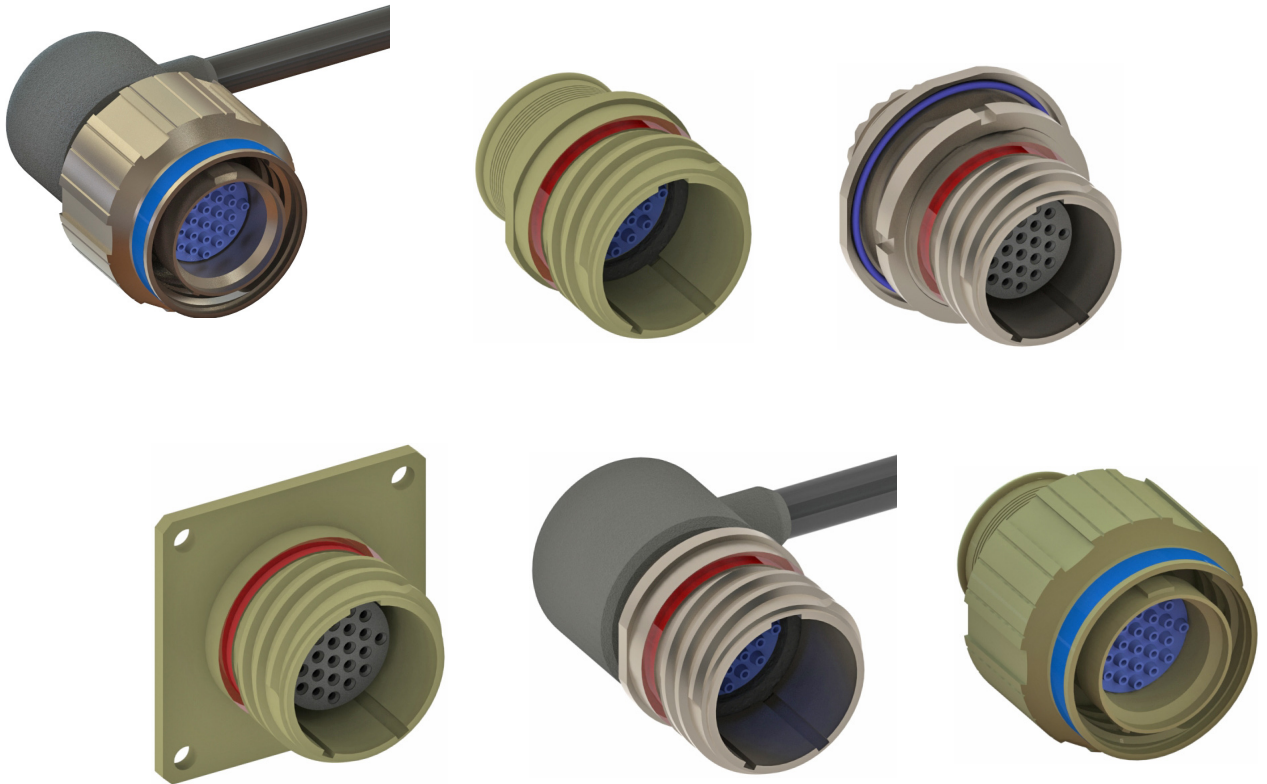


Latest-generation solutions for harsh-environment applications ranging from C4ISR to space flight

Micro-military circular connectors and cable assemblies



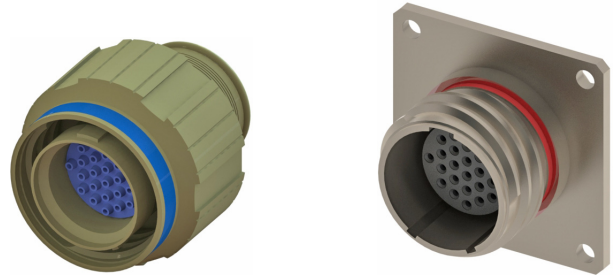
EATON

Powering Business Worldwide

Micro-military circular connectors

Eaton's micro-military circular connectors incorporate latest-generation designs that deliver uncompromised performance in harsh environment applications ranging from C4ISR to space flight. Additional features include:

- Significantly smaller sizes, lower weights, and higher contact densities than MIL-DTL-38999 connectors.
- Coupling mechanisms that stay engaged in high shock and vibration environments and redundant insert retention.
- A comprehensive range of solutions; dual start: shell sizes 6 – 10 and triple start: shell sizes 8 – 12.
- Mating compatibility with micro-miniature connectors from other manufacturers.



Micro-Military Circular Connectors Overview

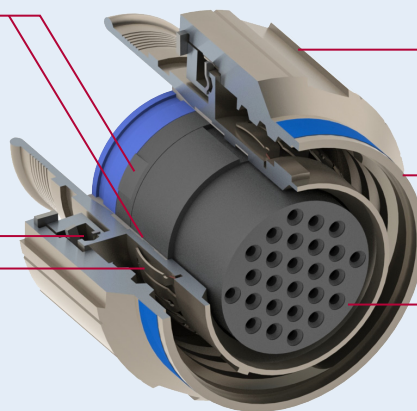
Solutions	M1 Series (Dual Start)	M5 Series (Triple Start)
Coupling Threads	ACME Threads	ACME Threads
Coupling Mechanisms	All Products Feature Ruggedized, Anti-Decoupling Ratchet Mechanisms	
Mating	1.5 Turns to Full Mate	1 Turn to Full Mate
Shell Sizes	6,7,9, & 10	8,9,11, & 12
Contact Configurations	#23 AWG: 7 – 26 Contacts per Connector, #16 AWG: 1 – 4 Contacts per Connector Contacts Meet MIL-C-39029 and Utilize Crimped Terminations	
Custom Capabilities	Application-Specific Inserts, Materials, Platings, Cable Assemblies, and Space-Rated Solutions	

Latest generation designs deliver uncompromised performance in mission-critical applications

Extremely robust, insert-retention design includes epoxy bonds and redundant mechanical retainers

Anti-decoupling ratcheting mechanisms maintain engagement in high shock and vibration environments

360° grounding fingers (M5 plugs) provide 85 dB EMI protection from 100MHz to 1000MHz



Finish options include cadmium/olive drab rated to survive 500 hours of salt spray and RoHS compliant, electroless nickel

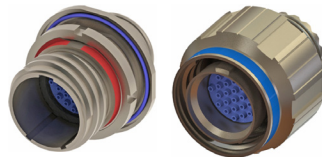
Application specific performance modifications include compliance to NASA low volatile condensable materials per ASTM E595

High-contact-density designs provide significant weight and size savings compared to MIL-DTL-38999 connectors.

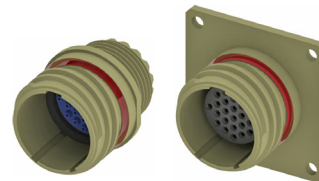
General Specifications

Materials and Finishes	Shell and Coupling Ring	6061 Aluminum
	Contacts	Copper Alloy, Gold Plated
	Inserts	LPS (Liquid Crystal Polymer) 30% Glass Filled
	Grommet and Seal	Fluorosilicone
	Contact Retaining Springs	Beryllium Copper
Electrical	Dielectric Withstand Voltage (DWV)	23 AWG Contact Inserts: 500 VAC 16 AWG Contact Inserts: 1800 VAC
	Insulation Resistance (IR)	5000 Megaohms Minimum
	Contact Current Ratings	#23 Contacts – 5 Amps, #16 Contacts – 13 Amps
	EMI/RFI Shielding	M1 Series: 55 dB Minimum from 100MHz to 1000MHz M5 Series: 85 dB Minimum from 100MHz to 1000MHz
Mechanical and Environmental	Contact Retention	#23 Contacts: 15 pounds, #16 Contacts: 25 pounds
	Shock and Vibration	300 g's Shock, 37 g's Random Vibration
	Insert Retention	Epoxy Bonds and Redundant Mechanical Retainers
	Water Immersion	MIL-STD-810, Method 512, One Meter Immersion for One Hour
	Mate/Unmate Durability	M1 Series: 2000 Cycles, M5 Series: 500 Cycles

Finish Classes



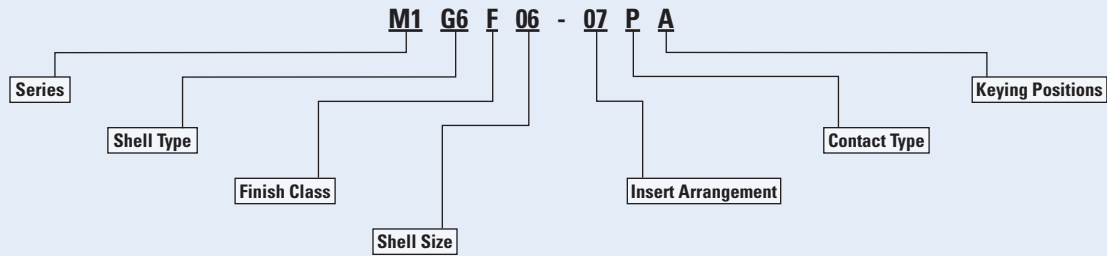
Class F



Class W

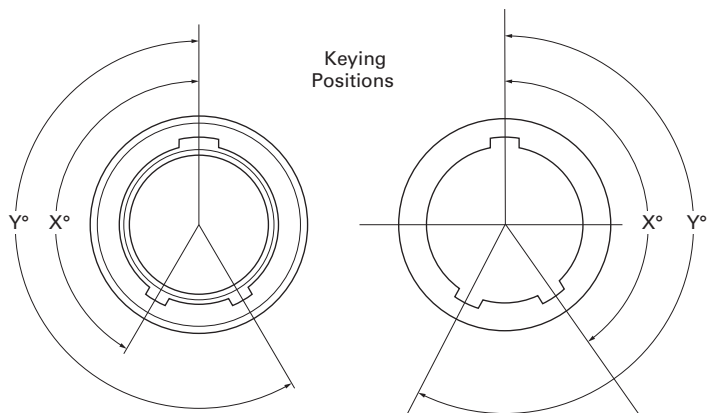
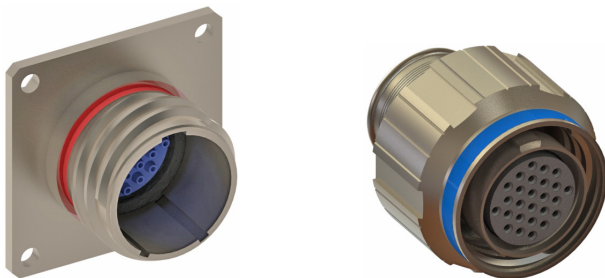
Plating Type	Electroless Nickel	Cadmium/Olive Drab
Compliances	ASTM B733 & RoHS	QQ-P-416
Operating Temperatures	-65°C to 200°C (-85°F to 392°F)	-65°C to 175°C (-85°F to 347°F)
Corrosion Resistance	Withstands 48 Hours Salt Spray	Withstands 500 Hours Salt Spray
Shell-to-Shell Conductivity	1.0 Millivolt Maximum Drop	2.5 Millivolts Maximum Drop

Micro-military connector ordering information



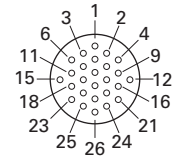
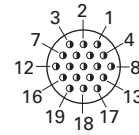
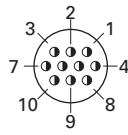
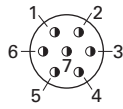
Type/Designation	Description
Series	M1 Double Start ACME Threads
	M5 Triple Start ACME Threads
	06 M1 In-Line Plug, Accessory Thread (no EMI)
	16 M1 In-Line Plug, Banding Platform (no EMI)
	G6 M5 In-Line Plug, Accessory Thread (EMI)
Shell Type	H6 M5 In-Line Plug, Banding Platform (EMI)
	00 Square-Flange Receptacle, Accessory Thread
	10 Square-Flange Receptacle, Banding Platform
	03 In-Line Receptacle, Accessory Thread
	13 In-Line Receptacle, Banding Platform
	07 Jam-Nut Receptacle, Accessory Thread
17 Jam-Nut Receptacle, Banding Platform	
Finish Classes	F Electroless Nickel per ASTM B733
	W CAD/OD per QQ P-416

Type/Designation	Description
P	Pin
S	Socket
Contact Type	A Pin compatible insert shipped without contacts
	B Socket compatible insert shipped without contacts
	X° Y° Notes
Keying Positions	A 150° 210° Normal
	B 75° 210°
	C 95° 230°
	D 140° 275°
	E 75° 275° M1 Series Only
	F 95° 210°



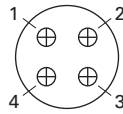
Contact Eaton to discuss application specific finish classes, including space-rated solutions.

23AWG Contact
Insert Arrangements

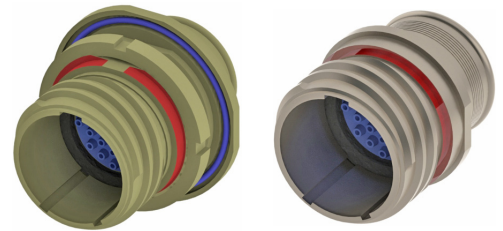


M1 Series Shell - Insert #	06-07	07-10	09-19	10-26
M5 Series Shell - Insert #	08-07	09-10	11-19	12-26
Number of Contacts	7	10	19	26
Current Rating per Contact	5 Amps	5 Amps	5 Amps	5 Amps

16AWG Contact
Insert Arrangements



M1 Series Shell - Insert #	06-01	09-04
M5 Series Shell - Insert #	08-01	11-04
Number of Contacts	1	4
Current Rating per Contact	13 Amps	13 Amps



Contact Eaton to discuss quick turn, application specific contacts and insert arrangements.



End-to-End Connectivity Solutions Include Custom Cable Assemblies

Cable assembly and wiring harness design and manufacturing capabilities include: overmolded; RF coaxial; flat ribbon; fiber optic; and voice, data, and hybrid communications.

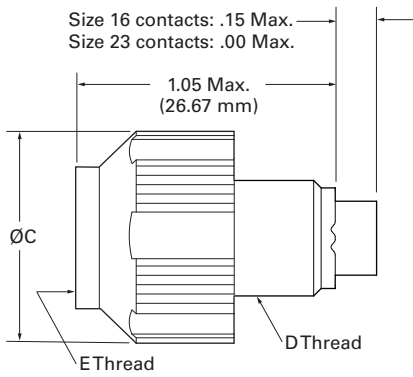
Our engineers are experts at providing protection against harsh-environmental conditions including:

- Extreme high and low temperatures
- Shock and vibration
- Radiation
- Corrosive contaminants
- EMI and RFI
- Vacuum and pressures to 20,000 PSI

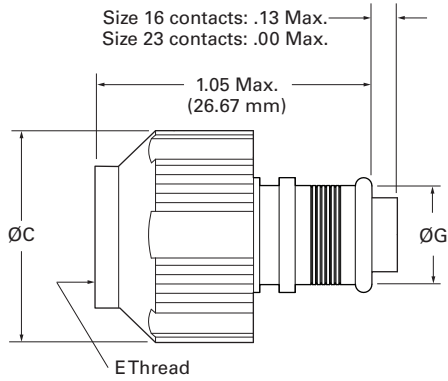
In addition to turnkey design and manufacturing for new projects, quick-turn capabilities include shielded; build-to-print services for production-ready designs.

In-line plug mechanical drawings

M1 Series



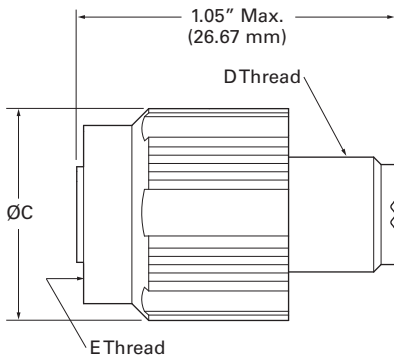
Models with rear accessory threads



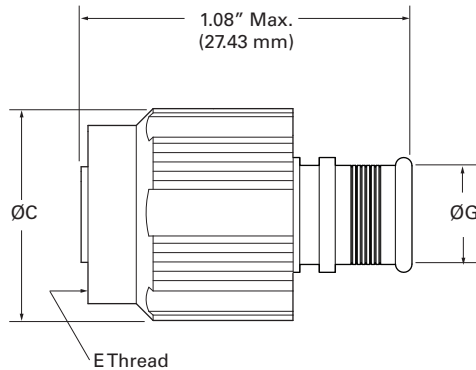
Models with banded platforms

Shell size	Ø C	DThread	EThread	ØG
6	0.690	.3750-32 UNEF-2A	.3750-.05P-.1L-2B	0.320
7	0.775	.4375-28 UNEF-2A	.4375-.05P-.1L-2B	0.380
9	0.910	.5625-24 UNEF-2A	.5625-.05P-.1L-2B	0.498
10	0.995	.6250-24 UNEF-2A	.6250-.05P-.1L-2B	0.584

M5 Series



Models with rear accessory threads

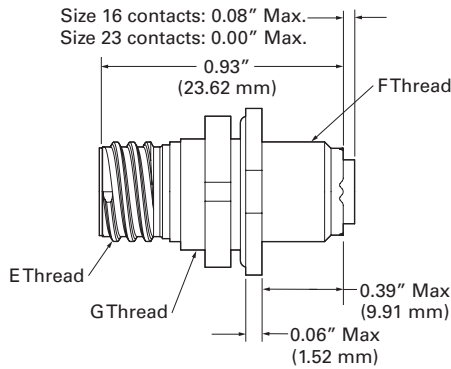


Models with banded platforms

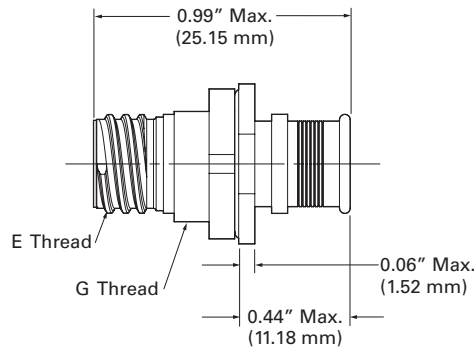
Shell size	Ø C	DThread	EThread	ØG
8	0.691	.3750-32 UNEF-2A	.5000-.1P-.3L-2B	0.320
9	0.787	.4375-28 UNEF-2A	.5625-.1P-.3L-2B	0.379
11	0.916	.5625-24 UNEF-2A	.6875-.1P-.3L-2B	0.497
12	0.995	.6250-24 UNEF-2A	.7500-.1P-.3L-2B	0.585

Jam-nut receptacle mechanical drawings

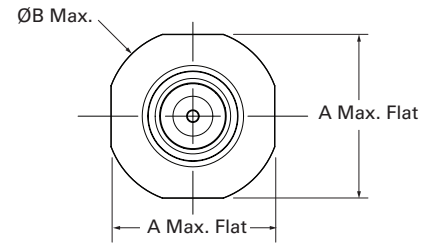
M1 Series



Models with rear accessory threads

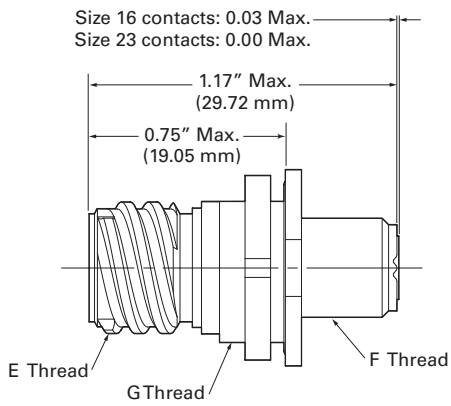


Models with banded platforms

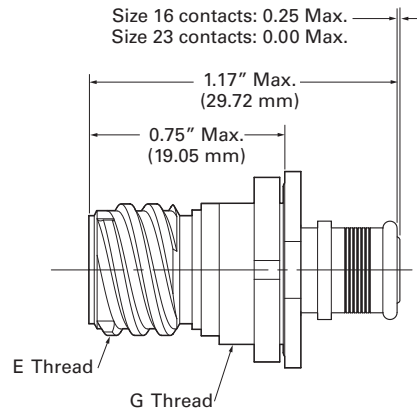


Shell size	A	B	E Thread	F Thread	G Thread
6	0.620	0.660	.3750-.05P-.1L-2B	.3750-32 UNEF-2A	.4375-28 UNEF-2A
7	0.748	0.780	.4375-.05P-.1L-2B	.4375-28 UNEF-2A	.5625-28 UN-2A
9	0.815	0.855	.5625-.05P-.1L-2B	.5625-24 UNEF-2A	.6250-28 UN-2A
10	0.880	0.915	.6250-.05P-.1L-2B	.6250-24 UNEF-2A	.6875-28 UN-2A

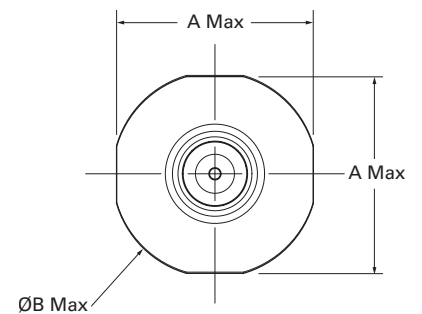
M5 Series



Models with rear accessory threads



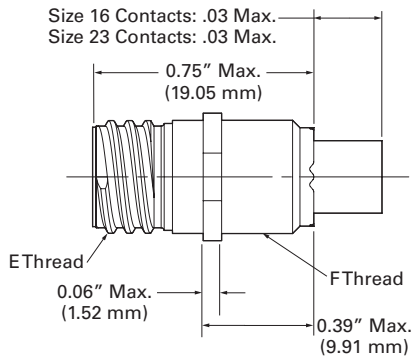
Models with banded platforms



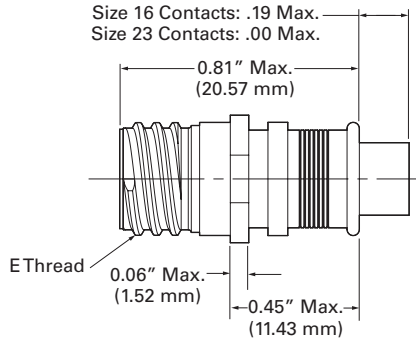
Shell size	A	B	E Thread	F Thread	G Thread
8	0.755	0.785	.5000-.1P-.3L-2A	.3750-32 UNEF-2A	.5625-28 UN-2A
9	0.875	0.905	.5625-.1P-.3L-2A	.4375-28 UNEF-2A	.6875-28 UN-2A
11	0.950	0.980	.6875-.1P-.3L-2A	.5625-24 UNEF-2A	.7500-28 UN-2A
12	1.060	1.085	.7500-.1P-.3L-2A	.6250-24 UNEF-2A	.8125-28 UN-2A

In-line receptacle mechanical drawings

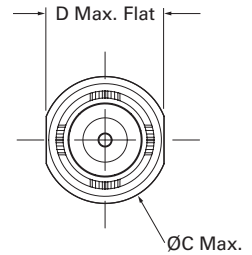
M1 Series



Models with rear accessory threads

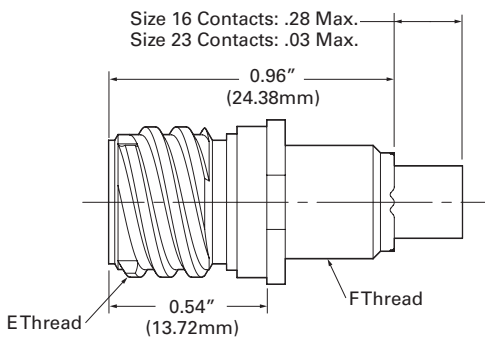


Models with banded platforms

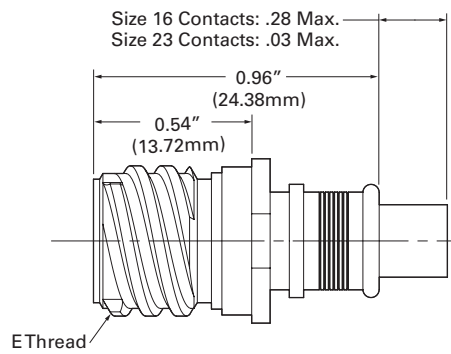


Shell size	C	D	EThread	FThread
6	0.430	0.410	.3750-.05P-.1L-2A	.3750-32 UNEF-2A
7	0.505	0.470	.4375-.05P-.1L-2A	.4375-28 UNEF-2A
9	0.630	0.600	.5625-.05P-.1L-2A	.5625-24 UNEF-2A
10	0.690	0.660	.6250-.05P-.1L-2A	.6250-24 UNEF-2A

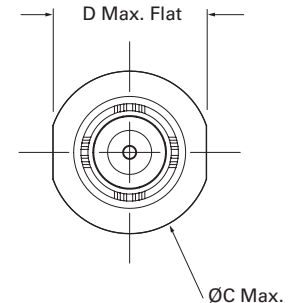
M5 Series



Models with rear accessory threads



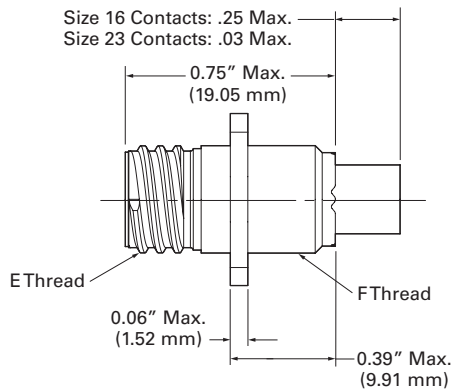
Models with banded platforms



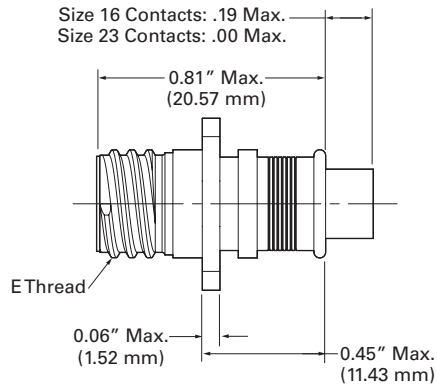
Shell size	C	D	EThread	FThread
8	0.560	0.530	.5000-.1P-.3L-2A	.3750-32 UNEF-2A
9	0.635	0.595	.5625-.1P-.3L-2A	.4375-28 UNEF-2A
11	0.760	0.720	.6875-.1P-.3L-2A	.5625-24 UNEF-2A
12	0.823	0.783	.7500-.1P-.3L-2A	.6250-24 UNEF-2A

Square-flange receptacle mechanical drawings

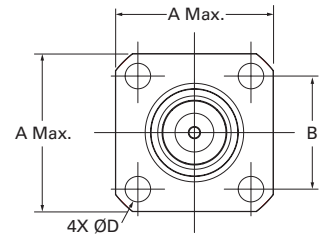
M1 Series



Models with rear accessory threads

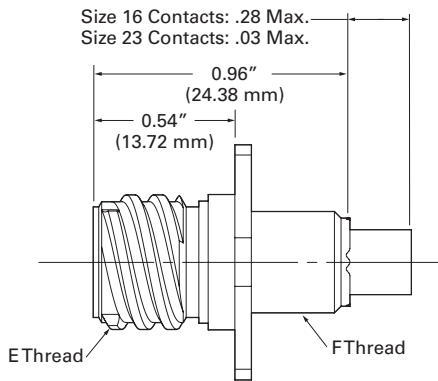


Models with banded platforms

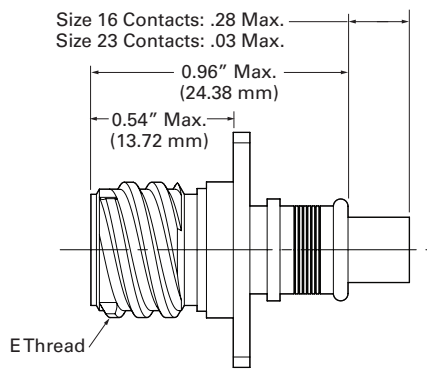


Shell size	A	B	D	EThread	FThread
6	0.615	0.423	0.093	.3750-.05P-.1L-2A	.3750-32 UNEF-2A
7	0.675	0.483	0.093	.4375-.05P-.1L-2A	.4375-28 UNEF-2A
9	0.875	0.607	0.128	.5625-.05P-.1L-2A	.5625-24 UNEF-2A
10	0.915	0.670	0.128	.6250-.05P-.1L-2A	.6250-24 UNEF-2A

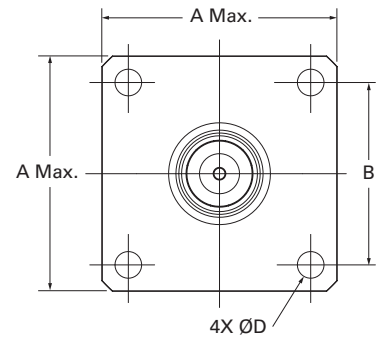
M5 Series



Models with rear accessory threads



Models with banded platforms



Shell size	A	B	D	EThread	FThread
8	0.875	0.660	0.094	.5000-.1P-.3L-2A	.3750-32 UNEF-2A
9	0.938	0.723	0.094	.5625-.1P-.3L-2A	.4375-28 UNEF-2A
11	1.064	0.838	0.094	.6875-.1P-.3L-2A	.5625-24 UNEF-2A
12	1.124	0.909	0.094	.7500-.1P-.3L-2A	.6250-24 UNEF-2A



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