1.280 (32.51)	0.133 (3.38) 0.123 (3.12)	1.250 (31.75)	1.156 (29.36)
23	1.547 (39.29)	1.375 (34.92)	1.375 (34.92)	0.159 (4.04) 0.149 (3.78)	1.375 (34.92)	1.250 (31.75)
25	1.672 (42.47)	1.484 (37.69)	1.570 (39.88)	0.155 (3.94) 0.145 (3.68)	1.500 (38.10)	1.375 (34.92)

**MIL-DTL-38999 Series III Type**

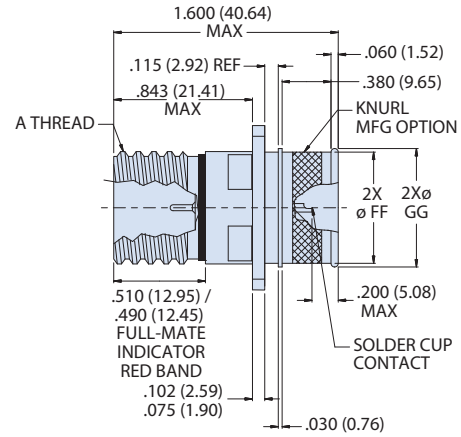
**233-266 Box mount with accessory thread or banding porch**

HERMETIC CONNECTORS

**233-266-H2 AND -02 BOX MOUNT RECEPTACLE**



**H2 - BOX MOUNT WITH ACCESSORY THREADS**



**02 - BOX MOUNT WITH SINGLE BAND PORCH**

Dimensions															
SHELL SIZE	A THREAD	B SQ	C BSC	D BSC	E	F	G THREAD	Ø FF	Ø GG	Ø H MIN	Ø J MIN	Ø K MIN	Ø L HOLES	M BSC	N BSC
9	.6250-1P-3L-TS-2A	0.949 (24.10) 0.925 (23.50)	0.719 (18.26)	0.594 (15.09)	0.136 (3.45) 0.120 (3.05)	0.224 (5.69) 0.208 (5.28)	M12 X 1.0-6g 0.100R	0.475 (12.07)	0.538 (13.67)	0.656 (16.66)	0.516 (13.11)	0.575 (14.60)	0.133 (3.38) 0.123 (3.12)	0.719 (18.26)	0.594 (15.09)
11	.7500-1P-3L-TS-2A	1.043 (26.49) 1.019 (25.88)	0.812 (20.62)	0.719 (18.26)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	M15 X 1.0-6g 0.100R	0.600 (15.24)	0.662 (16.81)	0.796 (20.22)	0.625 (15.88)	0.695 (17.65)	0.133 (3.38) 0.123 (3.12)	0.812 (20.62)	0.719 (18.26)
13	.8750-1P-3L-TS-2A	1.138 (28.91) 1.114 (28.30)	0.906 (23.01)	0.812 (20.62)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	M18 X 1.0-6g 0.100R	0.700 (17.78)	0.762 (19.35)	0.922 (23.42)	0.750 (19.05)	0.795 (20.19)	0.133 (3.38) 0.123 (3.12)	0.906 (23.01)	0.812 (20.62)
15	1.0000-1P-3L-TS-2A	1.232 (31.29) 1.208 (30.68)	0.969 (24.61)	0.906 (23.01)	0.136 (3.45) 0.120 (3.05)	0.181 (4.60) 0.165 (4.19)	M22 X 1.0-6g 0.100R	0.835 (21.21)	0.898 (22.81)	1.047 (26.59)	0.906 (23.01)	0.930 (23.62)	0.133 (3.38) 0.123 (3.12)	0.969 (24.61)	0.906 (23.01)
17	1.1875-1P-3L-TS-2A	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	0.969 (24.61)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	M25 X 1.0-6g 0.100R	0.960 (24.38)	1.022 (25.96)	1.219 (30.96)	1.016 (25.81)	1.050 (26.67)	0.133 (3.38) 0.123 (3.12)	1.062 (26.97)	0.969 (24.61)
19	1.2500-1P-3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	M28 X 1.0-6g 0.100R	1.062 (26.97)	1.125 (28.58)	1.297 (32.94)	1.141 (28.98)	1.155 (29.34)	0.133 (3.38) 0.123 (3.12)	1.156 (29.36)	1.062 (26.97)
21	1.3750-1P-3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	M31 X 1.0-6g 0.100R	1.188 (30.18)	1.250 (31.75)	1.422 (36.12)	1.266 (32.16)	1.280 (32.51)	0.133 (3.38) 0.123 (3.12)	1.250 (31.75)	1.156 (29.36)
23	1.5000-1P-3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	0.162 (4.11) 0.146 (3.71)	0.250 (6.35) 0.234 (5.94)	M34 X 1.0-6g 0.100R	1.275 (32.39)	1.338 (33.99)	1.547 (39.29)	1.375 (34.92)	1.375 (34.92)	0.159 (4.04) 0.149 (3.78)	1.375 (34.92)	1.250 (31.75)
25	1.6250-1P-3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	0.162 (4.11) 0.146 (3.71)	0.250 (6.35) 0.234 (5.94)	M37 X 1.0-6g 0.100R	1.475 (37.47)	1.538 (39.07)	1.672 (42.47)	1.484 (37.69)	1.570 (39.88)	0.155 (3.94) 0.145 (3.68)	1.500 (38.10)	1.375 (34.92)



## MIL-DTL-38999 Series III Type

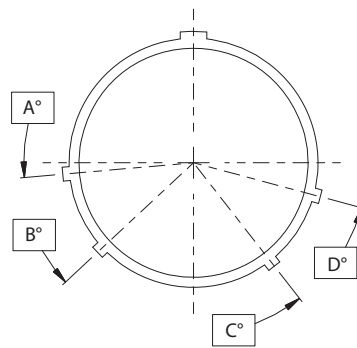
### 2333-2001 1000 PSI rated, piston sealed receptacle

Part Number Development							
Sample Part Number	2333-2001-H2			Z1	9-35	S	T
Series / Basic Part No.	Series 23 SuperNine Hermetic						
Finish*	Z1 = SST, Passivate ZL = SST, Nickel Plate						
Shell Size/ Contact Arrangement	Per MIL-DTL-38999/MIL-STD-1560						
Contact Style	C = Pin, PC Tail   X = Pin, Eyelet   D = SKT, PC Tail   P = Pin, Solder Cup   Z = SKT, Eyelet   S = SKT, Solder Cup						
Minor Keyway Position	Specify T for normal   Alternate per Table III						

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

**Material / Finish:**

- Shell & Jam-Nut - 300 Series CRES
- Contacts, Pin - Nickel-Iron Alloy / Gold Plate
- Contacts, Socket - Copper Alloy / Gold Plate
- Insulator, Pins - Vitreous Glass
- Insulator, Socket - High Grade Rigid Dielectric
- O-Rings & Seals - Pure Fluorosilicone



FACE VIEW - RECEPTACLE

CONTACT SIZE	PC TAIL Ø L
NO 23	.020 (0.51) .018 (0.46)
NO 22	.020 (0.51) .018 (0.46)
NO 20	.030 (0.76) .028 (0.71)
NO 16	.040 (1.02) .038 (0.97)
NO 12	.072 (1.83) .070 (1.78)

**NOTES**

- D.W.V. - Per Table V
- I.R. - 5 Gigohms min. @ 500 VDC
- Hermeticity -  $<1 \times 10^{-7}$  sccHe / sec @ 1 ATM delta p
- Glenair 2333-2001 series is designed to mate with 233-274 series plug having same shell size, arrangement, keying, and opposite contact gender.
- Flange gaskets are not included for the box mount. If required, select appropriate size and material from Glenair drawing 239-204.

KEYWAY CODE	A°	B°	C°	D°
T	95	135	220	275
V	92	127	253	325
W	70	113	235	322
X	35	135	210	285
Y	54	150	239	314
Z	81	126	202	250

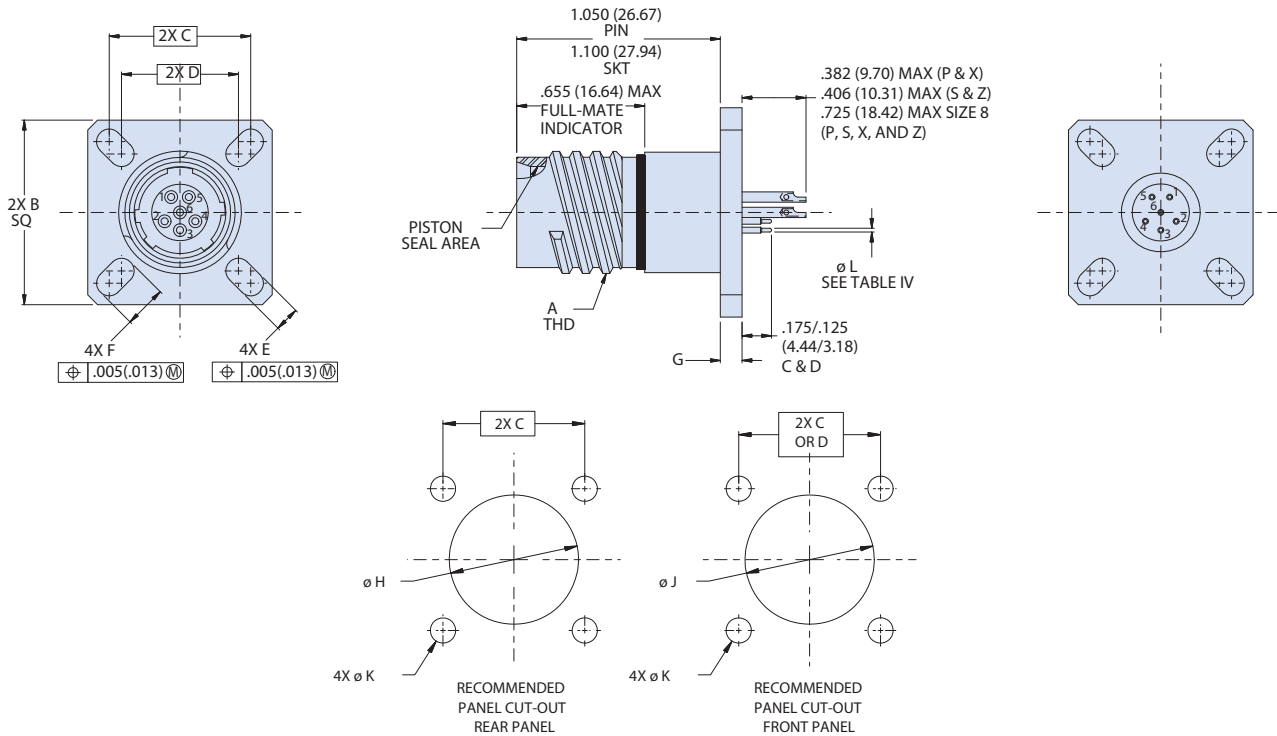
SERVICE RATING	VOLTAGE AC RMS 60 Hz
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

**MIL-DTL-38999 Series III Type**

**2333-2001 1000 PSI rated, piston sealed receptacle**

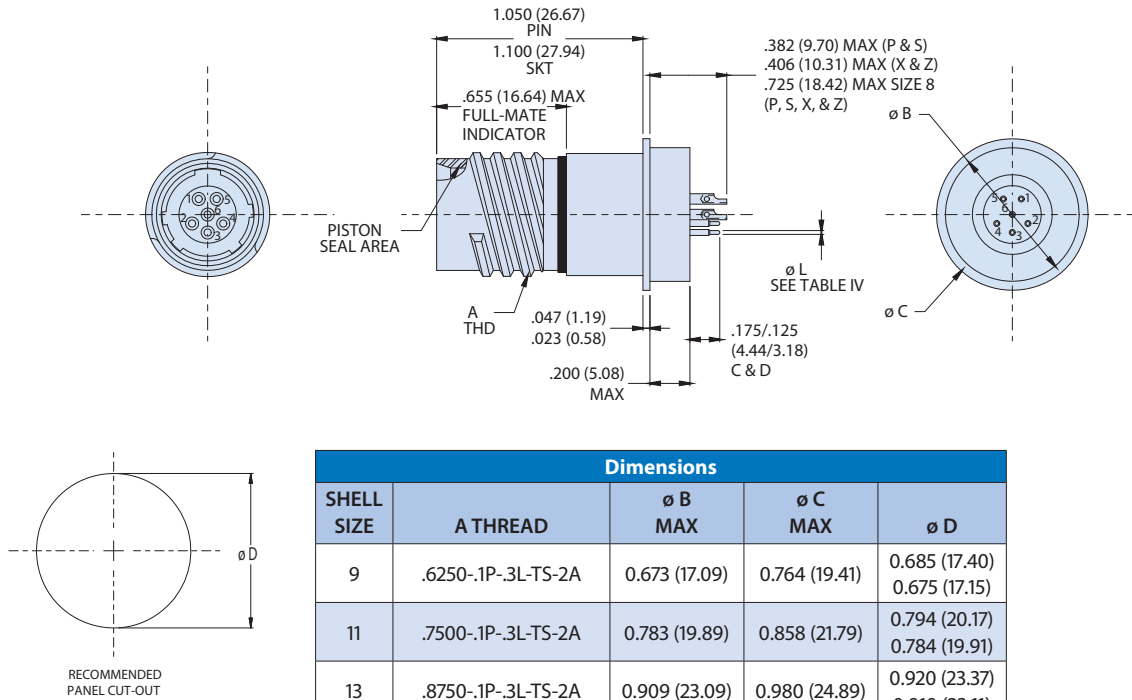
HERMETIC CONNECTORS

**2333-2001-H2 PISTON SEALED BOX MOUNT RECEPTACLE**



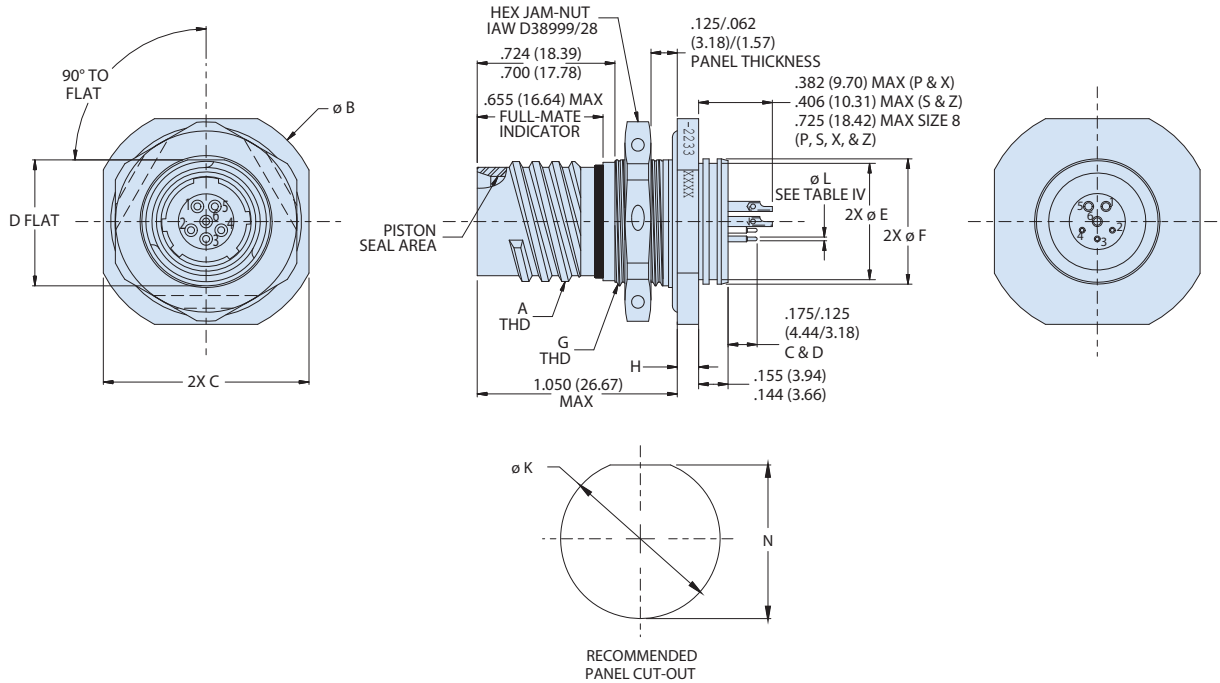
Dimensions										
SHELL SIZE	A THREAD -0.1P-0.3L-TS	B SQ FLANGE	C BASIC	D BASIC	E	F ±.008	G FLANGE	Ø H MIN	Ø J MIN	Ø K ±.005
9	0.625 (15.88)	0.949 (24.10) 0.925 (23.50)	0.719 (18.26)	0.594 (15.09)	.136 (3.45) .120 (3.05)	0.216 (5.49)	.132 (3.35) .083 (2.11)	0.656 (16.66)	0.516 (13.11)	.128 (3.25)
11	0.750 (19.05)	1.043 (26.49) 1.020 (25.91)	0.812 (20.62)	0.719 (18.26)		0.194 (4.93)		0.781 (19.84)	0.625 (15.88)	
13	0.875 (22.23)	1.138 (28.91) 1.114 (28.30)	0.906 (23.01)	0.812 (20.62)		0.194 (4.93)		0.921 (23.39)	0.750 (19.05)	
15	1.000 (25.40)	1.232 (31.29) 1.209 (30.71)	0.969 (24.61)	0.906 (23.01)		0.173 (4.39)	1.047 (26.59)	0.906 (23.01)		
17	1.187 (30.15)	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	0.969 (24.61)		0.194 (4.93)	1.218 (30.94)	1.016 (25.81)		
19	1.250 (31.75)	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)		0.194 (4.93)	1.296 (32.92)	1.142 (29.01)		
21	1.375 (34.92)	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)	0.194 (4.93)	.153 (3.89) .114 (2.90)	1.421 (36.09)	1.266 (32.16)		
23	1.500 (38.10)	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	.162 (4.11) .146 (3.71)	0.242 (6.15)	1.546 (39.27)	1.375 (34.92)		
25	1.625 (41.28)	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	0.242 (6.15)	1.672 (42.47)	1.484 (37.69)			

**2333-2001-H5 PISTON SEALED SOLDER MOUNT RECEPTACLE**



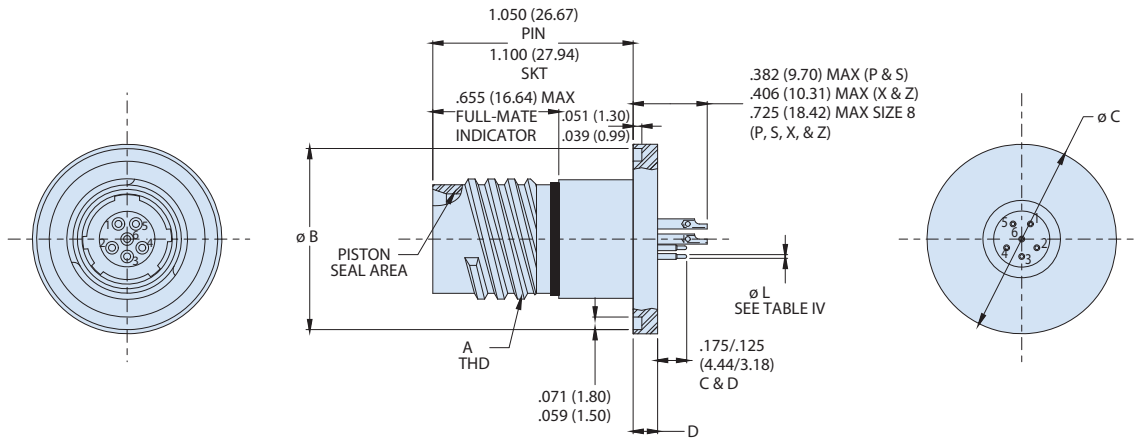
Dimensions				
SHELL SIZE	A THREAD	ø B MAX	ø C MAX	ø D
9	.6250-.1P-.3L-TS-2A	0.673 (17.09)	0.764 (19.41)	0.685 (17.40) 0.675 (17.15)
11	.7500-.1P-.3L-TS-2A	0.783 (19.89)	0.858 (21.79)	0.794 (20.17) 0.784 (19.91)
13	.8750-.1P-.3L-TS-2A	0.909 (23.09)	0.980 (24.89)	0.920 (23.37) 0.910 (23.11)
15	1.0000-.1P-.3L-TS-2A	1.031 (26.19)	1.106 (28.09)	1.043 (26.49) 1.033 (26.24)
17	1.1875-.1P-.3L-TS-2A	1.157 (29.39)	1.232 (31.29)	1.169 (29.69) 1.159 (29.44)
19	1.2500-.1P-.3L-TS-2A	1.252 (31.80)	1.323 (33.60)	1.263 (32.08) 1.253 (31.83)
21	1.3750-.1P-.3L-TS-2A	1.378 (35.00)	1.449 (36.80)	1.389 (35.28) 1.379 (35.03)
23	1.5000-.1P-.3L-TS-2A	1.504 (38.20)	1.575 (40.00)	1.515 (38.48) 1.505 (38.23)
25	1.6250-.1P-.3L-TS-2A	1.626 (41.30)	1.701 (43.21)	1.638 (41.61) 1.628 (41.35)

**2333-2001-H7 PISTON SEALED JAM-NUT MOUNT RECEPTACLE**

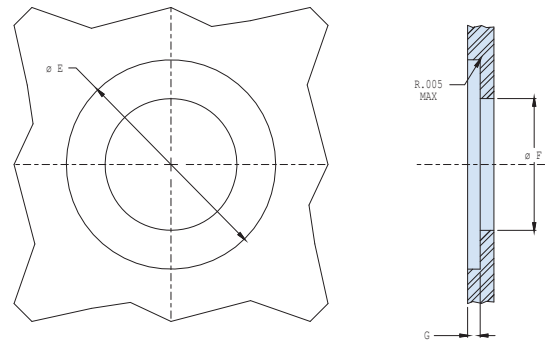


Dimensions										
SHELL SIZE	A THREAD -0.1P-0.3L-TS	ø B	C A/F ±.015	D FLAT ±.005	ø E ±.012	ø F	G THREAD ISO METRIC	H ±.008	ø K ±.005	N ±.005 (* ±.003)
9	0.625 (15.88)	1.201 (30.51) 1.177 (29.90)	1.063 (27.00)	0.650 (16.51)	0.602 (15.29)	0.653 (16.59) 0.642 (16.31)	M17 X 1.0-6g	0.106 (2.69)	0.698 (17.73)	.658*
11	0.750 (19.05)	1.386 (35.20) 1.362 (34.59)	1.252 (31.80)	0.750 (19.05)	0.724 (18.39)	0.775 (19.68) 0.764 (19.41)	M20 X 1.0-6g		0.830 (21.08)	0.766 (19.46)
13	0.875 (22.23)	1.512 (38.40) 1.488 (37.80)	1.374 (34.90)	0.937 (23.80)	0.850 (21.59)	0.905 (22.99) 0.894 (22.71)	M25 X 1.0-6g		1.015 (25.78)	0.950 (24.13)
15	1.000 (25.40)	1.638 (41.61) 1.614 (41.00)	1.500 (38.10)	1.061 (26.95)	0.976 (24.79)	1.031 (26.19) 1.020 (25.91)	M28 X 1.0-6g		1.140 (28.96)	1.080 (27.43)
17	1.187 (30.15)	1.764 (44.81) 1.740 (44.20)	1.626 (41.30)	1.186 (30.12)	1.102 (27.99)	1.153 (29.29) 1.142 (29.01)	M32 X 1.0-6g		1.265 (32.13)	1.205 (30.61)
19	1.250 (31.75)	1.949 (49.50) 1.925 (48.90)	1.811 (46.00)	1.311 (33.30)	1.228 (31.19)	1.279 (32.49) 1.268 (32.21)	M35 X 1.0-6g	0.138 (3.51)	1.390 (35.31)	1.330 (33.78)
21	1.375 (34.92)	2.075 (52.71) 2.051 (52.10)	1.937 (49.20)	1.436 (36.47)	1.350 (34.29)	1.405 (35.69) 1.394 (35.41)	M38 X 1.0-6g		1.515 (38.48)	1.455 (36.96)
23	1.500 (38.10)	2.201 (55.91) 2.177 (55.30)	2.063 (52.40)	1.561 (39.65)	1.476 (37.49)	1.531 (38.89) 1.520 (38.61)	M41 X 1.0-6g		1.640 (41.66)	1.580 (40.13)
25	1.625 (41.28)	2.323 (59.00) 2.299 (58.39)	2.189 (55.60)	1.686 (42.82)	1.602 (40.69)	1.653 (41.99) 1.642 (41.71)	M44 X 1.0-6g		1.765 (44.83)	1.705 (43.31)

**2333-2001-H8 PISTON SEALED WELD MOUNT RECEPTACLE**



Dimensions				
SHELL SIZE	A THREAD	ø B ±.006	ø C ±.006	D
9	.6250-1P-3L-TS-2A	0.935 (23.75)	0.978 (24.84)	0.131 (3.33) 0.121 (3.07)
11	.7500-1P-3L-TS-2A	1.057 (26.85)	1.100 (27.94)	
13	.8750-1P-3L-TS-2A	1.183 (30.05)	1.226 (31.14)	
15	1.0000-1P-3L-TS-2A	1.309 (33.25)	1.352 (34.34)	
17	1.1875-1P-3L-TS-2A	1.396 (35.46)	1.439 (36.55)	
19	1.2500-1P-3L-TS-2A	1.541 (39.14)	1.585 (40.26)	
21	1.3750-1P-3L-TS-2A	1.683 (42.75)	1.726 (43.84)	
23	1.5000-1P-3L-TS-2A	1.848 (46.94)	1.892 (48.06)	.162 (4.11)
25	1.6250-1P-3L-TS-2A	1.935 (49.15)	1.978 (50.24)	.152 (3.86)



Dimensions			
SHELL SIZE	ø E	ø F MIN	DEPTH G ±.005
9	.990/.985	0.300 (7.62)	0.126 (3.20)
11	1.112/1.107	0.430 (10.92)	0.126 (3.20)
13	1.238/1.233	0.550 (13.97)	0.126 (3.20)
15	1.364/1.359	0.675 (17.15)	0.126 (3.20)
17	1.451/1.446	0.795 (20.19)	0.126 (3.20)
19	1.597/1.592	0.895 (22.73)	0.126 (3.20)
21	1.738/1.733	1.010 (25.65)	0.126 (3.20)
23	1.894/1.899	1.135 (28.83)	0.157 (3.99)
25	1.990/1.985	1.250 (31.75)	0.157 (3.99)

HERMETIC CONNECTORS



## MIL-DTL-38999 Series III Type 2333-2003 Cryogenic Hermetic Receptacle

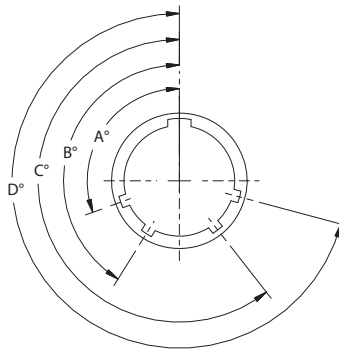
HERMETIC CONNECTORS

Part Number Development									
Sample Part Number	2333-2003				-H2	ZL	9-35	P	N
Series / Basic Part No.	Cryogenic Hermetic Receptacle								
Connector Style	H2 = Box Mount Receptacle H7 = Jam-Nut Mount Receptacle		H5 = Solder Mount Receptacle H8 = Weld Mount Receptacle						
Material and Finish*	ZL = CRES, Nickel Finish    Z1 = CRES, Passivated Z1S = CRES, Passivated (Space Grade)								
Shell Size/ Contact Arrangement	Per MIL-DTL-38999/MIL-STD-1560								
Contact Style	P = Pin, Solder Cup    C = Pin, Feedthru		X = Pin, Eyelet						
	S = Socket, Solder Cup    Z = Socket, Eyelet		D = Socket, Feedthru						
Polarization	A, B, C, D, E (N = Normal)								

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

**Material / Finish:**

- Shell - CRES / Passivated or CRES / Nickel Plated Per QQ-N-290.
- Contacts - Nickel Iron Alloy 52 / Gold Plated
- Sockets - Copper Alloy / Gold Plated
- Insulator - Fused Vitreous Glass
  - High Grade Rigid Dielectric
- Seals - Duraelectric K



MASTER KEY & KEYWAYS  
POLARIZATION

TABLE V: DWV VOLTAGE LEVELS AT SEA LEVEL	
SERVICE RATING	VOLTAGE AC RMS 60HZ
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

**Notes**

- Operating Temperatures: -195°C To 200°C (-319°F To 392°F)
- Glenair 2333-2003 receptacle connector is designed to mate with any QPL manufacturer's DTL-38999 Series III plug connector having the same shell size, polarization, and arrangement except for shielded contact arrangements. Consult factory for mating plug options.

Table III: Keyway Positions					
SHELL SIZE	POS	A°	B°	C°	D°
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
11 13 15	E	91	131	197	240
	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
17 19 21 23 25	D	119	146	176	298
	E	51	141	184	242
	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

**MIL-DTL-38999 Series III Type  
2333-2003 Cryogenic Hermetic Receptacle**

**2333-2003-H2 HERMETIC BOX MOUNT RECPTACLE**

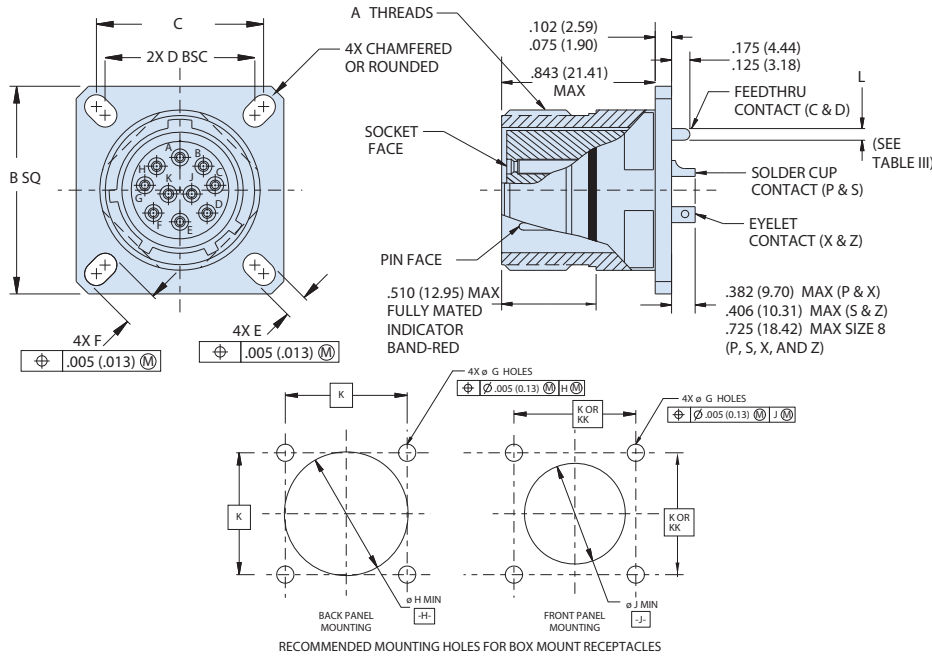


Table III		
<p>FOR #22D AND 20 CONTACTS ONLY (#20 INACTIVE FOR NEW DESIGN)</p>		
CONTACT SIZE	Ø L	
22D	0.015 (0.38)	0.011 (0.28)
20	0.028 (0.71)	0.024 (0.61)
16	0.0635 (1.61)	0.0615 (1.56)
12	0.095 (2.41)	0.093 (2.36)
10	0.126 (3.20)	0.124 (3.15)
8	0.184 (4.67)	0.180 (4.57)

Dimensions										
SHELL SIZE CODE	SHELL SIZE	A THREAD	B SQ		C BSC	D BSC	E		F	
A	9	.6250-1P-.3L-TS-2A	0.949 (24.10)	0.925 (23.50)	0.719 (18.26)	0.594 (15.09)	0.136 (3.45)	0.120 (3.05)	0.224 (5.69)	0.208 (5.28)
B	11	.7500-1P-.3L-TS-2A	1.043 (26.49)	1.019 (25.88)	0.812 (20.62)	0.719 (18.26)	0.136 (3.45)	0.120 (3.05)	0.202 (5.13)	0.186 (4.72)
C	13	.8750-1P-.3L-TS-2A	1.138 (28.91)	1.114 (28.30)	0.906 (23.01)	0.812 (20.62)	0.136 (3.45)	0.120 (3.05)	0.202 (5.13)	0.186 (4.72)
D	15	1.0000-1P-.3L-TS-2A	1.232 (31.29)	1.208 (30.68)	0.969 (24.61)	0.906 (23.01)	0.136 (3.45)	0.120 (3.05)	0.181 (4.60)	0.165 (4.19)
E	17	1.1875-1P-.3L-TS-2A	1.323 (33.60)	1.299 (32.99)	1.062 (26.97)	0.969 (24.61)	0.136 (3.45)	0.120 (3.05)	0.202 (5.13)	0.186 (4.72)
F	19	1.2500-1P-.3L-TS-2A	1.449 (36.80)	1.425 (36.20)	1.156 (29.36)	1.062 (26.97)	0.136 (3.45)	0.120 (3.05)	0.202 (5.13)	0.186 (4.72)
G	21	1.3750-1P-.3L-TS-2A	1.575 (40.00)	1.551 (39.40)	1.250 (31.75)	1.156 (29.36)	0.136 (3.45)	0.120 (3.05)	0.202 (5.13)	0.186 (4.72)
H	23	1.5000-1P-.3L-TS-2A	1.701 (43.21)	1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	0.162 (4.11)	0.146 (3.71)	0.250 (6.35)	0.234 (5.94)
J	25	1.6250-1P-.3L-TS-2A	1.823 (46.30)	1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	0.162 (4.11)	0.146 (3.71)	0.250 (6.35)	0.234 (5.94)

Dimensions						
SHELL SIZE CODE	SHELL SIZE	Ø H MIN	Ø J MIN	Ø G HOLES	K BSC	KK BSC
A	9	0.656 (16.66)	0.516 (13.11)	0.133 (3.38) 0.123 (3.12)	0.719 (18.26)	0.594 (15.09)
B	11	0.781 (19.84)	0.625 (15.88)		0.812 (20.62)	0.719 (18.26)
C	13	0.921 (23.39)	0.750 (19.05)		0.906 (23.01)	0.812 (20.62)
D	15	1.047 (26.59)	0.906 (23.01)		0.969 (24.61)	0.906 (23.01)
E	17	1.218 (30.94)	1.016 (25.81)		1.062 (26.97)	0.969 (24.61)
F	19	1.296 (32.92)	1.142 (29.01)		1.156 (29.36)	1.062 (26.97)
G	21	1.421 (36.09)	1.266 (32.16)		1.250 (31.75)	1.156 (29.36)
H	23	1.546 (39.27)	1.375 (34.92)	0.159 (4.04)	1.375 (34.92)	1.250 (31.75)
J	25	1.672 (42.47)	1.484 (37.69)	0.149 (3.78)	1.500 (38.10)	1.375 (34.92)

## MIL-DTL-38999 Series III Type 2333-2003 Cryogenic Hermetic Rectacle

HERMETIC CONNECTORS

### 2333-2003-H5 HERMETIC SOLDER MOUNT RECTACLE

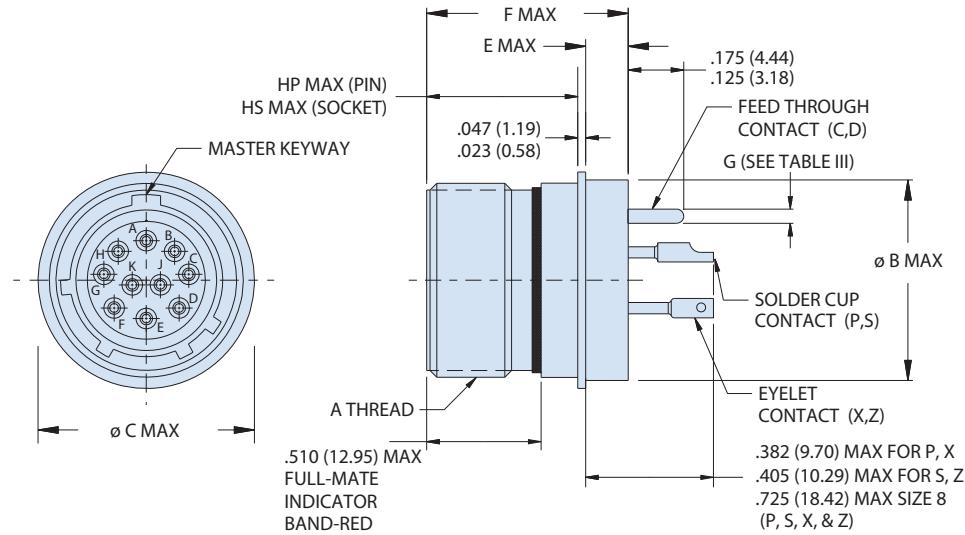
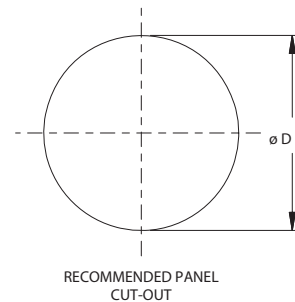


Table III		
CONTACT SIZE	Ø G	
22D	0.015 (0.38)	0.011 (0.28)
20	0.028 (0.71)	0.024 (0.61)
16	0.0635 (1.61)	0.0615 (1.56)
12	0.095 (2.41)	0.093 (2.36)
10	0.126 (3.20)	0.124 (3.15)
8	0.184 (4.67)	0.180 (4.57)

Dimensions									
SHELL SIZE CODE	SHELL SIZE	A THREAD	Ø B MAX	Ø C MAX	Ø D	E MAX	F MAX	HP MAX	HS MAX
A	9	.6250-1P-.3L-TS-2A	0.673 (17.09)	0.764 (19.41)	0.685 (17.40) 0.675 (17.15)	0.201 (5.11)	0.937 (23.80)	0.677 (17.20)	0.764 (19.41)
B	11	.7500-1P-.3L-TS-2A	0.783 (19.89)	0.858 (21.79)	0.794 (20.17) 0.784 (19.91)				
C	13	.8750-1P-.3L-TS-2A	0.909 (23.09)	0.980 (24.89)	0.920 (23.37) 0.910 (23.11)				
D	15	1.0000-1P-.3L-TS-2A	1.031 (26.19)	1.106 (28.09)	1.043 (26.49) 1.033 (26.24)				
E	17	1.1875-1P-.3L-TS-2A	1.157 (29.39)	1.232 (31.29)	1.169 (29.69) 1.159 (29.44)				
F	19	1.2500-1P-.3L-TS-2A	1.252 (31.80)	1.323 (33.60)	1.263 (32.08) 1.253 (31.83)				
G	21	1.3750-1P-.3L-TS-2A	1.378 (35.00)	1.449 (36.80)	1.389 (35.28) 1.379 (35.03)	0.232 (5.89)	0.969 (24.61)		
H	23	1.5000-1P-.3L-TS-2A	1.504 (38.20)	1.575 (40.00)	1.515 (38.48) 1.505 (38.23)				
J	25	1.6250-1P-.3L-TS-2A	1.626 (41.30)	1.701 (43.21)	1.638 (41.61) 1.628 (41.35)				



## MIL-DTL-38999 Series III Type 2333-2003 Cryogenic Hermetic Recptacle

### 2333-2003-H7 HERMETIC JAM-NUT MOUNT RECPTACLE

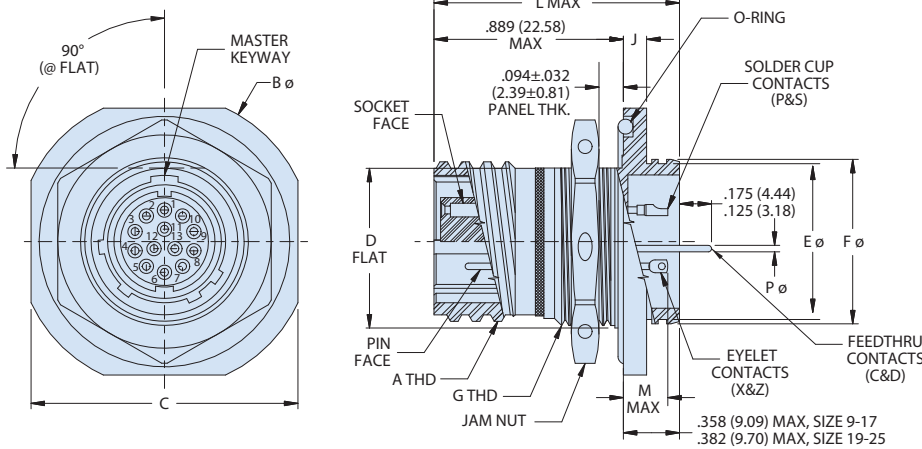
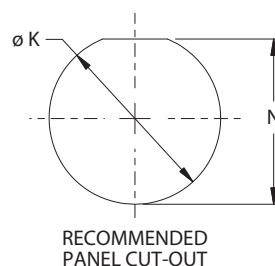


Table III		
CONTACT SIZE	P ø	
22D	0.015 (0.38)	0.011 (0.28)
20	0.028 (0.71)	0.024 (0.61)
16	0.0635 (1.61)	0.0615 (1.56)
12	0.095 (2.41)	0.093 (2.36)
10	0.126 (3.20)	0.124 (3.15)
8	0.184 (4.67)	0.180 (4.57)

Dimensions																
SHELL SIZE CODE	SHELL SIZE	A THREAD -0.1P-0.3L-TS	ø B	C A/F ±.015	D FLAT ±.005	ø E ±.012	ø F	G THREAD ISO METRIC	J ±.008	ø K ±.005	L MAX	M MAX			N ±.005 (* ±.003)	
												P&X	S&Z	#8 (ALL)		
A	9	0.625 (15.88)	1.201 (30.51) 1.177 (29.90)	1.063 (27.00)	0.650 (16.51)	0.602 (15.29)	0.653 (16.59) 0.642 (16.31)	M17 X 1.0-6g	0.106 (2.69)	0.698 (17.73)	1.150 (29.21)	0.209 (5.31)	0.232 (5.89)	0.595 (15.11)	.658*	
B	11	0.750 (19.05)	1.386 (35.20) 1.362 (34.59)	1.252 (31.80)	0.750 (19.05)	0.724 (18.39)	0.775 (19.68) 0.764 (19.41)	M20 X 1.0-6g	0.106 (2.69)	0.830 (21.08)	1.150 (29.21)	0.209 (5.31)	0.232 (5.89)	0.595 (15.11)	0.766 (19.46)	
C	13	0.875 (22.23)	1.512 (38.40) 1.488 (37.80)	1.374 (34.90)	0.937 (23.80)	0.850 (21.59)	0.905 (22.99) 0.894 (22.71)	M25 X 1.0-6g	0.106 (2.69)	1.015 (25.78)	1.154 (29.31)	0.201 (5.11)	0.224 (5.69)	0.590 (14.99)	0.950 (24.13)	
D	15	1.000 (25.40)	1.638 (41.61) 1.614 (41.00)	1.500 (38.10)	1.061 (26.95)	0.976 (24.79)	1.031 (26.19) 1.020 (25.91)	M28 X 1.0-6g	0.106 (2.69)	1.140 (28.96)	1.154 (29.31)	0.201 (5.11)	0.224 (5.69)	0.590 (14.99)	1.080 (27.43)	
E	17	1.187 (30.15)	1.764 (44.81) 1.740 (44.20)	1.626 (41.30)	1.186 (30.12)	1.102 (27.99)	1.153 (29.29) 1.142 (29.01)	M32 X 1.0-6g	0.106 (2.69)	1.265 (32.13)	1.154 (29.31)	0.201 (5.11)	0.224 (5.69)	0.590 (14.99)	1.205 (30.61)	
F	19	1.250 (31.75)	1.949 (49.50) 1.925 (48.90)	1.811 (46.00)	1.311 (33.30)	1.228 (31.19)	1.279 (32.49) 1.268 (32.21)	M35 X 1.0-6g	0.138 (3.51)	1.390 (35.31)	1.185 (30.10)	0.201 (5.11)	0.224 (5.69)	0.590 (14.99)	1.330 (33.78)	
G	21	1.375 (34.92)	2.075 (52.71) 2.051 (52.10)	1.937 (49.20)	1.436 (36.47)	1.350 (34.29)	1.405 (35.69) 1.394 (35.41)	M38 X 1.0-6g	0.138 (3.51)	1.515 (38.48)	1.185 (30.10)	0.201 (5.11)	0.224 (5.69)	0.590 (14.99)	1.455 (36.96)	
H	23	1.500 (38.10)	2.201 (55.91) 2.177 (55.30)	2.063 (52.40)	1.561 (39.65)	1.476 (37.49)	1.531 (38.89) 1.520 (38.61)	M41 X 1.0-6g	0.138 (3.51)	1.640 (41.66)	1.185 (30.10)	0.201 (5.11)	0.224 (5.69)	0.590 (14.99)	1.580 (40.13)	
J	25	1.625 (41.28)	2.323 (59.00) 2.299 (58.39)	2.189 (55.60)	1.686 (42.82)	1.602 (40.69)	1.653 (41.99) 1.642 (41.71)	M44 X 1.0-6g	0.138 (3.51)	1.765 (44.83)	1.185 (30.10)	0.201 (5.11)	0.224 (5.69)	0.590 (14.99)	1.705 (43.31)	

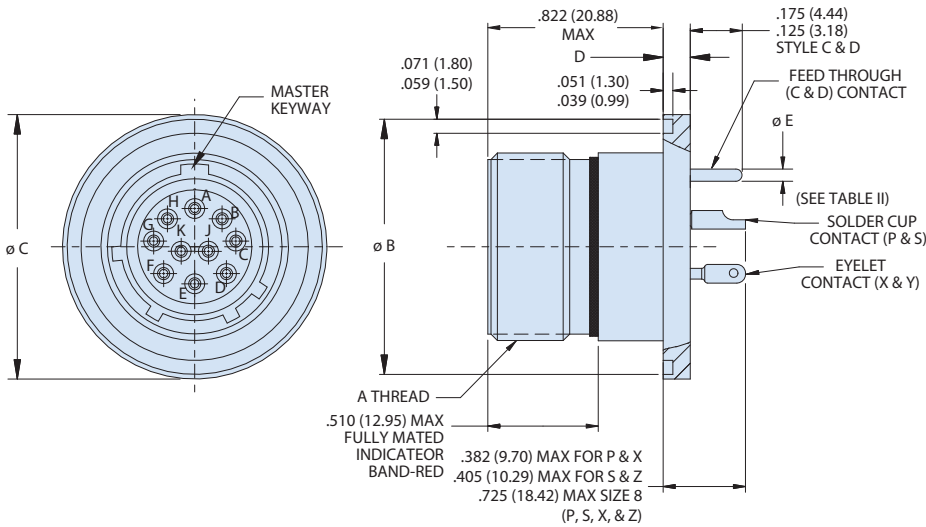
SOLDER CUPS (P, S)	
CONTACT SIZE	WIRE GAUGE ACCOMODATION
22D	#22 - #28
20	#20 - #24
16	#16 - #20
12	#12 - #14
10	#10 - #12



## MIL-DTL-38999 Series III Type 2333-2003 Cryogenic Hermetic Rectacle

HERMETIC CONNECTORS

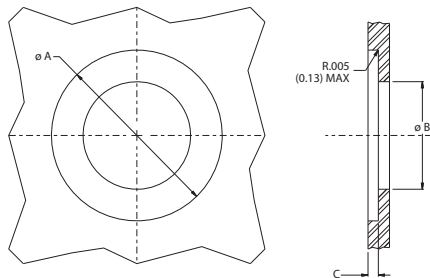
### 2333-2003-H8 HERMETIC WELD MOUNT RECTACLE



**Table III**

FOR #22D AND 20 CONTACTS ONLY  
(#20 INACTIVE FOR NEW DESIGN)

CONTACT SIZE	ø E	
22D	0.015 (0.38)	0.011 (0.28)
20	0.028 (0.71)	0.024 (0.61)
16	0.0635 (1.61)	0.0615 (1.56)
12	0.095 (2.41)	0.093 (2.36)
10	0.126 (3.20)	0.124 (3.15)
8	0.184 (4.67)	0.180 (4.57)



**Recommended Panel Cutout**

SHELL SIZE	ø A	ø B MIN	DEPTH C ±.005
9	.990/1.085 (25.15/25.02)	0.300 (7.62)	0.126 (3.20)
11	1.112/1.107 (28.24/28.12)	0.430 (10.92)	0.126 (3.20)
13	1.238/1.233 (31.45/28.12)	0.550 (13.97)	0.126 (3.20)
15	1.364/1.359 (34.65/34.52)	0.675 (17.15)	0.126 (3.20)
17	1.451/1.446 (36.86/36.73)	0.795 (20.19)	0.126 (3.20)
19	1.597/1.592 (40.56/40.44)	0.895 (22.73)	0.126 (3.20)
21	1.738/1.733 (44.15/44.02)	1.010 (25.65)	0.126 (3.20)
23	1.894/1.899 (48.11/48.23)	1.135 (28.83)	0.157 (3.99)
25	1.990/1.985 (50.55/50.42)	1.250 (31.75)	0.157 (3.99)

**Dimensions**

SHELL SIZE CODE	SHELL SIZE	A THREAD	ø B	ø C	D
A	9	.6250-1P-3L-TS-2A	0.941 (23.90) 0.929 (23.60)	0.984 (24.99) 0.972 (24.69)	0.134 (3.40) 0.118 (3.00)
B	11	.7500-1P-3L-TS-2A	1.063 (27.00) 1.051 (26.70)	1.106 (28.09) 1.094 (27.79)	0.134 (3.40) 0.118 (3.00)
C	13	.8750-1P-3L-TS-2A	1.189 (30.20) 1.177 (29.90)	1.232 (31.29) 1.220 (30.99)	0.134 (3.40) 0.118 (3.00)
D	15	1.0000-1P-3L-TS-2A	1.315 (33.40) 1.303 (33.10)	1.358 (34.49) 1.346 (34.19)	0.134 (3.40) 0.118 (3.00)
E	17	1.1875-1P-3L-TS-2A	1.402 (35.61) 1.390 (35.31)	1.445 (36.70) 1.433 (36.40)	0.134 (3.40) 0.118 (3.00)
F	19	1.2500-1P-3L-TS-2A	1.547 (39.29) 1.535 (38.99)	1.591 (40.41) 1.579 (40.11)	0.134 (3.40) 0.118 (3.00)
G	21	1.3750-1P-3L-TS-2A	1.689 (42.90) 1.677 (42.60)	1.732 (43.99) 1.720 (43.69)	0.134 (3.40) 0.118 (3.00)
H	23	1.5000-1P-3L-TS-2A	1.854 (47.09) 1.842 (46.79)	1.898 (48.21) 1.886 (47.90)	0.165 (4.19) 0.149 (3.78)
J	25	1.6250-1P-3L-TS-2A	1.941 (49.30) 1.929 (49.00)	1.984 (50.39) 1.972 (50.09)	0.165 (4.19) 0.149 (3.78)



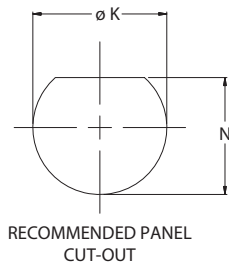
## MIL-DTL-38999 Series III Type

### 233-277 1000 PSI rated piston seal solder cup receptacle

HERMETIC CONNECTORS

Part Number Development									
Sample Part Number	233-277				-H7	Z1	9-35	P	T
Series / Basic Part No.	Series 23 SuperNine Hermetic								
Connector Style	H7 = Jam-Nut Mount with Accessory Thread BH7 = Jam-Nut Mount with Single Band, Banding Porch								
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish								
Shell Size/Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560								
Contact Style	P = Pin Face, Solder Cup   S = Socket Face, Solder Cup								
Polarization*	V, W, X, Y, Z, T = Normal								

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number



Jam-Nut Panel Cut-Out Dimensions			
SHELL SIZE CODE	SHELL SIZE	K DIA	N
A	9	.703 (17.86)	.661 (16.79)
		.693 (17.60)	.656 (16.66)
B	11	.835 (21.21)	.771 (19.58)
		.825 (20.96)	.761 (19.33)
C	13	1.020 (25.91)	.955 (24.26)
		1.010 (25.65)	.945 (24.00)
D	15	1.145 (29.08)	1.085 (27.56)
		1.135 (28.83)	1.075 (27.30)
E	17	1.270 (32.26)	1.210 (30.73)
		1.260 (32.00)	1.200 (30.48)
F	19	1.395 (35.43)	1.335 (33.91)
		1.385 (35.18)	1.325 (33.65)
G	21	1.520 (38.61)	1.460 (37.08)
		1.510 (38.35)	1.450 (36.83)
H	23	1.645 (41.78)	1.585 (40.26)
		1.635 (41.53)	1.575 (40.00)
J	25	1.770 (44.96)	1.710 (43.43)
		1.760 (44.70)	1.700 (43.18)

Band Platform Dimensions			
SHELL SIZE CODE	SHELL SIZE	øEE	øFF
A	9	.475 (12.07)	.538 (13.67)
B	11	.600 (15.24)	.662 (16.81)
C	13	.700 (17.78)	.762 (19.35)
D	15	.835 (21.21)	.898 (22.81)
E	17	.960 (24.38)	1.022 (25.96)
F	19	1.062 (26.97)	1.125 (28.58)
G	21	1.188 (30.18)	1.250 (31.75)
H	23	1.275 (32.39)	1.338 (33.99)
J	25	1.475 (37.47)	1.538 (39.07)

**Material/finish:**

- Shell and jam-nut: 300 series CRES per part number development
- Contacts, pin: nickel iron alloy 52/gold plate
- Contacts, socket: copper alloy/gold plate
- Insulator, hermetic: fused vitreous glass/none
- Insulator, socket: high grade rigid dielectric/none.
- O-ring and Seals: fluorosilicone/none

**NOTES**

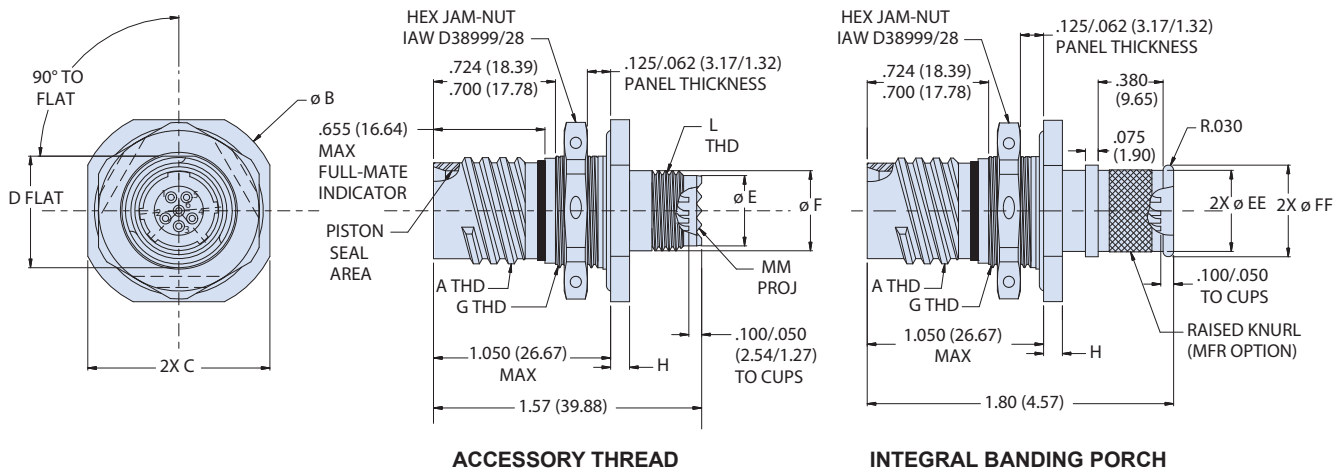
1. Hermeticity: <math>1 \times 10^{-7}</math> ccHe/sec @ 1 ATM, delta pressure
2. Glenair 233-277-H7 and 233-277-BH7 receptacle connector is designed to mate with 233-274 plug connector having the same insert arrangement, polarization, and opposite contact gender.

**MIL-DTL-38999 Series III Type**

**233-277 1000 PSI rated piston seal solder cup receptacle**

HERMETIC CONNECTORS

**233-277-H7 OR -BH7 JAM-NUT RECEPTACLE WITH ACCESSORY THREADS OR BANDING PORCH**



Dimensions										
SHELL SIZE	A THREAD -0.1P-0.3L-TS	ø B	C A/F ±.015	D FLAT ±.005	ø E ±.003	ø F REF	G THREAD ISO METRIC	H ±.008	L THREAD ISO METRIC	MM PROJ
9	0.625	1.201 (30.51) 1.177 (29.90)	1.063 (27.00)	0.650 (16.51)	0.413 (10.49)	0.472 (11.99)	M17 X 1.0-6g	0.106 (2.69)	M12 X 1.0-6g	12
11	0.750	1.386 (35.20) 1.362 (34.59)	1.252 (31.80)	0.750 (19.05)	0.531 (13.49)	0.591 (15.01)	M20 X 1.0-6g	0.106 (2.69)	M15 X 1.0-6g	16
13	0.875	1.512 (38.40) 1.488 (37.80)	1.374 (34.90)	0.937 (23.80)	0.650 (16.51)	0.789 (20.04)	M25 X 1.0-6g	0.106 (2.69)	M18 X 1.0-6g	20
15	1.000	1.638 (41.61) 1.614 (41.00)	1.500 (38.10)	1.061 (26.95)	0.807 (20.50)	0.866 (22.00)	M28 X 1.0-6g	0.106 (2.69)	M22 X 1.0-6g	24
17	1.187	1.764 (44.81) 1.740 (44.20)	1.626 (41.30)	1.186 (30.12)	0.925 (23.50)	0.984 (24.99)	M32 X 1.0-6g	0.106 (2.69)	M25 X 1.0-6g	28
19	1.250	1.949 (49.50) 1.925 (48.90)	1.811 (46.00)	1.311 (33.30)	1.043 (26.49)	1.102 (27.99)	M35 X 1.0-6g	0.138 (3.51)	M28 X 1.0-6g	32
21	1.375	2.075 (52.71) 2.051 (52.10)	1.937 (49.20)	1.436 (36.47)	1.161 (29.49)	1.220 (30.99)	M38 X 1.0-6g	0.138 (3.51)	M31 X 1.0-6g	36
23	1.500	2.201 (55.91) 2.177 (55.30)	2.063 (52.40)	1.561 (39.65)	1.279 (32.49)	1.339 (34.01)	M41 X 1.0-6g	0.138 (3.51)	M34 X 1.0-6g	40
25	1.625	2.323 (59.00) 2.299 (58.39)	2.189 (55.60)	1.686 (42.82)	1.397 (35.48)	1.457 (37.01)	M44 X 1.0-6g	0.138 (3.51)	M37 X 1.0-6g	44

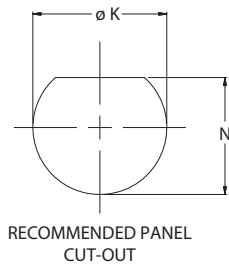
## MIL-DTL-38999 Series III Type

### 233-278 1000 PSI rated piston seal crimp removable receptacle

HERMETIC CONNECTORS

Part Number Development					
Sample Part Number	233-278	-H7	Z1	9-35	P N
Series / Basic Part No.	Series 23 SuperNine Hermetic				
Connector Style	H7 = Jam-Nut Mount with Accessory Thread BH7 = Jam-Nut Mount with Single Band, Banding Porch				
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish				
Shell Size/Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560				
Contact Style	P = Pin Face S = Socket Face				
Polarization*	V, W, X, Y, Z, T = Normal				

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number



Jam-Nut Panel Cut-Out Dimensions			
SHELL SIZE CODE	SHELL SIZE	K DIA	N
A	9	.703 (17.86)	.661 (16.79)
		.693 (17.60)	.656 (16.66)
B	11	.835 (21.21)	.771 (19.58)
		.825 (20.96)	.761 (19.33)
C	13	1.020 (25.91)	.955 (24.26)
		1.010 (25.65)	.945 (24.00)
D	15	1.145 (29.08)	1.085 (27.56)
		1.135 (28.83)	1.075 (27.30)
E	17	1.270 (32.26)	1.210 (30.73)
		1.260 (32.00)	1.200 (30.48)
F	19	1.395 (35.43)	1.335 (33.91)
		1.385 (35.18)	1.325 (33.65)
G	21	1.520 (38.61)	1.460 (37.08)
		1.510 (38.35)	1.450 (36.83)
H	23	1.645 (41.78)	1.585 (40.26)
		1.635 (41.53)	1.575 (40.00)
J	25	1.770 (44.96)	1.710 (43.43)
		1.760 (44.70)	1.700 (43.18)

Band Platform Dimensions			
SHELL SIZE CODE	SHELL SIZE	øEE	øFF
A	9	.475 (12.07)	.538 (13.67)
B	11	.600 (15.24)	.662 (16.81)
C	13	.700 (17.78)	.762 (19.35)
D	15	.835 (21.21)	.898 (22.81)
E	17	.960 (24.38)	1.022 (25.96)
F	19	1.062 (26.97)	1.125 (28.58)
G	21	1.188 (30.18)	1.250 (31.75)
H	23	1.275 (32.39)	1.338 (33.99)
J	25	1.475 (37.47)	1.538 (39.07)

**Material/finish:**

- Shell and jam-nut: 300 series CRES per part number development
- Contacts, pin: nickel iron alloy 52/gold plate
- Contacts, socket: copper alloy/gold plate
- Insulator, hermetic: fused vitreous glass/N.A.
- Insulator, socket: high grade rigid dielectric/N.A.
- O-ring and Seals: fluorosilicone/N.A

**NOTES**

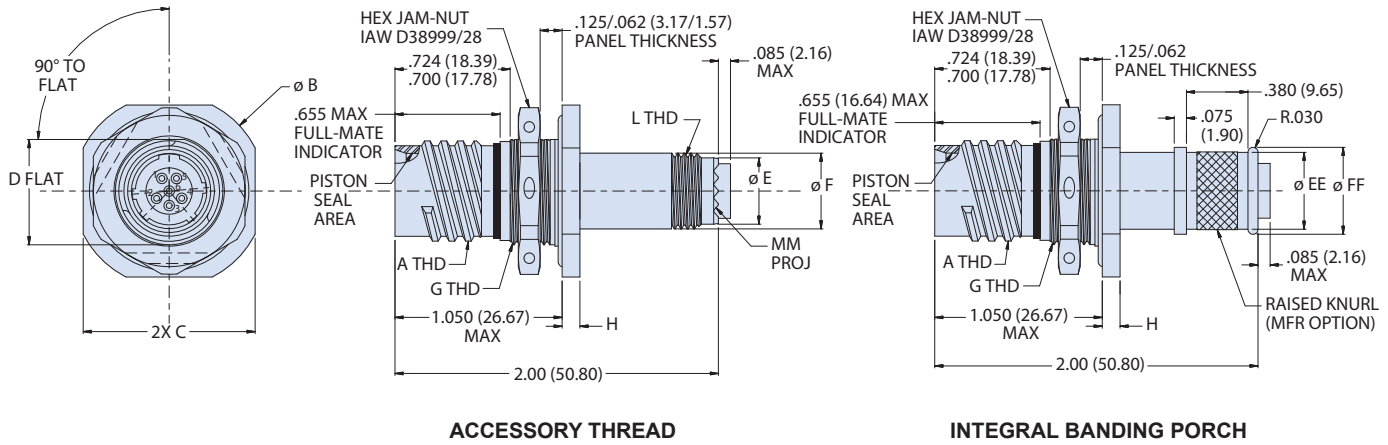
1. Hermeticity: <math>1 \times 10^{-7}</math> ccHe/sec @ 1 ATM, delta pressure
2. Glenair 233-277-H7 and 233-277-BH7 receptacle connector is designed to mate with 233-274 plug connector having the same insert arrangement, polarization, and opposite contact gender.

**MIL-DTL-38999 Series III Type**

**233-278 1000 PSI rated piston seal crimp removable receptacle**

HERMETIC CONNECTORS

**233-278-H7 OR -BH7 JAM-NUT RECEPTACLE WITH ACCESSORY THREADS OR BANDING PORCH**



Dimensions												
SHELL SIZE	A THREAD -0.1P-0.3L-TS	Ø B	C A/F ±.015	D FLAT ±.005	Ø E ±.003	Ø F REF	G THREAD ISO METRIC	H ±.008	Ø J ±.005	K ±.005 EX SZ 9	L THREAD ISO METRIC	MM PROJ
9	0.625	1.201 (30.51) 1.177 (29.90)	1.063 (27.00)	0.650 (16.51)	0.413 (10.49)	0.472 (11.99)	M17 X 1.0-6g	0.106 (2.69)	0.698 (17.73)	.661 (16.79) .656 (16.66)	M12 X 1.0-6g	12
11	0.750	1.386 (35.20) 1.362 (34.59)	1.252 (31.80)	0.750 (19.05)	0.531 (13.49)	0.591 (15.01)	M20 X 1.0-6g	0.106 (2.69)	0.830 (21.08)	0.766 (19.46)	M15 X 1.0-6g	16
13	0.875	1.512 (38.40) 1.488 (37.80)	1.374 (34.90)	0.937 (23.80)	0.650 (16.51)	0.789 (20.04)	M25 X 1.0-6g	0.106 (2.69)	1.015 (25.78)	0.950 (24.13)	M18 X 1.0-6g	20
15	1.000	1.638 (41.61) 1.614 (41.00)	1.500 (38.10)	1.061 (26.95)	0.807 (20.50)	0.866 (22.00)	M28 X 1.0-6g	0.106 (2.69)	1.140 (28.96)	1.080 (27.43)	M22 X 1.0-6g	24
17	1.187	1.764 (44.81) 1.740 (44.20)	1.626 (41.30)	1.186 (30.12)	0.925 (23.50)	0.984 (24.99)	M32 X 1.0-6g	0.106 (2.69)	1.265 (32.13)	1.205 (30.61)	M25 X 1.0-6g	28
19	1.250	1.949 (49.50) 1.925 (48.90)	1.811 (46.00)	1.311 (33.30)	1.043 (26.49)	1.102 (27.99)	M35 X 1.0-6g	0.138 (3.51)	1.390 (35.31)	1.330 (33.78)	M28 X 1.0-6g	32
21	1.375	2.075 (52.71) 2.051 (52.10)	1.937 (49.20)	1.436 (36.47)	1.161 (29.49)	1.220 (30.99)	M38 X 1.0-6g	0.138 (3.51)	1.515 (38.48)	1.455 (36.96)	M31 X 1.0-6g	36
23	1.500	2.201 (55.91) 2.177 (55.30)	2.063 (52.40)	1.561 (39.65)	1.279 (32.49)	1.339 (34.01)	M41 X 1.0-6g	0.138 (3.51)	1.640 (41.66)	1.580 (40.13)	M34 X 1.0-6g	40
25	1.625	2.323 (59.00) 2.299 (58.39)	2.189 (55.60)	1.686 (42.82)	1.397 (35.48)	1.457 (37.01)	M44 X 1.0-6g	0.138 (3.51)	1.765 (44.83)	1.705 (43.31)	M37 X 1.0-6g	44

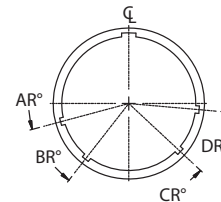
## MIL-DTL-38999 Series III Type

## 233-263 Bulkhead feed-thru with 10G High-Speed Contacts

Part Number Development	
Sample Part Number	233-263 -H7 ZL 25 -7 S N -2
Series - Basic Part No.	233-263 = SuperNine Hermetic High-Speed Bulkhead Feedthru
Connector Style*	H2 = Square Flange Mount      H7 = Jam-Nut Mount DH7 = Dual O-ring Jam-Nut Mount      H8 = Weld Mount
Material/Finish	Z1 = 300 Series CRES; Passivated      ZL = 300 Series CRES; Electroless Nickel
Shell Size	11, 19, 21, 25
Insert Arrangement	See Insert Arrangement Table
Module Type	P = Pin    S = Socket    A = Connector Less Contacts
Alternate Polarization	A, B, C, D, E, N = Normal (IAW MIL-DTL-38999 Series III); see alternate keyway positions table.
Panel Thickness	2 = .250



### Receptacle, Alternate Keyway Positions

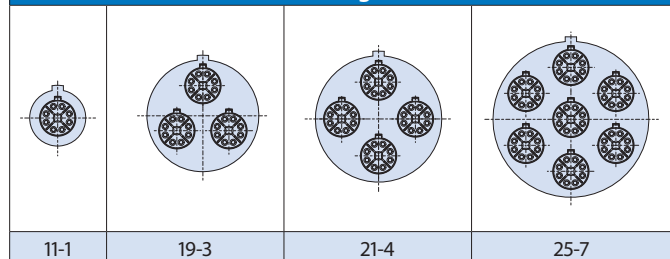


Shell Size Code	Shell Size	Alternate Position Code	AR°	BR°	CR°	DR°
B	11	N	95	141	208	236
		A	113	156	182	292
		B	90	145	195	252
		C	53	156	220	255
		D	119	146	176	298
F G J	19 21 25	N	80	142	196	293
		A	135	170	200	310
		B	49	169	200	244
		C	66	140	200	257
		D	62	145	180	280
		E	79	153	197	272

### NOTES

- Contact factory for other plating options
- SpeedMaster insert arrangements are exclusive to SpeedMaster™ and are unrelated to other insert patterns of the same name
- Glenair 233-263 is only designed to mate with Glenair 233-219-G6 connector of the same shell size, polarization, and opposite gender
- Hermeticity: less than  $1 \times 10^{-7}$  ccHe/sec at 1 atmosphere differential.
- 233-263 connector is only available as pin to socket or socket to pin
- Contacts are non removable
- Material / Finish
  - Shell and jam-nut: CRES/passivate or CRES/nickel plate
  - Contacts pin: nickel/iron alloy/gold
  - Contacts sockets: copper alloy/gold
  - Insulator hermetic: full glass/N.A
  - Insulator socket: high grade dielectric/N.A
  - Grounding members: copper alloy/electroless nickel
  - Seals: fluorosilicone blend/N.A.

### Insert Arrangements



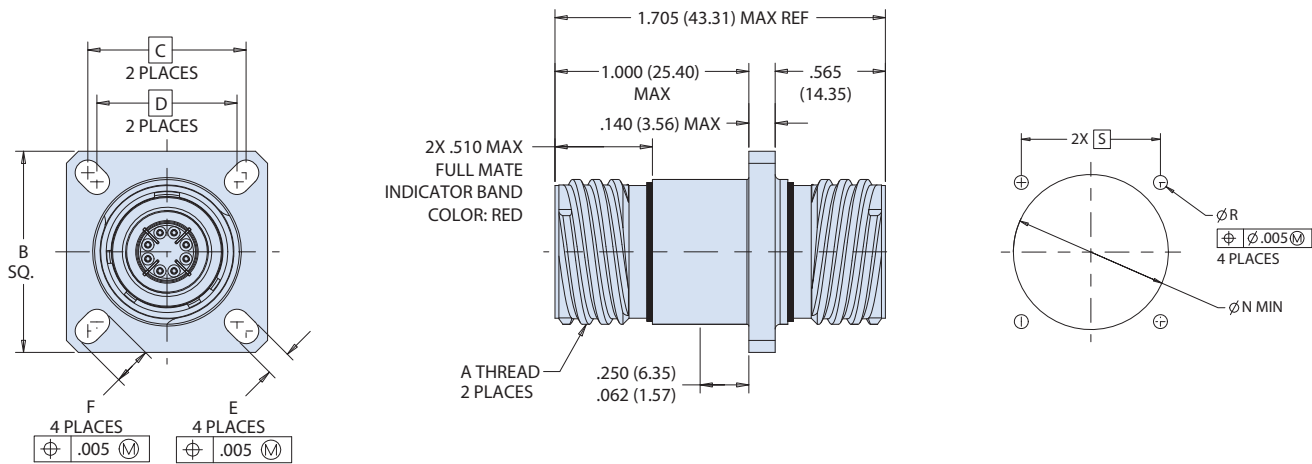


**MIL-DTL-38999 Series III Type**

**233-263 Bulkhead feed-thru with 10G High-Speed Contacts**

HERMETIC CONNECTORS

**H2 - SQUARE FLANGE MOUNT BULKHEAD FEED-THRU**

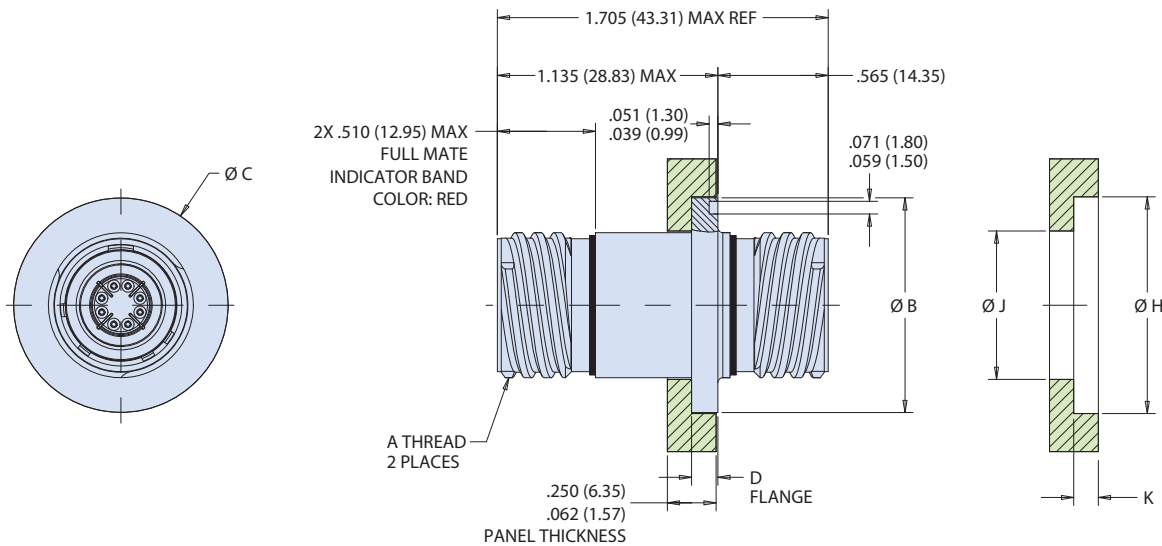


Square Flange Mount Dimensions								
Shell Size	A THREAD	B	C Basic	D Basic	E	F	ØR Holes	S Basic
11	.7500-.1P-.3L-TS-2A	1.040 (26.42) 1.016 (25.81)	0.812 (20.62)	0.719 (18.26)		0.198 (5.03) 0.190 (4.83)		0.812 (20.62)
19	1.2500-.1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	0.133 (3.38) 0.123 (3.12)	1.156 (29.36) 1.250 (31.75)
21	1.3750-.1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)				
25	1.6250-.1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	0.162 (4.11) 0.146 (3.71)	0.250 (6.35) 0.234 (5.94)	0.155 (3.94) 0.145 (3.68)	1.500 (38.10)

**MIL-DTL-38999 Series III Type**

**233-263 Bulkhead feed-thru with 10G High-Speed Contacts**

**H8 - WELD MOUNT BULKHEAD FEED-THRU**



HERMETIC CONNECTORS

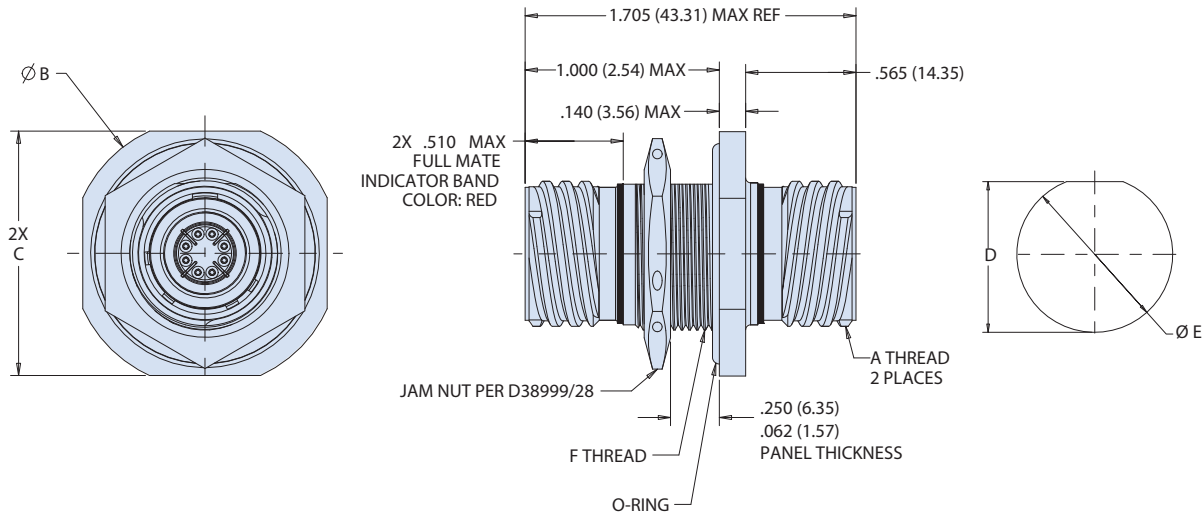
Weld Mount Dimensions								
Shell Size	A Thread	B	C	D	ØH	ØJ	ØK ±.005 (0.13)	
11	.7500-.1P-.3L-TS-2A	1.063 (27.00)	1.106 (28.09)	0.134 (3.40)	1.112 (28.24)	.760 (19.30)	.126 (3.20)	
		1.051 (26.70)	1.094 (27.79)		1.107 (28.12)			
19	1.2500-.1P-.3L-TS-2A	1.547 (39.29)	1.591 (40.41)		0.118 (3.00)	1.597 (40.56)		1.260 (32.00)
		1.535 (38.99)	1.579 (40.11)			1.592 (40.44)		
21	1.3750-.1P-.3L-TS-2A	1.689 (42.90)	1.732 (43.99)	0.165 (4.19)	1.738 (44.15)	1.385 (35.18)		
		1.677 (42.60)	1.720 (43.69)		1.733 (44.02)			
25	1.6250-.1P-.3L-TS-2A	1.941 (49.30)	1.984 (50.39)		0.149 (3.78)	1.990 (50.55)	1.635 (41.53)	
		1.929 (49.00)	1.972 (50.09)			1.985 (50.42)		

**MIL-DTL-38999 Series III Type**

**233-263 Bulkhead feed-thru with 10G High-Speed Contacts**

HERMETIC CONNECTORS

**H7 - JAM-NUT MOUNT BULKHEAD FEED-THRU**



Jam-Nut Mount Dimensions				
Shell Size	A Thread	$\varnothing B$	C Max	F Thread
11	.7500-.1P-.3L-TS-2A	1.375 (34.92)	1.252 (31.80)	M20x1.0-6g 0.100R
19	1.2500-.1P-.3L-TS-2A	1.937 (49.20)	1.811 (46.00)	M35x1.0-6g 0.100R
21	1.3750-.1P-.3L-TS-2A	2.063 (52.40)	1.937 (49.20)	M38x1.0-6g 0.100R
25	1.6250-.1P-.3L-TS-2A	2.311 (58.70)	2.189 (55.60)	M44x1.0-6g 0.100R

Dual O-Ring Jam-Nut Mount Dimensions				
Shell Size	A Thread	$\varnothing B$	C Max	F Thread
11	.7500-.1P-.3L-TS-2A	1.625 (41.28)	1.500 (38.10)	M20x1.0-6g 0.100R
19	1.2500-.1P-.3L-TS-2A	2.189 (55.60)	2.063 (52.40)	M35x1.0-6g 0.100R
21	1.3750-.1P-.3L-TS-2A	2.311 (58.70)	2.189 (55.60)	M38x1.0-6g 0.100R
25	1.6250-.1P-.3L-TS-2A	2.625 (66.68)	2.400 (60.96)	M44x1.0-6g 0.100R

Jam-Nut Panel Cut-Out Dimensions		
SHELL SIZE	$\varnothing D$	E FLAT
11	0.835 (21.21)	0.771 (19.58)
	0.825 (20.96)	0.761 (19.33)
19	1.395 (35.43)	1.335 (33.91)
	1.385 (35.18)	1.325 (33.65)
21	1.520 (38.61)	1.460 (37.08)
	1.510 (38.35)	1.450 (36.83)
25	1.770 (44.96)	1.710 (43.43)
	1.760 (44.70)	1.700 (43.18)

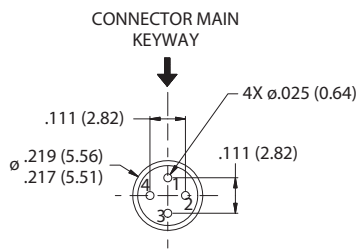
**MIL-DTL-38999 Series III Type**

**233-262 PC tail receptacles with shielded contacts**

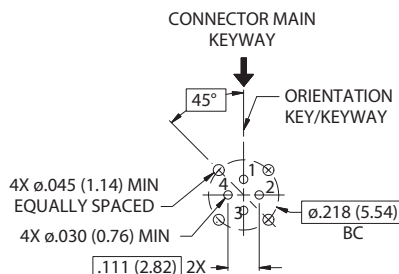
Part Number Development	
Sample Part Number	233-262 -H2 Z1 17 Q -02 S N
Series / Basic Part No.	Series 23 SuperNine Hermetic
Connector Style	H2 = Box Mount H7 = Jam-Nut, Mount DH7 = Dual O-ring Jam-Nut Mount H8 = Weld Mount
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish
Shell Size*	Per MIL-STD-1560. See also special RF contact shell size/contact arrangements beginning on page D-6.
RF Contact	C = Coax, 50 OHM C1 = Coax, 75 OHM P = Power Q = Quadrax, size #8 only T = Concentric twinax, size #8 only
Insert Arrangement*	Per MIL-STD-1560. See also special RF contact shell size/contact arrangements beginning on page 8.
Contact Style	P = Pin, PC Tail S = Socket, PC Tail
Polarization*	A, B, C, D, E, N = Normal

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

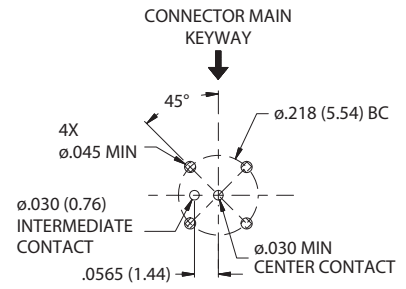
**233-262 HIGH-SPEED / RF SHIELDED CONTACT, PCB FOOTPRINTS**



**QUADRAX PIN INTERFACE**  
(CAVITY ID REFERENCE ONLY)  
FOR 100 OHM NOMINAL IMPEDANCE



**RECOMMENDED QUADRAX PC BOARD LAYOUT**  
(PIN ID SHOWN)



**RECOMMENDED TWINAX PCB LAYOUT**

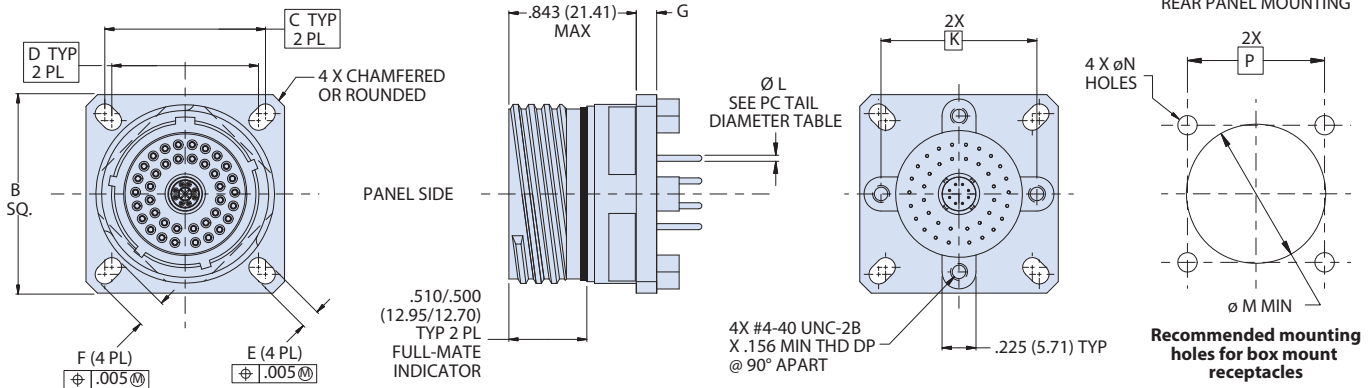
Contact Performance	
SIZE & TYPE	FREQ., MAX
16 Coax	500 MHz
8 Coax	1 GHz
8 Twinax (Conc.)	20 MHz
8 Quadrax	1 GHz

PC Tail Diameter	
CONTACT SIZE	PC TAIL ØL
No 22	.020 (0.51)/.018 (0.46)
No 20	.030 (0.76)/.028 (0.71)
No 16	.040 (1.02)/.038 (0.97)
No 12	.072 (1.83)/.070 (1.78)
No 8	.182 (4.62)/.178 (4.52)

**Material/finish:**

- Shell and jam-nut (H7 and DH7 only): 300 series CRES per part number development
- Contacts, pin: nickel-iron and nickel alloy/gold plate
- Contacts, socket: copper alloy/gold plate
- Hoods, sockets: CRES/passivate
- Insulator, hermetic: full glass/N.A.
- Insulator, socket: rigid dielectric/N.A.
- Seals: fluorosilicone blend elastomer/N.A.

#### 233-262-H2 BOX MOUNT RECEPTACLE



Box Mount Receptacle Dimensions

SHELL SIZE	A THREAD	B SQ	C BSC	D BSC	E	F	G	K BSC
9	.6250-.1P-.3L-TS-2A	.949 (24.10) .925 (23.50)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.122 (3.10) .083 (2.11)	.594 (15.09)
11	.7500-.1P-.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	.812 (20.62)	.719 (18.26)	.136 (3.45) .120 (3.05)	.202 (5.13) .186 (4.72)		.719 (18.26)
13	.8750-.1P-.3L-TS-2A	1.138 (28.91) 1.114 (28.30)	.906 (23.01)	.812 (20.62)	.136 (3.45) .120 (3.05)	.202 (5.13) .186 (4.72)		.812 (20.62)
15	1.0000-.1P-.3L-TS-2A	1.232 (31.29) 1.208 (30.68)	.969 (24.61)	.906 (23.01)	.136 (3.45) .120 (3.05)	.181 (4.60) .165 (4.19)		.906 (23.01)
17	1.1875-.1P-.3L-TS-2A	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	.969 (24.61)	.136 (3.45) .120 (3.05)	.202 (5.13) .186 (4.72)	.153 (3.89) .114 (2.90)	1.030 (26.16)
19	1.2500-.1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)	.136 (3.45) .120 (3.05)	.202 (5.13) .186 (4.72)		1.150 (29.21)
21	1.3750-.1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)	.136 (3.45) .120 (3.05)	.202 (5.13) .186 (4.72)		1.221 (31.01)
23	1.5000-.1P-.3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	.162 (4.11) .146 (3.71)	.250 (6.35) .234 (5.94)		1.360 (34.54)
25	1.6250-.1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	.162 (4.11) .146 (3.71)	.250 (6.35) .234 (5.94)		1.475 (37.47)

Box Mount, Mounting Hole Dimensions

SHELL SIZE	$\varnothing M$ MIN	$\varnothing N$ HOLES	P BSC	SHELL SIZE	$\varnothing M$ MIN	$\varnothing N$ HOLES	P BSC	SHELL SIZE	$\varnothing M$ MIN	$\varnothing N$ HOLES	P BSC
9	.656 (16.66)	.133 (3.38)	.724 (18.39)	15	1.047 (26.59)	.133 (3.38)	.973 (24.71)	21	1.421 (36.09)	.133 (3.38)	1.255 (31.88)
		.123 (3.12)	.714 (18.14)			.123 (3.12)	.963 (24.46)			.123 (3.12)	1.245 (31.62)
11	.781 (19.84)	.133 (3.38)	.817 (20.75)	17	1.218 (30.94)	.133 (3.38)	1.067 (27.10)	23	1.546 (39.27)	.159 (4.04)	1.380 (35.05)
		.123 (3.12)	.807 (20.50)			.123 (3.12)	1.057 (26.85)			.149 (3.78)	1.370 (34.80)
13	.921 (23.39)	.133 (3.38)	.911 (23.14)	19	1.296 (32.92)	.133 (3.38)	1.161 (29.49)	25	1.672 (42.47)	.159 (4.04)	1.505 (38.23)
		.123 (3.12)	.901 (22.89)			.123 (3.12)	1.151 (29.24)			1.495 (37.97)	1.495 (37.97)

#### NOTES

- Hermeticity:  $<1 \times 10^{-7}$  ccHe/sec @ 1 ATM, delta pressure
- Insert arrangements per MIL-STD-1560
- See page B-8 "Standard 1560 RF Contact Arrangements". Arrangements are per MIL-STD-1560, and contact types are per the standard, or specified option. Where there are #12 and #8 in the arrangement, the options are #8 only. Size #16 are only available as coax. Consult factory for other contact options
- Coax contact mating interfaces shall be in accordance with the following:
  - Size #16 per M39029/76 and /77
  - Size #12 per M39029/102 and /103
  - Size #8 per M39029/59 and /60

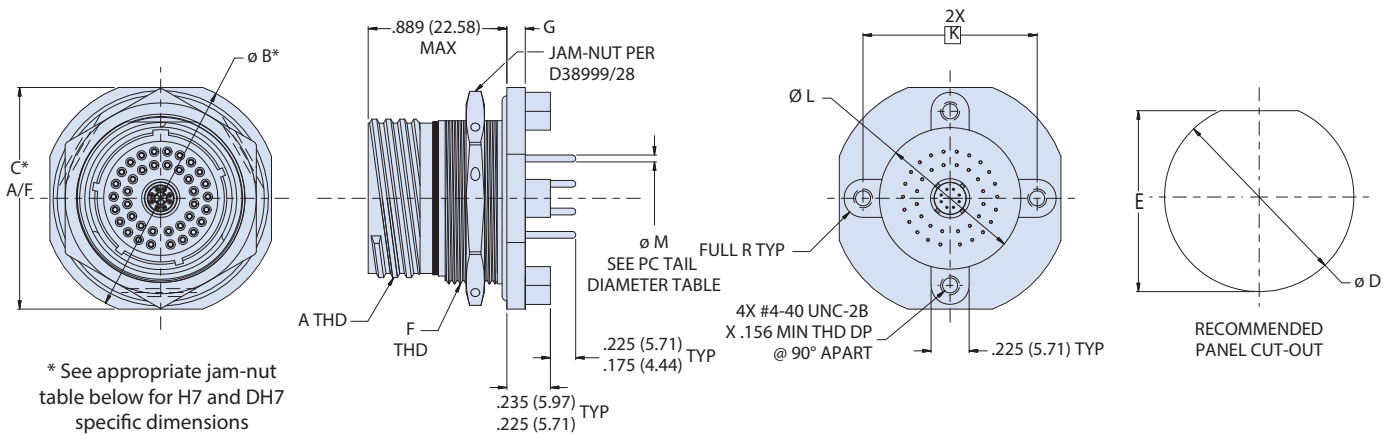


**MIL-DTL-38999 Series III Type**

**233-262 PC tail receptacles with shielded contacts**

HERMETIC CONNECTORS

**233-262-H7 JAM-NUT MOUNT RECEPTACLE AND  
233-262-DH7 JAM-NUT MOUNT DUAL O-RING RECEPTACLE**



Jam-Nut Dimensions					
SHELL SIZE	A THREAD .1P-.3L-TS-2A	F THREAD METRIC 0.100R	G	Ø L	K BSC
9	.6250	M17 X 1.0-6g	.122 (3.10) .083 (2.11)	.340 (8.64)	.594 (15.09)
11	.7500	M20 X 1.0-6g		.468 (11.89)	.719 (18.26)
13	.8750	M25 X 1.0-6g		.572 (14.53)	.812 (20.62)
15	1.0000	M28 X 1.0-6g		.705 (17.91)	.906 (23.01)
17	1.1875	M32 X 1.0-6g		.830 (21.08)	1.030 (26.16)
19	1.2500	M35 X 1.0-6g		.934 (23.72)	1.150 (29.21)
21	1.3750	M38 X 1.0-6g	.153 (3.89)	1.055 (26.80)	1.221 (31.01)
23	1.5000	M41 X 1.0-6g	.114 (2.90)	1.160 (29.46)	1.360 (34.54)
25	1.6250	M44 X 1.0-6g		1.307 (33.20)	1.475 (37.47)

Jam-Nut (H7), Mounting Hole Dimensions		
SHELL SIZE	Ø B ±.012	C FLAT ±.016
9	1.189 (30.20)	1.063 (27.00)
11	1.375 (34.92)	1.252 (31.80)
13	1.500 (38.10)	1.374 (34.90)
15	1.626 (41.30)	1.500 (38.10)
17	1.752 (44.50)	1.626 (41.30)
19	1.937 (49.20)	1.811 (46.00)
21	2.063 (52.40)	1.937 (49.20)
23	2.189 (55.60)	2.063 (52.40)
25	2.311 (58.70)	2.189 (55.60)

Dual O-ring Jam-Nut (DH7), Mounting Hole Dimensions		
SHELL SIZE	Ø B	C FLAT
9	1.500 (38.10)	1.375 (34.92)
11	1.625 (41.28)	1.500 (38.10)
13	1.752 (44.50)	1.626 (41.30)
15	1.937 (49.20)	1.811 (46.00)
17	2.063 (52.40)	1.937 (49.20)
19	2.189 (55.60)	2.063 (52.40)
21	2.311 (58.70)	2.189 (55.60)
23	2.500 (63.50)	2.300 (58.42)
25	2.625 (66.68)	2.400 (60.96)

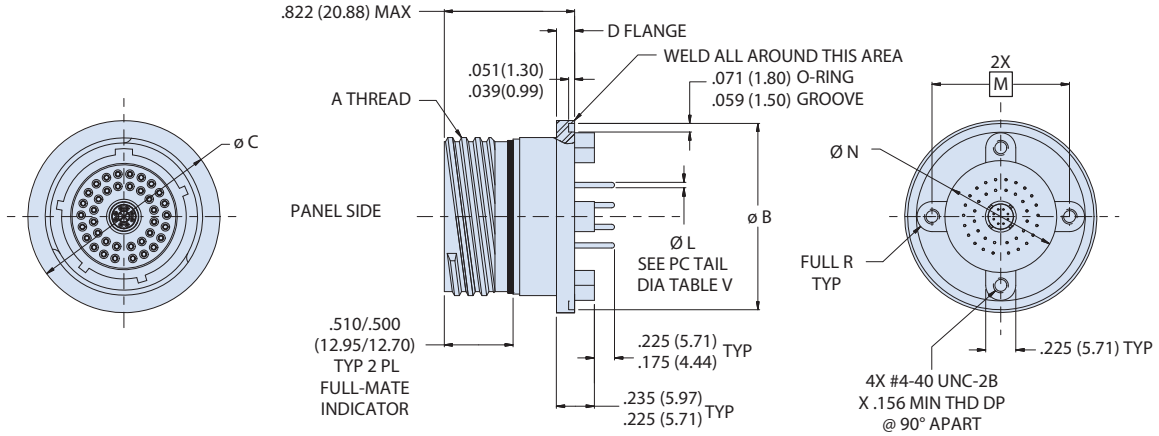
Jam-Nut, Mounting Hole Dimensions		
SHELL SIZE	Ø D	E DIM
9	.703 (17.86)	.661 (16.79)
	.693 (17.60)	.655 (16.64)
11	.835 (21.21)	.771 (19.58)
	.825 (20.96)	.761 (19.33)
13	1.020 (25.91)	.955 (24.26)
	1.010 (25.65)	.945 (24.00)
15	1.145 (29.08)	1.085 (27.56)
	1.135 (28.83)	1.075 (27.30)
17	1.270 (32.26)	1.210 (30.73)
	1.260 (32.00)	1.200 (30.48)
19	1.395 (35.43)	1.335 (33.91)
	1.385 (35.18)	1.325 (33.65)
21	1.520 (38.61)	1.460 (37.08)
	1.510 (38.35)	1.450 (36.83)
23	1.645 (41.78)	1.585 (40.26)
	1.635 (41.53)	1.575 (40.00)
25	1.770 (44.96)	1.710 (43.43)
	1.760 (44.70)	1.700 (43.18)

**MIL-DTL-38999 Series III Type**

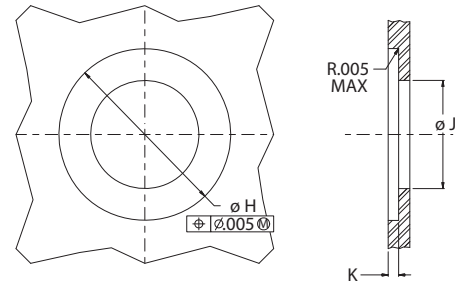
**233-262 PC tail receptacles with shielded contacts**

HERMETIC CONNECTORS

**233-262-H8 WELD MOUNT RECEPTACLE, D38999/21 TYPE**



Weld Mount Receptacle Dimensions							
SHELL SIZE CODE	SHELL SIZE	A THREAD	Ø B	Ø C	D	M BSC	Ø N
A	9	.6250-.1P-.3L-TS-2A	.941 (23.90) .929 (23.60)	.984 (24.99) .972 (24.69)	.134 (3.40) .118 (3.00)	.594 (15.09)	.340 (8.64)
B	11	.7500-.1P-.3L-TS-2A	1.063 (27.00) 1.051 (26.70)	1.106 (28.09) 1.094 (27.79)	.134 (3.40) .118 (3.00)	.719 (18.26)	.468 (11.89)
C	13	.8750-.1P-.3L-TS-2A	1.189 (30.20) 1.177 (29.90)	1.232 (31.29) 1.220 (30.99)	.134 (3.40) .118 (3.00)	.812 (20.62)	.572 (14.53)
D	15	1.0000-.1P-.3L-TS-2A	1.315 (33.40) 1.303 (33.10)	1.358 (34.49) 1.346 (34.19)	.134 (3.40) .118 (3.00)	.906 (23.01)	.705 (17.91)
E	17	1.1875-.1P-.3L-TS-2A	1.402 (35.61) 1.390 (35.31)	1.445 (36.70) 1.433 (36.40)	.134 (3.40) .118 (3.00)	1.030 (26.16)	.830 (21.08)
F	19	1.2500-.1P-.3L-TS-2A	1.547 (39.29) 1.535 (38.99)	1.591 (40.41) 1.579 (40.11)	.134 (3.40) .118 (3.00)	1.150 (29.21)	.934 (23.72)
G	21	1.3750-.1P-.3L-TS-2A	1.689 (42.90) 1.677 (42.60)	1.732 (43.99) 1.720 (43.69)	.134 (3.40) .118 (3.00)	1.221 (31.01)	1.055 (26.80)
H	23	1.5000-.1P-.3L-TS-2A	1.854 (47.09) 1.842 (46.79)	1.898 (48.21) 1.886 (47.90)	.165 (4.19) .149 (3.78)	1.360 (34.54)	1.160 (29.46)
J	25	1.6250-.1P-.3L-TS-2A	1.941 (49.30) 1.929 (49.00)	1.984 (50.39) 1.972 (50.09)	.165 (4.19) .149 (3.78)	1.475 (37.47)	1.307 (33.20)



Weld Mount, Mounting Hole Dimensions			
SHELL SIZE	Ø H	Ø J ±.005	DEPTH K ±.005
9	.990 (25.15)/.985 (25.02)	.635 (16.13)	.126 (3.20)
11	1.112 (28.24)/1.107 (28.12)	.760 (19.30)	.126 (3.20)
13	1.238 (31.45)/1.233 (31.32)	.885 (22.48)	.126 (3.20)
15	1.364 (34.65)/1.359 (34.52)	1.010 (25.65)	.126 (3.20)
17	1.451 (36.86)/1.446 (36.73)	1.195 (30.35)	.126 (3.20)
19	1.597 (40.56)/1.592 (40.44)	1.260 (32.00)	.126 (3.20)
21	1.738 (44.15)/1.733 (44.02)	1.385 (35.18)	.126 (3.20)
23	1.894 (48.11)/1.899 (48.23)	1.510 (38.35)	.157 (3.99)
25	1.990 (50.55)/1.985 (50.42)	1.635 (41.53)	.157 (3.99)

# SuperNine® Glass seal hermetic

## MIL-DTL-38999 Series III Type

### 233-267 PC tail receptacles with threaded stand-off



Part Number Development								
Sample Part Number	233-267			-H7	ZL	9-35	C	N
Series / Basic Part No.	Series 23 SuperNine Hermetic							
Connector Style	H7 = Jam-Nut Mount    DH7 = Dual O-ring, Jam-Nut Mount H2 = Box Mount							
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish							
Shell Size/Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560							
Contact Configuration	C = Pin, Feed-thru    D = Socket, Feed-thru							
Polarization*	A, B, C, D, E, N = Normal							

\*Refer to Section A for standard insert arrangements and pages D-8 thru D-10 for special shielded contact arrangements, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

**Material/finish:**

- Shell and jam-nut (H7 and DH7): 300 series CRES/per part number development
- Contacts, pin: nickel iron alloy/gold plated
- Contacts, socket: copper alloy/gold plated
- Insulator, pins: vitreous glass
- Insulator socket: high grade rigid dielectric
- Seals: fluorosilicone blend
- O-ring (jam-nut only): silver plated aluminum in fluorosilicone (cho-seal 1298 or equivalent)

PC Tail Diameter	
Contact Size	PC Tail ØL
No 23	.020 (0.51) .018 (0.46)
No 22	.020 (0.51) .018 (0.46)
No 20	.030 (0.76) .028 (0.71)
No 16	.040 (1.02) .038 (0.97)
No 12	.072 (1.83) .070 (1.78)

**NOTES**

1. Glenair 233-267-DH7, H7 and H2 receptacle connectors are designed to meet or exceed the mechanical and dimensional requirements of MIL-DTL-38999, D38999/23, D38999/21 and MIL-STD1560 except as shown and/or noted. Receptacle mates with any QPL manufacturer's MIL-DTL-38999, series III plug connector, D38999/26, having the same shell size, insert arrangement and polarization

**Test Requirements**

DWV Voltage Levels at Sea Level

Service rating	Voltage AC RMS 60HZ
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

I.R. - 5 Gigohms min. @ 500 VDC

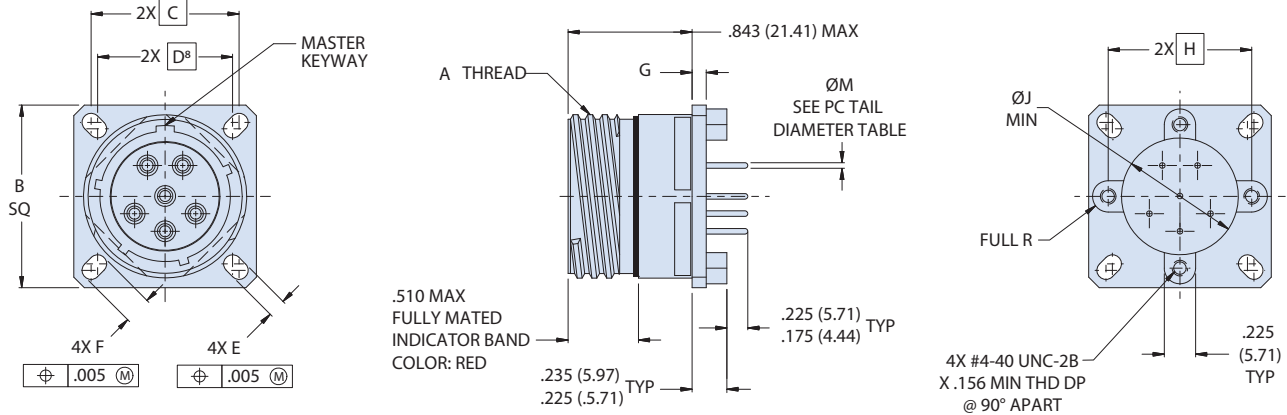
Hermeticity - <1 x 10<sup>-7</sup> ccHe/sec @ 1 ATM, delta pressure

## MIL-DTL-38999 Series III Type

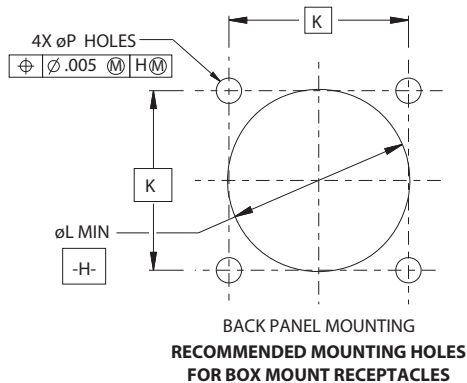
### 233-267 PC tail receptacles with threaded stand-off

HERMETIC CONNECTORS

#### 233-267-H2 BOX MOUNT RECEPTACLE



Dimensions										
SHELL SIZE CODE	SHELL SIZE	A THREAD 0.1P-0.3L-TS-2A	B SQ	C BSC	D BSC	E	F	G	H BSC	ØJ MIN
A	9	.6250	.948 (24.08) .925 (23.50)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.102 (2.59) .075 (1.90)	.594 (15.09)	.340 (8.64)
B	11	.7500	1.043 (26.49) 1.019 (25.88)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)		.719 (18.26)	.468 (11.89)
C	13	.8750	1.137 (28.88) 1.114 (28.30)	.906 (23.01)	.812 (20.62)		.181 (4.60) .165 (4.19)		.812 (20.62)	.572 (14.53)
D	15	1.0000	1.232 (31.29) 1.208 (30.68)	.969 (24.61)	.906 (23.01)		.202 (5.13) .186 (4.72)		.906 (23.01)	.705 (17.91)
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	.969 (24.61)		.150 (3.81)		1.030 (26.16)	.830 (21.08)
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)		.224 (5.69) .208 (5.28)		1.150 (29.21)	.934 (23.72)
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)		.162 (4.11)		1.221 (31.01)	1.055 (26.80)
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	.250 (6.35)	1.360 (34.54)	1.160 (29.46)		
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	.146 (3.71)	.234 (5.94)	1.475 (37.47)	1.307 (33.20)	

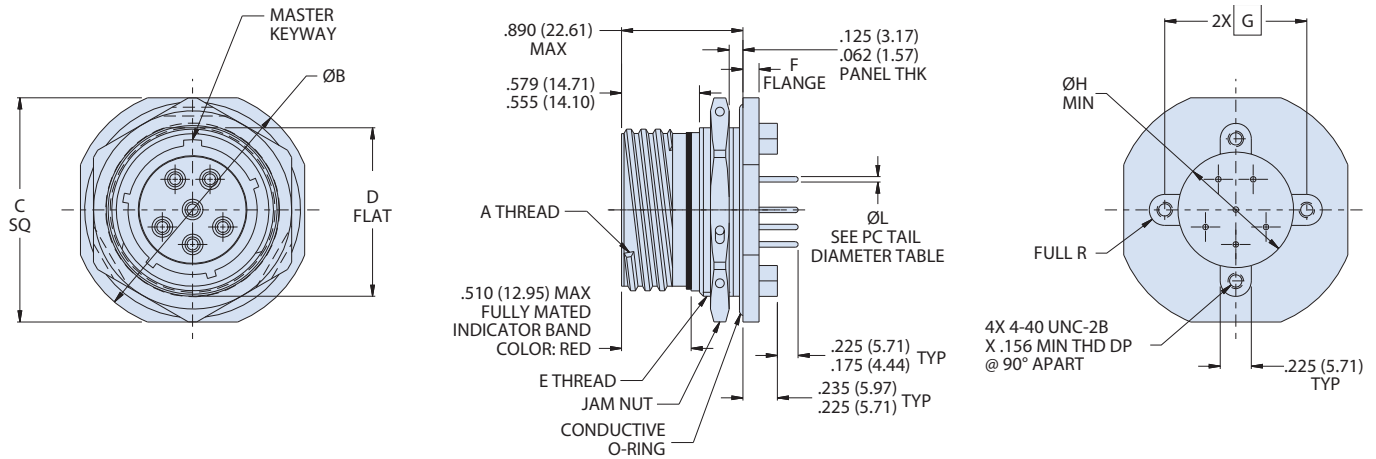


Box Mount, Mounting Hole Dimensions				
SHELL SIZE CODE	SHELL SIZE	K BSC	Ø L MIN	Ø P HOLES
A	9	.719 (18.26)	.656 (16.66)	.133 (3.38) .123 (3.12)
B	11	.812 (20.62)	.781 (19.84)	
C	13	.906 (23.01)	.921 (23.39)	
D	15	.969 (24.61)	1.047 (26.59)	
E	17	1.062 (26.97)	1.218 (30.94)	
F	19	1.156 (29.36)	1.296 (32.92)	
G	21	1.250 (31.75)	1.421 (36.09)	
H	23	1.375 (34.92)	1.546 (39.27)	.159 (4.04)
J	25	1.500 (38.10)	1.672 (42.47)	.149 (3.78)

## MIL-DTL-38999 Series III Type

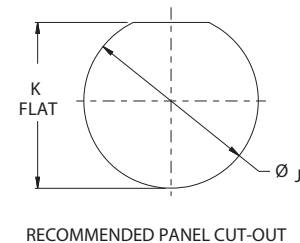
### 233-267 PC tail receptacles with threaded stand-off

#### 233-267-H7 JAM-NUT RECEPTACLE



Dimensions									
SHELL SIZE CODE	SHELL SIZE	A THREAD .1P-.3L-TS-2A	ØB	C SQ	D FLAT	E THREAD ISO METRIC	F	G BSC	ØH MIN
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g	.122 (3.10) .083 (2.11)	.594 (15.09)	.340 (8.64)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g		.719 (18.26)	.468 (11.89)
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g		.812 (20.62)	.572 (14.53)
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g	.153 (3.89) .114 (2.90)	.906 (23.01)	.705 (17.91)
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g		1.030 (26.16)	.830 (21.08)
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g		1.150 (29.21)	.934 (23.72)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g	.153 (3.89) .114 (2.90)	1.221 (31.01)	1.055 (26.80)
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g		1.360 (34.54)	1.160 (29.46)
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g		1.475 (37.47)	1.307 (33.20)

Jam-Nut and Dual O-ring Jam-Nut Panel Cut-Out Dimensions			
SHELL SIZE CODE	SHELL SIZE	ØJ	K FLAT
A	9	.703 (17.86); .693 (17.60)	.661 (16.79); .655 (16.64)
B	11	.835 (21.21); .825 (20.96)	.771 (19.58); .761 (19.33)
C	13	1.020 (25.91); 1.010 (25.65)	.955 (24.26); .945 (24.00)
D	15	1.145 (29.08); 1.135 (28.83)	1.085 (27.56); 1.075 (27.30)
E	17	1.270 (32.26); 1.260 (32.00)	1.210 (30.73); 1.200 (30.48)
F	19	1.395 (35.43); 1.385 (35.18)	1.335 (33.91); 1.325 (33.65)
G	21	1.520 (38.61); 1.510 (38.35)	1.460 (37.08); 1.450 (36.83)
H	23	1.645 (41.78); 1.635 (41.53)	1.585 (40.26); 1.575 (40.00)
J	25	1.770 (44.96); 1.760 (44.70)	1.710 (43.43); 1.700 (43.18)



HERMETIC CONNECTORS

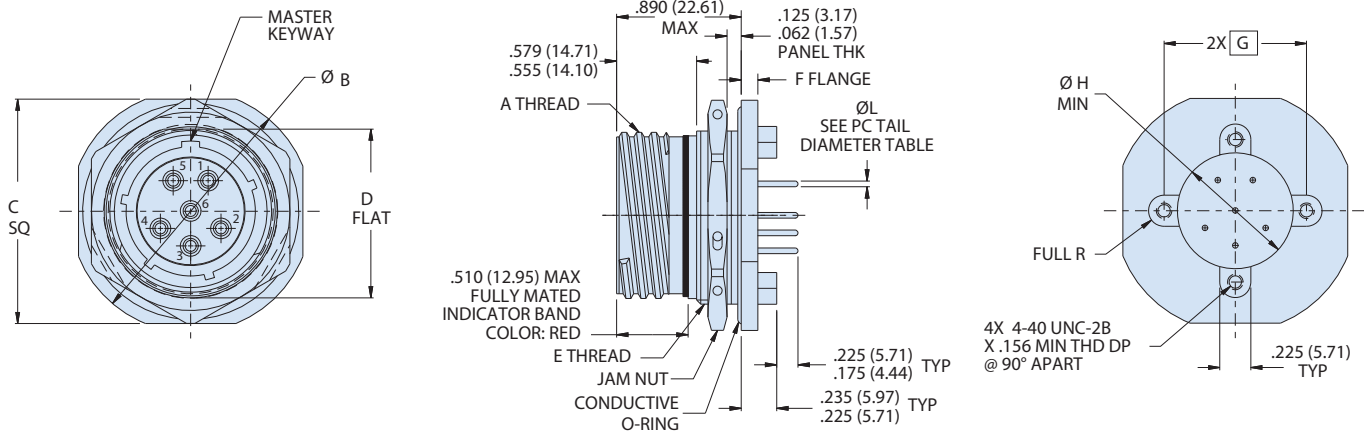


## MIL-DTL-38999 Series III Type

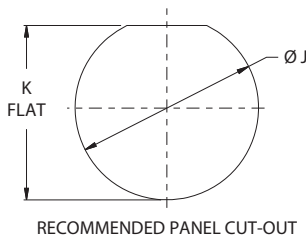
### 233-267 PC tail receptacles with threaded stand-off

HERMETIC CONNECTORS

#### 233-267-DH7 DUAL O-RING JAM-NUT RECEPTACLE



Dimensions									
SHELL SIZE CODE	SHELL SIZE	A THREAD .1P-.3L-TS-2A	ØB	C SQ	D FLAT	E THREAD ISO METRIC	F	G BSC	ØH MIN
A	9	.6250 -	1.500 (38.10)	1.375 (34.92)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g	.122 (3.10) .083 (2.11)	.594 (15.09)	.340 (8.64)
B	11	.7500	1.625 (41.28)	1.500 (38.10)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g		.719 (18.26)	.468 (11.89)
C	13	.8750	1.752 (44.50)	1.626 (41.30)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g		.812 (20.62)	.572 (14.53)
D	15	1.0000	1.937 (49.20)	1.811 (46.00)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g		.906 (23.01)	.705 (17.91)
E	17	1.1875	2.063 (52.40)	1.937 (49.20)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g	.153 (3.89) .114 (2.90)	1.030 (26.16)	.830 (21.08)
F	19	1.2500	2.189 (55.60)	2.063 (52.40)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g		1.150 (29.21)	.934 (23.72)
G	21	1.3750	2.311 (58.70)	2.189 (55.60)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g		1.221 (31.01)	1.055 (26.80)
H	23	1.5000	2.500 (63.50)	2.300 (58.42)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g		1.360 (34.54)	1.160 (29.46)
J	25	1.6250	2.625 (66.68)	2.400 (60.96)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g		1.475 (37.47)	1.307 (33.20)



Jam-Nut and Dual O-ring Jam-Nut Panel Cut-Out Dimensions				
SHELL SIZE CODE	SHELL SIZE	ØJ		K FLAT
A	9	.703 (17.86); .693 (17.60)	.661 (16.79); .655 (16.64)	
B	11	.835 (21.21); .825 (20.96)	.771 (19.58); .761 (19.33)	
C	13	1.020 (25.91); 1.010 (25.65)	.955 (24.26); .945 (24.00)	
D	15	1.145 (29.08); 1.135 (28.83)	1.085 (27.56); 1.075 (27.30)	
E	17	1.270 (32.26); 1.260 (32.00)	1.210 (30.73); 1.200 (30.48)	
F	19	1.395 (35.43); 1.385 (35.18)	1.335 (33.91); 1.325 (33.65)	
G	21	1.520 (38.61); 1.510 (38.35)	1.460 (37.08); 1.450 (36.83)	
H	23	1.645 (41.78); 1.635 (41.53)	1.585 (40.26); 1.575 (40.00)	
J	25	1.770 (44.96); 1.760 (44.70)	1.710 (43.43); 1.700 (43.18)	

**MIL-DTL-38999 Series III Type**

**233-268 Dual flange receptacles, high-speed PCB contacts**

Part Number Development								
Sample Part Number	233-268			-H2	ZL	09-35	C	N
Series / Basic Part No.	Series 23 SuperNine Hermetic							
Connector Style	H2 = Box Mount   H7 = Jam-Nut Mount DH7 = Dual O-ring, Jam-Nut Mount							
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish							
Shell Size/Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560							
Contact Configuration	C = Pin, Feed-thru   D = Socket, Feed-thru							
Polarization*	A, B, C, D, E, N = Normal							

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

**Material/finish:**

- Shell and jam-nut (H7 and DH7 only): 300 series CRES/per part number development
- Contacts, pin: nickel-iron alloy/gold plate
- Contacts, socket: copper alloy/gold plate
- Insulator, pins: vitreous glass/N.A.
- Insulator, sockets: high-grade rigid dielectric/N.A.
- Seals: fluorosilicone blend/N.A.  
O-ring (jam-nut only): silver plated aluminum in fluorosilicone (cho-seal 1298 or equivalent)

PC Tail Diameter	
Contact Size	PC Tail ØL
No 23	.020 (0.51) .018 (0.46)
No 22	.020 (0.51) .018 (0.46)
No 20	.030 (0.76) .028 (0.71)
No 16	.040 (1.02) .038 (0.97)
No 12	.072 (1.83) .070 (1.78)

**NOTES**

1. Insert arrangements per MIL-STD-1560. Contact manufacturer for additional arrangement options
2. Glenair 233-268-H7 and DH7 receptacle connectors are designed to meet or exceed the mechanical and dimensional requirements of MIL-DTL-38999, D38999/23, and MIL-STD-1560 except as shown and/or noted.
3. Glenair receptacle connector is designed to meet or exceed the mechanical and dimensional requirements of MIL-DTL-38999, D38999/21, and MIL-STD-1560 except as shown and/or noted.
4. Rear panel mount only
5. Mates with 233-217 or 233-224 plug

**Test Requirements**

DWV Voltage Levels at Sea Level

Service rating	Voltage AC RMS 60HZ
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

I.R. - 5 Gigohms min. @ 500 VDC

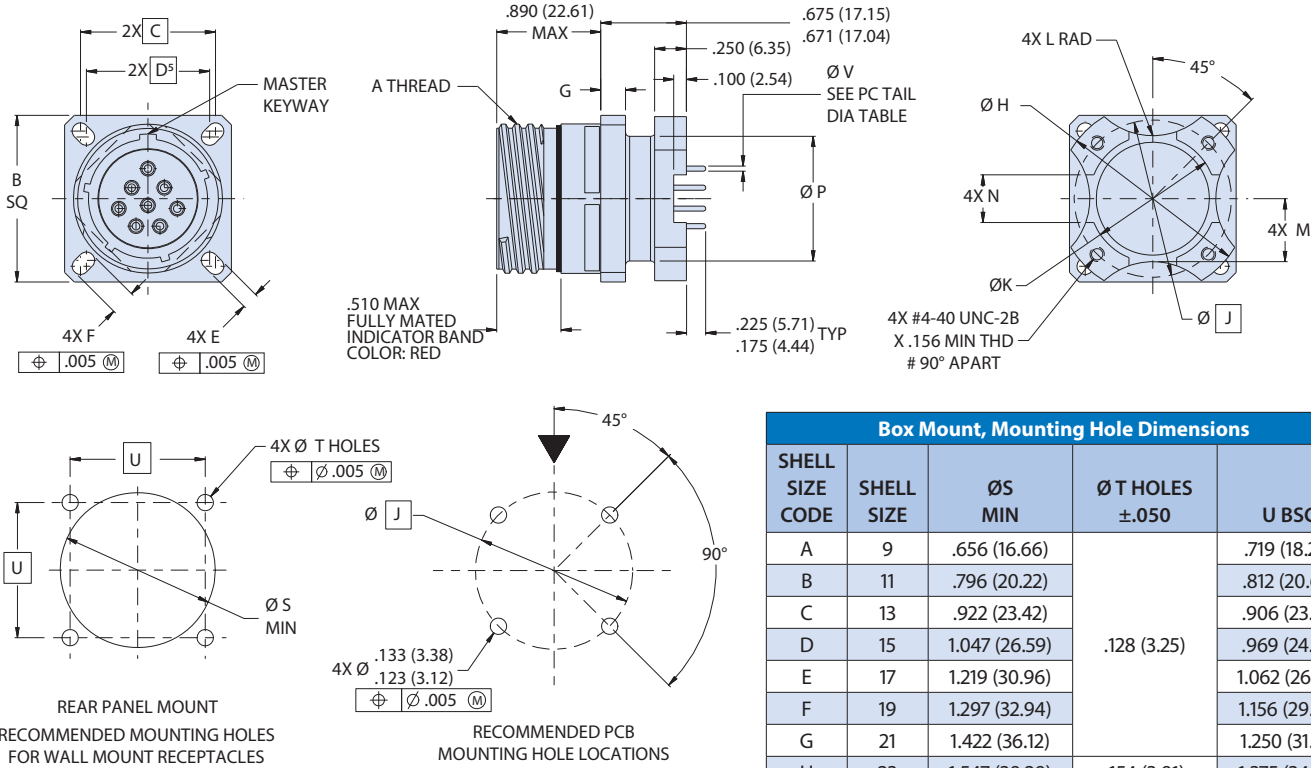
Hermeticity - <1 x 10<sup>-7</sup> ccHe/sec @ 1 ATM, delta pressure

## MIL-DTL-38999 Series III Type

### 233-268 Dual flange receptacles, high-speed PCB contacts

HERMETIC CONNECTORS

#### 233-268-H2 BOX MOUNT RECEPTACLE



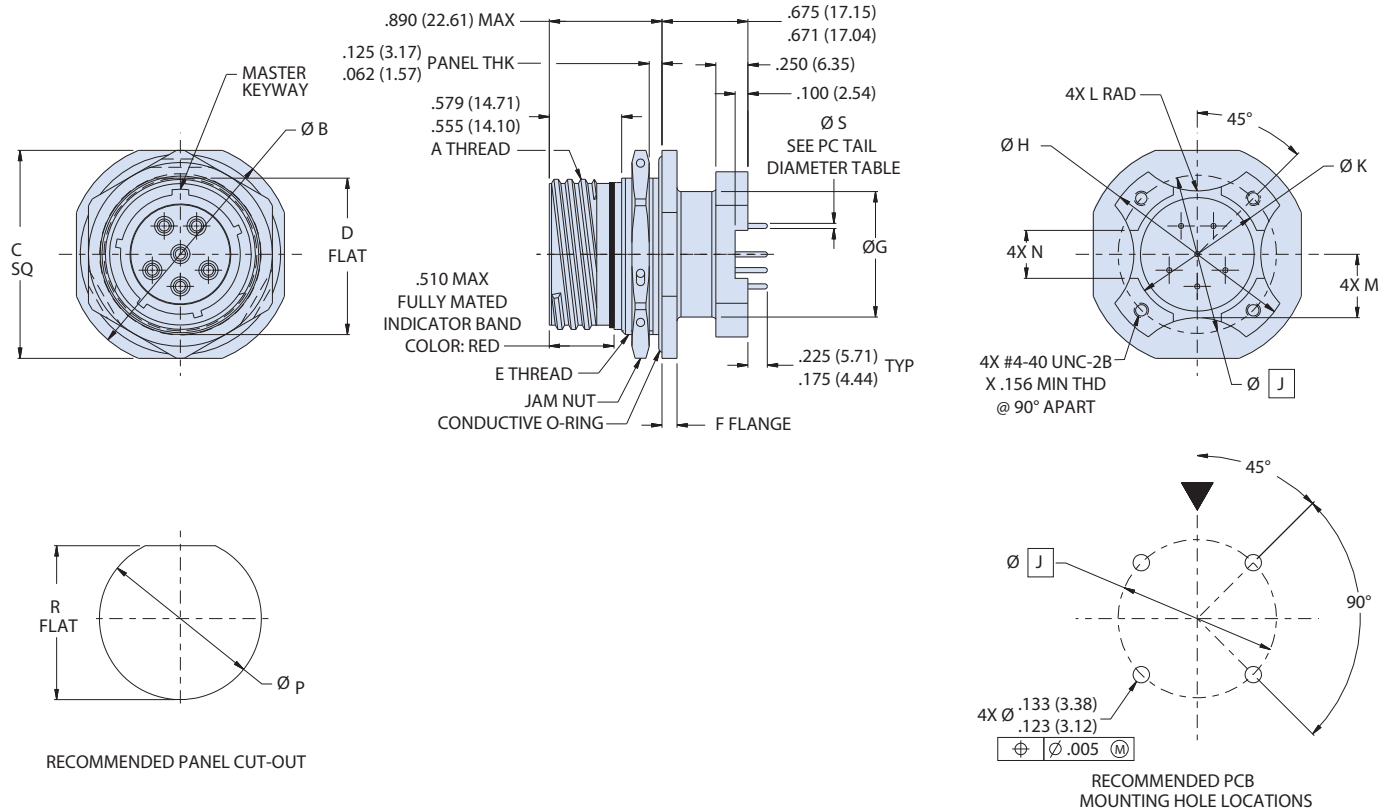
Box Mount, Mounting Hole Dimensions				
SHELL SIZE CODE	SHELL SIZE	ØS MIN	Ø T HOLES ±.050	U BSC
A	9	.656 (16.66)	.128 (3.25)	.719 (18.26)
B	11	.796 (20.22)		.812 (20.62)
C	13	.922 (23.42)		.906 (23.01)
D	15	1.047 (26.59)		.969 (24.61)
E	17	1.219 (30.96)		1.062 (26.97)
F	19	1.297 (32.94)		1.156 (29.36)
G	21	1.422 (36.12)		1.250 (31.75)
H	23	1.547 (39.29)		1.375 (34.92)
J	25	1.672 (42.47)		1.500 (38.10)

Box Mount Dimensions															
SHELL SIZE CODE	SHELL SIZE	A THREAD 0.1P-0.3L-TS-2A	B SQ	C BSC	D5 BSC	E	F	G	ØH ±.005	ØJ BSC	ØK ±.005	L RAD ±.020	M ±.020	N ±.010	ØP ±.005
A	9	.6250 -	.948 (24.08) .925 (23.50)	.719 (18.26)	.594 (15.09)	.136 (3.45) .120 (3.05)	.224 (5.69) .208 (5.28)	.102 (2.59) .075 (1.90)	1.016 (25.81)	.752 (19.10)	.532 (13.51)	.225 (5.72)	.275 (6.99)	.225 (5.72)	.535 (13.59)
B	11	.7500	1.043 (26.49) 1.019 (25.88)	.812 (20.62)	.719 (18.26)		.202 (5.13) .186 (4.72)		1.062 (26.97)	.850 (21.59)	.595 (15.11)	.250 (6.35)	.290 (7.37)	.250 (6.35)	.560 (14.22)
C	13	.8750	1.137 (28.88) 1.114 (28.30)	.906 (23.01)	.812 (20.62)		.181 (4.60) .165 (4.19)		1.250 (31.75)	.994 (25.25)	.720 (18.29)	.375 (9.52)	.370 (9.40)	.250 (6.35)	.700 (17.78)
D	15	1.0000	1.232 (31.29) 1.208 (30.68)	.969 (24.61)	.906 (23.01)		1.375 (34.92)		1.119 (28.42)	.843 (21.41)	.438 (11.13)	.440 (11.18)	.325 (8.25)	.857 (21.77)	
E	17	1.1875	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	.969 (24.61)		1.500 (38.10)		1.237 (31.42)	1.000 (25.40)	.562 (14.27)	.495 (12.57)	.375 (9.52)	.980 (24.89)	
F	19	1.2500	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)		1.625 (41.28)		1.379 (35.03)	1.125 (28.58)	.875 (22.23)	.540 (13.72)	.500 (12.70)	1.060 (26.92)	
G	21	1.3750	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)		1.750 (44.45)		1.489 (37.82)	1.240 (31.50)	1.170 (29.72)	.625 (15.88)	.562 (14.27)	1.210 (30.73)	
H	23	1.5000	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)		1.875 (47.63)		1.619 (41.12)	1.328 (33.73)	1.250 (31.75)	.660 (16.76)	.688 (17.48)	1.310 (33.27)	
J	25	1.6250	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)		2.000 (50.80)		1.744 (44.30)	1.453 (36.91)	1.375 (34.92)	.740 (18.80)	.750 (19.05)	1.460 (37.08)	

**MIL-DTL-38999 Series III Type**

**233-268 Dual flange receptacles, high-speed PCB contacts**

**233-268-H7 AND 233-268-DH7 JAM-NUT MOUNT RECEPTACLE**



HERMETIC CONNECTORS

Mounting Hole Dimensions for H7 and DH7							
SHELL SIZE CODE	SHELL SIZE	ØP	R FLAT	SHELL SIZE CODE	SHELL SIZE	ØP	R FLAT
A	9	.703 (17.86)	.661 (16.79)	F	19	1.395 (35.43)	1.335 (33.91)
		.693 (17.60)	.655 (16.64)			1.385 (35.18)	1.325 (33.65)
B	11	.835 (21.21)	.771 (19.58)	G	21	1.520 (38.61)	1.460 (37.08)
		.825 (20.96)	.761 (19.33)			1.510 (38.35)	1.450 (36.83)
C	13	1.020 (25.91)	.955 (24.26)	H	23	1.645 (41.78)	1.585 (40.26)
		1.010 (25.65)	.945 (24.00)			1.635 (41.53)	1.575 (40.00)
D	15	1.145 (29.08)	1.085 (27.56)	J	25	1.770 (44.96)	1.710 (43.43)
		1.135 (28.83)	1.075 (27.30)			1.760 (44.70)	1.700 (43.18)
E	17	1.270 (32.26)	1.210 (30.73)				
		1.260 (32.00)	1.200 (30.48)				

**MIL-DTL-38999 Series III Type**

**233-268 Dual flange receptacles, high-speed PCB contacts**

HERMETIC CONNECTORS

**233-268-H7 JAM-NUT MOUNT RECEPTACLE**

Dimensions															
SHELL SIZE CODE	SHELL SIZE	A THREAD 0.1P-0.3L-TS-2A	ØB	C SQ	D FLAT	E THREAD ISO METRIC 1.0-6g 0.100R	F	ØG ±.005	ØH ±.005	ØJ BSC	ØK ±.005	L RAD ±.020	M ±.020	N ±.010	
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	0.654 (16.61) 0.645 (16.38)	M17	.122 (3.10) .083 (2.11)	.535 (13.59)	1.016 (25.81)	.752 (19.10)	.532 (13.51)	.225 (5.72)	.275 (6.99)	.225 (5.72)	
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	0.755 (19.18) 0.745 (18.92)	M20		.560 (14.22)	1.062 (26.97)	.850 (21.59)	.595 (15.11)	.250 (6.35)	.290 (7.37)	.250 (6.35)	
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	0.942 (23.93) 0.932 (23.67)	M25		.700 (17.78)	1.250 (31.75)	.994 (25.25)	.720 (18.29)	.375 (9.52)	.370 (9.40)	.250 (6.35)	
D	15	1.0000-	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28		.857 (21.77)	1.375 (34.92)	1.119 (28.42)	.843 (21.41)	.438 (11.13)	.440 (11.18)	.325 (8.25)	
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32		.980 (24.89)	1.500 (38.10)	1.237 (31.42)	1.000 (25.40)	.562 (14.27)	.495 (12.57)	.375 (9.52)	
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35		1.060 (26.92)	1.625 (41.28)	1.379 (35.03)	1.125 (28.58)	.875 (22.23)	.540 (13.72)	.500 (12.70)	
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38		.153 (3.89)	1.210 (30.73)	1.750 (44.45)	1.489 (37.82)	1.240 (31.50)	1.170 (29.72)	.625 (15.88)	.562 (14.27)
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41		.114 (2.90)	1.310 (33.27)	1.875 (47.63)	1.619 (41.12)	1.328 (33.73)	1.250 (31.75)	.660 (16.76)	.688 (17.48)
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44		1.460 (37.08)	2.000 (50.80)	1.744 (44.30)	1.453 (36.91)	1.375 (34.92)	.740 (18.80)	.750 (19.05)	

**233-268-DH7 DUAL O-RING, JAM-NUT MOUNT RECEPTACLE**

Dimensions															
SHELL SIZE CODE	SHELL SIZE	A THREAD 0.1P-0.3L-TS-2A	ØB	C SQ	D FLAT	E THREAD ISO METRIC 1.0-6g 0.100R	F	ØG ±.005	ØH ±.005	ØJ BSC	ØK ±.005	L RAD ±.020	M ±.020	N ±.010	
A	9	.6250	1.500 (38.10)	1.375 (34.92)	0.654 (16.61) 0.645 (16.38)	M17	.122 (3.10) .083 (2.11)	.535 (13.59)	1.016 (25.81)	.752 (19.10)	.532 (13.51)	.225 (5.72)	.275 (6.99)	.225 (5.72)	
B	11	.7500	1.625 (41.28)	1.500 (38.10)	0.755 (19.18) 0.745 (18.92)	M20		.560 (14.22)	1.062 (26.97)	.850 (21.59)	.595 (15.11)	.250 (6.35)	.290 (7.37)	.250 (6.35)	
C	13	.8750	1.752 (44.50)	1.626 (41.30)	0.942 (23.93) 0.932 (23.67)	M25		.700 (17.78)	1.250 (31.75)	.994 (25.25)	.720 (18.29)	.375 (9.52)	.370 (9.40)	.250 (6.35)	
D	15	1.0000-	1.937 (49.20)	1.811 (46.00)	1.066 (27.08) 1.056 (26.82)	M28		.857 (21.77)	1.375 (34.92)	1.119 (28.42)	.843 (21.41)	.438 (11.13)	.440 (11.18)	.325 (8.25)	
E	17	1.1875	2.063 (52.40)	1.937 (49.20)	1.191 (30.25) 1.181 (30.00)	M32		.980 (24.89)	1.500 (38.10)	1.237 (31.42)	1.000 (25.40)	.562 (14.27)	.495 (12.57)	.375 (9.52)	
F	19	1.2500	2.189 (55.60)	2.063 (52.40)	1.316 (33.43) 1.306 (33.17)	M35		1.060 (26.92)	1.625 (41.28)	1.379 (35.03)	1.125 (28.58)	.875 (22.23)	.540 (13.72)	.500 (12.70)	
G	21	1.3750	2.311 (58.70)	2.189 (55.60)	1.441 (36.60) 1.431 (36.35)	M38		.153 (3.89)	1.210 (30.73)	1.750 (44.45)	1.489 (37.82)	1.240 (31.50)	1.170 (29.72)	.625 (15.88)	.562 (14.27)
H	23	1.5000	2.500 (63.50)	2.300 (58.42)	1.566 (39.78) 1.556 (39.52)	M41		.114 (2.90)	1.310 (33.27)	1.875 (47.63)	1.619 (41.12)	1.328 (33.73)	1.250 (31.75)	.660 (16.76)	.688 (17.48)
J	25	1.6250	2.625 (66.68)	2.400 (60.96)	1.691 (42.95) 1.681 (42.70)	M44		1.460 (37.08)	2.000 (50.80)	1.744 (44.30)	1.453 (36.91)	1.375 (34.92)	.740 (18.80)	.750 (19.05)	



## MIL-DTL-38999 Series III Type

### 233-271 Hermetic receptacle with thermocouple contacts

Part Number Development												
Sample Part Number	233-271				-H2	Z1	11	-98	P	N	-K	1
Series / Basic Part No.	Series 23 SuperNine Receptacle											
Connector Style	H2 = Flange Mount H7 = Jam-Nut Mount		H5 = Solder Mount H8 = Weld Mount									
Finish*	Z1 = CRES, Passivated		ZL = CRES, Nickel Finish									
Shell Size	Per MIL-DTL-38999											
Arrangement	Per MIL-STD-1560											
Contact Style	C = Pin, PC Tail			P = Pin, Solder Cup			X = Pin, Eyelet					
Polarization*	A, B, C, D, E, N = Normal; see section A for key position details											
Thermocouple Type	E, J, K, T only											
Pairs of T/C	See note 4											

Contact Size	
Contact Size	Ø P
23	.015 (0.38)
	.011 (0.28)
22D	.015 (0.38)
	.011 (0.28)
20	.028 (0.71)
	.024 (0.61)
16	.0635 (1.61)
	.0615 (1.56)
12	.095 (2.41)
	.093 (2.36)

DWV Voltage Levels at Sea Level	
Service Rating	Voltage AC RMS 60Hz
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

Contact Types			
T/C Types	Positive Legs	Negative Legs	Application Range (°F)
E	Chromel	Constantan	200° to 1650°
J	Iron	Constantan	200° to 1400°
K	Chromel	Alumel	200° to 2300°
T	Copper	Constantan	-330° to 660°

#### Material/Finish

- Shell and jam-nut:  
Z1 = 300 Series CRES/Passivated,  
ZL = 300 Series CRES/nickel plated
- Contact, pins thermocouple = per P/N development  
JP = cadmium; TP = gold flash;  
balance = none  
balance = nickel alloy/gold plated
- Insulator, hermetic = Fused vitreous glass/none
- Insulator, socket: rigid dielectric/none
- Seals & o-rings: fluorosilicone/none

#### NOTES

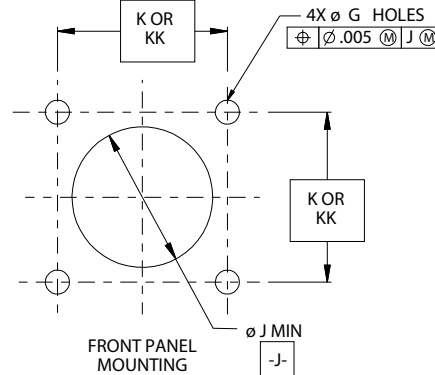
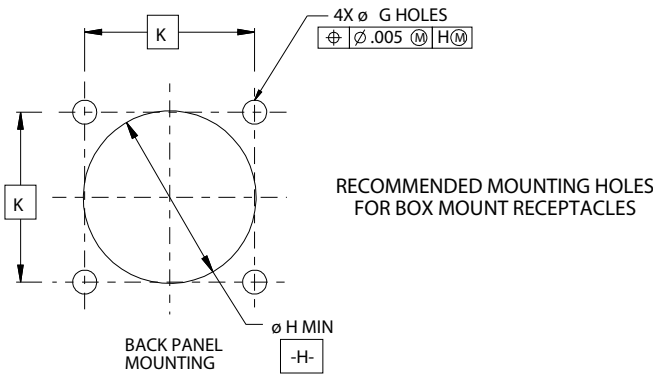
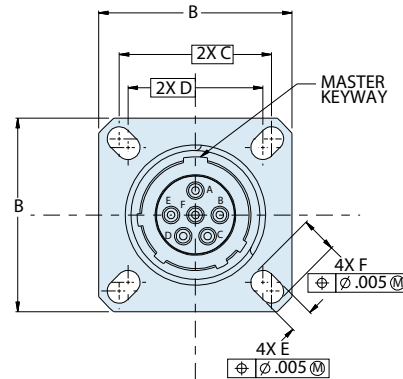
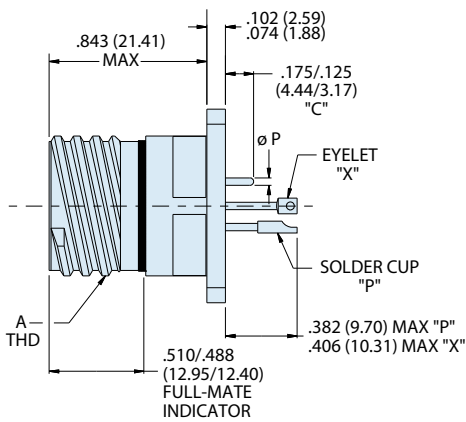
1. Hermeticity: <math>1 \times 10^{-7}</math> ccHe/sec @ 1 atmosphere delta pressure
2. IR: 5000 MegOhms min @ 500 VDC
3. DWV: per DWV Voltage Levels at Sea Level table
4. All thermocouple contact pairs will begin at contact #1 (A) as "+", and 2 (B) as "-". Each additional pair of thermocouple contacts will repeat sequentially I.E.: 1&2 (A&B); 3&4 (C&D), etc
5. Application range is for thermocouple, not the connector. Connector temp range is -85 to 392°F

## MIL-DTL-38999 Series III Type

### 233-271 Hermetic receptacle with thermocouple contacts

HERMETIC CONNECTORS

#### 233-271-H2 FLANGE MOUNT RECEPTACLE

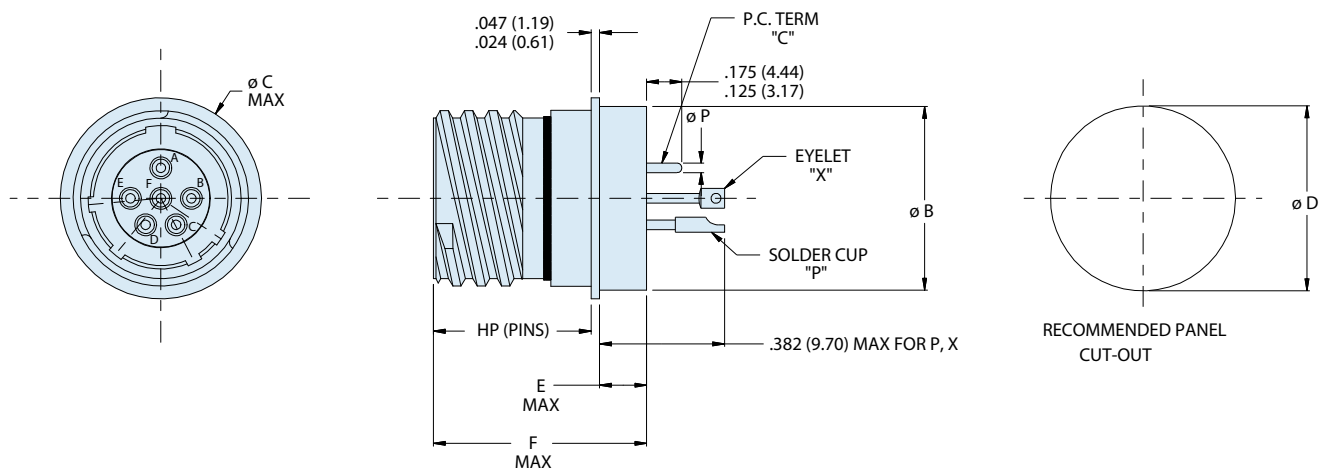


Flange Mount Feed-Thru Dimensions												
SHELL SIZE CODE	SHELL SIZE	A THREAD	B SQ	C BSC	D BSC	E	F	ø H MIN	ø J MIN	ø G HOLES	K BSC	KK BSC
A	9	.6250-1P-3L-TS-2A	0.949 (24.10) 0.925 (23.50)	0.719 (18.26)	0.594 (15.09)	0.136 (3.45) 0.120 (3.05)	0.224 (5.69) 0.208 (5.28)	0.656 (16.66)	0.516 (13.11)	0.133 (3.38) 0.123 (3.12)	0.719 (18.26)	0.594 (15.09)
B	11	.7500-1P-3L-TS-2A	1.043 (26.49) 1.019 (25.88)	0.812 (20.62)	0.719 (18.26)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	0.781 (19.84)	0.625 (15.88)	0.133 (3.38) 0.123 (3.12)	0.812 (20.62)	0.719 (18.26)
C	13	.8750-1P-3L-TS-2A	1.138 (28.91) 1.114 (28.30)	0.906 (23.01)	0.812 (20.62)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	0.921 (23.39)	0.750 (19.05)	0.133 (3.38) 0.123 (3.12)	0.906 (23.01)	0.812 (20.62)
D	15	1.0000-1P-3L-TS-2A	1.232 (31.29) 1.208 (30.68)	0.969 (24.61)	0.906 (23.01)	0.136 (3.45) 0.120 (3.05)	0.181 (4.60) 0.165 (4.19)	1.047 (26.59)	0.906 (23.01)	0.133 (3.38) 0.123 (3.12)	0.969 (24.61)	0.906 (23.01)
E	17	1.1875-1P-3L-TS-2A	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	0.969 (24.61)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	1.218 (30.94)	1.016 (25.81)	0.133 (3.38) 0.123 (3.12)	1.062 (26.97)	0.969 (24.61)
F	19	1.2500-1P-3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	1.296 (32.92)	1.142 (29.01)	0.133 (3.38) 0.123 (3.12)	1.156 (29.36)	1.062 (26.97)
G	21	1.3750-1P-3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)	1.421 (36.09)	1.266 (32.16)	0.133 (3.38) 0.123 (3.12)	1.250 (31.75)	1.156 (29.36)
H	23	1.5000-1P-3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	0.162 (4.11) 0.146 (3.71)	0.250 (6.35) 0.234 (5.94)	1.546 (39.27)	1.375 (34.92)	0.159 (4.04) 0.149 (3.78)	1.375 (34.92)	1.250 (31.75)
J	25	1.6250-1P-3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	0.162 (4.11) 0.146 (3.71)	0.250 (6.35) 0.234 (5.94)	1.672 (42.47)	1.484 (37.69)	0.159 (4.04) 0.149 (3.78)	1.500 (38.10)	1.375 (34.92)

**MIL-DTL-38999 Series III Type**

**233-271 Hermetic receptacle with thermocouple contacts**

**233-271-H5 SOLDER MOUNT RECEPTACLE**



**Solder Mount Feed-Through Dimensions**

SHELL SIZE CODE	SHELL SIZE	A THREAD	B MAX	C MAX	D	E MAX	F MAX	HP MAX
A	9	.6250-1P-.3L-TS-2A	.673 (17.09)	.764 (19.41)	.685 (17.40) .675 (17.15)	.201 (5.11)	.937 (23.80)	.677 (17.20)
B	11	.7500-1P-.3L-TS-2A	.783 (19.89)	.858 (21.79)	.794 (20.17) .784 (19.91)	.201 (5.11)	.937 (23.80)	.677 (17.20)
C	13	.8750-1P-.3L-TS-2A	.909 (23.09)	.980 (24.89)	.920 (23.37) .910 (23.11)	.201 (5.11)	.937 (23.80)	.677 (17.20)
D	15	1.0000-1P-.3L-TS-2A	1.031 (26.19)	1.106 (28.09)	1.043 (26.49) 1.033 (26.24)	.201 (5.11)	.937 (23.80)	.677 (17.20)
E	17	1.1875-1P-.3L-TS-2A	1.157 (29.39)	1.232 (31.29)	1.169 (29.69) 1.159 (29.44)	.201 (5.11)	.937 (23.80)	.677 (17.20)
F	19	1.2500-1P-.3L-TS-2A	1.252 (31.80)	1.323 (33.60)	1.263 (32.08) 1.253 (31.83)	.201 (5.11)	.937 (23.80)	.677 (17.20)
G	21	1.3750-1P-.3L-TS-2A	1.378 (35.00)	1.449 (36.80)	1.389 (35.28) 1.379 (35.03)	.201 (5.11)	.937 (23.80)	.677 (17.20)
H	23	1.5000-1P-.3L-TS-2A	1.504 (38.20)	1.575 (40.00)	1.515 (38.48) 1.505 (38.23)	.232 (5.89)	.969 (24.61)	.677 (17.20)
J	25	1.6250-1P-.3L-TS-2A	1.626 (41.30)	1.701 (43.21)	1.638 (41.61) 1.628 (41.35)	.232 (5.89)	.969 (24.61)	.677 (17.20)

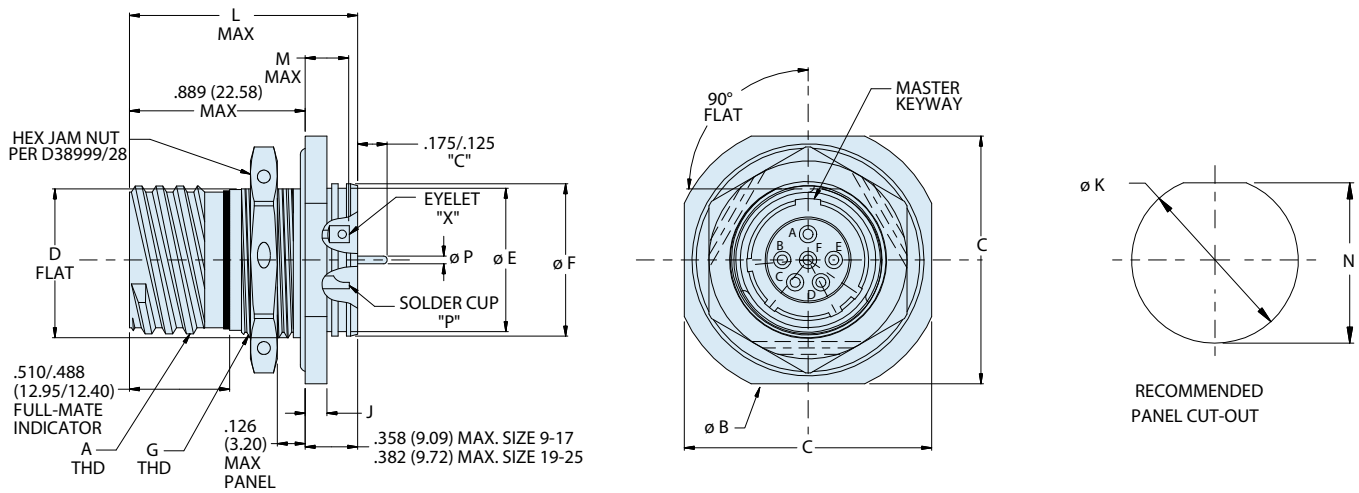
HERMETIC CONNECTORS

## MIL-DTL-38999 Series III Type

### 233-271 Hermetic receptacle with thermocouple contacts

HERMETIC CONNECTORS

#### 233-271-H7 JAM-NUT MOUNT RECEPTACLE



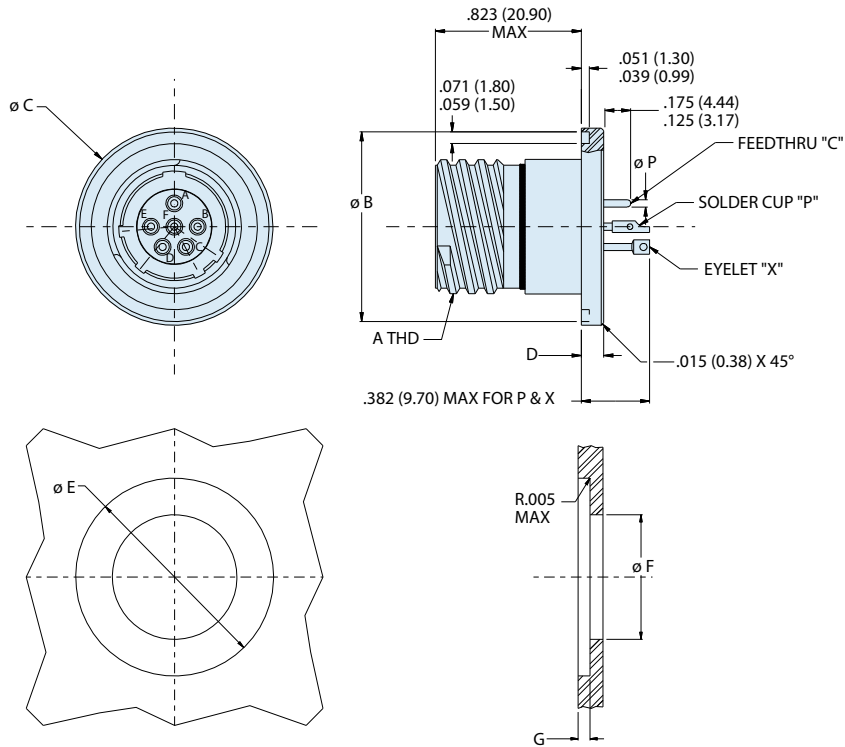
**Jam-Nut Mount Feed-Thru Dimensions**

SHELL SIZE CODE	SHELL SIZE	A THREAD -0.1P-0.3L- TS	ø B	C A/F ±.015	D FLAT ±.005	ø E ±.012	ø F	G THREAD ISO METRIC	J ±.008	ø K ±.005	L MAX	P & X	N ±.005 (*±.003)
A	9	0.625	1.201 (30.51) 1.177 (29.90)	1.063 (27.00)	0.650 (16.51)	0.602 (15.29)	0.653 (16.59) 0.642 (16.31)	M17 X 1.0-6g	0.106 (2.69)	0.698 (17.73)	1.150 (29.21)	0.209 (5.31)	.658* (16.71)
B	11	0.750	1.386 (35.20) 1.362 (34.59)	1.252 (31.80)	0.750 (19.05)	0.724 (18.39)	0.775 (19.68) 0.764 (19.41)	M20 X 1.0-6g	0.106 (2.69)	0.830 (21.08)	1.150 (29.21)	0.209 (5.31)	0.766 (19.46)
C	13	0.875	1.512 (38.40) 1.488 (37.80)	1.374 (34.90)	0.937 (23.80)	0.850 (21.59)	0.905 (22.99) 0.894 (22.71)	M25 X 1.0-6g	0.106 (2.69)	1.015 (25.78)	1.154 (29.31)	0.201 (5.11)	0.950 (24.13)
D	15	1.000	1.638 (41.61) 1.614 (41.00)	1.500 (38.10)	1.061 (26.95)	0.976 (24.79)	1.031 (26.19) 1.020 (25.91)	M28 X 1.0-6g	0.106 (2.69)	1.140 (28.96)	1.154 (29.31)	0.201 (5.11)	1.080 (27.43)
E	17	1.187	1.764 (44.81) 1.740 (44.20)	1.626 (41.30)	1.186 (30.12)	1.102 (27.99)	1.153 (29.29) 1.142 (29.01)	M32 X 1.0-6g	0.106 (2.69)	1.265 (32.13)	1.154 (29.31)	0.201 (5.11)	1.205 (30.61)
F	19	1.250	1.949 (49.50) 1.925 (48.90)	1.811 (46.00)	1.311 (33.30)	1.228 (31.19)	1.279 (32.49) 1.268 (32.21)	M35 X 1.0-6g	0.138 (3.51)	1.390 (35.31)	1.185 (30.10)	0.201 (5.11)	1.330 (33.78)
G	21	1.375	2.075 (52.71) 2.051 (52.10)	1.937 (49.20)	1.436 (36.47)	1.350 (34.29)	1.405 (35.69) 1.394 (35.41)	M38 X 1.0-6g	0.138 (3.51)	1.515 (38.48)	1.185 (30.10)	0.201 (5.11)	1.455 (36.96)
H	23	1.500	2.201 (55.91) 2.177 (55.30)	2.063 (52.40)	1.561 (39.65)	1.476 (37.49)	1.531 (38.89) 1.520 (38.61)	M41 X 1.0-6g	0.138 (3.51)	1.640 (41.66)	1.185 (30.10)	0.201 (5.11)	1.580 (40.13)
J	25	1.625	2.323 (59.00) 2.299 (58.39)	2.189 (55.60)	1.686 (42.82)	1.602 (40.69)	1.653 (41.99) 1.642 (41.71)	M44 X 1.0-6g	0.138 (3.51)	1.765 (44.83)	1.185 (30.10)	0.201 (5.11)	1.705 (43.31)

**MIL-DTL-38999 Series III Type**

**233-271 Hermetic receptacle with thermocouple contacts**

**233-271-H8 WELD MOUNT RECEPTACLE**



HERMETIC CONNECTORS

Weld Mount Feed-Thru Connector Dimensions					
SHELL SIZE CODE	SHELL SIZE	A THREAD	$\phi B$	$\phi C$	D
A	9	.6250-.1P-.3L-TS-2A	0.941 (23.90) 0.929 (23.60)	0.984 (24.99) 0.972 (24.69)	0.134 (3.40) 0.118 (3.00)
B	11	.7500-.1P-.3L-TS-2A	1.063 (27.00) 1.051 (26.70)	1.106 (28.09) 1.094 (27.79)	0.134 (3.40) 0.118 (3.00)
C	13	.8750-.1P-.3L-TS-2A	1.189 (30.20) 1.177 (29.90)	1.232 (31.29) 1.220 (30.99)	0.134 (3.40) 0.118 (3.00)
D	15	1.0000-.1P-.3L-TS-2A	1.315 (33.40) 1.303 (33.10)	1.358 (34.49) 1.346 (34.19)	0.134 (3.40) 0.118 (3.00)
E	17	1.1875-.1P-.3L-TS-2A	1.402 (35.61) 1.390 (35.31)	1.445 (36.70) 1.433 (36.40)	0.134 (3.40) 0.118 (3.00)
F	19	1.2500-.1P-.3L-TS-2A	1.547 (39.29) 1.535 (38.99)	1.591 (40.41) 1.579 (40.11)	0.134 (3.40) 0.118 (3.00)
G	21	1.3750-.1P-.3L-TS-2A	1.689 (42.90) 1.677 (42.60)	1.732 (43.99) 1.720 (43.69)	0.134 (3.40) 0.118 (3.00)
H	23	1.5000-.1P-.3L-TS-2A	1.854 (47.09) 1.842 (46.79)	1.898 (48.21) 1.886 (47.90)	0.165 (4.19) 0.149 (3.78)
J	25	1.6250-.1P-.3L-TS-2A	1.941 (49.30) 1.929 (49.00)	1.984 (50.39) 1.972 (50.09)	0.165 (4.19) 0.149 (3.78)

Recommended Panel Cutout			
SHELL SIZE	$\phi E$	$\phi F$ MIN	DEPTH G $\pm .005$
9	.990 (25.15) .985 (25.02)	0.300 (7.62)	0.126 (3.20)
11	1.112 (28.24) 1.107 (28.12)	0.430 (10.92)	0.126 (3.20)
13	1.238 (31.45) 1.233 (31.32)	0.550 (13.97)	0.126 (3.20)
15	1.364 (34.65) 1.359 (34.52)	0.675 (17.15)	0.126 (3.20)
17	1.451 (36.86) 1.446 (36.73)	0.795 (20.19)	0.126 (3.20)
19	1.597 (40.56) 1.592 (40.44)	0.895 (22.73)	0.126 (3.20)
21	1.738 (44.15) 1.733 (44.02)	1.010 (25.65)	0.126 (3.20)
23	1.904 (48.36) 1.899 (48.23)	1.135 (28.83)	0.157 (3.99)
25	1.990 (50.55) 1.985 (50.42)	1.250 (31.75)	0.157 (3.99)

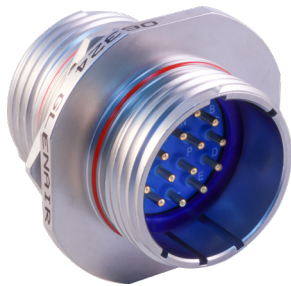


## MIL-DTL-38999 Series III Type 233-103 Bulkhead feed-thrus

HERMETIC CONNECTORS

Part Number Development	
Sample Part Number	233-103 -H2 Z1 17-35 S N -02
Series / Basic Part No.	Series 23 SuperNine Hermetic Bulkhead Feed-thru
Connector Style	H2 = Box Mount H7 = Jam-Nut Mount DH7 = Dual O-ring Jam-Nut Mount H8 = Weld Mount
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish
Shell Size-Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560
Contact Type	P = Pin on panel side S = Socket on panel side PP = Pin-Pin (See note 1) SS = Socket-Socket (See note 1)
Polarization*	A, B, C, D, E, N = Normal
Panel Thickness	01, 02, 03; See panel thickness table per connector style. Consult factory for additional options.

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number



Hermetic Leak Rate Mod Codes	
Designator	Required Leak Rate
-585A	1 x 10 <sup>-10</sup> cc Helium per second
-585B	1 x 10 <sup>-9</sup> cc Helium per second
-585C	1 x 10 <sup>-8</sup> cc Helium per second

### NOTES

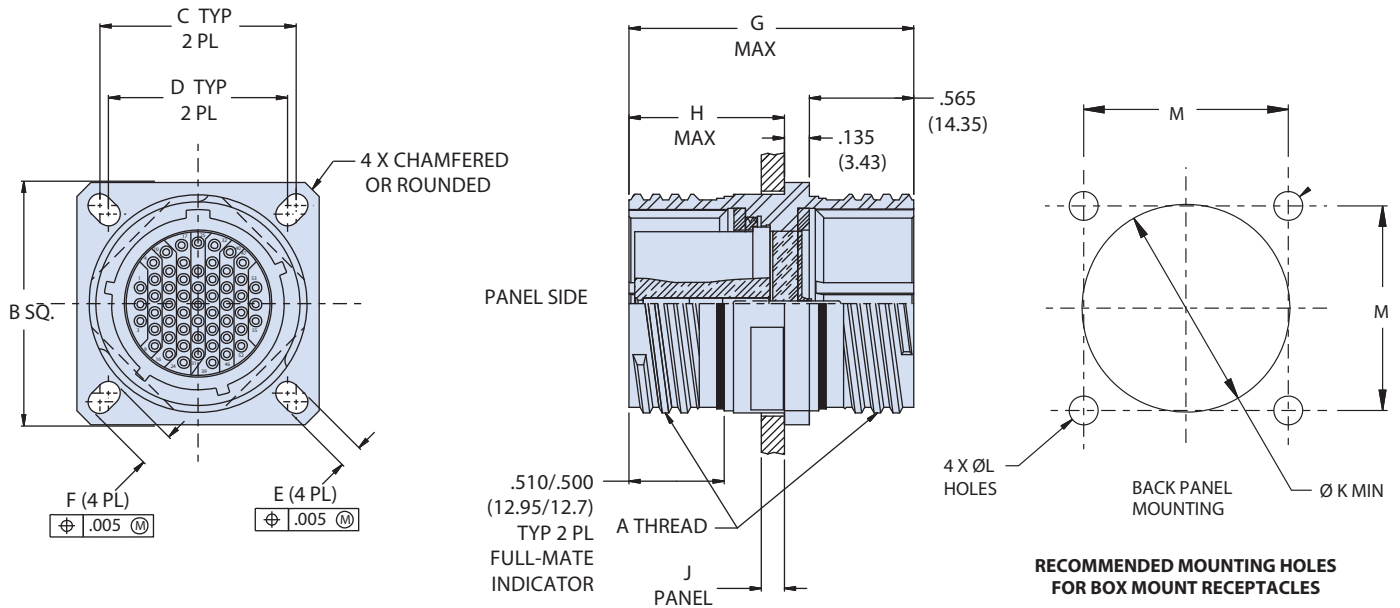
- For PP or SS style, only symmetrical layouts may be selected. Power to a given contact on one end will result in power to contact directly opposite, regardless of identification letter.
- Glenair 233-103 will mate with any QPL manufacturer's 38999 Series III plug of same shell size, polarization and opposite contact gender.
- Hermeticity: less than 1 x 10<sup>-7</sup> ccHe/sec at 1 atmosphere differential.
- For weld mount (H8) connector style, "SS" style, -01 dimensions "E" and "F" increase by .150"
- Electrical safety limits must be established by user. Peak voltage, switching surge, transient, etc should be used to determine safe application

### Material / Finish

- Shell and jam-nut (H7): CRES/passivate or CRES/nickel plate
- Contacts pin: nickel/iron alloy/gold plate
- Contacts sockets: copper alloy/gold plate insulator
- Insulator hermetic: vitreous glass/N.A
- Insulator socket: rigid dielectric/N.A
- Seals: fluorosilicone blend/N.A.

**MIL-DTL-38999 Series III Type  
233-103 Bulkhead feed-thrus**

**233-103-H2 BOX MOUNT RECEPTACLE**



Dimensions						
SHELL SIZE	A THREAD	B SQ.	C BSC.	D BSC.	E	F
9	.6250	0.949 (24.10)	0.719	0.594	0.136 (3.45)	0.224 (5.69)
	.1 P-.3L-TS-2A	0.925 (23.50)	(18.26)	(15.09)	0.120 (3.05)	0.208 (5.28)
11	.7500	1.043 (26.49)	0.812	0.719	0.136 (3.45)	0.202 (5.13)
	.1 P-.3L-TS-2A	1.019 (25.88)	(20.62)	(18.26)	0.120 (3.05)	0.186 (4.72)
13	.8750	1.138 (28.91)	0.906	0.812	0.136 (3.45)	0.202 (5.13)
	.1 P-.3L-TS-2A	1.114 (28.30)	(23.01)	(20.62)	0.120 (3.05)	0.186 (4.72)
15	1.0000	1.232 (31.29)	0.969	0.906	0.136 (3.45)	0.181 (4.60)
	.1 P-.3L-TS-2A	1.208 (30.68)	(24.61)	(23.01)	0.120 (3.05)	0.165 (4.19)
17	1.1875	1.323 (33.60)	1.062	0.969	0.136 (3.45)	0.202 (5.13)
	.1 P-.3L-TS-2A	1.299 (32.99)	(26.97)	(24.61)	0.120 (3.05)	0.186 (4.72)
19	1.2500	1.449 (36.80)	1.156	1.062	0.136 (3.45)	0.202 (5.13)
	.1 P-.3L-TS-2A	1.425 (36.20)	(29.36)	(26.97)	0.120 (3.05)	0.186 (4.72)
21	1.3750	1.575 (40.00)	1.250	1.156	0.136 (3.45)	0.202 (5.13)
	.1 P-.3L-TS-2A	1.551 (39.40)	(31.75)	(29.36)	0.120 (3.05)	0.186 (4.72)
23	1.5000	1.701 (43.21)	1.375	1.25	0.162 (4.11)	0.250 (6.35)
	.1 P-.3L-TS-2A	1.677 (42.60)	(34.92)	(31.75)	0.146 (3.71)	0.234 (5.94)
25	1.6250	1.823 (46.30)	1.500	1.375	0.162 (4.11)	0.250 (6.35)
	.1 P-.3L-TS-2A	1.799 (45.69)	(38.10)	(34.92)	0.146 (3.71)	0.234 (5.94)

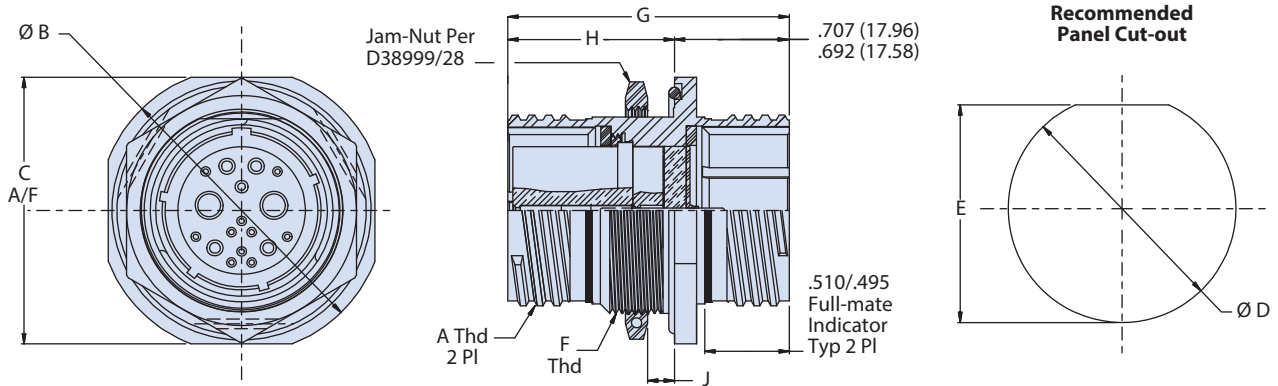
Recommended Mounting Holes			
SHELL SIZE	Ø K MIN	Ø L HOLES	M
9	0.656 (16.66)	0.133 (3.38)	0.724 (18.39)
		0.123 (3.12)	0.714 (18.14)
11	0.781 (19.84)	0.133 (3.38)	0.817 (20.75)
		0.123 (3.12)	0.807 (20.50)
13	0.921 (23.39)	0.133 (3.38)	0.911 (23.14)
		0.123 (3.12)	0.901 (22.89)
15	1.047 (26.59)	0.133 (3.38)	0.973 (24.71)
		0.123 (3.12)	0.963 (24.46)
17	1.218 (30.94)	0.133 (3.38)	1.067 (27.10)
		0.123 (3.12)	1.057 (26.85)
19	1.296 (32.92)	0.133 (3.38)	1.161 (29.49)
		0.123 (3.12)	1.151 (29.24)
21	1.421 (36.09)	0.133 (3.38)	1.255 (31.88)
		0.123 (3.12)	1.245 (31.62)
23	1.546 (39.27)	0.159 (4.04)	1.380 (35.05)
		0.149 (3.78)	1.370 (34.80)
25	1.672 (42.47)	0.159 (4.04)	1.505 (38.23)
		0.149 (3.78)	1.495 (37.97)

Box Mount (H2) Panel Thickness			
DASH NO.	G DIM, OAL MAX	H DIM, MAX	J DIM, PANEL
-01	1.600 (40.64)	.843 (21.41)	.125 (3.18) .062 (1.57)
-02	1.730 (43.94)	1.040 (26.42)	.250 (6.35) .062 (1.57)
-03	2.000 (50.80)	1.290 (32.77)	.500 (12.70) .062 (1.57)

**MIL-DTL-38999 Series III Type  
233-103 Bulkhead feed-thrus**

HERMETIC CONNECTORS

**233-103-H7 JAM-NUT MOUNT AND  
233-103-DH7 DUAL O-RING JAM-NUT RECEPTACLE**

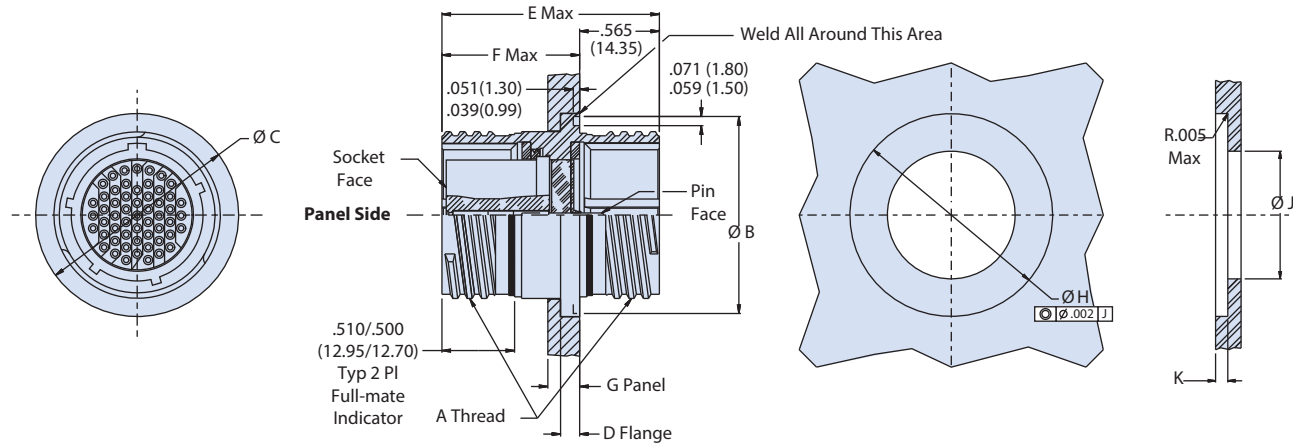


Dimensions								
SHELL SIZE	A THREAD 0.1 P-0.3L- TS-2	H7 Jam-Nut		DH7 Dual O-Ring Jam-Nut		D DIA	E DIM	F THREAD METRIC X 1.0-6G
		B DIA	C	B DIA	C			
9	.6250	1.189 (30.20)	1.063 (27.00)	1.500 (38.10)	1.375 (34.92)	.703 (17.86) .693 (17.60)	.661 (16.79) .655 (16.64)	M17
11	.7500	1.375 (34.92)	1.252 (31.80)	1.625 (41.28)	1.500 (38.10)	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	M20
13	.8750	1.500 (38.10)	1.374 (34.90)	1.752 (44.50)	1.626 (41.30)	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)	M25
15	1.0000	1.626 (41.30)	1.500 (38.10)	1.937 (49.20)	1.811 (46.00)	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	M28
17	1.1875	1.752 (44.50)	1.626 (41.30)	2.063 (52.40)	1.937 (49.20)	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)	M32
19	1.2500	1.937 (49.20)	1.811 (46.00)	2.189 (55.60)	2.063 (52.40)	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)	M35
21	1.3750	2.063 (52.40)	1.937 (49.20)	2.311 (58.70)	2.189 (55.60)	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)	M38
23	1.5000	2.189 (55.60)	2.063 (52.40)	2.500 (63.50)	2.300 (58.42)	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)	M41
25	1.6250	2.311 (58.70)	2.189 (55.60)	2.625 (66.68)	2.400 (60.96)	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)	M44

Jam-Nut Mount (H7) Panel Thickness			
DASH NO.	G DIM, OAL MAX	H DIM, MAX	J DIM, PANEL
-01	1.670 (42.42)	.890 (22.61)	.125 (3.18) .062 (1.57)
-02	1.780 (45.21)	1.090 (27.69)	.250 (6.35) .062 (1.57)
-03	2.030 (51.56)	1.340 (34.04)	.500 (12.70) .062 (1.57)

## MIL-DTL-38999 Series III Type 233-103 Bulkhead feed-thrus

### 233-103-H8 WELD MOUNT RECEPTACLE



Dimensions					
Shell Size Code	Shell Size	A Thread	Ø B	Ø C	D
A	9	.6250-1P-.3L-TS-2A	.941 (23.90) .929 (23.60)	.984 (24.99) .972 (24.69)	.134 (3.40) .118 (3.00)
B	11	.7500-1P-.3L-TS-2A	1.063 (27.00) 1.051 (26.70)	1.106 (28.09) 1.094 (27.79)	.134 (3.40) .118 (3.00)
C	13	.8750-1P-.3L-TS-2A	1.189 (30.20) 1.177 (29.90)	1.232 (31.29) 1.220 (30.99)	.134 (3.40) .118 (3.00)
D	15	1.0000-1P-.3L-TS-2A	1.315 (33.40) 1.303 (33.10)	1.358 (34.49) 1.346 (34.19)	.134 (3.40) .118 (3.00)
E	17	1.1875-1P-.3L-TS-2A	1.402 (35.61) 1.390 (35.31)	1.445 (36.70) 1.433 (36.40)	.134 (3.40) .118 (3.00)
F	19	1.2500-1P-.3L-TS-2A	1.547 (39.29) 1.535 (38.99)	1.591 (40.41) 1.579 (40.11)	.134 (3.40) .118 (3.00)
G	21	1.3750-1P-.3L-TS-2A	1.689 (42.90) 1.677 (42.60)	1.732 (43.99) 1.720 (43.69)	.134 (3.40) .118 (3.00)
H	23	1.5000-1P-.3L-TS-2A	1.854 (47.09) 1.842 (46.79)	1.898 (48.21) 1.886 (47.90)	.165 (4.19) .149 (3.78)
J	25	1.6250-1P-.3L-TS-2A	1.941 (49.30) 1.929 (49.00)	1.984 (50.39) 1.972 (50.09)	.165 (4.19) .149 (3.78)

Recommended Panel Cutout			
Shell Size	Ø H	Ø J ±.005 (0.13)	Depth K ±.005 (0.13)
9	.990/.985 (25.15/ 25.02)	.635 (16.13)	.126 (3.20)
11	1.112/1.107 (28.24/ 28.12)	.760 (19.30)	.126 (3.20)
13	1.238/1.233 (31.45/ 31.32)	.885 (22.48)	.126 (3.20)
15	1.364/1.359 (34.65/34.52)	1.010 (25.65)	.126 (3.20)
17	1.451/1.446 (36.86/ 36.73)	1.195 (3.35)	.126 (3.20)
19	1.597/1.592 (40.56/ 40.44)	1.260 (32.00)	.126 (3.20)
21	1.738/1.733 (44.15/ 44.02)	1.385 (35.18)	.126 (3.20)
23	1.894/1.899 (48.11/ 48.23)	1.510 (38.35)	.157 (3.99)
25	1.990/1.985 (50.55/ 50.42)	1.635 (41.53)	.157 (3.99)

Weld Mount (H8) Panel Thickness			
Dash no	E Dim, OAL Max	F Dim, Max	G Dim, Panel
-01	1.630 (41.40)	1.060 (26.92)	.250 (6.35) .175 (4.44)
-02	1.750 (44.45)	1.180 (29.97)	4.25 (107.95) .175 (4.44)
-03	1.920 (48.77)	1.350 (34.29)	.600 (15.24) .175 (4.44)

# SuperNine® Glass seal hermetic



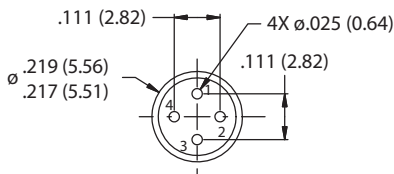
## MIL-DTL-38999 Series III Type

### 233-261 Bulkhead feed-thru with shielded contacts

HERMETIC CONNECTORS

Part Number Development												
Sample Part Number	233-261				-H2	Z1	17	Q	-02	S	N	-01
Series / Basic Part No.	Series 23 SuperNine Bulkhead Feed-thru											
Connector Style	H2 = Box Mount H7 = Jam-Nut Mount DH7 = Dual O-ring, Jam-Nut Mount H8 = Weld Mount											
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish											
Shell Size	Per MIL-DTL-38999											
Contact Type	C = Coax Q = Quadrax (Size 8 contacts only) T = Concentric Twinax P = Power Contacts See Special RF contact arrangements beginning on page D-6 for more details											
Arrangement	Per MIL-STD-1560											
Configuration	P = Pin on Jam Nut Side S = Socket on Jam Nut Side PP = Pin-Pin (See note 2) SS = Socket-Socket (See note 2)											
Polarization*	A, B, C, D, E, N = Normal; see section A for key position details											
Panel Thickness	-01 = .125/.062 -02 = .250/.062 -03 = .500/.062; See Panel Thickness Table											

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number



Quadrax Pin Interface  
(Cavity Id Refer. Only)  
For 100 Ohm Nominal Impedance

Contact Performance	
Size and Type	Frequency
#12 Coax	2 GHz
#8 Coax	1 GHz
#8 Twinax (Conc.)	20 MHz
#8 Quadrax	1 GHz

#### Material/Finish

- Shell and jam-nut (H7 and DH7): 300 series CRES/per part number development
- Contact, pin: nickel-iron and nickel alloy/gold plate
- Contact, socket: copper alloy/gold plate
- Hoods, sockets: CRES/passivate
- Insulator, hermetic: full glass/N.A.
- Insulator, socket: rigid dielectric/N.A.
- Seals: fluorosilicone blend elastomer/N.A.

Shell Size / Insert Arrangement Availability <sup>3,4</sup>										
Arr. No.	Size 22	Cntct Type	Size 20	Cntct Type	Size 16	Cntct Type	Size 12	Cntct Type	Size 8	Cntct Type
15-21	17	S/P	3	S/P	---	N/A	1	N/A	---	N/A
17-2*	38	S/P	---	N/A	---	N/A	---	N/A	1	TWINAX
17-3*	38	S/P	---	N/A	---	N/A	---	N/A	1	TWINAX
17-6	---	N/A	---	S/P	---	N/A	6	COAX	---	N/A
17-11	---	N/A	8	N/A	---	N/A	3	COAX	---	N/A
19-19	14	S/P	---	N/A	---	N/A	---	N/A	---	TWINAX
21-11	---	N/A	---	N/A	---	N/A	11	N/A	---	N/A
21-29	---	N/A	19	S/P	4	S/P	4	COAX	4	N/A
21-75†	---	N/A	---	N/A	---	N/A	---	COAX	4	TWINAX
21-76†	---	N/A	---	N/A	---	N/A	---	N/A	2	TWINAX
25-7†	---	S/P	---	N/A	---	N/A	---	N/A	8	TWINAX
25-80	97	N/A	---	N/A	---	N/A	---	N/A	2	TWINAX
25-9†	---	S/P	---	N/A	---	N/A	---	N/A	8	TWINAX
25-100	97	N/A	---	N/A	---	N/A	---	N/A	---	TWINAX
25-19	---	N/A	---	N/A	---	N/A	19	COAX	3	N/A
25-20#	---	N/A	10	S/P	13	S/P	4	COAX	3	TWINAX
25-21#	---	N/A	10	S/P	13	S/P	4	COAX	2	TWINAX
25-46@	---	N/A	40	S/P	4	S/P	---	N/A	2	COAX
25-47@	---	N/A	40	S/P	4	S/P	---	N/A	2	COAX
25-90+	---	N/A	40	S/P	4	S/P	---	N/A	2	TWINAX
25-91+	---	N/A	40	S/P	4	S/P	---	N/A	2	TWINAX

#### NOTES

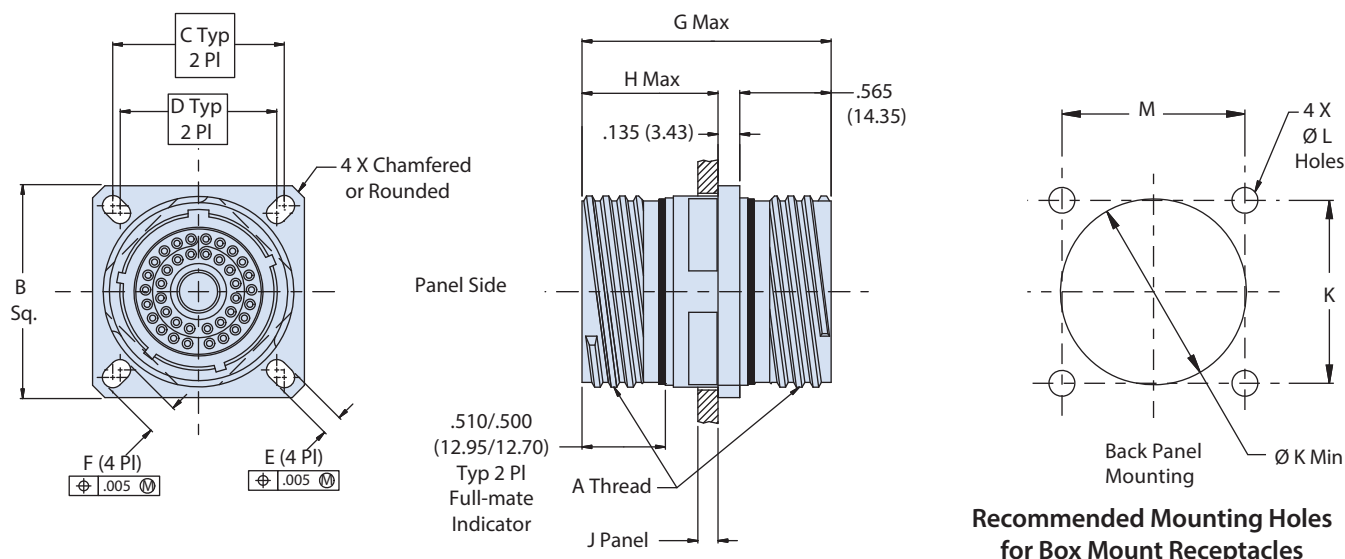
1. Hermeticity: <math>1 \times 10^{-7}</math> ccHe/sec @ 1 atmosphere delta pressure
2. For PP or SS style, only symmetrical layouts may be selected. Power applied to contact on one side will result in power to the opposite contact, regardless of marking
3. Arrangements marked with like symbols (I.E. 17-2\* and 17-3\*) are identical. Environmental connectors use contact sealing boots.
4. When there are #12 and #8 in arrangement, the option is #8 only. Balance of contacts are power. Consult factory for other contact options.
5. For shell style H2, SS style, dimensions "G" and "H" will increase .100"
6. For shell style H8, SS style, 01 dimensions "E" and "F" increase by .150"



## MIL-DTL-38999 Series III Type

### 233-261 Bulkhead feed-thru with shielded contacts

#### 233-261-H2 BOX MOUNT FEED-THRU CONNECTOR



Recommended Mounting Holes for Box Mount Receptacles

HERMETIC CONNECTORS

Dimensions						
Shell Size	A Thread	B SQ	C Bsc	D BSC	E	F
9	.6250	.949 (24.10)	.719 (18.26)	.594 (15.09)	.136 (3.45)	.224 (5.69)
	-1 P-0.3L-TS-2A	.925 (23.50)				.208 (5.28)
11	.7500	1.043 (26.49)	.812 (20.62)	.719 (18.26)	.136 (3.45)	.202 (5.13)
	-1 P-0.3L-TS-2A	1.019 (25.88)				.186 (4.72)
13	.8750	1.138 (28.91)	.706 (17.93)	.812 (20.62)	.136 (3.45)	.202 (5.13)
	-1 P-0.3L-TS-2A	1.114 (28.30)				.186 (4.72)
15	1.0000	1.232 (31.29)	.969 (24.61)	.906 (23.01)	.136 (3.45)	.181 (4.60)
	-1 P-0.3L-TS-2A	1.208 (30.68)				.165 (4.19)
17	1.1875	1.323 (33.60)	1.062 (26.97)	.969 (24.61)	.136 (3.45)	.202 (5.13)
	-1 P-0.3L-TS-2A	1.299 (32.99)				.186 (4.72)
19	1.2500	1.449 (36.80)	1.156 (29.36)	1.062 (26.97)	.136 (3.45)	.202 (5.13)
	-1 P-0.3L-TS-2A	1.425 (36.20)				.186 (4.72)
21	1.3750	1.575 (40.00)	1.250 (31.75)	1.156 (29.36)	.136 (3.45)	.202 (5.13)
	-1 P-0.3L-TS-2A	1.551 (39.40)				.186 (4.72)
23	1.5000	1.701 (43.21)	1.375 (34.92)	1.250 (31.75)	.162 (4.11)	.250 (6.35)
	-1 P-0.3L-TS-2A	1.677 (42.60)				.234 (5.94)
25	1.6250	1.823 (46.30)	1.500 (38.10)	1.375 (34.92)	.162 (4.11)	.250 (6.35)
	-1 P-0.3L-TS-2A	1.799 (45.69)				.234 (5.94)

Box Mount Dimensions			
Shell Size	Ø K Min	Ø L Holes	M
9	.656 (16.66)	.133 (3.38)	.724 (18.39)
		.123 (3.12)	.714 (18.14)
11	.781 (19.84)	.133 (3.38)	.817 (20.75)
		.123 (3.12)	.807 (20.50)
13	.921 (23.39)	.133 (3.38)	.911 (23.14)
		.123 (3.12)	.901 (22.89)
15	1.047 (26.59)	.133 (3.38)	.973 (24.71)
		.123 (3.12)	.963 (24.46)
17	1.218 (30.94)	.133 (3.38)	1.067 (27.10)
		.123 (3.12)	1.57 (39.88)
19	1.296 (32.92)	.133 (3.38)	1.161 (29.49)
		.123 (3.12)	1.151 (29.24)
21	1.421 (36.09)	.133 (3.38)	1.255 (31.88)
		.123 (3.12)	1.245 (31.62)
23	1.546 (39.27)	.159 (4.04)	1.380 (35.05)
		.149 (3.78)	1.370 (34.80)
25	1.672 (42.47)	.159 (4.04)	1.505 (38.23)
		.149 (3.78)	1.495 (37.97)

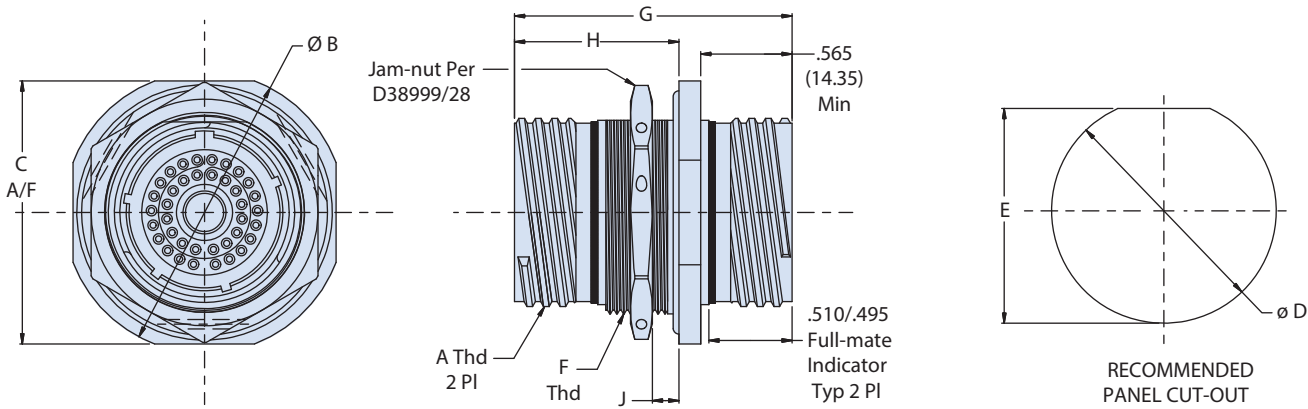
Panel Thickness			
Shell Size	G Dim, OAL Max	H Dim, Max	J Dim, Panel
-01*	1.600 (40.64)	.843 (21.41)	.125 (3.17)/.062 (1.57)
-02	1.730 (43.94)	1.040 (26.42)	.250 (6.35)/.062 (1.57)
-03	2.000 (50.80)	1.290 (32.77)	.500 (12.70)/.062 (1.57)

## MIL-DTL-38999 Series III Type

### 233-261 Bulkhead feed-thru with shielded contacts

HERMETIC CONNECTORS

#### 233-261-H7 JAM-NUT MOUNT FEED-THRU CONNECTOR AND 233-261-DH7 DUAL O-RING JAM-NUT MOUNT FEED-THRU CONNECTOR



Dimensions				
Shell Size	A Thread	D BSC	E	F Thread
9	.6250 -.1 P-0.3L-TS-2A	.703 (17.86) .693 (17.60)	.661 (16.79) .665 (16.89)	M17 x 1.0-6g
11	.7500 -.1 P-0.3L-TS-2A	.835 (21.21) .825 (20.95)	.771 (19.58) .761 (19.33)	M20 x 1.0-6g
13	.8750 -.1 P-0.3L-TS-2A	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)	M25 x 1.0-6g
15	1.0000 -.1 P-0.3L-TS-2A	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	M28 x 1.0-6g
17	1.1875 -.1 P-0.3L-TS-2A	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)	M32 x 1.0-6g
19	1.2500 -.1 P-0.3L-TS-2A	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)	M35 x 1.0-6g
21	1.3750 -.1 P-0.3L-TS-2A	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)	M38 x 1.0-6g
23	1.5000 -.1 P-0.3L-TS-2A	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)	M41 x 1.0-6g
25	1.6250 -.1 P-0.3L-TS-2A	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)	M44 x 1.0-6g

Jam-Nut Mount (H7) Dimension		
Shell Size	B DIA	C MAX
9	1.189 (30.20)	1.063 (27.00)
11	1.375 (34.92)	1.252 (31.80)
13	1.500 (38.10)	1.375 (34.92)
15	1.626 (41.30)	1.500 (38.10)
17	1.752 (44.50)	1.626 (41.30)
19	1.937 (49.20)	1.811 (46.00)
21	2.063 (52.40)	1.937 (49.20)
23	2.189 (55.60)	2.063 (52.40)
25	2.311 (58.70)	2.189 (55.60)

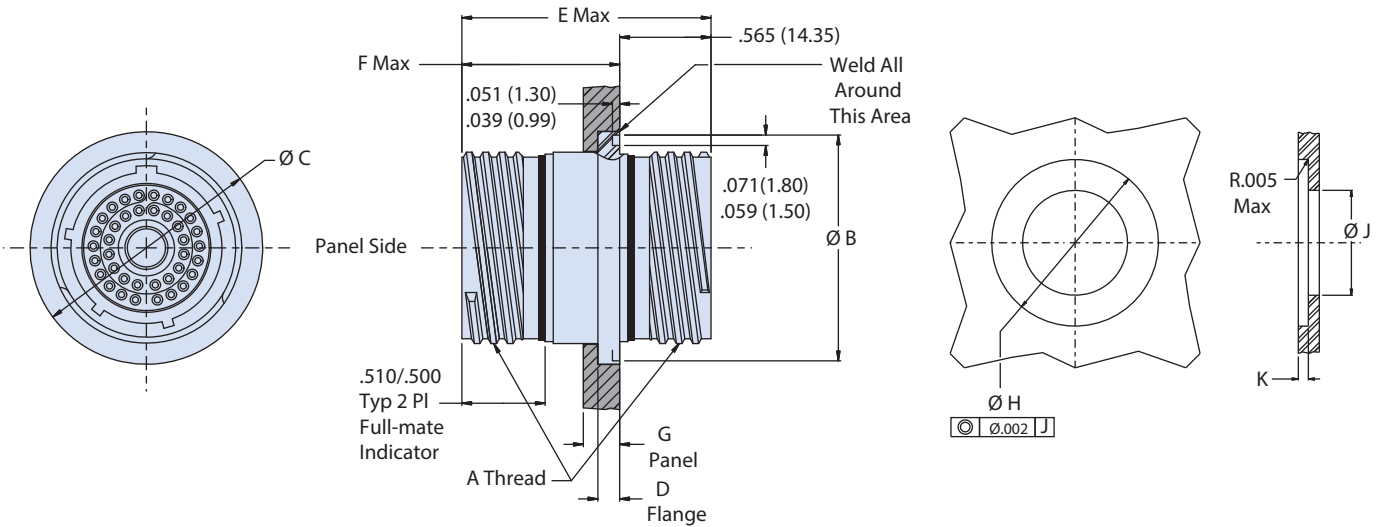
Dual O-ring, Jam-Nut (DH7) Mount Dimension		
Shell Size	B DIA	C MAX
9	1.500 (38.10)	1.375 (34.92)
11	1.625 (41.28)	1.500 (38.10)
13	1.752 (44.50)	1.626 (41.30)
15	1.937 (49.20)	1.811 (46.00)
17	2.063 (52.40)	1.937 (49.20)
19	2.189 (55.60)	2.063 (52.40)
21	2.311 (58.70)	2.189 (55.60)
23	2.500 (63.50)	2.300 (58.42)
25	2.625 (66.68)	2.400 (60.96)

Panel Thickness			
Shell Size	G Dim, OAL Max	H Dim, Max	J Dim, Panel
-01	1.670 (42.42)	.889 (22.58)	.125 (3.17) .062 (1.57)
-02	1.800 (45.72)	1.090 (27.69)	.250 (6.35) .062 (1.57)
-03	2.050 (52.07)	1.340 (34.04)	.500 (12.70) .062 (1.57)

**MIL-DTL-38999 Series III Type**

**233-261 Bulkhead feed-thru with shielded contacts**

**233-261-H8 WELD MOUNT FEED-THRU CONNECTOR**



Panel Thickness			
SHELL SIZE	E DIM, OAL MAX	F DIM, MAX	G DIM, PANEL
-01 <sup>5</sup>	1.520 (38.61)	.960 (24.38)	.125 (3.17)/.062 (1.57)
-02	1.670 (42.42)	1.110 (28.19)	.250 (6.35)/.062 (1.57)
-03	1.920 (48.77)	1.350 (34.29)	.500 (12.70)/.062 (1.57)

Recommended Panel Cutout			
Shell Size	Ø H	Ø J ±.005	DEPTH K ±.005
9	.990/.985 (25.15/ 25.02)	0.635 (16.13)	0.126 (3.20)
11	1.112/1.107 (28.24/28.12)	0.760 (19.30)	0.126 (3.20)
13	1.238/1.233 (28.12/ 31.32)	0.885 (22.48)	0.126 (3.20)
15	1.364/1.359 (34.65/34.52)	1.010 (25.65)	0.126 (3.20)
17	1.451/1.446 (36.86/ 36.73)	1.195 (30.35)	0.126 (3.20)
19	1.597/1.592 (40.56/ 40.44)	1.260 (32.00)	0.126 (3.20)
21	1.738/1.733 (44.15/ 44.02)	1.385 (35.18)	0.126 (3.20)
23	1.894/1.899 (48.11/48.23)	1.510 (38.35)	0.157 (3.99)
25	1.990/1.985 (50.55/ 50.42)	1.635 (41.53)	0.157 (3.99)

Dimensions				
Shell Size	A Thread	Ø B	Ø C	Ø D
9	.6250	.941 (23.90)	.984 (24.99)	.134 (3.40)
	-1 P-0.3L-TS-2A	.929 (23.60)	.972 (24.69)	.118 (3.00)
11	.7500	1.063 (27.00)	1.106 (28.09)	.134 (3.40)
	-1 P-0.3L-TS-2A	1.051 (26.70)	1.094 (27.79)	.118 (3.00)
13	.8750	1.189 (30.20)	1.232 (31.29)	.134 (3.40)
	-1 P-0.3L-TS-2A	1.177 (29.90)	1.220 (30.99)	.118 (3.00)
15	1.0000	1.315 (33.40)	1.358 (34.49)	.134 (3.40)
	-1 P-0.3L-TS-2A	1.303 (33.10)	1.346 (34.19)	.118 (3.00)
17	1.1875	1.402 (35.61)	1.445 (36.70)	.134 (3.40)
	-1 P-0.3L-TS-2A	1.390 (35.31)	1.433 (36.40)	.118 (3.00)
19	1.2500	1.547 (39.29)	1.591 (40.41)	.134 (3.40)
	-1 P-0.3L-TS-2A	1.535 (38.99)	1.579 (40.11)	.118 (3.00)
21	1.3750	1.689 (42.90)	1.732 (43.99)	.134 (3.40)
	-1 P-0.3L-TS-2A	1.677 (42.60)	1.720 (43.69)	.118 (3.00)
23	1.5000	1.854 (47.09)	1.898 (48.21)	.165 (4.19)
	-1 P-0.3L-TS-2A	1.842 (46.79)	1.886 (47.90)	.149 (3.78)
25	1.6250	1.941 (49.30)	1.984 (50.39)	.165 (4.19)
	-1 P-0.3L-TS-2A	1.929 (49.00)	1.972 (50.09)	.149 (3.78)

1. Crimp removable socket contacts to conform to M39029/57-359 (size 12) M39029/57-358 (size 16), M39029/57-357 (size 20) and M39029/57-354 (size 22D) contacts required to fully populate rear, plus spares as required by mil-spec, are shipped loose with the connector.

## MIL-DTL-38999 Series III Type

### 233-284 Bulkhead feed-thru with thermocouple contacts

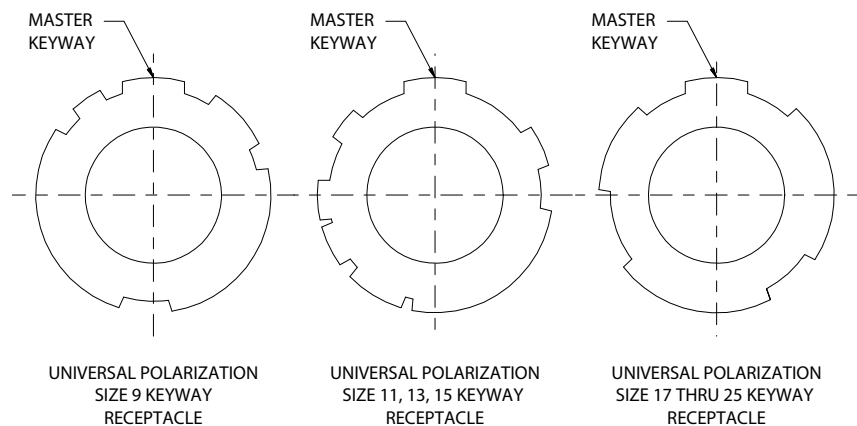
HERMETIC CONNECTORS

Part Number Development												
Sample Part Number	233-284				-H7	Z1	17	-35	K	1	N	-02
Series / Basic Part No.	Series 23 SuperNine Bulkhead Feed-thru											
Connector Style	H2 = Box Mount                      H7 = Jam-Nut Mount DH7 = Jam-Nut Mount (dual o-ring) H8 = Weld Mount											
Finish*	Z1 = CRES, Passivated    ZL = CRES, Nickel Finish											
Shell Size	Per MIL-DTL-38999											
Arrangement	Per MIL-STD-1560											
Contact Style	E, J, K, T; T/C Type per table, Pin-Pin only											
Pairs of T/C	See note 4											
Broach Position*	A, B, C, D, E, N = Normal; see section A for key position details											
Panel Thickness	-01 = .125/.062    -02 = .250/.062    -03 = .500/.062; See Panel Thickness Table											

Contact Types			
T/C Types	Positive Legs	Negative Legs	Application Range (°F) <sup>5</sup>
E	Chromel	Constantan	200° to 1650°
J	Iron	Constantan	200° to 1400°
K	Chromel	Alumel	200° to 2300°
T	Copper	Constantan	-330° to 660°

DWV Voltage Levels at Sea Level	
Service Rating	Voltage AC RMS 60Hz
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC

#### UNIVERSAL POLARIZATION CONFIGURATION



#### Material/Finish

- Shell and jam-nut: Z1 = 300 Series CRES/Passivated, ZL = 300 Series CRES/nickel plated
- Contact, pins thermocouple = per P/N development/JP=cadmium; TP=gold flash; balance=none; non-thermocouple=nickel alloy/gold plated
- Insulator, hermetic = Fused vitreous glass/none
- Spacers, pins: rigid dielectric/none
- Seals & o-rings: fluorosilicone/none

#### NOTES

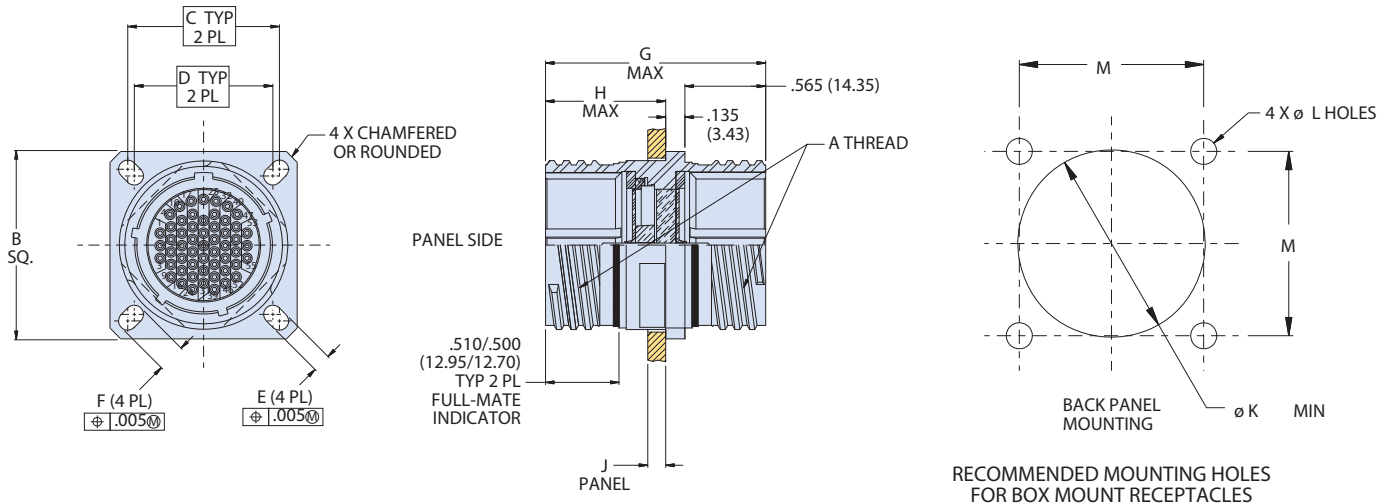
1. Hermeticity:  $<1 \times 10^{-7}$  ccHe/sec @ 1 atmosphere delta pressure
2. IR: 5000 MegOhms min @ 500 VDC
3. DWV: Per DWV Voltage at Sea Level table
4. All thermocouple contact pairs will begin at contact #1 (A) as "+", and 2 (B) as "-". Each additional pair of thermocouple contacts will repeat sequentially I.E.: 1&2 (A&B); 3&4 (C&D), etc
5. Application range is for thermocouple, not the connector. Connector temp range is -85 to 392°F
6. Glenair 233-284-H7 is designed to mate to any QPL D38999/26 plug with same shell size, arrangement, polarization, and opposite (socket) contact gender
7. Glenair 233-284-H7 is available as pin-to-pin only

**MIL-DTL-38999 Series III Type**

**233-284 Bulkhead feed-thru with thermocouple contacts**

HERMETIC CONNECTORS

**233-284-H2 DUAL O-RING, JAM-NUT FEED-THRU CONNECTOR**



RECOMMENDED MOUNTING HOLES FOR BOX MOUNT RECEPTACLES

**Dual O-ring, Jam-nut Feed-thru Connector Dimensions**

SHELL SIZE	A THREAD	B SQ.	C BSC	D BSC	E	F
9	.6250-1P-.3L-TS-2A	0.949 (24.10) 0.925 (23.50)	0.719 (18.26)	0.594 (15.09)	0.136 (3.45) 0.120 (3.05)	0.224 (5.69) 0.208 (5.28)
11	.7500-1P-.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	0.812 (20.62)	0.719 (18.26)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
13	.8750-1P-.3L-TS-2A	1.138 (28.91) 1.114 (28.30)	0.906 (23.01)	0.812 (20.62)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
15	1.0000-1P-.3L-TS-2A	1.232 (31.29) 1.208 (30.68)	0.969 (24.61)	0.906 (23.01)	0.136 (3.45) 0.120 (3.05)	0.181 (4.60) 0.165 (4.19)
17	1.1875-1P-.3L-TS-2A	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	0.969 (24.61)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
19	1.2500-1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
21	1.3750-1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)	0.136 (3.45) 0.120 (3.05)	0.202 (5.13) 0.186 (4.72)
23	1.5000-1P-.3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	0.162 (4.11) 0.146 (3.71)	0.250 (6.35) 0.234 (5.94)
25	1.6250-1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)	0.162 (4.11) 0.146 (3.71)	0.250 (6.35) 0.234 (5.94)

**Panel Cut-Out Dimensions**

SHELL SIZE	ø K MIN	ø L HOLES	M
9	0.656 (16.66)	0.133 (3.38) 0.123 (3.12)	0.724 (18.39) 0.714 (18.14)
11	0.781 (19.84)	0.133 (3.38) 0.123 (3.12)	0.817 (20.75) 0.807 (20.50)
13	0.921 (23.39)	0.133 (3.38) 0.123 (3.12)	0.911 (23.14) 0.901 (22.89)
15	1.047 (26.59)	0.133 (3.38) 0.123 (3.12)	0.973 (24.71) 0.963 (24.46)
17	1.218 (30.94)	0.133 (3.38) 0.123 (3.12)	1.067 (27.10) 1.057 (26.85)
19	1.296 (32.92)	0.133 (3.38) 0.123 (3.12)	1.161 (29.49) 1.151 (29.24)
21	1.421 (36.09)	0.133 (3.38) 0.123 (3.12)	1.255 (31.88) 1.245 (31.62)
23	1.546 (39.27)	0.159 (4.04) 0.149 (3.78)	1.380 (35.05) 1.370 (34.80)
25	1.672 (42.47)	0.159 (4.04) 0.149 (3.78)	1.505 (38.23) 1.495 (37.97)

**Panel Thickness**

Code	G DIM, OAL	H DIM, MAX	J DIM, PANEL
-01	1.670 (42.42) MAX	0.960 (24.38)	.250/.062 (6.35/ 1.57)
-02	1.780 (45.21) MAX	1.090 (27.69)	.375/.062 (9.52/ 1.57)
-03	2.030 (51.56) MAX	1.340 (34.04)	.625/.062 (15.88/ 1.57)

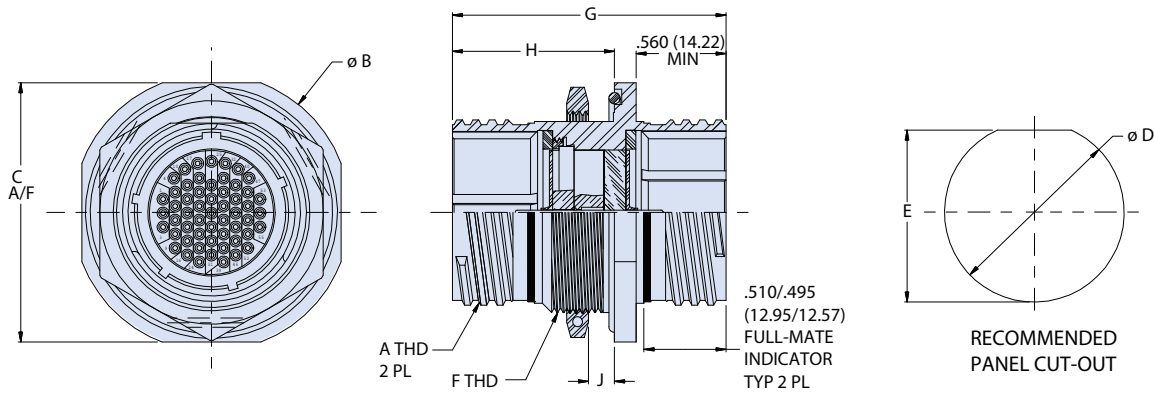


**MIL-DTL-38999 Series III Type**

**233-284 Bulkhead feed-thru with thermocouple contacts**

HERMETIC CONNECTORS

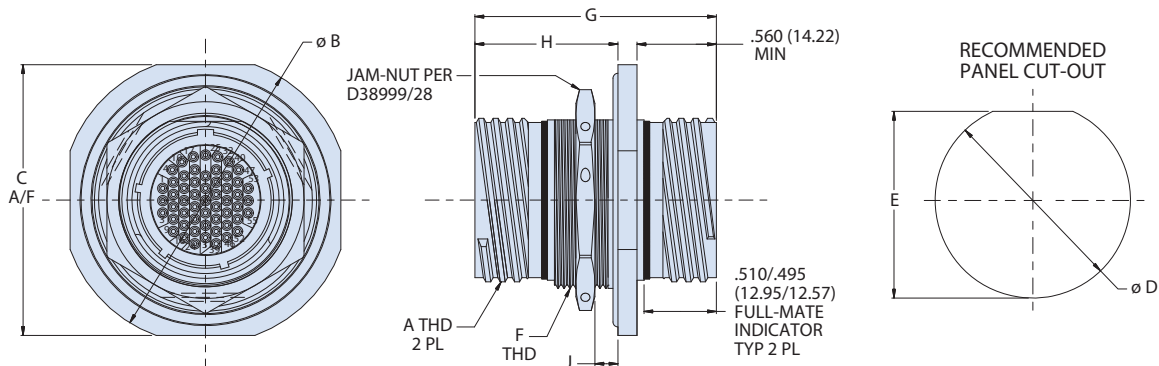
**233-284-H7 JAM-NUT FEED-THRU CONNECTOR**



Dimensions						
SHELL SIZE	A THREAD 0.1P-0.3L-TS-2	B DIA	C	D DIA	E DIM	F THREAD METRIC
9	0.6250	1.189 (30.20)	1.063 (27.00)	.703 (17.86) .693 (17.60)	.661 (16.79) .655 (16.64)	M17 X 1.0-6g
11	0.7500	1.375 (34.92)	1.252 (31.80)	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	M20 X 1.0-6g
13	0.8750	1.500 (38.10)	1.374 (34.90)	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)	M25 X 1.0-6g
15	1.0000	1.626 (41.30)	1.500 (38.10)	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	M28 X 1.0-6g
17	1.1875	1.752 (44.50)	1.626 (41.30)	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)	M32 X 1.0-6g
19	1.2500	1.937 (49.20)	1.811 (46.00)	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)	M35 X 1.0-6g
21	1.3750	2.063 (52.40)	1.937 (49.20)	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)	M38 X 1.0-6g
23	1.5000	2.189 (55.60)	2.063 (52.40)	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)	M41 X 1.0-6g
25	1.6250	2.311 (58.70)	2.189 (55.60)	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)	M44 X 1.0-6g

Panel Thickness			
Code	G DIM, OAL	H DIM, MAX	J DIM, PANEL
-01	1.600 (40.64)	.843 (21.41)	.125/.062 (3.17/1.57)
-02	1.730 (43.94)	1.040 (26.42)	.250/.062 (6.35/1.57)
-03	2.000 (50.80)	1.290 (32.77)	.500/.062 (12.70/1.57)

**233-284-DH7 DUAL O-RING, JAM-NUT FEED-THRU CONNECTOR**



Dimensions						
SHELL SIZE	A THREAD .1P-.3L-TS-2A	ø B MAX	C MAX	Panel Cut-out Dimensions		F THREAD METRIC 0.100R
				ø D	E DIM	
9	0.6250	1.500 (38.10)	1.375 (34.92)	.703 (17.86) .693 (17.60)	.661 (16.79) .655 (16.64)	M17 X 1.0-6g
11	0.7500	1.625 (41.28)	1.500 (38.10)	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	M20 X 1.0-6g
13	0.8750	1.752 (44.50)	1.626 (41.30)	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)	M25 X 1.0-6g
15	1.0000	1.937 (49.20)	1.811 (46.00)	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	M28 X 1.0-6g
17	1.1875	2.063 (52.40)	1.937 (49.20)	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)	M32 X 1.0-6g <sup>6</sup>
19	1.2500	2.189 (55.60)	2.063 (52.40)	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)	M35 X 1.0-6g
21	1.3750	2.311 (58.70)	2.189 (55.60)	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)	M38 X 1.0-6g
23	1.5000	2.500 (63.50)	2.300 (58.42)	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)	M41 X 1.0-6g
25	1.6250	2.625 (66.68)	2.400 (60.96)	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)	M44 X 1.0-6g

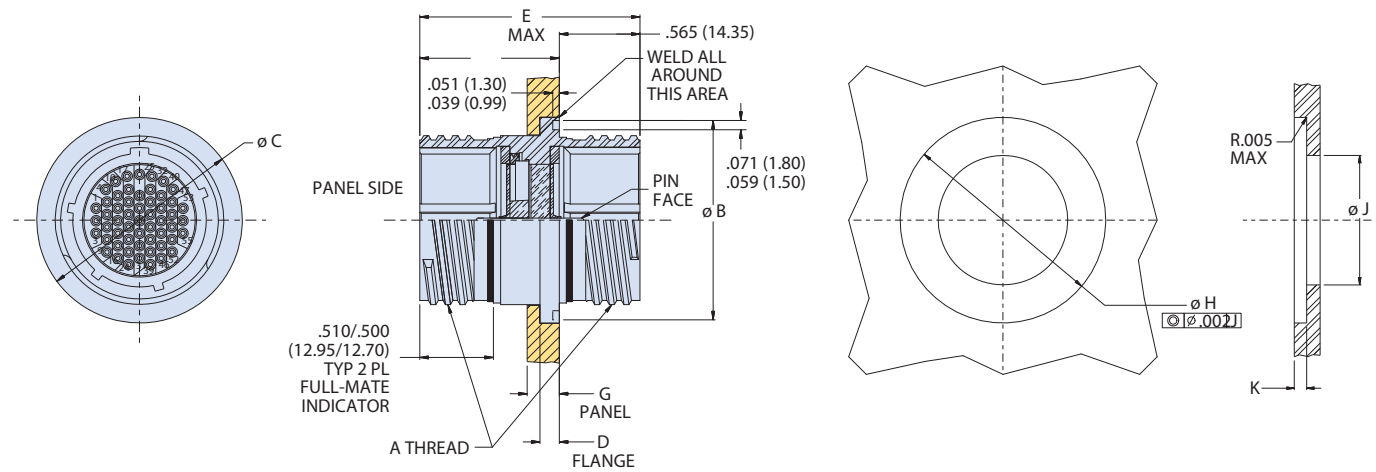
Panel Thickness			
Code	G DIM, OAL	H DIM, MAX	J DIM, PANEL
-01	1.670 (42.42) MAX	0.980 (24.89)	.125/.062 (3.17/ 1.57)
-02	1.780 (45.21) MAX	1.090 (27.69)	.250/.062 (6.35/ 1.57)
-03	2.030 (51.56) MAX	1.340 (34.04)	.500/.062 (12.70/ 1.57)

**MIL-DTL-38999 Series III Type**

**233-284 Bulkhead feed-thru with thermocouple contacts**

HERMETIC CONNECTORS

**233-284-H8 WELD MOUNT FEED-THRU CONNECTOR**



Dimensions					
SHELL SIZE CODE	SHELL SIZE	A THREAD	$\phi B$	$\phi C$	D
A	9	.6250-.1P-.3L-TS-2A	0.941 (23.90) 0.929 (23.60)	0.984 (24.99) 0.972 (24.69)	0.134 (3.40) 0.118 (3.00)
B	11	.7500-.1P-.3L-TS-2A	1.063 (27.00) 1.051 (26.70)	1.106 (28.09) 1.094 (27.79)	0.134 (3.40) 0.118 (3.00)
C	13	.8750-.1P-.3L-TS-2A	1.189 (30.20) 1.177 (29.90)	1.232 (31.29) 1.220 (30.99)	0.134 (3.40) 0.118 (3.00)
D	15	1.0000-.1P-.3L-TS-2A	1.315 (33.40) 1.303 (33.10)	1.358 (34.49) 1.346 (34.19)	0.134 (3.40) 0.118 (3.00)
E	17	1.1875-.1P-.3L-TS-2A	1.402 (35.61) 1.390 (35.31)	1.445 (36.70) 1.433 (36.40)	0.134 (3.40) 0.118 (3.00)
F	19	1.2500-.1P-.3L-TS-2A	1.547 (39.29) 1.535 (38.99)	1.591 (40.41) 1.579 (40.11)	0.134 (3.40) 0.118 (3.00)
G	21	1.3750-.1P-.3L-TS-2A	1.689 (42.90) 1.677 (42.60)	1.732 (43.99) 1.720 (43.69)	0.134 (3.40) 0.118 (3.00)
H	23	1.5000-.1P-.3L-TS-2A	1.854 (47.09) 1.842 (46.79)	1.898 (48.21) 1.886 (47.90)	0.165 (4.19) 0.149 (3.78)
J	25	1.6250-.1P-.3L-TS-2A	1.941 (49.30) 1.929 (49.00)	1.984 (50.39) 1.972 (50.09)	0.165 (4.19) 0.149 (3.78)

Recommended Panel Cutout			
SHELL SIZE	$\phi H$	$\phi J$ $\pm 0.005$ (0.13)	DEPTH K $\pm 0.005$ (0.13)
9	.990 (25.15) .985 (25.02)	0.635 (16.13)	0.126 (3.20)
11	1.112 (28.24) 1.107 (28.12)	0.760 (19.30)	0.126 (3.20)
13	1.238 (31.45) 1.233 (31.32)	0.885 (22.48)	0.126 (3.20)
15	1.364 (34.65) 1.359 (34.52)	1.010 (25.65)	0.126 (3.20)
17	1.451 (36.86) 1.446 (36.73)	1.195 (30.35)	0.126 (3.20)
19	1.597 (40.56) 1.592 (40.44)	1.260 (32.00)	0.126 (3.20)
21	1.738 (44.15) 1.733 (44.02)	1.385 (35.18)	0.126 (3.20)
23	1.894 (48.11) 1.899 (48.23)	1.510 (38.35)	0.157 (3.99)
25	1.990 (50.55) 1.985 (50.42)	1.635 (41.53)	0.157 (3.99)

Panel Thickness			
Code	E Dim, OAL	F Dim, Max	G Dim, Panel
-01	1.670 (42.42) Max	1.090 (27.69)	.510/.175
-02	1.780 (45.21) Max	1.200 (30.48)	.625/.175
-03	2.030 (51.56) Max	1.450 (36.83)	.870/.175

# SuperNine® Glass seal hermetic



## MIL-DTL-38999 Series III Type 233-103-H9 Bulkhead SAV-CON feed-thru

HERMETIC CONNECTORS

Part Number Development	
Sample Part Number	233-103 -H9 Z1 17-35 S N -02
Series / Basic Part No.	Series 23 SuperNine Hermetic Bulkhead SAV-CON Feed-thru
Connector Style	H9 = Jam Nut Mount, Gender Changer
Finish*	Z1 = CRES, Passivated ZL = CRES, Nickel Finish
Shell Size-Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560
Contact Type	P = Pin on panel side      S = Socket on panel side
Polarization*	A, B, C, D, E, N = Normal
Panel Thickness	01, 02, 03; See panel thickness table per connector style. Consult factory for additional options.

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number



Hermetic Leak Rate Mod Codes	
Designator	Required Leak Rate
-585A	1 x 10 <sup>0</sup> cc Helium per second
-585B	1 x 10 <sup>1</sup> cc Helium per second
-585C	1 x 10 <sup>2</sup> cc Helium per second

### Material / Finish

- Shell and jam-nut: CRES/passivate or CRES/nickel plate
- Contacts pin: nickel/iron alloy/gold plate
- Contacts sockets: copper alloy/gold plate insulator
- Insulator hermetic: vitreous glass/N.A
- Insulator socket: rigid dielectric/N.A
- Seals: fluorosilicone blend/N.A.

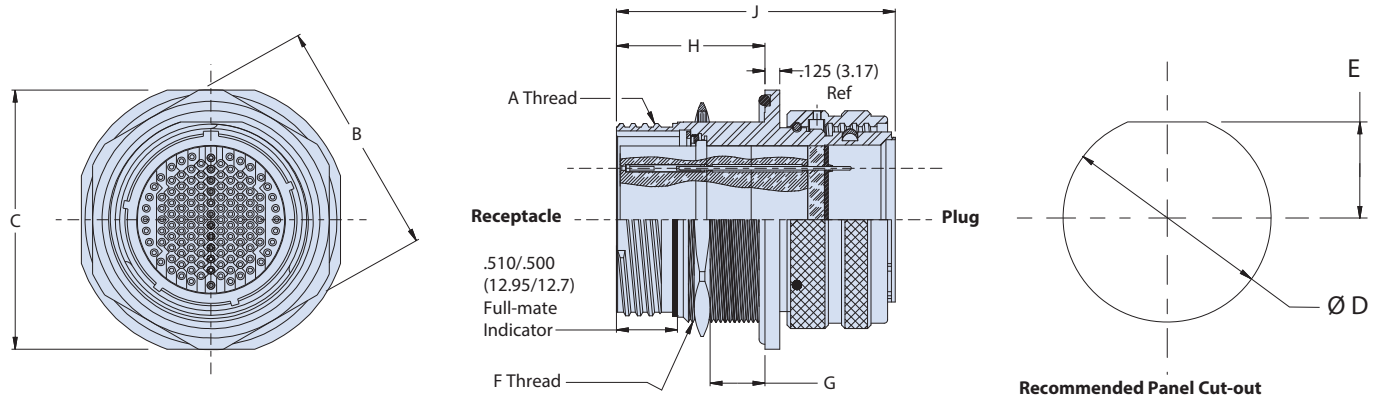
### NOTES

1. For PP or SS style, only symmetrical layouts may be selected. Power to a given contact on one end will result in power to contact directly opposite, regardless of identification letter.
2. Glenair 233-103-H9 will mate with any QPL manufacturer's 38999 Series III plug or receptacle of same shell size, polarization and opposite contact gender.
3. Hermeticity: less than 1 x 10<sup>-7</sup> ccHe/sec at 1 atmosphere differential.
4. Electrical safety limits must be established by user. Peak voltage, switching surge, transient, etc should be used to determine safe application

**MIL-DTL-38999 Series III Type  
233-103 Bulkhead SAV-CON feed-thru**

HERMETIC CONNECTORS

**233-103-H9 JAM-NUT MOUNT GENDER CHANGER**



Dimensions						
SHELL SIZE	A THREAD	B MAX	C DIM MAX	D DIA	E	F THREAD
9	.6250 0.1 P-0.3L-TS-2	.945(24.0)	1.09 (27.7)	0.703 (17.9) 0.693 (17.6)	0.661 (16.8) 0.653 (16.6)	M17X1-6G-0.100R
11	.7500 0.1 P-0.3L-TS-2	1.063(27.0)	1.28 (32.5)	0.835 (21.2) 0.825 (21.0)	0.771 (19.6) 0.761 (19.3)	M20X1-6G-0.100R
13	.8750 0.1 P-0.3L-TS-2	1.260(32.0)	1.40 (35.6)	1.020 (25.9) 1.010 (25.7)	0.955 (24.3) 0.945 (24.0)	M25X1-6G-0.100R
15	1.0000 0.1 P-0.3L-TS-2	1.417(36.0)	1.53 (38.9)	1.145 (29.1) 1.135 (28.8)	1.085 (27.6) 1.075 (27.3)	M28X1-6G-0.100R
17	1.1875 0.1 P-0.3L-TS-2	1.457(37.0)	1.66 (42.2)	1.270 (32.3) 1.260 (32.0)	1.210 (30.7) 1.200 (30.5)	M32X1-6G-0.100R
19	1.2500 0.1 P-0.3L-TS-2	1.614(41.0)	1.84 (46.7)	1.395 (35.4) 1.385 (35.2)	1.335 (33.9) 1.325 (33.7)	M35X1-6G-0.100R
21	1.3750 0.1 P-0.3L-TS-2	1.811(46.0)	1.97 (50.5)	1.520 (38.6) 1.510 (38.4)	1.460 (37.1) 1.450 (36.8)	M38X1-6G-0.100R
23	1.5000 0.1 P-0.3L-TS-2	1.968(50.0)	2.09 (53.1)	1.645 (41.8) 1.635 (41.5)	1.585 (40.3) 1.575 (40.0)	M41X1-6G-0.100R
25	1.6250 0.1 P-0.3L-TS-2	2.017(51.2)	2.21 (56.1)	1.770 (45.0) 1.760 (44.7)	1.710 (43.4) 1.700 (43.2)	M44X1-6G-0.100R

Panel Thickness			
DASH NO.	G	H MAX	J MAX
-01	.062 - .125 (1.6 - 3.2)	.890 (22.6)	2.000 (50.8)
-02	.062 - .250 (1.6 - 6.4)	1.150 (29.2)	2.225 (56.5)
-03	.062 - .500 (1.6 - 12.7)	1.400 (35.6)	2.450 (62.2)

DWV Voltage Levels at Sea Level	
SERVICE RATING	VOLTAGE AC RMS 60HR
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC



# SuperNine® Glass seal hermetic



## MIL-DTL-38999 Series III Type

### 233-284-H9 SAV-CON feed-thru with Thermocouple Contacts

HERMETIC CONNECTORS

Part Number Development	
Sample Part Number	233-284 -H9 Z1 17-35 K 1 N -02
Series / Basic Part No.	Series 23 SuperNine Hermetic Bulkhead SAV-CON Feed-thru
Connector Style	H9 = Jam Nut Mount, Gender Changer
Finish* (See Note 2)	Z1 = CRES, Passivated ZL = CRES, Nickel Finish
Shell Size-Insert Arrangement*	Per MIL-DTL-38999/MIL-STD-1560
Contact Style	E, J, K, T
Pairs of T/C	See note 4
Polarization*	A, B, C, D, E, N = Normal
Panel Thickness	01, 02, 03; See panel thickness table per connector style

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number



Hermetic Leak Rate Mod Codes	
Designator	Required Leak Rate
-585A	1 x 10 <sup>-10</sup> cc Helium per second
-585B	1 x 10 <sup>-9</sup> cc Helium per second
-585C	1 x 10 <sup>-8</sup> cc Helium per second

#### NOTES

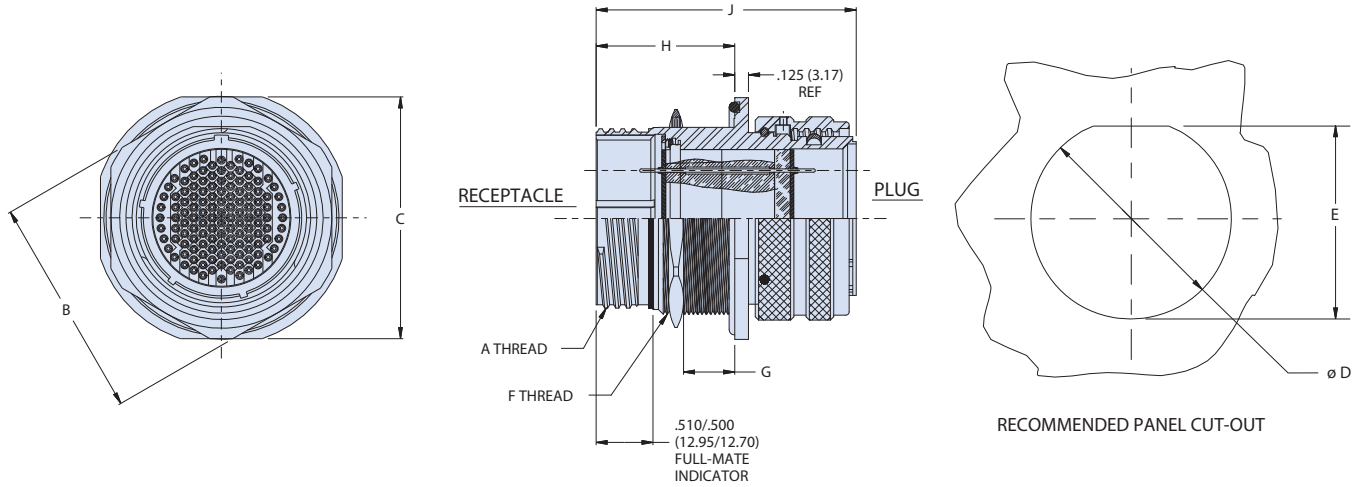
- Glenair 233-284-H9 is available as pin-to-pin only
- Glenair 233-284-H9 will mate with any QPL manufacturer's 38999 Series III plug or receptacle of same shell size, polarization and opposite contact gender.
- Application range is for thermocouple, not the connector. Connector temperature range is -85° to +392°F
- All thermocouple contact pairs will begin at contact #1 (A) as "+", and 2 (B) as "-". Each additional pair of thermocouple contacts will repeat sequentially I.E.: 1&2 (A&B); 3&4 (C&D), etc
- DWV: per table DWV voltage levels table
- Hermeticity: less than 1 x 10<sup>-7</sup> ccHe/sec at 1 atmosphere differential.

#### Material/Finish

- Shell and jam-nut:  
Z1 = 300 Series CRES/Passivated  
ZL = 300 Series CRES/nickel plated
- Contact, pins - thermocouple = per P/N development/JP = cadmium; TP=gold flash; balance = none;  
non-thermocouple = nickel alloy/gold plated
- Insulator, hermetic = Fused vitreous glass/none
- Spacers, pins: rigid dielectric/none
- Seals & o-rings: fluorosilicone/none

## MIL-DTL-38999 Series III Type

### 233-284-H9 SAV-CON feed-thru with Thermocouple Contacts



Dimensions						
SHELL SIZE	A THREAD 0.1P-0.3L-TS-2	B MAX	C DIM MAX	D DIA	E DIM	F THREAD
9	0.6250	0.945 (24.00)	1.09 (27.69)	.703 (17.86) .693 (17.60)	.661 (16.79) .655 (16.64)	M17X1-6g 0.100R
11	0.7500	1.063 (27.00)	1.28 (32.51)	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	M20X1-6g 0.100R
13	0.8750	1.260 (32.00)	1.40 (35.56)	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)	M25X1-6g 0.100R
15	1.0000	1.417 (35.99)	1.53 (38.86)	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)	M28X1-6g 0.100R
17	1.1875	1.457 (37.01)	1.66 (42.16)	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)	M32X1-6g 0.100R
19	1.2500	1.614 (41.00)	1.84 (46.74)	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)	M35X1-6g 0.100R
21	1.3750	1.811 (46.00)	1.97 (50.04)	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)	M38X1-6g 0.100R
23	1.5000	1.968 (49.99)	2.09 (53.09)	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)	M41X1-6g 0.100R
25	1.6250	2.017 (51.23)	2.21 (56.13)	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)	M44X1-6g 0.100R

Panel Thickness			
DASH NO.	G	H MAX	J MAX
-01	.062 - .125 (1.6 - 3.2)	.890 (22.6)	2.000 (50.8)
-02	.062 - .250 (1.6 - 6.4)	1.150 (29.2)	2.225 (56.5)
-03	.062 - .500 (1.6 - 12.7)	1.400 (35.6)	2.450 (62.2)

DWV Voltage Levels at Sea Level	
SERVICE RATING	VOLTAGE AC RMS 60HR
M	1300 VAC
I	1800 VAC
II	2300 VAC
N	1000 VAC



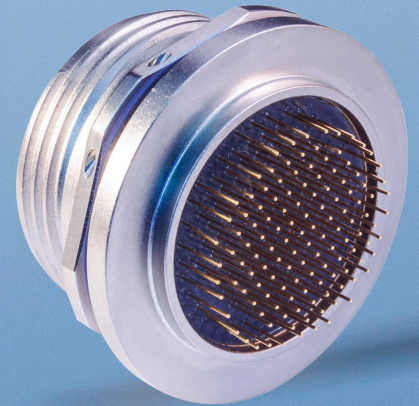
*LIGHTWEIGHT, LOW RESISTANCE*



## “Mission-Critical” hermetic sealing with $1 \times 10^{-7}$ leak-rate performance

**H**ermetically-sealed interconnects used in vacuum or high-altitude applications prevent moisture and other contaminants from damaging sensitive electronic equipment. Glass-to-metal hermetic sealing has been the gold standard in the aerospace and petrochemical industries for decades due to the strength and long-term durability of the materials used. But glass-to-metal seal hermetics come with a big price tag in both weight and electrical resistance.

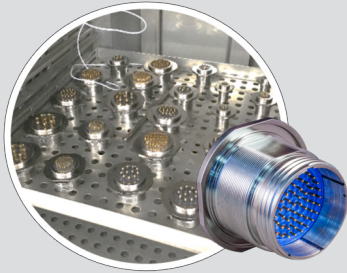
CODE RED is an innovative sealing encapsulant and application process—invented by Glenair—that provides durable hermetic sealing in a lightweight aluminum package. CODE RED allows for the use of conventional gold-plated copper alloy contacts, significantly improving electrical performance. CODE RED hermetic connectors are available now in Glenair SuperNine® (D38999 Series III type), Series 80 Mighty Mouse, and M24308 D-Sub. These connectors deliver reliable, life-of-system  $1 \times 10^{-7}$  max leak-rate hermetic sealing and special non-magnetic (zero residual magnetism) versions are also available, consult factory.



- Full hermetic sealing, with  $1 \times 10^{-7}$  in a lightweight aluminum shell and low electrical resistance, gold-plated copper contacts
- Meets NASA aerospace temperature and corrosion resistance standards.
- Meets ASTM-E595 outgassing requirements when ordered with modification code 683
- Operating temperature  $-65^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$
- Available today in Mighty Mouse 806 Mil-Aero, M24308/9 D-Sub and D38999/23 glass-to-metal seal hermetics
- Significant weight savings—up to +50%
- Order-of-magnitude improvement in current carrying capacity and electrical resistance compared to Kovar/Inconel solutions



#### CODE RED LIGHTWEIGHT HERMETIC CONNECTOR TESTING AND VALIDATION



Connectors utilizing CODE RED hermetic encapsulant sealing went through a grueling qualification test and validation process to prove material durability and hermeticity. Validation testing including 100 cycles of thermal shock IAW EIA-364-32 Test Condition A -65°C to +200°C while maintaining hermeticity followed by 1000 hours of thermal aging at 200°C. Additional tests included:

- DWV, DWV at altitude
- IR, IR at temperature
- Highly Accelerated Life Testing (HALT)
- Insert and contact retention
- Mating durability
- Random vibration at temperature IAW MIL-DTL-38999
- Hermetic seal at 30 psi

The entire qualification test cycle was repeated successfully a second time with new parts to validate complete reliability.

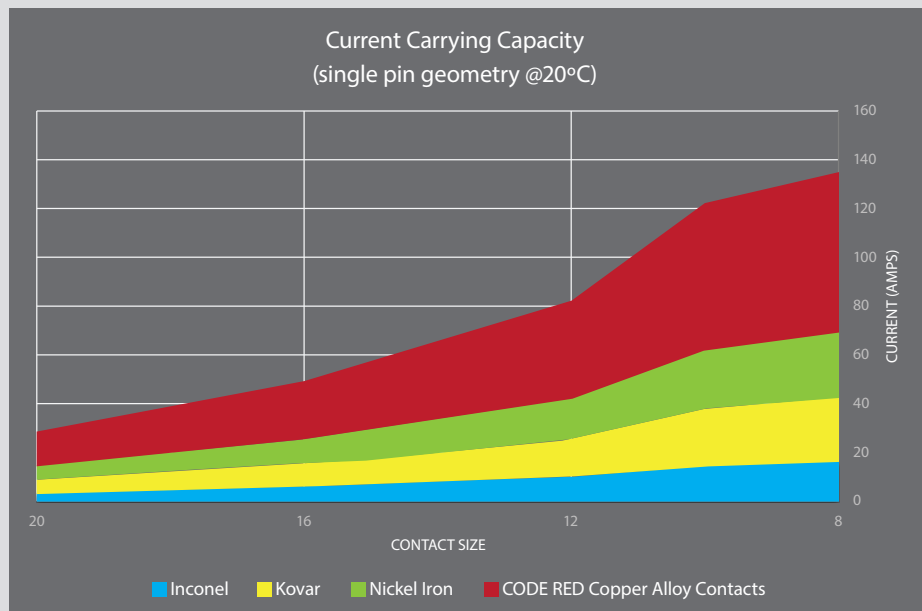
#### CODE RED USES PROVEN-PERFORMANCE CONNECTOR AND CONTACT MATERIALS

CODE RED Materials / Finish	
Sealing Adhesive	Proprietary Glenair compound
Contacts*	Gold-plated beryllium copper alloy per ASTM B 197 or equivalent
Insulator	Rigid plastic
Seals	Blended fluorosilicone/silicone elastomer
Receptacle Shell and Jam Nut*	Aluminum alloy 6061-T6 per ASTM B 221
Finish*	Electroless nickel per ASTM B 733

\*zero residual magnetism materials also available

Percentage Weight Savings CODE RED vs. Glass-to-Metal MIL-DTL-38999 Sr. III	
Shell Size/Insert Arr.	Weight Reduction
9-35	52%
11-98	47%
13-35	47%
15-97	42%
19-32	40%
21-11	32%
23-21	28%
25-08	43%

Graph illustrates Current Carrying Capacity of CODE RED copper alloy contacts compared to the Inconel, Kovar, and nickel iron contacts used in conventional glass-to-metal seal hermetics.



**APPLICATION NOTES:** CODE RED is a viable drop-in solution for conventional glass-to-metal seal hermetic connectors with the following exceptions:

- 1. Fuel Cells:** Although CODE RED exhibits outstanding resistance to caustic chemicals and fuels, its use in fuel tanks/fuel cell applications is not recommended.
- 2. Cryogenics:** CODE RED has been tested and qualified to -65°C IAW MIL-DTL-38999
- 3. Sustained High-Operating Temperatures:** CODE RED has been tested and qualified to a maximum +200°C IAW MIL-DTL-38999
- 4. High Radiation:** Exposure to no more than 6 Megarads of radiation
- 5. Deep Subsea:** CODE RED is ideally suited for aerospace and downhole applications that do not exceed 2 BAR (30 psi) atmospheric pressure differential.
- 6. Life Support Systems:** Requires additional qualification testing not yet performed by Glenair.

**MIL-DTL-38999 Series III Type**

**233-250 Wall mount or jam-nut receptacle, PC tails or solder cup**

CODE RED HERMETIC CONNECTORS

Part Number Development										
Sample Part Number	233-250				-00	ME	17	-35	P	N
Series / Basic Part No.	Series 23 SuperNine jam-nut mount CODE RED hermetic receptacle									
Connector Style	<b>00</b> = Receptacle, wall mount with slotted holes <b>D0</b> = Receptacle, wall mount with round holes <b>Omit</b> = Receptacle, jam nut mount									
Material/Finish	<b>AB</b> = Marine Bronze, None (Clean Only), -65°C to +200°C <b>MA</b> = Aluminum Alloy, Electroless Nickel, Matte Finish, -65°C to +200°C <b>ME</b> = Aluminum Alloy, Electroless Nickel, -65°C to +200°C <b>NF</b> = Aluminum Alloy, Cad/O.D. Over Electroless Nickel, -65°C to +175°C <b>ZN</b> = Aluminum Alloy, Zinc Ni, Olive Drab, -65°C to +175°C <b>ZR</b> = Aluminum Alloy, Zinc Ni, Black (Tri-Valent CR), -65°C to +175°C									
Shell Size	Per MIL-DTL-38999 Series III									
Insert Arrangement	Per MIL-STD-1560									
Contact Style	<b>C</b> = Pin, PC tail <b>P</b> = Pin, solder cup			<b>D</b> = Socket, PC tail <b>S</b> = Socket, solder cup						
Alternate Polarization	<b>A, B, C, D, E, N</b> = Normal; see section A for key position details									

\*Refer to Section A for complete details, consult factory for additional options      \*\*Inactive For New Design  
 Modification codes may be added directly to the end of any valid part number

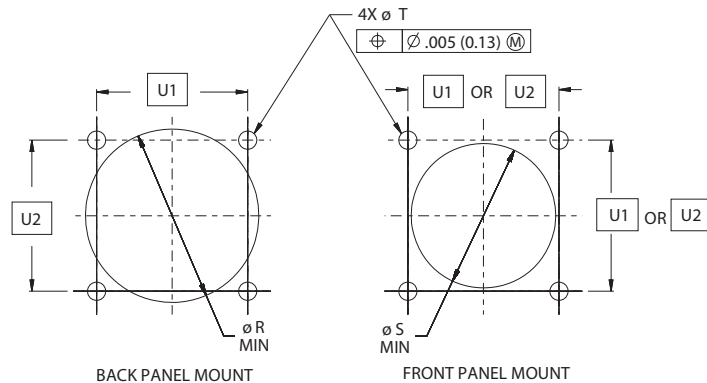
**NOTES**

- Glenair environmental connectors are designed to mate with any QPL manufacturer's MIL-DTL-38999, series III mating plug having the same shell size, insert arrangement, opposite contact gender and polarization.
- Connectors meet all applicable dimensions, mechanical, electrical, environmental and sealing requirements of MIL-DTL-38999/23, PC tails.
- Performance
  - Operation temperature range: -65°C to +200°C
  - Leak Rate: 1 x 10<sup>-7</sup> cc/s max helium, 1 ATM
  - IR: 5,000 megohms min at room temperature per MIL-DTL-38999
  - DWV: see service rating per applicable MIL-STD-1560 arrangements

**Material/Finish**

- Shell and jam-nuts: see Material/Finish in Part Number Development
- Insulators: high grade rigid dielectric
- O-ring and Seals: fluorosilicone
- Contacts: copper alloy/gold plated
- Sealing compound: polymer encapsulant

**WALL MOUNT PANEL CUTOUTS**



Recommended Mounting Holes for Wall and Box Mount Receptacles						
Shell Size Code	Shell Size	ø R Min	ø S Min	ø T Holes	U1 BSC	U2 BSC
A	09	0.656 (16.66)	0.516 (13.11)	0.133 (3.38) 0.123 (3.12)	0.719 (18.26)	0.594 (15.09)
B	11	0.796 (20.22)	0.625 (15.88)		0.812 (20.62)	0.719 (18.26)
C	13	0.922 (23.42)	0.750 (19.05)		0.906 (23.01)	0.812 (20.62)
D	15	1.047 (26.59)	0.906 (23.01)		0.969 (24.61)	0.906 (23.01)
E	17	1.219 (30.96)	1.016 (25.81)		1.062 (26.97)	0.969 (24.61)
F	19	1.297 (32.94)	1.141 (28.98)		1.156 (29.36)	1.062 (26.97)
G	21	1.422 (36.12)	1.266 (32.16)		1.250 (31.75)	1.156 (29.36)
H	23	1.547 (39.29)	1.375 (34.92)	0.159 (4.04) 0.149 (3.78)	1.375 (34.92)	1.250 (31.75)
J	25	1.672 (42.47)	1.484 (37.69)	0.155 (3.94) 0.145 (3.68)	1.500 (38.10)	1.375 (34.92)

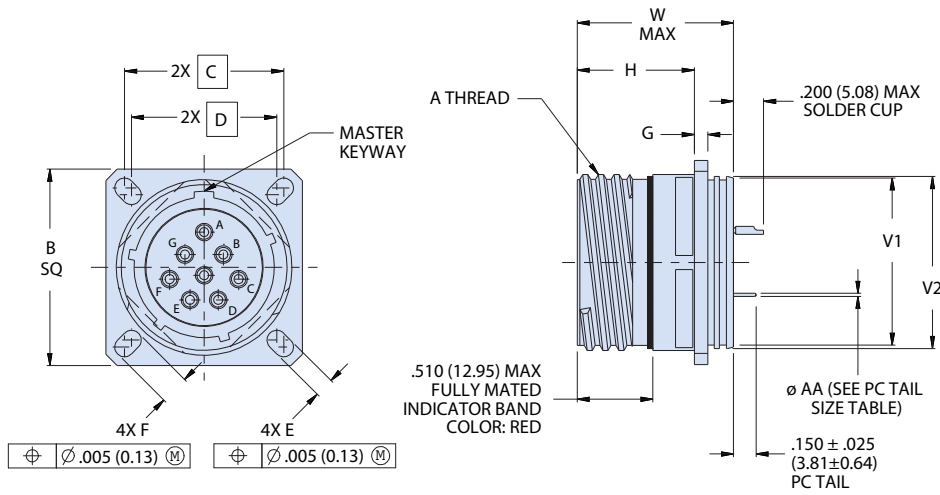


**MIL-DTL-38999 Series III Type**

**233-250 Wall mount or jam-nut receptacle, PC tails or solder cup**

CODE RED HERMETIC CONNECTORS

**233-250-00 WALL MOUNT RECEPTACLE WITH SLOTTED HOLES**



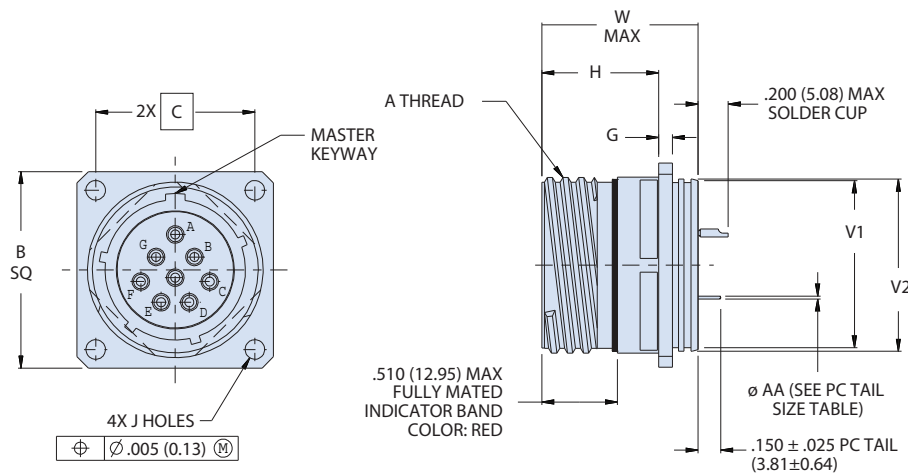
PC Tail Size	
Contact Size	øAA
22D	.020 (0.51) .018 (0.46)
20	.030 (0.76) .028 (0.71)
16	.040 (1.02) .038 (0.97)
12	.072 (1.83) .070 (1.78)

Dimensions													
Shell Size Code	Shell Size	A Thread	B SQ	C BSC	D BSC	E	F	G	H	øV1 ±.012	øV2 ±.012 - .000	W Max	
A	09	.6250-.1P-.3L-TS-2A	0.949 (24.10) 0.925 (23.50)	0.719 (18.26)	0.594 (15.09)	0.136 (3.45) 0.120 (3.05)	0.224 (5.69) 0.208 (5.28)	0.098 (2.49) 0.083 (2.11)	0.820 (20.83) 0.771 (19.58)	0.602 (15.29)	0.642 (16.31)	1.280 (32.51)	
B	11	.7500-.1P-.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	.812 (20.62)	0.719 (18.26)		0.202 (5.13) 0.186 (4.72)			0.724 (18.39)	0.764 (19.41)		
C	13	.8750-.1P-.3L-TS-2A	1.138 (28.91) 1.114 (28.30)	.906 (23.01)	0.812 (20.62)		0.181 (4.60) 0.165 (4.19)			0.850 (21.59)	0.894 (22.71)		
D	15	1.0000-.1P-.3L-TS-2A	1.232 (31.29) 1.208 (30.68)	.969 (24.61)	0.906 (23.01)		0.202 (5.13) 0.186 (4.72)			0.976 (24.79)	1.020 (25.91)		
E	17	1.1875-.1P-.3L-TS-2A	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	0.969 (24.61)		0.126 (3.20) 0.083 (2.11)			0.790 (20.07) 0.741 (18.82)	1.102 (27.99)		1.142 (29.01)
F	19	1.2500-.1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	1.062 (26.97)						1.350 (34.29)		1.394 (35.41)
G	21	1.3750-.1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	1.156 (29.36)		0.162 (4.11) 0.146 (3.71)			0.250 (6.35) 0.234 (5.94)	1.476 (37.49)		1.520 (38.61)
H	23	1.5000-.1P-.3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	1.250 (31.75)	1.602 (40.69)		1.642 (41.71)					
J	25	1.6250-.1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	1.375 (34.92)								

**MIL-DTL-38999 Series III Type**

**233-250 Wall mount or jam-nut receptacle, PC tails or solder cup**

**233-250-D0 WALL MOUNT RECEPTACLE WITH STANDARD HOLES**



PC Tail Size	
Contact Size	øAA
22D	.020 (0.51) .018 (0.46)
20	.030 (0.76) .028 (0.71)
16	.040 (1.02) .038 (0.97)
12	.072 (1.83) .070 (1.78)

Dimensions										
Shell Size Code	Shell Size	A Thread	B SQ	C BSC	G	H	øJ Holes	øV1 ±.012	øV2 ±.012 -.000	W Max
A	09	.6250-.1P-.3L-TS-2A	0.949 (24.10) 0.925 (23.50)	0.719 (18.26)				0.602 (15.29)	0.642 (16.31)	1.280 (32.51)
B	11	.7500-.1P-.3L-TS-2A	1.043 (26.49) 1.019 (25.88)	.812 (20.62)				0.724 (18.39)	0.764 (19.41)	
C	13	.8750-.1P-.3L-TS-2A	1.138 (28.91) 1.114 (28.30)	.906 (23.01)	0.098 (2.49)	0.820 (20.83)	0.136 (3.45) 0.120 (3.05)	0.850 (21.59)	0.894 (22.71)	
D	15	1.0000-.1P-.3L-TS-2A	1.232 (31.29) 1.208 (30.68)	.969 (24.61)	0.083 (2.11)	0.771 (19.58)		0.976 (24.79)	1.020 (25.91)	
E	17	1.1875-.1P-.3L-TS-2A	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)				1.102 (27.99)	1.142 (29.01)	
F	19	1.2500-.1P-.3L-TS-2A	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)				1.228 (31.19)	1.268 (32.21)	
G	21	1.3750-.1P-.3L-TS-2A	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	0.126 (3.20)	0.790 (20.07)		1.350 (34.29)	1.394 (35.41)	
H	23	1.5000-.1P-.3L-TS-2A	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	0.083 (2.11)	0.741 (18.82)	0.162 (4.11)	1.476 (37.49)	1.520 (38.61)	
J	25	1.6250-.1P-.3L-TS-2A	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)			0.146 (3.71)	1.602 (40.69)	1.642 (41.71)	

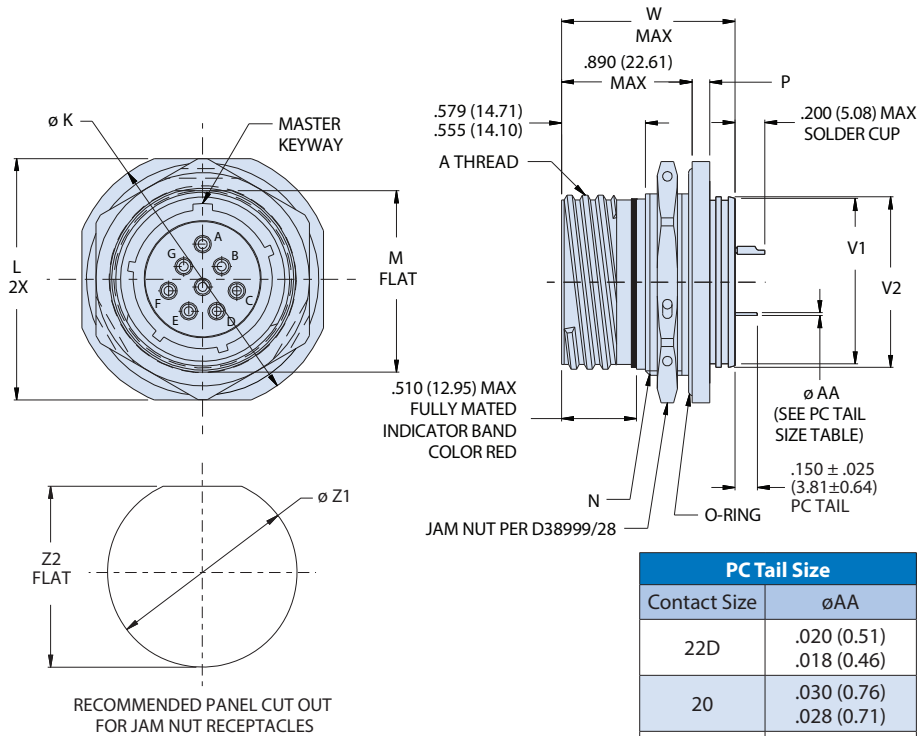
CODE RED HERMETIC CONNECTORS

## MIL-DTL-38999 Series III Type

### 233-250 Jam-nut receptacle, PC tails or solder cup

CODE RED HERMETIC CONNECTORS

#### 233-250 JAM NUT MOUNT RECEPTACLE



Panel Cut-Out Dimensions for Jam Nut Receptacles			
Shell Size Code	Shell Size	$\phi Z1$	Z2 Flat
A	09	0.703 (17.86) 0.693 (17.60)	0.661 (16.79) 0.654 (16.61)
B	11	0.835 (21.21) 0.825 (20.96)	0.771 (19.58) 0.761 (19.33)
C	13	1.020 (25.91) 1.010 (25.65)	0.955 (24.26) 0.945 (24.00)
D	15	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)
E	17	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)
F	19	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)
G	21	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)
H	23	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)
J	25	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)

PC Tail Size	
Contact Size	$\phi AA$
22D	.020 (0.51)
	.018 (0.46)
20	.030 (0.76)
	.028 (0.71)
16	.040 (1.02)
	.038 (0.97)
12	.072 (1.83)
	.070 (1.78)

Dimensions										
Shell Size Code	Shell Size	A Thread	$\phi K$	L	M Flat	N Thread	P	$\phi V1$ $\pm .012$	$\phi V2$ $\pm .012$ -.000	W Max
A	09	.6250-.1P-.3L-TS-2A	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	0.654 (16.61) 0.645 (16.38)	M17 X 1.0-6g 0.100R	.122 (3.10) .083 (2.11)	0.602 (15.29)	0.642 (16.31)	1.280 (32.51)
B	11	.7500-.1P-.3L-TS-2A	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	0.755 (19.18) 0.745 (18.92)	M20 X 1.0-6g 0.100R		0.724 (18.39)	0.764 (19.41)	
C	13	.8750-.1P-.3L-TS-2A	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	0.942 (23.93) 0.932 (23.67)	M25 X 1.0-6g 0.100R		0.850 (21.59)	0.894 (22.71)	
D	15	1.0000-.1P-.3L-TS-2A	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g 0.100R		0.976 (24.79)	1.020 (25.91)	
E	17	1.1875-.1P-.3L-TS-2A	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g 0.100R		1.102 (27.99)	1.142 (29.01)	
F	19	1.2500-.1P-.3L-TS-2A	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g 0.100R	.153 (3.89) .114 (2.90)	1.228 (31.19)	1.268 (32.21)	
G	21	1.3750-.1P-.3L-TS-2A	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g 0.100R		1.350 (34.29)	1.394 (35.41)	
H	23	1.5000-.1P-.3L-TS-2A	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g 0.100R		1.476 (37.49)	1.520 (38.61)	
J	25	1.6250-.1P-.3L-TS-2A	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	M44 X 1.0-6g 0.100R		1.602 (40.69)	1.642 (41.71)	
			2.299 (58.39)	2.173 (55.19)	1.681 (42.70)					

**MIL-DTL-38999 Series III Type**

**233-251 Jam-nut mount, bulkhead feed-thru**

HERMETIC CONNECTORS

Part Number Development													
Sample Part Number	233-251-07					ME	17	-8	P	N	S	N	-02
Series / Basic Part No.	Series 23 SuperNine jam-nut CODE RED hermetic receptacle												
Material/Finish*	ME = Aluminum alloy 6061-T6, electroless nickel												
Shell Size*	Per MIL-DTL-38999 Series III												
Insert Arrangement*	Per MIL-STD-1560												
Contact Style (Panel Side)	P = Pin, gold, 500 cycles						S = Socket, gold, 500 cycles						
Polarization* (Panel Side)	A, B, C, D, E, N = Normal; see section A for key position details												
Contact Style (Flange Side)	P = Pin, gold, 500 cycles						S = Socket, gold, 500 cycles						
Polarization* (Flange Side)	A, B, C, D, E, N = Normal; see section A for key position details												
Panel Accommodation	02; See panel accommodation table for details												

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

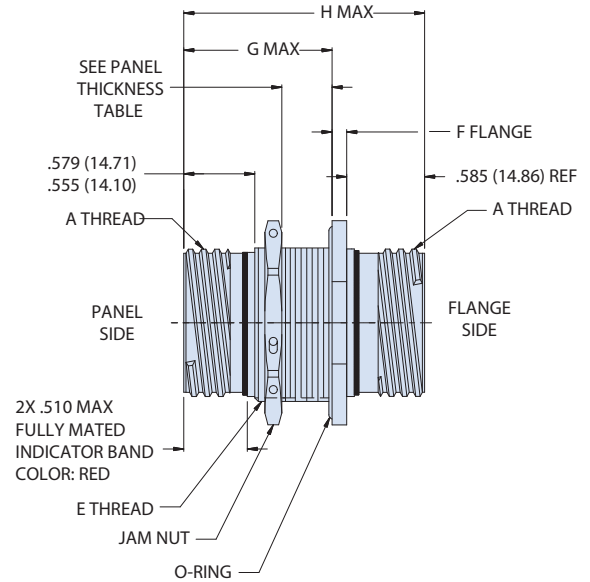
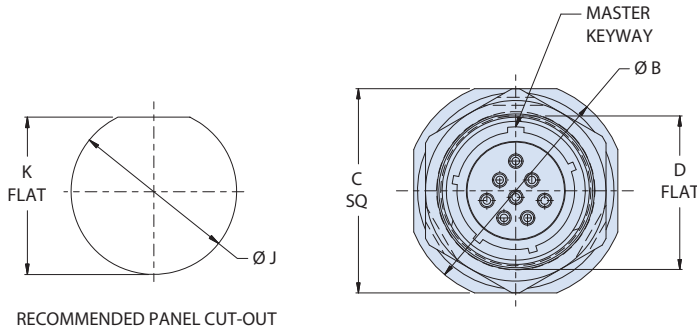
Dimensions							
Shell Size Code	Shell Size	A Thread 0.1P-0.3L-TS-2A	ØB	C Sq	D Flat	E Thread ISO Metric	F
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g	.122 (3.10) .083 (2.11)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g	
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g	
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g	
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g	
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g	.153 (3.89) .114 (2.90)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g	
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g	
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g	

Panel Accommodation			
Sym	Panel Thickness	G Max	H Max
02	.250 (6.35) .062 (1.57)	1.090 (27.69)	1.78 (45.21)

**MIL-DTL-38999 Series III Type**

**233-251 Jam-nut mount, bulkhead feed-thru**

**CODE RED**



HERMETIC CONNECTORS

Panel Cut-out Dimensions			
Shell Size Code	Shell Size	ØJ	K Flat
A	9	.703 (17.86)	.661 (16.79)
		.693 (17.60)	.654 (16.61)
B	11	.835 (21.21)	.771 (19.58)
		.825 (20.96)	.761 (19.33)
C	13	1.020 (25.91)	.955 (24.26)
		1.010 (25.65)	.945 (24.00)
D	15	1.145 (29.08)	1.085 (27.56)
		1.135 (28.83)	1.075 (27.30)
E	17	1.270 (32.26)	1.210 (30.73)
		1.260 (32.00)	1.200 (30.48)
F	19	1.395 (35.43)	1.335 (33.91)
		1.385 (35.18)	1.325 (33.65)
G	21	1.520 (38.61)	1.460 (37.08)
		1.510 (38.35)	1.450 (36.83)
H	23	1.645 (41.78)	1.585 (40.26)
		1.635 (41.53)	1.575 (40.00)
J	25	1.770 (44.96)	1.710 (43.43)
		1.760 (44.70)	1.700 (43.18)

**NOTES**

- Connector is designed to meet all applicable mechanical dimensional, electrical, and environmental and sealing requirements of MIL-DTL-38999, D38999/23, and MIL-STD-1560 except as shown and/or noted. Insert arrangement in accordance with MIL-STD-1560. Contact manufacturer for available arrangement options
- For pin/pin configuration, symmetrical layout only, Consult factory for available insert arrangements and for availability of socket/socket configuration
- Power to a given contact on one end will result in power to a contact directly opposite, regardless of identification letter
- Electrical safety limits must be established by user. Peak voltage switching surge, transient, etc should be used to determine the safety application
- Sealing compound employed has been tested and meets applicable requirements of MIL-DTL-38999/23 class N and Y. See Glenair test report GT-16-223

**6. Performance**

- Operation temperature Range: -65°C to +200°C
- Leak Rate: 1 x 10<sup>-7</sup> cc/s max helium, 1 ATM
- IR: 5,000 megohms min at room temperature per MIL-DTL-38999
- DWV: see service rating per applicable MIL-STD-1560 arrangements
- Dimensions shown comply with applicable MIL-DTL-38999/23

**Material/Finish**

- Shell and jam-nut: aluminum alloy 6061-T6/nickel plate per D38999 series III, Class F
- Insulators: high grade rigid dielectric/ N.A.
- O-ring and Seals: fluorosilicone/N.A.
- Contacts: copper alloy/gold plated
- sealing compound: silicone base polymer



# SuperNine® Lightweight hermetic



## MIL-DTL-38999 Series III Type

### 233-252 Jam-nut mount, crimp removable contact

HERMETIC CONNECTORS

Part Number Development									
Sample Part Number	233-252-07				ME	17	-8	P	N
Series / Basic Part No.	Series 23 SuperNine CODE RED hermetic jam-nut mount receptacle								
Material/Finish*	ME = Aluminum alloy 6061-T6, electroless nickel								
Shell Size*	Per MIL-DTL-38999 Series III								
Insert Arrangement*	Per MIL-STD-1560								
Contact Style	P = Pin, gold, 500 cycles		S = Socket, gold, 500 cycles						
Polarization*	A, B, C, D, E, N = Normal; see section A for key position details								

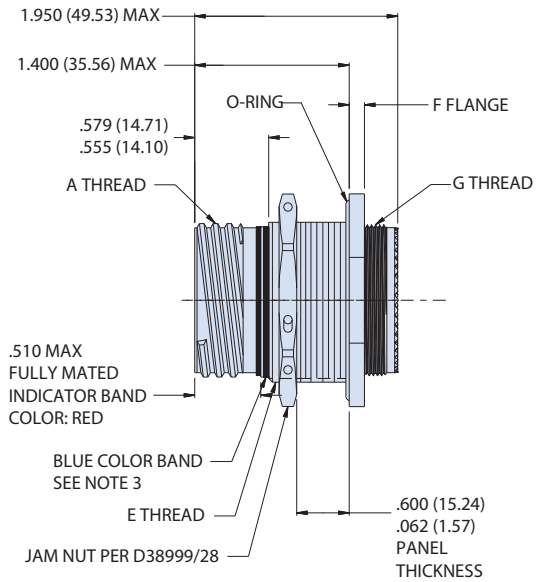
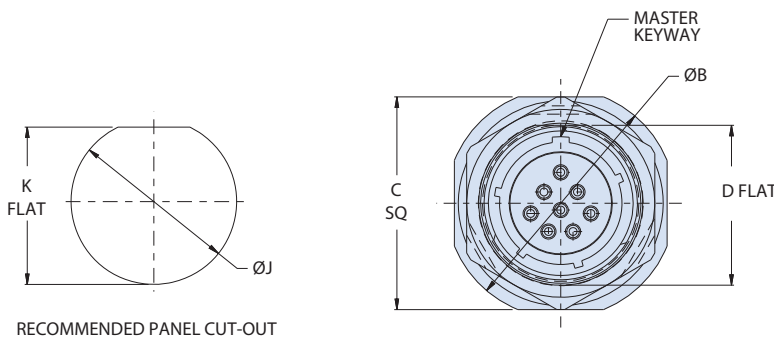
**\*Refer to Section A for complete details, consult factory for additional options**  
 Modification codes may be added directly to the end of any valid part number

Dimensions								
Shell Size Code	Shell Size	A Thread 0.1P-0.3L-TS-2A	ØB	C Sq	D Flat	E Thread ISO Metric 1.0-6g 0.100R	F	G Thread ISO Metric
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17	.122 (3.10) .083 (2.11)	M12 X 1.0-6g 0.100R
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20		M15 X 1.0-6g 0.100R
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25		M18 X 1.0-6g 0.100R
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28		M22 X 1.0-6g 0.100R
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32		M25 X 1.0-6g 0.100R
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35	.153 (3.89) .114 (2.90)	M28 X 1.0-6g 0.100R
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38		M31 X 1.0-6g 0.100R
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41		M34 X 1.0-6g 0.100R
J	25	1.6250	2.323 (59.00)	2.205 (56.01)	1.691 (42.95)	M44		M37 X 1.0-6g 0.100R
			2.299 (58.39)	2.173 (55.19)	1.681 (42.70)			

**MIL-DTL-38999 Series III Type**

**233-252 Jam-nut mount, crimp removable contact**

**CODE RED**



Supplied Socket Contacts	
Size	Contact P/N
22	AS39029/57-354
20	AS39029/57-357
16	AS39029/57-358

Panel Cut-out Dimensions			
Shell Size Code	Shell Size	ØJ	K Flat
A	9	.703 (17.86)	.661 (16.79)
		.693 (17.60)	.655 (16.64)
B	11	.835 (21.21)	.771 (19.58)
		.825 (20.96)	.761 (19.33)
C	13	1.020 (25.91)	.955 (24.26)
		1.010 (25.65)	.945 (24.00)
D	15	1.145 (29.08)	1.085 (27.56)
		1.135 (28.83)	1.075 (27.30)
E	17	1.270 (32.26)	1.210 (30.73)
		1.260 (32.00)	1.200 (30.48)
F	19	1.395 (35.43)	1.335 (33.91)
		1.385 (35.18)	1.325 (33.65)
G	21	1.520 (38.61)	1.460 (37.08)
		1.510 (38.35)	1.450 (36.83)
H	23	1.645 (41.78)	1.585 (40.26)
		1.635 (41.53)	1.575 (40.00)
J	25	1.770 (44.96)	1.710 (43.43)
		1.760 (44.70)	1.700 (43.18)

**NOTES**

1. Meets applicable mechanical, dimensional, electrical, environmental and sealing requirements of MIL-DTL-38999, D38999/23, and MIL-STD-1560 except as shown and/or noted.
2. Insert arrangement in accordance with MIL-STD-1560. Contact manufacturer for available arrangement options
3. Blue color band indicates rear release retention system
4. Connector supplied with loose socket contacts (including spares shown in table), insertion/removal tool and sealing plug
5. Sealing compound employed has been tested and meets applicable performance requirements of MIL-DTL-38999/23 See Glenair test report GT-16-223
6. Dimensions shown comply with applicable MIL-DTL-38999/23

**7. Performance**

- Operation temperature Range: -65°C to +200°C
- Leak Rate: 1 x 10<sup>-7</sup> cc/s max helium, 1 ATM
- IR: 5,000 megohms min at room temperature per MIL-DTL-38999
- DWV: see service rating per applicable MIL-STD-1560 arrangements

**Material/Finish**

- Shell and jam-nuts: aluminum alloy 6061-T6/nickel plate per D38999 series III, Class F
- Insulators: high grade rigid dielectric/ N.A.
- O-ring and seals: fluorosilicone/N.A.
- Contacts: copper alloy/gold plated
- Sealing compound: silicone base polymer

HERMETIC CONNECTORS

**MIL-DTL-38999 Series III Type**

**233-253 Jam-nut mount with solder cup and banding porch**

HERMETIC CONNECTORS

Part Number Development										
Sample Part Number	233-253			-M	07	ME	17	-8	P	N
Series / Basic Part No.	Series 23 SuperNine CODE RED hermetic connector									
Band Style	M = Micro Band N = Nano Band S = Standard Band; see band style table									
Connector Style	07 = Receptacle, jam nut (D38999/23)									
Material/Finish*	ME = Aluminum alloy 6061-T6, electroless nickel									
Shell Size*	Per MIL-DTL-38999 Series III									
Insert Arrangement*	Per MIL-STD-1560									
Contact Style	P = Pin, gold, 500 cycles					S = Socket, gold, 500 cycles				
Polarization*	A, B, C, D, E, N = Normal; see section A for key position details									

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

Dimensions							
Shell Size Code	Shell Size	A Thread .1P-.3L-TS-2A	Ø B	C Sq	D Flat	E Thread ISO Metric	F
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17 X 1.0-6g 0.100R	.122 (3.10) .083 (2.11)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20 X 1.0-6g 0.100R	
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25 X 1.0-6g 0.100R	
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28 X 1.0-6g 0.100R	
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32 X 1.0-6g 0.100R	
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35 X 1.0-6g 0.100R	.153 (3.89) .114 (2.90)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38 X 1.0-6g 0.100R	
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41 X 1.0-6g 0.100R	
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44 X 1.0-6g 0.100R	

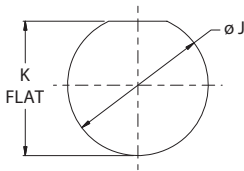
**NOTES**

1. Meets the applicable mechanical, dimensional, electrical, environmental, and sealing requirements of MIL-DTL-38999 Series III, D38999/23, and MIL-STD-1560 except as shown and/or noted. Mates with any QPL manufacturers MIL-DTL-38999, Series III connectors having the same shell size, insert arrangement, opposite contact gender and polarization.
2. Insert arrangement in accordance with MIL-STD-1560. Contact manufacturer for available arrangement options
3. Dimensions shown comply with applicable MIL-DTL-38999/23
4. Connectors have been tested and meet applicable performance requirements of MIL-DTL-38999, series III, class N and Y. See Glenair test report GT-16-223
5. Performance
  - Operation temperature range: -65°C to +200°C
  - Leak rate: 1 x 10<sup>-7</sup> cc/s max helium, 1 ATM
  - IR: 5,000 megohms min at room temperature per MIL-DTL-38999
  - DWV: see service rating per applicable MIL-STD-1560 arrangements

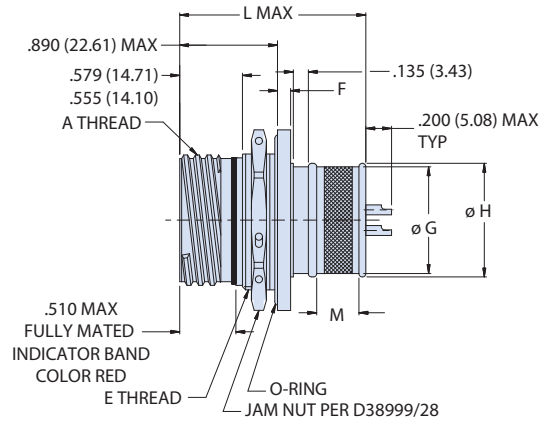
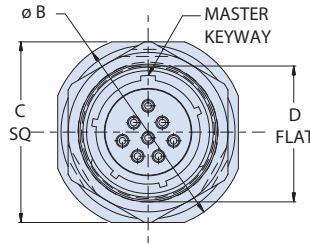
**MIL-DTL-38999 Series III Type**

**233-253 Jam-nut mount with solder cup and banding porch**

**CODE RED**



RECOMMENDED PANEL CUT OUT



Panel Cut-Out Dimensions			
Shell Size Code	Shell Size	Ø J	K Flat
A	9	.703 (17.86)	.661 (16.79)
		.693 (17.60)	.655 (16.64)
B	11	.835 (21.21)	.771 (19.58)
		.825 (20.96)	.761 (19.33)
C	13	1.020 (25.91)	.955 (24.26)
		1.010 (25.65)	.945 (24.00)
D	15	1.145 (29.08)	1.085 (27.56)
		1.135 (28.83)	1.075 (27.30)
E	17	1.270 (32.26)	1.210 (30.73)
		1.260 (32.00)	1.200 (30.48)
F	19	1.395 (35.43)	1.335 (33.91)
		1.385 (35.18)	1.325 (33.65)
G	21	1.520 (38.61)	1.460 (37.08)
		1.510 (38.35)	1.450 (36.83)
H	23	1.645 (41.78)	1.585 (40.26)
		1.635 (41.53)	1.575 (40.00)
J	25	1.770 (44.96)	1.710 (43.43)
		1.760 (44.70)	1.700 (43.18)

Integral Backshell Dimensions			
Shell Size Code	Shell Size	ØG	ØH
A	9	0.475	0.538
B	11	0.600	0.662
C	13	0.700	0.762
D	15	0.835	0.898
E	17	0.960	1.022
F	19	1.062	1.125
G	21	1.188	1.250
H	23	1.275	1.338
J	25	1.475	1.538

Band Style Table			
Sym	Description	L Max	M
M	Micro Band	1.450 (36.83)	.190 (4.83)
N	Nano Band	1.410 (35.81)	.145 (3.68)
X	Standard Band	1.780 (45.21)	.380 (9.65)

**Material/Finish**

- Shell and jam-nut: aluminum alloy 6061-T6/nickel plate per D38999 series III, Class F
- Insulator: high grade rigid dielectric/N.A.
- O-ring and seals: fluorosilicone/N.A.
- Contacts: copper alloy/gold plated
- Sealing compound: silicone base polymer

HERMETIC CONNECTORS

## MIL-DTL-38999 Series III Type

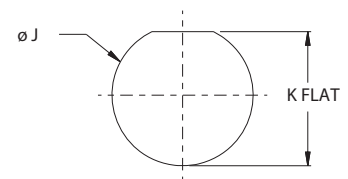
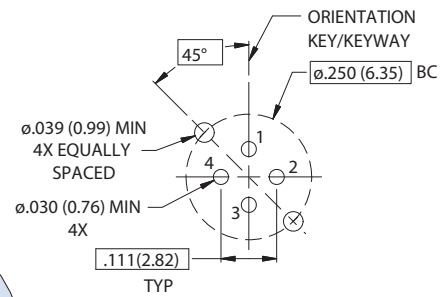
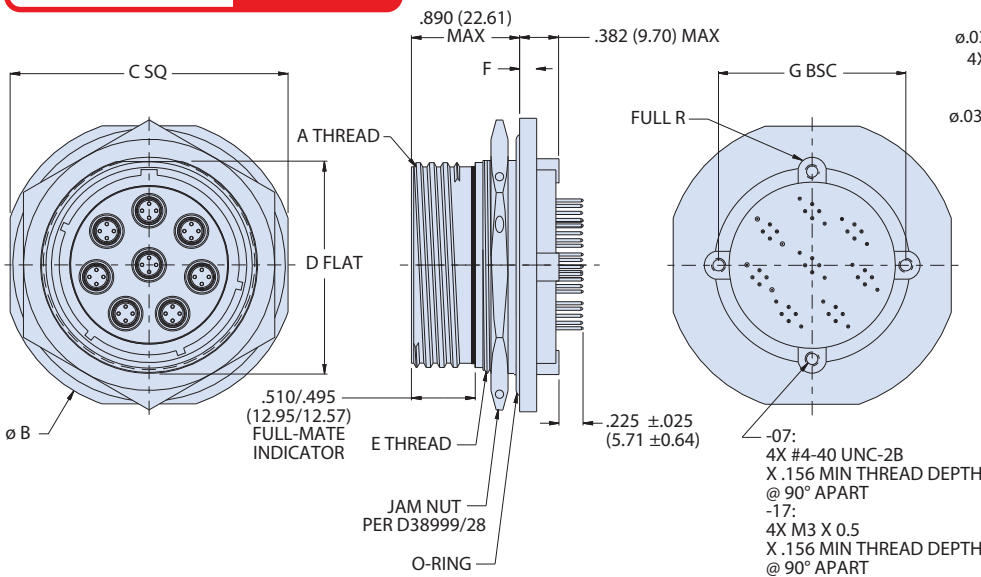
### 233-254 Jam-nut mount with PC tail Quadrax contacts

HERMETIC CONNECTORS

Part Number Development						
Sample Part Number	233-254	-07	ME	25Q	-8	P N
Series / Basic Part No.	Series 23 SuperNine CODE RED hermetic connector					
Connector Style	07 = Receptacle, jam nut; standard standoff thread 17 = Receptacle, jam nut; metric standoff thread					
Material/Finish*	ME = Aluminum alloy 6061-T6, electroless nickel					
Shell Size (See Note 3)	Per MIL-DTL-38999 Series III					
Insert Arrangement*	See optional high-speed arrangements					
Contact Style	P = Pin, PC tail      S = Socket, PC tail					
Polarization*	A, B, C, D, E, N = Normal; see section A for key position details					

\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

**CODE RED**



**NOTES**

- Meets mechanical, dimensional, electrical, environmental and sealing requirements of MIL-DTL-38999, D38999/23, PC tails
- Connectors have been tested and meet applicable performance requirements of MIL-DTL-38999/23, series III, class N and Y. See Glenair test report GT-16-223
- Letter following shell size designates the contact type, Q = Quadrax, PC tail
- Contact manufacturer for available arrangement options
- Dimensions comply with applicable MIL-DTL-38999/23
- Performance
  - Operation temperature Range: -65°C to +200°C
  - Leak Rate: 1 x 10<sup>-7</sup> cc/s max helium, 1 ATM
- Electrical parameters (Quadrax)
  - Differential impedance: 100 ohms nominal
  - DWV: 500 VRMS
  - I.R.: 5000 megohms min 200 VDC at room temperature

**Material/Finish**

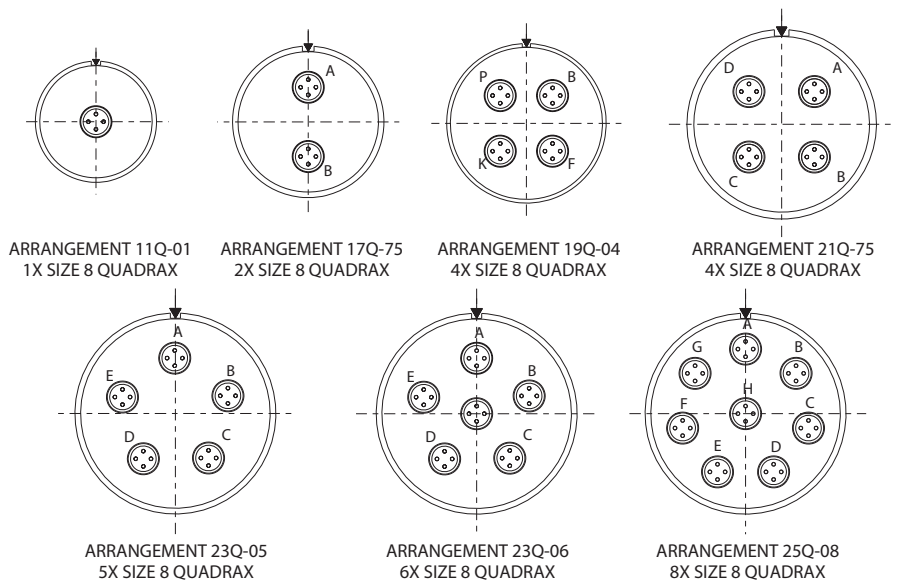
- Shell and jam-nut: aluminum alloy 6061-T6/nickel plate per D38999 series III, Class F
- Insulator: high grade rigid dielectric/N.A.
- O-ring and seals: fluorosilicone/N.A.
- Contacts: copper alloy/gold plated
- Sealing compound: silicone base polymer



Dimensions								
Shell Size Code	Shell Size	A Thread .1P-.3L-TS-2A	Ø B	C Sq	D Flat	E Thread ISO Metric 1.0-6g 0.100R	F	G Bsc
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17	.122 (3.10) .083 (2.11)	0.594 (15.09)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20		0.719 (18.26)
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25		0.812 (20.62)
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28		0.906 (23.01)
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32		1.030 (26.16)
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35	.153 (3.89) .114 (2.90)	1.150 (29.21)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38		1.221 (31.01)
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41		1.360 (34.54)
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44		1.475 (37.47)

Panel Cut-Out Dimensions			
Shell Size Code	Shell Size	Ø J	K Flat
A	9	.703 (17.86) .693 (17.60)	.661 (16.79) .655 (16.64)
B	11	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)
C	13	1.020 (25.91) 1.010 (25.65)	.955 (24.26) .945 (24.00)
D	15	1.145 (29.08) 1.135 (28.83)	1.085 (27.56) 1.075 (27.30)
E	17	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)
F	19	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)
G	21	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)
H	23	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)
J	25	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)

**OPTIONAL HIGH-SPEED QUADRAX INSERT ARRANGEMENTS**



**MIL-DTL-38999 Series III Type**

**233-255 Jam-nut mount, PC tail with threaded standoffs**

HERMETIC CONNECTORS

Part Number Development												
Sample Part Number	233-255						-07	ME	17	-8	C	N
Series / Basic Part No.	Series 23 SuperNine CODE RED hermetic connector											
Connector Style	07 = Receptacle, jam nut with standard stand off thread 17 = Receptacle, jam-nut with metric stand off thread											
Material/Finish*	ME = Aluminum alloy 6061-T6, electroless nickel											
Shell Size*	Per MIL-DTL-38999 Series III											
Insert Arrangement*	Per MIL-STD-1560											
Contact Style	C = Pin, PC Tail      D = Socket, PC Tail											
Polarization*	A, B, C, D, E, N = Normal; see section A for key position details											

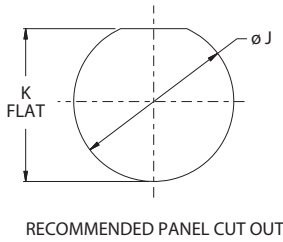
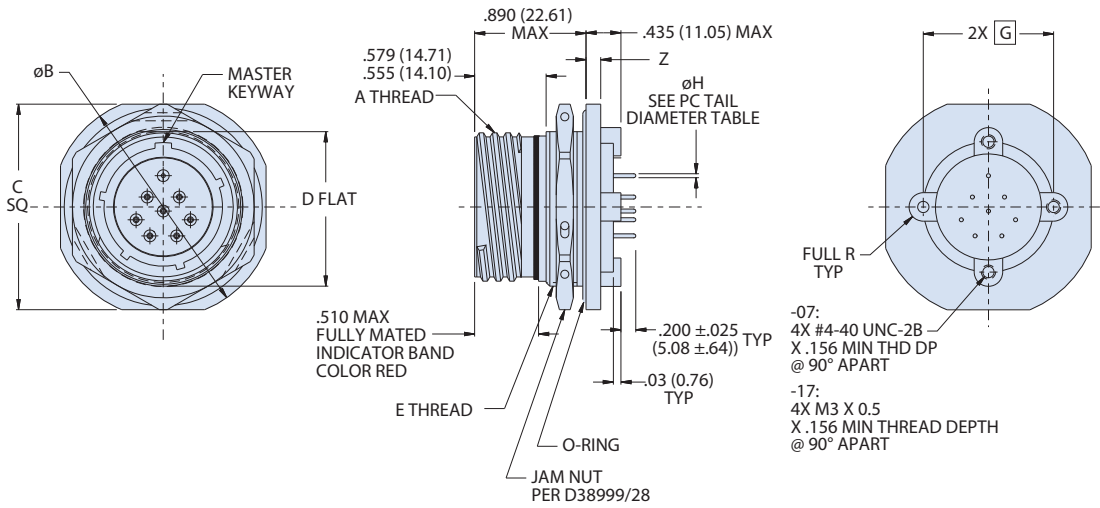
\*Refer to Section A for complete details, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

Dimensions								
Shell Size Code	Shell Size	A Thread .1P-.3L-TS-2A	Ø B	C Sq	D Flat	E Thread ISO Metric 1.0-6g 0.100R	F	G Bsc
A	9	.6250	1.200 (30.48) 1.178 (29.92)	1.078 (27.38) 1.048 (26.62)	.654 (16.61) .645 (16.38)	M17	.122 (3.10) .083 (2.11)	.594 (15.09)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20		.719 (18.26)
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25		.812 (20.62)
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28		.906 (23.01)
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32		1.030 (26.16)
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35	.153 (3.89) .114 (2.90)	1.150 (29.21)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38		1.221 (31.01)
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41		1.360 (34.54)
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44		1.475 (37.47)

**NOTES**

- Meets applicable mechanical, dimensional, electrical, environmental and sealing requirements of MIL-DTL-38999, D38999/23, PC tails
- Insert arrangement in accordance with MIL-STD-1560. Contact manufacturer for available arrangement options
- Dimensions shown comply with applicable MIL-DTL-38999/23
- Connectors have been tested and meet applicable performance requirements of MIL-DTL-38999, series III, class N and Y. See Glenair test report GT-16-223
- Performance
  - Operation temperature Range: -65°C to +200°C
  - Leak Rate: 1 x 10<sup>-7</sup> cc/s max helium, 1 ATM
  - IR: 5,000 megohms min at room temperature per MIL-DTL-38999
  - DWV: see service rating per applicable MIL-STD-1560 arrangements

**CODE RED**



RECOMMENDED PANEL CUT OUT

Panel Mount Dimensions			
Shell Size Code	Shell Size	$\phi J$	K Flat
A	9	.703 (17.86)	.661 (16.79)
		.693 (17.60)	.655 (16.64)
B	11	.835 (21.21)	.771 (19.58)
		.825 (20.96)	.761 (19.33)
C	13	1.020 (25.91)	.955 (24.26)
		1.010 (25.65)	.945 (24.00)
D	15	1.145 (29.08)	1.085 (27.56)
		1.135 (28.83)	1.075 (27.30)
E	17	1.270 (32.26)	1.210 (30.73)
		1.260 (32.00)	1.200 (30.48)
F	19	1.395 (35.43)	1.335 (33.91)
		1.385 (35.18)	1.325 (33.65)
G	21	1.520 (38.61)	1.460 (37.08)
		1.510 (38.35)	1.450 (36.83)
H	23	1.645 (41.78)	1.585 (40.26)
		1.635 (41.53)	1.575 (40.00)
J	25	1.770 (44.96)	1.710 (43.43)
		1.760 (44.70)	1.700 (43.18)

PC Tail Diameter Dimensions	
Contact Size	PC Tail $\phi H$
No 23	.020 (0.51)
	.018 (0.46)
No 22	.020 (0.51)
	.018 (0.46)
No 20	.030 (0.76)
	.028 (0.71)
No 16	.040 (1.02)
	.038 (0.97)
No 12	.072 (1.83)
	.070 (1.78)

**Material/Finish**

- Shell and jam-nut: aluminum alloy 6061-T6/nickel plate per D38999 series III, Class F
- Insulator: high grade rigid dielectric/N.A.
- O-ring and seals: fluorosilicone blend/N.A.
- Contacts: copper alloy/gold plated
- Sealing compound: silicone base polymer

## MIL-DTL-38999 Series III Type

### 2330-0131 Connector Receptacle, RJ45 to Solder Cup Termination

HERMETIC CONNECTORS

Part Number Development	
Sample Part Number	2330-0131 NF 00 - 17 5 N 1
Series / Basic Part No.	Series 23 SuperNine CODE RED hermetic connector
Material/Finish	<b>ME</b> = Aluminum, Electroless Nickel <b>NF</b> = Aluminum, Cadmium O. D. Over Electroless Nickel <b>MA</b> = Aluminum, Electroless Nickel, Matte Finish <b>ZN</b> = Aluminum, Zinc NI, Olive Drab <b>ZR</b> = Aluminum, Zinc NI, Black (Tri- Valent CR) <b>AB</b> = Marine Bronze, None (Clean Only)
Connector Style	<b>00</b> = Receptacle ,wall mount, with slotted holes <b>D0</b> = Receptacle, wall mount, with round holes <b>07</b> = Receptacle, jam nut
Inline Shielded RJ45	<b>G</b> = Inline shielded and grounded to the shell - = Inline shielded RJ45
Shell Size	17, 19
RJ45 Category	5 = CAT 5e 6A = CAT 6A
Alternate Polarization	A, B, C, D, E, N = Normal
RJ45 Orientation Option	1, 2, 3, 4



#### NOTES

- Material / Finish
  - Shell & Jam Nut: See Table I
  - O-Rings & Seals: Fluorosilicone
  - RJ45 Coupler Housing: UL94V-0 compliant polymer
  - Contacts: Copper alloy / gold plated
  - Sealing Compound: Polymer encapsulant
- Performances:
  - Leak Rate: 1 X 10<sup>-7</sup> cc/s max helium, 1 ATM
  - Electrical: Current rating: 1.5 AMP
  - D.W.V.: 1000 VDC, 2 mA max
  - I.R.: 500 Mega ohms @ 500 VDC
  - Operating Temperature Range: -40°C to +120°C
- Glenair connectors are designed to mate with any QPL manufacturer's MIL-DTL-38999, Series III mating plug having the same shell size and polarization, opposite gender RJ45.
- Receptacle connector designed to meet IP68 unmated condition.
- Flange gaskets are not included with wall mounted receptacles. If required, select gasket from Glenair drawing 239-204.

## MIL-DTL-38999 Series III Type

### 2330-0131 Connector Receptacle, RJ45 to Solder Cup Termination

HERMETIC CONNECTORS

**CODE RED**

#### 2330-0131-00 - WALL MOUNT RECEPTACLE WITH SLOTTED HOLES

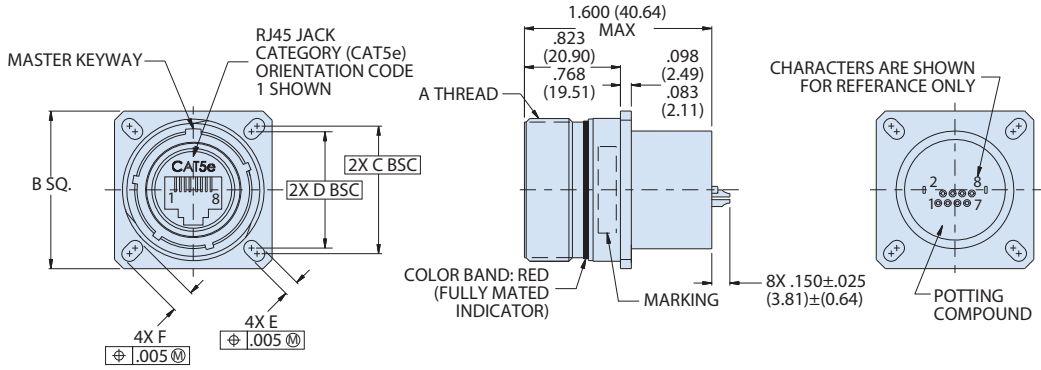
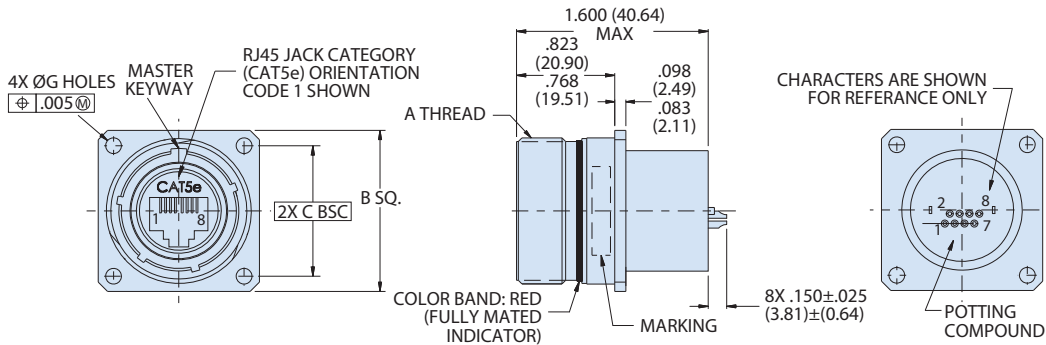


Table II Wall Mount							
Shell Size	A Thread	B SQ.	C BSC	D BSC	E	F	ØG HOLES
17	1.1875-.1P-.3L-TS-2A	1.323 (33.60)	1.062 (26.97)	0.969 (24.61)	0.136 (3.45)	0.202 (5.13)	0.136 (3.45)
		1.299 (32.99)			0.120 (3.05)	0.186 (4.72)	0.120 (3.05)
19	1.2500-.1P-.3L-TS-2A	1.449 (36.80)	1.156 (29.36)	1.062 (26.97)	0.136 (3.45)	0.202 (5.13)	0.136 (3.45)
		1.425 (36.20)			0.120 (3.05)	0.186 (4.72)	0.120 (3.05)

#### 2330-0131-D0 - WALL MOUNT RECEPTACLE WITH ROUND HOLES





**MIL-DTL-38999 Series III Type**

**2330-0131 Connector Receptacle, RJ45 to Solder Cup Termination**

**2330-0131-07 - JAM NUT MOUNT RECEPTACLE**

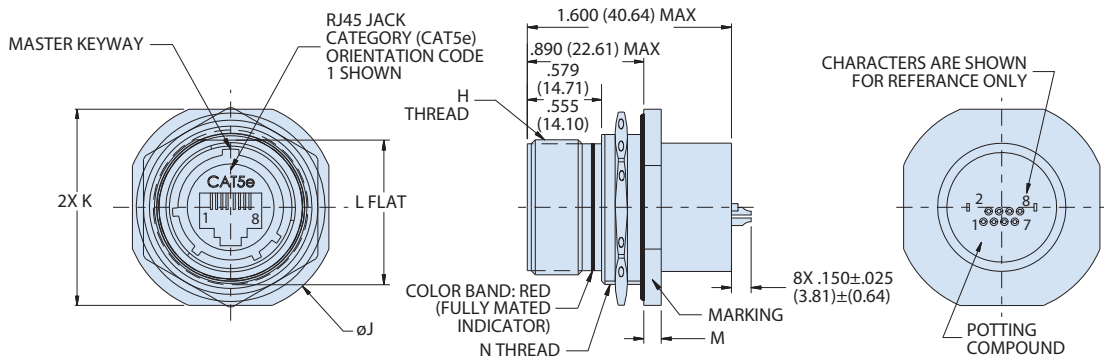


Table III Jam Nut Mount						
Shell Size	A Thread	ØJ	K	L FLAT	M	N THREAD
17	1.1875-.1P-.3L-TS-2A	1.764 (44.81)	1.642 (41.71)	1.191 (30.25)	0.122 (3.10)	M32 X 1.0-6g 0.100R
		1.740 (44.20)	1.610 (40.89)	1.181 (30.00)	0.083 (2.11)	
19	1.2500-.1P-.3L-TS-2A	1.949 (49.50)	1.827 (46.41)	1.316 (33.43)	0.153 (3.89)	M35 X 1.0-6g 0.100R
		1.925 (48.90)	1.795 (45.59)	1.306 (33.17)	0.114 (2.90)	

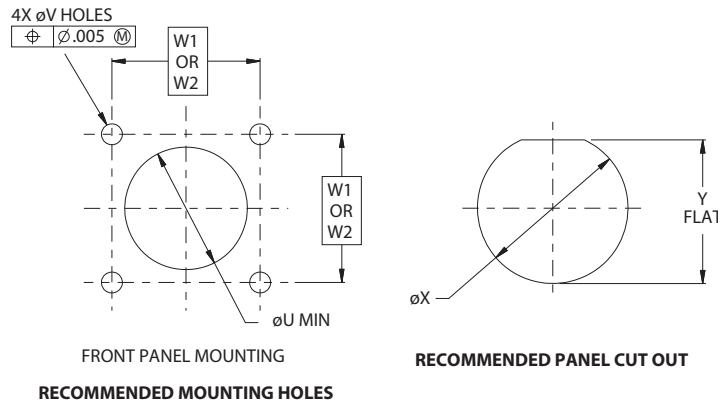


Table IV Panel Cutout and Wall Mount						
Shell Size	ØU MIN	ØV HOLES	W1 BSC	W2 BSC	ØX	Y FLAT
17	1.016 (25.81)	0.133 (3.38)	1.062 (26.97)	0.969 (24.61)	1.270 (32.26)	1.210 (30.73)
		0.123 (3.12)			1.260 (32.00)	1.200 (30.48)
19	1.141 (28.98)	0.123 (3.12)	1.156 (29.36)	1.062 (26.97)	1.395 (35.43)	1.335 (33.91)
					1.385 (35.18)	1.325 (33.65)

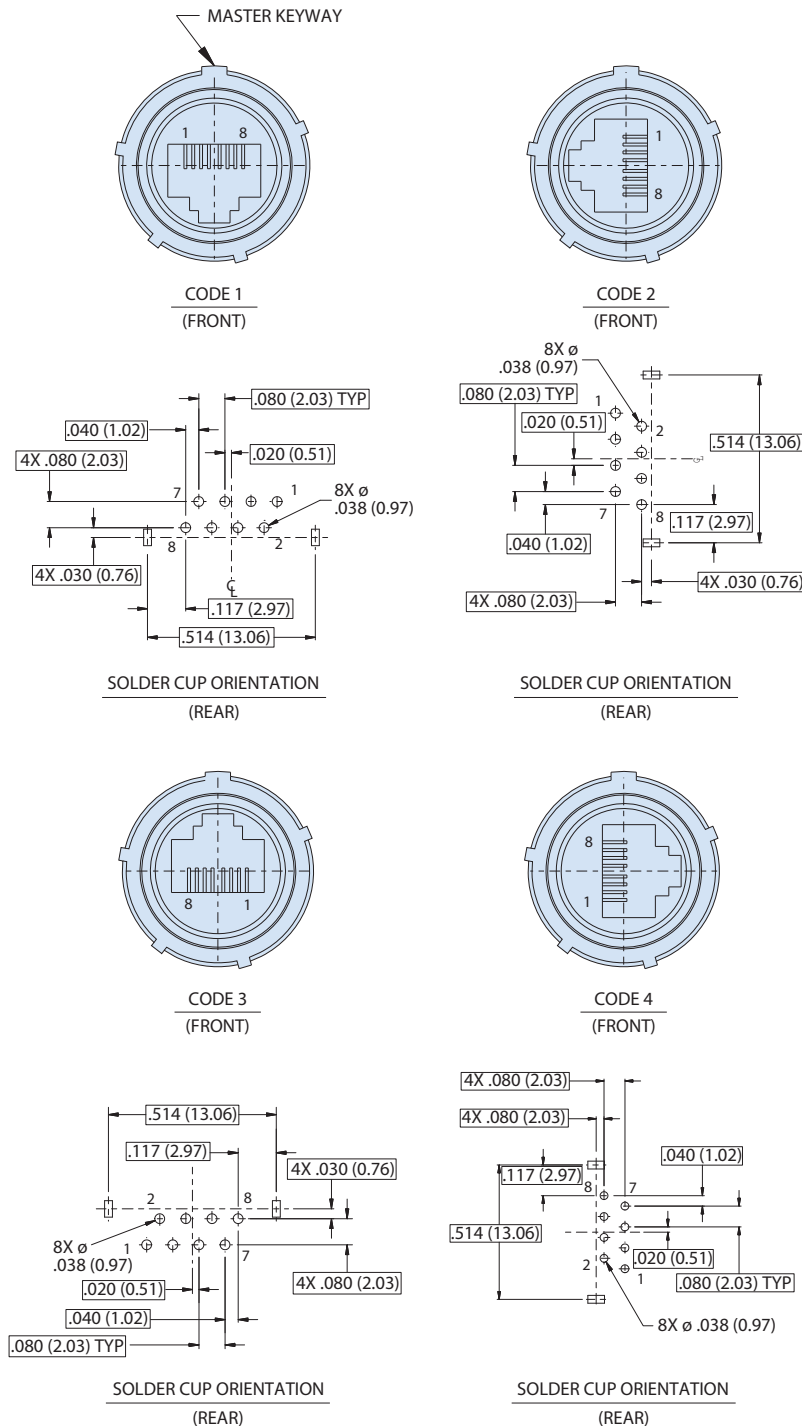
HERMETIC CONNECTORS

## MIL-DTL-38999 Series III Type

### 2330-0131 Connector Receptacle, RJ45 to Solder Cup Termination

HERMETIC CONNECTORS

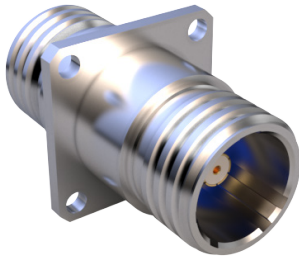
#### RJ45 ORIENTATION OPTIONS (PARTIAL VIEWS SHOWN)



## MIL-DTL-38999 Series III Type

### 2333-2002 bulkhead feed-thru connector with BMB contacts

CODE RED HERMETIC CONNECTORS



#### NOTES

- Material/finish:  
Shell, jam-nut, bushing - per table I  
seals, o-ring - fluorosilicone blend  
sealing compound - polymer  
encapsulant  
Contact:  
Outer/inner conductors - copper alloy  
/ gold plate  
insulators - PTFE  
insulator (hermetic) - full glass  
ferrule/pin (hermetic) - nickel-iron  
alloy / gold plate
- Hermeticity =  $< 1 \times 10^{-7}$  sccHe/sec @  
1 atm delta
- For pin-pin feedthru, signal applied to  
one contact will result in signal to the  
contact directly opposite, regardless  
of contact identification
- This receptacle connector mates with  
special Glenair plug connector with  
same polarization, size, arrangement,  
(233-290) and with BMB socket  
contact (852-256)
- BMB contact electrical performance:  
impedance: 50 ohms nom  
Frequency range: DC-18 ghz  
VSWR: 1.5:1 Max  
DWV: 1000 vac, inner pin to outer pin  
IR: 5000 megaohms, inner pin to outer  
pin
- Contact is non-removable and  
common ground to connector body.
- Insert arrangement shown for  
reference only.
- Assembly to be identified with  
glenair's name, part number, and date  
code, space permitting.
- Flycuts (wrench flats) are an optional  
design.

Part Number Development					
Sample Part Number	2333-2002	-07	ME	11RFF1	N
Series / Basic Part No.	Series 23 SuperNine jam-nut CODE RED hermetic receptacle				
Connector Style	-07 = Jam-nut mount -D0 = Wall mount with round holes				
Material/Finish	See Material and Finish Table				
Insert Arrangement	See Insert Arrangement Table				
Polarization	A, B, C, D, E, N = Normal				

Material and Finish Table			
Code	Material	Finish	Temperature Range
NF	Aluminum Alloy	Cad/O.D. Over Electroless Nickel	-65°C TO +175°C
ZR	Aluminum Alloy	Zinc Ni, Black	-65°C TO +175°C
ME	Aluminum Alloy	Electroless Nickel	-65°C TO +200°C
Z1	Stainless Steel	Passivate	-65°C TO +200°C
ZL	Stainless Steel	Electro-Deposited Nickel	-65°C TO +200°C

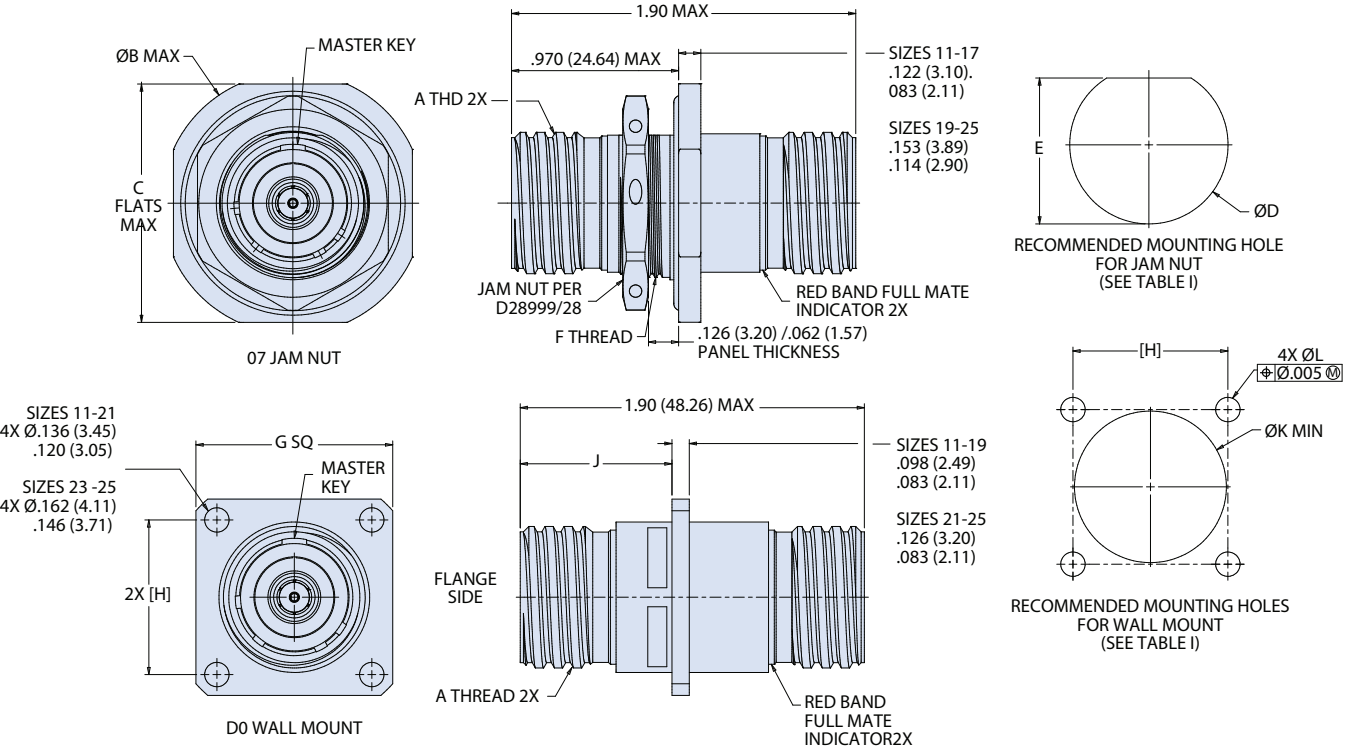
Dimensions						
SHELL SIZE	A THREAD	ØB	C	ØD	E	F THREAD
11	.750-1P-.3L-TS-2A	1.375 (34.92)	1.252 (31.80)	.835 (21.21) .825 (20.96)	.771 (19.58) .761 (19.33)	M20 X 1-6g-.100R
17	1.1875-1P-.3L-TS-2A	1.752 (44.50)	1.626 (41.30)	1.270 (32.26) 1.260 (32.00)	1.210 (30.73) 1.200 (30.48)	M32 X 1-6g-.100R
19	1.250-1P-.3L-TS-2A	1.937 (49.20)	1.811 (46.00)	1.395 (35.43) 1.385 (35.18)	1.335 (33.91) 1.325 (33.65)	M35 X 1-6g-.100R
21	1.375-1P-.3L-TS-2A	2.063 (52.40)	1.937 (49.20)	1.520 (38.61) 1.510 (38.35)	1.460 (37.08) 1.450 (36.83)	M38 X 1-6g-.100R
23	1.500-1P-.3L-TS-2A	2.189 (55.60)	2.063 (52.40)	1.645 (41.78) 1.635 (41.53)	1.585 (40.26) 1.575 (40.00)	M41 X 1-6g-.100R
25	1.625-1P-.3L-TS-2A	2.311 (58.70)	2.189 (55.60)	1.770 (44.96) 1.760 (44.70)	1.710 (43.43) 1.700 (43.18)	M44 X 1-6g-.100R

Dimensions (cont.)					
SHELL SIZE	G SQ	H BSC	J	ØK	ØL
11	1.043 (26.49) 1.019 (25.88)	0.812 (20.62)	.820 (20.83) .771 (19.58)	0.796 (20.22)	.133 (3.38) .123 (3.12)
17	1.323 (33.60) 1.299 (32.99)	1.062 (26.97)	.820 (20.83) .771 (19.58)	1.219 (30.96)	.133 (3.38) .123 (3.12)
19	1.449 (36.80) 1.425 (36.20)	1.156 (29.36)	.820 (20.83) .771 (19.58)	1.297 (32.94)	.133 (3.38) .123 (3.12)
21	1.575 (40.00) 1.551 (39.40)	1.250 (31.75)	.790 (20.07) .741 (18.82)	1.422 (36.12)	.133 (3.38) .123 (3.12)
23	1.701 (43.21) 1.677 (42.60)	1.375 (34.92)	.790 (20.07) .741 (18.82)	1.547 (39.29)	.159 (4.04) .149 (3.78)
25	1.823 (46.30) 1.799 (45.69)	1.500 (38.10)	.790 (20.07) .741 (18.82)	1.672 (42.47)	.155 (3.94) .145 (3.68)

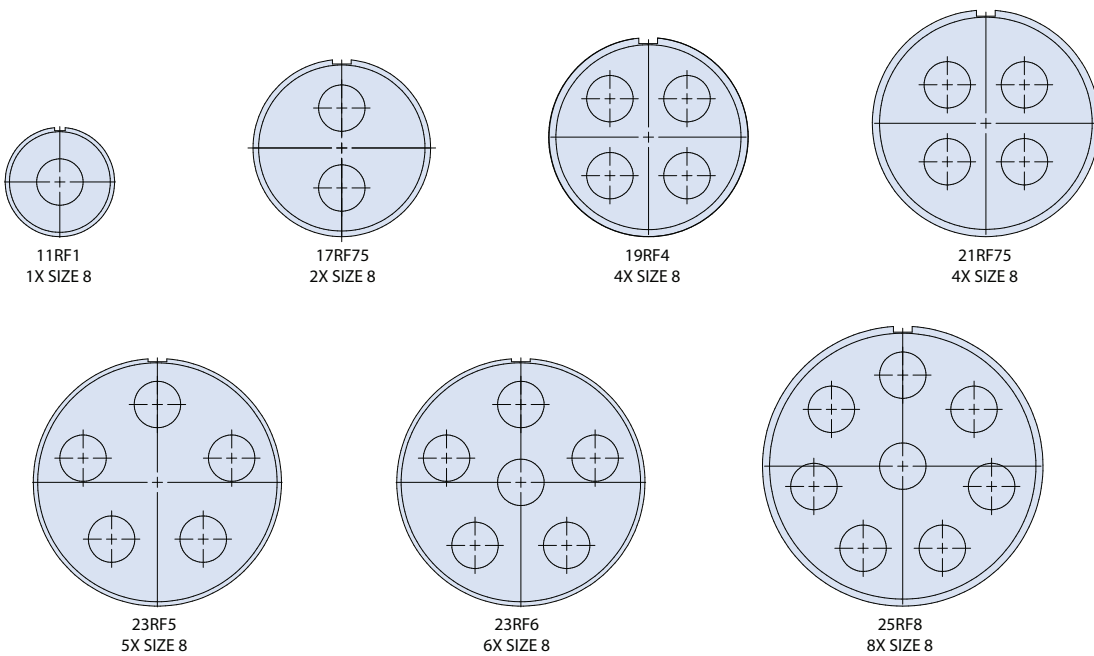
**MIL-DTL-38999 Series III Type**

**2333-2002 Jam-nut mount, bulkhead feed-thru with BMB contacts**

**2333-2002-07 AND D0 BULKHEAD FEED-THRU WITH PIN-PIN SIZE 8 BMB CONTACTS**



**SIZE 8 BMB CONTACT INSERT ARRANGEMENTS**



Insert Arrangement Layouts	
Layout	Contacts
11RF1	1 size 8
17RF75	2 size 8
19RF4	4 size 8
21RF75	4 size 8
23RF5	5 size 8
23RF6	6 size 8
25RF8	8 size 8

**MIL-DTL-38999 Series III Type  
233-256 Jam nut mount receptacle**

CODE RED HERMETIC CONNECTORS

Part Number Development								
Sample Part Number	233-256			ME	17	-35	C	N
Series / Basic Part No.	Series 23 SuperNine CODE RED hermetic connector							
Material/Finish*	ME = Aluminum alloy, nickel plate AB = Aluminum bronze							
Shell Size*	9, 11, 13, 15, 17, 19, 21, 23, 25							
Insert Arrangement*	Per MIL-STD-1560							
Contact Style	C = Pin, PC Tail		D = Socket, PC Tail		P = Pin, Solder Cup		S = Socket, Solder Cup	
Polarization*	A, B, C, D, E, N = Normal; see section A for key position details							

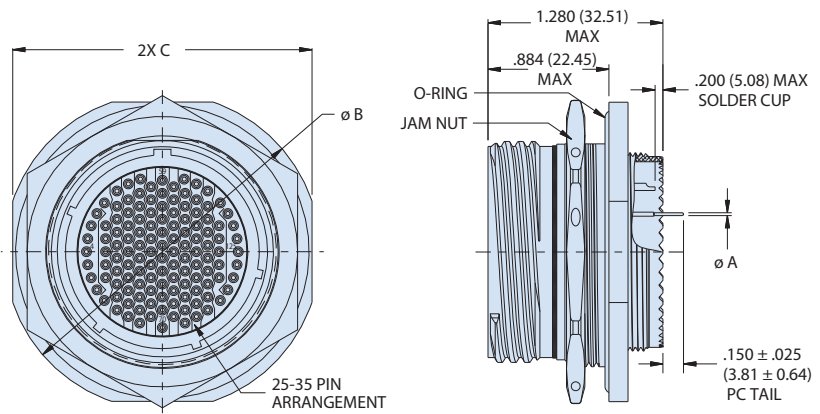
\*Refer to Section A for standard insert arrangements and pages D-8 thru D-10 for special shielded contact arrangements, consult factory for additional options  
Modification codes may be added directly to the end of any valid part number

**NOTES**

- Connectors meet all applicable dimensions, mechanical, electrical, environmental and sealing requirements of MIL-DTL-38999/24, PC tails.
- Connectors tested and meet applicable requirements of MIL-DTL-38999/24, class N & Y. See glenair test report GT-16-233.
- Performances:
  - Operation temperature range: -65°C to +200°C
  - Leak rate:  $1 \times 10^{-7}$  cc/s max helium, 1 ATM.
  - IR: 5,000 megohms min at room temperature per MIL-DTL-38999.
  - DWV: see service rating per applicable MIL-STD-1560 arrangements.

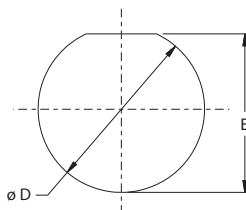
**MATERIAL/FINISHES:**

- Shell & jam nuts: see material/plating in p/n development above.
- Insulators: high grade rigid dielectric / N.A.
- O-ring & seals: fluorosilicone / N.A.
- Contacts: copper alloy / gold plated.
- Sealing compound: silicone base polymer.



Dimensions					
Shell Size Code	Shell Size	ø B ±.010	C ±.016	ø D ±.010 -0.000	E +0.000 -0.010
A	9	1.189 (30.20)	1.063 (27.00)	0.693 (17.60)	0.657 (16.69)
B	11	1.374 (34.90)	1.252 (31.80)	0.825 (20.96)	0.771 (19.58)
C	13	1.500 (38.10)	1.374 (34.90)	1.010 (25.65)	0.955 (24.26)
D	15	1.626 (41.30)	1.500 (38.10)	1.135 (28.83)	1.085 (27.56)
E	17	1.752 (44.50)	1.626 (41.30)	1.260 (32.00)	1.210 (30.73)
F	19	1.937 (49.20)	1.811 (46.00)	1.385 (35.18)	1.335 (33.91)
G	21	2.063 (52.40)	1.937 (49.20)	1.510 (38.35)	1.460 (37.08)
H	23	2.189 (55.60)	2.063 (52.40)	1.635 (41.53)	1.585 (40.26)
J	25	2.311 (58.70)	2.189 (55.60)	1.760 (44.70)	1.710 (43.43)

PC Tail Diameter Dimensions	
Contact Size	ø A
22D	.020/.018 (0.51/ 0.46)
20	.030/.028 (0.76/ 0.71)
16	.040/.038 (1.02/ 0.97)
12	.072/.070 (1.83/ 1.78)



RECOMMENDED PANEL CUTOUT PER MIL-DTL-38999, TYPE E



#### RJ45 SUPERNINE MIL-DTL-38999 SERIES III TYPE CONNECTORS



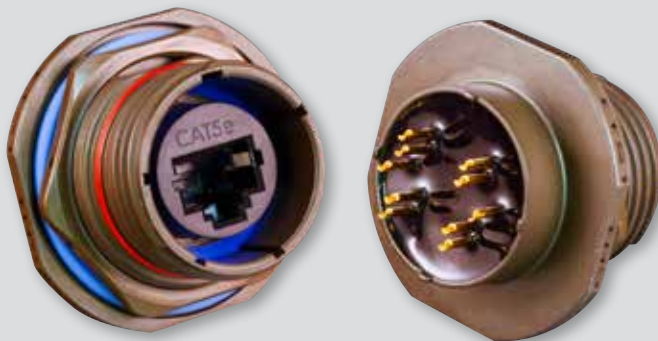
Page E-2

#### USB 2.0/3.0 SUPERNINE MIL-DTL-38999 SERIES III TYPE CONNECTORS



Page E-31

#### RJ45 TRANSIENT VOLTAGE SUPPRESSION SUPERNINE MIL-DTL-38999 SERIES III TYPE CONNECTORS



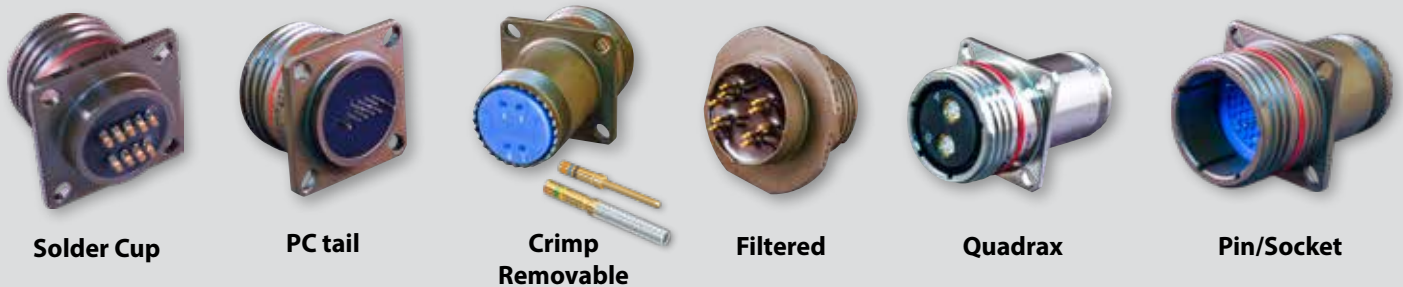
Page E-25

#### HDMI 2.0 CABLE ASSEMBLIES



Page E-53

#### AVAILABLE INTERFACE AND TERMINATION OPTIONS





**SUPERSEAL™**

## Ruggedized RJ45, USB and HDMI connectors for applications as diverse as military ground vehicles to in-flight entertainment

High performance, proven reliability environmental connectors housing commercial data protocol interfaces — IP67 rated in unmated condition, for mission-critical field applications

- Superior sealing—IP67 unmated—for complete system protection against water, sand and dust
- Highly durable SuperSeal™ insert design, provides enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance
- Shielded/grounded coupler designs in both receptacle and plug connectors
- Crimp, solder-cup, PC tail, cable assemblies and Quadrax contact/wire termination options
- RJ45 plug and/or jack interface options available in Cat 5e/6A
- MIL-DTL-38999 type versions intermateable with other RJ45 field-duty connectors



MIL-DTL-38999 Series III with sealed RJ45



MIL-DTL-38999 Series III with sealed USB 2.0 and 3.0



MIL-DTL-38999 Series III with sealed HDMI 2

# SuperNine® RJ45, USB, and HDMI

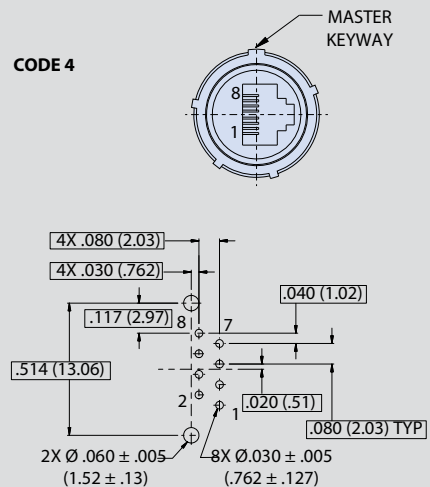
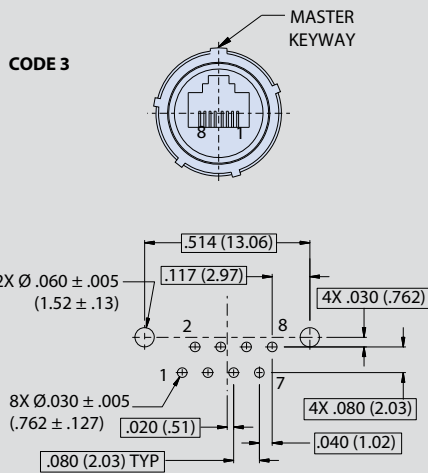
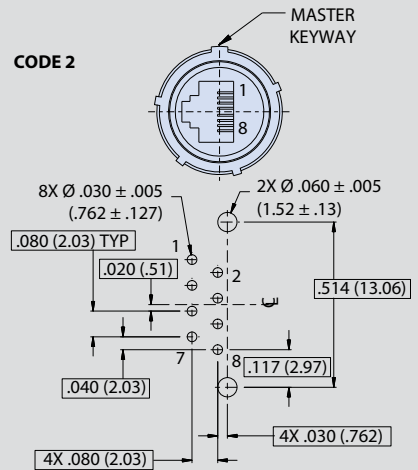
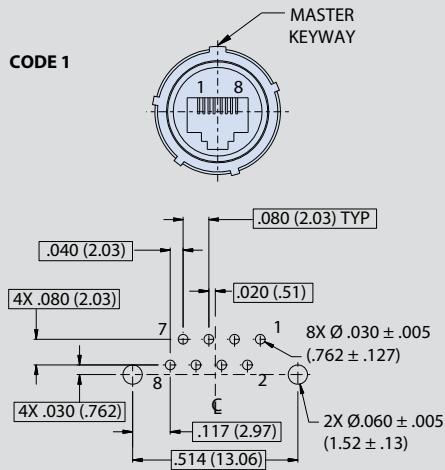
## MIL-DTL-38999 Series III Type connectors

### Performance Specifications



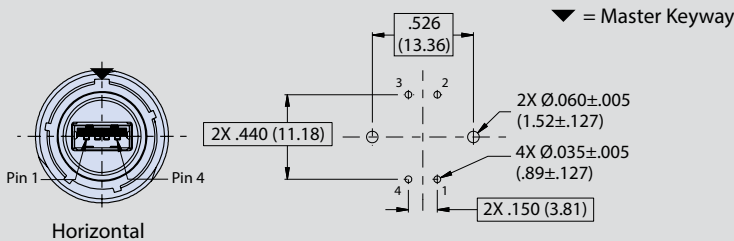
RJ45 / USB / HDMI CONNECTORS

#### RJ45 PCB FOOTPRINT AND ORIENTATIONS FOR MIL-DTL-38999 TYPE, SUPERNINE RECEPTACLES

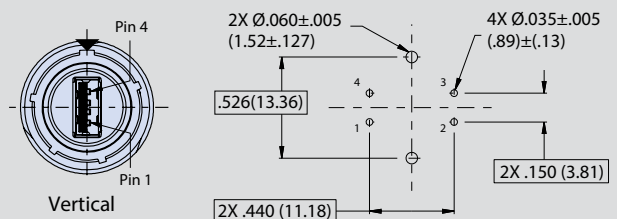


#### STANDARD USB 2.0 PCB FOOTPRINTS FOR MIL-DTL-38999 TYPE, SUPERNINE RECEPTACLES

Recommended (Solder Side)



Recommended (Solder Side)



# SuperNine® RJ45, USB, and HDMI

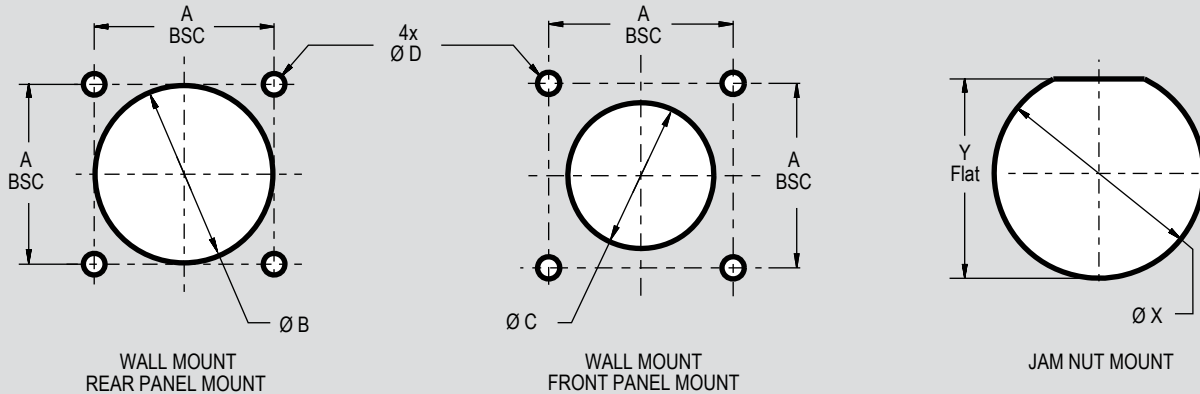
## MIL-DTL-38999 Series III Type connectors

### Recommended Panel Cutouts



RJ45 / USB / HDMI CONNECTORS

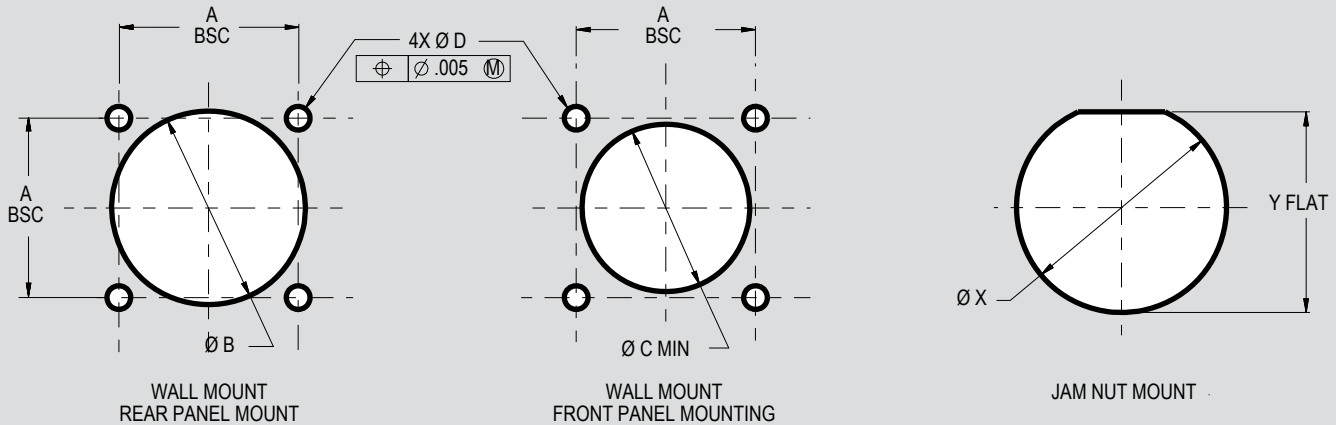
#### MIL-DTL-38999 TYPE, SUPERNINE RJ45 AND HDMI PANEL CUTOUTS FOR SHELL SIZE 17 AND 19



Panel Cut-Out Dimensions						
Shell Size	A Bsc	B Dia Min	C Dia Min	D Holes	X Dia	Y Flat
17	1.062 (26.97)	1.219 (30.96)	1.016 (25.81)	.133 (3.38)	1.270 (32.26)	1.210 (30.73)
				.123 (3.12)	1.260 (32.00)	1.208 (30.68)
19*	1.156 (29.36)	1.297 (32.94)	1.141 (28.98)	.133 (3.38)	1.395 (35.43)	1.335 (33.91)
				.123 (3.12)	1.385 (35.18)	1.325 (33.66)

\*Not available for HDMI 2.0 connectors

#### MIL-DTL-38999 TYPE, SUPERNINE USB PANEL CUTOUTS FOR SHELL SIZE 15 AND 17



Panel Cut-Out Dimensions						
Shell Size	A Bsc	B Dia Min	C Dia Min	D Holes	X Dia	Y Flat
15	.969 (24.61)	1.047 (26.59)	.906 (23.01)	.133 (3.38)	1.145 (29.08)	1.085 (27.56)
				.123 (3.12)	1.135 (28.83)	1.075 (27.31)
17	1.062 (26.97)	1.219 (30.96)	FPM not offered	.133 (3.38)	1.270 (32.26)	1.210 (30.73)
				.123 (3.12)	1.260 (32.00)	1.200 (30.48)



# SuperNine® RJ45, USB, and HDMI MIL-DTL-38999 Series III type connectors Modification Codes and Materials/Finishes



## ASTM E595 Outgassing

### MOD CODE 186S

- SuperSeal® connectors specially processed to meet ASTM E595 outgassing requirements.
- Modification code specifies special outgassing bakeout processing.
- Meets NASA Screening Level 1 requirements

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 evaluate outgassing properties. In the ASTM test, material samples are heated to 125° C at a vacuum of  $5 \times 10^{-5}$  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. SuperSeal™ connectors contain nonmetallic materials such as rubber, plastic, adhesives and potting compounds which can give off gases 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 a bakeout process, 48 hour oven bakeout at 257° F, which assures all materials comply with ASTM E595

## UL 94 V-0 Flammability Standard

### MOD CODE 928

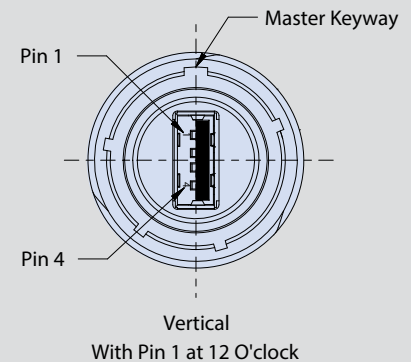
- SuperSeal® connectors specially processed to meet UL 94 V-0 flammability standard

UL 94, the Standard for Safety of Flammability of Plastic Materials for Parts in Devices and Appliances testing is a plastics flammability standard released by Underwriters Laboratories of the USA. The standard classifies plastics according to how they burn in various orientations and thicknesses. From lowest (least flame-retardant) to highest (most flame-retardant) V-0. Burning stops within 10 seconds on a vertical specimen; specimens may not drip flaming particles.

## Flip Vertical USB Orientation by 180 degrees

### MOD CODE 915

Flip standard, vertically oriented USB designs 180 degrees, allowing pin 1 to be located at the 12 O'clock position.



MIL-DTL-38999 Connector and Cable Assembly Material and Finish Codes

Code	Material	Finish	Finish Specification	Hrs. Salt Spray	Electrical Conductivity	Operating Temp. Range	RoHS Compliance
ME	Aluminum	Electroless Nickel	MIL-DTL-24308 Class K	96	Yes		Yes
MT	Aluminum	Nickel PTFE	SAE AMS2454	500	Yes	-65° to +175°C	Yes
NF	Aluminum	Cadmium, Olive Drab	SAE-AMS-QQ-P-416 Type II Class 2 over electroless nickel	500	Yes	-65 to +175°C	No
ZR	Aluminum	Zinc-Nickel, Black	ASTM B841 Grade 5 over electroless nickel	500	Yes	-65 to +175°C	Yes



# SuperNine® RJ45 CAT 5e and 6A MIL-DTL-38999 Series III Type connectors Product Selection Guide



RJ45 CAT 5E AND 6A CONNECTORS

 <p><b>233-312</b> E-9 SuperSeal™ CAT 6A Plug with RJ45 Male Mating Interface and Accessory Threads</p>	 <p><b>233-330</b> E-22 SuperSeal™ CAT 5e and 6A Feed-thru Receptacle with Jack-to-Jack RJ45.</p>
 <p><b>233-300</b> E-10 SuperSeal D38999 Type plug with CAT 5e or 6A RJ45 Plug or D38999 Type Receptacle with CAT 5e or 6A RJ45 Jack. D38999 Type Shells with Accessory Threads</p>	 <p><b>Cable Assemblies</b> E-24 SuperSeal™ CAT 5e Cable Assemblies</p>
 <p><b>233-301</b> E-12 SuperSeal™ CAT 5e Receptacle Adapter with RJ45 Mating Interface and Crimp Removable Contacts.</p>	 <p><b>Transient Voltage Suppression (TVS) RJ45 Connectors</b> E-25 Prevents Catastrophic EMP Failure in Military and Commercial Aircraft</p>
 <p><b>233-302</b> E-14 SuperSeal™ CAT 5e Receptacle with RJ45 Mating Interface and PC Tail Termination.</p>	 <p><b>244-001</b> E-27 SuperSeal™ CAT 5e Transient Voltage Suppression, Jam-Nut Receptacle with Standoffs and RJ45 Jack to PC Tail or Solder Cup Termination.</p>
 <p><b>233-303</b> E-16 SuperSeal™ CAT 5e Receptacle with RJ45 Mating Interface and Solder Cup Termination.</p>	 <p><b>244-002</b> E-28 SuperSeal™ CAT 5e Transient Voltage Suppression, Wall Mount Receptacle with Standoffs and RJ45 Jack, Mating Interface to PC Tail or Solder Cup.</p>
 <p><b>233-304</b> E-18 SuperSeal™ CAT 5e MIL-STD-1560 Interface Receptacle Adapter with Accessory Threads and Rear RJ45 Jack.</p>	 <p><b>244-003</b> E-29 SuperSeal™ CAT 5e Transient Voltage Suppression Jam-Nut Receptacle with Accessory Threads and RJ45 Jack, Mating Interface to PC Tail or Solder Cup.</p>
 <p><b>233-305</b> E-20 SuperSeal™ CAT 5e Quadrax Interface Receptacle Adapter with Accessory Threads and Rear RJ45 Jack.</p>	 <p><b>244-004</b> E-30 SuperSeal™ CAT 5e Transient Voltage Suppression Wall Mount Receptacle with Accessory Threads and RJ45 Jack, Mating Interface to PC Tail or Solder Cup.</p>

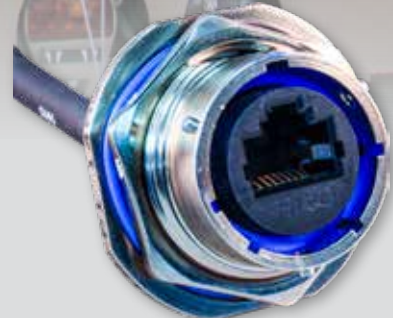


# SERIES 23 SuperSeal™

## Performance Hardened CAT 6A and CAT 5e

The SuperSeal family of ruggedized Cat 5e and 6A SuperNine connectors are IP68 rated in the mated condition for reliable environmental field use. SuperSeal connectors provide military grade protection and durability for operational use under harsh environmental conditions. SuperSeal connectors benefit from increased operating temperature range, longer life cycle and, significantly improved vibration and shock performance. CAT 5e and 6A RJ45 Ethernet is the standard data communication protocol for gathering, distribution and sharing of C4ISR information to and from command and field units within military, police fire and rescue organizations. SuperSeal provides key performance benefits including superior sealing, grounding, and wire termination for more flexible and reliable communications in rugged field applications.

- CAT 5e and CAT 6A versions available
- IP67 unmated—for complete system protection against water, sand and dust
- Highly durable SuperSeal™ insert design, provides enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance
- Crimp, solder-cup, PC tail and cable assemblies



Jam-nut  
Mount



Wall  
Mount



Cable  
Assemblies

# SuperNine® RJ45 CAT 5e and 6A MIL-DTL-38999 Series III Type connectors Performance Specifications



RJ45 CAT 5E AND 6A CONNECTORS

RJ45 CAT 5e Performance Specifications	
Property	Description
<b>Material and Finish</b>	
<b>Shell/Coupling and Plating</b>	Complete list of options available in the Material and Finish Options portion of this section
<b>Contacts</b>	PC tails, solder cup, and crimp contacts: copper alloy, gold plated
<b>RJ45 Insulator</b>	PPS
<b>Grommet, Peripheral Seal, Interfacial Seal, O-ring</b>	Blended fluorosilicone/silicone elastomer, 30% silicone per ZZ-R-765, 70% fluorosilicone per MIL-R-25988
<b>Shell Sizes</b>	17 and 19
<b>Shielding Sleeve</b>	Material: Copper alloy Finish: Nickel
<b>Electrical Specifications</b>	
<b>Data Rate</b>	CAT 5e = 10 BASE-T, 100 BASE-TX, and 1000 BASE-T/1000 BASE-TX
<b>Current Rating</b>	Cat 5e, 1.5 Amps
<b>D.W.V.</b>	1000 VDC (700 VAC)
<b>I.R.</b>	500 Mega ohms @ 500 VDC
<b>Frequency</b>	100 MHz, Cat 5e
<b>Wiring</b>	Straight through, Cat 5e
<b>Cabling Length</b>	Up to 100 meters or 100 meters max.
<b>Shield Continuity</b>	Continuous through coupler or continuous coupler to shell
<b>Environmental/Mechanical Performance</b>	
<b>Sealing</b>	IP68 mated condition, IP67 unmated condition
<b>Outgassing</b>	<b>Mod Code 186S</b> meets outgassing requirements per ASTM E 595 and meets NASA level 3 screening for standard reliability <b>Mod Code 928</b> meets outgassing requirements per UL 94 V-0
<b>Operating Temperature</b>	-40°C to +120°C
<b>Vibration</b>	20g, 3 Axis, 10 - 2000Hz
<b>Mechanical Shock</b>	300 g's
<b>Backshell Interface</b>	MIL-DTL-38999, Designator H
<b>Mating System</b>	Triple-start stub ACME
<b>Mating Cycles</b>	500

RJ45 CAT 6A Performance Specifications	
Property	Description
<b>Material and Finish</b>	
<b>Shell/Coupling and Plating</b>	Complete list of options available in the Material and Finish Options portion of this section
<b>Contacts</b>	crimp contacts: copper alloy, gold plated
<b>RJ45 Insulator</b>	PPS
<b>Grommet, Peripheral Seal, Interfacial Seal, O-ring</b>	Blended fluorosilicone/silicone elastomer, 30% silicone per ZZ-R-765, 70% fluorosilicone per MIL-R-25988
<b>Shell Sizes</b>	17 and 19
<b>Shielding Sleeve</b>	Material: Copper alloy Finish: Nickel
<b>Electrical Specifications</b>	
<b>Data Rate</b>	CAT 6A = 10G BASE-T
<b>Current Rating</b>	Cat 6A, 1.5 Amps
<b>D.W.V.</b>	1000 VDC (700 VAC)
<b>I.R.</b>	500 Mega ohms @ 500 VDC
<b>Frequency</b>	500 MHz, Cat 6A
<b>Wiring</b>	Straight through, Cat 6A
<b>Cabling Length</b>	Up to 100 meters.
<b>Shield Continuity</b>	Continuous through coupler or continuous coupler to shell
<b>Environmental/Mechanical Performance</b>	
<b>Sealing</b>	IP68 mated condition IP67 unmated condition
<b>Outgassing</b>	<b>Mod Code 186S</b> meets outgassing requirements per ASTM E 595 and meets NASA level 3 screening for standard reliability <b>Mod Code 928</b> meets outgassing requirements per UL 94 V-0
<b>Operating Temperature</b>	-40°C to +120°C
<b>Vibration</b>	20g, 3 Axis, 10 - 2000Hz
<b>Mechanical Shock</b>	300 g's
<b>Backshell Interface</b>	MIL-DTL-38999, Designator H
<b>Mating System</b>	Triple-start stub ACME
<b>Mating Cycles</b>	500



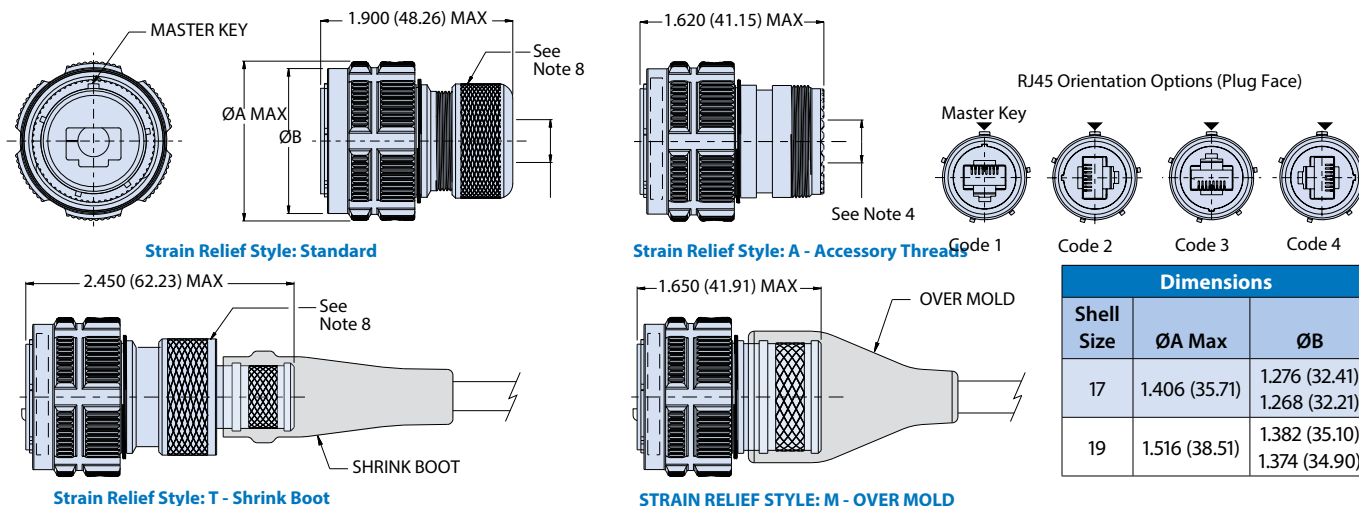
# SuperNine® RJ45 CAT 6A

## MIL-DTL-38999 Series III Type connectors 233-312 Plug with accessory threads



RJ45 CAT5E AND 6A CONNECTORS

Part Number Development	
Sample Part Number	233-312 NF G6 - 17 6A N 1
Series / Basic Part No.	233-312 = Cat 6A interface for D38999 type shell
Material/Finish	NF = Aluminum/cadmium olive drag Contact factory for additional options MT = Aluminum/nickel PTFE ME = Aluminum/electroless nickel ZR = Aluminum/zinc-nickel
Connector Style	G6 = Plug
Plug Options	(-) = CAT 6A (28 AWG) A = CAT 6A (22-24 AWG)
Shell Size	17 and 19
RJ45 Category	6A = Cat 6A
Alternate Polarization	A, B, C, D, E, N = Normal; Per MIL-DTL-38999
RJ45 Orientation	1, 2, 3, 4
Strain Relief Style	A = Accessory threads (accepts standard D38999 backshells) T = Shrink boot M = Over mold Omit for standard
Cable OD	W = Large cable OD up to .400 (10.16) Omit for cable OD .187/.312 (4.75/7.92)



### NOTES

- Material/finish:
  - Barrel, coupling nut: see part number development. Composite coupling nut no plating required.
  - Insulators: high grade rigid dielectric/ N.A.
  - Seals: silicone based elastomer
  - Hardware: stainless steel/passivated
- RJ45 plug specifications:
  - RJ45 plug cable maintains shield continuity
  - RoHS compliant
- Electrical
  - Current rating: 1 amp
  - D.W.V.: 1000V DC/min
  - I.R.: 500 Mega ohms minimum @ 1000V DC
  - Operating temperature range: -20°C to +85°C
- Meets IP68 in mated condition
- Design accommodates cable outside diameter 0.187 (4.750) to 0.400 (10.16)
- Design accommodates CAT 6A RJ45 modular plugs:
  - (-) = CAT 6A, 28 AWG
  - A = CAT 6A, 22-24 AWG
- See assembly instructions AI233-312 for cable termination and connector assembly. Assembly instructions to be kitted with each shipment
- CAT 6A modular plugs packaged loose for each plug connector.
- Recommended torque value for different cable outside diameter.

Cable OD (in)	.187/.225	.225/.275	.275/.312	.312/.400
Torque (in/lbs)	20.6	18.3	12.6	10

# SuperNine® RJ45 CAT 5e and 6A MIL-DTL-38999 Series III Type connectors 233-300 Coupler with accessory threads



RJ45 CAT 5E AND 6A CONNECTORS



Part Number Development									
Sample Part Number	233-300	NF	00	G	17	5H	N	1	T
Basic Number	233-300								
Finish	See Material and Finish table								
Connector Style <sup>1</sup>	See Connector Style table								
Insert-to-Shell Grounding	- = Inline shielded RJ45 insert G = Shielded and grounded to shell <sup>2</sup>								
Shell Size	17 or 19								
RJ45 Category	5H = CAT 5e 6A = CAT 6A (CAT 6A receptacle only, for plug see 233-312)								
Alternate Key Position <sup>1</sup>	Per MIL-DTL-38999 A, B, C, D, E, N = Normal								
RJ45 Orientation	1, 2, 3, or 4								
Shrink Boot	T = Part No. 770-028; see accessory section. (Omit for None)								

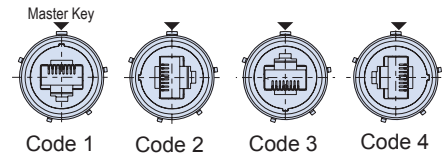
Material and Finish <sup>1</sup>	
NF	Aluminum/Cadmium, Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

Connector Style <sup>1</sup>	
00	Wall mount receptacle with slotted holes <sup>3</sup>
01	Wall mount receptacle with slotted holes and metal cable gland
05	Inline Receptacle
07	rear panel mount, jam nut receptacle
08	In-line receptacle with metal cable gland
D0	Wall mount receptacle with round holes
D1	Wall mount receptacle with round holes and metal gland
CM	Wall mount receptacle with metric clinch nuts
CG	Wall mount receptacle with metric clinch nuts and metal gland
CS	Wall Mount Receptacle with standard clinch nuts
G6	plug
G9	Plug with metal cable gland <sup>5</sup>

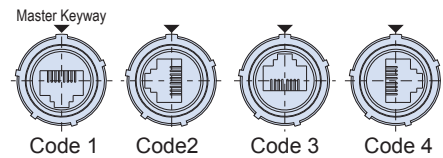
### NOTES

1. See Section A for alternate key/keyway positions and panel cutout dimensions
2. G option is inline shielded and grounded to shell, available for receptacle only
3. Front panel mount only
4. Meets IP67 in unmated condition, IP68 mated
5. For shrink boot see part number 770-028
6. Receptacle has RJ45 jack. Plug has RJ45 plug to jack

### RJ45 Orientation Options (Plug Face)



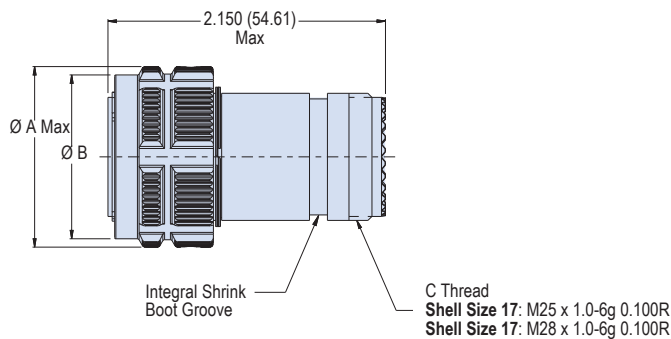
### RJ45 Orientation Options (Receptacle Face)



*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

### G6 - PLUG WITH INTEGRAL SHRINK BOOT

G6 and G7 - plug Dimensions				
Shell Size	A Dia Max		B Dia	
	in	mm	in	mm
17	1.406	35.71	1.276 1.268	32.41 32.21
19	1.516	38.51	1.382 1.374	35.10 34.90



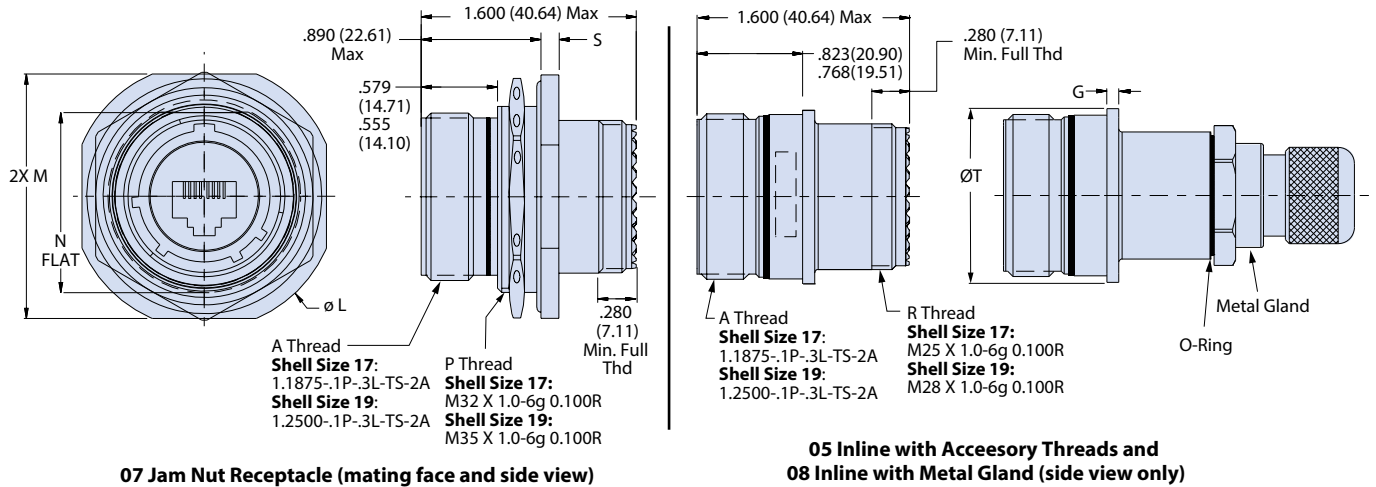


# SuperNine® RJ45 CAT 5e and 6A MIL-DTL-38999 Series III Type connectors 233-300 Coupler with accessory threads



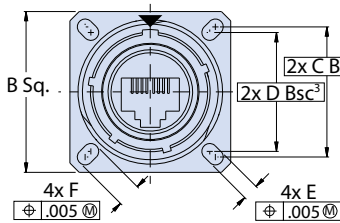
RJ45 CAT5E AND 6A CONNECTORS

## 07 - REAR PANEL MOUNT JAM NUT AND 05 OR 08 - INLINE RECEPTACLES

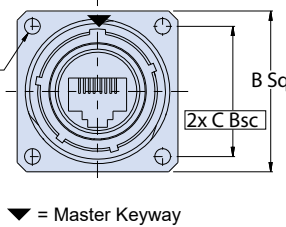


## 00, 01, D0, D1, CM AND CG - WALL MOUNT RECEPTACLES WITH ACCESSORY THREADS OR METAL GLAND

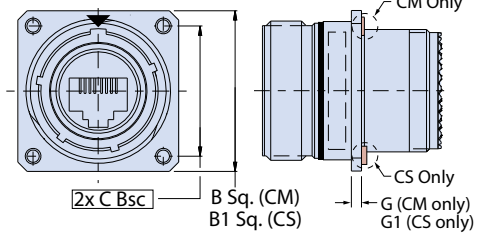
**00, 01 - Wall Mount Receptacle with Slotted Holes (Mating Face)**



**D0, D1 - Wall Mount Receptacle with Round Holes (Mating Face)**

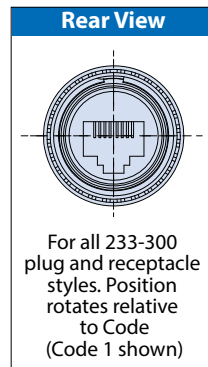
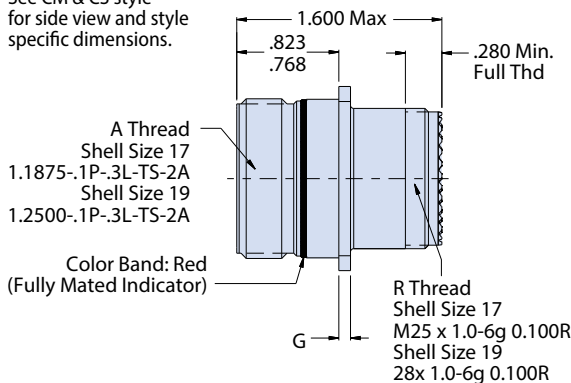


**CM Metric and CS Standard - Wall Mount Receptacles (Mating Face and Side View)**

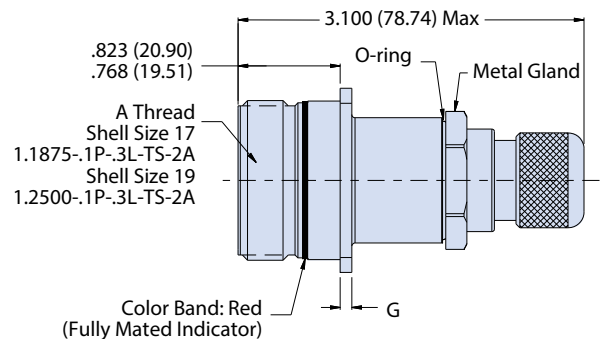


**Note:**  
See CM & CS style for side view and style specific dimensions.

**00, D0, CM - Wall Mount Receptacle**



**01, D1, CG - Wall Mount Receptacle with Metal Gland**



Jam Nut and Inline Receptacle Dimensions					
Shell Size	øL	M	N	S	ØT Max
17	1.764 (44.81)	1.642 (41.71)	1.191 (30.25)	.122 (3.09)	1.275 (32.39)
	1.740 (44.20)	1.610 (40.89)	1.181 (30.00)	.083 (2.11)	
19	1.949 (49.50)	1.827 (46.41)	1.316 (33.43)	.153 (3.89)	1.337 (33.96)
	1.925 (48.90)	1.795 (45.59)	1.306 (33.17)	.114 (2.90)	

Wall Mount Receptacle Dimensions									
Shell Size	B Sq	B1 Sq	C Bsc	D Bsc²	E	F	G	G1	ØJ Holes
17	1.323 (33.60)	1.437 (34.50)	1.062 (26.97)	.969 (24.61)	.136 (3.45)	.202 (5.13)	.098 (2.49)	.122 (3.10)	.136 (3.45)
	1.299 (32.99)	1.397 (35.48)			.120 (3.05)	.186 (4.72)	.083 (2.11)	.083 (.58)	.120 (3.05)
19	1.449 (36.80)	1.531 (38.89)	1.156 (29.36)	1.062 (26.97)				.153 (3.89)	.120 (3.05)
	1.425 (36.20)	1.491 (37.87)						.144 (3.66)	

# SuperNine® RJ45 CAT 5e

## MIL-DTL-38999 Series III Type connectors

### 233-301 Receptacle with crimp removable contacts



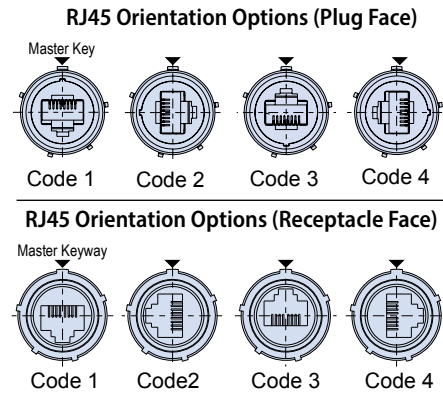
RJ45 CAT 5E AND 6A CONNECTORS



Part Number Development									
<b>Sample Part Number</b>	<b>233-301</b>	<b>NF</b>	<b>00</b>	<b>G</b>	<b>17</b>	<b>5H</b>	<b>N</b>	<b>1</b>	<b>T</b>
<b>Basic Number</b>	<b>233-301</b>								
<b>Finish</b>	See Material and Finish table								
<b>Connector Style</b>	See Connector Style table								
<b>Insert-to-Shell Grounding</b>	- = Inline shielded RJ45 insert G = Shielded and grounded to shell <sup>2</sup>								
<b>Shell Size</b>	<b>17</b> or <b>19</b>								
<b>RJ45 Category</b>	<b>5H</b> = CAT 5e For Cat 6A applications consult factory								
<b>Alternate Key Position<sup>1</sup></b>	Per MIL-DTL-38999 <b>A, B, C, D, E, N</b> = Normal								
<b>RJ45 Orientation</b>	<b>1, 2, 3, or 4</b>								
<b>Shrink Boot</b>	<b>T</b> = Part No. 770-028 (Omit for None)								

Connector Style <sup>1</sup>	
<b>00</b>	Wall mount receptacle with slotted holes
<b>05</b>	Inline Receptacle
<b>07</b>	rear panel mount, jam nut receptacle
<b>D0</b>	Wall mount receptacle with round holes
<b>CM</b>	Wall mount receptacle with metric clinch nuts
<b>CS</b>	Wall mount receptacle with metric clinch nuts
<b>G6</b>	plug

Material and Finish	
<b>NF</b>	Aluminum/Cadmium, Olive Drab
<b>ME</b>	Aluminum/Electroless Nickel
<b>MT</b>	Aluminum/Nickel PTFE
<b>ZR</b>	Aluminum/Black Zinc-Nickel



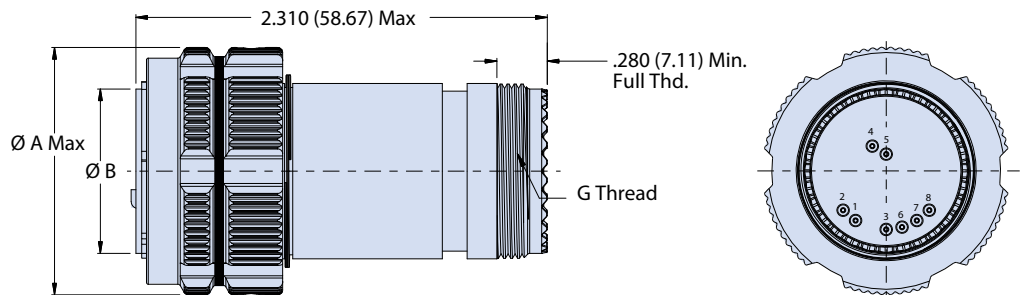
### NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- G option is inline shielded and grounded to shell, available for receptacle only
- Front panel mount only
- Crimp removable size 22 pin contacts (M39029/58-360) supplied loose
- Meets IP67 in unmated condition and IP68 mated condition
- For shrink boot see part number 770-028
- Receptacle connector has RJ45 jack

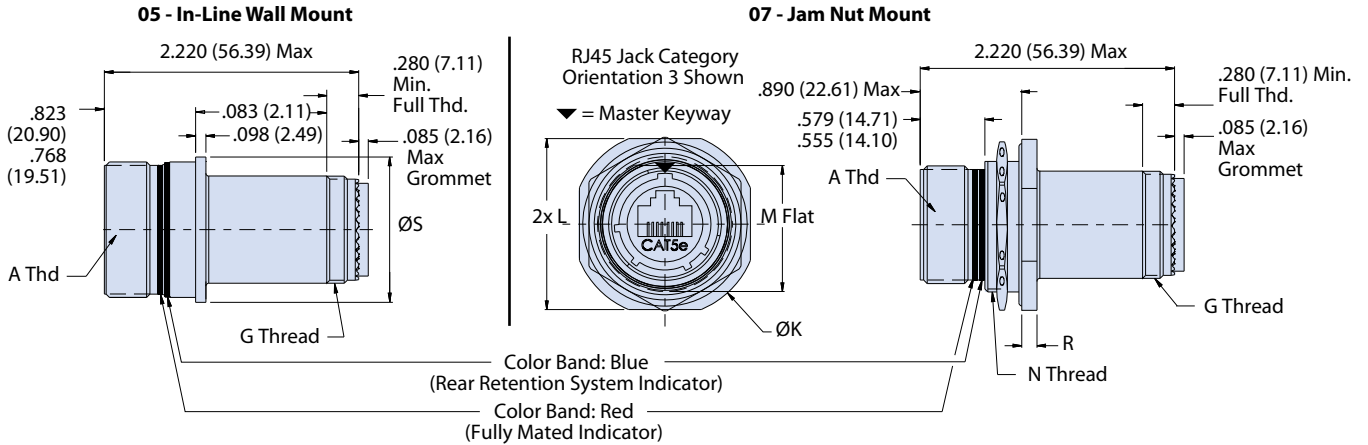
*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

### G6 PLUG WITH ACCESSORY THREADS

Plug Dimensions				
Shell Size	A Dia Max		B Dia	
	in	mm	in	mm
<b>17</b>	1.406	35.71	.928 .922	23.57 23.42
<b>19</b>	1.516	38.51	1.033 1.027	26.24 26.09

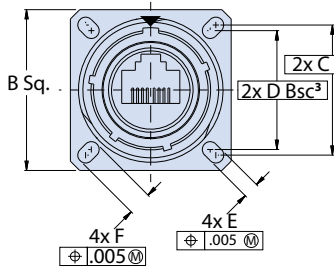


**05 - INLINE AND 07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE WITH ACCESSORY THREADS**

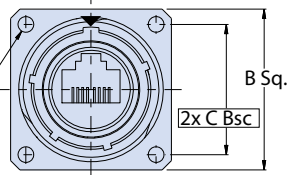


**00, D0 AND CM - WALL MOUNT RECEPTACLES WITH ACCESSORY THREADS**

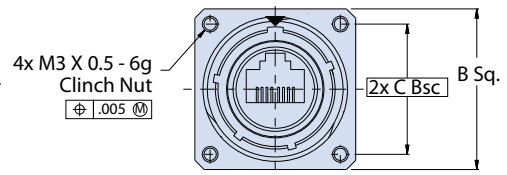
**00 - Wall Mount Receptacle with Slotted Holes (Mating Face)**



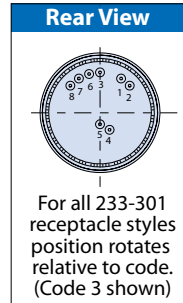
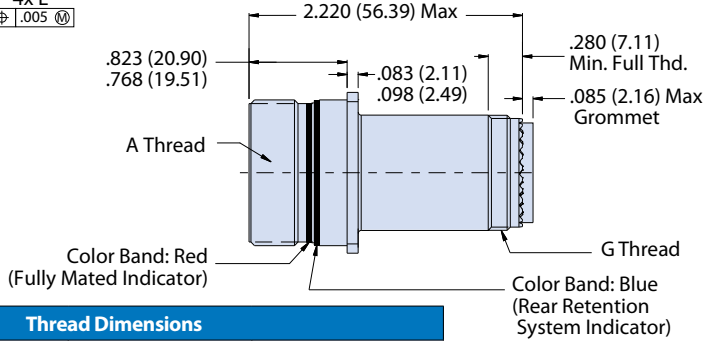
**D0 - Wall Mount Receptacle with Round Holes (Mating Face)**



**CM - Wall Mount Receptacle with Metric Clinch Nuts (Mating Face)**



**00, D0 and CM - Wall Mount Receptacle**



Thread Dimensions			
Shell Size	A Thread	G Thread	N Thread
17	1.1875-.1P-.3L-TS-2A	M25 x 1.0-6g 0.100R	M32 x 1.0-6g 0.100R
19	1.2500-.1P-.3L-TS-2A	M28x 1.0-6g 0.100R	M35 x 1.0-6g 0.100R

In-line and Jam Nut Receptacle Dimensions					
Shell Size	ØK	L	M	R	ØS
17	1.764 (44.81)	1.642 (41.71)	1.191 ( )	.122 (3.09)	1.275 (32.39)
	1.740 (44.20)	1.610 (40.89)	1.181 ( )	.083 (2.11)	
19	1.949 (49.50)	1.827 (46.51)	1.316 ( )	.153 (3.89)	1.337 (33.96)
	1.925 (48.90)	1.795 (45.59)	1.305 ( )	.114 (2.90)	

Wall Mount Receptacle Dimensions						
Shell Size	B Sq	C Bsc	D Bsc³	E	F	Ø H Holes
17	1.323 (33.60)	1.062 (26.97)	.969 (24.61)	.136 (3.45)	.202 (5.13)	.136 (3.45)
	1.299 (32.99)					
19	1.449 (36.80)	1.156 (29.36)	1.062 (26.97)	.120 (3.05)	.186 (4.72)	.120 (3.05)
	1.425 (36.20)					

# SuperNine® RJ45 CAT 5e MIL-DTL-38999 Series III Type connectors 233-302 Receptacle with PC tails



RJ45 CAT 5E AND 6A CONNECTORS

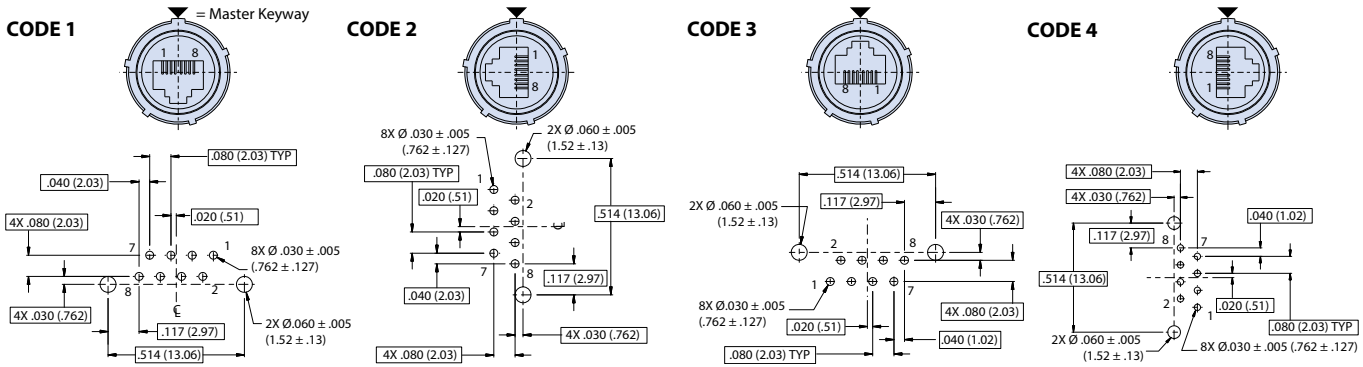


Receptacle front View

Receptacle rear View

Part Number Development							
Sample Part Number	233-302	NF	00	G	17	5H	N 1
Basic Number	233-302						
Finish	See Material and Finish table						
Connector Style <sup>1</sup>	See Connector Style table						
Insert-to-Shell Grounding	- = Inline shielded RJ45 insert G = Shielded and grounded to shell <sup>2</sup>						
Shell Size	17 or 19						
RJ45 Category	5H = CAT 5e For Cat 6A applications consult factory						
Alternate Key Position <sup>1</sup>	Per MIL-DTL-38999 A, B, C, D, E, N = Normal						
RJ45 Orientation	1, 2, 3, or 4						

## RJ45 ORIENTATION OPTIONS AND PCB LAYOUT



Connector Style <sup>1</sup>	
00	Wall mount receptacle with slotted holes
07	rear panel mount, jam nut receptacle
D0	Wall mount receptacle with round holes
CM	Wall mount receptacle with metric clinch nuts

Material and Finish	
NF	Aluminum/Cadmium, Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

Jam Nut Dimensions				
Shell Size	Dia K	L	M Flat	P
17	1.764 (44.81)	1.642 (41.71)	1.191 (30.25)	.090 (2.29)
	1.740 (44.20)	1.610 (40.89)	1.181 (30.00)	.080 (2.03)
19	1.949 (49.50)	1.827 (46.41)	1.316 (33.43)	.150 (3.81)
	1.925 (48.90)	1.795 (45.59)	1.306 (33.17)	.140 (3.56)

Wall Mount Receptacle Dimensions								
Shell Size	B Sq	B' Sq	C BSC	D BSC <sup>3</sup>	E	F	G'	Ø H Holes
17	1.323 (33.60)	1.437 (36.50)	1.062 (26.97)	.969 (24.61)	.136 (3.45)	.202 (5.13)	.122 (3.10)	0.136 (3.45)
	1.299 (32.99)	1.397 (35.48)					.083 (2.11)	
19	1.449 (36.80)	1.531 (38.89)	1.156 (29.36)	1.062 (26.97)	.120 (3.05)	.186 (4.72)	.153 (3.89)	0.120 (3.05)
	1.425 (36.20)	1.491 (37.87)					.114 (2.90)	

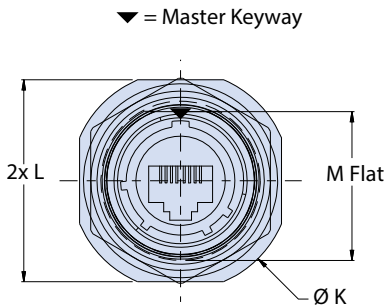
## NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- G option is inline shielded and grounded to shell, available for receptacle only
- Front panel mount only
- Meets IP67 in unmated condition, IP68 mated
- Receptacle connector has RJ45 jack

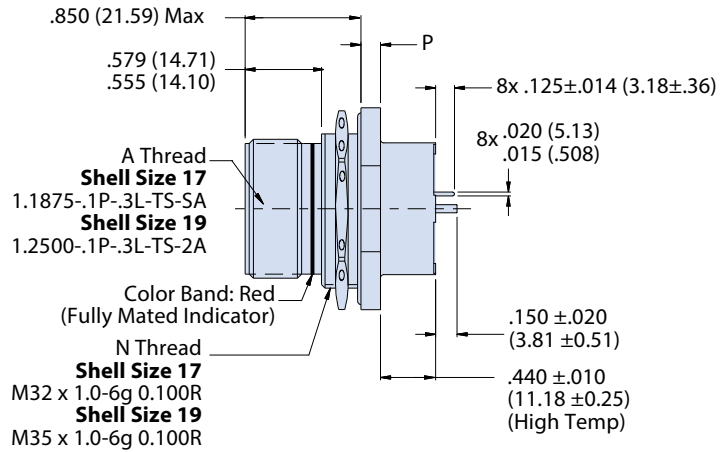
# SuperNine® RJ45 CAT 5e MIL-DTL-38999 Series III Type connectors 233-302 Receptacle with PC tails



## 07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE

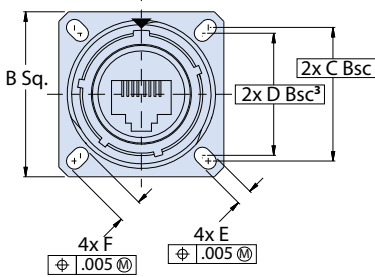


All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.

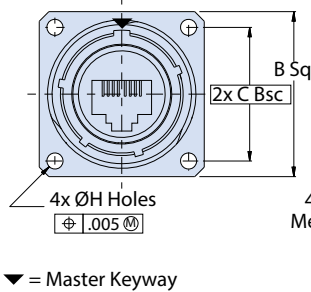


## 00, D0, CM AND CS - WALL MOUNT RECEPTACLES

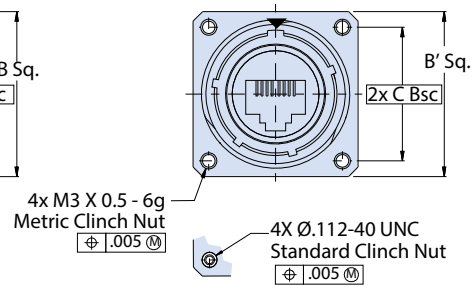
00 - Wall Mount Receptacle with Slotted Holes (Mating Face)



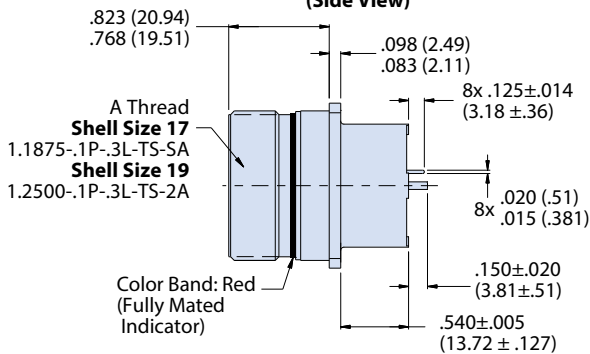
D0 - Wall Mount Receptacle with Round Holes (Mating Face)



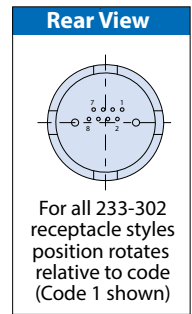
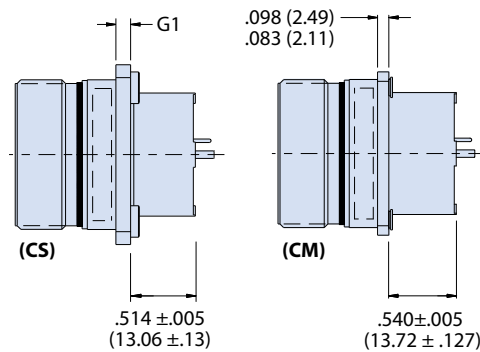
CM & CS - Wall Mount Receptacle with Metric/Std Clinch Nuts (Mating Face)



00 and D0 - Wall Mount Receptacle (Side View)



CS and CM - Wall Mount Receptacle (Side View)





# SuperNine® RJ45 CAT 5e MIL-DTL-38999 Series III Type connectors 233-303 Receptacle with solder cups



RJ45 CAT 5E AND 6A CONNECTORS



Part Number Development								
Sample Part Number	233-303	NF	00	G	17	5H	N	1
Basic Number	233-303							
Finish	See Material and Finish table							
Connector Style <sup>1</sup>	See Connector Style table							
Insert-to-Shell Grounding	- = Inline shielded RJ45 insert G = Shielded and grounded to shell <sup>2</sup>							
Shell Size	17 or 19							
RJ45 Category	5H = CAT 5e For Cat 6A applications consult factory							
Alternate Key Position <sup>1</sup>	Per MIL-DTL-38999 A, B, C, D, E, N = Normal							
RJ45 Orientation	1, 2, 3, or 4							

## RJ45 ORIENTATION OPTIONS



Jam Nut Dimensions								
Shell Size	Ø J		K		L Flat		M	
	in	mm	in	mm	in	mm	in	mm
17	1.764	44.81	1.642	41.71	1.191	30.25	.122	3.10
	1.740	44.20	1.610	40.89	1.181	30.00	.083	2.11
19	1.949	49.50	1.827	46.41	1.316	33.43	.153	3.89
	1.925	48.90	1.795	45.59	1.306	33.17	.114	2.90

Material and Finish	
NF	Aluminum/Cadmium Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

Connector Style	
00	Wall mount receptacle with slotted holes
07	rear panel mount, jam nut receptacle
D0	Wall mount receptacle with round holes
CM	Wall mount receptacle with metric clinch nuts

Wall Mount Receptacle Dimensions												
Shell Size	B Sq		C Bsc		D Bsc		E		F		Ø G Holes	
	In	mm	In	mm	In	mm	In	mm	In	mm	In	mm
17	1.323	33.60	1.062	26.97	.969	24.61	.136	3.45	.202	5.13	0.136	3.45
	1.299	32.99										
19	1.449	36.80	1.156	29.36	1.062	26.97	.120	3.05	.186	4.72	0.120	3.05
	1.425	36.20										

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

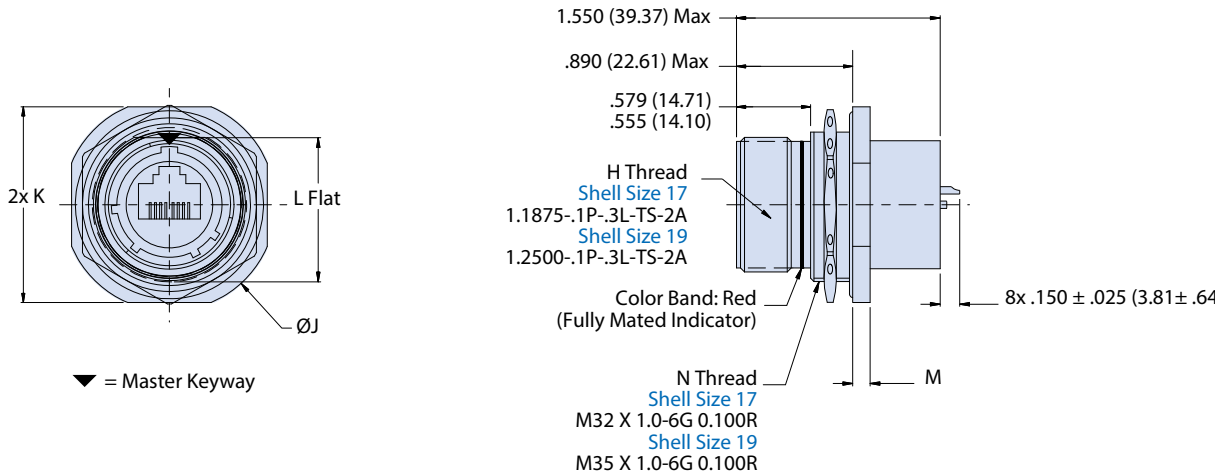
## NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- G option is inline shielded and grounded to shell, available for receptacle only
- Front panel mount only
- Meets IP67 in unmated condition, IP68 mated
- Receptacle connector has RJ45 jack
- Materials and finishes
  - Shell, jam nut: Al alloy/optional
  - Seals: Silicone based elastomer
  - RJ45 coupler housing: UL94V-0 compliant ABS or PPS
  - Contacts: Copper alloy, gold plated
  - Hardware: Stainless steel/passivated

# SuperNine® RJ45 CAT 5e MIL-DTL-38999 Series III Type connectors 233-303 Receptacle with solder cups

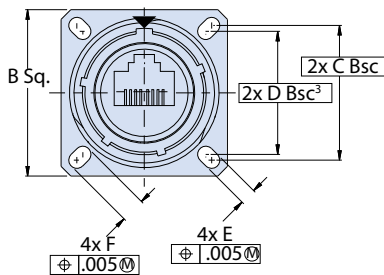


## 07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE

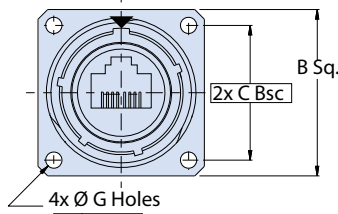


## 00, D0 AND CM - WALL MOUNT RECEPTACLES

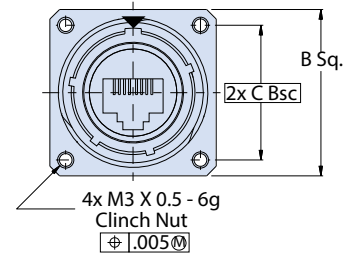
00 - Wall Mount Receptacle with Slotted Holes (Mating Face)



D0 - Wall Mount Receptacle with Round Holes (Mating Face)

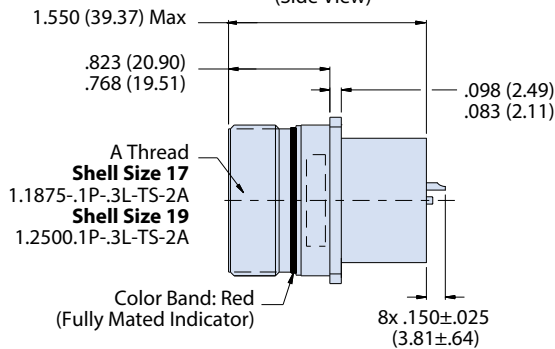


CM - Wall Mount Receptacle with Metric Clinch Nuts (Mating Face)

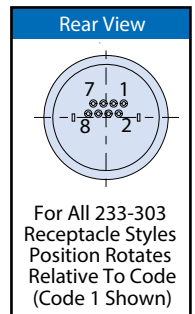
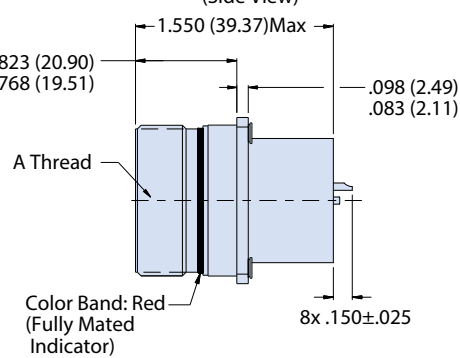


▼ = Master Keyway

00 and D0 - Wall Mount Receptacle (Side View)



00 and D0 - Wall Mount Receptacle (Side View)



# SuperNine® RJ45 CAT 5e

## MIL-DTL-38999 Series III Type connectors

### 233-304 Plug and receptacle adapter with accessory thread



RJ45 CAT 5E AND 6A CONNECTORS

Part Number Development										
<b>Sample Part Number</b>	<b>233-304</b>	<b>NF</b>	<b>00</b>	<b>17</b>	<b>G</b>	<b>35</b>	<b>P</b>	<b>5H</b>	<b>N</b>	<b>T</b>
<b>Basic Number</b>	<b>233-304</b>									
<b>Finish</b>	See Material and Finish table									
<b>Connector Style<sup>1</sup></b>	See Connector Style table									
<b>Shell Size</b>	17 <sup>6</sup> consult factory for other shell sizes									
<b>Insert-to-Shell Grounding<sup>2</sup></b>	- = Inline shielded RJ45 insert G = Shielded and grounded to shell									
<b>Insert Arrangement</b>	Per MIL-STD-1560; <b>17-26</b> or <b>17-35</b> <sup>6</sup>									
<b>Contact Style</b>	P = Pin S = Socket									
<b>RJ45 Category</b>	5H = CAT 5e For Cat 6A applications consult factory									
<b>Alternate Key Position<sup>1</sup></b>	Per MIL-DTL-38999 <b>A, B, C, D, E, N</b> = Normal									
<b>Shrink Boot</b>	T = Part No. 770-028 (Omit for None)									

#### NOTES

1. See Section A for alternate key/keyway positions and panel cutout dimensions
2. G option is inline shielded and grounded to shell, available for receptacle only
3. Connector style 00 with slotted hole is front panel mount only
4. Meets IP67 in unmated condition, IP68 mated
5. Both plug and receptacle connectors have rear RJ45 jack
6. Consult factory for alternate insert arrangements

Material and Finish	
<b>NF</b>	Aluminum/Cadmium Olive Drab
<b>ME</b>	Aluminum/Electroless Nickel
<b>MT</b>	Aluminum/Nickel PTFE
<b>ZR</b>	Aluminum/Black Zinc-Nickel

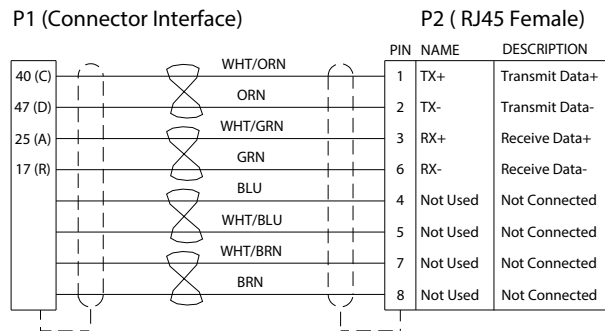
Connector Style <sup>1</sup>	
<b>00</b>	Wall mount receptacle with slotted holes <sup>3</sup>
<b>05</b>	Inline Receptacle
<b>07</b>	rear panel mount, jam nut receptacle
<b>D0</b>	Wall mount receptacle with round holes
<b>G6</b>	plug
<b>CM</b>	Wall mount receptacle with metric clinch nuts

Thread Dimensions			
Shell Size	A Thread	G Thread	N Thread
<b>17</b>	1.1875-.1P-.3L-TS-2A	M25 x 1.0-6g 0.100R	M32 x 1.0-6g 0.100R
<b>19</b>	1.2500-.1P-.3L-TS-2A	M28x 1.0-6g 0.100R	M35 x 1.0-6g 0.100R

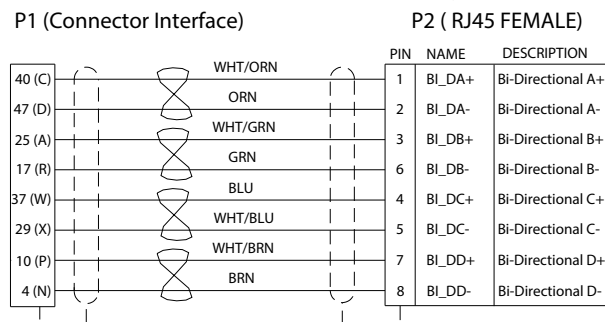
Wall Mount Receptacle Dimensions												
Shell Size	B Sq		C BSC		D BSC		E		F		Ø H Holes	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
<b>17</b>	1.323	33.60	1.062	26.97	.969	24.61	.136	3.45	.202	5.13	.136	3.45
	1.299	32.99					.120	3.05	.186	4.72	.120	3.05
<b>19</b>	1.449	36.80	1.156	29.36	1.062	26.97						
	1.425	36.20										

Jam Nut and Inline Dimensions										
Shell Size	Ø K		L		M Flat		R		S	
	in	mm	in	mm	in	mm	in	mm	in	mm
<b>17</b>	1.764	44.81	1.642	41.71	1.191	30.25	.122	3.10	1.406	35.71
	1.740	44.20	1.610	40.89	1.181	30.00	.083	2.11		
<b>19</b>	1.949	49.50	1.827	46.41	1.316	33.43	.153	3.89	1.516	38.51
	1.925	48.90	1.795	45.59	1.306	33.17	.114	2.90		

#### Wiring Diagram for Ethernet 10base-T & 100 Base-TX 17-35 or (17-26 in parenthesis) Arrangement



#### Wiring Diagram for Ethernet 1000base-T (Gigabit Ethernet) 17-35 or (17-26 in parenthesis) Arrangement



#### Color Codes Per EIA/TIA 568B

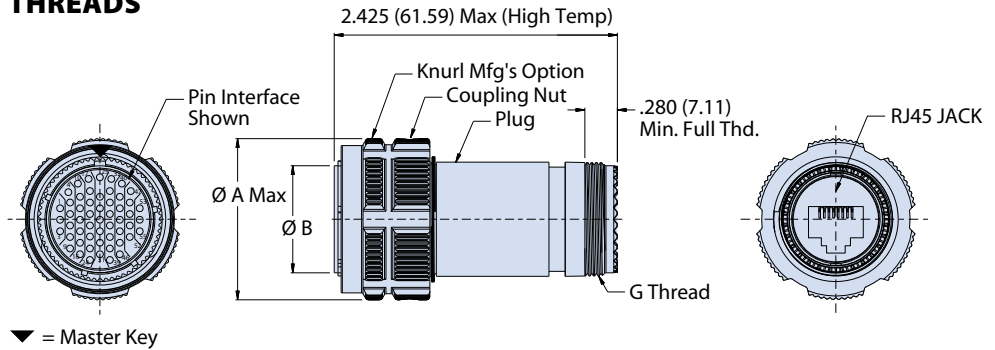
# SuperNine® RJ45 CAT 5e MIL-DTL-38999 Series III Type connectors 233-304 Plug and receptacle adapter with accessory thread



RJ45 CAT5E AND 6A CONNECTORS

## G6 - PLUG WITH ACCESSORY THREADS

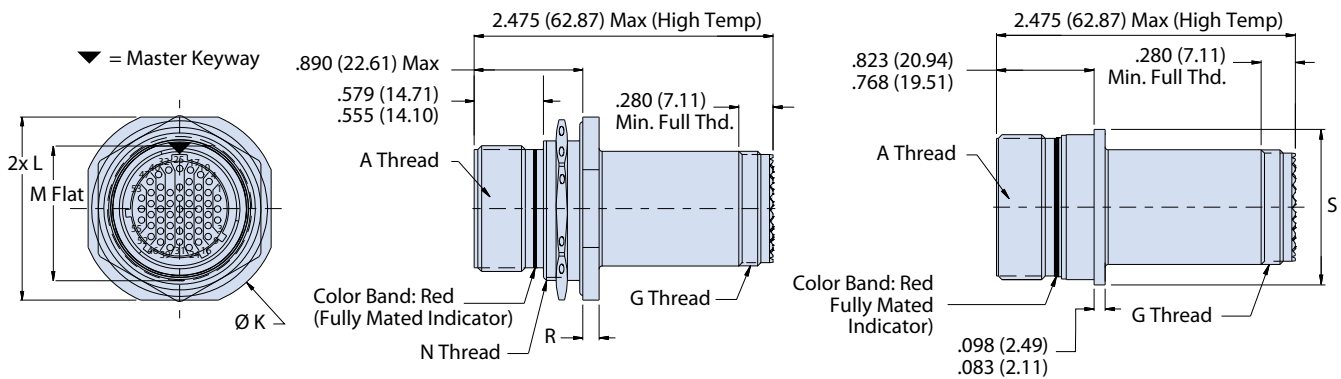
Plug Dimensions				
Shell Size	Ø A		Ø B	
	in	mm	in	mm
17	1.406	35.71	.928 .922	23.57 23.42
19	1.516	38.51	1.033 1.027	26.24 26.09



## 07 - REAR PANEL MOUNT, JAM NUT AND 05 - INLINE RECEPTACLE WITH ACCESSORY THREADS

Jam Nut Receptacle

Inline Receptacle (side view only)

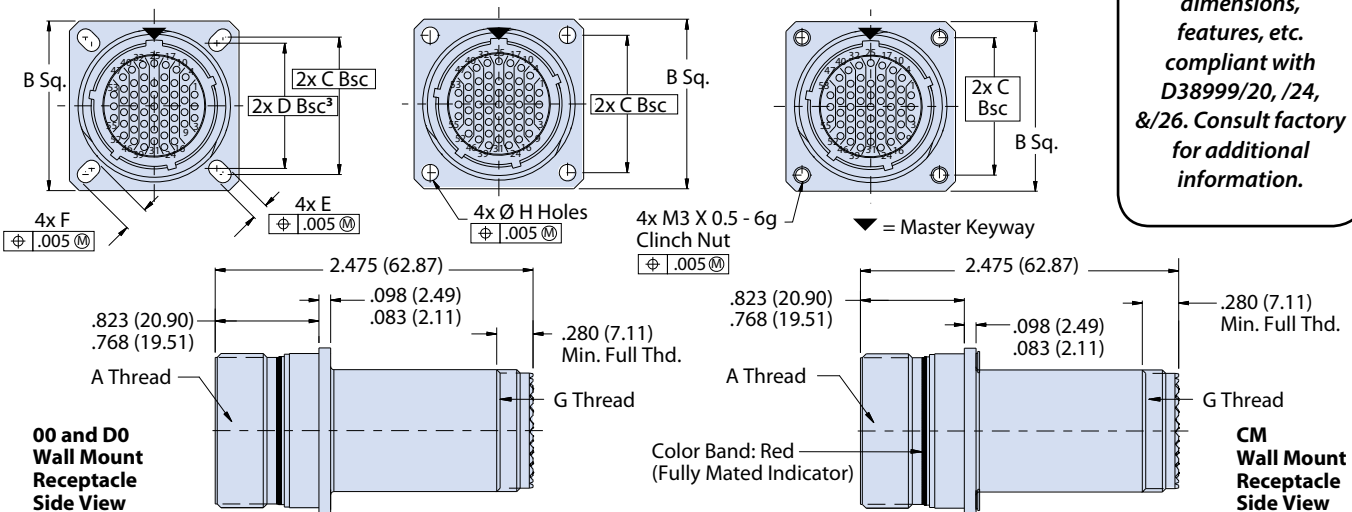


## 00, D0 AND CM - WALL MOUNT RECEPTACLES WITH ACCESSORY THREADS

00 - Wall Mount Receptacle with Slotted Holes (Mating Face)

D0 - Wall Mount Receptacle With Round Holes (Mating Face)

CM - Wall Mount Receptacle With Metric Clinch Nuts (Mating Face)



All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.

# SuperNine® RJ45 CAT 5e

## MIL-DTL-38999 Series III Type connectors

### 233-305 Quadrax interface adapter with accessory threads



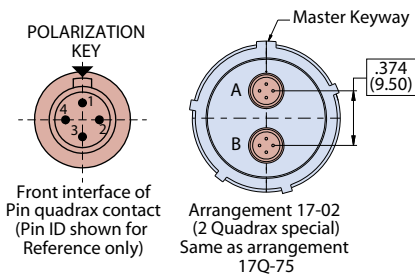
RJ45 CAT 5E AND 6A CONNECTORS



Receptacle front View

Receptacle rear View

**Partial View Of Connector Quadrax Interface**



Material and Finish	
<b>NF</b>	Aluminum/Cadmium, Olive Drab
<b>ME</b>	Aluminum/Electroless Nickel
<b>MT</b>	Aluminum/Nickel PTFE
<b>ZR</b>	Aluminum/Black Zinc-Nickel

Connector Style	
<b>05</b>	Inline Receptacle
<b>07</b>	rear panel mount, jam nut receptacle
<b>00</b>	Wall mount receptacle with slotted holes
<b>D0</b>	Wall mount receptacle with round holes
<b>CM</b>	Wall mount receptacle with metric clinch nuts
<b>G6</b>	plug

Jam Nut Dimensions					
Shell Size	Ø K	L	M Flat	R	Ø S
<b>17</b>	1.764 (44.81)	1.642 (41.71)	1.191 (30.25)	.122 (3.10)	1.275 (32.39)
	1.740 (44.20)	1.610 (40.89)	1.181 (30.00)	.083 (2.11)	
<b>19</b>	1.949 (49.50)	1.827 (46.41)	1.316 (33.43)	.153 (3.89)	1.337 (33.96)
	1.925 (48.90)	1.795 (45.59)	1.306 (33.17)	.114 (2.90)	

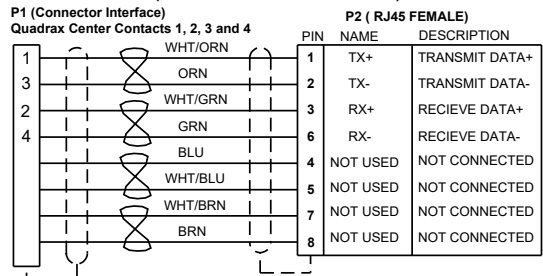
Wall Mount Receptacle Dimensions						
Shell Size	B Sq	C BSC	D BSC	E	F	Ø H Holes
<b>17</b>	1.323 (33.60)	1.062 (26.97)	.969 (24.61)	.136 (3.45)	.202 (5.13)	.136 (3.45)
	1.299 (32.99)					
<b>19</b>	1.449 (36.80)	1.156 (29.36)	1.062 (26.97)	.120 (3.05)	.186 (4.72)	.120 (3.05)
	1.425 (36.20)					

Part Number Development									
<b>Sample Part Number</b>	<b>233-305</b>	<b>NF</b>	<b>00</b>	<b>-</b>	<b>17</b>	<b>5H</b>	<b>P</b>	<b>N</b>	<b>T</b>
<b>Basic Number</b>	<b>233-305</b>								
<b>Finish</b>	See Material and Finish table								
<b>Connector Style</b>	See Connector Style table								
<b>Insert-to-Shell Grounding<sup>2</sup></b>	- = Inline shielded RJ45 insert G = Shielded and grounded to shell								
<b>Shell Size</b>	<b>17</b> or <b>19</b>								
<b>RJ45 Category</b>	<b>5H</b> = CAT 5e For Cat 6A applications consult factory								
<b>Contact Style</b>	<b>P</b> = Pin <b>S</b> = Socket								
<b>Alternate Key Position<sup>1</sup></b>	<b>A, B, C, D, E, N</b> = Normal; Per MIL-DTL-38999								
<b>Shrink Boot</b>	<b>T</b> = Part No. 770-028 (Omit for None)								

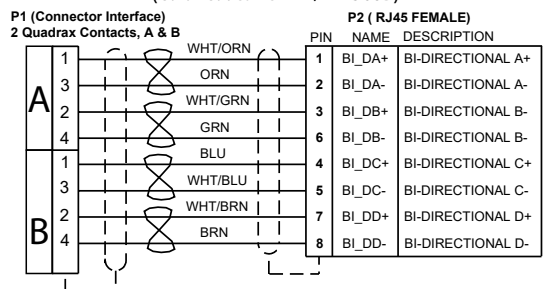
**NOTES**

1. See Section A for alternate key/keyway positions and panel cutout dimensions
2. G option is inline shielded and grounded to shell, available for receptacle only
3. Pin contact mates with P/N 854-002 Socket contact mates with P/N 854-001
4. Connector style 00 with slotted hole is front panel mount only
5. Meets IP67 in unmated condition, IP68 mated
6. Both plug and receptacle connectors have rear RJ45 jack

**Wiring Diagram for Ethernet 10base-T & 100 Base-TX**  
(Color Codes Per EIA/TIA 568B)



**Wiring Diagram for Ethernet 1000base-T (Gigabit Ethernet)**  
(Color Codes Per EIA/TIA 568B)

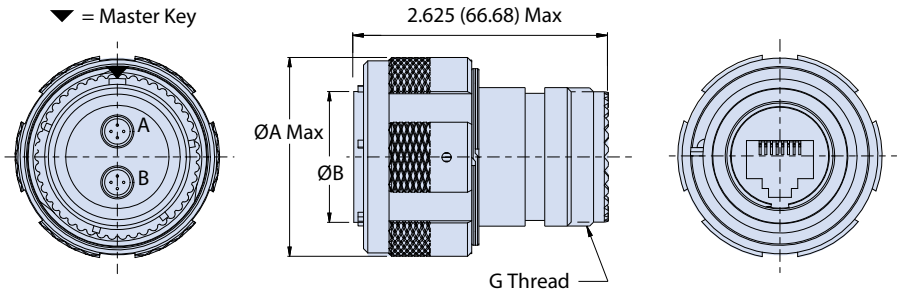


Thread Dimensions			
Shell Size	A Thread	G Thread	N Thread
<b>17</b>	1.1875-.1P-.3L-TS-2A	M25 x 1.0-6g 0.100R	M32 x 1.0-6g 0.100R
<b>19</b>	1.2500-.1P-.3L-TS-2A	M28x 1.0-6g 0.100R	M35 x 1.0-6g 0.100R

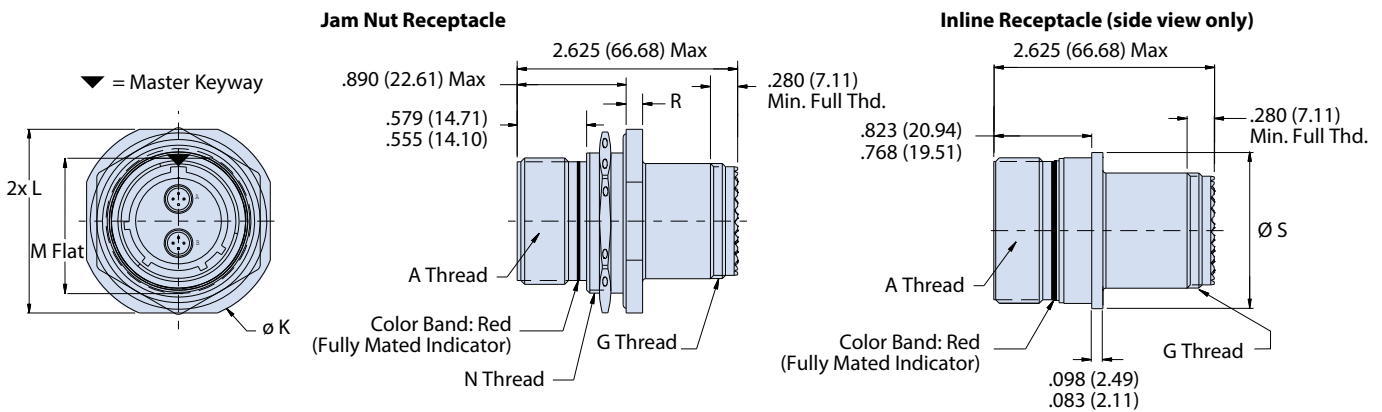


#### G6 - PLUG WITH ACCESSORY THREADS

Plug Dimensions				
Shell Size	Ø A		Ø B	
	in	mm	in	mm
17	1.406	35.71	.928	23.57
			.922	23.42
19	1.516	38.51	1.033	26.24
			1.027	26.09



#### 07 - REAR PANEL MOUNT, JAM NUT AND 05 - INLINE RECEPTACLE WITH ACCESSORY THREADS

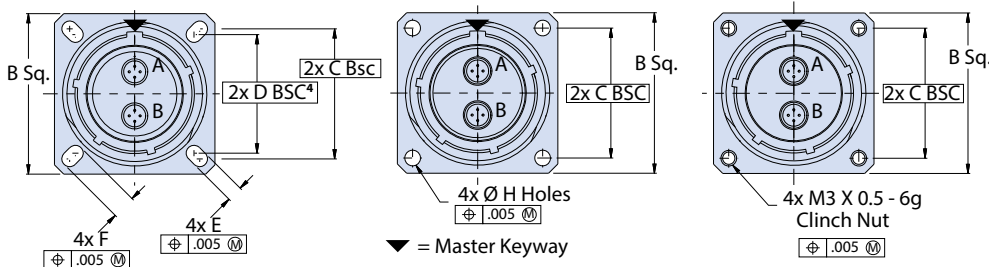


#### 00, D0 AND CM - WALL MOUNT RECEPTACLES WITH ACCESSORY THREADS

00 - Wall Mount Receptacle with Slotted Holes (Mating Face)

D0 - Wall Mount Receptacle With Round Holes (Mating Face)

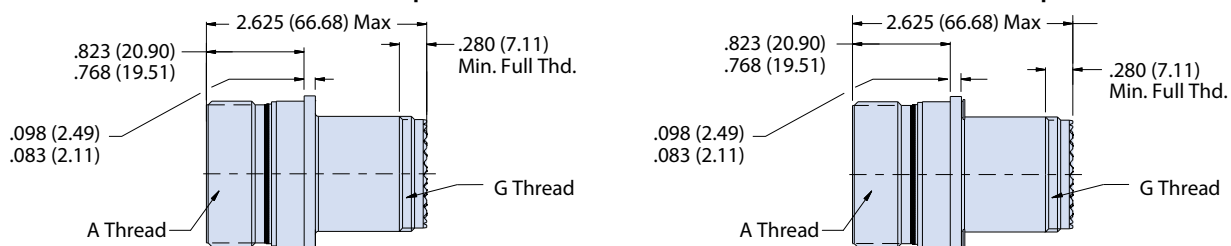
CM - Wall Mount Receptacle With Metric Clinch Nuts (Mating Face)



*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

00 and D0 - Wall Mount Receptacle

CM - Wall Mount Receptacle



# SuperNine® RJ45 CAT 5e and 6A MIL-DTL-38999 Series III Type connectors 233-330 Feedthru receptacle connector



RJ45 CAT 5E AND 6A CONNECTORS



Receptacle front View

Part Number Development							
Sample Part Number	233-330	NF	00	-17	5H	N	1
Basic Number	233-330						
Finish	See Material and Finish table						
Connector Style <sup>1</sup>	See Connector Style table						
Shell Size	17 or 19						
RJ45 Category	5H = CAT 5e 6A = CAT 6A						
Alternate Key Position <sup>1</sup>	Per MIL-DTL-38999 A, B, C, D, E, N = Normal						
RJ45 Orientation	1, 2, 3, or 4						

Material and Finish	
NF	Aluminum/Cadmium Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

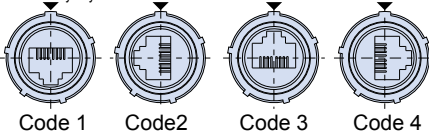
Connector Style <sup>1</sup>	
00	Wall mount receptacle with slotted hole <sup>2</sup>
07	rear panel mount, jam nut receptacle
D0	Wall mount receptacle with round holes
CM	Wall mount receptacle with metric clinch nuts

Jam Nut Dimensions								
Shell Size	Ø K		L		M Flat		R	
	in	mm	in	mm	in	mm	in	mm
17	1.764	44.81	1.642	41.71	1.191	30.25	.122	3.10
	1.740	44.20	1.610	40.89	1.181	30.00	.083	2.11
19	1.949	49.50	1.827	46.41	1.316	33.43	.153	3.89
	1.925	48.90	1.795	45.59	1.306	33.17	.114	2.90

Wall Mount Receptacle Dimensions												
Shell Size	B Sq		C Bsc		D Bsc <sup>2</sup>		E		F		Ø H Holes	
	In	mm	In	mm	In	mm	In	mm	In	mm	In	mm
17	1.323	33.60	1.062	26.97	.969	24.61	.136	3.45	.202	5.13	0.136	3.45
	1.299	32.99										
19	1.449	36.80	1.156	29.36	1.062	26.97	.120	3.05	.186	4.72	0.120	3.05
	1.425	36.20										

RJ45 Orientation Options (Receptacle Face)

Master Keyway

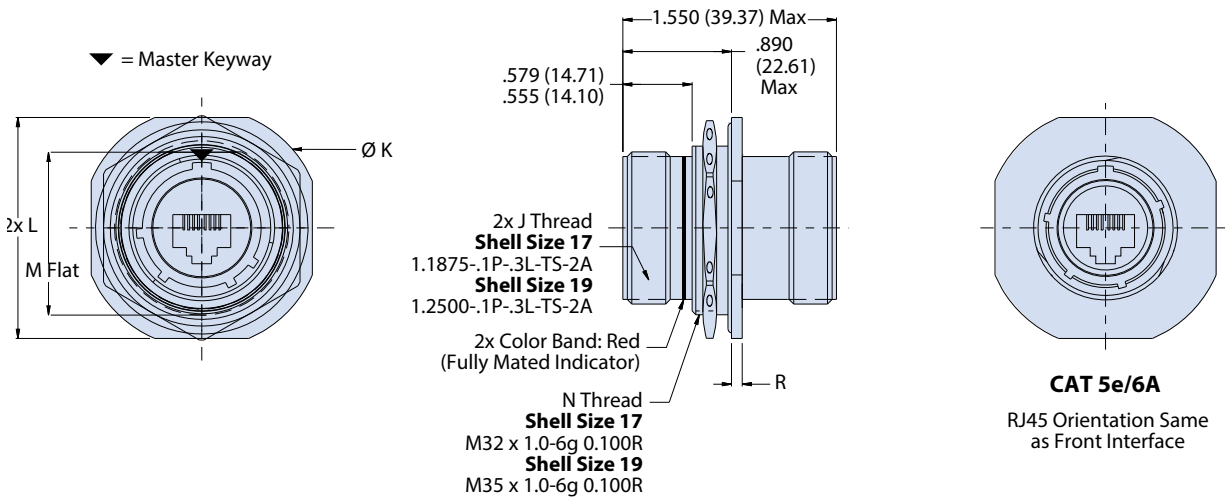


NOTES

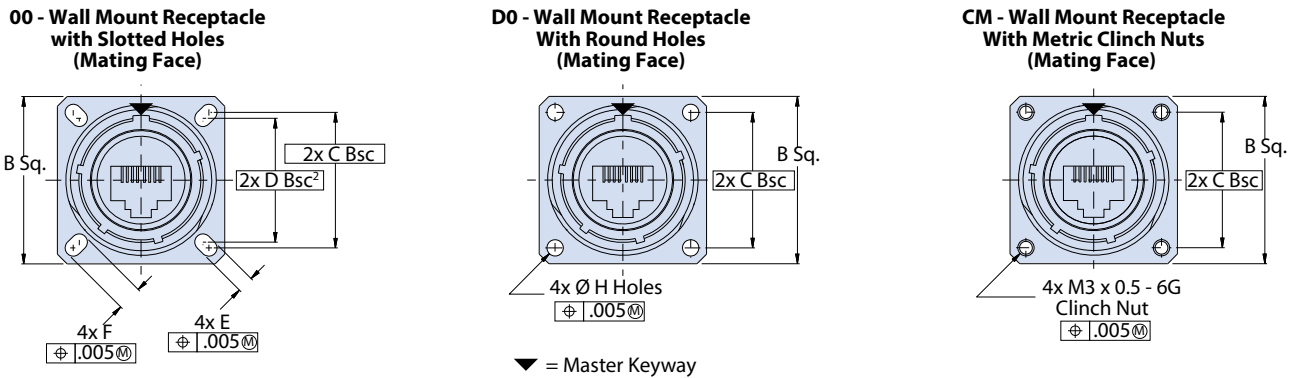
1. See Section A for alternate key/keyway positions and panel cutout dimensions
2. front panel mount only
3. Meets IP67 in unmated condition, IP68 mated
4. Feed-thru receptacle is jack-to-jack configuration

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

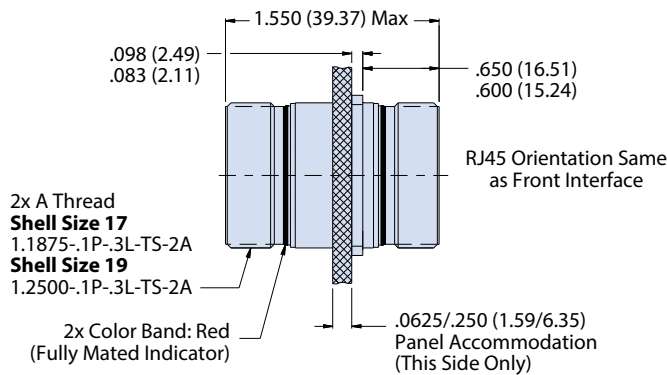
#### 07 - REAR PANEL MOUNT, JAM NUT FEED-THRU RECEPTACLE



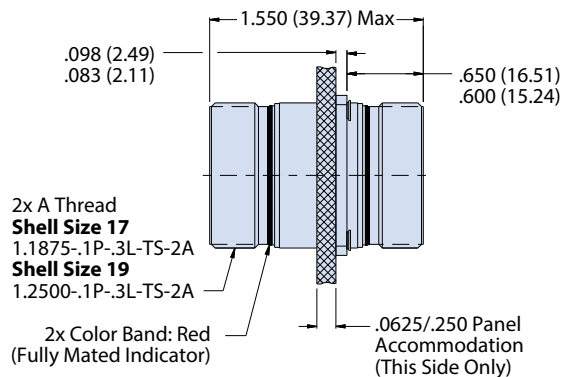
#### 00, D0 AND CM - WALL MOUNT FEED-THRU RECEPTACLES



#### 00, D0, CM - Wall Mount Receptacle



#### CM - Wall Mount Receptacle



# SuperNine® RJ45 CAT 5e

## MIL-DTL-38999 Series III Type

### CAT 5e cable assemblies



RJ45 CAT 5E AND 6A CONNECTORS



#### 2330-0003 Glenair SuperNine RJ45 CAT 5e cable jumpers, SuperSeal to standard RJ45

SuperSeal RJ45 connectors are IP67 open face rated and IP68 in the mated condition for complete protection in harsh environments. SuperSeal connector styles include plug, wall mount and jam-nut receptacles. Wall mount receptacles are available with slotted holes, round holes and metric clinch nuts. All SuperSeal shells offer inline shielding and receptacle shells offer optional shell grounding. Any shell can be ordered with straight or right angle cable exit. RJ45 jack can be ordered in 1 of 4 available orientations to provide further security against mis-mating and accommodate existing RJ45 orientations. RJ45 connector end may be ordered as plug, jack or with flying leads in straight or right angle configurations. Maximum overall length is 100 feet. Consult factory for ordering information.

#### AVAILABLE INTERFACE OPTIONS



Plug



Wall mount receptacle with metric clinch nuts



Wall Mount Receptacle with round holes



Wall Mount Receptacle with round holes



Jam-nut mount Receptacle

#### CAT 5E PLUG OPTIONS

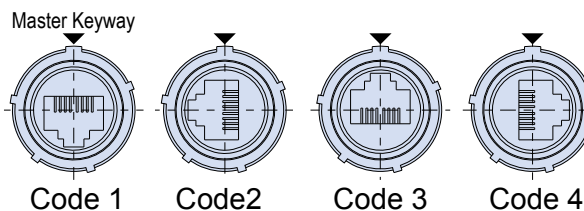


CAT 5e, Straight



CAT 5e, 45°

#### RJ45 ORIENTATION OPTIONS







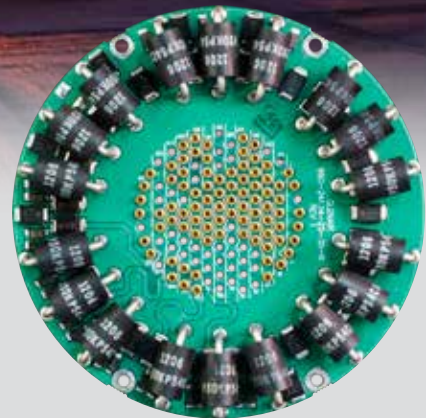
MIL-DTL-38999 TYPE  
TVS FIELD-READY  
RJ45 ETHERNET

FILTER  
**EMI EMP**  
CONNECTORS

**SUPERSEAL™**

# Transient Voltage Suppression (TVS) RJ45 Connectors

**T**ransient Voltage Suppression (TVS) technologies are designed to shunt voltage transients directly to ground before such surges can damage sensitive electronic equipment. Individual TVS diodes as well as diode modules are incorporated directly into the TVS filter connector package to provide optimal protection for either individual contacts or groups of contacts without significant increases in connector size or weight. RTCA DO-160 and other electrical performance standards define acceptable benchmarks for withstanding electromagnetic pulse, lightning strike, or other induced voltage surges in high-reliability systems. For high-speed signals, care must be taken in selecting diodes to minimize capacitance loading effects which can lead to signal loss. Glenair SuperSeal™ TVS-equipped RJ45 connectors have been engineered to transmit high-speed signals while providing indirect lightning strike protection in accordance with the RTCA DO-160 standard.



*Prevents Catastrophic  
EMP Failure in  
Military and  
Commercial Aircraft*

- **Electromagnetic pulse (EMP) protection**
- **Lightning protection**
- **Saves weight and space**
- **Superior performance**
- **D38999 Series III type**
- **SuperSeal™ signature sealing and grounding**



MIL-DTL-38999 type  
Series III SuperNine  
RJ45 receptacles  
with transient  
voltage suppression  
technology



# SuperNine® RJ45 CAT 5e, TVS

## MIL-DTL-38999 Series III Type connectors

### TVS diode performance specifications and power selection



RJ45 CAT 5E AND 6A CONNECTORS

#### MIL-DTL-38999 Series III, TVS Diode, RJ45 CAT 5e and 6A Performance Specifications

Material and Finish	
<b>Shell/coupling Plating</b>	Complete list of options available in the Material and Finish Options portion of this section
<b>Contacts</b>	PC tails or solder cup: copper alloy, gold plated
<b>RJ45 coupler housing</b>	UL94V-0 compliant ABS or PPS
<b>Seals</b>	Fluorosilicone
<b>Shell Sizes</b>	17 and 19
Environmental / Mechanical Performance	
<b>Sealing</b>	IP68 mated condition, IP67 unmated condition
<b>Outgassing</b>	Mod Code 186S* Mod Code 928**
<b>Operating Temperature</b>	-20°C to +85°C
<b>Vibration</b>	20g's, 3 Axis, 10 - 2000Hz
<b>Mechanical Shock</b>	300 g's
<b>Backshell Interface</b>	MIL-DTL-38999 Designator H
<b>Mating Cycles</b>	500
RJ45 Cat 6A & 5e Electrical Specifications	

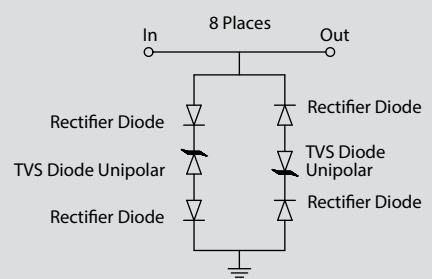
\* Meets outgassing requirements per ASTM E 595 and meets NASA screening requirements for level 1 highest reliability  
 \*\* Meets outgassing requirements per UL 94 V-0

#### MIL-DTL-38999 Series III, TVS Diode, RJ45 CAT 5e and 6A Performance Specifications

<b>Voltage Rating</b>	1000 Volts, Cat 5e
<b>Data Rate</b>	10BASE-T, 100BASE-TX, 1000BASE-T/1000BASE-TX
<b>Current Rating</b>	1.5 Amps, Cat 5e
<b>D.W.V.</b>	1000 VDC (700 VAC)
<b>Frequency</b>	100 MHz, Cat 5e
<b>Wiring</b>	Straight through
<b>Cabling Length</b>	100 Meters Max
<b>Shield Continuity</b>	Continuous Through Coupler and Grounded to the Shell

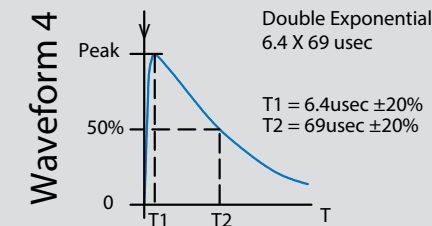
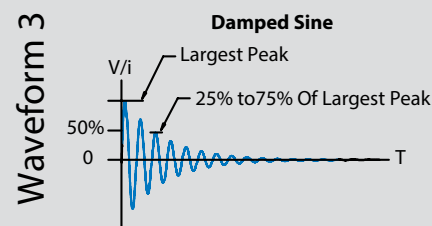
**TVS Electrical Specifications**  
 Each signal line has TVS diode protection per the electrical schematic in figure 1.

**FIGURE 1**



#### RTCA DO-160 Indirect Lightning Wavaset A Waveforms

RTCA DO-160 Waveform	Level	Open Circuit Voltage/ Short Circuit Voltage V/A
Waveform 3	1	100/4
	2	250/10
Waveform 4	1	50/10
	2	125/25



#### MIL-DTL-38999 Series III, TVS Diode, RJ45 CAT 5e and 6A Performance Specifications

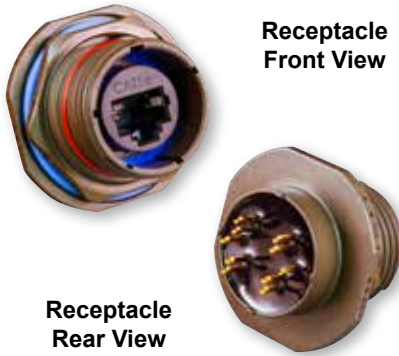
<b>Peak pulse power (tp = 8/20us)</b>	600w
<b>Rated standoff voltage</b>	2.8V
<b>Minimum breakdown voltage</b>	3.0V @ 1mA
<b>Max clamping voltage (@ Ipp = 2A)</b>	5.5V
<b>Max clamping voltage (@ Ipp = 5A)</b>	8.5V
<b>Max clamping voltage (@ Ipp = 30A)</b>	21.0V
<b>Max leakage current</b>	2.0uA max @ 2.8V
<b>Typical junction capacitance</b>	10pF @ 0v, 1Mhz
<b>Polarity</b>	bipolar
<b>Compatible with IEC 61000-4-2 (ESD)</b>	air - 15kv, contact - 8kv
<b>Compatible with IEC 61000-4-4 (EFT)</b>	40A - 5/50ns
<b>Compatible with IEC 61000-4-5 (surge)</b>	24A, 8/20us - level 2 (line-gnd) & level 3 (line-line)

Meets indirect lightning strike requirements per DO-160, section 222 pin injection waveform set A2.

# SuperNine® RJ45 CAT 5e, TVS

## MIL-DTL-38999 Series III Type connectors

### 244-001 Jam-nut receptacle, PC tail or solder cup



Receptacle Front View

Receptacle Rear View

Part Number Development						
Sample Part Number	244-001	NF	19	P	G	N 1
Basic Number	244-001 with stand-offs					
Finish	See Material and Finish Table					
Shell Size	17 or 19					
Termination	P = PC tail S = Solder cup					
Insert-to-Shell Grounding	G = Shielded and grounded to shell					
Alternate Key Position <sup>1</sup>	Per MIL-DTL-38999 A, B, C, D, E, N = Normal <sup>2</sup>					
RJ45 Orientation	1, 2, 3, or 4					

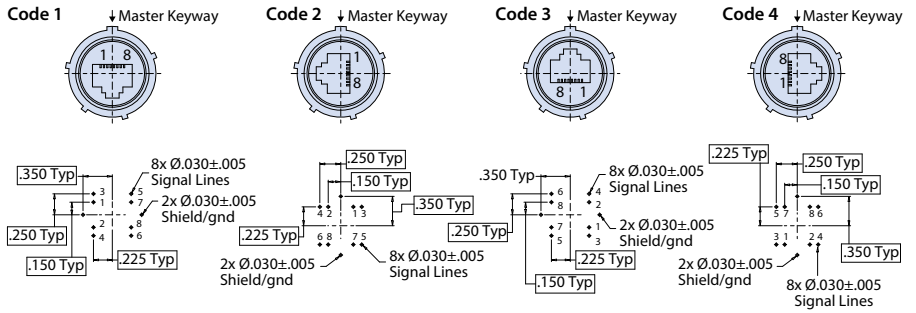
Material and Finish	
NF	Aluminum/Cadmium Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

#### NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- See page E-26 for diode values

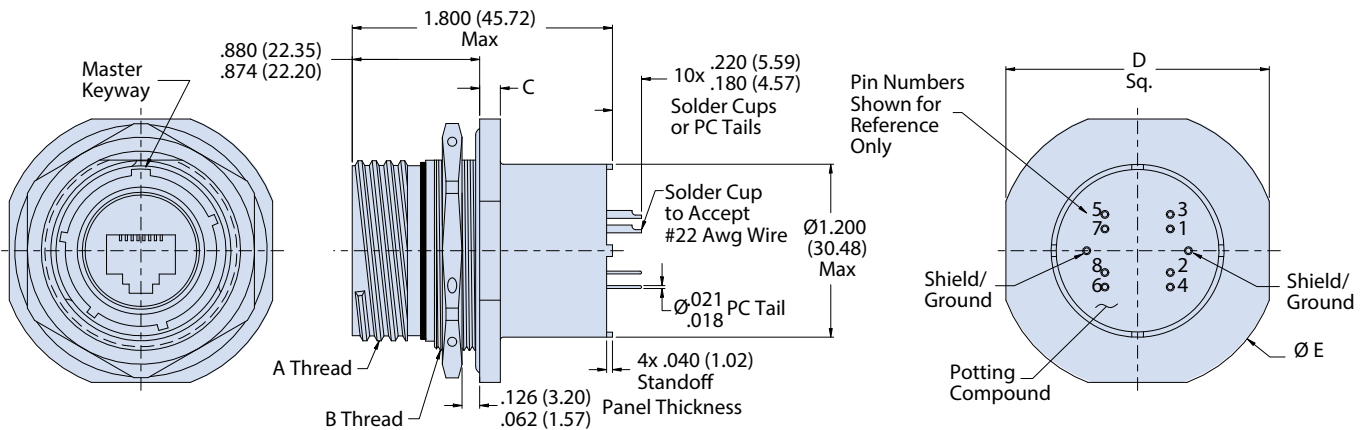
All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.

#### RJ45 ORIENTATION CODE AND PCB LAYOUT (PCB LAYOUT FOR PCTAIL VERSION)



Component Mounting Side

Jam Nut Dimensions												
Shell Size	A Thread	B Thread	C		D Sq.		Ø E		Ø F		G Flat	
			in	mm	in	mm	in	mm	in	mm	in	mm
17	1.1875-.1P-.3L-TS-2A	M32 x 1.0-6g 0.100R	.122 .083	3.10 2.11	1.642 1.610	41.71 40.89	1.764 1.740	44.81 44.20	1.270 1.260	32.56 32.00	1.210 1.200	30.73 30.48
19	1.2500-.1P-.3L-TS-2A	M35 x 1.0-6g 0.100R	.154 .114	3.91 2.90	1.827 1.795	46.41 45.59	1.949 1.925	49.50 48.90	1.395 1.385	35.43 35.18	1.335 1.325	33.91 33.66



RJ45 CAT5E AND 6A CONNECTORS

# SuperNine® RJ45 CAT 5e, TVS

## MIL-DTL-38999 Series III Type connectors

### 244-002 Wall mount receptacle with PC tails or solder cups



RJ45 CAT 5E AND 6A CONNECTORS

Part Number Development						
Sample Part Number	244-002	NF	19	P	G	N 1
Basic Number	244-002 with stand-offs					
Finish	See Material and Finish Table					
Shell Size	17 or 19					
Termination	P = PC tail S = Solder cup					
Insert-to-Shell Grounding	G = Shielded and grounded to shell					
Alternate Key Position <sup>1</sup>	Per MIL-DTL-38999 A, B, C, D, E, N = Normal					
RJ45 Orientation	1, 2, 3, or 4					

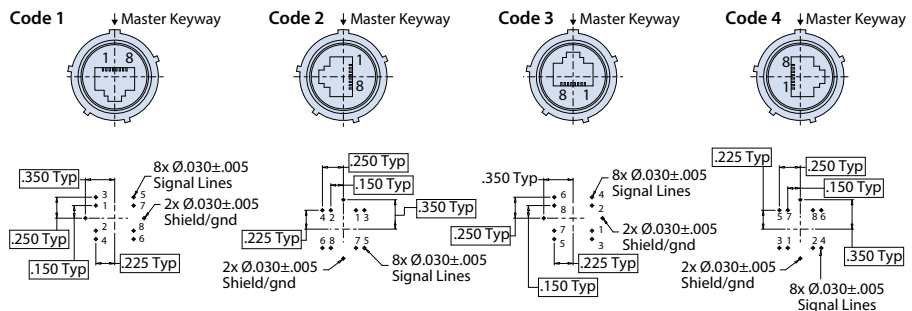
Material and Finish <sup>1</sup>	
NF	Aluminum/Cadmium Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

#### NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- See page E-26 for diode values

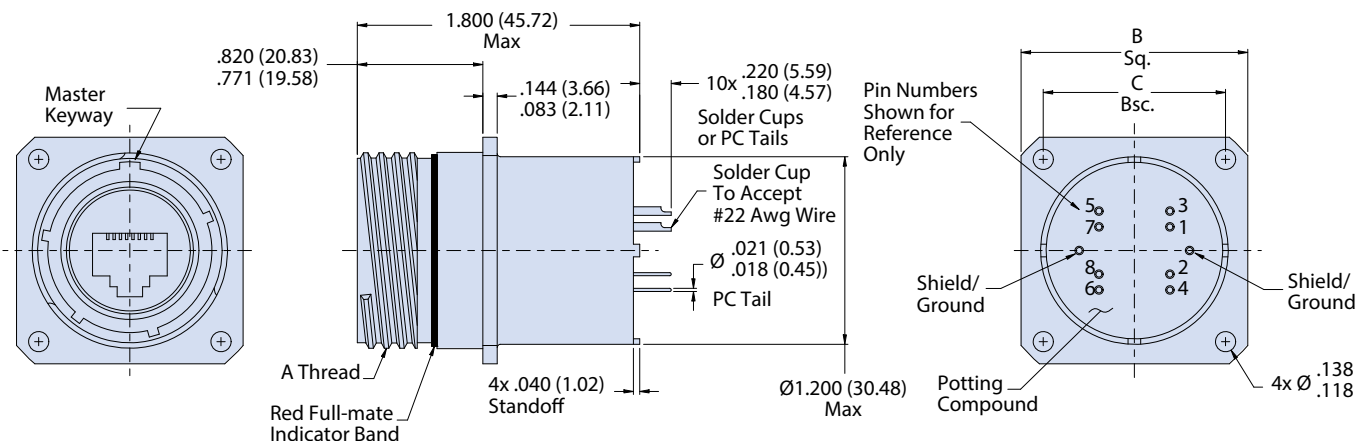
*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

#### RJ45 ORIENTATION CODE AND PCB LAYOUT (PCB LAYOUT FOR PC TAIL VERSION)



#### Component Mounting Side

Shell Size	A Thread	Jam Nut Dimensions							
		B Sq.		C Bsc		Ø D Min.		E Bsc	
		in	mm	in	mm	in	mm	in	mm
17	1.1875-.1P-.3L-TS-2A	1.323 1.299	33.60 32.99	1.062	26.97	1.219	30.96	1.062	26.97
19	1.2500-.1P-.3L-TS-2A	1.449 1.425	36.80 36.195	1.156	29.36	1.297	32.94	1.156	29.36



# SuperNine® RJ45 CAT 5e, TVS

## MIL-DTL-38999 Series III Type connectors

### 244-003 Wall mount receptacle with PC tails or solder cups



Part Number Development						
Sample Part Number	244-003	NF	19	P	G	N 1
Basic Number	244-003 with accessory thread					
Finish	See Material and Finish Table					
Shell Size	17 or 19					
Termination	P = PC tail S = Solder cup					
Insert-to-Shell Grounding	G = Shielded and grounded to shell					
Alternate Key Position*	Per MIL-DTL-38999 A, B, C, D, E, N = Normal					
RJ45 Orientation	1, 2, 3, or 4					

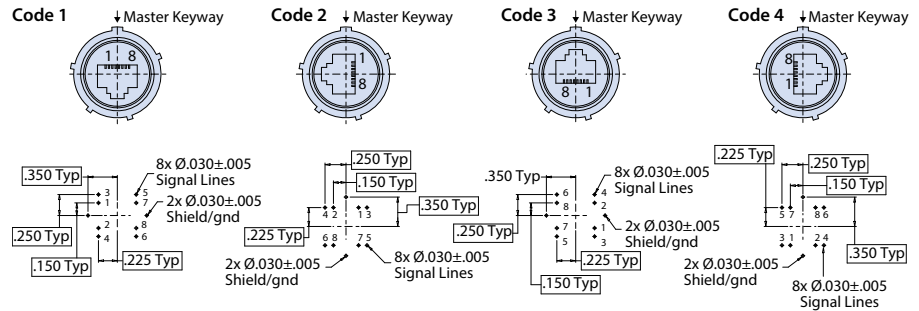
Material and Finish	
NF	Aluminum/Cadmium Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

#### NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- See page E-26 for diode values

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

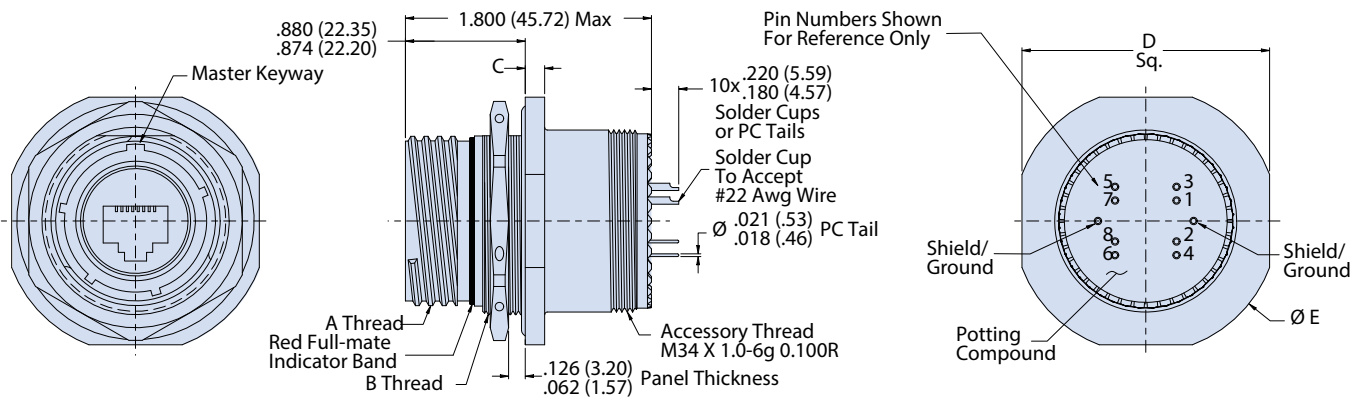
#### RJ45 ORIENTATION CODE AND PCB LAYOUT (PCB LAYOUT FOR PCTAIL VERSION)



#### Component Mounting Side

Jam Nut Dimensions												
Shell Size	A Thread	B Thread	C		D Sq.		Ø E		Ø F		G Flat	
			in	mm	in	mm	in	mm				
17	1.1875-.1P-.3L-TS-2A	M32 x 1.0-6g 0.100R	.122 .083	3.10 2.11	1.642 1.610	41.71 40.89	1.764 1.740	44.81 44.17	1.270 1.260	32.26 32.00	1.210 1.200	30.73 30.48
19	1.2500-.1P-.3L-TS-2A	M35 x 1.0-6g 0.100R	.154 .114	3.91 2.90	1.827 1.795	46.41 45.59	1.949 1.925	49.50 48.90	1.395 1.385	35.43 35.18	1.35 1.325	33.91 33.66

#### JAM-NUT RECEPTACLE WITH ACCESSORY THREADS



RJ45 CAT5E AND 6A CONNECTORS

# SuperNine® RJ45 CAT 5e, TVS

## MIL-DTL-38999 Series III Type connectors

### 244-004 Wall mount receptacle with PC tails or solder cups



RJ45 CAT 5E AND 6A CONNECTORS



Material and Finish	
NF	Aluminum/Cadmium Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

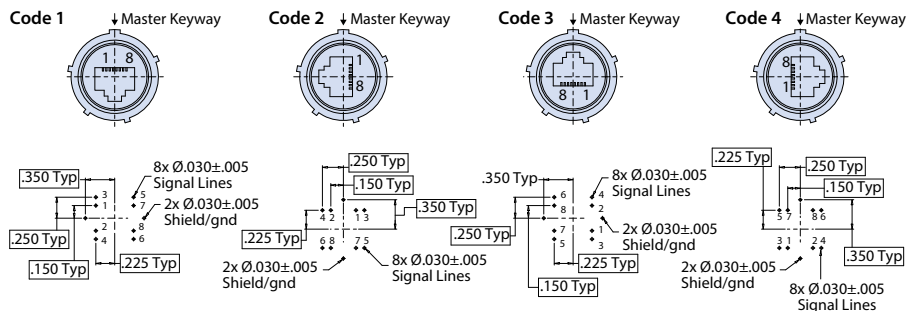
#### NOTES

1. See Section A for alternate key/keyway positions and panel cutout dimensions
2. See page E-26 for diode values

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

Part Number Development						
Sample Part Number	244-004	NF	19	P	G	N 1
Basic Number	244-004 with accessory thread					
Finish	See Material and Finish Table					
Shell Size	17 or 19					
Termination	P = PC tail S = Solder cup					
Insert-to-Shell Grounding	G = Shielded and grounded to shell					
Alternate Key Position	Per MIL-DTL-38999 A, B, C, D, E, N = Normal					
RJ45 Orientation	1, 2, 3, or 4					

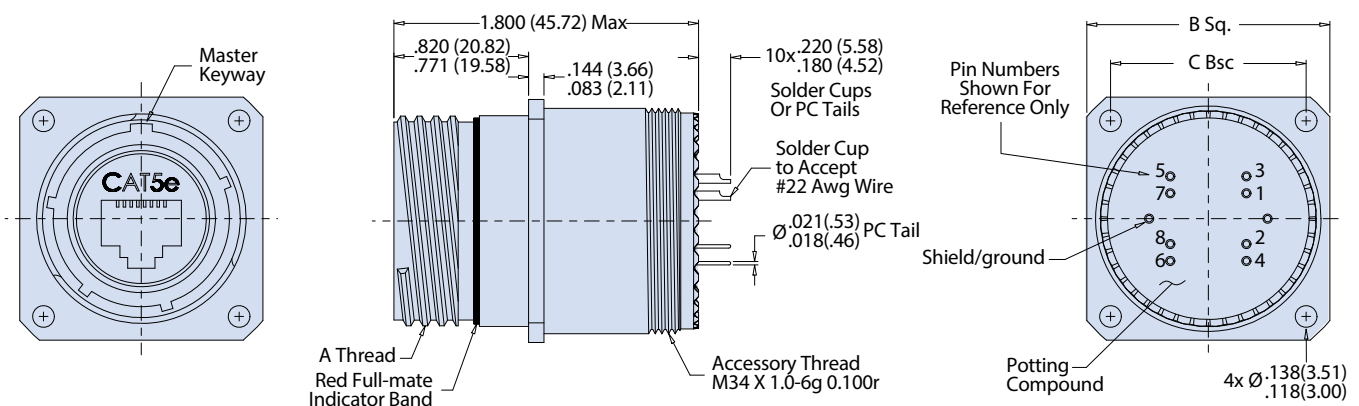
#### RJ45 ORIENTATION CODE AND PCB LAYOUT (PCB LAYOUT FOR PC TAIL VERSION)



#### Component Mounting Side

Jam Nut Dimensions									
Shell Size	A Thread	B Sq.		C Bsc		Ø D Min		E Bsc	
		in	mm	in	mm	in	mm	in	mm
17	1.1875-.1P-.3L-TS-2A	1.323 1.299	33.60 32.99	1.062	26.97	1.219	30.96	1.062	26.97
19	1.2500-.1P-.3L-TS-2A	1.449 1.425	36.80 36.195	1.156	29.36	1.297	32.94	1.156	29.36

#### REAR PANEL MOUNT RECEPTACLE WITH ACCESSORY THREADS





# SuperNine® USB 2.0/3.0 type A MIL-DTL-38999 Series III Type connectors SuperSeal™ Product Selection Guide



**233-340** E-34  
SuperSeal™ Coupler with Accessory Threads and USB 2.0 Male-to-Female (Plug) or Female-to-Female Receptacle



**233-370** E-44  
SuperSeal Feed-thru Receptacle with USB 2.0 Female-to-Female Interface



**233-342** E-36  
SuperSeal Receptacle with USB 2.0 Female Interface to PC Tail Termination



**233-390** E-46  
SuperSeal USB 2.0 Memory Stick



**233-343** E-38  
SuperSeal Receptacle with USB 2.0 Female Interface to Solder Cup Termination



**233-392** E-47  
SuperSeal USB 3.0 Memory Stick



**233-344** E-40  
SuperSeal Receptacle Adapter with Accessory Threads and Pin or Socket Contacts to USB 2.0 Female Interface



**2330-0015 Cable Assemblies** E-48  
SuperSeal USB 2.0 Cable Assemblies



**233-345** E-42  
SuperSeal Connectors with Accessory Threads and USB 2.0 Male (Plug) or Female (Receptacle) Interface to Crimp Removable Contacts



**Cable Assemblies** E-50  
SuperSeal USB 3.0 Cable Assemblies



## SERIES 23

# SuperSeal™

## USB 2.0 and 3.0

## Ruggedized solutions



SuperSeal is the SuperNine family of ruggedized connectors with for USB 2.0 and high-speed USB 3.0 commercial interfaces. Both versions are IP68 (mated) and IP67 (unmated) rated. This interface datalink solution provides outstanding performance for field applications such as dismounted soldier and other C4ISR missions. SuperSeal USB provides military grade connector performance including metal-to-metal grounding, polarization keying, and non-corrosive conductive material and finish options. The USB protocol allows simple plug-and-play connectivity and *hot-swappable* addition of external peripherals such as digitally-aided close air support technologies without restarting systems.

- **USB 2.0 and 3.0 versions available**
- **Superior sealing—IP67 unmated—for complete system protection against water, sand and dust**
- **Highly durable SuperSeal™ insert design, provides enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance**
- **Crimp, solder-cup, PC tail and cable assemblies**



**USB 2.0 Performance Specifications**

Property	Description
----------	-------------

**Material and Finish**

<b>Shell/Coupling and Plating</b>	Aluminum, cad/o.d., electroless nickel, nickel PTFE, black zinc nickel
<b>Contacts</b>	PC tails, solder cup, and crimp contacts: copper alloy, gold plated
<b>USB Insulator</b>	LCP
<b>Grommet, Peripheral Seal, Interfacial Seal, O-ring</b>	Blended fluorosilicone/silicone elastomer, 30% silicone per ZZ-R-765, 70% fluorosilicone per MIL-R-25988
<b>Shell Sizes</b>	15 Consult factory for other shell size options

**Electrical Specifications**

<b>Data Rate</b>	480 MBps
<b>Power Usage</b>	500 milliamps (mA)
<b>Current Rating</b>	1.5 Amps,
<b>D.W.V.</b>	500 VAC
<b>I.R.</b>	1000 MegOhms
<b>Cabling Length</b>	5.0 Meters Max
<b>Shielding</b>	Continuous through coupler or continuous coupler to shell

**Environmental/Mechanical Performance**

<b>Sealing</b>	IP68 mated condition, IP67 unmated condition
<b>Outgassing</b>	<b>Mod Code 186S</b> meets outgassing requirements per ASTM E 595 and meets NASA level 3 screening for standard reliability <b>Mod Code 928</b> meets outgassing requirements per UL 94 V-0
<b>Operating Temperature</b>	-40°C to +120°C
<b>Vibration</b>	20g's, 3 Axis, 10 - 2000Hz
<b>Mechanical Shock</b>	300 g's
<b>Backshell Interface</b>	MIL-DTL-38999 Designator H
<b>Mating System</b>	Triple-start stub ACME
<b>Mating Cycles</b>	500

**USB 3.0 Performance Specifications**

Property	Description
----------	-------------

**Material and Finish**

<b>Shell/Coupling and Plating</b>	Aluminum, cad/o.d., electroless nickel, nickel PTFE, black zinc nickel
<b>Contacts</b>	PC tails, solder cup, and crimp contacts: copper alloy, gold plated
<b>USB Insulator</b>	LCP
<b>Grommet, Peripheral Seal, Interfacial Seal, O-ring</b>	Blended fluorosilicone/silicone elastomer, 30% silicone per ZZ-R-765, 70% fluorosilicone per MIL-R-25988
<b>Shell Sizes</b>	15 Consult factory for other shell size options

**Electrical Specifications**

<b>Data Rate</b>	5.0 GBps
<b>Power Usage</b>	500 milliamps (mA)
<b>Current Rating</b>	1.5 Amps,
<b>D.W.V.</b>	500 VAC
<b>I.R.</b>	1000 MegOhms
<b>Cabling Length</b>	3.0 Meters Max
<b>Shielding</b>	Continuous through coupler or continuous coupler to shell

**Environmental/Mechanical Performance**

<b>Sealing</b>	IP68 mated condition, IP67 unmated condition
<b>Outgassing</b>	<b>Mod Code 186S</b> meets outgassing requirements per ASTM E 595 and meets NASA level 3 screening for standard reliability <b>Mod Code 928</b> meets outgassing requirements per UL 94 V-0
<b>Operating Temperature</b>	-40°C to +120°C
<b>Vibration</b>	20g's, 3 Axis, 10 - 2000Hz
<b>Mechanical Shock</b>	300 g's
<b>Backshell Interface</b>	MIL-DTL-38999 Designator H
<b>Mating System</b>	Triple-start stub ACME
<b>Mating Cycles</b>	500



# SuperNine® USB 2.0 type A

## MIL-DTL-38999 Series III Type connectors

### 233-340 Couplers with Type A rear USB interface



USB 2.0 AND 3.0 CONNECTORS



Plug  
Front View



Square Flange  
Receptacle  
Front View

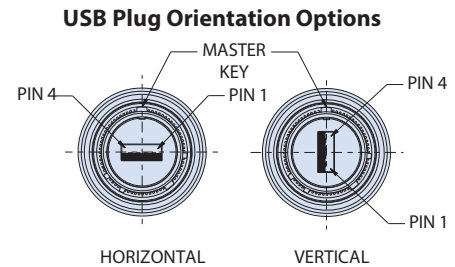
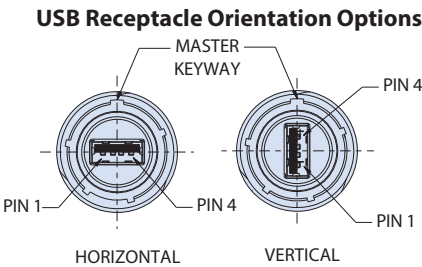


Jam Nut Receptacle  
Front View

Part Number Development										
Sample Part Number	233-340	NF	00	-15	2	A	A	N	H	T
Basic Number	233-340									
Finish	See Material and Finish table									
Connector Style <sup>1</sup>	See Connector Style table									
Shell Size	15									
USB Performance	2 = USB 2.0									
USB Front Interface	A = Type A									
USB Back Interface	A = Type A									
Alternate Key Position <sup>1</sup>	A, B, C, D, E, N = Normal per MIL-DTL-38999									
USB Orientation	H = Horizontal V = Vertical									
Shrink Boot	T = Shrink Boot Included (Omit for None)									

Material and Finish	
NF	Aluminum/Cadmium, Olive Drab
M	Aluminum/Electroless Nickel
MT	Alumimun/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

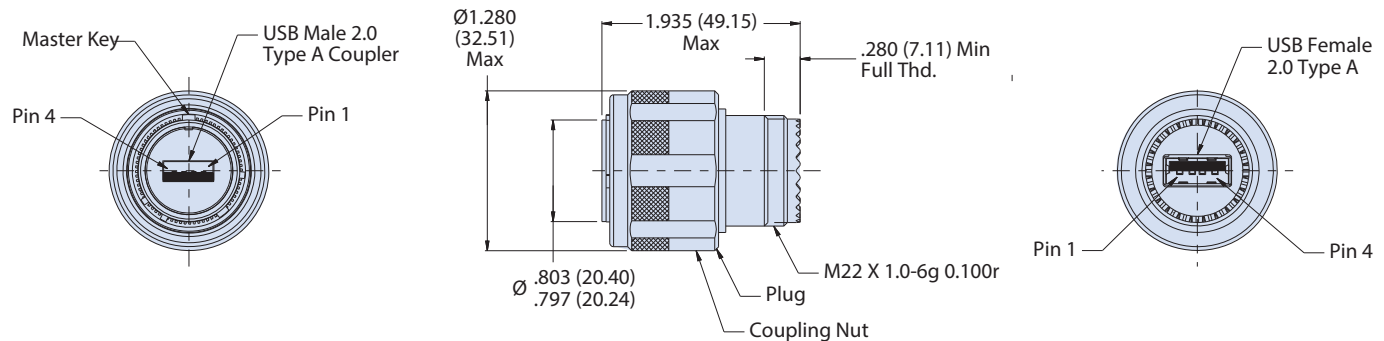
*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*



Connector Style	
G6	Plug
07	Rear panel mount, jam nut receptacle
00	Wall mount receptacle with slotted holes
D0	Wall mount receptacle with round holes
CM	Wall mount receptacle with metric clinch nuts

USB 2.0 Wiring				
Pin	Name	Cable Color (USB)	Description	Recommended Wire Sizes (AWG)
1	(V Bus)	Red	+5 V	22
2	(D-)	White	Data -	28
3	(D+)	Green	Data +	28
4	(GND)	Black	Ground	22

### G6 - PLUG WITH ACCESSORY THREADS



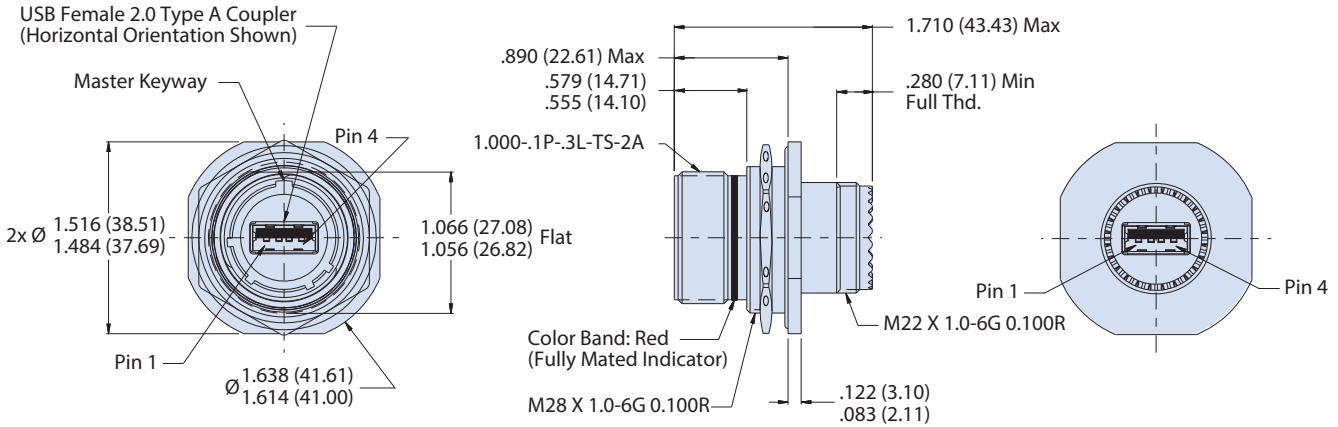
# SuperNine® USB 2.0 type A

## MIL-DTL-38999 Series III Type connectors

### 233-340 Couplers with Type A rear USB interface

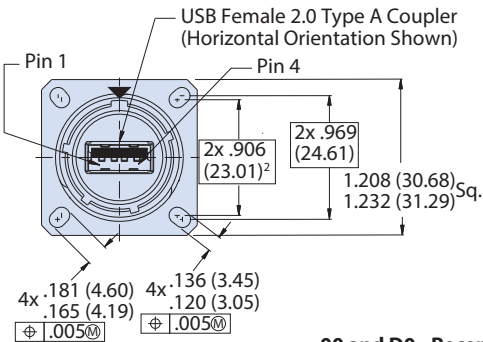


#### 07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE WITH ACCESSORY THREADS

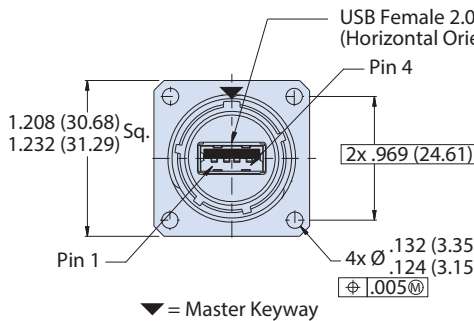


#### 00, D0 AND CM - WALL MOUNT RECEPTACLES WITH ACCESSORY THREADS

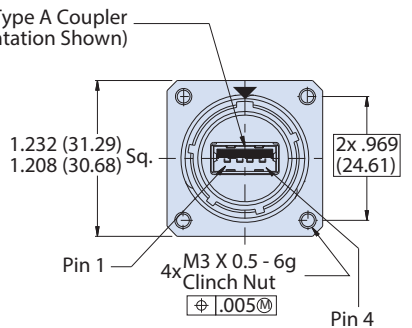
##### 00 - Slotted Hole Receptacle Face View



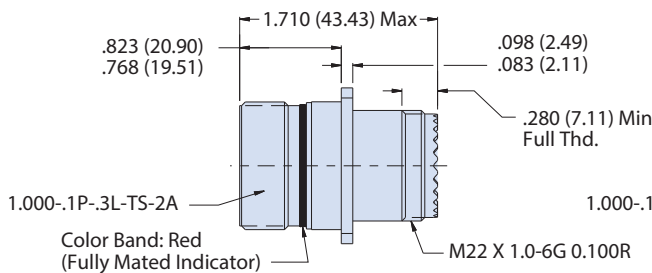
##### D0 - Round Hole Receptacle Face View



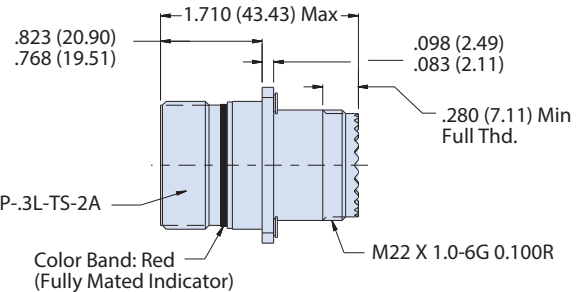
##### CM - Clinch Hole Receptacle Face View



##### 00 and D0 - Receptacle Side View



##### CM - Receptacle Side View



#### NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- Meets IP67 in unmated condition, IP68 mated
- Receptacle has USB female receptacle, plug has USB male plus
- Material and Finish
  - Shell, jam nut: al alloy
  - Insulators: high grade rigid dielectric/n.a.
  - Contacts: copper alloy, gold plated
  - Seals: silicone based elastomer
- USB (shell/contacts): copper alloy
- Dielectric: hi-temp thermoplastic PA9T UL94V-0
- Hardware: stainless steel /passivated



# SuperNine® USB 2.0 type A MIL-DTL-38999 Series III Type connectors 233-342 Receptacle with PC tails



USB 2.0 AND 3.0 CONNECTORS



Jam Nut Receptacle  
Rear View



Jam Nut Receptacle  
Front View

Part Number Development								
Sample Part Number	233-342	NF	00	-15	2	A	N	H
Basic Number	233-342							
Finish	See Material and Finish table							
Connector Style <sup>1</sup>	See Connector Style table							
Shell Size	15							
USB Performance	2 = USB 2.0							
USB Interface Type	A = Type A							
Alternate Key Position <sup>1</sup>	A, B, C, D, E, N = Normal; per MIL-DTL-38999							
USB Orientation	H = Horizontal V = Vertical							

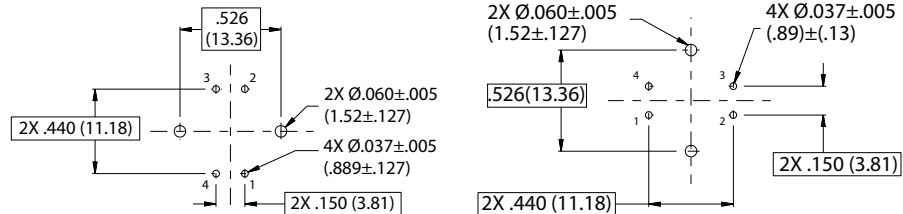
Material and Finish	
NF	Aluminum/Cadmium, Olive Drab
M	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel

Connector Style	
07	Rear panel mount, jam nut receptacle
00	Wall mount receptacle with slotted holes
DO	Wall mount receptacle with round holes
CM	Wall mount receptacle with metric clinch nuts

USB Receptacle Orientation Options (Partial Views Shown)



Recommended (Solder Side)



NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- Rear panel mount only
- Meets IP67 in unmated condition, IP68 mated
- Receptacle has USB female receptacle
- Material/Finishes:
  - Insulators: high grade rigid dielectric/ n.a.
  - Contacts: copper alloy, gold plated
  - Seals: silicone based elastomer
  - USB (shell/contacts): copper alloy
  - Dielectric: hi-temp thermoplastic PA9T UL94V-0
  - Hardware: stainless steel/passivated

USB 2.0 Wiring				
Pin	Name	Cable Color (USB)	Description	Recommended Wire Sizes (AWG)
1	(V Bus)	Red	+5 V	22
2	(D-)	White	Data -	28
3	(D+)	Green	Data +	28
4	(GND)	Black	Ground	22

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

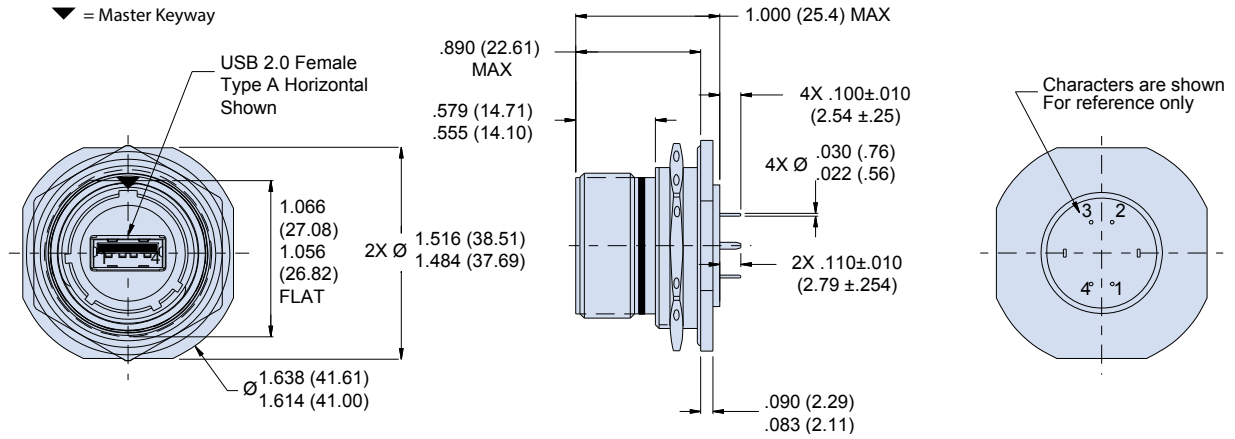
# SuperNine® USB 2.0 type A

## MIL-DTL-38999 Series III Type connectors

### 233-342 Receptacle with PC tails

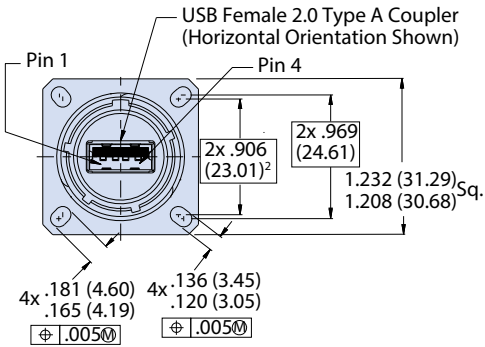


#### 07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE

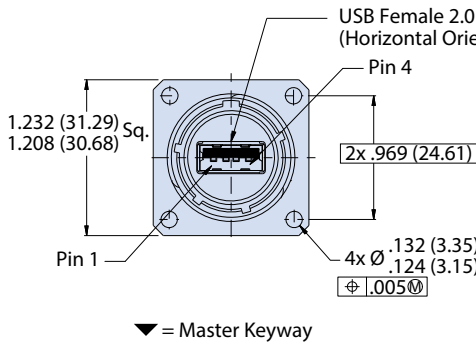


#### 00, D0 AND CM - WALL MOUNT RECEPTACLES

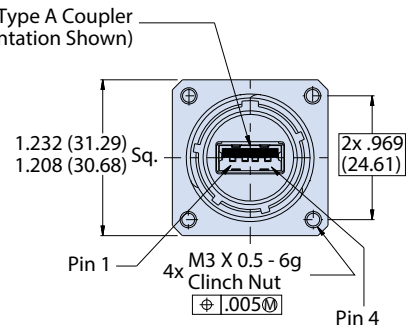
##### 00 - Slotted Hole Receptacle Face View



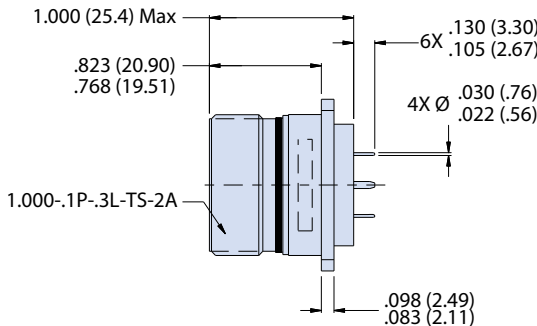
##### D0 - Round Hole Receptacle Face View



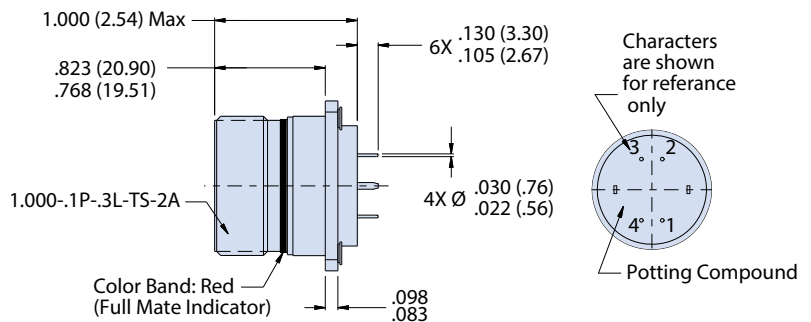
##### CM - Clinch Hole Receptacle Face View



##### 00 and D0 - Receptacle (Side View)



##### CM - Receptacle (Side View)



# SuperNine® USB 2.0 type A

## MIL-DTL-38999 Series III Type connectors

### 233-343 Receptacle with solder cup termination



USB 2.0 AND 3.0 CONNECTORS



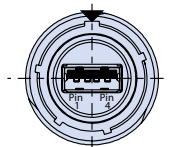
**Jam Nut Receptacle  
Front View**



**Jam Nut Receptacle  
Rear View**

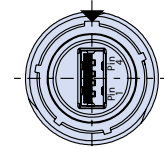
Part Number Development								
<b>Sample Part Number</b>	<b>233-343</b>	<b>NF</b>	<b>00</b>	<b>-15</b>	<b>2</b>	<b>A</b>	<b>N</b>	<b>H</b>
<b>Basic Number</b>	<b>233-343</b>							
<b>Finish</b>	See Material and Finish table							
<b>Connector Style<sup>1</sup></b>	See Connector Style table							
<b>Shell Size</b>	<b>15</b>							
<b>USB Performance</b>	<b>2 = USB 2.0</b>							
<b>USB Interface Type</b>	<b>A = Type A</b>							
<b>Alternate Key Position<sup>1</sup></b>	<b>A, B, C, D, E, N = Normal; per MIL-DTL-38999</b>							
<b>USB Orientation</b>	<b>H = Horizontal V = Vertical</b>							

**USB Receptacle Orientation Options (Partial Views Shown)**



Horizontal

▼ = Master Keyway



Vertical

Material and Finish	
<b>NF</b>	Aluminum/cadmium, olive drab
<b>M</b>	Aluminum/electroless nickel
<b>MT</b>	Alumimun/nickel PTFE
<b>ZR</b>	Aluminum/black zinc-nickel

Connector Style	
<b>07</b>	Rear panel mount, jam nut receptacle
<b>00</b>	Wall mount receptacle with slotted holes
<b>D0</b>	Wall mount receptacle with round holes
<b>CM</b>	Wall mount receptacle with metric clinch nuts

USB 2.0 Wiring				
Pin	Name	Cable Color (USB)	Description	Recommended Wire Sizes (AWG)
1	(V Bus)	Red	+5 V	22
2	(D-)	White	Data -	28
3	(D+)	Green	Data +	28
4	(GND)	Black	Ground	22

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

**NOTES**

1. See Section A for alternate key/keyway positions and panel cutout dimensions
2. Front panel mount only
3. All external dimensions, features, etc. Compliant with D38999/20, /24 & /26. Consult factory for additional information
4. Meets IP67 in unmated condition, IP68 mated
5. Receptacle has USB female receptacle
6. Materials and finishes
  - Shell, jam nut: aluminum ally
  - insulators: high grade 4 rigid dielectric/n.a.
  - contacts: copper alloy, god plated
  - seals: silicone based elastomer
  - USB (shell/contacts: copper alloy
  - dielectric: hi-temp thermoplastic PA9T UL94V-0
  - Hardware: stainless steel/passivated

# SuperNine® USB 2.0 type A

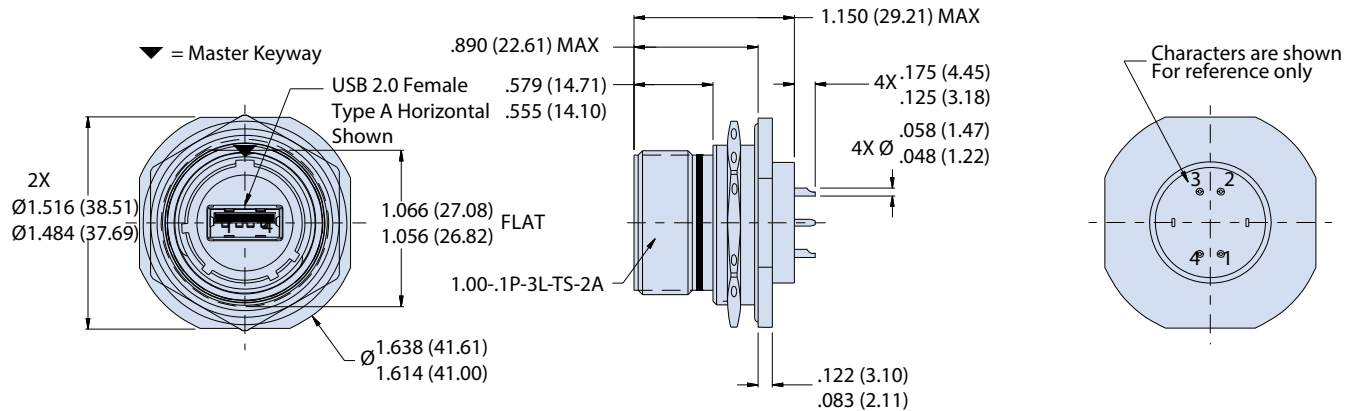
## MIL-DTL-38999 Series III Type connectors

### 233-343 Receptacle with solder cup termination



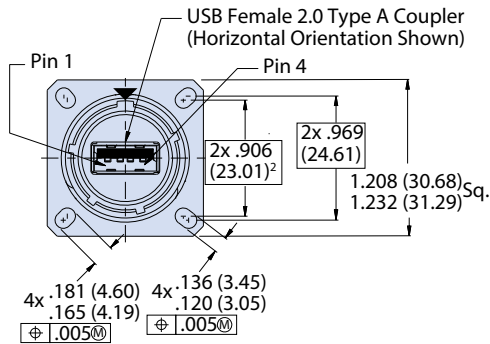
USB 2.0 AND 3.0 CONNECTORS

#### 07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE

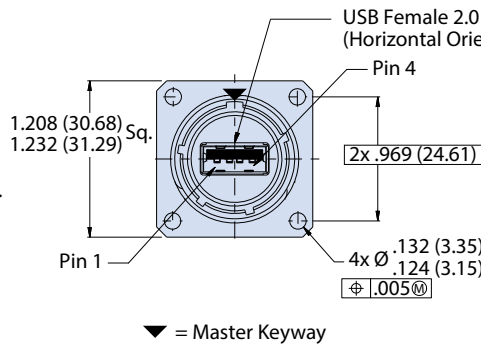


#### 00, D0 AND CM - WALL MOUNT RECEPTACLES

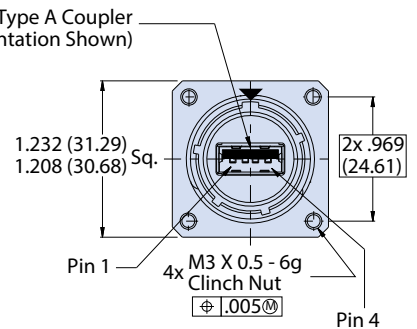
##### 00 - Slotted Hole Receptacle Face View



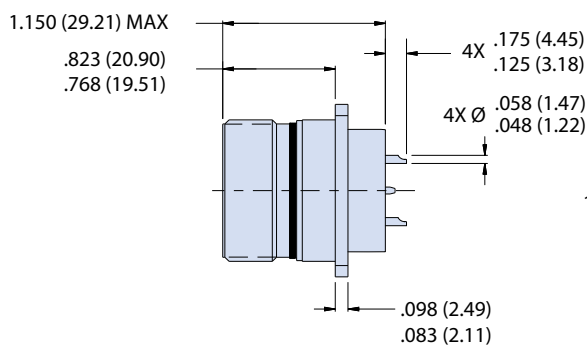
##### D0 - Round Hole Receptacle Face View



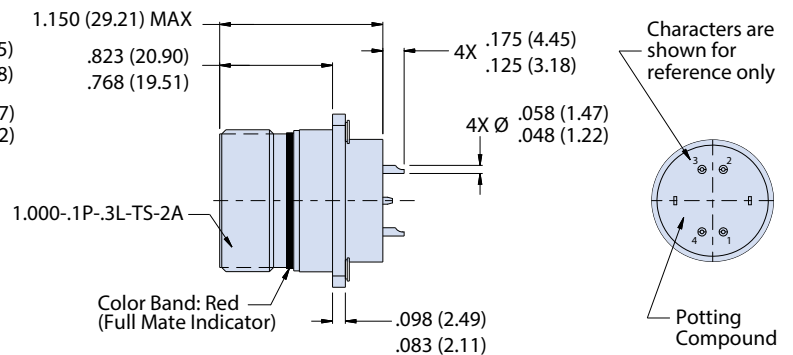
##### CM - Clinch Hole Receptacle Face View



##### 00 and D0 - Receptacle Side View



##### CM - Receptacle Side View



# SuperNine® USB 2.0 type A

## MIL-DTL-38999 Series III Type connectors

### 233-344 Receptacle adapter with MIL-STD 1560 interface



USB 2.0 AND 3.0 CONNECTORS



Plug Front View



Receptacle Front View

Material and Finish	
<b>NF</b>	Aluminum/cadmium, olive drab
<b>M</b>	Aluminum/electroless nickel
<b>MT</b>	Aluminum/nickel PTFE
<b>ZR</b>	Aluminum/black zinc-nickel

Connector Style	
<b>G6</b>	Plug
<b>07</b>	Rear panel mount, jam nut receptacle
<b>00</b>	Wall mount receptacle with slotted holes <sup>2</sup>
<b>D0</b>	Wall mount receptacle with round holes
<b>CM</b>	Wall mount receptacle with metric clinch nuts

#### NOTES

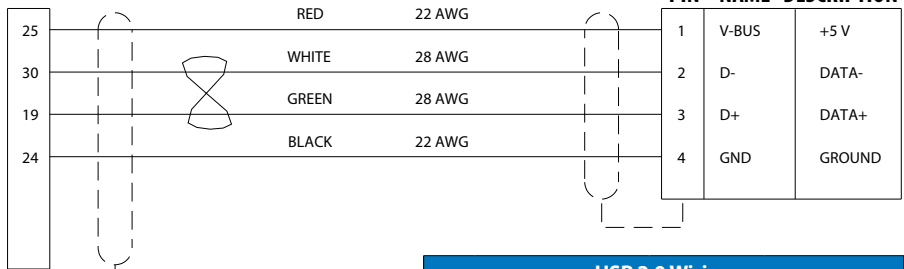
1. See Section A for alternate key/keyway positions and panel cutout dimensions
2. Front panel mount only
3. Insert arrangement in accordance with MIL-STD-1560, 15-35. Contact factory for additional options
4. Meets IP67 in unmated condition, IP68 mated
5. For custom pin assignment consult factory
6. Both plug and receptacle shells have MIL-STD-1560 mating interface and rear USB female receptacles

Part Number Development										
<b>Sample Part Number</b>	<b>233-344</b>	<b>NF</b>	<b>00</b>	<b>15</b>	<b>-35</b>	<b>2</b>	<b>A</b>	<b>P</b>	<b>N</b>	<b>T</b>
<b>Basic Number</b>	<b>233-344</b>									
<b>Finish</b>	See Material and Finish table									
<b>Connector Style<sup>1</sup></b>	See Connector Style table									
<b>Shell Size</b>	<b>15</b>									
<b>Insert Arrangement<sup>4</sup></b>	<b>35</b> = IAW MIL-STD-1560, 15-35									
<b>USB Performance</b>	<b>2</b> = USB 2.0									
<b>USB Rear Interface</b>	<b>A</b> = Type A									
<b>Contact Style</b>	<b>P</b> = Pin <b>S</b> = Socket									
<b>Alternate Polarization<sup>1</sup></b>	<b>A, B, C, D, E, N</b> = Normal; per MIL-DTL-38999									
<b>Shrink Boot</b>	<b>T</b> = Shrink Boot; Omit for none									

#### USB 2.0 Wiring Diagram

**P1 (connector interface)**  
Only 4 pins needed

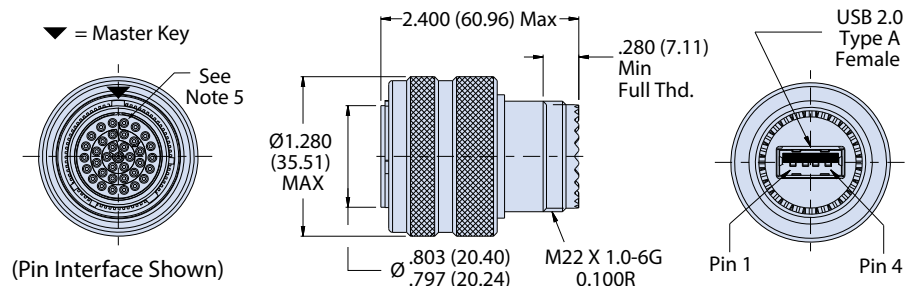
**P2 (USB 2.0 FEMALE)**



*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

USB 2.0 Wiring				
Pin	Name	Cable Color (USB)	Description	Recommended Wire Sizes (AWG)
1	(V Bus)	Red	+5 V	22
2	(D-)	White	Data -	28
3	(D+)	Green	Data +	28
4	(GND)	Black	Ground	22

#### G6 PLUG WITH ACCESSORY THREADS





# SuperNine® USB 2.0 type A

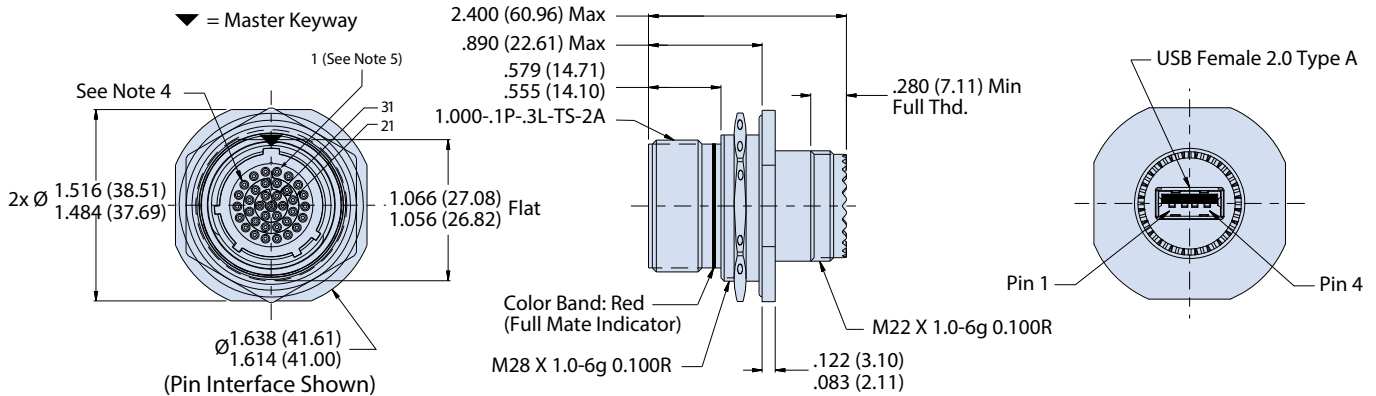


## MIL-DTL-38999 Series III Type connectors

### 233-344 Receptacle adapter with MIL-STD 1560 interface

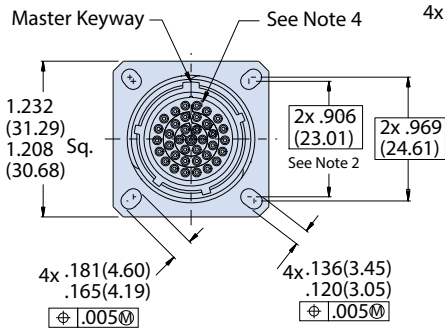
USB 2.0 AND 3.0 CONNECTORS

#### 07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE WITH ACCESSORY THREADS

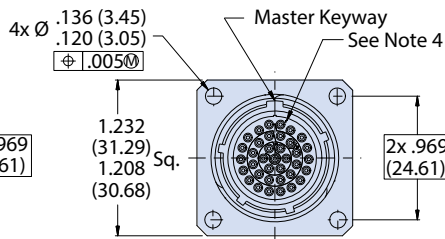


#### 00, D0 AND CM - WALL MOUNT RECEPTACLES WITH ACCESSORY THREADS

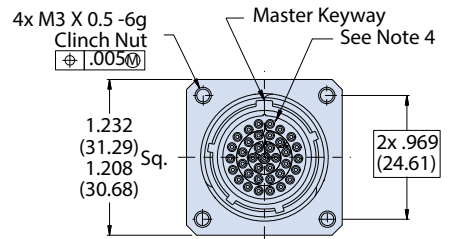
##### 00 - Slotted Hole Receptacle (Mating Face) (Pin Interface Shown)



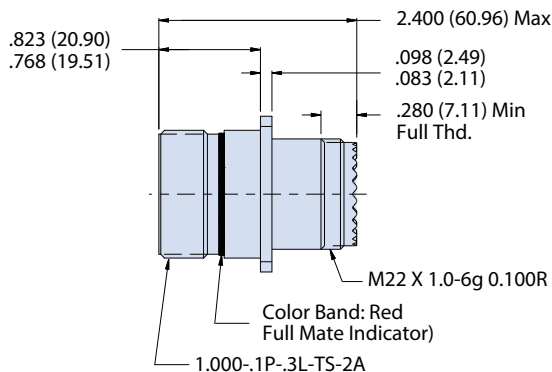
##### D0 - Round Hole Receptacle (Mating Face) (Pin Interface Shown)



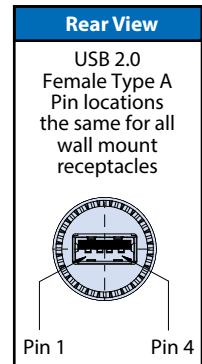
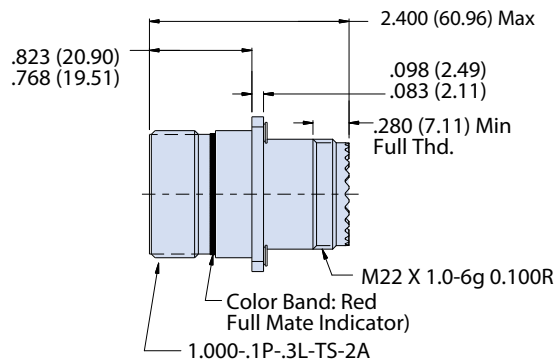
##### CM - Clinch Hole Receptacle (Mating Face) (Pin Interface Shown)



##### 00 and D0 - Receptacle (Side View)



##### CM - Receptacle (Side View)



# SuperNine® USB 2.0 type A



## MIL-DTL-38999 Series III Type connectors

### 233-345 Receptacle with size 22 crimp removeable contacts

USB 2.0 AND 3.0 CONNECTORS



Receptacle Front View

Receptacle Rear View



Part Number Development	
Sample Part Number	233-345 NF 00 -15 2 A N H T
Basic Number	233-345
Finish	See Material and Finish table
Connector Style <sup>1</sup>	See Connector Style table
Shell Size	15
USB Performance	2 = USB 2.0
USB Interface Type	A = Type A
Alternate Polarization <sup>1</sup>	A, B, C, D, E, N = Normal; per MIL-DTL-38999
USB Orientation	H = Horizontal V = Vertical
Shrink Boot	T = Shrink Boot; Omit for none

Material and Finish	
NF	Aluminum/cadmium, olive drab
M	Aluminum/electroless nickel
MT	Aluminum/nickel PTFE
ZR	Aluminum/black zinc-nickel

Connector Style	
G6	Plug
07	Rear panel mount, jam nut receptacle
00	Wall mount receptacle with slotted holes
D0	Wall mount receptacle with round holes
CM	Wall mount receptacle with metric clinch nuts

USB 2.0 Wiring				
Pin	Name	Cable Color (USB)	Description	Recommended Wire Sizes (AWG)
1	(V Bus)	Red	+5 V	22
2	(D-)	White	Data -	28
3	(D+)	Green	Data +	28
4	(GND)	Black	Ground	22

#### USB Receptacle Orientation Options (Partial Views Shown)

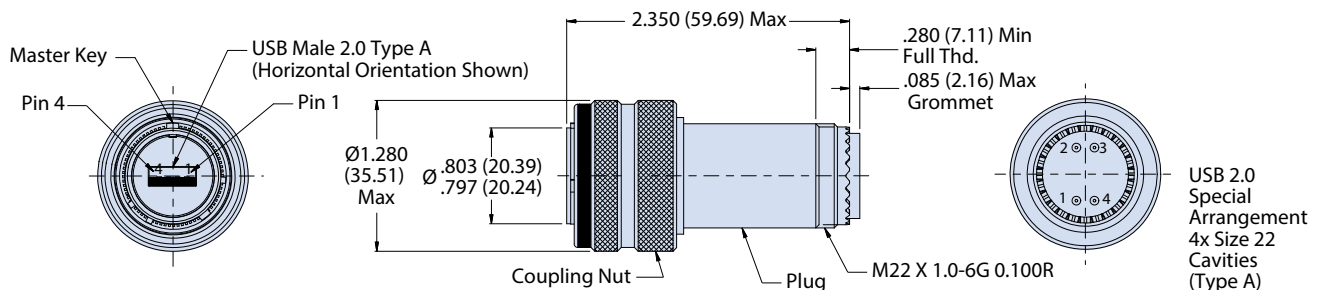


#### NOTES

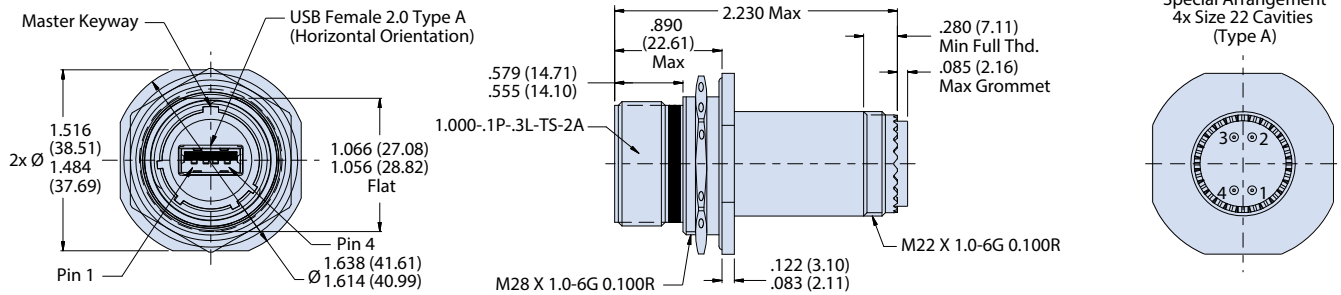
1. See Section A for alternate key/keyway positions and panel cutout dimensions
2. Front panel mount only
3. Crimp removable size 22 socket contacts (M39029/56-348) supplied loose
4. Meets IP67 in unmated condition, IP68 mated
5. Receptacle has USB female receptacle mating interface

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

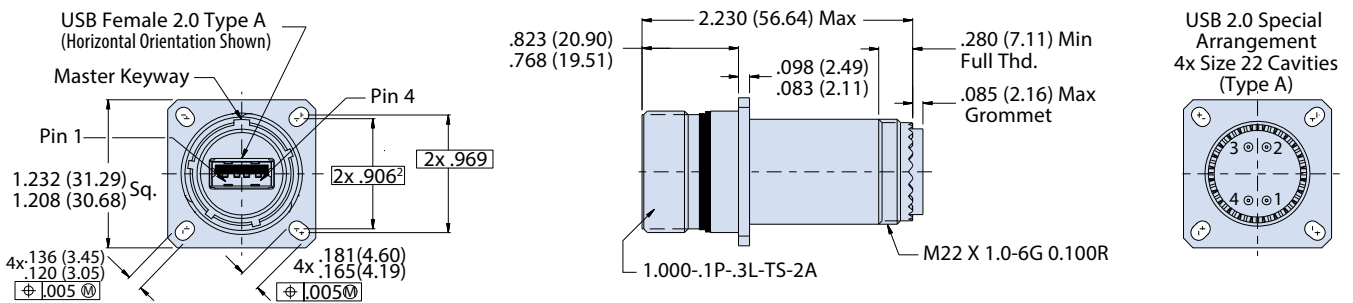
#### G6 PLUG WITH ACCESSORY THREADS



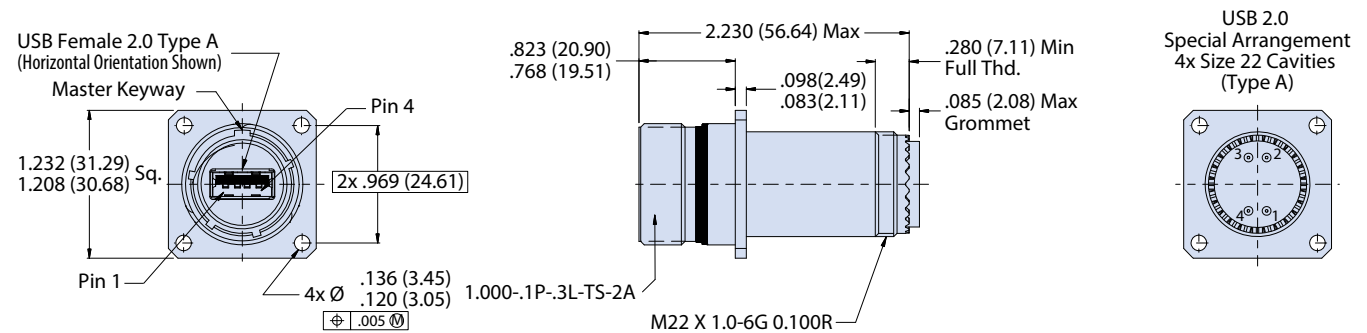
#### 07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE WITH ACCESSORY THREADS



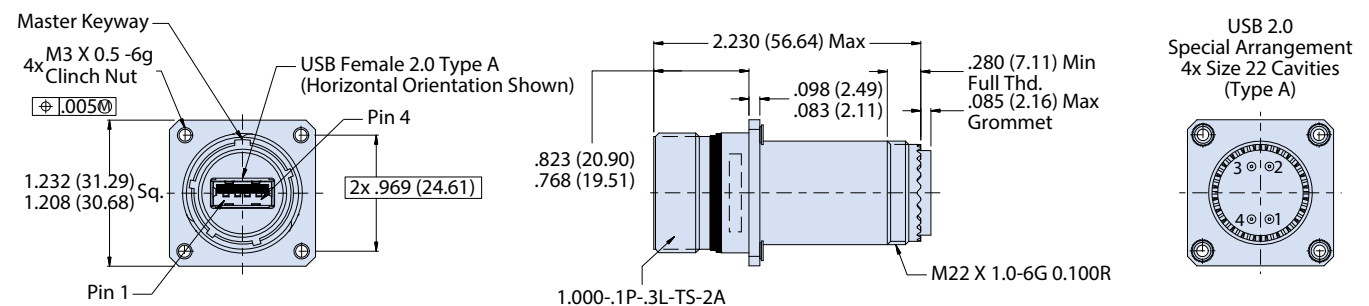
#### 00 WALL MOUNT RECEPTACLE WITH ACCESSORY THREADS



#### DO - WALL MOUNT RECEPTACLES WITH ACCESSORY THREADS



#### CM - WALL MOUNT RECEPTACLES WITH ACCESSORY THREADS



# SuperNine® USB 2.0 type A



## MIL-DTL-38999 Series III Type connectors

### 233-370 Feed-thru receptacle with front/rear USB interface

USB 2.0 AND 3.0 CONNECTORS



**Feed-Thru Front View**

Part Number Development									
<b>Sample Part Number</b>	<b>233-370</b>	<b>NF</b>	<b>00</b>	<b>-17</b>	<b>2</b>	<b>A</b>	<b>A</b>	<b>N</b>	<b>H</b>
<b>Basic Number</b>	<b>233-370</b>								
<b>Finish</b>	See Material and Finish table								
<b>Connector Style<sup>1</sup></b>	See Connector Style table								
<b>Shell Size</b>	<b>15</b> or <b>17</b>								
<b>USB Performance</b>	<b>2</b> = USB 2.0								
<b>USB Front Interface</b>	<b>A</b> = Type A								
<b>USB Rear Interface</b>	<b>A</b> = Type A								
<b>Alternate Polarization<sup>1</sup></b>	<b>A, B, C, D, E, N</b> = Normal								
<b>USB Orientation</b>	<b>H</b> = Horizontal <b>V</b> = Vertical								

Material and Finish	
<b>NF</b>	Aluminum/cadmium, olive drab
<b>M</b>	Aluminum/electroless nickel
<b>MT</b>	Aluminum/nickel PTFE
<b>ZR</b>	Aluminum/black zinc-nickel

Connector Style	
<b>07</b>	Rear panel mount, jam nut receptacle
<b>00</b>	Wall mount receptacle with slotted holes <sup>2</sup>
<b>DO</b>	Wall mount receptacle with round holes
<b>CM</b>	Wall mount receptacle with metric clinch nuts

USB 2.0 Wiring				
Pin	Name	Cable Color (USB)	Description	Recommended Wire Sizes (AWG)
1	(V Bus)	Red	+5 V	22
2	(D-)	White	Data -	28
3	(D+)	Green	Data +	28
4	(GND)	Black	Ground	22

**USB Receptacle Orientation Options (Partial Views Shown)**



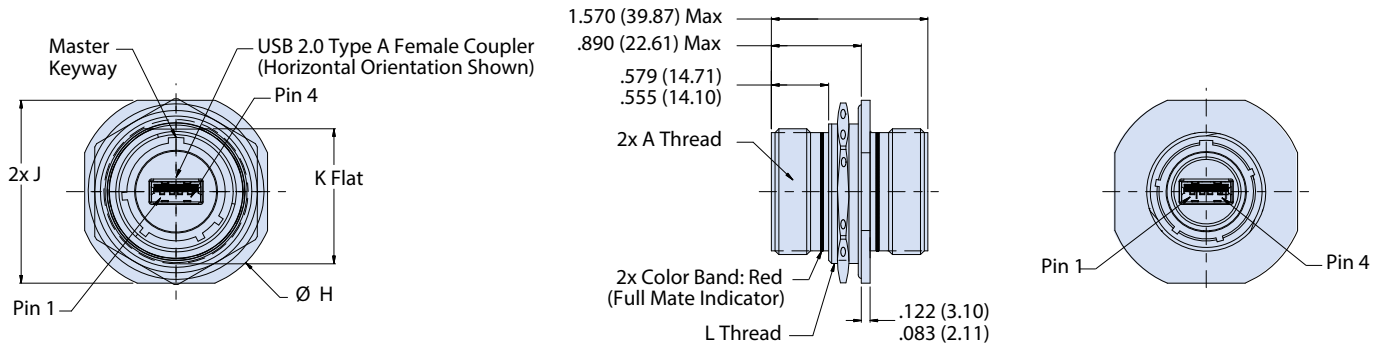
**NOTES**

- See Section A for alternate key/keyway positions and panel cutout dimensions
- Front panel mount only
- Meets IP67 in unmated condition, IP68 mated
- Feedthru has front and rear USB female mating interface

Shell Size	Jam Nut Mount						
	Ø H		J		K Flat		L Thread
	in	mm	in	mm	in	mm	
15	1.638	41.61	1.516	38.51	1.066	27.08	M28 X 1.0-6G 0.100R
	1.614	41.00	1.484	37.69	1.056	26.82	
17	1.764	44.81	1.642	41.71	1.191	30.25	M32 X 1.0-6G 0.100R <sup>4</sup>
	1.740	44.20	1.610	40.89	1.181	30.00	

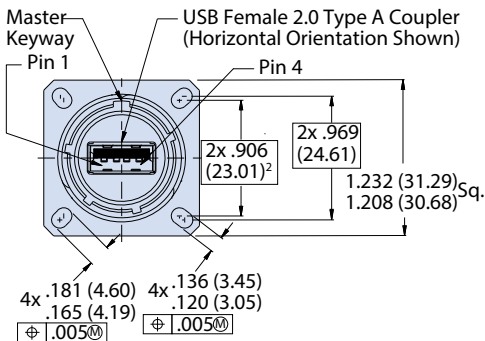
Shell Size	Wall Mount													
	A Thread		B Sq		C Bsc		D Bsc <sup>2</sup>		E		F		Ø G Holes	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
15	1.0000-1P-.3L-TS-2A	1.232	31.29	.969	24.61	.906	23.01	.136	3.45	0.181	4.60	0.136	3.45	
		1.208	30.68							0.165	4.19			
17	1.1875-1P-.3L-TS-2A	1.323	33.60	1.062	26.97	.969	24.61	0.120	3.05	0.202	5.13	0.120	3.05	
		1.299	32.99							0.186	4.72			

#### 07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE

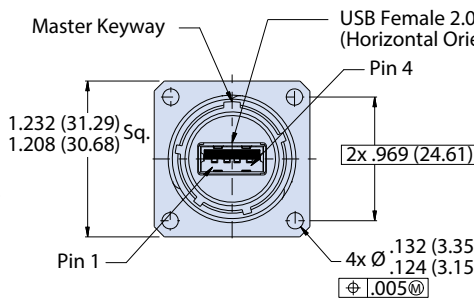


#### 00, D0 AND CM - WALL MOUNT RECEPTACLES

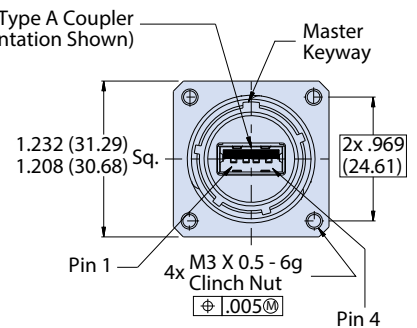
##### 00 - Slotted Hole Receptacle Face View



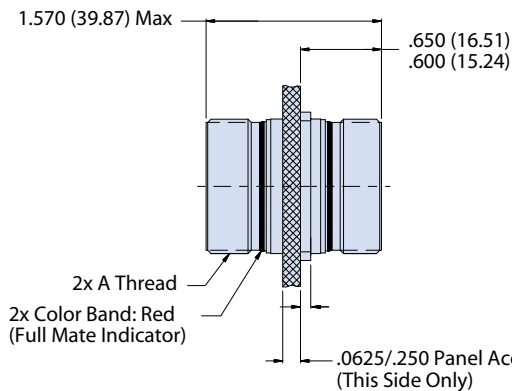
##### D0 - Round Hole Receptacle Face View



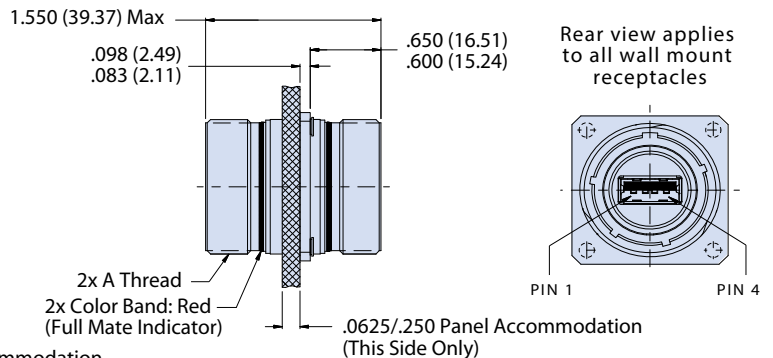
##### CM - Clinch Hole Receptacle Face View



##### 00 and D0 - Receptacle Side View



##### CM - Receptacle Side View



*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*



# SuperNine® USB 2.0 type A

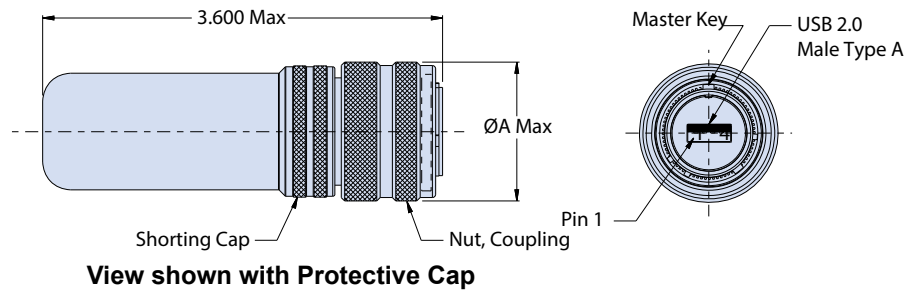
## MIL-DTL-38999 Series III Type connectors

### 233-390 Memory stick

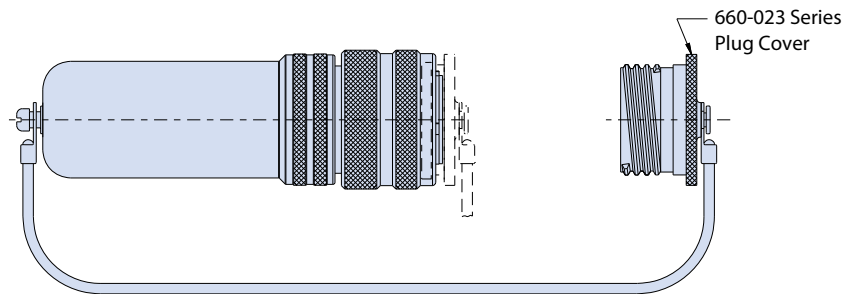


USB 2.0 AND 3.0 CONNECTORS

Part Number Development	
Sample Part Number	233-390 NF 32 -15 N H P
Series / Basic Part No.	233-390
Finish	NF = Aluminum/cadmium olive drab ME = Aluminum/electroless nickel MT = Aluminum/nickel PTFE ZR = Aluminum/zinc-nickel
Storage Capacity Options	128 = 128Gb 64 = 64Gb 32 = 32 Gb, 16 = 16 Gb, 8 = 8Gb
Shell Size	15, 17, 19, 21, 23, 25
Alternate Key Position	A, B, C, D, E, N = Normal; Per MIL-DTL-38999
USB Orientation	H = Horizontal V = Vertical
Protective Cover Option	P = Series 660-023 cover (omit for none)



Dimensions	
Shell Size	ØA Max
15	1.280 (32.5)
17	1.406 (35.7)
19	1.516 (38.5)
21	1.642 (41.7)
23	1.768 (44.9)
25	1.890 (48.0)

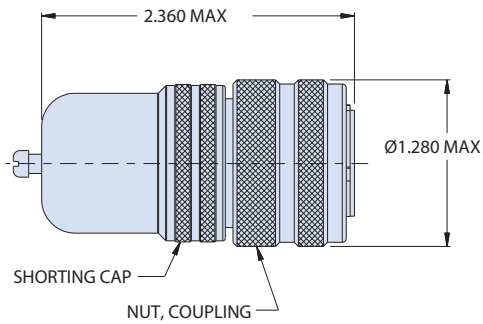


#### NOTES

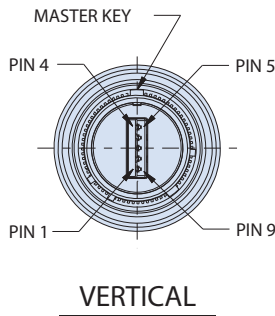
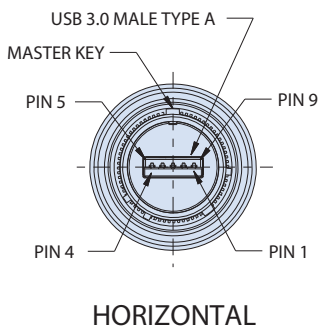
- System requirements: Windows 2000, XP, Vista, Windows 7.
- Compatibility: plug and play; USB 2.0 Compliance.
- Interface: USB 2.0, Type A male.
- Data transfer rates: USB 2.0: Up to 25 Mb/sec read, 10Mb/sec write.
- Password protection and AES encryption.
- Mates with 233-340,-341,-342,-343 & -345
- Environmental parameters:  
Operating temperatures: -40°C to 85°C (see part number development)
- Storage temperatures: -40°C to 85°C
- Humidity range operating: 10% to 95%
- Memory stick uses USB male plug
- Material/Finish
  - Barrel, coupling nut:
  - Insulators: high grade rigid dielectric/ N.A.
  - Seal: fluorosilicone/N.A.
  - EMI grounding spring: BeCu /electroless nickel plate.
  - Hardware: stainless steel/passivated

**MIL-DTL-38999 Series III Type connectors  
233-392 USB 3.0 memory stick**

Part Number Development	
Sample Part Number	233-392 NF 32 15 -N H P
Series / Basic Part No.	233-392
Material/Finish	NF = Aluminum/cadmium olive drab ME = Aluminum/electroless nickel MT = Aluminum/nickel PTFE ZR = Aluminum/zinc-nickel
Storage Capacity Options	32 = 32 GB, 64 = 64 GB, 128 = 128 GB
Shell Size	15
Alternate Polarization	A, B, C, D, E, N = Normal; Per MIL-DTL-38999
USB Orientation	H = Horizontal V = Vertical
Protective Cover Option	P = Series 660-023 cover; Omit for none



Read / Write Performance		
Capacity	Read (MB/s)	Write (MB/s)
32 GB	190	45
64 GB	190	95
128 GB	195	95
256 GB	180	130



**NOTES**

- Contact factory for details of protective cover options.
- This connector is designed to mate with Glenair part numbers 233-340,-341,-342,-343 &-345.
- USB flash memory specifications:
  - Storage capacity - 32 GB, 64 GB, 128 GB (consult factory for other capacity options)
  - System requirements - windows 2000, xp, vista, windows 7.
  - Compatibility - plug and play; USB 3.0 compliance; backward compatible with USB 2.0.
  - Interface - USB 3.0, Type a male.
  - Data transfer rates - see table II
  - Password protection and AES encryption.
  - Environmental parameters:
    - Operating temperatures - -40°C to 85°C
    - Storage temperatures - -40°C to 85°C
    - Humidity range operating - 10% to 95%.
- Material/finishes:
  - Barrel, coupling nut - see part number development
  - Insulators-high grade rigid dielectric/N.A.
  - Seal: fluorosilicone/N.A.
  - EMI grounding spring-BeCu/ electroless nickel plate.
  - Hardware: stainless steel/ passivated
- Assembly shall be identified with Glenair's name, part number and date code, space permitting.
- Interpret drawing per ASME Y14.5 - 2009.

USB 2.0 AND 3.0 CONNECTORS

# SuperNine® USB 2.0 type A

## MIL-DTL-38999 Series III Type connectors

### 2330-0015 USB 2.0 Cable Assembly



USB 2.0 AND 3.0 CONNECTORS



#### 2330-0015 Glenair SuperSeal™ USB 2.0 cable jumpers, with SuperNine® connectors to standard USB Type A plug

SuperSeal USB connectors are IP67 open face rated and IP68 in the mated condition for complete protection in harsh environments. SuperSeal connector styles include plug, wall mount and jam-nut receptacles. Wall mount receptacles are available with slotted holes and straight cable exit. USB 2.0 can be ordered in horizontal or vertical orientation to provide further security against mis-mating and conform to existing USB orientations. Please consult factory for custom configurations.

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

Material and Finish	
<b>NF</b>	Aluminum/cadmium, olive drab
<b>ME</b>	Aluminum/electroless nickel
<b>ZR</b>	Zinc nickel, black (tri-valent chromium) RoHS compliant

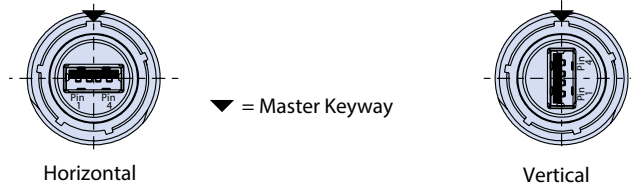
Connector Style	
<b>G6</b>	Plug
<b>07</b>	Rear panel mount, jam nut receptacle
<b>00</b>	Wall mount receptacle with slotted holes <sup>2</sup>

#### NOTES

1. See Section A for panel cutout dimensions
2. Meets IP67 in unmated condition, IP68 mated
3. Standard configurations provided with potted back end
4. SuperSeal plug houses USB plug. Superseal receptacle houses USB receptacle

Sample Part Number	Part Number Development											
	2330-0015	NF	07	S	-15	2	A	N	H	A	S	-03
<b>Basic Number</b>	2330-0015											
<b>P1 Finish</b>	See Material and Finish table											
<b>P1 Connector Style<sup>1</sup></b>	See Connector Style table											
<b>P1 Cable Exit</b>	S = Straight											
<b>P1 Shell Size</b>	15											
<b>USB Performance</b>	2 = USB 2.0											
<b>USB Interface</b>	A = Type A											
<b>Polarization</b>	N = Normal											
<b>USB Orientation</b>	H = Horizontal V = Vertical											
<b>P2 Connector Style</b>	A - Type A USB plug											
<b>P2 Cable Exit</b>	S = Straight											
<b>Standard Lengths</b>	01, 02, 03, 06, 10, 15 and 25 feet in length											

#### USB Receptacle Orientation Options (Partial Views Shown)



# SuperNine® USB 2.0 type A

## MIL-DTL-38999 Series III Type connectors

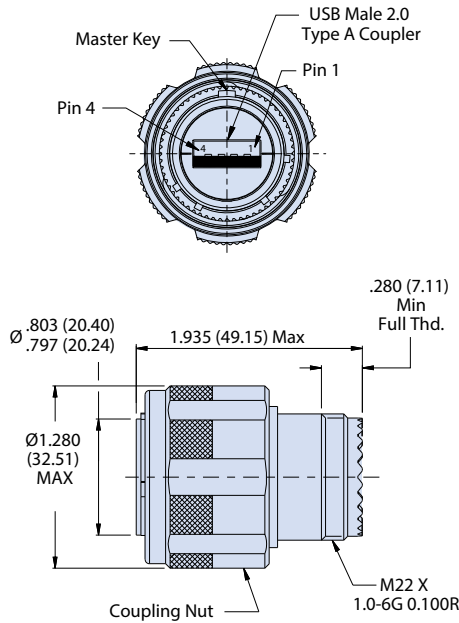
### 2330-0015 USB 2.0 Cable Assembly



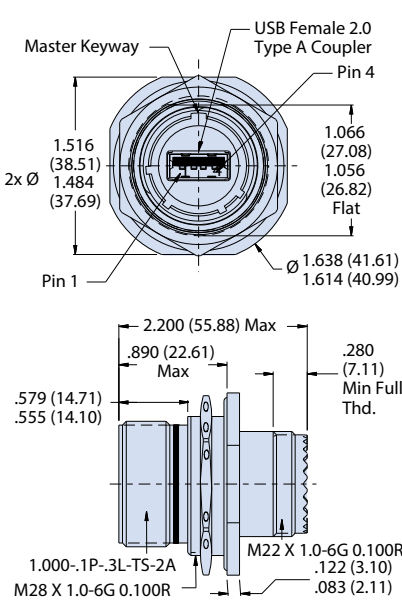
USB 2.0 AND 3.0 CONNECTORS

**AVAILABLE P1 CONNECTOR DIMENSIONS, SHELL SIZE 15**

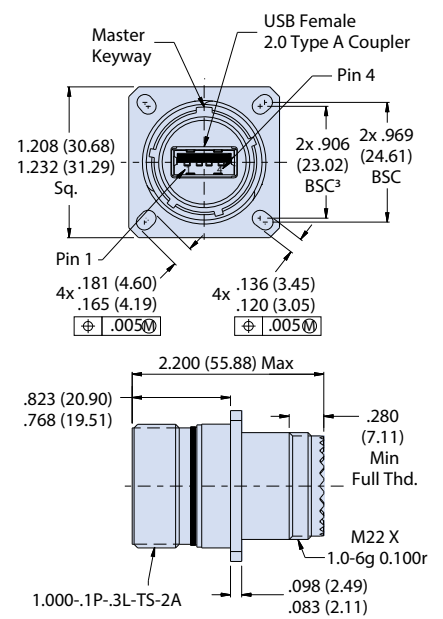
**G6 Plug**



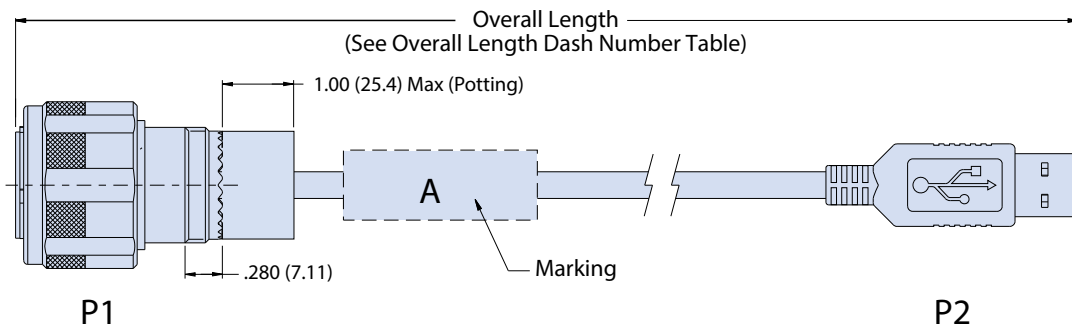
**07 Receptacle, Jam-Nut Mount**



**00 Receptacle, Wall Mount with Slotted Holes**



**CABLE ASSEMBLY SHOWN WITH PLUG CONNECTOR STYLE**



# SuperNine® USB 3.0 type A

## MIL-DTL-38999 Series III Type connectors

### 2330-0445 USB 3.0 Cable Assembly



USB 2.0 AND 3.0 CONNECTORS



### 2330-0445 Glenair SuperSeal™ USB 3.0 cable jumpers, with SuperNine® connectors to standard USB Type A plug

SuperSeal USB connectors are IP67 open face rated and IP68 in the mated condition for complete protection in harsh environments. SuperSeal connector styles include plug, wall mount and jam-nut receptacles. USB 3.0 can be ordered in horizontal or vertical orientation to provide further security against mis-mating and conform to existing USB orientations. Please consult factory for custom configurations.

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

Material and Finish	
<b>NF</b>	Aluminum/cadmium, olive drab
<b>ME</b>	Aluminum/electroless nickel
<b>ZR</b>	Zinc nickel, black (tri-valent chromium) RoHS compliant

Connector Style	
<b>G6</b>	Plug
<b>07</b>	Rear panel mount, jam nut receptacle
<b>00</b>	Wall mount receptacle with slotted holes <sup>2</sup>

Part Number Development								
<b>Sample Part Number</b>	<b>2330-0445</b>	<b>NF</b>	<b>07</b>	<b>-15</b>	<b>3</b>	<b>A</b>	<b>N</b>	<b>H -03</b>
<b>Basic Number</b>	<b>2330-0445</b>							
<b>P1 Finish</b>	See Material and Finish table							
<b>P1 Connector Style<sup>1</sup></b>	See Connector Style table							
<b>P1 Shell Size</b>	<b>15</b>							
<b>USB Performance</b>	<b>3</b> = USB 3.0							
<b>USB Interface</b>	<b>A</b> = Type A							
<b>Polarization</b>	<b>N</b> = Normal							
<b>USB Orientation</b>	<b>H</b> = Horizontal <b>V</b> = Vertical							
<b>Overall Length</b>	<b>01, 02, 03, 06</b> and <b>10</b> feet in length. For lengths longer than 10 feet use 2330-0450 repeaters for optimal performance							

### NOTES

1. See Section A for panel cutout dimensions
2. Meets IP67 in unmated condition, IP68 mated
3. USB 3.0 Specifications  
DWV: 100 VAC (RMS)  
IR: 100 Megohms minimum  
Operating Temperature: 20°C to +85°C
4. Standard configurations provided with adhesive lined shrink boot
5. SuperSeal plug houses USB plug.  
Superseal receptacle houses USB receptacle

### USB Receptacle Orientation Options (Partial Views Shown)



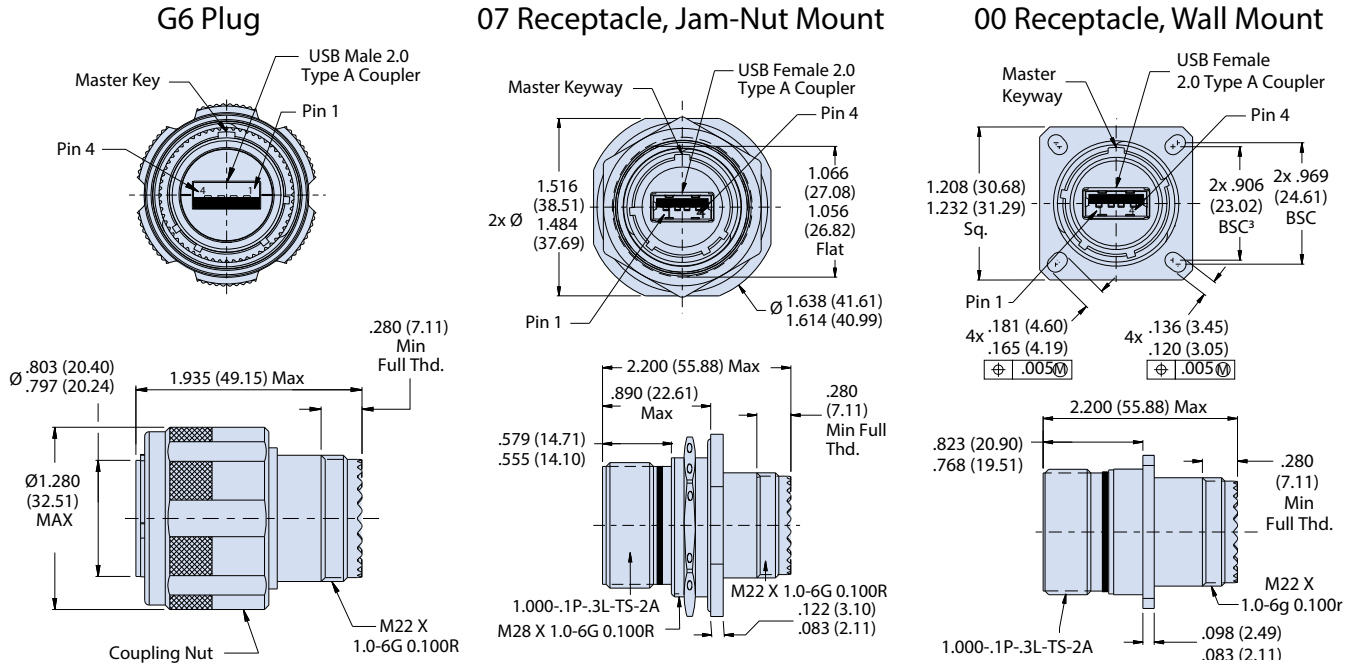


# SuperNine® USB 3.0 type A MIL-DTL-38999 Series III Type connectors 2330-0445 USB 3.0 Cable Assembly

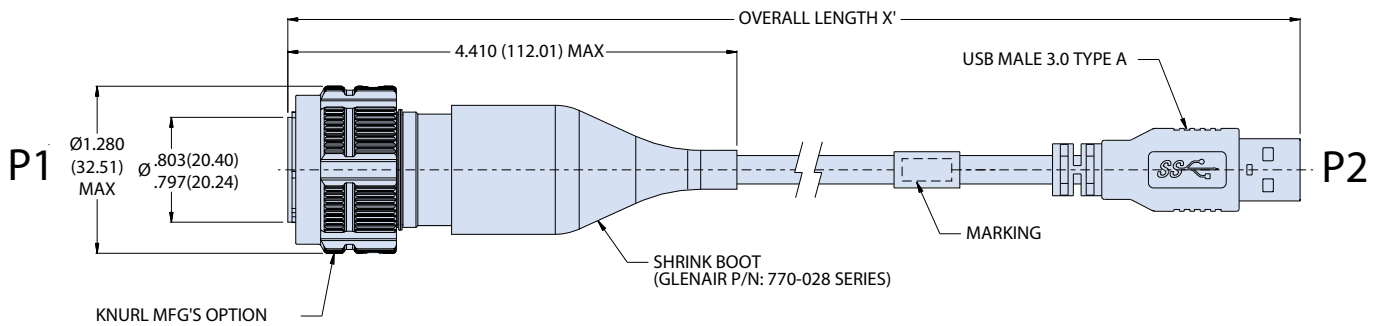


USB 2.0 AND 3.0 CONNECTORS

**AVAILABLE P 1 CONNECTOR DIMENSIONS, SHELL SIZE 15**



**CABLE ASSEMBLY SHOWN WITH PLUG CONNECTOR STYLE**



# SuperNine® USB 3.0 type A

## MIL-DTL-38999 Series III Type connectors

### 233-0450 USB 3.0 Cable Assembly



USB 2.0 AND 3.0 CONNECTORS



#### 2330-0450 Glenair SuperSeal™ USB 3.0 plug cable jumper, with active repeater.

SuperSeal USB cable assemblies with IP67 open face rated connectors offer complete protection from environmental debris and water ingress common under harsh environmental conditions. USB 3.0 can be ordered in horizontal or vertical orientation to provide further security against mis-mating and conforms to existing USB orientations. Additional length options and custom configurations available. Please consult factory.

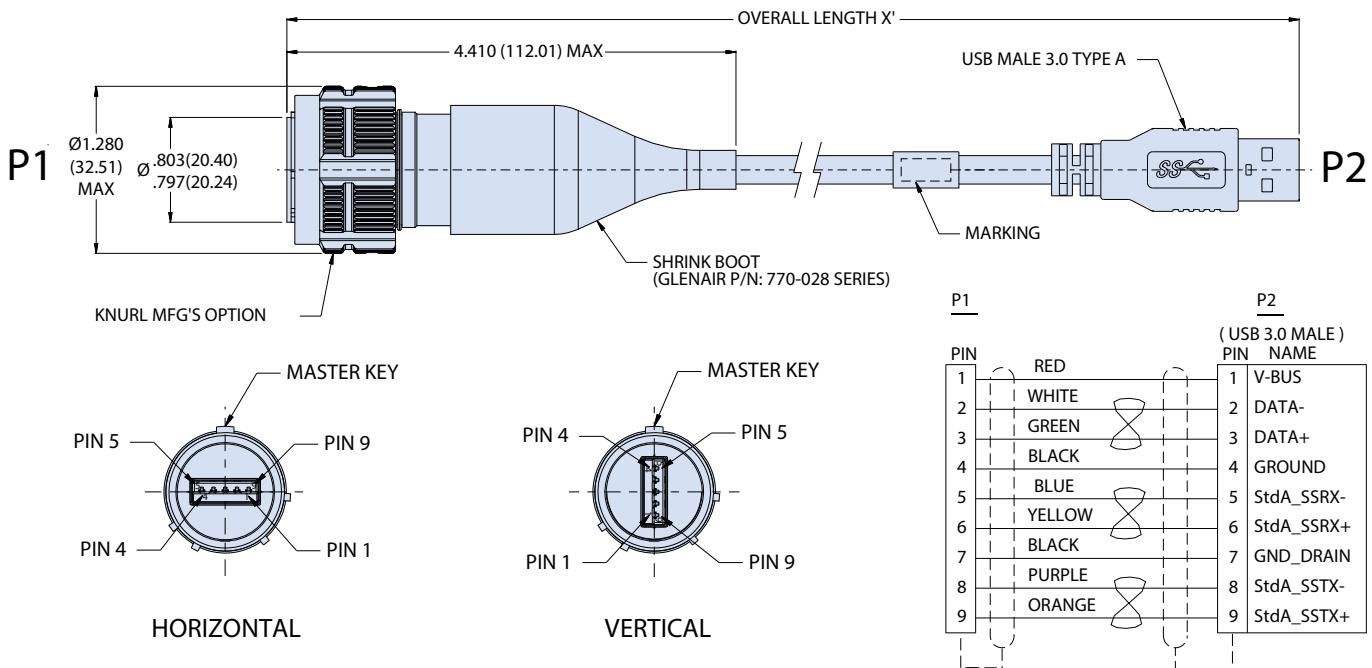
*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

Material and Finish	
NF	Aluminum/cadmium, olive drab
ME	Aluminum/electroless nickel
ZR	Zinc nickel, black (tri-valent chromium) RoHS compliant

#### NOTES

1. Meets IP67 in unmated condition, IP68 mated
2. SuperSeal plug houses USB plug.

Part Number Development								
Sample Part Number	2330-0450	NF	G6	-15	3	A	N	H -03
Basic Number	2330-0450							
P1 Finish	See Material and Finish table							
P1 Connector Style <sup>1</sup>	G6 = Plug							
P1 Shell Size	15							
USB Performance	3 = USB 3.0							
USB Interface	A = Type A							
Polarization	A, B, C, D, E, N = Normal							
USB Orientation	H = Horizontal V = Vertical							
Overall Length	01 thru 10; length in feet.							



# SuperNine<sup>®</sup> USB 3.0 type A MIL-DTL-38999 Series III Type connectors Product selection guide

HDMI CONNECTORS



**233-360** E-56  
SuperSeal™ HDMI 2.0 Type A Panel Mount  
Couplers with Accessory Threads



**233-365** E-66  
SuperSeal™ HDMI 2.0 Type A Panel Mount  
Feed-thru Couplers



**233-362** E-59  
SuperSeal™ HDMI 2.0 Type A Panel Mount  
Couplers with PC Tails



**233-368** E-68  
SuperSeal™ HDMI 2.0 Type A Plug  
Adapter



**233-363** E-61  
SuperSeal™ HDMI 2.0 Type A Panel Mount  
Couplers with Solder Cups



**2330-0455** E-69  
SuperSeal™ HDMI 2.0 Cable Assembly



**233-364** E-63  
SuperSeal™ HDMI 2.0 Type A Panel Mount  
Couplers with Break-out Board



## SERIES 23

# SuperSeal™

## HDMI 2.0 Ruggedized Cable Assemblies

HDMI has become the defacto connector interface for the transmission of compressed and uncompressed high-resolution video and is widely supported across multiple manufacturer displays as the replacement for analog video transmission. The HDMI 2.0 standard provides greater audio and video signal capacity and is excellent for delivery of video and audio data where clear, high-quality reproduction is necessary. Although well-suited for commercial applications these interfaces are not designed for exposure to the harsh operating conditions encountered in military field use and harsh-environment aerospace applications. SuperSeal, the SuperNine product series for HDMI 2.0 resolves these shortcomings by introducing a ruggedized solution with increased operating temperature range, improved shock and vibration and IP68 mated and IP67 unmated performance.



- **HDMI 2.0 version**
- **Highly durable SuperSeal insert design, provides enhanced operating temperature, increased life-cycle, and rugged vibration and shock performance**
- **Pre-terminated cable assemblies available for wall mount or jam-nut mount to HDMI interface**



#### HDMI 2.0 Performance Specifications

Property	MIL-DTL-38999 Series III Type
----------	-------------------------------

#### Material and Finish

<b>Shell/Coupling and Plating</b>	Complete list of options available in the Material and Finish Options portion of this section
<b>Contacts</b>	Copper alloy/gold plate
<b>HDMI Insulator</b>	LCP
<b>Grommet, Peripheral Seal, Interfacial Seal, O-ring</b>	Blended fluorosilicone/silicone elastomer, 30% silicone per ZZ-R-765, 70% fluorosilicone per MIL-R-25988
<b>Shell Size</b>	17 Consult factory for other shell size options

#### Electrical Specifications

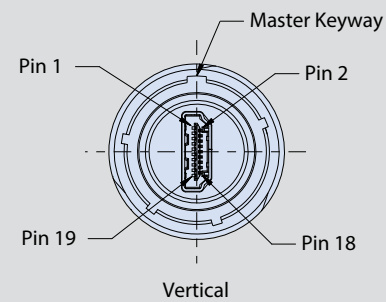
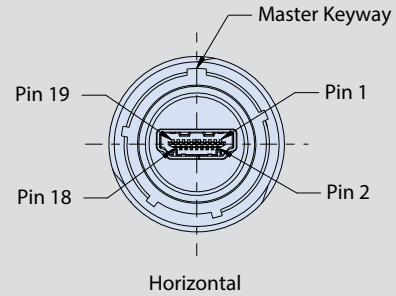
<b>Data Rate</b>	Up to 18 Gbps
<b>Power Usage</b>	+5.0 volts
<b>Current Rating</b>	0.3 Amps min.
<b>D.W.V.</b>	300 VAC
<b>I.R.</b>	100 Mega Ohms min
<b>Cabling Length</b>	10 Meters Max (recommended)
<b>Shielding</b>	Continuous through coupler or continuous coupler to shell

#### Environmental/Mechanical Performance

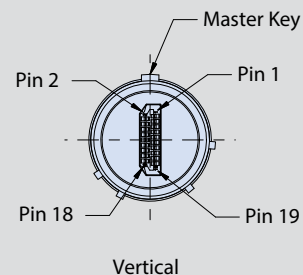
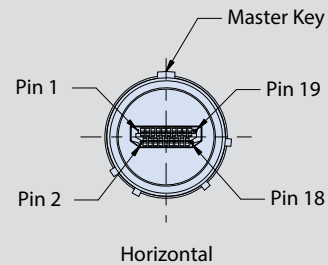
<b>Sealing</b>	IP67 unmated IP68 mated
<b>Outgassing</b>	<b>Mod Code 186S</b> meets outgassing requirements per ASTM E 595 and meets NASA level 3 screening for standard reliability <b>Mod Code 928</b> meets outgassing requirements per UL 94 V-0
<b>Operating Temperature</b>	-20°C to +85°C
<b>Backshell Interface</b>	MIL-DTL-38999 Designator H
<b>Mating System</b>	Triple-start stub ACME
<b>Mating Cycles</b>	500

#### HDMI 2.0 CONNECTOR ORIENTATION OPTIONS

##### Receptacle



##### Plug





# SuperNine® HDMI 2.0

## MIL-DTL-38999 Series III Type

### 233-360 Panel mount couplers with accessory threads



HDMI CONNECTORS



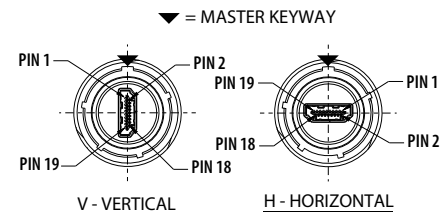
Part Number Development						
Sample Part Number	233-360	NF	00	-17	N	H
Basic Number	233-360					
Finish	See Material and Finish table					
Connector Style <sup>1</sup>	See Connector Style table					
Shell Size	17					
Alternate Key Position <sup>1</sup>	A, B, C, D, E, N = Normal per MIL-DTL-38999					
HDMI Orientation	H = Horizontal V = Vertical					
Shrink Boot	T = Part No. 770-028 (Omit for None)					

Material and Finish	
NF	Aluminum/Cadmium, Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel
AB	Marine Bronze
XM	Composite/Electroless Nickel

Additional material / finish options available consult factory

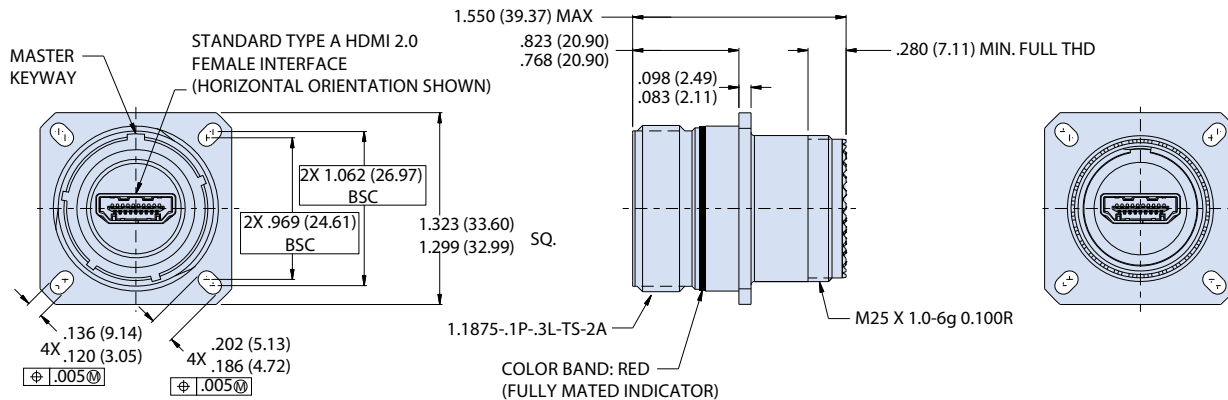
Connector Style	
00	Wall mount receptacle with slotted holes
D0	Wall mount receptacle with thru-holes
CM	Wall mount receptacle with metric clinch nuts
CS	Wall mount receptacle with standard clinch nuts
07	Rear panel mount, jam nut receptacle
05	Inline receptacle

### HDMI 2 FEMALE ORIENTATION OPTIONS (PARTIAL FRONT VIEWS SHOWN)



All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.

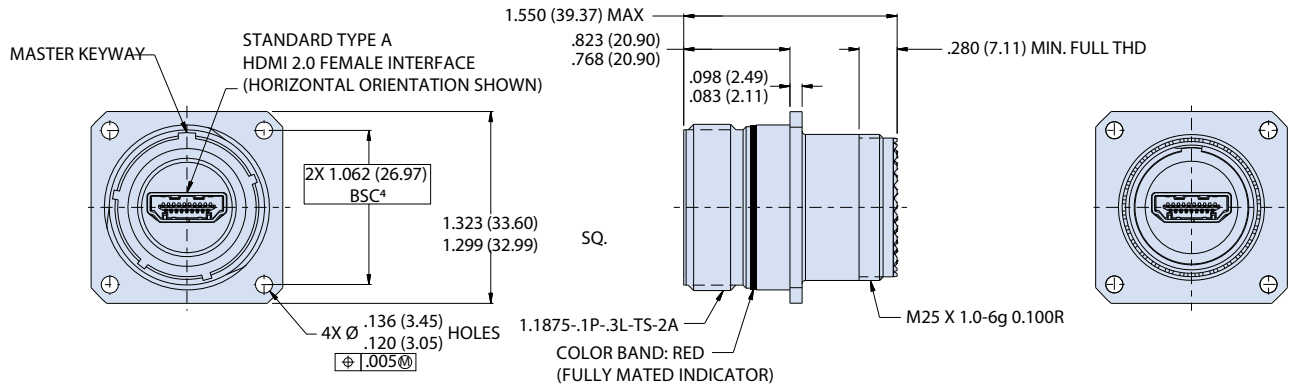
### 00 - WALL MOUNT RECEPTACLE WITH SLOTTED THRU-HOLES



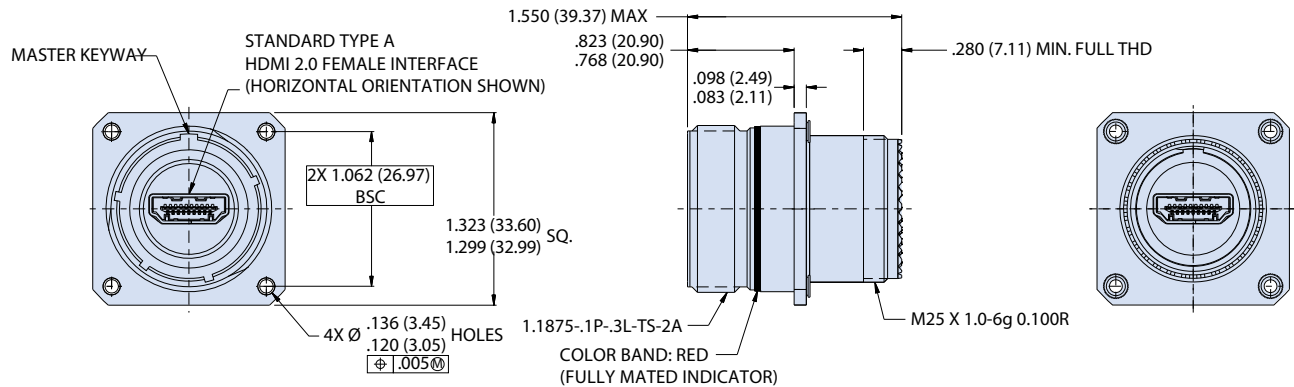
### NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- Meets IP67 in unmated condition, IP68 mated
- HDMI Type A female port, front and back
- Front panel mount only
- Material and Finish
  - Shell, jam nut: see material finish table
  - Seals: silicone based elastomer
  - Hardware: stainless steel/passivated
- HDMI:
  - Housing: thermoplastic/NA
  - Shell: copper alloy nickel plated
  - Terminal: copper alloy/gold plated
- HDMI performance: design meets HDMI 2.0 protocol requirement including 18Gbps of bandwidth and supports 4K resolution and 60Hz

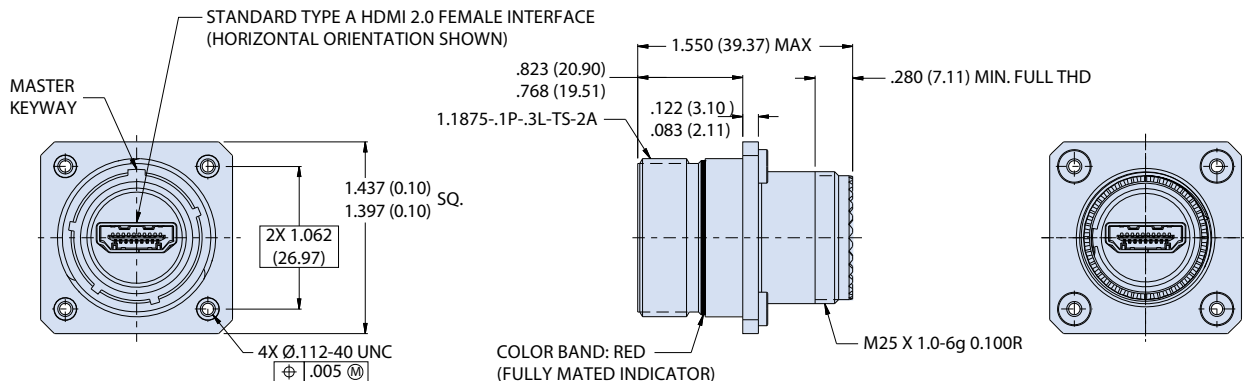
**DO - WALL MOUNT RECEPTACLE WITH ROUND THRU-HOLES**



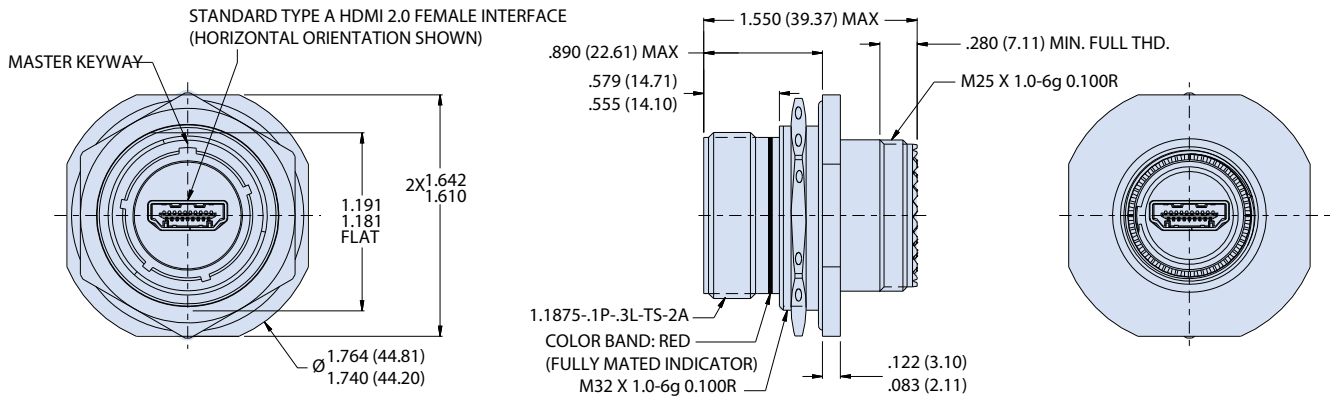
**CM - WALL MOUNT RECEPTACLE WITH METRIC CLINCH NUTS**



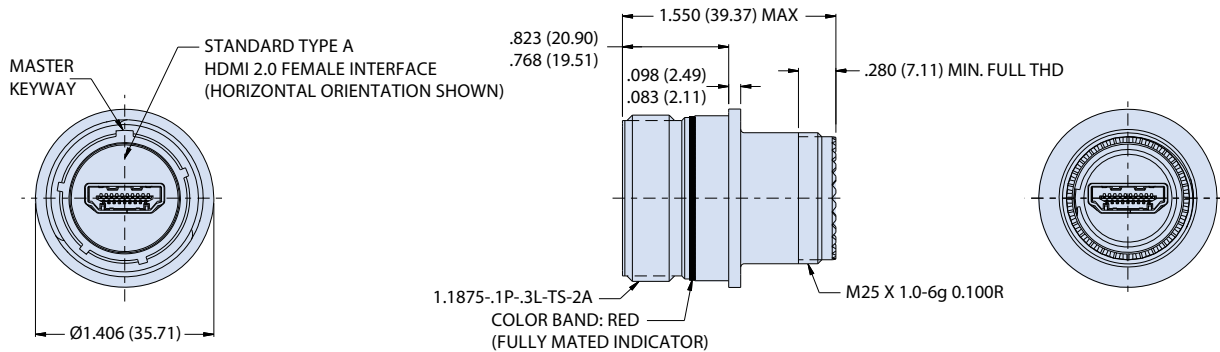
**CS - WALL MOUNT RECEPTACLE WITH STANDARD CLINCH NUTS**



**07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE**

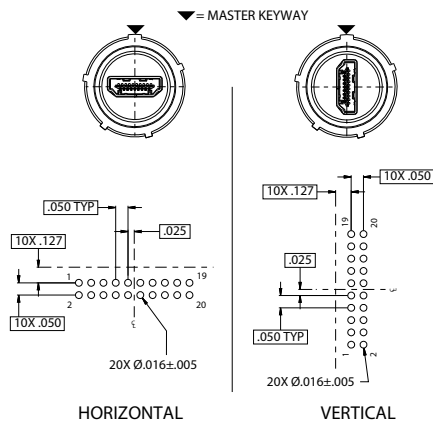


**05 - CABLE RECEPTACLE**





#### HDMI 2 FEMALE ORIENTATION OPTIONS PCB LAYOUT (SOLDER SIDE)



Part Number Development						
Sample Part Number	233-362	NF	00	-17	N	H
Basic Number	233-362					
Finish	See Material and Finish table					
Connector Style <sup>1</sup>	See Connector Style table					
Shell Size	17					
Alternate Key Position <sup>1</sup>	A, B, C, D, E, N = Normal per MIL-DTL-38999					
HDMI Orientation	H = Horizontal    V = Vertical					
Shrink Boot	T = Part No. 770-028 (Omit for None)					

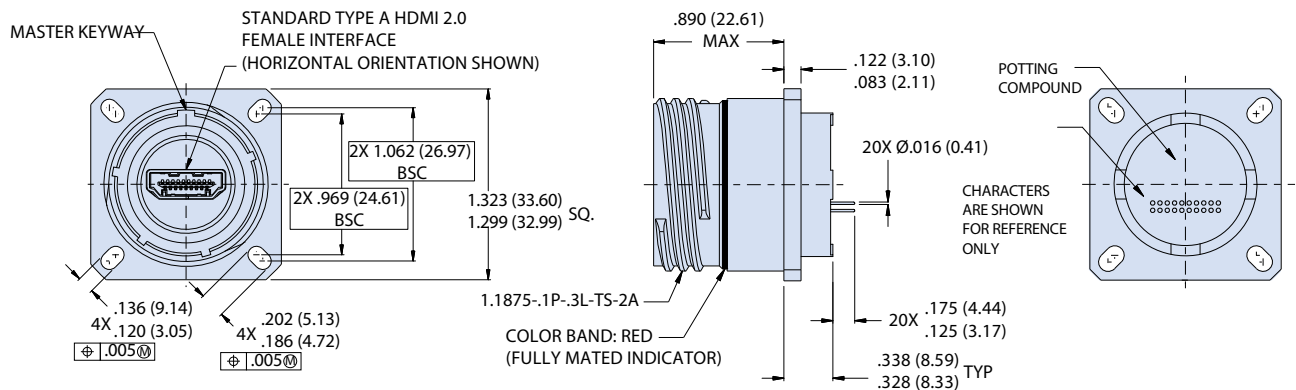
Material and Finish	
NF	Aluminum/Cadmium, Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel
AB	Marine Bronze
XM	Composite/Electroless Nickel

Additional material / finish options available consult factory

Connector Style	
00	Wall mount receptacle with slotted holes
D0	Wall mount receptacle with thru-holes
CM	Wall mount receptacle with metric clinch nuts
07	Rear panel mount, jam nut receptacle

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

#### 00 - WALL MOUNT RECEPTACLE WITH SLOTTED THRU-HOLES



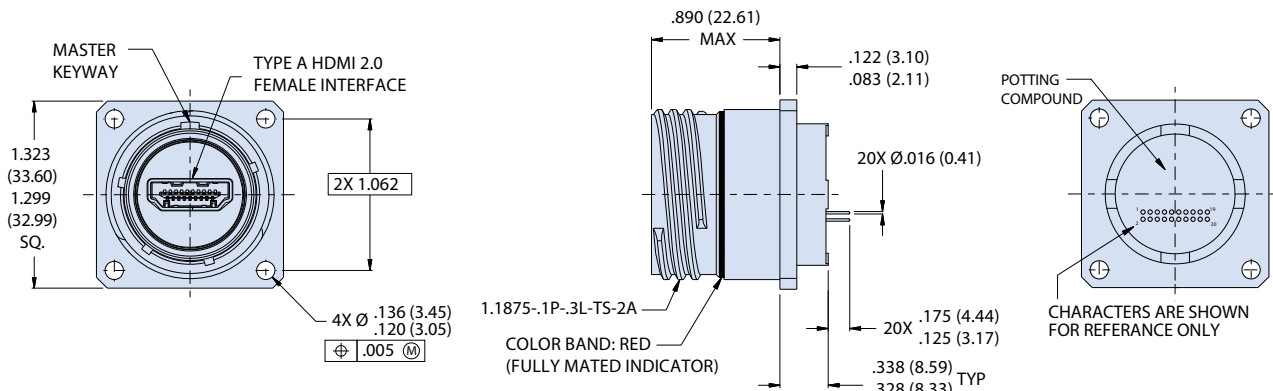
#### NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- Meets IP67 in unmated condition, IP68 mated
- HDMI Type A female port, front and back
- Front panel mount only
- Material and Finish
  - Shell, jam nut: see material/finish table
  - Seals: silicone based elastomer
  - Hardware: stainless steel/passivated
- HDMI:
  - Housing: thermoplastic/NA
  - Shell: copper alloy nickel plated
  - Terminal: copper alloy/gold plated
- HDMI performance: design meets HDMI 2.0 protocol requirement including 18Gbps of bandwidth and supports 4K resolution and 60Hz

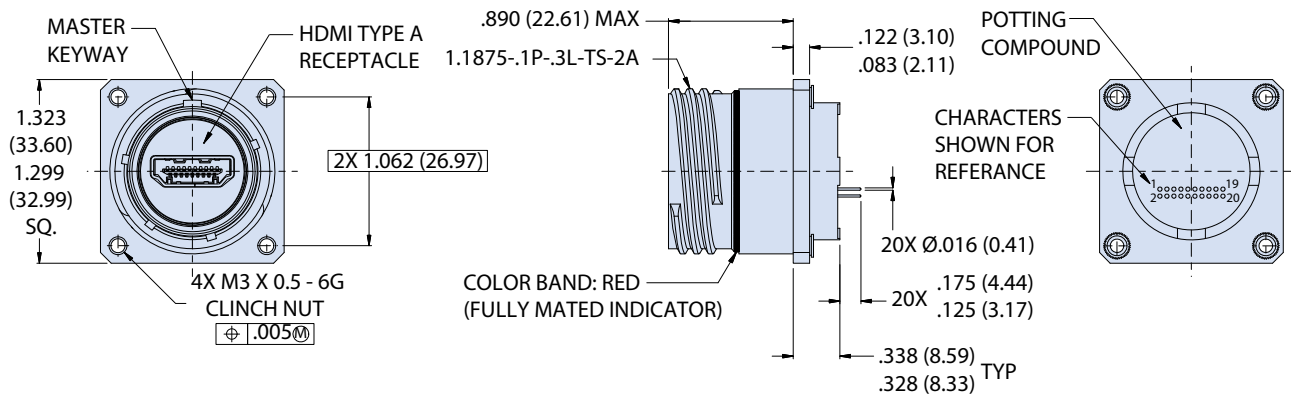
## MIL-DTL-38999 Series III Type 233-362 Panel mount receptacles with PC tails

HDMI CONNECTORS

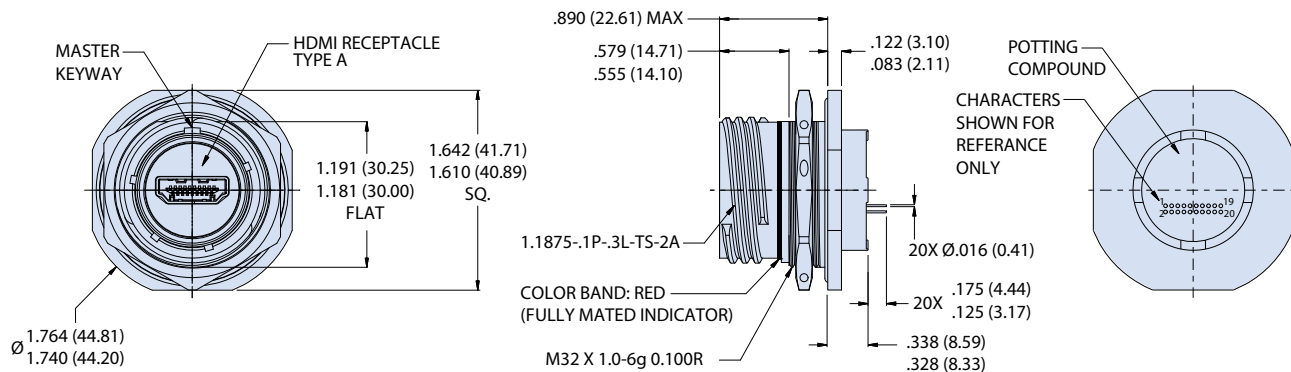
### DO - WALL MOUNT RECEPTACLE WITH ROUND THRU-HOLES



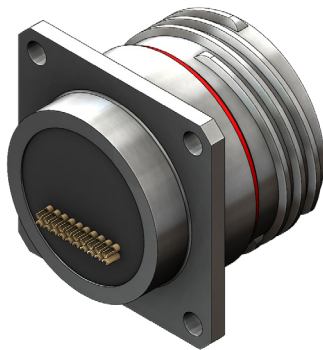
### CM - WALL MOUNT RECEPTACLE WITH METRIC CLINCH NUTS



### 07 - JAM-NUT MOUNT RECEPTACLE







Part Number Development						
Sample Part Number	233-363	NF	00	-17	N	H
Basic Number	233-363					
Finish	See Material and Finish table					
Connector Style <sup>1</sup>	See Connector Style table					
Shell Size	17					
Alternate Key Position <sup>1</sup>	A, B, C, D, E, N = Normal per MIL-DTL-38999					
HDMI Orientation	H = Horizontal V = Vertical					
Shrink Boot	T = Part No. 770-028 (Omit for None)					

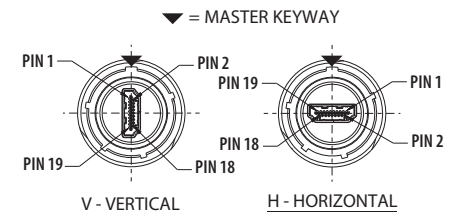
Material and Finish	
NF	Aluminum/Cadmium, Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel
AB	Marine Bronze
XM	Composite/Electroless Nickel

Additional material / finish options available consult factory

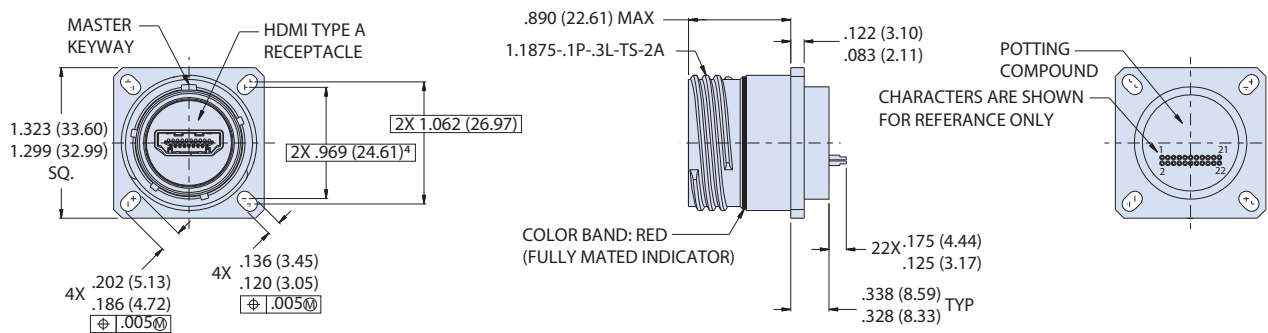
Connector Style	
00	Wall mount receptacle with slotted holes
D0	Wall mount receptacle with thru-holes
CM	Wall mount receptacle with metric clinch nuts
07	Rear panel mount, jam nut receptacle

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

### HDMI 2 FEMALE ORIENTATION OPTIONS (PARTIAL FRONT VIEWS SHOWN)



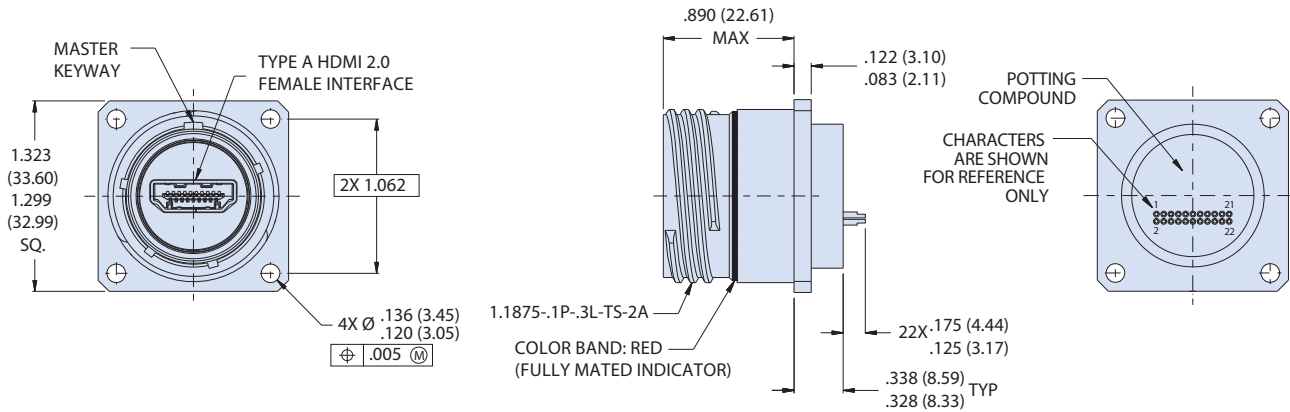
### 00 - WALL MOUNT RECEPTACLE WITH SLOTTED THRU-HOLES



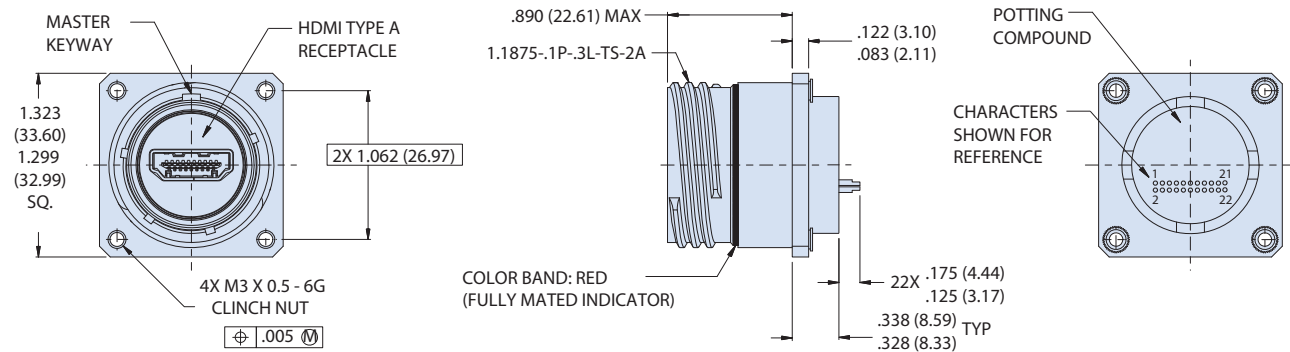
### NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- Meets IP67 in unmated condition, IP68 mated
- HDMI Type A female port, front and back
- Front panel mount only
- Material and Finish
  - Shell, jam nut: see material finish table
  - Seals: silicone based elastomer
  - Hardware: stainless steel/passivated
- HDMI:
  - Housing: thermoplastic/NA
  - Shell: copper alloy nickel plated
- Terminal: copper alloy/gold plated
- HDMI performance: design meets HDMI 2.0 protocol requirement including 18Gbps of bandwidth and supports 4K resolution and 60Hz

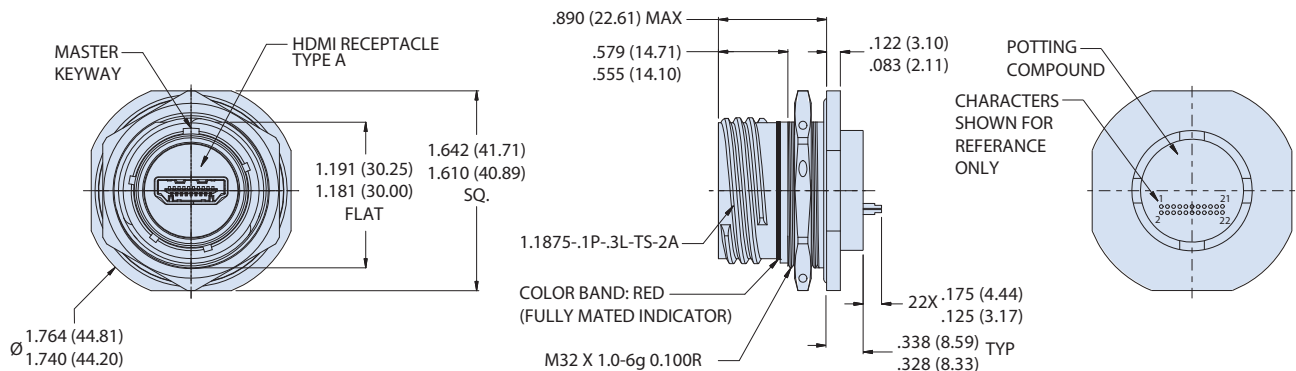
#### DO - WALL MOUNT RECEPTACLE WITH ROUND THRU-HOLES



#### CM - WALL MOUNT RECEPTACLE WITH METRIC CLINCH NUTS



#### 07 - JAM-NUT MOUNT RECEPTACLE





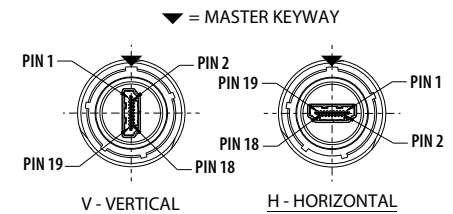
Part Number Development						
Sample Part Number	233-364	NF	00	-17	N	H
Basic Number	233-364					
Finish	See Material and Finish table					
Connector Style <sup>1</sup>	See Connector Style table					
Shell Size	17					
Alternate Key Position <sup>1</sup>	A, B, C, D, E, N = Normal per MIL-DTL-38999					
HDMI Orientation	H = Horizontal V = Vertical					
Shrink Boot	T = Part No. 770-028 (Omit for None)					

Material and Finish	
NF	Aluminum/Cadmium, Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel
AB	Marine Bronze
XM	Composite/Electroless Nickel

Additional material / finish options available consult factory

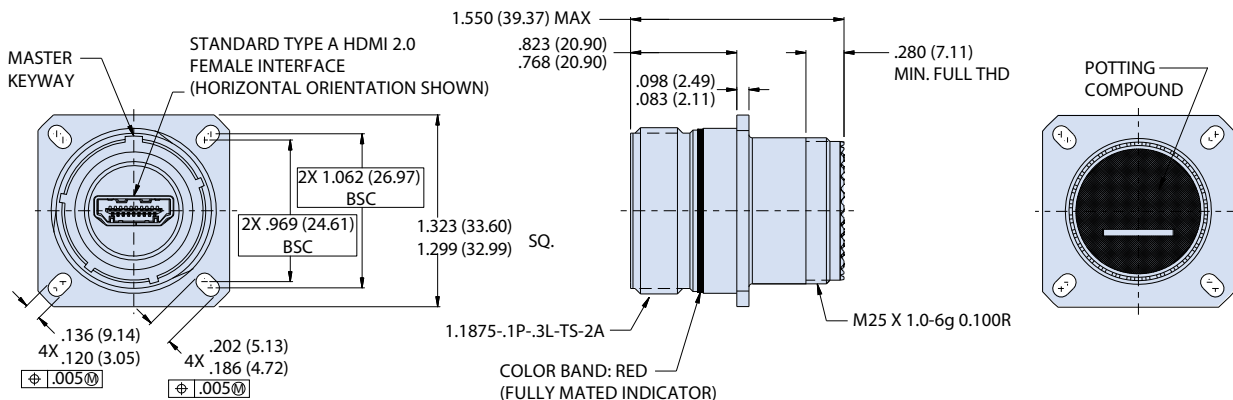
Connector Style	
00	Wall mount receptacle with slotted holes
D0	Wall mount receptacle with thru-holes
CM	Wall mount receptacle with metric clinch nuts
CS	Wall mount receptacle with standard clinch nuts
07	Rear panel mount, jam nut receptacle
05	Inline receptacle

### HDMI 2 FEMALE ORIENTATION OPTIONS (PARTIAL FRONT VIEWS SHOWN)



All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.

### 00 - WALL MOUNT RECEPTACLE WITH SLOTTED THRU-HOLES



### NOTES

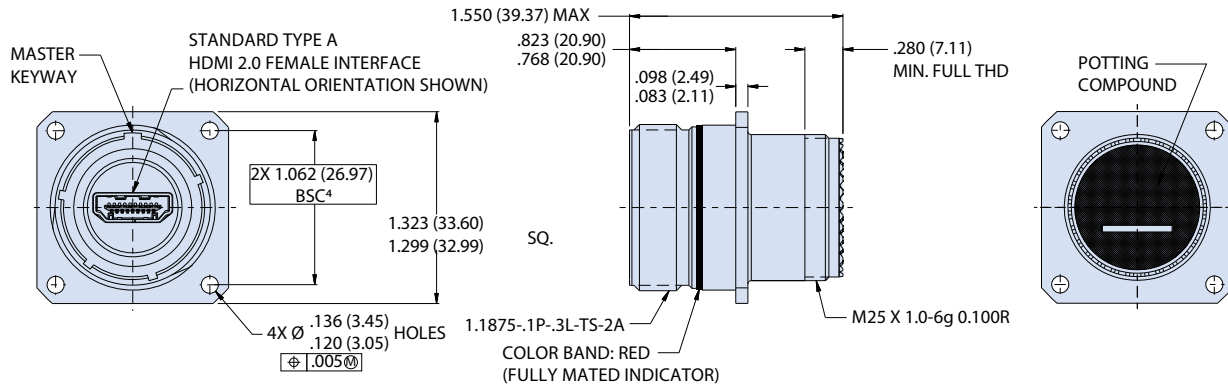
- See Section A for alternate key/keyway positions and panel cutout dimensions
- Meets IP67 in unmated condition, IP68 mated
- HDMI Type A female port, front and back
- Front panel mount only
- Material and Finish
  - Shell, jam nut: see material finish table
  - Seals: silicone based elastomer
  - Hardware: stainless steel/passivated
- HDMI:
  - Housing: thermoplastic/NA
  - Shell: copper alloy nickel plated
  - Terminal: copper alloy/gold plated
- HDMI performance: design meets HDMI 2.0 protocol requirement including 18Gbps of bandwidth and supports 4K resolution and 60Hz

## MIL-DTL-38999 Series III Type

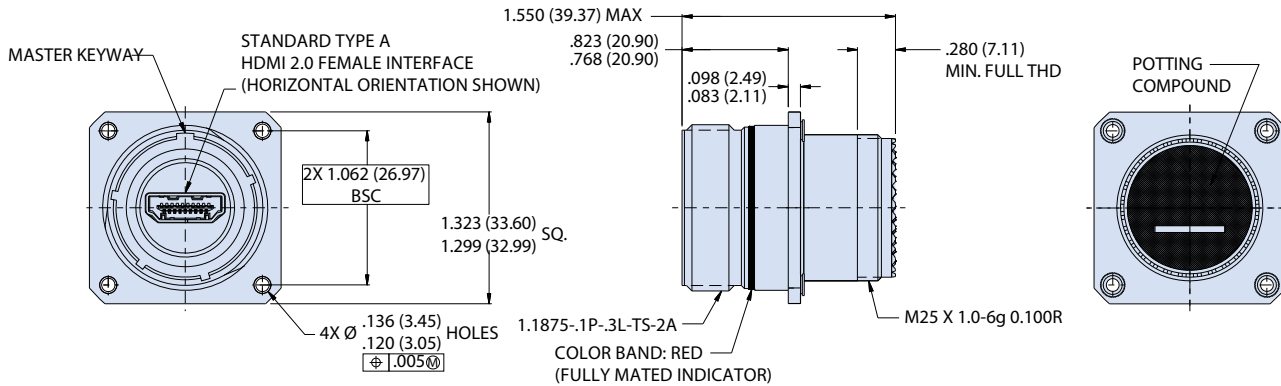
### 233-364 Panel mount receptacles with break-out board

HDMI CONNECTORS

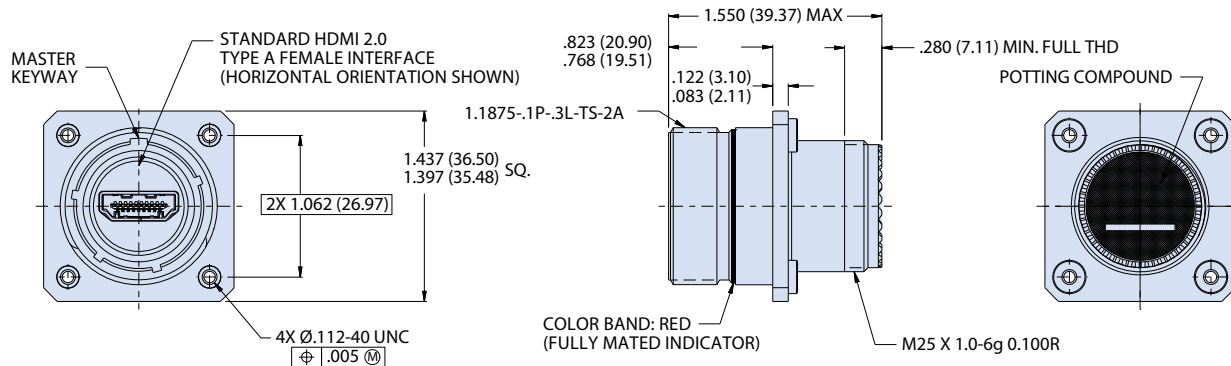
#### DO - WALL MOUNT RECEPTACLE WITH ROUND THRU-HOLES



#### CM - WALL MOUNT RECEPTACLE WITH METRIC CLINCH NUTS



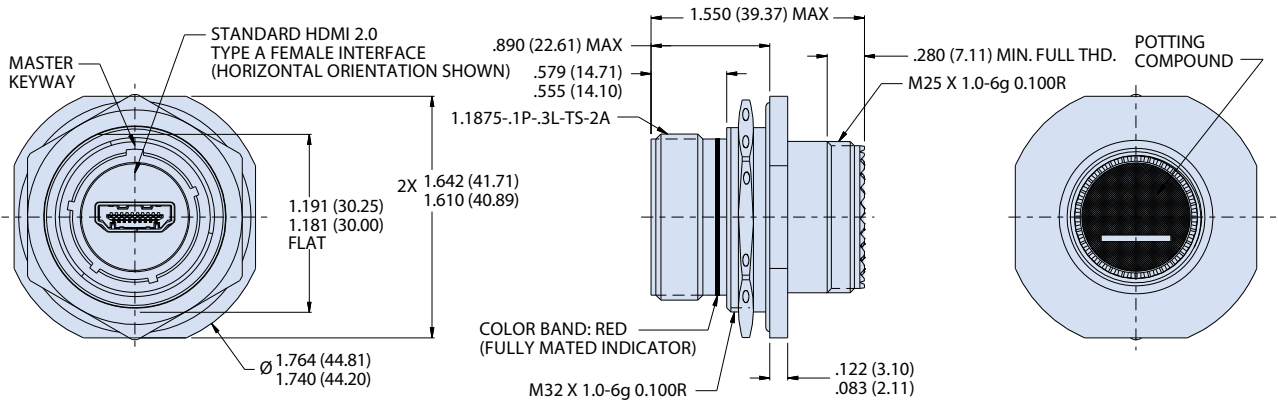
#### CS - WALL MOUNT RECEPTACLE WITH STANDARD CLINCH NUTS



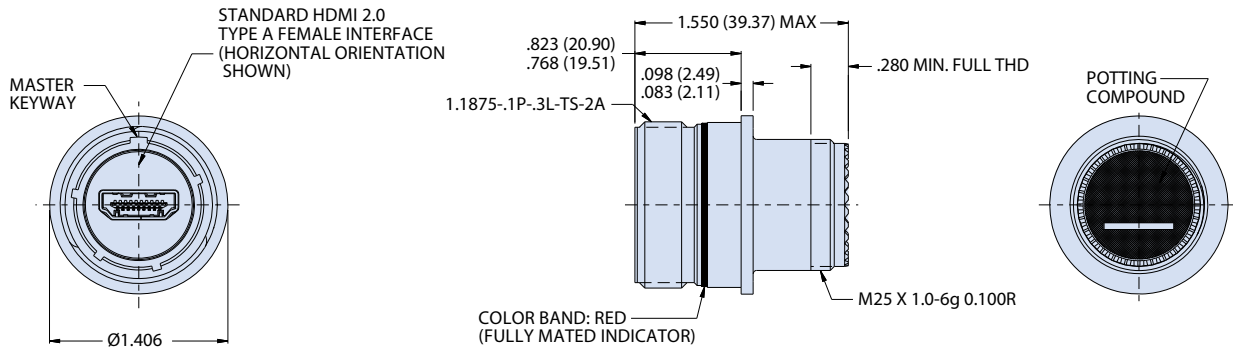
**MIL-DTL-38999 Series III Type**

**233-364 Panel mount receptacles with break out board**

**07 - REAR PANEL MOUNT, JAM NUT RECEPTACLE**



**05 - CABLE RECEPTACLE**





# SuperNine® HDMI 2.0

## MIL-DTL-38999 Series III Type 233-365 Panel mount feed-thru couplers



HDMI CONNECTORS



Part Number Development						
Sample Part Number	233-365	NF	00	-17	N	H
Basic Number	233-365					
Finish	See Material and Finish table					
Connector Style <sup>1</sup>	See Connector Style table					
Shell Size	17					
Alternate Key Position <sup>1</sup>	A, B, C, D, E, N = Normal per MIL-DTL-38999					
HDMI Orientation	H = Horizontal V = Vertical					
Shrink Boot	T = Part No. 770-028 (Omit for None)					

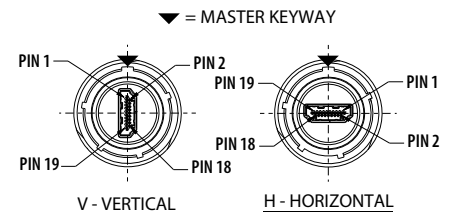
Material and Finish	
NF	Aluminum/Cadmium, Olive Drab
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel
AB	Marine Bronze
XM	Composite/Electroless Nickel

Additional material / finish options available consult factory

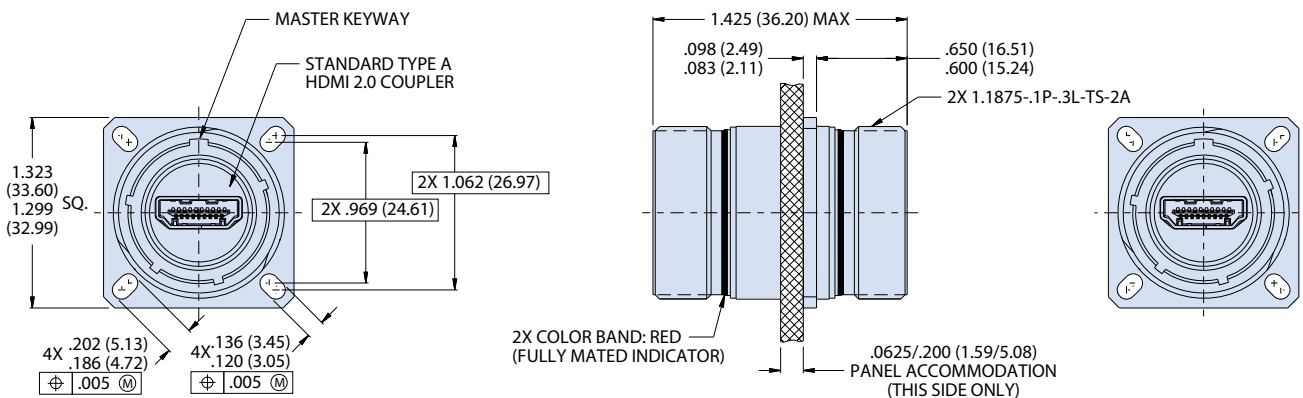
Connector Style	
00	Wall mount receptacle with slotted holes
D0	Wall mount receptacle with thru-holes
CM	Wall mount receptacle with metric clinch nuts
07	Rear panel mount, jam nut receptacle

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

### HDMI 2 FEMALE ORIENTATION OPTIONS (PARTIAL FRONT VIEWS SHOWN)



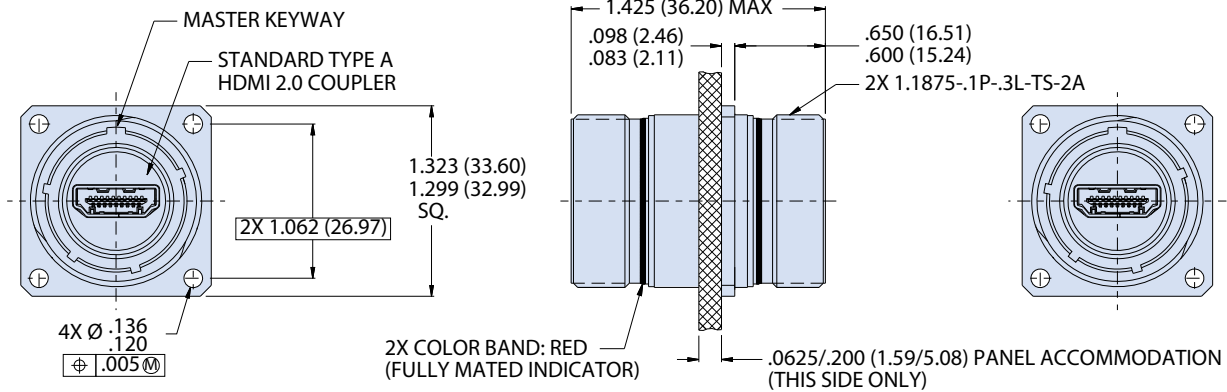
### 00 - REAR PANEL MOUNT WALL MOUNT FEED-THRU WITH SLOTTED THRU-HOLES



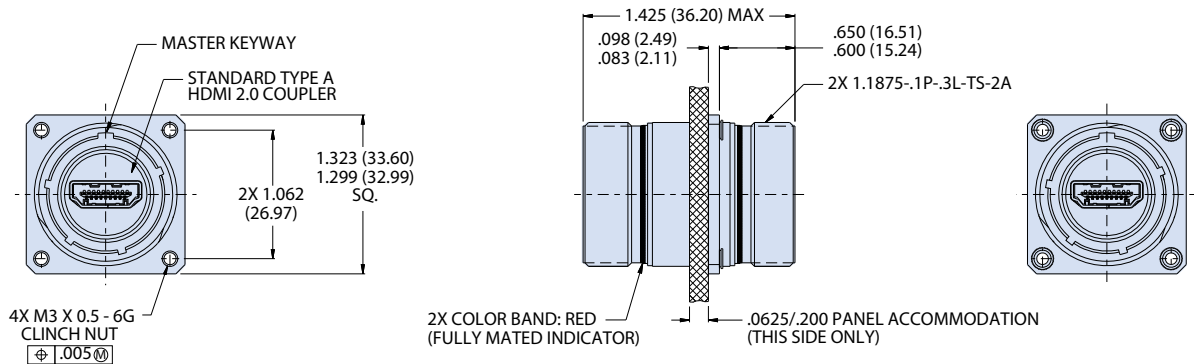
### NOTES

- See Section A for alternate key/keyway positions and panel cutout dimensions
- Meets IP67 in unmated condition, IP68 mated
- See assembly instructions AI233-368 for connector assembly, included with shipment
- Material and Finish
  - Barrel, coupling nut: aluminum alloy (composite coupling nut no plating required)
  - Insulators: high-grade rigid dielectric/
- NA
  - Seals: silicone based elastomer
  - Hardware: stainless steel/passivated

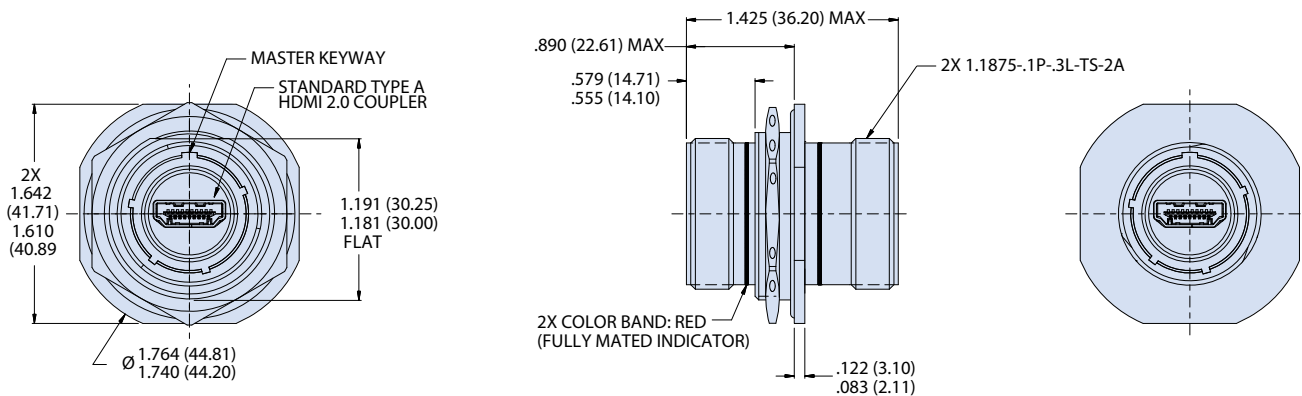
**DO - REAR PANEL MOUNT WALL MOUNT RECEPTACLE WITH THRU-HOLES**



**CM - REAR PANEL MOUNT WALL MOUNT RECEPTACLE WITH METRIC CLINCH NUTS**



**07 - JAM-NUT MOUNT RECEPTACLE**



# SuperNine® HDMI 2.0

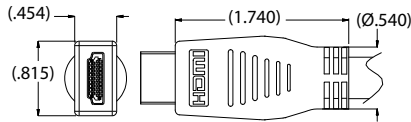
## MIL-DTL-38999 Series III Type 233-368 Plug, accepts HDMI Plug



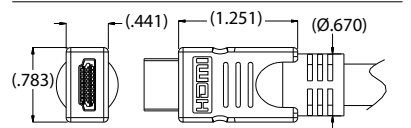
HDMI CONNECTORS



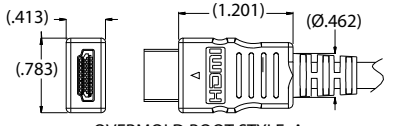
Part Number Development							
Sample Part Number	233-368	NF	G6	A	17	N	H
Basic Number	233-368						
Finish	See Material and Finish table						
Connector Style <sup>1</sup>	G6 = Plug						
Overmold Style	A, B, C						
Shell Size	17						
Alternate Key Position <sup>1</sup>	A, B, C, D, E, N = Normal per MIL-DTL-38999						
HDMI Orientation	H = Horizontal V = Vertical						



OVERMOLD BOOT STYLE: C



OVERMOLD BOOT STYLE: B



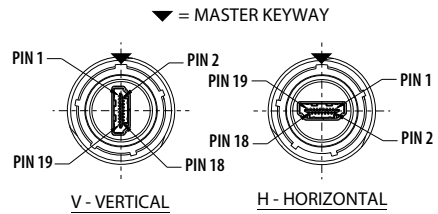
OVERMOLD BOOT STYLE: A

Material and Finish	
NF	Aluminum/Cadmium, Olive Drab (500 hour salt spray)
ME	Aluminum/Electroless Nickel
MT	Aluminum/Nickel PTFE
ZR	Aluminum/Black Zinc-Nickel (Tri-valent CR)
AB	Marine Bronze
XM	Composite/Electroless Nickel

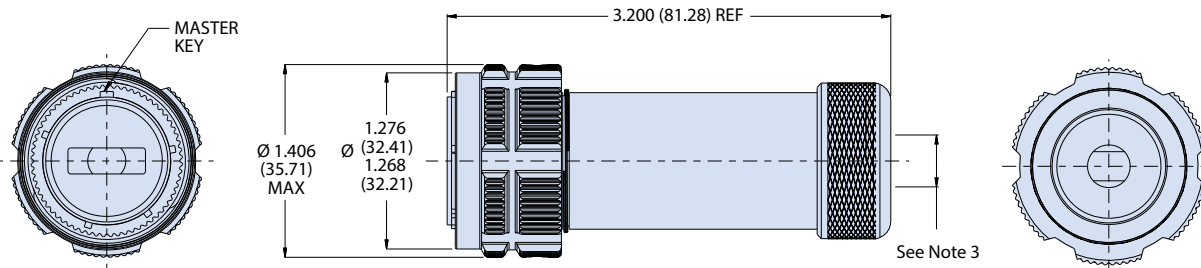
Additional material / finish options available consult factory

*All external dimensions, features, etc. compliant with D38999/20, /24, &/26. Consult factory for additional information.*

### HDMI 2 FEMALE ORIENTATION OPTIONS (PARTIAL FRONT VIEWS SHOWN)



### G6 - PLUG



### NOTES

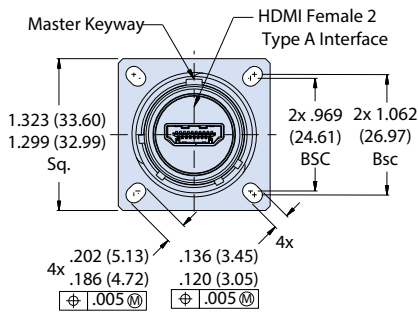
- See Section A for alternate key/keyway positions and panel cutout dimensions
- Meets IP67 in unmated condition, IP68 mated
- Design accommodates cable outside diameter .280 (7.112) nominal
- Accommodates HDMI patch cords with standard plug interface
- Material and Finish
  - Shell, jam nut: see material finish table
  - Seals: silicone based elastomer
  - Hardware: stainless steel/passivated
- HDMI:
  - Housing: thermoplastic/NA
  - Shell: copper alloy nickel plated
  - Terminal: copper alloy/gold plated

## MIL-DTL-38999 Series III Type

## 2330-0455 Cable assembly with commercial HDMI 2.0

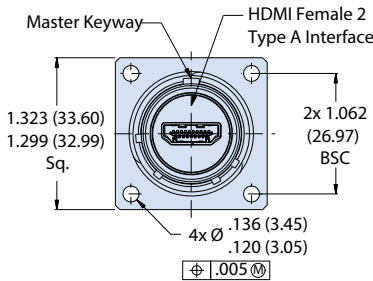
Part Number Development							
Sample Part Number	2330-0455	M	07	-17	N	H	-X
Series / Basic Part No.	2330-0455						
P1 Material/Finish	NF = Aluminum/cadmium olive drab ME = Aluminum/electroless nickel MT = Aluminum/nickel PTFE ZR = Aluminum/zinc-nickel						
P1 Connector Style	00 = Wall mount receptacle with slotted holes D0 = Wall mount receptacle with round holes 07 = Jam-nut receptacle G6 = Plug						
Shell Size	17						
Alternate Polarization	A, B, C, D, E, N = Normal; Per MIL-DTL-38999						
HDMI Orientation	H = Horizontal      V = Vertical						
Overall Length	Provided in 1 foot increments; 01 - 1.0 ft						

00 - Wall Mount Receptacle With Slotted Holes



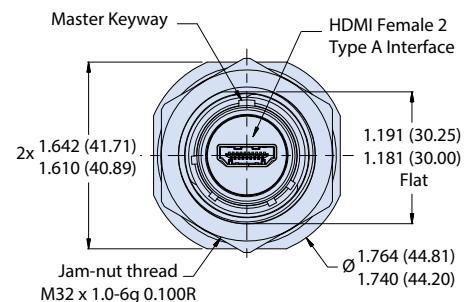
(Horizontal Orientation Shown)

D0 - Wall Mount Receptacle With Round Holes

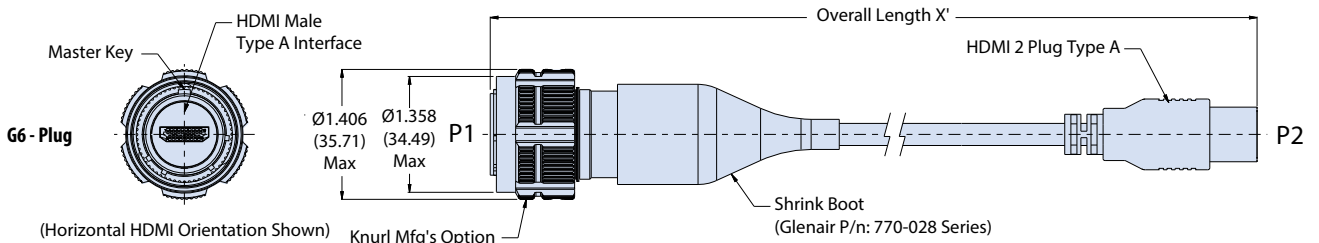
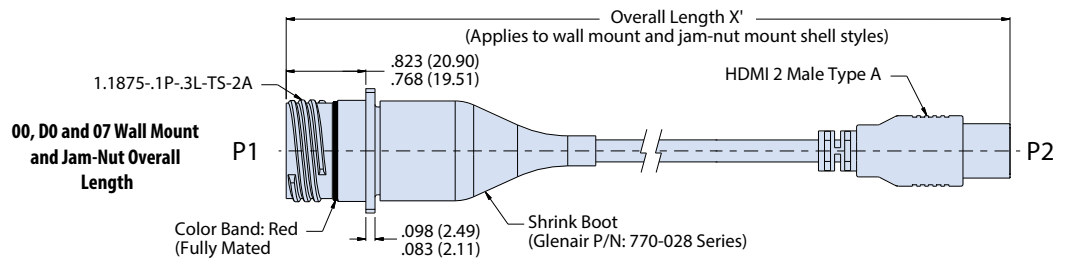


(Horizontal Orientation Shown)

07 - Jam Nut Receptacle



(Horizontal Orientation Shown)



(Horizontal HDMI Orientation Shown)

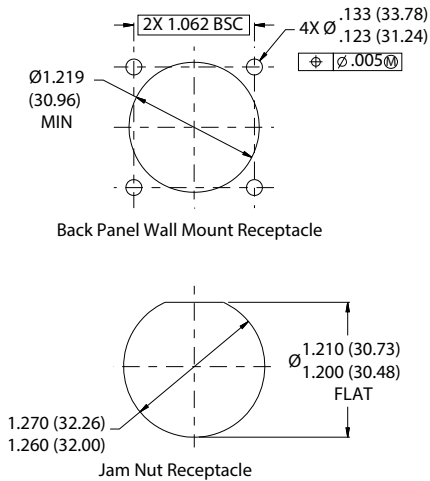
# SuperNine® HDMI 2.0

## MIL-DTL-38999 Series III Type 2330-0455 Cable assembly with HDMI 2



HDMI CONNECTORS

Recommended Mounting Holes & Cut Outs



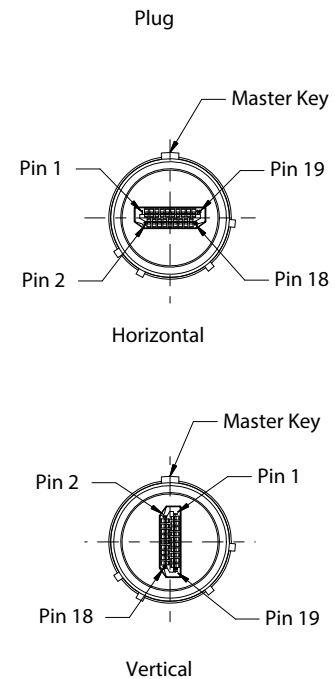
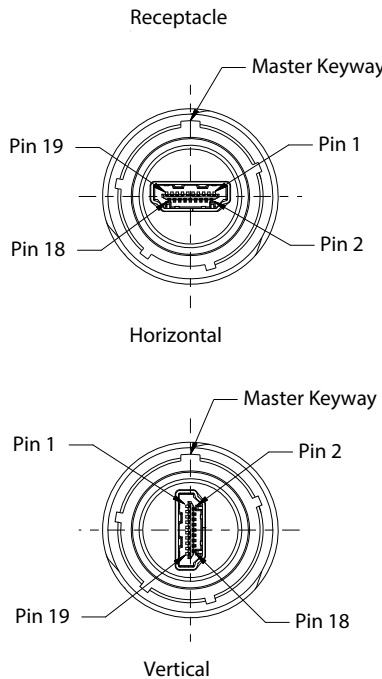
HDMI 2, Connector Pin Assignments			
Pin	Signal	Pin	Signal
1	TMDS DATA2+	11	TMDS CLOCK SHIELD
2	TMDS DATA2 SHIELD	12	TMDS CLOCK-
3	TMDS DATA2-	13	CEC
4	TMDS DATA1+	14	UTILITY
5	TMDS DATA1 SHIELD	15	SCL
6	TMDS DATA1-	16	SDA
7	TMDS DATA0+	17	DDC/CEC GROUND
8	TMDS DATA0 SHIELD	18	+5V POWER
9	TMDS DATA0-	19	HOT PLUG DETECT
10	TMDS CLOCK+		

### HDMI 2 ORIENTATION OPTIONS (PARTIAL FRONT VIEWS SHOWN)

#### NOTES

- Material/finish
  - Shell, jam-nut, barrel: see part number development
  - Insulators: high grade rigid dielectric/N.A.
  - Contacts: copper alloy, gold plated
  - Seals: silicone based elastomer
  - HDMI (shell/contacts): copper alloy
  - Dielectric: thermoplastic PA9T UL94V-0
  - Hardware: stainless steel/passivated
- HDMI specifications:
  - Performance:*
    - HDMI 2
  - Electrical:*
    - Current rating: 0.5 amps min
    - DWV: 300 Vac
    - I.R.: 100 Meg Ohms min.
    - Operating temperature range: -20°C to +85°C
- Connector interface (P1) per MIL-DTL-38999, Series III, Shell size 17
- Connector front interface with HDMI Type A male is designed to mate with HDMI receptacle patch cord or Glenair HDMI receptacle connector 2330-0441

Connector front interface with HDMI Type A female is designed to mate with HDMI male patch cord

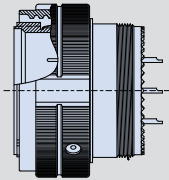




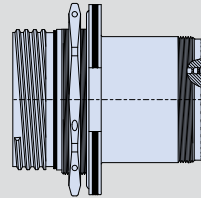
# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

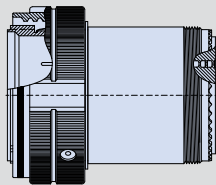
### Product Selection Guide



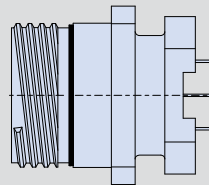
**240-383P** F-8  
EMI/RFI Filter Plug



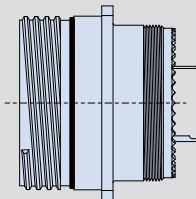
**240-383S** F-18  
EMI/RFI Filter Jam Nut Receptacle with Crimp Removable Contacts



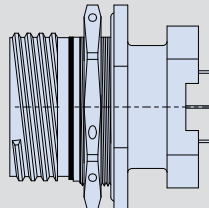
**240-383Q** F-10  
EMI/RFI Filter Plug with Crimp Removable Contacts



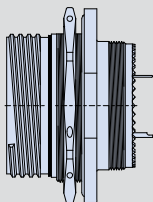
**240-383D** F-20  
EMI/RFI Filter Dual Flange Wall Mount Receptacle with PC Tails and threaded standoff



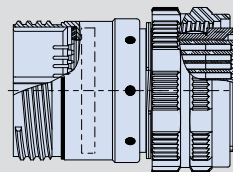
**240-383W** F-12  
EMI/RFI Filter Wall Mount Receptacle with solder cup or PC tail termination



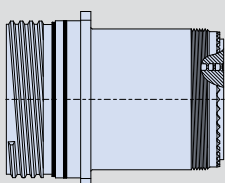
**240-383E** F-22  
EMI/RFI Filter Dual Flange Jam Nut Receptacle with PC Tails and threaded standoff



**240-383J** F-14  
EMI/RFI Filter Jam Nut Receptacle with solder cup or PC tail termination



**240-383B** F-24  
EMI/RFI Filter Adapter



**240-383R** F-16  
EMI/RFI Filter Wall Mount Receptacle with Crimp Removable Contacts

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### Summary of material and panel cut-outs



FILTERED CONNECTORS

#### SUMMARY OF MATERIALS AND SPECIFICATIONS (see performance spec for complete information)

**Notes**

- Insert arrangement in accordance with MIL-STD-1560. Arrangement shown for reference only.
- EMI circular filter receptacle connectors designed to meet requirements of MIL-STD-2120 and MIL-DTL-38999, Series III.
- All contacts to have identical filter value. Other filter arrangements available, contact factory.
- Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.

**Electrical Ratings:**

- DWV- 500 VDC
- Standard operating voltage 200 VDC (Filter class X, Y and Z are 250 VDC)

**Insulation Resistance:**

- 5000 MegOhms Min. at 200 VDC.

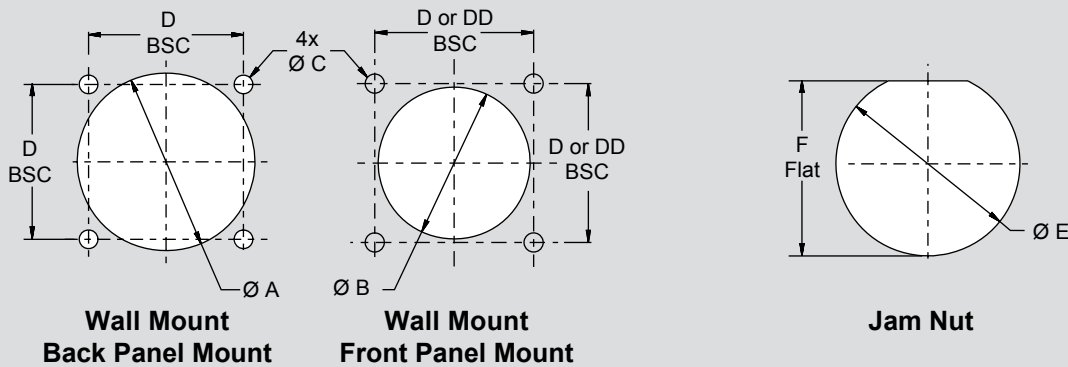
**Operating Temperature:**

- -55°C to +125°C

**Materials/Finishes:**

- Shells, barrel, coupling nut, jam nut: see connector class
- Insulators: high grade rigid dielectric/ N.A.
- Seals: fluorosilicone
- Contacts: copper alloy 50µ" gold over 50µ" Nickel

#### PANEL CUT-OUT DIMENSIONS



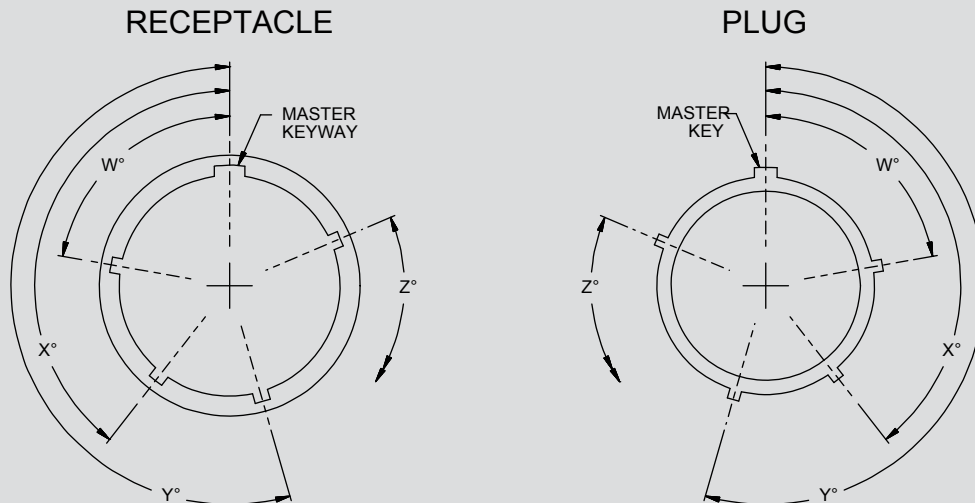
Square Flange Panel Cut-Outs MIL-DTL-38999 Series III					
Shell Size	Ø A Min Back Panel	Ø B Min Front Panel	Ø C Holes	D BSC	DD BSC
9	.656 (16.7)	.516 (13.1)	.133 (3.4) .123 (3.1)	.719 (18.3)	.594 (15.09)
11	.796 (20.2)	.625 (15.9)		.812 (20.6)	.719 (18.3)
13	.922 (23.4)	.750 (19.1)		.906 (23.0)	.812 (20.6)
15	1.047 (26.6)	.906 (23.0)		.969 (24.6)	.906 (23.0)
17	1.219 (31.0)	1.016 (25.8)		1.062 (27.0)	.969 (24.6)
19	1.297 (32.9)	1.141 (29.0)		1.156 (29.4)	1.062 (27.0)
21	1.422 (36.1)	1.266 (32.2)		1.250 (31.8)	1.156 (29.4)
23	1.547 (39.3)	1.375 (34.9)	.159 (4.0) .149 (3.8)	1.375 (34.9)	1.250 (31.8)
25	1.672 (42.5)	1.484 (37.7)	.155 (3.9) .145 (3.7)	1.500 (38.1)	1.375 (34.9)

Jam Nut Panel Cut-Out MIL-DTL-38999 Series III		
Shell Size	Ø E	F Flat
9	.710 (18.0)	.670 (17.0)
	.700 (17.8)	.660 (16.8)
11	.835 (21.2)	.771 (19.6)
	.825 (21.0)	.761 (19.3)
13	1.020 (25.9)	.955 (24.3)
	1.010 (25.7)	.945 (24.0)
15	1.145 (29.1)	1.085 (27.6)
	1.135 (28.8)	1.075 (27.3)
17	1.270 (32.3)	1.210 (30.7)
	1.260 (32.0)	1.200 (30.5)
19	1.395 (35.4)	1.335 (33.9)
	1.385 (35.2)	1.325 (33.7)
21	1.520 (38.6)	1.460 (37.1)
	1.510 (38.4)	1.450 (36.8)
23	1.645 (41.8)	1.585 (40.3)
	1.635 (41.5)	1.575 (40.0)
25	1.770 (45.0)	1.710 (43.4)
	1.760 (44.7)	1.700 (43.2)

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### Alternate keying positions



NOTE: ALL MINOR KEYS AND KEYWAYS ARE ROTATED TO PROVIDE POLARIZATION WHILE MASTER KEY AND KEYWAY REMAIN FIXED.

MIL-DTL-38999 Series III Keying Positions					
Shell Size	Keying Position	W° BSC	X° BSC	Y° BSC	Z° BSC
9	N	105°	140°	215°	265°
	A	102°	132°	248°	320°
	B	80°	118°	230°	312°
	C	35°	140°	205°	275°
	D	64°	155°	234°	304°
11 13 15	N	95°	141°	208°	236°
	A	113°	156°	182°	292°
	B	90°	145°	195°	252°
	C	53°	156°	220°	255°
	D	119°	146°	176°	298°
17 19 21 23 25	N	80°	142°	196°	293°
	A	135°	170°	200°	310°
	B	49°	169°	200°	244°
	C	66°	140°	200°	257°
	D	62°	145°	180°	280°
	E	79°	153°	197°	272°

# SuperNine® EMI/RFI filter MIL-DTL-38999 Series III Type connectors Compliance Matrix



FILTERED CONNECTORS

MIL-DTL-38999, Table XII, Group 2	Paragraph MIL-DTL-38999		3 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Visual and Mechanical Inspection	3.1, 3.3, 3.4, 3.5, 3.52 and 3.53	4.5.1	YES	STANDARD TEST
Gauge Location	3.22	4.5.18	NO	NOT REQUIRED. UUT HAS NON-REMOVABLE CONTACTS
Gauge Retention	3.23	4.5.19	NO	NOT REQUIRED. UUT HAS NON-REMOVABLE CONTACTS
Maintenance Aging	3.6	4.5.2	NO	NOT REQUIRED. UUT HAS NON-REMOVABLE CONTACTS
Contact Retention	3.24	4.5.20.1	NO	NOT REQUIRED. UUT HAS NON-REMOVABLE CONTACTS
Altitude-low temperature	3.25	4.5.21	YES	OC22756-0616284 Altitude Low Temperature (247-245)
Insulation resistance at ambient temperature	N/A	N/A	YES	OC22756-0616284 Altitude Low Temperature (247-245)
Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC22756-0616284 Altitude Low Temperature (247-245)
Capacitance between contacts	N/A	N/A	YES	Capacitance Between Contacts - Before Vibration (247-245)
				Capacitance Between Contact - After Vibration (247-245)
Capacitance matching	N/A	N/A	YES	Capacitance Matching - Before Vibration (247-245)
				Capacitance Matching - After Vibration (247-245)
Insertion loss at minimum temperature	N/A	N/A	YES	Insertion Loss At Min Temperature (247-245)
Insertion loss at maximum temperature	N/A	N/A	YES	Insertion Loss At Max Temperature (247-245)
Insertion loss for feed thru contacts	N/A	N/A	YES	Insertion Loss At Room Temperature (247-245)
Cross talk isolation	N/A	N/A	YES	Crosstalk Isolation (247-245)
Temperature Shock (380 Cycles)	#N/A	#N/A	YES	380 Cycles Thermal Shock (247-245)
Air Leakage	N/A	N/A	YES	OC22817-0716312 Air Leakage (247-245)
Functional Test - Ground contact resistance to connector shell	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE GROUND CONTACTS.
Functional Test - Contact capacitance to ground	N/A	N/A	YES	380 CYCLES THERMAL SHOCK (247-245)
Functional Test - Dielectric withstanding voltage at sea level	N/A	N/A	YES	380 CYCLES THERMAL SHOCK (247-245)
Functional Test - Insulation resistance	N/A	N/A	YES	380 CYCLES THERMAL SHOCK (247-245)
Coupling Torque	3.11	4.5.7	YES	OC21361-0915309 Coupling Torque (247-245)
Insulation Resistance at elevated temperature	N/A	N/A	YES	Insulation Resistance at Temp (247-245)
Dielectric withstanding voltage at altitude	N/A	N/A	YES	OC21363-0915311 DWV at Altitude (247-245)
Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC21363-0915311 DWV at Altitude (247-245)
Durability	3.12	4.5.8	YES	OC21364-0915312 Durability (247-245)
Accessory thread strength	3.26	4.5.22	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.
Vibration	3.27	4.5.23	YES	OC22773-0616282B Sine Vibration (247-245)
				OC21365-0915313 Random Vibration at Temp (247-245)
Shock	3.28	4.5.24.1	YES	OC21362-0915310 Shock (247-245)
Functional Test - Ground contact resistance to connector shell	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE GROUND CONTACTS.
Functional Test - Contact capacitance to ground	N/A	N/A	YES	OC21362-0915310 Shock (247-245)
Functional Test - Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC21362-0915310 Shock (247-245)
Functional Test - Insulation resistance	N/A	N/A	YES	OC21362-0915310 Shock (247-245)
Shell-to-shell conductivity	3.29	4.5.25	YES	OC22635-0316173 Shell-to-Shell Conductivity (247-245)
High temperature exposure	3.38.2	4.5.34.2	YES	High Temperature Exposure (247-245)
Humidity	3.30	4.5.26	YES	OC21366-0915314 Humidity (247-245)
Insulation resistance at ambient temperature	N/A	N/A	YES	OC21366-0915314 Humidity (247-245)
Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC21366-0915314 Humidity (247-245)
Functional Test - Ground contact resistance to connector shell	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE GROUND CONTACTS.
Functional Test - Contact capacitance to ground	N/A	N/A	YES	OC21366-0915314 Humidity (247-245)
Functional Test - Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC21366-0915314 Humidity (247-245)

# SuperNine® EMI/RFI filter MIL-DTL-38999 Series III Type connectors Compliance Matrix



FILTERED CONNECTORS

Functional Test - Insulation resistance	N/A	N/A	YES	OC21366-0915314 Humidity (247-245)
Contact retention	3.24	4.5.20.1	NO	NOT REQUIRED. UUT HAS NON-REMOVABLE CONTACTS
Post test examination	3.52 and 3.53	4.5.49	YES	STANDARD TEST

MIL-DTL-38999, Table XII, Group 5	Paragraph MIL-DTL-38999		3 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Visual and Mechanical Inspection	3.1, 3.3, 3.4, 3.5, 3.52 and 3.53	4.5.1	YES	OC22772-0616281A Fluid Immersion (247-245)
Ozone exposure	3.33	4.5.29	NO	NOT REQUIRED. UUT WILL NOT BE EXPOSED TO OZONE.
Insulation resistance at ambient temperature	N/A	N/A	YES	OC22772-0616281A Fluid Immersion (247-245)
Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC22772-0616281A Fluid Immersion (247-245)
Fluid immersion	3.34	4.5.30	YES	OC22772-0616281A Fluid Immersion (247-245)
Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC22772-0616281A Fluid Immersion (247-245)
Coupling torque	3.11	4.5.7	YES	OC22772-0616281A Fluid Immersion (247-245)
Functional Test - Ground contact resistance to connector shell	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE GROUND CONTACTS.
Functional Test - Contact capacitance to ground	N/A	N/A	YES	OC22772-0616281A Fluid Immersion (247-245)
Functional Test - Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC22772-0616281A Fluid Immersion (247-245)
Functional Test - Insulation resistance	N/A	N/A	YES	OC22772-0616281A Fluid Immersion (247-245)
Post test examination	3.52 and 3.53	4.5.49	YES	OC22772-0616281A Fluid Immersion (247-245)

MIL-DTL-38999, Table XII, Group 9	Paragraph MIL-DTL-38999		3 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Visual and Mechanical Inspection	3.1, 3.3, 3.4, 3.5, 3.52 and 3.53	4.5.1	YES	OC22865-0716347A Salt Spray (247-245)
Shock (high impact)	3.28	4.5.24.2	NO	OC21209-0915355 Hi-Impact Shock (247-463)
Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC22865-0716347A Salt Spray (247-245)
Electrolytic erosion	3.39	4.5.35	YES	OC22865-0716347A Salt Spray (247-245)
Shell-to-shell conductivity	3.29	4.5.25	YES	OC22865-0716347A Salt Spray (247-245)
Temperature cycling	N/A	N/A	NO	NOT REQUIRED.
Salt spray (corrosion)	3.17	4.5.13.2	YES	OC22865-0716347A Salt Spray (247-245)
Functional Test - Ground contact resistance to connector shell	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE GROUND CONTACTS.
Functional Test - Contact capacitance to ground	N/A	N/A	YES	OC22865-0716347A Salt Spray (247-245)
Functional Test - Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC22865-0716347A Salt Spray (247-245)
Functional Test - Insulation resistance	N/A	N/A	YES	OC22865-0716347A Salt Spray (247-245)
Coupling torque	3.11	4.5.7	YES	OC22865-0716347A Salt Spray (247-245)
Shell-to-shell conductivity	3.29	4.5.25	YES	OC22865-0716347A Salt Spray (247-245)
Coupling pin strength	3.21	4.5.17	NO	NOT REQUIRED. UUT IS A SERIES III TYPE CONNECTOR.
Post test examination	3.52 and 3.53	4.5.49	YES	OC22865-0716347A Salt Spray (247-245)

MIL-DTL-38999, Table XII, Group 10	Paragraph MIL-DTL-38999		2 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Visual and Mechanical Inspection	3.1, 3.3, 3.4, 3.5, 3.52 and 3.53	4.5.1	NO	NOT REQUIRED. UUT IS NOT A FIREWALL CLASS CONNECTOR.
Firewall	3.40	4.5.36	NO	NOT REQUIRED. UUT IS NOT A FIREWALL CLASS CONNECTOR.
Post test examination	3.52 and 3.53	4.5.49	NO	NOT REQUIRED. UUT IS NOT A FIREWALL CLASS CONNECTOR.



# SuperNine® EMI/RFI filter MIL-DTL-38999 Series III Type connectors Compliance Matrix



FILTERED CONNECTORS

MIL-DTL-38999, Table XII, Group 11	Paragraph MIL-DTL-38999		3 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Visual and Mechanical Inspection	3.1, 3.3, 3.4, 3.5, 3.52 and 3.53	4.5.1	YES	OC22641-0516246 Ice & Dust (247-245)
Ice resistance	3.44	4.5.40	YES	OC22641-0516246 Ice & Dust (247-245)
Dust (fine sand)	3.45	4.5.41	YES	OC22641-0516246 Ice & Dust (247-245)
Impact (classes J and M)	3.49	4.5.45	NO	NOT REQUIRED. UUT IS NOT A CLASS J OR M CONNECTOR.
Functional Test - Ground contact resistance to connector shell	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE GROUND CONTACTS.
Functional Test - Contact capacitance to ground	N/A	N/A	YES	OC22641-0516246 Ice & Dust (247-245)
Functional Test - Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC22641-0516246 Ice & Dust (247-245)
Functional Test - Insulation resistance	N/A	N/A	YES	OC22641-0516246 Ice & Dust (247-245)
Post test examination	3.52 and 3.53	4.5.49	YES	OC22641-0516246 Ice & Dust (247-245)

MIL-DTL-38999, Table XII, Group 13	Paragraph MIL-DTL-38999		2 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Visual and Mechanical Inspection	3.1, 3.3, 3.4, 3.5, 3.52 and 3.53	4.5.1	NO	NOT REQUIRED. UUT IS NOT A CLASS J OR M CONNECTOR.
Hydrolytic stability (classes J and M)	3.47	4.5.43	NO	NOT REQUIRED. UUT IS NOT A CLASS J OR M CONNECTOR.
Post test examination	3.52 and 3.53	4.5.49	NO	NOT REQUIRED. UUT IS NOT A CLASS J OR M CONNECTOR.

MIL-DTL-38999, Table XII, Group 14	Paragraph MIL-DTL-38999		2 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Visual and Mechanical Inspection	3.1, 3.3, 3.4, 3.5, 3.52 and 3.53	4.5.1	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.
Coupling torque	3.11	4.5.7	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.
Backshell shield braid-to-shell conductivity	3.29.1	4.5.25.1	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.
Resistance to indirect lightning strike	3.51	4.5.47	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.
Backshell shield braid-to-shell conductivity	3.29.1	4.5.25.1	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.
Coupling torque	3.11	4.5.7	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.
Insulation resistance at ambient temperature	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.
Dielectric withstanding voltage at sea level	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.
Post test examination	3.52 and 3.53	4.5.49	NO	NOT REQUIRED. UUT DOES NOT HAVE ACCESSORY THREADS.

Lightning Transient Test Group	Paragraph MIL-DTL-38999		2 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Lightning transient test	N/A	N/A	YES	TR056503 Lightning (247-245)
Functional Test - Ground contact resistance to connector shell	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE GROUND CONTACTS.
Functional Test - Contact capacitance to ground	N/A	N/A	YES	TR056503 Lightning (247-245)
Functional Test - Dielectric withstanding voltage at sea level	N/A	N/A	YES	TR056503 Lightning (247-245)
Functional Test - Insulation resistance	N/A	N/A	YES	TR056503 Lightning (247-245)

# SuperNine® EMI/RFI filter MIL-DTL-38999 Series III Type connectors Compliance Matrix



FILTERED CONNECTORS

Rapid Decompression And Explosion Proofness Test Group	Paragraph MIL-DTL-38999		2 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Rapid decompression	N/A	N/A	YES	OC22757-0616266 Rapid Decompression (247-245)
Explosion Proofness	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE ACTIVE COMPONENTS.
Functional Test - Ground contact resistance to connector shell	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE GROUND CONTACTS.
Functional Test - Contact capacitance to ground	N/A	N/A	YES	OC22757-0616266 Rapid Decompression (247-245)
Functional Test - Dielectric withstanding voltage at sea level	N/A	N/A	YES	OC22757-0616266 Rapid Decompression (247-245)
Functional Test - Insulation resistance	N/A	N/A	YES	OC22757-0616266 Rapid Decompression (247-245)
Filter Life Test Group	Paragraph MIL-DTL-38999		2 Samples	
TEST OR INSPECTION	REQUIREMENT	TEST METHOD	TEST REQUIRED?	TEST REPORT
Filter life	N/A	N/A	YES	1000 Hour Life Test (247-075)
Functional Test - Ground contact resistance to connector shell	N/A	N/A	NO	NOT REQUIRED. UUT DOES NOT HAVE GROUND CONTACTS.
Functional Test - Contact capacitance to ground	N/A	N/A	YES	1000 Hour Life Test (247-075)
Functional Test - Dielectric withstanding voltage at sea level	N/A	N/A	YES	1000 Hour Life Test (247-075)
Functional Test - Insulation resistance	N/A	N/A	YES	1000 Hour Life Test (247-075)

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383P Plug connector with solder cup contacts

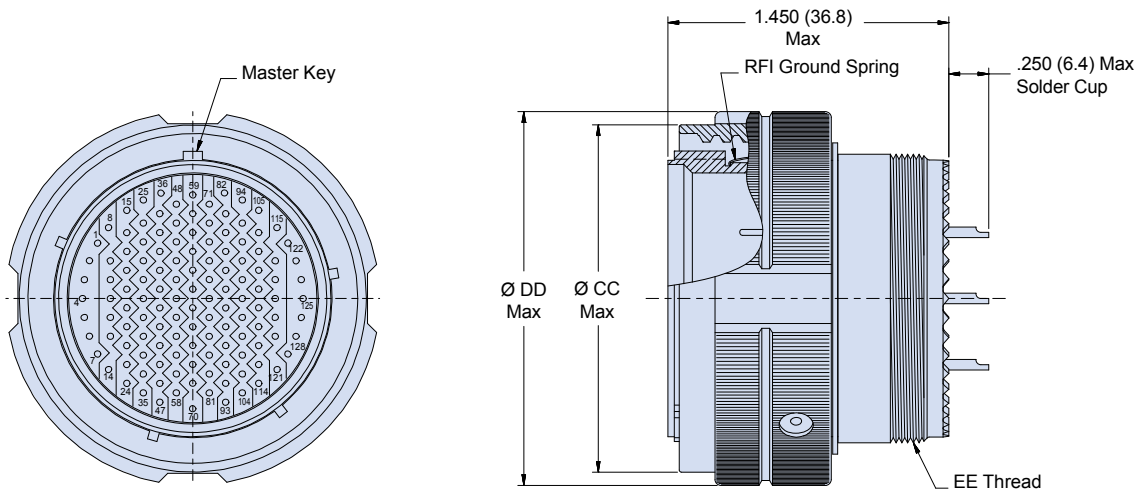


FILTERED CONNECTORS

#### SUPERNINE EMI/RFI FILTER PLUG

Part Number Development	
Sample Part Number	240-383 P ME 15-35 P S P A N N
Filter Connector	MIL-DTL-38999 Series III Type
Shell Style	P = Plug
Connector Class	See Connector Class Table
Insert Arrangement*	IAW MIL-STD-1560.
Contact Gender	P = Pin S = Socket
Termination	S = Solder Cup
Filter Type	P = Pi Circuit C = C Circuit (See Note 1)
Capacitance	See Capacitor Array Code Table
Flange Mounting Style	N = Not Applicable
Alternate Key Position*	A, B, C, D, E, N = Normal

\*Refer to Section A for complete details



#### NOTES

- Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383P Plug connector with solder cup contacts



FILTERED CONNECTORS

Connector Class			
Sym	Class	Material	Finish Description
ME	Environmental	Aluminum	Electroless Nickel
MT	Environmental	Aluminum	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
NF	Environmental	Aluminum	Cadmium O.D. Over Electroless Nickel
ZL	Environmental	Stainless Steel	Electro-Deposited Nickel
XM	Environmental	Composite	Electroless Nickel
XMT	Environmental	Composite	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
XW	Environmental	Composite	Cadmium O.D. Over Electroless Nickel
ZN	Environmental	Aluminum	Zinc-Nickel, Olive Drab
ZR	Environmental	Aluminum	Zinc Nickel, Black - RoHS

Dimensions			
Shell Size	Ø CC Max	Ø DD Max	EE Thread
9	.811 (20.6)	.858 (21.8)	M12 X 1.0-6g 0.100R
11	.929 (23.6)	.984 (25.0)	M15 X 1.0-6g 0.100R
13	1.110 (28.2)	1.157 (29.4)	M18 X 1.0-6g 0.100R
15	1.232 (31.3)	1.280 (32.5)	M22 X 1.0-6g 0.100R
17	1.358 (34.5)	1.406 (35.7)	M25 X 1.0-6g 0.100R
19	1.469 (37.3)	1.516 (38.5)	M28 X 1.0-6g 0.100R
21	1.594 (40.5)	1.642 (41.7)	M31 X 1.0-6g 0.100R
23	1.720 (43.7)	1.768 (44.9)	M34 X 1.0-6g 0.100R
25	1.843 (46.8)	1.890 (48.0)	M37 X 1.0-6g 0.100R

Capacitor Array Code Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X*	160,000 - 240,000	80,000 - 120,000
Y*	80,000 - 120,000	40,000 - 60,000
Z*	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

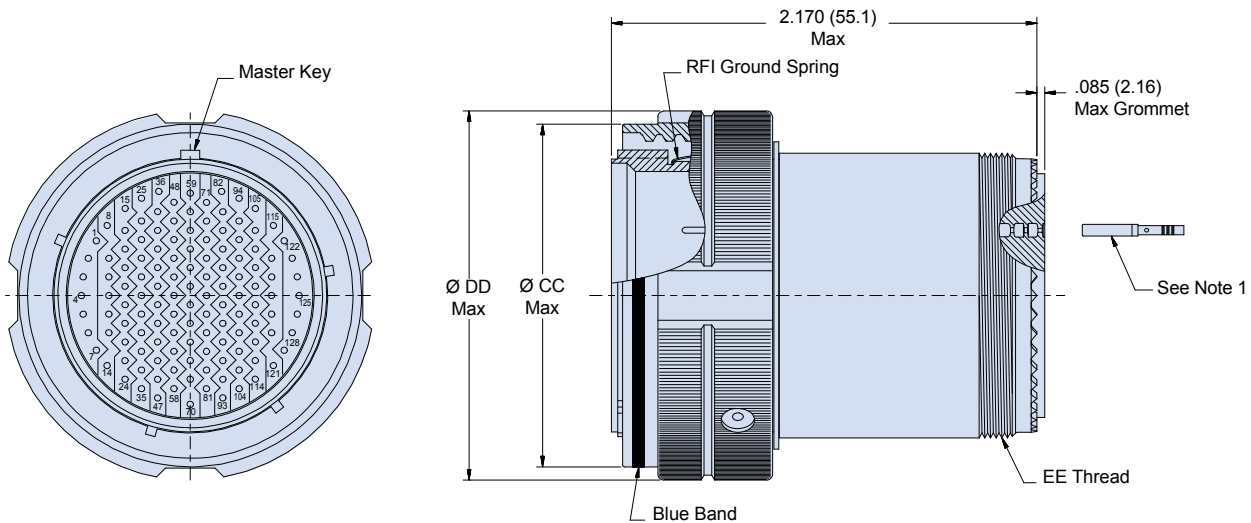
\* Filter Classes X, Y and Z are 250 VDC.  
All others are 500 VDC

Consult Factory for Additional Filter Types, TVS Diodes, and other Custom Configurations.

**SUPERNINE EMI/RFI FILTER PLUG WITH CRIMP REMOVABLE CONTACTS**

Part Number Development	
Sample Part Number	240-383 Q ME 15-35 P C P A N N
Filter Connector	MIL-DTL-38999 Series III Type
Shell Style	Q = Plug with Crimp Contacts
Connector Class	See Connector Class Table
Insert Arrangement*	IAW MIL-STD-1560.
Contact Gender	P = Pin S = Socket
Termination	C = Crimp
Filter Type	P = Pi Circuit C = C Circuit (See Note 2)
Capacitance	See Capacitor Array Code Table
Flange Mounting Style	N = Not Applicable
Alternate Key Position*	A, B, C, D, E, N = Normal

\*Refer to Section A for complete details



**NOTES**

1. Crimp removable contacts to conform to MIL-C-39029/57-358, Size 16, MIL-C-39029/57-357 Size 20, and MIL-C-39029/57-354 Size 22D (Supplied loose).
2. Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.



# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383Q Plug connector with crimp removable contacts



Connector Class			
Sym	Class	Material	Finish Description
ME	Environmental	Aluminum	Electroless Nickel
MT	Environmental	Aluminum	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
NF	Environmental	Aluminum	Cadmium O.D. Over Electroless Nickel
ZL	Environmental	Stainless Steel	Electro-Deposited Nickel
XM	Environmental	Composite	Electroless Nickel
XMT	Environmental	Composite	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
XW	Environmental	Composite	Cadmium O.D. Over Electroless Nickel
ZN	Environmental	Aluminum	Zinc-Nickel, Olive Drab
ZR	Environmental	Aluminum	Zinc Nickel, Black - RoHS

Dimensions			
Shell Size	Ø CC Max	Ø DD Max	EE Thread
9	.811 (20.6)	.858 (21.8)	M12 X 1.0-6g 0.100R
11	.929 (23.6)	.984 (25.0)	M15 X 1.0-6g 0.100R
13	1.110 (28.2)	1.157 (29.4)	M18 X 1.0-6g 0.100R
15	1.232 (31.3)	1.280 (32.5)	M22 X 1.0-6g 0.100R
17	1.358 (34.5)	1.406 (35.7)	M25 X 1.0-6g 0.100R
19	1.469 (37.3)	1.516 (38.5)	M28 X 1.0-6g 0.100R
21	1.594 (40.5)	1.642 (41.7)	M31 X 1.0-6g 0.100R
23	1.720 (43.7)	1.768 (44.9)	M34 X 1.0-6g 0.100R
25	1.843 (46.8)	1.890 (48.0)	M37 X 1.0-6g 0.100R

Capacitor Array Code Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X*	160,000 - 240,000	80,000 - 120,000
Y*	80,000 - 120,000	40,000 - 60,000
Z*	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

\* Filter Classes X, Y and Z are 250 VDC.  
All others are 500 VDC

Consult Factory for Additional Filter Types, TVS Diodes, and other Custom Configurations.

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383W Wall mount receptacle connector

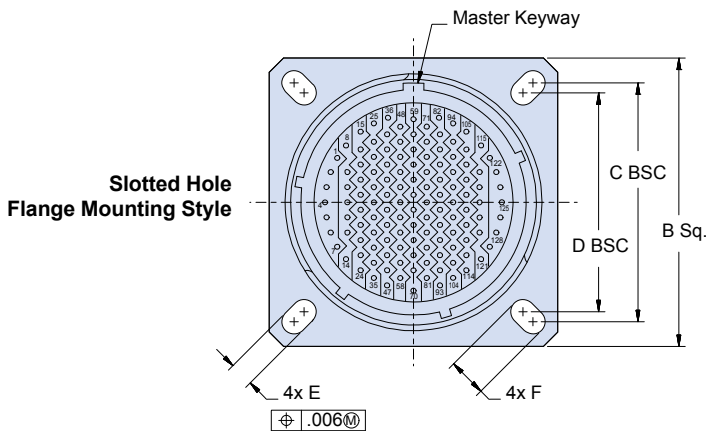
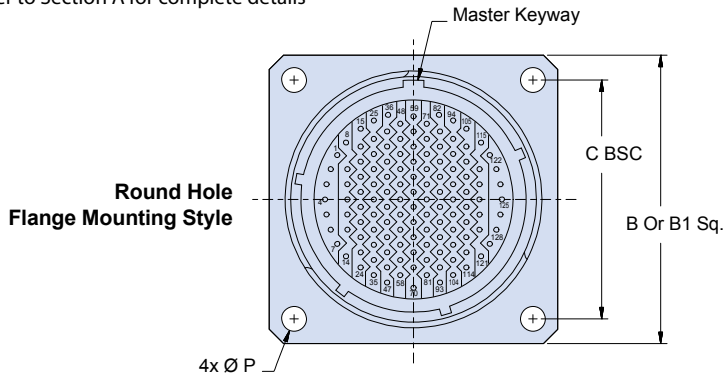


FILTERED CONNECTORS

#### SUPERNINE EMI/RFI FILTER WALL MOUNT RECEPTACLE WITH SOLDER CUP OR PC TAIL TERMINATION

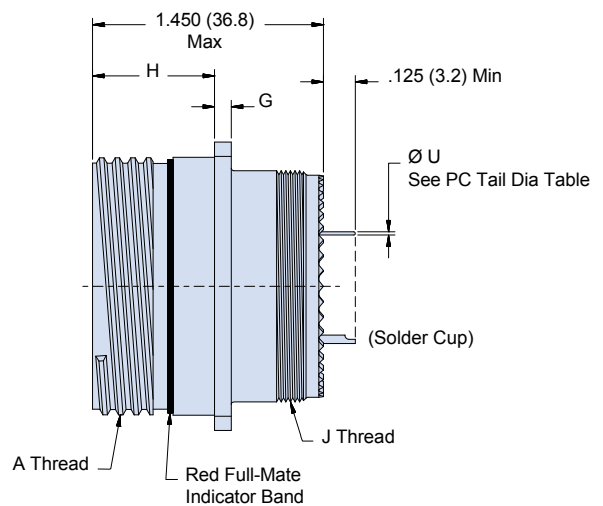
Part Number Development		W	ME	15-35	P	S	P	A	C	N
Sample Part Number	240-383									
Filter Connector	MIL-DTL-38999 Series III Type									
Shell Style	W = Wall Mount									
Connector Class	See Connector Class Table									
Insert Arrangement*	IAW MIL-STD-1560									
Contact Gender	P = Pin S = Socket									
Termination	S = Solder Cup P = PC Tail									
Filter Type	P = Pi Circuit C = C Circuit (See Note 1)									
Capacitance	See Capacitor Array Code Table									
Flange Mounting Style	H = Round Holes C = Clinch Nuts (4-40 UNC) M = Metric Clinch Nuts (M3) S = Slotted Holes									
Alternate Key Position*	A, B, C, D, E, N = Normal									

\*Refer to Section A for complete details



#### NOTES

- Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.
- Consult factory for alternate PC Tail lengths
- Helicoil and threaded inserts/specials available upon request.



# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383W Wall mount receptacle connector



FILTERED CONNECTORS

Connector Class			
Sym	Class	Material	Finish Description
ME	Environmental	Aluminum	Electroless Nickel
MT	Environmental	Aluminum	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
NF	Environmental	Aluminum	Cadmium O.D. Over Electroless Nickel
ZL	Environmental	Stainless Steel	Electro-Deposited Nickel
XM†	Environmental	Composite	Electroless Nickel
XMT†	Environmental	Composite	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
XW†	Environmental	Composite	Cadmium O.D. Over Electroless Nickel
ZN	Environmental	Aluminum	Zinc-Nickel, Olive Drab
ZR	Environmental	Aluminum	Zinc Nickel, Black - RoHS
H2*	Hermetic	Stainless Steel	Electro-Deposited Nickel

\*Some dimensions do not apply. See drawing 240-383WH2  
 † Clinch nuts and metric clinch nuts not available for composites.

Dimensions											
Shell Size	A Thread	Thru Hole Flange		Clinch Nut Flange	Slotted Hole Flange				G	H	J Thread
		B Sq.	Ø P ±.010 (.25)	B1 Sq. ±.020 (.51)	C Bsc	D Bsc	E	F			
9	.6250-1P-3L-TS-2A	.949 (24.1) .925 (23.5)	.128 (3.3)	1.019 (25.9)	.719 (18.3)	.594 (15.1)	.136 (3.5) .120 (3.0)	.224 (5.7) .208 (5.3)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M12 X 1.0-6g 0.100R
11	.7500-1P-3L-TS-2A	1.043 (26.5) 1.019 (25.9)	.128 (3.3)	1.112 (28.2)	.812 (20.6)	.719 (18.3)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M15 X 1.0-6g 0.100R
13	.8750-1P-3L-TS-2A	1.138 (28.9) 1.114 (28.3)	.128 (3.3)	1.206 (30.6)	.906 (23.0)	.812 (20.6)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M18 X 1.0-6g 0.100R
15	1.0000-1P-3L-TS-2A	1.232 (31.3) 1.208 (30.7)	.128 (3.3)	1.269 (32.2)	.969 (24.6)	.906 (23.0)	.136 (3.5) .120 (3.0)	.181 (4.6) .165 (4.2)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M22 X 1.0-6g 0.100R
17	1.1875-1P-3L-TS-2A	1.323 (33.6) 1.299 (33.0)	.128 (3.3)	1.362 (34.6)	1.062 (27.0)	.969 (24.6)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M25 X 1.0-6g 0.100R
19	1.2500-1P-3L-TS-2A	1.449 (36.8) 1.425 (36.2)	.128 (3.3)	1.456 (37.0)	1.156 (29.4)	1.062 (27.0)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M28 X 1.0-6g 0.100R
21	1.3750-1P-3L-TS-2A	1.575 (40.0) 1.551 (39.4)	.128 (3.3)	1.562 (39.7)	1.250 (31.8)	1.156 (29.4)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.171 (4.3) .083 (2.1)	.790 (20.1) .741 (18.8)	M31 X 1.0-6g 0.100R
23	1.5000-1P-3L-TS-2A	1.701 (43.2) 1.677 (42.6)	.156 (4.0)	1.719 (43.7)	1.375 (34.9)	1.250 (31.8)	.162 (4.1) .146 (3.7)	.250 (6.4) .234 (5.9)	.171 (4.3) .083 (2.1)	.790 (20.1) .741 (18.8)	M34 X 1.0-6g 0.100R
25	1.6250-1P-3L-TS-2A	1.823 (46.3) 1.799 (45.7)	.156 (4.0)	1.844 (46.8)	1.500 (38.1)	1.375 (34.9)	.162 (4.1) .146 (3.7)	.250 (6.4) .234 (5.9)	.171 (4.3) .083 (2.1)	.790 (20.1) .741 (18.8)	M37 X 1.0-6g 0.100R

Capacitor Array Code Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X*	160,000 - 240,000	80,000 - 120,000
Y*	80,000 - 120,000	40,000 - 60,000
Z*	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

\* Filter Classes X, Y and Z are 250 VDC. All others are 500 VDC

PC Tail Dia	
Contact Size	Ø U
22D	.021 (0.53)
	.018 (0.46)
20	.031 (0.79)
	.029 (0.74)
16	.042 (1.07)
	.038 (0.97)
12	.096 (2.44)
	.092 (2.34)

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383J Jam nut receptacle connector

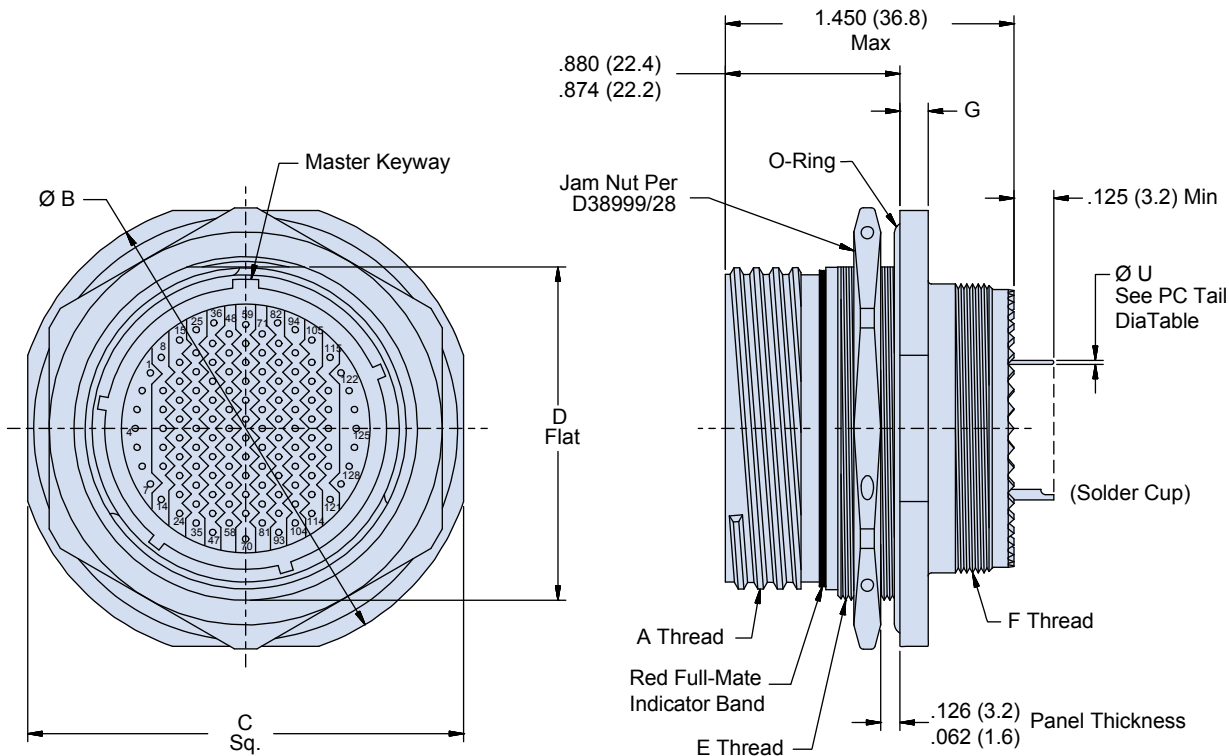


FILTERED CONNECTORS

#### SUPERNINE EMI/RFI FILTER JAM NUT RECEPTACLE WITH SOLDER CUP OR PC TAIL TERMINATION

Part Number Development										
Sample Part Number	240-383	J	ME	15-35	P	S	P	A	N	N
Filter Connector	MIL-DTL-38999 Series III Type									
Shell Style	J = Jam Nut									
Connector Class	See Connector Class Table									
Insert Arrangement*	IAW MIL-STD-1560.									
Contact Gender	P = Pin S = Socket									
Termination	S = Solder Cup P = PC Tail									
Filter Type	P = Pi Circuit C = C Circuit (See Note 1)									
Capacitance	See Capacitor Array Code Table									
Flange Mounting Style	N = Not Applicable									
Alternate Key Position*	A, B, C, D, E, N = Normal									

\*Refer to Section A for complete details



#### NOTES

- Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383J Jam nut receptacle connector



FILTERED CONNECTORS

Connector Class			
Sym	Class	Material	Finish Description
ME	Environmental	Aluminum	Electroless Nickel
MT	Environmental	Aluminum	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
NF	Environmental	Aluminum	Cadmium O.D. Over Electroless Nickel
ZL	Environmental	Stainless Steel	Electro-Deposited Nickel
XM	Environmental	Composite	Electroless Nickel
XMT	Environmental	Composite	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
XW	Environmental	Composite	Cadmium O.D. Over Electroless Nickel
ZN	Environmental	Aluminum	Zinc-Nickel, Olive Drab
ZR	Environmental	Aluminum	Zinc Nickel, Black - RoHS
H2*	Hermetic	Stainless Steel	Electro-Deposited Nickel

\*Some dimensions do not apply. See drawing 240-383JH2

Dimensions							
Shell Size	A Thread	Ø B	C Sq.	D Flat	E Thread	F Thread	G
9	.6250- .1P- .3L-TS-2A	1.201 (30.5) 1.177 (29.9)	1.079 (27.4) 1.047 (26.6)	.655 (16.6) .645 (16.4)	M17 X 1.0-6g 0.100R	M12 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
11	.7500- .1P- .3L-TS-2A	1.386 (35.2) 1.362 (34.6)	1.268 (32.2) 1.236 (31.4)	.755 (19.2) .745 (18.9)	M20 X 1.0-6g 0.100R	M15 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
13	.8750- .1P- .3L-TS-2A	1.512 (38.4) 1.488 (37.8)	1.390 (35.3) 1.358 (34.5)	.942 (23.9) .932 (23.7)	M25 X 1.0-6g 0.100R	M18 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
15	1.000- .1P- .3L-TS-2A	1.638 (41.6) 1.614 (41.0)	1.516 (38.5) 1.484 (37.7)	1.066 (27.1) 1.056 (26.8)	M28 X 1.0-6g 0.100R	M22 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
17	1.1875- .1P- .3L-TS-2A	1.764 (44.8) 1.740 (44.2)	1.642 (41.7) 1.610 (40.9)	1.191 (30.3) 1.181 (30.0)	M32 X 1.0-6g 0.100R	M25 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
19	1.2500- .1P- .3L-TS-2A	1.949 (49.5) 1.925 (48.9)	1.827 (46.4) 1.795 (45.6)	1.316 (33.4) 1.306 (33.2)	M35 X 1.0-6g 0.100R	M28 X 1.0-6g 0.100R	.154 (3.9) .114 (2.9)
21	1.3750- .1P- .3L-TS-2A	2.075 (52.7) 2.051 (52.1)	1.953 (49.6) 1.921 (48.8)	1.441 (36.6) 1.431 (36.3)	M38 X 1.0-6g 0.100R	M31 X 1.0-6g 0.100R	.154 (3.9) .114 (2.9)
23	1.5000- .1P- .3L-TS-2A	2.201 (55.9) 2.177 (55.3)	2.079 (52.8) 2.047 (52.0)	1.566 (39.8) 1.556 (39.5)	M41 X 1.0-6g 0.100R	M34 X 1.0-6g 0.100R	.154 (3.9) .114 (2.9)
25	1.6250- .1P- .3L-TS-2A	2.323 (59.0) 2.299 (58.4)	2.205 (56.0) 2.173 (55.2)	1.691 (43.0) 1.681 (42.7)	M44 X 1.0-6g 0.100R	M37 X 1.0-6g 0.100R	.154 (3.9) .114 (2.9)

Capacitor Array Code Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X*	160,000 - 240,000	80,000 - 120,000
Y*	80,000 - 120,000	40,000 - 60,000
Z*	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

\* Filter Classes X, Y and Z are 250 VDC. All others are 500 VDC

PC Tail Dia	
Contact Size	Ø U
22D	.021 (0.53)
	.018 (0.46)
20	.031 (0.79)
	.029 (0.74)
16	.042 (1.07)
	.038 (0.97)
12	.096 (2.44)
	.092 (2.34)

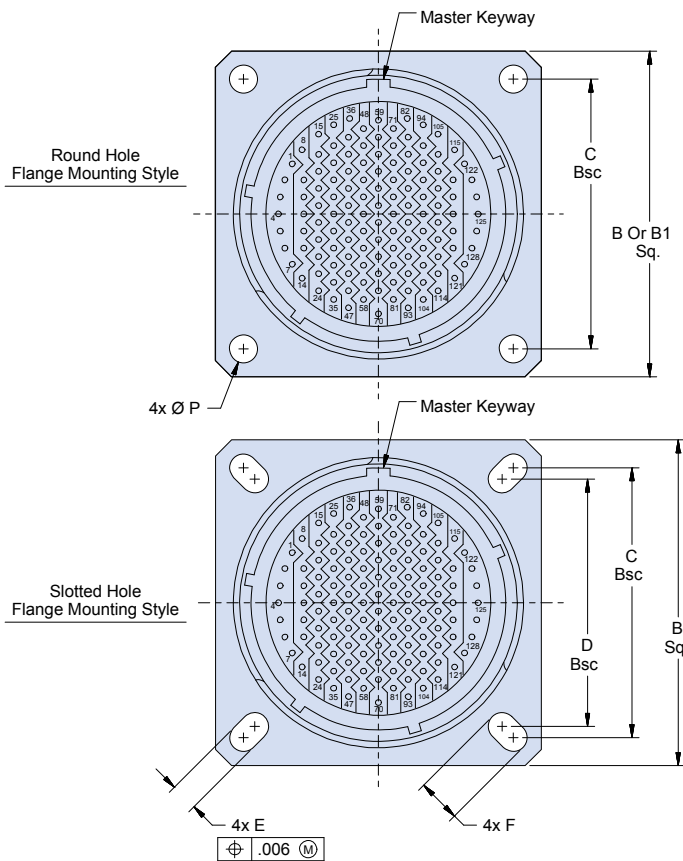
Consult Factory for Additional Filter Types, TVS Diodes, and other Custom Configurations.



**SUPERNINE EMI/RFI FILTER WALL MOUNT RECEPTACLE WITH CRIMP REMOVABLE CONTACTS**

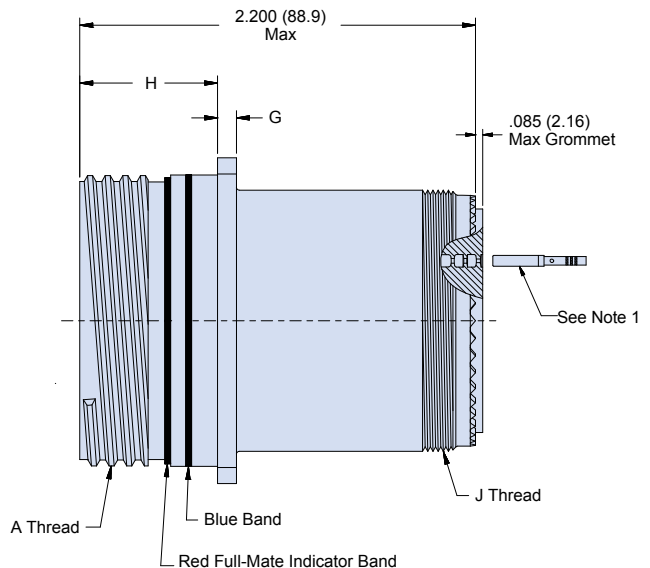
Part Number Development										
Sample Part Number	240-383	R	ME	15-35	P	C	P	A	C	N
Filter Connector	MIL-DTL-38999 Series III Type									
Shell Style	R = Wall Mount with Crimp Contacts									
Connector Class	See Connector Class Table									
Insert Arrangement*	IAW MIL-STD-1560.									
Contact Gender	P = Pin S = Socket									
Termination	C = Crimp									
Filter Type	P = Pi Circuit C = C Circuit (See Note 2)									
Capacitance	See Capacitor Array Code Table									
Flange Mounting Style	H = Round Holes C = Clinch Nuts (4-40 UNC) <sup>†</sup> M = Metric Clinch Nuts (M3) <sup>†</sup> S = Slotted Holes									
Alternate Key Position*	A, B, C, D, E, N = Normal									

\*Refer to Section A for complete details



**NOTES**

1. Crimp removable contacts to conform to MIL-C-39029/57-358, Size 16, MIL-C-39029/57-357 Size 20, and MIL-C-39029/57-354 Size 22D (Supplied loose).
2. Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.
3. Helicoil and threaded inserts/specials available upon request.



# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383R Wall mount receptacle with crimp contacts



FILTERED CONNECTORS

Connector Class			
Sym	Class	Material	Finish Description
ME	Environmental	Aluminum	Electroless Nickel
MT	Environmental	Aluminum	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
NF	Environmental	Aluminum	Cadmium O.D. Over Electroless Nickel
ZL	Environmental	Stainless Steel	Electro-Deposited Nickel
XM†	Environmental	Composite	Electroless Nickel
XMT†	Environmental	Composite	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
XW†	Environmental	Composite	Cadmium O.D. Over Electroless Nickel
ZN	Environmental	Aluminum	Zinc-Nickel, Olive Drab
ZR	Environmental	Aluminum	Zinc Nickel, Black - RoHS
H2*	Hermetic	Stainless Steel	Electro-Deposited Nickel

\*Some dimensions do not apply. See drawing 240-383RH2  
 † Clinch nuts and metric clinch nuts not available for composites.

Dimensions											
Shell Size	A Thread	Thru Hole Flange		Clinch Nut Flange	Slotted Hole Flange				G	H	J Thread
		B Sq.	Ø P ±.010 (.25)	B1 Sq. ±.020 (.51)	C Bsc	D Bsc	E	F			
9	.6250-.1P-.3L-TS-2A	.949 (24.1) .925 (23.5)	.128 (3.3)	1.019 (25.9)	.719 (18.3)	.594 (15.1)	.136 (3.5) .120 (3.0)	.224 (5.7) .208 (5.3)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M12 X 1.0-6g 0.100R
11	.7500-.1P-.3L-TS-2A	1.043 (26.5) 1.019 (25.9)	.128 (3.3)	1.112 (28.2)	.812 (20.6)	.719 (18.3)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M15 X 1.0-6g 0.100R
13	.8750-.1P-.3L-TS-2A	1.138 (28.9) 1.114 (28.3)	.128 (3.3)	1.206 (30.6)	.906 (23.0)	.812 (20.6)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M18 X 1.0-6g 0.100R
15	1.0000-.1P-.3L-TS-2A	1.232 (31.3) 1.208 (30.7)	.128 (3.3)	1.269 (32.2)	.969 (24.6)	.906 (23.0)	.136 (3.5) .120 (3.0)	.181 (4.6) .165 (4.2)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M22 X 1.0-6g 0.100R
17	1.1875-.1P-.3L-TS-2A	1.323 (33.6) 1.299 (33.0)	.128 (3.3)	1.362 (34.6)	1.062 (27.0)	.969 (24.6)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M25 X 1.0-6g 0.100R
19	1.2500-.1P-.3L-TS-2A	1.449 (36.8) 1.425 (36.2)	.128 (3.3)	1.456 (37.0)	1.156 (29.4)	1.062 (27.0)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.820 (20.8) .771 (19.6)	M28 X 1.0-6g 0.100R
21	1.3750-.1P-.3L-TS-2A	1.575 (40.0) 1.551 (39.4)	.128 (3.3)	1.562 (39.7)	1.250 (31.8)	1.156 (29.4)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.171 (4.3) .083 (2.1)	.790 (20.1) .741 (18.8)	M31 X 1.0-6g 0.100R
23	1.5000-.1P-.3L-TS-2A	1.701 (43.2) 1.677 (42.6)	.156 (4.0)	1.719 (43.7)	1.375 (34.9)	1.250 (31.8)	.162 (4.1) .146 (3.7)	.250 (6.4) .234 (5.9)	.171 (4.3) .083 (2.1)	.790 (20.1) .741 (18.8)	M34 X 1.0-6g 0.100R
25	1.6250-.1P-.3L-TS-2A	1.823 (46.3) 1.799 (45.7)	.156 (4.0)	1.844 (46.8)	1.500 (38.1)	1.375 (34.9)	.162 (4.1) .146 (3.7)	.250 (6.4) .234 (5.9)	.171 (4.3) .083 (2.1)	.790 (20.1) .741 (18.8)	M37 X 1.0-6g 0.100R

Capacitor Array Code Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X*	160,000 - 240,000	80,000 - 120,000
Y*	80,000 - 120,000	40,000 - 60,000
Z*	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

\* Filter Classes X, Y and Z are 250 VDC. All others are 500 VDC

Consult Factory for Additional Filter Types, TVS Diodes, and other Custom Configurations.

**MIL-DTL-38999 Series III Type connectors**

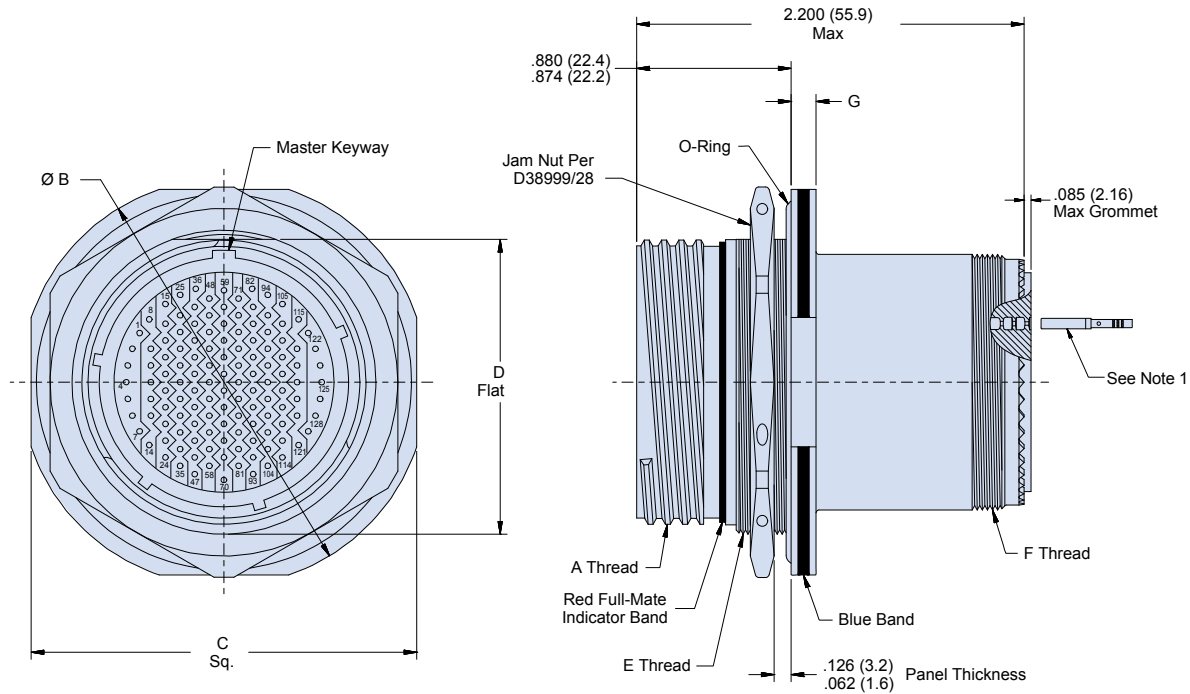
**240-383S Jam nut receptacle connector with crimp contacts**

FILTERED CONNECTORS

**SUPERNINE EMI/RFI FILTER JAM NUT RECEPTACLE WITH CRIMP REMOVABLE CONTACTS**

Part Number Development	
Sample Part Number	240-383 S ME 15-35 P C P A N N
Filter Connector	MIL-DTL-38999 Series III Type
Shell Style	S = Jam Nut with Crimp Contacts
Connector Class	See Connector Class Table
Insert Arrangement*	IAW MIL-STD-1560.
Contact Gender	P = Pin S = Socket
Termination	C = Crimp
Filter Type	P = Pi Circuit C = C Circuit (See Note 2)
Capacitance	See Capacitor Array Code Table
Flange Mounting Style	N = Not Applicable
Alternate Key Position*	A, B, C, D, E, N = Normal

\*Refer to Section A for complete details



**NOTES**

1. Crimp removable contacts to conform to MIL-C-39029/57-358, Size 16, MIL-C-39029/57-357 Size 20, and MIL-C-39029/57-354 Size 22D (Supplied loose).
2. Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383S Jam nut receptacle connector with crimp contacts



FILTERED CONNECTORS

Connector Class			
Sym	Class	Material	Finish Description
ME	Environmental	Aluminum	Electroless Nickel
MT	Environmental	Aluminum	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
NF	Environmental	Aluminum	Cadmium O.D. Over Electroless Nickel
ZL	Environmental	Stainless Steel	Electro-Deposited Nickel
XM	Environmental	Composite	Electroless Nickel
XMT	Environmental	Composite	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
XW	Environmental	Composite	Cadmium O.D. Over Electroless Nickel
ZN	Environmental	Aluminum	Zinc-Nickel, Olive Drab
ZR	Environmental	Aluminum	Zinc Nickel, Black - RoHS
H2*	Hermetic	Stainless Steel	Electro-Deposited Nickel

\*Some dimensions do not apply. See drawing 240-383SH2

Dimensions							
Shell Size	A Thread	Ø B	C	D	E Thread	F Thread	G
9	.6250-.1P-.3L-TS-2A	1.201 (30.5) 1.177 (29.9)	1.079 (27.4) 1.047 (26.6)	.655 (16.6) .645 (16.4)	M17 X 1.0-6g 0.100R	M12 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
11	.7500-.1P-.3L-TS-2A	1.386 (35.2) 1.362 (34.6)	1.268 (32.2) 1.236 (31.4)	.755 (19.2) .745 (18.9)	M20 X 1.0-6g 0.100R	M15 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
13	.8750-.1P-.3L-TS-2A	1.512 (38.4) 1.488 (37.8)	1.390 (35.3) 1.358 (34.5)	.942 (23.9) .932 (23.7)	M25 X 1.0-6g 0.100R	M18 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
15	1.000-.1P-.3L-TS-2A	1.638 (41.6) 1.614 (41.0)	1.516 (38.5) 1.484 (37.7)	1.066 (27.1) 1.056 (26.9)	M28 X 1.0-6g 0.100R	M22 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
17	1.1875-.1P-.3L-TS-2A	1.764 (44.8) 1.740 (44.2)	1.642 (41.7) 1.610 (40.9)	1.191 (30.3) 1.181 (30.0)	M32 X 1.0-6g 0.100R	M25 X 1.0-6g 0.100R	.122 (3.1) .083 (2.1)
19	1.2500-.1P-.3L-TS-2A	1.949 (49.5) 1.925 (48.9)	1.827 (46.4) 1.795 (45.6)	1.316 (33.4) 1.306 (33.2)	M35 X 1.0-6g 0.100R	M28 X 1.0-6g 0.100R	.154 (3.9) .114 (2.9)
21	1.3750-.1P-.3L-TS-2A	2.075 (52.7) 2.051 (52.1)	1.953 (49.6) 1.921 (48.8)	1.441 (36.6) 1.431 (36.3)	M38 X 1.0-6g 0.100R	M31 X 1.0-6g 0.100R	.154 (3.9) .114 (2.9)
23	1.5000-.1P-.3L-TS-2A	2.201 (55.9) 2.177 (55.3)	2.079 (52.8) 2.047 (52.0)	1.566 (39.8) 1.556 (39.5)	M41 X 1.0-6g 0.100R	M34 X 1.0-6g 0.100R	.154 (3.9) .114 (2.9)
25	1.6250-.1P-.3L-TS-2A	2.323 (59.0) 2.299 (58.4)	2.205 (56.0) 2.173 (55.2)	1.691 (43.0) 1.681 (42.7)	M44 X 1.0-6g 0.100R	M37 X 1.0-6g 0.100R	.154 (3.9) .114 (2.9)

Capacitor Array Code Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X*	160,000 - 240,000	80,000 - 120,000
Y*	80,000 - 120,000	40,000 - 60,000
Z*	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

\* Filter Classes X, Y and Z are 250 VDC. All others are 500 VDC

Consult Factory for Additional Filter Types, TVS Diodes, and other Custom Configurations.

## MIL-DTL-38999 Series III Type connectors

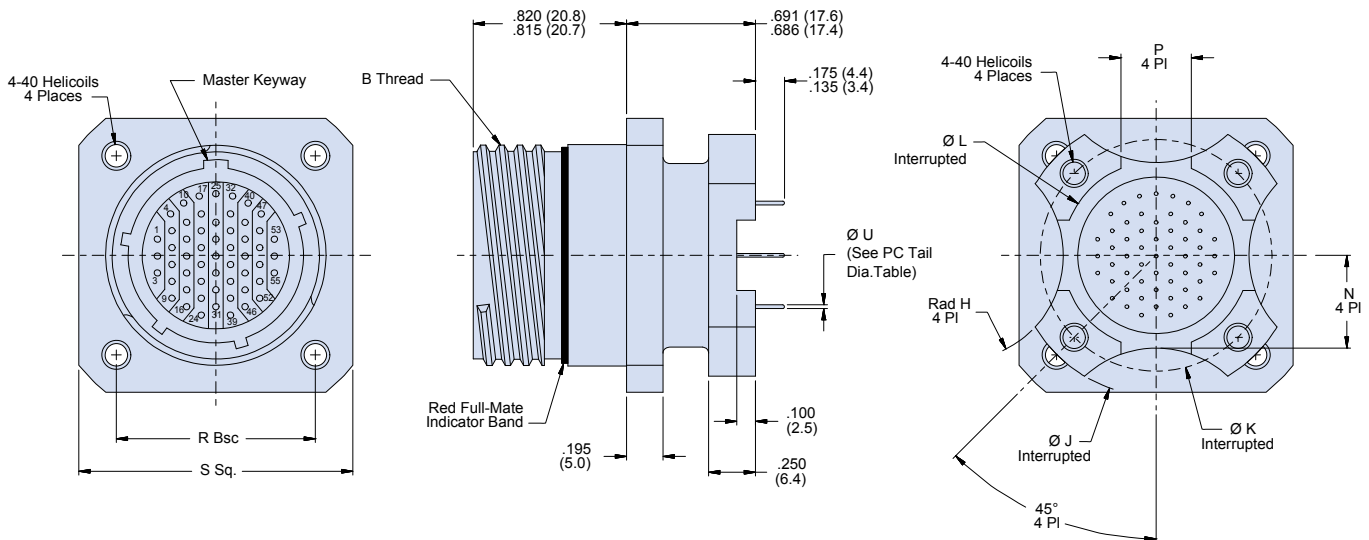
### 240-383D Dual flange wall mount receptacle connector

FILTERED CONNECTORS

#### SUPERNINE EMI/RFI FILTER WALL MOUNT RECEPTACLE WITH PC TAILS

Part Number Development										
Sample Part Number	240-383	D	ME	15-35	P	P	P	A	N	N
Filter Connector	MIL-DTL-38999 Series III Type									
Shell Style	D = Dual Flange Wall Mount									
Connector Class	See Connector Class Table									
Insert Arrangement*	IAW MIL-STD-1560.									
Contact Gender	P = Pin S = Socket									
Termination	P = PC Tail									
Filter Type	P = Pi Circuit C = C Circuit (See Note 1)									
Capacitance	See Capacitor Array Code Table									
Flange Mounting Style	N = Not Applicable									
Alternate Key Position*	A, B, C, D, E, N = Normal									

\*Refer to Section A for complete details



#### NOTES

- Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.



# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383D Dual flange wall mount receptacle connector



FILTERED CONNECTORS

Connector Class			
Sym	Class	Material	Finish Description
ME	Environmental	Aluminum	Electroless Nickel
MT	Environmental	Aluminum	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
NF	Environmental	Aluminum	Cadmium O.D. Over Electroless Nickel
ZL	Environmental	Stainless Steel	Electro-Deposited Nickel
XM	Environmental	Composite	Electroless Nickel
XMT	Environmental	Composite	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
XW	Environmental	Composite	Cadmium O.D. Over Electroless Nickel
ZN	Environmental	Aluminum	Zinc-Nickel, Olive Drab
ZR	Environmental	Aluminum	Zinc Nickel, Black - RoHS
H2*	Hermetic	Stainless Steel	Electro-Deposited Nickel

\*Some dimensions do not apply. See drawing 240-383DH2

Dimensions									
Shell Size	B Thread	P ±.010 (.25)	R Bsc	S ±.012 (.30)	Ø J ±.005 (.13)	Ø K Bsc	Ø L ±.005 (.13)	Rad H ±.020 (.51)	N ±.020 (.51)
9	.6250-.1P-.3L-TS-2A	.225 (5.7)	.719 (18.3)	.937 (23.8)	1.016 (25.8)	.752 (19.1)	.532 (13.5)	.225 (5.7)	.275 (7.0)
11	.7500-.1P-.3L-TS-2A	.250 (6.4)	.812 (20.6)	1.181 (30.0)	1.062 (27.0)	.850 (21.6)	.595 (15.1)	.250 (6.4)	.290 (7.4)
13	.8750-.1P-.3L-TS-2A	.250 (6.4)	.906 (23.0)	1.277 (32.4)	1.250 (31.8)	.994 (25.2)	.720 (18.3)	.375 (9.5)	.370 (9.4)
15	1.0000-.1P-.3L-TS-2A	.325 (8.2)	.969 (24.6)	1.371 (34.8)	1.375 (34.9)	1.119 (28.4)	.843 (21.4)	.438 (11.1)	.440 (11.2)
17	1.1875-.1P-.3L-TS-2A	.375 (9.5)	1.062 (27.0)	1.462 (37.1)	1.500 (38.1)	1.237 (31.4)	1.000 (25.4)	.562 (14.3)	.495 (12.6)
19	1.2500-.1P-.3L-TS-2A	.500 (12.7)	1.156 (29.4)	1.588 (40.3)	1.625 (41.3)	1.379 (35.0)	1.125 (28.6)	.875 (22.2)	.540 (13.7)
21	1.3750-.1P-.3L-TS-2A	.562 (14.3)	1.250 (31.8)	1.714 (43.5)	1.750 (44.5)	1.489 (37.8)	1.240 (31.5)	1.170 (29.7)	.625 (15.9)
23	1.5000-.1P-.3L-TS-2A	.688 (17.5)	1.375 (34.9)	1.840 (46.7)	1.875 (47.6)	1.619 (41.1)	1.328 (33.7)	1.250 (31.8)	.660 (16.8)
25	1.6250-.1P-.3L-TS-2A	.750 (19.1)	1.500 (38.1)	1.962 (49.8)	2.000 (50.8)	1.744 (44.3)	1.453 (36.9)	1.375 (34.9)	.740 (18.8)

Capacitor Array Code Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X*	160,000 - 240,000	80,000 - 120,000
Y*	80,000 - 120,000	40,000 - 60,000
Z*	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

\* Filter Classes X, Y and Z are 250 VDC.  
All others are 500 VDC

PC Tail Dia	
Contact Size	Ø U
22D	.021 (0.53)
	.018 (0.46)
20	.031 (0.79)
	.029 (0.74)
16	.042 (1.07)
	.038 (0.97)
12	.096 (2.44)
	.092 (2.34)

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383E Dual flange jam nut receptacle connector

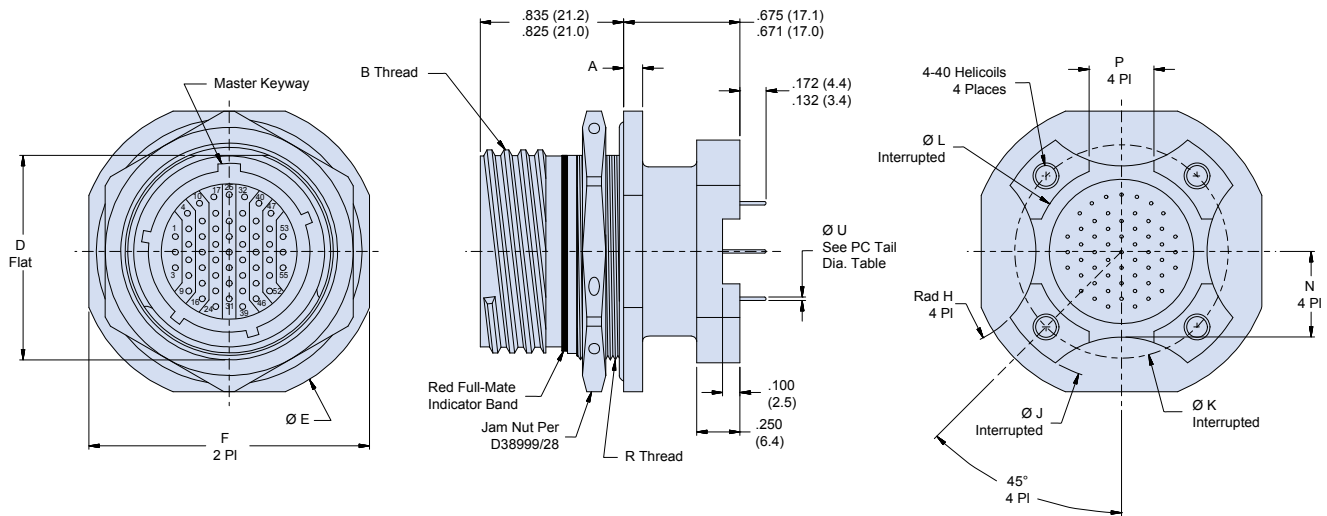


FILTERED CONNECTORS

#### SUPERNINE EMI/RFI FILTER JAM NUT RECEPTACLE WITH PC TAILS

Part Number Development		E	ME	15-35	P	P	P	A	N	N
Sample Part Number	240-383									
Filter Connector	MIL-DTL-38999 Series III Type									
Shell Style	E = Dual Flange Jam Nut									
Connector Class	See Connector Class Table									
Insert Arrangement*	IAW MIL-STD-1560.									
Contact Gender	P = Pin S = Socket									
Termination	P = PC Tail									
Filter Type	P = Pi Circuit C = C Circuit (See Note 1)									
Capacitance	See Capacitor Array Code Table									
Flange Mounting Style	N = Not Applicable									
Alternate Key Position*	A, B, C, D, E, N = Normal									

\*Refer to Section A for complete details



#### NOTES

- Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383E Dual flange jam nut receptacle connector



FILTERED CONNECTORS

Connector Class			
Sym	Class	Material	Finish Description
ME	Environmental	Aluminum	Electroless Nickel
MT	Environmental	Aluminum	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
NF	Environmental	Aluminum	Cadmium O.D. Over Electroless Nickel
ZL	Environmental	Stainless Steel	Electro-Deposited Nickel
XM	Environmental	Composite	Electroless Nickel
XMT	Environmental	Composite	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
XW	Environmental	Composite	Cadmium O.D. Over Electroless Nickel
ZN	Environmental	Aluminum	Zinc-Nickel, Olive Drab
ZR	Environmental	Aluminum	Zinc Nickel, Black - RoHS
H2*	Hermetic	Stainless Steel	Electro-Deposited Nickel

\*Some dimensions do not apply. See drawing 240-383EH2

Dimensions												
Shell Size	B Thread	D	Ø E	F	P	R Thread	Ø J	Ø K	Ø L	Rad H	N	A
		±.005 (.13)	±.012 (.30)	±.016 (.40)	±.010 (.25)		±.005 (.13)	Bsc	±.005 (.13)	±.020 (.51)	±.020 (.51)	
9	.6250-.1P-.3L-TS-2A	.650 (16.5)	1.189 (30.2)	1.063 (27.0)	.225 (5.7)	M17 X 1.0-6g 0.100R	1.016 (25.8)	.752 (19.1)	.532 (13.5)	.225 (5.7)	.275 (7.0)	.122 (3.1) .083 (2.1)
11	.7500-.1P-.3L-TS-2A	.750 (19.1)	1.374 (34.9)	1.252 (31.8)	.250 (6.4)	M20 X 1.0-6g 0.100R	1.062 (27.0)	.850 (21.6)	.595 (15.1)	.250 (6.4)	.290 (7.4)	.122 (3.1) .083 (2.1)
13	.8750-.1P-.3L-TS-2A	.937 (23.8)	1.500 (38.1)	1.374 (34.9)	.250 (6.4)	M25 X 1.0-6g 0.100R	1.250 (31.8)	.994 (25.2)	.720 (18.3)	.375 (9.5)	.370 (9.4)	.122 (3.1) .083 (2.1)
15	1.0000-.1P-.3L-TS-2A	1.061 (26.9)	1.626 (41.3)	1.500 (38.1)	.325 (8.2)	M28 X 1.0-6g 0.100R	1.375 (34.9)	1.119 (28.4)	.843 (21.4)	.438 (11.1)	.440 (11.2)	.122 (3.1) .083 (2.1)
17	1.1875-.1P-.3L-TS-2A	1.186 (30.1)	1.752 (44.5)	1.626 (41.3)	.375 (9.5)	M32 X 1.0-6g 0.100R	1.500 (38.1)	1.237 (31.4)	1.000 (25.4)	.562 (14.3)	.495 (12.6)	.122 (3.1) .083 (2.1)
19	1.2500-.1P-.3L-TS-2A	1.311 (33.3)	1.937 (49.2)	1.811 (46.0)	.500 (12.7)	M35 X 1.0-6g 0.100R	1.625 (41.3)	1.379 (35.0)	1.125 (28.6)	.875 (22.2)	.540 (13.7)	.154 (3.9) .114 (2.9)
21	1.3750-.1P-.3L-TS-2A	1.436 (36.5)	2.063 (52.4)	1.937 (49.2)	.562 (14.3)	M38 X 1.0-6g 0.100R	1.750 (44.5)	1.489 (37.8)	1.240 (31.5)	1.170 (29.7)	.625 (15.9)	.154 (3.9) .114 (2.9)
23	1.5000-.1P-.3L-TS-2A	1.561 (39.7)	2.189 (55.6)	2.063 (52.4)	.688 (17.5)	M41 X 1.0-6g 0.100R	1.875 (47.6)	1.619 (41.1)	1.328 (33.7)	1.250 (31.8)	.660 (16.8)	.154 (3.9) .114 (2.9)
25	1.6250-.1P-.3L-TS-2A	1.686 (42.8)	2.311 (58.7)	2.189 (55.6)	.750 (19.1)	M44 X 1.0-6g 0.100R	2.000 (50.8)	1.744 (44.3)	1.453 (36.9)	1.375 (34.9)	.740 (18.8)	.154 (3.9) .114 (2.9)

Capacitor Array Code Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X*	160,000 - 240,000	80,000 - 120,000
Y*	80,000 - 120,000	40,000 - 60,000
Z*	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

\* Filter Classes X, Y and Z are 250 VDC. All others are 500 VDC

PC Tail Dia	
Contact Size	Ø U
22D	.021 (0.53) .018 (0.46)
20	.031 (0.79) .029 (0.74)
16	.042 (1.07) .038 (0.97)
12	.096 (2.44) .092 (2.34)

Consult Factory for Additional Filter Types, TVS Diodes, and other Custom Configurations.

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383B Filter connector adapter

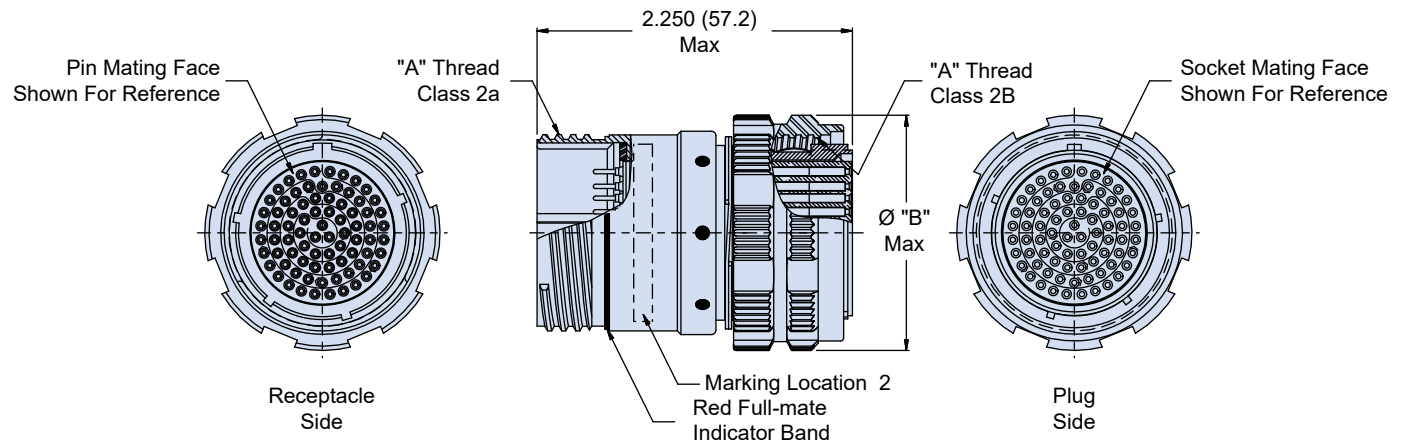


FILTERED CONNECTORS

#### SUPERNINE EMI/RFI FILTER CONNECTOR ADAPTER

Part Number Development									
Sample Part Number	240-383	B	ME	15-35	PS	P	A	N	N
Filter Connector	MIL-DTL-38999 Series III Type								
Shell Style	B = Connector Adapter								
Connector Class	See Connector Class Table								
Insert Arrangement*	IAW MIL-STD-1560.								
Contact Gender	PS = Pins, Plug Side SP = Sockets, Plug Side								
Filter Type	P = Pi Circuit C = C Circuit (See Note 1)								
Capacitance	See Capacitor Array Code Table								
Flange Mounting Style	N = Not Applicable								
Alternate Key Position*	A, B, C, D, E, N = Normal, U = Universal								

\*Refer to Section A for complete details



#### NOTES

1. Other filter styles (C-L, L-C, Unbalanced Pi, Multi-Stage, Multi-Value) are available, please consult the factory.
2. Please consult the factory for Pin/Pin and/or Socket/Socket contact arrangements
3. Do not mate Universal key position with another Universal

# SuperNine® EMI/RFI filter

## MIL-DTL-38999 Series III Type connectors

### 240-383B Filter connector adapter



FILTERED CONNECTORS

Connector Class			
Sym	Class	Material	Finish Description
ME	Environmental	Aluminum	Electroless Nickel
MT	Environmental	Aluminum	Ni-PTFE 1000 Hour Grey™ Nickel Fluorocarbon Polymer
NF	Environmental	Aluminum	Cadmium O.D. Over Electroless Nickel
ZL	Environmental	Stainless Steel	Electro-Deposited Nickel
ZN	Environmental	Aluminum	Zinc-Nickel, Olive Drab
ZR	Environmental	Aluminum	Zinc Nickel, Black - RoHS

Dimensions		
Shell Size	A Thread Class 2	Ø B Max
9	.6250- .1P- .3L-TS	.858 (21.8)
11	.7500- .1P- .3L-TS	.984 (25.0)
13	.8750- .1P- .3L-TS	1.157 (29.4)
15	1.000- .1P- .3L-TS	1.280 (32.5)
17	1.1875- .1P- .3L-TS	1.406 (35.7)
19	1.2500- .1P- .3L-TS	1.516 (38.5)
21	1.3750- .1P- .3L-TS	1.642 (41.7)
23	1.5000- .1P- .3L-TS	1.768 (44.9)
25	1.6250- .1P- .3L-TS	1.890 (48.0)

Capacitor Array Code Capacitance Range		
Class	Pi - Circuit (pF)	C - Circuit (pF)
X*	160,000 - 240,000	80,000 - 120,000
Y*	80,000 - 120,000	40,000 - 60,000
Z*	60,000 - 90,000	30,000 - 45,000
A	38,000 - 56,000	19,000 - 28,000
B	32,000 - 45,000	16,000 - 22,500
C	18,000 - 33,000	9,000 - 16,500
D	8,000 - 12,000	4,000 - 6,000
E	3,300 - 5,000	1,650 - 2,500
F	800 - 1,300	400 - 650
G	400 - 600	200 - 300
J	70-120	35-60

\* Filter Classes X, Y and Z are 250 VDC.  
All others are 500 VDC

Consult Factory for Additional Filter Types, TVS Diodes, and other Custom Configurations.



SERIES 23  
FIBER OPTIC  
CONNECTORS



 **SuperNine®**

MIL-DTL-38999 Series III Type fiber optic connectors, termini and accessories



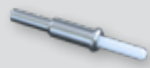
**M**IL-DTL-38999 type fiber optic interconnection systems are the recognized standard for all military and commercial aerospace applications that depend on high levels of connector reliability, environmental and mechanical performance and low dB insertion loss. Designed specifically for avionics applications, the Glenair tight-tolerance SuperNine® fiber optic connection system has been successfully deployed in applications ranging from the F-35 Joint Strike Fighter and the venerable F-22 to dozens of other fixed wing and rotary aircraft applications. Ultra-lightweight composite thermoplastic connectors deliver years of reliable service, free from the destructive effects of corrosion and less susceptible to vibration and shock when compared to conventional metal connectors.

- **Ultralightweight composite thermoplastic connector solution**
- **Qualified size 16 MIL-PRF-29504 pin-socket precision ceramic termini**
- **Ultra tight tolerance shell and cavity dimensions for precise axial alignment**
- **Ultra low insertion loss values for both singlemode and multimode**
- **From 2 to 37 Insert arrangements**



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

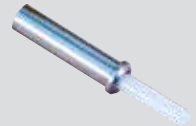
**SuperNine® MIL-DTL-38999 Series III Type  
Fiber Optic Termini**



**181-002 • M29504/04 Style 1** G-6  
Pin terminus, size 16



**181-001 • M29504/05 Style 1** G-7  
Socket terminus, size 16



**181-010 • M29504/04 Style 2** G-8  
Socket terminus, size 16



**181-009 • M29504/05 Style 2** G-9  
Socket terminus, size 16



**181-036 M29504/04 Style 2** G-10  
Large core fiber pin terminus,  
size 16



**181-035 M29504/05 Style 2** G-11  
Large core fiber socket terminus,  
size 16



**181-052 M29504/04 Style 2** G-12  
Jewel pin terminus, size 16



**181-053 M29504/05 Style 2** G-13  
Jewel socket terminus, size 16



**181-065** G-14  
Pin terminus, size 20



**181-066** G-15  
Socket Terminus, Size 20

**SuperNine® MIL-DTL-38999 Series III Type  
Pin and Socket Accessories**



**181-048-16** G-16  
Dummy sealing plug, size 16



**187-019** G-16  
Pin/socket terminus dust cap,  
Size 16



**187-029** G-17  
Socket hood dust cap, size 16



**187-266** G-17  
Socket terminus dust cap, size 20

#### SuperNine® MIL-DTL-38999 Series III Type Fiber Optic Connectors



#### SuperNine Fiber Optic D38999

- Insert arrangements G-3
- Panel cutout dimensions G-4
- Alternate key polarizations G-5



- 180-091 (06)** G-18
- In-line plug connector



- 180-091 (05)** G-19
- In-line receptacle connector



- 180-091 (08)** G-20
- Jam-nut mount receptacle connector



- 180-091 (H7)** G-21
- Wall mount receptacle connector, round holes (std)



- 180-091 (S7)** G-22
- Wall mount receptacle connector, slotted holes



- 180-091 (T7)** G-23
- Wall mount receptacle connector, threaded holes



- 660-023/024, 660-049/050** G-24
- threaded protective covers, metal and composite

#### SuperNine® MIL-DTL-38999 Series III Type Fiber Optic ASAP Cordsets



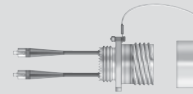
- FO1000** G-29
- Fiber optic cable sets – neoprene or viton® rugged overmolded cables



- FO1001** G-31
- Fiber optic cable sets – plastic or metal core conduit



- FO1002** G-33
- Fiber optic cable sets – field repairable banding backshell assembly



- FO1003** G-35
- Fiber optic cable sets – inside-the-box receptacle / pigtail assembly



- FO1004** G-37
- Fiber optic cable sets – inside the box receptacle / pigtail assembly with FiberCon® backshell

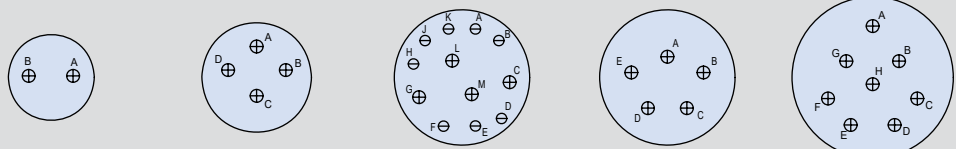


- FO1005** G-39
- Fiber optic cable sets – inside the box receptacle / pigtail assembly and backshell

#### MIL-DTL-38999 TYPE ADVANCED FIBER OPTIC CONNECTORS - INSERT ARRANGEMENTS

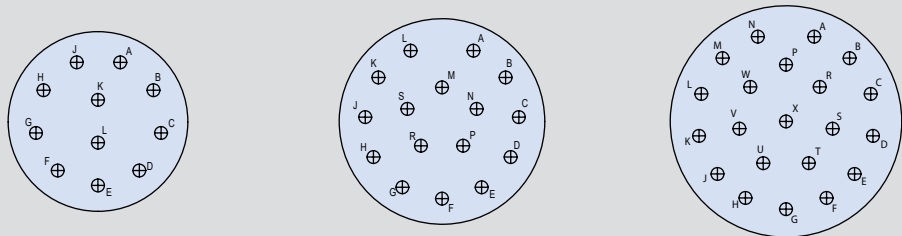


Contact Legend  
#20 ⊖ #16 ⊕



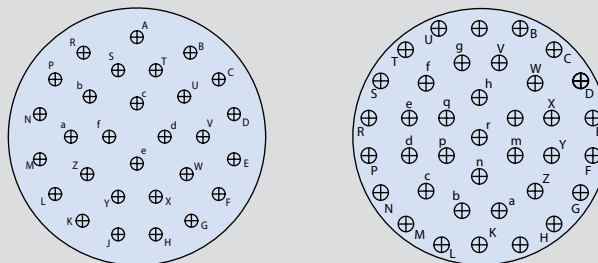
Insert Arrangement	11-2	13-4	15-97		15-5	17-8
No. of Contacts	2	4	4	8	5	8
Contact Size	#16	#16	#16	#20	#16	#16

Contact Legend  
#20 ⊖ #16 ⊕



Insert Arrangement	19-11	21-16	23-21
No. of Contacts	11	16	21
Contact Size	#16	#16	#16

Contact Legend  
#20 ⊖ #16 ⊕



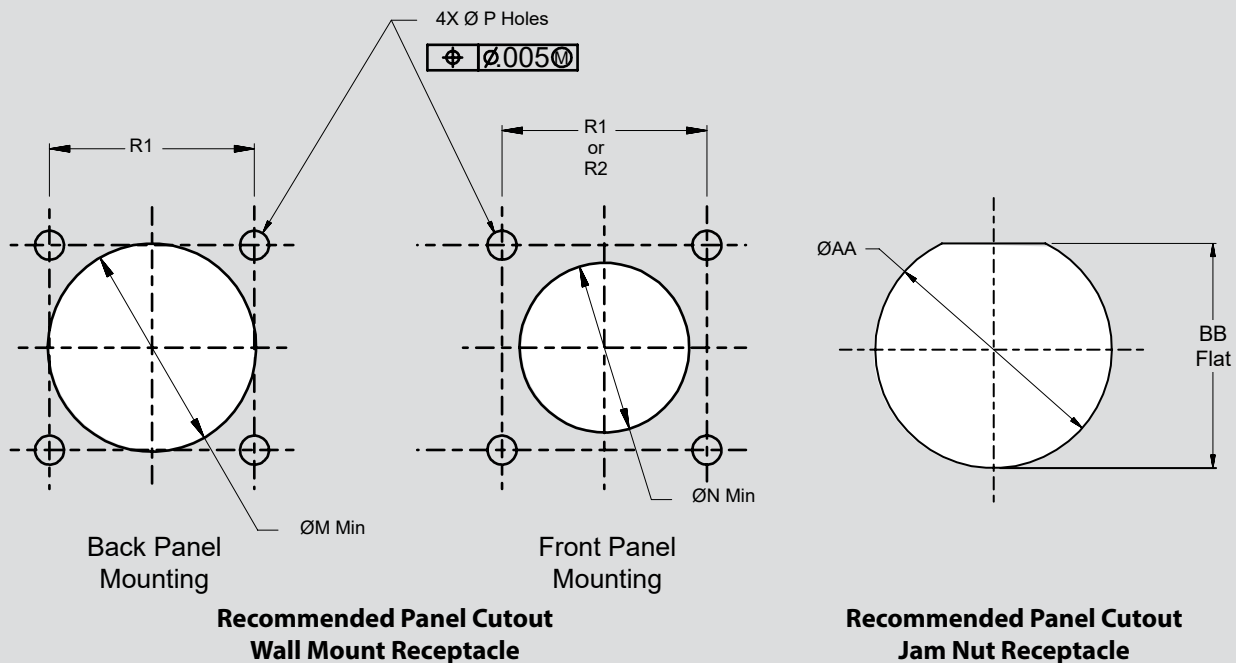
Insert Arrangement	25-29	25-37
No. of Contacts	29	37
Contact Size	#16	#16

Reference information - panel cutout dimensions

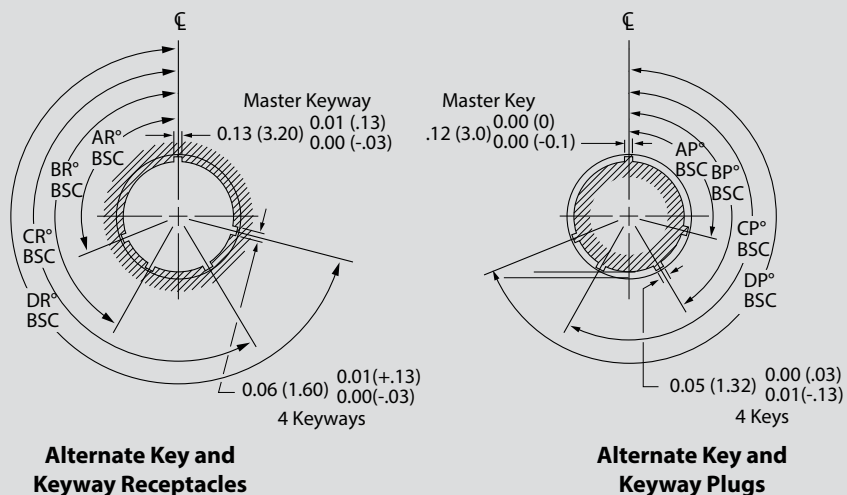
Panel cutout dimensions

FIBER OPTIC CONNECTORS

DIMENSIONS								
Shell Size Code	Shell Size	Ø AA	BB Flat	Ø M Min	Ø N Min	Ø P Holes	R1 BSC	R2 BSC
B	11	.835 (21.2)	.771 (19.6)	.796 (20.2)	.625 (15.9)	.133 (3.4)	.812 (20.6)	.719 (18.3)
		.825 (21.0)	.761 (19.3)			.123 (3.1)		
C	13	1.020 (25.9)	.955 (24.3)	.922 (23.4)	.750 (19.1)	.133 (3.4)	.906 (23.0)	.812 (20.6)
		1.010 (25.7)	.945 (24.0)			.123 (3.1)		
D	15	1.145 (29.1)	1.085 (27.6)	1.047 (26.6)	.906 (23.0)	.133 (3.4)	.969 (24.6)	.906 (23.0)
		1.135 (28.8)	1.075 (27.3)			.123 (3.1)		
E	17	1.270 (32.3)	1.210 (30.7)	1.219 (31.0)	1.016 (25.8)	.133 (3.4)	1.062 (27.0)	.969 (24.6)
		1.260 (32.0)	1.200 (30.5)			.123 (3.1)		
F	19	1.395 (35.4)	1.335 (33.9)	1.297 (32.9)	1.141 (29.0)	.133 (3.4)	1.156 (29.4)	1.062 (27.0)
		1.385 (35.2)	1.325 (33.7)			.123 (3.1)		
G	21	1.520 (38.6)	1.460 (37.1)	1.422 (36.1)	1.266 (32.2)	.133 (3.4)	1.250 (31.8)	1.156 (29.4)
		1.510 (38.4)	1.450 (36.8)			.123 (3.1)		
H	23	1.645 (41.8)	1.585 (40.3)	1.547 (39.3)	1.375 (34.9)	.159 (4.0)	1.375 (34.9)	1.250 (31.8)
		1.635 (41.5)	1.575 (40.0)			.149 (3.8)		
J	25	1.770 (45.0)	1.710 (43.4)	1.672 (42.5)	1.484 (37.7)	.155 (3.9)	1.500 (38.1)	1.375 (34.9)
		1.760 (44.7)	1.700 (43.2)			.145 (3.7)		







ALTERNATE KEY AND KEYWAY POLARIZATION					
Shell Size	Key and Keyway Code	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
11 13 15	E	91	131	197	240
	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
17 19 21 23 25	D	119	146	176	298
	E	51	141	184	242
	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
21 23 25	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

**MIL-DTL-38999 Series III Type**

**181-002 • M29504/04 fiber optic pin terminus, size 16**

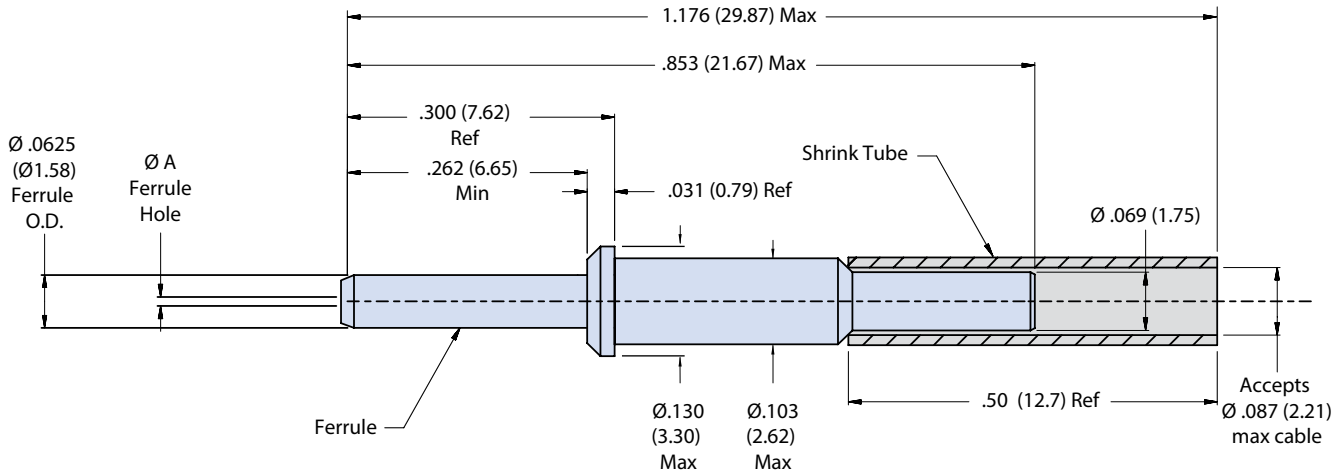
FIBER OPTIC CONNECTORS

**M29504/04 TYPE, STYLE 1 PIN TERMINUS FOR MIL-DTL-38999 SERIES III**



Part Number	Fiber Size Core/Cladding/Coating (Microns)	Ø A (Microns)	Ref. M29504/04-XXXX
181-002-125	9/125 (Singlemode)	125.5	M29504/04-4208
181-002-126S	9/125 (Singlemode)	126.0	M29504/04-4209
181-002-126	50/125 & 62.5/125	126.0	M29504/04-4210
181-002-127	50/125 & 62.5/125	127.0	M29504/04-4040
181-002-142	100/140	142.0	M29504/04-4043
181-002-144	100/140	144.0	N/A
181-002-145	100/140	145.0	M29504/04-4044
181-002-156	62.5/125/155 (Polyimide)	156.0	M29504/04-4211
181-002-157	62.5/125/155 (Polyimide)	157.0	M29504/04-4212
181-002-173	100/140/172 (Polyimide)	173.0	M29504/04-4087
181-002-175	100/140/172 (Polyimide)	175.0	M29504/04-4213
181-002-231	200/230	231.0	N/A
181-002-236	200/230	236.0	N/A
181-002-286	200/280	286.0	N/A
181-002-448	400/440	448.0	N/A
181-002-533	486/500	533.0	N/A

Consult factory for additional sizes and QPL status



**NOTES**

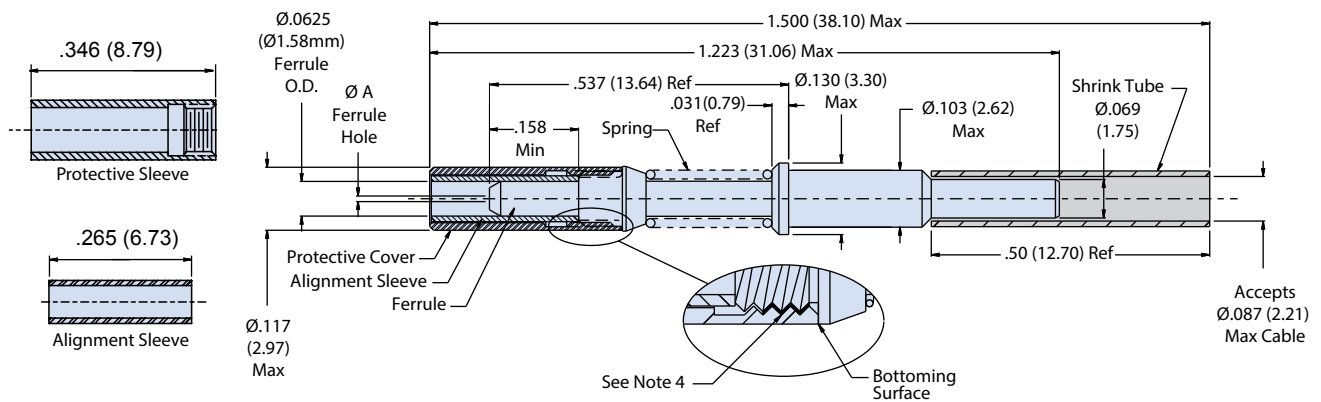
1. See Glenair assembly procedure GAP-015 for termination instructions.
2. Insertion/extraction tool: M81969/14-03
3. For ferrule dust cap use P/N 187-019
4. Hand polishing tool: 182-001P or 182-001PW
5. Material/finish
  - Ferrule: zirconia ceramic
  - Terminus assembly: stainless steel/passivate
  - Shrink tube: kynar

#### M29504/05 TYPE, STYLE 1 SOCKET TERMINUS FOR MIL-DTL-38999 SERIES III



Part Number	Fiber Size Core/Cladding/Coating (Microns)	Ø A (Microns)	Ref. M29504/05-XXXX
181-001-125	9/125 (Singlemode)	125.5	M29504/05-4237
181-001-126S	9/125 (Singlemode)	126.0	M29504/05-4238
181-001-126	50/125 & 62.5/125	126.0	M29504/05-4239
181-001-127	50/125 & 62.5/125	127.0	M29504/05-4046
181-001-142	100/140	142.0	M29504/05-4049
181-001-144	100/140	144.0	N/A
181-001-145	100/140	145.0	M29504/05-4050
181-001-156	62.5/125/155 (Polyimide)	156.0	M29504/05-4240
181-001-157	62.5/125/155 (Polyimide)	157.0	M29504/05-4241
181-001-173	100/140/172 (Polyimide)	173.0	M29504/05-4088
181-001-175	100/140/172 (Polyimide)	175.0	M29504/05-4242
181-001-231	200/230	231.0	N/A
181-001-236	200/230	236.0	N/A
181-001-286	200/280	286.0	N/A
181-001-448	400/440	448.0	N/A
181-001-533	486/500	533.0	N/A

Consult factory for additional sizes and QPL status



Ceramic alignment sleeve supplied with terminus. Add **K** to the end of part number development to supply with optional stainless steel alignment sleeve e.g. 181-001-126**K**.

ACCESSORIES	
Part Number	Description
181-001-S	Alignment Sleeve, Split Ceramic (standard)
181-001-K	Alignment Sleeve, Split Stainless Steel
181-001-C	Protective cover

#### NOTES

- Alignment sleeve & protective cover are supplied with terminus and may be ordered separately (see accessories table).
- Insertion/extraction tool: P/N M81969/14-03 or equivalent
- For socket dust cap use part number 187-019 over ferrule and 187-029 over protective cover
- Threaded protective cover must be retained using threadlocker "loctite 222" prior to insertion into connector. See Glenair assembly procedure GAP-015 for termination instructions
- Hand polishing tool: 182-001S or 182-001SW
- Material/Finish
  - Ferrule: zirconia ceramic
  - Alignment sleeve: zirconia ceramic or stainless steel/passivate.
  - Terminus body, spring, cover: stainless steel/passivate
  - Shrink tube: kynar

**MIL-DTL-38999 Series III Type**

**181-010 • M29504/04 fiber optic pin terminus, size 16**

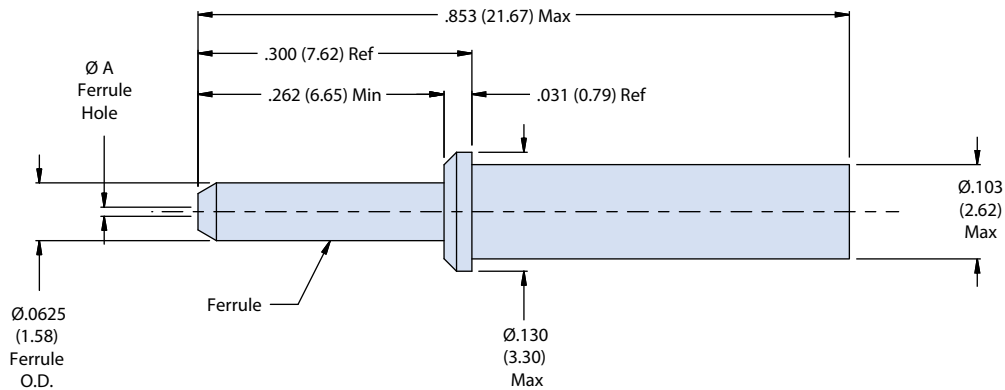
FIBER OPTIC CONNECTORS

**M29504/04 TYPE, STYLE 2 PIN TERMINUS FOR MIL-DTL-38999 SERIES III**



Part Number	Fiber Size Core/Cladding/Coating (Microns)	Ø A (Microns)	Ref. M29504/04-XXXX
181-010-125	9/125 (Singlemode)	125.5	M29504/04-4218
181-010-126S	9/125 (Singlemode)	126.0	M29504/04-4219
181-010-126	50/125 & 62.5/125	126.0	M29504/04-4220
181-010-127	50/125 & 62.5/125	127.0	M29504/04-4221
181-010-142	100/140	142.0	M29504/04-4224
181-010-145	100/140	145.0	M29504/04-4225
181-010-156	62.5/125/155 (Polyimide)	156.0	M29504/04-4222
181-010-157	62.5/125/155 (Polyimide)	157.0	M29504/04-4223
181-010-173	100/140/172 (Polyimide)	173.0	M29504/04-4226
181-010-175	100/140/172 (Polyimide)	175.0	M29504/04-4227
181-010-231	200/230	231.0	N/A
181-010-233	200/230	233.0	N/A
181-010-236	200/230	236.0	N/A
181-010-286	200/280	286.0	N/A
181-010-448	400/440	448.0	N/A

**Consult factory for additional sizes and QPL status**



**NOTES**

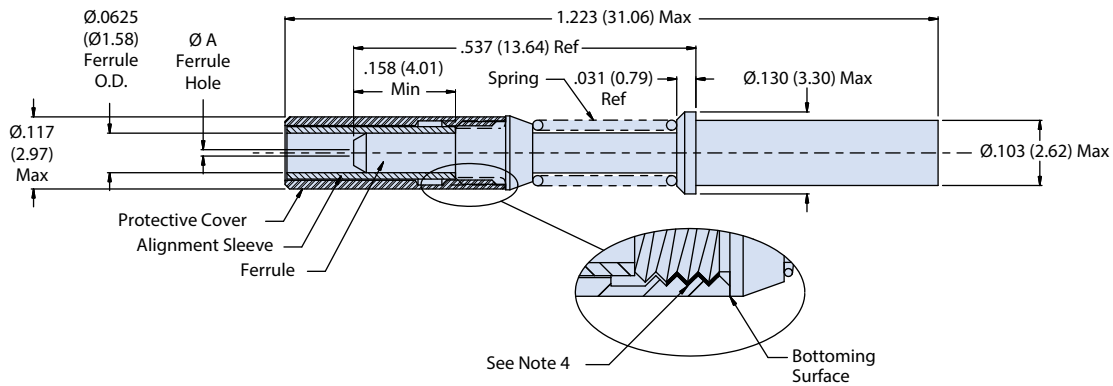
1. See Glenair assembly procedure GAP-019 for termination instructions.
2. Insertion/extraction tool: M81969/14-03
3. For ferrule dust cap use P/N 187-019
4. Hand polishing tool: 182-001P or 182-001PW
5. Material/Finish
  - Ferrule: zirconia ceramic
  - Terminus assembly: stainless steel/passivate

**M29504/05 TYPE, STYLE 2 SOCKET TERMINUS FOR MIL-DTL-38999 SERIES III**



Part Number	Fiber Size Core/Cladding/Coating (Microns)	Ø A (Microns)	Ref. M29504/05-XXXX
181-009-125	9/125 (Singlemode)	125.5	M29504/05-4247
181-009-1265	9/125 (Singlemode)	126.0	M29504/05-4248
181-009-126	50/125 & 62.5/125	126.0	M29504/05-4249
181-009-127	50/125 & 62.5/125	127.0	M29504/05-4250
181-009-142	100/140	142.0	M29504/05-4253
181-009-145	100/140	145.0	M29504/05-4254
181-009-156	62.5/125/155 (Polyimide)	156.0	M29504/05-4251
181-009-157	62.5/125/155 (Polyimide)	157.0	M29504/05-4252
181-009-173	100/140/172 (Polyimide)	173.0	M29504/05-4255
181-009-175	100/140/172 (Polyimide)	175.0	M29504/05-4256
181-009-231	200/230	231.0	N/A
181-009-236	200/230	236.0	N/A
181-009-286	200/280	286.0	N/A
181-009-448	400/440	448.0	N/A

Consult factory for additional sizes and QPL status



Accessories	
Part Number	Description
181-001-S	Alignment Sleeve, Split Ceramic (standard)
181-001-K	Alignment Sleeve, Split Stainless Steel
181-001-C	Protective cover

**NOTES**

1. Insertion/extraction tool: M81969/14-03
2. Threaded protective cover must be retained using "Threadlocker Loctite 222" prior to insertion into connector. See Glenair assembly procedure GAP-019 for termination instructions
3. For socket dust cap use part number 187-019 over ferrule and 187-029 over protective cover
4. Alignment sleeve and protective cover are supplied with terminus and may be ordered separately (see accessories table)
5. Hand polishing tool: 182-001S or 182-001SW
6. Material/finish
  - Ferrule: zirconia ceramic
  - Alignment sleeve: zirconia ceramic or stainless steel/passivate
  - Terminus body, spring and cover: stainless steel/passivate



**MIL-DTL-38999 Series III Type**

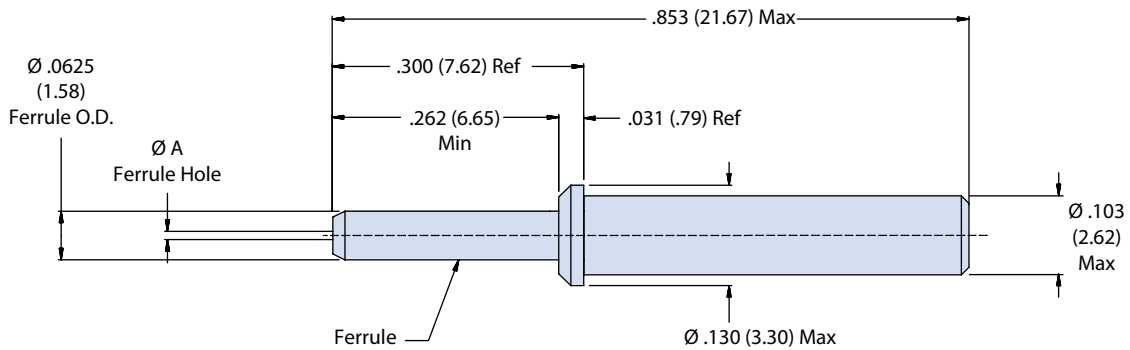
**181-036 large-core optical fiber terminus, size 16**

FIBER OPTIC CONNECTORS

**M29504/04 TYPE, STYLE 2 LARGE CORE METAL FERRULE PIN TERMINUS FOR MIL-DTL-38999 SERIES III**



Part Number	Fiber Size Core/Cladding (Microns)	Ø A (Microns)
181-036-600	600 Micron	610.0
181-036-1000	1000 Micron (Plastic)	1117.0



**NOTES**

1. Contact Glenair for termination/assembly procedures.
2. Insertion/Extraction Tool: P/N M81969/14-03.
3. For ferrule dust cap use P/N 187-019.
4. Material/Finish:
  - Ferrule and terminus body: stainless steel/passivate

**MIL-DTL-38999 Series III Type**

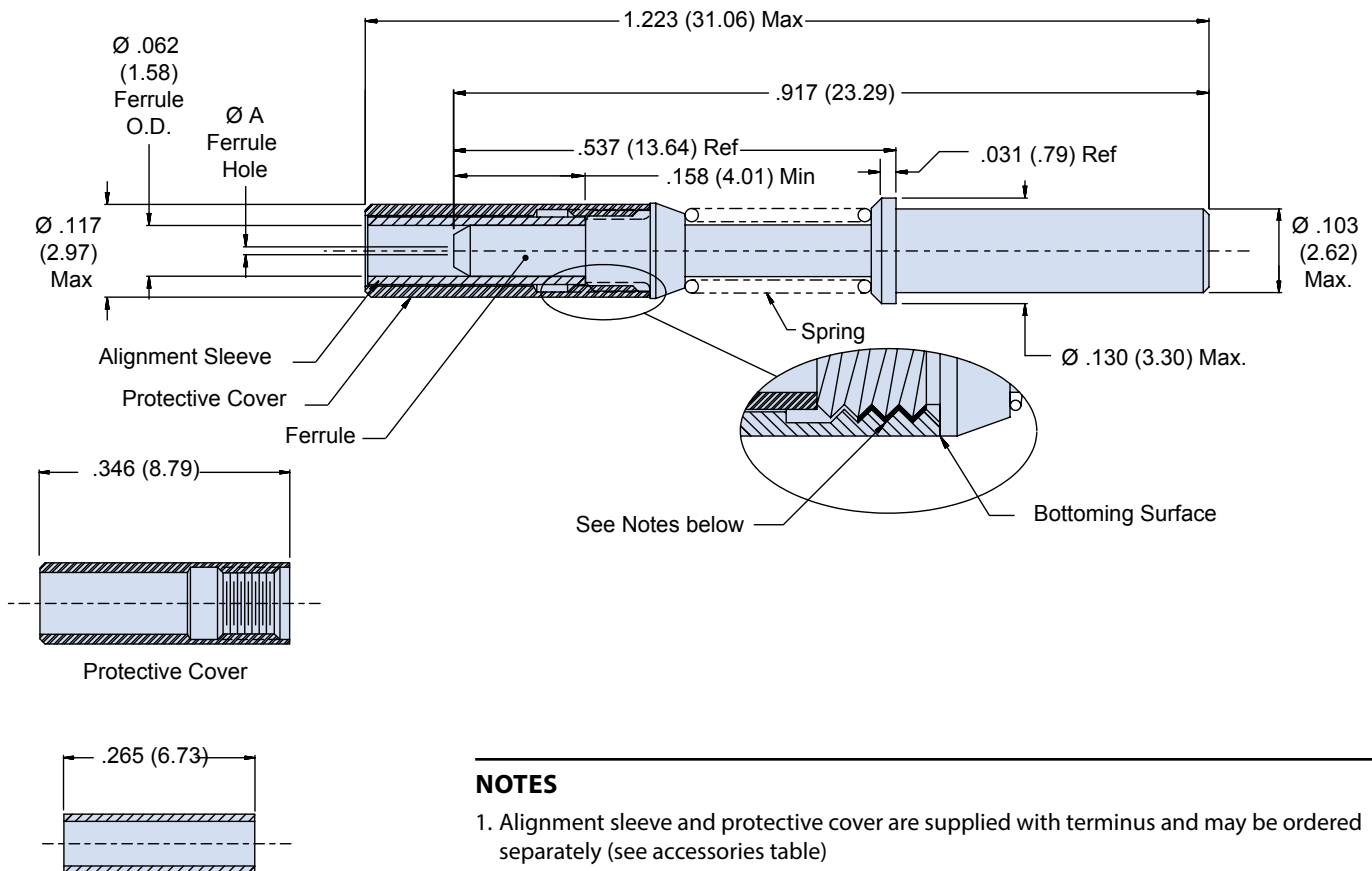
**181-035 large core fiber optic socket terminus, size 16**

**M29504/05 TYPE, STYLE 2 LARGE CORE METAL FERRULE SOCKET TERMINUS FOR MIL-DTL-38999 SERIES III**



Part Number	Fiber Size Core/Cladding (Microns)	ØA (Microns)
181-035-600	600 Micron	610.0
181-035-1000	1000 Micron (Plastic)	1117.0

Ceramic alignment sleeve supplied with terminus. Add **K** to the end of part number development to supply with optional stainless steel alignment sleeve  
e.g. 181-035-1000**K**.



**NOTES**

- Alignment sleeve and protective cover are supplied with terminus and may be ordered separately (see accessories table)
- Threaded protective cover must be retained using "Threadlocker Loctite 222" prior to insertion and fully seated against terminus body as shown. Contact Glenair for termination/assembly procedures.
- Insertion/extraction Tool: P/N M81969/14-03
- For socket dust cap use part number 187-019 over ferrule and 187-029 over protective cover
- Material/finish:
  - Ferrule: stainless steel/passivate
  - Alignment sleeve: zirconia ceramic or stainless steel/passivate
  - Terminus assembly, spring and cover: stainless steel/passivate

Accessories	
Part Number	Description
181-001-S	Alignment Sleeve, Split Ceramic (standard)
181-001-K	Alignment Sleeve, Split Stainless Steel
181-001-C	Protective cover

**MIL-DTL-38999 Series III Type**

**181-052 fiber optic jewel pin terminus, size 16**

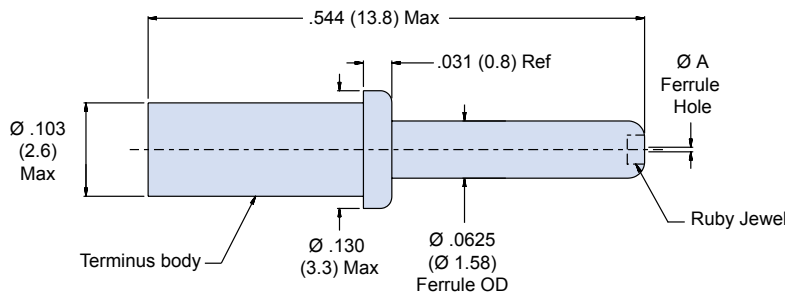
FIBER OPTIC CONNECTORS

**M29504/4 TYPE, STYLE 2 FIBER OPTIC JEWEL PIN TERMINUS FOR MIL-DTL-38999 SERIES III**



Part Number	Ferrule Hole Ø A (Microns)	Typical Fiber Size Core/Cladding/Coating (Microns)
181-052-125	125.0	9/125 (Singlemode)
181-052-127	127.0	50/125, 62.5/125
181-052-142	142.0	100/140
181-052-157	157.0	62.5/125/155 (Polyimide)
181-052-175	175.0	100/140/172 (Polyimide)
181-052-236	236.0	200/230

Add **L** to the end of part number development to supply less epoxy preforms e.g. 181-052-127L. Omit to include preforms.



**NOTES**

1. Insertion/extraction tool: M81969/14-03
2. For ferrule dust cap use P/N 187-019
3. Material/Finish:
  - Terminus body: stainless steel/passivate
  - Jewel, ruby: synthetic ruby or sapphire

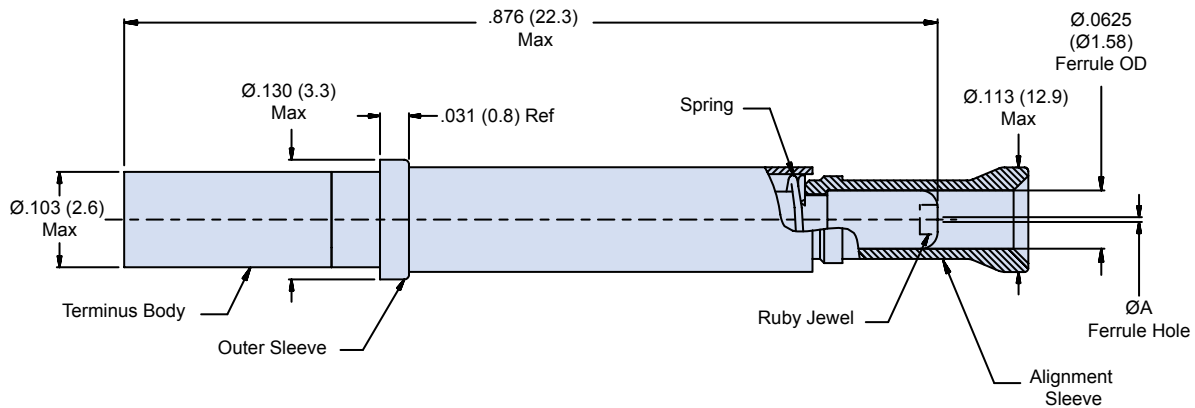
Terminus Accessories	
Part Number	Description
189-070-6	Reducing Sleeve, Ø1.90mm Max Cable Jacket
181-052-E	Epoxy Preforms

**M29504/05 TYPE FIBER OPTIC JEWEL SOCKET TERMINUS**



Part Number	Ferrule Hole Ø A (Microns)	Typical Fiber Size Core/Cladding/Coating (Microns)
181-053-125	125.0	9/125 (Singlemode)
181-053-127	127.0	50/125, 62.5/125
181-053-142	142.0	100/140
181-053-157	157.0	62.5/125/155 (Polyimide)
181-053-175	175.0	100/140/172 (Polyimide)
181-053-236	236.0	200/230

Add L to the end of part number development to supply less epoxy preforms e.g. 181-053-127L. Omit to include preforms.



**NOTES**

1. Alignment Sleeve, Outer Sleeve, and Spring packaged loose with assembly.
2. Insertion/extraction tool: M81969/14-03 or equivalent.
3. For socket dust cap use part number 187-019 over ferrule and 187-029 over alignment sleeve
4. Material/finish:
  - Terminus body: stainless steel/passivate
  - Jewel/ruby: synthetic ruby or sapphire
  - Alignment sleeve: stainless steel/passivate
  - Outer sleeve: stainless steel/passivate
  - Spring: stainless steel/passivate

Terminus Accessories	
Part Number	Description
189-070-6	Reducing Sleeve Ø1.90mm Max Cable Jacket
189-075	Alignment Sleeve
182-031	Alignment Sleeve Installation Tool
182-032	Alignment Sleeve Extraction Tool
181-053-E	Epoxy Preforms

**MIL-DTL-38999 Series III Type**

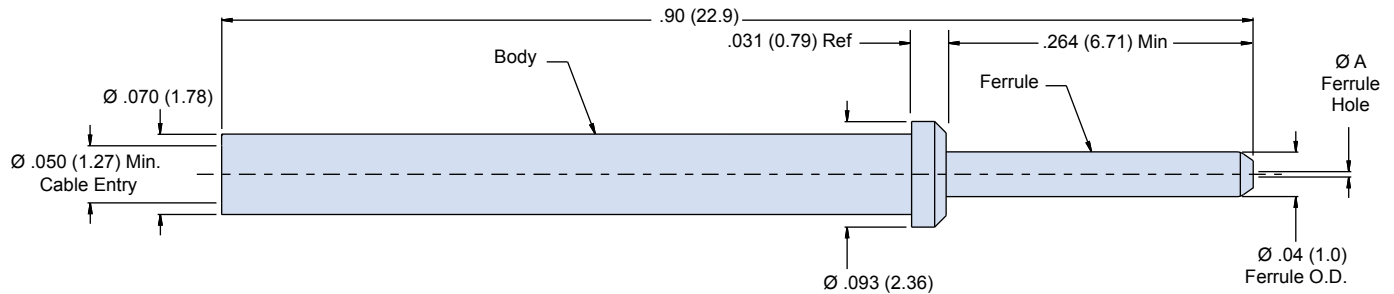
**181-065 fiber optic pin terminus, size 20**

FIBER OPTIC CONNECTORS

**SIZE 20 PIN TERMINUS FOR MIL-DTL-38999 SERIES III**



Part Number	Fiber Size Core/Cladding (Microns)	ØA (Microns)	Typ. Fiber Type
181-065-1255	9/125	125.5	Singlemode
181-065-126	50/125 & 62.5/125	126.0	Multimode



**NOTES**

1. Consult factory for appropriate termination and assembly tools/procedures.
2. For dust cap use P/N 187-266
3. Material and Finish:
  - Ferrule: Zirconia Ceramic
  - Body: Copper-Nickel-Zinc Alloy



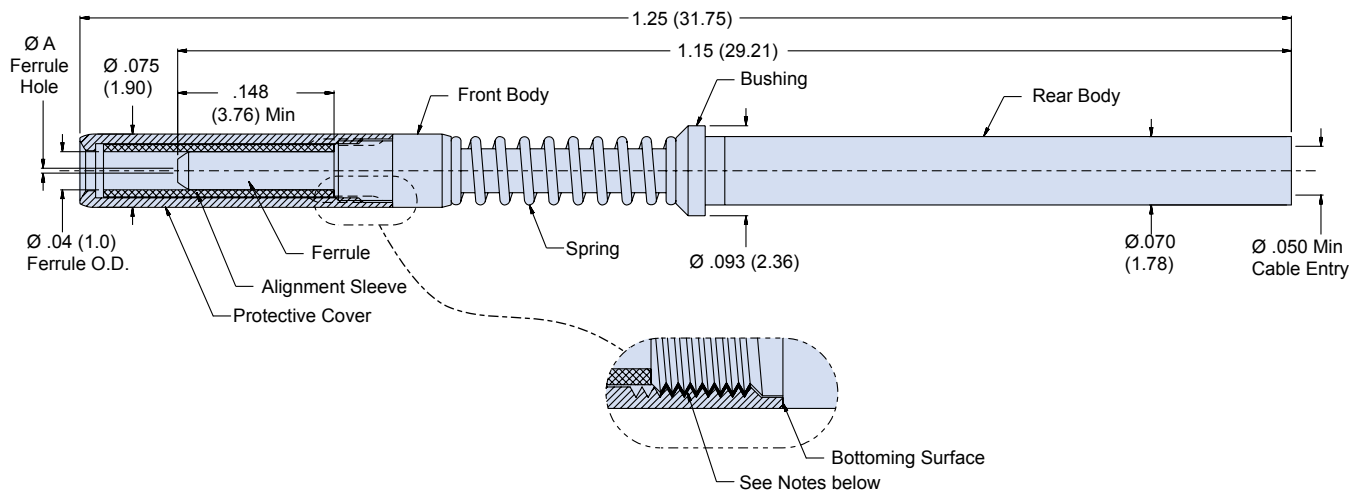
**MIL-DTL-38999 Series III Type**

**181-066 fiber optic socket terminus, size 20**

**SIZE 20 SOCKET TERMINUS FOR MIL-DTL-38999 SERIES III**



Part Number	Fiber Size Core/Cladding	Ø A (Microns)	Typ. Fiber Type
181-066-1255	9/125	125.5	Singlemode
181-066-126	50/125 & 62.5/125	126.0	Multimode



**NOTES**

1. Protective cover must be retained using "Threadlocker Loctite 222" prior to insertion and fully seated against terminus body as shown.
2. Consult factory for appropriate termination and assembly tools/procedures
3. For dust cap use P/N 187-266
4. Material/finish
  - Ferrule: zirconia ceramic
  - Alignment sleeve: zirconia ceramic
  - Body (front and rear): copper-nickel-zinc alloy
  - Protective cover: copper-nickel-zinc alloy
  - Bushing: copper-nickel-zinc alloy
  - Spring: stainless steel/passivate

**Terminus Accessories**

Part Number	Terminus Accessory
<b>181-066-S</b>	Ceramic Alignment Sleeve
<b>181-066-C</b>	Protective Cover

**MIL-DTL-38999 Series III Type**

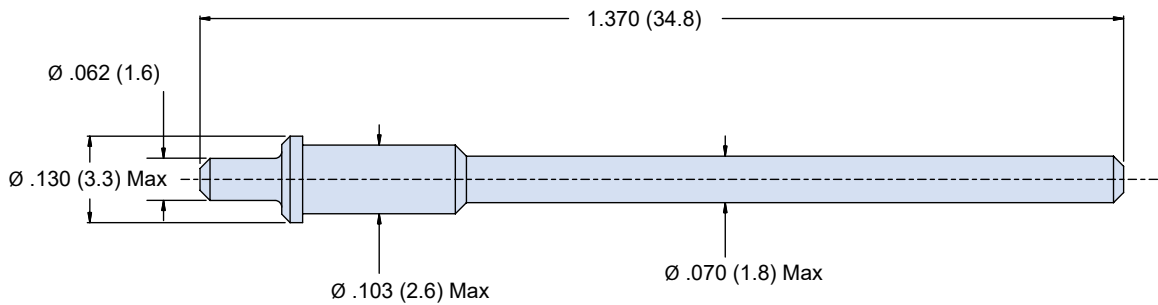
**187-019/187-029 Size 16 termini pin and socket dust caps**

FIBER OPTIC CONNECTORS

**SIZE 16 DUMMY TERMINUS/SEALING PLUG FOR MIL-DTL-38999 CONNECTORS**



**181-048-16** Size 16 dummy terminus reduces weight and eliminates cost of using expensive contacts



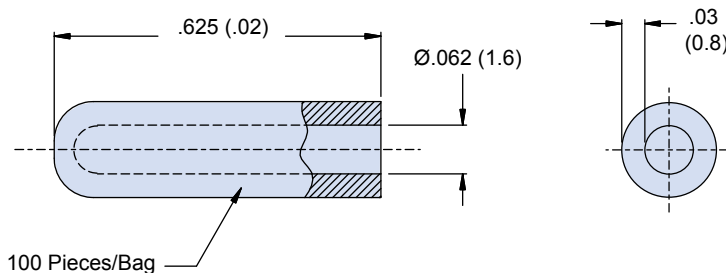
**NOTES**

1. Materials/finish: terminus: high grade engineering thermoplastic
2. Insertion/extraction tool: P/N: M81969/14-03

**SIZE 16 PIN AND SOCKET TERMINUS VINYL DUST CAPS**



**187-019** Vinyl dust cap for size 16 termini with Ø .0625 Ferrules  
Installs directly onto ferrule of 181-001, 181-002, 181-009, 181-010, 181-035, 181-036, 181-052 and 181-053 Termini

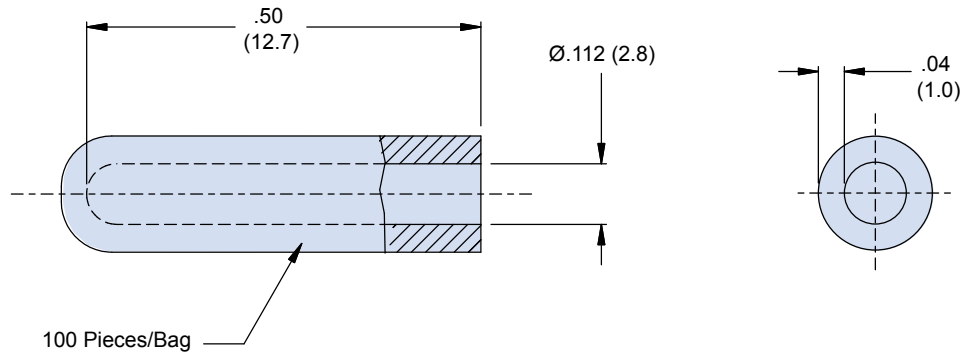


## MIL-DTL-38999 Series III Type

### 187-266 #20 dust cap and 181-048 #16 dummy terminus

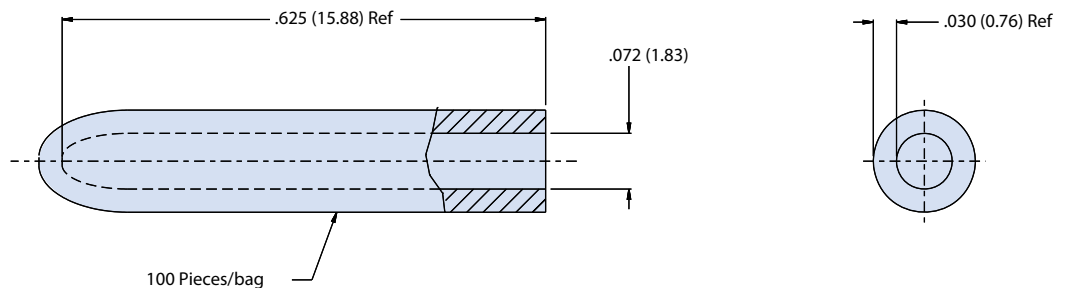
#### SIZE 16 SOCKET TERMINUS VINYL DUST CAPS

**187-029** Vinyl dust cap for socket termini. Installs over of 181-001, 181-009, 181-035, and onto alignment sleeve of 181-053 termini



#### SIZE 20 PIN AND SOCKET TERMINUS VINYL DUST CAPS

**187-266** Vinyl dust cap for size 20 termini fits over metal terminus body of 181-065 pin or 181-066 socket termini



# SuperNine® Fiber optics

## MIL-DTL-38999 Series III Type

### 180-091 (06) plug • Multi-channel



FIBER OPTIC CONNECTORS

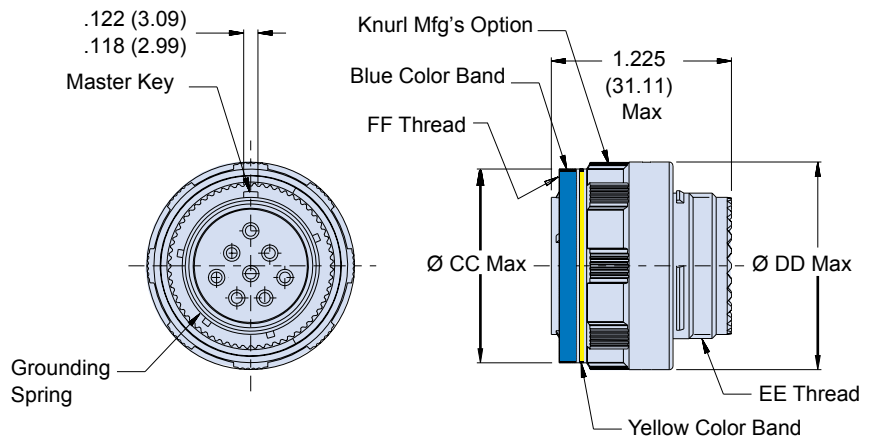


Part Number Development						
Sample Part Number	180-091	XW	06	-17-8	P	N
Series / Basic Part No.	D38999 Series III Type					
Material/Finish	See Material/Finish Table					
Connector Style	06 = Plug Connector					
Shell Size/Insert Arr.*	IAW MIL-DTL-38999 Series III, Per MIL-STD-1560					
Insert Designation	P = Pin S = Socket					
Alternate Key Position*	A, B, C, D, E, N = Normal; Per MIL-DTL-38999					

\*See 'reference information' portion of this section for complete details

#### NOTES

1. Insert arrangement in accordance with MIL-STD-1560, see page G-12.
2. Blue color band indicates rear release retention system. Yellow color band indicates fiber optic connector. Blue and yellow color bands are located approximately as shown - sequencing optional.
3. For Glenair terminus part numbers see Glenair drawing 181-001 and 181-002.
4. Material and finish:
  - Barrel, coupling nut: see material and finish table
  - Coupling nut (for composite): high grade engineering thermoplastic/unplated
  - Insulator: high grade rigid dielectric
  - Seals: fluorosilicone
  - Ground spring: copper alloy/nickel



Material and Finish		
Code	Material	Finish Description
M	Aluminum Alloy	Electroless Nickel
MT		Nickel - PTFE, Grey
ZNU		Zinc-Nickel, Black
ZR		Zinc-Nickel, Black (RoHS)
XM	Composite	Electroless Nickel
XMT		Nickel - PTFE, Grey
XW		Cadmium, Olive Drab
XZN		Zinc-Nickel, Black
MS	Stainless Steel	Electroless Nickel
ZL		Electro-Deposited Nickel
ZI		Passivate
AB	Marine Bronze	None (Clean Only)

Dimensions					
Shell Size Code	Shell Size	FF Thread	Ø CC Max	Ø DD Max	EE Thread
A	9	.6250-1P-3L-TS-2B	.811 (20.60)	.858 (21.79)	M12 x 1.0-6g 0.100R
B	11	.7500-1P-3L-TS-2B	.929 (23.6)	.984 (25.0)	M15 x 1.0-6g 0.100R
C	13	.8750-1P-3L-TS-2B	1.110 (28.2)	1.157 (29.4)	M18 x 1.0-6g 0.100R
D	15	1.0000-1P-3L-TS-2B	1.232 (31.3)	1.280 (32.5)	M22 x 1.0-6g 0.100R
E	17	1.1875-1P-3L-TS-2B	1.358 (34.5)	1.406 (35.7)	M25 x 1.0-6g 0.100R
F	19	1.2500-1P-3L-TS-2B	1.469 (37.3)	1.516 (38.5)	M28 x 1.0-6g 0.100R
G	21	1.3750-1P-3L-TS-2B	1.594 (40.5)	1.642 (41.7)	M31 x 1.0-6g 0.100R
H	23	1.5000-1P-3L-TS-2B	1.720 (43.7)	1.768 (44.9)	M34 x 1.0-6g 0.100R
J	25	1.6250-1P-3L-TS-2B	1.843 (46.8)	1.890 (48.0)	M37 x 1.0-6g 0.100R

## MIL-DTL-38999 Series III Type

### 180-091 (05) in-line receptacle • Multi-channel

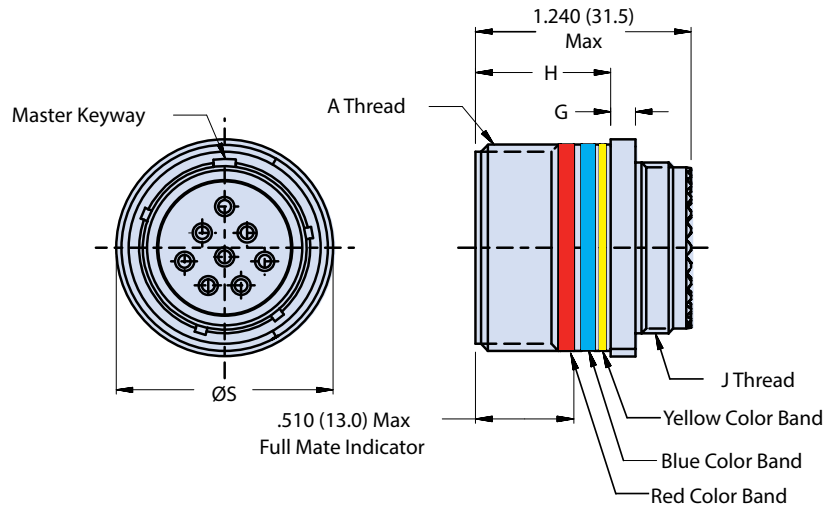


Part Number Development						
Sample Part Number	180-091	XW	05	-17-8	P	N
Series / Basic Part No.	D38999 Series III Type					
Finish	See Material/Finish Table					
Connector Style*	05 = In-Line Receptacle					
Shell Size/Insert Arr.*	IAW MIL-DTL-38999 Series III, Per MIL-STD-1560					
Insert Designation	P = Pin S = Socket					
Alternate Key Position*	A, B, C, D, E, N = Normal; Per MIL-DTL-38999					

\*See 'reference information' portion of this section for complete details

#### NOTES

1. Insert arrangement in accordance with MIL-STD-1560, see page G-12.
2. Blue color band indicates rear release retention system. Yellow color band indicates fiber optic connector. Blue and yellow color bands are located approximately as shown - sequencing optional.
3. For Glenair terminus part numbers, see Glenair Drawing 181-001 and 181-002.
4. Material/finish:
  - Shell: see material and finish table
  - Insulator: high grade rigid dielectric
  - Seals: fluorosilicone
  - Retention clip: copper alloy



FIBER OPTIC CONNECTORS

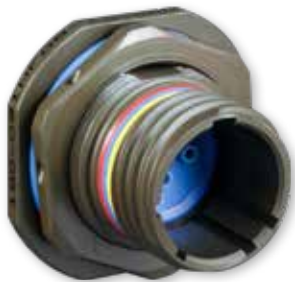
Material and Finish		
Code	Material	Finish Description
M	Aluminum Alloy	Electroless Nickel
MT		Nickel - PTFE, Grey
ZNU		Zinc-Nickel, Black
ZR		Zinc-Nickel, Black (RoHS)
XM	Composite	Electroless Nickel
XMT		Nickel - PTFE, Grey
XW		Cadmium, Olive Drab
XZN		Zinc-Nickel, Black
MS	Stainless Steel	Electroless Nickel
ZL		Electro-Deposited Nickel
ZI		Passivate
AB	Marine Bronze	None (Clean Only)

Dimensions						
Shell Size Code	Shell Size	A Thread	G	H	Ø S	J Thread
B	11	.7500-1P-.3L-TS-2A	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	.840 (21.3)	M15 x 1.0-6g 0.100R
C	13	.8750-1P-.3L-TS-2A	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	.963 (24.5)	M18 x 1.0-6g 0.100R
D	15	1.0000-1P-.3L-TS-2A	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	1.090 (27.7)	M22 x 1.0-6g 0.100R
E	17	1.1875-1P-.3L-TS-2A	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	1.275 (32.4)	M25 x 1.0-6g 0.100R
F	19	1.2500-1P-.3L-TS-2A	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	1.337 (34.0)	M28 x 1.0-6g 0.100R
G	21	1.3750-1P-.3L-TS-2A	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	1.463 (37.2)	M31 x 1.0-6g 0.100R
H	23	1.5000-1P-.3L-TS-2A	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	1.587 (40.3)	M34 x 1.0-6g 0.100R
J	25	1.6250-1P-.3L-TS-2A	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	1.713 (43.5)	M37 x 1.0-6g 0.100R





FIBER OPTIC CONNECTORS



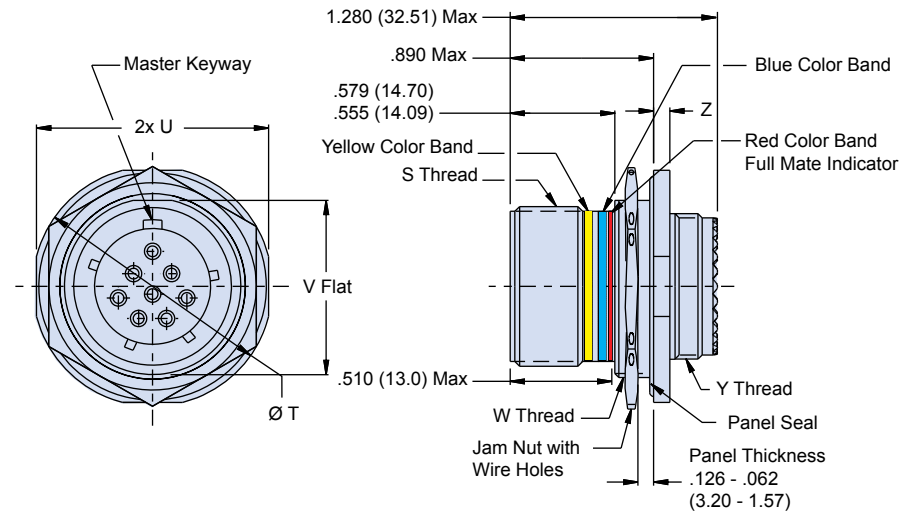
#### NOTES

1. Insert arrangement in accordance with MIL-STD-1560, See Page G-12.
2. Blue color band indicates rear release retention system. Yellow color band indicates fiber optic connector. Blue and yellow color bands are located approximately as shown - sequencing optional.
3. For Glenair Terminus part numbers, see Glenair Drawing 181-001 and 181-002.
4. For recommended panel cutout and alternate key positions, See Page G-13 and G-14.
5. S7 wall mount receptacle can be front panel mounted using cut out dimensions R1 or R2. Dimension R2 is for use with S7 wall mount receptacle only.
6. Material and Finish:
  - Shell, Jam Nut: See Material and Finish Table
  - Jam Nut (for Composite): Al Alloy, plated same as shell
  - Insulator: High Grade Rigid Dielectric
  - Seals: Fluorosilicone

Material and Finish		
Code	Material	Finish Description
M	Aluminum Alloy	Electroless Nickel
MT		Nickel - PTFE, Grey
ZNU		Zinc-Nickel, Black
ZR		Zinc-Nickel, Black (RoHS)
XM	Composite	Electroless Nickel
XMT		Nickel - PTFE, Grey
XW		Cadmium, Olive Drab
XZN		Zinc-Nickel, Black
MS	Stainless Steel	Electroless Nickel
ZL		Electro-Deposited Nickel
ZI		Passivate
AB	Marine Bronze	None (Clean Only)

Part number development						
Sample Part Number	180-091	XW	08	-17-8	P	N
Series / Basic Part No.	D38999 Series III Type					
Material/Finish	See Material/Finish Table					
Connector Style	08 = Jam Nut Receptacle					
Shell Size/Insert Arr.*	IAW MIL-DTL-38999 Series III, Per MIL-STD-1560					
Insert Designation	P = Pin S = Socket					
Alternate Key Position*	A, B, C, D, E, N = Normal; Per MIL-DTL-38999					

\*See 'reference information' portion of this section for complete details



Dimensions								
Shell Size Code	Shell Size Ref	S Thread .1P-.3L-TS-2A	Ø T	U	V	W Thread 1.0-6g 0.100R	Y Thread 1.0-6g 0.100R	Z
A	9	.6250-	1.200 (30.48) 1.777 (45.14)	1.079 (27.41) 1.047 (26.59)	.655 (16.64) .645 (16.38)	M17	M12	.121 (3.1) .083 (2.1)
B	11	.7500	1.386 (35.20) 1.362 (34.59)	1.268 (32.21) 1.236 (31.39)	.755 (19.18) .745 (18.92)	M20	M15	.121 (3.1) .083 (2.1)
C	13	.8750	1.512 (38.40) 1.488 (37.80)	1.390 (35.31) 1.358 (34.49)	.942 (23.93) .932 (23.67)	M25	M18	.121 (3.1) .083 (2.1)
D	15	1.0000	1.638 (41.61) 1.614 (41.00)	1.516 (38.51) 1.484 (37.69)	1.066 (27.08) 1.056 (26.82)	M28	M22	.121 (3.1) .083 (2.1)
E	17	1.1875	1.764 (44.81) 1.740 (44.20)	1.642 (41.71) 1.610 (40.89)	1.191 (30.25) 1.181 (30.00)	M32	M25	.121 (3.1) .083 (2.1)
F	19	1.2500	1.949 (49.50) 1.925 (48.90)	1.827 (46.41) 1.795 (45.59)	1.316 (33.43) 1.306 (33.17)	M35	M28	.154 (3.9) .114 (2.9)
G	21	1.3750	2.075 (52.71) 2.051 (52.10)	1.953 (49.61) 1.921 (48.79)	1.441 (36.60) 1.431 (36.35)	M38	M31	.154 (3.9) .114 (2.9)
H	23	1.5000	2.201 (55.91) 2.177 (55.30)	2.079 (52.81) 2.047 (51.99)	1.566 (39.78) 1.556 (39.52)	M41	M34	.154 (3.9) .114 (2.9)
J	25	1.6250	2.323 (59.00) 2.299 (58.39)	2.205 (56.01) 2.173 (55.19)	1.691 (42.95) 1.681 (42.70)	M44	M37	.154 (3.9) .114 (2.9)

**MIL-DTL-38999 Series III Type**

**180-091 (H7) wall mount receptacle, round holes • Multi-channel**

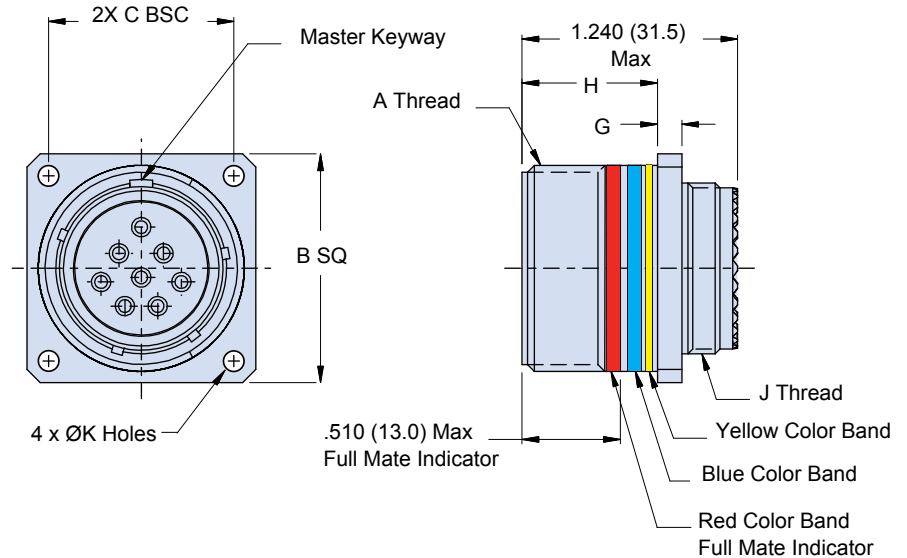


Part number development						
Sample Part Number	180-091	XW	H7	-17-8	P	N
Series / Basic Part No.	D38999 Series III Type					
Material/Finish	See Material/Finish Table					
Connector Style	H7 = Wall Mount Receptacle with Round Holes (Std)					
Shell Size/Insert Arr.*	IAW MIL-DTL-38999 Series III, Per MIL-STD-1560					
Insert Designation	P = Pin S = Socket					
Alternate Key Position*	A, B, C, D, E, N = Normal; Per MIL-DTL-38999					

\*See 'reference information' portion of this section for complete details

**NOTES**

1. Insert arrangement in accordance with MIL-STD-1560, see page G-12.
2. Blue color band indicates rear release retention system. Yellow color band indicates fiber optic connector. Blue and yellow color bands are located approximately as shown - sequencing optional.
3. For Glenair terminus part numbers, see Glenair drawing 181-001 and 181-002.
4. For recommended panel cutout, see page G-13
5. Material/finish:
  - Shell: see material and finish table
  - Insulator: high grade rigid dielectric
  - Seals: fluorosilicone



Material and Finish		
Code	Material	Finish Description
M	Aluminum Alloy	Electroless Nickel
MT		Nickel - PTFE, Grey
ZNU		Zinc-Nickel, Black
ZR		Zinc-Nickel, Black (RoHS)
XM	Composite	Electroless Nickel
XMT		Nickel - PTFE, Grey
XW		Cadmium, Olive Drab
XZN		Zinc-Nickel, Black
MS	Stainless Steel	Electroless Nickel
ZL		Electro-Deposited Nickel
ZI		Passivate
AB	Marine Bronze	None (Clean Only)

Dimensions								
Shell Size Code	Shell Size	A Thread .1P-.3L-TS-2A	B SQ	C BSC	G	H	J Thread 1.0-6g 0.100R	Ø K Holes
B	11	.7500	1.043 (26.5) 1.019 (25.9)	.812 (20.6)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M15	.136 (3.5) .120 (3.0)
C	13	.8750	1.138 (28.9) 1.114 (28.3)	.906 (23.0)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M18	.136 (3.5) .120 (3.0)
D	15	1.0000	1.232 (31.3) 1.208 (30.7)	.969 (24.6)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M22	.136 (3.5) .120 (3.0)
E	17	1.1875	1.323 (33.6) 1.299 (33.0)	1.062 (27.0)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M25	.136 (3.5) .120 (3.0)
F	19	1.2500	1.449 (36.8) 1.425 (36.2)	1.156 (29.4)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M28	.136 (3.5) .120 (3.0)
G	21	1.3750	1.575 (40.0) 1.551 (39.4)	1.250 (31.8)	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	M31	.136 (3.5) .120 (3.0)
H	23	1.5000	1.701 (43.2) 1.677 (42.6)	1.375 (34.9)	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	M34	.162 (4.1) .146 (3.7)
J	25	1.6250	1.823 (46.3) 1.799 (45.7)	1.500 (38.1)	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	M37	.162 (4.1) .146 (3.7)

## MIL-DTL-38999 Series III Type

### 180-091 (S7) wall mount receptacle, slotted holes • Multi-channel



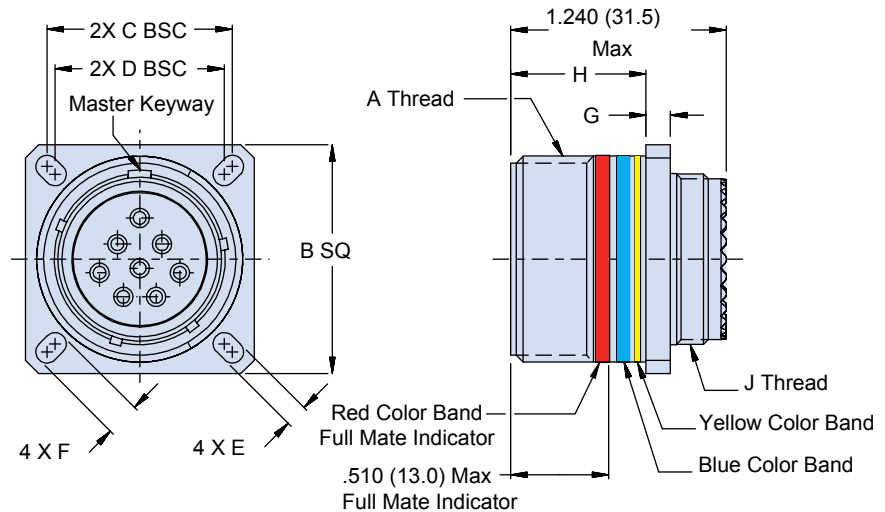
FIBER OPTIC CONNECTORS

Part number development						
Sample Part Number	180-091	XW	S7	-17-8	P	N
Series / Basic Part No.	D38999 Series III Type					
Material/Finish	See Material/Finish Table					
Connector Style	S7 = Wall Mount Receptacle with Slotted Holes					
Shell Size/Insert Arr.*	IAW MIL-DTL-38999 Series III, Per MIL-STD-1560					
Insert Designation	P = Pin S = Socket					
Alternate Key Position*	A, B, C, D, E, N = Normal; Per MIL-DTL-38999					

\*See 'reference information' portion of this section for complete details

#### NOTES

1. Insert arrangement in accordance with MIL-STD-1560, see page G-12.
2. Blue color band indicates rear release retention system. Yellow color band indicates fiber optic connector. Blue and yellow color bands are located approximately as shown - sequencing optional.
3. For appropriate Glenair terminus part numbers, see Glenair drawing 181-001 and 181-002.
4. For recommended panel cutout, see page G-13
5. S7 wall mount receptacle can be front panel mounted using cut out dimension R1 or R2. Dimension R2 is for use with S7 wall mount receptacle only.
6. Material/Finish:
  - Shell: see material and finish table
  - Insulator: high grade rigid dielectric
  - Seals: fluorosilicone



Material and Finish		
Code	Material	Finish Description
M	Aluminum Alloy	Electroless Nickel
MT		Nickel - PTFE, Grey
ZNU		Zinc-Nickel, Black
ZR		Zinc-Nickel, Black (RoHS)
XM	Composite	Electroless Nickel
XMT		Nickel - PTFE, Grey
XW		Cadmium, Olive Drab
XZN		Zinc-Nickel, Black
MS	Stainless Steel	Electroless Nickel
ZL		Electro-Deposited Nickel
ZI		Passivate
AB	Marine Bronze	None (Clean Only)

Dimensions										
Shell Size Code	Shell Size Ref	A Thread .1P-.3L-TS-2A	B SQ	C BSC	D BSC	E	F	G	H	J Thread 1.0-6g 0.100R
A	9	.6250	.949 (24.1) .929 (23.6)	.719 (18.3)	.594 (15.1)	.136 (3.5) .120 (3.0)	.216 (5.5)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M12
B	11	.7500	1.043 (26.5) 1.019 (25.9)	.812 (20.6)	.719 (18.3)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M15
C	13	.8750	1.138 (28.9) 1.114 (28.3)	.906 (23.0)	.812 (20.6)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M18
D	15	1.0000	1.232 (31.3) 1.208 (30.7)	.969 (24.6)	.906 (23.0)	.136 (3.5) .120 (3.0)	.181 (4.6) .165 (4.2)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M22
E	17	1.1875	1.323 (33.6) 1.299 (33.0)	1.062 (27.0)	.969 (24.6)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M25
F	19	1.2500	1.449 (36.8) 1.425 (36.2)	1.156 (29.4)	1.062 (27.0)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M28
G	21	1.3750	1.575 (40.0) 1.551 (39.4)	1.250 (31.8)	1.156 (29.4)	.136 (3.5) .120 (3.0)	.202 (5.1) .186 (4.7)	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	M31
H	23	1.5000	1.701 (43.2) 1.677 (42.6)	1.375 (34.9)	1.250 (31.8)	.162 (4.1) .146 (3.7)	.250 (6.4) .234 (5.9)	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	M34
J	25	1.6250	1.823 (46.3) 1.799 (45.7)	1.500 (38.1)	1.375 (34.9)	.162 (4.1) .146 (3.7)	.250 (6.4) .234 (5.9)	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	M37

## MIL-DTL-38999 Series III Type

### 180-091 (T7) wall mount receptacle, threaded insert • Multi-channel

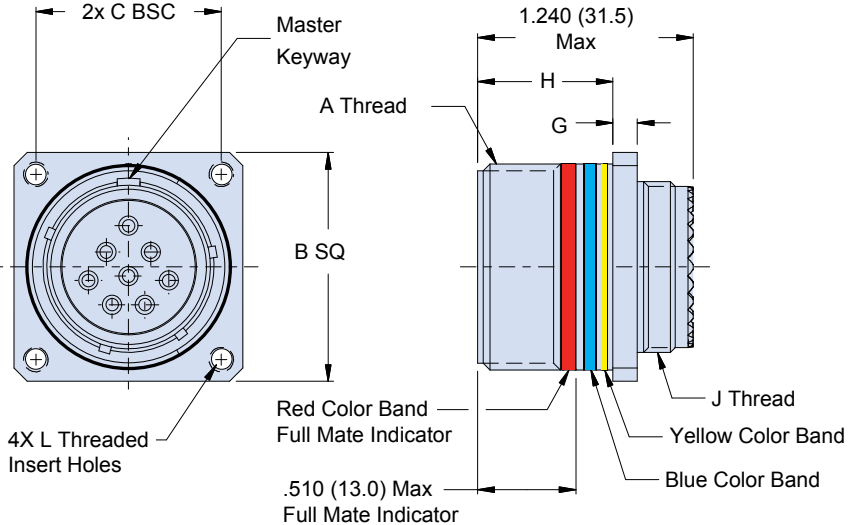


Part number development						
Sample Part Number	180-091	XW	T7	-17-8	P	N
Series / Basic Part No.	D38999 Series III Type					
Material/Finish	See Material/Finish Table					
Connector Style	T7 = Wall Mount Receptacle with Threaded Insert Holes					
Shell Size/Insert Arr.*	IAW MIL-DTL-38999 Series III, Per MIL-STD-1560					
Insert Designation	P = Pin S = Socket					
Alternate Key Position*	A, B, C, D, E, N = Normal; Per MIL-DTL-38999					

\*See 'reference information' portion of this section for complete details

#### NOTES

1. Insert arrangement in accordance with MIL-STD-1560, see page G-12
2. Blue color band indicates rear release retention system. Yellow color band indicates fiber optic connector. Blue and yellow color bands are located approximately as shown - sequencing optional.
3. For recommended panel cutout, see page G-13
4. Material/Finish:
  - Shell: See Material and Finish Table
  - Insulator: High Grade Rigid Dielectric
  - Seals: Fluorosilicone



FIBER OPTIC CONNECTORS

Material and Finish		
Code	Material	Finish Description
M	Aluminum Alloy	Electroless Nickel
MT		Nickel - PTFE, Grey
ZNU		Zinc-Nickel, Black
ZR		Zinc-Nickel, Black (RoHS)
XM	Composite	Electroless Nickel
XMT		Nickel - PTFE, Grey
XW		Cadmium, Olive Drab
XZN		Zinc-Nickel, Black
MS	Stainless Steel	Electroless Nickel
ZL		Electro-Deposited Nickel
ZI		Passivate
AB	Marine Bronze	None (Clean Only)

Dimensions									
Shell Size Code	Shell Size Ref	A Thread .1P-.3L-TS-2A	B SQ	C BSC	G	H	J Thread 1.0-6g 0.100R	L Threaded Insert Holes	
B	11	.7500	1.043 (26.5) 1.019 (25.9)	.812 (20.6)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M15	.112-40 UNC-2B	
C	13	.8750	1.138 (28.9) 1.114 (28.3)	.906 (23.0)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M18	.112-40 UNC-2B	
D	15	1.0000	1.232 (31.3) 1.208 (30.7)	.969 (24.6)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M22	.112-40 UNC-2B	
E	17	1.1875	1.323 (33.6) 1.299 (33.0)	1.062 (27.0)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M25	.112-40 UNC-2B	
F	19	1.2500	1.449 (36.8) 1.425 (36.2)	1.156 (29.4)	.144 (3.7) .083 (2.1)	.823 (20.9) .768 (19.5)	M28	.112-40 UNC-2B	
G	21	1.3750	1.575 (40.0) 1.551 (39.4)	1.250 (31.8)	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	M31	.112-40 UNC-2B	
H	23	1.5000	1.701 (43.2) 1.677 (42.6)	1.375 (34.9)	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	M34	.138-32 UNC-2B	
J	25	1.6250	1.823 (46.3) 1.799 (45.7)	1.500 (38.1)	.171 (65.2) .083 (39.8)	.791 (20.0) .736 (18.7)	M37 x 1.0-6g 0.100R	.138-32 UNC-2B	

## MIL-DTL-38999 Series III Type

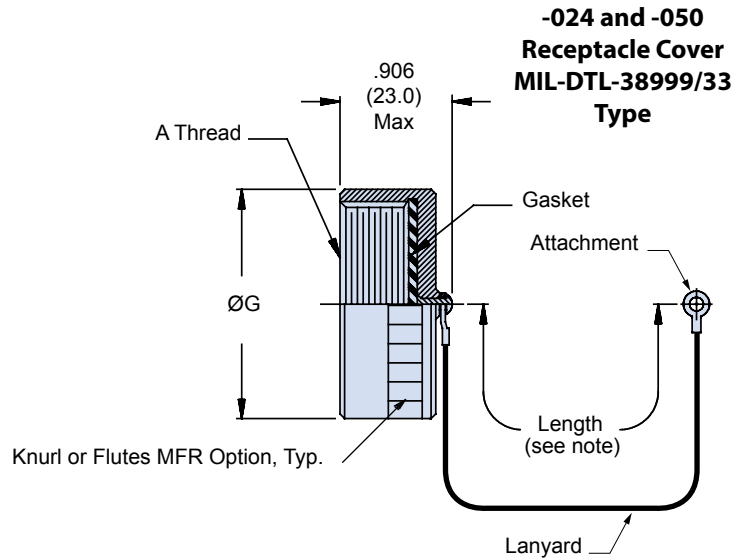
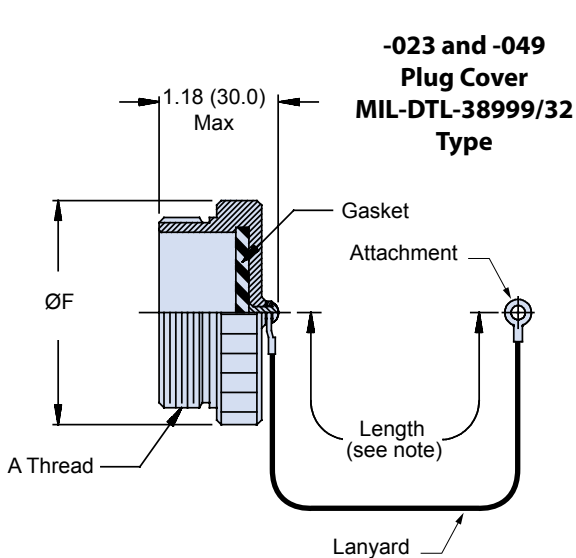
660-023, -024/660-049, -050 metal and composite covers

FIBER OPTIC CONNECTORS



### MIL-DTL-38999 SERIES III TYPE METAL AND COMPOSITE PROTECTIVE COVERS

PART NUMBER DEVELOPMENT							
Sample Part Number	660	-023	M	17	H	5	-01
Product Series	Series 66						
Cover Type	-023 = Metal Plug Cover -024 = Metal Receptacle Cover -049 = Composite Plug Cover -050 = Composite Receptacle Cover						
Material/Finish	See Material/Finish Table						
Shell Size	See Dimensions Table						
Lanyard Type	D = Bead Chain, CRES, Passivated F = Wire Rope, Nylon Jacket G = Nylon Rope, Black H = Wire Rope, Teflon Jacket K = Nylon Rope, Olive Drab N = No Lanyard R = Wire Rope, PVC Jacket S = #8 Sash Chain, CRES, Passivated SK = Nylon Rope (Black) w/Slip Knot T = Wire Rope, No Jacket U = Wire Rope, Polyurethane Jacket						
Attachment Length	Length in Inches; I.E. 5 = 5 inches						
Attachment Dash No.	See Table I, II, III, or IV; omit for "SK" slip knot attachment						



#### NOTES

1. Length tolerance for sash chain (s) is  $\pm 1$  link, for all other attachments  $\pm .25$ .
2. Material/Finish
  - Cover: see material/finish table
  - Gasket: silicone
  - Hardware, rivet: stainless steel/passivate



**MIL-DTL-38999 Series III Type**

**660-023, -024/660-049, -050 metal and composite covers**

DIMENSIONS			
Shell Size	A Thread	Ø F Max	Ø G Max
09	.6250 - 0.1P-0.3L-TS	0.906 (23.0)	.906 (23.0)
11	.7500 - 0.1P-0.3L-TS	1.024 (26.0)	1.102 (28.0)
13	.8750 - 0.1P-0.3L-TS	1.220 (31.0)	1.220 (31.0)
15	1.0000 - 0.1P-0.3L-TS	1.300 (33.0)	1.260 (32.0)
17	1.1875 - 0.1P-0.3L-TS	1.457 (37.0)	1.457 (37.0)
19	1.2500 - 0.1P-0.3L-TS	1.575 (40.0)	1.535 (39.0)
21	1.3750 - 0.1P-0.3L-TS	1.732 (44.0)	1.654 (42.0)
23	1.5000 - 0.1P-0.3L-TS	1.811 (46.0)	1.772 (45.0)
25	1.6250 - 0.1P-0.3L-TS	1.969 (50.0)	1.929 (49.0)

MATERIAL AND FINISH		
Code	Material	Finish Description
C	Aluminum Alloy	Anodize, Black
G		Anodize, Hardcoat
M		Electroless Nickel
MT		Nickel-PTFE, Grey
NF		Cadmium, Olive Drab
ZN		Zinc-Nickel, Olive Drab
ZNU		Zinc-Nickel, Black
ZI	Stainless Steel	Passivate
ZL		Electrodeposited Nickel
XM	Composite	Electroless Nickel
XW		Cadmium, Olive Drab
XB		No Plating, Black

AVAILABLE LANYARD TYPES (SHOWN WITH OPTIONAL EYELET ATTACHMENT, SEE LANYARD CODE TABLE FOR LANYARD STYLE)		
Bead Chain (Type D)	Sash Chain (Type S)	Rope (Types F, G, H, K, R, T, U)

## MIL-DTL-38999 Series III Type

Metal and composite covers • attachment options

FIBER OPTIC CONNECTORS

**ATTACHING A COVER TO A JAM NUT RECEPTACLE WITH A SOLID RING (STYLE A)**

TABLE I: SOLID RING STYLE A		
Dash No.	Ø N ± .015	180-091 Shell Size
106	.896 (22.8)	11
107	1.016 (25.9)	13
108	1.141 (29.0)	15
109	1.266 (32.3)	17
110	1.391 (35.3)	19
111	1.521 (38.6)	21
112	1.641 (41.7)	23
113	1.766 (45.0)	25

**Solid Ring - Style A**

**NOTES**

- Solid ring style A dash numbers and shell sizes shown are for Glenair 180-091 fiber optic connectors only. Consult factory for additional sizes.

**ATTACHING A COVER TO A CABLE ASSEMBLY WITH A SOLID RING (STYLE B)**

TABLE II: SOLID RING STYLE B		
Dash No.	Ø M ± .015	180-091 Shell Size
10	.593 (15.1)	11
12	.718 (18.2)	13
15	.890 (22.6)	15
17	1.015 (25.9)	17
19	1.140 (29.0)	19
21	1.265 (32.3)	21
22	1.343 (34.0)	23
24	1.484 (37.6)	25

**Solid Ring - Style B**

**NOTES**

- Solid ring style B dash numbers and shell sizes shown are for Glenair 180-091 fiber optic connectors only. Consult factory for additional sizes.

**ATTACHING A COVER TO A CABLE USING A SPLIT RING OR SLIP KNOT**

**Split Ring  
Style C**

**Slip Knot  
(Type SK)**

TABLE III: SPLIT RING STYLE C			
Dash No.	Ø L ± .015	Dash No.	Ø L ± .015
50	.425 (10.8)	74	1.625 (41.4)
52	.485 (12.3)	76	1.750 (44.5)
54	.640 (16.3)	78	1.875 (47.8)
56	.750 (19.1)	80	1.980 (50.3)
58	.890 (22.6)	82	2.060 (52.3)
60	1.015 (25.9)	84	2.235 (56.9)
62	1.095 (27.9)	86	2.310 (58.7)
64	1.130 (28.7)	88	2.475 (63.0)
66	1.250 (31.8)	90	2.655 (67.6)
68	1.350 (34.3)	92	2.810 (71.4)
70	1.375 (35.1)	94	3.045 (77.5)
72	1.485 (37.8)		

**ATTACHING A RECEPTACLE COVER TO A PANEL WITH A SCREW**

**Eyelet - Style D**

TABLE IV: EYELET STYLE D		
Dash No.	Ø K ± .015	180-091 Shell Size
01	.140 (3.56)	
02	.182 (4.62)	
03	.191 (4.85)	
04	.197 (5.00)	
05	.167 (4.24)	
06	.125 (3.18)	11 thru 21
07	.218 (5.53)	
09	.156 (3.96)	23 thru 25
00	No Eyelet	

## MIL-DTL-38999 Series III Type

Fiber optic cable sets • rugged overmold

D38999  
Series III

### ASAP FIBER OPTIC CABLE SETS WITH RUGGED OVERMOLDING



#### Product Features

- Harsh Environment Polyurethane Overmolding (Viton® and Neoprene Available)
- Singlemode or Multimode Fiber Media
- MIL-DTL-38999 Series III Connectors in Aluminum, Composite or Stainless Steel
- Plug, Jam-Nut Receptacle, In-Line and Wall-Mount Receptacle Configurations
- Military Standard Dust Caps and Connector Accessories
- MIL-PRF-29504 Approved Termini
- Multichannel Capability: From 2 to 37 Channels
- Custom Lengths Available
- Robust, Flexible and Crush Resistant

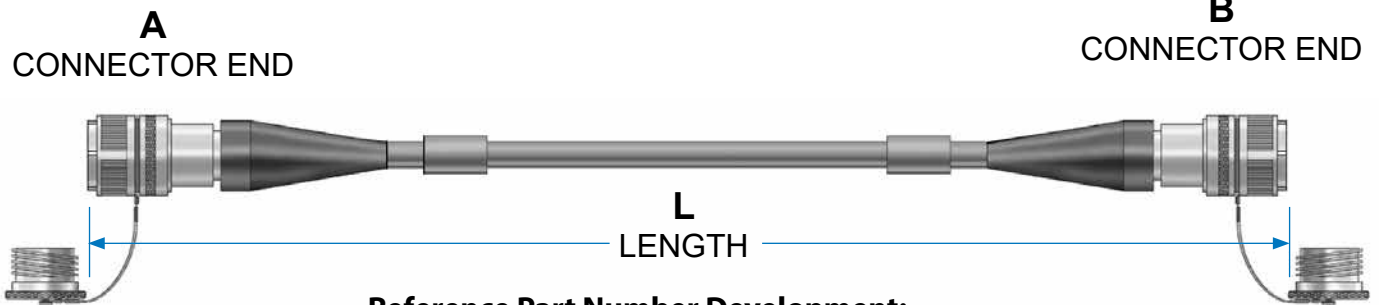
## The World's Only Short Lead-Time Source for Harsh Environment Overmolded F/O Cable Assemblies

### Overmolded Cable Assemblies

Glenair's overmolded cable assemblies are specifically designed to protect fiber optic and hybrid fiber/copper cables from the effects of moisture, heat, caustic chemicals and mechanical stress conditions. Glenair has been manufacturing these unique overmolded designs in fiber since 1984, and has produced tens of thousands of cables with zero real-time failures. Overmolding (as opposed to shrink boots or other sealing materials) brings added strength and environmental protection to critical interconnect systems. The overmolding process effectively isolates the transmission media from contaminating elements and protects the media from abrasion damage.

Glenair's ASAP Overmolded Fiber Optic Assemblies are available with our full line of composite thermoplastic and metal alloy connectors. Polyurethane is the applied standard overmolding. For other overmolding material types such as Viton® or Neoprene, please consult the factory. The turnkey assembly includes custom extruded cable, Glenair Backshell, MIL-DTL-38999 Style Connectors, MIL-PRF-29504 Termini, Mil-Spec Dust-Caps and customer specified marking and labeling. Please specify minor customizations on your purchase order.

### ASAP FIBER OPTIC CABLE SETS WITH RUGGED OVERMOLDING



#### Reference Part Number Development:

**FO1000 P 05 P 06 J 04 - 62 - 100 L**

**Basic Part Number**

**A Terminus Type**

- P = Pin Terminus
- S = Socket Terminus

**A Connector Type**

- 05 = D38999 Style In-Line Receptacle
- 06 = D38999/26 Style Plug
- 08 = D38999/24 Style Jam-Nut Receptacle
- H7 = D38999/20 Style Wall Mount Receptacle (Std.)
- S7 = D38999/20 Style Wall Mount Receptacle (Slotted)
- T7 = D38999/20 Style Wall Mount Receptacle (Tapped)

**B Terminus Type**

- P = Pin Terminus
- S = Socket Terminus

**B Connector Type**

- 05 = D38999 Style In-Line Receptacle
- 06 = D38999/26 Style Plug
- 08 = D38999/24 Style Jam-Nut Receptacle
- H7 = D38999/20 Style Wall Mount Receptacle (Std.)
- S7 = D38999/20 Style Wall Mount Receptacle (Slotted)
- T7 = D38999/20 Style Wall Mount Receptacle (Tapped)

**D38999 Series III Connector Class**

- F = Aluminum, Electroless Nickel Plating
- J = Composite, Olive Drab Cadmium Plating
- K = Stainless Steel, Passivated
- M = Composite, Electroless Nickel Plating
- W = Aluminum, Olive Drab Cadmium Plating

**Protective Covers**

- L = Less Covers
- Omit for with Covers

**Length in Feet**

**Fiber Size**

- 09 = 9.3/125 Singlemode
- 50 = 50/125 Multimode
- 62 = 62.5/125 Multimode
- 10 = 100/140 Multimode
- 20 = 200/230 Multimode

**Number of Fibers\***

- 02 = 2 Fibers (Shell Size 11)
- 04 = 4 Fibers (Shell Size 13)
- 05 = 5 Fibers (Shell Size 15)
- 08 = 8 Fibers (Shell Size 17)
- 11 = 11 Fibers (Shell Size 19)
- 16 = 16 Fibers (Shell Size 21)
- 21 = 21 Fibers (Shell Size 23)
- 29 = 29 Fibers (Shell Size 25)
- 37 = 37 Fiber (Shell Size 25)

Standard Cable Make-Up:  
 2mm Jacketed Fiber, Polyurethane Jacketing and Overmolding, Kevlar Reinforcement, Nominal Temperature Range -40° to +85°C.  
 Please Reference Special Marking, Labels Or Other Identification Specifications on Your Purchase Order

\*See Page G-3 for Insert Arrangements.

Please Consult Factory for Alternative Overmolding Materials Such As Viton® or Neoprene.  
 Part Numbering is for Reference Purposes Only. A Unique Glenair Part Number Will Be Assigned to Your Cable Order.



## MIL-DTL-38999 Series III Type

### Plastic and metal-core conduit assembly

FIBER OPTIC CONNECTORS

D38999  
Series III

#### ASAP FIBER OPTIC CABLE SETS



#### Product Features

- FEP (High-Temperature PTFE Fluoropolymer), PEEK (Halogen Free, Lightweight) and Metal-Core (EMI and Crush Proof) Versions
- Nine Standard Material Packages
- Shielded and Un-Shielded Designs
- Single and Multimode Fiber Media
- D38999 Series III Connectors in Aluminum, Composite or Stainless Steel
- Plug, Jam-Nut Receptacle, In-Line and Wall-Mount Receptacle Configurations
- Military Standard Dust Caps
- MIL-PRF-29504 Qualified Termini
- Multichannel Capability: From 2 to 37 Channels

### Flexible, Lightweight, Crush Resistant—Everything You've Always Wanted in a Fiber Optic Cable

#### Standard Conduit Packaging

The turnkey assembly includes fiber optic wiring, MIL-DTL-38999 Style Connectors, MIL-PRF-29504 Termini, Mil-Spec Dust-Caps, Conduit Adapter, customer specified marking and labeling and your choice of conduit materials and jacketing, including the following configurations:

Table I: Conduit Materials Packaging	
Code	Conduit Materials Package Description
A	FEP Fluoropolymer Convoluted Tubing Only; Standard Wall Thickness, Standard Convolutes
B	PEEK Convoluted Tubing Only; Halogen Free, Light Weight
C	FEP Convoluted Tubing with Black Dacron Outer Braided Covering
D	PEEK Convoluted Tubing with Black Dacron Outer Braided Covering
E	FEP Convoluted Tubing with Neoprene Jacket and Black Dacron Outer Braided Covering
F	PEEK Convoluted Tubing with Neoprene Jacket and Black Dacron Outer Braided Covering
G	FEP Convoluted Tubing with Tin Copper Shielding, Neoprene Jacket and Black Dacron Outer Braided Covering
H	PEEK Convoluted Tubing with Tin Copper Shielding, Neoprene Jacket and Black Dacron Outer Braided Covering
J	Brass Metal-Core Conduit, Bronze Braid and Neoprene Jacket

Consult Factory for Other Available Material Types

# SuperNine® Fiber optics

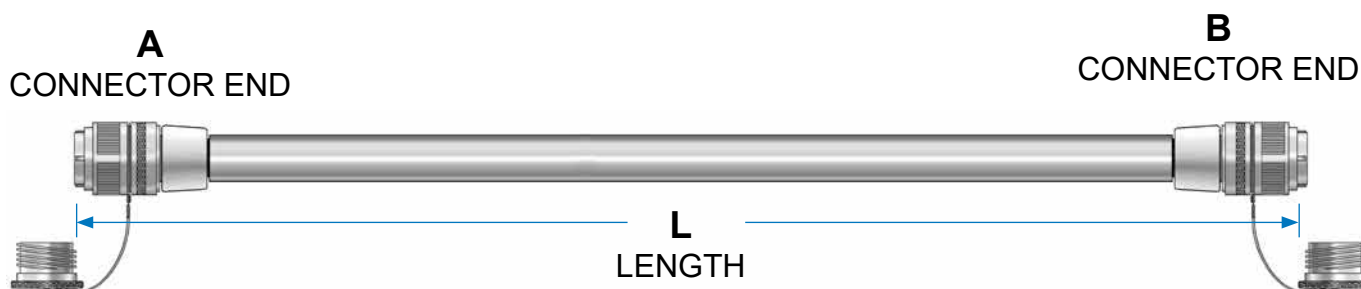
## MIL-DTL-38999 Series III Type

### Plastic and metal-core conduit assembly



FIBER OPTIC CONNECTORS

#### ASAP FIBER OPTIC CABLE SETS



#### Reference Part Number Development:

**FO1001 P 06 P 06 J 04 - 62 - 100 G L**

**Basic Part Number**

**A Terminus Type**

- P = Pin Terminus
- S = Socket Terminus

**A Connector Type**

- 05 = D38999 Style In-Line Receptacle
- 06 = D38999/26 Style Plug
- 08 = D38999/24 Style Jam-Nut Receptacle
- H7 = D38999/20 Style Wall Mount Receptacle (Std.)
- S7 = D38999/20 Style Wall Mount Receptacle (Slotted)
- T7 = D38999/20 Style Wall Mount Receptacle (Tapped)

**B Terminus Type**

- P = Pin Terminus
- S = Socket Terminus

**B Connector Type**

- 05 = D38999 Style In-Line Receptacle
- 06 = D38999/26 Style Plug
- 08 = D38999/24 Style Jam-Nut Receptacle
- H7 = D38999/20 Style Wall Mount Receptacle (Std.)
- S7 = D38999/20 Style Wall Mount Receptacle (Slotted)
- T7 = D38999/20 Style Wall Mount Receptacle (Tapped)

**D38999 Series III Connector Class**

- F = Aluminum, Electroless Nickel Plating
- J = Composite, Olive Drab Cadmium Plating
- K = Stainless Steel, Passivated
- M = Composite, Electroless Nickel Plating
- W = Aluminum, Olive Drab Cadmium Plating

**Protective Covers**

- L = Less Covers
- Omit for with Covers

**Conduit Materials Package (Table I)**

**Length in Feet**

**Fiber Size**

- 09 = 9.3/125 Singlemode
- 50 = 50/125 Multimode
- 62 = 62.5/125 Multimode
- 10 = 100/140 Multimode
- 20 = 200/230 Multimode

**Number of Fibers\***

- 02 = 2 Fibers (Shell Size 11)
- 04 = 4 Fibers (Shell Size 13)
- 05 = 5 Fibers (Shell Size 15)
- 08 = 8 Fibers (Shell Size 17)
- 11 = 11 Fibers (Shell Size 19)
- 16 = 16 Fibers (Shell Size 21)
- 21 = 21 Fibers (Shell Size 23)
- 29 = 29 Fibers (Shell Size 25)
- 37 = 37 Fiber (Shell Size 25)

See Table I for Standard Conduit Materials Packages. Please Reference Special Marking, Labels Or Other Identification Specifications on Your Purchase Order

\*See Page B-3 for Insert Arrangements.

Part Numbering is for Reference Purposes Only. A Unique Glenair Part Number Will Be Assigned to Your Cable Order.

ADVANCED PERFORMANCE

**SuperNine® Fiber optics**



**MIL-DTL-38999 Series III Type**

**Field repairable banding backshell assembly**

FIBER OPTIC CONNECTORS



## ASAP FIBER OPTIC CABLE SETS WITH BANDING BACKSHELL



### Product Features

- MIL-DTL-38999 Series III Connectors in Aluminum, Composite or Stainless Steel
- Glenair Banding Backshells with Flex-Nut Strain-Relief in Aluminum, Composite or Stainless Steel
- Plug, Jam-Nut Receptacle, In-Line and Wall-Mount Receptacle Configurations
- Single and Multimode Fiber Media
- Simple, Fast Kevlar Strength-Member Termination
- Military Standard Dust Caps
- MIL-PRF-29504 Qualified Termini
- Multichannel Capability: From 2 to 37 Channels
- Custom Lengths Available
- 100% Tested

## The Ideal Solution for Combined Environmental Resistance, Field Repairability and Kevlar® Termination

### Reinforced Cable/Backshell Assemblies

Reinforced, extruded cable is an ideal packaging option for rugged application environments, and Glenair can extrude fiber optic cable for most high-performance applications. But while the cable is the backbone of this packaging solution, Glenair's ruggedized backshell is the component which gives the assembly its real functionality. The backshell allows for the convenient termination of cable shielding and/or the Kevlar® strength member. Unlike other backshell designs, Glenair's assembly uses a simple, easy to use banding technology to terminate cable shielding and the Kevlar material used in fiber cable extrusions. The Glenair Band-Master™ ATS technology is fully tested and proven to meet pull strength requirements and is the quickest and most reliable way to terminate these materials. The Glenair backshell also provides additional strain-relief and environmental protection of the cable to connector transition with its unique Flex-Nut style fitting. And unlike overmolded solutions, the reinforced extruded cable/backshell package allows maintenance technicians to open the cable for field service.

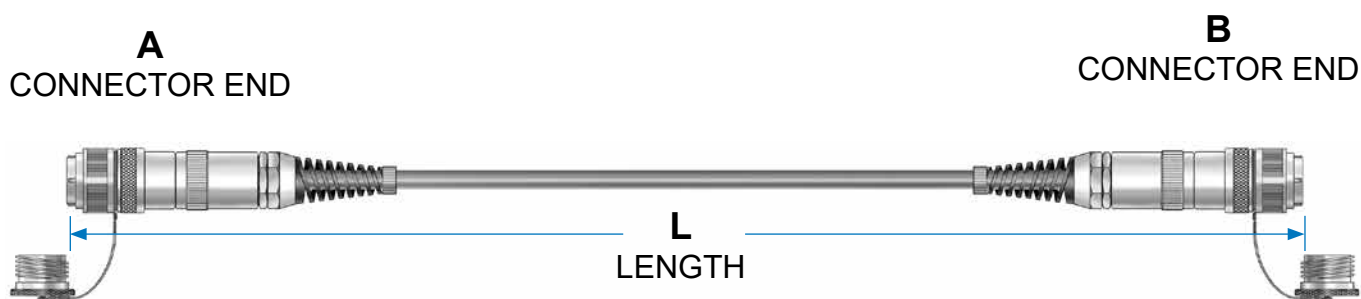
Backshells are selected for functionality (strain-relief, shield termination, and so on) and for material compatibility with the chosen connector. The turnkey assembly includes custom extruded cable, Glenair Backshell, MIL-DTL-38999 Style Connectors, MIL-PRF-29504 Termini, Mil-Spec Dust-Caps and customer specified marking and labeling.

\*See Section L For Band-Master™ ATS Tooling Information

## MIL-DTL-38999 Series III Type

### Field repairable banding backshell assembly

#### ASAP FIBER OPTIC CABLE SETS WITH BANDING BACKSHELL



#### Reference Part Number Development:

**FO1002 P 06 P 06 J 04 - 62 - 100 L**

**Basic Part Number**

**A Terminus Type**

- P = Pin Terminus
- S = Socket Terminus

**A Connector Type**

- 05 = D38999 Style In-Line Receptacle
- 06 = D38999/26 Style Plug
- 08 = D38999/24 Style Jam-Nut Receptacle
- H7 = D38999/20 Style Wall Mount Receptacle (Std.)
- S7 = D38999/20 Style Wall Mount Receptacle (Slotted)
- T7 = D38999/20 Style Wall Mount Receptacle (Tapped)

**B Terminus Type**

- P = Pin Terminus
- S = Socket Terminus

**B Connector Type**

- 05 = D38999 Style In-Line Receptacle
- 06 = D38999/26 Style Plug
- 08 = D38999/24 Style Jam-Nut Receptacle
- H7 = D38999/20 Style Wall Mount Receptacle (Std.)
- S7 = D38999/20 Style Wall Mount Receptacle (Slotted)
- T7 = D38999/20 Style Wall Mount Receptacle (Tapped)

**D38999 Series III Connector Class**

- F = Aluminum, Electroless Nickel Plating
- J = Composite, Olive Drab Cadmium Plating
- K = Stainless Steel, Passivated
- M = Composite, Electroless Nickel Plating
- W = Aluminum, Olive Drab Cadmium Plating

**Protective Covers**

- L = Less Covers
- Omit for with Covers

**Length in Feet**

**Fiber Size**

- 09 = 9.3/125 Singlemode
- 50 = 50/125 Multimode
- 62 = 62.5/125 Multimode
- 10 = 100/140 Multimode
- 20 = 200/230 Multimode

**Number of Fibers\***

- 02 = 2 Fibers (Shell Size 11)
- 04 = 4 Fibers (Shell Size 13)
- 05 = 5 Fibers (Shell Size 15)
- 08 = 8 Fibers (Shell Size 17)
- 11 = 11 Fibers (Shell Size 19)
- 16 = 16 Fibers (Shell Size 21)
- 21 = 21 Fibers (Shell Size 23)
- 29 = 29 Fibers (Shell Size 25)
- 37 = 37 Fiber (Shell Size 25)

See Table I for Standard Conduit Materials Packages. Please Reference Special Marking, Labels Or Other Identification Specifications on Your Purchase Order

\*See Page G-3 for Insert Arrangements.

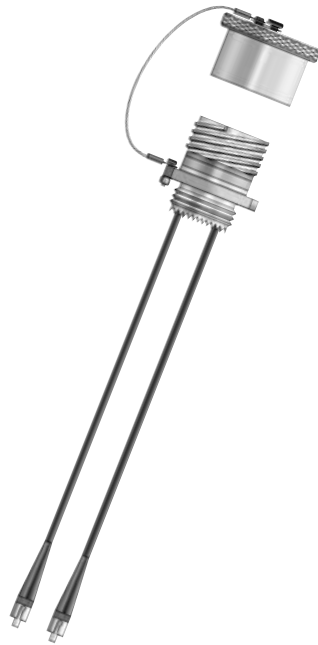
Part Numbering is for Reference Purposes Only. A Unique Glenair Part Number Will Be Assigned to Your Cable Order.

## MIL-DTL-38999 Series III Type

### Inside-the-box receptacle/pigtail assembly



#### ASAP FIBER OPTIC CABLE SET WITH D38999 SERIES III TO ST, FC, SC, LC & SMA



#### Product Features

- Jam-Nut and Wall Mount D38999 Series III Type Fiber Optic Receptacle Connectors in Aluminum, Composite or Stainless Steel
- ST, FC, SC, LC and SMA to D38999 Series III Configurations
- Single and Multimode Fiber Media
- Military Standard Dust Caps
- MIL-PRF-29504 Approved Termini
- Multichannel Capability: From 2 to 37 Channels
- Custom Lengths Available

### Glenair Terminated and Optically Tested Receptacle/Pigtail Assemblies Are Ready When You Are

#### Inside-the-Box

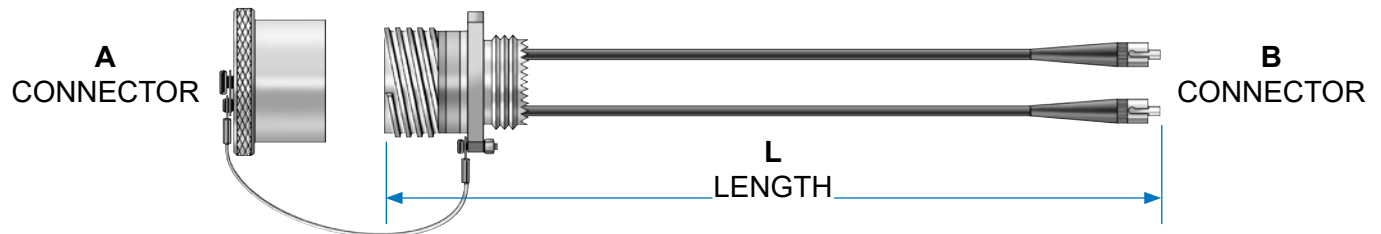
The packaging and layout of a fiber optic interconnect assembly can vary widely depending on the application environment. Fiber optics deployed in military avionics, for example, may take the form of a Mil-Spec receptacle and simplex pigtail connector assembly when fiber is used to interconnect the optical transmitter/receiver inside an equipment enclosure to the outside world. When fiber leads are used within equipment enclosures or other protected environments, the interconnect assembly generally looks something like the assembly featured here: A wall mount or jam nut mount receptacle connector ("A") with simplex fiber leads ("B"). The receptacle connector is used to penetrate the enclosure and mate to the external environmental plug connector. The simplex leads within the protected enclosure commonly route to the transceiver optical device, and are terminated to common commercial connectors such as ST, FC, SC, LC (or other) connectors at the "B" end. Glenair ASAP Receptacle/Pigtail Fiber Optic Assemblies are ideal for applications of this type, and are available with accelerated lead-times. The turnkey assembly includes fiber optic wiring, MIL-DTL-38999 Style Connector, MIL-PRF-29504 Termini, Mil-Spec Dust-Caps and customer specified marking and labeling.



## MIL-DTL-38999 Series III Type

### Inside-the-box receptacle/pigtail assembly

#### ASAP FIBER OPTIC CABLE SET WITH D38999 SERIES III TO ST, FC, SC, LC & SMA



#### Reference Part Number Development:

**FO1003 P - 08 - 1 W 02 62 48 L**

**Basic part Number**

**Terminus Type**

- P = Pin Terminus
- S = Socket Terminus

**A Connector Type**

- 06 = D38999/26 Style Plug
- 08 = D38999/24 Style Jam-Nut Receptacle
- H7 = D38999/20 Style Wall Mount Receptacle (Std.)
- S7 = D38999/20 Style Wall Mount Receptacle (Slotted)
- T7 = D38999/20 Style Wall Mount Receptacle (Tapped)

**B Connector Type**

- 0 = ST M83522 Style
- 1 = ST Connector
- 2 = FC Connector
- 3 = SC Connector
- 4 = SC Duplex
- 5 = SMA Connector (906 Type)
- 6 = SMA Connector (905 Type)
- 7 = LC Connector
- 8 = LC Duplex
- 9 = Customer Specified

**D38999 Series III Connector Class**

- F = Aluminum, Electroless Nickel Plating
- J = Composite, Olive Drab Cadmium Plating
- K = Stainless Steel, Passivated
- M = Composite, Electroless Nickel Plating
- W = Aluminum, Olive Drab Cadmium Plating

**Protective Covers**

- L = Less Covers
- Omit for with Covers

**Length in Inches**

- 6 Inch Minimum

**Fiber Size**

- 09 = 9.3/125 Singlemode
- 50 = 50/125 Multimode
- 62 = 62.5/125 Multimode
- 10 = 100/140 Multimode
- 20 = 200/230 Multimode

**Number of Fibers\***

- 02 = 2 Fibers (Shell Size 11)
- 04 = 4 Fibers (Shell Size 13)
- 05 = 5 Fibers (Shell Size 15)
- 08 = 8 Fibers (Shell Size 17)
- 11 = 11 Fibers (Shell Size 19)
- 16 = 16 Fibers (Shell Size 21)
- 21 = 21 Fibers (Shell Size 23)
- 29 = 29 Fibers (Shell Size 25)
- 37 = 37 Fiber (Shell Size 25)

Please Reference Special Marking, Labels Or Other Identification Specifications on Your Purchase Order. Unless Indicated, "B" Connector Identification Will Follow "A" Connector Pin Designations.

FIBER OPTIC CONNECTORS

\*See Page G-3 for Insert Arrangements

Part Numbering is for Reference Purposes Only. A Unique Glenair Part Number Will Be Assigned to Your Cable Order.

**MIL-DTL-38999 Series III Type**

**Inside-the-box receptacle/pigtail assembly**

FIBER OPTIC CONNECTORS



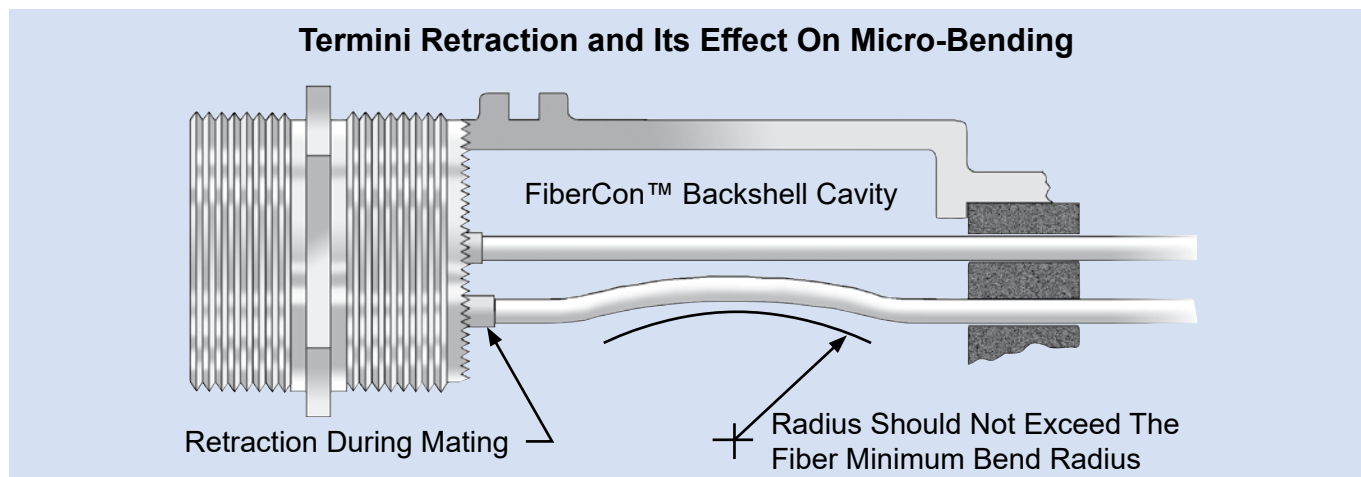
**ASAP FIBER OPTIC CABLE SETS WITH D38999 SERIES III TO ST, FC, SC, LC & SMA AND FIBERCON® BACKSHELL**



**Product Features**

- Jam-Nut and Wall Mount D38999 Series III Type Fiber Optic Receptacle Connectors in Aluminum, Composite or Stainless Steel
- ST, FC, SC, LC and SMA to D38999 Series III Configurations
- Grommet Sealing and Micro-Alignment Backshells in Aluminum, Composite and Stainless Steel
- Singlemode and Multimode Fiber Media
- Military Standard Dust Caps
- MIL-PRF-29504 Approved Termini
- Multichannel Capability: From 2 to 37 Channels
- Custom Lengths Available

**Because Sometimes Strain-Relief and Exact Fiber Alignment are a Requirement—Even Inside the Box**



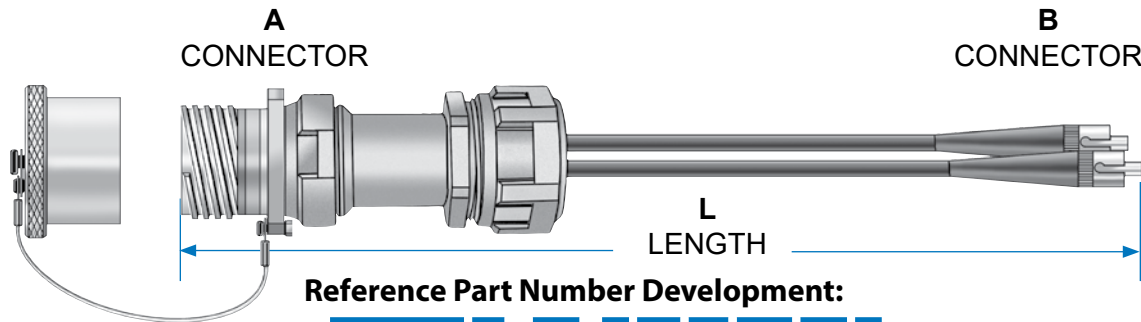
**The Glenair FiberCon® Backshell Assembly**

Glenair can supply receptacle/pigtail assemblies with a FiberCon™ Backshell that protects fiber terminations and insures exact alignment of the fiber optic termini. The grommeted backshell design prevents micro-bending of the fibers while providing optimum strain relief to the overall cable. The unique design is available only from Glenair and is available as a component part of this ASAP cable assembly. The turnkey assembly includes fiber optic wiring, Glenair Backshell, MIL-DTL-38999 Style Connector, MIL-PRF-29504 Termini, Mil-Spec Dust-Caps and customer specified marking and labeling.

**MIL-DTL-38999 Series III Type**

**Inside-the-box receptacle/pigtail assembly**

**ASAP FIBER OPTIC CABLE SETS WITH D38999 SERIES III TO ST, FC, SC, LC & SMA AND FIBERCON® BACKSHELL**



**Reference Part Number Development:**

**FO1004 P - 08 - 1 W 02 62 48 L**

**Basic part Number**

**Terminus Type**

- P = Pin Terminus
- S = Socket Terminus

**A Connector Type**

- 06 = D38999/26 Style Plug
- 08 = D38999/24 Style Jam-Nut Receptacle
- H7 = D38999/20 Style Wall Mount Receptacle (Std.)
- S7 = D38999/20 Style Wall Mount Receptacle (Slotted)
- T7 = D38999/20 Style Wall Mount Receptacle (Tapped)

**B Connector Type**

- 0 = ST M83522 Style
- 1 = ST Connector
- 2 = FC Connector
- 3 = SC Connector
- 4 = SC Duplex
- 5 = SMA Connector (906 Type)
- 6 = SMA Connector (905 Type)
- 7 = LC Connector
- 8 = LC Duplex
- 9 = Customer Specified

**D38999 Series III Connector Class**

- F = Aluminum, Electroless Nickel Plating
- J = Composite, Olive Drab Cadmium Plating
- K = Stainless Steel, Passivated
- M = Composite, Electroless Nickel Plating
- W = Aluminum, Olive Drab Cadmium Plating

**Protective Covers**

- L = Less Covers
- Omit for with Covers

**Length in Inches**

- 6 Inch Minimum

**Fiber Size**

- 09 = 9.3/125 Singlemode
- 50 = 50/125 Multimode
- 62 = 62.5/125 Multimode
- 10 = 100/140 Multimode
- 20 = 200/230 Multimode

**Number of Fibers\***

- 02 = 2 Fibers (Shell Size 11)
- 04 = 4 Fibers (Shell Size 13)
- 05 = 5 Fibers (Shell Size 15)
- 08 = 8 Fibers (Shell Size 17)
- 11 = 11 Fibers (Shell Size 19)
- 16 = 16 Fibers (Shell Size 21)
- 21 = 21 Fibers (Shell Size 23)
- 29 = 29 Fibers (Shell Size 25)
- 37 = 37 Fiber (Shell Size 25)

Please Reference Special Marking, Labels Or Other Identification Specifications on Your Purchase Order. Unless Indicated, "B" Connector Identification Will Follow "A" Connector Pin Designations.

\*See Page G-3 for Insert Arrangements

Part Numbering is for Reference Purposes Only. A Unique Glenair Part Number Will Be Assigned to Your Cable Order.

ADVANCED PERFORMANCE

**SuperNine® Fiber optics**



**MIL-DTL-38999 Series III Type**

**Inside-the-box receptacle/pigtail assembly**

FIBER OPTIC CONNECTORS

D38999  
Series III

**ASAP FIBER OPTIC CABLE SETS WITH LOW-PROFILE BACKSHELL AND CONDUIT  
D38999 SERIES III TO ST, FC, SC, LC & SMA**



### **Product Features**

- Jam-Nut and Wall Mount D38999 Series III Type Fiber Optic Receptacle Connectors in Aluminum, Composite or Stainless Steel
- ST, FC, SC, LC and SMA to D38999 Series III Configurations
- High-Temperature and Halogen Free Protective Convoluted Tubing Options
- Single and Multimode Fiber Media
- Military Standard Dust Caps
- MIL-PRF-29504 Approved Termini
- Multichannel Capability: From 2 to 37 Channels
- Custom Overall and Break-out Lengths Available

## **The Perfect Amount of Mechanical Protection for Fiber Media in Non-Environmental Applications**

### **Protective Conduit**

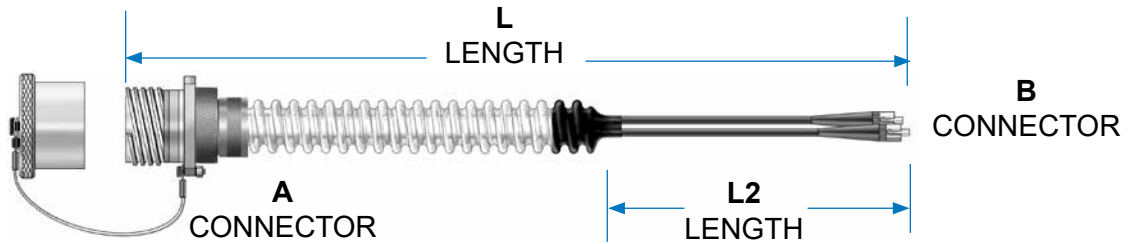
The use of a short length of conduit and a low-profile connector/conduit adapter is recommended in applications where a heat or abrasion source within the box may damage the fiber media. In most cases, analysis of the available space is critical to insure the additional interconnect hardware does not interfere with the electronics package inside the box. The packaging of a pigtail assembly with a protective length of conduit is appropriate for all types of equipment—such as radar units, cameras, shipboard consoles, antennas and so on—in which the routing of the fiber cable within the equipment enclosure may expose the media to damage. This Glenair *ASAP* Fiber Optic Pigtail Assembly is well suited whenever the prevention of damage to the fiber media inside the box is a design requirement. The turnkey assembly includes fiber optic wiring, Glenair Conduit Adapter, High-Temperature Convoluted Tubing and Shrink Boot, MIL-DTL-38999 Style Connector, MIL-PRF-29504 Termini, Mil-Spec Dust-Caps and customer specified marking and labeling.

**MIL-DTL-38999 Series III Type**

**Inside-the-box receptacle/pigtail assembly**

FIBER OPTIC CONNECTORS

**ASAP FIBER OPTIC CABLE SETS WITH LOW-PROFILE BACKSHELL AND CONDUIT D38999 SERIES III TO ST, FC, SC, LC & SMA**



**Reference Part Number Development:**

**FO1005 P - 08 - 1 W 02 62 6 12 L**

**Basic part Number**

**Terminus Type**

- P = Pin Terminus
- S = Socket Terminus

**A Connector Type**

- 06 = D38999/26 Style Plug
- 08 = D38999/24 Style Jam-Nut Receptacle
- H7 = D38999/20 Style Wall Mount Receptacle (Std.)
- S7 = D38999/20 Style Wall Mount Receptacle (Slotted)
- T7 = D38999/20 Style Wall Mount Receptacle (Tapped)

**B Connector Type**

- 0 = ST M83522 Style
- 1 = ST Connector
- 2 = FC Connector
- 3 = SC Connector
- 4 = SC Duplex
- 5 = SMA Connector (906 Type)
- 6 = SMA Connector (905 Type)
- 7 = LC Connector
- 8 = LC Duplex
- 9 = Customer Specified

**D38999 Series III Connector Class**

- F = Aluminum, Electroless Nickel Plating
- J = Composite, Olive Drab Cadmium Plating
- K = Stainless Steel, Passivated
- M = Composite, Electroless Nickel Plating
- W = Aluminum, Olive Drab Cadmium Plating

**Protective Covers**

- L = Less Covers
- Omit for with Covers

**"L2" Length in Inches**

**"L" Length in Feet**

- 6 Inch Minimum

**Fiber Size**

- 09 = 9.3/125 Singlemode
- 50 = 50/125 Multimode
- 62 = 62.5/125 Multimode
- 10 = 100/140 Multimode
- 20 = 200/230 Multimode

**Number of Fibers\***

- 02 = 2 Fibers (Shell Size 11)
- 04 = 4 Fibers (Shell Size 13)
- 05 = 5 Fibers (Shell Size 15)
- 08 = 8 Fibers (Shell Size 17)
- 11 = 11 Fibers (Shell Size 19)
- 16 = 16 Fibers (Shell Size 21)
- 21 = 21 Fibers (Shell Size 23)
- 29 = 29 Fibers (Shell Size 25)
- 37 = 37 Fiber (Shell Size 25)

Please Reference Special Marking, Labels Or Other Identification Specifications on Your Purchase Order. Unless Indicated, "B" Connector Identification Will Follow "A" Connector Pin Designations.

\*See Page G-3 for Insert Arrangements

Part Numbering is for Reference Purposes Only. A Unique Glenair Part Number Will Be Assigned to Your Cable Order.



SERIES 23  
BACKSHELLS AND  
ACCESSORIES

 **SuperNine®**

High-performance composite thermoplastic  
and precision-machined metal connector  
backshells and accessories



**N**owhere in the world does anyone supply such a complete range of high-performance backshells and connector accessories for mil-aero interconnect systems. Glenair is able to offer our SuperNine customers both military standard 85049 backshells and accessories, as well as unique special-purpose EMI/RFI and environmental backshells designed for higher performance requirements. This section of the SuperNine catalog presents just a few of our most innovative backshell designs, including our 3-in-1 Swing Arm™ strain relief, and several lightweight and corrosion-free composite thermoplastic solutions. Glenair's high availability business model ensures all popular part numbers from this section of the catalog are in-stock and ready for immediate, same-day shipment.

 **Glenair®**

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



**Backshells and Accessories**

Overview	H-2
MS backshells and accessories	H-4
Interface standards	H-6
Swing-Arm assembly	H-26



**310-045** H-8  
Composite shrink boot adapter standard profile with self-locking rotatable coupling nut.



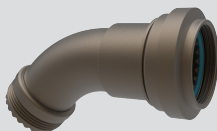
**440-143** H-9  
Composite EMI/RFI backshell with Qwik-Ty strain relief, banding platform, and shrink boot groove.



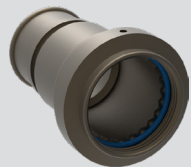
**440-144** H-11  
Composite micro banding backshell with shrink boot groove, and self-locking coupling.



**470-017** H-13  
StarShield™ EMI/RFI composite shield termination backshell.



**320H\*030** H-15  
Extender backshell, self-locking. Straight, 45°, or 90° with extended radius angular function. For use with size 8 contacts.



**440H\*233** H-16  
Banding backshell, self-locking. Straight, 45°, or 90° extended radius angular function. For use with size 8 contacts.



**620HS090** H-18  
Strain relief saddle clamp backshell, self-locking. For use with size 8 contacts.



**440HS232** H-19  
EMI/RFI strain relief saddle clamp backshell, self-locking. For use with size 8 contacts.



**443H\*042** H-20  
EMI/RFI Environmental band-in-a-can, saddle clamp backshell. Straight, 45°, or 90° with extended radius angular function. For size 8 contacts.



**770-003** H-22  
Series 77 heat shrink boots.



**870H001** H-24  
Swing-Arm Saddle Clamp composite, aluminum, or stainless steel.



**870H002** H-26  
Swing-Arm Saddle Clamp composite, with braid sock and metallic interface ring for EMI shield termination.



**870H005** H-28  
Swing-Arm Saddle Clamp aluminum or stainless steel, with drop-in banding adapter.



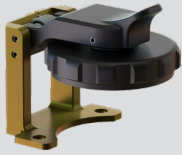
**871H004** H-30  
Swing-Arm Flex Clamp composite, flexible arms, with drop-in banding adapter.



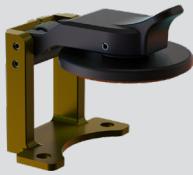
**687-749** H-32  
Banding Split Ring for use in Strain Relief Assembly Procedure.

**MIL-DTL-38999 Series III Type**

**Product selection guide**



**667-448** H-34  
ProSeal™ threaded closure seal, full environmental protective cover.



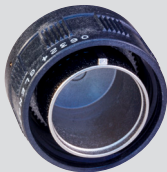
**667-449** H-36  
Pressure seal, dust and immersion resistant protective cover.



**660-049 and 660-050** H-38  
Composite protective covers.



**239-200** H-40  
Plug cover for 233-215 piston sealed connector.



**660-121** H-41  
Composite self-locking receptacle covers.



**239-202** H-42  
Thick jam nut for .125" panels



**239-204** H-43  
Flange gasket. Available in 14 material options.



**239-205** H-44  
Jam-nut O-ring. Available in 13 material options.





SERIES 23

# SuperNine®

Rugged metal and lightweight composite backshells and accessories for every application requirement

- Tens of thousands of popular part numbers in inventory ready for same-day shipment
- Fast turnaround on non-standard and made-to-order accessories, typically only two to three weeks
- RoHS compliant plating options



Space Grade Quick Clamp Backshells



Series 620 Strain Relief Clamps



Ultra Low-Profile EMI/RFI Backshells



StarShield "Zero Length" Individual Shield Termination Backshells



Self-Locking and Standard Protective Covers



High-Performance Banding Backshells



BACKSHELLS AND ACCESSORIES

**Conductively-plated composite accessories:  
Outstanding corrosion resistance, weight  
reduction, and durability**

- High temperature, high strength engineering composite thermoplastics for maximum strength and durability
- Total immunity to galvanic corrosion
- Up to 70% weight reduction compared to standard metal connectors and accessories
- Hundreds of innovative, tooled designs
- All popular part numbers in stock and ready for immediate, same-day shipment
- Conductive platings including RoHS versions



Glenair composite interconnect components are manufactured from 30% glass fiber polyetherimide (PEI), an amorphous thermoplastic with outstanding heat and chemical resistance and high strength. At room temperature, the 30% glass-filled PEI exhibits strength far beyond that of most engineering thermoplastics, with a tensile strength yield of over 15,000 psi. The PEI material meets the most stringent outgassing and flammability requirements.



**Composite Swing-Arm™ EMI/RFI Shield Sock**



**Composite Piggyback Accessory with Partially Recovered Boot**



**Composite Swing-Arm™ Strain Relief**



**Composite Shrink Boot/Banding Adapter**



**Composite Plug and Receptacle Protective Covers**

**1000 HOUR GREY™ NI-PTFE NICKEL FLUOROCARBON POLYMER PLATING**

The MIL-DTL-38999 Rev L detail specification lists Nickel Fluorocarbon Polymer as a qualified Cadmium free plating alternative. This highly conductive, RoHS compliant plating formula is now available on composite interconnect products from Glenair and offers the following benefits in harsh-environment applications:

- 2000+ hour salt spray
- Cadmium free
- Outstanding mating lubricity
- Hexavalent Chromium free
- 500+ mating cycles
- Non-Magnetic





**MIL-DTL-38999 Series III Type**

**MIL-DTIL-38999 mil-spec backshells and accessories**

Military Connector Specification	 36 Non-Environ. Strain Relief Backshells	 38 EMI/RFI Non-Environ. Backshells	 39 EMI/RFI Environmental Backshells	 44 Crimp Ring Backshells	 44 Banding Backshells
MIL-DTL-38999 Series III	M85049/21 Str.	M85049/19 Str.	M85049/18 Str. M85049/78 45° M85049/79 90°	M85049/20 Str.	M85049/88 Str. M85049/88N Str. M85049/89 45° M85049/89N 45° M85049/90 90° M85049/90N 90°

Military Connector Specification	 45 Qwik-Ty Strain Reliefs		 62 Strain Reliefs		 68 Mounting Flanges and Gaskets
	Non-Self-Locking	Self-Locking	Non-Self-Locking	Self-Locking	
MIL-DTL-38999 Series III	M85049/15- 45° M85049/16- 90°	No Ground Lug M85049/15S 45° M85049/16S 90° With Ground Lug M85049/15G 45° M85049/15H 45° M85049/16G 90° M85049/16H 90°	M85049/38 Str. M85049/124 Str. M85049/39 90° M85049/126 90°	M85049/38S Str. M85049/91 Str. M85049/124S Str. M85049/39S 90° M85049/92 90° M85049/126S 90°	M85049/94 Full M85049/95 3/4 M85049/96 1/4 (M85528/1) Full (M85528/2) 3/4 (M85528/3) 1/4

Military Connector Specification	 65 Dummy Stowage Receptacles	 66 Protective Plug Covers	 66 Protective Receptacle Covers	 68 Jam Nuts
MIL-DTL-38999 Series III	D38999/22	D38999/32 Threaded	D38999/33 Threaded	D38999/28

Torque Values for Cable Clamp Screws	
Required value in In-Lbs for corrosion resistant/steel plated screws only	
Screw Size	In Aluminum or Corrosion Resistant Steel
2-56	1.5/2.5
4-40	3.5/4.5
6-32	5.0/7.0
8-32	7.0/9.0
10-32	9.0/11.0
.250-20	11.0/13.0

Cable Clamp with Grommet - Torque Values (See Note 3)			
Torque Requirements in In-Lbs		Torque Requirements in In-Lbs	
Clamp Size	Torque Min/Max Values	Clamp Size	Torque Min/Max Values
3	30/40	16	40/60
4	30/40	20	40/60
6	35/55	24	80/100
8	35/55	28	80/100
10	35/55	32	80/100
12	40/60	40	80/100

**MIL-DTL-38999 Series III Type**

**MIL-DTIL-38999 mil-spec backshells and accessories**

BACKSHELLS AND ACCESSORIES

Composite Thermoplastic Backshells and Accessories						
Military Connector Specification	 Three-Finger Strain Relief	 Banding Adapters	 Cable Clamp Strain Relief	Dust Caps		 Dummy Stowage Receptacles
				 Plug	 Receptacle	
MIL-DTL-38999 Series III	M85049/45 M85049/46	M85049/88 M85049/89 M85049/90	M85049/91 M85049/92	D38999/32 Series III Only	D38999/33 Series III Only	D38999/22

Military Connector Specification	31	319	
	Shrink Boot Adapters	Non-Self-Locking	Self-Locking
MIL-DTL-38999 Series III	M85049/69 Str.	M85049/115 Str. M85049/117 90°	M85049/103 Str.* M85049/104 45°* M85049/105 90°* M85049/115S Str. M85049/117S 90°

Military Connector Specification	 60 Connector Wrenches	 60 Connector Sockets	61 "E" Nuts	
			Non-Self-Locking	Self-Locking
MIL-DTL-38999 Series III	TG90*	600H005*	M85049/14-	M85049/14S

Installation Torque Values for Circular Connector Accessories		
Shell Sizes	MIL-DTL-38999 Series III	Composite Material Coupling Threads (See Note 1)
8, 9, A	51/61	35
3, 10, 10SL, 11, B	71/81	35
7, 12, 12S, 13, C	103/113	45
14, 14S, 15, D	111/121	45
16, 16S, 17, E	111/121	45
18, 19, 27, F	111/121	45
20, 21, 37, G	131/141	80
22, 23, H	131/141	80

Installation Torque Values for Circular Connector Accessories		
Shell Sizes	MIL-DTL-38999 Series III	Composite Material Coupling Threads (See Note 1)
24, 25, 61, J	131/141	80
28, 29	143/153	120
32, 33	143/153	120
36	142/153	120
40	159/169	N/A
44	159/169	N/A
48	159/169	N/A

- 1) Use Glenair 600-091 and 600-007 Torque Tools when tightening hexagonal composite accessory couplings.
- 2) For additional guidance or values/conditions not listed, refer to SAE AIR6151.
- 3) EMI/RFI shielding terminated with conical metal ferrule(s) should employ a minimum recommended torque of 35 in-lb.

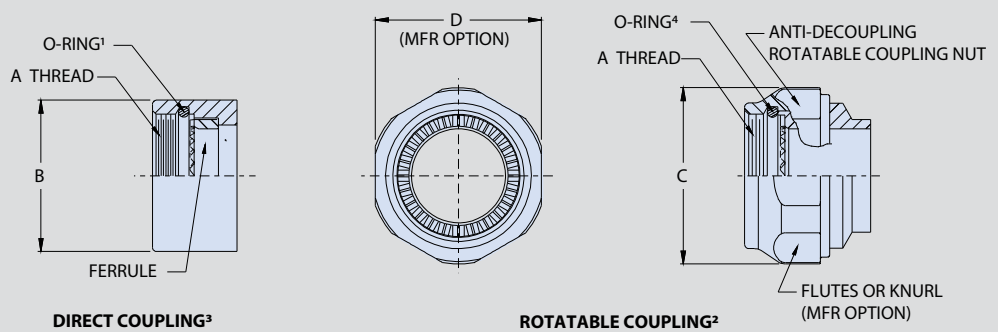
**MIL-DTL-38999 Series III Type**

**Connector-to-backshell composite accessory interface data**

Circular Connector Front End Dimensional Details					
Shell Size Code	Shell Size Reference	A Thread Ref	B Dia Max	C Dia Max	D Flats Ref
9	A	M12 x 1 - 6H	.65 (16.5)	.86 (21.8)	.75 (19.1)
11	B	M15 x 1 - 6H	.77 (19.6)	.98 (24.9)	.88 (22.2)
13	C	M18 x 1 - 6H	.89 (22.6)	1.16 (29.4)	1.00 (25.4)
15	D	M22 x 1 - 6H	1.03 (26.2)	1.28 (32.5)	1.13 (28.6)
17	E	M25 x 1 - 6H	1.15 (29.2)	1.41 (35.7)	1.25 (31.8)
19	F	M28 x 1 - 6H	1.28 (32.5)	1.52 (38.5)	1.38 (35.1)
21	G	M31 x 1 - 6H	1.41 (35.8)	1.64 (41.7)	1.50 (38.1)
23	H	M34 x 1 - 6H	1.53 (38.9)	1.77 (44.9)	1.63 (41.3)
25	J	M37 x 1 - 6H	1.66 (42.2)	1.89 (48.0)	1.75 (44.5)



**SPECIFICATION**  
MIL-DTL-38999  
EN3645  
**SERIES**  
III & IV



**NOTES**

1. Direct coupling supplied with O-ring for moisture sealing.
2. To add O-ring to rotatable coupling append modifier code 101A to end of part number
3. Consult factory for direct coupling part numbers.
4. Connector shell size are for reference only; do not use in part numbers.
5. Consult factory for accessory interface data not listed.
6. Use Glenair 600-091 or 600-157 tool to tighten coupling nut. Rubber jaw pliers or strap wrench may damage the parts.

**MIL-DTL-38999 Series III Type**

**310-045 Composite shrink boot adapter**

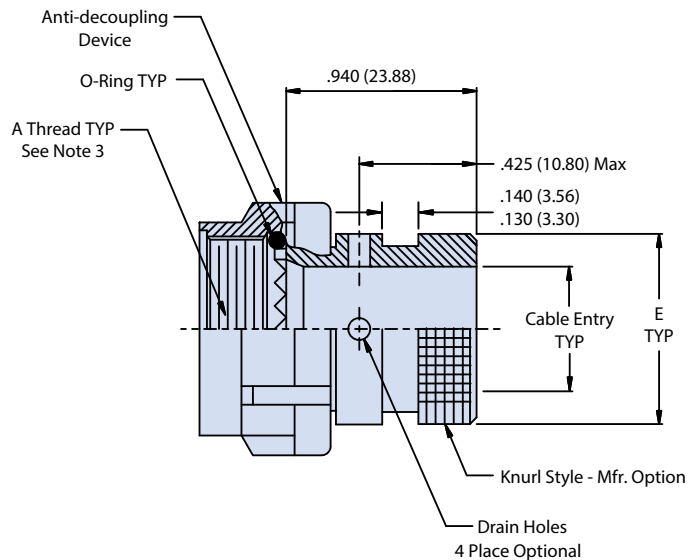
BACKSHELLS AND ACCESSORIES

**COMPOSITE SHRINK BOOT ADAPTER WITH SELF-LOCKING COUPLING NUT**

Part Number Development								
Sample Part Number	<b>310</b>	<b>H</b>	<b>S</b>	<b>045</b>	<b>XM</b>	<b>15</b>	<b>D</b>	<b>T</b>
<b>Product Series</b>	Composite shrink boot adapter							
<b>Connector Designator</b>	H = MIL-DTL-38999 Series III							
<b>Angular Function</b>	S = Straight							
<b>Basic Number</b>	045							
<b>Finish</b>	XB = No plating, black    XD = No Plating, Desert Tan XM = 2000 hr, Electroless Nickel XW = 2000 hr, Cadmium O/D over Electroless Nickel XMT = 2000 hr, Nickel-PTFE 1000 Hour Gray							
<b>Connector Shell Size</b>	See dimensions table							
<b>Drain Holes</b>	D = Drain holes, omit for none.							
<b>Shrink Boot Option</b>	T = Shrink boot, omit for none.							



Dimensions			
H Code Shell Size	E Max	Cable Entry Min.	Shrink Boot
09	.533 (13.5)	.250 (6.4)	770-003S102
11	.605 (15.4)	.355 (9.0)	770-003S103
13	.774 (19.7)	.491 (12.5)	770-003S103
15	.838 (21.3)	.565 (14.4)	770-003S103
17	.963 (24.5)	.690 (17.5)	770-003S104
19	1.042 (26.5)	.769 (19.5)	770-003S104
21	1.217 (30.9)	.894 (22.7)	770-003S106
23	1.355 (34.4)	1.019 (25.9)	770-003S107
25	1.443 (36.7)	1.134 (28.8)	770-003S107



**NOTES**

1. See composite accessory interface data on page H-6
2. Straight shrink boot supplied with "T" option. See dimensions table for part number
3. O-ring standard for H code adapter
4. Material/finish
  - Adapter: high temperature thermoplastic, natural/see part number development, finish
  - Coupling nut: high temperature thermoplastic, black/N.A.
  - O-ring: silicone/N.A.
  - Shrink boot: elastomeric/N.A.

# SuperNine® Backshells and accessories

## MIL-DTL-38999 Series III Type



### 440-143 Composite Micro Banding Backshell with Qwik-Ty

BACKSHELLS AND ACCESSORIES

Part Number Development																		
Sample Part Number	440						H	S	143	XM	15	09	D	B	T	S		
Product Series	440 = Qwik-Ty EMI/RFI micro-banding backshells																	
Connector Designator	H = MIL-DTL-38999 Series III																	
Angular Function and Profile	A = 90° Standard Profile			D = 90° Med Profile, Split			E = 90° Low Profile, Split			S = Straight			W = 90° Low Profile, Solid			T = 45° Elbow		
Basic Number	143																	
Finish	XB = No plating, black			XM = 2000 hr, Electroless Nickel			XD = No Plating, Desert Tan			XMT = 2000 hr, Nickel-PTFE 1000 Hour Gray			XW = 2000 hr, Cadmium O/D over Electroless Nickel					
Connector Shell Size <sup>1</sup>	See dimensions table																	
Cable Entry Code <sup>6</sup>	See cable entry code table; omit for symbol D, W and E low profile 90° configurations.																	
Drain Hole Option	D = With drain hole, omit if not required																	
Band Option	B = Supplied with band, omit for none.																	
Shrink Boot Option	T = Shrink boot, omit for none.																	
Shield Termination Slot <sup>7</sup>	S = With slot, omit for none.																	

Dimensions											
Shell Size	Entry Code*	K ±.03	L <sup>6</sup>	M <sup>6</sup>	N Max	P ±.09	R ±.09	S Max	T Max	W <sup>6</sup>	X (Max) <sup>6</sup>
09	04	1.042 (26.5)	.304 (7.7)	.160 (4.1)	.63 (16.0)	.69 (17.5)	.88 (22.4)	1.36 (34.5)	.81 (20.6)	.232 (5.89)	.91 (23.11)
11	05	1.107 (28.1)	.432 (11.0)	.174 (4.4)	.66 (16.8)	.75 (19.1)	1.00 (24.5)	1.42 (36.1)	.81 (20.6)	.303 (7.70)	.97 (24.64)
13	07	1.174 (29.8)	.546 (13.9)	.195 (5.0)	.72 (18.3)	.81 (20.6)	1.13 (28.7)	1.48 (37.6)	.82 (20.8)	.370 (9.40)	1.02 (25.91)
15	09	1.241 (31.5)	.670 (17.0)	.315 (8.0)	.83 (21.1)	.88 (22.4)	1.31 (33.3)	1.55 (39.4)	.88 (22.4)	.492 (12.50)	1.08 (27.43)
17	05 and 11	1.305 (33.1)	.796 (20.2)	.385 (9.8)	.91 (23.1)	.94 (23.9)	1.38 (35.1)	1.61 (40.9)	.93 (23.6)	.590 (14.99)	1.16 (29.46)
19	07 and 13	1.371 (34.8)	.902 (22.9)	.445 (11.3)	.93 (23.6)	.97 (24.6)	1.44 (36.6)	1.64 (41.7)	.99 (25.1)	.673 (17.09)	1.25 (31.75)
21	09 and 15	1.438 (36.5)	1.027 (26.1)	.525 (13.3)	1.04 (26.4)	1.06 (26.9)	1.63 (41.4)	1.73 (43.9)	1.06 (26.9)	.776 (19.71)	1.34 (34.04)
23	11 and 16	1.505 (38.2)	1.152 (29.3)	.595 (15.1)	1.12 (28.4)	1.13 (28.7)	1.75 (44.5)	1.80 (45.7)	1.13 (28.7)	.873 (22.17)	1.43 (36.32)
25	07, 13 and 17	1.572 (39.9)	1.276 (32.4)	.655 (16.6)	1.18 (30.0)	1.19 (30.2)	1.88 (47.8)	1.86 (47.2)	1.05 (26.7)	.909 (23.09)	1.54 (39.12)
25 <sup>4</sup>	--	1.850 (47.0)	1.460 (37.1)	.450 (11.4)	---	--	--	--	1.05 (26.7)	--	--

\*For straight, 45° and 90° standard configuration

Cable Entry Code <sup>6</sup>						
Entry Code	D ±.030	E Ref	F Ref	G Ref	H ±.060	J ±.090
04	.25 (6.4)	.187 (4.7)	.312 (7.9)	.512 (13.0)	.72 (18.3)	.87 (22.1)
05	.31 (7.9)	.187 (4.7)	.312 (7.9)	.512 (13.0)	.75 (19.1)	.93 (23.6)
07	.44 (11.2)	.187 (4.7)	.312 (7.9)	.512 (13.0)	.75 (19.1)	1.00 (25.4)
09	.56 (14.2)	.219 (5.6)	.375 (9.5)	.630 (16.0)	.76 (19.3)	1.03 (26.2)
11	.68 (17.3)	.219 (5.6)	.375 (9.5)	.630 (16.0)	.78 (19.8)	1.05 (26.7)
13	.81 (20.6)	.219 (5.6)	.375 (9.5)	.630 (16.0)	.79 (20.1)	1.06 (26.9)
15	.94 (23.9)	.219 (5.6)	.375 (9.5)	.630 (16.0)	.82 (20.8)	1.09 (27.7)
16	1.00 (25.4)	.219 (5.6)	.375 (9.5)	.630 (16.0)	.86 (21.8)	1.13 (28.7)
17	1.16 (29.5)	.250 (6.4)	.437 (11.1)	.630 (16.0)	.89 (22.6)	1.16 (29.5)

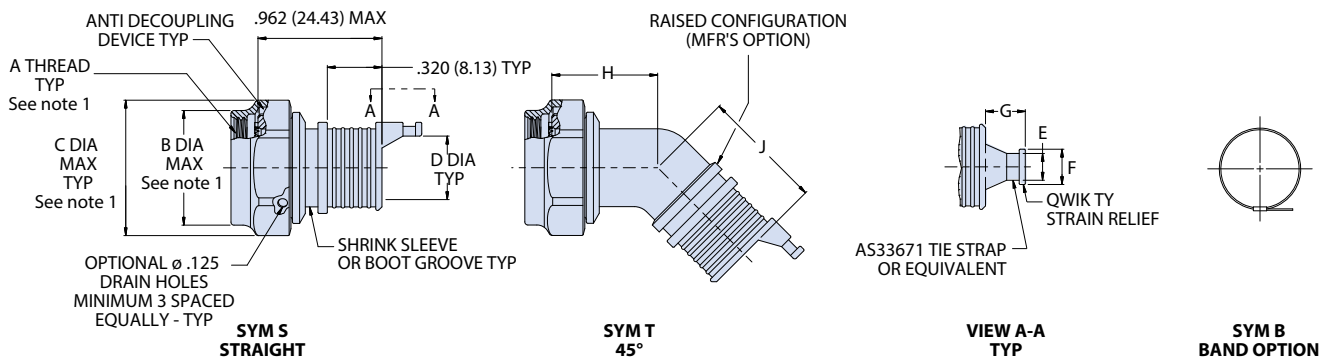
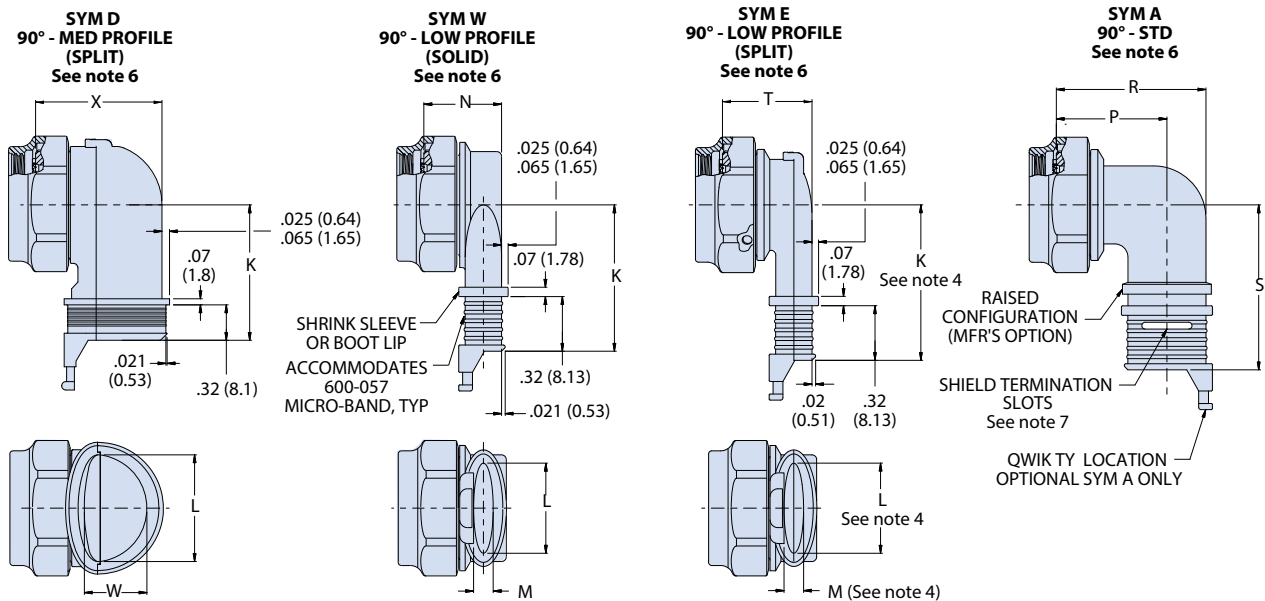


**MIL-DTL-38999 Series III Type**

**440-143 Composite Micro Banding Backshell with Qwik-Ty**

BACKSHELLS AND ACCESSORIES

**COMPOSITE BACKSHELL WITH SELF-LOCKING COUPLING NUT, QWIK-TY, SHRINK BOOT GROOVE AND MICRO-BAND BANDING PORCH**



**NOTES**

1. See composite accessory interface data on page H-6
2. For effective grounding, conductive finish should be used
3. Glenair 600 series backshell assembly tools are recommended for assembly and installation
4. For SYM 'E', low profile split (SS 24/25) dimensions use indicated row in dimensions table.
5. For interface O-ring seal append mod code 101A
6. Entry code is not used for angular functions "D", "W" and "E". Entry dimensions for these configurations are per shell size in dimensions table
7. Minimum of two shield termination slots will be supplied on backshell with exception of symbol 'E', which is supplied with one slot
8. Material/finish
  - Adapter: high grade engineering thermoplastic/ see part number development, finish
  - coupling nut and anti-decoupling device: high grade engineering thermoplastic/ supplied unplated





**MIL-DTL-38999 Series III Type**

**440-144 Composite Micro Banding Backshell**

BACKSHELLS AND ACCESSORIES

Part Number Development																	
Sample Part Number	440						H	S	144	XM	15	09	D	B	T	S	
Product Series	440 = EMI/RFI non-environmental, composite self-locking, micro-band backshell																
Connector Designator	H = MIL-DTL-38999 Series III																
Angle and Profile	S = Straight T = 45° Elbow W = 90° Low Profile, Solid Profile A = 90° Standard E = 90° Low Profile, Split D = 90° Med Profile, Split																
Basic Number	144																
Finish	XM = Electroless Nickel XW = Cadmium O/D over Electroless Nickel XMT = Nickel-PTFE 1000 Hour Gray XMD = Electroless Nickel - Enhanced All finishes are 2000 hour corrosion resistant																
Connector Shell Size	See dimensions table																
Cable Entry Code	See cable entry table; omit for low profile 90° symbols D, E and W only.																
Drain Hole Option	D = With Drain Hole; omit if not required																
Band Option	B = Supplied with Band, omit for none.																
Shrink Boot Option	T = Shrink Boot, omit for none.																
Shield Termination Slot	S = with Slot, omit for none.																

Dimensions												
Shell Size	Entry Code*	G Max	H ± .03 (0.76)	J	K	L ±.09 (2.29)	M ±.09 (2.29)	N Max	P Max	W Dim	X Max	Sym W, E Shrink Boot Option
09	04	.63 (16.0)	1.042 (26.5)	.304 (7.7)	.160 (4.1)	.69 (17.5)	.88 (22.4)	1.36 (34.5)	.81 (20.6)	.232 (5.89)	.91 (23.11)	770-003S102
11	05	.66 (16.8)	1.107 (28.1)	.432 (11.0)	.174 (4.4)	.75 (19.1)	1.00 (24.5)	1.42 (36.1)	.81 (20.6)	.303 (7.70)	.97 (24.64)	770-003S103
13	07	.72 (18.3)	1.174 (29.8)	.546 (13.9)	.195 (5.0)	.81 (20.6)	1.13 (28.7)	1.48 (37.6)	.82 (20.8)	.370 (9.40)	1.02 (25.91)	770-003S103
15	09	.83 (21.1)	1.241 (31.5)	.670 (17.0)	.315 (8.0)	.88 (22.4)	1.31 (33.3)	1.55 (39.4)	.88 (22.4)	.492 (12.50)	1.08 (27.43)	770-003S103
17	05 & 11	.91 (23.1)	1.305 (33.1)	.796 (20.2)	.385 (9.8)	.94 (23.9)	1.38 (35.1)	1.61 (40.9)	.93 (23.6)	.590 (14.99)	1.16 (29.46)	770-003S104
19	07 & 13	.93 (23.6)	1.371 (34.8)	.902 (22.9)	.445 (11.3)	.97 (24.6)	1.44 (36.6)	1.64 (41.7)	.99 (25.1)	.673 (17.09)	1.25 (31.75)	770-003S105
21	09 & 15	1.04 (26.4)	1.438 (36.5)	1.027 (26.1)	.525 (13.3)	1.06 (26.9)	1.63 (41.4)	1.73 (43.9)	1.06 (26.9)	.776 (19.71)	1.34 (34.04)	770-003S105
23	11 & 16	1.12 (28.4)	1.505 (38.2)	1.152 (29.3)	.595 (15.1)	1.13 (28.7)	1.75 (44.5)	1.80 (45.7)	1.13 (28.7)	.873 (22.17)	1.43 (36.32)	770-003S106
25	07, 13 & 17	1.18 (30.0)	1.572 (39.9)	1.276 (32.4)	.655 (16.6)	1.19 (30.2)	1.88 (47.8)	1.86 (47.2)	1.05 (26.7)	.909 (23.09)	1.54 (39.12)	770-003S106
25	--	--	1.850 (47.0)	1.460 (37.1)	.450 (11.4)	--	--	--	1.05 (26.7)	.909 (23.09)	1.54 (39.12)	770-003S106

\*Available for Straight, 45° and 90° Standard Configuration

Cable Entry				
Entry Code	D ± .030 (0.76)	H ± .060 (1.52)	J ± .090 (2.29)	Sym S, T, A Shrink Boot (Option T)
04	.25 (6.4)	.72 (18.3)	.87 (22.1)	770-003S102
05	.31 (7.9)	.75 (19.1)	.93 (23.6)	770-003S102
07	.44 (11.2)	.75 (19.1)	1.00 (25.4)	770-003S103
09	.56 (14.2)	.76 (19.3)	1.03 (26.2)	770-003S103
11	.68 (17.3)	.78 (19.8)	1.05 (26.7)	770-003S104
13	.81 (20.6)	.79 (20.1)	1.06 (26.9)	770-003S105
15	.94 (23.9)	.82 (20.8)	1.09 (27.7)	770-003S106
16	1.00 (25.4)	.86 (21.8)	1.13 (28.7)	770-003S106
17	1.16 (29.5)	.89 (22.6)	1.16 (29.5)	770-003S107

**NOTES**

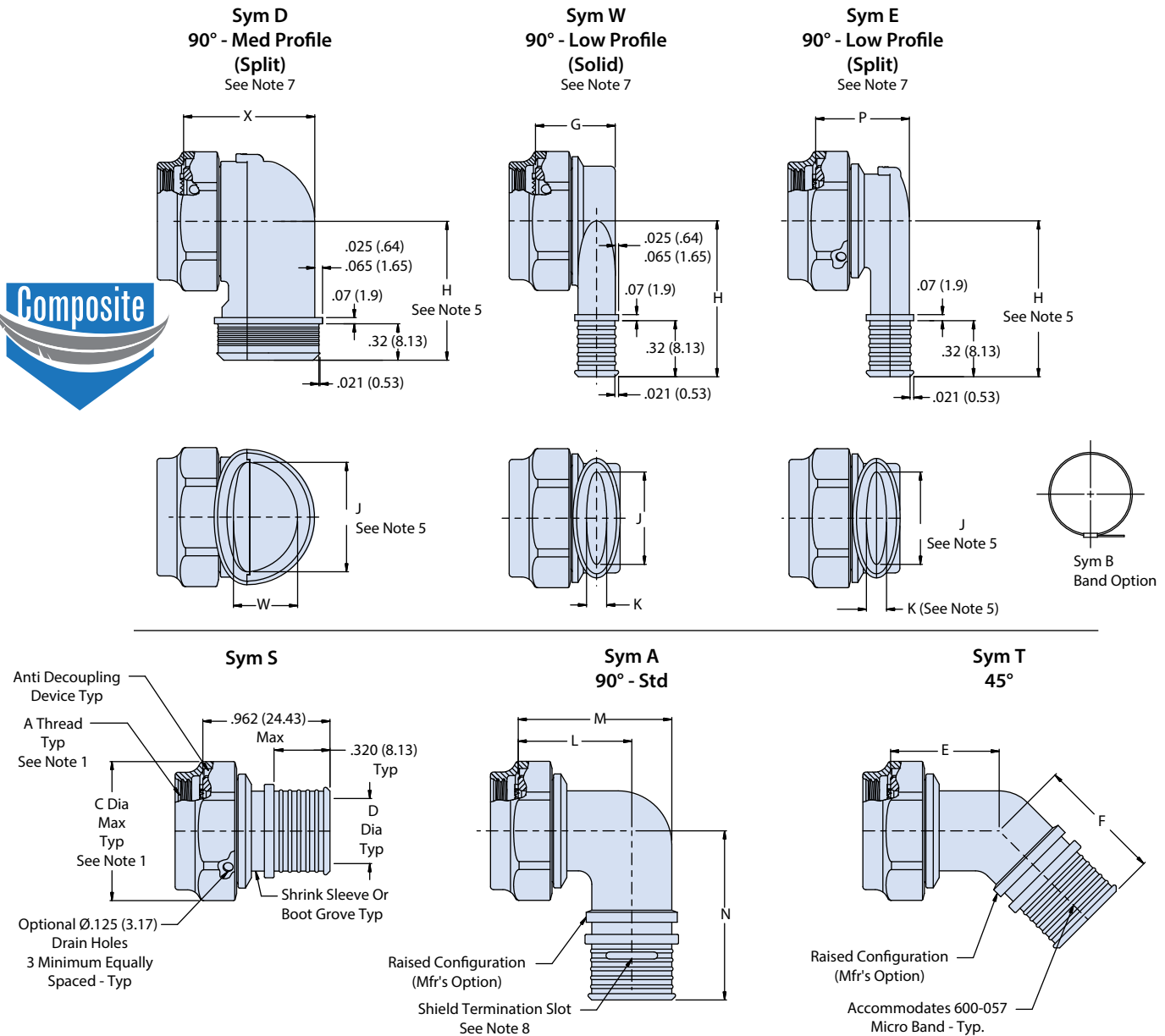
1. See composite accessory interface data on page H-6
2. Assembly identified with manufacturer's name and P/N space permitting
3. for effective grounding, connector with conductive finish should be used
4. Glenair 600 series backshell assembly tools are recommended for assembly and installation
5. For Sym 'E' and 'D' low profile split (SS24/25) dimensions used indicated row in dimensions table
6. For interface O-ring seal, contact engineering

**MIL-DTL-38999 Series III Type**

**440-144 Composite Micro Banding Backshell**

BACKSHELLS AND ACCESSORIES

**COMPOSITE BACKSHELL WITH SELF-LOCKING COUPLING NUT, SHRINK BOOT GROOVE AND MICRO-BAND BANDING PORCH**



**NOTES (CONT.)**

- 7. Entry code is not used for angular functions 'W', 'E', and 'D'.  
Entry dimensions for these configurations are per shell size in dimensions table
- 8. A minimum of two shield terminations slots will be supplied on backshell with exception to symbol, 'E', which are supplied with one slot
- 9. Material/finish
  - Adapter: high grade engineering thermoplastic/see P/N development, finish
  - coupling nut and anti-decoupling device: high grade engineering thermoplastic/supplied unplated, black

**MIL-DTL-38999 Series III Type**

**470-017 Composite EMI/RFI zero length shield termination adapter**

BACKSHELLS AND ACCESSORIES

Part Number Development														
Sample Part Number	470					H	S	017	XM	17	6	G	DS	-T
Product Series	StarShield™ zero-termination-length backshell													
Connector Designator	H = MIL-DTL-38999 Series III													
Angle	S = Straight T = 45° W = 90°													
Basic Number	017 = StarShield composite backshell													
Finish	XMT = 2000 hr, nickel-PTFE, 1000 hour gray XW = 2000 hr, cadmium O/D over electroless nickel XB = No plating, black XM = CRES, electroless nickel XD = No plating, desert tan  <b>Enhanced performance finishes</b> XSM = Electroless nickel XSW = Enhanced cadmium, olive drab													
Order Number	See Dimensions Table													
Ferrule Quantity Code	See Dimensions Table													
Rear End Option	G = Gland Nut M = Micro Band Nut with Band N = Micro Band Nut without Band													
Drilled Star	DS = Drilled Star, omit if not required.													
Shrink Boot	T = Shrink Boot, omit for none; See Shrink Boot Table													



Shrink Boot	
Shell Size	Shrink Boot Ref. Part No.
09	770-001S1 04
11	770-001S1 06
13	770-001S1 06
15	770-001S1 07
17	770-001S1 07
19	770-001S1 08
21	770-001S1 08
23	770-001S1 08
25	770-001S1 09

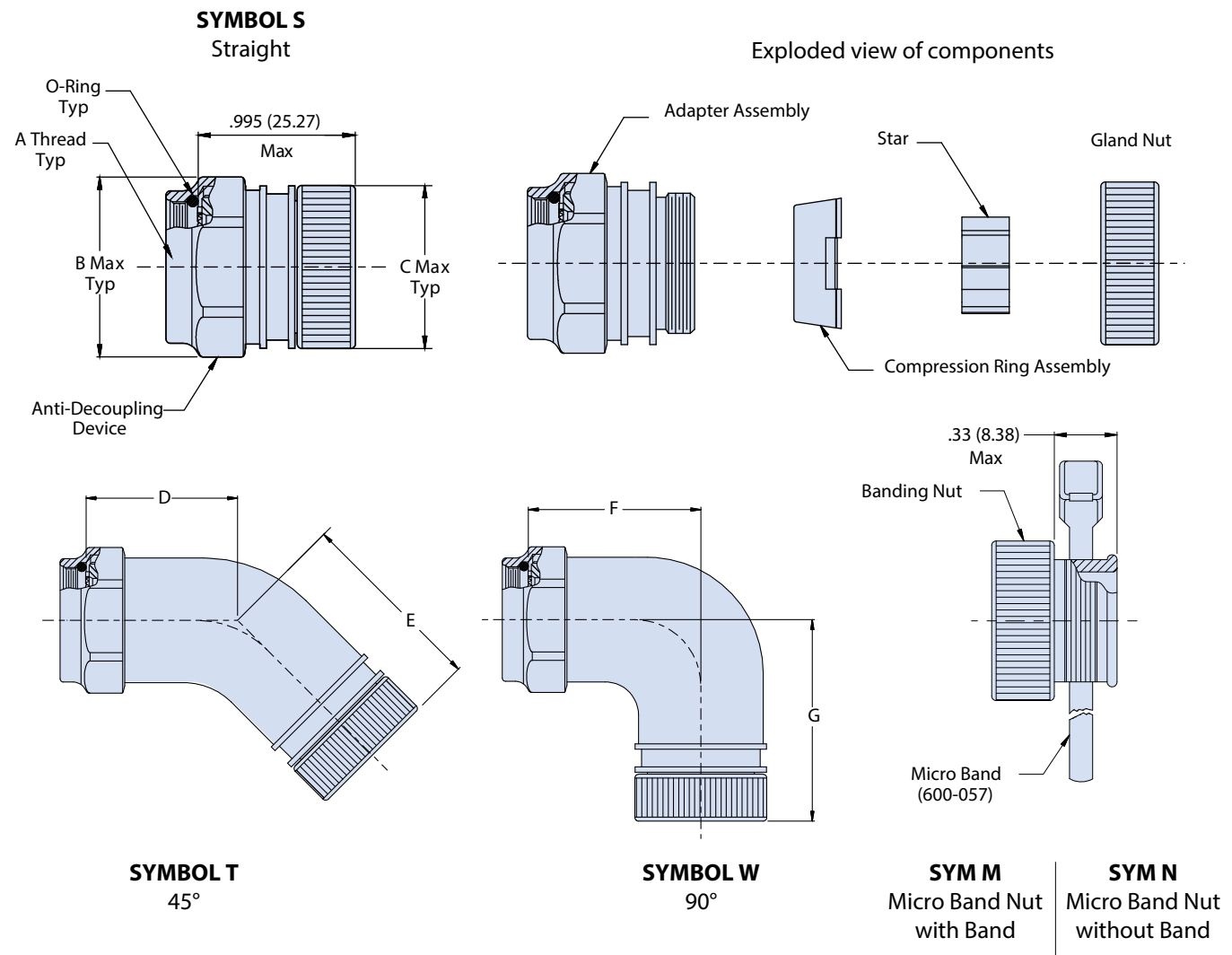
Dimensions											
Order Number	Shell Size Code	Shell Size Reference	A Thread ISO Metric	B Dia Max	C Dia Max	D Max	E Max	F Max	G Max	Ferrule Quantity <sup>4</sup>	
										Std.	Opt.
09	A	9	M12 X 1 - 6H	.83 (21.1)	.681 (17.30)	.49 (12.45)	1.00 (25.4)	.71 (18.03)	1.14 (28.96)	1	-
11	B	11	M15 X 1 - 6H	.96 (24.4)	.885 (22.48)	.51 (12.95)	1.02 (25.91)	.77 (19.56)	1.20 (30.48)	2	-
13	C	13	M18 X 1 - 6H	1.09 (27.7)	.917 (23.29)	.55 (13.97)	1.04 (26.42)	.83 (21.08)	1.26 (32.00)	3	-
15	D	15	M22 X 1 - 6H	1.22 (31.0)	1.055 (26.80)	.57 (14.48)	1.08 (27.43)	.89 (22.61)	1.32 (33.53)	5	-
17	E	17	M25 X 1 - 6H	1.35 (34.3)	1.173 (29.79)	.59 (14.99)	1.10 (27.94)	.95 (24.13)	1.38 (35.05)	6	7
19	F	19	M28 X 1 - 6H	1.48 (37.6)	1.291 (32.79)	.61 (15.49)	1.12 (28.45)	1.01 (25.65)	1.44 (36.58)	7	-
21	G	21	M31 X 1 - 6H	1.62 (41.1)	1.409 (37.79)	.65 (16.51)	1.14 (28.96)	1.08 (27.43)	1.52 (36.61)	9	11
23	H	23	M34 X 1 - 6H	1.76 (44.70)	1.527 (38.79)	.67 (17.02)	1.18 (29.97)	1.14 (28.96)	1.57 (39.88)	10	13
25	J	25	M37 X 1 - 6H	1.86 (47.24)	1.665 (42.29)	.71 (18.03)	1.22 (30.99)	1.20 (30.48)	1.63 (41.40)	12	17

**MIL-DTL-38999 Series III Type**

**470-017 Composite EMI/RFI zero length shield termination adapter**

BACKSHELLS AND ACCESSORIES

**COMPOSITE STARSHIELD® BACKSHELL WITH SELF-LOCKING COUPLING NUT AND SHRINK BOOT GROOVE**



**NOTES**

- Glenair 600 series backshell assembly tools are recommended for assembly and installation.
- Ferrule kit sold separately.  
687-764 ferrule and HST device kit  
687-809 ferrule and sealing device kit  
687-748 solder ferrule  
687-841-01 HST flex device
- Star not supplied with order number 09. Drilled star is available on order numbers 15-25 only. If optional ferrule qty per Table 1 is selected, one split and one solid star will be supplied
- Material/finish
  - Adapter, compression ring and star: high grade engineering thermoplastic/ see part number development, finish
  - Nuts: high grade engineering thermoplastic/color black
  - O-ring: silicone/N.A.
  - Compression ring retainer: stainless steel/passivate



# SuperNine® Backshells and accessories

## MIL-DTL-38999 Series III Type



### 320H\*030 Environmental Extended Adapter for Size #8 Contacts

BACKSHELLS AND ACCESSORIES



**Self-locking, Straight, 45°, or 90°.** Threaded coupling adapter with long radius angular function. Anti-decoupling ratchet prevents loosening under vibration. Accommodates Series 23 SuperNine connectors with size #8 contacts. Straight, 45° or 90° cable exit. Aluminum or stainless steel.

#### Features

- Expanded clearance for El Ochoito Contacts
- EMI/RFI
- Self-locking spin coupling

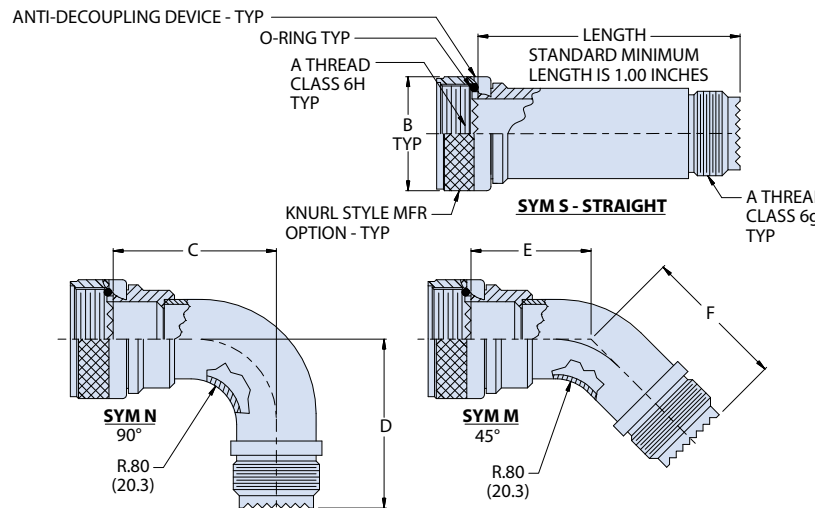
#### Specifications

- Operating temperature: codes ME, MT and Z1: -65°C to +200°C codes ZR, NF, TZ: -65°C to +175°C
- Shell conductivity: aluminum versions: 2.5 milliohms max. Stainless steel: 5 milliohms max.
- Salt spray (corrosion) Code ME: 96 hours Code NF, ZR, MT, Z1, TZ: 1000 hours
- Vibration: SAE AS85049 Category 3B
- Shock: SAE AS85049 Category 3B

#### Construction

- Coupling nut, adapter: aluminum alloy or 300 series stainless steel. See material/finish options in How to Order table.
- O-ring: silicone
- Anti-decoupling device: corrosion-resistant material

How To Order				
Sample Part Number	<b>320HS030</b>	<b>ME</b>	<b>16</b>	<b>-4</b>
Product	<b>320HS030</b> = Straight Backshell <b>320HM030</b> = 45° Backshell <b>320HN030</b> = 90° Backshell			
Material/ Finish	<b>ME</b> = Aluminum, Electroless Nickel, <b>MT</b> = Aluminum, Ni/PTFE <b>NF</b> = Aluminum, Olive Drab Cadmium <b>TZ</b> = Aluminum, Tin-Zinc <b>ZR</b> = Aluminum, Black Zinc-Nickel <b>Z1</b> = Stainless Steel, Passivated			
Shell Size	<b>08 09 10 11 12 14 16 18 20 22 24</b>			
Backshell Length	length given in .25 inch increments (eg. 1.0=2 inches). Applies to straight backshell only			



Dimensions							
Shell Size	A Thread Iso Metric	B Max	C Max	D Max	E Max	F Max	G Max
08	M10 X 1	0.692 (17.58)	1.853 (47.07)	1.457 (37.01)	1.393 (35.38)	0.997 (25.32)	0.723 (18.36)
09	M12 X 1	0.786 (19.96)	1.853 (47.07)	1.457 (37.01)	1.393 (35.38)	0.997 (25.32)	0.723 (18.36)
10	M14 X 1	0.883 (22.43)	1.915 (48.64)	1.519 (38.58)	1.420 (36.07)	1.024 (26.01)	0.742 (18.85)
11	M15 X 1	0.911 (23.14)	1.915 (48.64)	1.519 (38.58)	1.420 (36.07)	1.024 (26.01)	0.742 (18.85)
12	M17 X 1	1.002 (25.45)	2.067 (52.50)	1.671 (42.44)	1.445 (36.70)	1.049 (26.64)	0.760 (19.30)
14	M19 X 1	1.066 (27.08)	2.067 (52.50)	1.671 (42.44)	1.445 (36.70)	1.049 (26.64)	0.760 (19.30)
16	M22 X 1	1.196 (30.38)	2.130 (54.10)	1.734 (44.04)	1.501 (38.13)	1.105 (28.07)	0.799 (20.29)
18	M25 X 1	1.311 (33.30)	2.235 (56.77)	1.839 (46.71)	1.540 (39.12)	1.144 (29.06)	0.827 (21.01)
20	M28 X 1	1.430 (36.32)	2.298 (58.37)	1.902 (48.31)	1.566 (39.78)	1.170 (29.72)	0.845 (21.46)
22	M31 X 1	1.548 (39.32)	2.359 (59.92)	1.963 (49.86)	1.548 (39.32)	1.152 (29.26)	0.833 (21.16)
24	M34 X 1	1.696 (43.08)	2.380 (60.45)	1.984 (50.39)	1.570 (39.88)	1.174 (29.82)	0.848 (21.54)

**MIL-DTL-38999 Series III Type**

**440H\*233 Metal EMI/RFI, Shield Termination Backshell**



BACKSHELLS AND ACCESSORIES

**Features**

- Expanded clearance for El Ochito Contacts
- Self-locking spin coupling

**Specifications**

- Operating temperature: codes ME, MT and Z1: -65°C to +200°C codes ZR, NF, TZ: -65°C to +175°C
- Shell conductivity: aluminum versions: 2.5 milliohms max. Stainless steel: 5 milliohms max.
- Salt spray (corrosion) Code ME: 96 hours Code NF, ZR, MT, Z1, TZ: 1000 hours
- Vibration: SAE AS85049 Category 3B
- Shock: SAE AS85049 Category 3B

**Construction**

- Adapter, elbow, coupling nut, ferrule, clamp: see material/finish options in How to Order table.
- Anti-decoupling device: corrosion-resistant material or high grade engineering thermoplastic
- O-rings: silicone/N.A.
- Band/hardware: CRES/passivate

**Application Notes**

- Standard minimum length is 1.50 inches, applies to Symbol S, Straight only
- For effective grounding, connector with conductive finish should be used.

*EMI/RFI, extended radius angular function strain relief cable clamp backshell with integral banding platform.* Threaded coupling backshell with anti-decoupling ratchet prevents loosening under vibration. Accommodates Series 23 SuperNine connectors with size #8 contacts and cable sealing boots. Aluminum or stainless steel.

How To Order									
Sample Part Number	440HS233	ME	10	08	M	-8	K	P	T
<b>Product</b>	440HS233 = Straight Backshell 440HN233 = 90° Angle Backshell 440HM233 = 45° Angle Backshell								
<b>Material/ Finish</b>	ME = Aluminum, Electroless Nickel MT = Aluminum, Ni/PTFE NF = Aluminum, Olive Drab Cadmium TZ = Tin-Zinc ZR = Aluminum, Black Zinc-Nickel Z1 = Stainless Steel, Passivated								
<b>Shell Size</b>	08 09 10 11 12 14 16 18 20 22 24								
<b>Dash No</b>	See Dash Number Table								
<b>Band Platform Option</b>	M = Micro Band Platform (omit for standard platform)								
<b>Length</b>	Designate in .25 inch increments (eg. -8 = 2.0 inches) <i>Applies to straight backshell only</i>								
<b>Band Option</b>	K = Precoiled Band (omit if not required)								
<b>Plating Shield</b>	P = Polysulfide (omit if not required); when polysulfide barrier is selected for plating, shield termination surface shall be electroless nickel plated only. Applies to "NF", "TZ", and "ZR"								
<b>Shrink Boot</b>	T = Standard Shrink Boot (* = 1) T1 = Standard with Pre-Coated W1 Hot Melt Adhesive (* = 1) H = Zero Halogen Shrink Boot (* = 2) H1 = Zero Halogen with pre-coated W1 Hot Melt Adhesive (* = 2) See Dash Number Table for complete shrink boot part number to order separately (Omit for none)								

Dash Number					
Dash No	K Dia	L Dia	M Dia	Shrink Boot T Or H Ref	Shrink Boot With Adhesive
02	0.125 (3.18)	0.250 (6.35)	0.312 (7.92)	770-003S*11	770-003S*11W1
03	0.188 (4.78)	0.312 (7.92)	0.374 (9.50)	770-003S*11	770-003S*11W1
04	0.250 (6.35)	0.375 (9.52)	0.437 (11.10)	770-003S*12	770-003S*12W1
05	0.312 (7.92)	0.438 (11.13)	0.500 (12.70)	770-003S*12	770-003S*12W1
06	0.375 (9.52)	0.500 (12.70)	0.562 (14.27)	770-001S*03	770-001S*03W1
07	0.438 (11.13)	0.562 (14.27)	0.624 (15.85)	770-001S*04	770-001S*04W1
08	0.500 (12.70)	0.625 (15.88)	0.687 (17.45)	770-001S*04	770-001S*04W1
09	0.562 (14.27)	0.688 (17.48)	0.750 (19.05)	770-001S*04	770-001S*04W1
10	0.625 (15.88)	0.750 (19.05)	0.812 (20.62)	770-001S*04	770-001S*04W1
11	0.688 (17.48)	0.812 (20.62)	0.874 (22.20)	770-001S*04	770-001S*04W1
12	0.750 (19.05)	0.875 (22.23)	0.937 (23.80)	770-001S*05	770-001S*05W1
13	0.812 (20.62)	0.938 (23.83)	1.000 (25.40)	770-001S*05	770-001S*05W1
14	0.875 (22.23)	1.000 (25.40)	1.062 (26.97)	770-001S*05	770-001S*05W1
15	0.938 (23.83)	1.062 (26.97)	1.124 (28.55)	770-001S*05	770-001S*05W1
16	1.000 (25.40)	1.125 (28.58)	1.187 (30.15)	770-001S*06	770-001S*06W1
17	1.062 (26.97)	1.188 (30.18)	1.250 (31.75)	770-001S*06	770-001S*06W1
18	1.125 (28.58)	1.250 (31.75)	1.312 (33.32)	770-001S*07	770-001S*07W1

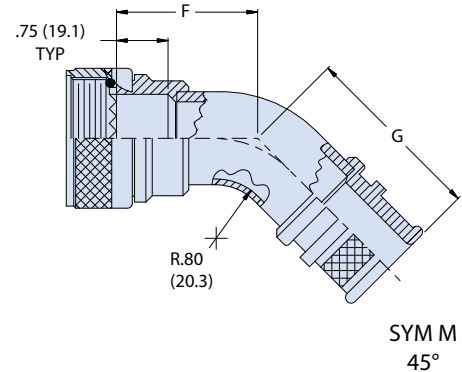
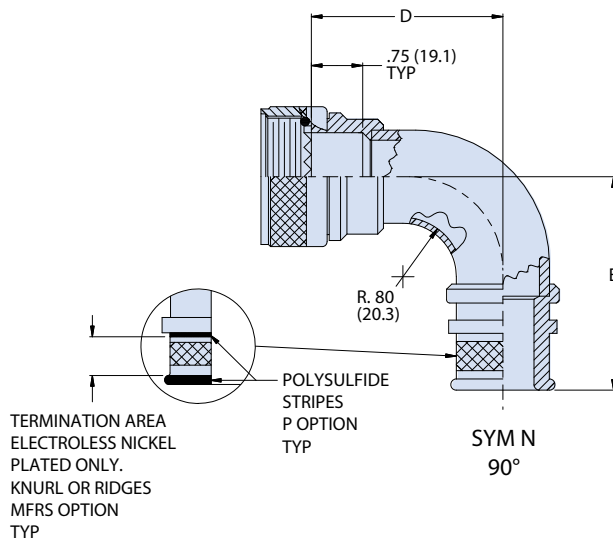
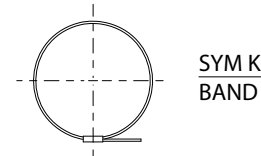
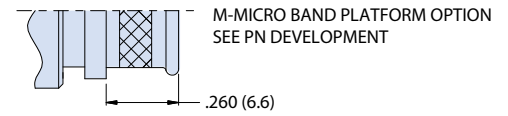
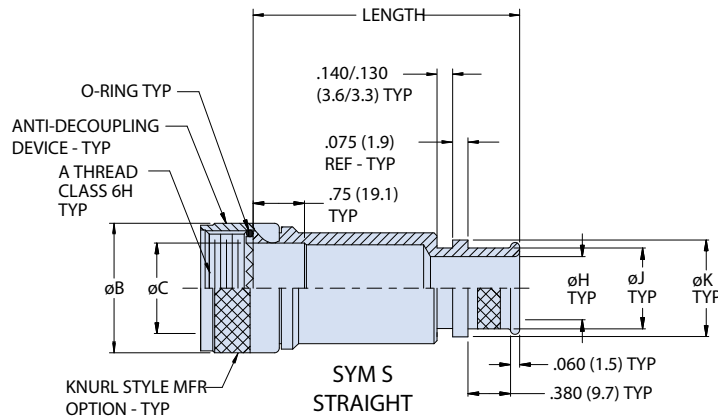
# SuperNine® Backshells and accessories

## MIL-DTL-38999 Series III Type



### 440H\*233 Metal EMI/RFI, Shield Termination Backshell

BACKSHELLS AND ACCESSORIES



Dimensions								
Shell Size	A Thread ISO Metric	ØC Max	K Max	L Max	M Max	N Max	Max Cable Entry	Max Entry
08	M10 X 1-6H	.692 (17.58)	.790 (20.07)	1.190 (30.23)	.940 (23.88)	1.350 (34.29)	.250 (6.35)	04
09	M12 X 1-6H	.786 (19.96)	.790 (20.07)	1.190 (30.23)	.940 (23.88)	1.350 (34.29)	.250 (6.35)	04
10	M14 X 1-6H	.883 (22.43)	.790 (20.07)	1.260 (32.00)	.970 (24.64)	1.450 (36.83)	.375 (9.52)	06
11	M15 X 1-6H	.911 (23.14)	.790 (20.07)	1.260 (32.00)	.970 (24.64)	1.450 (36.83)	.375 (9.52)	06
12	M17 X 1-6H	1.002 (25.45)	.830 (21.08)	1.340 (34.04)	1.040 (26.42)	1.550 (39.37)	.500 (12.70)	08
14	M19 X 1-6H	1.066 (27.08)	.830 (21.08)	1.340 (34.04)	1.040 (26.42)	1.550 (39.37)	.500 (12.70)	08
16	M22 X 1-6H	1.196 (30.38)	.840 (21.34)	1.410 (35.81)	1.080 (27.43)	1.650 (41.91)	.625 (15.88)	10
18	M25 X 1-6H	1.311 (33.30)	.890 (22.61)	1.490 (37.85)	1.40 (35.56)	1.740 (44.20)	.750 (19.05)	12
20	M28 X 1-6H	1.430 (36.32)	.920 (23.37)	1.560 (39.62)	1.210 (30.73)	1.840 (46.74)	.875 (22.23)	14
22	M31 X 1-6H	1.548 (39.32)	.950 (24.13)	1.620 (41.15)	1.280 (32.51)	1.940 (49.28)	1.000 (25.40)	16
24	M34 X 1-6H	1.696 (43.08)	.970 (24.64)	1.680 (42.67)	1.330 (33.78)	2.040 (51.82)	1.125 (28.58)	18

**MIL-DTL-38999 Series III Type**

**620HS090 Strain Relief Cable Clamp Backshell, Size #8 Contacts**

BACKSHELLS AND ACCESSORIES



*Extended shell strain relief cable clamp backshell. Self-locking.* Threaded coupling adapter with anti-decoupling ratchet prevents loosening under vibration. Accommodates Series 806 connectors with size #8 contacts and cable sealing boots. Aluminum or stainless steel.

How To Order			
Sample Part Number	<b>620HS090</b>	<b>ME</b>	<b>16</b>
Product	<b>620HS090</b> = Series 23, SuperNine Straight Backshell		
Material/ Finish	<b>ME</b> = Aluminum, Electroless Nickel <b>MT</b> = Aluminum, Ni/PTFE <b>NF</b> = Aluminum, Olive Drab Cadmium <b>ZR</b> = Aluminum, Black Zinc-Nickel <b>Z1</b> = Stainless Steel, Passivated		
Shell Size	<b>08 09 10 11 12 14 16 18 20 22 24</b>		

**Features**

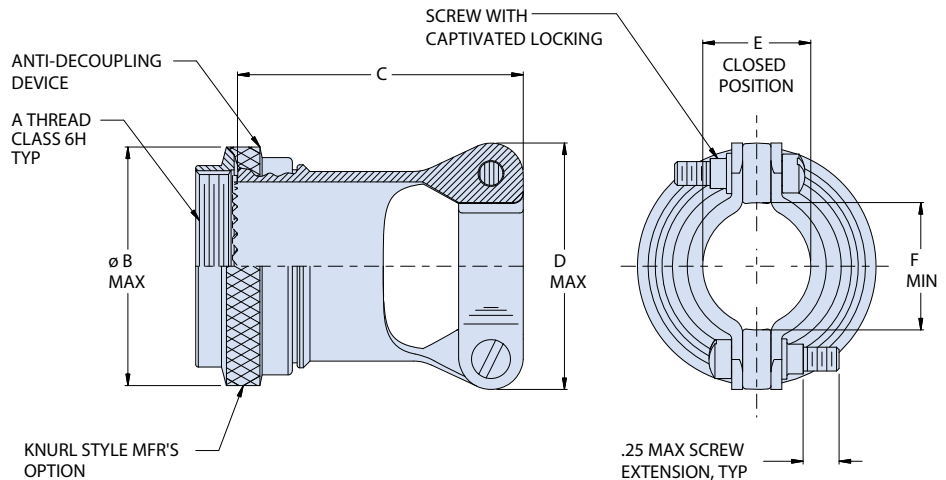
- Expanded clearance for El Ochoito Contacts
- Self-locking spin coupling

**Specifications**

- Operating temperature: codes ME, MT and Z1: -65°C to +200°C codes ZR, NF, TZ: -65°C to +175°C
- Shell conductivity: aluminum versions: 2.5 milliohms max. Stainless steel: 5 milliohms max.
- Salt spray (corrosion) Code ME: 96 hours Code NF, ZR, MT, Z1, TZ: 1000 hours
- Vibration: SAE AS85049 Category 3B
- Shock: SAE AS85049 Category 3B

**Construction**

- Coupling nut, saddles, clamp body: aluminum alloy or 300 series stainless steel. See material/finish options in How to Order table.
- Hardware: CRES/passivate or Cad/O.D. over nickel
- Anti-decoupling device: corrosion-resistant material



Dimensions						
Shell Size	A Thread ISO Metric	B Dia Max	C	D Max	E ±0.031 (0.79)	F Min
08	M10 x 1	0.642 (16.31)	1.23 (31.24)	0.93 (23.62)	0.205 (5.21)	0.18 (4.57)
09	M12 x 1	0.735 (18.67)	1.28 (32.51)	0.98 (24.89)	0.219 (5.56)	0.22 (5.59)
10	M14 x 1	0.786 (19.96)	1.28 (32.51)	1.02 (25.91)	0.244 (6.20)	0.25 (6.35)
11	M15 x 1	0.830 (21.08)	1.35 (34.29)	1.05 (26.67)	0.264 (6.71)	0.27 (6.86)
12	M17 x 1	0.911 (23.14)	1.35 (34.29)	1.12 (28.45)	0.312 (7.92)	0.32 (8.13)
14	M19 x 1	1.002 (25.45)	1.41 (35.81)	1.20 (30.48)	0.344 (8.74)	0.35 (8.89)
16	M22 x 1	1.149 (29.18)	1.47 (37.34)	1.30 (33.02)	0.460 (11.68)	0.47 (11.94)
18	M25 x 1	1.264 (32.11)	1.53 (38.86)	1.44 (36.58)	0.545 (13.84)	0.55 (13.97)
20	M28 x 1	1.394 (35.41)	1.66 (42.16)	1.56 (39.62)	0.615 (15.62)	0.62 (15.75)
22	M31 x 1	1.513 (38.43)	1.72 (43.69)	1.69 (42.93)	0.698 (17.73)	0.70 (17.78)
24	M34 x 1	1.631 (41.43)	1.78 (45.21)	1.77 (44.96)	0.780 (19.81)	0.78 (19.81)

# SuperNine® Backshells and accessories

## MIL-DTL-38999 Series III Type



### 440HS232 EMI/RFI Strain Relief Cable Clamp, Size #8 Contacts



**Strain relief cable clamp adapter. Self-locking.** Threaded coupling adapter with anti-decoupling ratchet prevents loosening under vibration. Accommodates Series 23 SuperNine connectors with size #8 contacts and cable sealing boots. Aluminum or stainless steel.

#### Features

- Expanded clearance for El Ocho contacts
- EMI/RFI
- Band strap shield termination
- Shield termination slot option
- Self-locking spin coupling

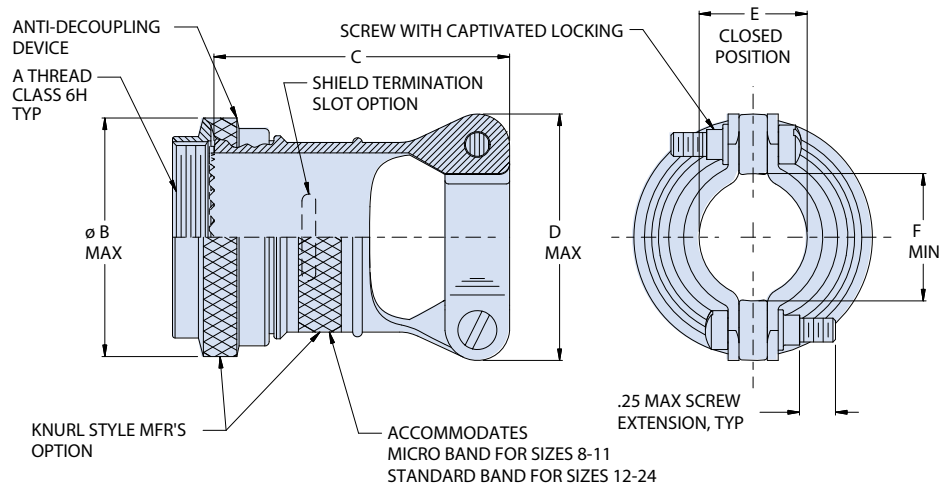
#### Specifications

- Operating temperature: codes ME, MT and Z1: -65°C to +200°C codes ZR, NF, TZ: -65°C to +175°C
- Shell conductivity: aluminum versions: 2.5 milliohms max. Stainless steel: 5 milliohms max.
- Salt spray (corrosion) Code ME: 96 hours Code NF, ZR, MT, Z1, TZ: 1000 hours
- Vibration: SAE AS85049 Category 3B
- Shock: SAE AS85049 Category 3B

#### Construction

- Coupling nut, saddles, clamp body: aluminum alloy or 300 series stainless steel. See material/finish options in How to Order table.
- Hardware: CRES/passivate or Cad/O.D. over nickel
- Anti-decoupling device: corrosion-resistant material

How To Order					
Sample Part Number	<b>440HS232</b>	<b>NF</b>	<b>16</b>	<b>S</b>	<b>K</b>
Product	<b>440HS232</b> = Series 23, SuperNine Straight Backshell				
Material/ Finish	<b>ME</b> = Aluminum, Electroless Nickel <b>MT</b> = Aluminum, Ni/PTFE <b>NF</b> = Aluminum, Olive Drab Cadmium <b>ZR</b> = Aluminum, Black Zinc-Nickel <b>Z1</b> = Stainless Steel, Passivated				
Shell Size	<b>08 09 10 11 12 14 16 18 20 22 24</b>				
Shield Termination Slot	<b>S</b> = Shield Termination Slot				
Precoiled Band	<b>K</b> = Precoiled Band (Omit for None)				



Dimensions						
Shell Size	A Thread ISO Metric	B Dia Max	C	D Max	E +0.031 (0.79)	F Min
08	M10 x 1	0.642 (16.31)	1.23 (31.24)	0.93 (23.62)	0.205 (5.21)	0.18 (4.57)
09	M12 x 1	0.735 (18.67)	1.28 (32.51)	0.98 (24.89)	0.219 (5.56)	0.22 (5.59)
10	M14 x 1	0.786 (19.96)	1.28 (32.51)	1.02 (25.91)	0.244 (6.20)	0.25 (6.35)
11	M15 x 1	0.830 (21.08)	1.35 (34.29)	1.05 (26.67)	0.264 (6.71)	0.27 (6.86)
12	M17 x 1	0.911 (23.14)	1.35 (34.29)	1.12 (28.45)	0.312 (7.92)	0.32 (8.13)
14	M19 x 1	1.002 (25.45)	1.41 (35.81)	1.20 (30.48)	0.344 (8.74)	0.35 (8.89)
16	M22 x 1	1.149 (29.18)	1.47 (37.34)	1.30 (33.02)	0.460 (11.68)	0.47 (11.94)
18	M25 x 1	1.264 (32.11)	1.53 (38.86)	1.44 (36.58)	0.545 (13.84)	0.55 (13.97)
20	M28 x 1	1.394 (35.41)	1.66 (42.16)	1.56 (39.62)	0.615 (15.62)	0.62 (15.75)
22	M31 x 1	1.513 (38.43)	1.72 (43.69)	1.69 (42.93)	0.698 (17.73)	0.70 (17.78)
24	M34 x 1	1.631 (41.43)	1.78 (45.21)	1.77 (44.96)	0.780 (19.81)	0.78 (19.81)

BACKSHELLS AND ACCESSORIES



**MIL-DTL-38999 Series III Type**

**443H\*042 EMI/RFI Environmental, Cable Clamp for Size #8 Contacts**

BACKSHELLS AND ACCESSORIES



**Features**

- Expanded clearance for El Ochito Contacts
- Self-locking spin coupling

**Specifications**

- Operating temperature: codes ME, and Z1: -65°C to +200°C  
codes ZR, MT, NF, TZ: -65°C to +175°C
- Shell conductivity: aluminum versions: 2.5 milliohms max. Stainless steel: 5 milliohms max.
- Salt spray (corrosion)  
Code ME: 96 hours  
Code ZR : 500 hours  
Code NF, MT, Z1, TZ: 1000 hours
- Vibration: SAE AS85049 Category 3B
- Shock: SAE AS85049 Category 3B

**Construction**

- Adapter, elbow, coupling nut, ferrule, clamp: see material/finish options in How to Order table.
- Anti-decoupling device: corrosion-resistant material or high grade engineering thermoplastic
- O-rings: silicone/N.A.
- Band/hardware: CRES/passivate

**Application Notes**

- Standard minimum length is 1.50 inches, applies to Symbol S, Straight only
- For effective grounding, connector with conductive finish should be used.

EMI/RFI environmental, extended front end long radius angular function strain relief with cable clamp backshell with band in a can banding. Threaded coupling backshell with anti-decoupling ratchet prevents loosening under vibration. Accommodates Series 23 SuperNine® connectors with size #8 contacts and cable sealing boots. Aluminum or stainless steel.

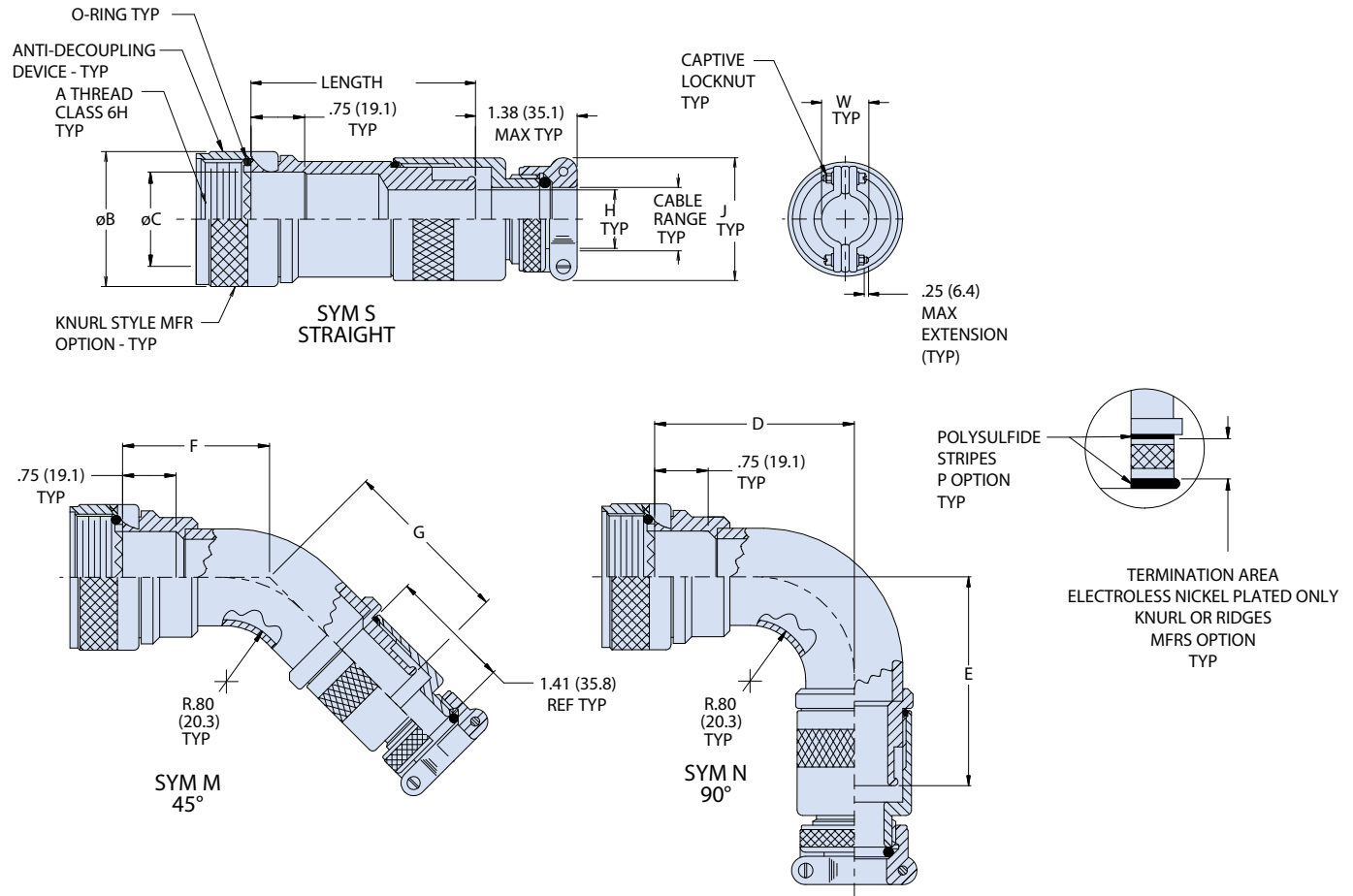
How To Order						
Sample Part Number	<b>443HS042</b>	<b>ME</b>	<b>12</b>	<b>04</b>	<b>-8</b>	<b>K P</b>
Product	<b>443HS042</b> = Series 23, Straight Backshell <b>443HN042</b> = Series 23, 90° Angle Backshell <b>443HM042</b> = Series 23, 45° Angle Backshell					
Material/Finish	<b>ME</b> = Aluminum, Electroless Nickel <b>MT</b> = Aluminum, Ni/PTFE <b>NF</b> = Aluminum, Olive Drab Cadmium <b>TZ</b> = Tin-Zinc <b>ZR</b> = Aluminum, Black Zinc-Nickel <b>Z1</b> = Stainless Steel, Passivated					
Shell Size	<b>08 09 10 11 12 14 16 18 20 22 24</b>					
Dash No	See Dash Number Table					
Length	Designate in .25 inch increments (eg. 8 = 2.0 inches) Applies to straight backshell only					
Band	<b>K</b> = precoiled band (omit if not required)					
Plating Shield	<b>P</b> = Polysulfide (omit if not required); when polysulfide barrier is selected for plating, shield termination surface shall be electroless nickel plated only. Applies to "NF", "TZ", and "ZR"					

Dash Number					
DASH NO	J MAX	CABLE RANGE		W CLOSED	H MIN DIA
		MIN	MAX		
<b>01</b>	1.05 (26.67)	0.125 (3.18)	0.250 (6.35)	0.264 (6.71)	0.25 (6.35)
<b>02</b>	1.20 (30.48)	0.188 (4.78)	0.375 (9.52)	0.344 (8.74)	0.37 (9.40)
<b>03</b>	1.30 (33.02)	0.312 (7.92)	0.438 (11.13)	0.460 (11.68)	0.43 (10.92)
<b>04</b>	1.44 (36.58)	0.343 (8.71)	0.500 (12.70)	0.545 (13.84)	0.50 (12.70)
<b>05</b>	1.69 (42.93)	0.438 (11.13)	0.625 (15.88)	0.698 (17.73)	0.62 (15.75)
<b>06</b>	1.77 (44.96)	0.562 (14.27)	0.750 (19.05)	0.780 (19.81)	0.75 (19.05)
<b>07</b>	2.12 (53.85)	0.688 (17.48)	0.875 (22.23)	0.950 (24.13)	0.87 (22.10)
<b>08</b>	2.50 (63.50)	0.812 (20.62)	1.000 (25.40)	1.015 (25.78)	1.00 (25.40)
<b>09</b>	2.62 (66.55)	0.938 (23.83)	1.125 (28.58)	1.187 (30.15)	1.12 (28.45)

**MIL-DTL-38999 Series III Type**

**443H\*042 EMI/RFI Environmental, Cable Clamp for Size #8 Contacts**

BACKSHELLS AND ACCESSORIES



Dimensions								
Shell Size	A Thd ISO Metric	ØB Max	ØC ±.005 (0.13)	D Max	B Max	F Max	G Max	Max Entry
08	M10 X 1	.710(18.0)	0.269 (6.80)	1.853(47.1)	1.903(48.3)	1.393(35.4)	1.443(36.7)	01
09	M12 X 1	.790(20.1)	0.346 (8.80)	1.853(47.1)	1.903(48.3)	1.393(35.4)	1.443(36.7)	01
10	M14 X 1	.890(22.6)	.410(10.4)	1.915(48.6)	1.965(49.9)	1.420(36.1)	1.470(37.3)	02
11	M15 X 1	.930(23.6)	.471(11.9)	1.915(48.6)	1.965(49.9)	1.420(36.1)	1.470(37.3)	02
12	M17 X 1	1.010(25.7)	.539(13.7)	2.067(52.5)	2.117(53.8)	1.445(36.7)	1.495(38.0)	04
14	M19 X 1	1.090(27.7)	.592(15.0)	2.067(52.5)	2.117(53.8)	1.445(36.7)	1.495(38.0)	04
16	M22 X 1	1.210(30.7)	.740(18.8)	2.130(54.1)	2.180(55.4)	1.501(38.1)	1.551(39.4)	05
18	M25 X 1	1.330(33.8)	.856(21.7)	2.235(56.8)	2.285(58.0)	1.540(39.1)	1.590(40.4)	06
20	M28 X 1	1.450(36.8)	.980(24.9)	2.298(58.4)	2.348(59.6)	1.566(39.8)	1.616(41.0)	07
22	M31 X 1	1.570(39.9)	1.070(27.2)	2.359(59.9)	2.409(61.2)	1.548(39.3)	1.598(40.6)	08
24	M34 X 1	1.710(43.4)	1.214(30.8)	2.380(60.5)	2.430(61.7)	1.570(39.9)	1.620(41.1)	09

**MIL-DTL-38999 Series III Type**

**Series 77 Full Nelson® Heat Shrink boots**

BACKSHELLS AND ACCESSORIES

**HEAT SHRINK BOOTS**

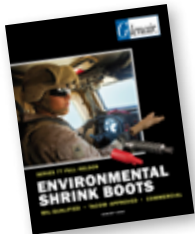


**About User-Installed Adhesive**

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

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

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



**Series 77 "Full Nelson" Shrink Boot Catalog has additional boot styles, materials and adhesives, installation instructions and other heatshrink products. Contact Glenair or go to [www.glenair.com](http://www.glenair.com).**

Full Nelson Heat Shrink boots provide mechanical and environmental protection. Shape-memory polymer returns to as-molded shape when heat is applied. Use with 310-045 composite shrink boot adapter. Boot lip fits adapter groove for precise fit. Semi-rigid high performance elastomer resists high temperature and withstands exposure to petroleum-based fluids and fuels. Also available with non-halogenated flame-retardant polyolefin for use where limited fire hazard is required.

**MATERIAL SELECTION GUIDE**

- 1 High-Performance Elastomer** -75°C to +150°C. Semi-rigid high performance elastomer combines excellent resistance to fuels, oils, and solvents with superior performance at extreme temperatures. Material meets the requirements of VG95343 Type 6, BSG 198-5-DE, EN62329-102 and SAE AS5258 Type H. These boots are recommended for demanding applications such as military vehicles and petrochemical exploration.
- 2 Zero Halogen Polyolefin** -40°C to +130°C. Low Smoke Zero Halogen (LSZH) polyolefin boots meet low smoke and toxicity requirements of shipboard, transit and aircraft systems. Oxygen index greater than 30%, smoke index less than 20, and toxicity index under 3 per 100 grams. Material meets requirements of NAVSEA 5617649, VG95343 Part 28 and 29, BSG 198-5-DF, EN62329-101 and SAE AS5258 Type G. Good resistance to oils, fuels and solvents.

**PRE-COATED ADHESIVE SELECTION GUIDE**

- W1 Low Smoke Zero halogen (LSZH) polyamide hot melt adhesive Coating.** Bonds well to a variety of substrates. Good creep resistance at elevated temperatures. Excellent bond strength at low temperature. Good resistance to fuels and oils. -55°C to +125°C. Compatible with Type 1 and Type 2 boot materials.
- R High Temperature Epoxy Adhesive Coating.** Glenair's highest performance pre-coated adhesive. The material requires careful installation using trained operators. -75°C to 150°C. Withstands prolonged high temperature immersion in fuels and oils. Excellent peel adhesion on a wide range of materials.

Part Number Development							
Series	Material	Boot Size	Adhesive Lining				
<b>770-003S</b> Heat Shrink Boot; Lipped, Straight	<b>1</b> High Performance Semi-Rigid Elastomer, -75°C to +150°C  <b>2</b> Low Smoke, Zero Halogen; Semi-Rigid Polyolefin; -30°C to +135°C		<b>Omit</b> for no adhesive lining.  <b>W1</b> Hot Melt Adhesive Low Smoke, Zero Halogen -55°C to +125°C  <b>R</b> High Temperature Epoxy Adhesive -75°C to +150°C.				
				Adapter Diameter			
		Boot Size		Inches		mm.	
		<b>03</b>		Min. .450	Max. .850	Min. 11.4	Max. 21.6
		<b>04</b>		Min. .600	Max. 1.000	Min. 15.2	Max. 25.4
		<b>05</b>		Min. .750	Max. 1.200	Min. 19.1	Max. 30.5
		<b>06</b>		Min. .900	Max. 1.350	Min. 22.9	Max. 34.3
<b>07</b>	Min. 1.250	Max. 1.650	Min. 31.8	Max. 41.9			
Sample Part Number							
<b>770-003S</b>	<b>2</b>	<b>06</b>	<b>R</b>				

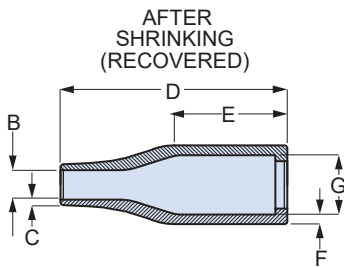
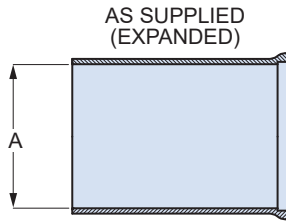
# SuperNine® Backshells and accessories

## MIL-DTL-38999 Series III Type

### Series 77 Full Nelson® heat shrink boots



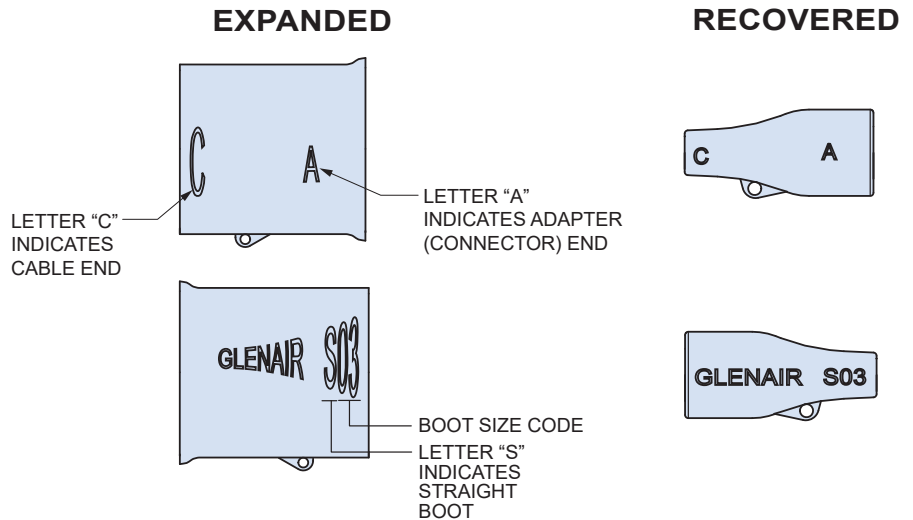
#### HEATSHRINK BOOT DIMENSIONS



Boot Size	A Min.		B Max.		C ± 20%		D ± 10%		E Ref.		F ± 30%		G Max.	
	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.	In.	mm.
03	.945	24.0	.197	5.0	.035	0.9	1.496	38.0	.748	19.0	.063	1.6	.413	10.5
04	1.181	30.0	.236	6.0	.039	1.0	2.165	55.0	1.181	30.0	.071	1.8	.551	14.0
05	1.260	32.0	.276	7.0	.047	1.2	2.638	67.0	1.299	33.0	.071	1.8	.709	18.0
06	1.417	36.0	.335	8.5	.047	1.2	3.150	80.0	1.575	40.0	.079	2.0	.866	22.0
07	1.693	43.0	.394	10.0	.051	1.3	3.898	99.0	2.165	55.0	.087	2.2	1.102	28.0

#### BOOT IDENTIFICATION MARKING

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



#### USER-INSTALLED BOOT ADHESIVE, DISPENSING GUN AND MIXING NOZZLE



Part Number
<b>779-001</b>

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



Part Number
<b>779-002</b>

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



Part Number	Count Per Pack
<b>779-003</b>	12

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

**MIL-DTL-38999 Series III Type**

**870H001 Swing-Arm Saddle Clamp**

BACKSHELLS AND ACCESSORIES



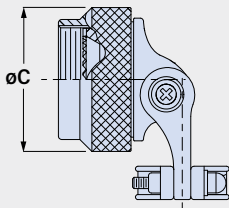
**Self-Locking**

*Self-locking, adjustable arms.* 870H001 Swing-Arm saddle clamp fits MIL-DTL-38999 Series III and IV connectors. Use with unshielded wire bundles. Adjustable arms pivot to 0°, 45° or 90° positions. Arms have self-locking threaded inserts to withstand high vibration. Full radius saddles have self-locking clinch nuts. Available in two clamp sizes: standard clamp fits most wire bundles, large clamp has increased clearance for oversize wire bundles. Coupling nut has anti-decoupling mechanism for audible detented coupling and prevents backoff under high vibration. Available in composite, aluminum or stainless steel.

**Adapter Code **H****

This accessory fits these connectors:  
MIL-DTL-38999 Series III and Series IV

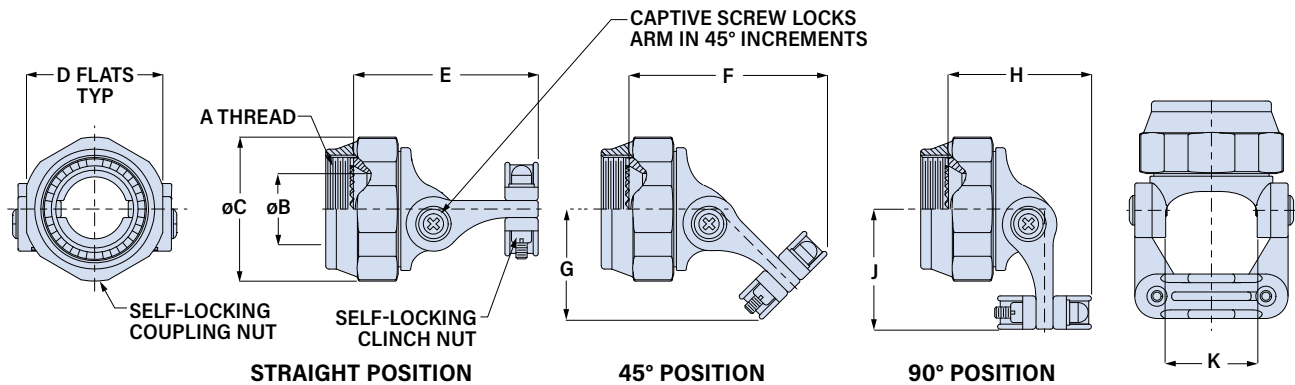
**ALUMINUM AND SST VERSIONS**



Aluminum and stainless steel versions have round knurled coupling nuts.

**PART NUMBER**

	<b>870H001</b>	<b>XB</b>	<b>23</b>	<b>B</b>						
<b>Base P/N</b>	<b>870H001</b>									
<b>Material/Finish</b>	<i>Composite</i>									
	<b>XB</b> No Finish (Black)									
	<i>Aluminum</i>									
	<b>M</b> Electroless Nickel									
	<b>NF</b> Olive Drab Cadmium									
	<b>MT</b> Nickel-PTFR									
	<b>TZ</b> Tin-Zinc									
<i>Stainless Steel</i>										
<b>Z1</b> Passivated										
<b>Shell Size</b>	Shell Size	9	11	13	15	17	19	21	23	25
	Size Code	<b>09</b>	<b>11</b>	<b>13</b>	<b>15</b>	<b>17</b>	<b>19</b>	<b>21</b>	<b>23</b>	<b>25</b>
<b>Clamp Size</b>	<b>A</b>	Standard Clamp								
	<b>B</b>	Large Clamp								



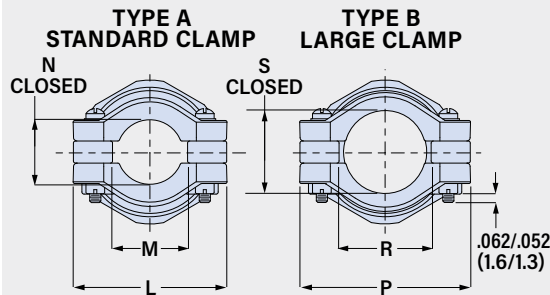
Shell Size	A Thread	øB Min in	mm	C Max in	mm	D Flats in	mm	E Max in	mm	F Max in	mm	G Max in	mm	H Max in	mm	J Max in	mm	K Ref. in	mm
9 (A)	M12X1.0-6H	.264	6.7	.812	20.6	.750	19.1	1.43	36.3	1.35	34.3	.78	19.8	.91	23.1	.87	22.1	.393	10.0
11 (B)	M15X1.0-6H	.390	9.9	.938	23.8	.875	22.2	1.50	38.1	1.45	36.8	.87	22.1	.94	23.9	.96	24.4	.455	11.6
13 (C)	M18X1.0-6H	.504	12.8	1.125	28.6	1.000	25.4	1.56	39.6	1.60	40.6	.97	24.6	1.12	28.4	1.03	26.2	.598	15.2
15 (D)	M22X1.0-6H	.630	16.0	1.250	31.8	1.125	28.6	1.57	39.9	1.68	42.7	1.02	25.9	1.21	30.7	1.10	27.9	.710	18.0
17 (E)	M25X1.0-6H	.756	19.2	1.375	34.9	1.250	31.8	1.66	42.2	1.78	45.2	1.09	27.7	1.29	32.8	1.16	29.5	.839	21.3
19 (F)	M28X1.0-6H	.843	21.4	1.500	38.1	1.375	34.9	1.66	42.2	1.86	47.2	1.14	29.0	1.39	35.3	1.22	31.0	.934	23.7
21 (G)	M31X1.0-6H	.969	24.6	1.625	41.3	1.500	38.1	1.81	46.0	2.02	51.3	1.24	31.5	1.50	38.1	1.29	32.8	1.068	27.1
23 (H)	M34X1.0-6H	1.091	27.7	1.750	44.5	1.625	41.3	1.84	46.7	2.09	53.1	1.30	33.0	1.57	39.9	1.36	34.5	1.197	30.4
25 (J)	M37X1.0-6H	1.217	30.9	1.875	47.6	1.750	44.5	2.00	50.8	2.20	55.9	1.45	36.8	1.64	41.7	1.55	39.4	1.323	33.6



**MIL-DTL-38999 Series III Type**

**870H001 Swing-Arm Saddle Clamp**

**CLAMP DIMENSIONS**



Shell Size	Standard Clamp				Large Clamp							
	L Max in	L Max mm	M Min in	M Min mm	N Ref. in	N Ref. mm	P Max in	P Max mm	R Min in	R Min mm	S Ref. in	S Ref. mm
9 (A)	.98	24.9	.22	5.6	.265	6.7	.98	24.9	.33	8.4	.356	9.0
11 (B)	1.05	26.7	.27	6.9	.310	7.9	1.20	30.5	.45	11.4	.422	10.7
13 (C)	1.20	30.5	.35	8.9	.422	10.7	1.45	36.8	.62	15.7	.637	16.2
15 (D)	1.30	33.0	.47	11.9	.538	13.7	1.54	39.1	.68	17.3	.707	18.0
17 (E)	1.44	36.6	.55	14.0	.590	15.0	1.60	40.6	.80	20.3	.759	19.3
19 (F)	1.56	39.6	.62	15.7	.660	16.8	1.73	43.9	.90	22.9	.841	21.4
21 (G)	1.69	42.9	.70	17.8	.744	18.9	1.95	49.5	1.05	26.7	.996	25.3
23 (H)	1.77	45.0	.78	19.8	.826	21.0	2.08	52.8	1.18	30.0	1.060	26.9
25 (J)	1.89	48.0	.85	21.6	.896	22.8	2.32	58.9	1.30	33.0	1.124	28.5

**MATERIAL/FINISH**

**Composite (Code XB)**

- Coupling nut, body, arms, saddles: polyetherimide (PEI), unplated
- Screws, washers, inserts: stainless steel/passivated
- Anti-decoupling springs: thermoplastic
- Clinch Nuts: stainless steel, silver plated

**Aluminum (Codes M, MT, NF, TZ, ZR)**

- Coupling nut, body, arms, saddles: aluminum
- Screws, washers, inserts: stainless steel/passivated
- Anti-decoupling springs: thermoplastic
- Clinch Nuts: Codes M, MT, TZ and ZR: stainless steel, silver plated.
- Code NF: stainless steel/ olive drab cadmium

**Stainless Steel (Code Z1)**

- Coupling nut, body, arms, saddles: SST
- Screws, washers, inserts: stainless steel/passivated
- Anti-decoupling springs: stainless steel
- Clinch Nuts: stainless steel, silver plated

## MIL-DTL-38999 Series III Type

### 870H002 Swing-Arm Saddle Clamp, Braid Sock, Composite

BACKSHELLS AND ACCESSORIES

**Self-Locking**



**Shielded, self-locking, adjustable arms.** 870H002 composite Swing-Arm saddle clamp fits MIL-DTL-38999 Series III and IV connectors. Adjustable arms pivot to 0°, 45° or 90° positions. Supplied with 12 inches (305 mm) of shield braid attached to metal interface ring. Braid choices include 34 AWG nickel/copper, 34 AWG tin/copper, ultralightweight AmberStrand® or microfilament nickel/SST ArmorLite®. Corrosion-resistant glass-reinforced thermoplastic meets AS85049 requirements. Full radius saddles have self-locking clinch nuts. Available in two clamp sizes: standard clamp fits most wire bundles, large clamp has increased clearance for oversize wire bundles. Coupling nut has anti-decoupling mechanism for audible detented coupling and prevents backoff under high vibration.

**Adapter Code H**

This accessory fits these connectors:  
MIL-DTL-38999 Series III and Series IV

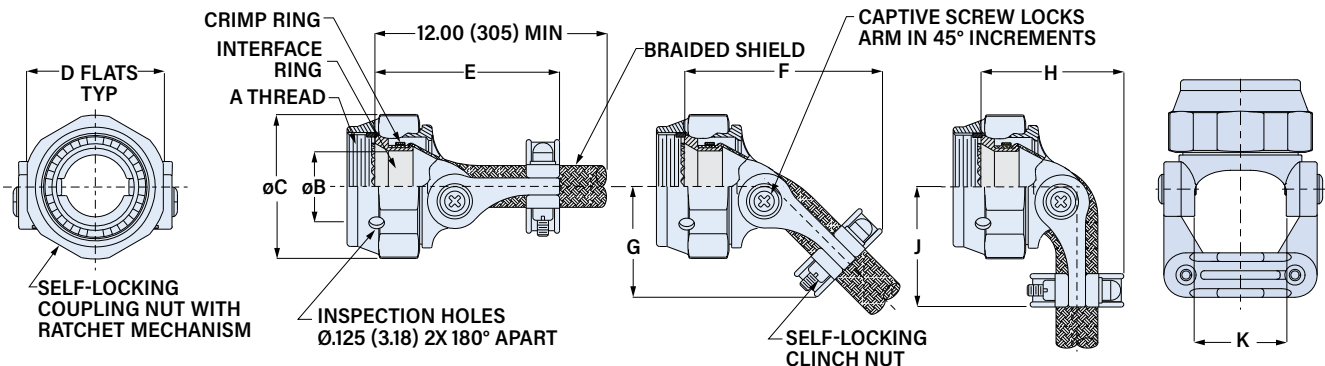
**TABLE 1**  
**INTERFACE RING MATERIAL / FINISH**

Aluminum	
<b>M</b>	Electroless Nickel
<b>NF</b>	Olive Drab Cadmium and Electroless Nickel (Figure 1)
<b>MT</b>	Nickel-PTFE
<b>TZ</b>	Tin-Zinc
<b>ZR</b>	Black Zinc-Nickel
Brass	
<b>BM</b>	Electroless Nickel
<b>BN</b>	Olive Drab Cadmium and Electroless Nickel (Figure 1)
<b>BMT</b>	Nickel-PTFE

**PART NUMBER**

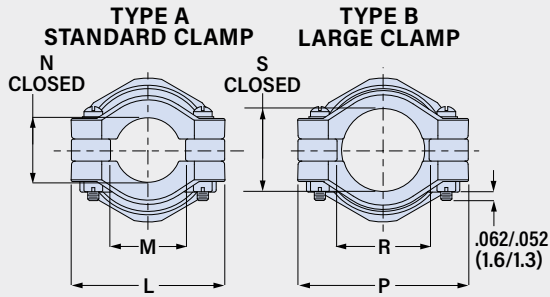
870H002	BM	21	B	L	K	14
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<b>Base P/N</b>	<b>870H002</b>																				
<b>Interface Ring Material/Finish</b>	See Table 1																				
<b>Shell Size</b>	<table border="1"> <tr> <td>Shell Size</td> <td>9</td> <td>11</td> <td>13</td> <td>15</td> <td>17</td> <td>19</td> <td>21</td> <td>23</td> <td>25</td> </tr> <tr> <td>Size Code</td> <td><b>09</b></td> <td><b>11</b></td> <td><b>13</b></td> <td><b>15</b></td> <td><b>17</b></td> <td><b>19</b></td> <td><b>21</b></td> <td><b>23</b></td> <td><b>25</b></td> </tr> </table>	Shell Size	9	11	13	15	17	19	21	23	25	Size Code	<b>09</b>	<b>11</b>	<b>13</b>	<b>15</b>	<b>17</b>	<b>19</b>	<b>21</b>	<b>23</b>	<b>25</b>
Shell Size	9	11	13	15	17	19	21	23	25												
Size Code	<b>09</b>	<b>11</b>	<b>13</b>	<b>15</b>	<b>17</b>	<b>19</b>	<b>21</b>	<b>23</b>	<b>25</b>												
<b>Clamp Size</b>	See Clamp Dimensions on next page <b>A</b> Standard Clamp <b>B</b> Large Clamp																				
<b>Braid Type</b>	<b>N</b> 34 AWG Nickel/Copper Braid <b>T</b> 34 AWG Tin/Copper Braid <b>A</b> AmberStrand® Nickel/Composite Braid <b>L</b> Microfilament ArmorLite® Nickel/SST Braid																				
<b>Splice Ring and Band</b>	Omit if not required <b>K</b> Splice ring and standard band <b>J</b> Splice ring and slim standard band																				
<b>Braid Length</b>	Omit for standard 12 inch length <b>14</b> Length in 1 inch increments, 6 inch min "14" = 14 inches.																				



Shell Size	A Thread	øB Min in	mm	øC Max in	mm	D Flats in	mm	E Max in	mm	F Max in	mm	G Max in	mm	H Max in	mm	J Max in	mm	K Ref. in	mm
9 (A)	M12X1.0-6H	.264	6.7	.812	20.6	.750	19.1	1.50	38.1	1.43	36.3	.76	19.3	.95	24.1	.84	21.3	.393	10.0
11 (B)	M15X1.0-6H	.390	9.9	.938	23.8	.875	22.2	1.54	39.1	1.49	37.8	.82	20.8	.99	25.1	.90	22.9	.455	11.6
13 (C)	M18X1.0-6H	.504	12.8	1.125	28.6	1.000	25.4	1.62	41.1	1.64	41.7	.92	23.4	1.14	29.0	1.00	25.4	.598	15.2
15 (D)	M22X1.0-6H	.630	16.0	1.250	31.8	1.125	28.6	1.63	41.4	1.73	43.9	.98	24.9	1.24	31.5	1.07	27.2	.710	18.0
17 (E)	M25X1.0-6H	.756	19.2	1.375	34.9	1.250	31.8	1.73	43.9	1.86	47.2	1.08	27.4	1.36	34.5	1.13	28.7	.839	21.3
19 (F)	M28X1.0-6H	.843	21.4	1.500	38.1	1.375	34.9	1.73	43.9	1.93	49.0	1.12	28.4	1.46	37.1	1.20	30.5	.934	23.7
21 (G)	M31X1.0-6H	.969	24.6	1.625	41.3	1.500	38.1	1.88	47.8	2.08	52.8	1.21	30.7	1.55	39.4	1.26	32.0	1.068	27.1
23 (H)	M34X1.0-6H	1.091	27.7	1.750	44.5	1.625	41.3	1.91	48.5	2.15	54.6	1.27	32.3	1.63	41.4	1.33	33.8	1.197	30.4
25 (J)	M37X1.0-6H	1.217	30.9	1.875	47.6	1.750	44.5	1.94	49.3	2.23	56.6	1.33	33.8	1.70	43.2	1.40	35.6	1.323	33.6

**CLAMP DIMENSIONS**

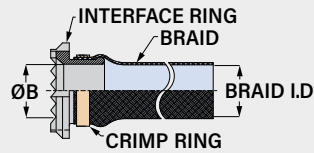


Standard Clamp						Large Clamp					
Shell Size	L Max in	L Max mm	M Min in	M Min mm	N Ref. in mm	Shell Size	P Max in	P Max mm	R Min in	R Min mm	S Ref. in mm
9 (A)	.98	24.9	.22	5.6	.265 6.7	9 (A)	.98	24.9	.33	8.4	.356 9.0
11 (B)	1.05	26.7	.27	6.9	.310 7.9	11 (B)	1.20	30.5	.45	11.4	.422 10.7
13 (C)	1.20	30.5	.35	8.9	.422 10.7	13 (C)	1.45	36.8	.62	15.7	.637 16.2
15 (D)	1.30	33.0	.47	11.9	.538 13.7	15 (D)	1.54	39.1	.68	17.3	.707 18.0
17 (E)	1.44	36.6	.55	14.0	.590 15.0	17 (E)	1.60	40.6	.80	20.3	.759 19.3
19 (F)	1.56	39.6	.62	15.7	.660 16.8	19 (F)	1.73	43.9	.90	22.9	.841 21.4
21 (G)	1.69	42.9	.70	17.8	.744 18.9	21 (G)	1.95	49.5	1.05	26.7	.996 25.3
23 (H)	1.77	45.0	.78	19.8	.826 21.0	23 (H)	2.08	52.8	1.18	30.0	1.060 26.9
25 (J)	1.89	48.0	.85	21.6	.896 22.8	25 (J)	2.32	58.9	1.30	33.0	1.124 28.5

**MATERIAL/FINISH**

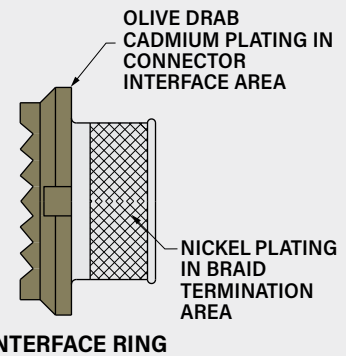
- Coupling nut, body, arms, saddles: polyetherimide (PEI)/unplated
- Screws, washers, inserts: stainless steel/passivated
- Anti-decoupling spring: thermoplastic
- Interface Ring: brass or aluminum
- Crimp ring: copper alloy/tin
- Splice ring (optional): thermoplastic
- Clinch Nuts: stainless steel/silver
- Band (optional): stainless steel/passivated
- Braid:
  - Code N: 34 AWG nickel-coated copper
  - Code T: 34 AWG tin-coated copper,
  - Code A: *AmberStrand®* ultralightweight nickel-coated polymer
  - Code L: *ArmorLite®* lightweight microfilament nickel-coated 316L stainless steel

**INTERFACE RING AND BRAID**

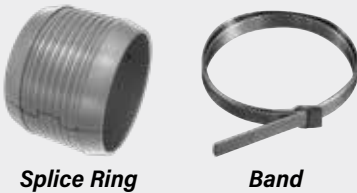


Shell Size	Ø B Min in	Ø B Min mm	Braid I.D. in	Braid I.D. mm
9 (A)	.264	6.7	.375	9.5
11 (B)	.390	9.9	.375	9.5
13 (C)	.504	12.8	.500	12.7
15 (D)	.630	16.0	.500	12.7
17 (E)	.756	19.2	.781	19.8
19 (F)	.843	21.4	.781	19.8
21 (G)	.969	24.6	1.000	25.4
23 (H)	1.091	27.7	1.000	25.4
25 (J)	1.217	30.9	1.250	31.8

**FIGURE 1**  
NF AND BN SELECTIVE FINISH



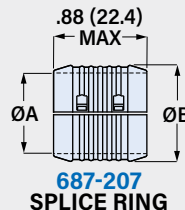
**SPLICE RING AND PRE-COILED BAND (K AND J OPTIONS)**



Optional splice ring provides a reliable, low resistance method of splicing Swing-Arm braid to wire bundle braid. Snap splice ring over wire bundle, then overlap braid sock, pigtails and cable braid. Install band around splice ring and braid using Band-Master ATS banding tool.

*Slim Standard Band* is 50% lighter weight than standard band with no reduction in strength.

Shell Size	Band Part Number		Splice Ring Part Number	ØA		ØB	
	Standard	Slim Standard		± .03 (0.8) in	± .03 (0.8) mm	± .03 (0.8) in	± .03 (0.8) mm
9 (A)	601-006	601-571	687-207XB04	.25	6.4	.40	10.2
11 (B)	601-006	601-571	687-207XB06	.38	9.7	.53	13.5
13 (C)	601-006	601-571	687-207XB08	.50	12.7	.65	16.5
15 (D)	601-006	601-571	687-207XB10	.63	16.0	.78	19.8
17 (E)	601-006	601-571	687-207XB12	.75	19.1	.90	22.9
19 (F)	601-041	601-573	687-207XB14	.88	22.4	1.03	26.2
21 (G)	601-041	601-573	687-207XB16	1.00	25.4	1.15	29.2
23 (H)	601-041	601-573	687-207XB18	1.13	28.7	1.28	32.5
25 (J)	601-041	601-573	687-207XB20	1.25	31.8	1.40	35.6



**MIL-DTL-38999 Series III Type**

**870H005 Swing-Arm Saddle Clamp, EMI Banding Adapter, Metal**

BACKSHELLS AND ACCESSORIES

**Self-Locking**



**Adapter Code H**  
 This accessory fits these connectors:  
 MIL-DTL-38999 Series III and Series IV

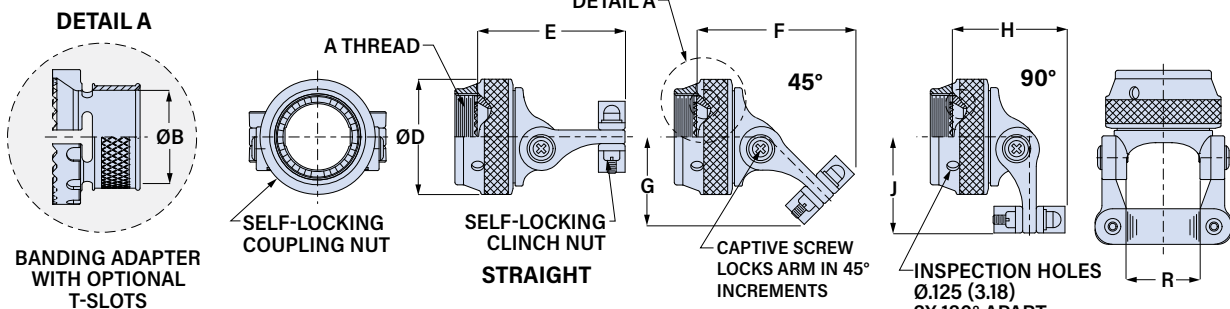
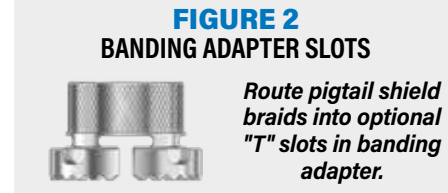
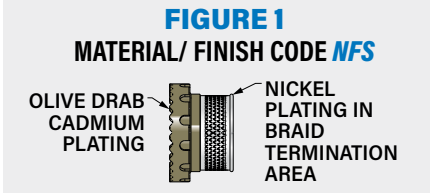
**TABLE 1 MATERIAL / FINISH**

Aluminum	
<b>M</b>	Electroless nickel
<b>MT</b>	Nickel-PTFE
<b>NF</b>	Olive drab cadmium
<b>NFS</b>	Olive drab cadmium, selective (fig. 1)
<b>TZ</b>	Tin-zinc
<b>ZR</b>	Black zinc-nickel
Stainless Steel, Passivated	
<b>BM</b>	Brass interface ring, nickel plated
<b>BMT</b>	Brass interface ring, nickel-PTFE plated
<b>ZI</b>	SST interface ring, passivated
<b>ZM</b>	SST interface ring, nickel plated

**Shielded, self-locking, adjustable arms.** 870H005 aluminum or stainless steel Swing-Arm saddle clamp fits MIL-DTL-38999 Series III and IV connectors. Adjustable arms pivot to 0°, 45° or 90° positions. Banding adapter has optional "T" slots for pigtailed individual shields. Terminate shield braid to adapter with optional Band-Master ATS® pre-coiled banding strap. Full radius saddles with self-locking clinch nuts. Available in two clamp sizes: standard clamp fits most wire bundles, large clamp has increased clearance for oversized wire bundles. Coupling nut has anti-decoupling mechanism for audible detented coupling and prevents backoff under high vibration.

**PART NUMBER**

<b>Base P/N</b>	<b>870H005</b>	<b>870H005</b>	<b>M</b>	<b>23</b>	<b>A</b>	<b>S</b>	<b>K</b>			
<b>Material/Finish</b>	See Table 1									
<b>Shell Size</b>	Shell Size	9	11	13	15	17	19	21	23	25
	Size Code	<b>09</b>	<b>11</b>	<b>13</b>	<b>15</b>	<b>17</b>	<b>19</b>	<b>21</b>	<b>23</b>	<b>25</b>
<b>Clamp Size</b>	<b>A</b>	Standard Clamp								
	<b>B</b>	Large Clamp								
<b>Banding Adapter Slots</b>	Omit if not required. See Figure 2.									
	<b>S</b>	"T" Slots in Banding Adapter for Shield Pigtailed								
<b>Band</b>	Omit if not required.									
	<b>K</b>	Pre-Coiled Micro Band included With Clamp								
	<b>J</b>	Pre-Coiled Slim Micro Band included With Clamp								



Shell Size	A Thread	ø B Min	D Max	E Max	F Max	G Max	H Max	J Max	R Ref.								
		in	mm	in	mm	in	mm	in	mm								
9 (A)	M12X1.0-6H	.178	4.5	.812	20.6	1.55	39.4	1.45	36.8	.77	19.6	.98	24.9	.87	22.1	.393	10.0
11 (B)	M15X1.0-6H	.305	7.7	.938	23.8	1.61	40.9	1.56	39.6	.87	22.1	1.05	26.7	.96	24.4	.455	11.6
13 (C)	M18X1.0-6H	.404	10.3	1.125	28.6	1.66	42.2	1.71	43.4	.97	24.6	1.22	31.0	1.03	26.2	.598	15.2
15 (D)	M22X1.0-6H	.565	14.4	1.250	31.8	1.67	42.4	1.79	45.5	1.02	25.9	1.32	33.5	1.10	27.9	.710	18.0
17 (E)	M25X1.0-6H	.658	16.7	1.375	34.9	1.77	45.0	1.88	47.8	1.08	27.4	1.38	35.1	1.16	29.5	.839	21.3
19 (F)	M28X1.0-6H	.777	19.7	1.500	38.1	1.77	45.0	1.96	49.8	1.13	28.7	1.49	37.8	1.22	31.0	.934	23.7
21 (G)	M31X1.0-6H	.877	22.3	1.625	41.3	1.92	48.8	2.13	54.1	1.24	31.5	1.61	40.9	1.29	32.8	1.068	27.1
23 (H)	M34X1.0-6H	.999	25.4	1.750	44.5	1.95	49.5	2.20	55.9	1.30	33.0	1.68	42.7	1.36	34.5	1.197	30.4
25 (J)	M37X1.0-6H	1.127	28.6	1.875	47.6	2.10	53.3	2.31	58.7	1.39	35.3	1.75	44.5	1.55	39.4	1.323	33.6

# SuperNine® Backshells and accessories

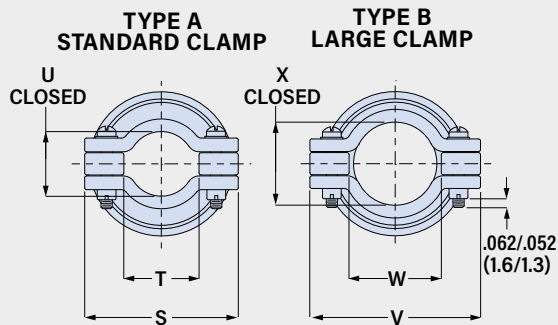
## MIL-DTL-38999 Series III Type



### 870H005 Swing-Arm Saddle Clamp, EMI Banding Adapter, Metal

BACKSHELLS AND ACCESSORIES

#### CLAMP DIMENSIONS



Standard Clamp							Large Clamp						
Shell Size	S Max in	S Max mm	T Min in	T Min mm	U Ref. in	U Ref. mm	Shell Size	V Max in	V Max mm	W Min in	W Min mm	X Ref. in	X Ref. mm
9 (A)	.97	24.6	.22	5.6	.264	6.7	9 (A)	.98	24.9	.33	8.4	.356	9.0
11 (B)	1.03	26.2	.29	7.4	.310	7.9	11 (B)	1.20	30.5	.45	11.4	.422	10.7
13 (C)	1.21	30.7	.34	8.6	.422	10.7	13 (C)	1.45	36.8	.62	15.7	.637	16.2
15 (D)	1.32	33.5	.45	11.4	.538	13.7	15 (D)	1.54	39.1	.68	17.3	.707	18.0
17 (E)	1.45	36.8	.55	14.0	.590	15.0	17 (E)	1.60	40.6	.80	20.3	.759	19.3
19 (F)	1.54	39.1	.65	16.5	.660	16.8	19 (F)	1.73	43.9	.90	22.9	.841	21.4
21 (G)	1.67	42.4	.74	18.8	.744	18.9	21 (G)	1.95	49.5	1.05	26.7	.996	25.3
23 (H)	1.79	45.5	.87	22.1	.826	21.0	23 (H)	2.08	52.8	1.18	30.0	1.060	26.9
25 (J)	1.92	48.8	.99	25.1	.896	22.8	25 (J)	2.32	58.9	1.30	33.0	1.124	28.5

#### MATERIAL/FINISH

- Aluminum (Codes M, MT, NF, NFS TZ, ZR)**  
Coupling nut, body, arms, saddles, interface ring: aluminum
- Screws, washers, inserts: stainless steel/ passivated
- Anti-decoupling springs: thermoplastic
- Clinch nuts: Codes M, MT, TZ and ZR: stainless steel, silver plated. Code NF, NFS: stainless steel/ olive drab cadmium
- Banding adapter: aluminum
- Band (optional): stainless steel/ passivated
- Stainless Steel (Codes BM, BMT, Z1, ZM)**  
Coupling nut, body, arms, saddles, anti-decoupling springs, screws, washers, inserts: stainless steel, passivated
- Clinch nuts: stainless steel, silver plated
- Banding adapter:  
Code BM: brass/ electroless nickel  
Code BMT: brass/ nickel-PTFE  
Code Z1: stainless steel/ passivated  
Code ZM: stainless steel/ electroless nickel
- Band (optional): stainless steel/ passivated

#### BAND INFORMATION

Terminate cable braid to band adapter with optional pre-coiled banding strap. Glenair's Band-Master ATS® banding system provides quick, easy, cost-effective and highly reliable termination. Band is passivated stainless steel.



Shell Size	Pre-Coiled Micro	Pre-Coiled Slim	Length		Max Diameter	
	Band Part No.	Micro Band Part No.	in	mm	in	mm
9 - 13	<b>601-061</b>	<b>601-601</b>	8.125	206	.88	22.4
15 - 25	<b>601-065</b>	<b>601-603</b>	14.25	362	1.88	47.8



**MIL-DTL-38999 Series III Type**

**871H004 Swing-Arm Flex Clamp, EMI Banding Adapter, Composite**

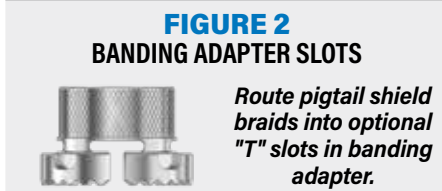
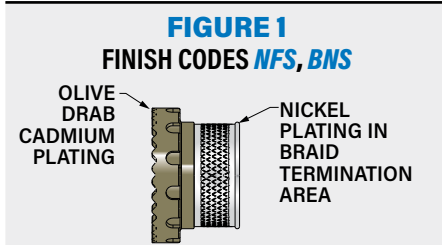
BACKSHELLS AND ACCESSORIES

**Self-Locking**



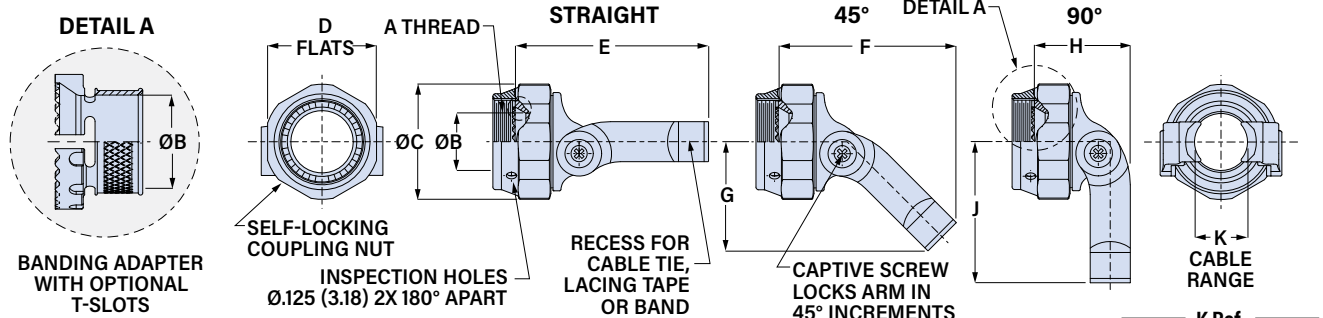
*Shielded, self-locking, adjustable arms.* 871H004 Swing-Arm Flex Clamp fits MIL-DTL-38999 Series III and IV connectors. Adjustable arms pivot to 0°, 45° or 90° positions. Includes EMI banding adapter with optional "T" slots for pigtailed individual shields. Terminate shield braid to adapter with optional Band-Master ATS® pre-coiled banding strap. Coupling nut has anti-decoupling mechanism for audible detented coupling and prevents backoff under high vibration.

**Adapter Code H**  
This accessory fits these connectors:  
MIL-DTL-38999 Series III and Series IV



**PART NUMBER**

	<b>871H004</b>	<b>M</b>	<b>23</b>	<b>S</b>	<b>K</b>					
<b>Base P/N</b>	<b>871H004</b>									
<b>Banding Adapter Material/Finish</b>	<b>M</b>	Alum/Electroless Nickel								
	<b>NF</b>	Alum/Olive Drab Cadmium								
	<b>NFS</b>	Alum/O.D. Cadmium, selective (fig. 1)								
	<b>MT</b>	Alum/Nickel-PTFE								
	<b>TZ</b>	Alum/Tin-Zinc								
	<b>BM</b>	Brass/Electroless Nickel								
	<b>BN</b>	Brass/Olive Drab Cadmium								
	<b>BNS</b>	Brass/O.D. Cadmium, selective (fig. 1)								
	<b>BMT</b>	Brass/Nickel-PTFE								
<b>Shell Size</b>	Shell Size	9	11	13	15	17	19	21	23	25
	Size Code	<b>09</b>	<b>11</b>	<b>13</b>	<b>15</b>	<b>17</b>	<b>19</b>	<b>21</b>	<b>23</b>	<b>25</b>
<b>Banding Adapter Slots</b>	<i>Omit if not required. See Figure 2</i>									
	<b>S</b>	"T" Slots in Banding Adapter for Shield Pigtails								
<b>Band</b>	<i>Omit if not required.</i>									
	<b>K</b>	Pre-Coiled Micro Band included With Clamp								
	<b>J</b>	Pre-Coiled Slim Micro Band included With Clamp								



Shell Size	A Thread	ø B Min		ø C Max		D Flats		E Max		F Max		G Max		H Max		J Max		K Ref.			
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		
9 (A)	M12X1.0-6H	.178	4.5	.812	20.6	.750	19.1	1.79	45.5	1.57	39.9	.87	22.1	.96	24.4	1.12	28.4	.393	10.0	.098	2.5
11 (B)	M15X1.0-6H	.305	7.8	.938	23.8	.875	22.2	1.80	45.7	1.57	39.9	.89	22.6	.96	24.4	1.15	29.2	.455	11.6	.121	3.1
13 (C)	M18X1.0-6H	.404	10.3	1.125	28.6	1.000	25.4	2.08	52.8	1.88	47.8	1.10	27.9	1.05	26.7	1.44	36.6	.598	15.2	.157	4.0
15 (D)	M22X1.0-6H	.565	14.4	1.250	31.8	1.125	28.6	2.08	52.8	1.88	47.8	1.16	29.5	1.32	33.5	1.50	38.1	.710	18.0	.210	5.3
17 (E)	M25X1.0-6H	.658	16.7	1.375	34.9	1.250	31.8	2.29	58.2	2.13	54.1	1.28	32.5	1.21	30.7	1.68	42.7	.839	21.3	.246	6.2
19 (F)	M28X1.0-6H	.777	19.7	1.500	38.1	1.375	34.9	2.28	57.9	2.13	54.1	1.35	34.3	1.21	30.7	1.81	46.0	.934	23.7	.277	7.0
21 (G)	M31X1.0-6H	.877	22.3	1.625	41.3	1.500	38.1	2.75	69.9	2.54	64.5	1.63	41.4	1.37	34.8	2.12	53.8	1.068	27.1	.313	8.0
23 (H)	M34X1.0-6H	.999	25.4	1.750	44.5	1.625	41.3	2.75	69.9	2.54	64.5	1.67	42.4	1.37	34.8	2.16	54.9	1.197	30.4	.349	8.9
25 (J)	M37X1.0-6H	1.127	28.6	1.875	47.6	1.750	44.5	2.96	75.2	2.75	69.9	1.84	46.7	1.46	37.1	2.41	61.2	1.323	33.6	.380	9.7

ADVANCED PERFORMANCE

# SuperNine® Backshells and accessories

## MIL-DTL-38999 Series III Type



### 871H004 Swing-Arm Flex Clamp, EMI Banding Adapter, Composite

#### MATERIAL / FINISH

- Coupling nut, body, arms: thermoplastic, black
- Screws, washers, inserts: stainless steel/ passivated
- Anti-decoupling springs: thermoplastic
- Banding adapter: aluminum alloy or brass
- Band (optional): stainless steel/ passivated

#### BAND INFORMATION

Terminate cable braid to band adapter with optional pre-coiled banding strap. Glenair's Band-Master ATS® banding system provides quick, easy, cost-effective and highly reliable termination. Band is passivated stainless steel.



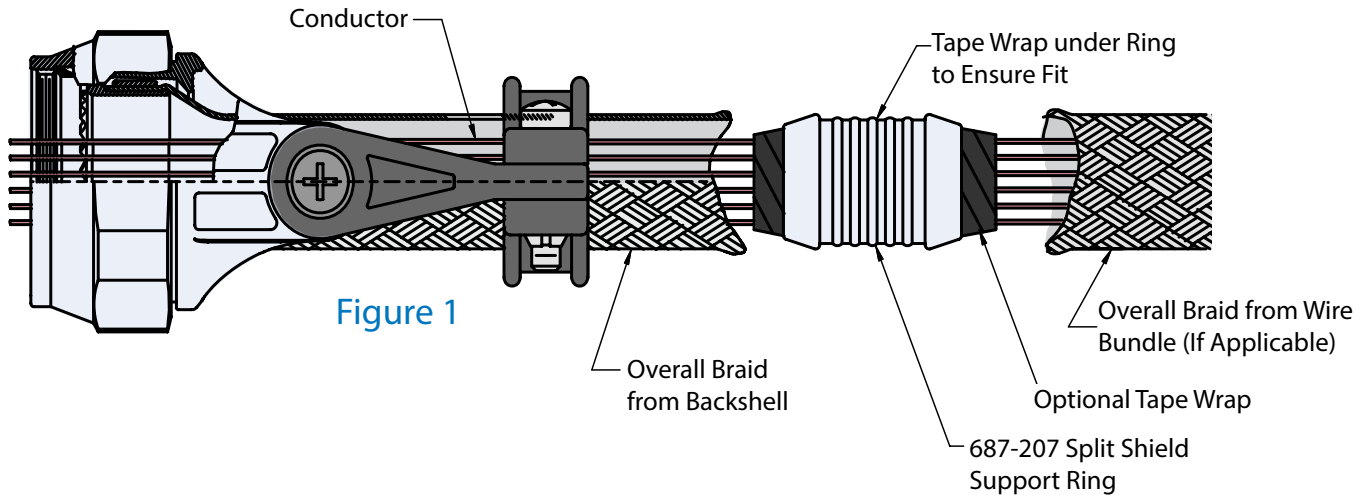
Shell Size	Pre-Coiled Micro Band Part No.	Pre-Coiled Slim Micro Band Part No.	Length		Max Diameter	
			in	mm	in	mm
9 - 13	<b>601-061</b>	<b>601-601</b>	8.125	206	.88	22.4
15 - 25	<b>601-065</b>	<b>601-603</b>	14.25	362	1.88	47.8

BACKSHELLS AND ACCESSORIES

**MIL-DTL-38999 Series III Type**

**Composite Swing-Arm™ strain relief assembly procedure**

BACKSHELLS AND ACCESSORIES



**GLENAIR ASSEMBLY PROCEDURE (GAP-029) FOR SWING-ARM, OFFERS EXTREMELY FAST AND TROUBLE-FREE TERMINATION OF EMI SHIELDING:**

Choose Straight, 45° or 90° angle, and tighten screws to lock arms in place. Leave the saddle clamp hardware loose.

Next, insert the wire bundle into the backshell to determine if the braid transition angle from the backshell to wire bundle is less than 45°. If it is less than 45°, build up the wire bundle with tape and re-insert wire bundle into backshell to support the transition of overall braid from the backshell to the wire bundle.

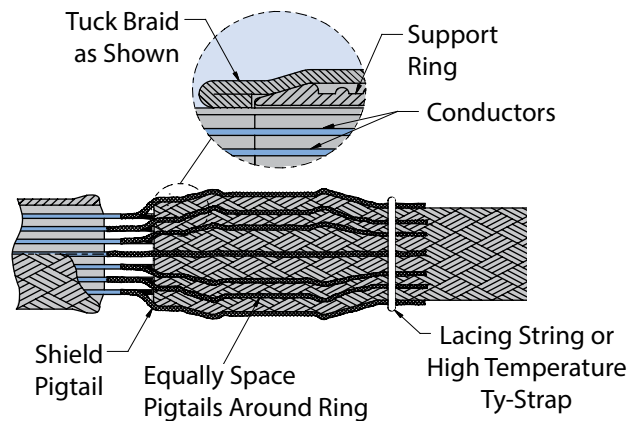
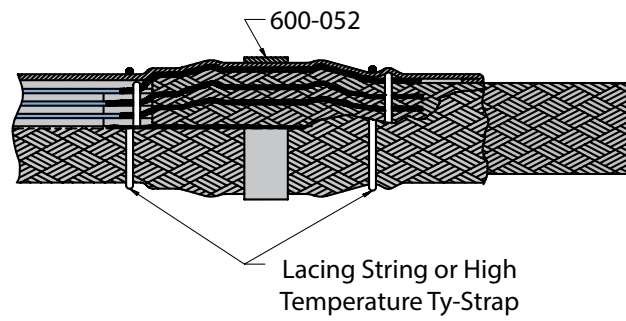
Loosely assembly the adapter to the connector and push back the backshell braid. Insert the wire bundle into the adapter and bottom it against the connector. Holding the cable, mark or tag the location where the shield support ring (Glenair Part Number 687-207) will be located. This distance may vary depending on your technique and the flexibility of the wire bundle immediately to the rear of the saddles (Figure 1).

At the marked location, near the shield support ring, wrap tape around wire bundle for snug fit of shield support ring (Figure 1). Tape wrap is optional.

You can then slide the overall braid from the wire bundle side over the shield support ring, trimming braid ends and tucking extra braid underneath itself for a clean appearance.

For pin connectors, slide the backshell forward, and hand tighten backshell to connector. Then, evenly space shield pigtails (Figure 3) or solder sleeve pigtails (Figure 4) around the shield support ring. Cut the pigtails so that the end of the pigtails slightly beyond end of shield support ring.

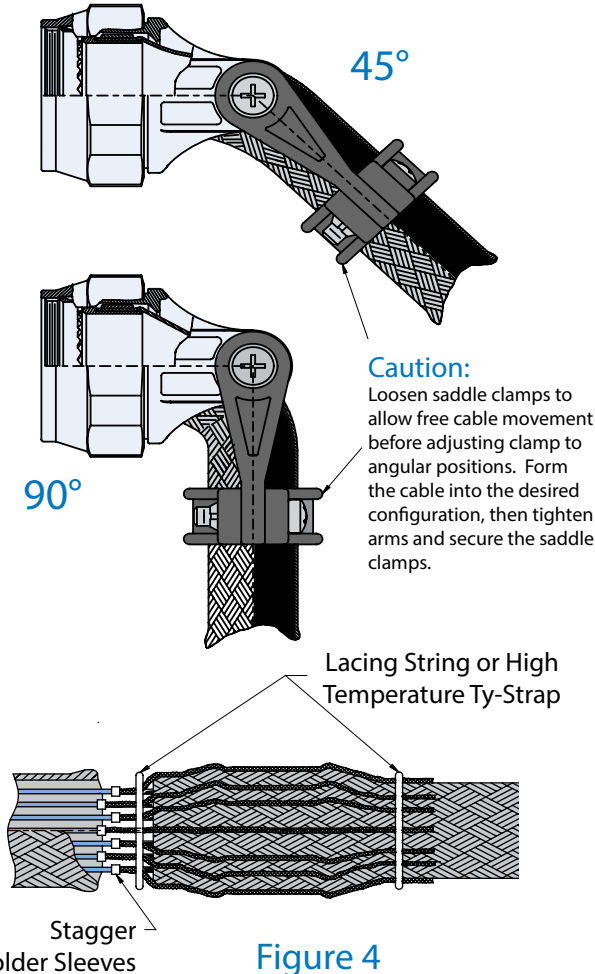
Bring the shield sock from backshell and completely cover the pigtails and support ring. Trim and fold the braid as shown in Figure 2. Lace tie the shield adjacent to support ring ends.



# SuperNine® Backshells and accessories

## MIL-DTL-38999 Series III Type

### Composite Swing-Arm™ strain relief assembly procedure



**Figure 4**

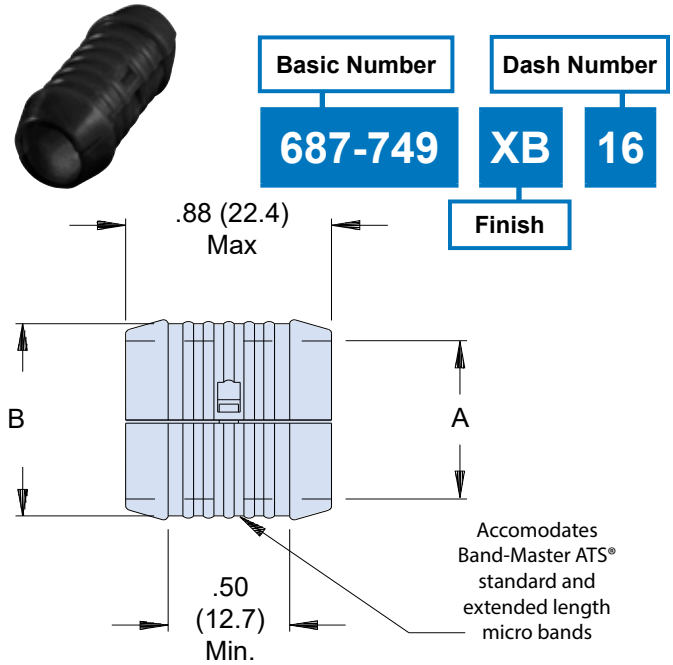
Install Glenair's Band-Master ATS® band between the lace ties onto the center of the support ring as shown in Figure 2. The Band-Master ATS® hand banding tool (601-100) or pneumatic banding tool (601-104) is used for this banding process.

Next, you can wrap the shield support ring assembly with high temperature tape. Place lacing cord, high temperature tape, or high temperature plastic Ty-Straps on the braid transition to the rear of the backshell to secure the overbraid on wire bundle. If you wish, you can cover the overbraid with 102-080 braid sock.

Tighten the adapter to the connector using Glenair 600-091 composite hex coupling torque wrench and related tooling accessories to established torque values. Secure the strain relief saddle onto the wire bundle using TG69 soft jaw pliers. Torque the saddle screws to established values. You can use Fluoropolymer tape wrap or M85049/127 bushing strip as needed to cushion the braid sock under the saddle clamps.

With these few steps, your Swing-Arm strain relief installation is complete!

### 687-749 BANDING SPLIT-RING



Dash No.	Dash Number	
	A Ø ±.03 (0.8)	B Ø ±.03 (0.8)
04	.25 (6.4)	.36 (9.1)
06	.38 (9.7)	.49 (12.4)
08	.50 (12.7)	.61 (15.5)
10	.63 (16.0)	.74 (18.8)
12	.75 (19.1)	.86 (21.8)
14	.88 (22.4)	.99 (25.1)
16	1.00 (25.4)	1.10 (27.9)
18	1.13 (28.7)	1.24 (31.5)
20	1.25 (31.8)	1.36 (34.5)
22	1.38 (35.1)	1.49 (37.8)
24	1.50 (38.1)	1.61 (40.9)
26	1.63 (41.4)	1.74 (44.2)
28	1.75 (44.5)	1.86 (47.2)

### Band-Master ATS®



For Band-Master ATS® banding tools, bands, and accessories, see page J-11 of this catalog, or visit [glenair.com](http://glenair.com)



# SuperNine® ProSeal™ environmental MIL-DTL-38999 Series III Type connector covers

## Threaded closure seal, full environmental



BACKSHELLS AND ACCESSORIES

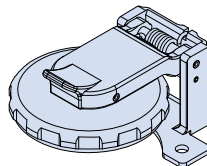
### 667-448 PROSEAL PROTECTIVE COVER FOR D38999 SERIES III CONNECTORS



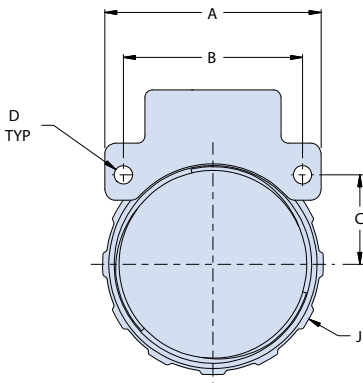
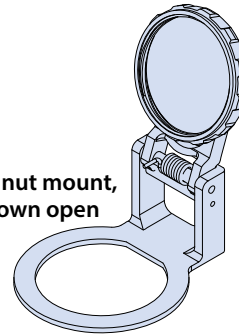
How to Order 667-448					
<b>Sample Part Number</b>	<b>667-448</b>	<b>NF</b>	<b>17</b>	<b>T1</b>	<b>J</b>
<b>Series</b>	ProSeal protective cover for D38999 Series III connectors				
<b>Material / Finish</b>	See Table II				
<b>Shell Size</b>	See Table I				
<b>Panel Thickness</b>	See Table III				
<b>Type of Mounting</b>	<b>J</b> = Jam Nut Mount Receptacle <b>W</b> = Wall Mount Receptacle				

- Threaded closure
- Full environmental protection
- Self-aligning
- Positive spring-action in closed position. Locks open at approximately 105° from receptacle face.

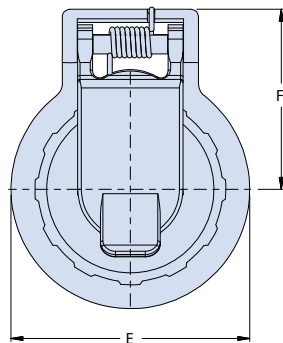
Wall mount, shown closed



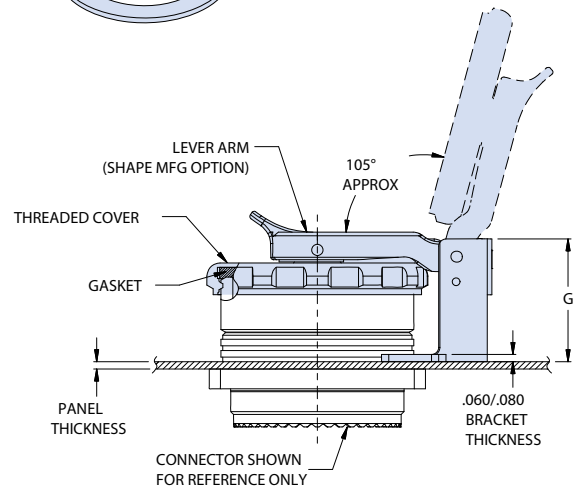
Jam nut mount, shown open



WALL MOUNT



JAM NUT



#### MATERIAL / FINISH

Cover, Lever Arm, Gimbal - Thermoplastic / Black  
 Bracket - see Table II  
 Spring / Pin / Rivet - 300 Series SST / Passivate  
 Sleeve - Delrin  
 Gasket - Silicone (optional)



**MIL-DTL-38999 Series III Type connector covers**

**Threaded closure seal, full environmental**

BACKSHELLS AND ACCESSORIES

Table I: Dimensions														
Shell Size	A Dim max		B Dim		C Dim		D ±.008 (.20)		E ±.031 (.79)		F Dim max		J Dia max	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
09	0.937	23.80	0.719	18.26	0.360	9.14	0.128	3.25	1.031	26.19	.913	23.19	.872	22.15
11	1.031	26.19	0.812	20.62	0.406	10.31	0.128	3.25	1.125	28.58	.961	24.41	.988	25.10
13	1.126	28.60	0.906	23.01	0.453	11.51	0.128	3.25	1.375	34.93	1.083	27.51	1.129	28.68
15	1.220	30.99	0.969	24.61	0.485	12.32	0.128	3.25	1.560	39.62	1.178	29.92	1.280	32.51
17	1.311	33.30	1.062	26.97	0.531	13.49	0.128	3.25	1.625	41.28	1.211	30.76	1.441	36.60
19	1.437	36.50	1.156	29.36	0.578	14.68	0.128	3.25	1.750	44.45	1.273	32.33	1.499	38.07
21	1.563	39.70	1.250	31.75	0.625	15.88	0.128	3.25	2.000	50.80	1.538	39.07	1.630	41.40
23	1.689	42.90	1.375	34.93	0.688	17.48	0.154	3.91	2.150	54.61	1.614	41.00	1.755	44.58
25	1.841	46.76	1.500	38.10	0.750	19.05	0.154	3.91	2.218	56.34	1.647	41.83	1.880	47.75

Table II: Material and Finish		
Sym	Material	Finish
MT	Aluminum	Nickel-PTFE
ZR		Zinc-Nickel, Black (Tri-Valent CR)
M		Electroless Nickel
NF		Cad Plate / Olive Drab over Electroless Nickel
C		Anodize / Black
UC		Zinc Cobalt / Black

Table III: Panel Thickness							
Dash No.	Panel Thickness* ±.030 (.76)		Shell Size	G ± .06			
	in	mm		Jam Nut Mount		Wall Mount	
				in	mm	in	mm
T0	.000	.00	09-19	N/A	N/A	1.039	26.39
			21-25	N/A	N/A	1.094	27.79
T1	.062	1.57	09-19	1.041	26.44	0.977	24.82
			21-25	1.126	28.60	1.032	26.21
T2	.125	3.18	09-19	0.979	24.87	0.915	23.24
			21-25	1.064	27.03	0.970	24.64

\*Jam nut mount is not available with panel thickness T0

# SuperNine® ProSeal™ environmental MIL-DTL-38999 Series III Type connector covers

Pressure seal, dust and immersion resistant



BACKSHELLS AND ACCESSORIES

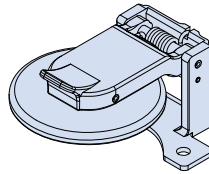
## 667-449 PROSEAL PROTECTIVE COVER FOR D38999 SERIES III CONNECTORS



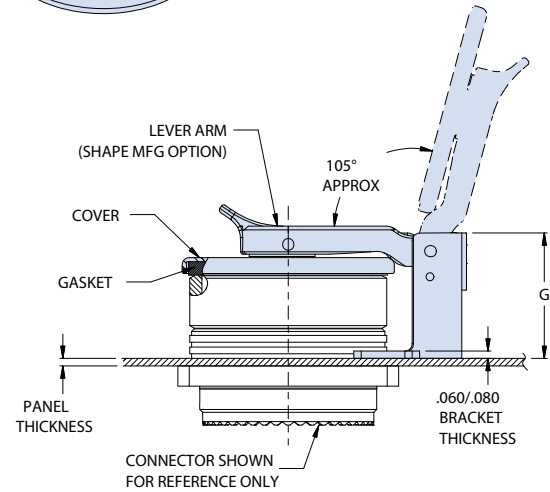
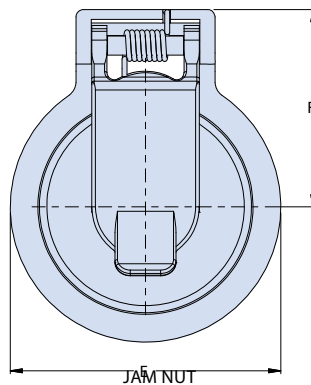
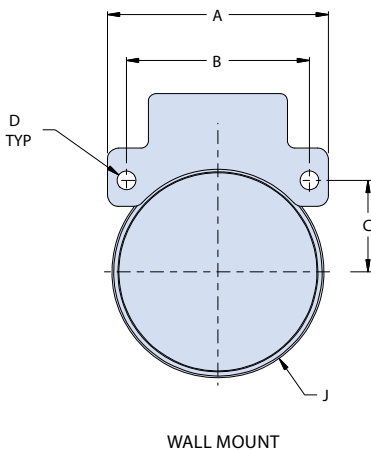
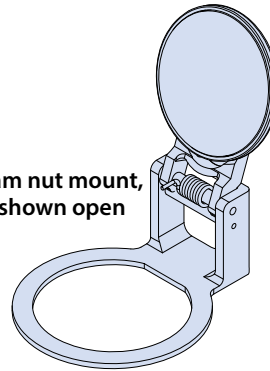
How to Order 667-449					
Sample Part Number	667-449	NF	17	T1	J
Series	ProSeal protective cover for D38999 Series III connectors				
Material / Finish	See Table II				
Shell Size	See Table I				
Panel Thickness	See Table III				
Type of Mounting	J = Jam Nut Mount Receptacle W = Wall Mount Receptacle				

- Pressure seal, dust and immersion resistant
- Self-aligning
- Positive spring-action in closed position. Locks open at approximately 105° from receptacle face.

Wall mount, shown closed



Jam nut mount, shown open



### MATERIAL / FINISH

- Cover, Lever Arm, Gimbal - Thermoplastic / Black
- Bracket - see Table II
- Spring / Pin / Rivet - 300 Series SST / Passivate
- Sleeve - Delrin
- Gasket - Silicone (optional)

# SuperNine<sup>®</sup> ProSeal<sup>™</sup> environmental MIL-DTL-38999 Series III Type connector covers

Pressure seal, dust and immersion resistant



BACKSHELLS AND ACCESSORIES

Table I: Dimensions														
Shell Size	A Dim max		B Dim		C Dim		D ±.008 (.20)		E ±.031 (.79)		F Dim max		J Dia max	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
09	0.937	23.80	0.719	18.26	0.360	9.14	0.128	3.25	1.031	26.19	.913	23.19	.735	18.67
11	1.031	26.19	0.812	20.62	0.406	10.31	0.128	3.25	1.125	28.58	.961	24.41	.860	21.84
13	1.126	28.60	0.906	23.01	0.453	11.51	0.128	3.25	1.375	34.93	1.083	27.51	.985	25.02
15	1.220	30.99	0.969	24.61	0.485	12.32	0.128	3.25	1.560	39.62	1.178	29.92	1.120	28.45
17	1.311	33.30	1.062	26.97	0.531	13.49	0.128	3.25	1.625	41.28	1.211	30.76	1.280	32.51
19	1.437	36.50	1.156	29.36	0.578	14.68	0.128	3.25	1.750	44.45	1.273	32.33	1.343	34.11
21	1.563	39.70	1.250	31.75	0.625	15.88	0.128	3.25	2.000	50.80	1.538	39.07	1.466	37.24
23	1.689	42.90	1.375	34.93	0.688	17.48	0.154	3.91	2.150	54.61	1.614	41.00	1.593	40.46
25	1.841	46.76	1.500	38.10	0.750	19.05	0.154	3.91	2.218	56.34	1.647	41.83	1.718	43.64

Table II: Material and Finish		
Sym	Material	Finish
MT	Aluminum	Nickel-PTFE
ZR		Zinc-Nickel, Black (Tri-Valent CR)
M		Electroless Nickel
NF		Cad Plate / Olive Drab over Electroless Nickel
C		Anodize / Black
UC		Zinc Cobalt / Black

Table III: Panel Thickness							
Dash No.	Panel Thickness* ±.030 (.76)		Shell Size	G ± .06			
	in	mm		Jam Nut Mount		Wall Mount	
				in	mm	in	mm
T0	.000	.00	09-19	N/A	N/A	1.039	26.39
			21-25	N/A	N/A	1.094	27.79
T1	.062	1.57	09-19	1.041	26.44	0.977	24.82
			21-25	1.126	28.60	1.032	26.21
T2	.125	3.18	09-19	0.979	24.87	0.915	23.24
			21-25	1.064	27.03	0.970	24.64

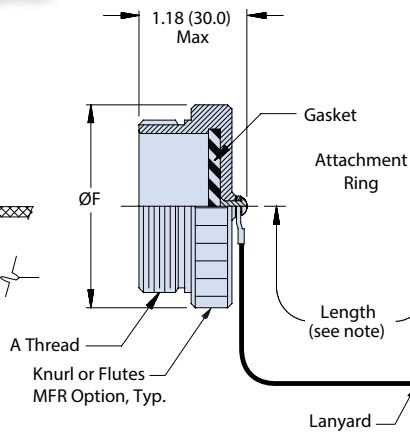
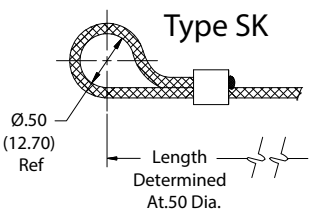
\*Jam nut mount is not available with panel thickness T0

**MIL-DTL-38999 Series III Type**

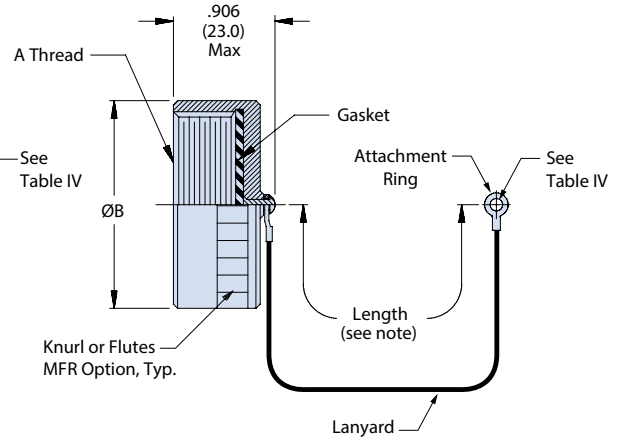
**660-049 and -050 Composite protective covers**

BACKSHELLS AND ACCESSORIES

Part Number Development									
Sample Part Number	660-049				XM	21	R	6	-04
Product Series-Basic No.	660-049 = Plug cover		660-050 = Receptacle cover						
Finish	XB = No plating, black XO = No Plating, non-conductive, brown XW = Cadmium O/D over electroless nickel (1000 hour salt spray)		XV = No Plating, purple XMT = Nickel-PTFE 1000 Hour Gray		XM = Electroless nickel				
Connector Shell Size	See Dimensions Table								
Lanyard Type	See Lanyard Code Table								
Attachment Length	In inches; i.e. 1=1 inch								
Ring Style Dash No.	See Tables I, II, III								



**-049 Plug Cover  
MIL-DTL-38999/32 Type**



**-050 Receptacle Cover  
MIL-DTL-38999/33 Type**

Dimensions			
Shell Size	A Thread 0.1P-0.3L-TS	Plug Cover ØB Max	Receptacle Cover ØB Max
09	.6250	0.906 (23.0)	.906 (23.0)
11	.7500	1.024 (26.0)	1.102 (28.0)
13	.8750	1.220 (31.0)	1.220 (31.0)
15	1.0000	1.300 (33.0)	1.260 (32.0)
17	1.1875	1.457 (37.0)	1.457 (37.0)
19	1.2500	1.575 (40.0)	1.535 (39.0)
21	1.3750	1.732 (44.0)	1.654 (42.0)
23	1.5000	1.811 (46.0)	1.772 (45.0)
25	1.6250	1.969 (50.0)	1.929 (49.0)

Lanyard Code	
Code	Description
D	Bead Chain, CRES, Passivated
F	Wire Rope, Nylon Jacket
G	Nylon Rope, Black
H	Wire Rope, Fluoropolymer Jacket
K	Nylon Rope, Olive Drab
N	No Lanyard
R	Wire Rope, PVC Jacket
S	#8 Sash Chain, CRES, Passivated
T	Wire Rope, No Jacket
U	Wire Rope, Polyurethane Jacket with terminal
SK	Nylon Rope (Black) w/Slip Knot

**NOTES**

1. Max diameter over which mandrel will rotate freely
2. Material/finish
  - Cover: thermoplastic polyetherimides; see part number development, finish
  - Gasket: fluorosilicone/N.A.
  - Hardware, rivet: CRES/passivate
  - Rope lanyard: see lanyard code table

**MIL-DTL-38999 Series III Type**

**660-049 and -050 Composite protective covers**

BACKSHELLS AND ACCESSORIES

Available Lanyard Types		
Bead Chain (Type D)	Sash Chain (Type S)	Wire or Nylon Rope (Types F, G, H, K, R, T, U)

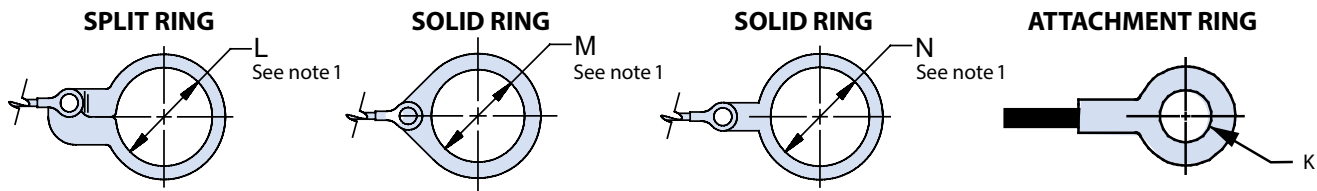


Table I	
Dash No	L Dia ±.015 (0.4)
50	.425 (10.8)
52	.485 (12.3)
54	.640 (16.3)
56	.750 (19.1)
58	.890 (22.6)
60	1.015 (25.8)
62	1.095 (27.8)
64	1.130 (28.7)
66	1.250 (31.8)
68	1.350 (34.3)
70	1.375 (34.92)
72	1.485 (37.7)
74	1.625 (41.3)
76	1.750 (44.5)
78	1.875 (47.6)
80	1.980 (50.3)
82	2.060 (52.3)
84	2.235 (56.8)
86	2.310 (58.7)
88	2.475 (62.9)
90	2.655 (67.4)
92	2.810 (71.4)
94	3.045 (77.3)

Table II	
Dash No	M Dia ±.015 (0.4)
08	.468 (11.9)
10	.593 (15.1)
12	.718 (18.2)
13	.765 (19.4)
14	.844 (21.4)
15	.890 (22.6)
16	.968 (24.6)
17	1.015 (25.8)
18	1.093 (27.8)
19	1.140 (29.0)
20	1.187 (30.15)
21	1.265 (32.1)
22	1.343 (34.1)
23	1.453 (36.9)
24	1.484 (37.7)
25	1.577 (40.1)
27	1.640 (41.7)
28	1.687 (42.8)
29	1.765 (44.8)
30	1.890 (48.0)
31	1.953 (49.6)
32	1.968 (50.0)
33	2.077 (52.8)
35	2.140 (54.4)
36	2.187 (55.5)
40	2.406 (61.1)
44	2.656 (67.5)
48	3.031 (77.0)

Table III	
Dash No	N Dia ±.015 (0.4)
100	.391 (9.9)
101	.516 (13.1)
102	.583 (14.8)
103	.641 (16.3)
104	.708 (18.0)
105	.766 (19.5)
205	.788 (20.0)
106	.896 (22.2)
206	.907 (23.0)
107	1.016 (25.8)
207	1.025 (26.0)
108	1.141 (29.0)
308	1.188 (30.18)
208	1.203 (30.6)
109	1.266 (32.2)
209	1.312 (33.32)
110	1.391 (35.3)
210	1.438 (36.53)
111	1.521 (38.63)
211	1.536 (39.01)
112	1.641 (41.68)
113	1.766 (44.86)
213	1.812 (46.02)
114	1.891 (48.03)
214	1.938 (49.23)
115	2.078 (52.78)
116	2.406 (61.11)
117	2.510 (63.75)

Table IV	
Dash No	K Dia ±.010 (0.25)
01	.140 (3.56)
02	.182 (4.62)
03	.191 (4.85)
04	.197 (5.00)
05	.167 (4.24)
06	.125 (3.18)
07	.218 (5.54)
09	.156 (3.96)



**MIL-DTL-38999 Series III Type**

**239-200 Plug cover for 233-215 piston-sealed plug**

BACKSHELLS AND ACCESSORIES

Part Number Development									
Sample Part Number	239-200				NF	17	H	5	-17
Product Series-Basic No.	Plug cover for SuperNine piston-seal connector								
Finish	ME, MT, NF, ZR, TD, TP3, Z1, ZL, AB; See Material/Finish Table								
Connector Shell Size	09, 11, 13, 15, 17, 19, 21, 23, 25; See Dimensions Table								
Attachment Type	D, F, G, H, K, N, R, S, T, U; See Lanyard Codes Table								
Attachment Length	Inches; i.e. 17 = 17 inches. Sash chain is ±1 link, all other attachments ±0.25								
Ring Style Dash No.	See Table I								

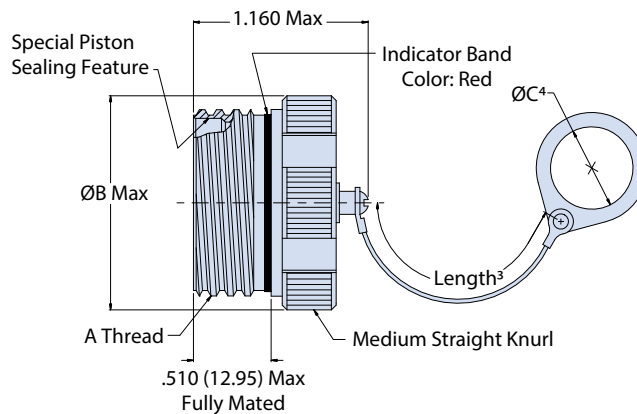
Material/Finish		
Sym	Material / Finish Description	RoHS
ME	Aluminum/Electroless nickel	☑
MT	Aluminum/Ni-PTFE 500 hour nickel fluorocarbon polymer	☑
NF	Aluminum/Cadmium O.D. over electroless nickel	☒
ZR	Aluminum/Black zinc-nickel (tri-valent CR)	☑
TD	Titanium/Natural, unplated	☑
TP3	Titanium Electro-deposited nickel	☑
Z1	SST/Passivate	☑
ZL	SST/electrodeposited nickel	☑
AB	Marine Bronze/Unplated	☑

Dimensions		
Shell Size	A Thread 0.1P-0.3L-TS	Ø B Max
09	.6250	.858 (21.8)
11	.7500	.984 (25.0)
13	.8750	1.157 (29.4)
15	1.0000	1.280 (32.5)
17	1.1875	1.406 (35.7)
19	1.2500	1.516 (38.5)
21	1.3750	1.642 (41.7)
23	1.5000	1.768 (44.9)
25	1.6250	1.890 (48.0)

Attachment Codes	
Code	Description
D	Bead chain, cres, passivated
F	Wire rope, nylon jacket with terminal
G	Nylon rope, black with looped ends
H	Wire rope, fluoropolymer jacket with terminal
K	Nylon rope (olive drab)
N	No attachment
R	Wire rope, PVC jacket with terminal
S	#8 Sash chain, CRES, passivated
T	Wire rope, no jacket with terminal
U	Wire rope, polyurethane with jacket

Table I	
Dash No	ØC Dia ±.015 (0.4)
08	.468 (11.9)
10	.593 (15.1)
12	.718 (18.2)
13	.765 (19.4)
14	.844 (21.4)
15	.890 (22.6)
16	.968 (24.6)
17	1.015 (25.8)
18	1.093 (27.8)
19	1.140 (29.0)
20	1.203 (30.6)
21	1.265 (32.1)
22	1.343 (34.1)
23	1.453 (36.9)
24	1.484 (37.7)
25	1.577 (40.1)
27	1.640 (41.7)
28	1.687 (42.8)
29	1.765 (44.8)
30	1.890 (48.0)
31	1.953 (49.6)
32	1.968 (50.0)
33	2.077 (52.8)
35	2.140 (54.4)
36	2.187 (55.5)
40	2.406 (61.1)
44	2.656 (67.5)
48	3.031 (77.0)

Available Lanyard Types (shown with eyelet attachment)
Bead Chain (Type D)
Sash Chain (Type S)
Rope (Types F, G, H, K, R, T, U)



**NOTES**

1. Material/Finish: Hardware, Rivet - CRES/Passivate
2. 239-200 plug cover is designed to meet or exceed the appropriate mechanical, dimensional, and environmental requirements of MIL-DTL-38999 Series III except as shown or noted. Plug cover is for use with 233-215 piston-sealed connector series.
3. Length tolerance for sash chain (S) is ± one link, for all other attachments ±.25
4. Diameter C is maximum mandrel dia. which attachment will rotate freely over

# MIL-DTL-38999 Series III Type

## 660-121 Composite self locking receptacle cover

Part Number Development	
Sample Part Number	660-121 XB 19 R 6 -01 G
Product Series-Basic No.	Self locking receptacle cover
Finish	XW, XB, XM, XMT; See material/finish table
Shell Size	09, 11, 13, 15, 17, 19, 21, 23, 25; see dimensions table
Attachment Type	F, G, H, K, N, R, T; See attachment code table
Attachment Length	Inches; i.e. 01 = 1 inch
Ring Style Dash No.	See ring style tables A, B, C or D
Grounding	G = Ground Spring; Omit for none

Material/Finish	
Sym	Material / Finish Description
XW	Cad/O.D. over electroless nickel (1000 hr)
XB	Black color-no plating
XM	Electroless nickel (1000 hr)
XMT	Ni-PTFE (1000 hr grey)

Dimensions		
Shell Size	A Thread 0.1P-0.3L-TS	Ø B Max
09	.6250	.858 (21.8)
11	.7500	.984 (25.0)
13	.8750	1.157 (29.4)
15	1.0000	1.279 (32.49)
17	1.1875	1.405 (35.69)
19	1.2500	1.515 (38.48)
21	1.3750	1.641 (41.68)
23	1.5000	1.767 (44.88)
25	1.6250	1.889 (47.98)

Attachment Codes	
Code	Description
F	Wire Rope, Nylon Jacket with terminal
G	Nylon Rope, Black, with looped end
H	Wire Rope, Fluoropolymer Jacket with terminal
K	Nylon Rope, Olive Drab
N	No attachment
R	Wire Rope, PVC Jacket with attachment
T	Wire Rope, No Jacket with attachment

**NOTES**

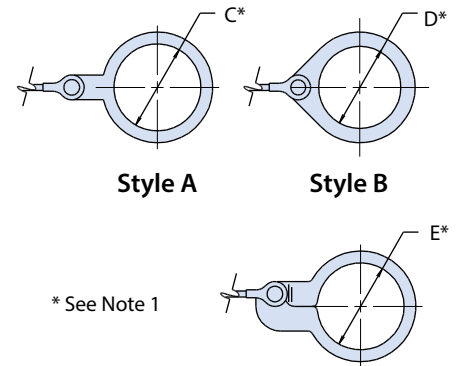
- Max diameter over which mandrel will rotate freely

Ring Style A	
Dash No	C Dia
100	.391 (9.93)
101	.516 (13.11)
102	.583 (14.81)
103	.641 (16.28)
104	.708 (17.98)
105	.766 (19.46)
106	.896 (22.76)
107	1.016 (25.81)
108	1.141 (28.98)
109	1.266 (32.16)
110	1.391 (35.33)
111	1.521 (38.63)
112	1.641 (41.68)
113	1.766 (44.86)
114	1.891 (48.03)
115	2.078 (52.78)
116	2.406 (61.11)
117	2.510 (63.75)
206	.907 (23.04)
208	1.203 (30.56)

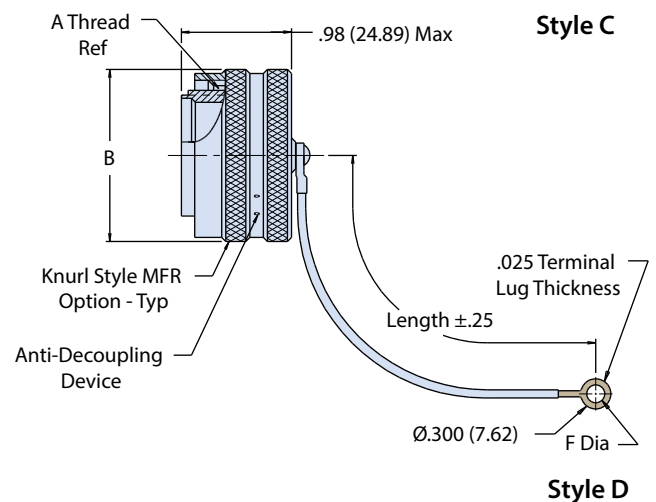
Ring Style B	
Dash No	D Dia
08	.468 (11.89)
10	.593 (15.06)
12	.718 (18.24)
14	.844 (21.44)
16	.968 (24.59)
18	1.093 (27.76)
20	1.187 (30.15)
22	1.343 (34.11)
24	1.484 (37.69)
28	1.687 (42.85)
32	1.968 (49.99)
36	2.187 (55.55)
40	2.406 (61.11)
44	2.656 (67.46)
48	3.031 (76.99)

Ring Style C	
Dash No	E Dia
50	.425 (10.80)
52	.485 (12.32)
54	.640 (16.26)
56	.750 (19.05)
58	.890 (22.61)
60	1.015 (25.78)
62	1.095 (27.81)
64	1.130 (28.70)
66	1.250 (31.75)
68	1.350 (34.29)
70	1.3475 (34.23)
72	1.485 (37.72)
74	1.625 (41.28)
76	1.750 (44.45)
78	1.875 (47.63)
80	1.980 (50.29)
82	2.060 (52.32)
84	2.235 (56.77)
86	2.310 (58.67)
88	2.475 (62.87)
90	2.655 (67.44)
92	2.810 (71.37)
94	3.045 (77.34)

Ring Style D	
Dash No	F Dia
01	.140 (3.56)
02	.182 (4.62)
03	.191 (4.85)
04	.197 (5.00)
05	.167 (4.24)
06	.125 (3.18)



\* See Note 1

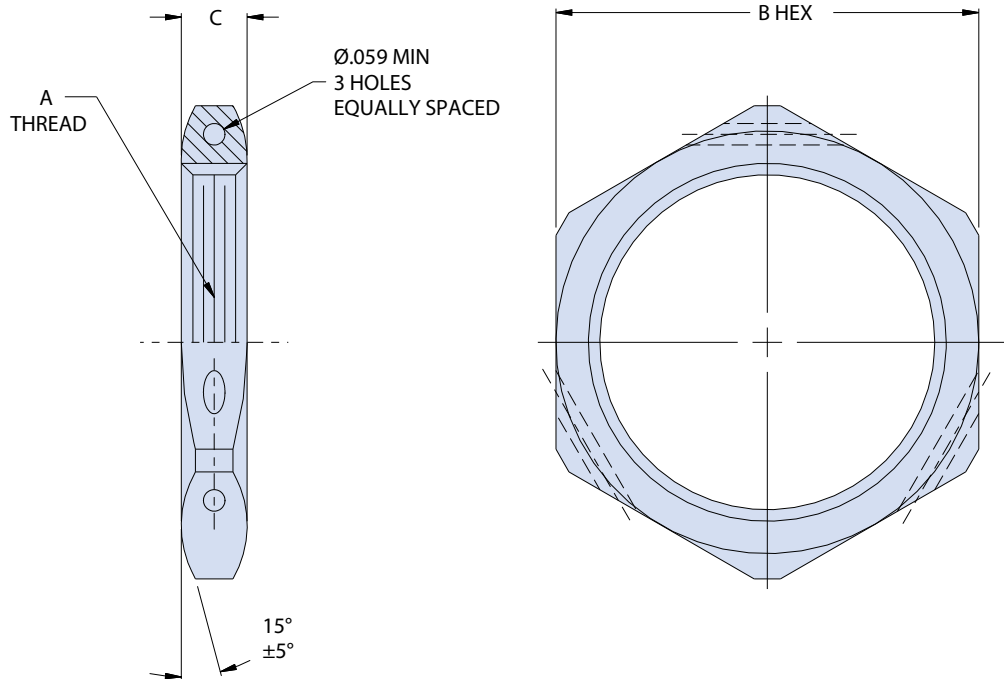


**MIL-DTL-38999 Series III Type**

**239-202 Thick jam nut for .125" panel**

BACKSHELLS AND ACCESSORIES

How to Order 239-202			
<b>Sample Part Number</b>	239-202	ME	11
<b>Series</b>	Replacement Jam Nut for .125" panels		
<b>Material / Finish</b>	See Table II		
<b>Dash No.</b>	See Table I		



Sym	Material	Finish
ME	Aluminum Alloy	Electroless Nickel
MT		Nickel-PTFE
NF		Cad Plate / Olive Drab over Electroless Nickel
ZR		Zinc-Nickel, Black (Tri-Valent CR)

Dash No.	Shell Size	A Thread Isometric	B Hex Max		C	
			in	mm	+.011	-.000
9	9	M17 X 1.0 - 6H	.945	24.0	.179	4.5
11	11	M20 X 1.0 - 6H	1.063	27.0		
13	13	M25 X 1.0 - 6H	1.260	32.0		
15	15	M28 X 1.0 - 6H	1.417	36.0		
17	17	M32 X 1.0 - 6H	1.457	37.0		
19	19	M35 X 1.0 - 6H	1.614	41.0		
21	21	M38 X 1.0 - 6H	1.811	46.0		
23	23	M41 X 1.0 - 6H	1.969	50.0		
25	25	M44 X 1.0 - 6H	2.017	51.2		

**MIL-DTL-38999 Series III Type**

**239-204 Flange gasket for wall-mount receptacles**

BACKSHELLS AND ACCESSORIES

How to Order 239-204			
<b>Sample Part Number</b>	239-204	09	H
<b>Series</b>	Flange gasket		
<b>Dash No.</b>	See Table II		
<b>Material</b>	See Table I		

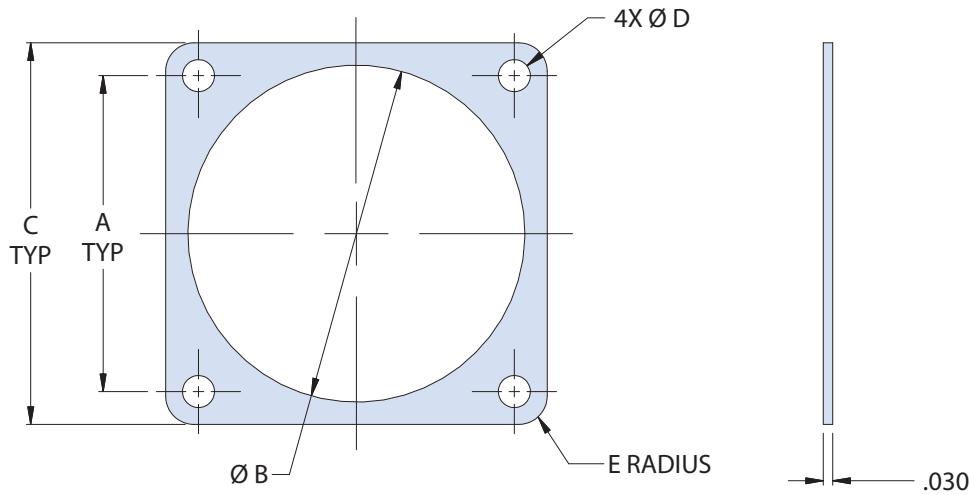
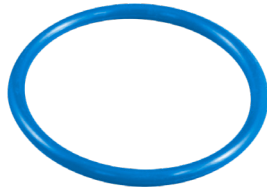


Table I: Material	
Sym	Material
B	Silver-plated aluminum-filled silicone per MIL-DTL-83528, Type "B" (CHO-Seal 1285 or equivalent)
C	Passivated silver-plated aluminum-filled fluorosilicone per MIL-DTL-83528, Type "D" (CHO-Seal 1298 or equivalent)
D	Nickel-coated graphite-filled silicone (CHO-Seal S6305 or equivalent)
E	Nickel-plated graphite-filled EPDM (CHO-Seal 6307 or equivalent)
F	Fluorosilicone
G	Silver-plated nickel-filled EPDM (CHO-Seal 6435 or equivalent)
H	Silver-plated copper-filled silicon per MIL-DTL-83528, Type "A" (CHO-Seal 1215 or equivalent)
J	Nickel-coated graphite-filled fluorosilicone (CHO-Seal L6303)
K	Oriented monel wires in silicone substrate (Chomerics 07-0701 or equivalent)
L	Silicone-filled monel screen cloth or expanded metal (Metex 704-9311 or equivalent)
M	Silver-plated glass-filled silicone (Tecknit Consil-II, Jabar 803-0158 or equivalent)
N	Neoprene
S	Silicone
V	Viton (fluorocarbon)

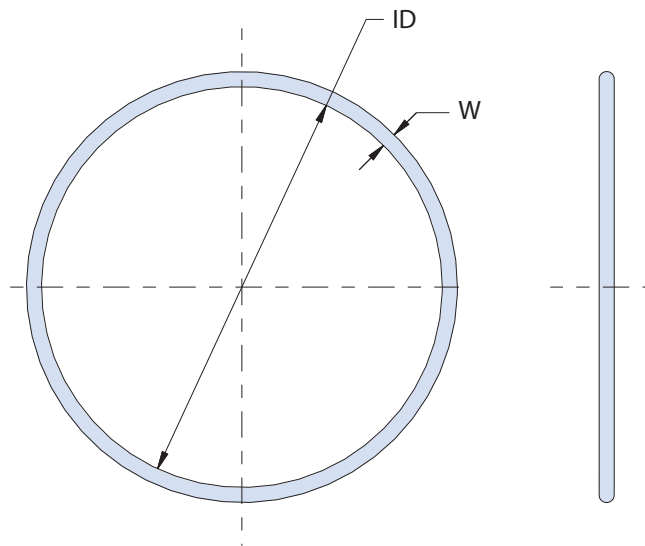
Table II: Dimensions										
Dash No.	A ±.005		B ±.007		C ±.008		ØD ±.005		E Rad. ±.015	
	in	mm	in	mm	in	mm	in	mm	in	mm
-09	.719	18.3	.687	17.4	.937	23.8	.125	3.2	.105	2.7
-11	.812	20.6	.772	19.6	1.031	26.2	.125	3.2	.105	2.7
-13	.906	23.0	.937	23.8	1.125	28.6	.125	3.2	.105	2.7
-15	.969	24.6	1.063	27.0	1.250	31.8	.125	3.2	.135	3.4
-17	1.062	27.0	1.187	30.1	1.343	34.1	.125	3.2	.135	3.4
-19	1.156	29.4	1.312	33.3	1.467	37.3	.125	3.2	.135	3.4
-21	1.250	31.8	1.437	36.5	1.562	39.7	.125	3.2	.135	3.4
-23	1.375	34.9	1.562	39.7	1.703	43.3	.152	3.9	.135	3.4
-25	1.500	38.1	1.600	40.6	1.812	46.0	.152	3.9	.135	3.4

**MIL-DTL-38999 Series III Type**

**239-205 D38999 O-ring for jam nut receptacle connectors**



How to Order 239-205				
<b>Sample Part Number</b>	239-205	-09	-V	2
<b>Series</b>	Replacement O-ring			
<b>Dash No.</b>	See Table I			
<b>Material</b>	See Table II			
<b>Series Modifier</b>	2 - Series II D38999 connectors 4 - Series IV D38999 connectors Omit - Series I/III D38999 connectors			



BACKSHELLS AND ACCESSORIES

Table I: Dimensions					
D38999 SI & SIII	O-Ring ID x W	D38999, SII	O-Ring ID x W	D38999, SIV	O-Ring ID x W
-09	.801 X .070	-8	.989 X .070		
-11	.989 X .070	-10	1.114 X .070	-11	1.114 X .070
-13	1.114 X .070	-12	1.239 X .070	-13	1.239 X .070
-15	1.239 X .070	-14	1.364 X .070	-15	1.364 X .070
-17	1.364 X .070	-16	1.489 X .070	-17	1.489 X .070
-19	1.487 X .103	-18	1.614 X .070	-19	1.614 X .070
-21	1.612 X .103	-20	1.739 X .070	-21	1.739 X .070
-23	1.737 X .103	-22	1.864 X .070	-23	1.864 X .070
-25	1.862 X .103	-24	2.114 X .070	-25	1.989 X .070

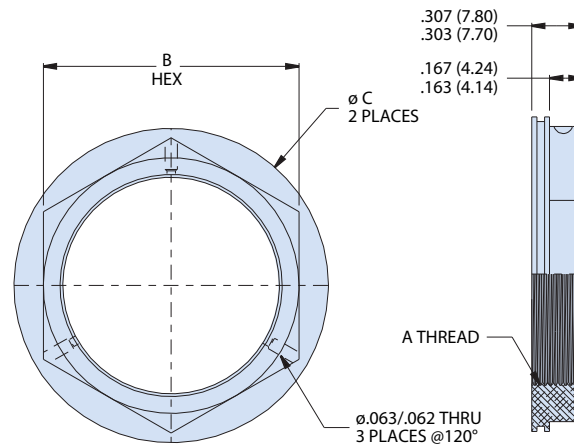
Table II: Material	
Sym	Material
B	Butyl
C	Nitrile (Buna-N)
E	EPDM
F	Fluorosilicone
G	CHO-Seal 6435 or equivalent
H	CHO-Seal 1215 or equivalent
N	Neoprene
P	CHO-Seal 1298 or equivalent
R	CHO-Seal 1285 or equivalent
S	Silicone
T	CHO-Seal 6307 or equivalent
V	Viton
W	Viton VX065-75
Z	FFKM perfluoroelastomer (FF580-75)



**MIL-DTL-38999 Series III Type**

**809-531 Hex Jam Nut with Anti-Rotation Feature**

HOW TO ORDER			
<b>Sample Part Number</b>	809-531	-M	25
<b>Basic Number</b>	809-531 Hex Jam Nut with Anti-Rotation Feature		
<b>Material/Finish</b>	C = Black Anodize Finish, Aluminum M = Electroless Nickel, Aluminum NF = Olive Drab Cadmium Over Electroless Nickel Finish, Aluminum ZN = Zinc-Nickel/O. D. Over Electroless Nickel, Aluminum Z1 = Passivate, Stainless Steel ZL = Electrodeposited Nickel, Stainless Steel		
<b>Shell Size</b>	See Dimensions Table		



Shell Size	A Thread Metric 0.100R	ø B		ø C	
		in	mm	in	mm
11	M20 X 1.0-6H	1.000	25.40	1.247	31.67
13	M25 X 1.0-6H	1.188	30.18	1.497	38.02
15	M28 X 1.0-6H	1.312	33.32	1.724	43.79
17	M32 X 1.0-6H	1.438	36.53	1.805	45.85
19	M35 X 1.0-6H	1.562	39.67	1.970	50.04
21	M38 X 1.0-6H	1.688	42.88	2.095	53.21
23	M41 X 1.0-6H	1.812	46.02	2.215	56.26
25	M44 X 1.0-6H	2.000	50.80	2.460	62.48

# SuperNine® Contacts

## MIL-DTL-38999 Series III Type

### Product selection guide



	<b>SuperNine Contact, Quick Reference Guide</b>	J-3		<b>Size #8 (50Ω and 75Ω) Coaxial Contacts</b>	J-17
	<b>D38999 QPL Crimp Contacts and Commercial Crimp Contacts</b>	J-4		<b>Size #8 Concentric Twinax Contacts</b>	J-19
	<b>Extended Durability (1500 Cycle) D38999 QPL and Commercial Crimp Contacts</b>	J-4		<b>Size #8 Differential Twinax Contacts</b>	J-21
	<b>Extended Durability D38999 QPL and Commercial Equivalent Crimp Contacts</b>	J-4		<b>Size #8 Quadrax Contacts</b>	J-26
	<b>#8 High Power Contacts</b>	J-4		<b>Thermocouple Contacts</b>	J-29
	<b>Size #16 Coaxial Contacts</b>	J-5		<b>Size #12 Pneumatic Contacts</b>	J-30
	<b>Size #12 Coaxial Contacts</b>	J-6		<b>Size 8 Cavity Optoelectronic Contact</b>	J-30
	<b>Size #12, 75 Ohm Matched Impedance Coaxial Contacts</b>	J-7		<b>Crimp Contact Termination Instructions</b>	J-31
	<b>Size #8, 2.5 GHz Max Operating Frequency, 50 Ohm Contacts for Low Loss Coax Cable</b>	J-9		<b>Power and Signal Crimp Contact Tool Cross Reference</b>	J-32
	<b>Size #8, 3 GHz Max Operating Frequency, 50 Ohm Contacts for Coax Cable</b>	J-11		<b>El Ochito® Octaxial "White," "Blue," and "Red" Contacts and Assembly Tools</b>	J-37
	<b>Size #8, 4 GHz Max Frequency, 75 Ohm Low-Loss, Matched-Impedance Coax Contacts &amp; Cable</b>	J-13		<b>600-280 El Ochito® Contact Termination/Installation Kit</b>	J-41

ADVANCED PERFORMANCE



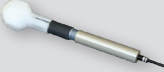

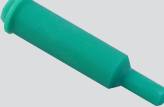

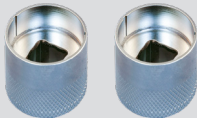
# SuperNine® Contacts

## MIL-DTL-38999 Series III Type

### Product selection guide



CONTACTS AND TOOLS

	<b>Crimp Tools &amp; Positioners</b>	J-42
	<b>Contact Insertion and Extraction Tools</b>	J-44
	<b>Contact Retention Tester for Size #23 Contacts</b>	J-44
	<b>Dummy Contact Sealing Plugs (DCSP)</b>	J-45
	<b>Sealing Plugs</b>	J-49
	<b>Band-Master ATS® Banding Tool</b>	J-50
	<b>600H005 Connector Holding Tool</b>	J-51



#### D38999 QPL AND SUPERNINE 233-205 AND 233-206 CONTACT QUICK REFERENCE GUIDE

D38999 QPL				
Size	Pin	Socket	Durability	Mil Spec Gender Designator
23	M39029/122-670	M39029/121-663	500	P or S
22	M39029/58-360	M39029/56-348	500	P or S
20	M39029/58-363	M39029/56-351	500	P or S
16	M39029/58-364	M39029/56-352	500	P or S
12	M39029/58-365	M39029/56-353	500	P or S

/18 and /17 are not used for D38999

Extended Durability D38999 QPL				
Size	Pin	Socket	Durability	Mil Spec Gender Designator
23	No Mil Spec Available	No Mil Spec Available	1500	N/A
22	M39029/107-620	M39029/106-614	1500	H or J
20	M39029/107-621	M39029/106-615	1500	H or J
16	M39029/107-622	M39029/106-616	1500	H or J
12	M39029/107-623	M39029/106-617	1500	H or J

SuperNine 233-205 and 233-206 Extended Durability Connector Contacts				
Size	Pin	Socket	Durability	Gender Designator
23	857-189	857-190	1500	P or S
22	857-151-22	857-150-22	1500	P or S
20	857-151-20	857-150-20	1500	P or S
16	857-151-16	857-150-16	1500	P or S
12	857-151-12	857-150-12	1500	P or S
22	M39029/107-620	M39029/106-614	1500	H or J
20	M39029/107-621	M39029/106-615	1500	H or J
16	M39029/107-622	M39029/106-616	1500	H or J
12	M39029/107-623	M39029/106-617	1500	H or J

#### D38999 QPL CRIMP CONTACTS (500 CYCLE)



How-To-Order D38999 QPL Qualified Crimp Contacts					
Mating End Size	Wire Accomodation	Pin Contacts		Socket Contacts	
		Military P/N.	Glenair P/N	Military P/N.	Glenair P/N
23	22 - 28 AWG*	M39029/122-670	850-319-23-670	M39029/121-663	850-318-23-663
22	22-28 AWG	M39029/58-360	850-002-22-360	M39029/56-348	850-001-22-348
20	20-24 AWG	M39029/58-363	850-002-20-363	M39029/56-351	850-001-20-351
16	16-20 AWG	M39029/58-364	850-002-16-364	M39029/56-352	850-001-16-352
12	12-14 AWG	M39029/58-365	850-002-12-365	M39029/56-353	850-001-12-353

\*26-30 AWG accommodation is available for size 23, consult factory for details

#### MATERIAL AND FINISH

- Copper alloy, plated; meets AS39029 specifications.
- Rated to 500 cycles of durability for size 23 extended duty see P/N 857-189 and 857-190.



#### EXTENDED DURABILITY (1500 CYCLE) D38999 QPL M39029/107 (850-007) H PIN CONTACT OPTION AND M39029/106 (850-006) J SOCKET CONTACT OPTION



How-To-Order Extended Durability Crimp Contacts					
Mating End Size	Wire Accomodation	Pin Contacts Military Part No.	Pin Contacts Glenair Part No.	Socket Contacts Military Part No.	Socket Contacts Glenair Part No.
22	22-28 AWG	<a href="#">M39029/107-620</a>	<a href="#">850-007-22-620</a>	<a href="#">M39029/106-614</a>	<a href="#">850-006-22-614</a>
20	20-24 AWG	<a href="#">M39029/107-621</a>	<a href="#">850-007-20-621</a>	<a href="#">M39029/106-615</a>	<a href="#">850-006-20-615</a>
16	16-20 AWG	<a href="#">M39029/107-622</a>	<a href="#">850-007-16-622</a>	<a href="#">M39029/106-616</a>	<a href="#">850-006-16-616</a>
12	12-14 AWG	<a href="#">M39029/107-623</a>	<a href="#">850-007-12-623</a>	<a href="#">M39029/106-617</a>	<a href="#">850-006-12-617</a>

#### MATERIAL AND FINISH

- Copper alloy / gold plated; IAW ASTM B 488, Type II, Code C, .000005 min thickness, over palladium IAW ASTM B 679, .000045 min thickness, over nickel IAW SAE ASS-QQ-N290, Class 2, .000050 to .000100 thickness
- Rated to 1500 cycles of durability.
- Size 23 contacts not available for M39029/107, for size 23 extended duty crimp contacts, see part number 857-189 and 857-190.

#### COMMERCIAL, EXTENDED DURABILITY (1500 CYCLE) CONTACTS FOR SUPERNINE 233-205 AND 233-206 CONNECTORS; AVAILABLE FOR TYPE P AND S CRIMP CONTACT OPTIONS ONLY



How-To-Order Extended Durability Crimp Contacts			
Mating End Size	Wire Accomodation	Pin Contacts Glenair Part No.	Socket Contacts Glenair Part No.
23	22-28 AWG	<a href="#">857-189*</a>	<a href="#">857-190*</a>
22	22-28 AWG	<a href="#">857-151-22</a>	<a href="#">857-150-22</a>
20	20-24 AWG	<a href="#">857-151-20</a>	<a href="#">857-150-20</a>
16	16-20 AWG	<a href="#">857-151-16</a>	<a href="#">857-150-16</a>
12	12-14 AWG	<a href="#">857-151-12</a>	<a href="#">857-150-12</a>

\* 857-189 and 857-190 are also used in high-density size 23 insert arrangements

#### MATERIAL AND FINISH

- Copper alloy, plated; meets AS39029 specifications.
- Rated to 1500 cycles of durability.
- Plated with 50 microinches gold per ASTM B488 Type II code C

#### #8 HIGH POWER CONTACTS



How-To-Order #8 High Power Contacts			
Type	Mating End Size	Wire Accomodation	Glenair Part Number
Socket	8	8 AWG	<a href="#">850-013</a>
Pin	8	8 AWG	<a href="#">850-014</a>

#### MATERIAL AND FINISH

- Contact Body: Copper alloy, plated with 50 microinches gold per ASTM B488 Type II code C
- Hood: CRES, passivated
- 50–100 microinches nickel IAW SAE AMS-QQ-N-290, class II





#### SIZE #16 COAXIAL CONTACTS



These #16 contacts accept 50 ohm and 75 ohm coaxial cable. Inner contact is rated at 1 amp, the outer contact 12 amps. DWV rating is 800 Vac rms sea level, 250 Vac at 50,000 feet. Contacts are packaged individually and are unassembled with instruction sheet. One contact consists of outer contact, fluorocarbon dielectric, inner contact and shield crimp sleeve. Inner and outer contacts are gold-plated copper alloy. Approved to SAE AS39029. VSWR rating 1.5:1 maximum up to 700 MHz. 5000 megohm insulation resistance.

How-To-Order Size #16 Coaxial Contacts

Type	Cable Accommodation	Part Number	Military Part Number	Color Band		
				1st	2nd	3rd
Pin	M17/119-RG174, M17/113-RG316, M17/094-RG179, Times AA3248, Teledyne 11299, Haveg 8100207, Thermax 75-738-BCCWXE, Tensolite 3088/L707YX-1	<a href="#">852-008-16-424</a>	<a href="#">M39029/76-424</a>	Yellow	Red	Yellow
	M19/093-RG178	<a href="#">852-008-16-425</a>	<a href="#">M39029/76-425</a>	Yellow	Red	Green
Socket	M17/119-RG174, M17/113-RG316, M17/094-RG179, Times AA3248, Teledyne 11299, Haveg 8100207, Thermax 75-738-BCCWXE, Tensolite 30888/L707YX-1	<a href="#">852-009-16-428</a>	<a href="#">M39029/77-428</a>	Yellow	Red	Gray
	M17/093-RG178	<a href="#">852-009-16-429</a>	<a href="#">M39029/77-429</a>	Yellow	Red	White

#### MATERIAL AND FINISH

- Contact Body: Copper Alloy/Gold Plated
- Center Contact: Copper Alloy/Gold Plated
- Crimp Sleeve: Copper Alloy/Gold Plated
- Insulator: Teflon



**SIZE #12 COAXIAL CONTACTS**



These contacts offer improved frequency response compared to standard coaxial contacts. Nominal impedance is 50 ohms VSWR is 1.32:1 at 3GHz when the contacts are used with M17/113-RG316 cable. Insertion loss at 3GHz is 0.20 dB maximum. Inner contact is rated at 1 amp, the outer contact 12 amps. DWV voltage rating is 1000 Vac rms sea level, 250 Vac at 50,000 feet. Contacts are packaged individually and shipped unassembled with instruction sheet. Inner and outer contacts are gold-plated copper alloy. 5000 megohm insulation resistance.

How-To-Order Size #12 Coaxial Contacts						
Type	Cable Accommodation	Part Number	Military Part Number	Color Band		
				1st	2nd	3rd
Pin	M17/113-RG316 M17/094-RG179	<b>852-004-12-558</b>	<b>M39029/102-558</b>	Green	Green	Gray
	M17/152-00001 (RG316DS)	<b>852-016-02</b>	N/A	N/A		
	M17/93-RG178	<b>852-016-03</b>	N/A	N/A		
	TFlex-405 or 086 equivalent	<b>852-018</b>	N/A	N/A		
Socket	M17/113-RG316 M17/094-RG179	<b>852-005-12-559</b>	<b>M39029/102-558</b>	Green	Green	White
	M17/152-00001 (RG316DS)	<b>852-019-02</b>	<b>M39029/103-559</b>	N/A		
	M17/93-RG178	<b>852-019-03</b>	N/A	N/A		
	TFlex-405 or 086 equivalent	<b>852-037</b>	N/A	N/A		

**MATERIAL AND FINISH**

- Contact Body: Copper Alloy/Gold Plated
- Hood: Stainless Steel/Passivated
- Center Contact: Copper Alloy/Gold Plated
- Crimp Sleeve: Copper Alloy/Gold Plated
- Insulator: Teflon

#### SIZE #12, 3 GHZ MAX OPERATING FREQUENCY, 75 OHM MATCHED IMPEDANCE COAXIAL CONTACTS



Pin Contact

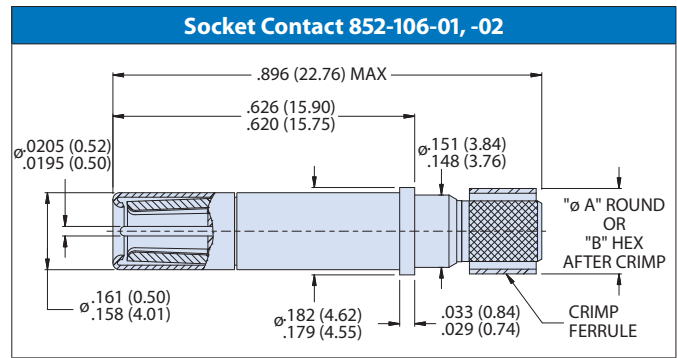
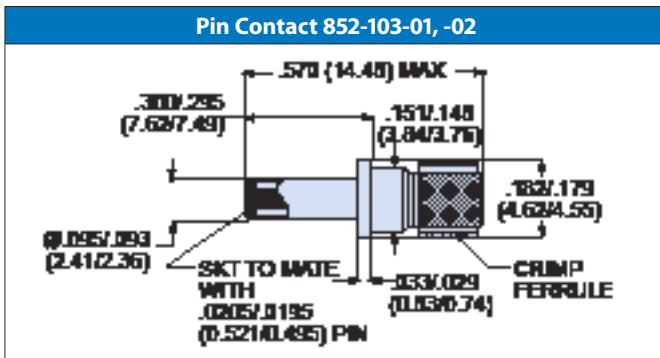


Socket Contact

75 Ohm coax contacts provide DC – 3 GHz frequency range. Crimp termination. Supplied as unassembled kit with contact body, center contact and outer ferrule. Snap-in, rear-release contacts fit Series 80 Mighty Mouse connectors and Glenair MIL-DTL-38999 Series I, III, and IV connectors with size #12 cavities. Gold-plated copper alloy, fluoroplastic insulator.

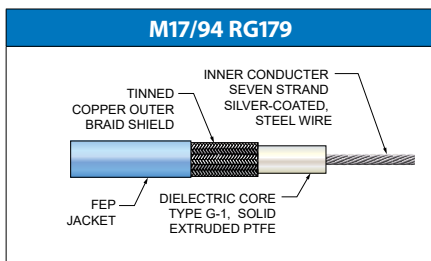
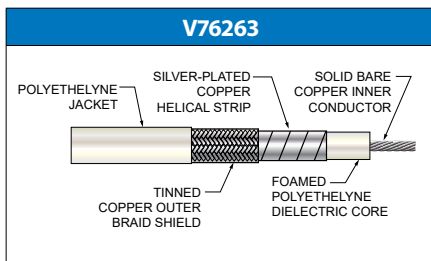
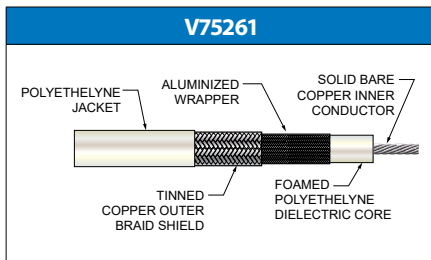
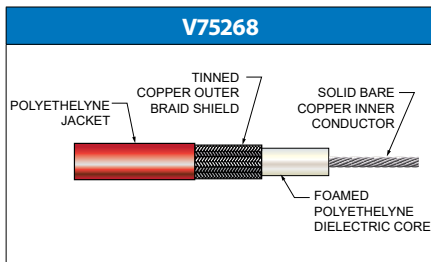
Size 12, 75 Ohm Matched-Impedance Coaxial Contacts			
RG Cable	Pin Contact	Socket Contact	Assembly Instructions
V75268, V76261, V73263 (PIC™ Wire and Cable)	<b>852-103-01</b>	<b>852-106-01</b>	AI85088, AI85024
RG179 (M17/94-RG179)	<b>852-103-02</b>	<b>852-106-02</b>	AI85031, AI85075

Technical Data	
Specifications	Construction
<ul style="list-style-type: none"> <li>Operating temperature: -65°C. to +200°C.</li> <li>Dielectric withstanding voltage: 500 VRMS</li> <li>Current rating: 1 ampere</li> <li>VSWR: 1.25:1 max. @ 3 GHz</li> <li>Impedance: 75 Ohms nominal</li> <li>Durability: 500 mating cycles</li> <li>Shock: EIA-364-27 condition D</li> <li>Vibration: EIA-364-28 condition VI, letter J</li> </ul>	<ul style="list-style-type: none"> <li>Center contact, body, crimp sleeve: copper alloy, 50 microinches gold over nickel plating</li> <li>Insulator: fluoroplastic</li> <li>Socket Hood: stainless steel, passivated</li> </ul>



#### SIZE #12, 3 GHZ MAX OPERATING FREQUENCY, 75 OHM MATCHED IMPEDANCE COAXIAL CONTACTS

Coax contacts 852-103 and 852-104 are designed for use with V75268, V76261, V73263 PIC wire and RG179. V75268 and V75261 coaxial cable can be used in cabin entertainment analog and digital video applications. V75263 cable is suitable for high definition digital video and offers low VSWR and attenuation characteristics. Manufactured by PIC Wire, these cables are Skydrol resistant, RoHS compliant and meets the FAA flammability requirements of FAR Part 23 and 25, Appendix F; complies with MIL-C-17 as applicable



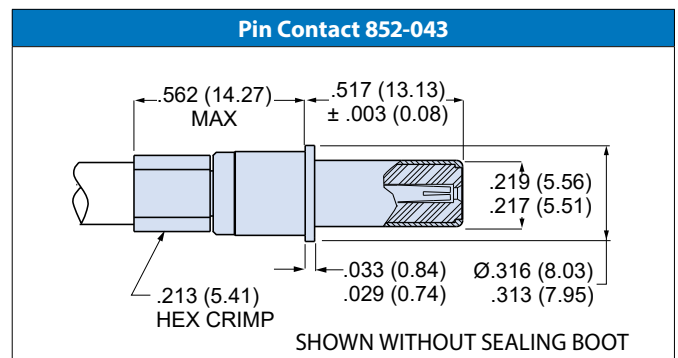
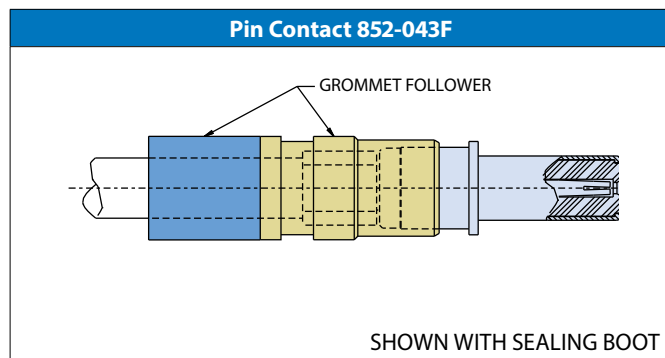
Glenair Part No.	960-130	960-131	960-132	N/A
Manufacturer Part No.	V75268	V76261	V73263	N/A
Military Part Number	N/A	N/A	N/A	RG179 (M17/94-RG179)
Manufacturer	PIC	PIC	PIC	MIL-SPEC
Impedance	75	75	75	75
Velocity of Propagation %	80.0	80.0	80.0	69.5
Capacitance (pF/ft)	16.0	16.0	16.0	23.0
Conductor Wire Size	AWG 26	AWG 26	AWG 26	.012 (0.30)
Conductor Type	Stranded SPC	Stranded SPC	Stranded SPC	Stranded SPC
Dielectric	Foamed Fluoropolymer	Foamed Fluoropolymer	Foamed Fluoropolymer	Extruded PTFE
Shielding Effectiveness (dB)	-50 min	-90	-110	N/A
Outer Diameter	0.12 (3.10)	0.12 (3.10)	0.13 (3.18)	.100 (2.54)
Weight (lbs/100ft.)	1.3	1.1	1.5	.0108
Temperature Range	-55° to +150°C	-55° to +150°C	-55° to +150°C	-55° to +200°C
Frequency	Attenuation (dB/100 ft) nom/max			
135 MHz	5.9/6.5	5.8/6.4		
180 MHz	6.9/7.6	6.7/7.4		
270 MHz	8.6/9.5	8.3/9.1		
360 MHz	10.1/11.1	9.7/10.6		
400 MHz			10.2/11.3	21.0 nominal
750 MHz			14.2/15.7	
1.45 GHz		21.9/23.4	21.9/23.4	
1.5 GHz			20.6/22.7	
3.0 GHz		33.7/36.1	30.3/33.3	
6.0 GHz			44.9/49.5	

#### SIZE #8 50 OHM CONTACTS FOR LOW LOSS HIGH PERFORMANCE COAX CABLE

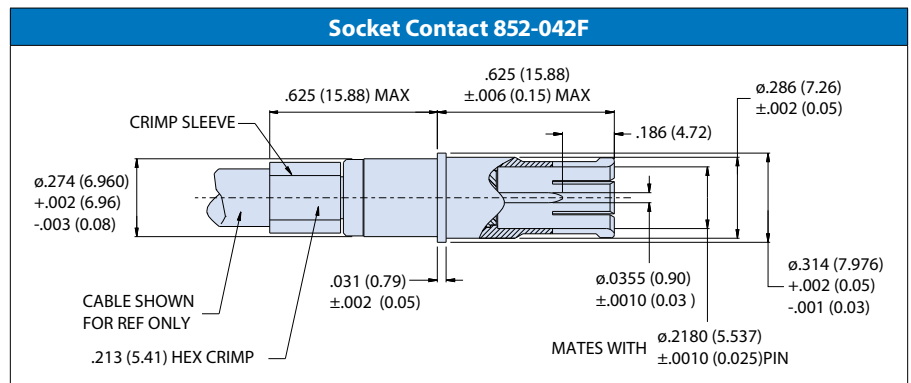


Coax contacts fit Glenair Series 80 Mighty Mouse connectors and MIL-DTL-38999 Series I, III, and IV connectors with size 8 contact cavities. 50 Ohm nominal impedance. 0-2.5 GHz frequency range. Solder conductor to center contact, shield termination is crimp type. Supplied as unassembled kit with contact body, center contact, outer ferrule and sealing boot. Contacts are snap-in, rear release with plastic extraction tool. Gold-plated copper alloy, Fluoropolymer insulator. See following page for information on coaxial cable.

Fig.	Contact Type	Part Number Contact Only	Part Number Contact and Sealing Boot	Sealing Boot
Fig.1	Pin	<a href="#">852-043</a>	<a href="#">852-043F</a>	<a href="#">859-042-02</a>
Fig.2	Socket	<a href="#">852-042</a>	<a href="#">852-042F</a>	<a href="#">859-042-02</a>



Materials, Finishes	
Contact body, center contact, ferrule	Copper Alloy
Contact finish	50 microinches gold over nickel plating
Dielectric	Fluorocarbon



Technical Data	
Specifications	Construction
<ul style="list-style-type: none"> <li>□ Nominal Impedance: 50 Ohms</li> <li>□ Frequency Range: 0 – 2.5 GHz</li> <li>□ Dielectric Withstanding Voltage: 1300 VAC sea level, 250 VAC at 50,000 feet</li> <li>□ Insulation Resistance: 5000 megOhms minimum</li> <li>□ Durability: 500 mating cycles</li> </ul>	<ul style="list-style-type: none"> <li>□ Center contact: copper alloy/ gold plated</li> <li>□ Body: copper alloy/ gold plated</li> <li>□ Ferrule: copper alloy/ gold plated</li> <li>□ Insulator: PTFE / N.A.</li> </ul>

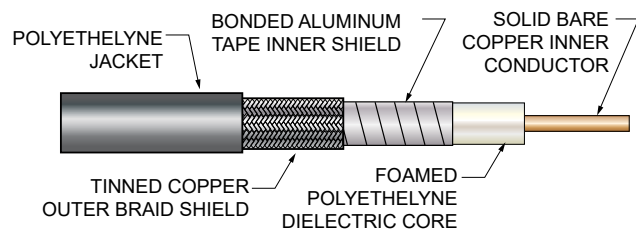


#### SIZE #8 50 OHM CONTACTS FOR LOW LOSS HIGH PERFORMANCE COAX CABLE

Coax contacts 852-042 and 852-043 are designed for use with LLSB-200 and LMR-195 cable (reference only, not sold by Glenair). This low loss, flexible cable is suitable for shipboard, airframe and tactical vehicles. Manufactured by Times Microwave, these cables are qualified to MIL-DTL-17/220. LMR-195 is a drop-in replacement for RG-58 and RG142 (TLMR is not QPL). Jacket is non-halogen, low smoke black UV resistant cross-linked polyethylene.

Manufacturer Part No.	LLSB-200	LMR-195
Military Part Number	M17/220-00001	M17/ RG-58 or RG142
Impedance	50 ± 2	50
Velocity of Propagation %	80	80
Capacitance (pF/ft)	24.5	25.4
Conductor Type	Bare Copper	Bare Copper
Conductor Diameter	.044 (1.12)	.037 (.94)
Dielectric Diameter	.118 (3.0)	.110 (2.79)
Outer Shield Diameter	.144 (3.66)	.116 (2.95)
Shielding Effectiveness (dB)	90 min.	90 min
Outer Diameter	.195 (4.95)	.195 (4.95)
Temperature Range	-30° to +85°C	-40° to +85°Cw
Weight (lbs/ft.)	.037	.021
Attenuation (dB/100 ft)	nominal	
10 MHz	1.3	
30 MHz	2.1	2.0
50 MHz	2.7	2.5
100 MHz	3.8	
150 MHz		4.4
400 MHz	7.7	
450 MHz		7.8
900 MHz		11.1
1 GHz	12.0	
1.5		14.5
2.5 GHz	20.0	19.0

LLSB-200 and LMR-195 Cable



**NOTE**

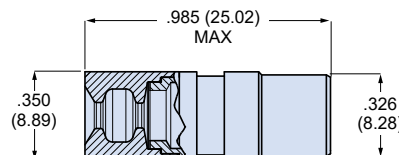
- 852-043 / -042 can be used / terminated on both cables LLSB-200 and LMR-195

**Sealing Boot**

Optional sealing boot is recommended. Slide boot onto wire before terminating contact. After contact is installed in connector, slide boot forward into connector grommet to seal the contact cavity. "F" suffix on contact part number specifies contact supplied with 859-042-02 sealing boot.



Sealing Boot Dimensions		
Wire Dia. (in.)	Wire Dia. (mm.)	Part Number
.130 - .170	3.30 - 4.32	<b>859-042-02</b>



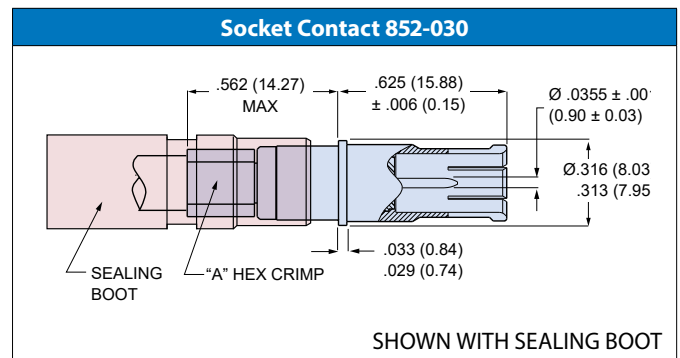
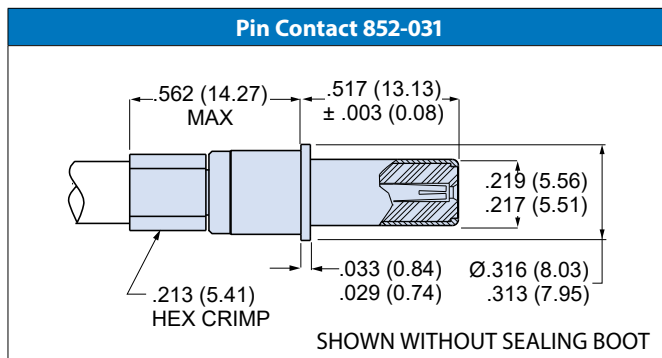
#### SIZE #8, 3 GHZ MAX OPERATING FREQUENCY, 50 OHM COAX CONTACTS AND CABLE



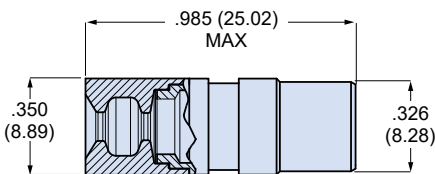
Pin Contact

Socket Contact

Dash Number	Cable Accommodation	"A" Hex	"B" Hex	Pin Part No.	Socket Part No.
-01	M17/152-00001 (RG316DS)	.128 (3.25)	-	852-031-XX no sealing boot	852-030-XX no sealing boot
-02	M17/113-RG316	.128 (3.25)	-		
-03	M17/060-RG142 M17/128-RG400	-	.218 (5.54)	852-031-XXF with sealing boot	852-030-XXF with sealing boot
-04	M17/28-RG58	-	.218 (5.54)		

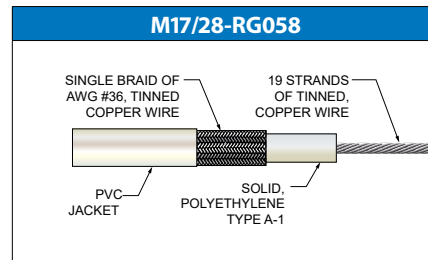
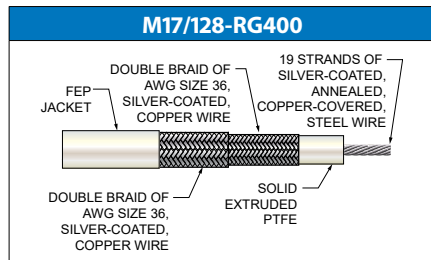
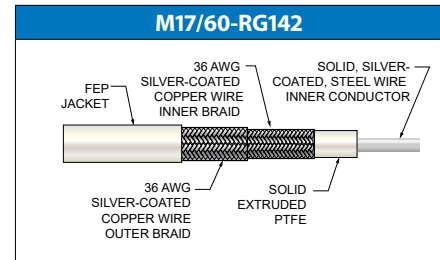
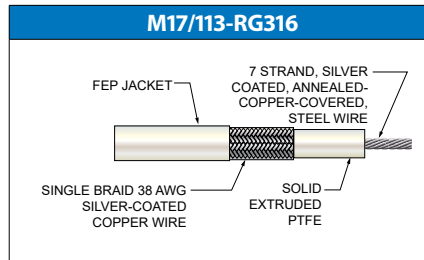
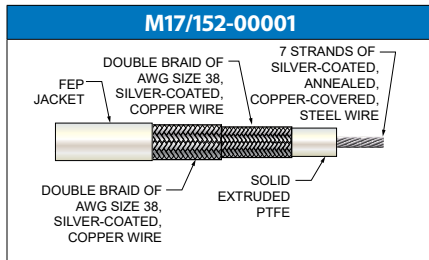


Wire Dia. (in.)	Wire Dia. (mm.)	Part Number
.090 - .130	2.3 - 3.3	859-042-01
.130 - .170	3.3 - 4.3	859-042-02
.170 - .205	4.3 - 5.2	859-042-03



Contact Part No.	Sealing Boot
852-031-01F	859-042-01
852-030-01F	859-042-01
852-031-02F	859-042-01
852-030-02F	859-042-01
852-031-03F	859-042-03
852-030-03F	859-042-03
852-031-04F	859-042-03
852-030-04F	859-042-03

#### SIZE #8, 3 GHZ MAX OPERATING FREQUENCY, 50 OHM COAX CONTACTS AND CABLE



Military Part Number	M17/152-00001 (RG316DS)	M17/113-RG316	M17/060-RG142	M17/128-RG400	M17/28-RG058					
Impedance (Ohms)	50	50	50	50	50					
Velocity of Propagation %	69.5	69.5	69.5	69.5	69.5					
Capacitance (pF/ft)	32.0	32.0	29.3	32	32.2					
Conductor Wire Size	Seven Strands of Silver-Coated, Annealed Copper-Covered, Steel Wire. OD: 0.0201 ± .0010		Solid Silver-Coated, Steel Wire. OD: 0.0201 ± .0010	Solid Silver-Coated Steel Wire OD: 0.037 ± .001	19 Strands of Tinned Copper Wire OD: 0.0355 ± 0.0020					
Dielectric Core	Type F-1: Solid, Extruded PTFE	Type F-1: Solid, Extruded PTFE	Type F-1: Solid, Extruded PTFE	Type F-1: Solid, Extruded PTFE	Type A-1: Solid Polyethylene					
First Shield	38 AWG Silver-Coated Copper Wire 95.4% Nom. Coverage	38 AWG Silver-Coated Copper Wire 95.2% Nom. Coverage	36 AWG Silver-Coated Copper Wire 94.8% Nom. Coverage	36 AWG Silver-Coated Copper Wire 94.8% Nom. Coverage	Single Braid of 36 AWG Tinned Copper Wire 92.8% Nom. Coverage					
Second Shield	38 AWG Silver-Coated Copper Wire 94.6 Nom. Coverage	N/A	36 AWG Silver-Coated Copper Wire 93.1 Nom. Coverage	36 AWG Silver-Coated Copper Wire 93.6% Nom. Coverage	N/A					
Shielding Effectiveness (dB)	40 to 60 dB range acceptable for lower frequency applications									
Jacket	Type IX: FEP	Type IX: FEP	Type IX: FEP	Type IX: FEP	Type IIA: PVC					
Outer Diameter	.114 (2.90) ±.004 (.10)	.098 (2.49) ±.004 (.10)	.195 (4.95) ±.005 (0.13)	.195 (4.95) ±.005 (0.13)	.195 (4.95) ±.004 (0.10)					
Temperature Rating	-55°C to +200° C	-55°C to +200° C	-55°C to +200°C	-55°C to +200°C	-40°C to +85°C					
Weight	1.85 (lbs/100 ft.)	1.22 (lbs/ft.)	.043 (lbs/ft.)	5 (lbs/100 ft.)	.026 (lbs/ft.)					
Max. Attenuation	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft
	50	7.5	50 MHz	30	50 MHz	3.0	50 MHz	3.2	50 MHz	4.0
	500	26	100 MHz	30	100 MHz	4.4	100 MHz	4.5	100 MHz	6.5
	1,000	40	400 MHz	23	400 MHz	9.3	400 MHz	10.5	400 MHz	17.0
	3,000	75	1000 MHz	21	1000 MHz	15.3	1,000 MHz	17	1000 MHz	28.0
	10,000	170	3000 MHz	17	3000 MHz	29.3	3,000 MHz	38		
	12,400	230			8000 MHz	57.8	10,000 MHz	78		
				12400 MHz	85.4	12,400 MHz	90			

**SIZE #8, 4 GHZ MAX FREQUENCY, 75 OHM LOW-LOSS, MATCHED-IMPEDANCE COAX CONTACTS & CABLE**



852-056  
Pin Contact



852-057  
Socket Contact



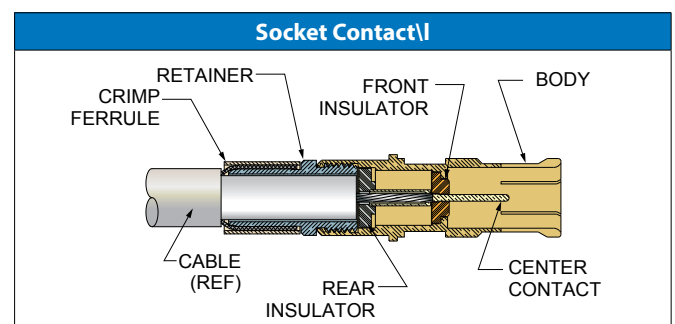
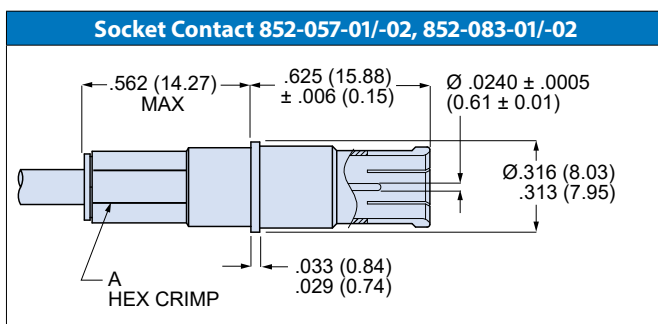
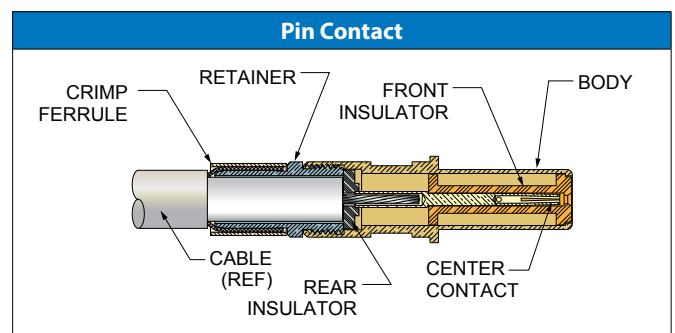
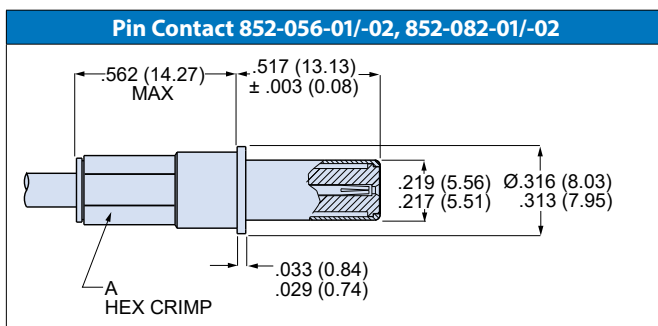
852-082  
Pin Contact



852-083  
Socket Contact

Size 8 coax contacts fit aerospace-grade digital video cable. 75 Ohm nominal impedance. 0-4 GHz frequency range. Crimp termination. Supplied as unassembled kit with contact body, center contact, outer ferrule and sealing boot. These snap-in, rear-release contacts fit Series 80 Mighty Mouse connectors and Glenair MIL-DTL-38999 Series I, III, and IV connectors with size #8 cavities. Gold-plated copper alloy, fluoroplastic insulators.

Size 8, 75 Ohm Matched-Impedance Coaxial Contacts						
Cable	Contact without Sealing Boot		Contact with Sealing Boot		Sealing Boot	Hex A Crimp Dim
	Pin	Socket	Pin	Socket		
960-130 (V7568) 960-131 (V76261) 960-132 (V73263)	852-056-01	852-057-01	852-056-01F	852-057-01F	859-042-01	.218 (5.54)
RG179 (M17/94-RG179)	852-056-02	852-057-02	852-056-02F	852-057-02F	859-042-01	.128 (3.25)
V78209 (PIC™ Wire and Cable)	852-082-01	852-083-01	852-082-01F	852-083-01F	687-754-8-8	.231 (5.87)
LMR-240-75 (Times Microwave)	852-082-02	852-083-02	852-082-02F	852-083-02F	687-754-8-9	.231 (5.87)



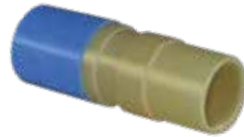
#### SIZE #8 COAXIAL CONTACT CRIMP TOOLS AND SEALING BOOT

Technical Data	
<b>Specifications</b>	
<ul style="list-style-type: none"> <li>❑ Operating temperature: -65°C. to +200°C.</li> <li>❑ Dielectric withstanding voltage: 500 Vac rms at sea level</li> <li>❑ Current rating: 1 ampere</li> <li>❑ VSWR: 1.25:1 max. @ 4 GHz</li> <li>❑ 75 Ohm nominal impedance</li> <li>❑ Durability: 500 mating cycles</li> <li>❑ Shock: EIA-364-27 condition D</li> <li>❑ Vibration: EIA-364-28 condition VI, letter J</li> </ul>	
<b>Construction</b>	
<ul style="list-style-type: none"> <li>❑ <b>Center contact, body, retainer, clamp nut, ferrule:</b> copper alloy, 50 microinches gold over nickel plating</li> <li>❑ <b>Front and rear insulator:</b> fluoropolymer</li> <li>❑ <b>Sealing boot:</b> fluorosilicone rubber, glass-filled PEI</li> </ul>	

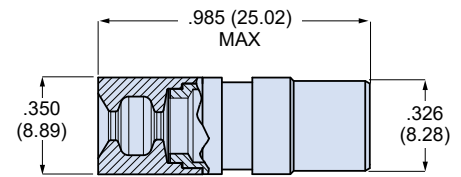
#### Sealing Boot

Optional sealing boot is recommended. Slide boot onto wire before terminating contact. After contact is installed in connector, slide boot forward into connector grommet to seal the contact cavity. "F" suffix on contact part number specifies contact supplied with sealing boot.

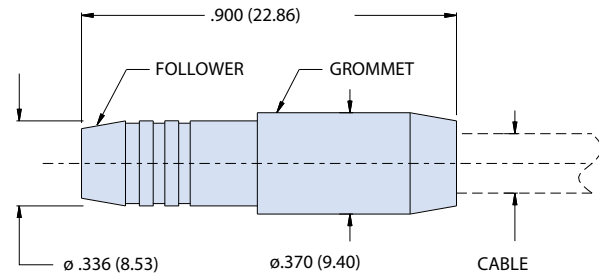
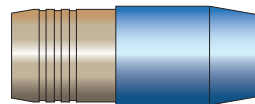
#### Sealing Boot 859-042-01



Sealing Boot Dimensions		
Wire Dia. (in.)	Wire Dia. (mm.)	Part Number
.090 - .130	2.3 - 3.3	<b>859-042-01</b>
.200 - .225	5.08 - 5.715	<b>687-754-8-8</b>
.225 - .240	5.715 - 6.096	<b>687-754-8-9</b>



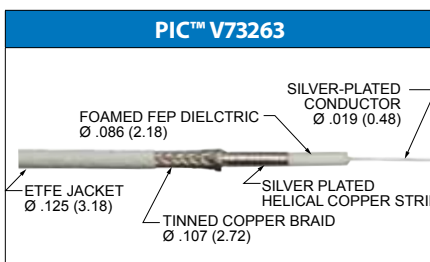
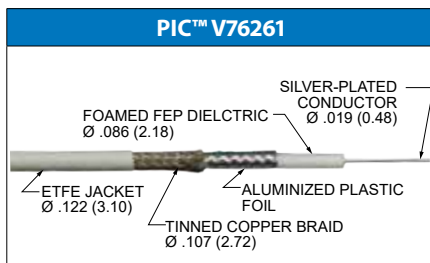
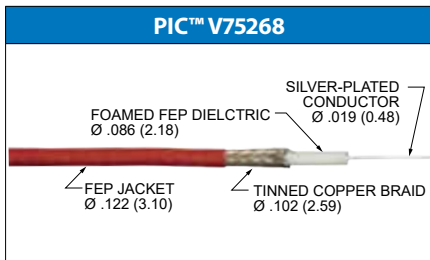
#### Sealing Boot 687-754-8-8/-9





**SIZE #8, 4 GHZ MAX FREQUENCY, 75 OHM LOW-LOSS, MATCHED-IMPEDANCE COAX CONTACTS & CABLE**

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



Glenair Part No.	960-130	960-131	960-132			
Manufacturer Part No.	V75268	V76261	V73263			
Manufacturer	Picwire	Picwire	Picwire			
Impedance (Ohms)	75	75	75			
Velocity of Propagation %	80	80	80			
Capacitance (pF/ft)	16.0	16.0	16.0			
Conductor Wire Size	AWG 26 Stranded SPC	AWG 26 Stranded SPC	AWG 26 Stranded SPC			
Outer Diameter	0.12 (3.10)	0.12 (3.10)	0.13 (3.18)			
Dielectric	Foamed Fluoropolymer	Foamed Fluoropolymer	Foamed Fluoropolymer			
First Shield	Tinned copper braid, 95% coverage					
Second Shield	None	Aluminized film, 100% coverage	Silver plated helical copper strip, 100%			
Shielding Effectiveness (dB)	50	90	110			
Video Application	RS170	RS170	SMPTE 292M			
Temperature Rating	-65° to +165° C	-65° to +165° C	-65° to +165° C			
Weight (lbs/100 ft.)	1.2 lbs	1.1 lbs	1.5 lbs			
Time Delay	1.28	1.28	1.28			
Attenuation (dB/100 ft)	Nominal	Max.	Nominal	Max.	Nominal	Max.
1 MHz	0.51	0.55	0.49	0.52	0.43	0.58
10 MHz	1.70	1.77	1.6	1.71	1.4	1.6
100 MHz	5.3	5.7	5.1	5.5	4.5	5.0
400 MHz	11.1	11.8	10.6	11.3	9.6	10.6
1.45 GHz	23.0	24.6	21.9	23.4	20.0	22.0
3 GHz	35.0	37.4	33.7	36.1	30.9	34.0

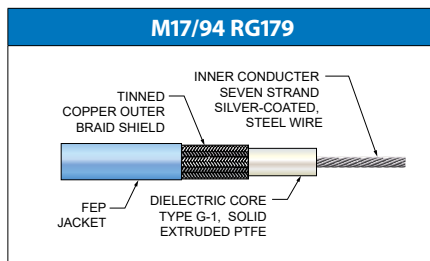
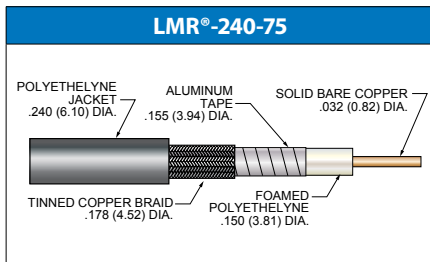
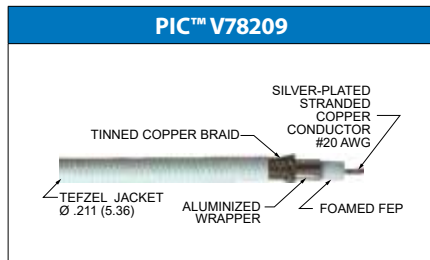
## MIL-DTL-38999 Series III Type

### M39029 and Glenair signature contact solutions

CONTACTS AND TOOLS

#### SIZE #8, 4 GHZ MAX FREQUENCY, 75 OHM LOW-LOSS, MATCHED-IMPEDANCE COAX CONTACTS & CABLE

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



Glenair Part No.	962-007	N/A	N/A			
Manufacturer Part No.	V78209	LMR-240-75	N/A			
Military Part Number	N/A	N/A	M17/94-RG179			
Manufacturer	PIC™	Times Microwave	MIL-SPEC			
Impedance (Ohms)	75	75	75 ±3			
Velocity of Propagation %	80	84	69.5			
Capacitance (pF/ft)	16.5	16.1	23			
Conductor Wire Size	20 AWG Stranded SPC	.032 (.82)	.0040 (0.10)			
Outer Diameter	.21 (5.36)	.240 (6.10)	.100 (2.54)			
First Shield	Tin-Coated Braid	Tin-Coated Braid	7 strand SC <sup>1</sup> , ACC <sup>2</sup> , steel wire			
Second Shield	Aluminized film, 100% coverage	Aluminized film, 100% coverage	None			
Temperature Rating	-55° to +150° C	-40° to +85° C	-55° to +200° C			
Weight (lbs/100 ft.)	3.0	3.4	.012 (lbs/ft.)			
Max. Attenuation	Freq.	dB/100 ft	Freq.	dB/100 ft	Freq.	dB/100 ft
	1 MHz	0.4	50 MHz	1.6		
	10 MHz	0.9	450 MHz	5.0		
	100 MHz	3.0	900 MHz	7.2	4 GHz	21.0
	400 MHz	6.1	1.5 GHz	9.4		
	1.45 GHz	13.6	2.0 GHz	10.9		
	3 GHz	25.0	2.5 GHz	12.3		

- 1. SC = silver coated
- 2. ACC = annealed copper covered

#### SIZE #8 COAXIAL CONTACTS



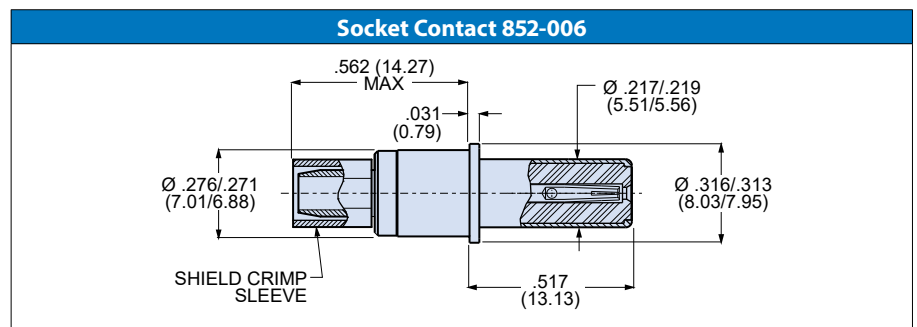
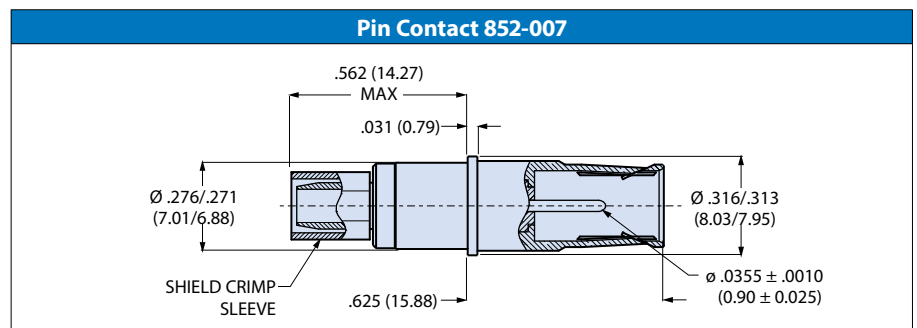
**Fig. 1**  
Pin Contact  
852-007-08-367



**Fig. 2**  
Socket Contact  
852-006-08-366

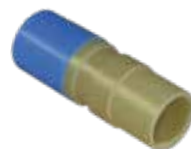
Coax contacts accept M17/095-RG180 cable. These snap-in, rear release contacts fit Glenair Series 80 Mighty Mouse connectors and Glenair MIL-DTL-38999 Series I, III, and IV connectors with size #8 cavities. Crimp termination. Gold-plated copper alloy, Fluoropolymer insulator. Supplied unassembled. Order sealing boot separately (fig. 3). 1 A current rating, 500 Vac. SAE AS39029 qualified.

Fig.	Item	Cable Accommodation	Part Number	AS39029 Part Number	Color Bands		
					1st	2nd	3rd
Fig. 1	Pin	M17/095-RG180	852-007-08-367	M39029/60-367	Orn	Blu	Vio
Fig. 2	Socket	M17/095-RG180	852-006-08-366	M39029/59-366	Orn	Blu	Blu
Fig. 3	Sealing Boot	M17/095-RG180	859-042-02	N/A			

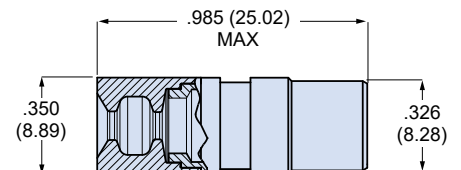


#### Sealing Boot

Sealing boot is ordered separately. Slide boot onto wire before terminating contact. After contact is installed in connector, slide boot forward into connector grommet to seal the contact cavity.

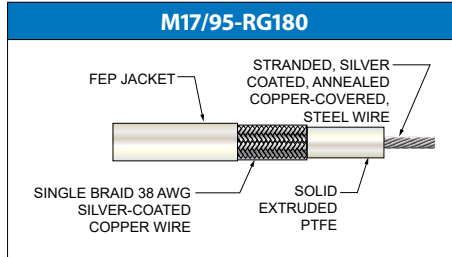


Wire Dia. (in.)	Wire Dia. (mm.)	Part Number
.130 - .170	3.3 - 4.3	859-042-02



#### SIZE #8 COAXIAL CONTACT 95 OHM CABLE

Material and Finish	
Contact Body, Center Contact, Ferrule	Copper Alloy, Gold Plated
Insulator	PTFE
Sealing Boot Grommet	Fluorosilicone
Grommet Follower	Polyetherimide



Contact Specifications	
Current Rating	1 ampere
Contact Resistance, Inner Contact	120 millivolt max. voltage drop @ 1 ampere
Contact Resistance – Outer Contact	60 millivolt max. voltage drop @ 12 amperes
Dielectric Withstanding Voltage	1300 Vrms Sea Level, 250 Vrms at 50,000 feet
Temperature Range	-65°C to +200°C
Durability	500 mating cycles
Corrosion	EIA-364-26, condition B, 48 hours
Vibration	EIA-364-28, condition V, letter J, 37g's
Shock	EIA-364-27, condition D, 300g's

Military Part Number	M17/95-RG180	
Maximum Operating Frequency	3 GHz	
Impedance (Ohms)	95	
Velocity of Propagation %	69.5	
Capacitance (pF/ft)	17.4	
Conductor	AWG 28 (7/38) Silver-Coated, Annealed-Copper-Covered, Steel Wire.	
Shielding Effectiveness (dB)	<-90 dB	
Dielectric Core	Type F-1: Solid, Extruded PTFE	
First Shield	38 AWG Silver-Coated Copper Wire 91.0% Nom. Coverage	
Second Shield	N/A	
Jacket	Type IX: FEP	
Outer Diameter	.141 (3.58) ± .004 (0.10)	
Temperature Rating	-55°C to +200° C	
Weight	.0198 (lbs/ft.)	
Time Delay nS/ft	N/A	
Max. Attenuation	Freq. (MHz)	dB/100 ft
	400	17.0

#### SIZE #8 CONCENTRIC TWINAX CONTACTS FOR MIL-STD-1553 DATABUS



**Fig. 1**  
Pin Contact  
853-003-08-625



**Fig. 2**  
Socket Contact  
853-004-08-628



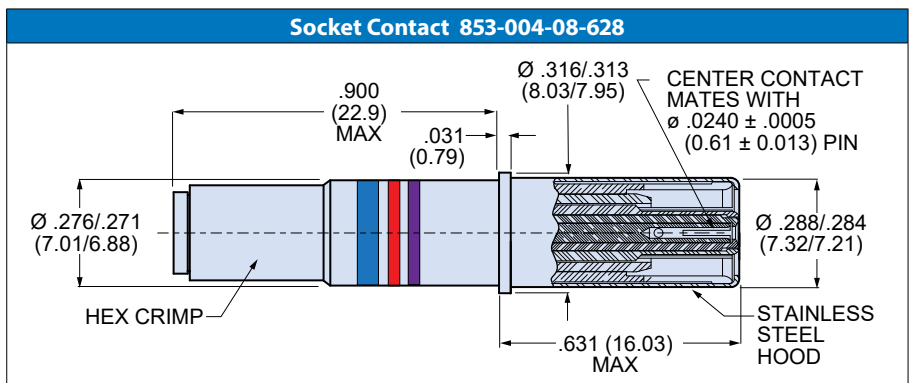
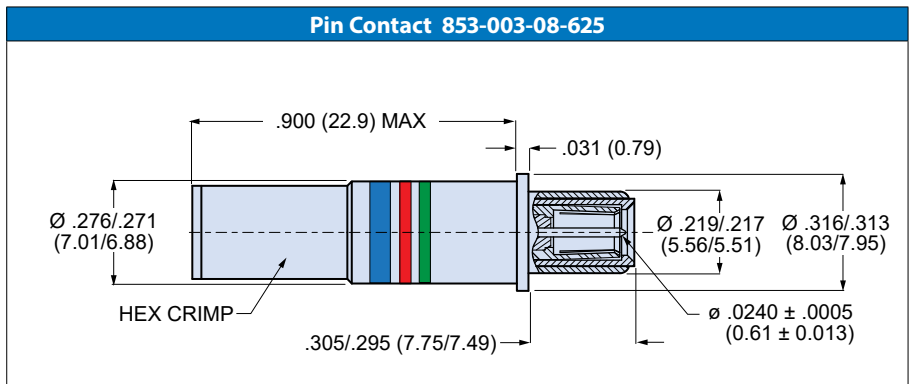
**Fig. 3**  
Heatshrink Boot  
(Supplied with Contact)



**Fig. 4**  
Sealing Boot  
859-042-01  
(Not supplied with contact.  
Order separately)

Concentric twinax contacts accept M17/176-0002 shielded twisted pair databus cable. These snap-in, rear release contacts fit Glenair Series 23 Mighty Mouse connectors and Glenair MIL-DTL-38999 Series I, III and IV connectors with size #8 cavities. Crimp termination. Gold-plated copper alloy, FEP insulator. Supplied unassembled with heatshrink boot (fig.3). Order sealing boot separately (fig.4). 55mV max voltage drop at 1 amp test current. DWV at sea level: 1000 VAC between contacts; 500 VAC between intermediate and outer contact. SAE AS39029 qualified.

Fig.	Description	Cable Accommodation	Part Number	AS39029 Part Number	Color Bands		
					1st	2nd	3rd
Fig. 1	Pin	M17/176-00002	853-003-08-625	M39029/113-625	Blu	Red	Grn
Fig. 2	Socket	M17/176-00002	853-004-08-628	M39029/114-628	Blu	Red	Vio
Fig. 4	Sealing Boot	M17/176-00002	859-042-01				

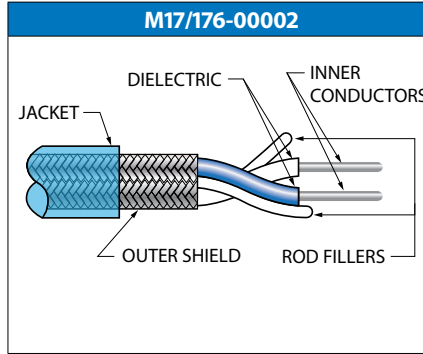




#### CABLE FOR SIZE #8 TWINAX CONTACTS FOR MIL-STD-1553 DATABUS

Material and Finish	
Contact Body, Inner and Intermediate Contacts and Crimp Sleeve	Copper Alloy / Gold Plated
Insulators	Peek and PTFE / N/A
Sealing Boot Grommet	Fluorosilicone
Grommet Follower	Polyetherimide

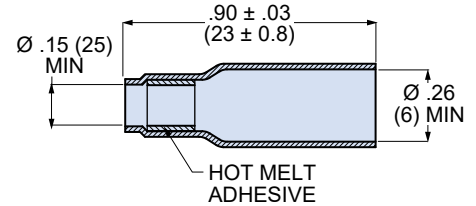
Contact Specifications	
<b>Current Rating</b>	<b>1 ampere</b>
Contact Resistance, Center and Intermediate Contacts	55 millivolt max. voltage drop @ 1 ampere
Contact Resistance – Outer Contact	75 millivolt max. voltage drop @ 12 amperes
Dielectric Withstanding Voltage, Center Contact to Intermediate Contact	1000 Vrms Sea Level, 250 Vrms at 70,000 feet
Dielectric Withstanding Voltage, Intermediate Contact to Outer Contact	500 Vrms Sea Level, 250 Vrms at 70,000 feet
Temperature Range	-65°C to +175°C
Durability	500 mating cycles
Corrosion	EIA-364-26, condition B, 48 hours
Vibration	EIA-364-28, condition V, letter J, 37g's
Shock	EIA-364-27, condition D, 300g's



Military Part Number	M17/176-00002	
Impedance	77 Ohm	
Operating Frequency	10 MHz max	
Velocity of Propagation %	68	
Capacitance	24 pF/foot	
Conductor	Two - 24 AWG (19/36) silver-coated, high strength copper alloy wire	
Dielectric	PTFE	
Outer Conductor	Single braid of AWG 38, silver-coated, high strength copper alloy wire	
Jacket	Type XIII: PFA	
Outer Dia.	.129 (3.28) ± .005 (0.13)	
Temperature Rating	-55° to +200°C	
Weight	18 lbs/1000ft	
Max. Attenuation	Freq. (MHz)	dB/100 ft
	1	1.4

#### Heatshrink Boot

Supplied with contact. Slide onto cable before terminating contact. Slide onto contact after the cable is terminated. Apply heat to shrink the boot and melt the adhesive. Install contact into connector.

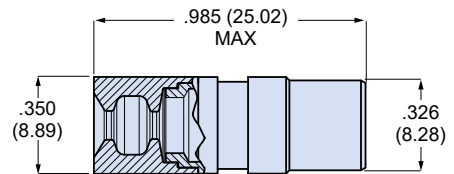


#### Sealing Boot

Sealing boot is ordered separately. Slide boot onto wire before terminating contact. After contact is installed in connector, slide boot forward into connector grommet to seal the contact cavity. Additional information on sealing boot is on the next page.



Wire Dia. (in.)	Wire Dia. (mm.)	Part Number
.090 - .130	2.3 - 3.3	859-042-01





#### SIZE #8 DIFFERENTIAL TWINAX CONTACTS



**Fig. 1**  
Pin Contact  
853-014



**Fig. 2**  
Socket Contact  
853-013

Differential twinax contacts accept shielded twisted pair databus cable. These snap-in, rear release contacts fit Series 80 Mighty Mouse connectors and Glenair MIL-DTL-38999 Series I, III, and IV connectors with size #8 cavities. Crimp termination. Gold-plated copper alloy, FEP insulator. Supplied unassembled with optional sealing boot.

Fig.	Description	Cable	Part Number		
			Basic No.	Dash No	Grommet Follower (Omit for None)
Fig. 1	Pin	See Cable Accommodation Table	853-014	-01 thru -13	F
			853-018	-01	
			853-025	-01 and -02	
Fig. 2	Socket		853-013	-01 thru -13	
			853-017	-01	
			853-024	-01 and -02	

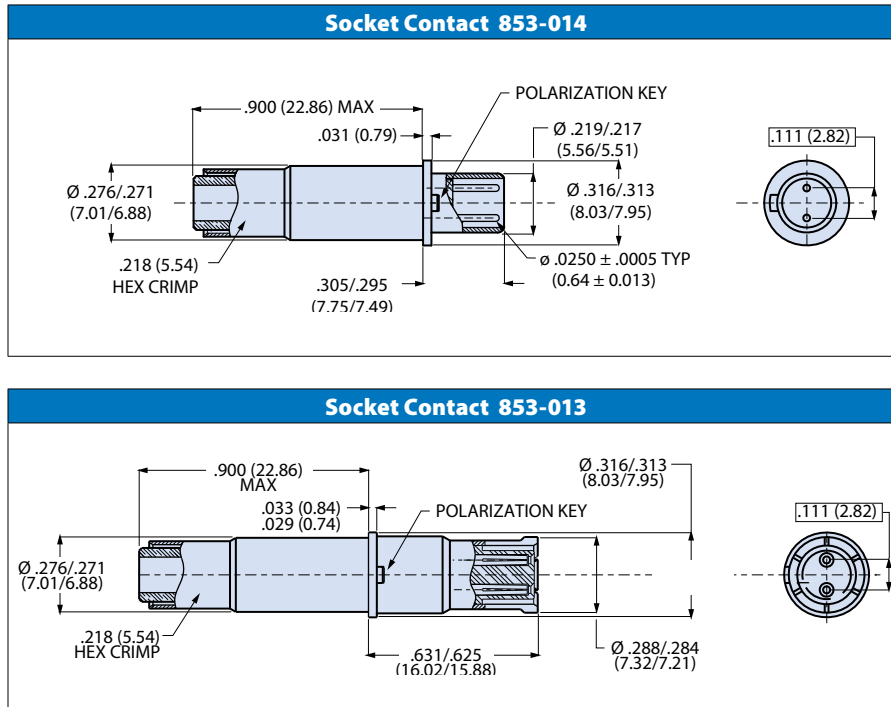
Contact Specifications	
Characteristic Impedance (Ohms)	100 ± 10
Frequency Range	DC – 3 GHz
Insulation Resistance, Ambient Temperature	5000 megOhms minimum
Contact Resistance – Inner Contact*	15.0 milliOhms maximum initial @ 1 ampere
Contact Resistance – Outer Contact*	3.0 milliOhms maximum initial @ 12 amperes
Dielectric Withstanding Voltage	1000 VAC RMS between contacts, 500 VAC RMS between contacts and shell
Temperature Range	-65°C to +200°C
Durability	500 mating cycles
Corrosion (salt Fog)	EIA-364-26, condition B, 48 hours
Vibration	EIA-364-28, condition VI, letter J, 43g's
Shock	EIA-364-27, condition D, 300g's

\* Contacts are tested in mated condition at their extremities.

Material and Finish	
Contact Body and Center Contact	Copper alloy / Gold Plated
Crimp Sleeve	Brass or Equivalent / Gold Plated
Insulator, Sealing Boot	High Grade Rigid Dielectric
Sealing Boot Grommet	Fluorosilicone
Grommet Follower	Polyetherimide

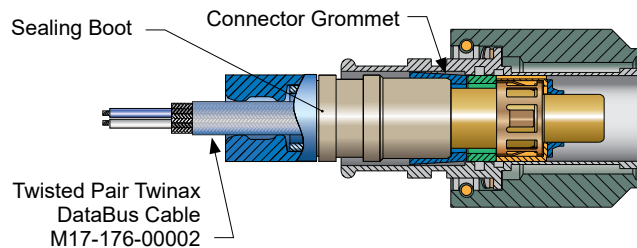
Cable Accommodation					
Dash No	Cable Accommodation	Conductor AWG	Ref. Cable Impedance	Assembly Instructions	
-01	Gore RCN 8945	24	100 Ohms	AI85007	
-02	Gore GSC-03-83971-00	24			
-03	TE (Raychem) 10612	24	77 Ohms		
-04	TE (Raychem) 0024A0024	24	100 Ohms		
	Tensolite 24463/9P025X-2 (LD) S280W502-1	24			
-05	M17/176-00002	24	77 Ohms		
	5 M2022-003	24	75 Ohms		
-07	TE 2525B0524	24	125 Ohms		AI85050
-09	Gore DXN2603 / TE 0028S2664	26/28	100 Ohms		AI85007
-10	PIC E10222	22			AI85138
-11	963-102-30	30			AI85142
-12	Gore GSC-05-84308-00	26			AI85143
-13	Gore DXN2602	24			

#### SIZE #8 DIFFERENTIAL TWINAX CONTACTS



#### About Differential Twinax Contacts

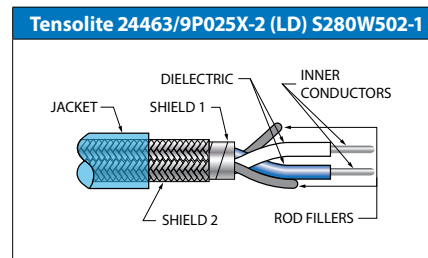
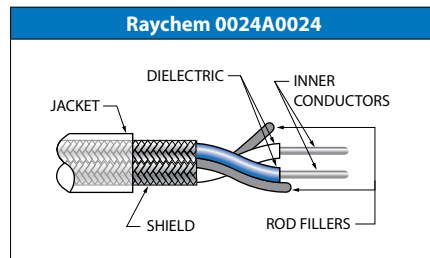
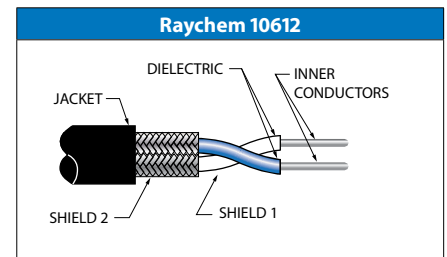
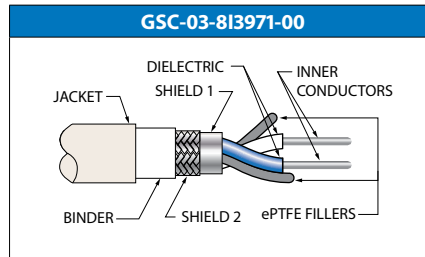
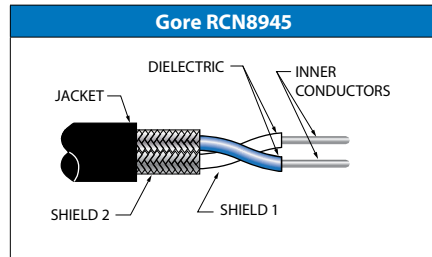
Differential twinax contacts are multi-pin contacts with two signal pins and an outer contact body. These contacts are used for 77 Ohm MIL-STD-1553 databus and 100 Ohm serial data transmission. The outer contact body provides a 360-degree EMI shield around the signal contacts. A raised boss on the contact body aligns the contact for proper mating. This boss fits into a slot inside the connector. All size 8 SuperNine and Mighty Mouse connector inserts have this alignment slot.



#### Sealing Boot Information

The sealing boot is necessary to prevent moisture and contamination from penetrating the connector. The sealing boot is ordered separately. **DO NOT USE HEATSHRINK BOOT IF USING SEALING BOOT.** The boot consists of a rigid dielectric sleeve and a fluorosilicone rubber grommet. After contact is installed slide boot forward into connector grommet to seal the contact cavity. "F" suffix on contact part number specifies contact supplied with sealing

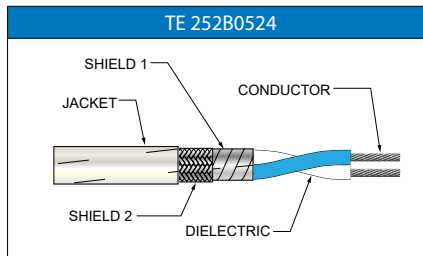
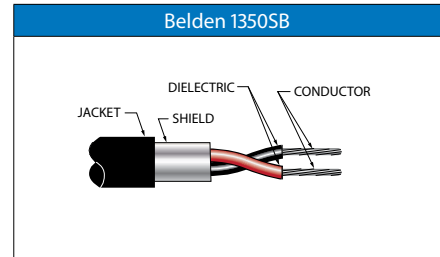
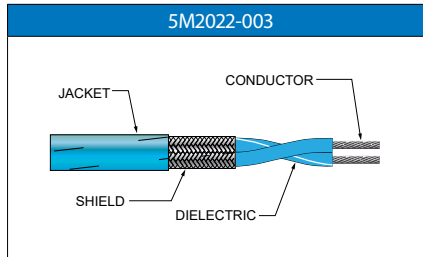
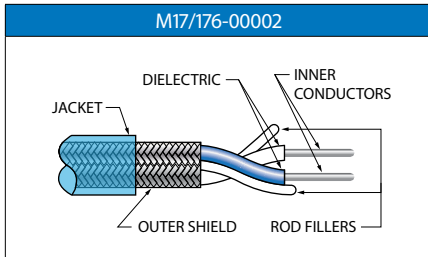
#### 8 DIFFERENTIAL TWINAX CONTACT 100 OHM CABLE



Cable Part Number	Gore RCN8945	Gore GSC-03-813971-00	Raychem 10612-24	Raychem 0024A0024	Tensolite 24463/9P025X-2 (LD) S280W502-1			
Impedance	100 ± 10	100 ± 7	77 ± 5	100	100 ± 5.5 %			
Velocity of Propagation %	--	78	61	76	75			
Capacitance (pF/ft)	--	45 pF/ft.	30.0 pF/ft.	13.5 pF/ft.	13 pF/ft.			
Conductor Wire Size	AWG 24 (19/36) SPC <sup>3</sup>	AWG 24 (19/36) SCCA <sup>1</sup>	AWG 24 (19/36) SCCA <sup>1</sup>	AWG 24 (19/36) High-Strength SCCA <sup>1</sup>	AWG 24 (19/36) High-Strength SCCA <sup>1</sup>			
Dielectric	PTFE over ePTFE	FEP over expanded PTFE	Radiation-Crosslinked, Modified ETFE	Rayfoam H	PTFE over ePTFE			
Fillers	none	ePTFE	Radiation-Crosslinked Modified ETFE	Radiation-Crosslinked Modified ETFE	PTFE			
Shield	Shield 1: Aluminized Kapton Shield 2: AWG 40 SPC <sup>3</sup> Braid	Shield 1: Aluminized Polyimide Foil Shield 2: AWG 38 High Strength SSCA <sup>1</sup>	AWG 38 Tin-Coated Copper	38 AWG, Tin-Coated Copper	Shield 1: Flat Tin Coated Copper Braid Shield 2: AWG 38A SPC <sup>3</sup> Braid			
Binder	None	ePTFE	None	None	None			
Jacket	Natural HSTF	FEP Color: White	Radiation-Crosslinked Modified ETFE Color: White	Modified FEP Color: Transparent White	Extruded FEP Color: Transparent Blue			
Outer Diameter	.162 (4.11) Max	0.13 (3.2)	.129 in (3.28)	.149 (3.78)	.150 (3.81)			
Temperature Rating	-55° C to + 200° C	-65° C to +200°C	150°C Max	-55°C to +135°C	-55°C to 150° C			
Weight	TBD	27 g/m nominal	15.9 lbs/1000 ft (max)	18.1 lbs/1000 ft	19 lbs/1000 ft			
Max. Attenuation	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 m	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/75 ft
	100	6.7	1	2.7	1	1.4	6	1.8
	200	9.2	10	8.0				
	1000	22.0	20	11.2				
			100	25.2				

1. SCCA = silver-coated copper alloy 2. SPCA = silver-plated copper alloy 3. SPC = silver-plated copper

#### SIZE #8 DIFFERENTIAL TWINAX CONTACT CABLE

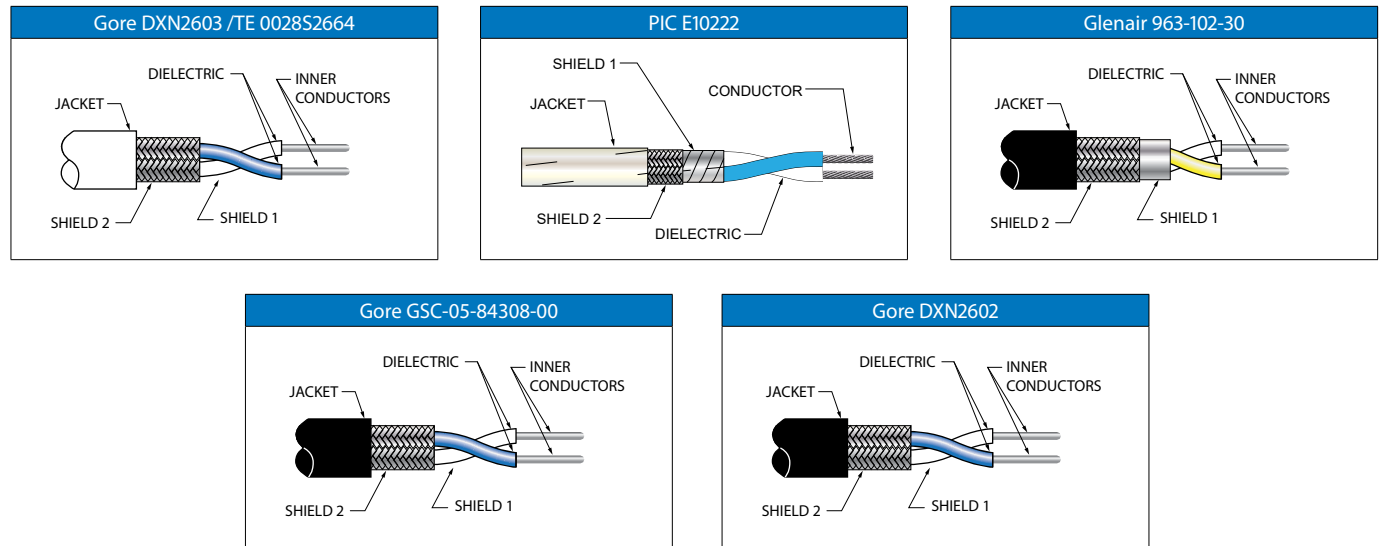


Cable Part Number	M17/176-00002	5M2022-003	Belden 1350SB	TE 252B0524				
Impedance	77 ± 3	75 ± 5	100	125 ± 10				
Velocity of Propagation %	71	55	79	78				
Capacitance	24 pF/ft.	24 pF/ft.	13.4 pF/ft.	11.0 pF/ft.				
Conductor Wire Size	AWG 24 (19/36) SCCA <sup>1</sup>	24 AWG (19/36) SPCA <sup>2</sup>	24 AWG (7/32) Tinned Copper	24 AWG, 19/36 High-Strength SCCA <sup>1</sup>				
Dielectric	PTFE	Extruded PTFE	PE	Rayfoam H				
Shield	Silver-Coated Copper Braid	38 AWG, SPC 90% Min. Coverage	Bi-Laminate Tape Beldfoil®	Aluminum Polyimide AWG 38, Silver Coated Copper				
Jacket	Type XIII: PFA Color: Blue	Extruded FEP Color: Blue	.179 (4.55) LSZH, Color: Black	UXL - Modified ETFE				
Outer Diameter	.129 (3.28) ± .005 (0.13)	.128 (3.25)	<b>.179 (4.55)</b>					
Temperature Rating	-55° to +200°C	-65° C to +200° C	-30°C to +75°C	--				
Weight	.018 lb/ft	15.7 lb/1000 ft	20 lbs/1000 ft	22.7 lbs/1000ft				
Max. Attenuation	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft
	1	1.4	1	1.5	.768	.88	10	2.0
	3	2.1			1.4112	1.18		
	4	2.4			2.048	1.371		
	5	2.8			3.072	1.6		
	7	3.5			6.144	2.09		
	10	4.5			12.288	2.84		
				24.576	4.01			

1. SCCA = silver-coated copper alloy 2. SPCA = silver-plated copper alloy



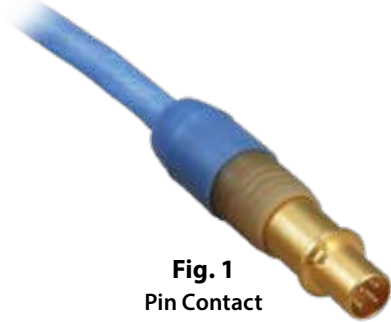
#### SIZE #8 DIFFERENTIAL TWINAX CONTACT CABLE



Cable Part Number	Gore DXN2603 / TE 0028S2664	PIC E10222	Glenair 963-102-30	Gore GSC-05-84308-00	Gore DXN2602					
Impedance	100 ± 10	100	100 ± 10	100 ± 4	100 ± 10					
Velocity of Propagation %	80	80.0	80.0	80.0	80					
Capacitance	13.0 pF/ft	13.0 pF/ft	15.0 pF/ft	45 (pF/m)	13.0 pF/ft					
SPCA Conductor Wire Size	AWG 24 (19/36) SPCA <sup>2</sup>	AWG 22 stranded tin plated copper	AWG 30 (19/42) High-Strength SPCA <sup>2</sup>	AWG 26 (7/34) High-Strength SPCA <sup>2</sup>	AWG 24 (19/36) SPCA <sup>2</sup>					
Dielectric	PTFE over ePTFE	Foamed Fluoropolymer Insulation	PFA	ePTFE	PTFE over ePTFE					
Shield	AWG 40 SPC Braid	Shield 1: Foil Shield Shield 2: Tin-Plated Copper Braid Shield	Shield 1: Aluminum/Polyester Tape Shield 2: AWG 40 High-Strength SPCA	AWG 40 Silver Plated copper 90% min	AWG 40 SPC Braid					
Jacket	EF100 PTFE Color: White	ETFE Color: White	PFA Color: Black	ETFE Color: Black	EF100 PTFE Color: White					
Outer Diameter		<b>0.19 (4.80)</b>	<b>.107 (2.72)</b>	0.12 (3.1)	.09 (2.29)					
Temperature Rating	-55°C to +200°C	-50°C to +150°C	105° C Max	-200°C to +180°C	-55°C to +200°C					
Weight	11.3 lbs/1000 ft	2.3 lbs/100 ft	N/A	18 g/m max.	11.3 lbs/1000 ft					
Max. Attenuation	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 m	Freq. (MHz)	dB/100 ft
	100	7.6	10	1.5	500	40	20	17	100	7.6
	200	10.7	100	5.4	1000	56	35	22	200	10.7
	500	17.3					70	30	500	17.3
	1000	25.0					80	32	1000	25.0
						100	36			

1. SCC = silver-coated copper 2. SPCA = silver-plated copper alloy 3. SPC = silver-plated copper

#### SIZE #8 QUADRAx CONTACTS



**Fig. 1**  
Pin Contact  
854-001



**Fig. 2**  
Socket Contact  
854-002

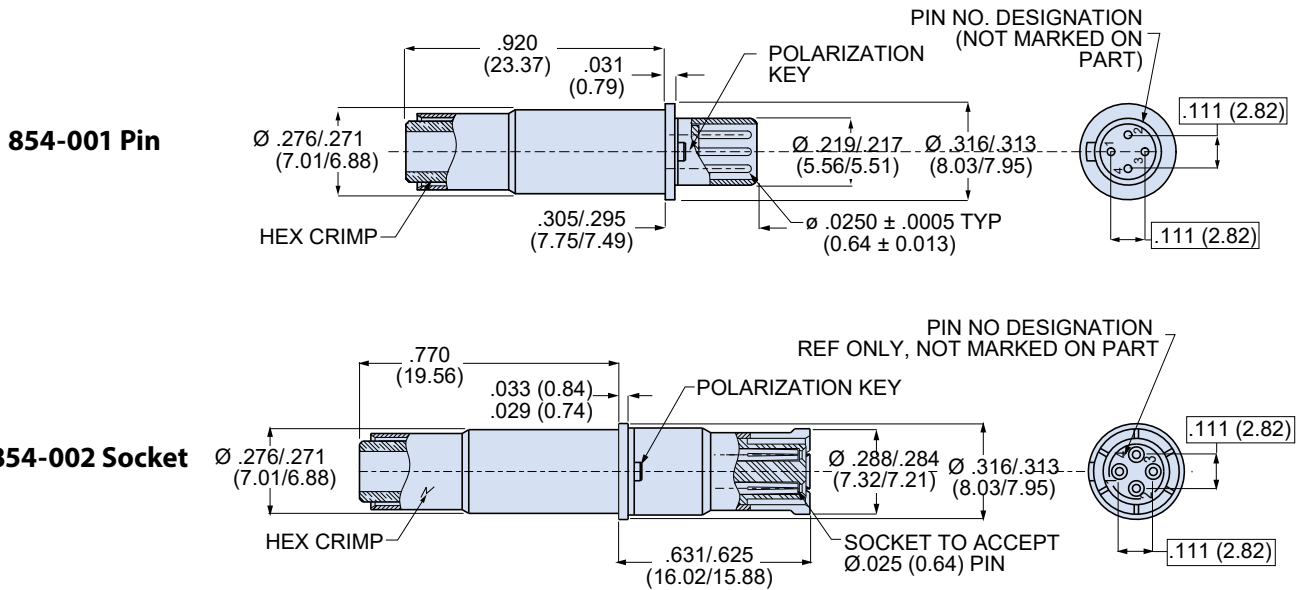
100 Ohm quadraX contacts accept standard flight-grade star quad cable. These snap-in, rear release contacts fit Glenair Series 800 through 805 Mighty Mouse connectors (not compatible with Series 806) with size #8 keyed insulators to properly align contact. Crimp termination. Contact has in-line key for alignment in connector. Gold-plated copper alloy, thermoplastic insulators. Supplied as unassembled kit.

Figure	Cable Accommodation	Contact Type	Part Number Contact Only	P/N Contact and Sealing Boot	Wire AWG	Cable OD
1	Tensolite NF22Q100 Draka F-4704-7	Pin	854-001-05	854-001-05F	22	.190 (4.83)
1	PIC E51424 Tensolite NF24Q100	Pin	854-001-02	854-001-02F	24	.163 (4.14)
1	PIC E50424 Draka F 4704-4	Pin	854-001-04	854-001-04F	24	.175 (4.44)
1	PIC E51426 Tensolite NF26Q100	Pin	854-001-01	854-001-01F	26	.143 (3.63)
1	Draka F 4704-6	Pin	854-001-03	854-001-03F	26	.149 (3.78)
2	Tensolite NF22Q100 Draka F-4704-7	Socket	854-002-05	854-002-05F	22	.190 (4.83)
2	PIC E51424 Tensolite NF24Q100	Socket	854-002-02	854-002-02F	24	.163 (4.14)
2	PIC E50424 Draka F 4704-4	Socket	854-002-04	854-002-04F	24	.175 (4.44)
2	PIC E51426 Tensolite NF26Q100	Socket	854-002-01	854-002-01F	26	.143 (3.63)
2	Draka F 4704-6	Socket	854-002-03	854-002-03F	26	.149 (3.78)

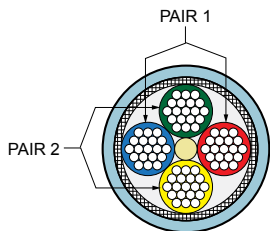
Material And Finish	
Contact Body, Inner Contact	Copper Alloy / Gold Plated
Crimp Ferrule	Brass or Equivalent / Gold Plated
Insulator	PTFE, Polyetherimide or equivalent
Sealing Boot Grommet	Fluorosilicone
Grommet Follower	Polyetherimide

Contact Specifications	
Characteristic Impedance	100 Ohms ± 10 Ohms
Frequency Range	DC – 3 GHz
Insulation Resistance, Ambient Temperature	5000 megOhms minimum
Contact Resistance – Inner Contact	15.0 milliOhms maximum initial @ 1ampere
Contact Resistance – Outer Contact	3.0 milliOhms maximum initial @ 12 amperes
Dielectric Withstanding Voltage	1000 Vac RMS between contacts, 500 Vac RMS between contacts and shell
Temperature Range	-65°C to +200°C
Durability	500 mating cycles
Corrosion (salt Fog)	EIA-364-26, condition B, 48 hours
Vibration	EIA-364-28, condition VI, letter J, 43g's
Shock	EIA-364-27, condition D, 300g's

#### SIZE #8 QUADRAX CONTACTS



#### Arinc 664 Star Quad Cable



#### About Quadrax Contacts and Star Quad Cable

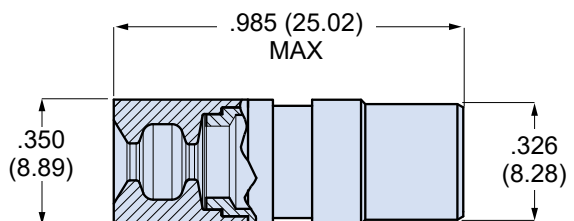
Quadrax contacts are size 8 multi-pin contacts with four signal pins and an outer contact body. These contacts are used for ARINC 664 100BASE-T Ethernet. Each quadrax contact yields one Ethernet port. The outer contact body provides a 360-degree EMI shield around the signal contacts. Star quad cables have four parallel wires uniformly twisted around a center filler. These 100 Ohm high performance 100BASE-T cables are designed for use in aircraft systems. The cable has two shields—a flat tinned copper braid inner shield and an outer tinned copper overbraid. The FEP jacket meets FAA flammability requirements.

#### Sealing Boot

Optional sealing boot is recommended. Slide boot onto wire before terminating contact. After contact is installed in connector, slide boot forward into connector grommet to seal the contact cavity. "F" suffix on contact part number specifies contact supplied with 859-042-02 sealing boot.



Dimensions		
Wire Dia. (in.)	Wire Dia. (mm.)	Part Number
.090 - .130	2.3 - 3.3	859-042-01
.130 - .170	3.3 - 4.3	859-042-02
.170 - .205	4.3 - 5.2	859-042-03

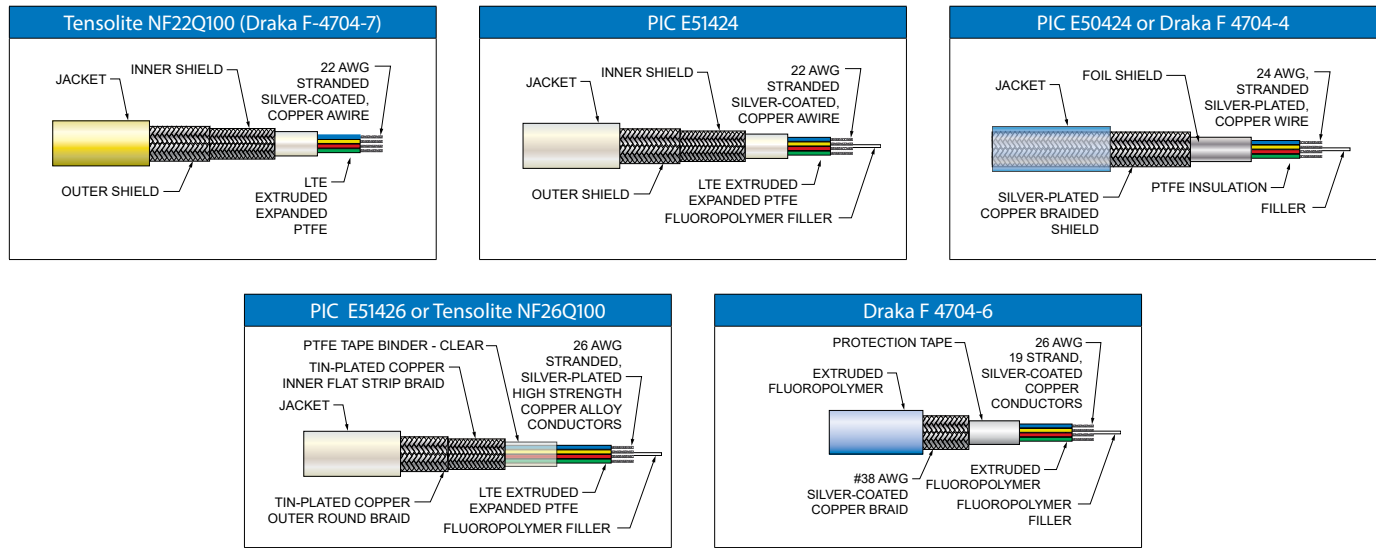


## MIL-DTL-38999 Series III Type

### M39029 and Glenair signature contact solutions

CONTACTS AND TOOLS

#### SIZE #8, 100 OHM QUADRAX CONTACT CABLE



Cable Part Number	Tensolite NF22Q100 (Draka F-4704-7)		PIC E51424		PIC E50424 Draka F 4704-4		PIC E51426 Tensolite NF26Q100		Draka F 4704-6	
Impedance	100		100		100		100		100	
Velocity of Propagation %	80.0		80.0		69.5		70.0		65	
Capacitance (pF/ft)	13.0		13.0		13.0		14.5		--	
Conductor Wire Size	AWG 22		AWG 24		AWG 24		AWG 26		26	
Conductor Material	SCC <sup>1</sup>		Stranded SPCA <sup>2</sup>		Stranded SPC <sup>3</sup>		Stranded SPCA <sup>2</sup>		19 Strand SCC <sup>1</sup>	
Dielectric	PTFE		Fluoropolymer		PTFE		Fluoropolymer		Fluoropolymer	
Inner Shield Coverage	--		90% Braid		100% Foil		90% Braid		--	
Outer Shield Coverage	--		85 Braid		85% Braid		85 Braid		--	
Pair #1	Red, Blue		Red, Blue		Red, Blue		Red, Blue		Red, Blue	
Pair #2	Yellow, Green		Yellow, Green		Yellow, Green		Yellow, Green		Yellow, Green	
Jacket	FEP		ETFE		Fluoropolymer		ETFE		Extruded Fluoropolymer	
Outer Diameter	.190 (4.83)		0.16 (4.06)		.17 (4.32)		0.14 (3.48)		--	
Temperature Rating	-55°C to 200°C		-55°C to 150°C		-55°C to 200°C		-55°C to 150°C		-65°C to 125°C	
Weight	34.5 lbs/1000 ft		2.2 lbs/100 ft		2.7 lbs/100 ft		1.8 lbs/100 ft		--	
Max. Attenuation	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft	Freq. (MHz)	dB/100 ft
			10	2.3/2.7	10	2.2/3.0	10	2.8/3.2	1	.092
	100	6.4/7.3	100	8.0/9.2	100	7.1/8.2	100	9.6/11.0	4	1.83
									10	2.75
									16	3.66
									20	4.27
								62.5	7.62	
								100	9.15	

1. SCC = silver-coated copper 2. SPCA = silver-plated copper alloy 3. SPC = silver-plated copper



**THERMOCOUPLE CONTACTS**



How-To-Order Thermocouple Contacts					
Type	Mating End Size	Wire Accomodation	Glenair Part Number	Material	Finish
Pin	23	23 AWG	<a href="#">857-104A</a>	KN	None
	23	23 AWG	<a href="#">857-104C</a>	KP	None
	22	22-28 AWG	<a href="#">850-181-22-470</a>	JN	None
	22	22-28 AWG	<a href="#">850-181-22-471</a>	KN	None
	22	22-28 AWG	<a href="#">850-181-22-472</a>	KP	None
	22	22-28 AWG	<a href="#">850-181-22-473</a>	JP	Cadmium Plate*
	20	20-24 AWG	<a href="#">850-181-20-474</a>	JN	None
	20	20-24 AWG	<a href="#">850-181-20-475</a>	KN	None
	20	20-24 AWG	<a href="#">850-181-20-476</a>	KP	None
	20	20-24 AWG	<a href="#">850-181-20-477</a>	JP	Cadmium Plate*
	16	16-20 AWG	<a href="#">850-181-16-478</a>	JN	None
	16	16-20 AWG	<a href="#">850-181-16-479</a>	KN	None
	16	16-20 AWG	<a href="#">850-181-16-480</a>	KP	None
	16	16-20 AWG	<a href="#">850-181-16-481</a>	JP	Cadmium Plate*
Socket	23	23 AWG	<a href="#">857-105A</a>	KN	None
	23	23 AWG	<a href="#">857-105C</a>	KP	None
	22	22-28 AWG	<a href="#">850-183-22-482</a>	JN	None
	22	22-28 AWG	<a href="#">850-183-22-483</a>	KN	None
	22	22-28 AWG	<a href="#">850-183-22-484</a>	KP	None
	22	22-28 AWG	<a href="#">850-183-22-485</a>	JP	Cadmium Plate*
	20	20-24 AWG	<a href="#">850-183-20-486</a>	JN	None
	20	20-24 AWG	<a href="#">850-183-20-487</a>	KN	None
	20	20-24 AWG	<a href="#">850-183-20-488</a>	KP	None
	20	20-24 AWG	<a href="#">850-183-20-489</a>	JP	Cadmium Plate*
	16	16-20 AWG	<a href="#">853-183-16-490</a>	JN	None
	16	16-20 AWG	<a href="#">853-183-16-491</a>	KN	None
	16	16-20 AWG	<a href="#">853-183-16-492</a>	KP	None
	16	16-20 AWG	<a href="#">853-183-16-493</a>	JP	Cadmium Plate*

\* Chromate clear coat

Per AS39029 spec, the composition designations have been changed as listed below:

- JN =Type J negative (formerly constantan)
- KN =Type K negative (formerly alumel)
- KP =Type K positive (formerly chromel)
- JP =Type J positive (formerly iron)

**MATERIAL AND FINISH**

Thermocouple contacts: constanston, alumel, and chromel unplated, per ANSI 96.1. Iron contacts with cadmium finish

Socket contact hood: stainless steel, passivated per AMS-QQ-P-35.



#### SIZE #12 PNEUMATIC CONTACTS



Cavity F contains a Pitot tube  
Socket contact



Stainless steel pneumatic contacts fit MIL-DTL-38999 connectors. Contacts snap into size #12 cavities. Attach to 3/32 inch (2.38) diameter tubing. Socket contact has fluorosilicone O-ring and PTFE backup washers. Originally designed for pitot tube connections, these pneumatic contacts are rated for 100 psi maximum air pressure. No installation tool is required. Remove contacts with plastic extraction tool 809-132 (M81969/14-04).

Contact Type	For Use In	Part Number
Pin	D38999 Type, All Series	<b>830-003'</b>

1. 830-003 supersedes 857-011

Contact Type	For Use In	Part Number
Socket	D38999 Type Series I, III, IV	<b>830-005</b>

#### SIZE #8 CAVITY OPTOELECTRONIC CONTACT



Patent Pending

Size 8 Cavity Optoelectronic contacts transmit and receive differential CML electrical signals over Multimode fiber optic cable. Transmitters consist of a laser driver with a temperature compensation circuit to maintain optical power over the entire operating temperature range, and a 850nm VCSEL laser. Receivers consist of an 850nm PIN Photo Detector, a Transimpedance Amplifier with automatic gain control circuit, and a Limiting Amplifier. Differential output data signals are CML compatible. The transmitter has a Tx Disable pin to turn off transmitter output and a Tx Fault pin to signal a fault condition. Receiver includes a CMOS compatible Loss of Signal Indicator to prevent invalid data.

#### MATERIAL/FINISH

Shell: 300CRES/Passivate or NM6  
 Seal: Silicone elastomer  
 Ferrule & sleeve: Zirconia ceramic  
 PC tails: Copper alloy/gold plated  
 PCB flex: FR4 & Polyimide  
 Solder type: RoHS compliant Sn95/Sb5 (232°C melting temp) & RoHS compliant Sn96.5/Ag3.0/Cu0.5 (217° melting)

How-To-Order Size 8 Transmitter Optoelectronic Contacts		
Type	Signal Type	Glenair Part Number
Transmitter	1.25 Gbps	<b>050-301-01-T</b>
	2.50 Gbps	<b>050-301-02-T</b>
	3.20 Gbps	<b>050-301-03-T</b>
	4.25 Gbps	<b>050-301-04-T</b>

How-To-Order Size 8 Receiver Optoelectronic Contacts		
Type	Signal Type	Glenair Part Number
Receiver	1.25 Gbps	<b>050-301-01-R</b>
	2.50 Gbps	<b>050-301-02-R</b>
	3.20 Gbps	<b>050-301-03-R</b>
	4.25 Gbps	<b>050-301-04-R</b>

#### HOW TO TERMINATE, INSTALL, AND REMOVE CRIMP CONTACTS

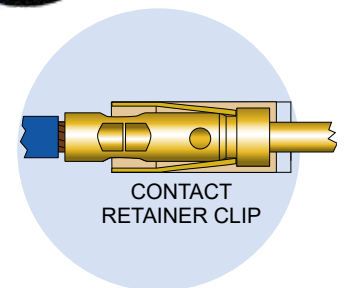
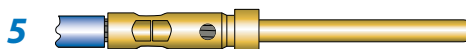
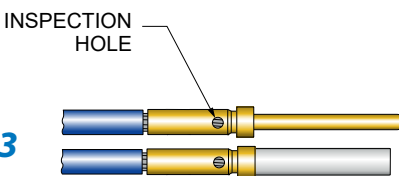
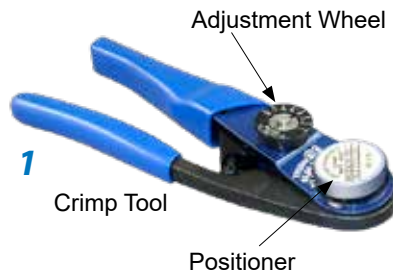
**1 Set Up Crimp Tool.** Install proper positioner into crimp tool. The label on the positioner shows the proper tool setting for each wire size. Turn the adjustment wheel to the correct setting.

**2 Strip Wire.** Remove wire insulation, taking care to avoid nicking or cutting wire strands. Strip wire to proper length so wire is visible thru inspection hole.

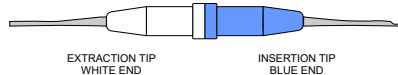
**3 Insert wire** into contact. The wire should be visible in the inspection hole.

**4** Insert contact into crimp tool as shown. Make sure that the contact is fully inserted into the tool. Squeeze handle completely. The ratchet mechanism will not allow a partial crimp. Release handle and remove contact.

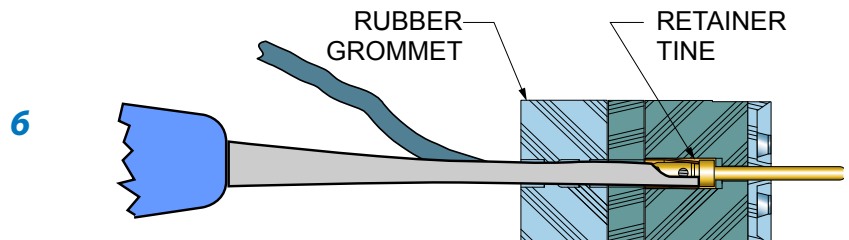
**5 Inspect crimped contact.** Wire should be fully inserted and the crimp should be uniform in appearance.



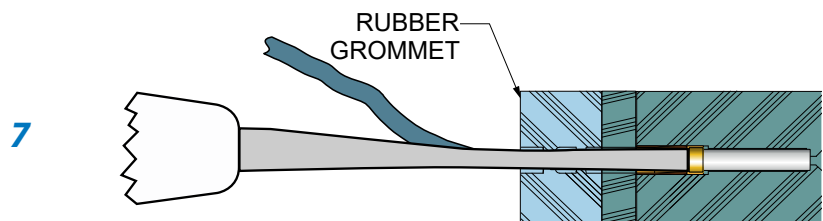
Insertion/Extraction Tool



**6 Install contact into connector.** Push the contact through the rear grommet until the contact locks into place. This can usually be done by hand without the need for a tool. If the wire gage is #26 or smaller, a tool is helpful. There are two techniques for installing contacts with a tool. One method is to push the contact in by hand, then use the tool to finish the insertion. The other method is to position the insertion tip against the contact shoulder, then insert the contact. Use insertion/extraction tool 809-088 to install contacts. Slide the wire into the groove on the blue end of the tool. Slide the tool tip up the contact until it touches the contact shoulder. **USE CARE TO AVOID DAMAGING THE CONNECTOR.**



**7 Contact Extraction.** Use tool M81969/14-01. The white end is used for contact extraction. First, push the wire into the groove of the metal tip. Slide the tip of the tool into the connector. Push the tool into the connector cavity until the tip bottoms in the connector. Avoid wiggling or rocking the tip. This may damage the cavity. A straight push is best. Pinch the wire between your finger and the white plastic grip and slide the tool and contact out of the connector. **Wire insulation diameter greater than 0.045 inches (1.14mm) is too large to work properly with the extraction tool. Connector damage is possible.**



# SuperNine® Weight/cost-saving MIL-DTL-38999 Series III Type Signal and power crimp contact tool cross reference



CONTACTS AND TOOLS

Signal Crimp Contacts						
Size	Gender	Contact Part Number	Crimp Tool	Positioner	Insertion Tool	Extraction Tool
D38999 QPL and Commercial Contacts						
23	Pin	M39029/122-670	<b>809-015</b> M22520/2-01	<b>859-210</b> M22520/2-13	<b>859-163</b> M81969/1-05	<b>859-163</b> M81969/1-05
23	Skt	M39029/121-663	<b>809-015</b> M22520/2-01	<b>859-211</b> M22520/2-16	<b>859-163</b> M81969/1-05	<b>859-163</b> M81969/1-05
22	Pin	<b>850-002-22-360</b> M39029/58-360	<b>809-015</b> M22520/2-01	<b>859-018</b> M22520/2-09	<b>859-163</b> M81969/14-01	<b>859-163</b> M81969/14-01
22	Skt	<b>850-001-22-348</b> M39029/56-348	<b>809-015</b> M22520/2-01	<b>809-369</b> M22520/2-07	<b>859-163</b> M81969/14-01	<b>859-163</b> M81969/14-01
20	Pin	<b>850-002-20-363</b> M39029/58-363	<b>809-015</b> M22520/2-01	M22520/2-10	<b>809-207</b> M81969/14-10	<b>809-207</b> M81969/14-10
			<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Red)		
20	Skt	<b>800-001-20-351</b> M39029/56-351	<b>809-015</b> M22520/2-01	M22520/2-10	<b>809-207</b> M81969/14-10	<b>809-207</b> M81969/14-10
			<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Red)		
16	Pin	<b>850-002-16-364</b> M39029/58-364	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Blue)	<b>809-131</b> M81969/14-03	<b>809-131</b> M81969/14-03
16	Skt	<b>850-001-16-352</b> M39029/56-352	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Blue)	<b>809-131</b> M81969/14-03	<b>809-131</b> M81969/14-03
12	Pin	<b>850-002-12-365</b> M39029/58-365	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Yellow)	<b>809-132</b> M81969/14-04	<b>809-132</b> M81969/14-04
12	Skt	<b>850-001-12-353</b> M39029/56-353	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Yellow)	<b>809-132</b> M81969/14-04	<b>809-132</b> M81969/14-04
Thermocouple Contacts						
23	Pin	<b>857-104</b>	<b>809-015</b> M22520/2-01	<b>859-210</b> M22520/2-13	<b>859-163</b> M81969/1-05	<b>859-163</b> M81969/1-05
23	Skt	<b>857-105</b>	<b>809-015</b> M22520/2-01	<b>859-211</b> M22520/2-16	<b>859-163</b> M81969/1-05	<b>859-163</b> M81969/1-05
22	Pin	<b>850-181-22</b>	<b>809-015</b> M22520/2-01	<b>859-018</b> M22520/2-09	<b>859-163</b> M81969/14-01	<b>859-163</b> M81969/14-01
22	Skt	<b>850-183-22</b>	<b>809-136</b> M22520/2-01	<b>809-369</b> M22520/2-07	<b>859-163</b> M81969/14-01	<b>809-131</b> M81969/14-03
20	Pin	<b>850-181-20</b>	<b>809-015</b> M22520/2-01	M22520/2-10	<b>809-207</b> M81969/14-10	<b>809-207</b> M81969/14-10
20	Skt	<b>850-183-20</b>	<b>809-015</b> M22520/2-01	M22520/2-10	<b>809-207</b> M81969/14-10	<b>809-207</b> M81969/14-10
16	Pin	<b>850-181-16</b>	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Blue)	<b>809-131</b> M81969/14-03	<b>809-131</b> M81969/14-03
16	Skt	<b>850-183-16</b>	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Blue)	<b>809-131</b> M81969/14-03	<b>809-131</b> M81969/14-03

# SuperNine® Weight/cost-saving MIL-DTL-38999 Series III Type

## Signal and power crimp contact tool cross reference



CONTACTS AND TOOLS

Signal Crimp Contacts						
Size	Gender	Contact Part Number	Crimp Tool	Positioner	Insertion Tool	Extraction Tool
Extended Durability D38999 Contacts						
22	Pin	<b>850-007-22-620</b> M39029/107-620	<b>809-015</b> M22520/2-01	<b>859-018</b> M22520/2-09	<b>859-163</b> M81969/14-01	<b>859-163</b> M81969/14-01
22	Skt	<b>850-006-22-614</b> M39029/106-614	<b>809-015</b> M22520/2-01	<b>809-369</b> M22520/2-07	<b>859-163</b> M81969/14-01	<b>859-163</b> M81969/14-01
20	Pin	<b>850-007-20-621</b> M39029/107-621	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Red)	<b>809-207</b> M81969/14-10	<b>809-207</b> M81969/14-10
			<b>809-015</b> M22520/2-01	M22520/2-10		
20	Skt	<b>850-006-20-615</b> M39029/106-615	<b>809-136</b> M22520/1-01	M22520/2-10	<b>809-207</b> M81969/14-10	<b>809-207</b> M81969/14-10
			<b>809-015</b> M22520/2-01	M22520/2-10		
16	Pin	<b>850-007-16-622</b> M39029/107-622	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (blue)	<b>809-131</b> M81969/14-03	<b>809-131</b> M81969/14-03
16	Skt	<b>850-006-16-616</b> M39029/106-616	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (blue)	<b>809-131</b> M81969/14-03	<b>809-131</b> M81969/14-03
12	Pin	<b>850-007-12-623</b> M39029/107-623	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (yellow)	<b>809-132</b> M81969/14-04	<b>809-132</b> M81969/14-04
12	Skt	<b>850-006-12-617</b> M39029/106-617	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (yellow)	<b>809-132</b> M81969/14-04	<b>809-132</b> M81969/14-04
SuperNine 233-205 and 233-206 Extended Durability Connector Contacts						
23	Pin	<b>857-189</b> (AS39029/18 Type)	<b>809-015</b> M22520/2-01	<b>859-210</b> M22520/2-13	M81969/16-04	M81969/16-04
23	Skt	<b>857-190</b> (AS39029/17 Type)	<b>809-015</b> M22520/2-01	M22520/2-16	M81969/16-04	M81969/16-04
22	Pin	<b>857-151-22</b> (IAW M39029/58-360)	<b>809-015</b> M22520/2-01	<b>859-018</b> M22520/2-09	<b>859-163</b> M81969/14-01	<b>859-163</b> M81969/14-01
22	Skt	<b>857-150-22</b> (IAW M39029/56-348)	<b>809-015</b> M22520/2-01	<b>809-369</b> M22520/2-07	<b>859-163</b> M81969/14-01	<b>859-163</b> M81969/14-01
20	Pin	<b>857-151-20</b> (IAW M39029/58-363)	<b>809-015</b> M22520/2-01	M22520/2-10	<b>809-207</b> M81969/14-10	<b>809-207</b> M81969/14-10
			<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Red)		
20	Skt	<b>857-150-20</b> (IAW M39029/56-351)	<b>809-015</b> M22520/2-01	M22520/2-10	<b>809-207</b> M81969/14-10	<b>809-207</b> M81969/14-10
			<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Red)		
16	Pin	<b>857-151-16</b> (IAW M39029/58-364)	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Blue)	<b>809-131</b> M81969/14-03	<b>809-131</b> M81969/14-03
16	Skt	<b>857-150-16</b> (IAW M39029/56-352)	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Blue)	<b>809-131</b> M81969/14-03	<b>809-131</b> M81969/14-03
12	Pin	<b>857-151-12</b> (IAW M39029/58-365)	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Yellow)	<b>809-132</b> M81969/14-04	<b>809-132</b> M81969/14-04
12	Skt	<b>857-150-12</b> (IAW M39029/56-353)	<b>809-136</b> M22520/1-01	<b>809-137</b> M22520/1-04 (Yellow)	<b>809-132</b> M81969/14-04	<b>809-132</b> M81969/14-04



MIL-DTL-38999 Series III Type

RF crimp contact tool cross reference

CONTACTS AND TOOLS

Shielded Contact Assembly Tools									
Contact P/N	Cable Accomodated		Gender	Size	Inner Contact		Cable Shield Hex		Insertion/ Removal Tool
					Tool	Positioner	Tool	Hex Die	
<b>852-008</b> M39029/76	RG174, RG316, RG178, RG179		Pin	16	<b>809-015</b> M22520/2-01	<b>809-125</b> M22520/2-35	<b>809-127</b> M22520/4-01	<b>809-126</b> M22520/4-02	<b>809-131</b> M81969/14-03
<b>852-009</b> M39029/77	RG174, RG316, RG178, RG179		Skt	16	<b>809-015</b> M22520/2-01	<b>809-125</b> M22520/2-35	<b>809-127</b> M22520/4-01	<b>809-126</b> M22520/4-02	<b>809-131</b> M81969/14-03
<b>852-004</b> M39029/102	RG174, RG179, RG180, RG316		Pin	12	<b>809-015</b> M22520/2-01	<b>859-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>809-130</b> M22520/5-03	<b>809-132</b> M81969/14-04
<b>852-005</b> M39029/103	RG174, RG179, RG180, RG316		Skt	12	<b>809-015</b> M22520/2-01	<b>859-123</b> K1457 (DMC)	<b>809-129</b> M22520/5-01	<b>809-130</b> M22520/5-03	<b>809-132</b> M81969/14-04
<b>852-006</b> M39029/59-366	RG180		Skt	8	<b>809-015</b> M22520/2-01	<b>859-050</b> M22520/2-31	<b>809-129</b> M22520/5-01	<b>859-051</b> M22520/5-05	<b>859-049</b> M81969/14-12 Removal
<b>852-007</b> M39029/60-367	RG180		Pin	8	<b>809-015</b> M22520/2-01	<b>859-050</b> M22520/2-31	<b>809-129</b> M22520/5-01	<b>859-051</b> M22520/5-05	<b>859-049</b> M81969/14-12 Removal
<b>852-082-XX</b>	Dash: -01	PIC Cable: V78209	Pin	8	<b>809-015</b> M22520/2-01	<b>859-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
	Dash: -02	Times Microwave LMR-240-75		8	<b>809-015</b> M22520/2-01	<b>859-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007</b> M22520/5-45	
	Dash: -03	Falmat: Deep Mini RG59 P/N: FM030115-4		8	<b>809-015</b> M22520/2-01	<b>859-240</b> M22520/2-37	<b>809-129</b> M22520/5-01		
<b>852-083-XX</b>	Dash: -01	PIC Cable: V78209	Skt	8	<b>809-015</b> M22520/2-01	<b>859-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
	Dash: -02	Times Microwave LMR-240-75		8	<b>809-015</b> M22520/2-01	<b>859-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007</b> M22520/5-45	
	Dash: -03	Falmat: Deep Mini RG59 P/N: FM030115-4		8	<b>809-015</b> M22520/2-01	<b>859-240</b> M22520/2-37	<b>809-129</b> M22520/5-01		
<b>852-030-XX</b>	Dash: -01	M17/152-00001 (RG316DS),	Skt	8	Solder Contact		<b>809-129</b> M22520/5-01	<b>809-130</b> M22520/5-03	<b>859-049</b> M81969/14-12 Removal
	Dash: -02	M17/113-RG316		8			<b>809-129</b> M22520/5-01	<b>809-130</b> M22520/5-03	
	Dash: -03	M17/060-RG142; M17/12/-RG400		8			<b>809-129</b> M22520/5-01	<b>859-047 or 859-007</b> M22520/5-45	
	Dash: -04	M17/28-RG58		8			<b>809-129</b> M22520/5-01	<b>859-047 or 859-007</b> M22520/5-45	
<b>852-031-XX</b>	Dash: -01	M17/152-00001 (RG316DS),	Pin	8	Solder Contact		<b>809-129</b> M22520/5-01	<b>809-130</b> M22520/5-03	<b>859-049</b> M81969/14-12 Removal
	Dash: -20	M17/113-RG316		8			<b>809-129</b> M22520/5-01	<b>809-130</b> M22520/5-03	
	Dash: -03	M17/060-RG142; M17/12/-RG400		8			<b>809-129</b> M22520/5-01	<b>859-047 or 859-007</b> M22520/5-45	
	Dash: -04	M17/28-RG58		8			<b>809-129</b> M22520/5-01	<b>859-047 or 859-007</b> M22520/5-45	



**MIL-DTL-38999 Series III Type**

**RF crimp contact tool cross reference**

CONTACTS AND TOOLS

Shielded Contact Assembly Tools									
Contact P/N	Cable Accomodated		Gender	Size	Inner Contact		Cable Shield Hex		Insertion/ Removal Tool
					Tool	Positioner	Tool	Hex Die	
<b>852-042</b>	LLSB-200, and LMR-195		Skt	8	Solder Contact		<b>809-129</b> M22520/5-01	<b>859-051</b> M22520/5-05	<b>859-049</b> M81969/14-12 Removal
<b>852-043</b>	LLSB-200, and LMR-195		Pin	8	Solder Contact		<b>809-129</b> M22520/5-01	<b>859-007 or 859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
<b>852-056</b> 75 ohm	Dash: -01	V75268, V76261, V73263	Pin	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or 859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
	Dash: -02	RG179		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>809-130</b> M22520/5-03	
<b>852-057</b> 75 ohm	Dash: -01	V75268, V76261, V73263	Skt	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or 859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
	Dash: -02	RG179		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>809-130</b> M22520/5-03	
<b>853-003</b> (M39029/113)	M17/176-00002		Pin	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-048</b> M22520/5-105	<b>859-049</b> M81969/14-12 Removal
<b>853-004</b> (M39029/114)	M17/176-00002		Skt	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-048</b> M22520/5-105	<b>859-049</b> M81969/14-12 Removal
<b>853-013</b>	M17/176-00002		Skt	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or 859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
<b>853-014</b>	M17/176-00002		Pin	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or 859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
<b>853-017</b>	Raychem EPD 32263		Skt	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or 859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
<b>853-018</b>	Raychem EPD 32263		Pin	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or 859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
<b>853-024-XX</b>	Dash: -01	McDonnell Douglas ST5M1212-002	Skt	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or 859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
	Dash: -02	Raychem 7726D0664							
<b>853-025-XX</b>	Dash: -01	Raychem 7726D0664	Pin	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or 859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
	Dash: -02	McDonnell Douglas ST5M1212-002							



CONTACTS AND TOOLS

Shielded Contact Assembly Tools									
Contact P/N	Cable Accomodated		Gender	Size	Inner Contact		Cable Shield Hex		Insertion/ Removal Tool
					Tool	Positioner	Tool	Hex Die	
<b>854-001-XX</b>	Dash: -01	Tensolite NF26Q100	Pin	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
	Dash: -02	Tensolite NF24Q100, PIC E51424		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	
	Dash: -03	Draka Fileca F 4704-6		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	
	Dash: -04	Draka Fileca F 4704-4		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	
	Dash: -05	Tensolite NF22Q100		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	
<b>854-002-XX</b>	Dash: -01	Tensolite NF26Q100	Skt	8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	<b>859-049</b> M81969/14-12 Removal
	Dash: -02	Tensolite NF24Q100, PIC E51424		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	
	Dash: -03	Draka Fileca F 4704-6		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	
	Dash: -04	Draka Fileca F 4704-4		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	
	Dash: -05	Tensolite NF22Q100		8	<b>809-015</b> M22520/2-01	<b>859-072</b> <b>809-240</b> M22520/2-37	<b>809-129</b> M22520/5-01	<b>859-007 or</b> <b>859-047</b> M22520/5-45	

## MIL-DTL-38999 Series III Type Environmental Connectors

### El Ochito® octaxial “White,” “Blue,” and “Red” contact specifications

Ochito “White”



**1000BASE-T/10GBASE-T**

El Ochito® “White” octaxial contacts provide 10 Gigabit Ethernet in the same size as 100BASE-T Quadrx contact

- -65°C to +175°C
- 100 ohms
- 24 and 26 AWG
- Type I and Type II

Ochito “Blue”



**SuperSpeed USB**

*Low-dielectric material. Up to 5 Gbps. 90 ohms.* El Ochito® “Blue” octaxial contacts provide an aerospace-grade solution for SuperSpeed USB.

- -65°C to +125°C
- 90 ohms
- Type I only

Ochito “Red”



**HDMI, Displayport, SATA**

*Low-dielectric material. Up to 5 Gbps. 100 ohms.* El Ochito® “Red” octaxial contacts provide an aerospace-grade solution for multi-gigabit data rates.

- -65°C to +125°C
- 100 ohms
- 26 AWG
- Type I only

Specifications	
<p><b>Specifications</b></p> <ul style="list-style-type: none"> <li>□ <b>Operating temperature:</b> El Ochito® White: -65° to +175°C El Ochito® Blue: -65° to +125°C El Ochito® Red: -65° to +125°C</li> <li>□ <b>Impedance:</b> El Ochito® White: 100 ohms El Ochito® Blue: 90 ohms El Ochito® Red: 100 ohms</li> <li>□ <b>DWV:</b> 500 Vrms</li> <li>□ <b>Current Rating:</b> 1.5 A</li> <li>□ <b>IR:</b> 5000 megohms min.</li> <li>□ <b>Durability:</b> 500 mating cycles</li> <li>□ <b>Vibration:</b> MIL-DTL-38999 Series III</li> <li>□ <b>Shock:</b> MIL-DTL-38999 Series III</li> </ul>	
<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>□ <b>Inner contacts, outer contact, ferrules, retaining nut:</b> copper alloy, 50 microinches gold over nickel plating</li> <li>□ <b>Insulators:</b> El Ochito® White: PPS, natural color El Ochito® Blue: low-dielectric constant thermoplastic, blue El Ochito® Red: low-dielectric constant thermoplastic, red</li> <li>□ <b>O-ring:</b> fluorosilicone</li> <li>□ <b>Heatshrink tubing:</b> PVDF</li> <li>□ <b>Contact release sleeve:</b> stainless steel, passivated</li> <li>□ <b>Sealing boot grommet:</b> fluorosilicone</li> <li>□ <b>Sealing boot body:</b> rigid thermoplastic, PEI or equivalent</li> <li>□ <b>Spline, El Ochito® White:</b> copper alloy, nickel plating</li> <li>□ <b>Spline, El Ochito® Red and Blue:</b> Polyimide</li> </ul>	

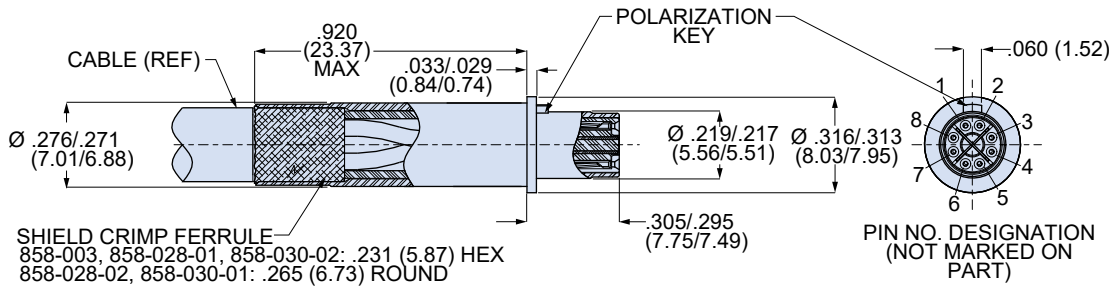
Contact and Cable Options							
Wire Size	Cable Type	Cable		Type I Ochito		Type II Ochito	
		Glenair Part No. (Mfgr. P/N)	Cable Dia.	Pin Contact Assembly Instr.	Skt Contact Assembly Instr.	Pin Contact Assembly Instr.	Skt Contact Assembly Instr.
<b>1000BASE-T, 10GBASE-T; el Ochito “White”</b>							
24	S/UTP	963-037-24 (PIC E6A3824)	.260 (6.60)	--	--	858-005-03 AI85097-03	858-006-03 AI85097-03
	S/FTP	963-033-24 (Gore RCN9047-24)	.260 (6.60)	--	--	858-005-04 AI85097-04	858-006-04 AI85097-04
26	S/UTP	963-003-26 (PIC E6A3826)	.220 (5.56)	858-003-01F AI85048-01	858-004-01F AI85048-01	858-005-01 AI85097-01	858-006-01 AI85097-01
	S/FTP	963-033-26 (Gore RCN9047-26)	.220 (5.56)	858-003-02F AI85048-02	858-004-02F AI85048-02	858-005-02 AI85097-01	858-006-02 AI85097-01
<b>SuperSpeed USB; el Ochito “Blue”</b>							
26	USB 3.0	963-118	.217 (5.51)	858-028-01F AI85114-02	858-029-01F AI85114-02	858-069-01 AI85158-01	858-070-01 AI85158-01
	USB 3.0	963-110	.236 (5.99)	858-028-02F AI85090-01	858-029-02F AI85090-01	858-069-02 AI85158-02	858-070-02 AI85158-02
<b>HDMI, Displayport and SATA; el Ochito “Red”</b>							
26	Cat 6a S/FTP	963-033-26 (Gore RCN9047-26)	.220 (5.56)	858-030-02F AI85048-02	858-031-02F AI85048-02	858-063-01 AI85149-02	858-064-01 AI85149-02
24	Cat 6a S/FTP	963-033-24	.217 (5.51)	--	--	858-063-02 AI85149-04	858-064-02 AI85149-04

## MIL-DTL-38999 Series III Type Environmental Connectors

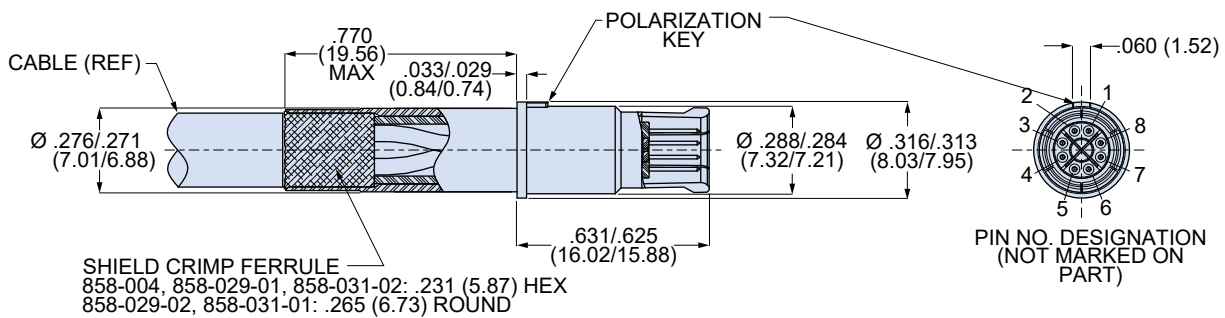
### El Ochito® octaxial pin and socket contacts

CONTACTS AND TOOLS

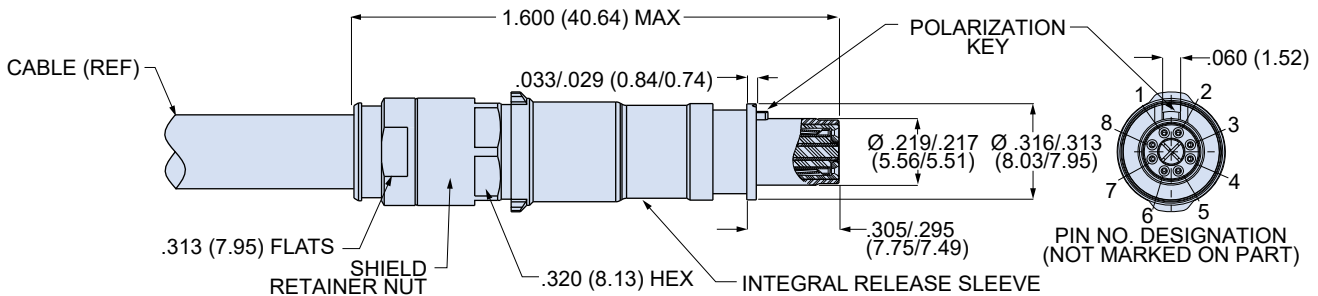
**El Ochito® Type I Pin Contact 858-003, 858-028, and 858-030**



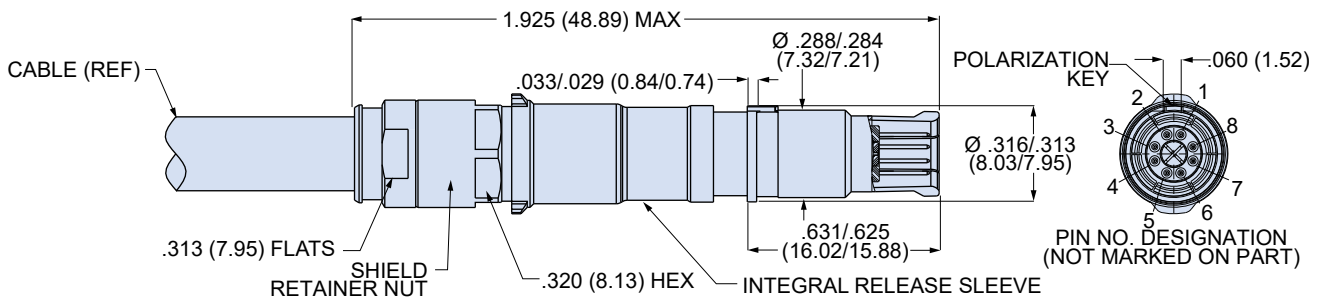
**El Ochito® Type I Socket Contact 858-004, 858-029, and 858-031**



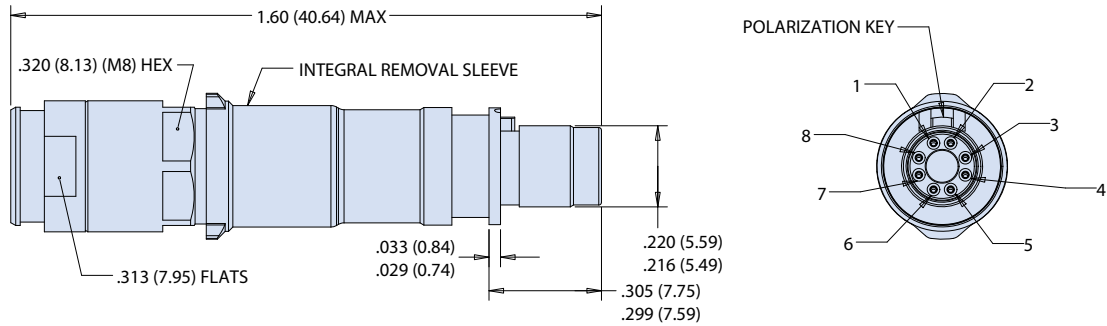
**El Ochito® White Type II Pin Contact 858-005**



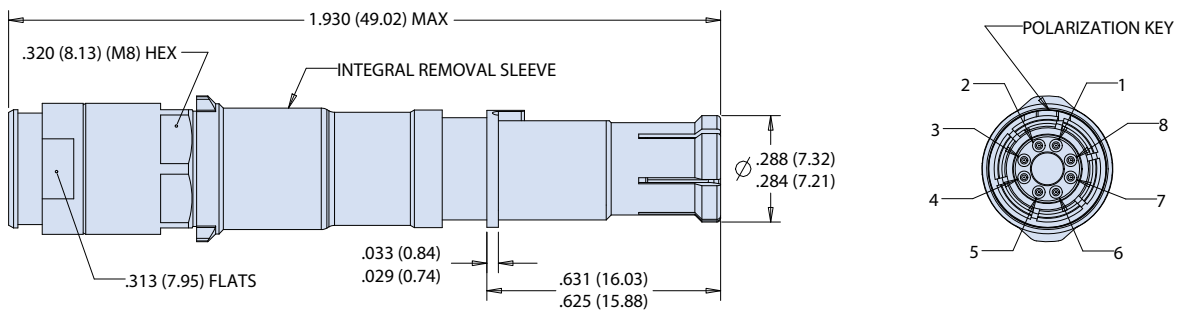
**El Ochito® White Type II Socket Contact 858-006**



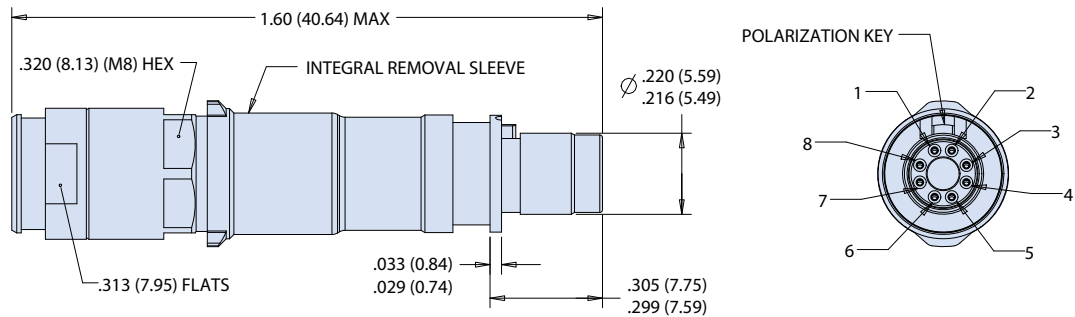
**EI Ochito® Blue Type II Pin Contact 858-069**



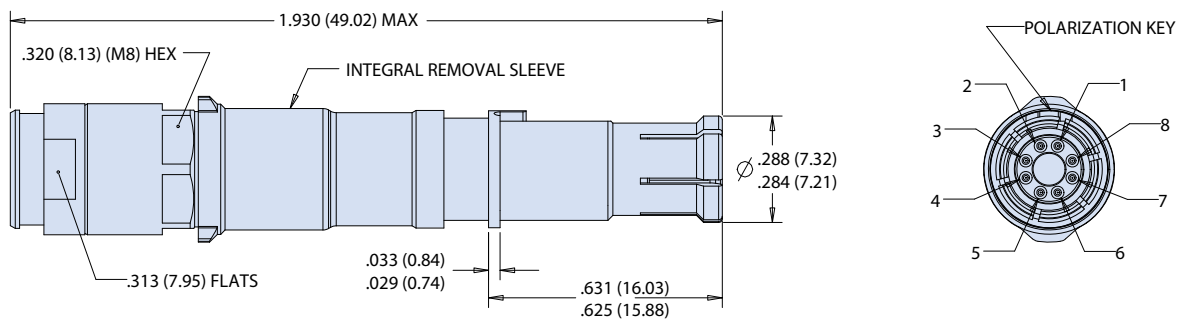
**EI Ochito® Blue Type II Pin Contact 858-070**



**EI Ochito® Red Type II Pin Contact 858-063**



**EI Ochito® Red Type II Socket Contact 858-064**





## MIL-DTL-38999 Series III Type Environmental Connectors

### El Ochito® octaxial contact and cable assembly tools and accessories

CONTACTS AND TOOLS

Assembly Tools									
Contact PN	Inner Contact Crimp		Cable Shield Hex Crimp		Cable Shield Round Crimp			Key Alignment Tool	Rear Ferrule Insertion Tool
	Tool	Positioner	Tool	Hex Die	Tool	Positioner 1	Positioner 2		
858-003	809-015	859-101	809-129	859-007				600-236	600-242
858-004	809-015	859-101	809-129	859-007				600-235	600-242
858-005	809-015	859-101						600-236	
858-006	809-015	859-101						600-235	
858-028-01	809-015	859-101	809-129	859-007				600-236	600-242
858-028-02	809-015	859-101			859-134	859-184-2	859-184-3	600-236	600-242
858-029-01	809-015	859-101	809-129	859-007				600-235	600-242
858-029-02	809-015	859-101			859-134	859-184-1	859-184-2	600-235	600-242
858-030-02	809-015	859-101	809-129	859-007				600-236	600-242
858-031-02	809-015	859-101	809-129	859-007				600-235	600-242

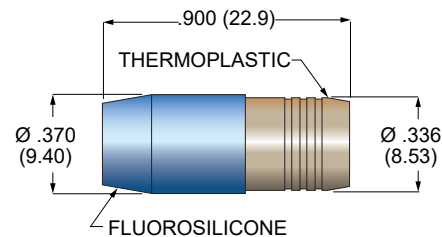
Inner Contact Crimp Tools		Cable Shield Crimp Tools				Removal Tool
		Hex Crimp		Round Crimp		
809-015 (M22520/2-01)	859-101 (K1906)	809-129 (M22520/5-01)	859-007 (M22520/5-45)	859-134 (GS206)	859-184 (M22520/31-02)	859-049 (M81969/14-12)

Key Alignment Tools		Rear Ferrule Insertion Tool
600-235 600-243 Socket contact	600-236 600-244 Pin contact	600-242

Contact factory for available alignment inspection tools for use with existing assemblies.

**Sealing Boot**

An "F" suffix in the contact part number indicates the contact is supplied with a sealing boot. To order these contacts without sealing boots, delete the "F" suffix from the part number. Sealing boots are not supplied with 858-005, 858-006, 858-009, 858-010, 858-035, 858-037, 858-038 and 858-039 contacts.



**SEALING BOOT FOR OCHITO CONTACTS**

- 687-754-8-8 FOR .220 (5.56) DIAMETER CABLES
- 687-754-8-9 FOR .236 (6.0) DIAMETER CABLES

**MIL-DTL-38999 Series III Type Environmental Connectors**

**600-280 El Ochito® contact termination/installation kit**

CONTACTS AND TOOLS



**600-280 tool kit** combines all the tools necessary to terminate El Ochito red, blue, and white contacts. Great for customers looking to terminate el Ochito® contacts to cables. Unit includes portable protective case with cutout foam for ease of transportation. Order by kit level for simplified ordering. Customize tool kit contents to meet your specific requirements. Additional foam cutout cavities allow for easy to upgrade your kit as you increase your el Ochito tool collection.

Part Number Development			
<b>Sample Part Number</b>	<b>600-280</b>	<b>-01</b>	
<b>Product</b>	600-280 = El Ochito Installation Tool Kit		
<b>Kit Number</b>	-01 = Basic Assembly -04 = Basic Assembly + Crimp Dies, and Positioners -07 = Basic Assembly+ Crimp Dies, Positioners and Crimp Tools		
<b>Modifier</b>	Omit = None H = Hex Crimp Only (See Table I)		

Kit 01: Basic Kit	
-01	
Tool Description	P/N
Socket El Ochito Alignment Tool	600-235
Pin El Ochito Alignment Tool	600-236
Ferrule Inserter	600-242

Kit -04: Basic Kit + Crimp Dies & Positioners	
-04	
Tool Description	P/N
Socket El Ochito Alignment Tool	600-235
Pin El Ochito Alignment Tool	600-236
Ferrule Inserter	600-242
Contact Positioner (K1906)	859-101
Body Hex Crimp Die (M22520/5-45)	859-007
859-134 (GS206) Positioner 1	859-184-1
859-134 (GS206) Positioner 2	859-184-2
859-134 (GS206) Positioner 3	859-184-3
Removal Tool (M81969/14-12)	859-049

Kit -07: Basic Kit + Crimp Dies & Positioners, and Crimp Tools	
-07	
Tool Description	P/N
Socket El Ochito Alignment Tool	600-235
Pin El Ochito Alignment Tool	600-236
Ferrule Inserter	600-242
Contact Positioner (K1906)	859-101
Body Hex Crimp Die (M22520/5-45)	859-007
859-134 (GS206) Positioner 1	859-184-1
859-134 (GS206) Positioner 2	859-184-2
859-134 (GS206) Positioner 3	859-184-3
Removal Tool (M81969/14-12)	859-049
Contact Crimper (M22520/2-01)	809-015
Hex Body Crimper (M22520/5-01)	809-129
Circle Body Crimper (GS206)	859-134

Table I: Items Removed By Modifier "H"	
Tool Description	P/N
859-134 (GS206) Positioner 1	859-184-1
859-134 (GS206) Positioner 2	859-184-2
859-134 (GS206) Positioner 3	859-184-3
Circle Body Crimper (GS206)	859-134

Notes
Modifier "H" Removes all tools and dies associated with the circle body crimp. See Table II. Not applicable to "-01".

# SuperNine® Tools

## MIL-DTL-38999 Series III Type

### Crimp tools and positioners



CONTACTS AND TOOLS

#### MINIATURE ADJUSTABLE CRIMP TOOLS



809-015

809-015 (M22520/2-01) Standard crimper. Use with standard #23, #22D and #20HD contacts, and with M39029/59 and /60 coaxial center contacts. Requires positioner, ordered separately. These crimp tools perform precision eight indent crimps for gas tight wire terminations and excellent tensile strength. Adjustment wheel has 8 settings. Ratchet mechanism prevents improper crimps. Use with bayonet type positioners. Check calibration with M22520/3 gages. Length is 6.75 inches, weight is approx. 10 oz.

Part Number	Military Part Number	Daniels Part Number
809-015	M22520/2-01	AFM8

Positioners for use with 809-015 miniature adjustable crimp tool. These bayonet-type positioners hold contacts at correct height for crimping with M22520/2 type miniature step adjustable tools, above. Face plate shows correct tool settings.



Glenair Part Number	Military Part Number	Daniels Part Number	For Crimping
859-210	M22520/2-13	K338	Size #23 M39029/18-177 contacts. For use with #22-#28 AWG cable.
859-211	M22520/2-16	K339	Size #23 M39029/17-172 socket contact. For use with #22-#28 AWG cables range.
809-369	M22520/2-07	K40	#22 contacts, Series III, Socket.
859-018	M22520/2-09	K42	#22 contacts, Series III, Pin.
	M22520/2-10	K43	#20 contacts, Series III.
809-125	M22520/2-35	K532-1	#16 M39029/76 and /77 coax inner contact.
859-006	(none)	K1430	#12 M39029/102 inner contact.
859-123	(none)	K1457	#12 M39029/103 inner contact.
859-050	M22520/2-31	K406	#8 M369029/59 and /60 coax (50 ohm) inner contacts. For use with RG180 cable.
809-240 or 859-072	M22520/2-37	K709	#8 coax (75 ohm) inner contact. For use with coax, twinax, and quadrax contacts .
859-101		K1906	#8 el Ochito® contacts.

#### CRIMP TOOL AND POSITIONER FOR #16 COAXIAL OUTER CONTACT



809-127

809-126

For crimping size #16 shield sleeves. These mil spec approved tools feature a ratchet mechanism to prevent damage from over crimping. Check calibration with M22520/3 gage.

**809-127** Crimp tool for use with size #16 coaxial contacts. Blue handles. 9.75 inches OAL, 1.25 pounds.

**809-126** Positioner for use with size #16 coaxial contacts. Use with 809-127 (M22520/4-01) crimp tool.

Part Number	Military Part Number	Daniels Part Number
809-127 Crimper	M22520/4-01	GS100-1
809-126 Positioner	M22520/4-02	GP295

**CRIMP TOOL AND POSITIONER FOR #12, #16, AND #20 POWER CONTACTS, CRIMP ADAPTERS**



**809-136** Crimper tool for use with size #20, #16 and #12 power pins. 9.75 inches OAL, 1.25 pounds. Use with M39029/57 and /58 contacts and 809-093 adapters.

**Positioner** for use with size #20, #12 and #16 Power contacts.

Part Number	Military Part Number	Daniels Part Number
<b>809-136 Crimper</b>	M22520/1-01	AF8
<b>809-137 Positioner</b>	M22520/1-04	TH163

**PARALLEL ACTION CRIMP TOOL AND HEX DIE SET FOR #12 AND #8 COAX CONTACTS**



**809-129** Parallel action tool for use with hex crimp dies. 11 inches OAL, 2.0 pounds. Anodized aluminum frame, steel mechanism, plastic handles. Includes tool for die set extraction. Accepts all M22520/5 die sets.

**Die set** for terminating coaxial shield to outer contact. Use with size #12 matched impedance M39029/102 and 103 type coaxial contacts. Set consists of upper and lower halves. Made of hardened steel with black oxide finish. Die set has two closures.

Part Number	Military Part Number	Daniels Part Number
<b>809-129 Crimper</b>	M22520/5-01	HX4
<b>809-130 Die</b>	M22520/5-03	Y196
<b>859-051 Die</b>	M22520/5-05	Y197
<b>859-047 or 859-007 Die</b>	M22520/5-45	Y143
<b>809-048 Die</b>	M22520/5-105	Y631

**CRIMP TOOL AND POSITIONER FOR #8 OCTAXIAL EL OCHITO CABLE SHIELD CRIMP**



809-134 crimper tool for size #8 el Ochito® 858-028-02 round crimp shield sleeves. Tool features ratchet mechanism to prevent damage from over crimping. Check calibration with G426 gage.

**809-134** Crimper tool for use with size #8 coaxial contacts. Blue handles. 9.75 inches OAL, 1.25 pounds.

**859-184** Positioner for use with size #8 el Ochito® 858-028-02 and 858-02-02 (round crimp) octaxial contacts. Use with 809-134 (GS206) crimper tool.

Part Number	Military Part Number	Daniels Part Number
<b>859-134 Crimper</b>	(none)	GS206
<b>859-184 Positioner</b>	(M22520/31-02)	G2P330

**MIL-DTL-38999 Series III Type  
Insertion and extraction tools and retention tester**

**CONTACT INSERTION AND EXTRACTION TOOLS**



Size	Type	Part Number	Military Part Number	Daniels Part Number
#23	Insertion/Extraction	(None)	M81969/1-05	(None)
#23	Insertion/Extraction	(None)	M81969/16-04	(None)
#22	Insertion/Extraction	<b>859-163</b>	M81969/14-01	(None)
#20	Insertion/Extraction	<b>809-207</b>	M81969/14-10	(None)
#16	Insertion/Extraction	<b>809-131</b>	M81969/14-03	(None)
#12	Insertion/Extraction	<b>809-132</b>	M81969/14-04	(None)
#8	Insertion Only	(None)	M81969/14-06	(None)
#8	Extraction Only	<b>859-049</b>	M81969/14-12	(None)
#8	Insertion Only	(None)	M81969/8-13	(None)

**CONTACT RETENTION TESTER FOR SUPERNINE CONTACTS**



Size 23 contact retention tester shown

Check for properly seated contacts with this spring-loaded tester. Apply the tool tip to the mating end of a contact. Push on the handle until the spring compresses to the recommended force. A visual indicator shows full compression. The contact is

properly retained if it is not displaced. Pin tips are used with pin contacts. Socket tips are used with socket contacts. Complete kit options available, or order the tips and handles separately.

Description	Part Number	Daniels PN
#23 Handle	<b>809-107-1</b>	HT250-2
#23 Pin Tip	<b>809-107-2</b>	68-023-01
#23 Socket Tip	<b>809-107-3</b>	67-023-01
Complete Kit	<b>809-107-4</b>	(None)
#22 Handle	<b>859-116-H4</b>	HT250-4
#22 Pin Tip	<b>859-116-22P</b>	68-022-01
#22 Socket Tip	<b>859-116-22S</b>	67-022-01
Complete Kit	<b>859-252-22H4</b>	(None)
#20 Handle	<b>809-370-1</b>	HT250-4
#20 Pin Tip	<b>809-370-2</b>	68-020-01
#20 Socket Tip	<b>809-370-3</b>	67-020-01
Complete Kit	<b>809-370-4</b>	(None)
#16 Handle	<b>809-371-1</b>	HT250-4
#16 Pin Tip	<b>809-371-2</b>	68-016-01
#16 Socket Tip	<b>809-371-3</b>	67-016-01
Complete Kit	<b>809-371-4</b>	(None)
#12 Handle	<b>809-372-1</b>	HT250-4
#12 Pin Tip	<b>809-372-2</b>	68-012-01
#12 Socket Tip	<b>809-372-3</b>	67-012-01
Complete Kit	<b>809-372-4</b>	(None)





*WEIGHT / COST-SAVING*

# Dummy Contact Sealing Plugs (DCSP)

For reliable sealing of unused contact cavities—without the use of electrical contacts

The use of color-coded M27488 type plastic sealing plugs in unused contact cavities is a requirement in all environmental interconnect applications (IAW NA01-1A-505-1, WP 007 00 or 020 00). Conventional sealing plugs, combined with the connector grommet seal, provide reliable dust and moisture ingress protection. But common contact sealing plugs still require that a properly-sized electrical contact be first inserted into the cavity, followed by the plastic plug. Glenair innovative Dummy Contact Sealing Plugs (DCSP) eliminate the need to use expensive electrical contacts as part of the sealing regimen. Fast and easy-to-install, these longer form-factor Dummy Contact Sealing Plugs (DCSP) are a one-piece solution to contact cavity sealing that results in significant weight reduction, material cost reduction, and assembly labor. Available in Size #23 to Size #8, for connector series D38999, Glenair Dummy Contact Sealing Plugs reduce weight as much as 90% compared to conventional contact/sealing plug configurations.

- Powerful tool in Electrical Wire Interconnect System weight reduction
- Eliminates use of expensive electrical contacts for sealing-only applications
- Leverages connector contact clip for secure retention of the sealing plug—no possibility of FOD
- Easy-to-install single piece design
- Visible quality control / confirmation of cavity fill from back of connector
- EWIS compliant test report available, ref. GT 15-106

# SuperNine® Weight/cost-saving MIL-DTL-38999 Series III Type Dummy contact sealing plugs (DCSP)



CONTACTS AND TOOLS

Dummy Contact Sealing Plug (DCSP) Weight Savings: Size #20 Contact Arrangements													
MIL-DTL-38999 Insert Arrangement					Spare Socket Cavity Components				Spare Pin Cavity Components				Mated Pair
Shell Size	Arrangement	Available Cavities	Filled Cavities	Percent Fill	Socket Contact	Sealing Plug	Dummy Contact	Weight Savings	Pin Contact	Sealing Plug	Dummy Contact	Weight Savings	Weight Savings
					M39029/56-351	MS27488-20-2	680-116-20	(grams)	M39029/58-363	MS27488-20-2	680-116-20	(grams)	(grams)
9	98	3	2	67	0.50	0.08	0.06	0.52	0.14	0.08	0.06	0.15	0.67
11	98	6	4	67	1.00	0.16	0.12	1.04	0.27	0.16	0.12	0.31	1.34
13	98	10	8	80	1.00	0.16	0.12	1.04	0.27	0.16	0.12	0.31	1.34
15	19	19	14	74	2.50	0.39	0.30	2.59	0.68	0.39	0.30	0.77	3.36
17	26	26	20	77	3.00	0.47	0.36	3.11	0.82	0.47	0.36	0.92	4.03
19	32	32	24	75	4.00	0.62	0.48	4.14	1.09	0.62	0.48	1.23	5.38
21	41	41	32	78	4.50	0.70	0.54	4.66	1.22	0.70	0.54	1.39	6.05
23	55	55	44	80	5.50	0.86	0.66	5.70	1.50	0.86	0.66	1.69	7.39
25	61	61	48	79	6.50	1.01	0.78	6.73	1.77	1.01	0.78	2.00	8.74

Weight Savings per 1,000 Dummy Contact Sealing Plugs (DCSP)											
Number of Spare Contact Cavities Sealed	Spare Socket Cavity Components				Spare Pin Cavity Components				Mated Pair		
	Socket Contact	Sealing Plug	Dummy Contact	Weight Savings	Pin Contact	Sealing Plug	Dummy Contact	Weight Savings	Weight Savings		
	M39029/56-351	MS27488-20-2	680-116-20	(grams) (lbs)	M39029/58-363	MS27488-20-2	680-116-20	(grams) (lbs)	(grams) (lbs)	(grams) (lbs)	
1000	500.0	78.0	60.0	518.0 1.14	136.0	78.0	60.0	154.0 0.34	672.0	1.48	

Dummy Contact Sealing Plug (DCSP) Weight Savings: Size #22 Contact Arrangements													
MIL-DTL-38999 Insert Arrangement					Spare Socket Cavity Components				Spare Pin Cavity Components				Mated Pair
Shell Size	Arrangement	Available Cavities	Filled Cavities	Percent Fill	Socket Contact	Sealing Plug	Dummy Contact	Weight Savings	Pin Contact	Sealing Plug	Dummy Contact	Weight Savings	Weight Savings
					M39029/56-348	MS27488-22-2	680-116-22	(grams)	M39029/58-360	MS27488-22-2	680-116-22	(grams)	(grams)
9	35	6	4	67	0.50	0.06	0.07	0.49	0.14	0.06	0.07	0.13	0.62
11	35	13	10	77	0.75	0.09	0.11	0.73	0.22	0.09	0.11	0.20	0.93
13	35	22	16	73	1.49	0.18	0.22	1.46	0.43	0.18	0.22	0.40	1.85
15	35	37	28	76	2.24	0.27	0.32	2.19	0.65	0.27	0.32	0.59	2.78
17	35	55	44	80	2.74	0.33	0.40	2.67	0.79	0.33	0.40	0.73	3.40
19	35	66	52	79	3.49	0.42	0.50	3.40	1.01	0.42	0.50	0.92	4.33
21	35	79	62	78	4.23	0.51	0.61	4.13	1.22	0.51	0.61	1.12	5.25
23	35	100	80	80	4.98	0.60	0.72	4.86	1.44	0.60	0.72	1.32	6.18
25	35	128	102	80	6.47	0.78	0.94	6.32	1.87	0.78	0.94	1.72	8.03

Weight Savings per 1,000 Dummy Contact Sealing Plugs (DCSP)											
Number of Spare Contact Cavities Sealed	Spare Socket Cavity Components				Spare Pin Cavity Components				Mated Pair		
	Socket Contact	Sealing Plug	Dummy Contact	Weight Savings	Pin Contact	Sealing Plug	Dummy Contact	Weight Savings	Weight Savings		
	M39029/56-348	MS27488-22-2	687-116-22	(grams) (lbs)	M39029/58-360	MS27488-22-2	680-116-22	(grams) (lbs)	(grams) (lbs)	(grams) (lbs)	
1000	249.0	30.0	36.0	243.0 0.54	72.0	30.0	36.0	66.0 0.15	309.0	0.68	

Reference Weights			
Component	Weight (g)	Component	Weight (g)
MS27488-22-2	0.030	MS27488-16-3	0.140
M39029/58-360	0.072	M39029/58-364	0.333
M39029/56-348	0.249	M39029/56-352	0.769
Glenair DCSP 660-116-22	0.036	Glenair DCSP 660-116-16	0.140
MS27488-20-2	0.078	MS27488-12-3	0.260
M39029/58-363	0.136	M39029/58-365	0.681
M39029/56-351	0.500	M39029/56-353	1.600
Glenair DCSP 660-116-20	0.060	Glenair DCSP 687-116-12	0.280
		Glenair DCSP 687-821-8	1.800

# SuperNine® Weight/cost-saving MIL-DTL-38999 Series III Type Dummy contact sealing plugs (DCSP)



## 680-116 DUMMY CONTACT SEALING PLUG FOR D38999

Part Number Development			
Sample Part Number	680-116	-8	B
Series	680-116 = Dummy contact sealing plug		
Dash No.	See Table I		
Boot Option	B = Boot supplied with assembly (dash -8 only) Omit for none		

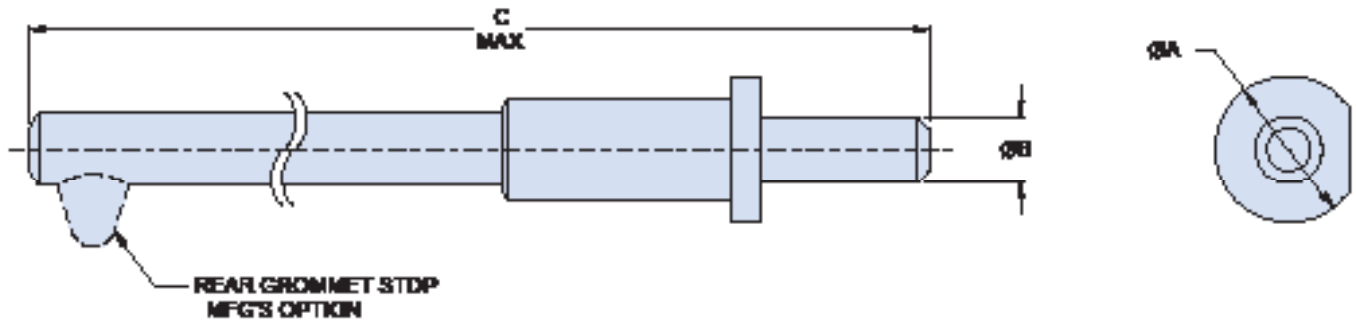


		Table I							
Contact Cavity Size/Dash Number	Color Code	ØA		ØB		C Max		Extraction Tool	Standard Pkg. Size
		in.	mm	in.	mm	in.	mm		
-8	Green	.315	8.00	.218	5.54	1.51	38.4	M81969/14-06	100
-12	Orange	.181	4.60	.094	2.39	1.18	30.0	M81969/14-04	100
-16	Violet	.128	3.25	.062	1.57	1.18	30.0	M81969/14-03	500
-20	Red	.093	2.36	.040	1.02	1.18	30.0	M81969/14-10	1000
-22	Black	.061	1.55	.030	.76	1.18	30.0	M81969/14-01	1000
-23	White	.054	1.37	.027	.69	1.18	30.0	M81969/1-05	1000

- Molded plastic material, 200° minimum temperature limit
- Designed to seal the unused contact cavities of the MIL-DTL-38999 Ser. I, II, III, IV
- Size 8 dummy contact requires a boot (ref P/N 859-165-02) to seal the cavity of the grommet, supplied by selecting option "B" in the part number
- Use 859-106 size 8 sealing plug if any of the following conditions are true:
  - mating connector already has quadrax, differentail twinax, coax (pin) or
  - it is uncertain whether such contacts are already installed or will be installed in the contact cavity



# SuperNine® Weight/cost-saving MIL-DTL-38999 Series III Type Dummy contact sealing plugs (DCSP)



CONTACTS AND TOOLS

Connector Series / Size / Color Code / Part Number Selection							
Connector Series	Crimp Removable Contact Cavity Size						
	23	22	20	16	12	8	8 w/ Boot
D38999 Series I, III, IV	680-116-23	680-116-22	680-116-20	680-116-16	680-116-12	680-116-8	680-116-8B



## INSTALLATION OF DUMMY CONTACTS

1. Insert Dummy Contacts into unused contact cavities.
  - A. Dummy Contacts may be installed using contact insertion tool, needle nose pliers or by hand (space permitting).
  - B. Isopropyl alcohol may be used to facilitate insertion of Dummy Contacts.
2. Push Dummy Contact into cavity until flange locks into contact retention clip.
3. Attempt to pull Dummy Contact from connector body to ensure full retention.

**Important note: Size #22 and #23 Dummy Contacts In 38999 socket cavities**

4. Dummy Contact shall only be inserted into cavity far enough to engage retention clip.
5. Pull Contact back for maximum tail exposure.

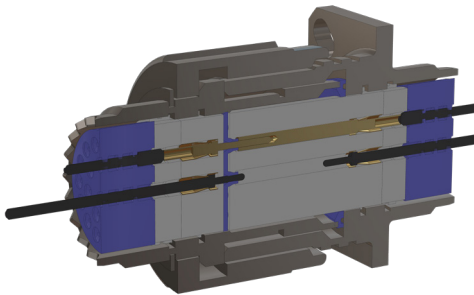
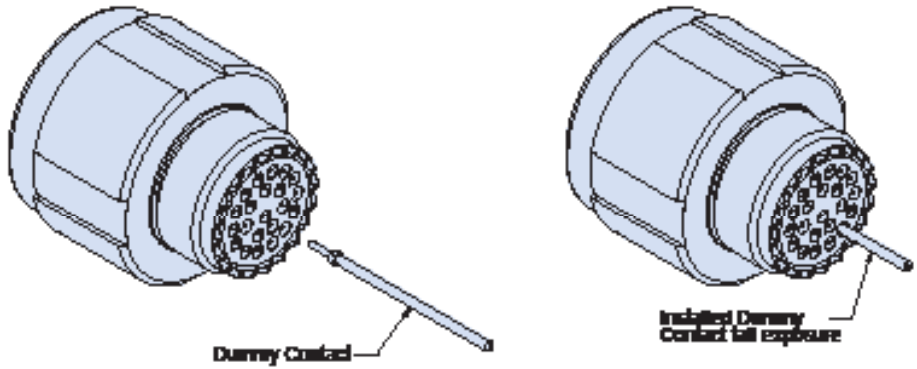
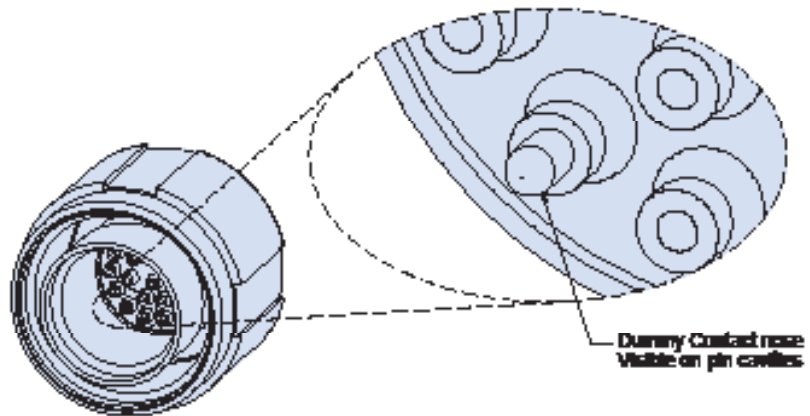


Illustration shows conventional sealing plug / contact configuration (top) and long form-factor Dummy Contact Sealing Plugs (bottom).



# SuperNine® Weight/cost-saving MIL-DTL-38999 Series III Type Size 8 plastic sealing plugs

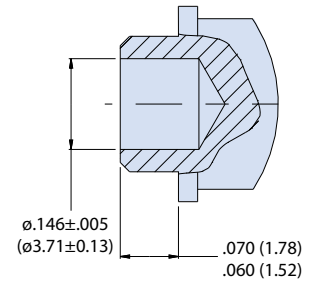
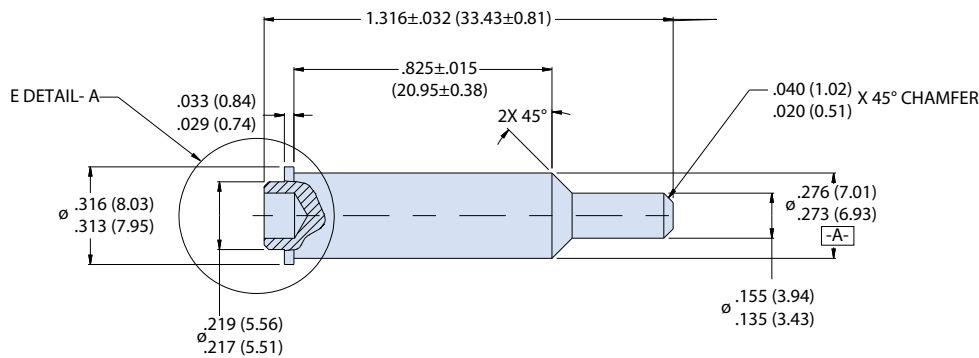


## 859-106 SEALING PLUG FOR D38999

Part Number Development		
Sample Part Number	859-106	F
Series	859-106 = Dummy contact sealing plug	
Grommet Follower	F = Grommet follower; Omit for not	

Plastic sealing plugs are for use in MIL-DTL-38999 Series III arrangements with size 8 catvities. Optional grommet follower is designed to fit Glenair connector grommet.

- Use 859-106 size 8 sealing plug if any of the following conditions are true:
  - mating connector already has quadrax, differential twinax, coax (pin)
 or
  - it is uncertain whether such contacts are already installed or will be installed in the contact cavity



DETAIL-A



# SuperNine® Tools

## MIL-DTL-38999 Series III Type

### Band-Master ATS® banding tool



CONTACTS AND TOOLS

The **601-100 Standard Band-Master ATS® Tool** weighs 1.18 lbs., and is designed for standard flat .24" width clamping bands (601-005, 601-040 and 601-049) in a tension range from 100 to 180 lbs. Calibrate at 150 lbs. ± 5 lbs. for most shield terminations. Tool and band should never be lubricated.

**Band-Master ATS® Band Selection**

Bands	Length		Part Number		Fits Diameter	
	in.	mm.	Flat	Pre-Coiled	in.	mm.
Short Standard Band	9.0	228.6	<b>601-005</b>	<b>601-006</b>	1.0	25.4
Medium Standard Band	14.0	355.6	<b>601-040</b>	<b>601-041</b>	1.8	47.8
Long Standard Band	18.0	457.2	<b>601-049</b>	<b>601-050</b>	2.5	63.5

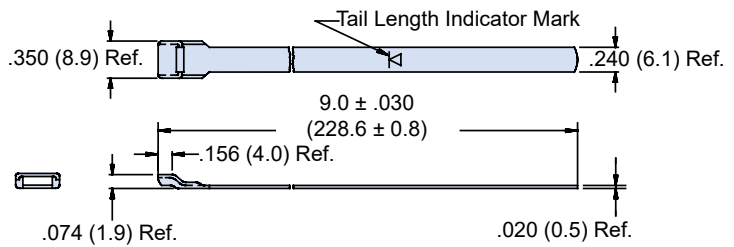
**Cable Pull Strength**

Name	Material Type	Band Width	Material Thickness	Tool Setting	Cable Pull Strength
Standard	300 SS	0.24"	.020"	150 lbs	160 lbs
Micro	300 SS	0.12"	.015"	80 lbs	80 lbs
Nano	300 SS	0.075"	.010"	35 lbs	100 lbs*

#### Short Flat 601-005

#### Short Precoiled 601-006

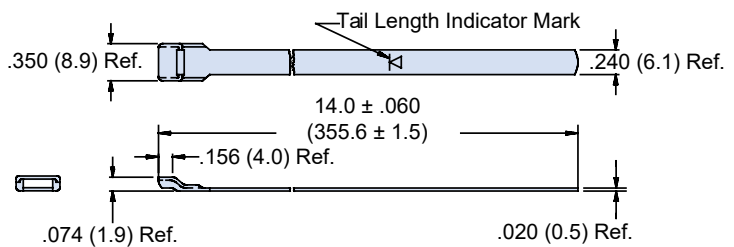
Standard Bands are precision constructed of 300 Series SST/Passivate IAW AMS 2700. Short Standard Bands are 9.00 inches (228.6) in length and designed for use with the Band-Master ATS® 601-100 hand banding tool or the 601-104 pneumatic banding tool. Bands should always be double wrapped and will accommodate diameters up to approximately 1.0 inches (25.4). Quantity packaging is also available: 100 flat (601-007) and 100 pre-coiled (601-008).



#### Medium Flat 601-040

#### Medium Precoiled 601-041

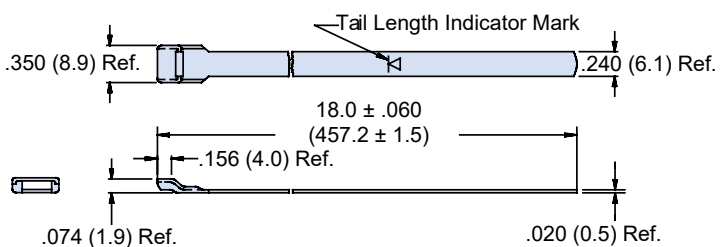
Standard Bands are precision constructed of 300 Series SST/Passivate IAW AMS 2700. Medium Standard Bands are 14.0 inches (355.6) in length and designed for use with the Band-Master ATS® 601-100 hand banding tool or the 601-104 pneumatic banding tool. Bands should always be double wrapped and will accommodate diameters up to approximately 1.8 inches (45.7). Quantity packaging is also available: 100 flat (601-042) and 100 pre-coiled (601-043).



#### Long Flat 601-049

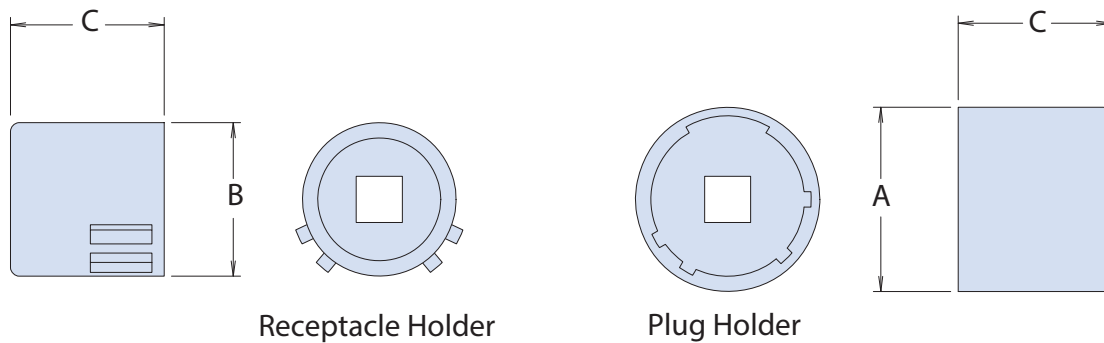
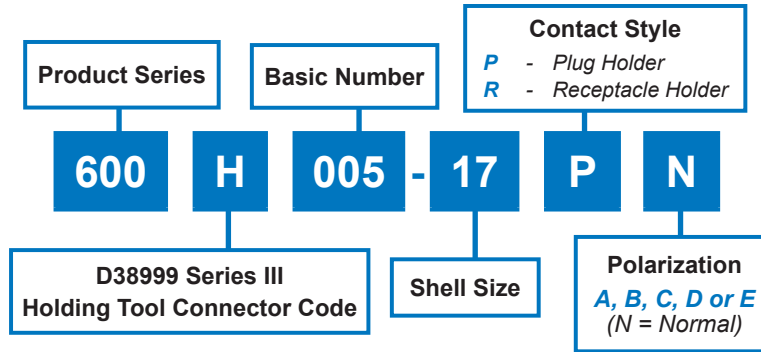
#### Long Precoiled 601-050

Standard Bands are precision constructed of 300 Series SST/Passivate IAW AMS 2700. Long Standard Bands are 18.0 inches (457.2) in length and designed for use with the Band-Master ATS® 601-100 hand banding tool or the 601-104 pneumatic banding tool. Bands should always be double wrapped and will accommodate diameters up to approximately 2.5 inches (63.5). Quantity packaging is also available: 100 flat (601-051) and 100 pre-coiled (601-052).



**MIL-DTL-38999 Series III Type**

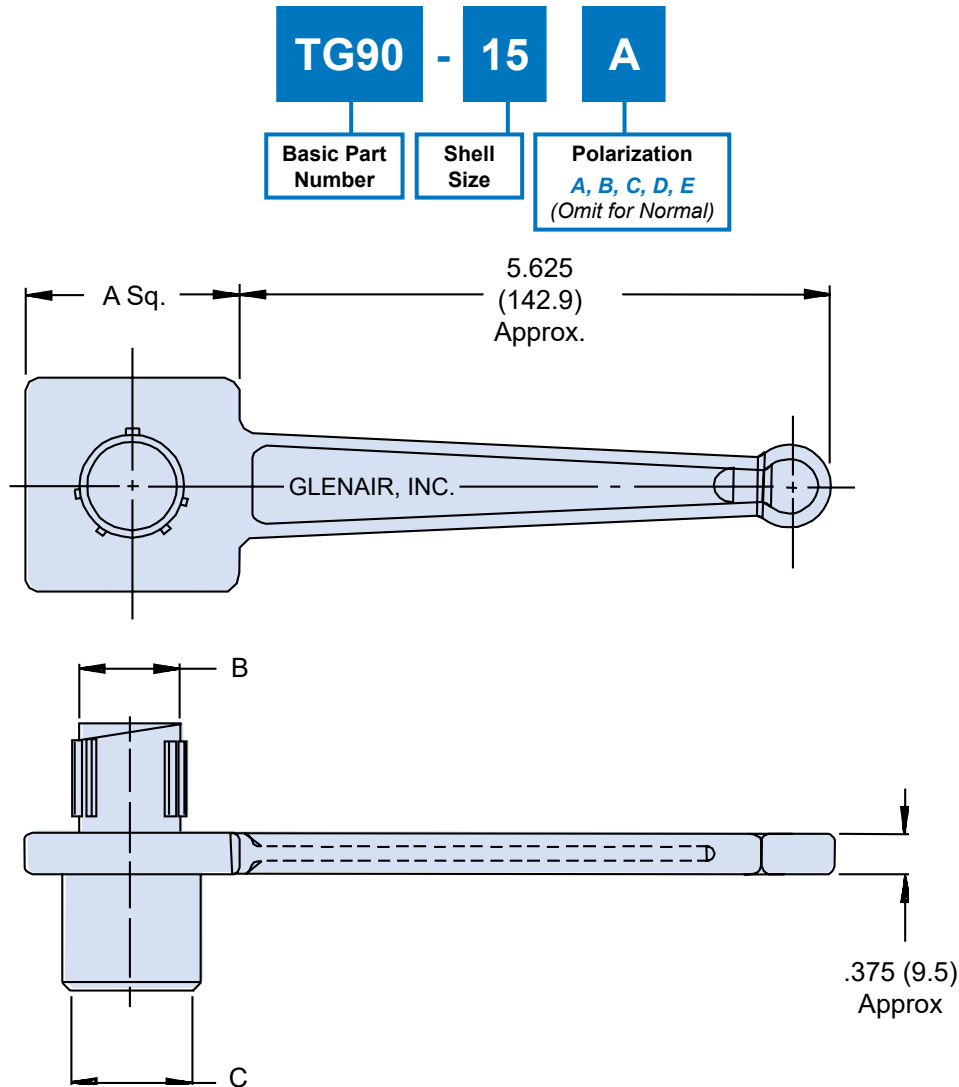
**600H005 Connector holding tool, plug and receptacle**



Dash Number, Torque and Dimensions						
Connector Shell Size	MIN/MAX IN-LB			A Dia Max	B Dia Max	C Dim Max
	Aluminum	Composite	Stainless Steel, High Vibration Applications			
09, A	30/40	20/25	91/101	.577 (14.7)	.438 (11.1)	1.031 (26.2)
11, B	30/40	20/30	115/125	.709 (18.0)	.566 (14.4)	1.031 (26.2)
13, C	35/45	25/35	115/125	.829 (21.1)	.678 (17.2)	1.031 (26.2)
15, D	35/45	25/35	139/149	.954 (24.2)	.803 (20.4)	1.031 (26.2)
17, E	35/45	30/40	139/149	1.107 (28.1)	.928 (23.6)	1.031 (26.2)
19, F	35/45	30/40	175/185	1.190 (30.2)	1.033 (26.2)	1.031 (26.2)
21, G	75/85	35/45	199/209	1.315 (33.4)	1.158 (29.4)	1.031 (26.2)
23, H	75/85	35/45	223/233	1.440 (36.6)	1.283 (32.6)	1.031 (26.2)
25, J	75/85	35/45	259/269	1.565 (39.8)	1.408 (35.8)	1.031 (26.2)

**NOTES**

1. Metric dimensions (mm) are indicated in parentheses.
2. Material: Case hardened carbon steel with electroless nickel finish.
3. Receptacle and plug holder drives: 1/4" - Shell sizes 09, 11 and 13; 3/8" - Shell sizes 15 and up.
4. Composite values apply when using Glenair 600-091 and 600-007 tools.



**NOTES**

1. Metric dimensions (mm) are indicated in parentheses.
2. Material: Aluminum alloy with electroless nickel finish.

Dimensions			
Shell Size	A Dim ± .062 (1.6)	B Dia Ref	C Dia Ref
09	1.250 (31.8)	.438 (11.1)	.441 (11.2)
11	1.250 (31.8)	.566 (14.4)	.569 (14.5)
13	1.250 (31.8)	.678 (17.2)	.682 (17.3)
15	2.000 (50.8)	.802 (20.4)	.811 (20.6)
17	2.000 (50.8)	.928 (23.6)	.931 (23.6)
19	2.000 (50.8)	1.032 (26.2)	1.037 (26.3)
21	2.000 (50.8)	1.155 (29.3)	1.162 (29.5)
23	2.750 (69.9)	1.283 (32.6)	1.288 (32.7)
25	2.750 (69.9)	1.407 (35.7)	1.411 (35.8)

**STAINLESS STEEL TOOL FOR USE WITH GLENAIR COMPOSITE BACKSHELLS**

**600**

Product Series

**157**

Basic Number

**K**

**Dash Number  
for Individual Wrench or:**

*K* - Kit of dash numbers  
08 thru 28, no case

*KC* - "K" kit with case

*KL* - Kit of dash numbers 32 thru  
44, no case

*KLC* = "KL" kit with case

*KIT* = Kit of dash numbers 08  
thru 44 with case

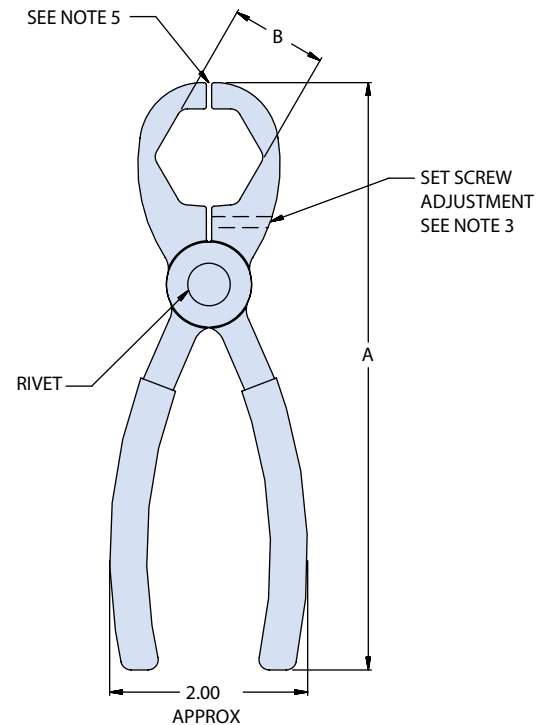
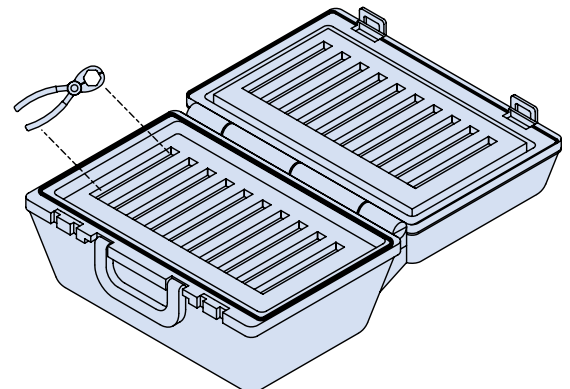


TABLE I: DASH NUMBER					
Dash No.	A Ref	B Hex <sup>2</sup> Ref	Connector for Shell Size Codes		Composite Torque Inch Pounds In-Lbs Min/Max
			A & F	Code H	
08	6.70 (170.2)	.750 (19.1)	08	09	20/25
10	6.75 (171.5)	.875 (22.2)	10	11	20/30
12	6.81 (173.0)	1.000 (25.4)	12	13	25/35
14	6.88 (174.8)	1.125 (28.6)	14	15	25/35
16	6.95 (176.5)	1.250 (31.8)	16	17	30/40
18	7.05 (179.1)	1.375 (34.9)	18	19	30/40
20	7.15 (181.6)	1.500 (38.1)	20	21	35/45
22	7.38 (187.5)	1.625 (41.3)	22	23	35/45
24	7.44 (189.0)	1.750 (44.5)	24	25	35/45

**NOTES**

- Use in conjunction with Glenair 600G161 torque wrench and 600-162B or 600-162BV bench mounts (see page 14).
- Adjust set screw per tool setting procedure GAP134 (available on Glenair.com). Once adjusted must fit Glenair hex composite coupling nuts
- Dash Number 08, 10, 12 only. Customer is responsible for maintaining adjustment to compensate for wear.
- Replace tool if excessive wear is observed
- Gap is permissible during tool use for coupling nut assembly
- If set screw becomes loose causing loss of adjustment reapply suitable thread locking compound
- Wrenches are made of passivated SST with vinyl grips.
- Using other manufacturer's hex wrench pliers or soft jaw coated pliers will result in premature fracturing or damage to the composite product



KC Option  
Approximate Case Dimensions: 13.5 x 15.5 x 3.875

CONTACTS AND TOOLS

# MIL-DTL-38999 Series III Type 859-252 Contact retention tester kit

Part Number Development		
Sample Part Number	859-252	-23H4
Series	859-252 = Contact retention tester kit	
Tool Kit, Contact Size	See Table I (Ex: 23H4 = contact size 23 retention test kit)	

Table I					
Tool Kit Dash No	Contact Size	Socket Tester	Pin Tester	Tool Body	Range Pounds
23H4	23	23S	23P	H4	7.0-18.0
22H4	22	22S	22P	H4	
20H4	20	20S	20P	H4	
16H6	16	16S	16P	H6	24.0-40.0
12H6	12	12S	12P	H6	
10H6	10	10S	10P	H6	
8H6	8	8S	8P	H6	

### NOTES

1. Contact retention tester kit includes pin tip tester, socket tip tester and tool body.
2. Select tool body per pre-set range in lbs and adjust per contact retention force requirement before use.
3. Tool kit is to test contact retention IAW MIL-DTL-38999.
4. To order individual tool body or pin tip or socket tip, see 859-116.



Also  
Available  
from Glenair

# SERIES 96

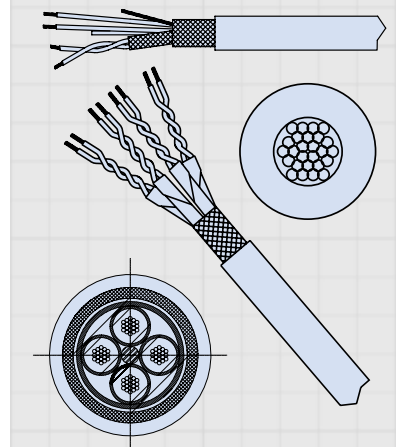
## High-performance cable for interconnect applications

Sophisticated wire and cable solutions—from optical fiber to high-flexibility power transmission cable

**G**lenair is unique in the interconnect industry in that we design and manufacture every key component part used in today's most high-performance interconnect harnesses and assemblies. From discrete contacts to connectors, backshells, EMI/RFI shielding, jacketing—and now wire and cable—Glenair manufactures and supplies the full range of requirements.

*Introducing Glenair high performance wire and cable:* Our line of high-performance wire and cable includes Mil-Spec and commercial variants of commonly specified M22759 type multi-conductor shielded cabling, as well as a full range of Quadrax, Coaxial, fiber optic, and protocol-specific (Ethernet, USB, Firewire and eSATA) cables. We also offer several unique and high-performance cable solutions of our own design for harsh-environment power and signal applications. Best of all, Glenair high-performance wire and cable is offered in short runs with no length or dollar minimums. Fast turnaround—up to and including stock—is our model. Call the factory or visit our website for price and delivery information.

### Engineered wire and cable solutions



Mating face of pin insert shown (socket will be opposite)

9-94 2 #20		<b>I.D. No.</b>		<b>Location</b>					
			<b>X</b>	<b>Y</b>					
		A	.065	.000					
		B	-.065	.000					
9-35 6 #22D		<b>I.D. No.</b>		<b>Location</b>					
			<b>X</b>	<b>Y</b>					
		1	.045	.078					
		2	.078	-.045					
		3	.000	-.090					
		4	-.078	-.045					
9-98 3 #20		<b>I.D. No.</b>		<b>Location</b>					
			<b>X</b>	<b>Y</b>					
		A	.065	.038					
		B	.000	-.075					
		C	-.065	.038					
11-2 2 #16		<b>I.D. No.</b>		<b>Location</b>					
			<b>X</b>	<b>Y</b>					
		A	.095	.000					
		B	-.095	.000					
11-4 4 #20		<b>I.D. No.</b>		<b>Location</b>					
			<b>X</b>	<b>Y</b>					
		A	.065	.065					
		B	.065	-.065					
		C	-.065	-.065					
		D	-.065	.065					
11-5 5 #20		<b>I.D. No.</b>		<b>Location</b>					
			<b>X</b>	<b>Y</b>					
		A	.065	.056					
		B	.113	-.065					
		C	.000	-.130					
		D	-.113	-.065					
		E	-.065	.056					
11-35 13 #22D		<b>I.D. No.</b>		<b>Location</b>		<b>I.D. No.</b>		<b>Location</b>	
			<b>X</b>	<b>Y</b>				<b>X</b>	<b>Y</b>
		1	.000	.146	8	-.138	-.045		
		2	.085	.118	9	-.138	.045		
		3	.138	.045	10	-.085	.118		
		4	.138	-.045	11	.000	.056		
		5	.085	-.118	12	.049	-.035		
		6	.000	-.146	13	-.049	-.035		
		7	-.085	-.118					

Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

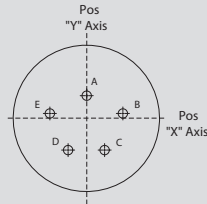
11-98 6 #20		<b>I.D. No.</b>		<b>Location</b>			
			<b>X</b>	<b>Y</b>			
		A	.000	.130			
		B	.130	.000			
		C	.065	-.113			
		D	-.065	-.113			
		E	-.130	.000			
F	.000	.000					
11-99 7 #20		<b>I.D. No.</b>	<b>Location</b>		<b>I.D. No.</b>	<b>Location</b>	
			<b>X</b>	<b>Y</b>		<b>X</b>	<b>Y</b>
		A	.065	.113	E	-.130	.000
		B	.130	.000	F	-.065	.113
		C	.065	-.113	G	.000	.000
		D	-.065	-.113			
13-4 4 #16		<b>I.D. No.</b>		<b>Location</b>			
			<b>X</b>	<b>Y</b>			
		A	.000	.150			
		B	.146	.035			
		C	.000	-.083			
D	-.146	.035					
13-8 8 #20		<b>I.D. No.</b>	<b>Location</b>		<b>I.D. No.</b>	<b>Location</b>	
			<b>X</b>	<b>Y</b>		<b>X</b>	<b>Y</b>
		A	.065	.157	E	-.120	-.120
		B	.170	.000	F	-.170	.000
		C	.120	-.120	G	-.065	.157
		D	.000	-.170	H	.000	.044
13-98 10 #20		<b>I.D. No.</b>	<b>Location</b>		<b>I.D. No.</b>	<b>Location</b>	
			<b>X</b>	<b>Y</b>		<b>X</b>	<b>Y</b>
		A	.000	.195	F	-.164	-.105
		B	.125	.150	G	-.193	.030
		C	.193	.030	H	-.125	.150
		D	.164	-.105	J	.065	-.015
		E	.000	-.135	K	-.065	-.015
13-35 22 #22D		<b>I.D. No.</b>	<b>Location</b>		<b>I.D. No.</b>	<b>Location</b>	
			<b>X</b>	<b>Y</b>		<b>X</b>	<b>Y</b>
		1	.045	.197	12	-.182	.088
		2	.126	.158	13	-.126	.158
		3	.182	.088	14	-.045	.197
		4	.203	.000	15	.045	.107
		5	.182	-.088	16	.117	.026
		6	.126	-.158	17	.093	-.075
		7	.045	-.197	18	.000	-.120
		8	-.045	-.197	19	-.093	-.075
		9	-.126	-.158	20	-.117	.026
		10	-.182	-.088	21	-.045	.107
		11	-.203	.000	22	.000	-.030

Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

15-5

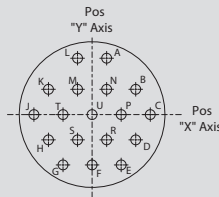
5 #16



I.D. No.	Location	
	X	Y
A	.000	.100
B	.174	.024
C	.094	-.148
D	-.094	-.148
E	-.174	.024

15-18

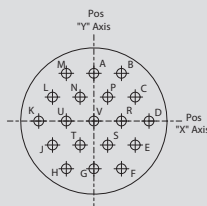
18 #20



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.065	.252	K	-.195	.113
B	.195	.113	L	-.065	.252
C	.260	.000	M	-.065	.113
D	.195	-.113	N	.065	.113
E	.130	-.225	P	.130	.000
F	.000	-.225	R	.065	-.113
G	-.130	-.225	S	-.065	-.113
H	-.195	-.113	T	-.130	.000
J	-.260	.000	U	.000	.000

15-19

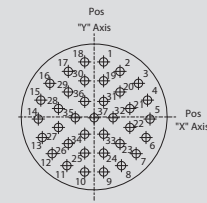
19 #20



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.000	.225	L	-.195	.113
B	.130	.225	M	-.130	.225
C	.195	.113	N	-.065	.113
D	.260	.000	P	.065	.113
E	.195	-.113	R	.130	.000
F	.130	-.225	S	.065	-.113
G	.000	-.225	T	-.065	-.113
H	-.130	-.225	U	-.130	.000
J	-.195	-.113	Y	.000	.000
K	-.260	.000			

15-35

37 #22D



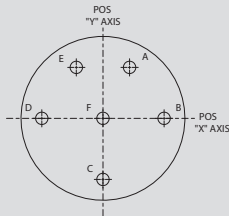
I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
1	.045	.262	20	.123	.119
2	.123	.217	21	.170	.040
3	.211	.160	22	.170	-.050
4	.254	.080	23	.123	-.127
5	.266	-.010	24	.045	-.172
6	.247	-.098	25	-.045	-.172
7	.200	-.175	26	-.123	-.127
8	.130	-.232	27	-.170	-.050
9	.045	-.262	28	-.170	.040
10	-.045	-.262	29	-.123	.119
11	-.130	-.232	30	-.045	.172
12	-.200	-.175	31	.045	.074
13	-.247	-.098	32	.090	-.004
14	-.266	-.010	33	.045	-.082
15	-.254	.080	34	-.045	-.082
16	-.211	.160	35	-.090	-.004
17	-.123	.217	36	-.045	.074
18	-.045	.262	37	.000	-.004
19	.045	.172			

Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

17-6

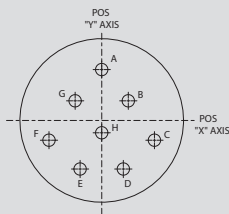
6 #12



I.D. No.	Location	
	X	Y
A	.121	.209
B	.241	.000
C	.000	-.241
D	-.241	.000
E	-.121	.209

17-8

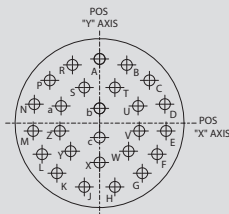
8 #16



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.000	.236	E	-.094	-.216
B	.128	.086	F	-.230	-.078
C	.230	-.078	G	-.128	.086
D	.094	-.216	H	.000	-.052

17-26

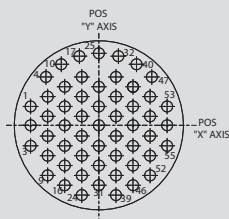
26 #20



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.000	.321	P	-.239	.214
B	.131	.293	R	-.131	.293
C	.239	.214	S	-.070	.177
D	.305	.099	T	.070	.177
E	.319	-.034	U	.175	.094
F	.278	-.161	V	.178	-.036
G	.189	-.260	W	.119	-.151
H	.067	-.314	X	.000	-.203
J	-.067	-.314	Y	-.119	-.151
K	-.189	-.260	Z	-.178	-.036
L	-.278	-.161	a	-.175	.094
M	-.319	-.034	b	.000	.065
N	-.305	.099	c	.000	-.065

17-35

55 #22D



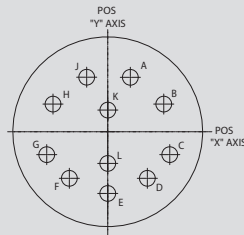
I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	-.312	.086	20	-.078	.041	39	.078	-.319
2	-.312	-.004	21	-.078	-.049	40	.172	.279
3	-.312	-.094	22	-.078	-.139	41	.156	.176
4	-.242	.221	23	-.078	-.229	42	.156	.086
5	-.234	.131	24	-.078	-.319	43	.156	-.004
6	-.234	.041	25	.000	.329	44	.156	-.094
7	-.234	-.049	26	.000	.176	45	.156	-.184
8	-.234	-.139	27	.000	.086	46	.156	-.274
9	-.234	-.229	28	.000	-.004	47	.242	.221
10	-.172	.279	29	.000	-.094	48	.234	.131
11	-.156	.176	30	.000	-.184	49	.234	.041
12	-.156	.086	31	.000	-.274	50	.234	-.049
13	-.156	-.004	32	.089	.316	51	.234	-.139
14	-.156	-.094	33	.078	.221	52	.234	-.229
15	-.156	-.184	34	.078	.131	53	.312	.086
16	-.156	-.274	35	.078	.041	54	.312	-.004
17	-.089	.316	36	.078	-.049	55	.312	-.094
18	-.078	.221	37	.078	-.139			
19	-.078	.131	38	.078	-.229			

Based on MIL-STD-1560 and other specs, contact factory for more details



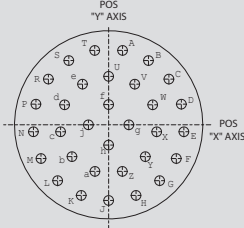
Mating face of pin insert shown (socket will be opposite)

19-11  
11 #16



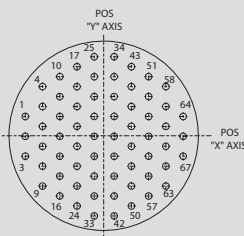
I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	0.105	0.26	G	-0.275	-0.053
B	0.25	0.132	H	-0.25	0.132
C	0.275	-0.053	J	-0.105	0.26
D	0.179	-0.215	K	0	0.105
E	0	-0.281	L	0	-0.092
F	-0.179	-0.215	--	--	--

19-32  
32 #20



I.D. No.	-Location		I.D. No.	Location	
	X	Y		X	Y
A	.066	.353	T	-.066	.353
B	.189	.305	U	0	.230
C	.286	.217	V	.124	.193
D	.345	.098	W	.209	.095
E	.357	-.033	X	.228	-.033
F	.321	-.160	Y	.174	-.151
G	.242	-.265	Z	.065	-.221
H	.130	-.335	a	-.065	-.221
J	0	-.359	b	-.174	-.151
K	-.130	-.335	c	.228	-.033
L	-.242	-.265	d	-.209	.095
M	-.321	-.160	e	-.124	.193
N	-.357	-.033	f	0	.096
P	-.345	.098	g	.096	0
R	-.286	.217	h	0	-.096
S	-.189	.305	j	-.096	0

19-35  
66 #22D

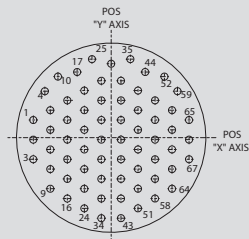


I.D. No.	-Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	-.357	.090	23	-.123	-.225	45	.123	.135
2	-.357	.000	24	-.123	-.315	46	.123	.045
3	-.357	-.090	25	-.045	.360	47	.123	-.045
4	-.279	.225	26	-.045	.270	48	.123	-.135
5	-.279	.135	27	-.045	.180	49	.123	-.225
6	-.279	.045	28	-.045	.090	50	.123	-.315
7	-.279	-.045	29	-.045	.000	51	.201	.270
8	-.279	-.135	30	-.045	-.090	52	.201	.180
9	-.279	-.225	31	-.045	-.180	53	.201	.090
10	-.201	.270	32	-.045	-.270	54	.201	.000
11	-.201	.180	33	-.045	-.360	55	.201	-.090
12	-.201	.090	34	.045	.360	56	.201	-.180
13	-.201	.000	35	.045	.270	57	.201	-.270
14	-.201	-.090	36	.045	.180	58	.279	.225
15	-.201	-.180	37	.045	.090	59	.279	.135
16	-.201	-.270	38	.045	.000	60	.279	.045
17	-.123	.315	39	.045	-.090	61	.279	-.045
18	-.123	.225	40	.045	-.180	62	.279	-.135
19	-.123	.135	41	.045	-.270	63	.279	-.225
20	-.123	.045	42	.045	-.360	64	.357	.090
21	-.123	-.045	43	.123	.315	65	.357	.000
22	-.123	-.135	44	.123	.225	66	.357	-.090

Based on MIL-STD-1560 and other specs, contact factory for more details

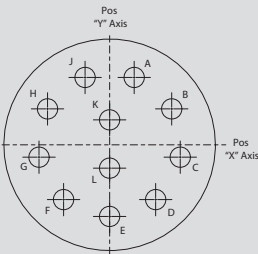
Mating face of pin insert shown (socket will be opposite)

19-45  
67 #22D



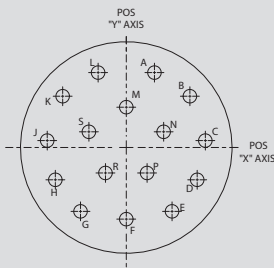
I.D. No.	-Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	-.357	.081	24	-.123	-.324	47	.123	.036
2	-.357	-.009	25	-.088	.360	48	.123	-.054
3	-.357	-.099	26	.000	.339	45	.123	-.144
4	-.304	.213	27	-.045	.261	50	.123	-.234
5	-.279	.126	28	-.045	.171	51	.123	-.324
6	-.279	.036	29	-.045	.081	52	.244	.280
7	-.279	-.054	30	-.045	-.009	53	.201	.171
8	-.279	-.144	31	-.045	-.099	54	.201	.081
9	-.279	-.234	32	-.045	-.189	55	.201	-.009
10	-.244	.280	33	-.045	-.279	56	.201	-.099
11	-.201	.171	34	-.045	-.369	57	.201	-.189
12	-.201	.081	35	.088	.360	58	.201	-.279
13	-.201	-.009	36	.045	.261	59	.304	.213
14	-.201	-.099	37	.045	.171	60	.279	.126
15	-.201	-.189	38	.045	.081	61	.279	.036
16	-.201	-.279	39	.045	-.009	62	.279	-.054
17	-.156	.301	40	.045	-.099	63	.279	-.144
18	-.123	.216	41	.045	-.189	64	.279	-.234
19	-.123	.126	42	.045	-.279	65	.357	.081
20	-.123	.036	43	.045	-.369	66	.357	-.009
21	-.123	-.054	44	.156	.301	67	.357	-.099
22	-.123	-.144	45	.123	.216			
23	-.123	-.234	46	.123	.126			

21-11  
11 #12



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.121	.332	G	-.348	-.061
B	.306	.177	H	-.306	.177
C	.348	-.061	J	-.121	.332
D	.227	-.270	K	.000	.123
E	.000	-.353	L	.000	-.115
F	-.227	-.270			

21-16  
16 #16



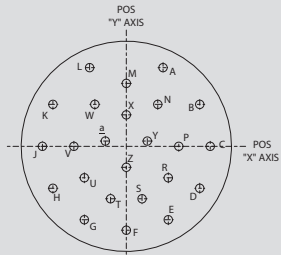
I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.118	.322	J	-.341	.036
B	.271	.211	K	-.271	.211
C	.341	.036	L	-.118	.322
D	.308	-.150	M	.000	.175
E	.182	-.290	N	.154	.062
F	.000	-.343	P	.094	-.122
G	-.182	-.290	R	-.094	-.122
H	-.308	-.150	S	-.154	.062

Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

21-24

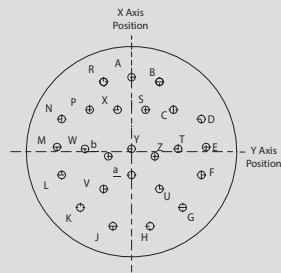
24 #20



I.D. No	-Location		I.D. No.	Location	
	X	Y		X	Y
A	.175	.375	P	.250	.000
B	.350	.200	R	.200	-.150
C	.400	.000	S	.075	-.250
D	.350	.200	T	-.075	-.250
E	.200	.350	U	-.200	-.150
F	.000	.400	V	-.250	.000
G	.200	-.350	W	-.150	-.200
H	-.350	-.200	X	.000	.150
J	-.400	.000	Y	.100	.025
K	-.350	.200	Z	.000	-.100
L	-.175	.375	a	-.100	.025
M	.000	.300			
N	.150	.200			

21-25

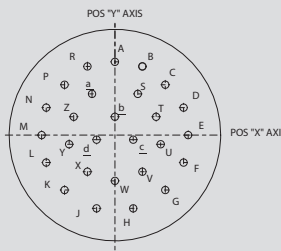
25 #20



I.D. No	-Location		I.D. No.	Location	
	X	Y		X	Y
A	.000	.400	P	-.225	.225
B	.150	.375	R	-.150	.375
C	.225	.225	S	.075	-.225
D	.375	.175	T	.250	.075
E	.400	.025	U	.150	-.200
F	.375	-.125	V	-.150	-.200
G	.275	-.300	W	-.250	.075
H	.100	-.400	X	-.075	.225
J	-.100	-.400	Y	.000	.075
K	-.275	-.300	Z	.125	-.025
L	-.375	-.125	a	.000	-.125
M	-.400	.025	b	-.125	-.025
N	-.375	.175			

21-27

27 #20



I.D. No	-Location		I.D. No.	Location	
	X	Y		X	Y
A	.000	.400	R	-.150	.375
B	.150	.375	S	.125	.225
C	.275	.275	T	.225	.100
D	.375	.150	U	.250	-.050
E	.400	.025	V	-.150	-.200
F	.375	-.150	W	-.000	-.250
G	.275	-.300	X	-.150	-.200
H	.100	-.400	Y	-.250	-.050
J	-.100	-.400	Z	-.225	-.100
K	-.275	-.300	a	-.125	.225
L	-.375	-.150	b	.000	.100
M	-.400	.000	c	.100	-.025
N	-.375	.150	d	-.100	-.025
P	-.150	.275			

Based on MIL-STD-1560 and other specs, contact factory for more details

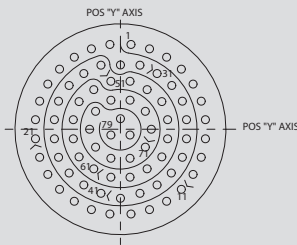
# MIL-DTL-38999 Series III Type

## Standard PCB footprints

PCB FOOTPRINTS

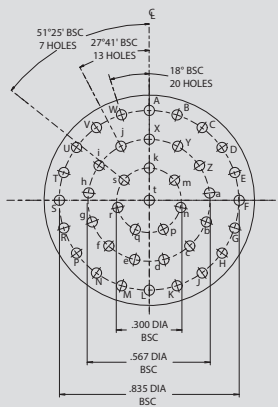
Mating face of pin insert shown (socket will be opposite)

21-35  
79 #22D



I.D. No.	-Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	.053	.426	28	-.053	.426	55	.237	.048
2	.146	.404	29	.000	.323	56	.237	-.048
3	.232	.362	30	.098	.322	57	.208	-.139
4	.306	.302	31	.184	.280	58	.134	-.199
5	.365	.227	32	.258	.220	59	.048	-.241
6	.406	.141	33	.311	.141	60	-.048	-.241
7	.427	.048	34	.332	.048	61	-.134	-.199
8	.427	-.048	35	.332	-.048	62	-.208	-.139
9	.406	-.141	36	.311	-.141	63	-.237	-.048
10	.365	-.227	37	.258	-.220	64	-.237	.048
11	.306	-.302	38	.184	-.280	65	-.208	.139
12	.232	-.362	39	.098	-.322	66	-.134	.199
13	.146	-.404	40	.000	-.347	67	-.048	.146
14	.053	-.426	41	-.098	-.322	68	.048	.146
15	-.053	-.426	42	-.184	-.280	69	.125	.090
16	-.146	-.404	43	-.258	-.220	70	.155	.000
17	-.232	-.362	44	-.311	-.141	71	.125	-.090
18	-.306	-.302	45	-.332	-.048	72	.048	-.146
19	-.365	-.227	46	-.332	.048	73	-.048	-.146
20	-.406	-.141	47	-.311	.141	74	-.125	-.090
21	-.427	-.048	48	-.258	.220	75	-.155	.000
22	-.427	.048	49	-.184	.280	76	-.125	.090
23	-.406	.141	50	-.098	.322	77	.000	.053
24	-.365	.227	51	-.048	.241	78	.048	-.029
25	-.306	.302	52	.048	.241	79	-.048	-.029
26	-.232	.362	53	.134	.199			
27	-.146	.404	54	.208	.139			

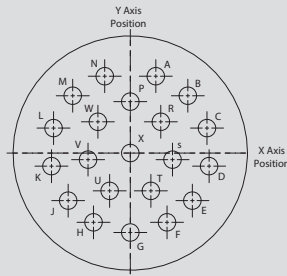
21-41  
41 #20



Based on MIL-STD-1560 and other specs, contact factory for more details

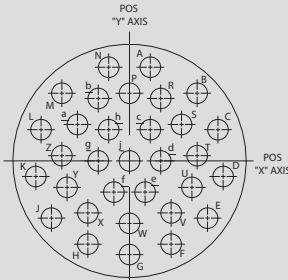
Mating face of pin insert shown (socket will be opposite)

23-21  
21 #16



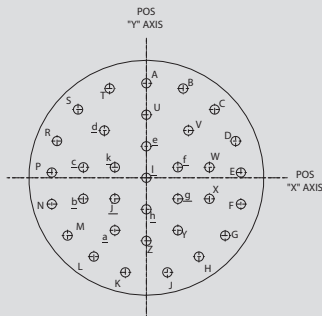
I.D. No	Location		I.D. No.	Location	
	X	Y		X	Y
A	.128	.385	M	-.289	.285
B	.289	.285	N	-.128	.385
C	.386	.123	P	.000	.245
D	.400	-.065	R	.160	.146
E	.328	-.239	S	.214	-.035
F	.183	-.362	T	.094	-.194
G	.000	-.406	U	-.094	-.194
H	-.183	-.362	V	-.214	-.035
J	-.328	-.239	W	-.160	.146
K	-.400	-.065	X	.000	.000
L	-.386	.123			

23-32  
32 #20



I.D. No	Location		I.D. No.	Location	
	X	Y		X	Y
A	.100 (2.54)	.450 (11.43)	T	.325 (8.26)	.025 (0.64)
B	.325 (8.26)	.325 (8.26)	U	.300 (7.62)	-.125 (3.18)
C	.425 (10.80)	.150 (3.81)	V	.200 (5.08)	-.250 (6.35)
D	.450 (11.43)	-.075 (1.91)	W	.000 (0.00)	-.300 (7.62)
E	.375 (9.53)	-.275 (6.99)	X	-.200 (5.08)	-.250 (6.35)
F	.200 (5.08)	-.400 (10.16)	Y	-.300 (7.62)	-.125 (3.18)
G	.000 (0.00)	-.450 (11.43)	Z	-.325 (8.26)	.025 (0.64)
H	-.200 (5.08)	-.400 (10.16)	a	-.250 (6.35)	.175 (4.45)
J	-.375 (9.53)	-.275 (6.99)	b	-.150 (3.81)	.300 (7.62)
K	-.450 (11.43)	-.075 (1.91)	c	.100 (2.54)	.150 (3.81)
L	-.425 (10.80)	.150 (3.81)	d	.150 (3.81)	.000 (0.00)
M	-.325 (8.26)	.325 (8.26)	e	.075 (1.91)	-.150 (3.81)
N	-.100 (2.54)	.450 (11.43)	f	-.075 (1.91)	-.150 (3.81)
P	.000 (0.00)	.325 (8.26)	g	-.150 (3.81)	.000 (0.00)
R	.150 (3.81)	.300 (7.62)	h	-.100 (2.54)	.150 (3.81)
S	.250 (6.35)	.175 (4.45)	J	.000 (0.00)	.000 (0.00)

23-34  
34 #20



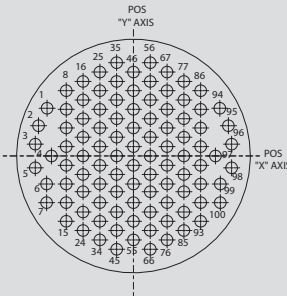
I.D. No	Location		I.D. No.	Location	
	X	Y		X	Y
A	.000	.450	U	.000	.300
B	.175	.425	V	.200	.225
C	.325	.325	W	.300	.050
D	.425	.175	X	.300	-.100
E	.450	.025	Y	.150	-.250
F	.450	-.125	Z	.000	-.300
G	.375	-.275	a	-.150	-.25
H	.250	-.375	b	-.300	-.100
J	.100	-.450	c	-.300	.050
K	-.100	-.450	d	-.200	.225
L	-.250	-.375	e	.000	.150
M	-.375	-.275	f	.150	.050
N	-.450	-.125	g	.150	-.100
P	-.450	.025	h	.000	-.150
R	-.425	.175	j	-.150	-.100
S	-.325	.325	k	-.150	.050
T	-.175	.425	l	.000	.000

Based on MIL-STD-1560 and other specs, contact factory for more details



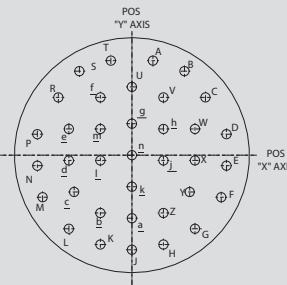
Mating face of pin insert shown (socket will be opposite)

23-35  
100 #22D



I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	-.428	.241	34	-.166	-.427	67	.166	.428
2	-.467	.154	35	-.083	.475	68	.166	.333
3	-.488	.061	36	-.083	.380	69	.166	.238
4	-.415	.000	37	-.083	.285	70	.166	.143
5	-.488	-.061	38	-.083	.190	71	.166	.048
6	-.428	-.142	39	-.083	.095	72	.166	-.047
7	-.428	-.237	40	-.083	.000	73	.166	-.142
8	-.332	.333	41	-.083	-.095	74	.166	-.237
9	-.332	.238	42	-.083	-.190	75	.166	-.332
10	-.332	.143	43	-.083	-.285	76	.166	-.427
11	-.332	.048	44	-.083	-.380	77	.249	.380
12	-.332	-.047	45	-.083	-.475	78	.249	.285
13	-.332	-.142	46	.000	.428	79	.249	.190
14	-.332	-.237	47	.000	.333	80	.249	.095
15	-.332	-.332	48	.000	.238	81	.249	.000
16	-.249	.380	49	.000	.143	82	.249	-.095
17	-.249	.285	50	.000	.048	83	.249	-.190
18	-.249	.190	51	.000	-.047	84	.249	-.285
19	-.249	.095	52	.000	-.142	85	.249	-.380
20	-.249	.000	53	.000	-.237	86	.332	.333
21	-.249	-.095	54	.000	-.332	87	.332	.238
22	-.249	-.190	55	.000	-.427	88	.332	.143
23	-.249	-.285	56	.083	.475	89	.332	.048
24	-.249	-.380	57	.083	.380	90	.332	-.047
25	-.166	.428	58	.083	.285	91	.332	-.142
26	-.166	.333	59	.083	.190	92	.332	-.237
27	-.166	.238	60	.083	.095	93	.332	-.332
28	-.166	.143	61	.083	.000	94	.428	.241
29	-.166	.048	62	.083	-.095	95	.467	.154
30	-.166	-.047	63	.083	-.190	96	.488	.061
31	-.166	-.142	64	.083	-.285	97	.415	.000
32	-.166	-.237	65	.083	-.380	98	.488	-.061
33	-.166	-.332	66	.083	-.475	99	.428	-.142
						100	.428	-.237

23-36  
36 #20

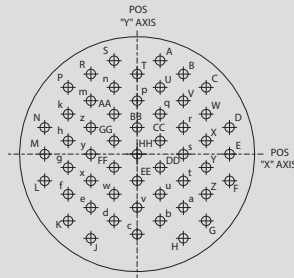


I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.100	.450	V	.150	.275
B	.250	.400	W	.300	.125
C	.350	.275	X	.300	-.025
D	.450	.100	Y	.275	-.175
E	.450	-.050	Z	.150	-.275
F	.425	-.200	a	.000	-.300
G	.300	-.350	b	-.150	-.275
H	.150	-.425	c	-.275	-.175
J	.000	-.450	d	-.300	-.025
K	-.150	-.425	e	-.300	.125
L	-.300	-.350	f	-.150	.275
M	-.425	-.200	g	.000	.150
N	-.450	-.050	h	.150	.125
P	-.450	.100	j	.150	-.025
R	-.350	.275	k	.000	-.150
S	-.250	.400	l	-.150	-.025
T	-.100	.450	m	-.150	.125
U	.000	.325	n	.000	.000

Based on MIL-STD-1560 and other specs, contact factory for more details

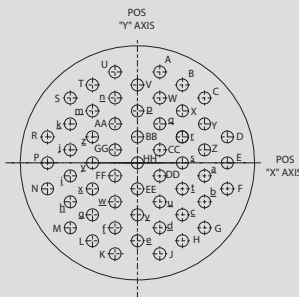
Mating face of pin insert shown (socket will be opposite)

23-53  
53 #20



I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
A	.112	.455	V	.225	.260	r	.225	.130
B	.225	.390	W	.336	.195	s	.225	.000
C	.336	.325	X	.336	.065	t	.225	-.130
D	.450	.130	Y	.336	-.065	u	.112	-.195
E	.450	.000	Z	.336	-.195	v	.000	-.260
F	.450	-.130	a	.225	-.260	w	-.112	-.195
G	.336	-.325	b	.112	-.325	x	-.225	-.130
H	.225	-.410	c	.000	-.390	y	-.225	.000
J	-.225	-.410	d	-.112	-.325	z	-.225	.130
K	-.336	-.325	e	-.225	-.260	AA	-.112	.195
L	-.450	-.130	f	-.336	-.195	BB	.000	.130
M	-.450	.000	g	-.336	-.065	CC	.112	.065
N	-.450	.130	h	-.336	.065	DD	.112	-.065
P	-.336	.325	k	-.336	.195	EE	.000	-.130
R	-.225	.390	m	-.225	.260	FF	-.112	-.065
S	-.112	.455	n	-.112	.325	GG	-.112	.065
T	.000	.390	p	.000	.260	HH	.000	.000
U	.112	.325	q	.112	.195			

23-55  
55 #20



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.112	.455	f	-.225	-.325
B	.225	.390	g	-.336	-.260
C	.336	.325	h	-.336	-.195
D	.450	.130	i	-.336	-.065
E	.450	.000	j	-.336	.065
F	.450	-.130	k	-.336	.195
G	.336	-.325	m	-.225	.260
H	.225	-.390	n	-.112	.325
J	.112	-.455	p	.000	.260
K	-.112	-.455	q	.112	.195
L	-.225	-.390	r	.225	.130
M	-.336	-.325	s	.225	.000
N	-.450	-.130	t	.225	-.130
P	-.450	.000	u	.112	-.195
R	-.450	.130	v	.000	-.260
S	-.336	.325	w	-.112	-.195
T	-.225	.390	x	-.225	-.130
U	-.112	.455	y	-.225	.000
V	.000	.390	z	-.225	.130
W	.112	.325	AA	-.112	.195
X	.225	.260	BB	.000	.130
Y	.336	.195	CC	.112	.065
Z	.336	.065	DD	.112	-.065
a	.336	-.065	EE	.000	-.130
b	.336	-.195	FF	-.112	-.065
c	.225	-.260	GG	-.112	.065
d	.112	-.325	HH	.000	.000
e	-.000	-.390			

Based on MIL-STD-1560 and other specs, contact factory for more details

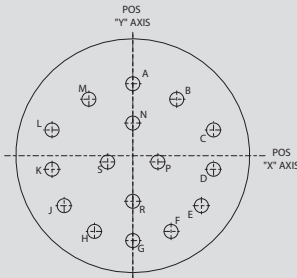
# MIL-DTL-38999 Series III Type

## Standard PCB footprints

PCB FOOTPRINTS

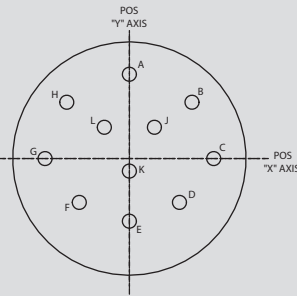
Mating face of pin insert shown (socket will be opposite)

23-97  
16 #16



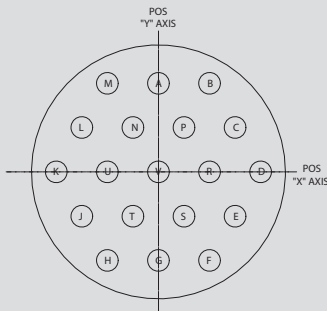
I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.000	.344	J	-.328	-.239
B	.210	.270	K	-.400	-.065
C	.386	.123	L	-.386	.123
D	.400	-.065	M	-.210	.270
E	.328	-.239	N	.000	.156
F	.183	-.362	P	.120	-.030
G	.000	-.406	R	.000	-.218
H	-.183	-.362	S	-.120	-.030

23-99  
11 #16



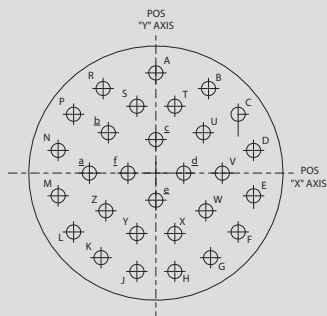
I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.000	.404	G	-.404	.000
B	.300	.270	H	-.300	.270
C	.404	.000	J	.120	.150
D	.240	-.210	K	.000	-.060
E	.000	-.300	L	-.120	.150
F	-.240	-.210			

25-19  
19 #12



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	0	.409	L	-.354	.205
B	.236	.409	M	-.236	.409
C	.354	.205	N	-.118	.205
D	.472	0	P	.118	.205
E	.354	-.205	R	.236	0
F	.236	-.409	S	.118	-.205
G	0	-.409	T	-.118	-.205
H	-.236	-.409	U	-.236	0
J	-.354	-.205	V	0	0
K	-.472	0			

25-29  
29 #16

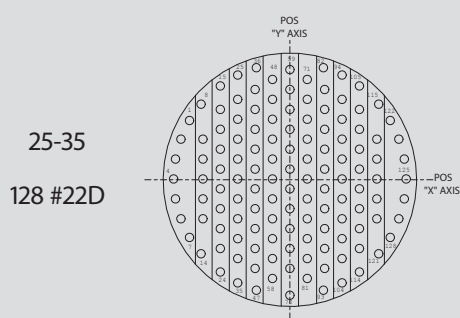


I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.000	.481	S	-.091	.321
B	.258	.406	T	.091	.321
C	.395	.277	U	.228	.194
D	.469	.109	V	.319	.000
E	.469	-.109	W	.240	-.181
F	.395	-.277	X	.091	-.290
G	.263	-.406	Y	-.091	-.290
H	.091	-.472	Z	-.240	-.181
J	-.091	-.472	a	-.319	.000
K	-.263	-.406	b	-.228	.194
L	-.395	-.277	c	.000	.161
M	-.469	-.109	d	.134	.000
N	-.469	.109	e	.000	-.130
P	-.395	.277	f	-.134	.000
R	-.258	.406			

Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

PCB FOOTPRINTS



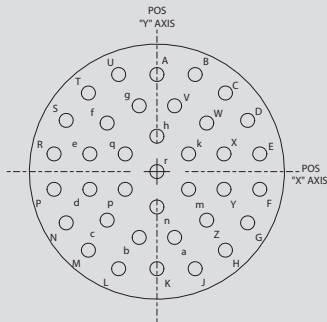
I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	-.479	.279	44	-.166	-.237	87	.166	.047
2	-.520	.190	45	-.166	-.332	88	.166	-.047
3	-.546	.095	46	-.166	-.427	89	.166	-.142
4	-.555	.000	47	-.166	-.522	90	.166	-.237
5	-.546	-.095	48	-.083	.475	91	.166	-.332
6	-.520	-.190	49	-.083	.380	92	.166	-.427
7	-.479	-.279	50	-.083	.285	93	.166	-.522
8	-.424	.357	51	-.083	.190	94	.249	.496
9	-.415	.190	52	-.083	.095	95	.249	.380
10	-.415	.095	53	-.083	.000	96	.249	.285
11	-.415	.000	54	-.083	-.095	97	.249	.190
12	-.415	-.095	55	-.083	-.190	98	.249	-.095
13	-.415	-.190	56	-.083	-.285	99	.249	.000
14	-.424	-.357	57	-.083	-.380	100	.249	-.095
15	-.332	.444	58	-.083	-.475	101	.249	-.190
16	-.332	.332	59	.000	.522	102	.249	-.285
17	-.332	.237	60	.000	.427	103	.249	-.380
18	-.332	.142	61	.000	.332	104	.249	-.475
19	-.332	-.047	62	.000	.237	105	.332	.444
20	-.332	-.142	63	.000	.142	106	.332	.332
21	-.332	-.237	64	.000	.047	107	.332	.237
22	-.332	-.332	65	.000	-.047	108	.332	.142
23	-.332	-.427	66	.000	-.142	109	.332	.047
24	-.332	-.496	67	.000	-.237	110	.332	-.047
25	-.249	.496	68	.000	-.332	111	.332	-.142
26	-.249	.380	69	.000	-.427	112	.332	-.237
27	-.249	.285	70	.000	-.555	113	.332	-.332
28	-.249	.190	71	.083	.475	114	.332	-.427
29	-.249	.095	72	.083	.380	115	.424	.357
30	-.249	.000	73	.083	.285	116	.415	.190
31	-.249	-.095	74	.083	.190	117	.415	.095
32	-.249	-.190	75	.083	.095	118	.415	.000
33	-.249	-.285	76	.083	.000	119	.415	-.095
34	-.249	-.380	77	.083	-.095	120	.415	-.190
35	-.249	-.475	78	.083	-.190	121	.424	-.357
36	-.160	.531	79	.083	-.285	122	.479	.279
37	-.166	.427	80	.083	-.380	123	.520	.190
38	-.166	.332	81	.083	-.475	124	.546	.095
39	-.166	.237	82	.160	.531	125	.555	.000
40	-.166	.142	83	.166	.427	126	.546	-.095
41	-.166	.047	84	.166	.332	127	.520	-.190
42	-.166	-.047	85	.166	.237	128	.479	-.279
43	-.166	-.142	86	.166	.142			

Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

25-37

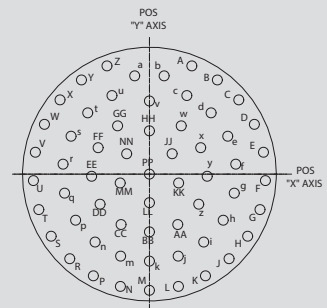
37 #16



I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
A	.000	.472	P	-.500	-.086	d	-.326	-.086
B	.186	.472	R	-.500	.086	e	-.326	.086
C	.333	.382	S	-.441	.249	f	-.242	.236
D	.441	.249	T	-.333	.382	g	-.086	.320
E	.500	.086	U	-.186	.472	h	.000	.172
F	.500	-.086	V	.086	.320	k	.154	.086
G	.441	-.249	W	.242	.236	m	.154	-.086
H	.333	-.382	X	.326	.086	n	.000	-.172
J	.186	-.472	Y	.326	-.086	p	-.154	-.086
K	.000	-.472	Z	.242	-.236	q	-.154	.086
L	-.186	-.472	a	.086	-.320	r	.000	.000
M	-.333	-.382	b	-.086	-.320			
N	-.441	-.249	c	-.242	-.236			

25-61

61 #20



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
A	.196	.500	i	.251	-.314
B	.314	.435	j	.133	-.379
C	.413	.343	k	.000	-.402
D	.485	.230	m	-.133	-.379
E	.527	.101	n	-.251	-.314
F	.536	-.030	p	-.341	-.213
G	.511	-.164	q	-.392	-.088
H	.454	-.287	r	-.399	.046
J	.368	-.391	s	-.362	.175
K	.259	-.470	t	-.285	.283
L	.134	-.519	u	-.173	.363
M	.000	-.537	v	.000	.338
N	-.134	-.519	w	.147	.223
P	-.259	-.470	x	.237	.122
R	-.368	-.391	y	.267	-.010
S	-.454	-.287	z	.228	-.139
T	-.511	-.164	AA	.131	-.233
U	-.536	-.030	BB	.000	-.267
V	-.527	.101	CC	-.131	-.233
W	-.485	.230	DD	-.228	-.139
X	-.413	.343	EE	-.267	-.010
Y	-.314	.435	FF	-.237	.122
Z	-.196	.500	GG	-.147	.223
a	-.068	.454	HH	.000	.200
b	.068	.454	JJ	.105	.094
c	.173	.363	KK	.135	-.041
d	.285	.283	LL	.000	-.132
e	.362	.175	MM	-.135	-.041
f	.399	.046	NN	-.105	.094
g	.392	-.088	PP	.000	.000
h	.341	-.213			

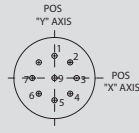
Based on MIL-STD-1560 and other specs, contact factory for more details



Mating face of pin insert shown (socket will be opposite)

9-23

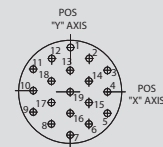
9 #23



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
1	.000	.105	6	-.074	-.074
2	.074	.074	7	-.105	.000
3	.105	.000	8	-.074	.074
4	.074	-.074	9	.000	.000
5	.000	-.105			

11-23

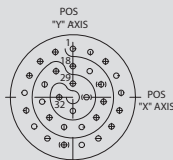
19 #23



I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
1	.000 (0.00)	.161 (4.08)	11	-.139 (3.53)	.080 (2.04)
2	.070 (1.77)	.120 (3.06)	12	-.070 (1.77)	.120 (3.06)
3	.139 (3.53)	.080 (2.04)	13	.000 (0.00)	.080 (2.04)
4	.139 (3.53)	.000 (0.00)	14	.070 (1.77)	.040 (1.02)
5	.139 (3.53)	-.080 (2.04)	15	.070 (1.77)	-.040 (1.02)
6	.070 (1.77)	-.120 (3.06)	16	.000 (0.00)	-.080 (2.04)
7	.000 (0.00)	-.161 (4.08)	17	-.070 (1.77)	-.040 (1.02)
8	-.070 (1.77)	-.120 (3.06)	18	-.070 (1.77)	.040 (1.02)
9	-.139 (3.53)	-.080 (2.04)	19	.000 (0.00)	.000 (0.00)
10	-.139 (3.53)	.000 (0.00)			

13-23

32 #23



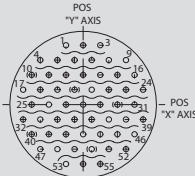
I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y
1	.000	.224	17	-.081	.209
2	.081	.209	18	.000	.143
3	.151	.165	19	.078	.121
4	.200	.100	20	.130	.059
5	.223	.021	21	.142	-.021
6	.215	-0.061	22	.108	-.094
7	.178	-0.135	23	.041	-.137
8	.118	-0.190	24	-.041	-.137
9	.041	-0.220	25	-.108	.094
10	-0.041	-0.220	26	-.142	-.021
11	-0.118	-0.190	27	-.130	.059
12	-0.178	-0.135	28	-.078	.121
13	-0.215	-0.061	29	.000	.063
14	-0.223	.021	30	.063	.000
15	-0.200	.100	31	.000	-.063
16	-0.151	.165	32	-.063	.000

Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

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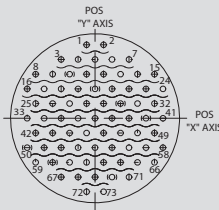
55 #23



I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	-0.080	.278	20	-0.040	.070	39	.281	-0.070
2	.000	.278	21	.040	.070	40	-0.241	-0.139
3	.080	.278	22	.121	.070	41	-0.161	-0.139
4	-0.201	.209	23	.201	.070	42	-0.080	-0.139
5	-0.121	.209	24	.281	.070	43	.000	-0.139
6	-0.040	.209	25	-0.241	.000	44	.080	-0.139
7	.040	.209	26	-0.161	.000	45	.161	-0.139
8	.121	.209	27	-0.080	.000	46	.241	-0.139
9	.201	.209	28	.000	.000	47	-0.201	-0.209
10	-0.241	.139	29	.080	.000	48	-0.121	-0.209
11	-0.161	.139	30	.161	.000	49	-0.040	-0.209
12	-0.080	.139	31	.241	.000	50	.040	-0.209
13	.000	.139	32	-0.281	-0.070	51	.121	-0.209
14	.080	.139	33	-0.201	-0.070	52	.201	-0.209
15	.161	.139	34	-0.121	-0.070	53	-0.080	-0.278
16	.241	.139	35	-0.040	-0.070	54	.000	-0.278
17	-0.281	.070	36	.040	-0.070	55	.080	-0.278
18	-0.201	.070	37	.121	-0.070			
19	-0.121	.070	38	.201	-0.070			

17-23

73 #23



I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	-0.040	.348	26	-0.201	.070	51	-0.241	-0.139
2	.040	.348	27	-0.121	.070	52	-0.161	-0.139
3	-0.161	.278	28	-0.040	.070	53	-0.080	-0.139
4	-0.080	.278	29	.040	.070	54	.000	-0.139
5	.000	.278	30	.121	.070	55	.080	-0.139
6	.080	.278	31	.201	.070	56	.161	-0.139
7	.161	.278	32	.281	.070	57	.241	-0.139
8	-0.281	.209	33	-0.321	.000	58	.321	-0.139
9	-0.201	.209	34	-0.241	.000	59	-0.281	-0.209
10	-0.121	.209	35	-0.161	.000	60	-0.201	-0.209
11	-0.040	.209	36	-0.080	.000	61	-0.121	-0.209
12	.040	.209	37	.000	.000	62	-0.040	-0.209
13	.121	.209	38	.080	.000	63	.040	-0.209
14	.201	.209	39	.161	.000	64	.121	-0.209
15	.281	.209	40	.241	.000	65	.201	-0.209
16	-0.321	.139	41	.321	.000	66	.281	-0.209
17	-0.241	.139	42	-0.281	-0.070	67	-0.161	-0.278
18	-0.161	.139	43	-0.201	-0.070	68	-0.080	-0.278
19	-0.080	.139	44	-0.121	-0.070	69	.000	-0.278
20	.000	.139	45	-0.040	-0.070	70	.080	-0.278
21	.080	.139	46	.040	-0.070	71	.161	-0.278
22	.161	.139	47	.121	-0.070	72	-0.040	-0.348
23	.241	.139	48	.201	-0.070	73	.040	-0.348
24	.321	.139	49	.281	-0.070			
25	-0.281	.070	50	-0.321	-0.139			

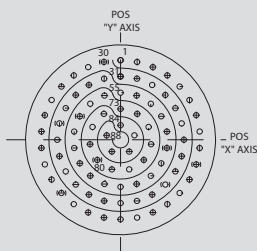
Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

PCB FOOTPRINTS

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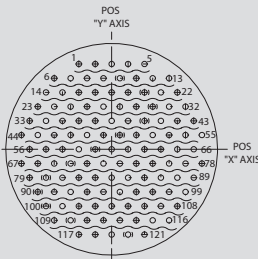
88 #23



I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	.000	.393	31	.000	.313	61	.201	-0.116
2	.082	.385	32	.081	.302	62	.150	-0.178
3	.160	.359	33	.156	.271	63	.080	-0.219
4	.231	.318	34	.221	.221	64	.000	-0.233
5	.292	.263	35	.271	.156	65	-0.080	-0.219
6	.341	.197	36	.302	.081	66	-0.150	-0.178
7	.374	.122	37	.313	.000	67	-0.201	-0.116
8	.391	.041	38	.302	-0.081	68	-0.229	-0.041
9	.391	-0.041	39	.271	-0.156	69	-0.229	.041
10	.374	-0.122	40	.221	-0.221	70	-0.201	.116
11	.341	-0.197	41	.156	-0.271	71	-0.150	.178
12	.292	-0.263	42	.081	-0.302	72	-0.080	.219
13	.231	-0.318	43	.000	-0.313	73	.000	.152
14	.160	-0.359	44	-0.081	-0.302	74	.082	.128
15	.082	-0.385	45	-0.156	-0.271	75	.139	.063
16	.000	-0.393	46	-0.221	-0.221	76	.151	-0.022
17	-0.082	-0.385	47	-0.271	-0.156	77	.115	-0.100
18	-0.160	-0.359	48	-0.302	-0.081	78	.043	-0.146
19	-0.231	-0.318	49	-0.313	.000	79	-0.043	-0.146
20	-0.292	-0.263	50	-0.302	.081	80	-0.115	-0.100
21	-0.341	-0.197	51	-0.271	.156	81	-0.151	-0.022
22	-0.374	-0.122	52	-0.221	.221	82	-0.139	.063
23	-0.391	-0.041	53	-0.156	.271	83	-0.082	.128
24	-0.391	.041	54	-0.081	.302	84	.000	.072
25	-0.374	.122	55	.000	.233	85	.069	.022
26	-0.341	.197	56	.080	.219	86	.043	-0.058
27	-0.292	.263	57	.150	.178	87	-0.043	-0.058
28	-0.231	.318	58	.201	.116	88	-0.069	.022
29	-0.160	.359	59	.229	.041			
30	-0.082	.385	60	.229	-0.041			

Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)



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121 #23

I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	-0.161	.417	41	.241	.139	81	-0.241	-0.139
2	-0.080	.417	42	.321	.139	82	-0.161	-0.139
3	.000	.417	43	.402	.139	83	-0.080	-0.139
4	.080	.417	44	-0.442	.070	84	.000	-0.139
5	.161	.417	45	-0.361	.070	85	.080	-0.139
6	-0.281	.348	46	-0.281	.070	86	.161	-0.139
7	-0.201	.348	47	-0.201	.070	87	.241	-0.139
8	-0.121	.348	48	-0.121	.070	88	.321	-0.139
9	-0.040	.348	49	-0.040	.070	89	.402	-0.139
10	.040	.348	50	.040	.070	90	-0.361	-0.209
11	.121	.348	51	.121	.070	91	-0.281	-0.209
12	.201	.348	52	.201	.070	92	-0.201	-0.209
13	.281	.348	53	.281	.070	93	-0.121	-0.209
14	-0.321	.278	54	.361	.070	94	-0.040	-0.209
15	-0.241	.278	55	.442	.070	95	.040	-0.209
16	-0.161	.278	56	-0.402	.000	96	.121	-0.209
17	-0.080	.278	57	-0.321	.000	97	.201	-0.209
18	.000	.278	58	-0.241	.000	98	.281	-0.209
19	.080	.278	59	-0.161	.000	99	.361	-0.209
20	.161	.278	60	-0.080	.000	100	-0.321	-0.278
21	.241	.278	61	.000	.000	101	-0.241	-0.278
22	.321	.278	62	.080	.000	102	-0.161	-0.278
23	-0.361	.209	63	.161	.000	103	-0.080	-0.278
24	-0.281	.209	64	.241	.000	104	.000	-0.278
25	-0.201	.209	65	.321	.000	105	.080	-0.278
26	-0.121	.209	66	.402	.000	106	.161	-0.278
27	-0.040	.209	67	-0.442	-0.070	107	.241	-0.278
28	.040	.209	68	-0.361	-0.070	108	.321	-0.278
29	.121	.209	69	-0.281	-0.070	109	-0.281	-0.348
30	.201	.209	70	-0.201	-0.070	110	-0.201	-0.348
31	.281	.209	71	-0.121	-0.070	111	-0.121	-0.348
32	.361	.209	72	-0.040	-0.070	112	-0.040	-0.348
33	-0.402	.139	73	.040	-0.070	113	.040	-0.348
34	-0.321	.139	74	.121	-0.070	114	.121	-0.348
35	-0.241	.139	75	.201	-0.070	115	.201	-0.348
36	-0.161	.139	76	.281	-0.070	116	.281	-0.348
37	-0.080	.139	77	.361	-0.070	117	-0.161	-0.417
38	.000	.139	78	.442	-0.070	118	-0.080	-0.417
39	.080	.139	79	-0.402	-0.139	119	.000	-0.417
40	.161	.139	80	-0.321	-0.139	120	.080	-0.417
						121	.161	-0.417

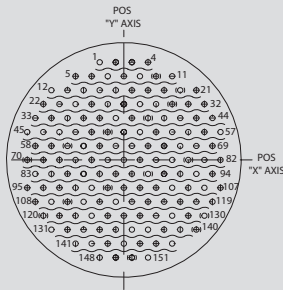
Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

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151 #23



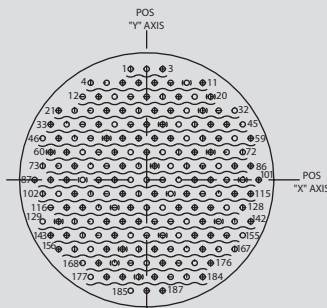
I.D. No.	Location		I.D. No.	Location		I.D. No.	Location	
	X	Y		X	Y		X	Y
1	-0.121	.487	52	.080	.139	103	.161	-0.139
2	-0.040	.487	53	.161	.139	104	.241	-0.139
3	.040	.487	54	.241	.139	105	.321	-0.139
4	.121	.487	55	.321	.139	106	.402	-0.139
5	-0.241	.417	56	.402	.139	107	.482	-0.139
6	-0.161	.417	57	.482	.139	108	-0.442	-0.209
7	-0.080	.417	58	-0.442	.070	109	-0.361	-0.209
8	.000	.417	59	-0.361	.070	110	-0.281	-0.209
9	.080	.417	60	-0.281	.070	111	-0.201	-0.209
10	.161	.417	61	-0.201	.070	112	-0.121	-0.209
11	.241	.417	62	-0.121	.070	113	-0.040	-0.209
12	-0.361	.348	63	-0.040	.070	114	.040	-0.209
13	-0.281	.348	64	.040	.070	115	.121	-0.209
14	-0.201	.348	65	.121	.070	116	.201	-0.209
15	-0.121	.348	66	.201	.070	117	.281	-0.209
16	-0.040	.348	67	.281	.070	118	.361	-0.209
17	.040	.348	68	.361	.070	119	.442	-0.209
18	.121	.348	69	.442	.070	120	-0.402	-0.278
19	.201	.348	70	-0.482	.000	121	-0.321	-0.278
20	.281	.348	71	-0.402	.000	122	-0.241	-0.278
21	.361	.348	72	-0.321	.000	123	-0.161	-0.278
22	-0.402	.278	73	-0.241	.000	124	-0.080	-0.278
23	-0.321	.278	74	-0.161	.000	125	.000	-0.278
24	-0.241	.278	75	-0.080	.000	126	.080	-0.278
25	-0.161	.278	76	.000	.000	127	.161	-0.278
26	-0.080	.278	77	.080	.000	128	.241	-0.278
27	.000	.278	78	.161	.000	129	.321	-0.278
28	.080	.278	79	.241	.000	130	.402	-0.278
29	.161	.278	80	.321	.000	131	-0.361	-0.348
30	.241	.278	81	.402	.000	132	-0.281	-0.348
31	.321	.278	82	.482	.000	133	-0.201	-0.348
32	.402	.278	83	-0.442	-0.070	134	-0.121	-0.348
33	-0.442	.209	84	-0.361	-0.070	135	-0.040	-0.348
34	-0.361	.209	85	-0.281	-0.070	136	.040	-0.348
35	-0.281	.209	86	-0.201	-0.070	137	.121	-0.348
36	-0.201	.209	87	-0.121	-0.070	138	.201	-0.348
37	-0.121	.209	88	-0.040	-0.070	139	.281	-0.348
38	-0.040	.209	89	.040	-0.070	140	.361	-0.348
39	.040	.209	90	.121	-0.070	141	-0.241	-0.417
40	.121	.209	91	.201	-0.070	142	-0.161	-0.417
41	.201	.209	92	.281	-0.070	143	-0.080	-0.417
42	.281	.209	93	.361	-0.070	144	.000	-0.417
43	.361	.209	94	.442	-0.070	145	.080	-0.417
44	.442	.209	95	-0.482	-0.139	146	.161	-0.417
45	-0.482	.139	96	-0.402	-0.139	147	.241	-0.417
46	-0.402	.139	97	-0.321	-0.139	148	-0.121	-0.487
47	-0.321	.139	98	-0.241	-0.139	149	-0.040	-0.487
48	-0.241	.139	99	-0.161	-0.139	150	.040	-0.487
49	-0.161	.139	100	-0.080	-0.139	151	.121	-0.487
50	-0.080	.139	101	.000	-0.139			
51	.000	.139	102	.080	-0.139			

Based on MIL-STD-1560 and other specs, contact factory for more details



Mating face of pin insert shown (socket will be opposite)

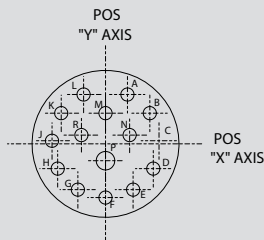
I.D. No.	Location X	Location Y	I.D. No.	Location X	Location Y	I.D. No.	Location X	Location Y	I.D. No.	Location X	Location Y
1	-0.080	.556	25	-0.121	.348	49	-0.281	.209	73	-0.522	.070
2	.000	.556	26	-0.040	.348	50	-0.201	.209	74	-0.442	.070
3	.080	.556	27	.040	.348	51	-0.121	.209	75	-0.361	.070
4	-0.281	.487	28	.121	.348	52	-0.040	.209	76	-0.281	.070
5	-0.201	.487	29	.201	.348	53	.040	.209	77	-0.201	.070
6	-0.121	.487	30	.281	.348	54	.121	.209	78	-0.121	.070
7	-0.040	.487	31	.361	.348	55	.201	.209	79	-0.040	.070
8	.040	.487	32	.442	.348	56	.281	.209	80	.040	.070
9	.121	.487	33	-0.482	.278	57	.361	.209	81	.121	.070
10	.201	.487	34	-0.402	.278	58	.442	.209	82	.201	.070
11	.281	.487	35	-0.321	.278	59	.522	.209	83	.281	.070
12	-0.321	.417	36	-0.241	.278	60	-0.482	.139	84	.361	.070
13	-0.241	.417	37	-0.161	.278	61	-0.402	.139	85	.442	.070
14	-0.161	.417	38	-0.080	.278	62	-0.321	.139	86	.522	.070
15	-0.080	.417	39	.000	.278	63	-0.241	.139	87	-0.562	.000
16	.000	.417	40	.080	.278	64	-0.161	.139	88	-0.482	.000
17	.080	.417	41	.161	.278	65	-0.080	.139	89	-0.402	.000
18	.161	.417	42	.241	.278	66	.000	.139	90	-0.321	.000
19	.241	.417	43	.321	.278	67	.080	.139	91	-0.241	.000
20	.321	.417	44	.402	.278	68	.161	.139	92	-0.161	.000
21	-0.442	.348	45	.482	.278	69	.241	.139	93	-0.080	.000
22	-0.361	.348	46	-0.522	.209	70	.321	.139	94	.000	.000
23	-0.281	.348	47	-0.442	.209	71	.402	.139	95	.080	.000
24	-0.201	.348	48	-0.361	.209	72	.482	.139	96	.161	.000
97	.241	.000	121	-0.080	-0.139	145	-0.321	-0.278	169	-0.241	-0.417
98	.321	.000	122	.000	-0.139	146	-0.241	-0.278	170	-0.161	-0.417
99	.402	.000	123	.080	-0.139	147	-0.161	-0.278	171	-0.080	-0.417
100	.482	.000	124	.161	-0.139	148	-0.080	-0.278	172	.000	-0.417
101	.562	.000	125	.241	-0.139	149	.000	-0.278	173	.080	-0.417
102	-0.522	-0.070	126	.321	-0.139	150	.080	-0.278	174	.161	-0.417
103	-0.442	-0.070	127	.402	-0.139	151	.161	-0.278	175	.241	-0.417
104	-0.361	-0.070	128	.482	-0.139	152	.241	-0.278	176	.321	-0.417
105	-0.281	-0.070	129	-0.522	-0.209	153	.321	-0.278	177	-0.281	-0.487
106	-0.201	-0.070	130	-0.442	-0.209	154	.402	-0.278	178	-0.201	-0.487
107	-0.121	-0.070	131	-0.361	-0.209	155	.482	-0.278	179	-0.121	-0.487
108	-0.040	-0.070	132	-0.281	-0.209	156	-0.442	-0.348	180	-0.040	-0.487
109	.040	-0.070	133	-0.201	-0.209	157	-0.361	-0.348	181	.040	-0.487
110	.121	-0.070	134	-0.121	-0.209	158	-0.281	-0.348	182	.121	-0.487
111	.201	-0.070	135	-0.040	-0.209	159	-0.201	-0.348	183	.201	-0.487
112	.281	-0.070	136	.040	-0.209	160	-0.121	-0.348	184	.281	-0.487
113	.361	-0.070	137	.121	-0.209	161	-0.040	-0.348	185	-0.080	-0.556
114	.442	-0.070	138	.201	-0.209	162	.040	-0.348	186	.000	-0.556
115	.522	-0.070	139	.281	-0.209	163	.121	-0.348	187	.080	-0.556
116	-0.482	-0.139	140	.361	-0.209	164	.201	-0.348			
117	-0.402	-0.139	141	.442	-0.209	165	.281	-0.348			
118	-0.321	-0.139	142	.522	-0.209	166	.361	-0.348			
119	-0.241	-0.139	143	-0.482	-0.278	167	.442	-0.348			
120	-0.161	-0.139	144	-0.402	-0.278	168	-0.321	-0.417			



Based on MIL-STD-1560 and other specs, contact fac

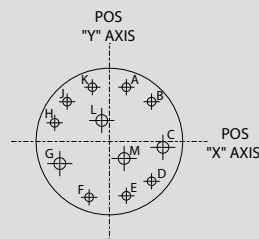
Mating face of pin insert shown (socket will be opposite)

15-15  
1x #16  
14X #20



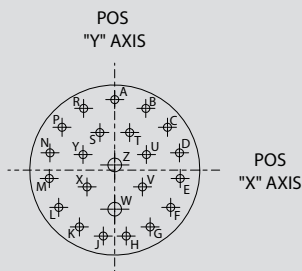
I.D. NO.	LOCATION		GAGE
	X	Y	
A	0.100	0.225	NO. 20
B	0.202	0.140	NO. 20
C	0.244	0.014	NO. 20
D	0.218	-0.113	NO. 20
E	0.126	-0.209	NO. 20
F	0.000	-0.245	NO. 20
G	-0.126	-0.209	NO. 20
H	-0.218	-0.113	NO. 20
J	-0.244	0.014	NO. 20
K	-0.202	0.140	NO. 20
L	-0.100	0.225	NO. 20
M	0.000	0.140	NO. 20
N	0.110	0.040	NO. 20
P	0.000	-0.077	NO. 16
R	-0.110	0.040	NO. 20

15-97  
4X #16  
8X #20



I.D. NO.	LOCATION		GAGE
	X	Y	
A	0.065	0.234	NO. 16
B	0.178	0.178	NO. 16
C	0.230	-0.023	NO. 20
D	0.178	-0.178	NO. 16
E	0.065	-0.234	NO. 16
F	-0.089	-0.235	NO. 16
G	-0.207	-0.095	NO. 20
H	-0.234	0.065	NO. 16
J	-0.178	0.178	NO. 16
K	-0.065	0.234	NO. 16
L	-0.047	0.081	NO. 20
M	0.047	-0.081	NO. 20

17-99  
2X #16  
37X #20



I.D. NO.	LOCATION			I.D. NO.	LOCATION		
	X	Y	GAGE		X	Y	GAGE
A	0.000	0.321	NO. 20	N	-0.305	0.099	NO. 20
B	0.131	0.293	NO. 20	P	-0.239	0.214	NO. 20
C	0.239	0.214	NO. 20	R	-0.131	0.293	NO. 20
D	0.305	0.099	NO. 20	S	-0.070	0.177	NO. 20
E	0.319	-0.034	NO. 20	T	0.070	0.177	NO. 20
F	0.278	-0.161	NO. 20	U	0.175	0.094	NO. 20
G	0.189	-0.260	NO. 20	V	0.150	-0.075	NO. 20
H	0.067	-0.314	NO. 20	W	0.000	-0.161	NO. 16
J	-0.067	-0.314	NO. 20	X	-0.150	-0.075	NO. 20
K	-0.189	-0.260	NO. 20	Y	-0.175	0.094	NO. 20
L	-0.278	-0.161	NO. 20	Z	0.000	0.025	NO. 16
M	-0.319	-0.034	NO. 20				

Based on MIL-STD-1560 and other specs, contact factory for more details

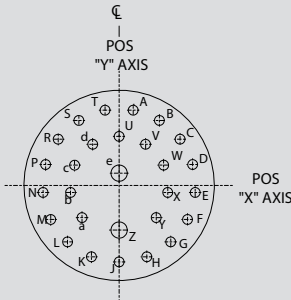
# MIL-DTL-38999 Series III Type

## Combo PCB footprints

Mating face of pin insert shown (socket will be opposite)

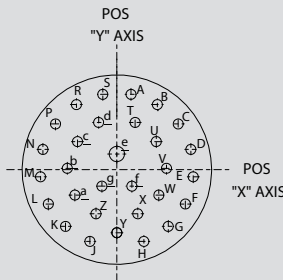
PCB FOOTPRINTS

19-28  
2X #16  
26X #20



I.D. NO.	LOCATION		GAGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	0.066	0.353	NO. 20	R	-0.286	0.217	NO. 20
B	0.189	0.305	NO. 20	S	-0.189	0.305	NO. 20
C	0.286	0.217	NO. 20	T	-0.066	0.353	NO. 20
D	0.345	0.098	NO. 20	U	0	0.230	NO. 20
E	0.357	-0.033	NO. 20	V	0.124	0.193	NO. 20
F	0.321	-0.160	NO. 20	W	0.209	0.095	NO. 20
G	0.242	-0.265	NO. 20	X	0.228	-0.033	NO. 20
H	0.130	-0.335	NO. 20	Y	0.174	-0.151	NO. 20
J	0	-0.359	NO. 20	Z	0	-0.191	NO. 16
K	-0.130	-0.335	NO. 20	a	-0.174	-0.151	NO. 20
L	-0.242	-0.265	NO. 20	b	-0.228	-0.033	NO. 20
M	-0.321	-0.160	NO. 20	c	-0.209	0.095	NO. 20
N	-0.357	-0.033	NO. 20	d	-0.124	0.193	NO. 20
P	-0.345	0.098	NO. 20	e	0	0.062	NO. 16

19-30  
1X #16  
29X #20

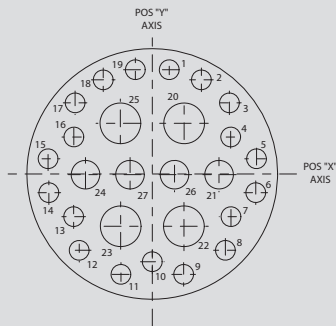


I.D. NO.	LOCATION		GAGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	0.065	0.346	NO. 20	S	-0.065	0.346	NO. 20
B	0.186	0.299	NO. 20	T	0.084	0.217	NO. 20
C	0.282	0.210	NO. 20	U	0.181	0.129	NO. 20
D	0.340	0.093	NO. 20	V	0.228	0.008	NO. 20
E	0.351	-0.033	NO. 20	W	0.193	-0.117	NO. 20
F	0.315	-0.158	NO. 20	X	0.096	-0.203	NO. 20
G	0.236	-0.261	NO. 20	Y	0.000	-0.290	NO. 20
H	0.124	-0.330	NO. 20	Z	-0.096	-0.203	NO. 20
J	-0.124	-0.330	NO. 20	a	-0.193	-0.117	NO. 20
K	-0.236	-0.261	NO. 20	b	-0.228	0.008	NO. 20
L	-0.315	-0.158	NO. 20	c	-0.181	0.129	NO. 20
M	-0.351	-0.033	NO. 20	d	-0.084	0.217	NO. 20
N	-0.340	0.093	NO. 20	e	0.000	0.072	NO. 16
P	-0.282	0.210	NO. 20	f	0.069	-0.076	NO. 20
R	-0.186	0.299	NO. 20	g	-0.069	-0.076	NO. 20

Based on MIL-STD-1560 and other specs, contact factory for more details

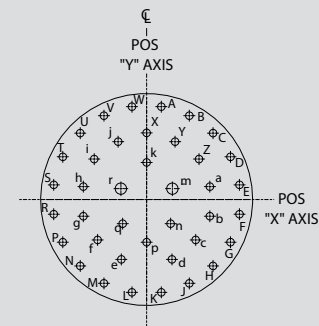
Mating face of pin insert shown (socket will be opposite)

21-29  
4X #12  
4X #16  
19X #20



I.D. NO.	LOCATION		GAGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
1	+0.067	+0.412	NO. 20	15	-0.412	+0.060	NO. 20
2	+0.194	+0.372	NO. 20	16	-0.310	+0.146	NO. 20
3	+0.305	+0.281	NO. 20	17	-0.305	+0.281	NO. 20
4	+0.310	+0.146	NO. 20	18	-0.194	+0.372	NO. 20
5	+0.412	+0.060	NO. 20	19	-0.067	+0.412	NO. 20
6	+0.409	-0.074	NO. 20	20	+0.126	+0.200	NO. 12
7	+0.311	-0.169	NO. 20	21	+0.264	-0.003	NO. 16
8	+0.289	-0.302	NO. 20	22	+0.125	-0.207	NO. 12
9	+0.124	-0.397	NO. 20	23	-0.125	-0.207	NO. 12
10	0.000	-0.347	NO. 20	24	-0.264	-0.003	NO. 16
11	-0.124	-0.397	NO. 20	25	-0.126	+0.200	NO. 12
12	-0.289	-0.302	NO. 20	26	+0.088	-0.003	NO. 16
13	-0.311	-0.169	NO. 20	27	-0.088	-0.003	NO. 16
14	-0.409	-0.074	NO. 20				

21-39  
2X #16  
37X #20

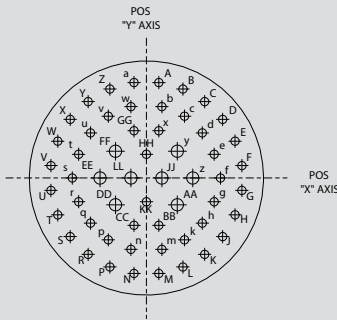


I.D. NO.	LOCATION		GAGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	0.065	0.411	NO. 20	a	0.280	0.057	NO. 20
B	0.189	0.371	NO. 20	b	0.280	-0.074	NO. 20
C	0.294	0.294	NO. 20	c	0.217	-0.189	NO. 20
D	0.371	0.189	NO. 20	d	0.112	-0.265	NO. 20
E	0.411	0.065	NO. 20	e	-0.112	-0.265	NO. 20
F	0.411	-0.065	NO. 20	f	-0.217	-0.189	NO. 20
G	0.371	-0.189	NO. 20	g	-0.280	-0.074	NO. 20
H	0.294	-0.294	NO. 20	h	-0.280	0.057	NO. 20
J	0.189	-0.371	NO. 20	i	-0.232	0.179	NO. 20
K	0.065	-0.411	NO. 20	j	-0.126	0.256	NO. 20
L	-0.065	-0.411	NO. 20	k	0	0.164	NO. 20
M	-0.189	-0.371	NO. 20	m	0.114	0.048	NO. 16
N	-0.294	-0.294	NO. 20	n	0.106	-0.107	NO. 20
P	-0.371	-0.189	NO. 20	p	0	-0.189	NO. 20
R	-0.411	-0.065	NO. 20	q	-0.106	-0.107	NO. 20
S	-0.411	0.065	NO. 20	r	-0.114	0.048	NO. 16
T	-0.371	0.189	NO. 20				
U	-0.294	0.294	NO. 20				
V	-0.189	0.371	NO. 20				
W	-0.065	0.411	NO. 20				
X	0	0.295	NO. 20				
Y	0.126	0.256	NO. 20				
Z	0.232	0.179	NO. 20				

Based on MIL-STD-1560 and other specs, contact factory for more details

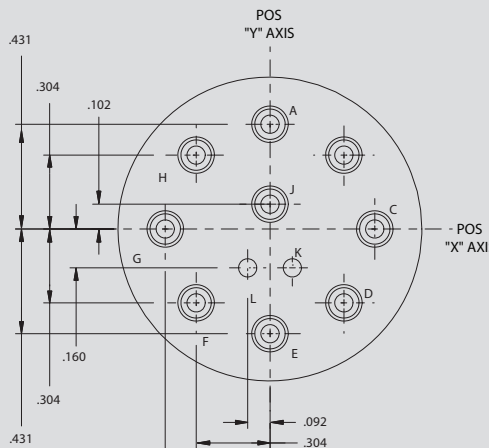
Mating face of pin insert shown (socket will be opposite)

25-4  
8X #16  
48X #20



I.D. NO.	LOCATION		GAGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	0.069	0.531	NO. 20	f	0.412	0.000	NO. 20
B	0.203	0.495	NO. 20	g	0.377	-0.132	NO. 20
C	0.324	0.425	NO. 20	h	0.311	-0.251	NO. 20
D	0.424	0.326	NO. 20	k	0.212	-0.344	NO. 20
E	0.493	0.205	NO. 20	m	0.086	-0.397	NO. 20
F	0.531	0.069	NO. 20	n	-0.086	-0.397	NO. 20
G	0.531	-0.069	NO. 20	p	-0.212	-0.344	NO. 20
H	0.493	-0.205	NO. 20	q	-0.311	-0.251	NO. 20
J	0.424	-0.326	NO. 20	r	-0.377	-0.132	NO. 20
K	0.324	-0.425	NO. 20	s	-0.412	0.000	NO. 20
L	0.203	-0.495	NO. 20	t	-0.377	0.132	NO. 20
M	0.069	-0.531	NO. 20	u	-0.311	0.251	NO. 20
N	-0.069	-0.531	NO. 20	v	-0.212	0.344	NO. 20
P	-0.203	-0.495	NO. 20	w	-0.086	0.397	NO. 20
R	-0.324	-0.425	NO. 20	x	0.069	0.263	NO. 20
S	-0.424	-0.326	NO. 20	y	0.172	0.149	NO. 20
T	-0.493	-0.205	NO. 20	z	0.258	0.000	NO. 20
U	-0.531	-0.069	NO. 20	AA	0.172	-0.149	NO. 16
V	-0.531	0.069	NO. 20	BB	0.069	-0.263	NO. 16
W	-0.493	0.205	NO. 20	CC	-0.069	-0.263	NO. 16
X	-0.424	0.326	NO. 20	DD	-0.172	-0.149	NO. 16
Y	-0.324	0.425	NO. 20	EE	-0.258	0.000	NO. 16
Z	-0.203	0.495	NO. 20	FF	-0.172	0.149	NO. 16
a	-0.069	0.531	NO. 20	GG	-0.069	0.263	NO. 16
b	0.086	0.397	NO. 20	HH	0.000	0.132	NO. 16
c	0.212	0.344	NO. 20	JJ	0.086	0.000	NO. 16
d	0.311	0.251	NO. 20	KK	0.000	-0.132	NO. 16
e	0.377	0.132	NO. 20	LL	-0.086	0.000	NO. 16

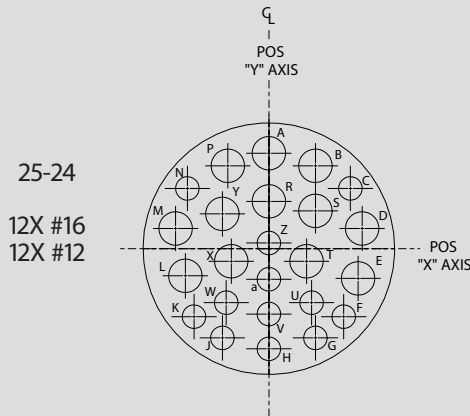
25-11  
9X #10  
2X #20



Based on MIL-STD-1560 and other specs, contact factory for more details



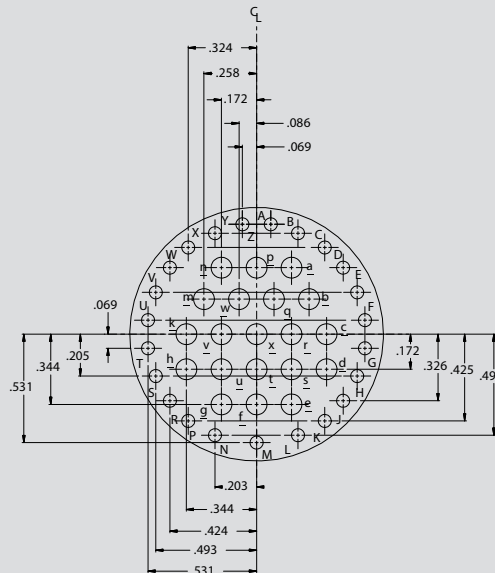
Mating face of pin insert shown (socket will be opposite)



25-24  
12X #16  
12X #12

I.D. NO.	LOCATION		GAGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	+ .000	+ .472	NO. 12	N	- .403	+ .298	NO. 16
B	+ .230	+ .410	NO. 12	P	- .230	+ .410	NO. 12
C	+ .403	+ .298	NO. 16	R	+ .000	+ .234	NO. 12
D	+ .461	+ .100	NO. 12	S	+ .230	+ .172	NO. 12
E	+ .413	- .134	NO. 12	T	+ .186	- .062	NO. 12
F	+ .370	- .336	NO. 16	U	+ .211	- .267	NO. 16
G	+ .230	- .441	NO. 16	V	+ .000	- .323	NO. 16
H	+ .000	- .495	NO. 16	W	- .211	- .267	NO. 16
J	- .230	- .441	NO. 16	X	- .186	- .062	NO. 12
K	- .370	- .336	NO. 16	Y	- .230	+ .172	NO. 12
L	- .413	- .134	NO. 16	Z	+ .000	+ .028	NO. 16
M	- .461	+ .100	NO. 12	a	+ .000	- .151	NO. 16

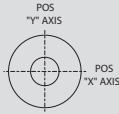
25-43  
20X #16  
23X #20



Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

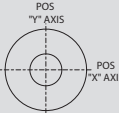
9G5



1 #8

I.D. NO.	LOCATION		GAGE
	X	Y	
A	.000	.000	NO. 8

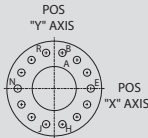
11-1



1 #8

I.D. No.	Location		Gage
	X	Y	
A	.000	.000	NO. 8

13-4

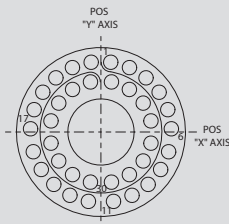


1 #8

14 #23

I.D. NO.	LOCATION		GAGE
	X	Y	
A	.000	.000	NO. 8
B	.049	.215	23 GA
C	.137	.172	23 GA
D	.198	.096	23 GA
E	.220	.000	23 GA
F	.198	-.096	23 GA
G	.137	-.172	23 GA
H	.049	-.215	23 GA
J	-.049	-.215	23 GA
K	-.137	-.172	23 GA
M	-.198	-.096	23 GA
N	-.220	.000	23 GA
P	-.198	.096	23 GA
Q	-.137	.172	23 GA
R	-.049	.215	23 GA

17-2



1 #8

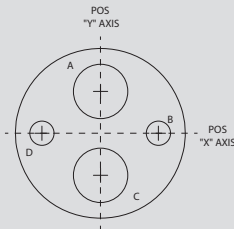
38 #22

I.D. NO.	LOCATION		GAUGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
1	.046	.325	22D GA	21	-.133	.299	22D GA
2	.133	.299	22D GA	22	-.046	.325	22D GA
3	.211	.251	22D GA	23	.046	.231	22D GA
4	.272	.183	22D GA	24	.129	.197	22D GA
5	.312	.101	22D GA	25	.194	.133	22D GA
6	.328	.011	22D GA	26	.230	.050	22D GA
7	.318	-.079	22D GA	27	.232	-.040	22D GA
8	.284	-.164	22D GA	28	.200	-.125	22D GA
9	.228	-.236	22D GA	29	.137	-.191	22D GA
10	.154	-.289	22D GA	30	.055	-.229	22D GA
11	.068	-.321	22D GA	31	-.055	-.229	22D GA
12	-.068	-.321	22D GA	32	-.137	-.191	22D GA
13	.154	-.289	22D GA	33	-.200	-.125	22D GA
14	-.228	-.236	22D GA	34	-.232	-.040	22D GA
15	-.284	-.164	22D GA	35	-.230	.050	22D GA
16	-.318	-.079	22D GA	36	-.194	.133	22D GA
17	-.328	.011	22D GA	37	-.129	.197	22D GA
18	-.312	.101	22D GA	38	-.046	.231	22D GA
19	-.272	.183	22D GA	39	.000	.000	NO. 8
20	-.211	.251	22D GA				

Based on MIL-STD-1560 and other specs, contact factory for more details

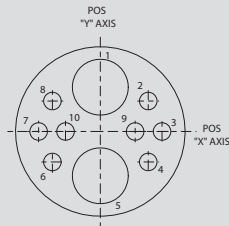
Mating face of pin insert shown (socket will be opposite)

17-22  
2 #8  
2 #12



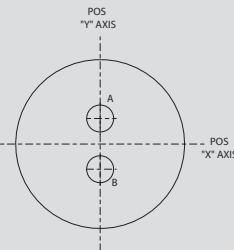
I.D. NO.	LOCATION		GAGE
	X	Y	
A	0	.180	NO. 8
B	.249	0	12 GA
C	0	-.180	NO. 8
D	-.249	0	12 GA

17-60  
2 #8  
8 #22



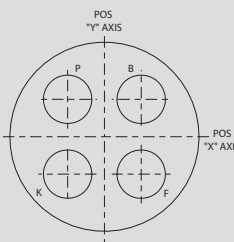
I.D. NO.	LOCATION		GAGE
	X	Y	
1	.000	.180	NO. 8
2	.240	.145	22D GA
3	.297	.000	22D GA
4	.240	-.145	22D GA
5	.000	-.180	NO. 8
6	-.240	-.145	22D GA
7	-.297	.000	22D GA
8	-.240	.145	22D GA
9	.177	.000	22D GA
10	-.177	.000	22D GA

17-75  
2 #8



I.D. NO.	LOCATION		GAGE
	X	Y	
A	.000	.187	NO. 8
B	.000	-.187	NO. 8

19-4  
4 #8

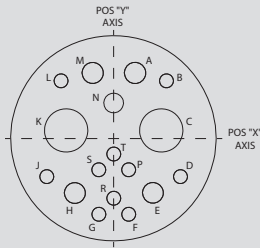


I.D. NO.	LOCATION		GAGE
	X	Y	
B	.180	.180	NO. 8
F	.180	-.180	NO. 8
K	-.180	-.180	NO. 8
P	-.180	.180	NO. 8

Based on MIL-STD-1560 and other specs, contact factory for more details

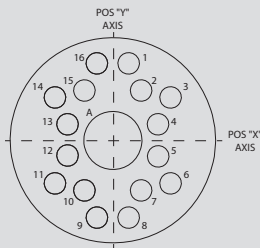
Mating face of pin insert shown (socket will be opposite)

19-17  
2X #8  
26X #20



I.D. NO.	LOCATION		GAGE
	X	Y	
A	0.099	0.301	NO. 20
B	0.244	0.265	NO. 20
C	0.220	0.035	NO. 8
D	0.310	-0.178	NO. 20
E	0.181	-0.254	NO. 20
F	0.069	-0.353	NO. 20
G	-0.069	-0.353	NO. 20
H	-0.181	-0.254	NO. 20
J	-0.310	-0.178	NO. 20
K	-0.220	0.035	NO. 8
L	-0.244	0.265	NO. 20
M	-0.099	0.301	NO. 20
N	0.000	0.162	NO. 20
P	0.069	-0.147	NO. 20
R	0.000	-0.278	NO. 20
S	-0.069	-0.147	NO. 20
T	0.000	-0.071	NO. 20

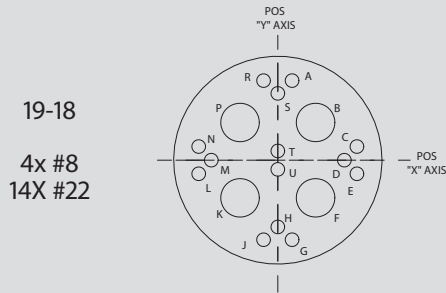
19A-17  
1X #8  
20X #16



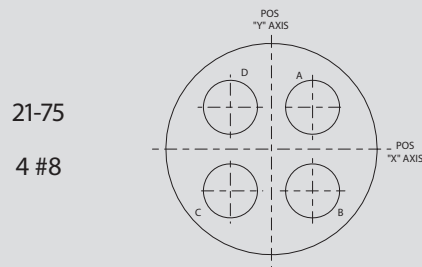
I.D. NO.	LOCATION		GAGE
	X	Y	
1	+0.072	+0.328	NO. 20
2	+0.138	+0.208	NO. 20
3	+0.276	+0.195	NO. 20
4	+0.239	+0.067	NO. 20
5	+0.239	-0.067	NO. 20
6	+0.276	-0.195	NO. 20
7	+0.138	-0.208	NO. 20
8	+0.072	-0.328	NO. 20
9	-0.072	-0.328	NO. 20
10	-0.138	-0.208	NO. 20
11	-0.276	-0.195	NO. 20
12	-0.239	-0.067	NO. 20
13	-0.239	+0.067	NO. 20
14	-0.276	+0.195	NO. 20
15	-0.138	+0.208	NO. 20
16	-0.072	+0.328	NO. 20
A	+0.000	+0.000	NO. 8

Based on MIL-STD-1560 and other specs, contact factory for more details

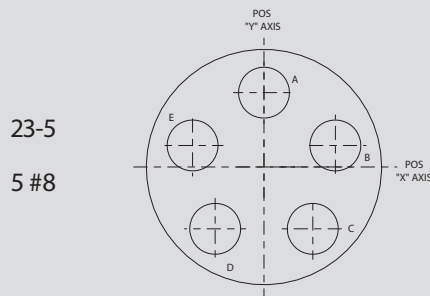
Mating face of pin insert shown (socket will be opposite)



I.D. NO.	LOCATION		GAGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	+0.068	+0.380	NO. 22	L	-0.377	-0.065	NO. 22
B	+0.180	+0.180	NO. 8	M	-0.317	+0.000	NO. 22
C	+0.377	+0.065	NO. 22	N	-0.377	+0.065	NO. 22
D	+0.317	+0.000	NO. 22	P	-0.180	+0.180	NO. 8
E	+0.377	-0.065	NO. 22	R	-0.068	+0.380	NO. 22
F	+0.180	-0.180	NO. 8	S	+0.000	+0.319	NO. 22
G	+0.068	-0.380	NO. 22	T	+0.000	+0.044	NO. 22
K	-0.180	-0.180	NO. 8	U	+0.000	-0.044	NO. 22



I.D. NO.	LOCATION		GAGE
	X	Y	
B	.180	.180	NO. 8
F	.180	-.180	NO. 8
K	-.180	-.180	NO. 8
P	-.180	.180	NO. 8



I.D. NO.	LOCATION		GAGE
	X	Y	
A	.000	.364	NO. 8
B	.347	.113	NO. 8
C	.214	-.295	NO. 8
D	-.214	-.295	NO. 8
E	-.347	.113	NO. 8

Based on MIL-STD-1560 and other specs, contact factory for more details



ADVANCED PERFORMANCE

**SuperNine<sup>®</sup>**

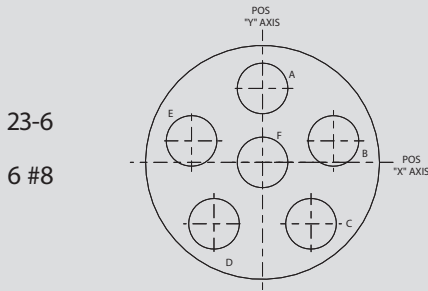
**MIL-DTL-38999 Series III Type**

**High-speed PCB footprints**



PCB FOOTPRINTS

Mating face of pin insert shown (socket will be opposite)



23-6

6 #8

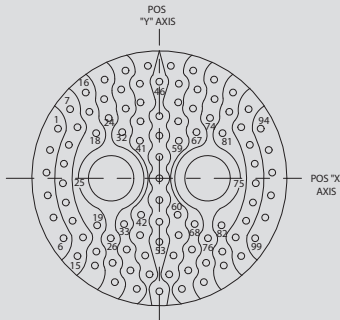
I.D. NO.	LOCATION		GAGE
	X	Y	
A	.000	.364	NO. 8
B	.347	.113	NO. 8
C	.214	-.295	NO. 8
D	-.214	-.295	NO. 8
E	-.347	.113	NO. 8
F	.000	.000	NO. 8

Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)

PCB FOOTPRINTS

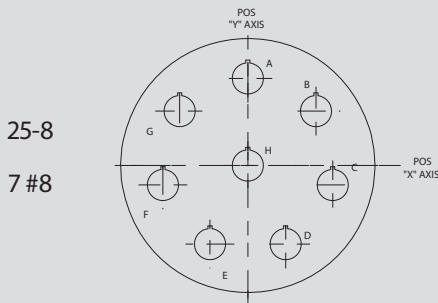
25-7  
2 #8  
97 #22D



I.D. NO.	LOCATION		GAUGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
1	-.494	.242	NO. 22	51	.000	-.106	NO. 22
2	-.533	.138	NO. 22	52	.000	-.212	NO. 22
3	-.550	.028	NO. 22	53	.000	-.310	NO. 22
4	-.544	-.083	NO. 22	54	.000	-.551	NO. 22
5	-.516	-.191	NO. 22	55	.056	.548	NO. 22
6	-.467	-.292	NO. 22	56	.095	.461	NO. 22
7	-.435	.337	NO. 22	57	.068	.370	NO. 22
8	-.399	.249	NO. 22	58	.092	.278	NO. 22
9	-.441	.163	NO. 22	59	.095	.183	NO. 22
10	-.465	.071	NO. 22	60	.089	-.178	NO. 22
11	-.470	-.024	NO. 22	61	.094	-.277	NO. 22
12	-.456	-.118	NO. 22	62	.069	-.376	NO. 22
13	-.423	-.207	NO. 22	63	.048	-.468	NO. 22
14	-.372	-.288	NO. 22	64	.165	.525	NO. 22
15	-.399	-.379	NO. 22	65	.186	.433	NO. 22
16	-.359	.418	NO. 22	66	.164	.340	NO. 22
17	-.341	.324	NO. 22	67	.181	.225	NO. 22
18	-.308	.222	NO. 22	68	.172	-.223	NO. 22
19	-.303	-.223	NO. 22	69	.159	-.347	NO. 22
20	-.307	-.357	NO. 22	70	.141	-.449	NO. 22
21	-.314	-.452	NO. 22	71	.111	-.539	NO. 22
22	-.267	.481	NO. 22	72	.267	.481	NO. 22
23	-.269	.386	NO. 22	73	.269	.386	NO. 22
24	-.247	.294	NO. 22	74	.247	.294	NO. 22
25	-.238	.000	NO. 8	75	.238	.000	NO. 8
26	-.237	-.292	NO. 22	76	.237	-.292	NO. 22
27	-.228	-.412	NO. 22	77	.228	-.412	NO. 22
28	-.217	-.506	NO. 22	78	.217	-.506	NO. 22
29	-.165	.525	NO. 22	79	.359	.418	NO. 22
30	-.186	.433	NO. 22	80	.341	.324	NO. 22
31	-.164	.340	NO. 22	81	.308	.222	NO. 22
32	-.181	.225	NO. 22	82	.303	-.223	NO. 22
33	-.172	-.223	NO. 22	83	.307	-.357	NO. 22
34	-.159	-.347	NO. 22	84	.314	-.452	NO. 22
35	-.141	-.449	NO. 22	85	.435	.337	NO. 22
36	-.111	-.539	NO. 22	86	.399	.249	NO. 22
37	-.056	.548	NO. 22	87	.441	.163	NO. 22
38	-.095	.461	NO. 22	88	.465	.071	NO. 22
39	-.068	.370	NO. 22	89	.470	-.024	NO. 22
40	-.092	.278	NO. 22	90	.456	-.118	NO. 22
41	-.095	.183	NO. 22	91	.423	-.207	NO. 22
42	-.089	-.178	NO. 22	92	.372	-.288	NO. 22
43	-.094	-.277	NO. 22	93	.399	-.379	NO. 22
44	-.069	-.376	NO. 22	94	.494	.242	NO. 22
45	-.048	-.468	NO. 22	95	.533	.138	NO. 22
46	.000	.471	NO. 22	96	.550	.028	NO. 22
47	.000	.303	NO. 22	97	.544	-.083	NO. 22
48	.000	.208	NO. 22	98	.516	-.191	NO. 22
49	.000	.104	NO. 22	99	.467	-.292	NO. 22
50	.000	.000	NO. 22				

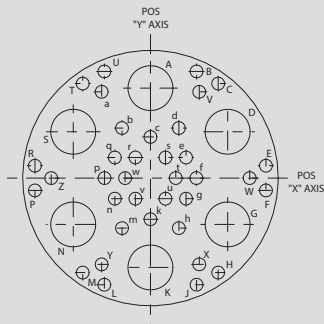
Based on MIL-STD-1560 and other specs, contact factory for more details

Mating face of pin insert shown (socket will be opposite)



I.D. NO.	LOCATION		GAGE
	X	Y	
A	.000 (.00)	.426 (1.82)	NO. 8
B	.333 (8.46)	.266 (6.76)	NO. 8
C	.415 (10.54)	-.095 (2.41)	NO. 8
D	.185 (4.70)	-.384 (9.75)	NO. 8
E	-.185 (4.70)	-.384 (9.75)	NO. 8
F	-.415 (-10.54)	-.095 (2.41)	NO. 8
G	-.333 (8.46)	.266 (6.76)	NO. 8
H	.000 (.00)	.000 (.00)	NO. 8

25-17  
6 #8  
36 #22D

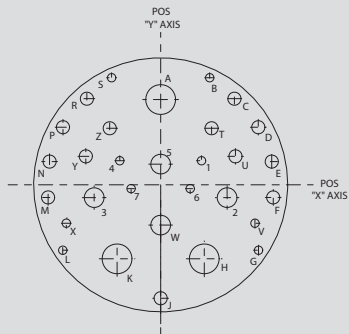


I.D. NO.	LOCATION		GAUGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	.000	.437	NO. 8	a	-.237	.419	NO. 22
B	.224	.518	NO. 22	b	-.138	.243	NO. 22
C	.329	.459	NO. 22	c	.000	.200	NO. 22
D	.375	.225	NO. 8	d	.138	.243	NO. 22
E	.561	.060	NO. 22	e	.173	.100	NO. 22
F	.561	-.060	NO. 22	f	.223	.000	NO. 22
G	.375	-.225	NO. 8	g	.173	-.100	NO. 22
H	.329	-.459	22 GA	h	.138	-.243	NO. 22
J	.224	-.518	NO. 22	k	.000	-.200	NO. 22
K	.000	-.437	NO. 8	m	-.138	-.243	NO. 22
L	-.224	-.518	NO. 22	n	-.173	-.100	NO. 22
M	-.329	-.459	NO. 22	p	-.223	.000	NO. 22
N	-.375	-.225	NO. 8	q	-.173	.100	NO. 22
P	-.561	-.060	NO. 22	r	-.073	.100	NO. 22
R	-.561	.060	NO. 22	s	.073	.100	NO. 22
S	-.375	.225	NO. 8	t	.123	.000	NO. 22
T	-.329	.459	NO. 22	u	.073	-.100	NO. 22
U	-.224	.518	NO. 22	v	-.073	-.100	NO. 22
V	.237	.419	NO. 22	w	-.123	.000	NO. 22
W	.482	.000	NO. 22				
X	.237	-.419	NO. 22				
Y	-.237	-.419	NO. 22				
Z	-.482	.000	NO. 22				

Based on MIL-STD-1560 and other specs, contact factory for more details

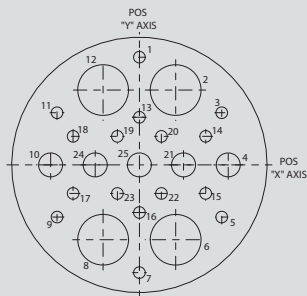
Mating face of pin insert shown (socket will be opposite)

25-20  
3 #8  
4 #12  
3 #16  
10 #20



I.D. NO.	LOCATION		GAUGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	.000	.407	NO. 8	S	.234	.511	NO. 20
B	.234	.511	NO. 20	T	.243	.270	NO. 16
C	.352	.411	NO. 16	U	.357	.136	NO. 16
D	.466	.275	NO. 16	V	.450	-.183	NO. 20
E	.530	.111	NO. 16	W	.000	-.131	NO. 12
F	.537	-.060	NO. 16	X	.450	-.183	NO. 20
G	.467	-.312	NO. 20	Y	.357	.136	NO. 16
H	.208	-.353	NO. 8	Z	.243	.270	NO. 16
J	.000	-.541	NO. 16	1	.195	.115	NO. 20
K	-.208	-.353	NO. 8	2	.317	-.061	NO. 12
L	-.467	-.312	NO. 20	3	-.317	-.061	NO. 12
M	-.537	-.060	NO. 16	4	-.195	.115	NO. 20
N	.530	.111	NO. 16	5	.000	.099	NO. 12
P	.466	.275	NO. 16	6	.141	-.018	NO. 20
R	.352	.411	NO. 16	7	-.141	-.018	NO. 20

25-26  
4 #8  
5 #12  
16 #20

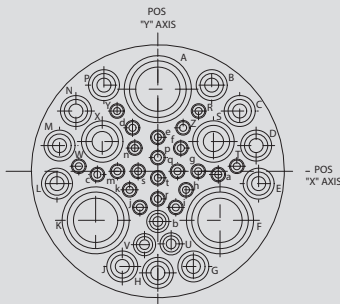


I.D. NO.	LOCATION		GAGE
	X	Y	
1	.000	.548	NO. 20
2	.205	.382	NO. 8
3	.460	.265	NO. 20
4	.495	.000	NO. 12
5	.460	-.265	NO. 20
6	.205	-.382	NO. 8
7	.000	-.548	NO. 20
8	-.205	-.382	NO. 8
9	-.460	-.265	NO. 20
10	-.495	.000	NO. 12
11	-.460	.265	NO. 20
12	-.205	.382	NO. 8
13	.000	.218	NO. 20
14	.375	.147	NO. 20
15	.375	-.147	NO. 20
16	.000	-.218	NO. 20
17	.375	-.147	NO. 20
18	.375	.147	NO. 20
19	.127	.140	NO. 20
20	.127	.140	NO. 20
21	.255	.000	NO. 12
22	.127	-.140	NO. 20
23	.127	-.140	NO. 20
24	.255	.000	NO. 12
25	.000	.000	NO. 12

Based on MIL-STD-1560 and other specs, contact factory for more details

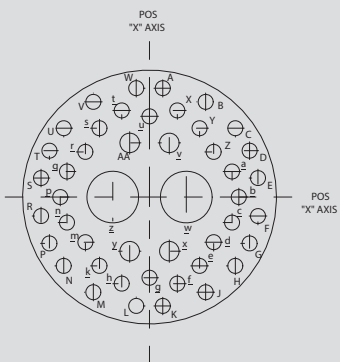
Mating face of pin insert shown (socket will be opposite)

25-41  
3 #8  
2 #12  
11 #16  
3 #20  
22 #22D



I.D. NO.	LOCATION		GAUGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	.000	.425	NO. 8	a	.313	-.017	NO. 22D
B	.279	.446	NO. 16	b	.000	-.260	NO. 20
C	.424	.312	NO. 16	c	-.313	-.017	NO. 22D
D	.509	.133	NO. 16	d	-.131	.225	NO. 22D
E	.522	-.064	NO. 16	e	.000	.176	NO. 22D
F	.322	-.254	NO. 8	f	.119	.120	NO. 22D
G	.184	-.493	NO. 16	g	.209	.000	NO. 22D
H	.000	-.526	NO. 16	h	.146	-.096	NO. 22D
J	-.184	-.493	NO. 16	i	.093	-.187	NO. 22D
K	-.322	-.254	NO. 8	j	-.093	-.187	NO. 22D
L	-.522	-.064	NO. 16	k	-.146	-.096	NO. 22D
M	-.509	.133	NO. 16	m	-.209	.000	NO. 22D
N	-.424	.312	NO. 16	n	-.119	.120	NO. 22D
P	-.279	.446	NO. 16	p	.000	.071	NO. 22D
R	.211	.312	NO. 22D	q	.102	.000	NO. 22D
S	.288	.154	NO. 12	r	.000	-.143	NO. 22D
T	.409	.026	NO. 22D	s	-.102	.000	NO. 22D
U	.069	-.380	NO. 20	t	.000	-.034	NO. 22D
V	-.069	-.380	NO. 20				
W	-.409	.026	NO. 22D				
X	-.288	.154	NO. 12				
Y	-.211	.312	NO. 22D				
Z	.131	.225	NO. 22D				

25-90  
&  
25-46  
2 #8  
4 #16  
40 #20



I.D. NO.	LOCATION		GAUGE	I.D. NO.	LOCATION		GAGE
	X	Y			X	Y	
A	.065	.533	NO. 20	a	.404	.125	NO. 20
B	.275	.466	NO. 20	b	.437	.000	NO. 20
C	.420	.337	NO. 20	c	.404	-.125	NO. 20
D	.490	.227	NO. 20	d	.314	-.221	NO. 20
E	.531	.093	NO. 20	e	.245	-.337	NO. 20
F	.531	-.093	NO. 20	f	.136	-.424	NO. 20
G	.490	-.227	NO. 20	g	.000	-.395	NO. 20
H	.420	-.337	NO. 20	h	-.136	-.424	NO. 20
J	.275	-.466	NO. 20	k	-.245	-.337	NO. 20
K	.065	-.533	NO. 20	m	-.314	-.221	NO. 20
L	-.065	-.533	NO. 20	n	-.404	-.125	NO. 20
M	-.275	-.466	NO. 20	p	-.437	.000	NO. 20
N	-.420	-.337	NO. 20	q	-.404	.125	NO. 20
P	-.490	-.227	NO. 20	r	-.314	.221	NO. 20
R	-.531	-.093	NO. 20	s	-.245	.337	NO. 20
S	-.531	.093	NO. 20	t	-.136	.424	NO. 20
T	-.490	.227	NO. 20	u	.000	.395	NO. 20
U	-.420	.337	NO. 20	v	.097	.265	NO. 16
V	-.275	.466	NO. 20	w	.180	.000	NO. 8
W	-.065	.533	NO. 20	x	.097	-.265	NO. 16
X	.136	.424	NO. 20	y	-.097	-.265	NO. 16
Y	.245	.337	NO. 20	z	-.180	.000	NO. 8
Z	.314	.221	NO. 20	AA	-.097	.265	NO. 16

Based on MIL-STD-1560 and other specs, contact factory for more details



050-301 .....J-30	233-212 .....B-57, 59	233-304 ..... E-18
10-13033-102..... B-56	233-213 ..... B-55	233-305 ..... E-20
10-13033-102..... B-65	233-214 ..... B-56	233-312 .....E-9
10-13033-103..... B-56	233-215 ..... B-18	233-330 ..... E-22
10-13033-103..... B-65	233-216 ..... B-30	233-340 ..... E-34
180-091 (05) .....G-19	233-217 ..... C-36	233-342 ..... E-36
180-091 (08) .....G-20	233-218 ..... C-49	233-343 ..... E-38
180-091 (G6).....G-18	233-218 ..... D-10	233-344 ..... E-40
180-091 (H7).....G-21	233-219 ..... C-95	233-345 ..... E-42
180-091 (S7) .....G-22	233-220 ..... C-101	233-360 ..... E-56
180-091 (T7) .....G-23	233-221 ..... B-16	233-362 ..... E-59
181-001 ..... G-7	233-224 ..... C-30	233-363 ..... E-61
181-002 ..... G-6	233-225 ..... C-54	233-364 ..... E-63
181-009 ..... G-9	233-226 ..... C-45	233-365 ..... E-66
181-010 ..... G-8	233-227 ..... C-60	233-368 ..... E-68
181-035 ..... G-11	233-228 ..... C-1	233-370 ..... E-44
181-036 ..... G-10	233-230-00 ..... B-64	233-390 ..... E-46
181-048-16 .....G-23	233-230-G6..... B-63	233-392 ..... E-47
181-052 ..... G-12	233-250 ..... D-41	233PS215..... B-22
181-053 ..... G-13	233-251 ..... D-42	233PS215..... B-20
181-065 ..... G-14	233-252 ..... D-44	239-200 ..... H-40
181-066 ..... G-15	233-253 ..... D-46	239-202 ..... H-42
187-019 ..... G-16	233-254 ..... D-48	239-204 ..... H-43
187-029 ..... G-17	233-255 ..... D-50	239-205 ..... H-44
187-266 ..... G-17	233-260 ..... C-45	240-383B ..... F-24
2330-0003 ..... E-24	233-260 ..... C-42	240-383D ..... F-20
2330-0015 ..... E-48	233-261 ..... D-35	240-383E ..... F-22
2330-0455 ..... E-51	233-262 ..... D-18	240-383J..... F-14
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# MIL-DTL-38999 DERIVATIVES AND OTHER Mil-Aero Connector Specials



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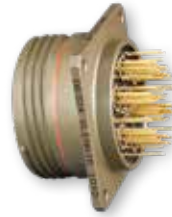
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