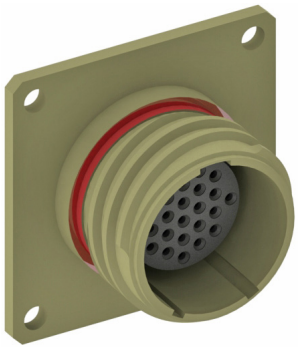
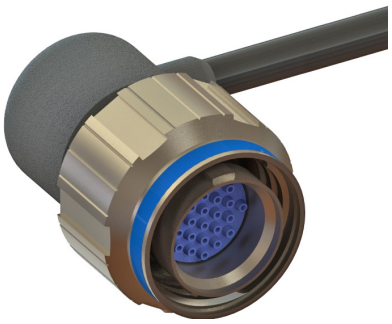
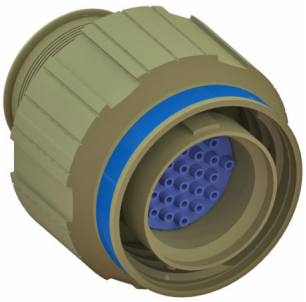
Latest-generation solutions for harsh-environment applications ranging from C4ISR to space flight

Micro-military circular connectors and cable assemblies







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.
- Meets MIL - DTL - 38999 performance and environmental requirements; qualification test data available upon request.

Micro-Military Circular Connectors Overview

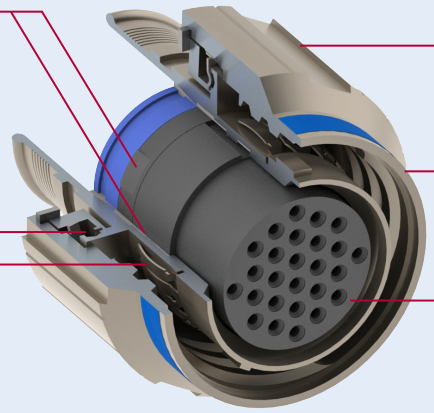
Solutions	M1 Connectors	M5 Connectors
Coupling threads	Dual-start ACME threads	Triple-start ACME threads
Coupling mechanisms	All products feature ruggedized, anti-decoupling ratchet mechanisms	
Mating	1.5 Turns to full mate	1 Turn to full mate
Shell sizes	6, 7, 9, & 10	8, 9, 11, & 12
Contact configurations	#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	
Backshells	Moisture proof, EMI/RFI shielded, and shrink-boot-compatible configurations	

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



500-hour salt spray rated and RoHS compliant finish options.

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.

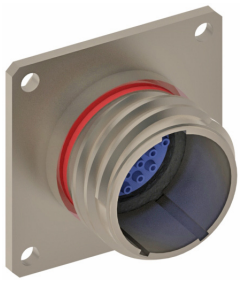
Finish classes and general specifications

Finish Classes

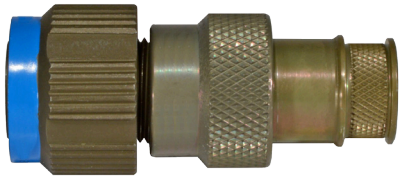
	Class CB	Class F	Class W	Class ZB	Class KP
Shell and coupling ring material	6061 Al	6061 Al	6061 Al	6061 Al	Stainless steel
Shell and coupling ring plating	Black anodize per MIL-A-8625	Electroless nickel per ATSM 8733	CAD/OD per QQ-P-416	Zinc nickel black chromate	Passivated per SAE-AMS-QQ-P-35
Operating temperatures	-65°C to 200°C (-85°F to 392°F)	-65°C to 200°C (-85°F to 392°F)	-65°C to 175°C (-85°F to 347°F)	-65°C to 175°C (-85°F to 347°F)	-65°C to 200°C (-85°F to 392°F)
Corrosion resistance	Withstands 500 hours salt spray	Withstands 48 hours salt spray	Withstands 500 hours salt spray	Withstands 500 hours salt spray	Withstands 500 hours salt spray
Shell-to-shell conductivity	Non-conductive	1.0 Millivolt maximum drop	2.5 Millivolts maximum drop	2.5 Millivolts maximum drop	10 Millivolts maximum drop

General Specifications

Materials	Crimped contacts	Copper alloy, gold plated
	Inserts	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	5000 Megaohms minimum
	Contact current ratings	#23 Contacts – 5 amps, #16 contacts – 13 amps
Mechanical and environmental	Contact retention	#23 Contacts: 10 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
	Mate/unmate durability	500 Cycles minimum



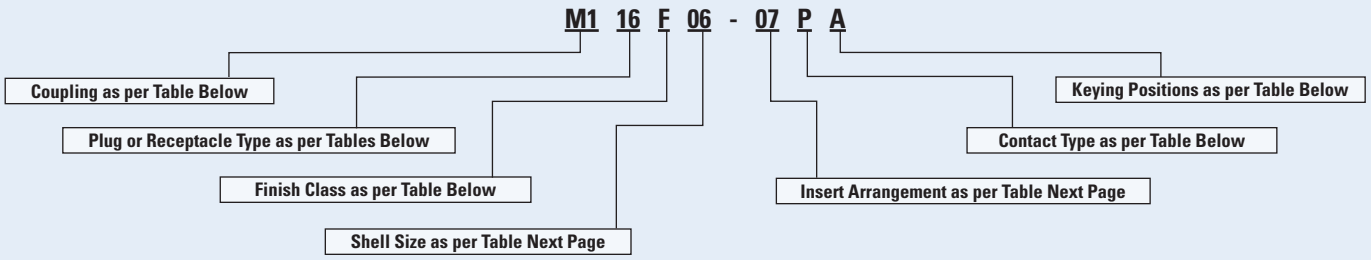
Contact Eaton to discuss application specific finish classes, including space-rated solutions.



Backshells are available in moisture proof, EMI/RFI shielded, and shrink-boot-compatible configurations.

Part number configuration

Micro-Military Connector Ordering Information



Coupling	Description
M1	Double start ACME threads
M5	Triple start ACME threads

Plug Types	Mounting	Coupling	Backshell
06	In-line	M1	Accessory thread
16	In-line	M1	Banding platform
G6*	In-line	M5	Accessory thread
H6*	In-line	M5	Banding platform

*Provides 360-degree EMI/RFI protection except for finish class CB

Receptacle Types	Mounting	Coupling	Backshell
00	Square flange*	M1 & M5	Accessory thread
10	Square flange*	M1 & M5	Banding platform
03	In-line	M1 & M5	Accessory thread
13	In-line	M1 & M5	Banding platform
07	Jam nut	M1 & M5	Accessory thread
17	Jam nut	M1 & M5	Banding platform

*Utilizes four non-threaded, through holes for mounting

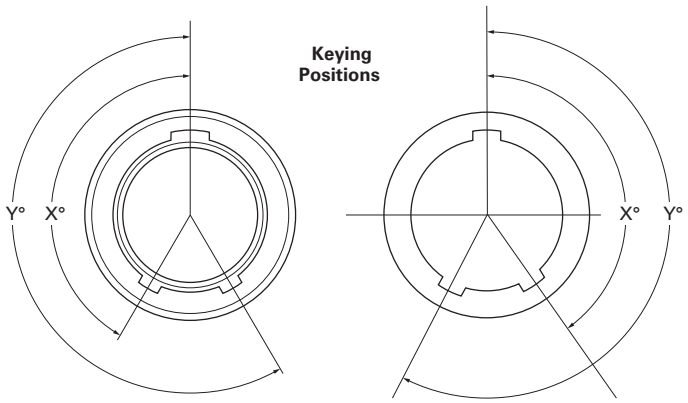
Finish Classes	Shell Material	Description
CB	Aluminum	Black anodize per MIL-A-8625*
F	Aluminum	Electroless nickel per ASTM B733*
W	Aluminum	CAD/OD per QQ-P-416
ZB	Aluminum	Zinc nickel, black chromate as per ASTM B841*
KP	Stainless steel	Passivated per QQ-P-35*

*RoHS compliant finishes

Contact Type	Description
P	Pin, crimp
S	Socket, crimp
A	Pin compatible insert shipped without contacts
B	Socket compatible insert shipped without contacts

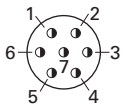
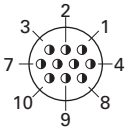
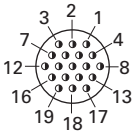
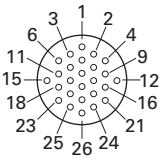
Keying Designations	X°	Y°
A*	150	210
B	75	210
C	95	230
D	140	275
E	75	275
F	95	210

*Normal

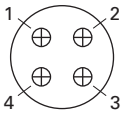


Contact arrangements

23 AWG Contact Arrangements

				
M1 products shell - Insert #	06-07	07-10	09-19	10-26
M5 products 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

16 AWG Contact Arrangements

		
M1 products shell - insert #	06-01	09-04
M5 products shell - insert #	08-01	11-04
Number of contacts	1	4
Current rating per contact	13 Amps	13 Amps

Contact Eaton for updates describing new shells and inserts

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 power configurations.

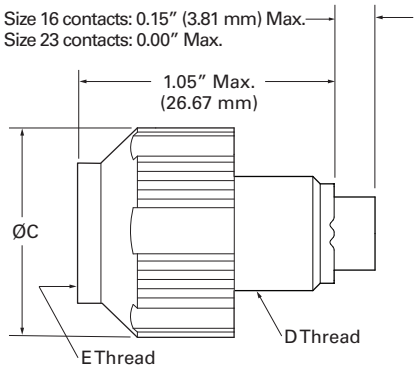
Our engineers are experts at providing protection against harsh-environmental conditions including:

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

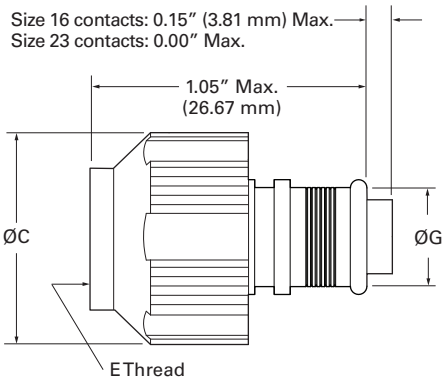
In addition to turnkey design and manufacturing for new projects, quick-turn capabilities include build-to-print services for production-ready designs.

In-line plug mechanical drawings

M1 Plugs



Models with Rear Accessory Threads

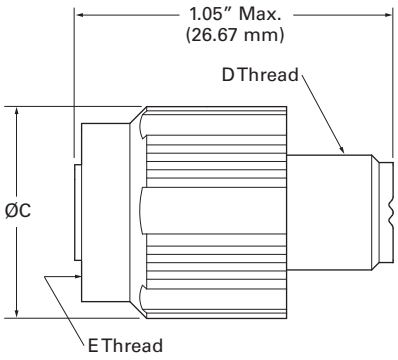


Models with Banded Platforms

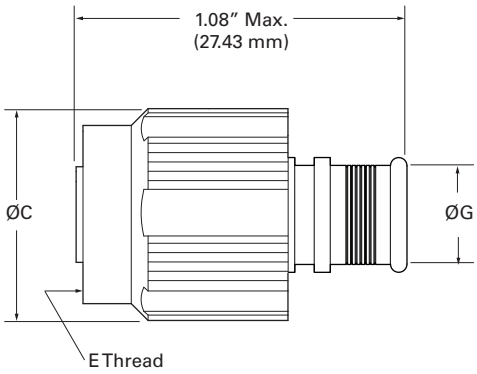
Shell Size	Ø C	D Thread	E Thread	ØG
06	0.69 (17.53)	.3750-32 UNEF-2A	.3750-.05P-.1L-2B	0.29 (7.37)
07	0.78 (19.81)	.4375-28 UNEF-2A	.4375-.05P-.1L-2B	0.39 (9.91)
09	0.91 (23.11)	.5625-24 UNEF-2A	.5625-.05P-.1L-2B	0.50 (12.70)
10	1.00 (25.4)	.6250-24 UNEF-2A	.6250-.05P-.1L-2B	0.56 (14.22)

Dimensions are stated as inches (mm).

M5 Plugs



Models with Rear Accessory Threads



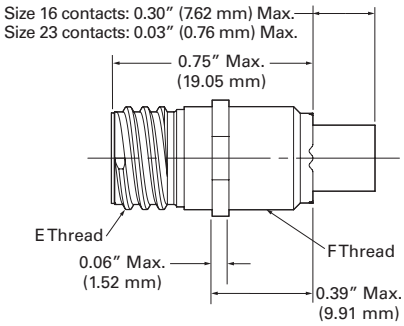
Models with Banded Platforms

Shell Size	Ø C	D Thread	E Thread	ØG
08	0.69 (17.53)	.3750-32 UNEF-2A	.5000-.1P-.3L-2B	0.32 (8.13)
09	0.79 (20.07)	.4375-28 UNEF-2A	.5625-.1P-.3L-2B	0.40 (10.16)
11	0.92 (23.37)	.5625-24 UNEF-2A	.6875-.1P-.3L-2B	0.52 (13.21)
12	1.00 (25.4)	.6250-24 UNEF-2A	.7500-.1P-.3L-2B	0.59 (15.00)

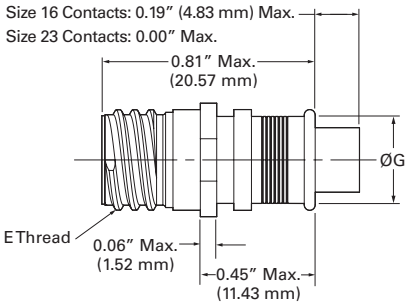
Dimensions are stated as inches (mm).

In-line receptacle mechanical drawings

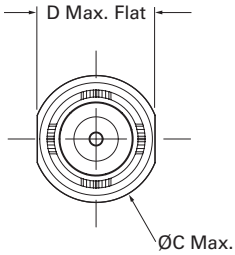
M1 Receptacles



Models with Rear Accessory Threads



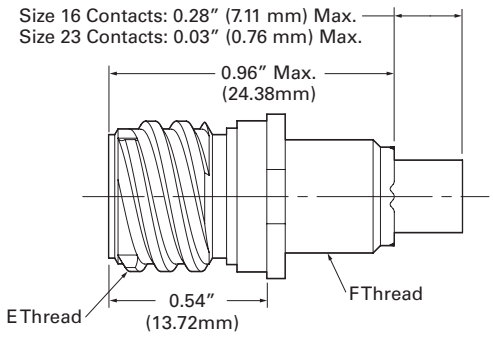
Models with Banded Platforms



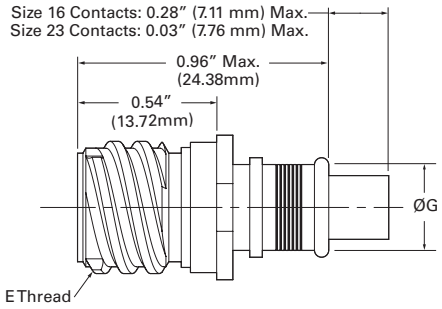
Shell Size	C	D	E Thread	F Thread	ØG
06	0.43 (10.92)	0.41 (10.41)	.3750-.05P-.1L-2A	.3750-32 UNEF-2A	0.29 (7.37)
07	0.51 (12.95)	0.47 (11.94)	.4375-.05P-.1L-2A	.4375-28 UNEF-2A	0.39 (9.91)
09	0.63 (16.00)	0.60 (15.24)	.5625-.05P-.1L-2A	.5625-24 UNEF-2A	0.50 (12.70)
10	0.69 (17.53)	0.66 (16.76)	.6250-.05P-.1L-2A	.6250-24 UNEF-2A	0.56 (14.22)

Dimensions are stated as inches (mm).

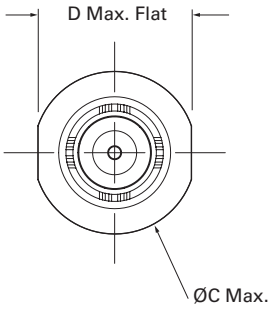
M5 Receptacles



Models with Rear Accessory Threads



Models with Banded Platforms

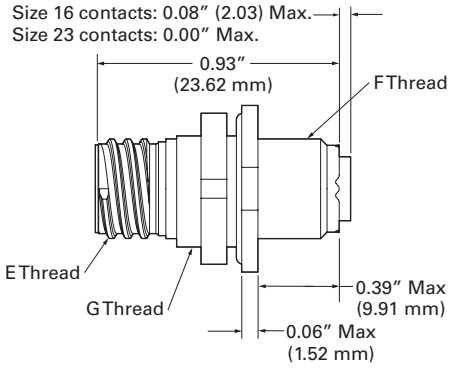


Shell Size	C	D	E Thread	F Thread	ØG
08	0.56 (14.22)	0.53 (13.46)	.5000-.1P-.3L-2A	.3750-32 UNEF-2A	0.32 (8.13)
09	0.64 (16.26)	0.60 (15.24)	.5625-.1P-.3L-2A	.4375-28 UNEF-2A	0.40 (10.16)
11	0.76 (19.30)	0.72 (18.29)	.6875-.1P-.3L-2A	.5625-24 UNEF-2A	0.52 (13.21)
12	0.82 (20.83)	0.78 (19.81)	.7500-.1P-.3L-2A	.6250-24 UNEF-2A	0.59 (15.00)

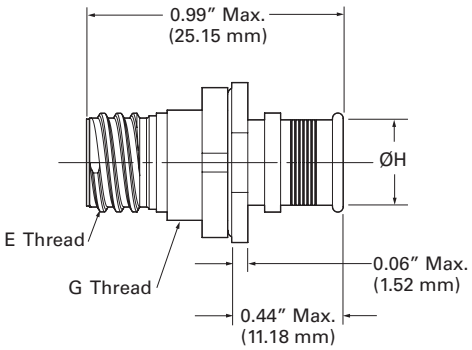
Dimensions are stated as inches (mm).

Jam-nut receptacle mechanical drawings

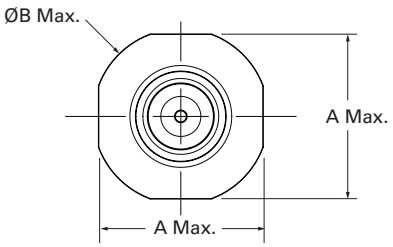
M1 Receptacles



Models with Rear Accessory Threads



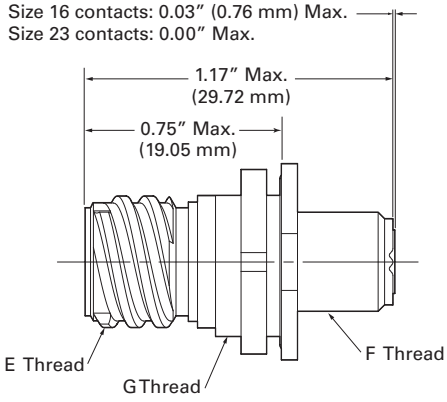
Models with Banded Platforms



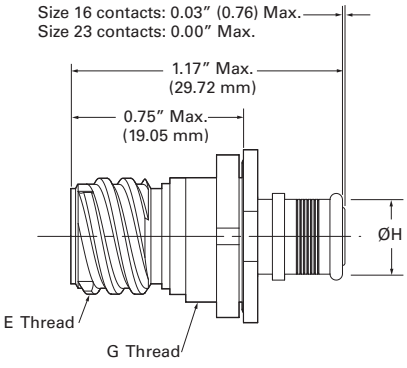
Shell Size	A	B	E Thread	F Thread	G Thread	ØH
06	0.63 (16.00)	0.66 (16.76)	.3750-.05P-.1L-2A	.3750-32 UNEF-2A	.4375-28 UNEF-2A	0.29 (7.37)
07	0.75 (19.05)	0.78 (19.81)	.4375-.05P-.1L-2A	.4375-28 UNEF-2A	.5625-32 UN-2A	0.39 (9.91)
09	0.82 (20.83)	0.86 (21.84)	.5625-.05P-.1L-2A	.5625-24 UNEF-2A	.6250-28 UN-2A	0.50 (12.70)
10	0.88 (22.35)	0.92 (23.37)	.6250-.05P-.1L-2A	.6250-24 UNEF-2A	.6875-28 UN-2A	0.56 (14.22)

Dimensions are stated as inches (mm).

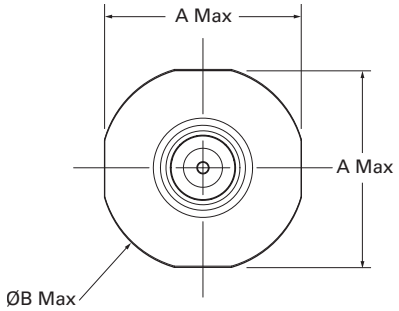
M5 Receptacles



Models with Rear Accessory Threads



Models with Banded Platforms

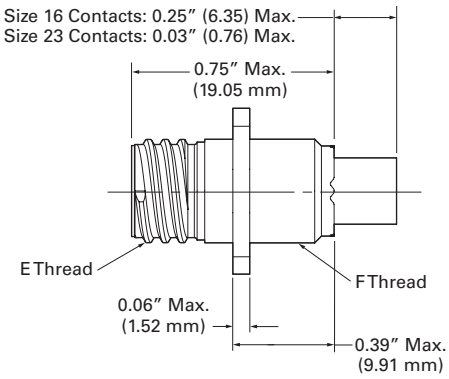


Shell Size	A	B	E Thread	F Thread	G Thread	ØH
08	0.76 (19.30)	0.79 (20.07)	.5000-.1P-.3L-2A	.3750-32 UNEF-2A	.5625-28 UN-2A	0.32 (8.13)
09	0.88 (22.35)	0.91 (23.11)	.5625-.1P-.3L-2A	.4375-28 UNEF-2A	.6875-28 UN-2A	0.40 (10.16)
11	0.95 (24.13)	0.98 (24.89)	.6875-.1P-.3L-2A	.5625-24 UNEF-2A	.7500-28 UN-2A	0.52 (13.21)
12	1.06 (26.92)	1.09 (27.69)	.7500-.1P-.3L-2A	.6250-24 UNEF-2A	.8125-28 UN-2A	0.59 (15.00)

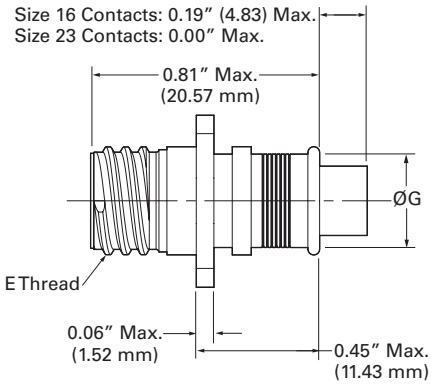
Dimensions are stated as inches (mm).

Square-flange receptacle mechanical drawings

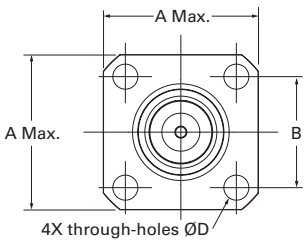
M1 Receptacles



Models with Rear Accessory Threads



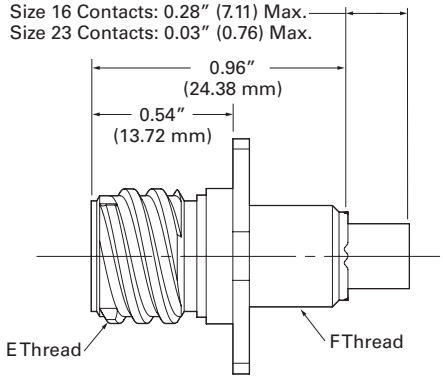
Models with Banded Platforms



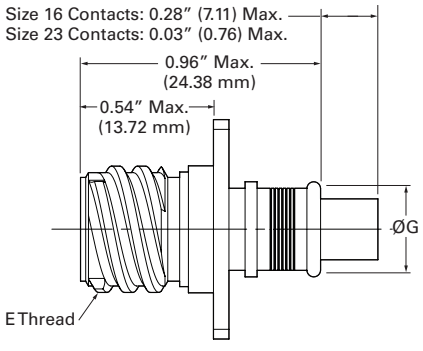
Shell Size	A	B	D	E Thread	F Thread	ØG
06	0.62 (15.75)	0.42 (10.67)	0.09 (2.29)	.3750-.05P-.1L-2A	.3750-32 UNEF-2A	0.29 (7.37)
07	0.68 (17.27)	0.48 (12.19)	0.09 (2.29)	.4375-.05P-.1L-2A	.4375-28 UNEF-2A	0.39 (9.91)
09	0.88 (22.35)	0.61 (15.49)	0.13 (3.30)	.5625-.05P-.1L-2A	.5625-24 UNEF-2A	0.50 (12.70)
10	0.92 (23.37)	0.67 (17.02)	0.13 (3.30)	.6250-.05P-.1L-2A	.6250-24 UNEF-2A	0.56 (14.22)

Dimensions are stated as inches (mm).

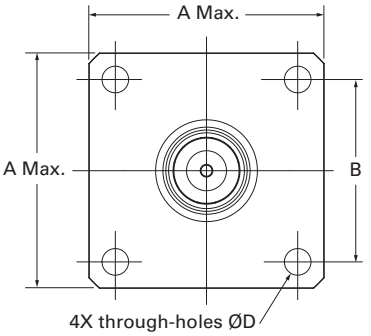
M5 Receptacles



Models with Rear Accessory Threads



Models with Banded Platforms



Shell Size	A	B	D	E Thread	F Thread	ØG
08	0.88 (20.32)	0.66 (16.76)	0.09 (2.29)	.5000-.1P-.3L-2A	.3750-32 UNEF-2A	0.32 (8.13)
09	0.94 (23.88	0.72 (18.29)	0.09 (2.29)	.5625-.1P-.3L-2A	.4375-28 UNEF-2A	0.40 (10.16)
11	1.06 (26.92)	0.84 (21.34)	0.09 (2.29)	.6875-.1P-.3L-2A	.5625-24 UNEF-2A	0.52 (13.21)
12	1.12 (28.45)	0.91 (23.11)	0.09 (2.29)	.7500-.1P-.3L-2A	.6250-24 UNEF-2A	0.59 (15.00)

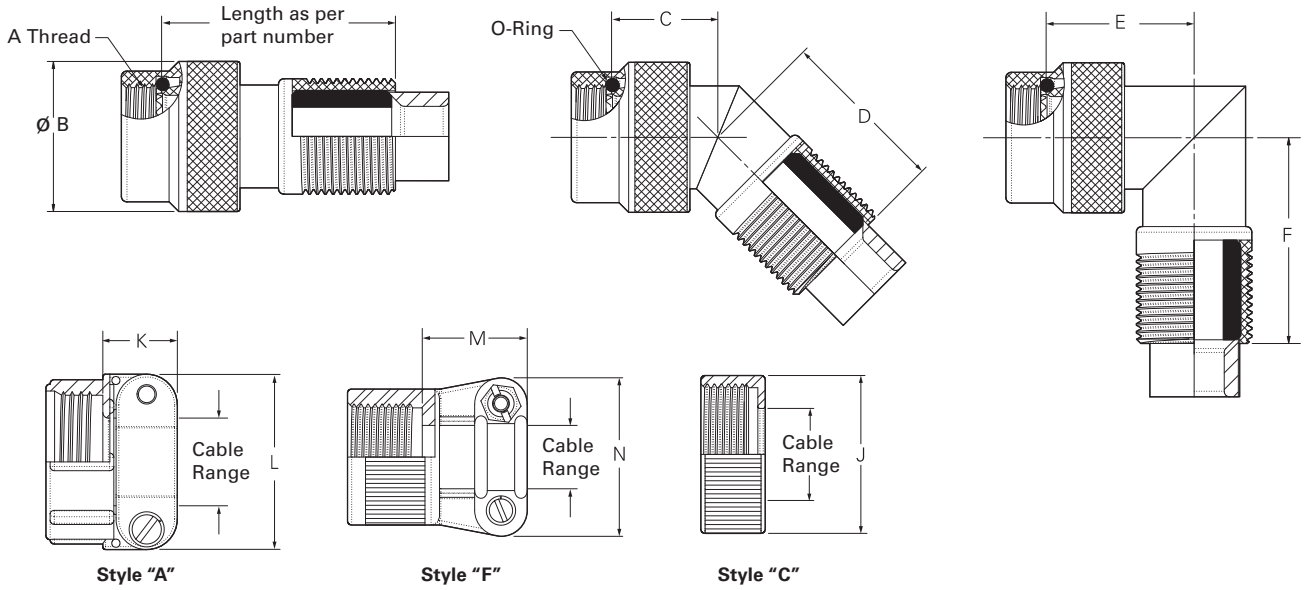
Dimensions are stated as inches (mm).

Moisture-proof backshells and strain reliefs

Part Number Configuration

18F1003 S A 09 04 CN 5

- **18F1003** — Moisture Proof Backshell Prefix
- **S** — Configuration Angle: S=Straight, A=45°, R=90°
- **A** — Strain Relief Style: A, C, or F as per Drawings Below
- **09** — Backshell Size Code as per Table Below
- **04** — Entry Size Code as per Table Below
- **CN** — Finish Code as per Table Below
- **5** — Straight Backshell Length: 5 = 1.25" Add Whole Numbers to Order 0.25" Increment Longer Lengths, i.e., 6 = 1.50", 7 = 1.75", etc. Leave Blank for 45° and 90° Backshells



Style "A" Style "F" Style "C"

Backshell Size Codes and Dimensions

Size code	M1 Shell sizes	M5 Shell sizes	A Thread Class-2B	B Max.	C Max.	D Max.	E Max.	F Max.	Max. Entry
06	6	8	.375-32 UNEF	0.63 (16.00)	0.57 (14.48)	0.73 (18.54)	0.72 (18.29)	1.03 (26.16)	04
07	7	9	.438-28 UNEF	0.69 (17.53)	0.59 (14.99)	0.83 (21.08)	0.76 (19.30)	1.03 (26.16)	06
09	9	11	.563-24 UNEF	0.83 (21.08)	0.60 (15.24)	0.93 (23.62)	0.82 (20.83)	1.13 (28.70)	08
10	10	12	.625-24 UNEF	0.90 (22.86)	0.61 (15.49)	1.03 (26.16)	0.90 (22.86)	1.18 (29.97)	10

Entry Size Codes and Strain Relief Dimensions

Entry size	J Max.	K Max.	L Max.	M Max.	N Max.	Cable range Min.	Cable range Max.
03	0.66 (16.76)	0.45 (11.43)	0.84 (21.34)	N/A	N/A	0.16 (4.06)	0.25 (6.35)
04	0.78 (19.81)	0.45 (11.43)	0.91 (23.11)	0.78 (19.81)	0.96 (24.38)	0.19 (4.83)	0.31 (7.87)
06	0.91 (23.11)	0.52 (13.21)	1.09 (27.69)	0.78 (19.81)	1.15 (29.21)	0.28 (7.11)	0.44 (11.18)
08	1.03 (26.16)	0.58 (14.73)	1.19 (30.23)	0.78 (19.81)	1.33 (33.78)	0.34 (8.36)	0.56 (14.22)
10	1.16 (29.46)	0.58 (14.73)	1.28 (32.51)	0.78 (19.81)	1.33 (33.78)	0.38 (9.65)	0.63 (16.00)

Finish Codes

Code	Finish
AB	Black anodize
CN	Cadmium plate, olive drab over electroless nickel
N	Electroless nickel
ZF	Zinc nickel , black chromate conversion

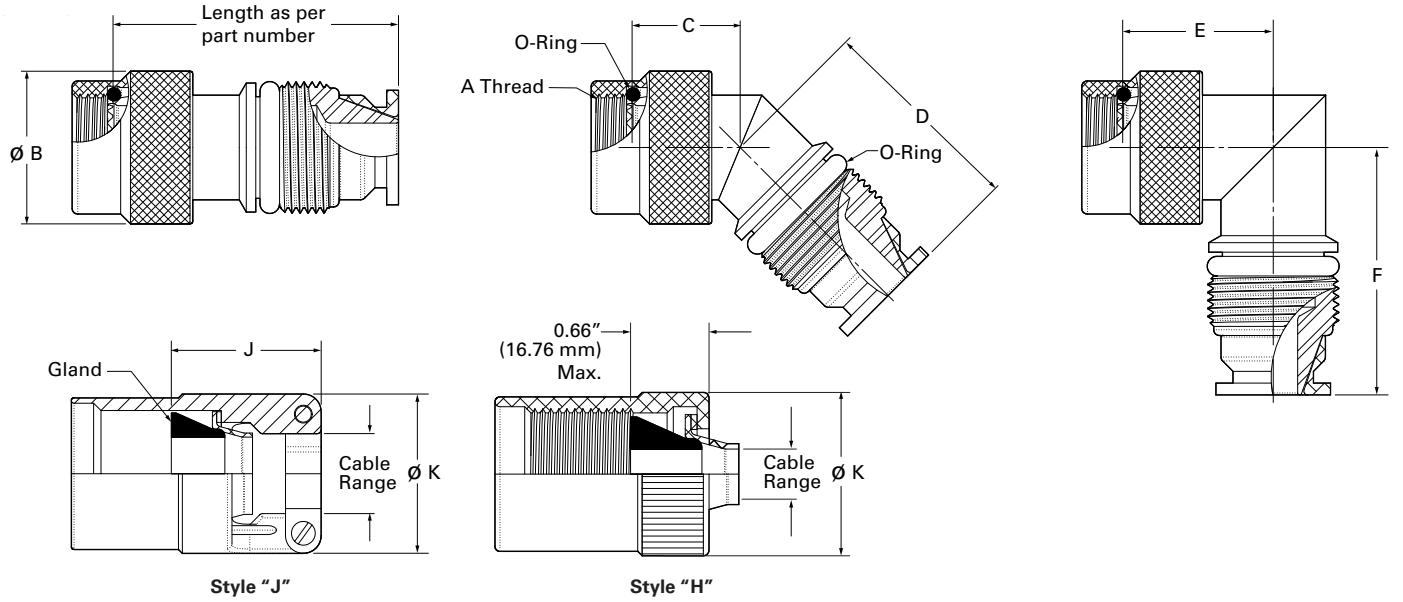
Dimensions are stated as inches (mm).

EMI/RFI backshells and strain reliefs

Part Number Configuration

24F1005 S J 09 02 CN 3

- **24F1005** — EMI/RFI Backshell Prefix
- **S** — Configuration Angle: S=Straight, A=45°, R=90°
- **J** — Strain Relief Style: J or H
- **09** — Backshell Size Code as per Table Below
- **02** — Entry Size Code as per Table Below
- **CN** — Finish Code as per Table Below
- **3** — Straight Backshell Length: 3 = 1.50″ Add Whole Numbers to Order 0.50″ Increment Longer Lengths, i.e., 4 = 2.00″, 5 = 2 .50″, etc. Leave Blank for 45° and 90° Backshells



Style "J" Style "H"

Backshell Size Codes and Dimensions

Size code	M1 Shell sizes	M5 Shell sizes	A Thread Class-2B	ØB Max.	C Max.	D Max.	E Max.	F Max.	Max. Entry
06	6	8	.375-32 UNEF	0.63 (16.00)	0.57 (14.48)	1.13 (28.70)	0.72 (18.29)	1.26 (32.00)	03
07	7	9	.438-28 UNEF	0.69 (17.53)	0.59 (14.99)	1.20 (30.48)	0.76 (19.30)	1.33 (33.78)	04
09	9	11	.563-24 UNEF	0.83 (21.08)	0.60 (15.24)	1.23 (31.24)	0.82 (20.83)	1.43 (36.32)	05
10	10	12	.625-24 UNEF	0.90 (22.86)	0.61 (15.49)	1.28 (32.51)	0.90 (22.86)	1.48 (37.59)	06

Entry Size Codes and Strain Relief Dimesions

Entry size	J Max.	ØK Max.	Cable range Min.	Cable range Max.
01	1.25 (31.75)	0.75 (19.05)	0.06 (1.52)	0.13 (3.30)
02	1.25 (31.75)	0.88 (22.35)	0.09 (2.29)	0.25 (6.35)
03	1.25 (31.75)	1.00 (25.40)	0.22 (5.59)	0.38 (9.65)
04	1.25 (31.75)	1.13 (28.70)	0.34 (8.64)	0.50 (12.70)
05	1.31 (33.27)	1.25 (31.75)	0.47 (11.94)	0.63 (16.00)
06	1.38 (35.05)	1.38 (35.05)	0.59 (14.99)	0.75 (19.05)

Dimensions are stated as inches (mm).

Finish Codes

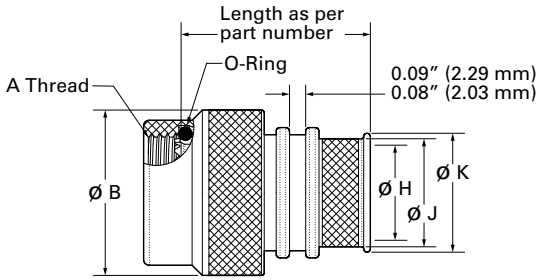
Code	Finish
AB	Black anodize
CN	Cadmium plate, olive drab over electroless nickel
N	Electroless nickel
ZF	Zinc nickel, black chromate conversion

Shrink-boot-compatible backshells

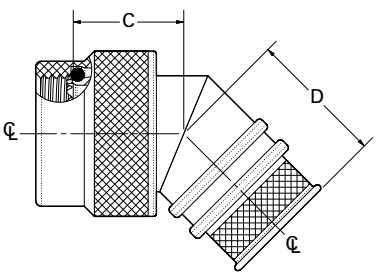
Part Number Configuration

06F1039 S 09 07 CN 3

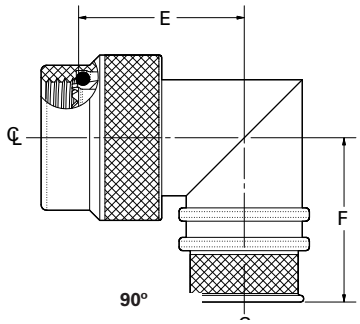
- **06F1039** — Shrink-Boot-Compatible Backshell Prefix
- **S** — Configuration Angle: S=Straight, A=45°, R=90°
- **09** — Backshell Size Code as per Table Below
- **07** — Entry Size Code as per Table Below
- **CN** — Finish Code as per Table Below
- **3** — Straight Backshell Length: 3 = 1.50″ Add Whole Numbers to Order 0.50″ Increment Longer Lengths, i.e., 4 = 2.00″, 5 = 2.50″, etc. Leave Blank for 45° and 90° Backshells



Straight



45°



90°

Backshell Size Codes and Dimensions

Size code	M1 Shell sizes	M5 Shell sizes	A Thread Class-2B	B Max.	C Max.	D Max.	E Max.	F Max.	Max. Entry
06	6	8	.375-32 UNEF	0.63 (16.00)	0.57 (14.48)	0.66 (16.76)	0.72 (18.29)	0.79 (20.07)	04
07	7	9	.438-28 UNEF	0.69 (17.53)	0.59 (14.99)	0.67 (17.02)	0.76 (19.30)	0.80 (20.32)	05
09	9	11	.563-24 UNEF	0.83 (21.08)	0.60 (15.24)	0.72 (18.29)	0.82 (20.83)	0.84 (21.34)	07
10	10	12	.625-24 UNEF	0.90 (22.86)	0.61 (15.49)	0.75 (19.05)	0.90 (22.86)	0.89 (22.61)	08

Entry Size Codes

Entry size	ØH ± .02″	ØJ ± .02″	ØK ± .02″
03	0.19 (4.83)	0.26 (6.60)	0.31 (7.87)
04	0.25 (6.35)	0.32 (8.13)	0.38 (9.65)
05	0.31 (7.87)	0.38 (9.65)	0.44 (11.18)
06	0.38 (9.65)	0.44 (11.18)	0.50 (12.70)
07	0.44 (11.18)	0.51 (12.95)	0.56 (14.22)
08	0.50 (12.70)	0.57 (14.48)	0.63 (16.00)

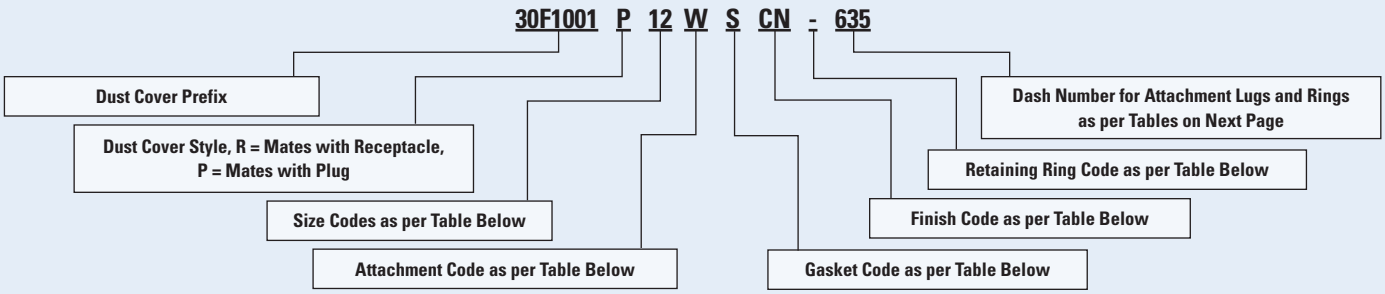
Finish Codes

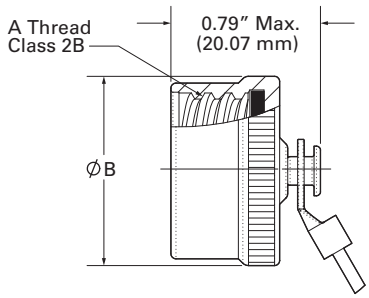
Designator	Material / Finish
N	Aluminum alloy / electroless nickel
CN	Aluminum alloy / cadmium plate, olive drab over electroless nickel
P	Passivated stainless steel, per QQ-P-35, ASTM 967

Dimensions are stated as inches (mm).

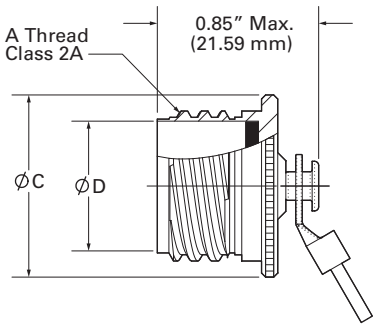
Plug and receptacle dust covers

Part Number Configuration





Receptacle Cover "R" Style



Plug Cover "P" Style

Size code	Coupling/ shell sizes	A Thread	B Max. diameter	C Max. diameter	D Max. diameter
06	M1 / 6	.3750-.05P-.1L	0.59 (14.99)	0.54 (13.72)	0.31 (7.87)
07	M1 / 7	.4375-.05P-.1L	0.66 (16.76)	0.60 (15.24)	0.37 (9.40)
D9	M1 / 9	.5625-.05L-.1L	0.78 (19.81)	0.73 (18.54)	0.49 (12.45)
10	M1 / 10	.6250-.05P-.1L	0.84 (21.34)	0.79 (20.07)	0.56 (14.22)
08	M5 / 8	.5000-.1P-.3L	0.72 (18.29)	0.68 (17.27)	0.37 (9.40)
T9	M5 / 9	.5625-.1P-.3L	0.78 (19.81)	0.73 (18.54)	0.45 (11.43)
11	M5 / 11	.6875-.1P-.3L	0.90 (22.86)	0.88 (22.35)	0.57 (14.48)
12	M5 / 12	.7500-.1P-.3L	0.97 (24.64)	0.93 (23.62)	0.64 (16.26)

Dimensions are stated as inches (mm).

Finish code	Finish type
AB	Black anodize
CN	Cadmium plate, olive drab over electroless nickel
N	Electroless nickel
ZF	Zinc nickel, black chromate conversion

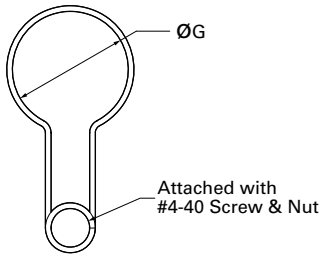
Gasket code	Gasket type
F	Fluorosilicone
K	Perfluoro elastomer
N	Neoprene
R	RFI gasket
S	Silicone
SC	Post bake conductive silicone

Retaining ring codes	Configuration
-	Standard retaining ring
B	Bent retaining ring
C	Split ring
L	Lug only, no retaining ring supplied

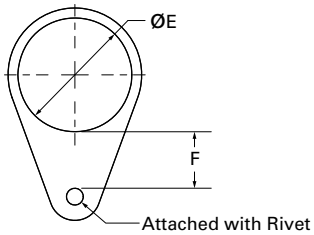
Attachment code	Attachment type
A	No attachment
B	Bead chain
C	#8 link chain
D	Nylon rope, olive drab
J	Wire rope without jacket

Attachment code	Attachment type
P	Wire rope with PVC jacket
R	Wire rope with polyurethane jacket
I	Wire rope with brown fluorocarbon jacket
W	Wire rope with nylon jacket
X	Wire rope with brown fluorocarbon jacket, looped ends and press sleeves

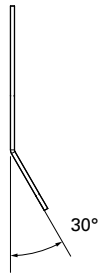
Dust cover attachments



Split Retaining Ring



Standard Retaining Ring



Bent Retaining Ring

Mounting Lug Options (See Drawings Below)

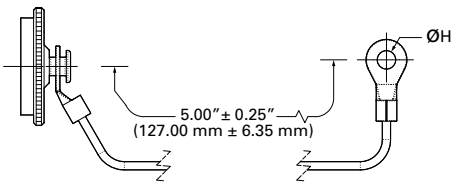
Dash number	ØH ± .01"
00	No eyelet
01	0.13 (3.30)
02	0.14 (3.56)
03	0.16 (4.06)
04	0.17 (4.32)
05	0.20 (5.08)
06	0.21 (5.33)
07	0.18 (4.57)
08	0.19 (4.83)

Dimensions are stated as inches (mm).

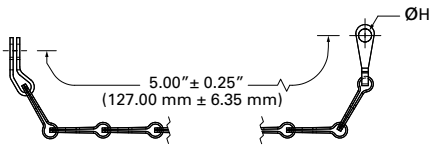
Split Retaining Ring Options

Dash number	ØG ± .031"
265	0.27 (6.86)
328	0.33 (8.38)
390	0.39 (9.91)
453	0.45 (11.43)
515	0.52 (13.21)
578	0.58 (14.73)
640	0.64 (16.26)
703	0.70 (17.78)
765	0.77 (19.56)
803	0.80 (20.32)
828	0.83 (21.08)
890	0.89 (22.61)
953	0.95 (24.13)

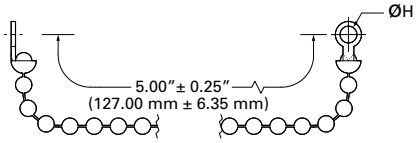
Dimensions are stated as inches (mm).



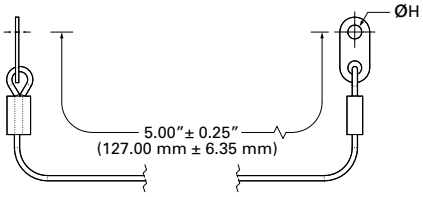
Wire Rope or Nylon Rope



Link Chain



Bead Chain



Wire Rope with Looped Ends

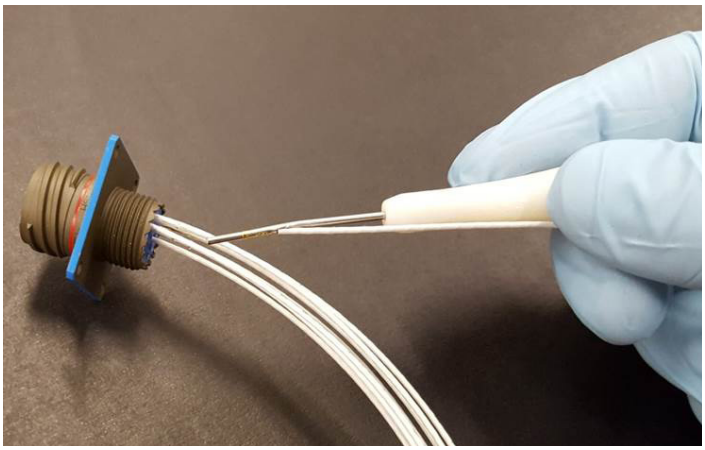
Standard and Bent Retaining Ring Options

Dash number	ØE	F
265	0.26/0.27 (6.60/6.86)	0.63 (16.00)
277	0.27/0.28 (6.86/7.11)	0.63 (16.00)
340	0.34/0.35 (8.64/8.89)	0.58 (14.73)
454	0.45/0.46 (11.43/11.68)	0.62 (15.75)
455	0.45/0.46 (11.43/11.68)	0.41 (10.41)
510	0.51/0.52 (12.95/13.21)	0.36 (9.14)
531	0.52/0.54 (13.21/13.72)	0.63 (16.00)
578	0.57/0.58 (14.48/14.73)	0.41 (10.41)
580	0.58/0.59 (14.73/14.99)	0.63 (16.00)
583	0.58/0.59 (14.73/14.99)	0.40 (10.16)
635	0.63/0.64 (16.00/16.26)	0.40 (10.16)
640	0.64/0.65 (16.26/16.51)	0.66 (16.76)
645	0.64/0.65 (16.26/16.51)	0.40 (10.16)
703	0.70/0.72 (17.78/18.29)	0.40 (10.16)
760	0.76/0.78 (19.30/19.81)	0.41 (10.41)
790	0.78/0.80 (19.81/20.32)	0.65 (16.51)
844	0.84/0.85 (21.34/21.59)	0.63 (16.00)
845	0.84/0.85 (21.34/21.59)	0.40 (10.16)
765	0.84/0.86 (21.34/21.84)	0.41 (10.41)
880	0.88/0.89 (22.35/22.61)	0.64 (16.26)
890	0.89/0.90 (22.61/22.86)	0.40 (10.16)
895	0.90/0.91 (22.86/23.11)	0.61 (15.49)
905	0.90/0.91 (22.86/23.11)	0.40 (10.16)
915	0.92/0.93 (23.37/23.62)	0.40 (10.16)
920	0.92/0.93 (23.37/23.62)	0.40 (10.16)
953	0.95/0.96 (24.13/24.38)	0.40 (10.16)
969	0.96/0.97 (24.38/24.64)	0.63 (16.00)

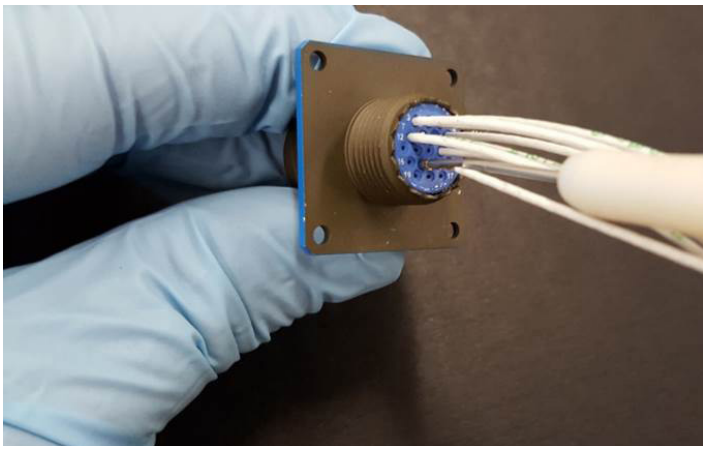
Dimensions are stated as inches (mm).

Contact insertion and extraction

Contact Insertion

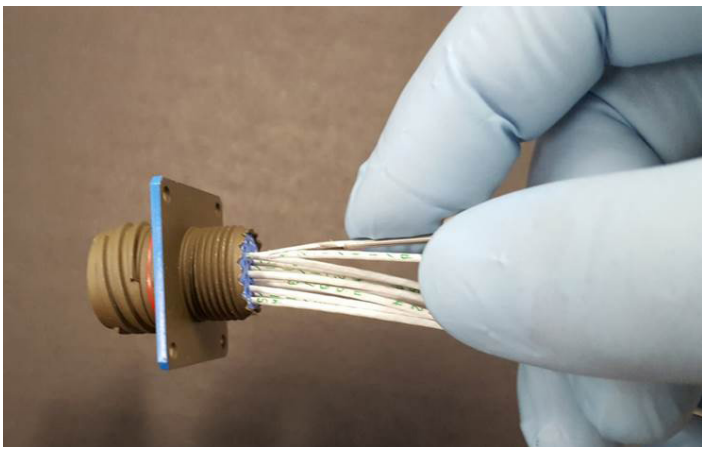


- Due to the large size of number 23 contacts, use care to avoid damaging the insert material during insertion.
- Isopropyl alcohol can be used to lubricate the grommet seal for ease if insertion.
- Insert the contact barrel into the insertion/extraction tool.

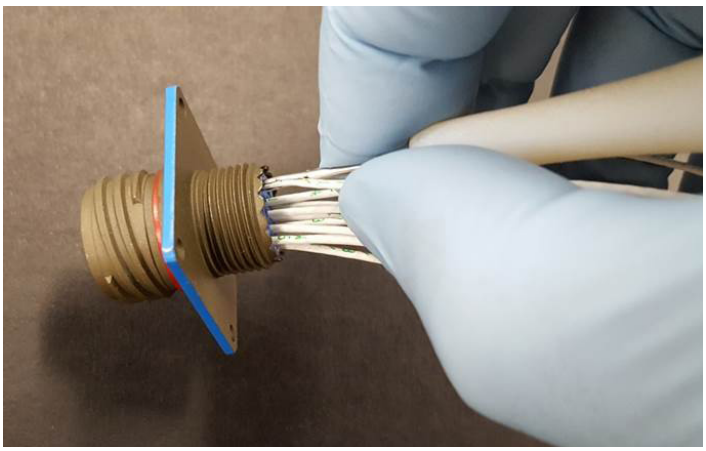


- Insert the contact through the grommet seal as straight as possible until the contact locks in the retainer clip.
- Hold the wire in place while pulling the tool out of the connector.
- Gently pull the wire to make sure it is seated properly.

Contact Extraction



- Due to the large size of number 23 contacts, use care to avoid damaging the insert material during extraction.
- Slide the end of insertion/extraction tool over the wire and push into the grommet seal.
- Carefully push the tool until it seats on the shoulder of the contact.



- Pull the wire and the insertion/extraction tool to remove the contact.
- If the contact will not extract, turn 90° to engage the clip blade and pull again.

Insertion/Extraction Tools

- Size 23 contacts insertion/extraction tool part number: 7000-23TL
- Size 16 contacts insertion/extraction tool part number: M81969/14-03

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