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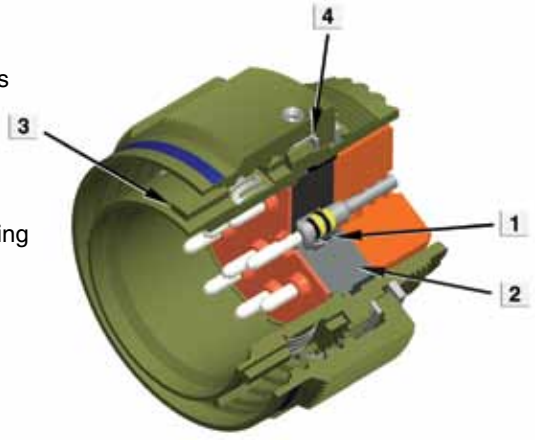
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- Meets or exceeds MIL-DTL-38999 Series III requirements
- EMI Shielding-solid metal-to-metal coupling, grounding fingers, electroless nickel plating, and thicker wall sections provide superior EMI shielding capability of 65dB min. at 10 GHz.
- Termini Protection-recessed pins in this 100% scoop-proof connector minimize potential termini damage
- Corrosion Resistance-shells of stainless steel or cadmium over nickel plating withstand 500 hr. salt spray exposure
- Vibration/Shock-operates under severe high temperature vibration
- Threaded coupling quickly and completely mates in one 360° turn of the coupling nut

Additional, composite connectors features include:

- Lightweight - 17%-70% weight savings
- Increased Corrosion Resistance-olive drab cadmium (175°C) and electroless nickel plating (200°C) both withstand 2000 hours of salt spray exposure.
- Durability-1500 couplings minimum (in reference to connector couplings, not termini)



The illustration above shows the key features of the CF38999. The highest optical performance connector conforming to MIL-DTL-38999

1. *Beryllium-copper retention clip for improved termini stability*
2. *Precision-aligned inserts*
3. *Modified master key*
4. *Integrated wave washer for improved performance in high vibration environments*

MECHANICAL/ENVIRONMENTAL

PARAMETER	PERFORMANCE
Maintenance Aging	MIL-STD-1344 Method 2002
Mating Durability	500 mating cycles
Insert Retention	100 PSI/25 lbs minimum
Sine Vibration	60 G (140-2000 Hz), 4 hours each at ambient, -55 deg C, and +175 deg C
Standard Shock	300 G half-sine, 3 ms duration
High Impact Shock	MIL-S-901 grade A with lightweight fixture
Temperature Life	1000 hours @ high temp rating
Thermal Shock	-55° C to +165° C - 5 cycles

MATERIALS & FINISH CHARACTERISTICS

SHELL MATERIAL/ FINISH	TEMPERATURE RATING (DEG C)	SALT SPRAY RATING (HOURS)	MIL-DTL-38999 SERVICE CLASS
Aluminum/Durmalon	-65 to +175	500	T
Aluminum/electroless nickel	-65 to +200	500	F
Aluminum/olive drab cadmium plate nickel base	-65 to +175	500	W
Stainless steel	-65 to +200	500	K
Composite/electroless nickel	-65 to +200	2000	M
Composite/ olive drab cadmium plate nickel base	-65 to +175	2000	J

Easy Steps to build a part number... Tri-Start Series III

1. Connector Type	2 Material	3 Finish	4. Shell Style	5. Shell Size- Insert Arrangement	6. Contact Type & Key/ Keyway Position
CF–	50	9	0	17-08	P

Amphenol® Multi-Channel fiber optic connectors for use with multi-mode and single mode termini can be ordered by coded part number. Ordering procedure is illustrated by part number CF-509017-08P as shown above:

Step 1. Connector Type

	Designates
CF–	Multi-Channel Fiber Optic Connector

Step 2. Select a Material

	Designates
50	Aluminum shell
60	Composite shell
80	Stainless steel shell

Step 3. Select a Finish

	Designates
4	Electroless nickel plated aluminum, 48 hour salt spray resistance, 200°C
5	Unplated composite
6	Corrosion resistant stainless steel, 500 hour salt spray resistance, 200°C
9	Corrosion resistant olive drab cadmium plate aluminum, 500 hour salt spray resistance, 175°C
D	Designates Durmalon™ (Nickel-PTFE)*
S	Nickel plated stainless steel

Step 4. Select a Shell Style

	Designates
0	Wall mount receptacle
1	Line receptacle
2	Box mount receptacle
5	Straight plug less ground strap
6	Straight plug
7	Jam nut receptacle

Step 5. Select a Shell Size – Insert Arrangement from proceeding pages.

Shell Size & Insert Arrangement are on page 194.
First number represents Shell Size, second number is the Insert Arrangement.

Step 6. Select a Contact Type & Key/Keyway Position

Contact Type and Key/Keyway Position
P designates pin contacts
S designates socket contacts
For key/keyway positioning, choose the alternate rotation suffix letter from the chart below.

ALTERNATE POSITION SUFFIX

Alternate Position	Suffix Letter	
	Pins	Sockets
Normal	P	S
A	G	H
B	I	J
C	K	L
D	M	N
E	R	T

For more information on key/keyway rotation, see the Series III MIL-DTL-38999 Section.

*Durmalon is a trademark of Amphenol. For more information on Durmalon see page 5.

Fiber optic termini can be accommodated in any size 16 or size 20 contact cavity of MIL-DTL-38999 Series III type connector insert patterns, as listed in the following chart. For availability of fiber type, either multi-mode or single mode, see note at bottom of chart.

Shell Size/ Arrangement	Total Contacts	Contact Size							
		22D	Optic Termini Availability*		12	12 (Coax)	10 (Power)	8 (Coax)	8 (Twinax) ✦
			20	16					
09-94	2		2						
09-98	3		3						
11-02	2			2					
11-05	5		5						
11-98	6		6						
11-99	7		7						
13-04	4			4					
13-08	8		8						
13-13	4			2**	2				
13-98	10		10						
15-05	5			5					
15-15	15		14	1					
15-18	18		18						
15-19	19		19						
15-97	12		8	4					
17-08	8			8					
17-26	26		26						
17-99	23		21	2					
19-11	11			11					
19-28	28		26	2					
19-32	32		32						
21-16	16			16					
21-29	27		19	4	4				
21-39	39		37	2					
21-41	41		41						
23-21	21			21					
23-53	53		53						
23-54	53	40		9	4				
23-55	55		55						
25-04	56		48	8					
25-11***	11		2				9		
25-20***	30		10	13		4			3
25-24	24			12	12				
25-26	25		16		5			4	
25-29	29			29					
25-37	37			37					
25-41	41	22	3	11		2			3
25-43	43		23	20					
25-46	46		40	4				2†	
25-61	61		61						
25-90	46		40	4					2
25-F4	66	49		13	4				

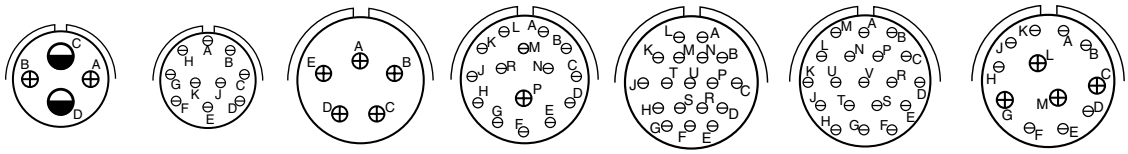
* Size 16 multi-mode and single mode fiber optic termini are readily available. For size 20 multi-mode termini consult Amphenol Aerospace for availability.
** Two size 16 contacts dedicated to fiber optics.
***For use in MIL-STD-1760 applications. See 38999 Series III section in this catalog.
† For RG180/U and RG195/U cables only. Contact Amphenol for other cable applications.
✦ Size 8 coax and Twinax are interchangeable.
For service ratings and performance of electrical contacts see 38999 Series III section in this catalog.

Multi-Channel Fiber Optic Circular
(CF38999 Connector) Insert Arrangements

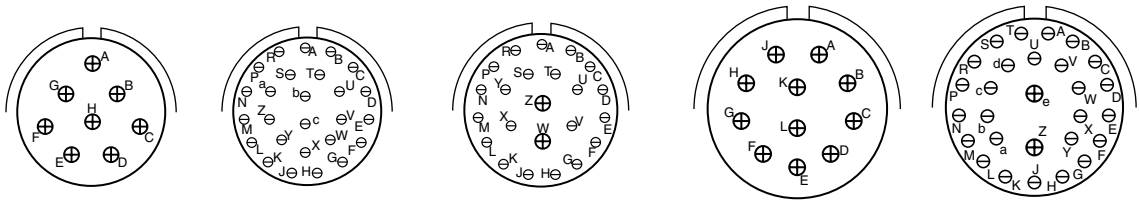
Front face of pin inserts illustrated



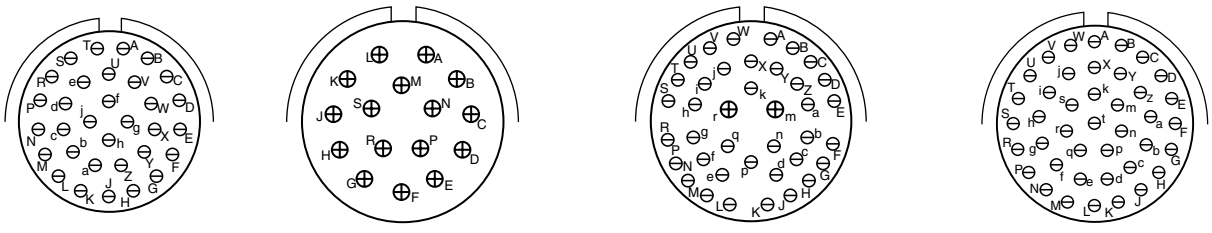
Insert Arrangement	09-94	09-98	11-02	11-05	11-98	11-99	13-04	13-08
Number of Contacts	2	3	2	5	6	7	4	8
Contact Size	20	20	16	20	20	20	16	20



Insert Arrangement	13-13		13-98	15-05	15-15		15-18	15-19	15-97	
Number of Contacts	2	2	10	5	14	1	18	19	8	4
Contact Size	16	12	20	16	20	16	20	20	20	16
	Dedicated to Fiber Optics									



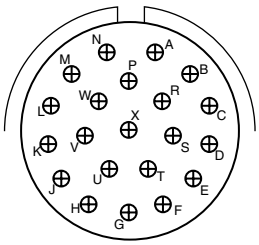
Insert Arrangement	17-08	17-26	17-99		19-11	19-28	
Number of Contacts	2	26	21	2	11	26	2
Contact Size	16	20	20	16	16	20	16

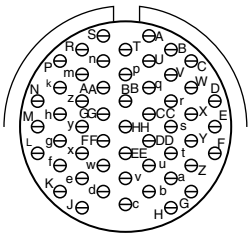


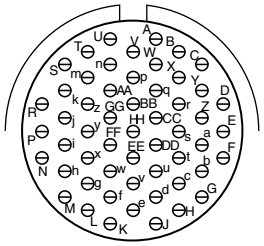
Insert Arrangement	19-32	21-16	21-39		21-41
Number of Contacts	32	16	37	2	41
Contact Size	20	16	20	16	20



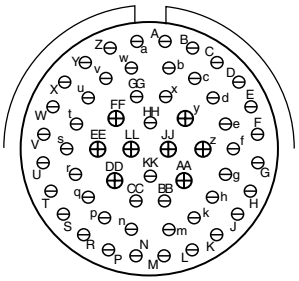
Front face of pin inserts illustrated

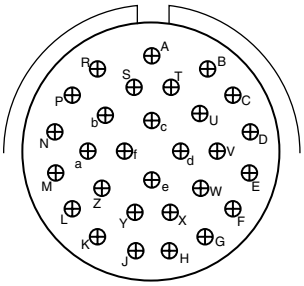


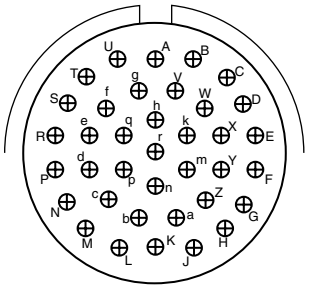




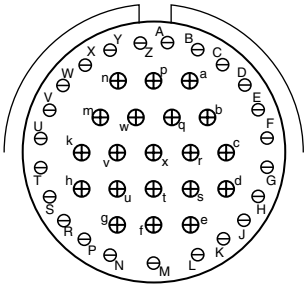
Insert Arrangement	23-21	23-53	23-55
Number of Contacts	21	53	55
Contact Size	16	20	20

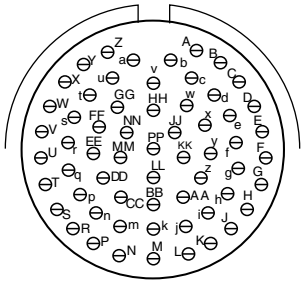






Insert Arrangement	25-04		25-29	25-37
Number of Contacts	48	6	29	37
Contact Size	20	16	16	16





Insert Arrangement	25-43		25-61
Number of Contacts	23	20	61
Contact Size	20	16	20

***For use in MIL-STD-1760 applications. See 38999 Series III section in this catalog.
† 12 Coax Contacts can be Matched Impedance or Power

CONTACT LEGEND 8 | 10 | 12 | 16 | 20 | 22D

TRI-START™ METAL AND COMPOSITE CONNECTORS

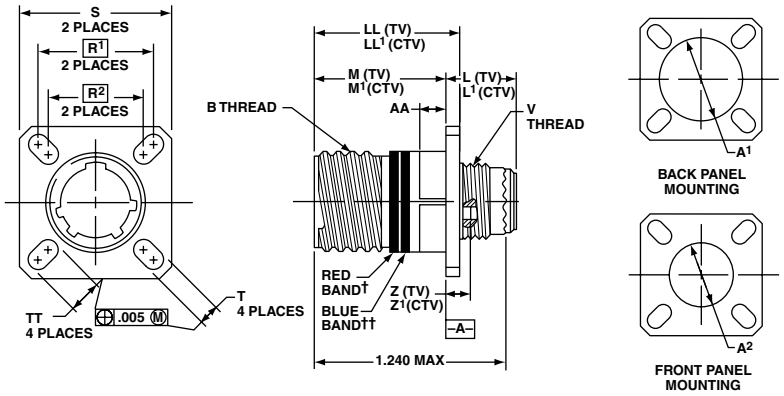
Wall Mount Receptacle with Fiber Optics shell style 0

For complete part number,
see how to order, page 193.

† Red Band indicates fully mated
†† Blue band indicates rear release contact retention system

☐ Designates true position dimensioning

All dimensions for reference only



Shell Size	MS Shell Size Code	B Thread Class 2A 0.1P-0.3L-TS (Plated)	L Max. (TV)	L1 Max. (CTV)	M +.000 –.005 (TV)	M1 +.000 –.005 (CTV)	R1	R2	S Max.	T +.008	V Thread Metric	Z Max. (TV)	Z1 Max. (CTV)	A1 Dia. Back Panel Mount	A2 Dia. Front Panel Mount	AA Max. Panel Thickness	LL +.006 –.000 (TV)	LL1 ±.005 (CTV)	TT ±.008
9	A	.6250	.469	.514	.820	.773	.719	.594	.948	.128	M12X1-6g	.153	.198	.650	.510	.234	.905	.908	.216
11	B	.7500	.469	.514	.820	.773	.812	.719	1.043	.128	M15X1-6g	.153	.198	.800	.620	.234	.905	.908	.194
13	C	.8750	.469	.514	.820	.773	.906	.812	1.137	.128	M18X1-6g	.153	.198	.910	.740	.234	.905	.908	.194
15	D	1.0000	.469	.514	.820	.773	.969	.906	1.232	.128	M22X1-6g	.153	.198	1.040	.900	.234	.905	.908	.173
17	E	1.1875	.469	.514	.820	.773	1.062	.969	1.323	.128	M25X1-6g	.153	.198	1.210	1.010	.234	.905	.908	.194
19	F	1.2500	.469	.514	.820	.773	1.156	1.062	1.449	.128	M28X1-6g	.153	.198	1.280	1.130	.234	.905	.908	.194
21	G	1.3750	.500	.545	.790	.741	1.250	1.156	1.575	.128	M31X1-6g	.183	.228	1.410	1.250	.204	.905	.904	.194
23	H	1.5000	.500	.545	.790	.741	1.375	1.250	1.701	.154	M34X1-6g	.183	.228	1.530	1.360	.204	.905	.904	.242
25	J	1.6250	.500	.545	.790	.741	1.500	1.375	1.823	.154	M37X1-6g	.183	.228	1.660	1.470	.204	.905	.904	.242

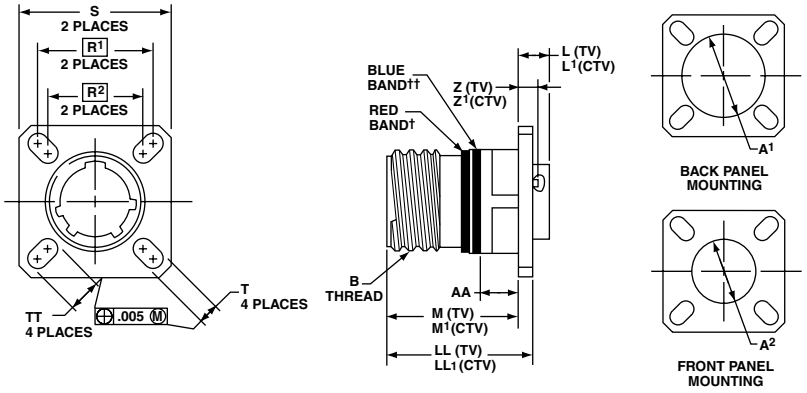
Box Mount Receptacle with Fiber Optics shell style 2

For complete part number,
see how to order, page 193.
Consult Amphenol Aerospace for availability of composite box mount receptacles.

† Red Band indicates fully mated
†† Blue band indicates rear release contact retention system

☐ Designates true position dimensioning

All dimensions for reference only

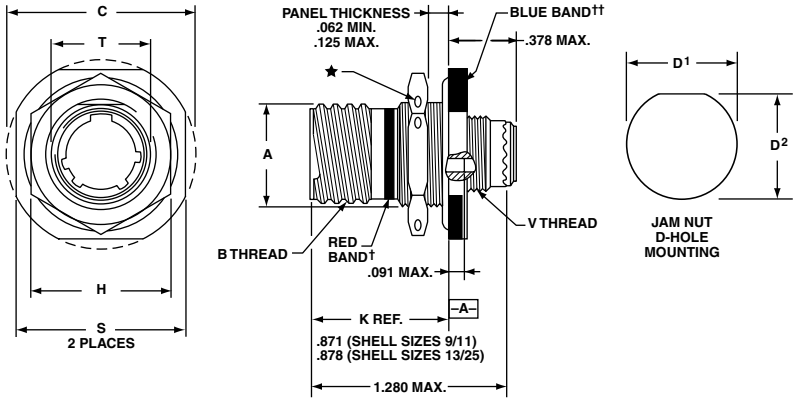


Shell Size	MS Shell Size Code	B Thread Class 2A 0.1P-0.3L-TS (Plated)	L Max. (TV)	L1 Max. (CTV)	M +.000 –.005 (TV)	M1 +.000 –.005 (CTV)	R1	R2	S Max	T +.008	Z Max. (TV)	Z1 Max. (CTV)	A1 Dia. Back Panel Mount	A2 Dia. Front Panel Mount	AA Max. Panel Thickness	LL +.006 –.000 (TV)	LL1 ±.005 (CTV)	TT ±.008
9	A	.6250	.205	.250	.820	.773	.719	.594	.948	.128	.153	.198	.650	.510	.234	.905	.908	.216
11	B	.7500	.205	.250	.820	.773	.812	.719	1.043	.128	.153	.198	.800	.620	.234	.905	.908	.194
13	C	.8750	.205	.250	.820	.773	.906	.812	1.137	.128	.153	.198	.910	.740	.234	.905	.908	.194
15	D	1.0000	.205	.250	.820	.773	.969	.906	1.232	.128	.153	.198	1.040	.900	.234	.905	.908	.173
17	E	1.1875	.205	.250	.820	.773	1.062	.969	1.323	.128	.153	.198	1.210	1.010	.234	.905	.908	.194
19	F	1.2500	.205	.250	.820	.773	1.156	1.062	1.449	.128	.153	.198	1.280	1.130	.234	.905	.908	.194
21	G	1.3750	.235	.280	.790	.741	1.250	1.156	1.575	.128	.183	.228	1.410	1.250	.204	.905	.904	.194
23	H	1.5000	.235	.280	.790	.741	1.375	1.250	1.701	.154	.183	.228	1.530	1.360	.204	.905	.904	.242
25	J	1.6250	.235	.280	.790	.741	1.500	1.375	1.823	.154	.183	.228	1.660	1.470	.204	.905	.904	.242

TRI-START™ METAL AND COMPOSITE CONNECTORS

Jam Nut Receptacle with Fiber Optics shell style 7

For complete part number, see how to order, page 193.



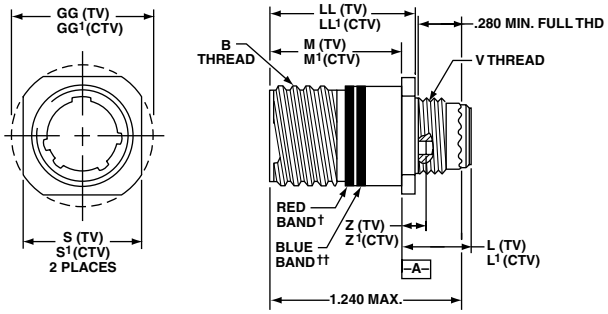
† Red Band indicates fully mated
†† Blue band indicates rear release contact retention system

★ .059 dia. min. 3 lockwire holes
Formed lockwire hole design (6 holes) is optional
All dimensions for reference only

Shell Size	MS Shell Size Code	A• +.000 –.010	B Thread Class 2A 0.1P-0.3L-TS (Plated)	C Max.	D[1] +.010 –.000	D[2] +.000 –.010	H Hex +.017 –.016	S ±.010	T +.010 –.000	V Thread Metric
9	A	.669	.6250	1.199	.700	.670	.875	1.062	.697	M12X1-6g
11	B	.769	.7500	1.386	.825	.770	1.000	1.250	.822	M15X1-6g
13	C	.955	.8750	1.511	1.010	.955	1.188	1.375	1.007	M18X1-6g
15	D	1.084	1.0000	1.636	1.135	1.085	1.312	1.500	1.134	M22X1-6g
17	E	1.208	1.1875	1.761	1.260	1.210	1.438	1.625	1.259	M25X1-6g
19	F	1.333	1.2500	1.949	1.385	1.335	1.562	1.812	1.384	M28X1-6g
21	G	1.459	1.3750	2.073	1.510	1.460	1.688	1.938	1.507	M31X1-6g
23	H	1.575	1.5000	2.199	1.635	1.585	1.812	2.062	1.634	M34X1-6g
25	J	1.709	1.6250	2.323	1.760	1.710	2.000	2.188	1.759	M37X1-6g

Line Receptacle with Fiber Optics shell style 1

For complete part number, see how to order, page 193.



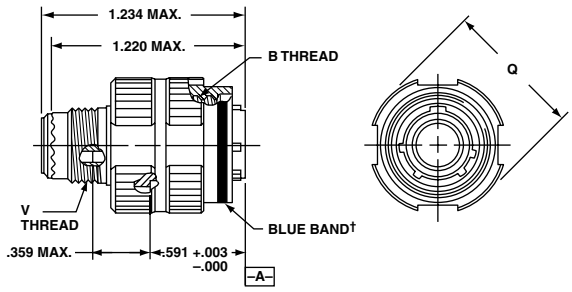
† Red Band indicates fully mated
†† Blue band indicates rear release contact retention system
All dimensions for reference only

Shell Size	MS Shell Size Code	B Thread 0.1P-0.3L-TS-2A (Plated)	L Max. (TV)	L[1] Max. (CTV)	M +.000 –.005 (TV)	M[1] +.000 –.005 (CTV)	S ±.010 (TV)	S[1] ±.010 (CTV)	V Thread Metric	Z Max. (TV)	Z[1] Max. (CTV)	GG Dia. ±.010 (TV)	GG[1] Dia. ±.010 (CTV)	LL +.006 –.000 (TV)	LL[1] ±.005 (CTV)
9	A	.6250	.469	.514	.820	.773	.675	.635	M12X1-6g	.153	.198	.812	.699	.905	.908
11	B	.7500	.469	.514	.820	.773	.800	.765	M15X1-6g	.153	.198	.905	.875	.905	.908
13	C	.8750	.469	.514	.820	.773	.925	.885	M18X1-6g	.153	.198	1.093	1.007	.905	.908
15	D	1.0000	.469	.514	.820	.773	1.050	1.100	M22X1-6g	.153	.198	1.219	1.140	.905	.908
17	E	1.1875	.469	.514	.820	.773	1.238	1.197	M25X1-6g	.153	.198	1.375	1.229	.905	.908
19	F	1.2500	.469	.514	.820	.773	1.300	1.260	M28X1-6g	.153	.198	1.469	1.380	.905	.908
21	G	1.3750	.500	.545	.790	.741	1.425	1.385	M31X1-6g	.183	.228	1.625	1.493	.905	.904
23	H	1.5000	.500	.545	.790	.741	1.550	1.510	M34X1-6g	.183	.228	1.750	1.626	.905	.904
25	J	1.6250	.500	.545	.790	.741	1.675	1.635	M37X1-6g	.183	.228	1.875	1.777	.905	.904

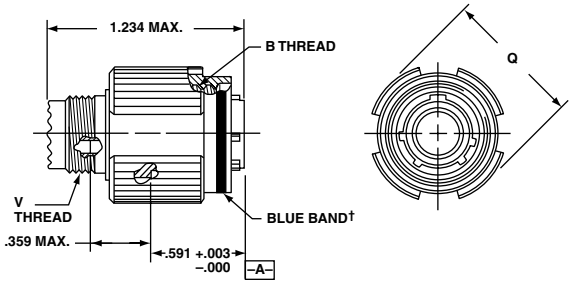
Straight Plug with Fiber Optics shell style 6

For complete part number, see how to order, page 193.

METAL



COMPOSITE



† Blue band indicates rear release contact retention system

Shell Size	MS Shell Size Code	B Thread 0.1P-0.3L-TS-2B (Plated)	Q Dia. Max.	V Thread Metric
9	A	.6250	.858	M12X1-6g
11	B	.7500	.984	M15X1-6g
13	C	.8750	1.157	M18X1-6g
15	D	1.0000	1.280	M22X1-6g
17	E	1.1875	1.406	M25X1-6g
19	F	1.2500	1.516	M28X1-6g
21	G	1.3750	1.642	M31X1-6g
23	H	1.5000	1.768	M34X1-6g
25	J	1.6250	1.890	M37X1-6g

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