

The widest range of
mission-critical interconnect
technologies in the world



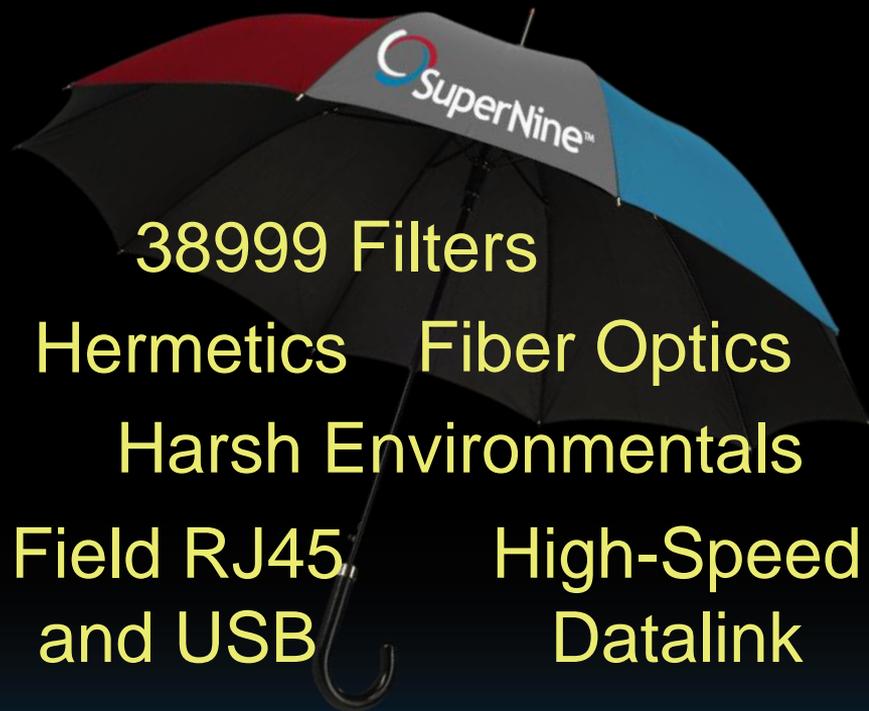
 SuperNine®

"Better than QPL" advanced-performance
D38999 Series III type connectors



“Better than QPL” technology in every class of D38999 connector:

- Superior performance
- Custom features
- Glenair availability



Glenair: Your MIL-DTL-38999 QPL Source



Glenair is also a fully-qualified manufacturer and supplier of American-made environmental and hermetic D38999s

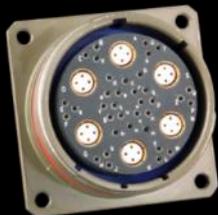
- Short lead times including same-day inventory
- Support for odd contact arrangements and polarizations
- 100% made-in-America technology
- “No gap” product line
- Solution bundling: one-stop-shopping for connectors, backshells and accessories, boots, bands, and so on



The “Better Than QPL” D38999 Series from Glenair



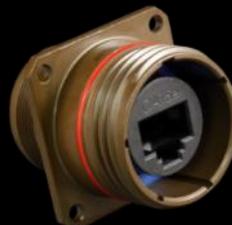
1500 Mating Cycle
Environmental



High-Speed
Environmental



High-Pressure Pin and
Socket Hermetic



Ruggedized
RJ45 and USB



High-Vibration IAW Bell
Helicopter and Boeing



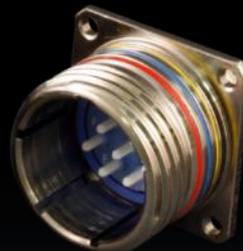
Special PCB
Standoff Series



Connector Saver
Go-Betweens



Hermetic and
Environmental Feed-Thrus



Tight Tolerance
Fiber Optic



EMI/RFI Filters and TVS
Diode EMP Connectors



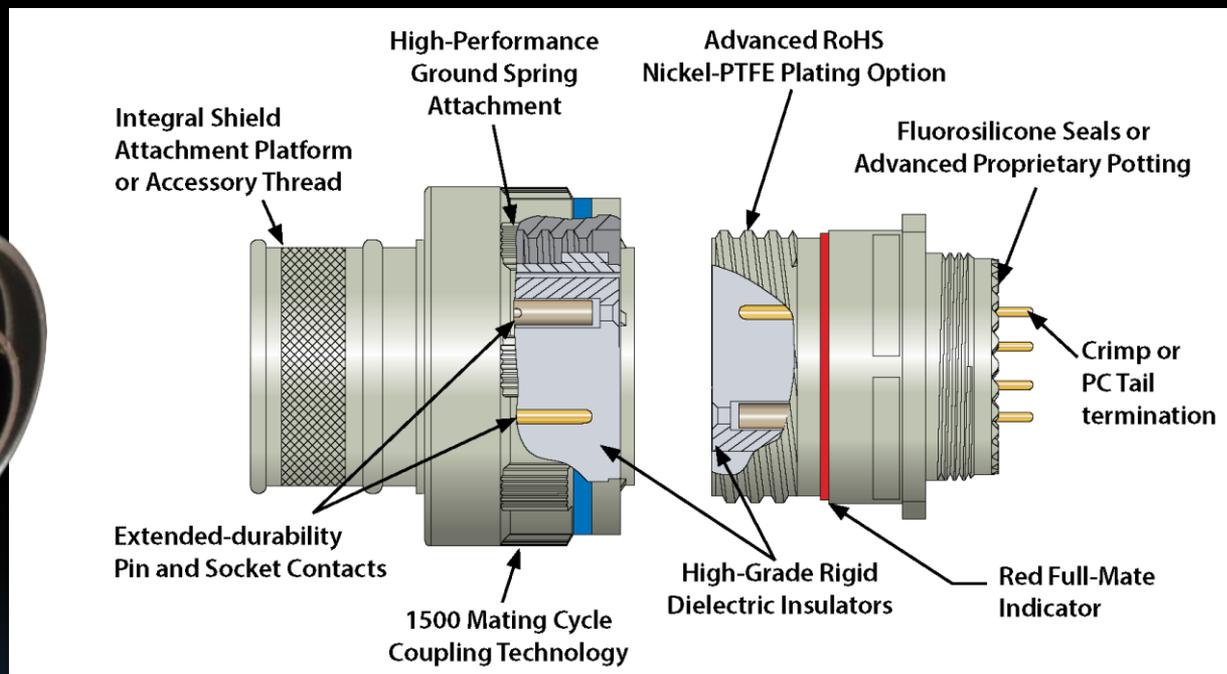
Advanced-performance D38999 environmental connectors



- Extended durability contacts and high-vibration coupling technology: 1500 mating cycles, IAW Boeing wingtip, engine, and landing gear specs
- Qualified high-vibration to Bell 299-100-B29
- Integrated band porch
- Extensive PC tail offerings
- Ground spring equipped plug
- Standard 1560 arrangements plus HD and shielded contact inserts
- IP68 sealing standard

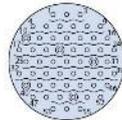
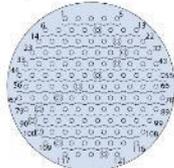
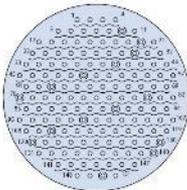
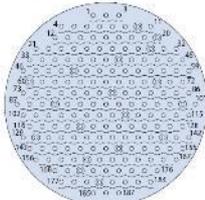


High-vibration D38999 environmental 233-205 and 6



SuperNine[®] MIL-STD-1560 Contact Arrangements

All standard density arrangements plus high-density

				
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		

SuperNine®

MIL-DTL-38999

Series III Hybrid

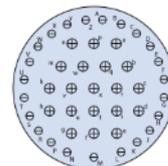
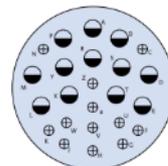
Insert Arrangements

Combo Contact Arrangements						
Contact Size			Number of Contacts			Series III SuperNine
Size #20 Contacts 7.5 Amp Max. Current #20-#24 AWG	Size #16 Contacts 13 Amp Max. Current #16-#20 AWG	Size #12 Contacts 23 Amp Max. Current #12-#14 AWG	#20	#16	#12	
			14	1		15-15
			8	4		15-97
			21	2		17-99
			26	2		19-28
			29	1		19-30
			37	2		21-39
			48	8		25-4
				12	12	25-24
				23	20	25-43

Contact Legend

#22D • #16 ⊕

#20 ⊖ #12 ⊙

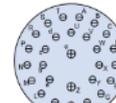
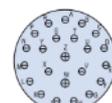


Insert Arrangement	25-24		25-43	
No. of Contacts and Size	12X #12	12X #16	20X #16	23X #20
Service Rating				

Contact Legend

#22D • #16 ⊕

#20 ⊖ #12 ⊙

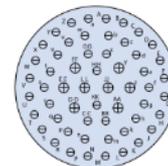
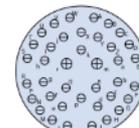
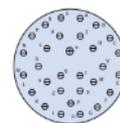


Insert Arrangement	15-15		15-97		17-99		19-28	
No. of Contacts and Size	1X #16	14X #20	4X #16	8X #20	2X #16	21X #20	2X #16	26X #20
Service Rating								

Contact Legend

#22D • #16 ⊕

#20 ⊖ #12 ⊙



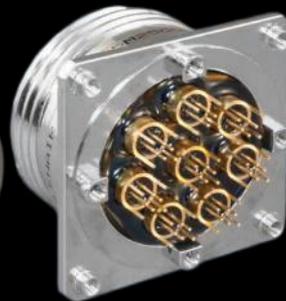
Insert Arrangement	19-30		21-39		25-4	
No. of Contacts and Size	1X #16	29X #20	2X #16	37X #20	8X #16	48X #20
Service Rating						

SuperNine®

High-Speed Datalink Connectors



233-217 SuperNine high-speed
crimp cable plugs and
receptacles



233-218 SuperNine high-speed
PC tail receptacles

Glencair®

Available in 20 keyed size #8 and other insert arrangements

RF, Microwave, and DataLink Contact Selection Guide



Size #8 AS39029 Coaxial

For RG-180 cable. Crimp termination. Snap-in, rear release. Compatible with D38999, SuperNine, and Mighty Mouse connectors with size 8 cavities. dc – 700 MHz.



Size #12 AS39029 Coaxial

For RG-174, RG-179, RG-180 and RG-316 cable. Crimp termination. Snap-in, rear release. Compatible with D38999, SuperNine, Series 79 MicroCrimp and Mighty Mouse connectors with size 12 cavities. dc – 3 GHz.



Size #16 AS39029 Coaxial

For RG-174, RG-178, RG-179 and RG-316 cable. Crimp termination. Snap-in, rear release. Compatible with D38999, SuperNine, Series 79 and Mighty Mouse connectors with size 16 cavities. dc – 500 MHz.



Size #8 50 Ohm Matched-Impedance

For RG-316 and M17/220-0001 cable. Compatible with D38999, SuperNine and Mighty Mouse connectors. Crimp termination. Snap-in, rear-release. 50 ohm impedance. dc – 6 GHz.



Size #12 50 Ohm Matched-Impedance

For RG-178, RG-316, and RG-405 flex cable. Compatible with D38999, SuperNine, Series 79 and Mighty Mouse connectors. Crimp termination. Snap-in, rear-release. 50 ohm impedance. dc – 3 GHz.



Size #8 75 Ohm Matched-Impedance

For RG-179, RS170, SMPTE 292M, SMPTE 424M and other cables. Compatible with D38999, SuperNine and Mighty Mouse connectors. Crimp termination. Snap-in, rear-release. dc – 4 GHz.



Size #12 75 Ohm Matched-Impedance

For high performance RS170, SMPTE 292M and other video cables. Compatible with D38999, SuperNine, Series 79 and Mighty Mouse connectors. Crimp termination. Snap-in, rear-release. dc – 3 GHz.



Size #8 Spring-Loaded BMB 18 GHz

Conform to the MIL-STD-348 BMB interface standard. For RG-402-FLEX and RG-405-FLEX cables. Compatible with D38999, SuperNine and Mighty Mouse connectors. Solder termination. dc – 18 GHz.



Size #12 SMPM Style Spring-Loaded 40 GHz

For RG-405-FLEX cable, compatible with D38999, SuperNine, Series 79 and Series 80 Mighty Mouse connectors. Solder termination. dc – 40 GHz.



Size #8 AS39029 Concentric Twinax

For 77 ohm shielded twisted pair cable. Meet the requirements of M39029/113 and /114. Compatible with D38999, SuperNine and Mighty Mouse connectors. Use with M17/176-00002 databus cable, 10 MHz maximum operating frequency.



Size #8 100 Ohm Concentric Twinax

For 24 AWG 100 ohm shielded twisted pair data cable. Compatible with D38999, SuperNine and Series 80 Mighty Mouse connectors. Accepts TE/Raychem 0024A0024 and Gore GSC-03-81416-00 cables.



Size #12 Concentric Twinax

For 77 ohm shielded twisted pair data cable. Used for MIL-STD-1553 databus applications, Meet the requirements of JN1104, DSCC 02003 and DSCC 02004. For D38999. Snap-in, rear release, crimp termination.



Size #8 100 Ohm Differential Twinax

For 68, 75, 77 and 100 ohm shielded twisted pair cable including M17/176-00002 databus cable. For Mighty Mouse connectors and Glenair 233-217 D38999-type Series III connectors with keyed #8 cavities. dc – 3 GHz



Size #12 100 Ohm Differential Ultra-Twinax

For multi-gigabit data rate applications such as CML, LVDS. Use high-speed #30 AWG twisted pair cable. For Mighty Mouse connectors with size #12 cavities. dc – 10 GHz frequency range. Solder termination.



Size #8 100 Ohm and 150 Ohm Quadrax

100 ohm Ethernet / 150 ohm Fibre Channel. Compatible with Mighty Mouse and Glenair 233-217 D38999-type Series III connectors with keyed #8 inserts. Accept aerospace grade quad cable.



Size #8 El Ochoito®

1000BASE-T and 10GBASE-T capability. #8 snap-in contact with eight inner contacts. Data pair isolation technology reduces crosstalk between pairs. Accepts flight-grade Cat6a cable with #26AWG conductors.

El Ochito[®] High-Density 4-Pair Contact

The 10G Ethernet Size 8 contact with patented data pair isolation technology now for both for AWG#26 and AWG#24

- Market leader for Mil-Aero high-speed Ethernet
- 4 differential contact pairs, 90/100Ohm Impedance
- Patented cross-talk isolation technology
- Snap-in, rear release
- Integrated removal tool
- Repairable contact
- Compatible with most current data protocols



El Ochito[®] Data Protocol Support

Ochito "White"



1000BASE-T, 10GBASE-T

1GbE/10GbE

- Straight upgrade for Quadrax solutions to higher-speed Ethernet applications
- Compliant with ARINC 664

Ochito "Blue"



SuperSpeed USB

USB 3.1 Gen 1

- Low-dielectric material for 90 Ohm impedance on SuperSpeed USB pairs
- 24AWG wire for power pairs
- Fully compliant with USB 3.1 gen. 1 specification

Ochito "Red"



HDMI, Displayport, SATA

HDMI/DisplayPort/SATA

- 100 ±15 Ohm Board-to-cable and cable-to-cable (50ps 10/90 rise time).
- Suitable for high-resolution displays and peripheral drives
- May require additional discrete contacts

SuperNine[®] Quadrax Connector

Industry-standard high-speed datalink solution

- Crimp size #24 contact for 22, 24, and 26 AWG cable
- Field-repairable
- Rugged, durable mating performance
- Accepts broad range of flight-ready 100 Ohm Ethernet Quadrax cable
- Drop-in solution to size #8 cavity inserts

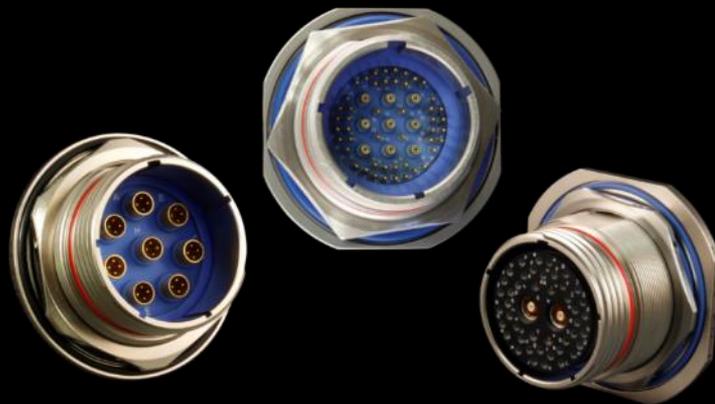


SuperNine[®]

Ruggedized/sealed and hermetic connector designs optimized for shielded high-speed contacts



SuperNine[®] 233-215 piston-sealed transition zone submersible available in Marine Bronze and Stainless Steel

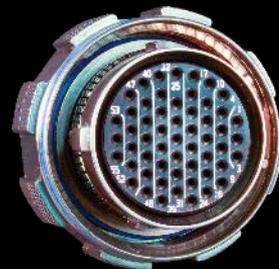
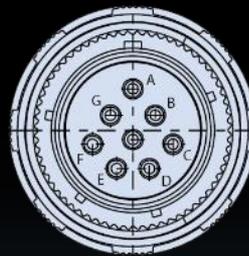
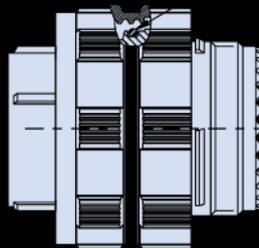


SuperNine[®] hybrid contact arrangement glass-to-metal seal hermetic receptacles and bulkhead feed-throughs

SuperNine[®] Series 233-215

Piston sealed transition zone submersible

- Ideally suited for topside ship and rig applications
- Available with all supported 1560 and HD insert arrangements
- Keyed size #8 inserts support both Quadrax and El Ochito octaxial



*Marine Bronze
or Stainless
Steel*



*Available with
complete range
of 1560 and
high-speed
shield
arrangements*

The Lightweight Hermetic Challenge

CODE RED

Full hermetic sealing (10^{-7}) in a lightweight connector shell package, with low contact resistance AND mission-critical durability

- Glass-to-metal seal furnace temperatures are too high for lightweight aluminum and low-resistance copper contacts
- Conventional epoxy potting lacks sealing strength and mission-critical durability



SuperNine Hermetics

CODE RED

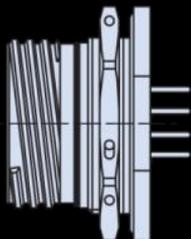
CODE RED Benefits:

- Significant weight savings compared to glass-to-metal sealed hermetics
- Beryllium copper contacts for superior conductivity and ampacity vs Iron Alloy contacts
- Comparable performance to D38999/23
- Open face pressure up to 2 bar (30 psi)
- Available in SuperNine packaging
- Lower Magnetic permeability than GTMS
- Full Qualification report available

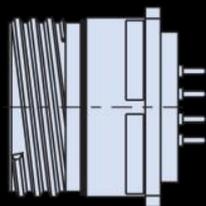




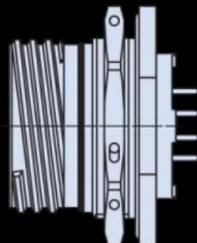
PC Tail Lollapalooza



233-207
Flush
Flange



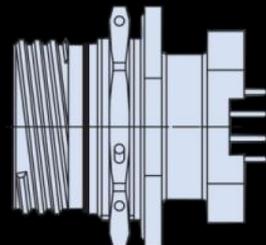
233-208
Stepped
Contact



233-209
Short
Standoff



233-210
Threaded
Standoff



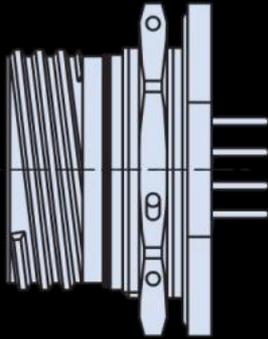
233-211
Dual Flange
Threaded
Standoff



Available in Wall Mount and Jam Nut Versions

SuperNine® Flush Flange 233-207

Ultra low-profile, no standoff or washout

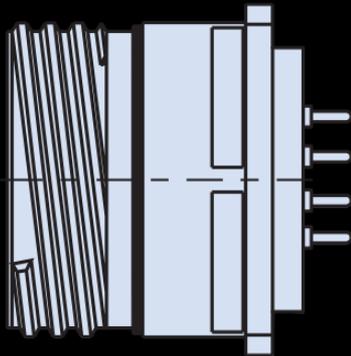


233-207
Flush
Flange

- PCB directly onto the flange
- Least robust option
 - no washout or inspection
- Should only be used when there are severe space restrictions
- Board held in place by solder

SuperNine[®] Step Down Pins 233-208

Ultra low-profile, allows for washout

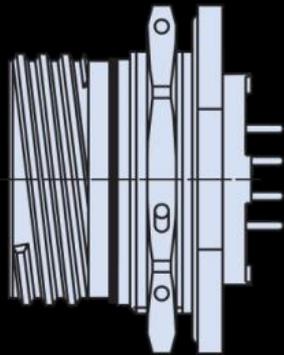


233-208
Stepped
Contact

- Contact step allows for washout, but shell does not provide any additional mechanical function
- Board held in place by solder

SuperNine[®] Short Standoff 233-209

Low profile, reduces mechanical stress to PC tails

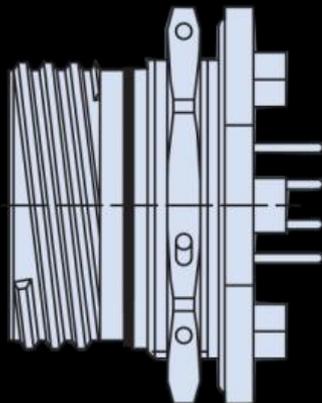


233-209
Short
Standoff

- Minimum intrusion into the box
- PCB rests on connector body, not contact during the soldering process
- Board is held in place by solder

SuperNine[®] Threaded Standoff 233-210

Standard profile with mechanical attachment of shell to board

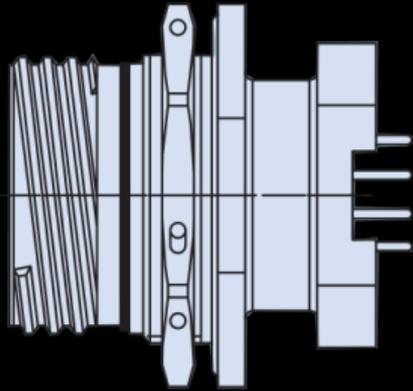


233-210
Threaded
Standoff

- PCB or Flex terminated directly to rear of connector
 - Mechanical stress/strain relief on solder joints
 - Still allows for washout and visual
- Best solution for high vibration environments
- PCB or Flex held in place by screws

SuperNine® Dual Flange 233-211

For optimal mechanical attachment of flange to board in high shock and vibration applications



233-211
Dual
Flange

- Same process mechanical mount as 233-210
- Provides structural support over distance internal to a box
- Best solution for high vibration environments
- PCB or Flex held in place by screws

SuperNine[®] Field RJ45 Solutions

The Only RJ-45 38999 with advanced sealing and grounding



Connector/Adapter with RJ45 Jack/Jack or Plug/Jack Couplers



Connector with RJ45 Jack or Plug to Rear Crimp Contact Termination



Connector with RJ45 Jack to PC Tail Termination



Connector with RJ45 Jack to Rear Solder Cup Termination



Connector with Pin or Socket Contacts to RJ45 Jack or Plug Interface



Connector with Pin or Socket Quadrax to RJ45 Jack or Plug



Feed-Thru Receptacle with RJ45 Jack-to-Jack Coupler



SuperNine[®] Field USB Solutions

Now available USB 3.0 SuperSpeed with advanced sealing



Connector with USB Type A or B Plug-to-Receptacle
or Receptacle-to-Receptacle Coupler



Connector with USB Type A or B Receptacle
to Crimp Contacts



Receptacle with USB Type A or B
Receptacles to PC Tail Termination



Receptacle with USB Type A or B Receptacles
to Solder Cup Termination



Connector with Pin or Socket Contacts
to USB Type A or B Receptacles

SuperNine™ PWM

High voltage, high temperature, MIL-DTL-38999 Series III type

- Aerospace-grade connectors for PWM and other high-voltage, high temperature applications
- IAW EN3645-001:23
- 1500 VDC RMS/VDC working voltage
- -65° to + 200° C range
- High vibration / anti-decoupling performance
- Heavy gold-plated size #8 power crimp contacts



SuperNine[®] Assisted Separation Force Blind-Mate, Rack-and-Panel Circulars

- Blind mates used to disconnect structures
- Can be on a rack-and-panel setup
- Assisted kickoff is critical feature
 1. Fixed
 2. Adjustable
- Fully space qualified with flight heritage



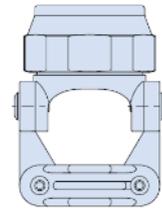
SuperNine Accessories

Including versatile **Swing-Arm** drop-in follower equipped strain reliefs

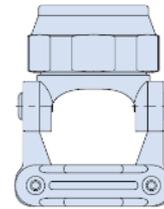


- Option A – Standard mouth, saddle bar strain relief
- Option B – Wide mouth (for larger cable diameters), saddle bar strain relief
- Option C – Swing-Arm FLEX

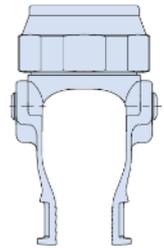
Strain Relief Option "A"
Standard Mouth Saddle Bars



Strain Relief Option "B"
Wide Mouth Saddle Bars



Strain Relief Option "C"
Swing-Arm FLEX



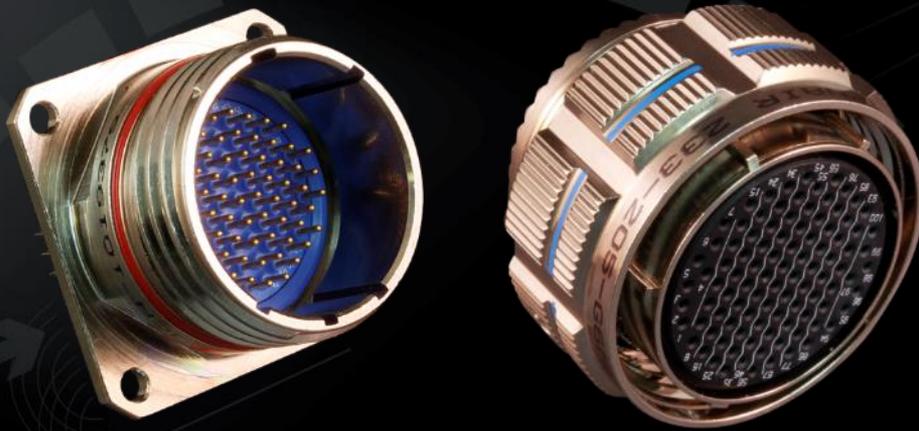


Made in America with superior availability compared to low-cost manufacturing zone solutions

- Fast turnaround on quotes and orders
- In-stock inventory
- No minimums
- Liberal NRE policy
- Free samples
- Advanced technology
- Easy-to-order catalog solution



The widest range of
mission-critical interconnect
technologies in the world



 SuperNine®

"Better than QPL" advanced-performance
D38999 Series III type connectors