



Aero-Electric Connector, Inc.
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38999 S I

38999 S II

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5015 S III

26482 S 2

83723 S III

26500

MIL-DTL-38999 Features and Application Series I



Features and Application

MIL-DTL-38999 Series I is a bayonet coupling subminiature configuration with high contact density, ideal for smaller wire gauge, general-purpose applications. These environment-resisting connectors are 100% “scoop-proof.” Pins are recessed in elongated shells to prevent the possibility of bending contacts when plugs are scooped into the mating receptacles.

This family of connectors is offered in 5 receptacle-mounting styles. They include square flange receptacles, for both front and rear panel (wall) mounting; square flange receptacles, for both front and rear box mounting; and jam nut receptacles which incorporate “O” ring seals, designed for rear panel “D” hole mounting.

Standard plugs provide RFI protection by incorporating a continuous strip of attached grounding fingers attenuating interference up to 1 GHz.

Fifty-seven insert arrangements per MIL-STD-1560 are tooled and qualified to MIL-DTL-38999 Series I, utilizing 2 to 128 contacts. Contacts come in sizes 22M, 22D, 20, 16, 12, and 8 (coax and twinax), terminating wire sizes from 28 gauge to 12 gauge including coaxial cable.

These connectors are available in wide range of shell materials and finishes. Aluminum shells are offered in electroless nickel, olive drab cadmium and bright cadmium. Other finishes such as anodic and zinc cobalt are available upon request to commercial callouts only. In addition, we offer passivated stainless steel shells with standard environment-resisting inserts (commercial callouts only), and for highly corrosive environments, nickel-aluminum-bronze shells with standard environment-resisting inserts (commercial callouts only).

Universal I/R Tool – A single, expendable plastic tool is used for both insertion and removal of contacts.

Scoop-Proof Design – Recessed pins in elongated shells minimize the possibility for contact damage. In a blind mating application, mating shells cannot “scoop” the pins, and cause a shorting or bending of contacts.

Closed-Entry Socket Insert – Hard dielectric socket face has lead-in chamfers for positive alignment of pins (even partially bent within pre-established limits) with sockets.

Interfacial Pin Insert Seal – Raised moisture barriers around each pin, which mate into lead-in chamfers of hard face socket insert, provide individual contact sealing. Interfacial seal is never touched by service tools.

Elastomer Wire Sealing Grommet – Sealing over a wide range of wire diameters is assured by a triple wire seal in each cavity at the rear of the connector.

Superior Contact Stability – Rear release crimp contact system features a stamped beryllium-copper retaining clip captivated by molded-in shoulders of each contact cavity in the insulator. A rear-inserted M81969 plastic tool expands the tines beyond the shoulder, releasing the contact.

Shell Polarization – Alternate key/keyway positions prevent cross mating of adjacent connectors having identical insert arrangement.





MIL-DTL-38999 Performance Specifications Series I

MIL-DTL-38999 S I

Performance Specifications

Operating Temperature Range

Finish B: -65°C to +175°C (-85°F to +347°F)

Finish F: -65°C to +200°C (-85°F to +392°F)

Finish A: -65°C to +150°C (-85°F to +302°F)

Material and Plating Data (Finish)

B – aluminum shell, olive drab cadmium over nickel base

F – aluminum shell, electroless nickel finish

A – aluminum shell, silver to light iridescent yellow color (bright) cadmium over electroless nickel

Corrosion Resistance

Finishes A and B withstand 500-hour salt spray.

Finish F withstands 48-hour salt spray.

Durability

Minimum of 500 mating cycles

Environmental Seal

Wired, mated connectors with specified accessories attached, shall meet the altitude-immersion test specified in MIL-DTL-38999.

Fluid Resistance

Connectors resist specified immersions in MIL-PRF-7808, MIL-PRF-23699, MIL-PRF-5606, M2-V Chevron oil, Coolanol 25, MIL-DTL-83133 (JP-8), MIL-DTL-5624 (JP-4, JP-5), SAE-AMS1424 Type I, and other solvents and cleaning agents.

Shell-to-Shell Conductivity

- Finish F = 1.0 millivolt maximum potential drop
- Finishes A and B = 2.5 millivolts maximum potential drop

Voltage Rating

Service Rating	Suggested Operating Voltage		Test Voltage	Test Voltage	Test Voltage	Test Voltage
	(Sea Level)		Sea Level	50,000 Ft.	70,000 Ft.	100,000 Ft.
	AC (RMS)	DC	V RMS	V RMS	V RMS	V RMS
M	400	550	1300	550	350	200
N	300	450	1000	400	260	200
I	600	850	1800	600	400	200
II	900	1250	2300	800	500	200

Note: The establishment of electrical safety factors is left entirely to the designer, as he is in the best position to know

Shielding Effectiveness

RFI and EMI attenuation at the specified frequencies meet the requirements of MIL-DTL-38999.

- RFI shielding effectiveness of mated connectors with RFI backshells is measured in a triaxial radio frequency leakage fixture.
- EMI shielding effectiveness is measured at the interface of mated connectors and tested by the mode-stirred technique specified in method 3008 of MIL-STD-1344.

Shock and Vibration Requirements

Wired, mated connectors shall not be damaged, nor shall there be a current interruption longer than one microsecond when subjected to the following:

Standard Shock

Mated connectors withstand a pulse of approximate half sine wave of 300 G $\pm$ 15 percent magnitude with duration of 3 $\pm$ 1 milliseconds applied in three axes per MIL-STD-1344, method 2004.

High Impact Shock

When mounted as specified in MIL-S-901, grade A, a drop of a 400 lb. Hammer from 1 foot, 3 feet and 5 feet applied to connector in three axes, totaling nine impacts.

Vibration

Mated connectors, with proper accessories, withstand the following vibration levels:

- Sine Vibration per MIL-STD-202, method 204, test condition G.
- Random Vibration per MIL-STD-1344, method 205, test condition V and test condition VI, Letter “J” at ambient temperature.

exactly what peak voltages, switching currents, transients, etc., can be expected in a particular circuit.

MIL-DTL-38999 Part Number Development Series I



Military and Aero-Electric Part Number Development

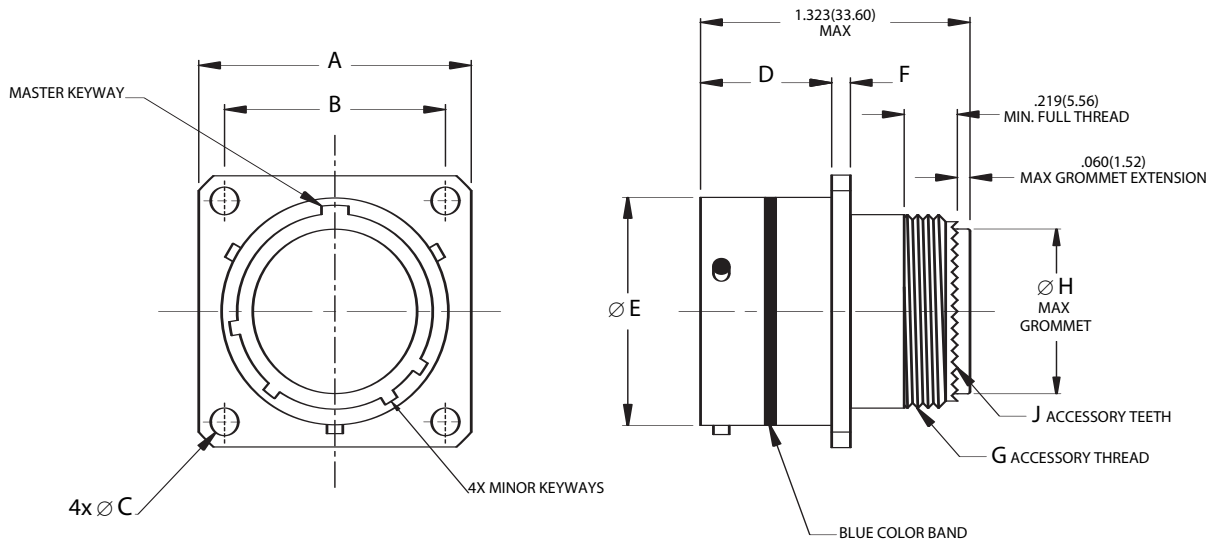
Mil. Prefix	MS	27467	T	13	B	35	P	A	
Aero Prefix	AE	167	T	13	B	35	P	A	-340
Shell Type 27466 = Front, wall mount receptacle = 166 (Aero p/n) 27467 = RFI grounding plug = 167 (Aero p/n) 27468 = Jam nut receptacle = 168 (Aero p/n) 27496 = Front, box mount receptacle = 196 (Aero p/n) 27505 = Rear, box mount receptacle = 105 (Aero p/n) 27656 = Rear, wall mount receptacle = 156 (Aero p/n)									
Class T = With acc. thread (MS27466, MS27467, MS27468 & MS27656) E = Same as T in line above but is not approved for new design (E-nut is not included) = No acc. thread, box mount (MS27496 & MS27505)									
Shell Size 9, 11, 13, 15, 17, 19, 21, 23 or 25									
Finish (Material & Plating) A = Aluminum shell, silver to light iridescent yellow color (bright) cadmium over nickel base B = Aluminum shell, olive drab cadmium over electroless nickel base F = Aluminum shell, electroless nickel finish S = Stainless steel shell, passivated (Aero p/n only)									
Insert Arrangement See page 15 thru 19									
Contact Style P = Pin S = Socket A = Pin connector less pins (with intent to use non-standard pin contacts) B = Socket connector less sockets (with intent to use non-standard socket contacts)									
Polarization (Keying) N = Normal (Omitted in part number) A, B, C, or D (B & C keyways are not available in shell size 9)									
Modification (applies to Aero part numbers only) 01 = Less contacts (is not marked on the part) 340 = Connector kitted with M85049/27-XXX E-nut 341 = Connector kitted with M85049/49-2-XXX straight clamp 342 = Connector kitted with M85049/47XXX right angle clamp Consult factory for other modifications									

Note 1: Each connector is furnished with contacts unless ordered less contacts (L/C) as follows: One spare contact for inserts requiring 1 through 26 of each contact and two spares for inserts with more than 26 contacts and a minimum of one sealing plug up to 10% of the number of contacts. Spare Coax and Twinax contacts are not supplied. One insertion/removal tool for each contact size is also included.

Note 2: Proper part number marking has no "0" in front of single digit shell size (9) and no "0" in front of single digit layout. Example of each: J MS27466T9B35S and J MS27466T11B5S. In both, "N" for normal is omitted. In addition, J or JAN must now be marked in front of the MS part number.

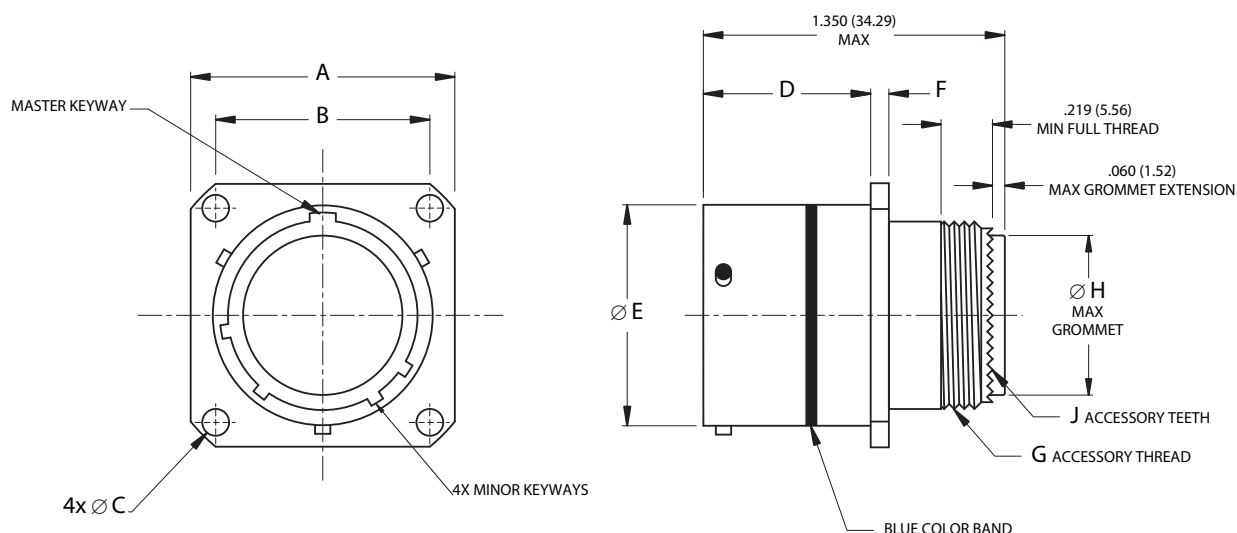


Bayonet Coupling, Crimp Removable, Rear Release, Scoop-Proof



Page 4	Completed Part Number
Page 13	Contacts, Sealing Plugs and Tools
Pages 17–19	Insert Arrangements
Page 3	Performance Specifications
Pages 15, 16	Insert Availability and Contact Information
Page 11	Polarization

Shell Size	A		B		Ø C		D		Ø E		F		G	Ø H		J
	±.020	±.51	(TP)		+0.010	+0.25	+0.000	+0.00	+0.001	+0.03	+0.015	+0.38	Accessory Thread	Maximum		No. of Teeth
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		inch	mm	
9	.938	23.83	.719	18.26	.128	3.25	.632	16.05	.572	14.53	.085	2.16	7/16-28	.299	7.59	12
11	1.031	26.19	.812	20.62	.128	3.25	.632	16.05	.700	17.78	.085	2.16	9/16-24	.427	10.85	16
13	1.125	28.58	.906	23.01	.128	3.25	.632	16.05	.850	21.59	.085	2.16	11/16-24	.541	13.74	20
15	1.219	30.96	.969	24.61	.128	3.25	.632	16.05	.975	24.77	.085	2.16	13/16-20	.666	16.92	24
17	1.312	33.32	1.062	26.97	.128	3.25	.632	16.05	1.100	27.94	.085	2.16	15/16-20	.791	20.09	28
19	1.438	36.53	1.156	29.36	.128	3.25	.632	16.05	1.207	30.66	.085	2.16	1-1/16-18	.897	22.78	32
21	1.562	39.67	1.250	31.75	.128	3.25	.602	15.29	1.332	33.83	.115	2.92	1-3/16-18	1.022	25.96	36
23	1.688	42.88	1.375	34.93	.147	3.73	.602	15.29	1.457	37.01	.115	2.92	1-5/16-18	1.147	29.13	40
25	1.812	46.02	1.500	38.10	.147	3.73	.602	15.29	1.582	40.18	.115	2.92	1-7/16-18	1.272	32.31	44

MS27656**Rear, Wall Mounting Receptacle****AE156****Bayonet Coupling, Crimp Removable, Rear Release, Scoop-Proof**

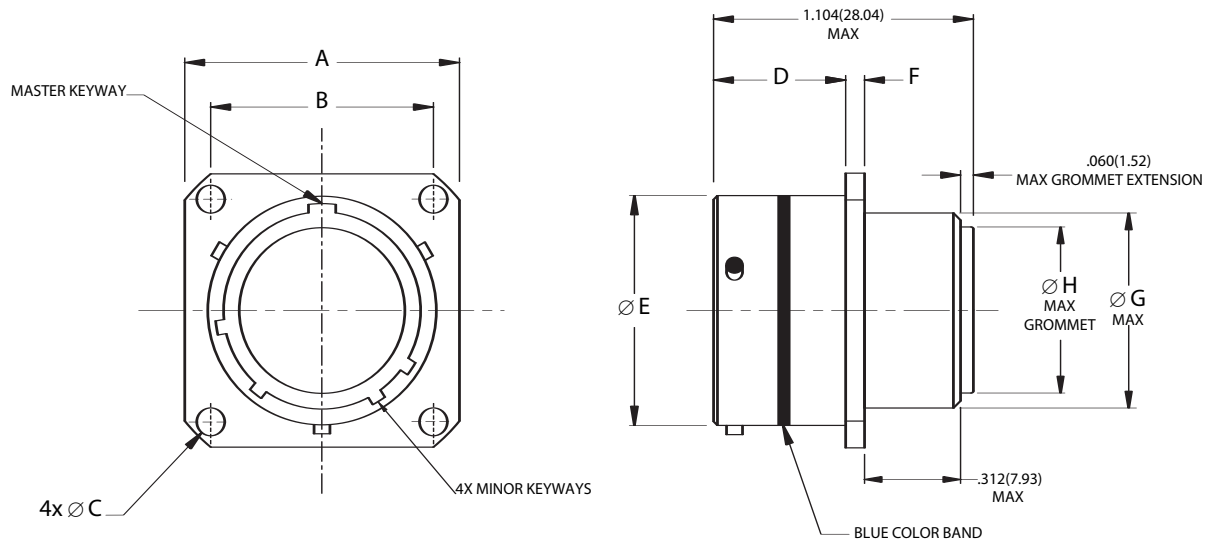
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Note: See page 12 for panel thickness.

Shell Size	A		B		Ø C		D		Ø E		F		G	Ø H		J
	±.020	±.51	(TP)		+0.010	+0.25	+0.000	+0.00	+0.001	+0.03	+0.015	+0.38	Accessory Thread	Maximum		No. of Teeth
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		inch	mm	
9	.938	23.83	.719	18.26	.128	3.25	.820	20.83	.572	14.53	.085	2.16	7/16-28	.299	7.59	12
11	1.031	26.19	.812	20.62	.128	3.25	.820	20.83	.700	17.78	.085	2.16	9/16-24	.427	10.85	16
13	1.125	28.58	.906	23.01	.128	3.25	.820	20.83	.850	21.59	.085	2.16	11/16-24	.541	13.74	20
15	1.219	30.96	.969	24.61	.128	3.25	.820	20.83	.975	24.77	.085	2.16	13/16-20	.666	16.92	24
17	1.312	33.32	1.062	26.97	.128	3.25	.820	20.83	1.100	27.94	.085	2.16	15/16-20	.791	20.09	28
19	1.438	36.53	1.156	29.36	.128	3.25	.820	20.83	1.207	30.66	.085	2.16	1-1/16-18	.897	22.78	32
21	1.562	39.67	1.250	31.75	.128	3.25	.790	20.07	1.332	33.83	.115	2.92	1-3/16-18	1.022	25.96	36
23	1.688	42.88	1.375	34.93	.147	3.73	.790	20.07	1.457	37.01	.115	2.92	1-5/16-18	1.147	29.13	40
25	1.812	46.02	1.500	38.10	.147	3.73	.790	20.07	1.582	40.18	.115	2.92	1-7/16-18	1.272	32.31	44



Bayonet Coupling, Crimp Removable, Rear Release, Scoop-Proof

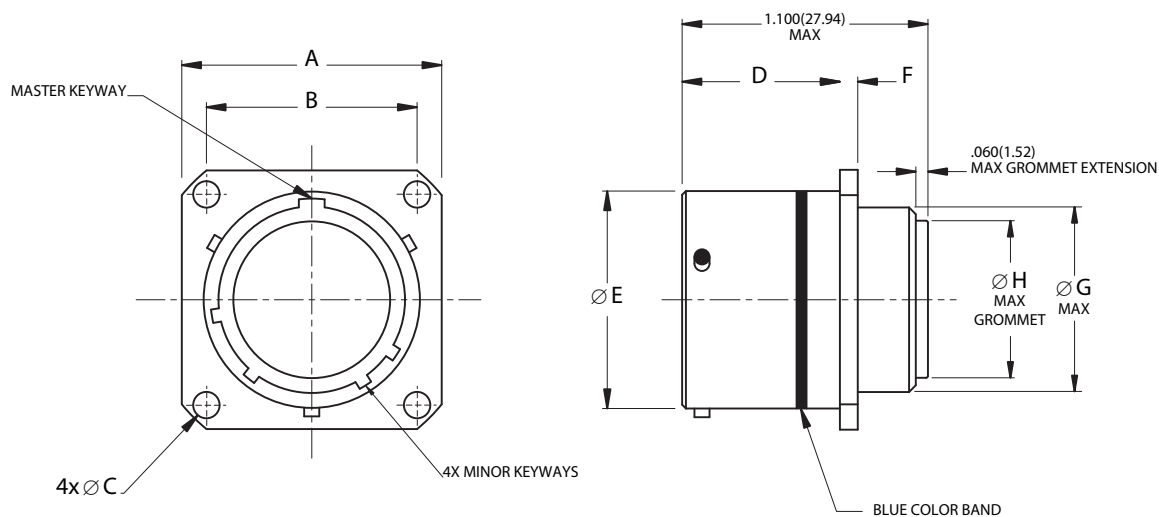


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Shell Size	A		B		Ø C		D		Ø E		F		Ø G		Ø H	
	±.020	±.51	(TP)		+.010	+.25	+.000	+.00	+.001	+.03	+.015	+.38	Maximum		Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
9	.938	23.83	.719	18.26	.128	3.25	.632	16.05	.572	14.53	.085	2.16	.469	11.91	.299	7.59
11	1.031	26.19	.812	20.62	.128	3.25	.632	16.05	.700	17.78	.085	2.16	.594	15.09	.427	10.85
13	1.125	28.58	.906	23.01	.128	3.25	.632	16.05	.850	21.59	.085	2.16	.719	18.26	.541	13.74
15	1.219	30.96	.969	24.61	.128	3.25	.632	16.05	.975	24.77	.085	2.16	.844	21.44	.666	16.92
17	1.312	33.32	1.062	26.97	.128	3.25	.632	16.05	1.100	27.94	.085	2.16	.969	24.61	.791	20.09
19	1.438	36.53	1.156	29.36	.128	3.25	.632	16.05	1.207	30.66	.085	2.16	1.078	27.38	.897	22.78
21	1.562	39.67	1.250	31.75	.128	3.25	.602	15.29	1.332	33.83	.115	2.92	1.203	30.56	1.022	25.96
23	1.688	42.88	1.375	34.93	.147	3.73	.602	15.29	1.457	37.01	.115	2.92	1.328	33.73	1.147	29.13
25	1.812	46.02	1.500	38.10	.147	3.73	.602	15.29	1.582	40.18	.115	2.92	1.453	36.91	1.272	32.31

MS27505**Rear, Box Mounting Receptacle****AE105**

Bayonet Coupling, Crimp Removable, Rear Release, Scoop-Proof

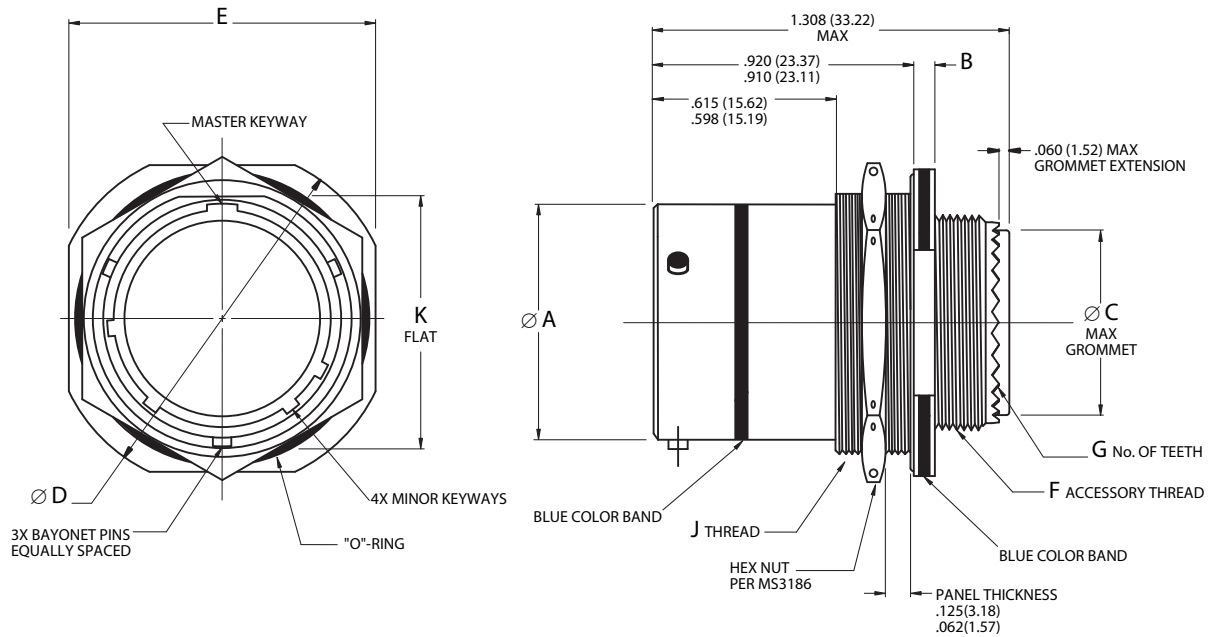


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Note: See page 12 for panel thickness.

Shell Size	A		B		Ø C		D		Ø E		F		Ø G		Ø H	
	±.020	±.51	(TP)		+.010	+.25	+.000	+.00	+.001	+.03	+.015	+.38	Maximum		Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm				
9	.938	23.83	.719	18.26	.128	3.25	.820	20.83	.572	14.53	.085	2.16	.547	13.89	.299	7.59
11	1.031	26.19	.812	20.62	.128	3.25	.820	20.83	.700	17.78	.085	2.16	.656	16.66	.427	10.85
13	1.125	28.58	.906	23.01	.128	3.25	.820	20.83	.850	21.59	.085	2.16	.828	21.03	.541	13.74
15	1.219	30.96	.969	24.61	.128	3.25	.820	20.83	.975	24.77	.085	2.16	.953	24.21	.666	16.92
17	1.312	33.32	1.062	26.97	.128	3.25	.820	20.83	1.100	27.94	.085	2.16	1.078	27.38	.791	20.09
19	1.438	36.53	1.156	29.36	.128	3.25	.820	20.83	1.207	30.66	.085	2.16	1.203	30.56	.897	22.78
21	1.562	39.67	1.250	31.75	.128	3.25	.790	20.07	1.332	33.83	.115	2.92	1.328	33.73	1.022	25.96
23	1.688	42.88	1.375	34.93	.147	3.73	.790	20.07	1.457	37.01	.115	2.92	1.453	36.91	1.147	29.13
25	1.812	46.02	1.500	38.10	.147	3.73	.790	20.07	1.582	40.18	.115	2.92	1.578	40.08	1.272	32.31

Bayonet Coupling, Crimp Removable, Rear Release, Scoop-Proof



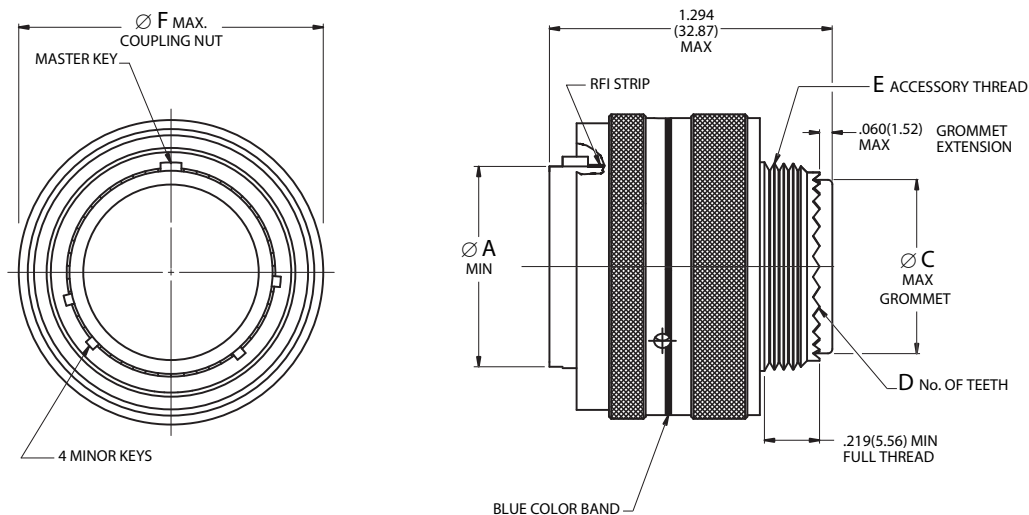
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Shell Size	Ø A		B		Ø C		Ø D		E		F	G	J	K
	+.001	+.03	+.011	+.28	Maximum		±.016	±.41	±.016	±.41	Accessory Thread	No. of Teeth	Jam Nut Thread Class 2A	Flat ±.005 ±.13
	-.005	-.13	-.010	-.25			inch	mm	inch	mm				
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	UNEF- 2A			inch mm
9	.572	14.53	.109	2.77	.299	7.59	1.188	30.18	1.062	26.97	7/16-28	12	11/16-24UNEF	.650 16.51
11	.700	17.78	.109	2.77	.427	10.85	1.375	34.93	1.250	31.75	9/16-24	16	13/16-20UNEF	.750 19.05
13	.850	21.59	.109	2.77	.541	13.74	1.500	38.10	1.375	34.93	11/16-24	20	1-20UNEF	.937 23.80
15	.975	24.77	.109	2.77	.666	16.92	1.625	41.28	1.500	38.10	13/16-20	24	1-1/8-18UNEF	1.061 26.95
17	1.100	27.94	.109	2.77	.791	20.09	1.750	44.45	1.625	41.28	15/16-20	28	1-1/4-18UNEF	1.186 30.12
19	1.207	30.66	.140	3.56	.897	22.78	1.938	49.23	1.812	46.02	1-1/16-18	32	1-3/8-18UNEF	1.311 33.30
21	1.332	33.83	.140	3.56	1.022	25.96	2.062	52.37	1.938	49.23	1-3/16-18	36	1-1/2-18UNEF	1.436 36.47
23	1.457	37.01	.140	3.56	1.147	29.13	2.188	55.58	2.062	52.37	1-5/16-18	40	1-5/8-18UNEF	1.561 39.65
25	1.582	40.18	.140	3.56	1.272	32.31	2.312	58.72	2.188	55.58	1-7/16-18	44	1-3/4-18UNS	1.686 42.82

MS27467
RFI Grounding Plug
AE167



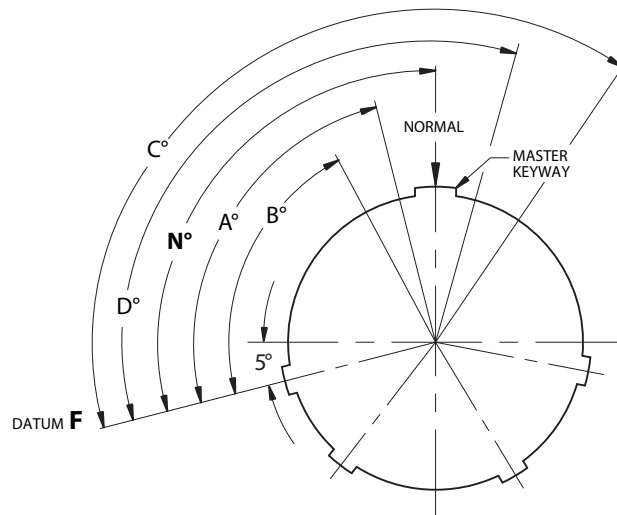
Bayonet Coupling, Crimp Removable, Rear Release, Scoop-Proof



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Page 11	Polarization

Shell Size	$\varnothing A$		$\varnothing C$		D	E	$\varnothing F$	
	Minimum		Maximum		No. of Teeth	Accessory Thread Class 2A	Maximum	
	inch	mm	inch	mm			inch	mm
9	.417	10.59	.299	7.59	12	7/16-28UNEF	.859	21.82
11	.545	13.84	.427	10.85	16	9/16-24UNEF	.984	24.99
13	.657	16.69	.541	13.74	20	11/16-24UNEF	1.156	29.36
15	.782	19.86	.666	16.92	24	13/16-20UNEF	1.281	32.54
17	.907	23.04	.791	20.09	28	15/16-20UNEF	1.406	35.71
19	1.012	25.70	.897	22.78	32	1-1/16-18UNEF	1.516	38.51
21	1.137	28.88	1.022	25.96	36	1-3/16-18UNEF	1.641	41.68
23	1.262	32.05	1.147	29.13	40	1-5/16-18UNEF	1.766	44.86
25	1.387	35.23	1.272	32.31	44	1-7/16-18UNEF	1.891	48.03

Keying Positions



Notes:

1. Mating face of receptacle shown (plug is opposite).
2. The master keyway (key) has various positions relative to DATUM **F**; the minor keyways (keys) remain fixed as shown. In the Normal position, the master keyway (key) is at 95° from DATUM **F**.
3. The angles for a given connector are the same whether it contains pin or socket inserts.
4. The insert arrangement does not rotate relative to master keyway (key).

Shell Size	Keying Positions				
	BSC				
	N°	A°	B°	C°	D°
9	95	77	–	–	113
11	95	81	67	123	109
13	95	75	63	127	115
15	95	74	61	129	116
17	95	77	65	125	113
19	95	77	65	125	113
21	95	77	65	125	113
23	95	80	69	121	110
25	95	80	69	121	110

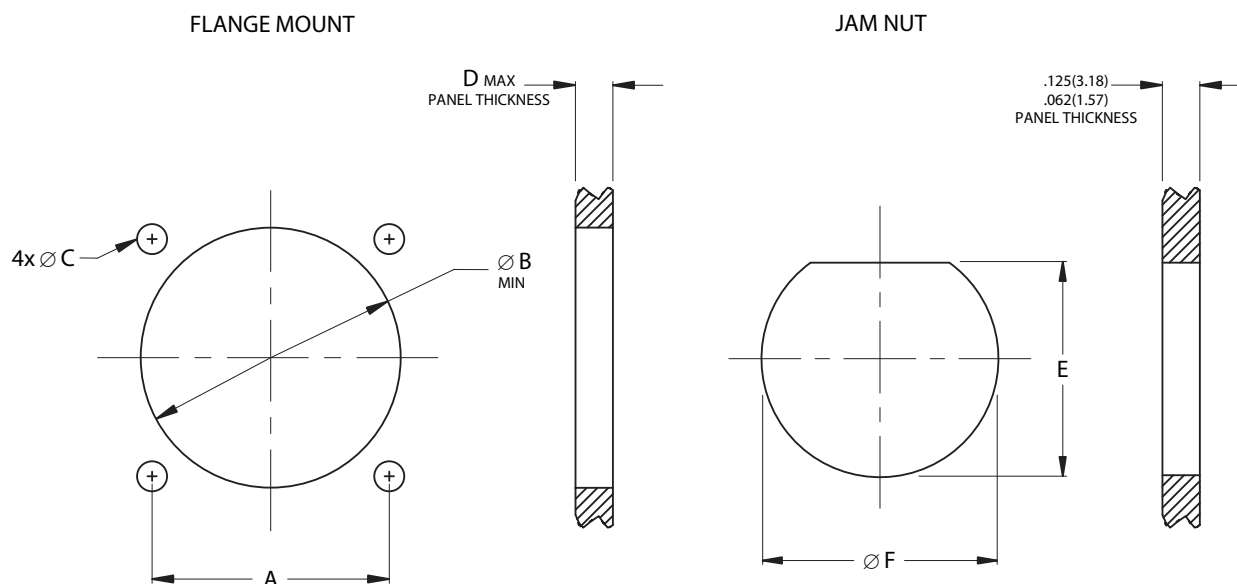
MIL-DTL-38999 Series I

Flange and Jam Nut Receptacles

Panel Cutouts



Panel Cutouts



Note 1: Flange Mounting Dimensions ($\varnothing$ B cutout and D MAX) listed only for back of panel mounting (MS27505 and MS27656).

Note 2: D MAX includes mounting hardware.

Flange and Jam Nut Mounting Dimensions

Shell Size	A		$\varnothing$ B		$\varnothing$ C		D		E		$\varnothing$ F	
	(TP)		Minimum		$\pm .005$ $\pm .13$		Maximum		+.000 $\pm .00$ $-.010$ $-.25$		+.010 $\pm .25$ $-.000$ $-.00$	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
9	.719	18.26	.656	16.66	.128	3.25	.234	5.94	.670	17.02	.700	17.78
11	.812	20.62	.796	20.22	.128	3.25	.234	5.94	.771	19.59	.825	20.96
13	.906	23.01	.922	23.42	.128	3.25	.234	5.94	.955	24.26	1.010	25.65
15	.969	24.61	1.047	26.59	.128	3.25	.234	5.94	1.085	27.56	1.135	28.83
17	1.062	26.97	1.219	30.96	.128	3.25	.234	5.94	1.210	30.73	1.260	32.01
19	1.156	29.36	1.297	32.94	.128	3.25	.234	5.94	1.335	33.91	1.385	35.18
21	1.250	31.75	1.422	36.12	.128	3.25	.204	5.18	1.460	37.08	1.510	38.35
23	1.375	34.93	1.547	39.29	.154	3.91	.204	5.18	1.585	40.26	1.635	41.53
25	1.500	38.10	1.672	42.47	.154	3.91	.193	4.90	1.710	43.43	1.760	44.70

Contacts, Plastic Insertion/Removal Tools and Seal Plugs

	Application	Pin Contacts	Socket Contacts	Seal Plugs	Insertion/Removal Tools
Contact Size	Type	Military No.	Military No.	Military No.	Plastic Military No.
22D	Power/Signal	M39029/58-360	M39029/56-348	MS27488-22-1	M81969/14-01
22M*	Power/Signal	M39029/58-361	M39029/56-349		—
22*	Power/Signal	M39029/58-362	M39029/56-350		—
20	Power/Signal	M39029/58-363	M39029/56-351	MS27488-20-1	M81969/14-10
16	Power/Signal	M39029/58-364	M39029/56-352	MS27488-16-1	M81969/14-03
12	Power/Signal	M39029/58-365	M39029/56-353	MS27488-12-1	M81969/14-04
12 Coax	Coax	M39029/28-211	M39029/75-416		—
12 Coax	Coax	M39029/102-558	M39029/103-559		—
8 Coax	Coax	M39029/60-367	M39029/59-366	MS27488-8-1	M81969/14-06
8 Twinax	Twinax	M39029/90-529	M39029/91-530	MS27488-8-1	M81969/14-12

Crimping and Metal Insertion/Extraction Tools

	Crimp Tool	Positioner	Positioner	Insertion Tool	Extraction Tool
Contact Size/Type		For Pin Contacts	For Socket Contacts	Metal	Metal
	Military No.	Military No.	Military No.	Military No.	Military No.
22D, 22M*	M22520/2-01	M22520/2-09	M22520/2-07	M81969/8-01	M81969/8-02
22*	M22520/2-01	M22520/2-09	M22520/2-07	M81969/8-03	M81969/8-04
20	M22520/1-01	M22520/1-04	M22520/1-04	M81969/8-05	M81969/8-06
	M22520/2-01	M22520/2-10	M22520/2-10		
16	M22520/1-01	M22520/1-04	M22520/1-04	M81969/8-07	M81969/8-08
12	M22520/1-01	M22520/1-04	M22520/1-04	M81969/8-09	M81969/8-10
12 Coax Inner	M22520/2-01	M22520/2-34	M22520/2-34		
12 Coax Outer	M22520/31-01	M22520/31-02	M22520/31-02		
8 Coax Inner	M22520/2-01	M22520/2-31	M22520/2-31	M81969/8-13**	M81969/8-14
8 Coax Outer	M22520/5-01	M22520/5-05 Die Closure B	M22520/5-05 Die Closure B		
8 Twinax Center	M22520/2-01	M22520/2-37	M22520/2-37	—	—
8 Twinax Outer & Intermediate	M22520/5-01	M22520/5-200	M22520/5-200		

Contact and Wire Data

Contact Size	Test Current	Voltage	Crimp Well Data			Wire Range		Finished Wire Ø Range			
	DC Test	Max. Drop	Well Dia.	Minimum Well Dept				Minimum		Maximum	
	Amps	Millivolts	inch	inch	mm	AWG	mm ²	inch	mm	inch	mm
22D	5.0	73	.0345 ±.0010	.141	3.58	28-22	.08-.33	.030	.76	.054	1.37
22M*	3.0	45	.028 ±.001	.141	3.58	28-24	.08-.20	.030	.76	.050	1.27
22*	5.0	73	.0365 ±.0010	.141	3.58	26-22	.13-.33	.034	.86	.060	1.52
20	7.5	55	.047 ±.001	.209	5.31	24-20	.20-.52	.040	1.02	.083	2.11
16	13.0	49	.067 ±.001	.209	5.31	20-16	.52-1.31	.065	1.65	.109	2.77
12	23.0	42	.100 ±.002	.209	5.31	14-12	2.08-3.31	.097	2.46	.142	3.61

* Inactive for new design

** Insertion tool is not required.

Note 1: Test Current and Maximum Voltage Drop when tested with silver-plated wire at 25°C.

Note 2: Size 12 coax contacts purchased in bulk.

Note 3: Size 8 coax contacts are used with M17/095-RG180 cable, while size 8 Twinax contacts are used with M17/176-00002 cable.

Contact Installation Instructions

Crimping Contacts

1. Select the appropriate crimp tool and ensure that the proper crimp head positioner is used.
2. Cycle the tool to be sure the indentors are open.
3. Determine the correct selector setting for the wire size from the data plate on the positioner (turret head assembly) and set the selector knob on the crimp tool to match.
4. Place the contact, mating end first, into the tool.
5. Insert the stripped wire into the hollow end of the contact. Be sure the wire is inserted as far as it will go.
6. Close the tool completely to crimp. Unless the tool is closed completely, the tool will not release the contact.
7. Remove the crimped contact from the tool. Check the inspection hole to verify that the wire is fully inserted.

Insertion of Contacts

1. Before inserting the contacts, unscrew the accessories (clamps, backshells or adapters) from rear of plug or receptacle. Slide the hardware over the wire bundle in the proper order for reassembly after all the contacts are inserted.
2. To assist insertion of contacts, lubricate insulator (grommet) cavities with isopropyl alcohol. Alcohol will evaporate and will not leave a conductive film. **Caution: Never use any lubricant other than isopropyl alcohol.**

3. Place the correct insertion tool on the contact so that the wire runs along the groove in the tool. (Tool tip will butt against the shoulder.) Hold the plug or receptacle body firmly.
4. Beginning with a center cavity, insert the contact into the insulator with a slow, even pressure until the contact snaps into position. Make sure the contact and tool are held perpendicular to the face of the insert during the contact installation or the grommet could be damaged.
 - 4.1 If contacts are not inserted all the way prior to removing insertion tool, do not try to reinsert the insertion tool. Instead, remove the contact and try again; otherwise reinserting the insertion tool may damage the inside of the contact cavity.
5. Remove tool and check the face of the connector for proper contact installation. Proper installation may also be checked by pulling back lightly on the wire to make sure the contact is properly seated.

Completion

After all the cavities have been filled, slide the hardware back into position on the connector and tighten.

Extraction of Contacts (Rework)

1. Slide the hardware back over the wire bundle.
2. Select the appropriate tool. Place the wire into the extraction tool of the pin or socket.
3. Slowly slide the extraction tool down wire into the contact cavities until the tool tip bottoms against the contact shoulder, expanding the clip retaining tines. Hold the wire firmly in the tool and pull the wired contact and tool straight out of the rear of the insulator.

Size	Pin Contact	Socket Contact	Basic Crimp Tool	Pin Positioner	Socket Positioner	Insertion/Removal Tool
22D	M39029/58-360	M39029/56-348	M22520/2-01	M22520/2-09	M22520/2-07	M81969/14-01
22M	M39029/58-361	M39029/56-349	M22520/2-01	M22520/2-09	M22520/2-07	M81969/14-01
22	M39029/58-362	M39029/56-350	M22520/2-01	M22520/2-09	M22520/2-07	M81969/14-01
20	M39029/58-363	M39029/56-351	M22520/1-01	M22520/1-04 Red	M22520/1-04 Red	M81969/14-10
			M22520/2-01	M22520/2-10	M22520/2-10	
20	M39029/58-364	M39029/56-352	M22520/1-01	M22520/1-04 Blue	M22520/1-04 Blue	M81969/14-03
12	M39029/58-365	M39029/56-353	M22520/1-01	M22520/1-04 Yellow	M22520/1-04 Yellow	M81969/14-04

For coax and twinax contacts refer to instructions that are supplied with contacts.



MIL-DTL-38999 Series I, II and III Insert Availability and Contact Information per MIL-STD-1560

Insert Availability and Contact Information

Insert Arrangement			Aero-Electric		Service	Total	Quantity of Contacts							
			Status			No. of	(by Size)							
Series I	Series II	Series III	QPL'd	Tooled	Rating	Contacts	22D	22M	22	20	16	12	10	8
9-6*	8-6*	—	Yes	Yes	M	6		6						
9-35	8-35	A35	Yes	Yes	M	6	6							
9-98	8-98	A98	Yes	Yes	I	3				3				
11-2	—	B2	Yes	Yes	I	2					2			
11-4	—	B4	Yes	Yes	I	4				4				
11-5	10-5	B5	Yes	Yes	I	5				5				
11-13*	10-13*	—	Yes	Yes	M	13		13						
11-35	10-35	B35	Yes	Yes	M	13	13							
11-98	10-98	B98	Yes	Yes	I	6				6				
11-99	10-99	B99	Yes	Yes	I	7				7				
—	12-3	—	Yes	Yes	II	3					3			
13-4	12-4	C4	Yes	Yes	I	4					4			
13-8	12-8	C8	Yes	Yes	I	8				8				
13-22*	12-22*	—	Yes	Yes	M	22		22						
13-35	12-35	C35	Yes	Yes	M	22	22							
13-98	12-98	C98	Yes	Yes	I	10				10				
15-5	14-5	D5	Yes	Yes	II	5					5			
15-15	14-15	D15	Yes	Yes	I	15				14	1			
15-18	14-18	D18	Yes	Yes	I	18				18				
15-19	—	D19	Yes	Yes	I	19				19				
15-35	14-35	D35	Yes	Yes	M	37	37							
15-37*	14-37*	—	Yes	Yes	M	37		37						
15-97	14-97	D97	Yes	Yes	I	12				8	4			
17-6	16-6	E6	Yes	Yes	I	6						6		
17-8	16-8	E8	Yes	Yes	II	8					8			
17-26	16-26	E26	Yes	Yes	I	26				26				
17-35	16-35	E35	Yes	Yes	M	55	55							
17-55*	16-55*	—	Yes	Yes	M	55		55						
17-99	16-99	E99	Yes	Yes	I	23				21	2			
19-11	18-11	F11	Yes	Yes	II	11					11			
19-28	18-28	F28	Yes	Yes	I	28				26	2			
19-30	18-30	F30	Yes	Yes	I	30				29	1			
19-32	18-32	F32	Yes	Yes	I	32				32				
19-35	18-35	F35	Yes	Yes	M	66	66							
—	18-53**	—	Yes	Yes	M	53			53					
19-66*	18-66*	—	Yes	Yes	M	66		66						

Please see next page for Shell Sizes 21/20/G thru 25/24/J layouts.

* Not approved for new design. Toolled and qualified but their separate pictorials are not shown on pages 17 thru 19, as they are the same as corresponding (-35) layouts that take same qty of 22D instead of 22M contacts.

** Not approved for new design. Pictorial is shown on page 18.

— above means "not available" for that series.

MIL-DTL-38999 Series I, II and III

Insert Availability and Contact Information

per MIL-STD-1560



Insert Availability and Contact Information (continued)

Insert Arrangement			Aero-Electric		Service	Total	Quantity of Contacts							
			Status			No. of	(by Size)							
Series I	Series II	Series III	QPL'd	Tooled	Rating	Contacts	22D	22M	22	20	16	12	10	8
21-1*	20-1*	—	Yes	Yes	M	79		79						
21-11	—	G11	Yes	Yes	I	11						11		
21-16	20-16	G16	Yes	Yes	II	16					16			
21-35	20-35	G35	Yes	Yes	M	79	79							
21-39	20-39	G39	Yes	Yes	I	39				37	2			
21-41	20-41	G41	Yes	Yes	I	41				41				
21-48**	—	G48**	N/A	Yes	I	4								4 (Power)
21-75	—	G75	Yes	Yes	Twinax	4								4 (Twinax)
23-1*	22-1*	—	Yes	Yes	M	100		100						
23-2***	22-2***	—	Yes	Yes	M	85			85					
23-21	22-21	H21	Yes	Yes	II	21					21			
23-32	22-32	H32	Yes	Yes	I	32				32				
23-35	22-35	H35	Yes	Yes	M	100	100							
23-53	22-53	H53	Yes	Yes	I	53				53				
23-55	22-55	H55	Yes	Yes	I	55				55				
25-1*	24-1*	—	Yes	Yes	M	128		128						
25-4	24-4	J4	Yes	Yes	I	56				48	8			
—	—	J8	Yes	Yes	Twinax	8								8 (Twinax)
—	—	J11	Yes	Yes	N	11				2			9	
25-19	24-19	J19	Yes	Yes	I	19						19		
—	—	J20	Yes	Yes	N, Coax, Twinax	30				10	13	4 (Coax)		3 (Twinax)
25-24	24-24	J24	Yes	Yes	I	24					12	12		
25-29	24-29	J29	Yes	Yes	I	29					29			
25-35	24-35	J35	Yes	Yes	M	128	128							
25-43	—	J43	Yes	Yes	I	43				23	20			
25-46	—	J46****	Yes	Yes	I, Coax	46				40	4			2 (Coax)
25-61	24-61	J61	Yes	Yes	I	61				61				
—	—	J90	Yes	Yes	I, Twinax	46				40	4			2 (Twinax)

* Not approved for new design. Toolled and qualified but their separate pictorials are not shown on pages 17 thru 19, as they are same as corresponding (-35) layouts that take same quantity of 22D instead of 22M contacts.

** 21-48/G48 layout is not to MIL-STD-1560. It is toolled and intended for comm'l use only.

*** Not approved for new design. Pictorial is shown on page 18.

**** J46 in Series III is not QPL'd but can be purchased to comm'l number (Size 8 Coax contact must be used).

— above means "not available" for that series

Note 1: J20P uses 4 size 12 coax contacts as follows: 2 ea M39029/28-211 and 2 ea of M39029/102-558; J20S uses 4 size 12 coax contacts as follows: 2 ea M39029/75-416 and 2 ea of M39029/103-559.

Note 2: Layouts (G75, J8, J20, J46 and J90) that take twinax or coax contacts should not be used for firewall applications (Classes K & S) in Series III.

Note 3: H and J contact styles (in lieu of P & S) are meant for Composite (classes J & M) Series III only. Aluminum (classes A, B, F & W) and Firewall (classes K & S) are rated for 500 cycles regardless what contacts are used.

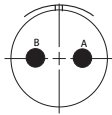
Insert Arrangements Views



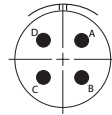
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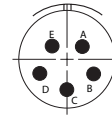
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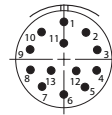
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2 # 16, I



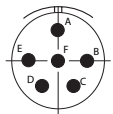
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4 # 20, I



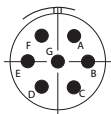
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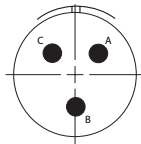
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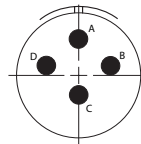
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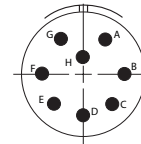
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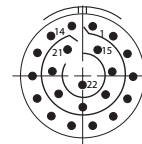
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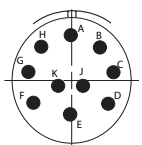
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4 # 16, I



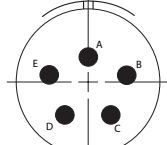
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8 # 20, I



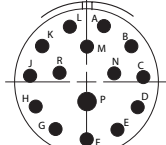
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22 # 22D, M



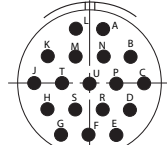
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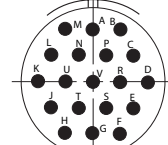
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5 # 16, II



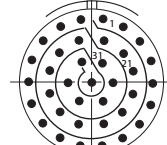
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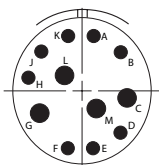
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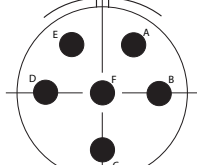
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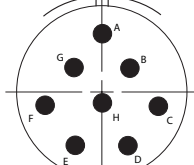
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D35,
37 # 22D, M



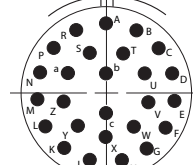
15-97/14-97
D97,
4 # 16, 8 # 20, I



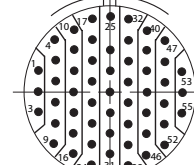
17-6/16-6
E6,
6 # 12, I



17-8/16-8
E8,
8 # 16, II



17-26/16-26
E26,
26 # 20, I



17-35/16-35
E35,
55 # 22D, M

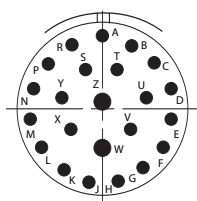
MIL-STD-1560

Insert Arrangements (Pin Front View)

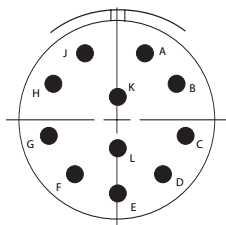
for MIL-DTL-38999 Series I, II and III Connectors



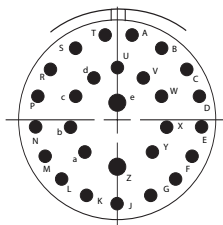
Insert Arrangements Views



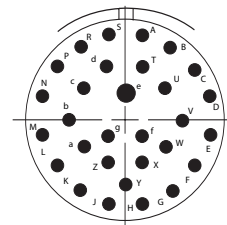
17-99/16-99
E99,
2 # 16, 21 # 20, I



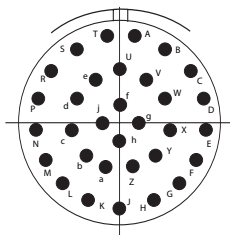
19-11/18-11
F11,
11 # 16, II



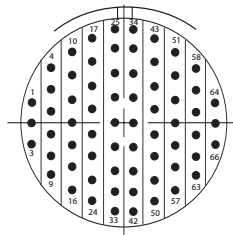
19-28/18-28
F28,
2 # 16, 26 # 20, I



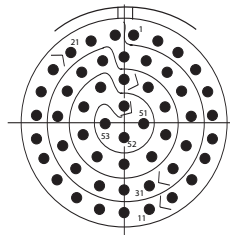
19-30/18-30
F30,
1 # 16, 29 # 20, I



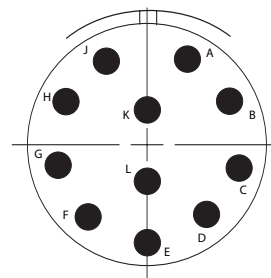
19-32/18-32
F32,
32 # 20, I



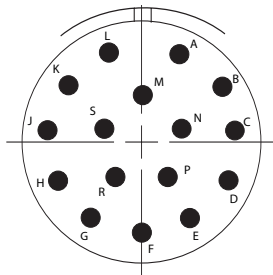
19-35/18-35
F35,
66 # 22D, M



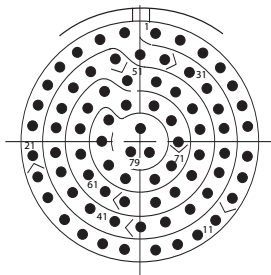
18-53*
53 # 22, M



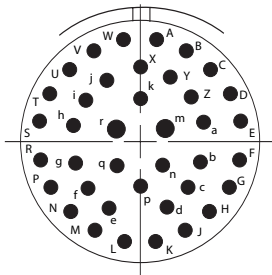
21-11
G11,
11 # 12, I



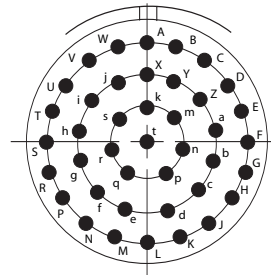
21-16/20-16
G16,
16 # 16, II



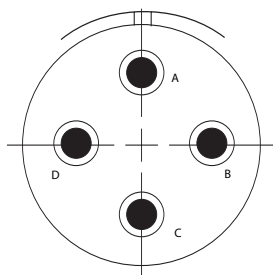
21-35/20-35
G35,
79 # 22D, M



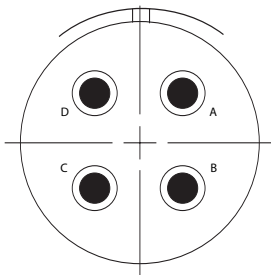
21-39/20-39
G39,
2 # 16, 37 # 20, I



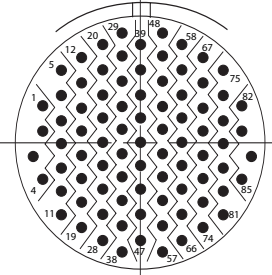
21-41/20-41
G41,
41 # 20, I



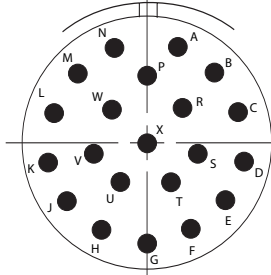
21-48**
G48**,
4 # 8 Power, I



21-75
G75,
4 # 8 Twinax, Twinax



23-2*/22-2*
85 # 22, M

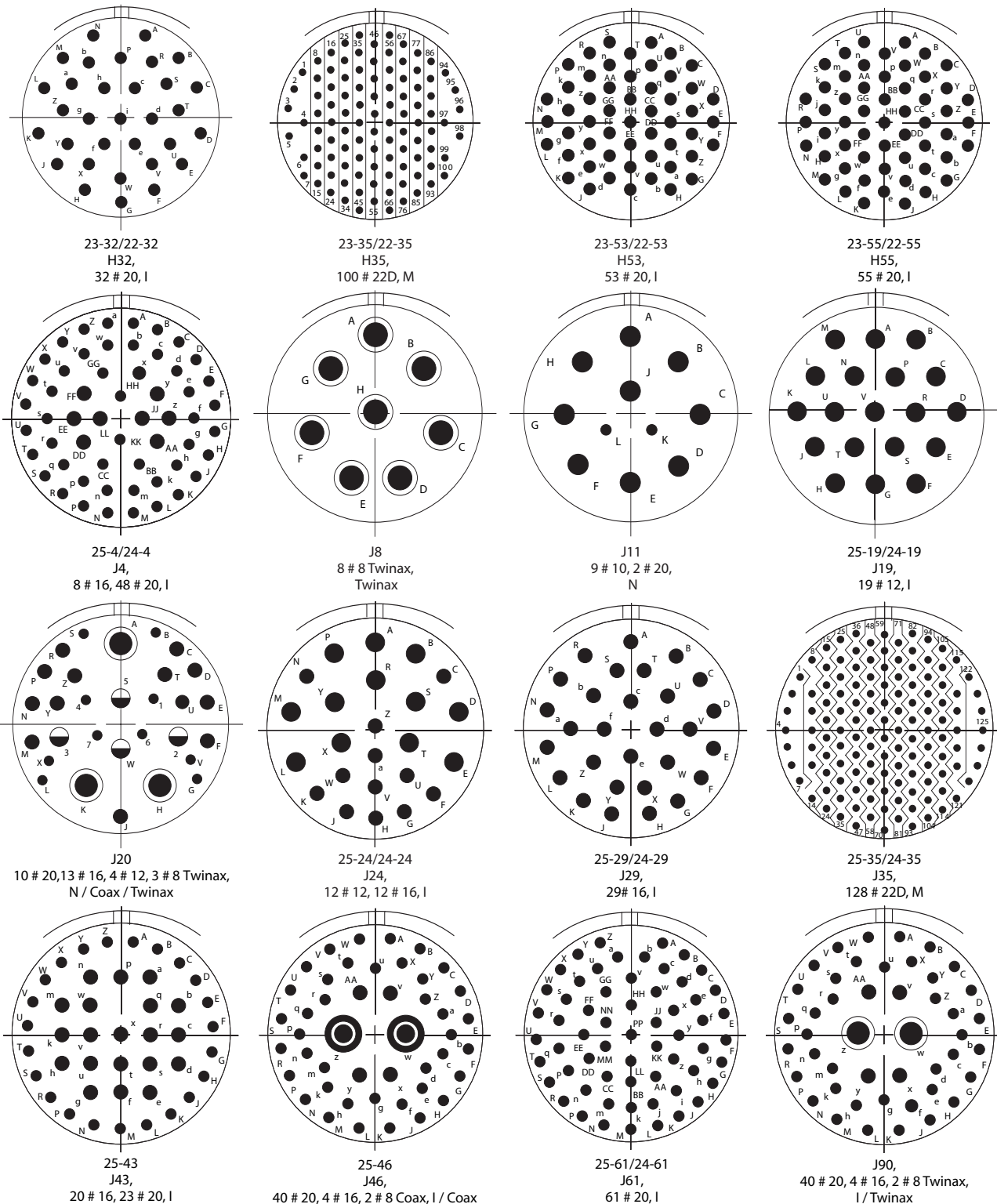


23-21/22-21
H21,
21 # 16, II

* Inactive for new design.

** Not MIL-STD-1560 layout (not QPL'd.).

Insert Arrangements Views



MIL-DTL-38999 Features and Application Series II



Features and Application

MIL-DTL-38999 Series II connectors feature a bayonet coupling mechanism with lower profile design and rear-removable crimp contact retention system.

These connectors were designed for military and commercial applications where the prime requirements are lower profile and lighter weight.

Reduction of both size and weight were achieved through the use of thinner shell walls and length restrictions. These design restrictions reduced the RFI attenuation characteristics and the “scoop” protection, while yielding an excellent general purpose, lightweight connector. Compared to Series I, Series II connectors achieve up to 20% reduction in mated pair length, up to 39% reduction in outside diameter and up to 40% reduction in weight (128 pin mated pair).

This family of connectors is offered in six receptacle-mounting styles. They include square flange receptacles, for both front and rear panel (wall) mounting; square flange receptacles, for both front and rear panel (box) mounting; square flange receptacle with extended grommet, for front of panel (box) mounting; and jam nut receptacles which incorporate “O” ring seals, designed for rear panel “D” hole mounting.

Plugs are available in two designs, with and without RFI grounding.

Fifty-two insert arrangement per MIL-STD-1560 are tooled and qualified to MIL-DTL-38999 Series II, utilizing 3 to 128 M39029 contacts. Contacts come in sizes 22D, 22M, 22, 20, 16 and 12, terminating wire sizes from 28 to 12 gauge.

These connectors are available in wide range of shell materials and finishes. Aluminum shells are offered in electroless nickel, bright cadmium, anodized, and olive drab cadmium. Other finishes such as zinc cobalt are available upon request to commercial callouts only. In addition, we offer passivated stainless steel shells with standard environment-resisting inserts (commercial callouts only).

Universal I/R Tool – A single, expendable plastic tool is used for both insertion and removal of contacts.

Closed-Entry Socket Insert – Hard dielectric socket face has lead-in chamfers for positive alignment of pins (even partially bent within pre-established limits) with sockets.

Interfacial Pin Insert Seal – Raised moisture barriers around each pin, which mate into lead-in chamfers of hard face socket insert, provide individual contact sealing. Interfacial seal is never touched by service tools.

Elastomer Wire Sealing Grommet – Sealing over a wide range of wire diameters is assured by a triple wire seal in each cavity at the rear of the connector.

Superior Contact Stability – Rear release crimp contact system features a stamped beryllium-copper retaining clip captivated by molded-in shoulders of each contact cavity in the insulator. A rear-inserted M81969 plastic tool expands the tines beyond the shoulder, releasing the contact.

Shell Polarization – Alternate key/keyway positions prevent cross mating of adjacent connectors having same insert arrangement.





MIL-DTL-38999 Performance Specifications Series II

MIL-DTL-38999 S II

Performance Specifications

Operating Temperature Range

Finish B: -65°C to +175°C (-85°F to +347°F)

Finishes C and F: -65°C to +200°C (-85°F to +392°F)

Finish A: -65°C to +150°C (-85°F to 302°F)

Material and Plating Data (Finish)

B – aluminum shell, olive drab cadmium over nickel base

C – aluminum shell, black anodized finish

F – aluminum shell, electroless nickel finish

A – aluminum shell, silver to light iridescent yellow color (bright) cadmium over electroless nickel base

Corrosion Resistance

Finishes A, B and C withstand 500-hour salt spray.

Finish F withstands 48-hour salt spray.

Durability

Mated connectors withstand a minimum of 250 mating cycles for RFI plug (MS27484) and 500 cycles for MS27473 and MS27500 plugs.

Environmental Seal

Wired, mated connectors with specified accessories attached, shall meet the altitude-immersion test specified by MIL-DTL-38999.

Fluid Resistance

Connectors resist specified immersions in MIL-PRF-7808, MIL-PRF-23699, MIL-PRF-5606, M2-V Chevron oil, Coolanol 25, MIL-DTL-83133 (JP-8), MIL-DTL-5624 (JP-4, JP-5), SAE-AMS1424 Type I, and other solvents and cleaning agents.

Voltage Rating

Service Rating	Suggested Operating Voltage		Test Voltage	Test Voltage	Test Voltage	Test Voltage
	(Sea Level)		Sea Level	50,000 Ft.	70,000 Ft.	100,000 Ft.
	AC (RMS)	DC	V RMS	V RMS	V RMS	V RMS
M	400	550	1300	550	350	200
N	300	450	1000	400	260	200
I	600	850	1800	600	400	200
II	900	1250	2300	800	500	200

Note: The establishment of electrical safety factors is left entirely to the designer, as he is in the best position to know

Shell-to-Shell Conductivity

Maximum potential drop shall not exceed:

- With RFI spring fingers, finish F = 1.0 millivolt, while finishes A and B = 2.5 millivolts.
- Without spring fingers = 200 millivolts.
- Finish C = nonconductive.

Shielding Effectiveness

RFI and EMI attenuation at the specified frequencies meet the requirements of MIL-DTL-38999.

- RFI shielding effectiveness of mated connectors with RFI backshells is measured in a triaxial radio frequency leakage fixture.
- EMI shielding effectiveness is measured at the interface of mated connectors and tested by the mode-stirred technique specified in method 3008 of MIL-STD-1344.

Shock and Vibration Requirements

Wired, mated connectors shall not be damaged, nor shall there be a current interruption longer than one microsecond when subjected to the following:

Standard Shock

Mated connectors withstand a pulse of approximate half sine wave of 300 G magnitude with duration of three milliseconds applied in three axes per MIL-STD-1344, method 2004.

Vibration

Mated connectors withstand the following vibration levels:

- Random vibration per MIL-STD-1344, method 205 test condition VI, Letter “J”.

exactly what peak voltages, switching currents, transients, etc., can be expected in a particular circuit.

MIL-DTL-38999 Part Number Development Series II



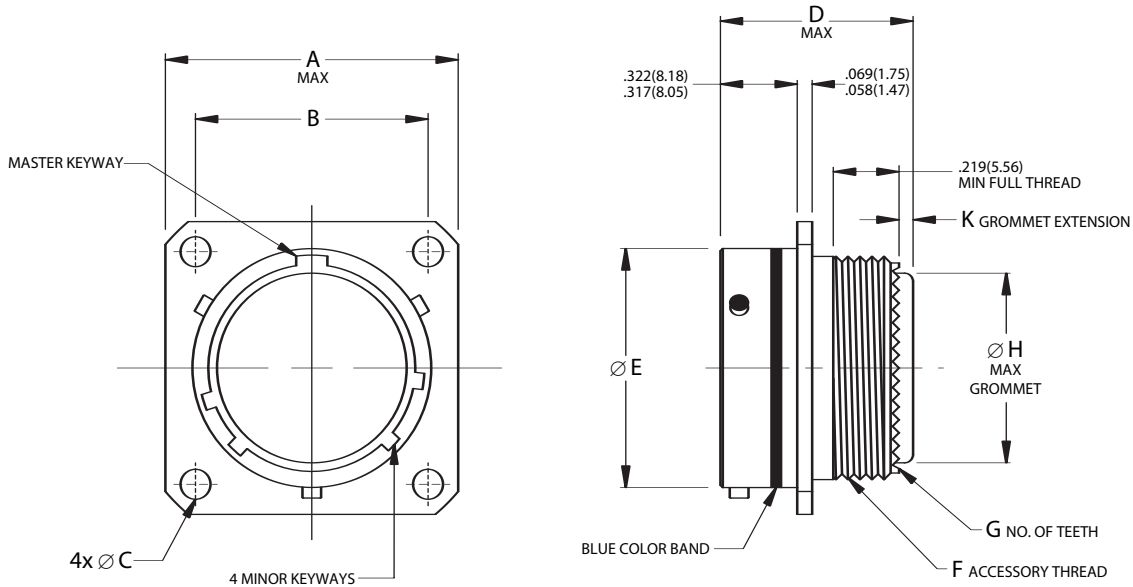
Military and Aero-Electric Part Number Development

Mil. Prefix	MS	27473	T	12	B	35	P	A	
Aero Prefix	AE	273	T	12	B	35	P	A	-340
Shell Type 27472 = Front, wall mount receptacle = 272 (Aero p/n) 27473 = Straight plug = 273 (Aero p/n) 27474 = Jam nut receptacle = 274 (Aero p/n) 27484 = RFI grounding plug = 284 (Aero p/n) 27497 = Rear, wall mount receptacle = 297 (Aero p/n) 27499 = Front, box mount receptacle = 299 (Aero p/n) 27500 = Standard plug with 90° backshell = 200 (Aero p/n) 27508 = Rear, box mount receptacle = 208 (Aero p/n) 27513 = Front, box mount rec. (long grommet) = 213 (Aero p/n)									
Class T = With accessory thread (MS27472, 27473, 27474, 27484 & 27497) E = Same as T in line above except connector is kitted with E-Nut = No accessory thread, box mount (MS27499 & MS27508) = No accessory thread, box mount, long grommet (MS27513) P = Supplied with ring and potting boot (same shell types as "T" class)									
Shell Size 8, 10, 12, 14, 16, 18, 20, 22 or 24									
Finish (Material & Plating) A = Aluminum shell, silver to light iridescent yellow (bright) cadmium over electroless nickel base B = Aluminum shell, olive drab cadmium over electroless nickel base C = Aluminum shell, black anodized finish (not available in MS27484) F = Aluminum shell, electroless nickel finish E = Stainless steel shell, passivated (Aero p/n only, n/a in AE284)									
Insert Arrangement See page 15 thru 19									
Contact Designator P = Pin A = Pin connector less pins (with intent to use non-std pin contacts) S = Socket B = Socket connector less sockets (with intent to use non-std socket contacts)									
Polarization (Keying) N = Normal (Omitted in part number) A, B, C, or D (B & C keyways are not available in shell size 8)									
Modification (applies to Aero part numbers only) 01 = Less contacts (is not marked on the part) 340 = Connector kitted with M85049/27-XXX E-nut 341 = Connector kitted with M85049/49-2-XXX straight clamp 342 = Connector kitted with M85049/47XXX right angle clamp Consult factory for other modifications									

Note 1: Each connector is furnished with contacts unless ordered less contacts (L/C) as follows: One spare contact for inserts requiring 2 through 26 of each contact and two spares for inserts with 27 or more contacts, and a minimum of one sealing plug up to 10% of the number contacts. One insertion/extraction tool for each contact size is also included.

Note 2: Proper part number marking has no "0" in front of single digit shell size (8) and no "0" in front of single digit layout. Example of each: J MS27472T8B35S and J MS27472T10B5S. In both "N" for normal is omitted. Please note that JAN or J marking is required immediately in front of MS number.

Bayonet Coupling, Crimp Removable, Rear Release, Low Profile/Light Weight

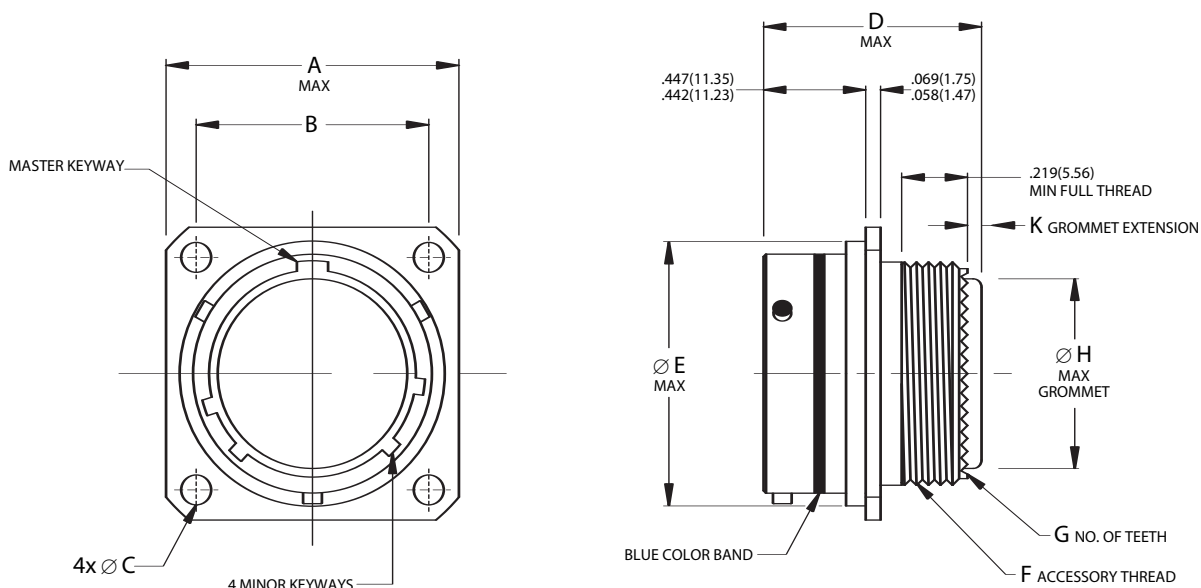


Page 22	Completed Part Number
Page 34	Contacts, Sealing Plugs and Tools
Pages 17-19	Insert Arrangements
Page 21	Performance Specifications
Pages 15, 16	Insert Availability and Contact Information
Page 32	Polarization

Shell Size	A		B		Ø C		D		Ø E		F	G	Ø H		K	
	Maximum		(TP)		+.010 -.005		Maximum		±.003 ±.08		Accessory Thread	No. of Teeth	Maximum		Grommet Extension	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	UNEF-2A		inch	mm	inch	mm
8	.828	21.03	.594	15.09	.120	3.05	.932	23.67	.471	11.96	7/16-28	12	.299	7.59	.150/.090	3.81/2.29
10	.954	24.23	.719	18.26	.120	3.05	.932	23.67	.588	14.94	9/16-24	16	.427	10.85	.150/.090	3.81/2.29
12	1.047	26.59	.812	20.62	.120	3.05	.932	23.67	.748	19.00	11/16-24	20	.541	13.74	.150/.090	3.81/2.29
14	1.141	28.98	.906	23.01	.120	3.05	.932	23.67	.873	22.17	13/16-20	24	.666	16.92	.150/.090	3.81/2.29
16	1.234	31.34	.969	24.61	.120	3.05	.932	23.67	.998	25.35	15/16-20	28	.791	20.09	.150/.090	3.81/2.29
18	1.328	33.73	1.062	26.97	.120	3.05	.932	23.67	1.123	28.52	1-1/16-18	32	.897	22.78	.150/.090	3.81/2.29
20	1.453	36.91	1.156	29.36	.120	3.05	.932	23.67	1.248	31.70	1-3/16-18	36	1.022	25.96	.150/.090	3.81/2.29
22	1.578	40.08	1.250	31.75	.120	3.05	.932	23.67	1.373	34.87	1-5/16-18	40	1.147	29.13	.150/.090	3.81/2.29
24	1.703	43.26	1.375	34.93	.147	3.73	1.000	25.40	1.498	38.05	1-7/16-18	44	1.272	32.31	.140/.040	3.56/1.02

MS27497**Rear, Wall Mounting Receptacle****AE297**

Bayonet Coupling, Crimp Removable, Rear Release, Low Profile/Light Weight



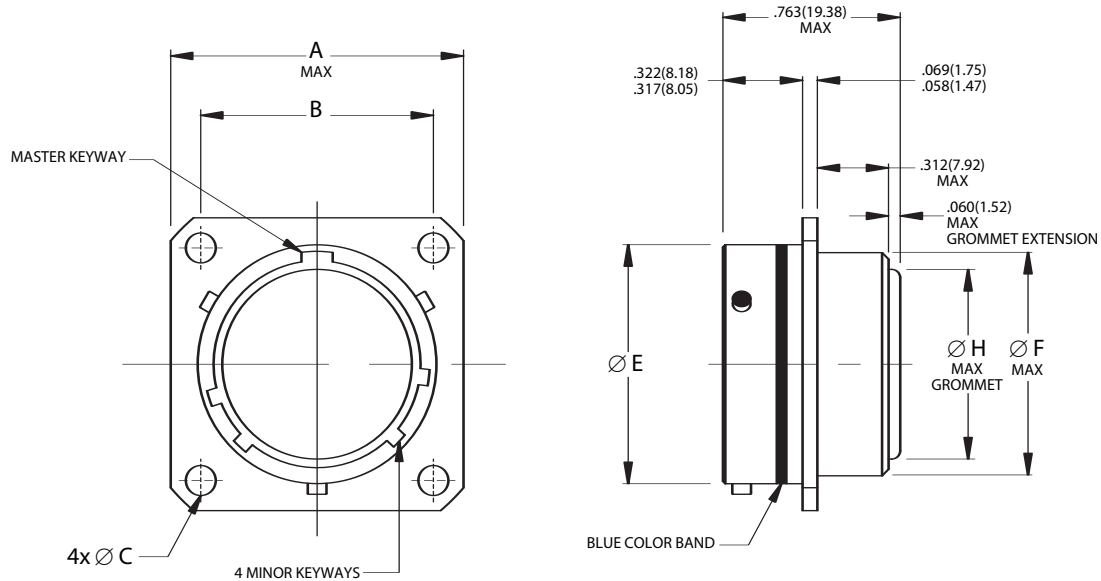
Page 22	Completed Part Number
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Note: See page 33 for panel thickness.

Shell Size	A		B		Ø C		D		Ø E		F	G	Ø H		K	
	Maximum		(TP)		+.010 -.005		Maximum		Maximum		Accessory Thread	No. of Teeth	Maximum		Grommet Extension	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	UNEF-2A		inch	mm	inch	mm
8	.828	21.03	.594	15.09	.120	3.05	.988	25.10	.547	13.89	7/16-28	12	.299	7.59	.150/.090	3.81/2.29
10	.954	24.23	.719	18.26	.120	3.05	.988	25.10	.672	17.07	9/16-24	16	.427	10.85	.150/.090	3.81/2.29
12	1.047	26.59	.812	20.62	.120	3.05	.988	25.10	.844	21.44	11/16-24	20	.541	13.74	.150/.090	3.81/2.29
14	1.141	28.98	.906	23.01	.120	3.05	.988	25.10	.969	24.61	13/16-20	24	.666	16.92	.150/.090	3.81/2.29
16	1.234	31.34	.969	24.61	.120	3.05	.988	25.10	1.094	27.79	15/16-20	28	.791	20.09	.150/.090	3.81/2.29
18	1.328	33.73	1.062	26.97	.120	3.05	.988	25.10	1.219	30.96	1-1/16-18	32	.897	22.78	.150/.090	3.81/2.29
20	1.453	36.91	1.156	29.36	.120	3.05	.988	25.10	1.344	34.14	1-3/16-18	36	1.022	25.96	.150/.090	3.81/2.29
22	1.578	40.08	1.250	31.75	.120	3.05	.988	25.10	1.469	37.31	1-5/16-18	40	1.147	29.13	.150/.090	3.81/2.29
24	1.703	43.26	1.375	34.93	.147	3.73	1.056	26.82	1.594	40.49	1-7/16-18	44	1.272	32.31	.140/.040	3.56/1.02



Bayonet Coupling, Crimp Removable, Rear Release, Low Profile/Light Weight

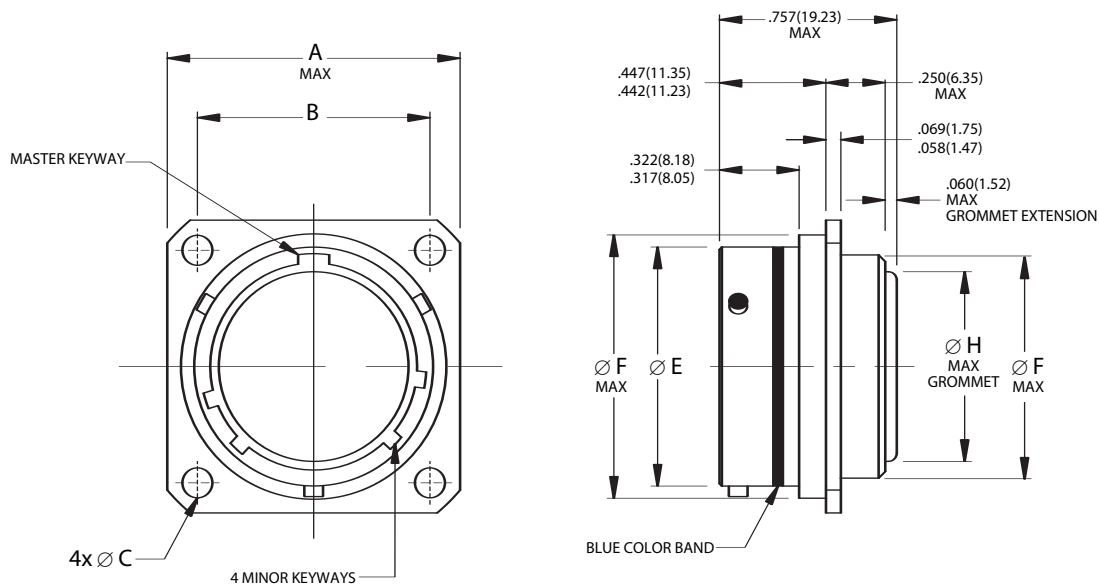


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Shell Size	A		B		Ø C		Ø E		Ø F		Ø H	
	Maximum		(TP)		+.010 -.005		±.003 ±.08		Maximum		Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8	.828	21.03	.594	15.09	.120	3.05	.471	11.96	.453	11.51	.299	7.59
10	.954	24.23	.719	18.26	.120	3.05	.588	14.94	.578	14.68	.427	10.85
12	1.047	26.59	.812	20.62	.120	3.05	.748	19.00	.703	17.86	.541	13.74
14	1.141	28.98	.906	23.01	.120	3.05	.873	22.17	.828	21.03	.666	16.92
16	1.234	31.34	.969	24.61	.120	3.05	.998	25.35	.953	24.21	.791	20.09
18	1.328	33.73	1.062	26.97	.120	3.05	1.123	28.52	1.062	26.97	.897	22.78
20	1.453	36.91	1.156	29.36	.120	3.05	1.248	31.70	1.188	30.18	1.022	25.96
22	1.578	40.08	1.250	31.75	.120	3.05	1.373	34.87	1.312	33.32	1.147	29.13
24	1.703	43.26	1.375	34.93	.147	3.73	1.498	38.05	1.438	36.53	1.272	32.31

MS27508**Rear, Box Mounting Receptacle****AE208**

Bayonet Coupling, Crimp Removable, Rear Release, Low Profile/Light Weight

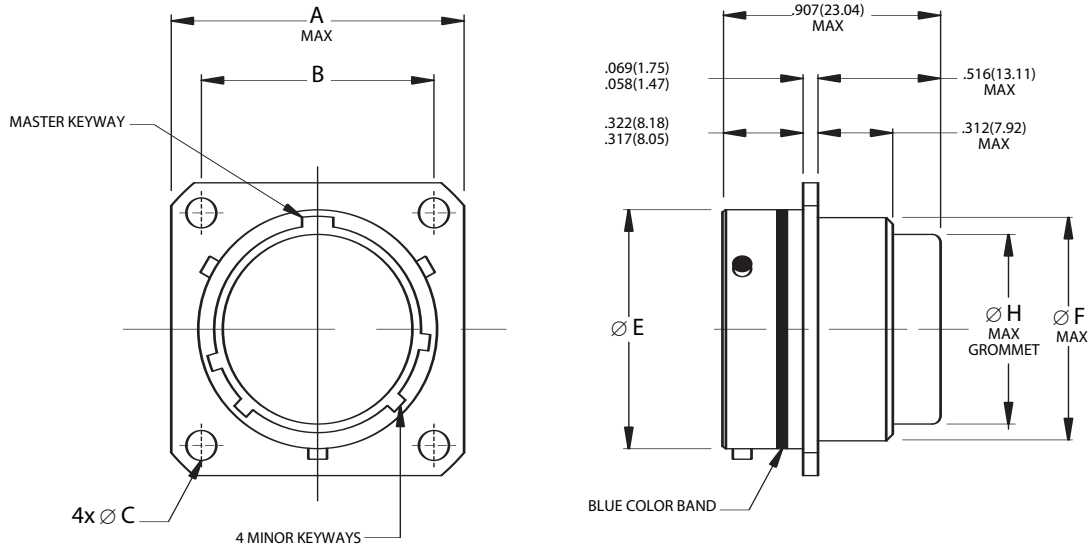


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Note: See page 33 for panel thickness.

Shell Size	A		B		Ø C		Ø E		Ø F		Ø H	
	Maximum		(TP)		+.010 -.005		±.003 ±.08		Maximum		Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8	.828	21.03	.594	15.09	.120	3.05	.471	11.96	.547	13.89	.299	7.59
10	.954	24.23	.719	18.26	.120	3.05	.588	14.94	.672	17.07	.427	10.85
12	1.047	26.59	.812	20.62	.120	3.05	.748	19.00	.844	21.44	.541	13.74
14	1.141	28.98	.906	23.01	.120	3.05	.873	22.17	.969	24.61	.666	16.92
16	1.234	31.34	.969	24.61	.120	3.05	.998	25.35	1.094	27.79	.791	20.09
18	1.328	33.73	1.062	26.97	.120	3.05	1.123	28.52	1.219	30.96	.897	22.78
20	1.453	36.91	1.156	29.36	.120	3.05	1.248	31.70	1.344	34.14	1.022	25.96
22	1.578	40.08	1.250	31.75	.120	3.05	1.373	34.87	1.469	37.31	1.147	29.13
24	1.703	43.26	1.375	34.93	.147	3.73	1.498	38.05	1.594	40.49	1.272	32.31

Bayonet Coupling, Crimp Removable, Rear Release, Low Profile/Light Weight



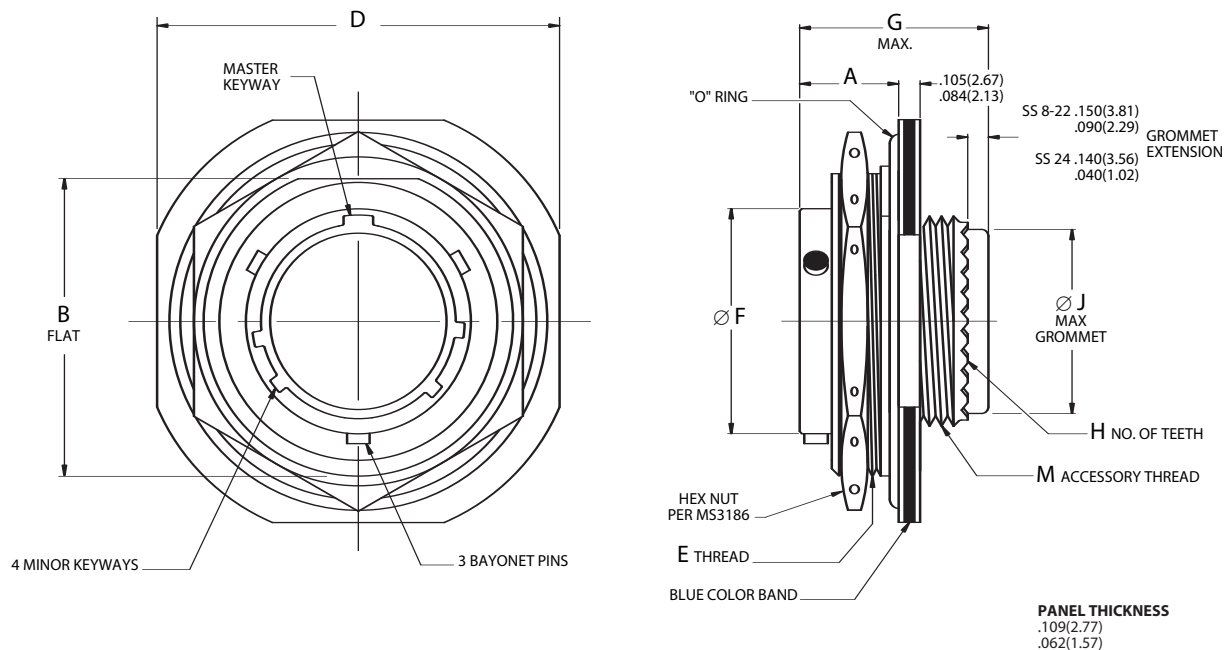
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Shell Size	A		B		Ø C		Ø E		Ø F		Ø H	
	Maximum		(TP)		+.010 -.005		±.003		Maximum		Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8	.828	21.03	.594	15.09	.120	3.05	.471	11.96	.453	11.51	.299	7.59
10	.954	24.23	.719	18.26	.120	3.05	.588	14.94	.578	14.68	.427	10.85
12	1.047	26.59	.812	20.62	.120	3.05	.748	19.00	.703	17.86	.541	13.74
14	1.141	28.98	.906	23.01	.120	3.05	.873	22.17	.828	21.03	.666	16.92
16	1.234	31.34	.969	24.61	.120	3.05	.998	25.35	.953	24.21	.791	20.09
18	1.328	33.73	1.062	26.97	.120	3.05	1.123	28.52	1.062	26.97	.897	22.78
20	1.453	36.91	1.156	29.36	.120	3.05	1.248	31.70	1.188	30.18	1.022	25.96
22	1.578	40.08	1.250	31.75	.120	3.05	1.373	34.87	1.312	33.32	1.147	29.13
24	1.703	43.26	1.375	34.93	.147	3.73	1.498	38.05	1.438	36.53	1.272	32.31

MS27474
Jam Nut Receptacle
AE274



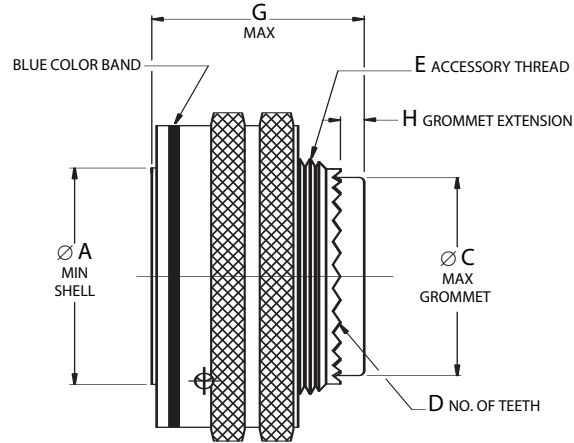
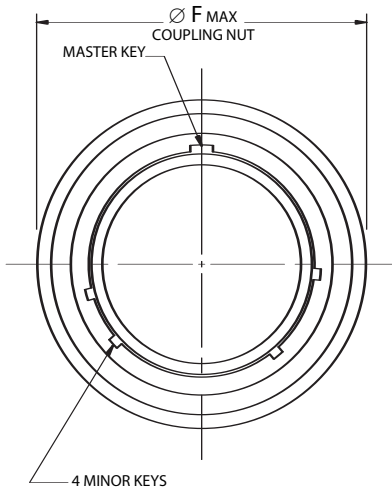
Bayonet Coupling, Crimp Removable, Rear Release, Low Profile/Light Weight



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Shell Size	A		B		D		E	Ø F		G		H	Ø J		M
	±.005	±.13	+.001	+.03	±.016	±.41	Jam Nut Thread Class 2A	±.003	±.08	Maximum	Maximum	No. of Teeth	Maximum	Maximum	Accessory Thread
	inch	mm	inch	mm	inch	mm		inch	mm						UNE-F-2A
8	.438	11.13	.817	20.75	1.250	31.75	7/8-20UNEF	.471	11.96	.937	23.80	12	.299	7.59	7/16-28
10	.438	11.13	.941	23.90	1.375	34.93	1-20UNEF	.588	14.94	.937	23.80	16	.427	10.85	9/16-24
12	.438	11.13	1.065	27.05	1.500	38.10	1-1/8-18UNEF	.748	19.00	.937	23.80	20	.541	13.74	11/16-24
14	.438	11.13	1.190	30.23	1.625	41.28	1-1/4-18UNEF	.873	22.17	.937	23.80	24	.666	16.92	13/16-20
16	.438	11.13	1.320	33.53	1.781	45.24	1-3/8-18UNEF	.998	25.35	.937	23.80	28	.791	20.09	15/16-20
18	.438	11.13	1.440	36.58	1.890	48.01	1-1/2-18UNEF	1.123	28.52	.937	23.80	32	.897	22.78	1-1/16-18
20	.464	11.79	1.565	39.75	2.016	51.21	1-5/8-18UNEF	1.248	31.70	.931	23.65	36	1.022	25.96	1-3/16-18
22	.464	11.79	1.690	42.93	2.140	54.36	1-3/4-18UNS	1.373	34.87	.931	23.65	40	1.147	29.13	1-5/16-18
24	.464	11.79	1.815	46.10	2.265	57.53	1-7/8-16UN	1.498	38.05	.984	24.99	44	1.272	32.31	1-7/16-18

Bayonet Coupling, Crimp Removable, Rear Release, Low Profile/Light Weight



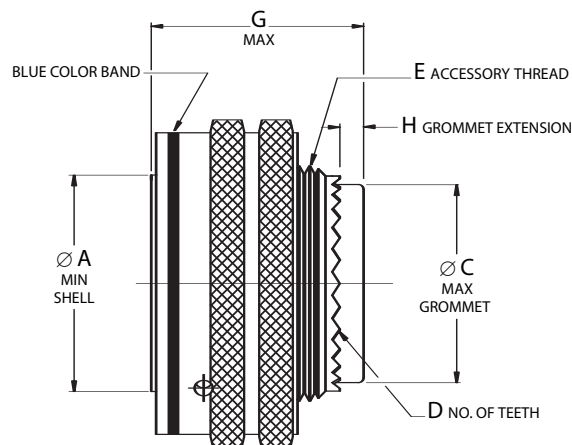
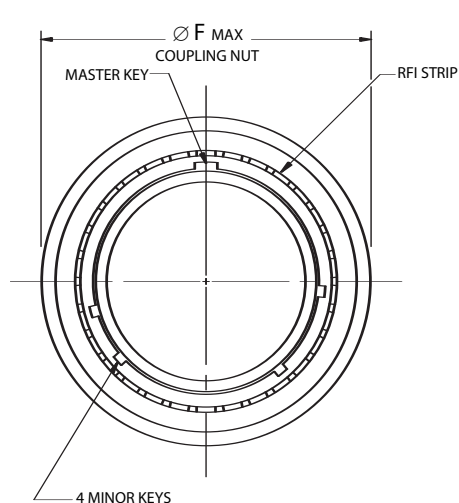
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Shell Size	Ø A		Ø C		D	E	Ø F		G		H	
	Minimum		Maximum		No of Teeth	Accessory Thread	Maximum		Maximum		Grommet Extension	
	inch	mm	inch	mm		UNEF-2A	inch	mm	inch	mm	inch	mm
8	.337	8.56	.299	7.59	12	7/16-28	.750	19.05	.916	23.27	.150/.090	3.81/2.29
10	.465	11.81	.427	10.85	16	9/16-24	.859	21.82	.916	23.27	.150/.090	3.81/2.29
12	.557	14.15	.541	13.74	20	11/16-24	1.031	26.19	.916	23.27	.150/.090	3.81/2.29
14	.702	17.83	.666	16.92	24	13/16-20	1.156	29.36	.916	23.27	.150/.090	3.81/2.29
16	.827	21.01	.791	20.09	28	15/16-20	1.281	32.54	.916	23.27	.150/.090	3.81/2.29
18	.927	23.55	.897	22.78	32	1-1/16-18	1.406	35.71	.916	23.27	.150/.090	3.81/2.29
20	1.052	26.72	1.022	25.96	36	1-3/16-18	1.531	38.89	.916	23.27	.150/.090	3.81/2.29
22	1.177	29.90	1.147	29.13	40	1-5/16-18	1.641	41.68	.916	23.27	.150/.090	3.81/2.29
24	1.302	33.07	1.272	32.31	44	1-7/16-18	1.766	44.86	.984	24.99	.140/.040	3.56/1.02

MS27484
RFI Grounding Plug
AE284



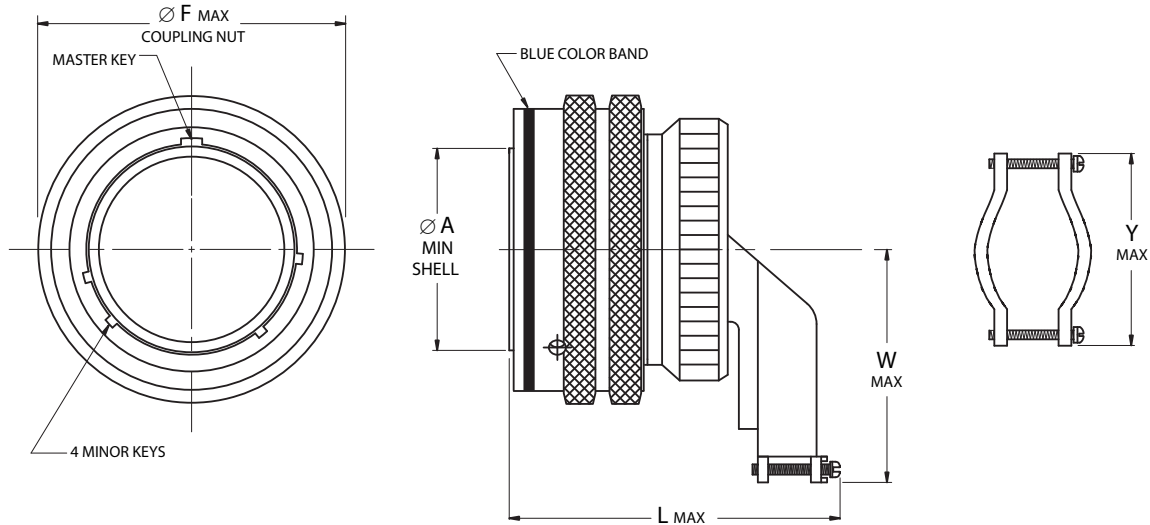
Bayonet Coupling, Crimp Removable, Rear Release, Low Profile/Light Weight



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Shell Size	Ø A		Ø C		D	E	Ø F		G		H	
	Minimum		Maximum		No of Teeth	Accessory Thread	Maximum		Maximum		Grommet Extension	
	inch	mm	inch	mm		UNEF-2A	inch	mm	inch	mm	inch	mm
8	.337	8.56	.299	7.59	12	7/16-28	.750	19.05	.916	23.27	.150/.090	3.81/2.29
10	.465	11.81	.427	10.85	16	9/16-24	.859	21.82	.916	23.27	.150/.090	3.81/2.29
12	.557	14.15	.541	13.74	20	11/16-24	1.031	26.19	.916	23.27	.150/.090	3.81/2.29
14	.702	17.83	.666	16.92	24	13/16-20	1.156	29.36	.916	23.27	.150/.090	3.81/2.29
16	.827	21.01	.791	20.09	28	15/16-20	1.281	32.54	.916	23.27	.150/.090	3.81/2.29
18	.927	23.55	.897	22.78	32	1-1/16-18	1.406	35.71	.916	23.27	.150/.090	3.81/2.29
20	1.052	26.72	1.022	25.96	36	1-3/16-18	1.531	38.89	.916	23.27	.150/.090	3.81/2.29
22	1.177	29.90	1.147	29.13	40	1-5/16-18	1.641	41.68	.916	23.27	.150/.090	3.81/2.29
24	1.302	33.07	1.272	32.31	44	1-7/16-18	1.766	44.86	.984	24.99	.140/.040	3.56/1.02

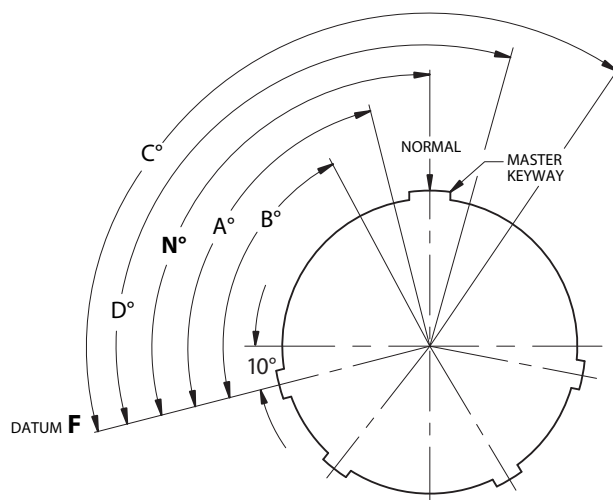
Bayonet Coupling, Crimp Removable, Rear Release, Low Profile/Light Weight



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Shell Size	Ø A		Ø F		L		W		Y	
	Minimum		Maximum		Maximum		Maximum		Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8	.337	8.56	.750	19.05	1.859	47.22	1.000	25.40	.828	21.03
10	.465	11.81	.859	21.82	1.859	47.22	1.032	26.21	.891	22.63
12	.557	14.15	1.031	26.19	1.938	49.23	1.094	27.79	1.016	25.81
14	.702	17.83	1.156	29.36	2.125	53.98	1.219	30.96	1.141	28.98
16	.827	21.01	1.281	32.54	2.281	57.94	1.281	32.54	1.255	31.88
18	.927	23.55	1.406	35.71	2.312	58.72	1.344	34.14	1.469	37.31
20	1.052	26.72	1.531	38.89	2.375	60.33	1.375	34.93	1.550	39.37
22	1.177	29.90	1.641	41.68	2.531	64.29	1.438	36.53	1.675	42.55
24	1.302	33.07	1.766	44.86	2.828	71.83	1.719	43.66	1.800	45.72

Keying Positions

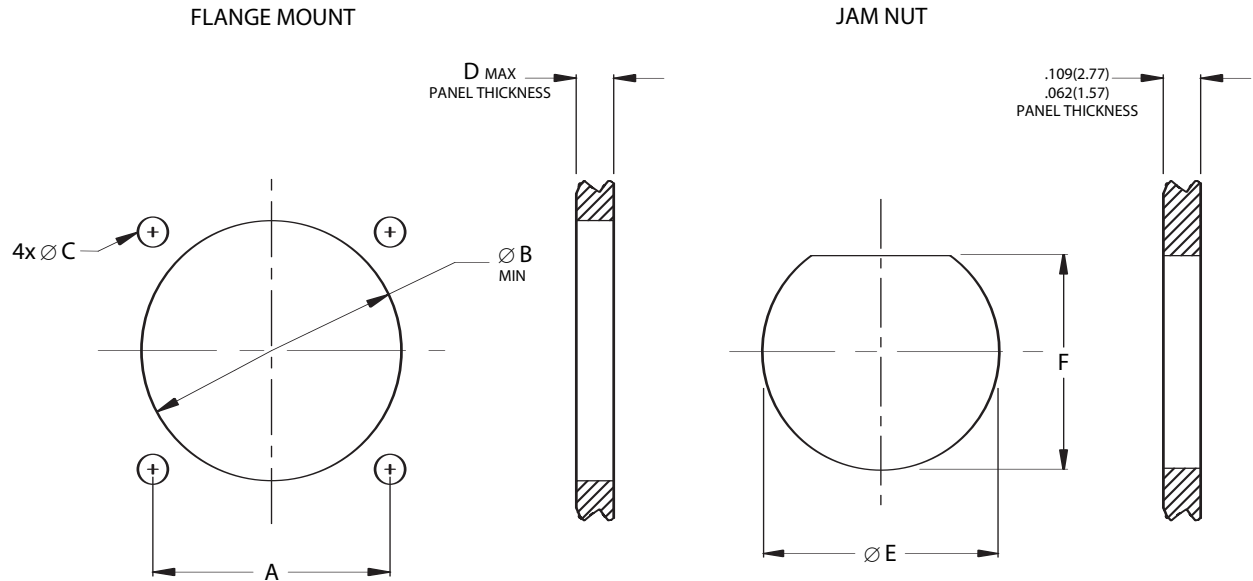


Notes:

1. Mating face of receptacle shown (plug is opposite).
2. The master keyway (key) has various positions relative to DATUM **F**; the minor keyways (keys) remain fixed as shown. In the Normal position, the master keyway (key) is 100° from DATUM **F**.
3. The angles for a given connector are the same whether it contains pin or socket inserts.
4. The insert arrangement does not rotate relative to master keyway (key).

Shell Size	Keying Positions				
	BSC				
	N°	A°	B°	C°	D°
8	100	82	-	-	118
10	100	86	72	128	114
12	100	80	68	132	120
14	100	79	66	134	121
16	100	82	70	130	118
18	100	82	70	130	118
20	100	82	70	130	118
22	100	85	74	126	115
24	100	85	74	126	115

Panel Cutouts



Note 1: Flange Mounting Dimensions ($\varnothing B$ cutout and D_{MAX}) listed only for back of panel mounting (MS27497 and MS27508).

Note 2: D_{MAX} includes mounting hardware.

Flange and Jam Nut Mounting Dimensions

Shell Size	A		$\varnothing B$		$\varnothing C$		D		$\varnothing E$		F	
	(TP)		Minimum		$\pm .005$		Maximum		+ .010 - .000		+ .000 - .010	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8	.594	15.09	.557	14.15	.128	3.25	.146	3.71	.885	22.48	.830	21.08
10	.719	18.26	.682	17.32	.128	3.25	.146	3.71	1.010	25.65	.955	24.26
12	.812	20.62	.854	21.69	.128	3.25	.146	3.71	1.135	28.83	1.085	27.56
14	.906	23.01	.979	24.87	.128	3.25	.146	3.71	1.260	32.01	1.210	30.73
16	.969	24.61	1.104	28.04	.128	3.25	.146	3.71	1.385	35.18	1.335	33.91
18	1.062	26.97	1.229	31.22	.128	3.25	.146	3.71	1.510	38.35	1.460	37.08
20	1.156	29.36	1.354	34.39	.128	3.25	.168	4.27	1.635	41.53	1.585	40.26
22	1.250	31.75	1.479	37.57	.128	3.25	.168	4.27	1.760	44.70	1.709	43.42
24	1.375	34.93	1.604	40.74	.154	3.91	.168	4.27	1.885	47.88	1.835	46.61

MIL-DTL-38999

Contacts, Tools and Seal Plugs

Series II



Contacts, Plastic Insertion/Removal Tools and Seal Plugs

Contact Size	Application	Pin Contacts	Socket Contacts	Seal Plugs	Insertion/Removal Tools
					Plastic
	Type	Military No.	Military No.	Military No.	Military No.
22D	Power/Signal	M39029/58-360	M39029/57-354	MS27488-22-1	M81969/14-01
22M*	Power/Signal	M39029/58-361	M39029/57-355		—
22*	Power/Signal	M39029/58-362	M39029/57-356		
20	Power/Signal	M39029/58-363	M39029/57-357	MS27488-20-1	M81969/14-10
16	Power/Signal	M39029/58-364	M39029/57-358	MS27488-16-1	M81969/14-03
16 Coax	Coax	M39029/76-424	M39029/78-432		
12	Power/Signal	M39029/58-365	M39029/57-359	MS27488-12-1	M81969/14-04

Crimping and Metal Insertion/Extraction Tools

Contact Size/Type	Crimp Tool	Positioner	Positioner	Insertion Tool	Extraction Tool
		For Pin Contacts	For Socket Contacts	Metal	Metal
	Military No.	Military No.	Military No.	Military No.	Military No.
22D, 22M*	M22520/2-01	M22520/2-09	M22520/2-06	M81969/8-01	M81969/8-02
22*	M22520/2-01	M22520/2-09	M22520/2-06	M81969/8-03	M81969/8-04
20	M22520/1-01	M22520/1-04	M22520/1-04	M81969/8-05	M81969/8-06
	M22520/2-01	M22520/2-10	M22520/2-10		
16	M22520/1-01	M22520/1-04	M22520/1-04	M81969/8-07	M81969/8-08
16 Coax Inner	M22520/2-01	M22520/2-35	M22520/2-35		
16 Coax Outer	M22520/4-01	M22520/4-02	M22520/4-02		
12	M22520/1-01	M22520/1-04	M22520/1-04	M81969/8-09	M81969/8-10

Contact and Wire Data

Contact Size	Test Current	Voltage	Crimp Well Data		Wire Range		Finished Wire Ø Range			
	DC Test	Max. Drop	Well Dia.	Minimum Well Dept			Minimum		Maximum	
	Amps	Millivolts	inch	inch mm	AWG	mm ²	inch	mm	inch	mm
22D	5.0	73	.0345 ±.0010	.141 3.58	28-22	.08-.33	.030	.76	.054	1.37
22M*	3.0	45	.028 ±.001	.141 3.58	28-24	.08-.20	.030	.76	.050	1.27
22*	5.0	73	.0365 ±.0010	.141 3.58	26-22	.13-.33	.034	.86	.060	1.52
20	7.5	55	.047 ±.001	.209 5.31	24-20	.20-.52	.040	1.02	.083	2.11
16	13.0	49	.067 ±.001	.209 5.31	20-16	.52-1.31	.065	1.65	.109	2.77
12	23.0	42	.100 ±.002	.209 5.31	14-12	2.08-3.31	.097	2.46	.142	3.61

* Inactive for new design

Note 1: Test Current and Maximum Voltage Drop when tested with silver-plated wire at 25°C.

Note 2: Size 16 coax contacts purchased in bulk.



MIL-DTL-38999

Contact Installation Instructions Series II

Contact Installation Instructions

Crimping Contacts

1. Select the appropriate crimp tool and ensure that the proper crimp head positioner is used.
2. Cycle the tool to be sure the indentors are open.
3. Determine the correct selector setting for the wire size from the data plate on the positioner (turret head assembly) and set the selector knob on the crimp tool to match.
4. Place the contact, mating end first, into the tool.
5. Insert the stripped wire into the hollow end of the contact. Be sure the wire is inserted as far as it will go.
6. Close the tool completely to crimp. Unless the tool is closed completely, the tool will not release the contact.
7. Remove the crimped contact from the tool. Check the inspection hole to verify that the wire is fully inserted.

Insertion of Contacts

1. Before inserting the contacts, unscrew the accessories (clamps, backshells or adapters) from rear of plug or receptacle. Slide the hardware over the wire bundle in the proper order for reassembly after all the contacts are inserted.
2. To assist insertion of contacts, lubricate insulator (grommet) cavities with isopropyl alcohol. Alcohol will evaporate and will not leave a conductive film. **Caution: Never use any lubricant other than isopropyl alcohol.**

3. Place the correct insertion tool on the contact so that the wire runs along the groove in the tool. (Tool tip will butt against the shoulder.) Hold the plug or receptacle body firmly.
4. Beginning with a center cavity, insert the contact into the insulator with a slow, even pressure until the contact snaps into position. Make sure the contact and tool are held perpendicular to the face of the insert during the contact installation or the grommet could be damaged.
 - 4.1 If contacts are not inserted all the way prior to removing insertion tool, do not try to reinsert the insertion tool. Instead, remove the contact and try again; otherwise reinserting the insertion tool may damage the inside of the contact cavity.
5. Remove tool and check the face of the connector for proper contact installation. Proper installation may also be checked by pulling back lightly on the wire to make sure the contact is properly seated.

Completion

After all the cavities have been filled, slide the hardware back into position on the connector and tighten.

Extraction of Contacts (Rework)

1. Slide the hardware back over the wire bundle.
2. Select the appropriate tool. Place the wire into the extraction tool of the pin or socket.
3. Slowly slide the extraction tool down wire into the contact cavities until the tool tip bottoms against the contact shoulder, expanding the clip retaining tines. Hold the wire firmly in the tool and pull the wired contact and tool straight out of the rear of the insulator.

Size	Pin Contact	Socket Contact	Basic Crimp Tool	Pin Positioner	Socket Positioner	Insertion/Removal Tool
22D	M39029/58-360	M39029/57-354	M22520/2-01	M22520/2-09	M22520/2-06	M81969/14-01
22M	M39029/58-361	M39029/57-355	M22520/2-01	M22520/2-09	M22520/2-06	M81969/14-01
22	M39029/58-362	M39029/57-356	M22520/2-01	M22520/2-09	M22520/2-06	M81969/14-01
20	M39029/58-363	M39029/57-357	M22520/1-01	M22520/1-04 Red	M22520/1-04 Red	M81969/14-10
			M22520/2-01	M22520/2-10	M22520/2-10	
16	M39029/58-364	M39029/57-358	M22520/1-01	M22520/1-04 Blue	M22520/1-04 Blue	M81969/14-03
12	M39029/58-365	M39029/57-359	M22520/1-01	M22520/1-04 Yellow	M22520/1-04 Yellow	M81969/14-04

For coax contacts refer to instructions supplied with contacts.

MIL-DTL-38999

Features and Application

Series III



Features and Application

MIL-DTL-38999 Series III is the newest cylindrical connector designed for highest performance capabilities used in both general purpose and severe environment applications.

These connectors feature an improved “one-turn” coupling system, utilizing self-locking acme thread. Acme threads provide coupling durability, while thicker wall sections and greater coupling surface area improve strength and shock resistance. Blunting of the threads on both receptacle and plug coupling nut eliminates cross threading.

Elongated mounting holes permit the Series III Connector to intermount with various existing Mil-spec flange mounted receptacles, giving it a design replacement advantage.

Wall mount receptacle, jam nut receptacle and straight self-locking RFI plug are offered in 9 shell sizes and 54 insert arrangements utilizing M39029 contacts in sizes 22D, 20, 16, 12, 10 power and 8 twinax.

These connectors are available in wide range of shell materials and finishes. Aluminum shells are offered in electroless nickel and olive drab cadmium. Other finishes such as anodic and zinc cobalt are available upon request to commercial callouts only. In addition, we offer stainless steel shells (both passivated and electro-deposited nickel plated) with firewall inserts, and for highly corrosive environments, nickel-aluminum-bronze shells with standard environment-resisting inserts (commercial callouts only).

MIL-STD-1560 Insert Arrangements – Series III connectors use insert patterns and contacts common to Series I, making for an easy transition from bayonet to triple-lead, acme-thread, self-locking coupling.

Metal-to-Metal Bottoming – This feature precludes relative shell-to-shell motion, which may result in ordinary connector wear and moisture entrapment.

Lockwiring Eliminated – Self-locking quick coupling plug eliminates the need for lockwiring.

Firewall Capability - Stainless steel shells in both K and S firewall classes are offered.

Universal I/R Tool – A single, expendable plastic tool is used for both insertion and removal of contacts.

Scoop-Proof Design – Recessed pins in elongated shells minimize the possibility for contact damage. In a blind mating application, mating shells cannot “scoop” the pins, and cause a shorting or bending of contacts.

Closed-Entry Socket Insert – Hard dielectric socket face has lead-in chamfers for positive alignment of pins (even partially bent within pre-established limits) with sockets.

Interfacial Pin Insert Seal – Raised moisture barriers around each pin, which mate into lead-in chamfers of hard face socket insert, provide individual contact sealing. Interfacial seal is never touched by service tools.

Elastomer Wire Sealing Grommet – Sealing over a wide range of wire diameters is assured by a triple wire seal in each cavity at the rear of the connector.

Superior Contact Stability – Rear release crimp contact system features a stamped beryllium-copper retaining clip captivated by molded-in shoulders of each contact cavity in the insulator. A rear-inserted M81969 plastic tool expands the tines beyond the shoulder, releasing the contact.

Metric Accessory Thread – Metric thread results in additional wall thickness giving greater strength and shock resistance.





MIL-DTL-38999 Performance Specifications Series III

MIL-DTL-38999 S III

Performance Specifications

Operating Temperature Range

Classes F, K, S and BZ*: -65°C to +200°C (-85°F to +392°F)
Classes W and ZC*: -65°C to +175°C (-85°F to +347°F)

Material and Finish Data (Class)

F – aluminum shell, electroless nickel finish
K – stainless steel shell, passivated, firewall
S – stainless steel shell, electrodeposited nickel, firewall
W – aluminum shell, olive drab cadmium over nickel base
BZ* – aluminum nickel bronze shell, std insert
ZC* – aluminum shell, zinc cobalt finish

Corrosion Resistance

Classes K, W, BZ* and ZC* withstand 500-hour salt spray.
Classes F and S withstand 48-hour salt spray.

Durability

Minimum of 500 mating cycles.

Fluid Resistance

Connectors resist specified immersions in MIL-PRF-7808, MIL-PRF-23699, MIL-PRF-5606, M2-V Chevron oil, Coolanol 25, MIL-DTL-83133 (JP-8), MIL-DTL-5624 (JP-4, JP-5), SAE-AMS1424 Type I, and other solvents and cleaning agents.

Shielding Effectiveness

RFI and EMI attenuation at the specified frequencies meet the requirements of MIL-DTL-38999.

- RFI shielding effectiveness of mated connectors with RFI backshells is measured in a triaxial radio frequency leakage fixture.
- EMI shielding effectiveness is measured at the interface of mated connectors and tested by the mode-stirred technique specified in method 3008 of MIL-STD-1344.

Voltage Rating

Service Rating	Suggested Operating Voltage		Test Voltage	Test Voltage	Test Voltage	Test Voltage
	(Sea Level)		Sea Level	50,000 Ft.	70,000 Ft.	100,000 Ft.
	AC (RMS)	DC	V RMS	V RMS	V RMS	V RMS
M	400	550	1300	550	350	200
N	300	450	1000	400	260	200
I	600	850	1800	600	400	200
II	900	1250	2300	800	500	200

Note: The establishment of electrical safety factors is left entirely to the designer, as he is in the best position to know

Environmental Seal

Wired, mated connectors with specified accessories attached, shall meet the altitude-immersion test specified in MIL-DTL-38999.

Shell-to-Shell Conductivity

Maximum potential drop shall not exceed:

- Classes F and S = 1.0 millivolt.
- Class W = 2.5 millivolts, Class K = 10.0 millivolts

Shock and Vibration Requirements

Wired, mated connectors shall not be damaged, nor shall there be a current interruption longer than one microsecond when subjected to the following:

Shock

Pulse of approximate half sine wave of 300 G $\pm$ 15 percent magnitude with duration of 3 $\pm$ 1 milliseconds applied in three axes.

High Impact Shock

When mounted as specified in MIL-S-901, grade A, a drop of a 400 lb. Hammer from 1 foot, 3 feet and 5 feet applied to connector in three axes, totaling nine impacts.

Vibration

Wired and mated connectors withstand the following vibration levels:

- Sine vibration where connector samples with simulated accessory load are subjected to simple harmonic motion from 10 to 2,000 Hz in three mutually perpendicular axes, in 20 minute sweeps, for 12 hours in each axis at velocity of 254 mm/sec from 10-50 Hz, displacement of 1.5 mm from 50-140Hz and acceleration of 60G from 140-2,000Hz.
- Random Vibration per MIL-STD-1344, method 205, test condition V at ambient temperature and test condition VI, Letter "J" at elevated temperature.

* Not on QPL, can be supplied to Aero-Electric part number only.

exactly what peak voltages, switching currents, transients, etc., can be expected in a particular circuit.

MIL-DTL-38999 Part Number Development Series III



Military and Aero-Electric Part Number Development

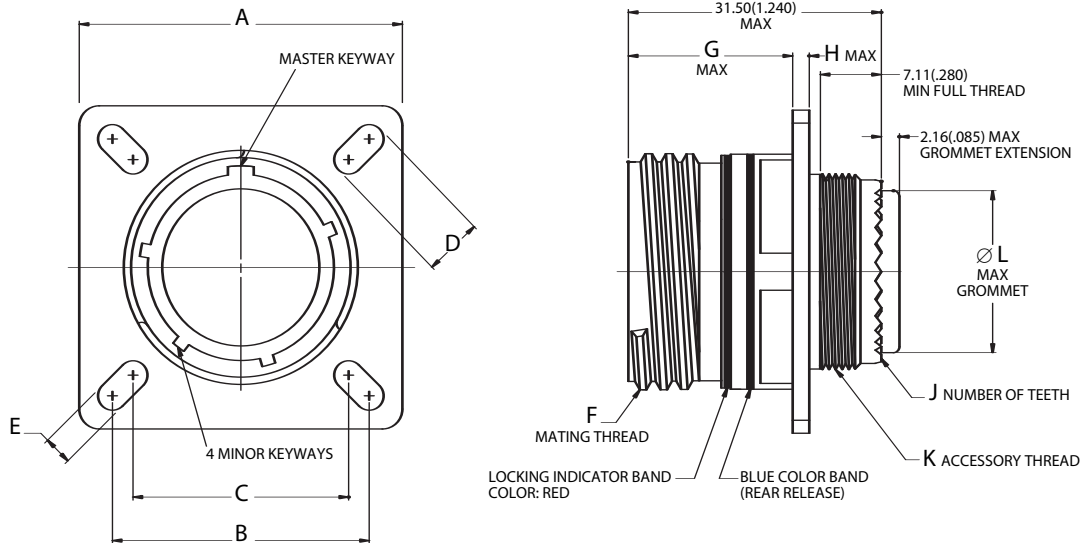
Mil. Prefix	D38999/	20	W	C	35	P	N	
Aero Prefix	AE3	20	W	C	35	P	N	-340
Shell Type (Specification Sheet Number) 20 = Wall mount receptacle 24 = Jam nut receptacle 26 = Self-locking, RFI grounding plug								
Class (Material & Finish) F = Aluminum shell, electroless nickel finish W = Aluminum shell, olive drab cadmium over electroless nickel base K = Stainless steel shell, passivated, with firewall insert S = Stainless steel shell, electrodeposited nickel, with firewall insert BZ* = Aluminum nickel bronze shell with standard insert (Aero p/n only) ZC* = Aluminum shell, zinc cobalt plating (Aero p/n only)								
Shell Size A, B, C, D, E, F, G, H or J								
Insert Arrangement See pages 15 thru 19								
Contact Style P = Pin S = Socket A = Pin connector less pins (with intent to use non-std pin contacts) B = Socket connector less sockets (with intent to use non-std socket contacts)								
Polarization (Keying) N = Normal (Included in part number) A, B, C, D, or E								
Modification (applies to Aero part numbers only) 01 = Less contacts (is not marked on the part) 340 = Connector kitted with M85049/15-XXX 341 = Connector kitted with M85049/38-XXX straight clamp 342 = Connector kitted with M85049/39-XXX right angle clamp Consult factory for other modifications								

* Not on QPL, can be supplied to Aero-Electric part number only.

Note 1: Each connector is furnished with contacts unless ordered less contacts (L/C) as follows: One spare contact for inserts requiring 2 through 26 of each contact and two spares for inserts with 27 or more contacts, and a minimum of one sealing plug up to 10% of the number contacts. Spare Coax and Twinax contacts are not supplied. One insertion/extraction tool for each contact size is also included.

Note 2: Proper part number marking has no "0" in front of single digit layout. Example: J D38999/20WB5SN. "N" for normal is included. In addition, J or JAN must be marked immediately in front of MIL part number.

Triple Start Threaded Coupling, Crimp Removable, Rear Release, Scoop-Proof



Page 38	Completed Part Number
Page 44	Contacts, Sealing Plugs and Tools
Pages 17–19	Insert Arrangements
Page 37	Performance Specifications
Pages 15, 16	Insert Availability and Contact Information
Page 42	Polarization

Note 1: “K” Accessory Thread for AE320 is same as AE326 (“D” Accessory Thread) on page 41.

Note 2: “F” Mating Thread for AE320 is same as AE326 (“E” Mating Thread) on page 41 except it is Class 2A.

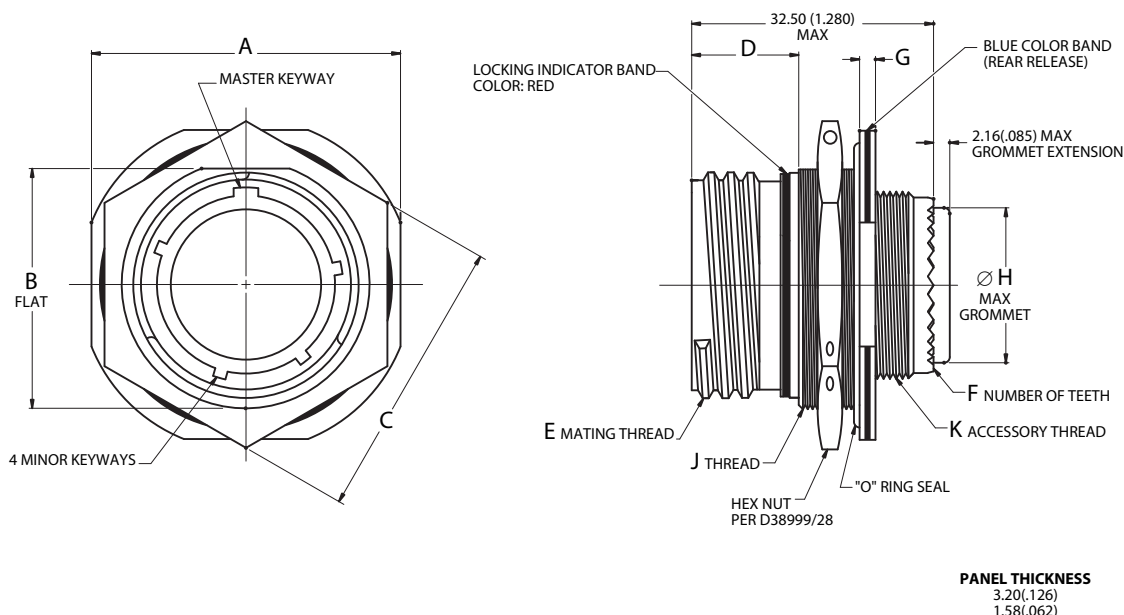
Note 3: Maximum Grommet Extension for insert layouts incorporating size 8 and 10 contacts = **5.95**(.234).

Shell Size	A		B		C		D		E		G		H		J	Ø L	
	±.012	±.30	(TP)		(TP)		±.008	±.20	±.008	±.20	Maximum		Maximum		No. of Teeth	Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		inch	mm
A	.937	23.80	.719	18.26	.594	15.09	.216	5.49	.128	3.25	.820	20.83	.098	2.50	12	.299	7.59
B	1.031	26.20	.812	20.62	.719	18.26	.194	4.93	.128	3.25	.820	20.83	.098	2.50	16	.427	10.85
C	1.126	28.60	.906	23.01	.812	20.62	.194	4.93	.128	3.25	.820	20.83	.098	2.50	20	.541	13.74
D	1.220	31.00	.969	24.61	.906	23.01	.173	4.39	.128	3.25	.820	20.83	.098	2.50	24	.666	16.92
E	1.311	33.30	1.062	26.97	.969	24.61	.194	4.93	.128	3.25	.820	20.83	.098	2.50	28	.791	20.09
F	1.437	36.50	1.156	29.36	1.062	26.97	.194	4.93	.128	3.25	.820	20.83	.098	2.50	32	.897	22.78
G	1.563	39.70	1.250	31.75	1.156	29.36	.194	4.93	.128	3.25	.790	20.07	.126	3.20	36	1.022	25.96
H	1.689	42.90	1.375	34.93	1.250	31.75	.242	6.15	.154	3.91	.790	20.07	.126	3.20	40	1.147	29.13
J	1.811	46.00	1.500	38.10	1.375	34.93	.242	6.15	.154	3.91	.790	20.07	.126	3.20	44	1.272	32.31

D38999/24
Jam Nut Receptacle
AE324



Triple Start Threaded Coupling, Crimp Removable, Rear Release, Scoop-Proof



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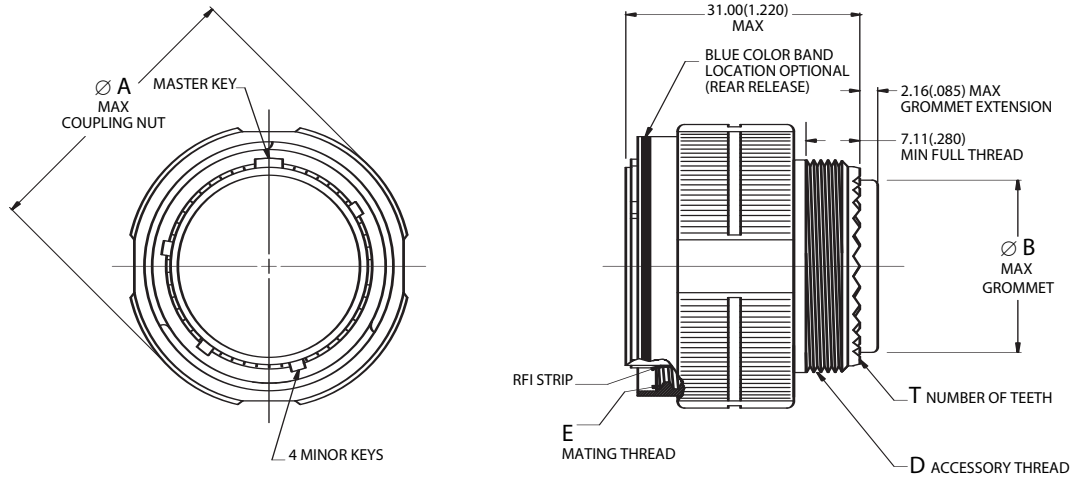
Note 1: “K” Accessory Thread for AE324 is same as AE326 (“D” Accessory Thread) on page 41.

Note 2: “E” Mating Thread for AE324 is same as AE326 (“E” Mating Thread) on page 41 except it is Class 2A.

Note 3: Maximum Grommet Extension for insert layouts incorporating size 8 and 10 contacts = **5.95**(.234).

Shell Size	A		B		C		D		F	G		Ø H		J
	±.016	±.40	+.004	+.10			+.024	+.60	No. of Teeth	+.035	+.90	Maximum		Jam Nut Thread
	inch	mm	-.006	-.15	inch	mm	-.000	-.00		-.004	-.10			
A	1.063	27.00	.651	16.53	.945/.859	24.00/21.82	.555	14.10	12	.087	2.20	.299	7.59	M17x1-6g
B	1.252	31.80	.751	19.07	1.063/.984	27.00/24.99	.555	14.10	16	.087	2.20	.427	10.85	M20x1-6g
C	1.374	34.90	.938	23.82	1.260/1.172	32.00/29.77	.555	14.10	20	.087	2.20	.541	13.74	M25x1-6g
D	1.500	38.10	1.062	26.97	1.417/1.296	36.00/32.91	.555	14.10	24	.087	2.20	.666	16.92	M28x1-6g
E	1.626	41.30	1.187	30.15	1.457/1.422	37.00/36.12	.555	14.10	28	.087	2.20	.791	20.09	M32x1-6g
F	1.811	46.00	1.312	33.32	1.614/1.546	41.00/39.26	.555	14.10	32	.118	3.00	.897	22.78	M35x1-6g
G	1.937	49.20	1.437	36.50	1.811/1.672	46.00/42.47	.555	14.10	36	.118	3.00	1.022	25.96	M38x1-6g
H	2.063	52.40	1.562	39.67	1.969/1.796	50.00/45.61	.555	14.10	40	.118	3.00	1.147	29.13	M41x1-6g
J	2.189	55.60	1.687	42.85	2.017/1.939	51.23/49.25	.555	14.10	44	.118	3.00	1.272	32.31	M44x1-6g

Triple Start Threaded Coupling, Crimp Removable, Rear Release, Scoop-Proof

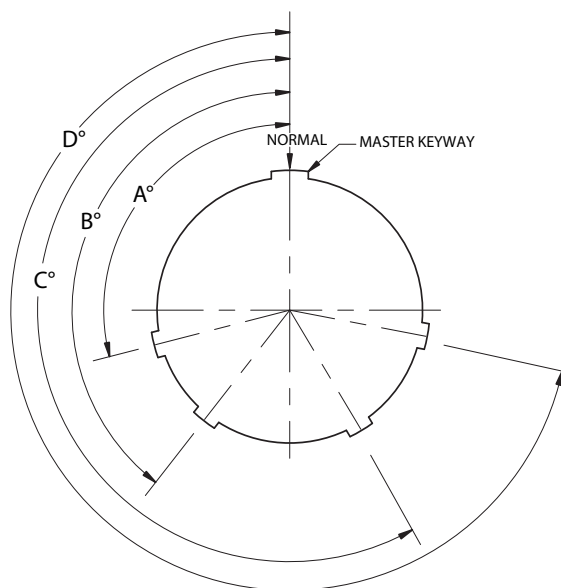


Page 38	Completed Part Number
Page 44	Contacts, Sealing Plugs and Tools
Pages 17–19	Insert Arrangements
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Note : Maximum Grommet Extension for insert layouts incorporating size 8 and 10 contacts = **5.95**(.234).

Shell Size	Ø A		Ø B		D	E	T
	Maximum		Maximum		Accessory Thread Metric	Mating Thread Class 2B	No. of Teeth
	inch	mm	inch	mm			
A	.858	21.80	.299	7.59	M12x1.0-6g 0.100R	.6250-0.1P-0.3L	12
B	.984	25.00	.427	10.85	M15x1.0-6g 0.100R	.7500-0.1P-0.3L	16
C	1.157	29.40	.541	13.74	M18x1.0-6g 0.100R	.8750-0.1P-0.3L	20
D	1.280	32.50	.666	16.92	M22x1.0-6g 0.100R	1.0000-0.1P-0.3L	24
E	1.406	35.70	.791	20.09	M25x1.0-6g 0.100R	1.1875-0.1P-0.3L	28
F	1.516	38.50	.897	22.78	M28x1.0-6g 0.100R	1.2500-0.1P-0.3L	32
G	1.642	41.70	1.022	25.96	M31x1.0-6g 0.100R	1.3750-0.1P-0.3L	36
H	1.768	44.90	1.147	29.13	M34x1.0-6g 0.100R	1.5000-0.1P-0.3L	40
J	1.890	48.00	1.272	32.31	M37x1.0-6g 0.100R	1.6250-0.1P-0.3L	44

Keying Positions



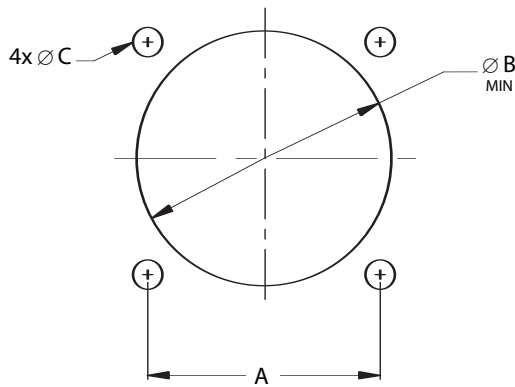
Notes:

1. Mating face of receptacle shown (plug is opposite).
2. All minor keyways (keys) are rotated to provide shell polarization while master keyway (key) remains fixed as shown.
3. The angles for a given connector are the same whether it contains pin or socket inserts.
4. Insert arrangement does not rotate relative to the master keyway (key).

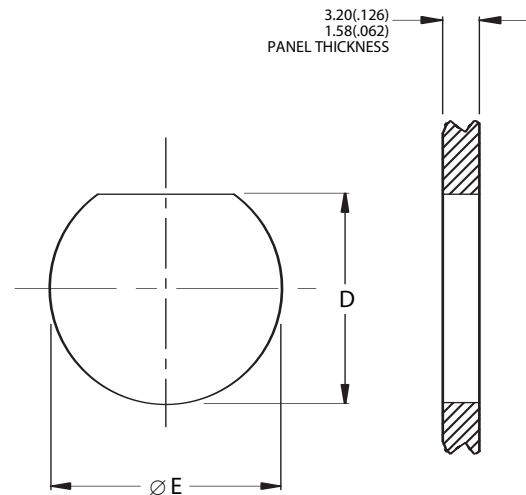
Shell Size	Key/Keyway	Key/Keyway Positions			
	Identification Letter	BSC			
		A°	B°	C°	D°
A (9)	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
	E	91	131	197	240
B (11) C (13) D (15)	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
	E	51	141	184	242
E (17) F (19) G (21) H (23) J (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

Panel Cutouts

FLANGE MOUNT



JAM NUT



Note: Diameter B cutout dimensions are listed separately for back and front of panel mounting.

Shell Size	A		Ø B		Ø B		Ø C		D		Ø E	
	(TP)		For Back Mounting Minimum		For Front Mounting Minimum		±.005 ±.13		+.000 +.00 -.010 -.25		+.010 +.25 -.000 -.00	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
A (9)	.719	18.26	.656	16.66	.516	13.11	.128	3.25	.670	17.02	.700	17.78
B (11)	.812	20.62	.796	20.22	.625	15.88	.128	3.25	.771	19.59	.825	20.96
C (13)	.906	23.01	.922	23.42	.750	19.05	.128	3.25	.955	24.26	1.010	25.65
D (15)	.969	24.61	1.047	26.59	.906	23.01	.128	3.25	1.085	27.56	1.135	28.83
E (17)	1.062	26.97	1.219	30.96	1.016	25.81	.128	3.25	1.210	30.73	1.260	32.01
F (19)	1.156	29.36	1.297	32.94	1.141	28.98	.128	3.25	1.335	33.91	1.385	35.18
G (21)	1.250	31.75	1.422	36.12	1.266	32.16	.128	3.25	1.460	37.08	1.510	38.35
H (23)	1.375	34.93	1.547	39.29	1.375	34.93	.154	3.91	1.585	40.26	1.635	41.53
J (25)	1.500	38.10	1.672	42.47	1.484	37.69	.154	3.91	1.710	43.43	1.760	44.70

MIL-DTL-38999

Contacts, Tools and Seal Plugs Series III



Contacts, Plastic Insertion/Removal Tools and Seal Plugs

Contact Size	Application	Pin Contacts	Socket Contacts	Seal Plugs	Insertion/Removal Tools
	Type	Military No.	Military No.	Military No.	Plastic Military No.
22D	Power/Signal	M39029/58-360	M39029/56-348	MS27488-22-1	M81969/14-01
20	Power/Signal	M39029/58-363	M39029/56-351	MS27488-20-1	M81969/14-10
16	Power/Signal	M39029/58-364	M39029/56-352	MS27488-16-1	M81969/14-03
12	Power/Signal	M39029/58-365	M39029/56-353	MS27488-12-1	M81969/14-04
12 Coax	Coax	M39029/28-211	M39029/75-416		
12 Coax	Coax	M39029/102-558	M39029/103-559		
10 (Power)	Power	M39029/58-528	M39029/56-527	M85049/81-10***	M81969/14-05
8 Coax	Coax	M39029/60-367	M39029/59-366	MS27488-8-1	M81969/14-06
8 Twinax	Twinax	M39029/90-529	M39029/91-530	MS27488-8-1	M81969/14-12

Crimping and Metal Insertion/Extraction Tools

Contact Size/Type	Crimp Tool	Positioner	Positioner	Insertion Tool	Extraction Tool
		For Pin Contacts	For Socket Contacts	Metal	Metal
	Military No.	Military No.	Military No.	Military No.	Military No.
22D	M22520/2-01	M22520/2-09	M22520/2-07	M81969/8-01	M81969/8-02
20	M22520/1-01	M22520/1-04	M22520/1-04	M81969/8-05	M81969/8-06
	M22520/2-01	M22520/2-10	M22520/2-10		
16	M22520/1-01	M22520/1-04	M22520/1-04	M81969/8-07	M81969/8-08
12	M22520/1-01	M22520/1-04	M22520/1-04	M81969/8-09	M81969/8-10
12 Coax Inner	M22520/2-01	M22520/2-34	M22520/2-34		
12 Coax Outer	M22520/31-01	M22520/31-02	M22520/31-02		
10 (Power)	—	—	—	M81969/8-11	M81969/8-12
8 Coax Inner	M22520/2-01	M22520/2-31	M22520/2-31	M81969/8-13**	M81969/8-14
8 Coax Outer	M22520/5-01	M22520/5-05 Die Closure B	M22520/5-05 Die Closure B		
8 Twinax Center	M22520/2-01	M22520/2-37	M22520/2-37	—	—
8 Twinax Outer & Intermediate	M22520/5-01	M22520/5-200	M22520/5-200		

Contact and Wire Data

Contact Size	Test Current*	Voltage*	Crimp Well Data			Wire Range		Finished Wire Ø Range			
	DC Test	Max. Drop	Well Dia.	Minimum Well Dept				Minimum		Maximum	
	Amps	Millivolts	inch	inch	mm	AWG	mm ²	inch	mm	inch	mm
22D	5.0	73	.0345 ±.0010	.141	3.58	28-22	.08-.33	.030	.76	.054	1.37
20	7.5	55	.047 ±.001	.209	5.31	24-20	.20-.52	.040	1.02	.083	2.11
16	13.0	49	.067 ±.001	.209	5.31	20-16	.52-1.31	.065	1.65	.109	2.77
12	23.0	42	.100 ±.002	.209	5.31	14-12	2.08-3.31	.097	2.46	.142	3.61
10	33.0	33	.137 ±.003	.355	9.02	12-10†	3.31-5.26	.135	3.42	.162	4.12

† MS3348 bushing required with 12 gauge wire.

* When tested with silver-plated wire.

** Insertion tool is not required.

*** Dummy contact, used in lieu of unwired contact and seal plug.

Note: Size 8 coax contacts are used with M17/095-RG180 cable, while size 8 Twinax contacts are used with M17/176-00002 cable.

Contact Installation Instructions

Crimping Contacts

1. Select the appropriate crimp tool and ensure that the proper crimp head positioner is used.
2. Cycle the tool to be sure the indentors are open.
3. Determine the correct selector setting for the wire size from the data plate on the positioner (turret head assembly) and set the selector knob on the crimp tool to match.
4. Place the contact, mating end first, into the tool.
5. Insert the stripped wire into the hollow end of the contact. Be sure the wire is inserted as far as it will go.
6. Close the tool completely to crimp. Unless the tool is closed completely, the tool will not release the contact.
7. Remove the crimped contact from the tool. Check the inspection hole to verify that the wire is fully inserted.

Insertion of Contacts

1. Before inserting the contacts, unscrew the accessories (clamps, backshells or adapters) from rear of plug or receptacle. Slide the hardware over the wire bundle in the proper order for reassembly after all the contacts are inserted.
2. To assist insertion of contacts, lubricate insulator (grommet) cavities with isopropyl alcohol. Alcohol will evaporate and will not leave a conductive film. **Caution: Never use any lubricant other than isopropyl alcohol.**

3. Place the correct insertion tool on the contact so that the wire runs along the groove in the tool. (Tool tip will butt against the shoulder.) Hold the plug or receptacle body firmly.
4. Beginning with a center cavity, insert the contact into the insulator with a slow, even pressure until the contact snaps into position. Make sure the contact and tool are held perpendicular to the face of the insert during the contact installation or the grommet could be damaged.
 - 4.1 If contacts are not inserted all the way prior to removing insertion tool, do not try to reinsert the insertion tool. Instead, remove the contact and try again; otherwise reinserting the insertion tool may damage the inside of the contact cavity.
5. Remove tool and check the face of the connector for proper contact installation. Proper installation may also be checked by pulling back lightly on the wire to make sure the contact is properly seated.

Completion

After all the cavities have been filled, slide the hardware back into position on the connector and tighten.

Extraction of Contacts (Rework)

1. Slide the hardware back over the wire bundle.
2. Select the appropriate tool. Place the wire into the extraction tool of the pin or socket.
3. Slowly slide the extraction tool down wire into the contact cavities until the tool tip bottoms against the contact shoulder, expanding the clip retaining tines. Hold the wire firmly in the tool and pull the wired contact and tool straight out of the rear of the insulator.

Size	Pin Contact	Socket Contact	Basic Crimp Tool	Pin Positioner	Socket Positioner	Insertion/Removal Tool
22D	M39029/58-360	M39029/56-348	M22520/2-01	M22520/2-09	M22520/07	M81969/14-01
20	M39029/58-363	M39029/56-351	M22520/1-01	M22520/1-04 Red	M22520/1-04 red	M81969/14-10
			M22520/2-01	M22520/2-10	M22520/2-10	
16	M39029/58-364	M39029/56-352	M22520/1-01	M22520/1-04 Blue	M22520/1-04 Blue	M81969/14-03
12	M39029/58-365	M39029/56-353	M22520/1-01	M22520/1-04 Yellow	M22520/1-04 Yellow	M81969/14-04
10	M39029/58-528	M39029/56-527	*	*	*	M81969/14-05

For Coax and Twinax contacts refer to instructions that are supplied with contacts.

* Contact Daniels Manufacturing for crimp tool/positioner.

MIL-DTL-5015 Features and Application Series III (Rear Release)



Features and Application

The threaded coupling, environmentally sealed MIL-DTL-5015 Series III connector with rear-removable crimp contacts was developed to replace the earlier solder type. This redesigned connector is intermateable and intermountable with the MIL-DTL-5015 Series I solder type (MS310*) as well as the MIL-DTL- 83723 Series II (USAF) crimp type and MIL-DTL-5015 Series II Front Release (MS340*). Thus, it provides for a minimum effort and high economy upgrade for existing applications.

These connectors are recommended for a wide range of applications, from commercial/industrial and mass transportation systems to the most stringent high reliability defense and aerospace requirements.

This family of connectors is offered in four receptacle mounting configurations. They include two square flange receptacles, both wall and box mounting; cable connecting receptacles; and jam nut receptacles which incorporate "O" ring seals, designed for rear panel "D" hole mounting.

Two plug styles are offered - standard plug with captivated coupling nut retained by a combination "L" washer and retaining ring to prevent inadvertent disassembly and a self-locking, anti-decoupling plug, which eliminates the need for safety wiring.

Eighty-eight insert arrangements per MIL-STD-1651 are tooled and qualified to MIL-DTL-5015, utilizing 1 to 85 contacts. Contacts come in sizes 16, 12, 8, 4 and 0, terminating wire sizes from 20 gauge to 0 gauge.

These connectors are available in wide range of shell materials and finishes. Aluminum shells are offered in both electroless nickel and olive drab cadmium to both commercial and MS callouts. Other finishes such as anodic and zinc cobalt are available upon request to commercial callouts only. In addition, we offer passivated stainless steel shells with both standard and firewall-rated inserts, and carbon steel shells with firewall inserts.

Lockwiring Eliminated – Self-locking plug eliminates the need for lockwiring.

Universal I/R Tool – A single, expendable plastic tool is used for both insertion and removal of contacts.

Insert Polarization – Alternate insert clocking positions aid in mating of adjacent connectors having identical insert arrangement.

Closed-Entry Socket Insert – Hard dielectric socket face has lead-in chamfers for positive alignment of pins (even partially bent within pre-established limits) with sockets.

Interfacial Pin Insert Seal – Raised moisture barriers around each pin, which mate into lead-in chamfers of hard face socket insert, provide individual contact sealing. Interfacial seal is never touched by service tools.

Elastomer Wire Sealing Grommet – Sealing over a wide range of wire diameters is assured by a triple wire seal in each cavity at the rear of the connector.

Superior Contact Stability – Rear release crimp contact system features a stamped beryllium-copper retaining clip captivated by molded-in shoulders of each contact cavity in the insulator. A rear-inserted M81969 plastic tool expands the tines beyond the shoulder, releasing the contact.





MIL-DTL-5015 Performance Specifications MS345*/AE55*

Performance Specifications

Operating Temperature Range

Classes KS and LS: -55°C to +200°C (-67°F to +392°F)

Classes KT and W: -55°C to +175°C (-67°F to +347°F)

Class L: -55°C to +200°C (-67°F to +392°F)

Class A*: -55°C to +200°C (-67°F to +392°F)

Material and Finish Data (Class)

KT— carbon steel shell, olive drab cadmium, firewall

KS — stainless steel shell, passivated, firewall

L — aluminum shell, electroless nickel finish

LS — stainless steel shell, passivated

W — aluminum shell, olive drab cadmium over nickel base

A* — aluminum shell, black anodized finish

Corrosion Resistance

Classes KS and LS withstand 1,000-hour salt spray.

Class KT withstands 96-hour salt spray.

Class L withstands 96-hour salt spray.

Class W withstands 1,000-hour salt spray.

Environmental Seal

Wired, mated connectors with specified accessories attached, shall meet the altitude-immersion test specified in MIL-DTL-5015.

Durability

Minimum of 100 mating cycles

Shock and Vibration Requirements

Wired, mated connectors shall not be damaged, coupling ring shall not loosen, and there shall be no interruption of electrical continuity longer than 10 microseconds when subjected to the following:

Shock

Mated connectors withstand a pulse of approximate half sine wave of 50 G magnitude with duration of 11 milliseconds applied in three axes per MIL-STD-1344, method 2004, test condition A.

Vibration

Mated connectors withstand the following vibration levels:

- Random vibration per MIL-STD-1344, method 2005, and test condition VI, letter J.

Shell-to-Shell Conductivity

Maximum potential drop shall not exceed:

- Class W = 5 millivolts
- All other classes (except A*) = 50 millivolts

Fluid Resistance

Connectors resist specified immersions in MIL-PRF-7808 (lubricating oil), MIL-PRF-23699 (lubricating oil), MIL-PRF-5606 (hydraulic fluid), M2-V Chevron oil, Coolanol 25, MIL-DTL-83133 (turbine fuel JP-8), MIL-DTL-5624 (turbine fuels JP-4 and JP-5), SAE-AMS1424 Type I (defrosting fluid), and other solvents and cleaning agents.

Voltage Rating

Service Rating	Maximum Operating Voltage**		Test Voltage	Test Voltage	Test Voltage	Test Voltage
	(Sea Level)		Sea Level	50,000 Ft	70,000 Ft.	110,000 Ft.
	AC (RMS)	DC	V RMS	V RMS	V RMS	V RMS
Inst.	200	250	1000	400	260	200
A	500	700	2000	600	360	200
D	900	1250	2800	675	400	200
E	1250	1750	3500	750	440	200
B	1750	2450	4500	825	480	200
C	3000	4200	7000	975	560	200

* Not MS approved, available to Aero-Electric part number only.

**To be used by designer only as a guide.

MIL-DTL-5015 Series III

Part Number Development

Rear Release



Military and Aero-Electric Part Number Development

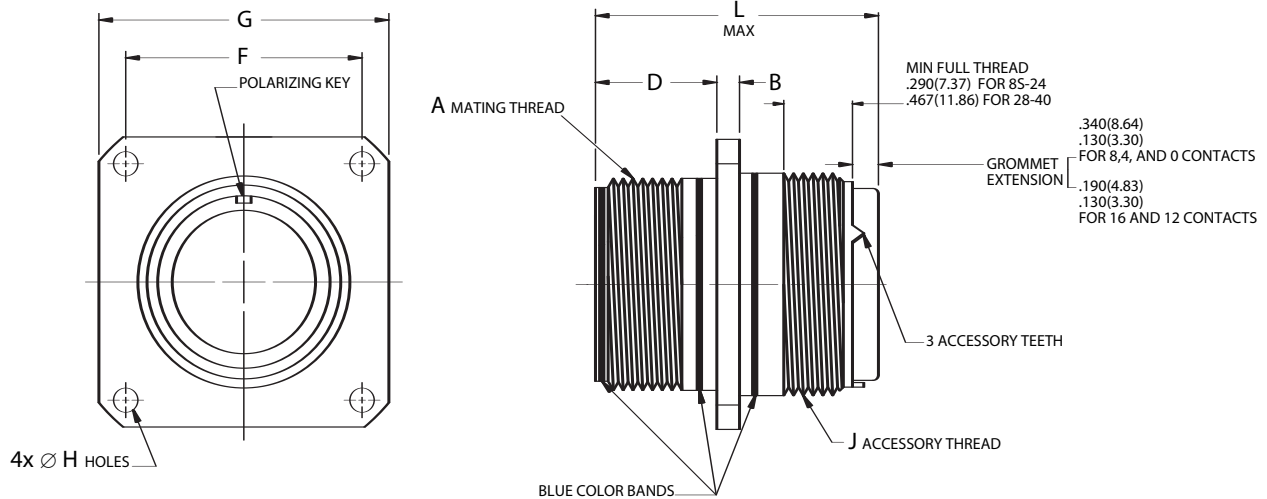
Mil. Prefix	MS34	50	L	14S -	5	P	X	
Aero Prefix	AE5	50	L	14S -	5	P	X	-340
Shell Type 50 = Wall mount receptacle 51 = Cable connecting receptacle 52 = Box mount receptacle 54 = Jam nut receptacle 56 = Straight plug 59 = Self-locking plug								
Class (Material and Finish) A = Aluminum shell, black anodized finish (Aero part number only) KS = Stainless steel shell, passivated, firewall (n/a in MS3451, MS3452, MS3454) KT = Carbon steel shell, cadmium finish, firewall (n/a in MS3451, MS3452, MS3454) LS = Stainless steel shell, passivated L = Aluminum shell, electroless nickel finish W = Aluminum shell, olive drab cadmium over electroless nickel base								
Shell Size 8S, 10S, 10SL, 12, 12S, 14, 14S, 16, 16S, 18, 20, 22, 24, 28, 32, 36 or 40								
Insert Arrangement See pages 58 thru 68								
Contact Style P = Pin S = Socket A = Pin connector less pins (with intent to use non-std contact) B = Socket connector less sockets (with intent to use non-std contacts)								
Polarization N = Normal (not included in part number) W, X, Y or Z = Alternate insert polarizations (see pages 58 thru 62 for position availability)								
Modification (applies to Aero part numbers only) 01 = Less contacts (is not marked on the part) 340 = Connector kitted with M85049/31-XXX E-nut 341 = Connector kitted with M85049/52-1-XXX straight clamp 342 = Connector kitted with M85049/51-1-XXX right angle clamp Consult factory for other modifications								

Note 1: Each connector is furnished with contacts unless ordered less contacts (L/C) as follows: One spare contact for inserts requiring 2 to 26 of each contact and two spares for inserts with 27 or more of each size, and a minimum of one sealing plug up to 15% of the number contacts. No spares or seal plugs are provided with one contact layouts. No spares or seal plugs for contact sizes 0 and 4 are provided. For contact size 8, no contact spares are provided, but seal plugs are included. In addition, one insertion/removal tool of each size is included.

Note 2: KS and KT firewall classes are only available to Military part numbers for shell types MS3450, MS3456 and MS3459. KS and KT classes are available to Aero callouts for AE551 and 554, but not for AE552 (box mount receptacle).

Note 3: Proper part number marking has no "0" in front of single digit (numeric) shell size (8S) and no "0" in front of single digit layout. Examples: J MS3450W8S-1S and J MS3450W24-2PW. Please note that J or JAN marking is required immediately in front of MS part number.

Threaded Coupling, Crimp Removable, Rear Release



Page 48 Completed Part Number
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 Page 58 Polarization

Note 1: L MAX is same as L MAX for AE551 on next page.

Note 2: Maximum grommet O.D. is same as Ø E MAX for AE551 on next page.

Shell Size	A	B		D		F		G		Ø H				J
	Mating Thread Class 2A	±.015	±.38	+.031 -.000	+.79 -.00	(TP)		±.031	±.79	Classes L, LS, W +.010 +.25 -.005 -.13		Classes KS, KT +.010 +.25 -.005 -.13		Accessory Thread Class 2A
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
8S	1/2-28 UNEF	.083	2.11	.562	14.27	.594	15.09	.875	22.23	.120	3.05	.150	3.81	1/2-20UNF
10S	5/8-24 UNEF	.083	2.11	.562	14.27	.719	18.26	1.000	25.40	.120	3.05	.150	3.81	5/8-24UNEF
10SL	5/8-24 UNEF	.083	2.11	.562	14.27	.719	18.26	1.000	25.40	.120	3.05	.150	3.81	5/8-24UNEF
12	3/4-20 UNEF	.083	2.11	.750	19.05	.812	20.62	1.094	27.79	.120	3.05	.150	3.81	3/4-20UNEF
12S	3/4-20 UNEF	.083	2.11	.562	14.27	.812	20.62	1.094	27.79	.120	3.05	.150	3.81	3/4-20UNEF
14	7/8-20 UNEF	.083	2.11	.750	19.05	.906	23.01	1.188	30.18	.120	3.05	.150	3.81	7/8-20UNEF
14S	7/8-20 UNEF	.083	2.11	.562	14.27	.906	23.01	1.188	30.18	.120	3.05	.150	3.81	7/8-20UNEF
16	1-20 UNEF	.083	2.11	.750	19.05	.969	24.61	1.281	32.54	.120	3.05	.150	3.81	1-20UNEF
16S	1-20 UNEF	.083	2.11	.562	14.27	.969	24.61	1.281	32.54	.120	3.05	.150	3.81	1-20UNEF
18	1 1/8-18 UNEF	.125	3.18	.750	19.05	1.062	26.97	1.375	34.93	.120	3.05	.177	4.50	1-1/16-18UNEF
20	1 1/4-18 UNEF	.125	3.18	.750	19.05	1.156	29.36	1.500	38.10	.120	3.05	.177	4.50	1-3/16-18UNEF
22	1 3/8-18 UNEF	.125	3.18	.750	19.05	1.250	31.75	1.625	41.28	.120	3.05	.177	4.50	1-5/16-18UNEF
24	1 1/2-18 UNEF	.125	3.18	.812	20.62	1.375	34.93	1.750	44.45	.147	3.73	.177	4.50	1-7/16-18UNEF
28	1 3/4-18 UNS	.125	3.18	.812	20.62	1.562	39.67	2.000	50.80	.147	3.73	.177	4.50	1-3/4-18UNS
32	2-18 UNS	.125	3.18	.875	22.23	1.750	44.45	2.250	57.15	.173	4.39	.209	5.31	2-18UNS
36	2 1/4-16 UN	.125	3.18	.875	22.23	1.938	49.23	2.500	63.50	.173	4.39	.209	5.31	2-1/4-16UN
40	2 1/2-16 UN	.125	3.18	.875	22.23	2.188	55.58	2.750	69.85	.173	4.39	.209	5.31	2-1/2-16UN

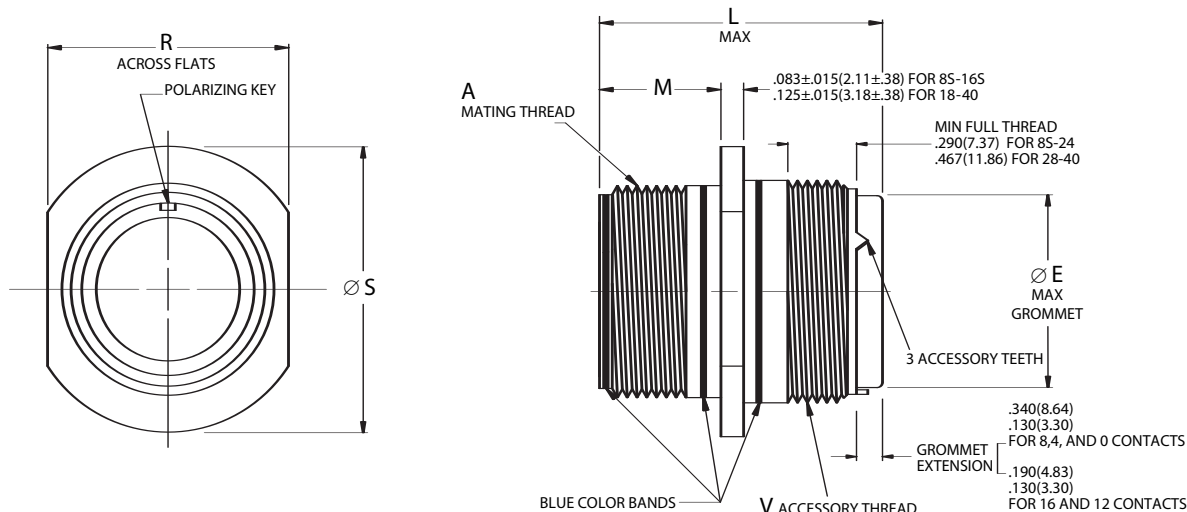
MS3451 per AS34511

Cable Connecting Receptacle

AE551



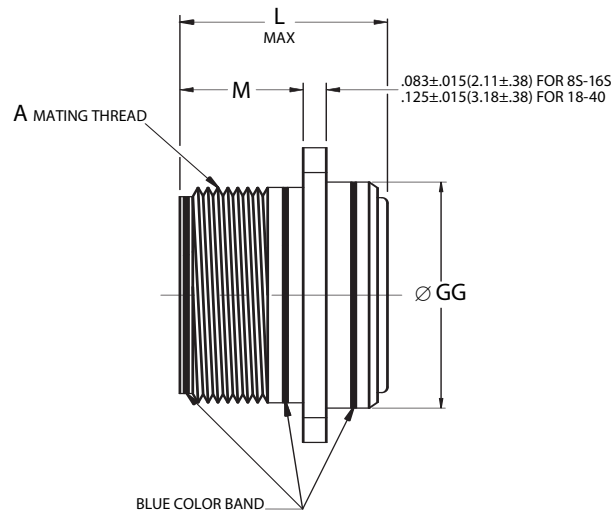
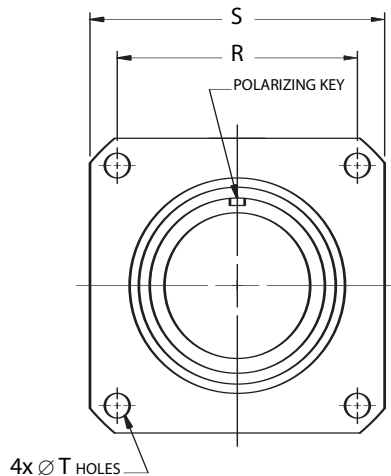
Threaded Coupling, Crimp Removable, Rear Release



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Shell Size	A	Ø E		L MAX				M		R		Ø S		V
	Mating Thread Class 2A	Maximum		16 & 12 Contacts		8, 4 & 0 Contacts		+.031 -.000				±.031 ±.79		Accessory Thread Class 2A
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
8S	1/2-28 UNEF	.305	7.75	2.031	51.59	–	–	.562	14.27	.504/.496	12.80/12.60	.729	18.52	1/2-20UNF
10S	5/8-24 UNEF	.405	10.29	2.031	51.59	–	–	.562	14.27	.629/.621	15.98/15.77	.854	21.69	5/8-24UNEF
10SL	5/8-24 UNEF	.405	10.29	2.031	51.59	–	–	.562	14.27	.629/.621	15.98/15.77	.854	21.69	5/8-24UNEF
12	3/4-20 UNEF	.549	13.94	2.125	53.98	–	–	.750	19.05	.754/.746	19.15/18.95	.974	24.74	3/4-20UNEF
12S	3/4-20 UNEF	.549	13.94	2.031	51.59	–	–	.562	14.27	.754/.746	19.15/18.95	.974	24.74	3/4-20UNEF
14	7/8-20 UNEF	.665	16.89	2.125	53.98	–	–	.750	19.05	.879/.871	22.33/22.12	1.099	27.91	7/8-20UNEF
14S	7/8-20 UNEF	.665	16.89	2.031	51.59	–	–	.562	14.27	.879/.871	22.33/22.12	1.099	27.91	7/8-20UNEF
16	1-20 UNEF	.790	20.07	2.125	53.98	2.500	63.50	.750	19.05	1.005/.996	25.53/25.30	1.224	31.09	1-20UNEF
16S	1-20 UNEF	.790	20.07	2.031	51.59	–	–	.562	14.27	1.005/.996	25.53/25.30	1.224	31.09	1-20UNEF
18	1 1/8-18 UNEF	.869	22.07	2.125	53.98	2.500	63.50	.750	19.05	1.131/1.121	28.73/28.47	1.349	34.26	1-1/16-18UNEF
20	1 1/4-18 UNEF	.994	25.25	2.125	53.98	2.500	63.50	.750	19.05	1.256/1.246	31.90/31.65	1.474	37.44	1-3/16-18UNEF
22	1 3/8-18 UNEF	1.119	28.42	2.125	53.98	2.500	63.50	.750	19.05	1.381/1.371	35.08/34.82	1.599	40.61	1-5/16-18UNEF
24	1 1/2-18 UNEF	1.244	31.60	2.125	53.98	2.500	63.50	.812	20.62	1.506/1.496	38.25/38.00	1.715	43.56	1-7/16-18UNEF
28	1 3/4-18 UNS	1.465	37.21	2.125	53.98	2.500	63.50	.812	20.62	1.756/1.746	44.60/44.35	1.974	50.14	1-3/4-18UNS
32	2-18 UNS	1.715	43.56	2.125	53.98	2.500	63.50	.875	22.23	2.007/1.996	50.98/50.70	2.224	56.49	2-18UNS
36	2 1/4-16 UN	1.930	49.02	2.125	53.98	2.500	63.50	.875	22.23	2.257/2.246	57.33/57.05	2.474	62.84	2-1/4-16UN
40	2 1/2-16 UN	2.145	54.48	2.125	53.98	2.500	63.50	.875	22.23	2.511/2.496	63.78/63.40	2.724	69.19	2-1/2-16UN

Threaded Coupling, Crimp Removable, Rear Release



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Note 1: The insulation material shall be above, flush with, or no more than .015 inches (.38 mm) below the metal shell.

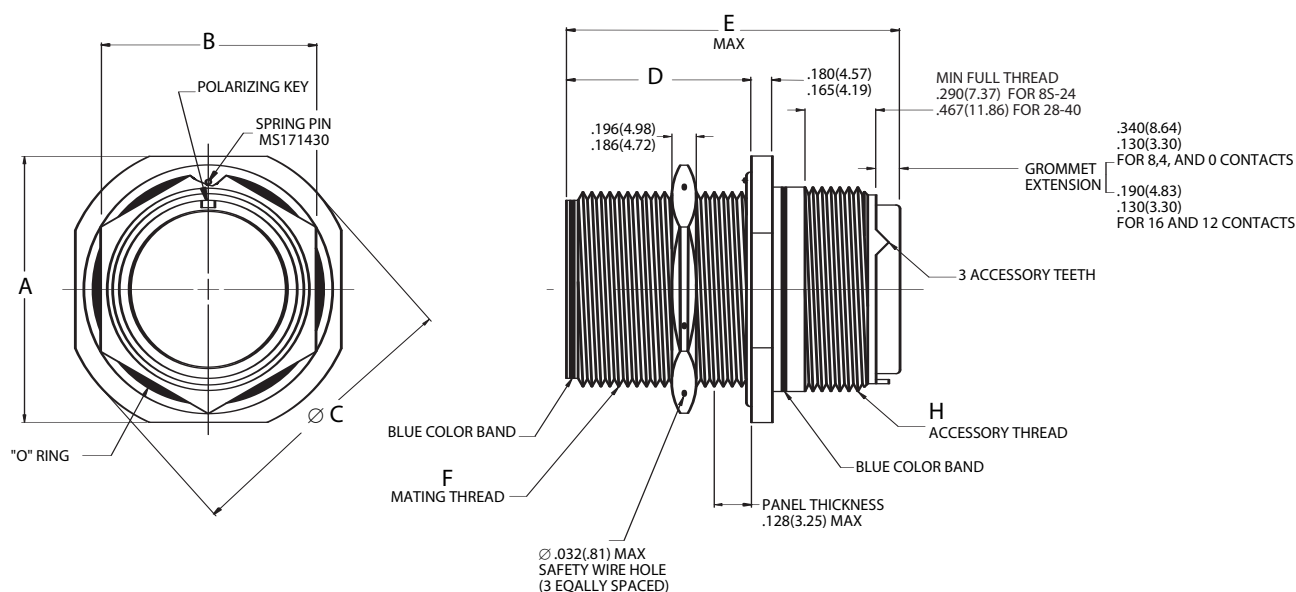
Note 2: At time of catalog printing, MS3452 was not superseded by SAE document - AS34521.

Shell Size	A	Ø GG		L MAX			M		R		S		Ø T	
	Mating Thread Class 2A	±.016	±.41	16 & 12 Contacts	8, 4 & 0 Contacts		+.031 -.000	+.79 -.00	(TP)		±.031	±.79	+.010 -.005	+.25 -.13
		inch	mm	inch	mm	inch	mm	mm	inch	mm	inch	mm	inch	mm
8S	1/2-28 UNEF	.500	12.70	1.662	42.21	–	.562	14.27	.594	15.09	.875	22.23	.120	3.05
10S	5/8-24 UNEF	.625	15.88	1.662	42.21	–	.562	14.27	.719	18.26	1.000	25.40	.120	3.05
10SL	5/8-24 UNEF	.625	15.88	1.662	42.21	–	.562	14.27	.719	18.26	1.000	25.40	.120	3.05
12	3/4-20 UNEF	.750	19.05	1.662	42.21	–	.750	19.05	.812	20.62	1.094	27.79	.120	3.05
12S	3/4-20 UNEF	.750	19.05	1.662	42.21	–	.562	14.27	.812	20.62	1.094	27.79	.120	3.05
14	7/8-20 UNEF	.875	22.23	1.662	42.21	–	.750	19.05	.906	23.01	1.188	30.18	.120	3.05
14S	7/8-20 UNEF	.875	22.23	1.662	42.21	–	.562	14.27	.906	23.01	1.188	30.18	.120	3.05
16	1-20 UNEF	1.000	25.40	1.662	42.21	1.937	.750	19.05	.969	24.61	1.281	32.54	.120	3.05
16S	1-20 UNEF	1.000	25.40	1.662	42.21	–	.562	14.27	.969	24.61	1.281	32.54	.120	3.05
18	1 1/8-18 UNEF	1.062	26.97	1.662	42.21	1.937	.750	19.05	1.062	26.97	1.375	34.93	.120	3.05
20	1 1/4-18 UNEF	1.187	30.15	1.662	42.21	1.937	.750	19.05	1.156	29.36	1.500	38.10	.120	3.05
22	1 3/8-18 UNEF	1.312	33.32	1.662	42.21	1.937	.750	19.05	1.250	31.75	1.625	41.28	.120	3.05
24	1 1/2-18 UNEF	1.437	36.50	1.662	42.21	1.937	.812	20.62	1.375	34.93	1.750	44.45	.147	3.73
28	1 3/4-18 UNS	1.750	44.45	1.662	42.21	1.937	.812	20.62	1.562	39.67	2.000	50.80	.147	3.73
32	2-18 UNS	2.000	50.80	1.662	42.21	1.937	.875	22.23	1.750	44.45	2.250	57.15	.173	4.39
36	2 1/4-16 UN	2.250	57.15	1.662	42.21	1.937	.875	22.23	1.938	49.23	2.500	63.50	.173	4.39
40	2 1/2-16 UN	2.500	63.50	1.662	42.21	1.937	.875	22.23	2.188	55.58	2.750	69.85	.173	4.39

MS3454 per AS34541
Jam Nut Receptacle
AE554



Threaded Coupling, Crimp Removable, Rear Release

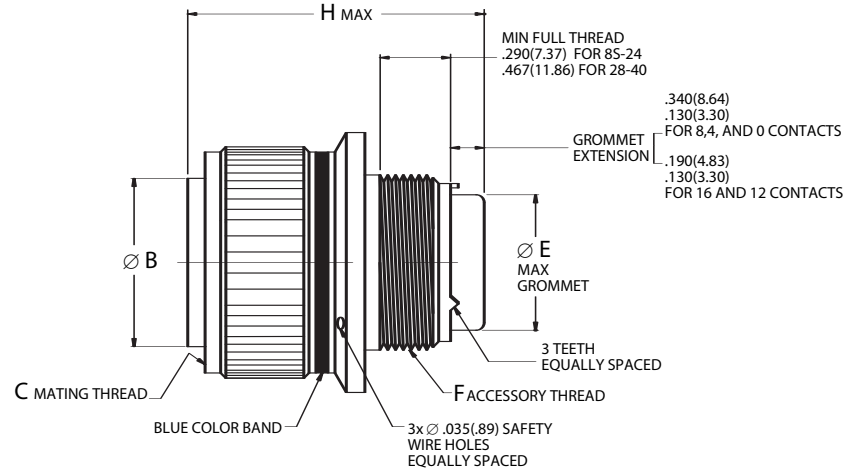
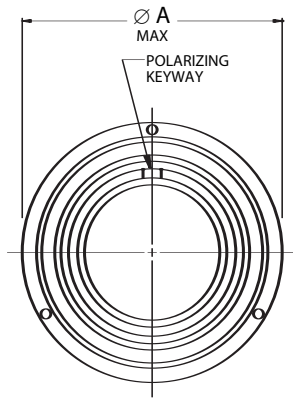


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Note: Maximum grommet O.D. is same as $\varnothing$ E MAX on next page.

Shell Size	A		B		$\varnothing$ C		D		E MAX		F	H
	$\pm$.005	$\pm$.13	$\pm$.010	$\pm$.25	$\pm$.005	$\pm$.13	$\pm$.005	$\pm$.13	16 & 12 Contacts	8, 4 & 0 Contacts	Mating Thread Class 2A	Accessory Thread Class 2A
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		
8S	1.187	30.15	.687	17.45	1.272	32.31	.720	18.29	2.031	51.59	1/2-28 UNEF	1/2-20UNF
10S	1.312	33.32	.812	20.62	1.397	35.48	.720	18.29	2.031	51.59	5/8-24 UNEF	5/8-24UNEF
10SL	1.312	33.32	.812	20.62	1.397	35.48	.720	18.29	2.031	51.59	5/8-24 UNEF	5/8-24UNEF
12	1.437	36.50	.937	23.80	1.522	38.66	.970	24.64	2.125	53.98	3/4-20 UNEF	3/4-20UNEF
12S	1.437	36.50	.937	23.80	1.522	38.66	.720	18.29	2.031	51.59	3/4-20 UNEF	3/4-20UNEF
14	1.562	39.67	1.125	28.58	1.647	41.83	.970	24.64	2.125	53.98	7/8-20 UNEF	7/8-20UNEF
14S	1.562	39.67	1.125	28.58	1.647	41.83	.720	18.29	2.031	51.59	7/8-20 UNEF	7/8-20UNEF
16	1.687	42.85	1.250	31.75	1.772	45.01	.970	24.64	2.125	53.98	1-20 UNEF	1-20UNEF
16S	1.687	42.85	1.250	31.75	1.772	45.01	.720	18.29	2.031	51.59	1-20 UNEF	1-20UNEF
18	1.812	46.02	1.375	34.93	1.897	48.18	.970	24.64	2.125	53.98	1 1/8-18 UNEF	1-1/16-18UNEF
20	1.937	49.20	1.500	38.10	2.022	51.36	.970	24.64	2.125	53.98	1 1/4-18 UNEF	1-3/16-18UNEF
22	2.156	54.76	1.625	41.28	2.241	56.92	.970	24.64	2.125	53.98	1 3/8-18 UNEF	1-5/16-18UNEF
24	2.281	57.94	1.750	44.45	2.366	60.10	.970	24.64	2.125	53.98	1 1/2-18 UNEF	1-7/16-18UNEF
28	2.531	64.29	2.000	50.80	2.616	66.45	.970	24.64	2.125	53.98	1 3/4-18 UNS	1-3/4-18UNS
32	2.781	70.64	2.375	60.33	2.866	72.80	.970	24.64	2.125	53.98	2-18 UNS	2-18UNS
36	3.031	76.99	2.625	66.68	3.116	79.15	.970	24.64	2.125	53.98	2 1/4-16 UN	2-1/4-16UN
40	3.281	83.34	2.875	73.03	3.366	85.50	.970	24.64	2.125	53.98	2 1/2-16 UN	2-1/2-16UN

Threaded Coupling, Crimp Removable, Rear Release



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Note: At time of catalog printing, MS3456 was not superseded by SAE document - AS34561.

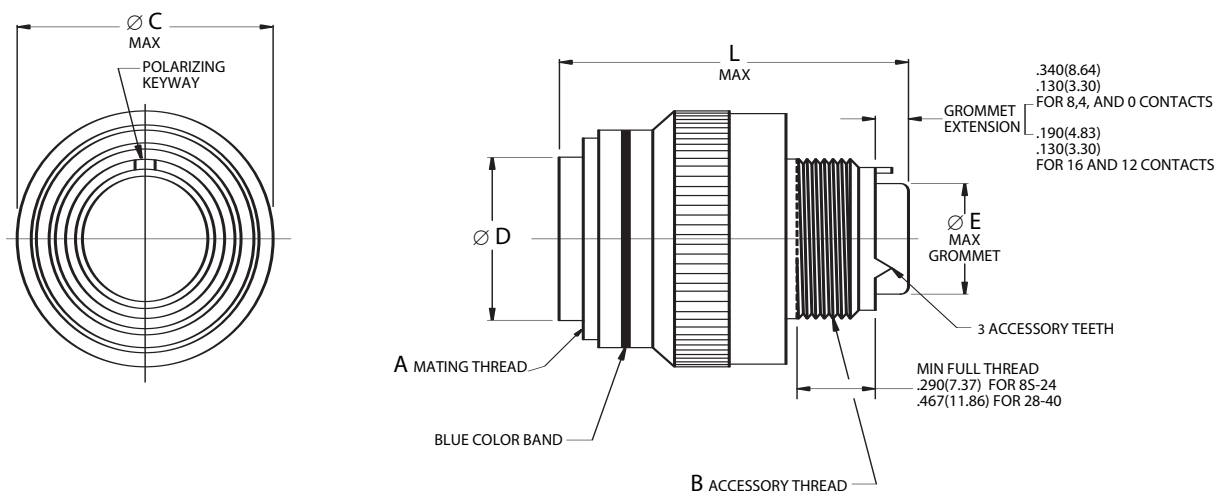
Shell Size	Ø A		Ø B		C	Ø E		F	H MAX			
	Maximum		±.005	±.13	Mating Thread Class 2B	Maximum		Accessory Thread Class 2A	16 & 12 Contacts		8, 4 & 0 Contacts	
	inch	mm	inch	mm		inch	mm		inch	mm	inch	mm
8S	.844	21.44	.360	9.14	1/2-28 UNEF	.305	7.75	1/2-20UNF	2.031	51.59	–	–
10S	.969	24.61	.435	11.05	5/8-24 UNEF	.405	10.29	5/8-24UNEF	2.031	51.59	–	–
10SL	.969	24.61	.443*	11.25*	5/8-24 UNEF	.405	10.29	5/8-24UNEF	2.031	51.59	–	–
12	1.062	26.97	.550	13.97	3/4-20 UNEF	.549	13.94	3/4-20UNEF	2.125	53.98	–	–
12S	1.062	26.97	.550	13.97	3/4-20 UNEF	.549	13.94	3/4-20UNEF	2.031	51.59	–	–
14	1.156	29.36	.670	17.02	7/8-20 UNEF	.665	16.89	7/8-20UNEF	2.125	53.98	–	–
14S	1.156	29.36	.670	17.02	7/8-20 UNEF	.665	16.89	7/8-20UNEF	2.031	51.59	–	–
16	1.250	31.75	.800	20.32	1-20 UNEF	.790	20.07	1-20UNEF	2.125	53.98	2.500	63.50
16S	1.250	31.75	.800	20.32	1-20 UNEF	.790	20.07	1-20UNEF	2.031	51.59	–	–
18	1.344	34.14	.925	23.50	1 1/8-18 UNEF	.869	22.07	1-1/16-18UNEF	2.125	53.98	2.500	63.50
20	1.469	37.31	1.045	26.54	1 1/4-18 UNEF	.994	25.25	1-3/16-18UNEF	2.125	53.98	2.500	63.50
22	1.594	40.49	1.170	29.72	1 3/8-18 UNEF	1.119	28.42	1-5/16-18UNEF	2.125	53.98	2.500	63.50
24	1.719	43.66	1.295	32.89	1 1/2-18 UNEF	1.244	31.60	1-7/16-18UNEF	2.125	53.98	2.500	63.50
28	1.969	50.01	1.515	38.48	1 3/4-18 UNS	1.465	37.21	1-3/4-18UNS	2.125	53.98	2.500	63.50
32	2.219	56.36	1.765	44.83	2-18 UNS	1.715	43.56	2-18UNS	2.125	53.98	2.500	63.50
36	2.469	62.71	1.975	50.17	2 1/4-16 UN	1.930	49.02	2-1/4-16UN	2.125	53.98	2.500	63.50
40	2.719	69.06	2.225	56.52	2 1/2-16 UN	2.145	54.48	2-1/2-16UN	2.125	53.98	2.500	63.50

* Tolerance for this dimension is $\pm .003(.08)$

MS3459 per AS34591
Self-Locking Plug
AE559



Threaded Coupling, Crimp Removable, Rear Release

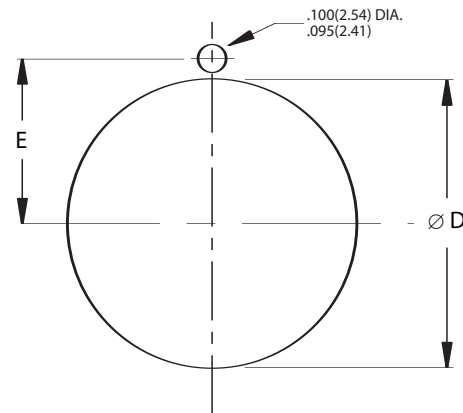
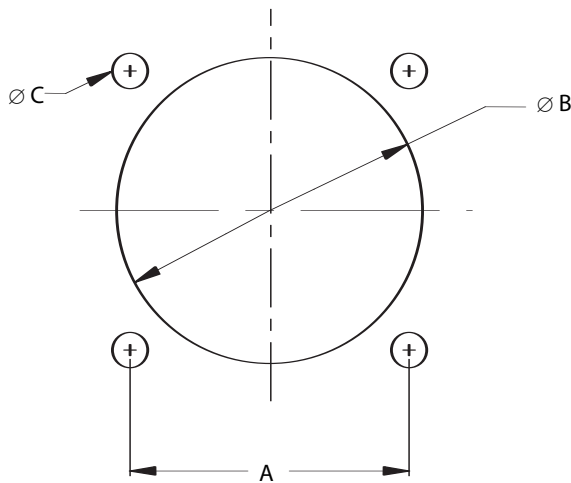


Page 48	Completed Part Number
Page 56	Contacts, Sealing Plugs and Tools
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Page 47	Performance Specifications
Pages 58–62	Insert Availability and Contact Information
Page 58	Polarization

Shell Size	A	B	$\varnothing C$		$\varnothing D$		$\varnothing E$		L MAX	
	Mating Thread Class 2B	Accessory Thread Class 2A	Maximum		$\pm .005$ $\pm .13$		Maximum		16 & 12 Contacts	8, 4 & 0 Contacts
			inch	mm	inch	mm	inch	mm	inch	mm
8S	1/2-28 UNEF	1/2-20UNF	.963	24.46	.360	9.14	.305	7.75	2.031	51.59
10S	5/8-24 UNEF	5/8-24UNEF	1.088	27.64	.435	11.05	.405	10.29	2.031	51.59
10SL	5/8-24 UNEF	5/8-24UNEF	1.088	27.64	.443*	11.25*	.405	10.29	2.031	51.59
12	3/4-20 UNEF	3/4-20UNEF	1.213	30.81	.550	13.97	.549	13.94	2.125	53.98
12S	3/4-20 UNEF	3/4-20UNEF	1.213	30.81	.550	13.97	.549	13.94	2.031	51.59
14	7/8-20 UNEF	7/8-20UNEF	1.358	34.49	.670	17.02	.665	16.89	2.125	53.98
14S	7/8-20 UNEF	7/8-20UNEF	1.358	34.49	.670	17.02	.665	16.89	2.031	51.59
16	1-20 UNEF	1-20UNEF	1.463	37.16	.800	20.32	.790	20.07	2.125	53.98
16S	1-20 UNEF	1-20UNEF	1.463	37.16	.800	20.32	.790	20.07	2.031	51.59
18	1 1/8-18 UNEF	1-1/16-18UNEF	1.588	40.34	.925	23.50	.869	22.07	2.125	53.98
20	1 1/4-18 UNEF	1-3/16-18UNEF	1.713	43.51	1.045	26.54	.994	25.25	2.125	53.98
22	1 3/8-18 UNEF	1-5/16-18UNEF	1.788	45.42	1.170	29.72	1.119	28.42	2.125	53.98
24	1 1/2-18 UNEF	1-7/16-18UNEF	1.963	49.86	1.295	32.89	1.244	31.60	2.125	53.98
28	1 3/4-18 UNS	1-3/4-18UNS	2.213	56.21	1.515	38.48	1.465	37.21	2.125	53.98
32	2-18 UNS	2-18UNS	2.463	62.56	1.765	44.83	1.715	43.56	2.125	53.98
36	2 1/4-16 UN	2-1/4-16UN	2.713	68.91	1.975	50.17	1.930	49.02	2.125	53.98
40	2 1/2-16 UN	2-1/2-16UN	2.963	75.26	2.225	56.52	2.145	54.48	2.125	53.98

* Tolerance for this dimension is $\pm .003$ (.08)

Panel Cutouts



MS3454 (AE554) CUTOUT

Flange and Jam Nut Mounting Dimensions

Shell Size	A		Ø B		Ø C				Ø D		E	
	(TP)		±.010		Classes L, LS, W		Classes KS, KT		±.015		±.005	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8S	.594	15.09	.562	14.27	.120	3.05	.150	3.81	.505	12.83	.323	8.20
10S, 10SL	.719	18.26	.688	17.48	.120	3.05	.150	3.81	.630	16.00	.385	9.78
12, 12S	.812	20.62	.812	20.62	.120	3.05	.150	3.81	.755	19.18	.448	11.38
14, 14S	.906	23.01	.938	23.83	.120	3.05	.150	3.81	.880	22.35	.510	12.95
16, 16S	.969	24.61	1.062	26.97	.120	3.05	.150	3.81	1.005	25.53	.573	14.55
18	1.062	26.97	1.188	30.18	.120	3.05	.177	4.50	1.130	28.70	.635	16.13
20	1.156	29.36	1.312	33.32	.120	3.05	.177	4.50	1.255	31.88	.698	17.73
22	1.250	31.75	1.438	36.53	.120	3.05	.177	4.50	1.380	35.05	.760	19.30
24	1.375	34.93	1.562	39.67	.147	3.73	.177	4.50	1.505	38.23	.823	20.90
28	1.562	39.67	1.812	46.02	.147	3.73	.177	4.50	1.755	44.58	.948	24.08
32	1.750	44.45	2.062	52.37	.173	4.39	.209	5.31	2.005	50.93	1.073	27.25
36	1.938	49.23	2.312	58.72	.173	4.39	.209	5.31	2.255	57.28	1.198	30.43
40	2.188	55.58	2.562	65.07	.173	4.39	.209	5.31	2.505	63.63	1.323	33.60

MIL-DTL-5015

Contacts, Tools and Seal Plugs

MS345*/AE55*



Contacts, Plastic Insertion/Removal Tools and Seal Plugs

Contact Size	Application	Pin Contacts	Socket Contacts	Seal Plugs	Insertion/Removal Tools
					Plastic
	Type	Military No.	Military No.	Military No.	Military No.
16S	Power/Signal	N/A	M39029/30-217	MS27488-16-1	M81969/14-03
16	Power/Signal	M39029/29-212	M39029/30-218		
12	Power/Signal	M39029/29-213	M39029/30-219	MS27488-12-1	M81969/14-04
8	Power	M39029/29-214*	M39029/30-220*	MS27488-8-1	M81969/14-06
4	Power	M39029/29-215*	M39029/30-221*	MS27488-4-1**	M81969/14-07
0	Power	M39029/29-216*	M39029/30-222*	MS27488-0-1**	M81969/14-08

* No spare size 0, 4 and 8 contacts are provided in connector contact packages.

** Not supplied as part of connector contact packages.

Crimping and Metal Insertion/Extraction Tools

Contact Size	Crimp Tool	Positioner	Die Set	Locator	Extraction Tool
		Pin & Socket Contacts	Pin & Socket Contacts	Pin & Socket Contacts	Metal
	Military No.	Military No.	Military No.	Military No.	Military No.
16/16S	M22520/1-01	M22520/1-02	N/A	N/A	M81969/8-208
12	M22520/1-01	M22520/1-02	N/A	N/A	M81969/8-210
8	M22520/23-01	N/A	M22520/23-02	M22520/23-09	M81969/15-01
4	M22520/23-01	N/A	M22520/23-03	M22520/23-11	M81969/15-02
0	M22520/23-01	N/A	M22520/23-04	M22520/23-13	M81969/15-03

Contact and Wire Data

Contact Size	Test Current	Voltage	Crimp Well Data			Wire Range		Finished Wire Ø Range			
	DC Test	Max. Drop	Well Dia.	Minimum Well Dept				Minimum		Maximum	
	Amps	Millivolts	inch	inch	mm	AWG	mm ²	inch	mm	inch	mm
16/16S	13	49	.067 ±.001	.250	6.35	20-16	0.52-1.31	.053	1.35	.103	2.62
12	23	42	.100 ±.002	.250	6.35	14-12	2.08-3.31	.085	2.16	.158	4.01
8	46	26	.181 ±.002	.485	12.32	10-8†	5.26-8.37	.132	3.35	.255	6.48
4	80	23	.281 ±.002	.485	12.32	6-4†	13.30-21.15	.237	6.02	.370	9.40
0	150	21	.453 ±.002	.580	14.73	2-0†	33.63-53.48	.360	9.14	.550	13.97

† MS3348 bushings required in crimp barrel to accommodate 10, 6 and 2 wire gauges. Bushings are ordered separately.

Note 1: 16S socket contacts are only used in shell sizes 8S, 10S, 10SL, 12S, 14S and 16S.

Note 2: Test Current and Maximum Voltage Drop when tested with silver-plated wire at 25°C.

Note 3: Metal Insertion tool is not req'd for size 8, 4 and 0 contacts. Metal insertion tool for size 16 contacts = M81969/8-207. Metal insertion tool for size 12 contacts = M81969/8-209.



MIL-DTL-5015 Contact Installation Instructions MS345*/AE55*

Contact Installation Instructions

Crimping Contacts

1. Select the appropriate crimp tool and ensure that the proper crimp head positioner is used.
2. Cycle the tool to be sure the indentors are open.
3. Determine the correct selector setting for the wire size from the data plate on the positioner (turret head assembly) and set the selector knob on the crimp tool to match.
4. Place the contact, mating end first, into the tool.
5. Insert the stripped wire into the hollow end of the contact. Be sure the wire is inserted as far as it will go.
6. Close the tool completely to crimp. Unless the tool is closed completely, the tool will not release the contact.
7. Remove the crimped contact from the tool. Check the inspection hole to verify that the wire is fully inserted.

Insertion of Contacts

1. Before inserting the contacts, unscrew the accessories (clamps, backshells or adapters) from rear of plug or receptacle. Slide the hardware over the wire bundle in the proper order for reassembly after all the contacts are inserted.
2. To assist insertion of contacts, lubricate insulator (grommet) cavities with isopropyl alcohol. Alcohol will evaporate and will not leave a conductive film. **Caution: Never use any lubricant other than isopropyl alcohol.**

3. Place the correct insertion tool on the contact so that the wire runs along the groove in the tool. (Tool tip will butt against the shoulder.) Hold the plug or receptacle body firmly.
4. Beginning with a center cavity, insert the contact into the insulator with a slow, even pressure until the contact snaps into position. Make sure the contact and tool are held perpendicular to the face of the insert during the contact installation or the grommet could be damaged.
 - 4.1 If contacts are not inserted all the way prior to removing insertion tool, do not try to reinsert the insertion tool. Instead, remove the contact and try again; otherwise reinserting the insertion tool may damage the inside of the contact cavity.
5. Remove tool and check the face of the connector for proper contact installation. Proper installation may also be checked by pulling back lightly on the wire to make sure the contact is properly seated.

Completion

After all the cavities have been filled, slide the hardware back into position on the connector and tighten.

Extraction of Contacts (Rework)

1. Slide the hardware back over the wire bundle.
2. Select the appropriate tool. Place the wire into the extraction tool of the pin or socket.
3. Slowly slide the extraction tool down wire into the contact cavities until the tool tip bottoms against the contact shoulder, expanding the clip retaining tines. Hold the wire firmly in the tool and pull the wired contact and tool straight out of the rear of the insulator.

Size	Pin Contact	Socket Contact	Crimp Tool	Positioner	Die Set	Locator	I/R Tool
16S*	—	M39029/30-217	M22520/1-01	M22520/1-02 Blue	—	—	M81969/14-03
16	M39029/29-212	M39029/30-218	M22520/1-01	M22520/1-02 Blue	—	—	M81969/14-03
12	M39029/29-213	M39029/30-219	M22520/1-01	M22520/1-02 Yellow	—	—	M81969/14-04
8	M39029/29-214	M39029/30-220	M22520/23-01	—	M22520/23-02	M22520/23-09	M81969/14-06
4	M39029/29-215	M39029/30-221	M22520/23-01	—	M22520/23-04	M22520/23-11	M81969/14-07
0	M39029/29-216	M39029/30-222	M22520/23-01	—	M22520/23-05	M22520/23-13	M81969/14-08

I/R = Insertion/Removal

* 16S socket contact is only used in shell sizes 8S, 10S, 10SL, 12S, 14S and 16S.

MIL-DTL-5015 Series III (Rear Release)

Polarization, Insert Availability & Contact Information

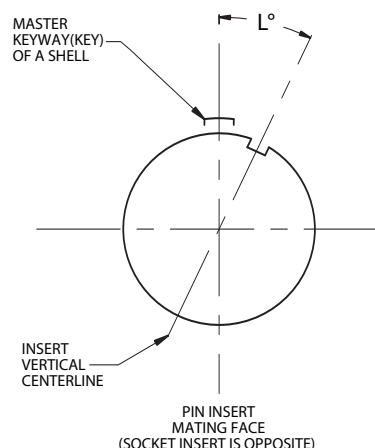
per MIL-STD-1651



Polarization (Insert Clocking)

1. In the normal insert clocking position (position N), the insert centerline coincides with the centerline of the master keyway (key) of the shell: $L = 0^\circ$.
2. In the alternate clocking positions (W, X, Y and Z), the pin insert (viewing from mating side) is rotated clockwise relative to the centerline of the master keyway (key) of the shell.
3. The socket insert is rotated counter-clockwise.
4. Plugs have keyways; receptacles have keys.

Note: Be careful with alternate positions. See table below for position availability on layouts of interest.



Insert Availability, Contact Information and Clocking Positions

Shell Size & Insert Arrangement	Aero-Electric		Contacts					Insert Positions				
	Status		Total	Quantity by Size		Service	Contact	“L” Degrees				
	QPL'd	Tooled	Number	Qty	Size	Rating	Location	N	W	X	Y	Z
8S-1	Yes	Yes	1	1	16/16S**	A	All	0	—	—	—	—
10S-2	Yes	Yes	1	1	16/16S**	A	All	0	—	—	—	—
10SL-3***	Yes	Yes	3	3	16/16S**	A	All	0	—	—	—	—
10SL-4	Yes	Yes	2	2	16/16S**	A	All	0	—	—	—	—
12-5	Yes	Yes	1	1	12	D	All	0	—	—	—	—
12S-3	Yes	Yes	2	2	16/16S**	A	All	0	70	145	215	290
12S-4	Yes	Yes	1	1	16/16S**	D	All	0	—	—	—	—
14-3	Yes	Yes	1	1	8	A	All	0	—	—	—	—
14S-1*	Yes	Yes	3	3	16/16S**	A	All	0	—	—	—	—
14S-2	Yes	Yes	4	4	16/16S**	Inst.	All	0	—	120	240	—
14S-5	Yes	Yes	5	5	16/16S**	Inst.	All	0	—	110	—	—
14S-6	Yes	Yes	6	6	16/16S**	Inst.	All	0	—	—	—	—
14S-7	Yes	Yes	3	3	16/16S**	A	All	0	90	180	270	—
14S-9*	Yes	Yes	2	2	16/16S**	A	All	0	70	145	215	290
16-10	Yes	Yes	3	3	12	A	All	0	90	180	270	—
16-11	Yes	Yes	2	2	12	A	All	0	35	110	250	325
16-12	Yes	Yes	1	1	4	A	All	0	—	—	—	—
16S-1	Yes	Yes	7	7	16/16S**	A	All	0	80	—	—	280
16S-4	Yes	Yes	2	2	16/16S**	D	All	0	35	110	250	325
16S-5*	Yes	Yes	3	3	16/16S**	A	All	0	70	145	215	290
16S-8	Yes	Yes	5	5	16/16S**	A	All	0	—	170	265	—

* Inactive for new design

** Pin contact is size 16, socket contact is size 16S

*** Service Rating = Inst. for classes KS and KT only.



MIL-DTL-5015 Series III (Rear Release)

Insert Availability, Contact Information and Clocking

per MIL-STD-1651

Insert Availability, Contact Information and Clocking Positions

Shell Size & Insert Arrangement	Aero-Electric		Contacts					Insert Positions				
	Status		Total	Quantity by Size		Service	Contact	"L" Degrees				
	QPL'd	Tooled	Number	Qty	Size	Rating	Location	N	W	X	Y	Z
18-1	Yes	Yes	10	4	16	A	B,C,F,G	0	70	145	215	290
				6	16	Inst.	All others					
18-4	Yes	Yes	4	4	16	D	All	0	35	110	250	325
18-5	Yes	Yes	3	1	16	D	All	0	80	110	250	280
				2	12							
18-6	Yes	Yes	1	1	4	D	—	0	—	—	—	—
18-8	Yes	Yes	8	7	16	A	All	0	70	—	—	290
				1	12							
18-9	Yes	Yes	7	5	16	Inst.	All	0	80	110	250	280
				2	12							
18-10*	Yes	Yes	4	4	12	A	All	0	—	120	240	—
18-11	Yes	Yes	5	5	12	A	All	0	—	170	265	—
18-12	Yes	Yes	6	6	16	A	All	0	80	—	—	280
18-20*	Yes	Yes	5	5	16	A	All	0	90	180	270	—
20-2	Yes	Yes	1	1	0	D	---	0	—	—	—	—
20-3*	Yes	Yes	3	3	12	D	All	0	70	145	215	290
20-4	Yes	Yes	4	4	12	D	All	0	45	110	250	—
20-7	Yes	Yes	8	4	16	D	A,B,G,H	0	80	110	250	280
				4	16	A	All others					
20-8	Yes	Yes	6	4	16	Inst.	All	0	80	110	250	280
				2	8							
20-11*	Yes	Yes	13	13	16	Inst.	All	0	—	—	—	—
20-14	Yes	No	5	3	12	A	All	0	80	110	250	280
				2	8							
20-15	Yes	Yes	7	7	12	A	All	0	80	—	—	280
20-16	Yes	Yes	9	7	16	A	All	0	80	110	250	280
				2	12							
20-17	Yes	Yes	6	1	16	A	All	0	90	180	270	—
				5	12							
20-18	Yes	Yes	9	6	16	A	All	0	35	110	250	325
				3	12							
20-22	Yes	Yes	6	3	16	A	All	0	80	110	250	280
				3	8							
20-24*	Yes	Yes	4	2	16	A	All	0	35	110	250	325
				2	8							
20-27	Yes	Yes	14	14	16	A	All	0	35	110	250	325
20-29	Yes	Yes	17	17	16	A	All	0	80	—	—	280
20-33	Yes	Yes	11	11	16	A	All	0	—	—	—	—
22-1*	Yes	Yes	2	2	8	D	All	0	35	110	250	325

* Inactive for new design

MIL-DTL-5015 Series III (Rear Release)

Insert Availability, Contact Information and Clocking

per MIL-STD-1651



Insert Availability, Contact Information and Clocking Positions

Shell Size & Insert Arrangement	Aero-Electric		Contacts					Insert Positions				
	Status		Total	Quantity by Size		Service	Contact	"L" Degrees				
	QPL'd	Tooled	Number	Qty	Size	Rating	Location	N	W	X	Y	Z
22-2	Yes	Yes	3	3	8	D	All	0	70	145	215	290
22-9	Yes	Yes	3	3	12	E	All	0	70	145	215	290
22-12	Yes	Yes	5	3	16	D	All	0	80	110	250	280
				2	8							
22-13*	Yes	Yes	5	1	16	D	E	0	35	110	250	325
				4	12	A	All others					
22-14**	Yes	Yes	19	19	16	A	All	0	80	110	250	280
22-18	Yes	Yes	8	3	16	A	C,D,E	0	80	110	250	280
				5	16	D	All others					
22-19	Yes	Yes	14	14	16	A	All	0	80	110	250	280
22-20*	Yes	Yes	9	9	16	A	All	0	35	110	250	325
22-22	Yes	Yes	4	4	8	A	All	0	—	110	250	—
22-23	Yes	Yes	8	1	12	D	H	0	35	—	250	—
				7	12	A	All others					
22-27	Yes	Yes	9	1	8	D	J	0	80	—	250	280
				8	16	A	All others					
22-33*	Yes	Yes	7	3	16	A	E,F,G	0	80	110	250	280
				4	16	D	All others					
24-2	Yes	Yes	7	7	12	D	All	0	80	—	—	280
24-4	Yes	Yes	4	3	16	D	All	0	80	110	250	280
				1	0							
24-6	Yes	Yes	8	3	12	D	A,G,H	0	80	110	250	280
				5	12	A	All others					
24-7	Yes	Yes	16	14	16	A	All	0	80	110	250	280
				2	12							
24-9*	Yes	Yes	2	2	4	A	All	0	35	110	250	325
24-10	Yes	Yes	7	7	8	A	All	0	80	—	—	280
24-11	Yes	Yes	9	6	12	A	All	0	35	110	250	325
				3	8							
24-12	Yes	Yes	5	3	12	A	All	0	80	110	250	280
				2	4							
24-20	Yes	Yes	11	9	16	D	All	0	80	110	250	280
				2	12							
24-21	Yes	No	10	9	16	D	All	0	80	110	250	280
				1	8							
24-22	Yes	Yes	4	4	8	D	All	0	45	110	250	—
24-27	Yes	Yes	7	7	16	E	All	0	80	—	—	280
24-28	Yes	Yes	24	24	16	Inst.	All	0	80	110	250	280

* Inactive for new design

** Alternate positions X,Y are cancelled after June 26, 1968.



MIL-DTL-5015 Series III (Rear Release) Insert Availability, Contact Information and Clocking per MIL-STD-1651

Insert Availability, Contact Information and Clocking Positions

Shell Size & Insert Arrangement	Aero-Electric		Contacts					Insert Positions				
	Status		Total	Quantity by Size		Service	Contact	“L” Degrees				
	QPL'd	Tooled	Number	Qty	Size	Rating	Location	N	W	X	Y	Z
28-1	Yes	Yes	9	2	12	D	A,E	0	80	110	250	280
				4	12	A	B,D,F,H					
				1	8	D	J					
				2	8	A	G,C					
28-2	Yes	Yes	14	12	16	D	All	0	35	110	250	325
	2	12										
28-3	Yes	Yes	3	3	8	E	All	0	70	145	215	290
28-5	Yes	Yes	5	2	16	D	All	0	35	110	250	325
				1	12							
				2	4							
28-8	Yes	Yes	12	2	12	E	L,M					
				1	16	D	B	0	80	110	250	280
				9	16	A	All others					
28-9	Yes	Yes	12	6	16	D	All	0	80	110	250	280
				6	12							
28-11	Yes	Yes	22	18	16	A	All	0	80	110	250	280
				4	12							
28-12	Yes	Yes	26	26	16	A	All	0	90	180	270	—
28-15	Yes	Yes	35	35	16	A	All	0	80	110	250	280
28-16*	Yes	Yes	20	20	16	A	All	0	80	110	250	280
28-19	Yes	Yes	10	2	16	B	H,M	0	80	110	250	280
				2	16	D	A,B					
				2	16	A	All others					
				4	12							
28-20	Yes	Yes	14	4	16	A	All	0	80	110	250	280
				10	12							
28-21	Yes	Yes	37	37	16	A	All	0	80	110	250	280
28-22	Yes	Yes	6	3	16	D	All	0	70	145	215	290
				3	4							
32-1	Yes	Yes	5	1	12	E	A	0	80	110	250	280
				2	12	D	D,C					
				2	0		B,E					
32-3	Yes	Yes	9	4	16	D	All	0	80	110	250	280
				2	12							
				2	4							
				1	0							
32-5*	Yes	Yes	2	2	0	D	All	0	80	110	250	325
32-6	Yes	Yes	23	16	16	A	All	0	80	110	250	280
				2	12							
				3	8							
				2	4							

* Inactive for new design

MIL-DTL-5015 Series III (Rear Release)
Insert Availability, Contact Information and Clocking
per MIL-STD-1651



Insert Availability, Contact Information and Clocking Positions

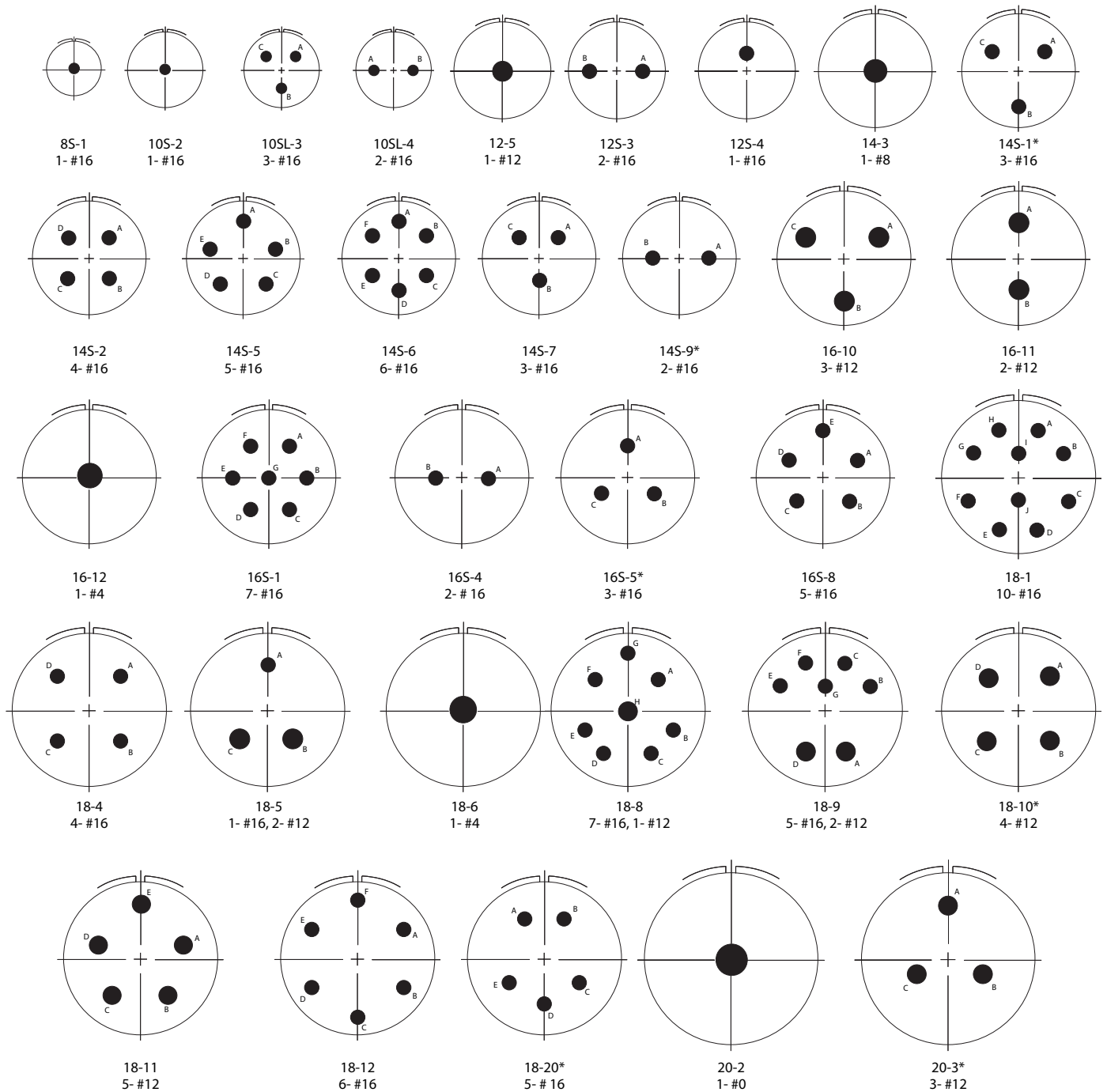
Shell Size & Insert Arrangement	Aero-Electric		Contacts					Insert Positions				
	Status		Total	Quantity by Size		Service	Contact	“L” Degrees				
	QPL'd	Tooled	Number	Qty	Size	Rating	Location	N	W	X	Y	Z
32-7	Yes	Yes	35	4	16	Inst.	A,B,h,j	0	80	125	235	280
				24	16	A	All others					
				7	12							
32-8*	Yes	Yes	30	24	16	A	All	0	80	125	235	280
				6	12							
32-10*	Yes	Yes	7	2	16	E	A,F	0	80	110	250	280
				1	16	B	G					
				2	8	D	B,E					
				2	4	A	C,D					
32-15	Yes	Yes	8	6	12	D	All	0	35	110	250	280
				2	0							
32-17	Yes	Yes	4	4	4	D	All	0	45	110	250	---
32-22**	Yes	Yes	54	54	16	A	All	0	80	110	250	280
32-63	Yes	Yes	5	5	4	D	All	0	—	—	—	—
32-73	Yes	Yes	46	46	16	A	All	0	36	—	—	—
36-3	Yes	No	6	3	12	D	All	0	70	145	215	290
				3	0							
36-5	Yes	Yes	4	4	0	A	All	0	—	120	240	—
36-6	Yes	Yes	6	4	4	A	All	0	35	110	250	325
				2	0							
36-7	Yes	Yes	47	40	16	A	All	0	80	110	250	280
				7	12							
36-8	Yes	Yes	47	46	16	A	All	0	80	110	250	280
				1	12							
36-9	Yes	Yes	31	14	16	A	All	0	80	125	235	280
				14	12							
				2	8							
				1	4							
36-10	Yes	Yes	48	48	16	A	All	0	80	125	235	280
40-10	Yes	Yes	29	16	16	A	All	0	65	125	225	310
				9	8							
				4	4							
40-56	Yes	Yes	85	85	16	A	All	0	72	144	216	288

* Inactive for new design

** Alternate positions U (100 degrees) and V (260 degrees) are also available per MIL-STD-1651.



Insert Arrangements Views



* Inactive for new design

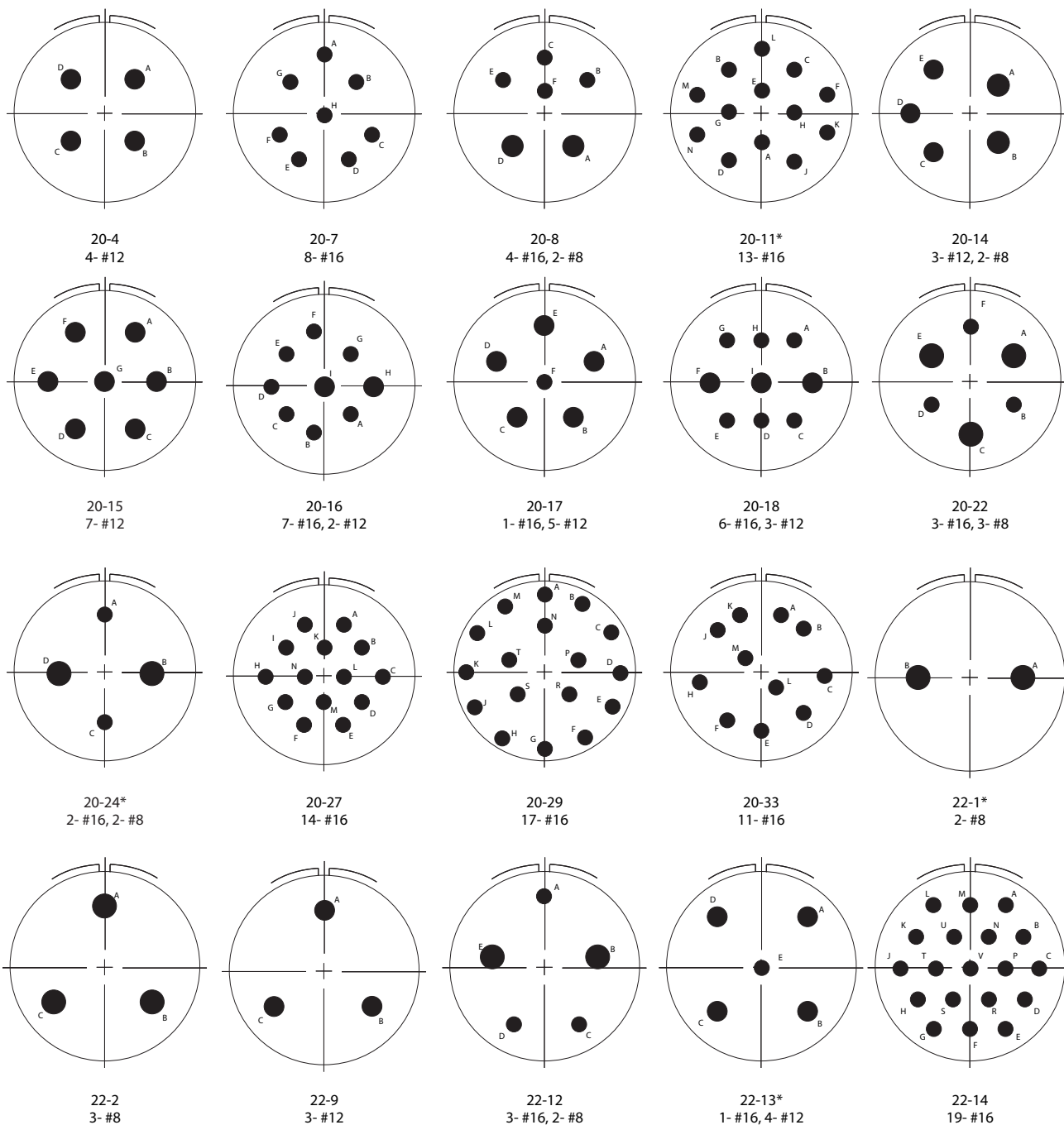
MIL-STD-1651

Insert Arrangements (Pin Front View)

for MIL-DTL-5015 Connectors



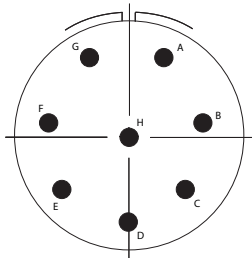
Insert Arrangements Views



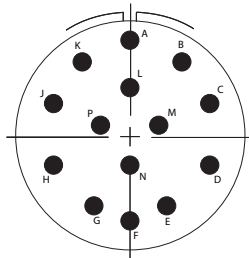
* Inactive for new design



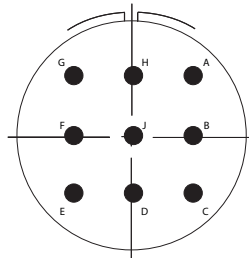
Insert Arrangements Views



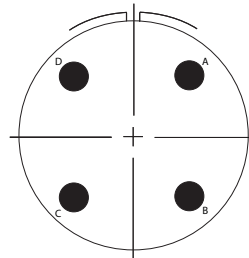
22-18
8- #16



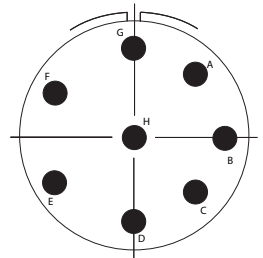
22-19
14- #16



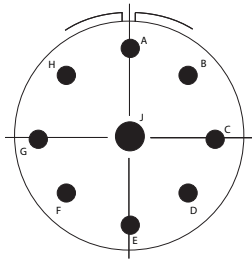
22-20*
9- #16



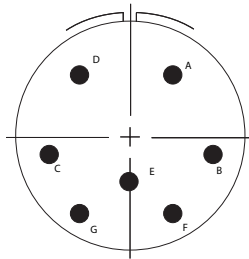
22-22
4- #8



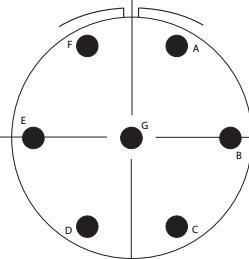
22-23
8- #12



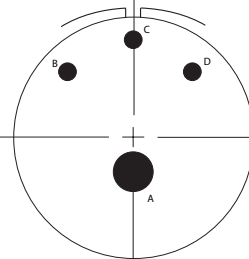
22-27
1- #8, 8- #16



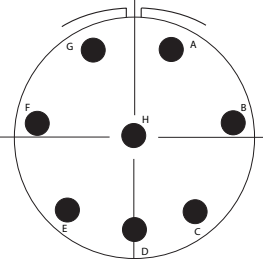
22-33*
7- #16



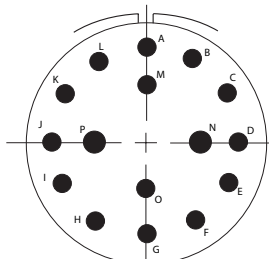
24-2
7- #12



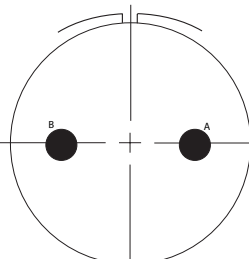
24-4
3- #16, 1- #0



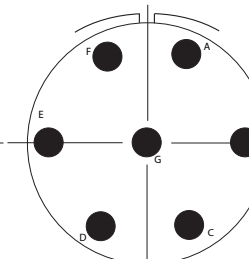
24-6
8- #12



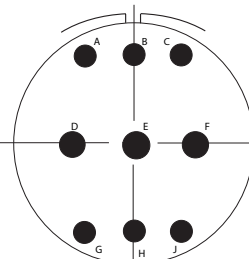
24-7
14- #16, 2- #12



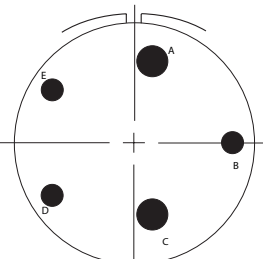
24-9*
2- #4



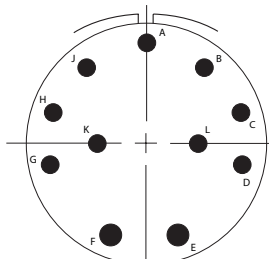
24-10
7- #8



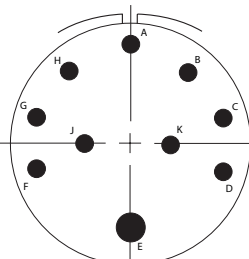
24-11
6- #12, 3- #8



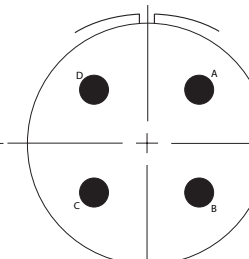
24-12
3- #12, 2- #4



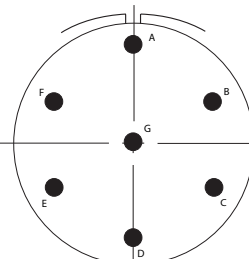
24-20
9- #16, 2- #12



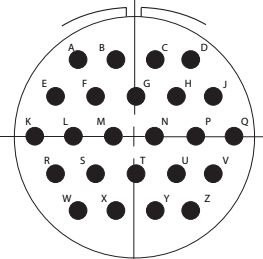
24-21
9- #16, 1- #8



24-22
4- #8



24-27
7- #16



24-28
24- #16

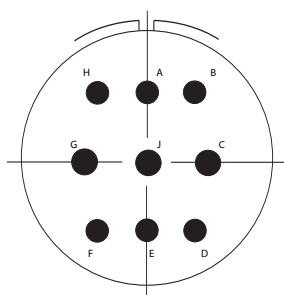
* Inactive for new design

MIL-STD-1651

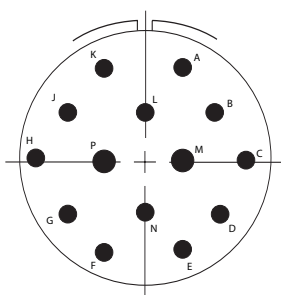
Insert Arrangements (Pin Front View) for MIL-DTL-5015 Connectors



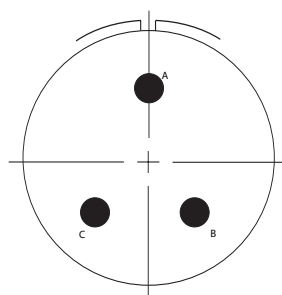
Insert Arrangements Views



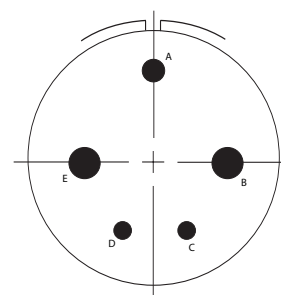
28-1
6- #12, 3- #8



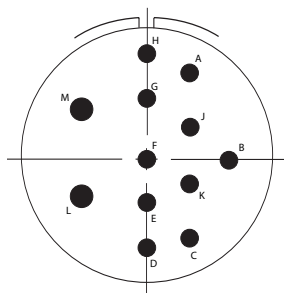
28-2
12- #16, 2- #12



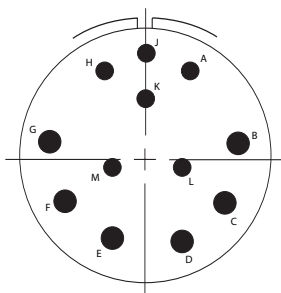
28-3
3- #8



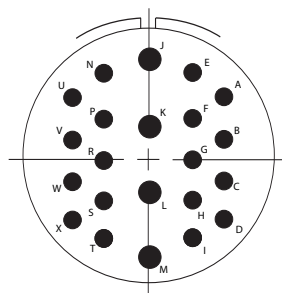
28-5
2- #16, 1- #12, 2- #4



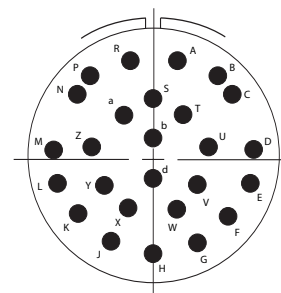
28-8
2- #12, 10- #16



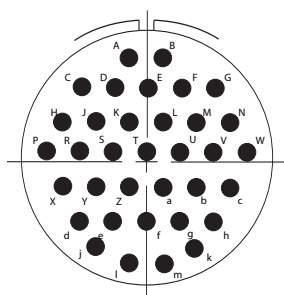
28-9
6- #16, 6- #12



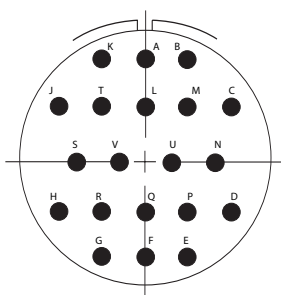
28-11
18- #16, 4- #12



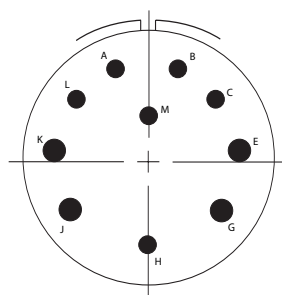
28-12
26- #16



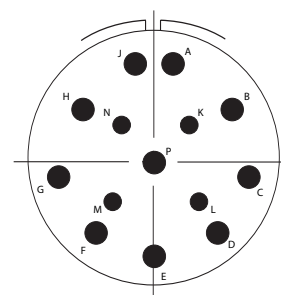
28-15
35- #16



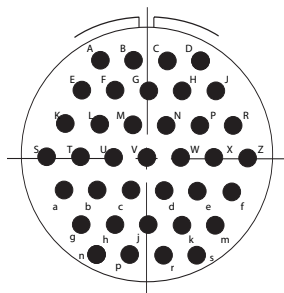
28-16*
20- #16



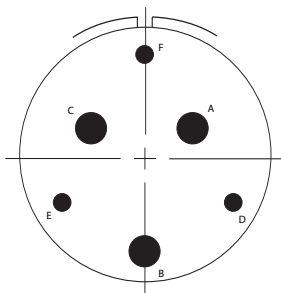
28-19
6- #16, 4- #12



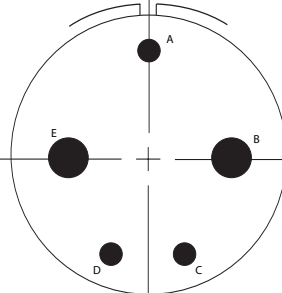
28-20
4- #16, 10- #12



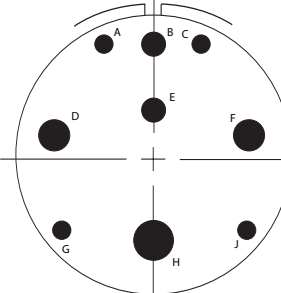
28-21
37- #16



28-22
3- #16, 3- #4



32-1
3- #12, 2- #0

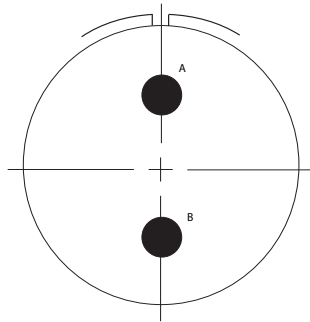


32-3
4- #16, 2- #12,
2- #4, 1- #0

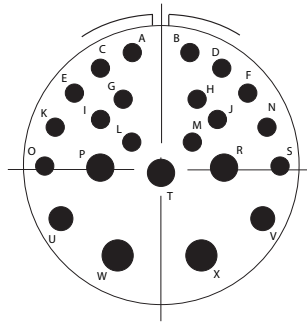
* Inactive for new design



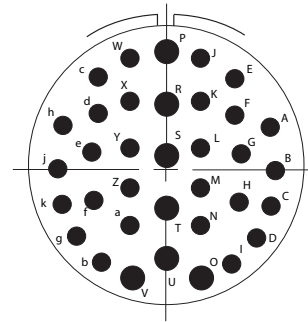
Insert Arrangements Views



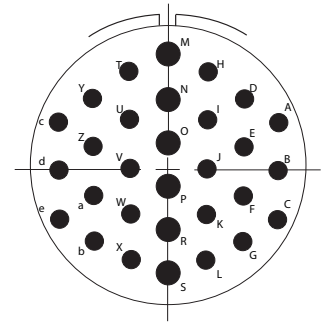
32-5*
2- #0



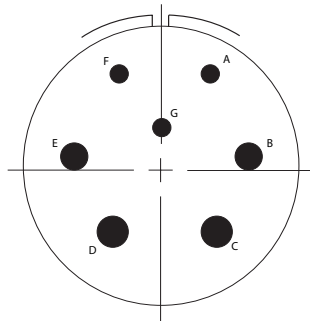
32-6
16- #16, 2- #12,
3- #8, 2- #4



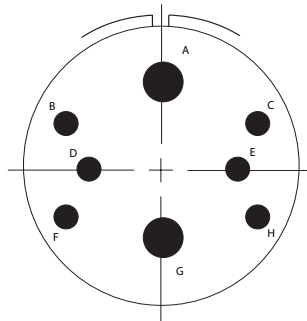
32-7
28- #16, 7- #12



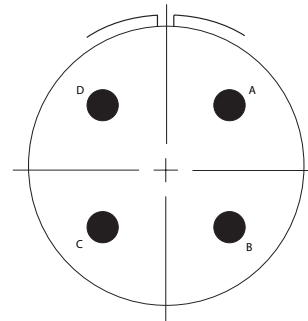
32-8*
24- #16, 6- #12



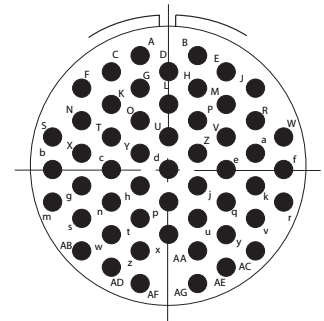
32-10*
3- #16, 2- #8,
2- #4



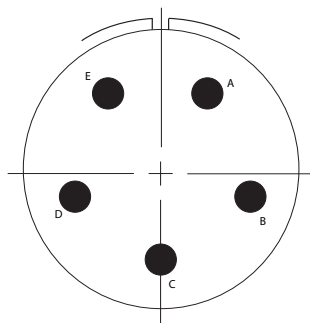
32-15
6- #12, 2- #0



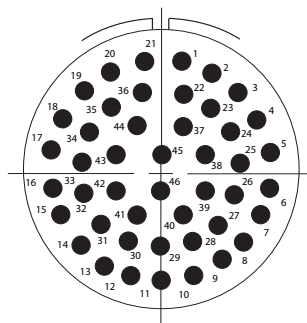
32-17
4- #4



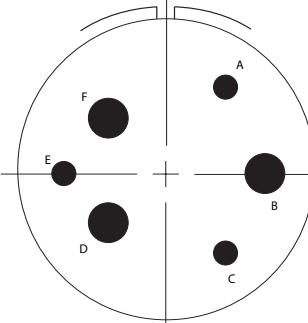
32-22
54- #16



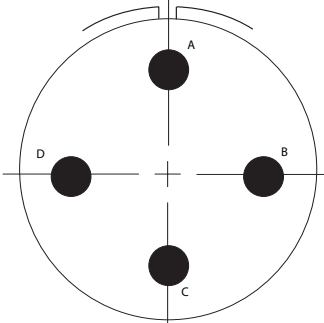
32-63
5- #4



32-73
46- #16



36-3
3- #12, 3- #0



36-5
4- #0

* Inactive for new design

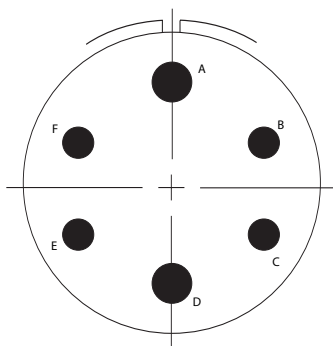
MIL-STD-1651

Insert Arrangements (Pin Front View)

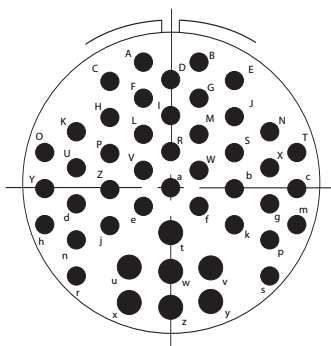
for MIL-DTL-5015 Connectors



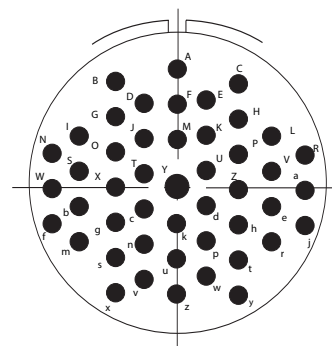
Insert Arrangements Views



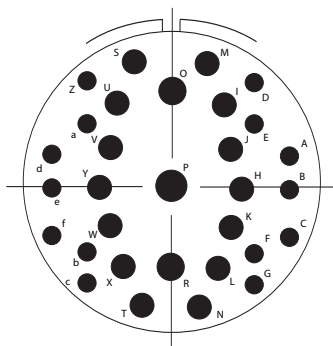
36-6
4- #4, 2- #0



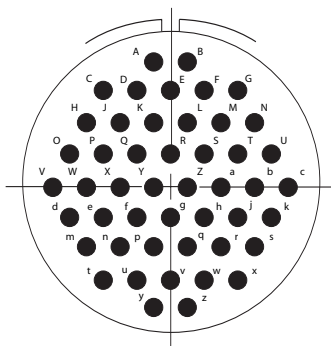
36-7
40- #16, 7- #12



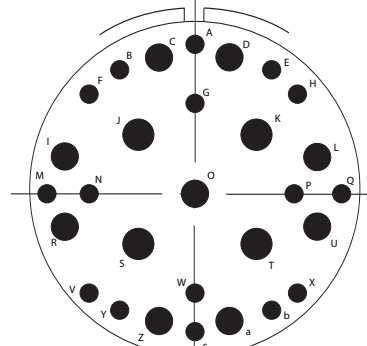
36-8
46- #16, 1- #12



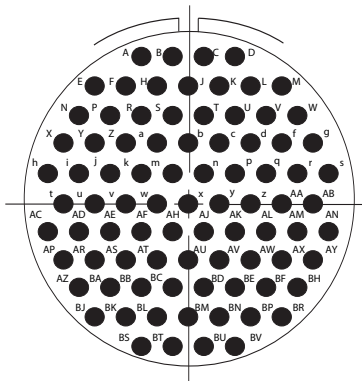
36-9
14- #16, 14- #12,
2- #8, 1- #4



36-10
48- #16



40-10
16- #16, 9- #8,
4- #4



40-56
85- #16



MIL-DTL-26482 Features and Application Series 2

Features and Application

MIL-DTL-26482 Series 2, bayonet coupling, rear-removable crimp contact connectors were designed as an upgrade to MIL-DTL-26482 Series 1. Series 2 connectors are intermountable and interchangeable with both solder and front-release crimp Series 1. They are also identical to the inactivated MIL-DTL- 83723 Series I connectors.

Series 2 connectors are widely used on commercial, military and aerospace systems requiring general-purpose, miniature cylindrical bayonet coupling connectors.

This family of connectors is offered in 4 receptacle-mounting styles. They include narrow flange wall mounting receptacles, wide flange wall mounting receptacles, cable connecting receptacles and jam nut mounting receptacles which incorporate "O" ring seals, designed for rear panel "D" hole mounting.

Plugs are available in two designs, with and without RFI grounding.

Thirty-three insert arrangements per MIL-STD-1669 are tooled and qualified to MIL-DTL-26482 Series 2, utilizing 3 to 61 M39029 contacts. Contacts come in sizes 20, 16 and 12, terminating wire sizes from 24 to 12 gauge.

These connectors are available in wide range of shell materials and finishes. Aluminum shells are offered in electroless nickel, olive drab cadmium and black anodic. Other finishes such as zinc cobalt are available upon request to commercial callouts only. In addition, we offer passivated stainless steel shells with standard environment-resisting inserts (commercial callouts only), and for highly corrosive environments, nickel-aluminum-bronze shells with standard environment-resisting inserts (commercial callouts only).

Universal I/R Tool – A single, expendable plastic tool is used for both insertion and removal of contacts.

Insert Polarization – Alternate insert clocking positions aid in mating of adjacent connectors having identical insert arrangement.

Closed-Entry Socket Insert – Hard dielectric socket face has lead-in chamfers for positive alignment of pins (even partially bent within pre-established limits) with sockets.

Interfacial Pin Insert Seal – Raised moisture barriers around each pin, which mate into lead-in chamfers of hard face socket insert, provide individual contact sealing. Interfacial seal is never touched by service tools.

Elastomer Wire Sealing Grommet – Sealing over a wide range of wire diameters is assured by a triple wire seal in each cavity at the rear of the connector.

Superior Contact Stability – Rear release crimp contact system features a stamped beryllium-copper retaining clip captivated by molded-in shoulders of each contact cavity in the insulator. A rear-inserted M81969 plastic tool expands the tines beyond the shoulder, releasing the contact.



MIL-DTL-26482

Performance Specifications

Series 2



Performance Specifications

Operating Temperature Range

Classes A, L and S*: -55°C to +200°C (-67°F to +392°F)

Classes W and ZC*: -55°C to +175°C (-67°F to +347°F)

Material and Finish Data (Class)

A – aluminum shell, black anodized finish

L – aluminum shell, electroless nickel finish

W – aluminum shell, olive drab cadmium over nickel base

S* – stainless steel shell, passivated

ZC* – aluminum shell, zinc cobalt finish

Corrosion Resistance

Classes A, S*, W and ZC* withstand 500-hour salt spray.

Class L withstands 48-hour salt spray.

Environmental Seal

Wired, mated connectors with specified accessories attached, shall meet the altitude-immersion test specified in MIL-DTL-26482 Series 2.

Fluid Resistance

Connectors resist specified immersions in MIL-PRF-7808 (lubricating oil), MIL-PRF-23699 (lubricating oil), MIL-PRF-5606 (hydraulic fluid), M2-V Chevron oil, Coolanol 25, ASTM D4814 (gasoline), SAE-AMS1424 Type I (defrosting fluid), MIL-DTL-5624 (JP-5), and solvents specified in Method 215 of MIL-STD-202.

* Not on QPL, can be supplied to Aero-Electric P/N only.

Durability

Mated connectors withstand a minimum of 250 mating cycles for RFI plug (MS3475) and 500 cycles for standard plug (MS3476).

Shock and Vibration Requirements

Wired, mated connectors shall not be damaged, coupling ring shall not loosen, and there shall be no interruption of electrical continuity longer than one microsecond when subjected to the following:

Shock

Mated connectors withstand a pulse of approximate half sine wave of 300 G magnitude with duration of three milliseconds applied in each direction of the three major axes.

Vibration

Mated connectors withstand the following vibration levels:

- Random vibration per MIL-STD-202, method 214, test condition II, letter J.

Shielding Effectiveness

RFI attenuation at the specified frequency meets the requirements of MIL-DTL-26482 Series 2.

- RFI shielding effectiveness of mated connectors with RFI backshells is measured in a triaxial radio frequency leakage fixture.

Shell-to-Shell Conductivity

- With RFI spring fingers, the maximum potential drop shall not exceed 5 millivolts.
- Without spring fingers, the maximum potential drop shall not exceed 200 millivolts.

Voltage Rating

Service Rating	Suggested Operating Voltage**		Test Voltage	Test Voltage	Test Voltage	Test Voltage
	(Sea Level)		Sea Level	50,000 Ft.	70,000 Ft.	110,000 Ft.
	AC (RMS)	DC	V RMS	V RMS	V RMS	V RMS
I	600	850	1,500	500	375	200
II	1,000	1,275	2,300	750	500	200

** To be used by designer only as a guide.



MIL-DTL-26482 Part Number Development Series 2

Military and Aero-Electric Part Number Development

Mil. Prefix	MS34	70	L	12 -	10	P	W	
Aero Prefix	AE7	70	L	12 -	10	P	W	-340
Shell type 70 = Narrow flange receptacle 71 = Cable connecting receptacle 72 = Wide flange receptacle 74 = Jam nut receptacle 75 = RFI grounding plug 76 = Straight plug								
Class (Material and Finish) A = Aluminum shell, black anodized finish (not available in RFI plug) L = Aluminum shell, electroless nickel finish W = Aluminum shell, olive drab cadmium over electroless nickel base S* = Stainless steel shell, passivated (Aero part number only) ZC* = Aluminum shell, zinc cobalt finish (Aero part number only)								
Shell Size 8, 10, 12, 14, 16, 18, 20, 22 or 24								
Insert Arrangement See pages 82 thru 85								
Contact Style P = Pin S = Socket A = Pin connector less pins (with intent to use non-std contact) B = Socket connector less sockets (with intent to use non-std contacts)								
Polarization N = Normal (not included in part number) W, X, Y or Z = Alternate insert polarizations (see pages 82 thru 83 for position availability)								
Modification (applies to Aero part numbers only) 01 = Less contacts (is not marked on the part) 340 = Connector kitted with M85049/31-XXX E-nut 341 = Connector kitted with M85049/52-1-XXX straight clamp 342 = Connector kitted with M85049/51-1-XXX right angle clamp Consult factory for other modifications								

* Not on QPL, can be supplied to Aero part number only. Consult factory for availability.

Note 1: Each connector is furnished with contacts unless ordered less contacts (L/C) as follows: One spare contact for inserts requiring 2 to 26 of each contact and two spares for inserts with 27 or more of each size, and a minimum of one sealing plug up to 15% of the number of contacts. In addition, one plastic insetion/removal tool of each size is included.

Note 2: Proper part number marking has no "0" in front of single digit shell size (8) and no "0" after the dash between shell size and single digit layout. Example of each: MS3470W8-33P and MS3470W10-6P. In both "N" for normal was omitted.

Note 3: Insert layouts 8-2, 8-3 and 8-4 can only be ordered to Aero-Electric part number. Non standard contacts are required and to avoid confusion are sold "with contacts" only. See page 80 for the correct contact part numbers.

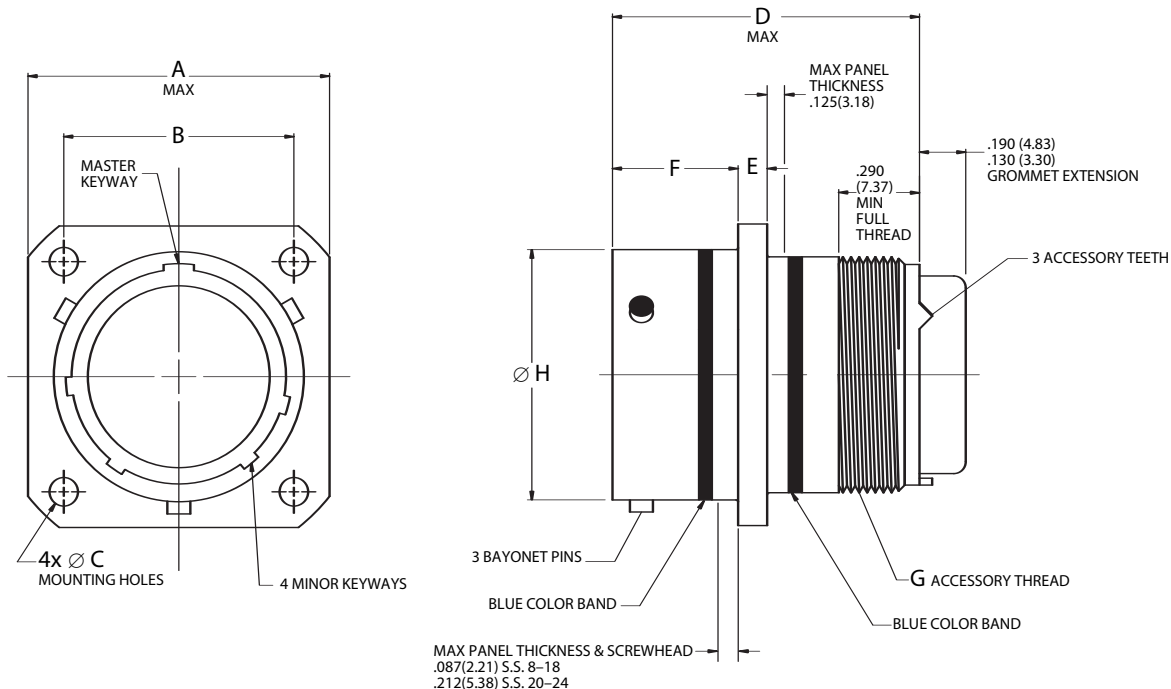
MS3470

Narrow Flange Receptacle

AE770



Bayonet Coupling, Crimp Removable, Rear Release

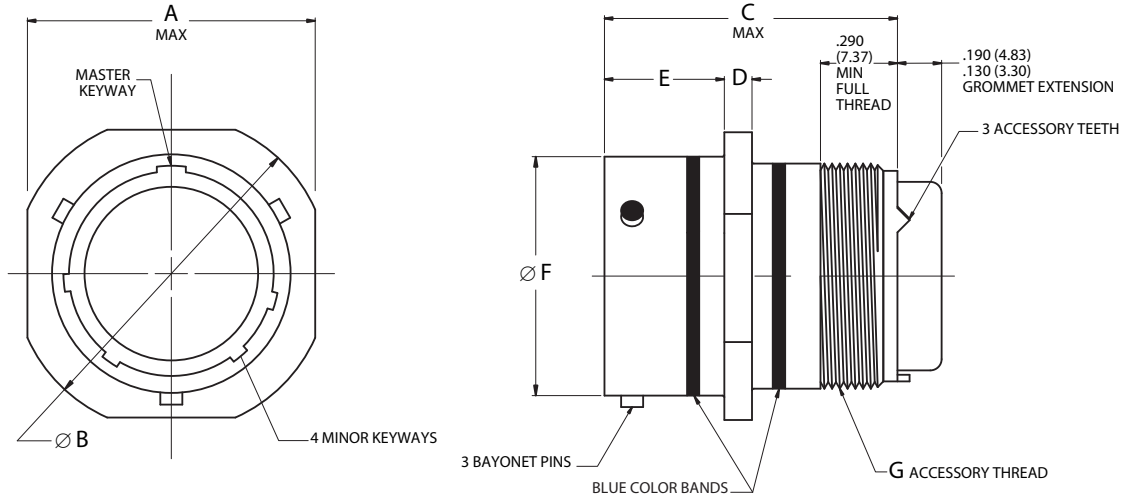


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Note: Maximum grommet O.D. is same as Ø C MAX on page 74.

Shell Size	A		B		Ø C		D		E		F		G		Ø H	
	Maximum		(TP)		±.005 ±.13		Maximum		±.016 ±.41		+.016 +.41 -.015 -.38		Accessory Thread Class 2A		±.003 ±.08	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm			inch	mm
8	.828	21.03	.594	15.09	.120	3.05	1.215	30.86	.062	1.57	.446	11.33	1/2-20UNF		.471	11.96
10	.954	24.23	.719	18.26	.120	3.05	1.215	30.86	.062	1.57	.446	11.33	5/8-24UNEF		.588	14.94
12	1.047	26.59	.812	20.62	.120	3.05	1.215	30.86	.062	1.57	.446	11.33	3/4-20UNEF		.748	19.00
14	1.141	28.98	.906	23.01	.120	3.05	1.215	30.86	.062	1.57	.446	11.33	7/8-20UNEF		.873	22.17
16	1.234	31.34	.969	24.61	.120	3.05	1.215	30.86	.062	1.57	.446	11.33	1-20UNEF		.998	25.35
18	1.328	33.73	1.062	26.97	.120	3.05	1.215	30.86	.062	1.57	.446	11.33	1-1/16-18UNEF		1.123	28.52
20	1.453	36.91	1.156	29.36	.120	3.05	1.275	32.39	.094	2.39	.571	14.50	1-3/16-18UNEF		1.248	31.70
22	1.578	40.08	1.250	31.75	.120	3.05	1.275	32.39	.094	2.39	.571	14.50	1-5/16-18UNEF		1.373	34.87
24	1.703	43.26	1.375	34.93	.147	3.73	1.275	32.39	.094	2.39	.604	15.34	1-7/16-18UNEF		1.498	38.05

Bayonet Coupling, Crimp Removable, Rear Release



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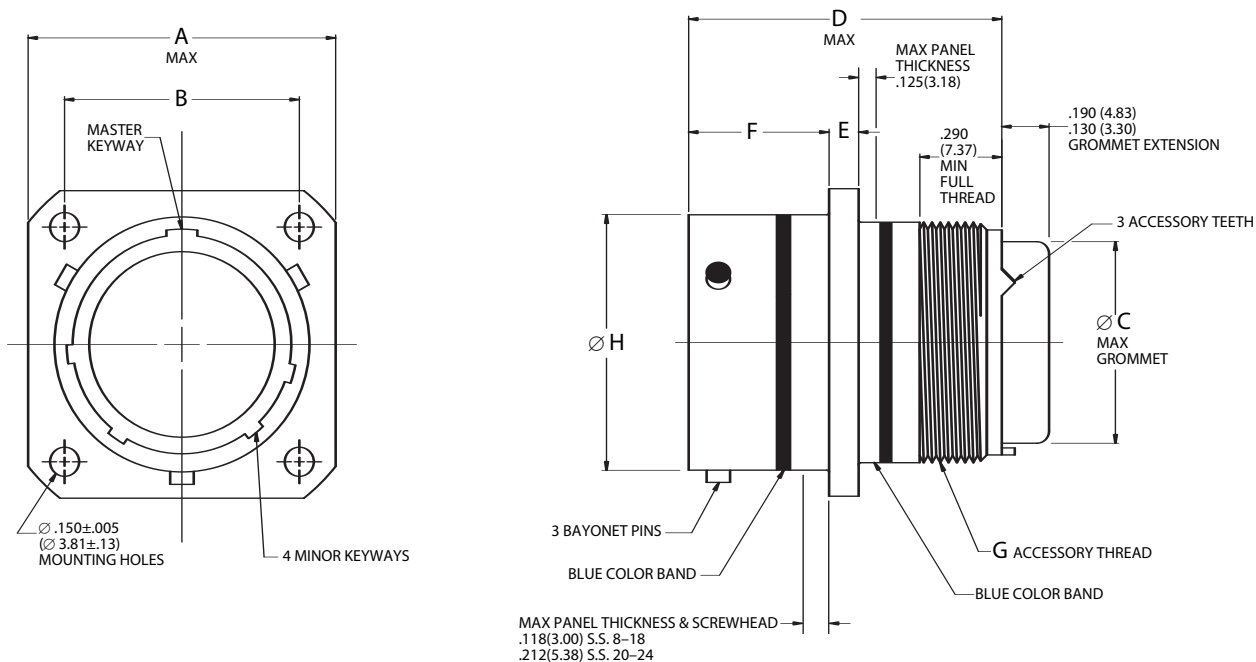
Note: Maximum grommet O.D. is same as Ø C MAX on page 74.

Shell Size	A		Ø B		C		D		E		Ø F		G
	Maximum		±.020	±.51	Maximum		±.016	±.41	+.016	+.41	±.003	±.08	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
8	.828	21.03	.938	23.83	1.215	30.86	.062	1.57	.446	11.33	.471	11.96	1/2-20UNF
10	.954	24.23	1.062	26.97	1.215	30.86	.062	1.57	.446	11.33	.588	14.94	5/8-24UNEF
12	1.047	26.59	1.156	29.36	1.215	30.86	.062	1.57	.446	11.33	.748	19.00	3/4-20UNEF
14	1.141	28.98	1.250	31.75	1.215	30.86	.062	1.57	.446	11.33	.873	22.17	7/8-20UNEF
16	1.234	31.34	1.344	34.14	1.215	30.86	.062	1.57	.446	11.33	.998	25.35	1-20UNEF
18	1.328	33.73	1.438	36.53	1.215	30.86	.062	1.57	.446	11.33	1.123	28.52	1-1/16-18UNEF
20	1.453	36.91	1.562	39.67	1.275	32.39	.094	2.39	.571	14.50	1.248	31.70	1-3/16-18UNEF
22	1.578	40.08	1.688	42.88	1.275	32.39	.094	2.39	.571	14.50	1.373	34.87	1-5/16-18UNEF
24	1.703	43.26	1.812	46.02	1.275	32.39	.094	2.39	.604	15.34	1.498	38.05	1-7/16-18UNEF

MS3472
Wide Flange Receptacle
AE772



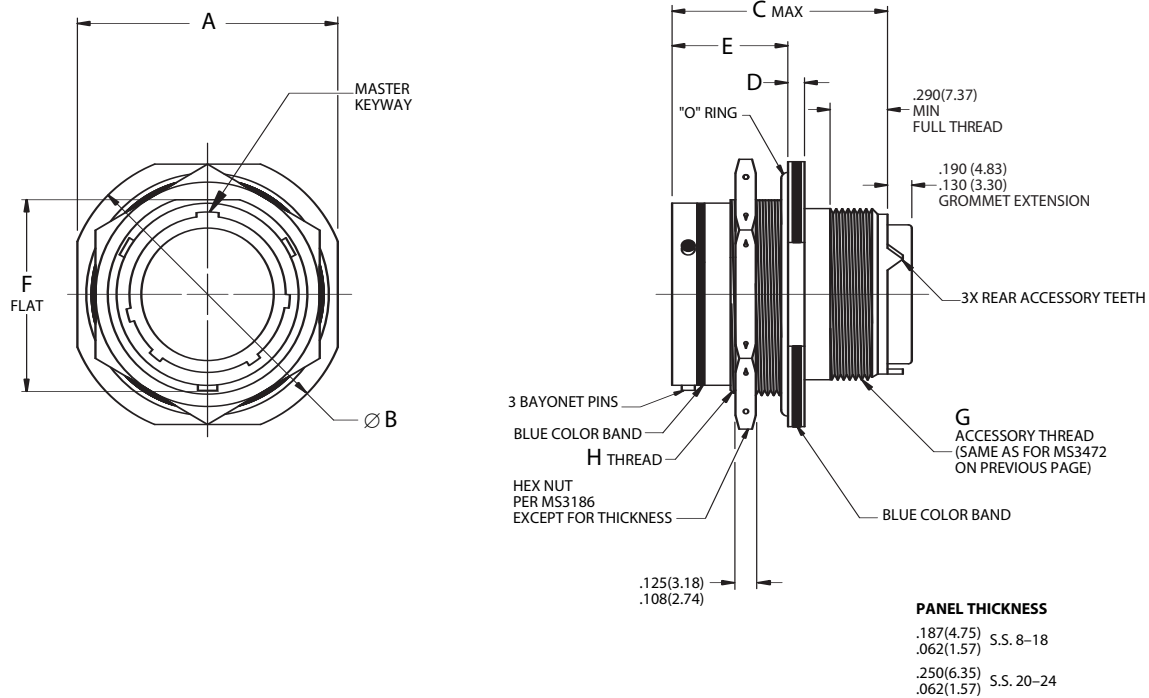
Bayonet Coupling, Crimp Removable, Rear Release



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Shell Size	A		B		Ø C		D		E		F		G	Ø H	
	Maximum		(TP)		Maximum		Maximum		±.016	±.41	+0.016 -.015	+41 -38	Accessory Thread Class 2A	±.003	±.08
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		inch	mm
8	1.065	27.05	.734	18.64	.305	7.75	1.215	30.86	.062	1.57	.477	12.12	1/2-20UNF	.471	11.96
10	1.141	28.98	.812	20.62	.405	10.29	1.215	30.86	.062	1.57	.477	12.12	5/8-24UNEF	.588	14.94
12	1.266	32.16	.938	23.83	.531	13.49	1.215	30.86	.062	1.57	.477	12.12	3/4-20UNEF	.748	19.00
14	1.360	34.54	1.031	26.19	.665	16.89	1.215	30.86	.062	1.57	.477	12.12	7/8-20UNEF	.873	22.17
16	1.453	36.91	1.125	28.58	.790	20.07	1.215	30.86	.062	1.57	.477	12.12	1-20UNEF	.998	25.35
18	1.532	38.91	1.203	30.56	.869	22.07	1.215	30.86	.062	1.57	.477	12.12	1-1/16-18UNEF	1.123	28.52
20	1.688	42.88	1.297	32.94	.994	25.25	1.275	32.39	.094	2.39	.571	14.50	1-3/16-18UNEF	1.248	31.70
22	1.766	44.86	1.375	34.93	1.119	28.42	1.275	32.39	.094	2.39	.571	14.50	1-5/16-18UNEF	1.373	34.87
24	1.891	48.03	1.500	38.10	1.244	31.60	1.275	32.39	.094	2.39	.604	15.34	1-7/16-18UNEF	1.498	38.05

Bayonet Coupling, Crimp Removable, Rear Release



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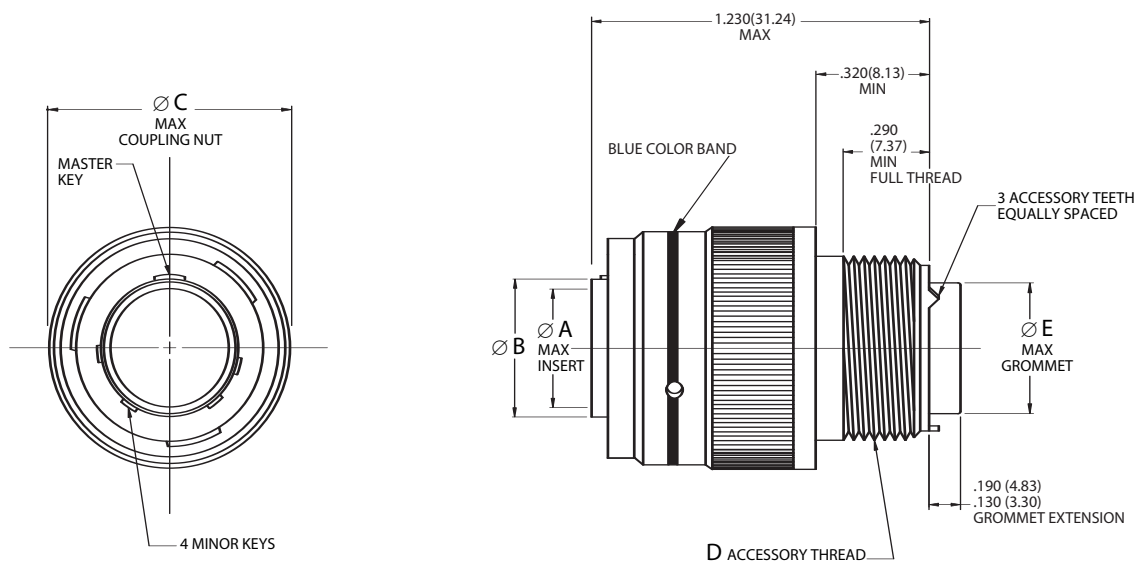
Note: Maximum grommet O.D. is same as Ø E MAX on page 76.

Shell Size	A		Ø B		C		D		E		F		H
	+0.000 -0.031	+0.00 -0.79	+0.000 -0.031	+0.00 -0.79	Maximum						Flat ±.005	±.13	Jam Nut Thread
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	UNEF-2A
8	.954	24.23	1.078	27.38	1.215	30.86	.113/.086	2.87/2.18	.707/.658	17.96/16.71	.525	13.34	9/16-24
10	1.078	27.38	1.203	30.56	1.215	30.86	.113/.086	2.87/2.18	.707/.658	17.96/16.71	.650	16.51	11/16-24
12	1.266	32.16	1.391	35.33	1.215	30.86	.113/.086	2.87/2.18	.707/.658	17.96/16.71	.813	20.65	7/8-20
14	1.391	35.33	1.516	38.51	1.215	30.86	.113/.086	2.87/2.18	.707/.658	17.96/16.71	.937	23.80	1-20
16	1.516	38.51	1.641	41.68	1.215	30.86	.113/.086	2.87/2.18	.707/.658	17.96/16.71	1.061	26.95	1-1/8-18
18	1.641	41.68	1.766	44.86	1.215	30.86	.113/.086	2.87/2.18	.707/.658	17.96/16.71	1.186	30.12	1-1/4-18
20	1.828	46.43	1.954	49.63	1.275	32.39	.148/.096	3.76/2.44	.772/.721	19.61/18.31	1.311	33.30	1-3/8-18
22	1.954	49.63	2.078	52.78	1.275	32.39	.148/.096	3.76/2.44	.772/.721	19.61/18.31	1.436	36.47	1-1/2-18
24	2.078	52.78	2.203	55.96	1.275	32.39	.148/.096	3.76/2.44	.772/.721	19.61/18.31	1.561	39.65	1-5/8-18

MS3476
Straight Plug
AE776



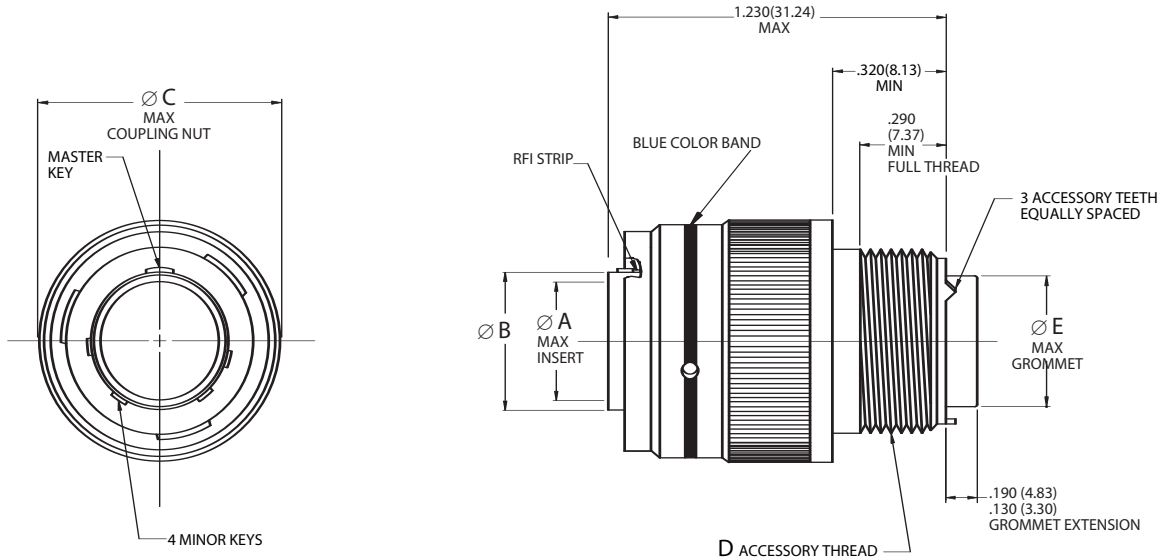
Bayonet Coupling, Crimp Removable, Rear Release



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Shell Size	$\varnothing A$		$\varnothing B$		$\varnothing C$		D	$\varnothing E$	
	Maximum		$\pm .003$	$\pm .08$	Maximum		Accessory Thread Class 2A	Maximum	
	inch	mm	inch	mm	inch	mm		inch	mm
8	.285	7.24	.355	9.02	.782	19.86	1/2-20UNF	.305	7.75
10	.402	10.21	.483	12.27	.926	23.52	5/8-24UNEF	.405	10.29
12	.516	13.11	.595	15.11	1.043	26.49	3/4-20UNEF	.531	13.49
14	.641	16.28	.720	18.29	1.183	30.05	7/8-20UNEF	.665	16.89
16	.766	19.46	.845	21.46	1.305	33.15	1-20UNEF	.790	20.07
18	.855	21.72	.945	24.00	1.391	35.33	1-1/16-18UNEF	.869	22.07
20	.980	24.89	1.070	27.18	1.531	38.89	1-3/16-18UNEF	.994	25.25
22	1.105	28.07	1.195	30.35	1.656	42.06	1-5/16-18UNEF	1.119	28.42
24	1.229	31.22	1.320	33.53	1.777	45.14	1-7/16-18UNEF	1.244	31.60

Bayonet Coupling, Crimp Removable, Rear Release



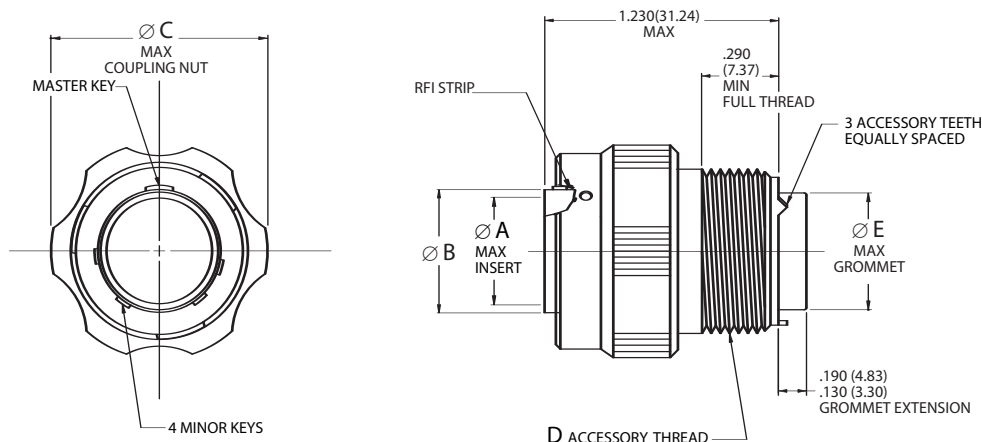
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Shell Size	Ø A		Ø B		Ø C		D	Ø E	
	Maximum		±.003	±.08	Maximum		Accessory Thread Class 2A	Maximum	
	inch	mm	inch	mm	inch	mm		inch	mm
8	.285	7.24	.355	9.02	.782	19.86	1/2-20UNF	.305	7.75
10	.402	10.21	.483	12.27	.926	23.52	5/8-24UNEF	.405	10.29
12	.516	13.11	.595	15.11	1.043	26.49	3/4-20UNEF	.531	13.49
14	.641	16.28	.720	18.29	1.183	30.05	7/8-20UNEF	.665	16.89
16	.766	19.46	.845	21.46	1.305	33.15	1-20UNEF	.790	20.07
18	.855	21.72	.945	24.00	1.391	35.33	1-1/16-18UNEF	.869	22.07
20	.980	24.89	1.070	27.18	1.531	38.89	1-3/16-18UNEF	.994	25.25
22	1.105	28.07	1.195	30.35	1.656	42.06	1-5/16-18UNEF	1.119	28.42
24	1.229	31.22	1.320	33.53	1.777	45.14	1-7/16-18UNEF	1.244	31.60

AC3475 Arctic Coupling Nut, RFI Plug



Bayonet Coupling, Crimp Removable, Rear Release



Aero Prefix **AC3475**

Class (Material and Finish) **-**
 - = Aluminum shell, cadmium olive drab over nickel
 ZC = Aluminum shell, zinc cobalt finish

Shell Size **10-**
 8, 10, 12, 14, 16, 18, 20, 22 or 24

7

P

N **Polarization**
 N = Normal (N included in part number marking)
 A, B, C, D, E or F (Alternate key positions)
 and W, X, Y or Z (Alternate insert clocking positions)

Contact Style
 P = Pin
 S = Socket

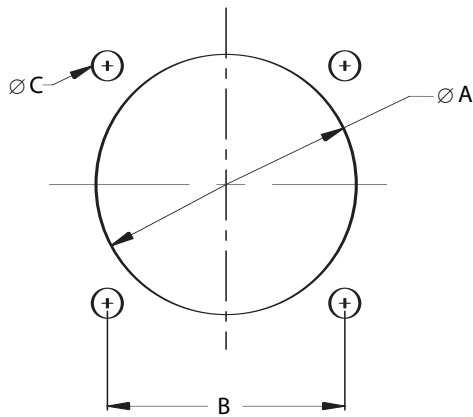
Layout
 See pages 82 thru 85

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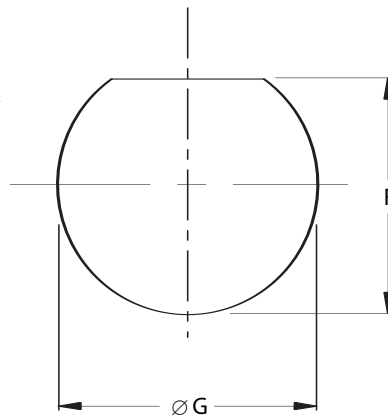
Note: AC3475 Arctic Coupling Nut, RFI Plug is available to Aero-Electric part number only. Mating part is AC3474 which is same as AE774 on page 75. Additional mates are AC3470 (same as AE770 on page 72), AC3471 (same as AE771 on page 73) and AC3472 (same as AE772 on page 74).

Shell Size	Ø A		Ø B		Ø C		D	Ø E	
	Maximum		±.003	±.08	Maximum		Accessory Thread Class 2A	Maximum	
	inch	mm			inch	mm		inch	mm
8	.285	7.24	.355	9.02	.900	22.86	1/2-20UNF	.305	7.75
10	.402	10.21	.483	12.27	1.010	25.65	5/8-24UNEF	.405	10.29
12	.516	13.11	.595	15.11	1.180	29.97	3/4-20UNEF	.531	13.49
14	.641	16.28	.720	18.29	1.310	33.27	7/8-20UNEF	.665	16.89
16	.766	19.46	.845	21.46	1.510	38.35	1-20UNEF	.790	20.07
18	.855	21.72	.945	24.00	1.620	41.15	1-1/16-18UNEF	.869	22.07
20	.980	24.89	1.070	27.18	1.740	44.20	1-3/16-18UNEF	.994	25.25
22	1.105	28.07	1.195	30.35	1.850	46.99	1-5/16-18UNEF	1.119	28.42
24	1.229	31.22	1.320	33.53	1.980	50.29	1-7/16-18UNEF	1.244	31.60

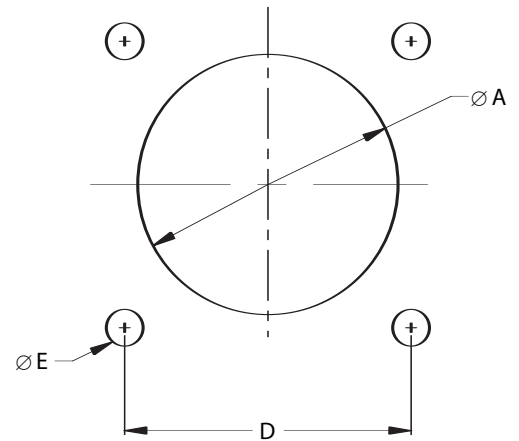
Panel Cutouts



MS3470(AE770)



MS3474(AE774)



MS3472(AE772)

Flange and Jam Nut Mounting Dimensions

Shell Size	Ø A		B		Ø C		D		Ø E		F		Ø G	
	±.005 inch	±.13 mm	(TP) inch	(TP) mm	±.010 inch	±.25 mm	(TP) inch	(TP) mm	±.010 inch	±.25 mm	±.005 inch	±.13 mm	±.005 inch	±.13 mm
8	.568	14.43	.594	15.09	.120	3.05	.734	18.64	.150	3.81	.536	13.61	.572	14.53
10	.685	17.40	.719	18.26	.120	3.05	.812	20.62	.150	3.81	.661	16.79	.697	17.70
12	.864	21.95	.812	20.62	.120	3.05	.938	23.83	.150	3.81	.824	20.93	.895	22.73
14	.989	25.12	.906	23.01	.120	3.05	1.031	26.19	.150	3.81	.948	24.08	1.010	25.65
16	1.113	28.27	.969	24.61	.120	3.05	1.125	28.58	.150	3.81	1.072	27.23	1.135	28.83
18	1.238	31.45	1.062	26.97	.120	3.05	1.203	30.56	.150	3.81	1.197	30.40	1.260	32.00
20	1.363	34.62	1.156	29.36	.120	3.05	1.297	32.94	.150	3.81	1.322	33.58	1.385	35.18
22	1.488	37.80	1.250	31.75	.120	3.05	1.375	34.93	.150	3.81	1.447	36.75	1.510	38.35
24	1.615	41.02	1.375	34.93	.147	3.73	1.500	38.10	.150	3.81	1.572	39.93	1.635	41.53

Note: For Ø C and Ø E, MS3470 and MS3472 call out for tolerance of ±.010 (±.25), however we recommend ±.005 (±.13).

MIL-DTL-26482

Contacts, Tools and Seal Plugs

Series 2



Contacts, Plastic Insertion/Removal Tools and Seal Plugs

Contact Size	Application	Pin Contacts	Socket Contacts	Seal Plugs	Insertion/Removal Tools
	Type	Military No.	Military No.	Military No.	Military No.
20	Power/Signal	M39029/4-110	M39029/5-115	MS27488-20-1	M81969/14-11
16	Power/Signal	M39029/4-111	M39029/5-116	MS27488-16-1	M81969/14-03
12	Power/Signal	M39029/4-113	M39029/5-118	MS27488-12-1	M81969/14-04
20*	Power/Signal	5291-022-204H	5091-022-204H	MS27488-20-1	M81969/39-01

* Size 20 contacts for 8-2, 8-3 and 8-4 layouts are only available to Aero-Electric part numbers. Connectors incorporating these three layouts are only sold to Aero-Electric callouts (AE770, AE771, AE772, AE774, AE775, AE776, AC3470, AC3471, AC3472, AC3474 and AC3475). Standard size 20 contacts M39029/4-110 and M39029/5-115 will not work in these 3 layouts.

Crimping and Metal Insertion/Extraction Tools

Contact Size	Crimp Tool	Positioner	Positioner	Insertion Tool	Extraction Tool
	Military No.	Military No.	Military No.	Military No.	Military No.
20	M22520/1-01	M22520/1-02	M22520/1-02	M81969/8-205	M81969/8-206
	M22520/2-01	M22520/2-02	M22520/2-02		
16	M22520/1-01	M22520/1-02	M22520/1-02	M81969/8-207	M81969/8-208
12	M22520/1-01	M22520/1-02	M22520/1-02	M81969/8-209	M81969/8-210
20*	M22520/1-01	M22520/1-02	M22520/1-02	M81969/8-205	M81969/8-206
	M22520/2-01	M22520/2-02	M22520/2-02		

Contact and Wire Data

Contact Size	Test Current	Voltage	Crimp Well Data		Wire Range		Finished Wire Ø Range			
	DC Test Amps	Max. Drop Millivolts	Well Dia. inch	Minimum Well Dept inch mm	AWG	mm ²	Minimum inch mm	Maximum inch mm		
20	7.5	55	.049 ±.001	.155 3.94	24-20	.20-.52	.040 1.02	.083 2.11		
16	13.0	49	.067 ±.001	.250 6.35	20-16	.52-1.31	.053 1.35	.103 2.62		
12	23.0	42	.100 ±.002	.250 6.35	14-12	2.08-3.31	.097 2.46	.158 4.01		

Note: Test Current and Maximum Voltage Drop when tested with silver-plated wire at 25°C.



MIL-DTL-26482 Contact Installation Instructions Series 2

Contact Installation Instructions

Crimping Contacts

1. Select the appropriate crimp tool and ensure that the proper crimp head positioner is used.
2. Cycle the tool to be sure the indentors are open.
3. Determine the correct selector setting for the wire size from the data plate on the positioner (turret head assembly) and set the selector knob on the crimp tool to match.
4. Place the contact, mating end first, into the tool.
5. Insert the stripped wire into the hollow end of the contact. Be sure the wire is inserted as far as it will go.
6. Close the tool completely to crimp. Unless the tool is closed completely, the tool will not release the contact.
7. Remove the crimped contact from the tool. Check the inspection hole to verify that the wire is fully inserted.

Insertion of Contacts

1. Before inserting the contacts, unscrew the accessories (clamps, backshells or adapters) from rear of plug or receptacle. Slide the hardware over the wire bundle in the proper order for reassembly after all the contacts are inserted.
2. To assist insertion of contacts, lubricate insulator (grommet) cavities with isopropyl alcohol. Alcohol will evaporate and will not leave a conductive film. **Caution: Never use any lubricant other than isopropyl alcohol.**

3. Place the correct insertion tool on the contact so that the wire runs along the groove in the tool. (Tool tip will butt against the shoulder.) Hold the plug or receptacle body firmly.
4. Beginning with a center cavity, insert the contact into the insulator with a slow, even pressure until the contact snaps into position. Make sure the contact and tool are held perpendicular to the face of the insert during the contact installation or the grommet could be damaged.
 - 4.1 If contacts are not inserted all the way prior to removing insertion tool, do not try to reinsert the insertion tool. Instead, remove the contact and try again; otherwise reinserting the insertion tool may damage the inside of the contact cavity.
5. Remove tool and check the face of the connector for proper contact installation. Proper installation may also be checked by pulling back lightly on the wire to make sure the contact is properly seated.

Completion

After all the cavities have been filled, slide the hardware back into position on the connector and tighten.

Extraction of Contacts (Rework)

1. Slide the hardware back over the wire bundle.
2. Select the appropriate tool. Place the wire into the extraction tool of the pin or socket.
3. Slowly slide the extraction tool down wire into the contact cavities until the tool tip bottoms against the contact shoulder, expanding the clip retaining tines. Hold the wire firmly in the tool and pull the wired contact and tool straight out of the rear of the insulator.

Size	Pin Contact	Socket Contact	Basic Crimp Tool	Pin Positioner	Socket Positioner	Insertion/Removal Tool
20	M39029/4-110	M39029/5-115	M22520/1-01	M22520/1-02 Red	M22520/1-02 Red	M81969/14-11
			M22520/2-01	M22520/2-02	M22520/2-02	
16	M39029/4-111	M39029/5-116	M22520/1-01	M22520/1-02 Blue	M22520/1-02 Blue	M81969/14-03
12	M39029/4-113	M39029/5-118	M22520/1-01	M22520/1-02 Yellow	M22520/1-02 Yellow	M81969/14-04
20*	5291-022-204H	5091-022-204H	M22520/1-01	M22520/1-02 Red	M22520/1-02 Red	M81969/39-01
			M22520/2-01	M22520/2-02	M22520/2-02	

* Aero-Electric proprietary size 20 contacts used in 8-2, 8-3 and 8-4 layouts only.

MIL-DTL-26482 Series 2

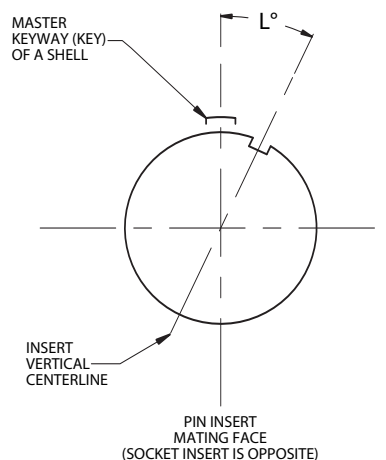
Polarization, Insert Availability & Contact Information per MIL-STD-1669



Polarization (Insert Clocking)

1. In the normal insert clocking position (position N), the insert centerline coincides with the centerline of the master keyway (key) of the shell: $L = 0^\circ$.
2. In the alternate clocking positions (W, X, Y and Z), the pin insert (viewing from mating side) is rotated clockwise relative to the centerline of the master keyway (key) of the shell.
3. The socket insert is rotated counter-clockwise.
4. Plugs have keys; receptacles have keyways.

Note: Be careful with alternate positions. See table below for position availability on layouts of interest.



Insert Availability, Contact Information and Clocking Positions

Insert Arrangement	Aero-Electric		Total	Contact Quantity			Service	Insert Positions				
	Status		No. of	By Size			Rating	In Degrees				
	QPL'd	Tooled	Contacts	20	16	12		N	W	X	Y	Z
8-2*	No	Yes	2	2			I	0	58	122	—	—
8-3*	No	Yes	3	3			I	0	60	210	—	—
8-4*	No	Yes	4	4			I	0	45	—	—	—
8-33	Yes	Yes	3	3			I	0	90	—	—	—
8-98	Yes	Yes	3	3			I	0	—	—	—	—
10-6	Yes	Yes	6	6			I	0	90	—	—	—
10-7**	N/A	Yes	7	7			I	0	90	—	—	—
12-3	Yes	Yes	3		3		II	0	—	—	180	—
12-8	Yes	Yes	8	8			I	0	90	112	203	292
12-10	Yes	Yes	10	10			I	0	60	155	270	295
14-2**	N/A	Yes	2			2	I	0	—	—	—	—
14-4	Yes	Yes	4			4	I	0	45	—	—	—
14-5	Yes	Yes	5		5		II	0	40	92	184	273
14-9	Yes	Yes	9	5		4	I	0	15	90	180	240
14-12	Yes	Yes	12	8	4		I	0	43	90	—	—
14-15	Yes	Yes	15	14	1		I	0	17	110	155	234
14-18	Yes	Yes	18	18			I	0	15	90	180	270
14-19	Yes	Yes	19	19			I	0	30	165	315	—

* Not qualified to MIL-DTL-26482 Series 2. These layouts were designed to mate with solder Series 1 connectors using proprietary Aero-Electric contacts (not QPL'd to M39029) and to avoid confusion are sold only "with contacts".

** Non MIL-STD-1669 layouts, available to Aero-Electric part numbers only and utilize standard M39029 contacts. These layouts were originally designed for use in AC3475 Arctic Coupling RFI plugs and AC3474 jam nut receptacles.



MIL-DTL-26482 Series 2

Polarization, Insert Availability & Contact Information

per MIL-STD-1669

Insert Availability, Contact Information and Clocking Positions

Insert Arrangement	Aero-Electric		Total	Contact Quantity			Service	Insert Positions				
	Status		No. of	By Size			Rating	In Degrees				
	QPL'd	Tooled	Contacts	20	16	12		N	W	X	Y	Z
16-8	Yes	Yes	8		8		II	0	54	152	180	331
16-14	Yes	Yes	14	8		6	I	0	25	78	180	240
16-23	Yes	Yes	23	22	1		I	0	158	270	—	—
16-26	Yes	Yes	26	26			I	0	60	—	275	338
18-8	Yes	Yes	8			8	I	0	180	—	—	—
18-11	Yes	Yes	11		11		II	0	62	119	241	340
18-30	Yes	Yes	30	29	1		I	0	180	193	285	350
18-32	Yes	Yes	32	32			I	0	85	138	222	265
20-16	Yes	Yes	16		16		II	0	238	318	333	347
20-24	Yes	Yes	24	24			I	0	70	145	215	290
20-39	Yes	Yes	39	37	2		I	0	63	144	252	333
20-41	Yes	Yes	41	41			I	0	45	126	225	—
22-12	Yes	Yes	12			12	I	0	—	—	—	—
22-21	Yes	Yes	21		21		II	0	16	135	175	349
22-41	Yes	Yes	41	27	14		I	0	39	135	264	—
22-55	Yes	Yes	55	55			I	0	30	142	226	314
22-95	Yes	Yes	32	26		6	I	0	26	180	266	—
24-19	Yes	No	19			19	II	0	30	165	315	—
24-31	Yes	Yes	31		31		I	0	90	225	255	—
24-61	Yes	Yes	61	61			I	0	90	180	270	324

MIL-STD-1669

Insert Arrangements (Pin Front View) for MIL-DTL-26482 Series 2 Connectors



Insert Arrangements Views



8-2*
2 # 20, I



8-3*
3 # 20, I



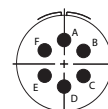
8-4*
4 # 20, I



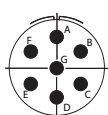
8-33
3 # 20, I



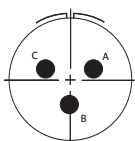
8-98
3 # 20, I



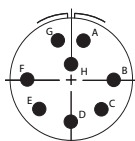
10-6
6 # 20, I



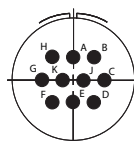
10-7**
7 # 20, I



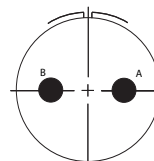
12-3
3 # 16, II



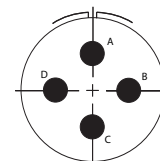
12-8
8 # 20, I



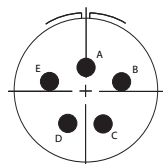
12-10
10 # 20, I



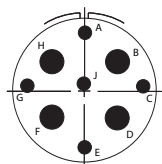
14-2**
2 # 12, I



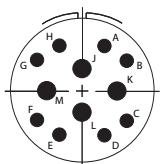
14-4
4 # 12, I



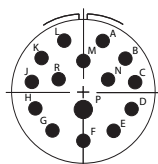
14-5
5 # 16, II



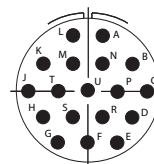
14-9
5 # 20, 4 # 12, I



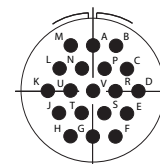
14-12
4 # 16, 8 # 20, I



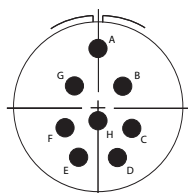
14-15
1 # 16, 14 # 20, I



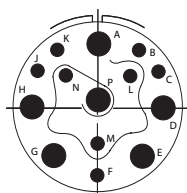
14-18
18 # 20, I



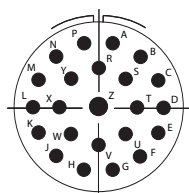
14-19
19 # 20, I



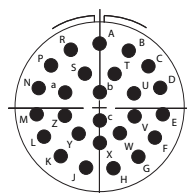
16-8
8 # 16, II



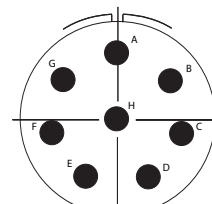
16-14
8 # 20, 6 # 12, I



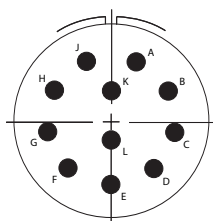
16-23
1 # 16, 22 # 20, I



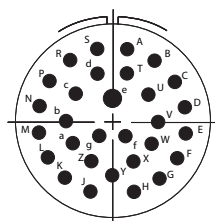
16-26
26 # 20, I



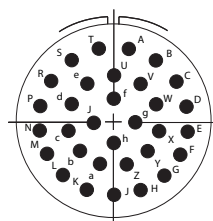
18-8
8 # 12, I



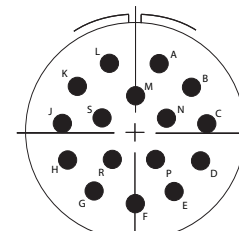
18-11
11 # 16, II



18-30
1 # 16, 29 # 20, I



18-32
32 # 20, I

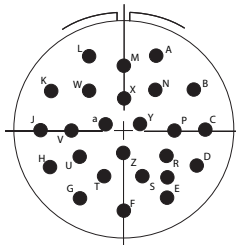


20-16
16 # 16, II

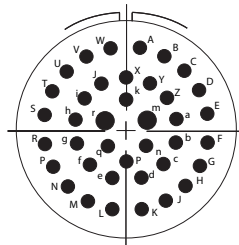
* Not on QPL, available to Aero-Electric part number only.

** Non MIL-STD-1669 layout, available in AC3470 through AC3475 shell styles only.

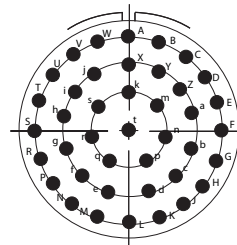
Insert Arrangements Views



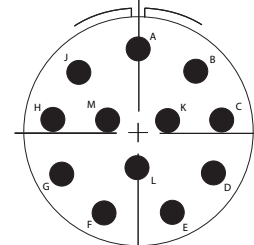
20-24
24 # 20, I



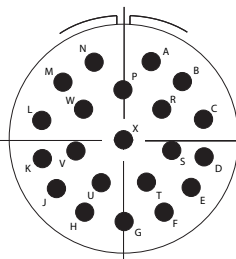
20-39
2 # 16, 37 # 20, I



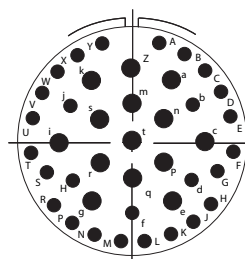
20-41
41 # 20, I



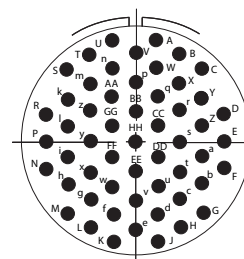
22-12
12 # 12, I



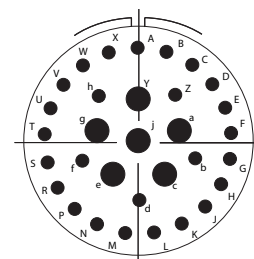
22-21
21 # 16, II



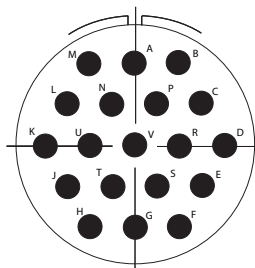
22-41
14 # 16, 27 # 20, I



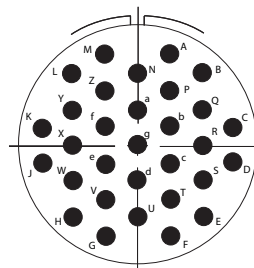
22-55
55 # 20, I



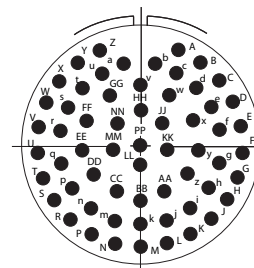
22-95
6 # 12, 26 # 20, I



24-19
19 # 12, II



24-31
31 # 16, I



24-61
61 # 20, I

MIL-DTL-83723 Series III Features and Application Bayonet and Threaded Coupling



Features and Application

MIL-DTL-83723 Series III family offers connectors with bayonet and threaded coupling including lanyard-release quick-disconnects. These connectors combine the best features of MIL-DTL-26500 and NAS 1599 miniature connector specifications. They are intermateable with both bayonet and threaded 26500 connectors (exception: shell size 8, threaded coupling only) and have the added advantage provided by the rear-release contact retention system.

AE833 connectors are widely used on commercial, military and aerospace systems requiring general-purpose, miniature cylindrical bayonet or threaded coupling connectors. In addition, Series III threaded connectors with self-locking plugs are well suited for engine applications.

This family of connectors (bayonet as well as threaded) is offered in wall mount receptacles as well as jam nut mounted receptacles which incorporate "O" ring seals, designed for rear panel "D" hole mounting.

Series III bayonet-coupling plugs are available in two designs - with and without RFI grounding. Threaded coupling plugs are offered with and without RFI grounding, self-locking and RFI/self-locking. In addition we offer quick-disconnect (lanyard release) plugs, which mate with threaded receptacles via an adapter.

Thirty-one insert arrangements per MIL-STD-1554 are tooled and qualified to MIL-DTL-83723 Series III, utilizing 2 to 61 M39029 contacts. Contacts come in sizes 20, 16 and 12, terminating wire sizes from 24 to 12 gauge.

These connectors are available in wide range of shell materials and finishes. Aluminum shells are offered in electroless nickel, olive drab cadmium and black anodic. Other finishes such as zinc cobalt are available upon request to commercial callouts only. In addition, we offer passivated stainless steel shells with both standard and firewall-rated inserts, and for highly corrosive environments, nickel-aluminum-bronze shells with standard environment-resisting inserts (commercial callouts only).

Universal I/R Tool – A single, expendable plastic tool is used for both insertion and removal of contacts.

Shell Polarization – Alternate key/keyway positions prevent cross mating of adjacent connectors having same insert arrangement.

Closed-Entry Socket Insert – Hard dielectric socket face has lead-in chamfers for positive alignment of pins (even partially bent within pre-established limits) with sockets.

Interfacial Pin Insert Seal – Raised moisture barriers around each pin, which mate into lead-in chamfers of hard face socket insert, provide individual contact sealing. Interfacial seal is never touched by service tools.

Elastomer Wire Sealing Grommet – Sealing over a wide range of wire diameters is assured by a triple wire seal in each cavity at the rear of the connector.

Superior Contact Stability – Rear release crimp contact system features a stamped beryllium-copper retaining clip captivated by molded-in shoulders of each contact cavity in the insulator. A rear-inserted M81969 plastic tool expands the tines beyond the shoulder, releasing the contact.





MIL-DTL-83723 Series III Performance Specifications Bayonet and Threaded Coupling

Performance Specifications

Operating Temperature Range

Classes A and R: -65°C to +200°C (-85°F to +392°F)

Class W: -65°C to +175°C (-85°F to +347°F)

Classes G and K: -65°C to +200°C (-85°F to +392°F)

Classes N and S: -65°C to +200°C (-85°F to +392°F)

Material and Finish Data (Class)

A – aluminum shell, black anodized finish

G – stainless steel shell, passivated

K – stainless steel shell, passivated, firewall

R – aluminum shell, electroless nickel finish

S – stainless steel shell, passivated, firewall, and 360° teeth

W – aluminum shell, olive drab cadmium over nickel base

N – stainless steel shell, electrodeposited nickel, firewall, and 360° teeth

Corrosion Resistance

Class W withstands 500-hour salt spray.

Class R withstands 48-hour salt spray.

Environmental Seal

Wired, mated connectors with specified accessories attached, shall meet the altitude-immersion test specified by MIL-DTL-83723 Series III.

Fluid Resistance

Connectors resist specified immersions in MIL-PRF-7808 (lubricating oil), MIL-PRF-23699 (lubricating oil), MIL-PRF-5606 (hydraulic fluid), M2-V Chevron oil, Coolanol 25, MIL-DTL-83133 (turbine fuel JP-8), MIL-DTL-5624 (turbine fuels JP-4 and JP-5), SAE-AMS1424 Type I (defrosting fluid), and other solvents and cleaning agents.

Voltage Rating

Service Rating	Suggested Operating Voltage*		Test Voltage	Test Voltage	Test Voltage	Test Voltage
	(Sea Level)		Sea Level	50,000 Ft.	70,000 Ft.	110,000 Ft.
	AC (RMS)	DC	V RMS	V RMS	V RMS	V RMS
I	600	850	1500	500	375	200
II	900	1250	2300	750	500	200

* To be used by designer only as a guide.

Durability

Mated connectors withstand a minimum of 500 mating cycles for bayonet coupling straight plug (M83723/75, 76); 250 mating cycles for bayonet coupling RFI plug (M83723/77, 78); and 250 cycles for all threaded coupling plugs (M83723/86, 87, 91, 92, 95, 96, 97, 98).

Shock and Vibration Requirements

Wired, mated connectors shall not be damaged, coupling ring shall not loosen, and there shall be no interruption of electrical continuity longer than one microsecond when subjected to the following:

Shock

Mated connectors withstand a pulse of approximate half sine wave of 300 G $\pm$ 15 percent magnitude with duration of 3 $\pm$ 1 milliseconds applied in three axes.

Vibration

Mated connectors withstand the following vibration levels:

- Random vibration per MIL-STD-1344, method 2005, test condition VI, letter J.

Shielding Effectiveness

RFI attenuation at the specified frequency meets the requirements of MIL-DTL-83723 Series III.

- RFI shielding effectiveness of mated connectors with RFI backshells is measured in a triaxial radio frequency leakage fixture.

Shell-to-Shell Conductivity (Except class A)

- With RFI spring fingers, the maximum potential drop shall not exceed 5 millivolts.
- Without spring fingers, the maximum potential drop shall not exceed 200 millivolts.

MIL-DTL-83723 Series III

Part Number Development

Bayonet Coupling



Military and Aero-Electric Part Number Development

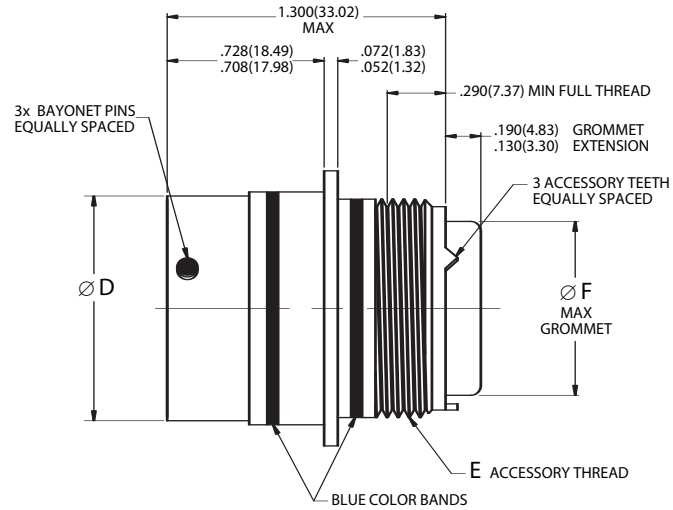
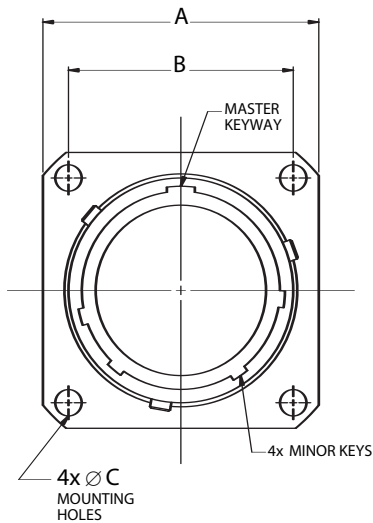
Mil. Prefix	M83723/	71	R	12	12	N	
Aero Prefix	AE833	71	R	12	12	N	-340
Shell type 71 = Wall mount receptacle with socket contacts 72 = Wall mount receptacle with pin contacts 73 = Jam nut receptacle with socket contacts 74 = Jam nut receptacle with pin contacts 75 = Straight plug with socket contacts 76 = Straight plug with pin contacts 77 = RFI grounding plug with socket contacts 78 = RFI grounding plug with pin contacts							
Class (Material and Finish) A = Aluminum shell, black anodized finish (not available in 77 and 78 RFI plugs) G = Stainless steel shell, passivated R = Aluminum shell, electroless nickel finish W = Aluminum shell, olive drab cadmium over electroless nickel finish							
Shell Size (SS) 8, 10, 12, 14, 16, 18, 20, 22 or 24							
Insert Arrangement See pages 106 thru 108							
Polarization (Keying) N = Normal 6, 7, 8, 9 or Y (Alternate keyed positions, Y is not available in SS 8) 1, 2, 3, 4 or 5 (Clocking insert polarizations within normally keyed shell, not approved for new design, n/a in SS 8)							
Modification (applies to Aero part numbers only) 01 = Less contacts (Part is bagged and tagged, but not marked with 01) 340 = Connector kitted with M85049/31-XXX E-nut 341 = Connector kitted with M85049/52-1-XXX straight clamp 342 = Connector kitted with M85049/51-1-XXX right angle clamp Consult factory for other modifications							

Note 1: Each connector is furnished with contacts unless ordered less contacts (L/C) as follows: One spare contact for inserts requiring 2 to 26 of each contact and two spares for inserts with 27 or more of each size, and a minimum of one sealing plug up to 15% of the number of contacts of each size. In addition, one insertion/removal tool of each size is included.

Note 2: Proper part number marking has no "0" in front of single digit shell size (8), but it does include the "0" in front of single digit layout. Examples: M83723/72W803N and M83723/77G10056. Please note that in this series "N" for normal is included in part number marking.



Bayonet Coupling, Crimp Removable, Rear Release



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Shell Size	A		B		Ø C		Ø D		E	Ø F	
	±.005	±.13	(TP)		±.005	±.13	+0.000 -0.005	+0.00 -0.13	Accessory Thread Class 2A	Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm		inch	mm
8	.812	20.62	.594	15.09	.120	3.05	.536	13.61	1/2-20UNF	.305	7.75
10	.937	23.80	.719	18.26	.120	3.05	.659	16.74	5/8-24UNEF	.405	10.29
12	1.031	26.19	.812	20.62	.120	3.05	.829	21.06	3/4-20UNEF	.531	13.49
14	1.125	28.58	.906	23.01	.120	3.05	.898	22.81	7/8-20UNEF	.665	16.89
16	1.250	31.75	.969	24.61	.120	3.05	1.025	26.04	1-20UNEF	.790	20.07
18	1.343	34.11	1.062	26.97	.120	3.05	1.131	28.73	1-1/16-18UNEF	.869	22.07
20	1.437	36.50	1.156	29.36	.120	3.05	1.256	31.90	1-3/16-18UNEF	.994	25.25
22	1.562	39.67	1.250	31.75	.120	3.05	1.381	35.08	1-5/16-18UNEF	1.119	28.42
24	1.703	43.26	1.375	34.93	.149	3.78	1.506	38.25	1-7/16-18UNEF	1.244	31.60

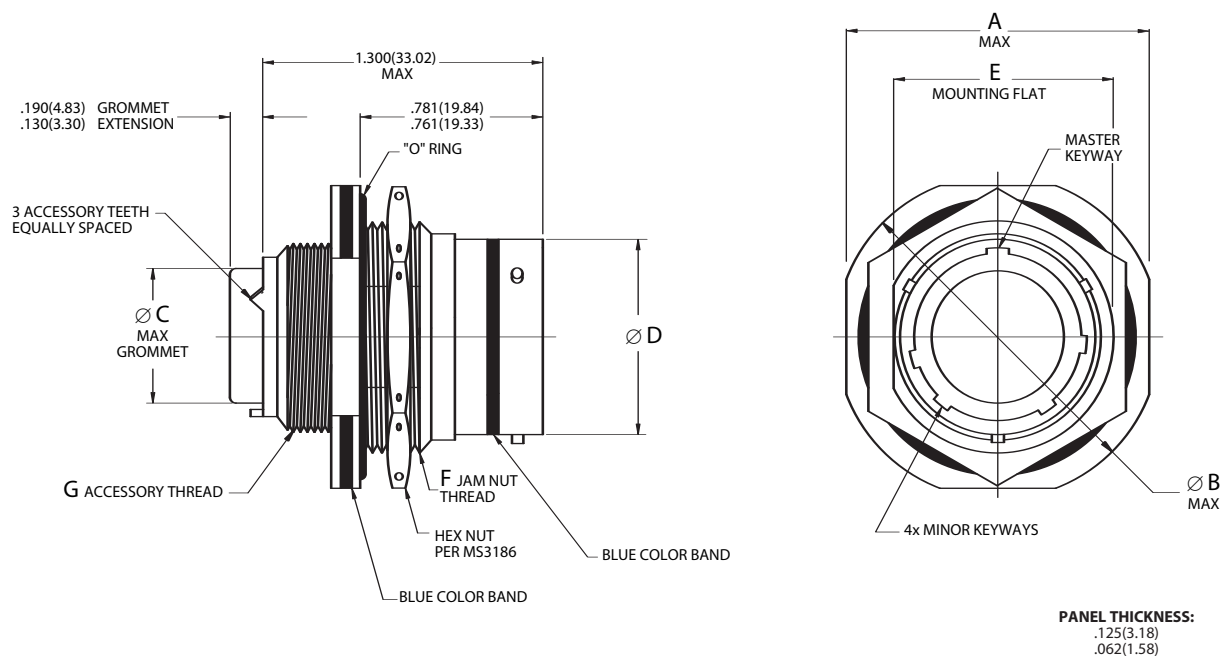
M83723/73, 74

Jam Nut Receptacle

AE83373, 74



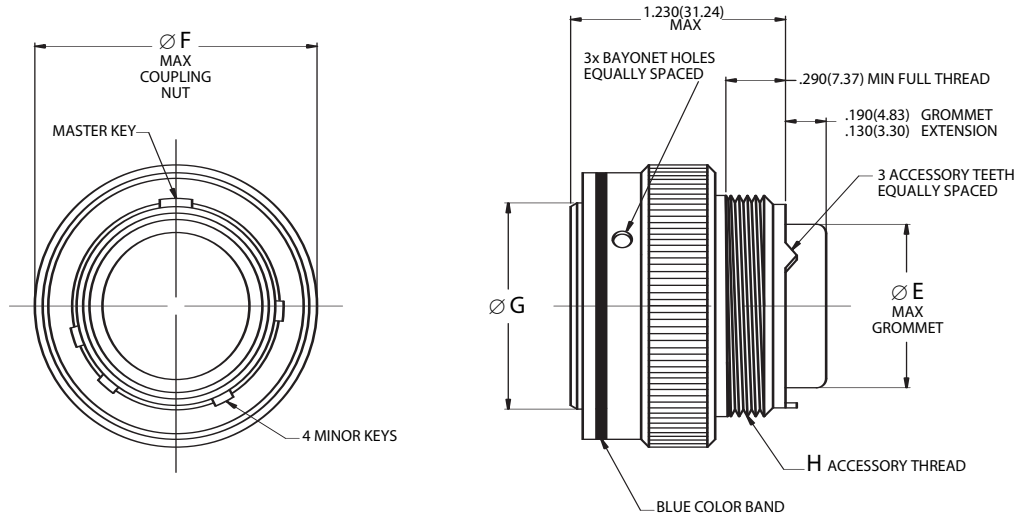
Bayonet Coupling, Crimp Removable, Rear Release



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Shell Size	A		Ø B		Ø C		Ø D		E		F	G
	Maximum		Maximum		Maximum		+0.00 -0.005		±0.003 ±0.08		Jam Nut Thread Class 2A	Accessory Thread Class 2A
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm		
8	.979	24.87	1.068	27.13	.305	7.75	.536	13.61	.593	15.06	5/8-20UN	1/2-20UNF
10	1.104	28.04	1.192	30.28	.405	10.29	.659	16.74	.718	18.24	3/4-20UNEF	5/8-24UNEF
12	1.291	32.79	1.380	35.05	.531	13.49	.829	21.06	.905	22.99	15/16-20UNEF	3/4-20UNEF
14	1.391	35.33	1.505	38.23	.665	16.89	.898	22.81	.968	24.59	1-20UNEF	7/8-20UNEF
16	1.516	38.51	1.630	41.40	.790	20.07	1.025	26.04	1.093	27.76	1-1/8-20UN	1-20UNEF
18	1.641	41.68	1.756	44.60	.869	22.07	1.131	28.73	1.217	30.91	1-1/4-18UNEF	1-1/16-18UNEF
20	1.766	44.86	1.860	47.24	.994	25.25	1.256	31.90	1.342	34.09	1-3/8-18UNEF	1-3/16-18UNEF
22	1.954	49.63	2.086	52.98	1.119	28.42	1.381	35.08	1.467	37.26	1-1/2-18UNEF	1-5/16-18UNEF
24	2.079	52.81	2.160	54.86	1.244	31.60	1.506	38.25	1.592	40.44	1-5/8-18UNEF	1-7/16-18UNEF

Bayonet Coupling, Crimp Removable, Rear Release



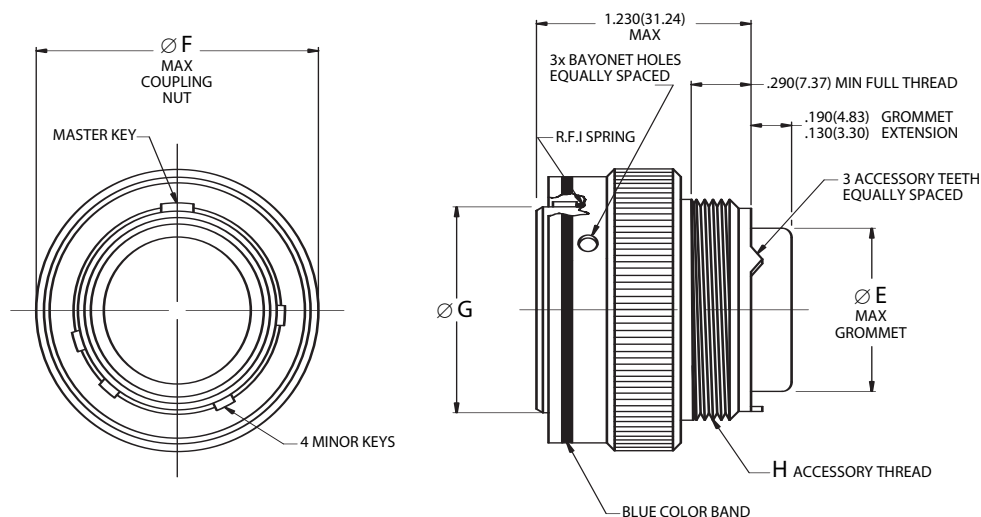
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Shell Size	Ø E		Ø F		Ø G		H
	Maximum		Maximum		+0.005 -0.004		Accessory Thread Class 2A
	inch	mm	inch	mm	inch	mm	
8	.305	7.75	.776	19.71	.419	10.64	1/2-20UNF
10	.405	10.29	.906	23.01	.521	13.23	5/8-24UNEF
12	.531	13.49	1.078	27.38	.691	17.55	3/4-20UNEF
14	.665	16.89	1.141	28.98	.760	19.30	7/8-20UNEF
16	.790	20.07	1.266	32.16	.887	22.53	1-20UNEF
18	.869	22.07	1.375	34.93	.993	25.22	1-1/16-18UNEF
20	.994	25.25	1.510	38.35	1.118	28.40	1-3/16-18UNEF
22	1.119	28.42	1.625	41.28	1.243	31.57	1-5/16-18UNEF
24	1.244	31.60	1.760	44.70	1.368	34.75	1-7/16-18UNEF

M83723/77,78
RFI Grounding Plug
AE83377,78



Bayonet Coupling, Crimp Removable, Rear Release



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Shell Size	$\varnothing E$		$\varnothing F$		$\varnothing G$		H
	Maximum		Maximum		+0.005 -0.004		Accessory Thread Class 2A
	inch	mm	inch	mm	inch	mm	
8	.305	7.75	.776	19.71	.419	10.64	1/2-20UNF
10	.405	10.29	.906	23.01	.521	13.23	5/8-24UNEF
12	.531	13.49	1.078	27.38	.691	17.55	3/4-20UNEF
14	.665	16.89	1.141	28.98	.760	19.30	7/8-20UNEF
16	.790	20.07	1.266	32.16	.887	22.53	1-20UNEF
18	.869	22.07	1.375	34.93	.993	25.22	1-1/16-18UNEF
20	.994	25.25	1.510	38.35	1.118	28.40	1-3/16-18UNEF
22	1.119	28.42	1.625	41.28	1.243	31.57	1-5/16-18UNEF
24	1.244	31.60	1.760	44.70	1.368	34.75	1-7/16-18UNEF



MIL-DTL-83723 Series III Part Number Development Threaded Coupling

Military and Aero-Electric Part Number Development

Mil. Prefix	M83723/	95	R	12	12	N	
Aero Prefix	AE833	95	R	12	12	N	-340
Shell type							
82 = Wall mount receptacle with socket contacts							
83 = Wall mount receptacle with pin contacts							
84 = Jam nut receptacle with socket contacts							
85 = Jam nut receptacle with pin contacts							
86 = Straight plug with socket contacts							
87 = Straight plug with pin contacts							
91 = RFI grounding plug with socket contacts							
92 = RFI grounding plug with pin contacts							
95 = Self-locking plug with socket contacts							
96 = Self-locking plug with pin contacts							
97 = Self-locking, RFI grounding plug with socket contacts							
98 = Self-locking, RFI grounding plug with pin contacts							
68 = Lanyard release, quick-disconnect plug, pin (not available in K & S classes)							
69 = Lanyard release, quick-disconnect plug, socket (not available in K & S classes)							
Class (Material and Finish)							
A = Aluminum shell, black anodized finish (Not available in 91, 92, 97 & 98 RFI plugs)							
G = Stainless steel shell, passivated (n/a in 97 & 98)							
K = Stainless steel shell, passivated, with firewall rated insert (n/a in 91, 92, 97 & 98)							
R = Aluminum shell, electroless nickel finish (n/a in 97 & 98 to mil number)							
W = Aluminum shell, olive drab cadmium over nickel base (n/a in 97 & 98 to mil number)							
S = Stainless steel shell, passivated, full teeth, firewall insert (n/a in 86, 87, 91, 92, 95 & 96)							
Shell Size (SS)							
8, 10, 12, 14, 16, 18, 20, 22 or 24 (and shell size 28 available in Aero p/n only)							
Insert Arrangement							
See pages 106-108							
Polarization (Keying)							
N = Normal							
6, 7, 8, 9 or Y (Alternate keyed positions, Y is not available in SS 8)							
1, 2, 3, 4 or 5 (Clock insert polarizations within normally keyed shell, not approved for new design, n/a in SS 8)							
Modification (applies to Aero part numbers only)							
01 = Less contacts (Part is bagged and tagged, but not marked with 01)							
340 = Connector kitted with M85049/31-XXX E-nut							
341 = Connector kitted with M85049/52-1-XXX straight clamp							
342 = Connector kitted with M85049/51-1-XXX right angle clamp							
Consult factory for other modifications							

Note 1: Each connector is furnished with contacts unless ordered less contacts (L/C) as follows: One spare contact for inserts requiring 2 to 26 of each contact and two spares for inserts with 27 or more of each size, and a minimum of one sealing plug up to 15% of the number of contacts of each size. In addition, one insertion/removal tool of each size is included.

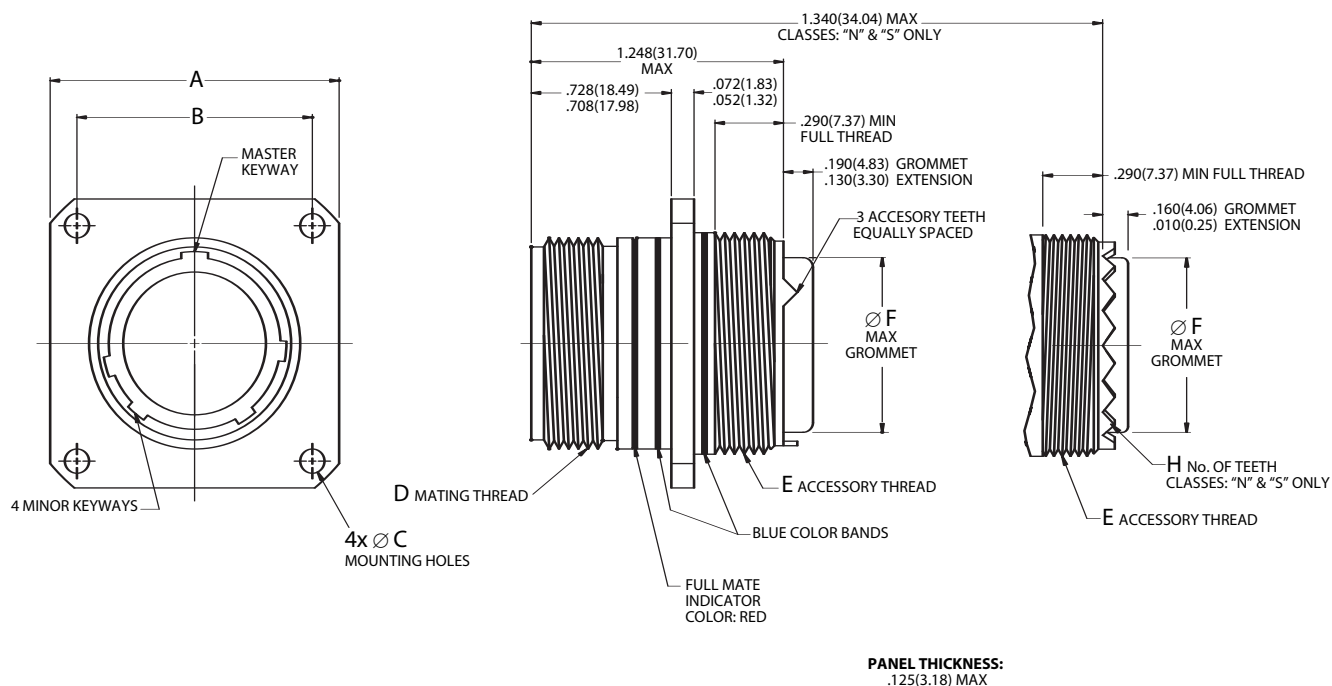
Note 2: Proper part number marking has no “0” in front of single digit shell size (8), but it does include the “0” in front of single digit layout. Examples: M83723/95G803N and M83723/98S10056. Please note that in this series “N” for normal is included in part number marking.

Note 3: Shell type M83723/70 (AE83370 Receptacle Adapter) is not listed above, see page 101.

M83723/82, 83
Wall Mounting Receptacle
AE83382, 83



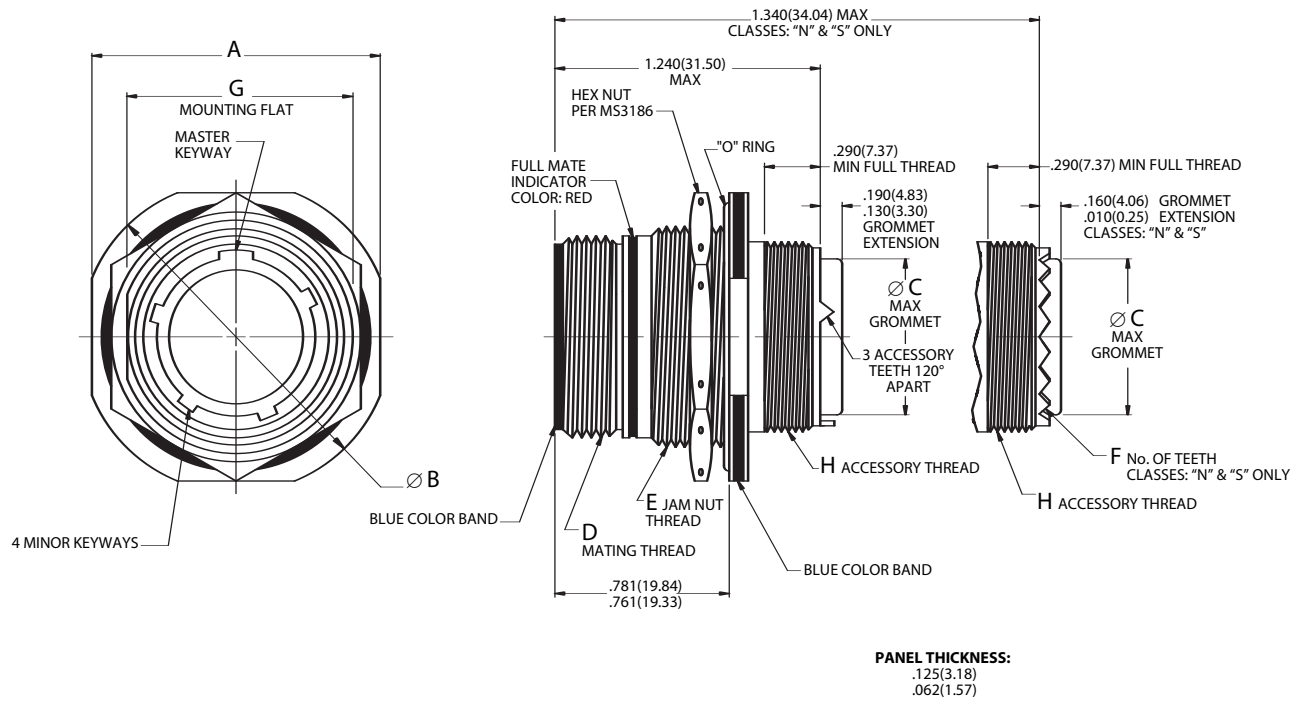
Threaded Coupling, Crimp Removable, Rear Release



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Shell Size	A		B		Ø C		D	E	Ø F		H
	±.005	±.13	(TP)		+.005	+.13	Mating Thread Class 2A	Accessory Thread Class 2A	Maximum		No. of Teeth
	inch	mm	inch	mm	inch	mm			inch	mm	
8	.812	20.62	.594	15.09	.120	3.05	9/16-24UNEF	1/2-20UNF	.305	7.75	12
10	.937	23.80	.719	18.26	.120	3.05	11/16-24UNEF	5/8-24UNEF	.405	10.29	15
12	1.031	26.19	.812	20.62	.120	3.05	7/8-20UNEF	3/4-20UNEF	.531	13.49	21
14	1.125	28.58	.906	23.01	.120	3.05	15/16-20UNEF	7/8-20UNEF	.665	16.89	24
16	1.250	31.75	.969	24.61	.120	3.05	1-1/16-18UNEF	1-20UNEF	.790	20.07	30
18	1.343	34.11	1.062	26.97	.120	3.05	1-3/16-18UNEF	1-1/16-18UNEF	.869	22.07	33
20	1.437	36.50	1.156	29.36	.120	3.05	1-5/16-18UNEF	1-3/16-18UNEF	.994	25.25	36
22	1.562	39.67	1.250	31.75	.120	3.05	1-7/16-18UNEF	1-5/16-18UNEF	1.119	28.42	39
24	1.703	43.26	1.375	34.93	.149	3.78	1-9/16-18UNEF	1-7/16-18UNEF	1.244	31.60	42
28	2.000	50.80	1.562	39.67	.149	3.78	1-13/16-16UN	1-3/4-18UNS	1.475	37.47	54

Threaded Coupling, Crimp Removable, Rear Release



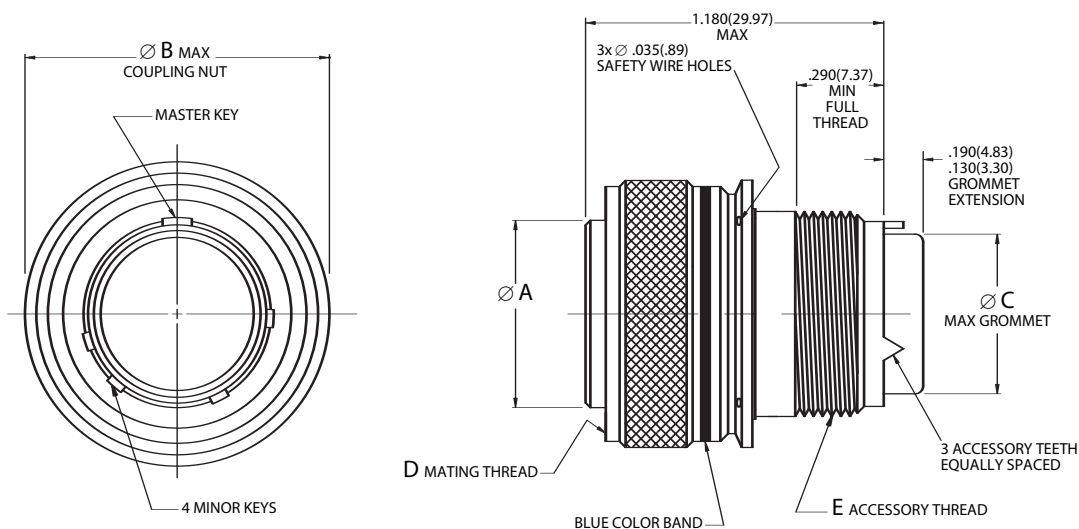
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Shell Size	A		Ø B		Ø C		D	E	F	G		H
	+0.016 -.015	+41 -.38	+0.016 -.015	+41 -.38	Maximum		Mating Thread Class 2A	Jam Nut Thread Class 2A	No. of Teeth	±.003	±.08	Accessory Thread
	inch	mm	inch	mm	inch	mm				inch	mm	Class 2A
8	.964	24.49	1.062	26.97	.305	7.75	9/16-24UNEF	5/8-20UN	12	.593	15.06	1/2-20UNF
10	1.088	27.64	1.176	29.87	.405	10.29	11/16-24UNEF	3/4-20UNEF	15	.718	18.24	5/8-24UNEF
12	1.275	32.39	1.364	34.65	.531	13.49	7/8-20UNEF	15/16-20UNEF	21	.905	22.99	3/4-20UNEF
14	1.375	34.93	1.545	39.24	.665	16.89	15/16-20UNEF	1-20UNEF	24	.968	24.59	7/8-20UNEF
16	1.500	38.10	1.625	41.28	.790	20.07	1-1/16-18UNEF	1-1/8-18UNEF	30	1.093	27.76	1-20UNEF
18	1.625	41.28	1.750	44.45	.869	22.07	1-3/16-18UNEF	1-1/4-18UNEF	33	1.217	30.91	1-1/16-18UNEF
20	1.750	44.45	1.938	49.23	.994	25.25	1-5/16-18UNEF	1-3/8-18UNEF	36	1.342	34.09	1-3/16-18UNEF
22	1.938	49.23	2.062	52.37	1.119	28.42	1-7/16-18UNEF	1-1/2-18UNEF	39	1.467	37.26	1-5/16-18UNEF
24	2.063	52.40	2.166	55.02	1.244	31.60	1-9/16-18UNEF	1-5/8-18UNEF	42	1.592	40.44	1-7/16-18UNEF
28	2.314	58.78	2.428	61.67	1.475	37.47	1-13/16-16UN	1-7/8-20UN	54	1.840	46.74	1-3/4-18UNS

M83723/86, 87
Straight Plug
AE83386, 87



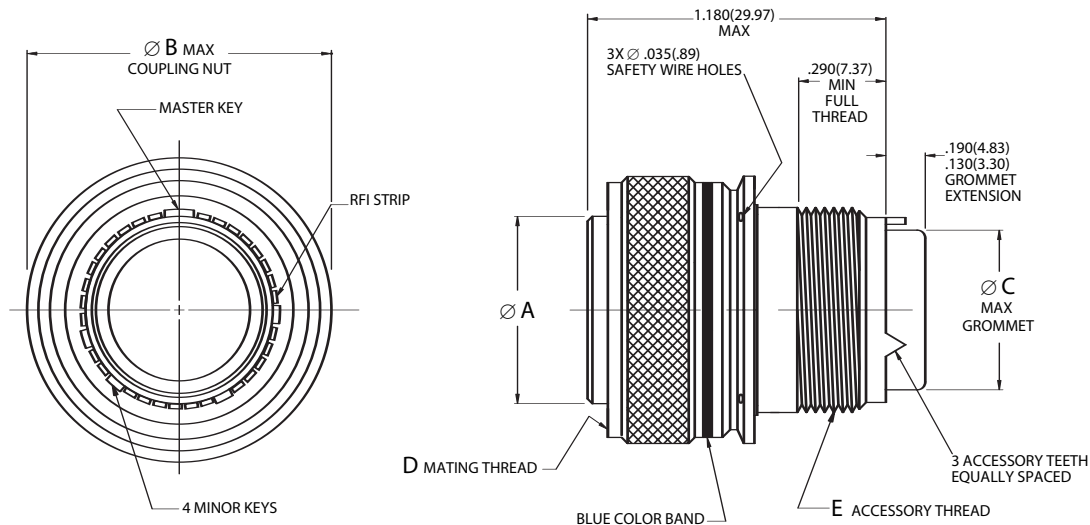
Threaded Coupling, Crimp Removable, Rear Release



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Shell Size	Ø A		Ø B		Ø C		D	E
	+0.005	+0.13	Maximum		Maximum		Mating Thread Class 2B	Accessory Thread Class 2A
	-.004	-.10	inch	mm	inch	mm		
8	.400	10.16	.776	19.71	.305	7.75	9/16-24UNEF	1/2-20UNF
10	.521	13.23	.906	23.01	.405	10.29	11/16-24UNEF	5/8-24UNEF
12	.691	17.55	1.078	27.38	.531	13.49	7/8-20UNEF	3/4-20UNEF
14	.760	19.30	1.141	28.98	.665	16.89	15/16-20UNEF	7/8-20UNEF
16	.887	22.53	1.266	32.16	.790	20.07	1-1/16-18UNEF	1-20UNEF
18	.993	25.22	1.375	34.93	.869	22.07	1-3/16-18UNEF	1-1/16-18UNEF
20	1.118	28.40	1.510	38.35	.994	25.25	1-5/16-18UNEF	1-3/16-18UNEF
22	1.243	31.57	1.625	41.28	1.119	28.42	1-7/16-18UNEF	1-5/16-18UNEF
24	1.368	34.75	1.760	44.70	1.244	31.60	1-9/16-18UNEF	1-7/16-18UNEF
28	1.618	41.10	2.050	52.07	1.475	37.47	1-13/16-16UN	1-3/4-18UNS

Threaded Coupling, Crimp Removable, Rear Release



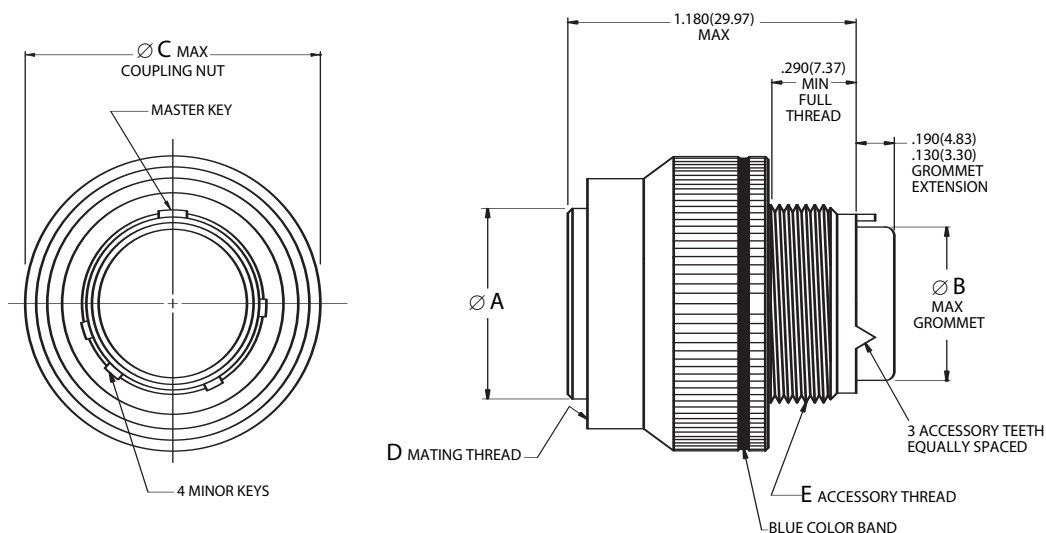
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Shell Size	Ø A		Ø B		Ø C		D	E
	+0.005	+0.13	Maximum		Maximum		Mating Thread Class 2B	Accessory Thread Class 2A
	-.004	-.10	inch	mm	inch	mm		
8	.400	10.16	.776	19.71	.305	7.75	9/16-24UNEF	1/2-20UNF
10	.521	13.23	.906	23.01	.405	10.29	11/16-24UNEF	5/8-24UNEF
12	.691	17.55	1.078	27.38	.531	13.49	7/8-20UNEF	3/4-20UNEF
14	.760	19.30	1.141	28.98	.665	16.89	15/16-20UNEF	7/8-20UNEF
16	.887	22.53	1.266	32.16	.790	20.07	1-1/16-18UNEF	1-20UNEF
18	.993	25.22	1.375	34.93	.869	22.07	1-3/16-18UNEF	1-1/16-18UNEF
20	1.118	28.40	1.510	38.35	.994	25.25	1-5/16-18UNEF	1-3/16-18UNEF
22	1.243	31.57	1.625	41.28	1.119	28.42	1-7/16-18UNEF	1-5/16-18UNEF
24	1.368	34.75	1.760	44.70	1.244	31.60	1-9/16-18UNEF	1-7/16-18UNEF
28	1.618	41.10	2.050	52.07	1.475	37.47	1-13/16-16UN	1-3/4-18UNS

M83723/95, 96
Self-Locking Plug
AE83395, 96



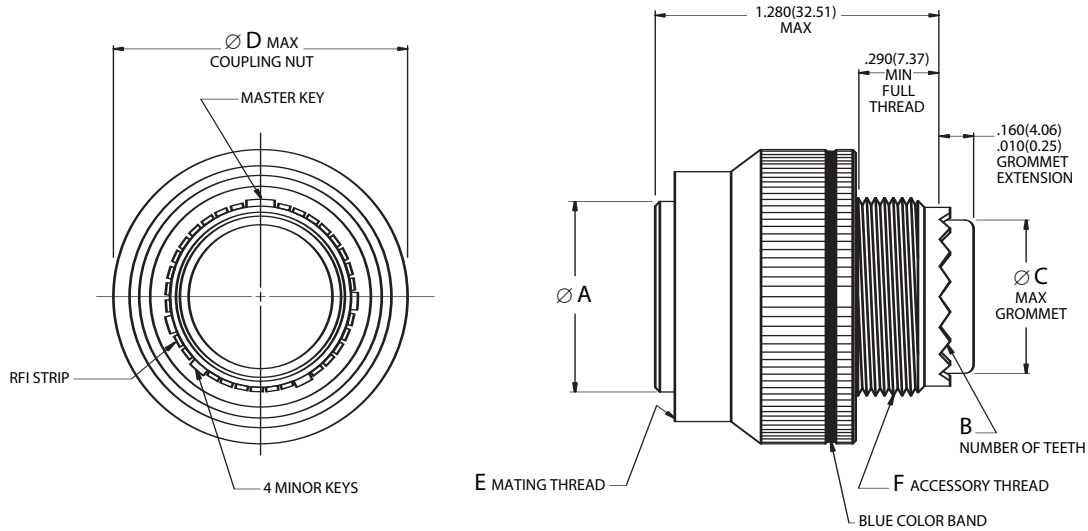
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Shell Size	$\varnothing A$		$\varnothing B$		$\varnothing C$		D	E
	+.005	+.13	Maximum		Maximum		Mating Thread Class 2B	Accessory Thread Class 2A
	-.004	-.10	inch	mm	inch	mm		
8	.400	10.16	.305	7.75	.832	21.13	9/16-24UNEF	1/2-20UNF
10	.521	13.23	.405	10.29	.959	24.36	11/16-24UNEF	5/8-24UNEF
12	.691	17.55	.531	13.49	1.097	27.86	7/8-20UNEF	3/4-20UNEF
14	.760	19.30	.665	16.89	1.236	31.39	15/16-20UNEF	7/8-20UNEF
16	.887	22.53	.790	20.07	1.360	34.54	1-1/16-18UNEF	1-20UNEF
18	.993	25.22	.869	22.07	1.473	37.41	1-3/16-18UNEF	1-1/16-18UNEF
20	1.118	28.40	.994	25.25	1.586	40.28	1-5/16-18UNEF	1-3/16-18UNEF
22	1.243	31.57	1.119	28.42	1.703	43.26	1-7/16-18UNEF	1-5/16-18UNEF
24	1.368	34.75	1.244	31.60	1.846	46.89	1-9/16-18UNEF	1-7/16-18UNEF
28	1.618	41.10	1.475	37.47	2.278	57.86	1-13/16-16UN	1-3/4-18UNS

Threaded Coupling, Crimp Removable, Rear Release



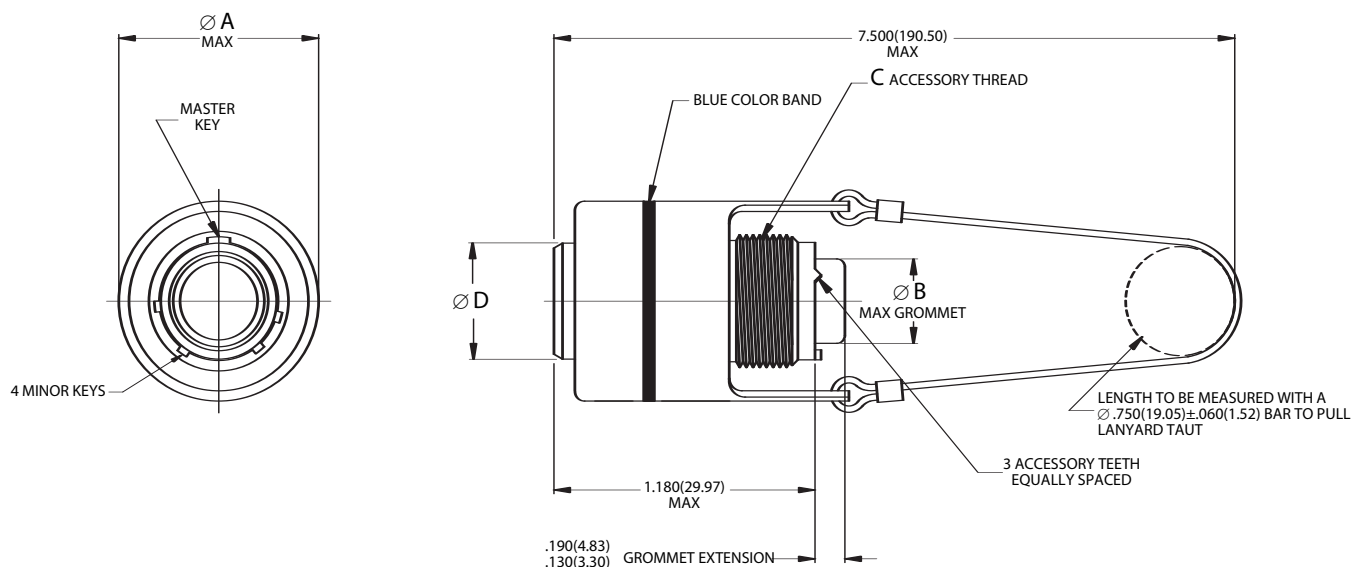
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Pages 107, 108	Insert Arrangements
Page 87	Performance Specifications
Page 106	Insert Availability and Contact Information
Page 102	Polarization

Shell Size	Ø A		B	Ø C		Ø D		E	F
	+0.005 -.004	+13 -10	No. of Teeth	Maximum		Maximum		Mating Thread Class 2B	Accessory Thread Class 2A
	inch	mm		inch	mm	inch	mm		
8	.400	10.16	12	.305	7.75	.967	24.56	9/16-24UNEF	1/2-20UNF
10	.521	13.23	15	.405	10.29	1.093	27.76	11/16-24UNEF	5/8-24UNEF
12	.691	17.55	21	.531	13.49	1.170	29.72	7/8-20UNEF	3/4-20UNEF
14	.760	19.30	24	.665	16.89	1.310	33.27	15/16-20UNEF	7/8-20UNEF
16	.887	22.53	30	.790	20.07	1.500	38.10	1-1/16-18UNEF	1-20UNEF
18	.993	25.22	33	.869	22.07	1.562	39.67	1-3/16-18UNEF	1-1/16-18UNEF
20	1.118	28.40	36	.994	25.25	1.710	43.43	1-5/16-18UNEF	1-3/16-18UNEF
22	1.243	31.57	39	1.119	28.42	1.812	46.02	1-7/16-18UNEF	1-5/16-18UNEF
24	1.368	34.75	42	1.244	31.60	1.948	49.48	1-9/16-18UNEF	1-7/16-18UNEF
28	1.618	41.10	54	1.475	37.47	2.278	57.86	1-13/16-16UN	1-3/4-18UNS

M83723/68, 69
Lanyard Release, Quick-Disconnect Plug
AE83368, 69



Quick-Disconnect, Threaded Coupling, Crimp Removable, Rear Release



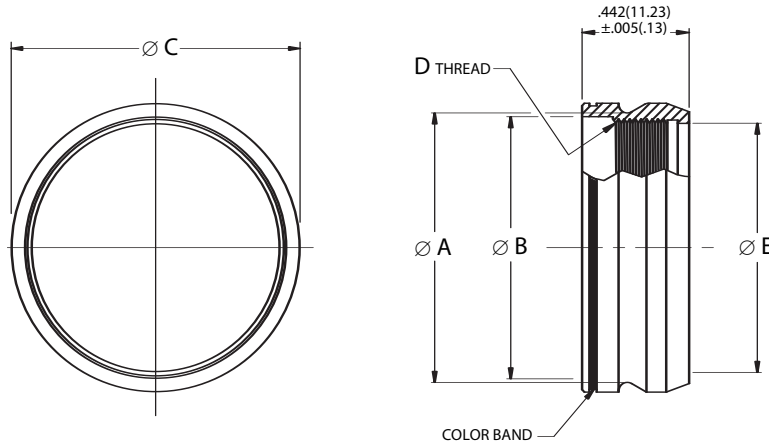
Page 93	Completed Part Number
Page 104	Contacts, Sealing Plugs and Tools
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Note 1: M83723/70 receptacle adapter (page 101) is required to mate the Quick-Disconnect Plug with a receptacle.

Note 2: Not available in shell size 8.

Shell Size	Ø A		Ø B		C	Ø D	
	Maximum		Maximum		Accessory Thread Class 2A		
	inch	mm	inch	mm		inch	mm
10	1.240	31.50	.405	10.29	5/8-24UNEF	.526/.517	13.36/13.13
12	1.432	36.37	.531	13.49	3/4-20UNEF	.696/.687	17.68/17.45
14	1.490	37.85	.665	16.89	7/8-20UNEF	.765/.756	19.43/19.20
16	1.711	43.46	.790	20.07	1-20UNEF	.892/.883	22.66/22.43
18	1.815	46.10	.869	22.07	1-1/16-18UNEF	.998/.989	25.35/25.12
20	1.962	49.83	.994	25.25	1-3/16-18UNEF	1.123/1.114	28.52/28.30
22	2.070	52.58	1.119	28.42	1-5/16-18UNEF	1.248/1.239	31.70/31.47
24	2.195	55.75	1.244	31.60	1-7/16-18UNEF	1.373/1.364	34.87/34.65

Quick-Disconnect (Push-Pull) Receptacle Adapter



Mil Prefix	M83723/	70	W	10
Aero Prefix	AE833	70	W	10
Specification Sheet (Shell type)				
70 = Receptacle adapter, quick-disconnect				
Class (Material and Finish)				
A = Aluminum shell, black anodized finish				
G = Stainless steel shell, passivated				
R = Aluminum shell, electroless nickel finish				
W = Aluminum shell, cadmium olive drab over nickel base				
Shell Size				
8, 10, 12, 14, 16, 18, 20, 22 or 24				

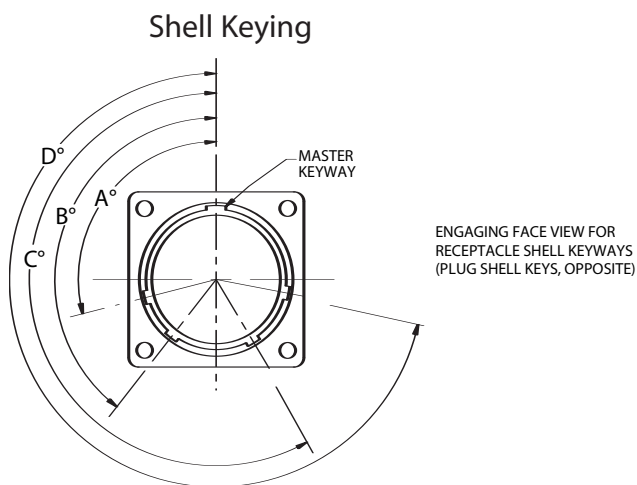
Note: The adapter is required to mate the Lanyard Release and Push-Pull Quick-Disconnect plugs (M83723/66 thru 69) with M83723/82, 83, 84, 85, 88, 89 and 90 threaded coupling receptacles. Use compatible thread seizing compound to permanently secure to the receptacle.

Shell Size	D	Ø A		Ø B		Ø C		Ø E	
	Coupling Thread Class 2B	±.002	±.05	±.002	±.05	±.002	±.05	±.005	±.13
		inch	mm	inch	mm	inch	mm	inch	mm
8	9/16-24UNEF	.605	15.37	.577	14.66	.687	17.45	.525	13.34
10	11/16-24UNEF	.730	18.54	.712	18.08	.812	20.62	.650	16.51
12	7/8-20UNEF	.917	23.29	.892	22.66	.999	25.37	.840	21.34
14	15/16-20UNEF	.980	24.89	.952	24.18	1.062	26.97	.900	22.86
16	1-1/16-18UNEF	1.105	28.07	1.077	27.36	1.187	30.15	1.025	26.04
18	1-3/16-18UNEF	1.230	31.24	1.202	30.53	1.328	33.73	1.150	29.21
20	1-5/16-18UNEF	1.355	34.42	1.327	33.71	1.453	36.91	1.275	32.39
22	1-7/16-18UNEF	1.480	37.59	1.452	36.88	1.578	40.08	1.400	35.56
24	1-9/16-18UNEF	1.605	40.77	1.577	40.06	1.703	43.26	1.525	38.74

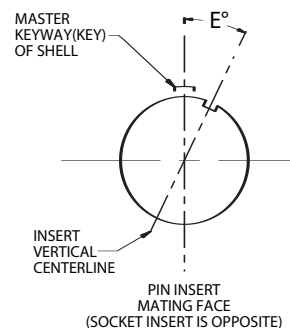
MIL-DTL-83723 Series III

Polarization (Shell Keying, Insert Clocking)

Bayonet and Threaded



Insert Clocking



Notes:

1. In the normal position (N), the insert centerline coincides with the centerline of the master keyway (key) of the shell. $E = 0^\circ$
2. In the alternate keying positions (6, 7, 8, 9 and Y), the minor keyways (keys) are positioned with reference to master keyway (key) as indicated in the keying position table below.
3. In the alternate insert clocking positions (1, 2, 3, 4 and 5), the pin insert (viewing from the mating side) is rotated counter-clockwise relative to the centerline of the master keyway (key) of the shell. The socket insert is rotated clockwise.

Shell Size	Polarizing	Key/Keyway Positions				Insert Position
	Position	A°	B°	C°	D°	E°
8*, 10	N	105	140	215	265	0
	6	102	132	248	320	0
	7	80	118	230	312	0
	8	35	140	205	275	0
	9	64	155	234	304	0
10 only	Y	25	115	220	270	0
12 thru 24, 28**	N	105	140	215	265	0
	6	18	149	192	259	0
	7	92	152	222	342	0
	8	84	152	204	334	0
	9	24	135	189	240	0
	Y	98	152	268	338	0
10 thru 24	1†	105	140	215	265	10
	2†	105	140	215	265	20
	3†	105	140	215	265	30
	4†	105	140	215	265	40
	5†	105	140	215	265	50

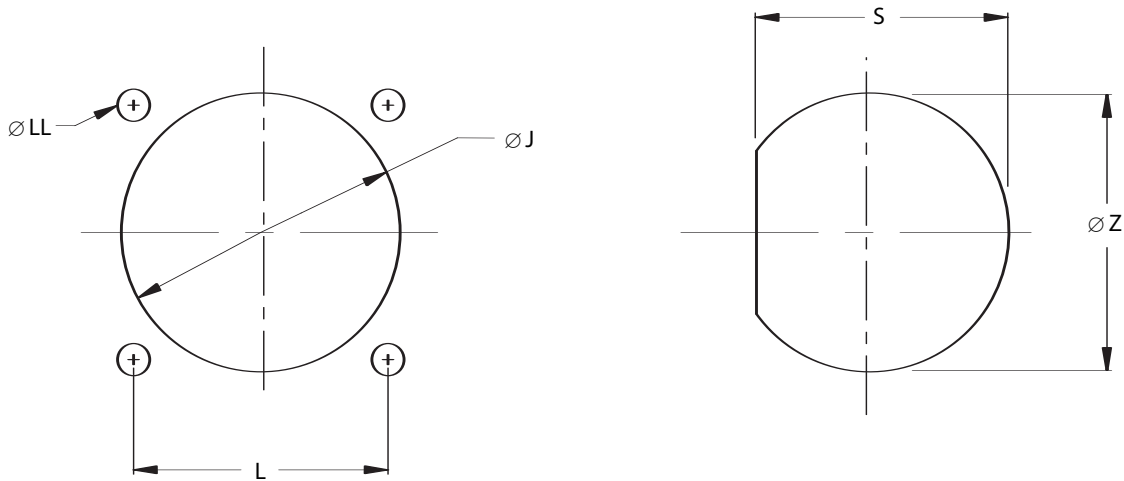
* Per MIL-STD-1554, keyed position Y and clocked positions 1, 2, 3, 4 and 5 are not available in shell size 8.

** Shell size 28 is not from military standard. It is only available in threaded family to Aero-Electric part number.

† Per MIL-STD-1554, insert positions 1 thru 5 are inactive for new design.

Note: Alternate positions “Z” and “10” are cancelled and superseded by Position “Y”.

Panel Cutouts



Panel Thickness

Receptacle Type	Rear Mounting		Front Mounting	
	inch	mm	inch	mm
Wall Mount Receptacle, Bayonet	.250 max*	6.36 max*	.125 max	3.18 max
Wall Mount Receptacle, Threaded	.125 max	3.18 max	.125 max	3.18 max
Jam Nut Mount (Bayonet & Threaded)	.062/.125	1.57/3.18	—	—

* Includes screw-head

Flange and Jam Nut Mounting Dimensions

Shell Size	L		Ø J		Ø J		Ø LL		S		Ø Z	
	(TP)		For Back Mounting Minimum		For Front Mounting Minimum		+.000 -.009		±.005 ±.13		±.005 ±.13	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8	.594	15.09	.620	15.75	.510	12.95	.125	3.18	.605	15.37	.635	16.13
10	.719	18.26	.748	19.00	.635	16.13	.125	3.18	.730	18.54	.760	19.30
12	.812	20.62	.918	23.32	.760	19.30	.125	3.18	.917	23.29	.947	24.05
14	.906	23.01	.988	25.10	.885	22.48	.125	3.18	.980	24.89	1.010	25.65
16	.969	24.61	1.114	28.30	1.010	25.65	.125	3.18	1.105	28.07	1.135	28.83
18	1.062	26.97	1.220	30.99	1.072	27.23	.125	3.18	1.229	31.22	1.260	32.00
20	1.156	29.36	1.346	34.19	1.197	30.40	.125	3.18	1.354	34.39	1.385	35.18
22	1.250	31.75	1.470	37.34	1.322	33.58	.125	3.18	1.479	37.57	1.510	38.35
24	1.375	34.93	1.596	40.54	1.442	36.63	.154	3.91	1.604	40.74	1.635	41.53

MIL-DTL-83723**Contacts, Tools and Seal Plugs****Series III****Contacts, Plastic Insertion/Removal Tools and Seal Plugs**

	Application	Pin Contacts	Socket Contacts	Seal Plugs	Insertion/Removal Tools
Contact Size					Plastic
	Type	Military No.	Military No.	Military No.	Military No.
20	Power/Signal	M39029/4-110	M39029/5-115	MS27488-20-1	M81969/14-11
16	Power/Signal	M39029/4-111	M39029/5-116	MS27488-16-1	M81969/14-03
12	Power/Signal	M39029/4-113	M39029/5-118	MS27488-12-1	M81969/14-04

Crimping and Metal Insertion/Extraction Tools

	Crimp Tool	Positioner	Positioner	Insertion Tool	Extraction Tool
Contact Size		For Pin Contacts	For Socket Contacts	Metal	Metal
	Military No.	Military No.	Military No.	Military No.	Military No.
20	M22520/1-01	M22520/1-02	M22520/1-02	M81969/8-205	M81969/8-206
	M22520/2-01	M22520/2-02	M22520/2-02		
16	M22520/1-01	M22520/1-02	M22520/1-02	M81969/8-207	M81969/8-208
12	M22520/1-01	M22520/1-02	M22520/1-02	M81969/8-209	M81969/8-210

Contact and Wire Data

	Test Current	Voltage	Crimp Well Data		Wire Range	Finished Wire Ø Range			
Contact Size	DC Test	Max. Drop	Well Dia.	Minimum Well Dept		Minimum	Maximum		
	Amps	Millivolts	inch	inch	mm	AWG	mm ²	inch	mm
20	7.5	55	.049 ±.001	.155	3.94	24-20	.20-.52	.040	1.02
16	13.0	49	.067 ±.001	.250	6.35	20-16	.52-1.31	.053	1.35
12	23.0	42	.100 ±.002	.250	6.35	14-12	2.08-3.31	.097	2.46

Note: Test Current and Maximum Voltage Drop when tested with silver-plated wire at 25°C.



MIL-DTL-83723 Series III Contact Installation Instructions Bayonet and Threaded Coupling

Contact Installation Instructions

Crimping Contacts

1. Select the appropriate crimp tool and ensure that the proper crimp head positioner is used.
2. Cycle the tool to be sure the indentors are open.
3. Determine the correct selector setting for the wire size from the data plate on the positioner (turret head assembly) and set the selector knob on the crimp tool to match.
4. Place the contact, mating end first, into the tool.
5. Insert the stripped wire into the hollow end of the contact. Be sure the wire is inserted as far as it will go.
6. Close the tool completely to crimp. Unless the tool is closed completely, the tool will not release the contact.
7. Remove the crimped contact from the tool. Check the inspection hole to verify that the wire is fully inserted.

Insertion of Contacts

1. Before inserting the contacts, unscrew the accessories (clamps, backshells or adapters) from rear of plug or receptacle. Slide the hardware over the wire bundle in the proper order for reassembly after all the contacts are inserted.
2. To assist insertion of contacts, lubricate insulator (grommet) cavities with isopropyl alcohol. Alcohol will evaporate and will not leave a conductive film. **Caution: Never use any lubricant other than isopropyl alcohol.**

3. Place the correct insertion tool on the contact so that the wire runs along the groove in the tool. (Tool tip will butt against the shoulder.) Hold the plug or receptacle body firmly.
4. Beginning with a center cavity, insert the contact into the insulator with a slow, even pressure until the contact snaps into position. Make sure the contact and tool are held perpendicular to the face of the insert during the contact installation or the grommet could be damaged.
 - 4.1 If contacts are not inserted all the way prior to removing insertion tool, do not try to reinsert the insertion tool. Instead, remove the contact and try again; otherwise reinserting the insertion tool may damage the inside of the contact cavity.
5. Remove tool and check the face of the connector for proper contact installation. Proper installation may also be checked by pulling back lightly on the wire to make sure the contact is properly seated.

Completion

After all the cavities have been filled, slide the hardware back into position on the connector and tighten.

Extraction of Contacts (Rework)

1. Slide the hardware back over the wire bundle.
2. Select the appropriate tool. Place the wire into the extraction tool of the pin or socket.
3. Slowly slide the extraction tool down wire into the contact cavities until the tool tip bottoms against the contact shoulder, expanding the clip retaining tines. Hold the wire firmly in the tool and pull the wired contact and tool straight out of the rear of the insulator.

Size	Pin Contact	Socket Contact	Basic Crimp Tool	Pin Positioner	Socket Positioner	Insertion/Removal Tool
20	M39029/4-110	M39029/5-115	M22520/1-01	M22520/1-02 Red	M22520/1-02 Red	M81969/14-11
			M22520/2-01	M22520/2-02	M22520/2-02	
16	M39029/4-111	M39029/5-116	M22520/1-01	M22520/1-02 Blue	M22520/1-02 Blue	M81969/14-03
12	M39029/4-113	M39029/5-118	M22520/1-01	M22520/1-02 Yellow	M22520/1-02 Yellow	M81969/14-04

MIL-DTL-83723 Series III

Insert Availability and Contact Information

per MIL-STD-1554



Insert Availability and Contact Information

Insert Arrangement	Aero-Electric		Total	Quantity of Contacts				Service	Alternate Positions**				
	Status		No. of	(by Size)					(Insert Rotation in Degrees)				
	QPL'd	Tooled	Contacts	20	16	12	# 8coax	Rating	1	2	3	4	5
8-2Δ	Yes	Yes	2	2				I	N/A	N/A	N/A	N/A	N/A
8-3	Yes	Yes	3	3				I	N/A	N/A	N/A	N/A	N/A
8-98	Yes	Yes	3	3				I	N/A	N/A	N/A	N/A	N/A
10-2	Yes	Yes	2	2				I	10	20	30	40	50
10-5	Yes	Yes	5	5				I	10	20	30	40	50
10-6	Yes	Yes	6	6				I	10	20	30	40	50
10-20	Yes	Yes	2		2			I	10	20	30	40	50
12-3	Yes	Yes	3		3			I	10	20	30	40	50
12-12	Yes	Yes	12	12				I	10	20	30	40	50
14-4	Yes	Yes	4			4		I	10	20	30	40	50
14-7	Yes	Yes	7		7			I	10	20	30	40	50
14-12	Yes	Yes	12	9	3			I	10	20	30	40	50
14-15	Yes	Yes	15	15				I	10	20	30	40	50
16-10	Yes	Yes	10		10			I	10	20	30	40	50
16-24	Yes	Yes	24	24				I	10	20	30	40	50
18-8	Yes	Yes	8			8		I	10	20	30	40	50
18-14	Yes	Yes	14		14			I	10	20	30	40	50
18-31	Yes	Yes	31	31				I	10	20	30	40	50
20-16	Yes	Yes	16		16			I	10	20	30	40	50
20-25	Yes	Yes	25	19		6		I	10	20	30	40	50
20-28	Yes	Yes	28	24		4		I	10	20	30	40	50
20-39	Yes	Yes	39	37	2			I	10	20	30	40	50
20-41	Yes	Yes	41	41				I	10	20	30	40	50
22-12	Yes	Yes	12			12		I	10	20	30	40	50
22-19	Yes	Yes	19		19			I	10	20	30	40	50
22-32	Yes	Yes	32	26		6		I	10	20	30	40	50
22-55	Yes	Yes	55	55				I	10	20	30	40	50
24-19	Yes	Yes	19			19		I	10	20	30	40	50
24-29*	N/A	Yes	29		29			I	10	20	30	40	50
24-30*	N/A	Yes	30		30			I	10	20	30	40	50
24-43	Yes	Yes	43	23	20			I	10	20	30	40	50
24-57	Yes	Yes	57	55		2		I	10	20	30	40	50
24-61	Yes	Yes	61	61				I	10	20	30	40	50
28-42*	N/A	Yes	42		42			I	10	20	30	40	50

* Non MIL-STD-1554 layout, available to Aero-Electric part number only.
Δ Consult factory for pin insert availability.

** Alternate clocking positions (1, 2, 3, 4, and 5) are for interchangeability use only. Inactive for new design per MIL-STD-1554.

Insert Arrangements Views



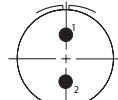
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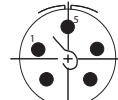
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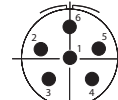
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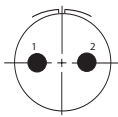
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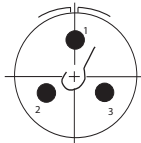
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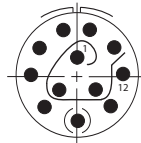
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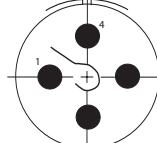
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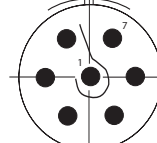
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3 # 16



1212
12 # 20



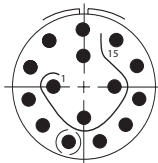
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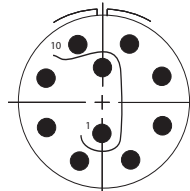
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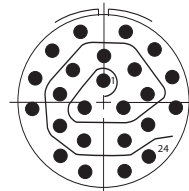
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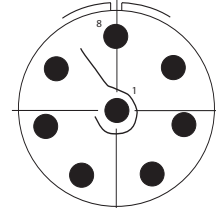
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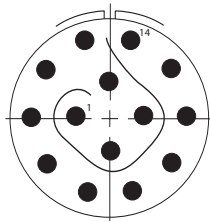
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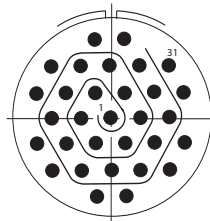
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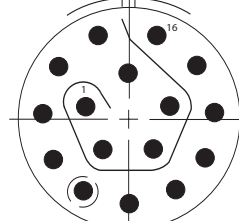
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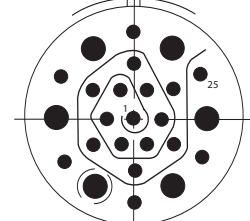
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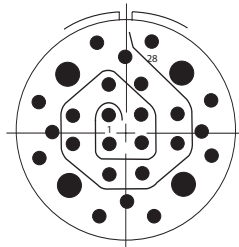
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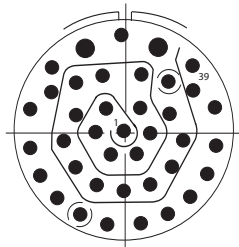
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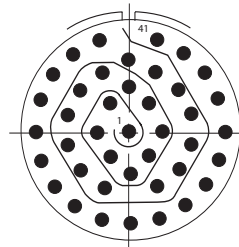
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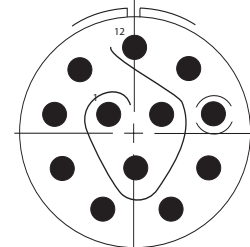
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2041
41 # 20



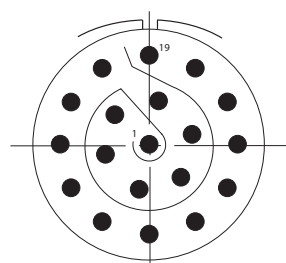
2212
12 # 12

* Consult factory for pin insert availability.

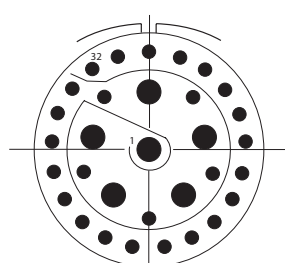
MIL-STD-1554
Insert Arrangements (Socket Front View)
for MIL-DTL-83723 Series III Connectors



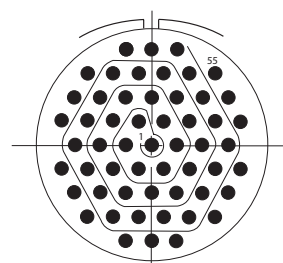
Insert Arrangements Views



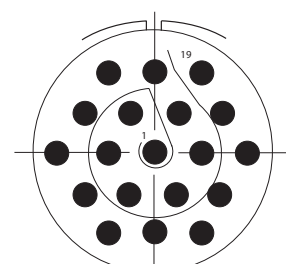
2219
19 # 16



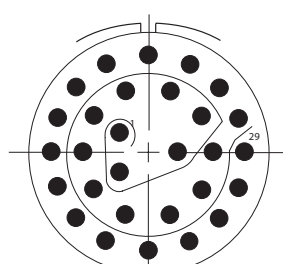
2232
26 # 20, 6 # 12



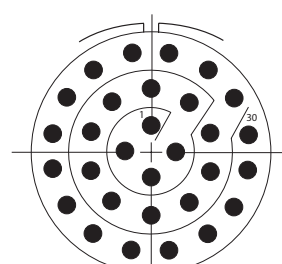
2255
55 # 20



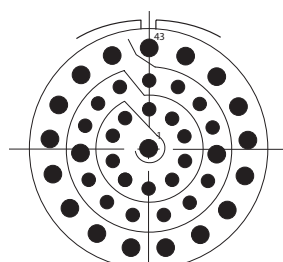
2419
19 # 12



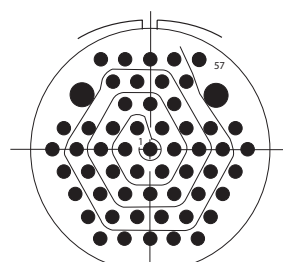
2429Δ
29 # 16



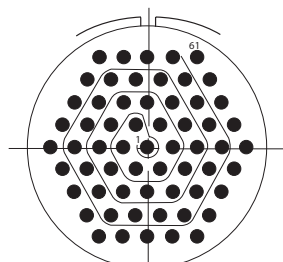
2430Δ
30 # 16



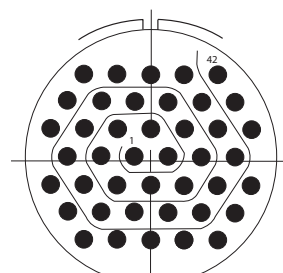
2443
23 # 20, 20 # 16



2457
55 # 20, 2 # 12



2461
61 # 20



2842Δ
42 # 16

Δ Non MIL-STD-1554 layout, available to Aero-Electric part number only.

MIL-DTL-26500 Features and Application MS2426*/AE66*



Features and Application

MIL-DTL-26500 family offers connectors with bayonet coupling as well as threaded coupling. These connectors are intermateable with correspondingly coupled MIL-DTL-83723 Series III connectors (except shell size 8, threaded coupling only).

AE66 connectors are widely used on commercial, military and aerospace systems requiring general-purpose, miniature cylindrical bayonet or threaded coupling connectors.

This family (bayonet as well as threaded) of connectors is offered in wall mount receptacles, jam nut mounted receptacles which incorporate O'ring seals, designed for rear panel "D" hole mounting, and straight plugs.

Twenty-one insert arrangements per MIL-STD-1554 are tooled and qualified to MIL-DTL-26500, utilizing 3 to 57 M39029 contacts. Contacts come in sizes 20, 16 and 12, terminating wire sizes from 24 to 12 gauge.

These connectors are only available in aluminum shells with anodic plating to the MS number. In addition, we offer connectors with passivated stainless steel shells to commercial callouts only.

Insert Polarization

Alternate insert positions documented in the original specification, positions 1 through 5, are still available (except in shell size 8), but are not approved for new design. These alternate insert clocking positions aid in mating of adjacent connectors having identical insert arrangement.

Shell Polarization – Alternate key/keyway positions prevent cross mating of adjacent connectors having same insert arrangement.

Connector Sealing – A pressure seal at the connector interface is accomplished through the aid of a coupling device which compresses the front resilient insulators and thus offers a seal around each contact preventing the passage of moisture through the contact cavity. Rear resilient insulators are designed with a triple wire seal in each cavity to offer positive sealing and prevent wicking of moisture through the connector without the use of external clamping devices or adapters. In addition, a dynamic O'ring seal in the receptacles engages the front of the plug shell when connectors are mated and offers yet another barrier to moisture and contaminants.

Superior Contact Stability - Front release crimp contact system features a beryllium-copper retaining clip completely encased in a tough dielectric wafer, thus protecting the clip tines from damage.

Closed Entry Socket Contacts

Closed-entry socket contacts facilitate positive mating.



MIL-DTL-26500

Performance Specifications

MS2426*/AE66*



Performance Specifications

Operating Temperature Range

Class R: -55°C to +200°C (-67°F to +392°F)

Class E*: -55°C to +200°C (-67°F to +392°F)

Material and Finish Data (Class)

R – aluminum shell, black anodized finish

E* – stainless steel shell, passivated

Corrosion Resistance

Classes R and E* withstand 48-hour salt spray.

Environmental Seal

Wired, mated connectors shall meet the altitude-immersion test specified by MIL-DTL-26500.

Fluid Resistance

Unmated connectors resist specified immersions in MIL-PRF-5606 (hydraulic fluid), MIL-PRF-23699 (lubricating oil), MIL-PRF-7808 (lubricating oil), MIL-DTL-5624 (JP-5) and glycol.

Durability

Bayonet Coupling – 500 cycles

Threaded Coupling – 200 cycles

Shock and Vibration Requirements

Wired, mated connectors shall not be damaged, coupling ring shall not loosen, and there shall be no interruption of electrical continuity longer than one microsecond when subjected to the following:

Shock

Mated connectors withstand a pulse of approximate half sine wave of 100 G magnitude with duration of 6 milliseconds applied in each of the three major axes.

Vibration

Mated connectors withstand the following vibration levels:

- Vibration per EIA-364, test procedure 28 conducted at a low temperature ambient of -55°C (-67°F) and high ambient of +200°C (392°F).

Shell-to-Shell Conductivity

- Class R is non-conductive.
- Maximum potential drop shall not exceed 200 millivolts for class E*.

Voltage Rating

Service Rating	Suggested Operating Voltage**		Test Voltage	Test Voltage	Test Voltage	Test Voltage
	(Sea Level)		Sea Level	50,000 Ft.	70,000 Ft.	110,000 Ft.
	AC (RMS)	DC	V RMS	V RMS	V RMS	V RMS
I	600	850	1500	450	275	200

* Class E only available to commercial callouts. Consult factory for drawings. Pages 112 thru 117 apply to class R only.

** To be used by designer only as a guide.



MIL-DTL-26500

Part Number Development

Bayonet & Threaded Coupling

Part Number Development

Mil. Prefix	MS	24266	R	12	T	12	P	N	
Aero Prefix	AE	666	R	12	T	12	P	N	-340
Shell type 24264 = Wall mount receptacle = 664 (Aero p/n) 24265 = Jam nut receptacle = 665 (Aero p/n) 24266 = Straight plug = 666 (Aero p/n)									
Class (Material and Finish) R = Aluminum shell, black anodized finish E* = Stainless steel shell, passivated									
Shell Size (SS) 8, 10, 12, 14, 16, 18, 20, 22 or 24									
Coupling Mechanism B = Bayonet Coupling T = Threaded Coupling									
Insert Arrangement See pages 122, 123									
Contact Style P = Pin S = Socket									
Polarization (Keying) N = Normal 6, 7, 8, 9 or Y (Alternate keyed positions, Y is not available in SS 8) 1, 2, 3, 4 or 5 (Clock insert polarizations within normally keyed shell, not approved for new design, n/a in SS 8)									
Modification (applies to Aero part numbers only) 01 = Less contacts (is not marked on the part) 341 = Connector kitted with MS27291-XX straight clamp Consult factory for other modifications									

* Class E only available to commercial callouts. Consult factory for drawings. Pages 112 thru 117 apply to class R only.

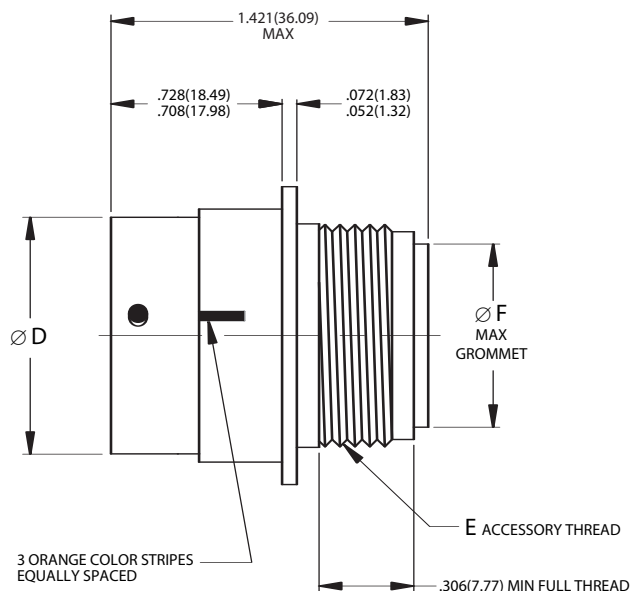
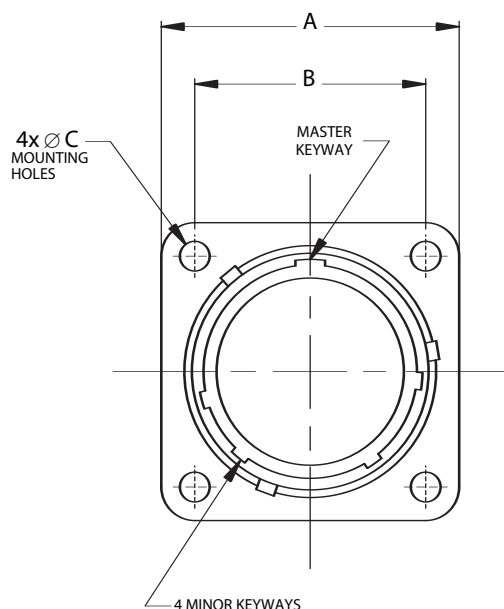
Note 1: Each connector is furnished with contacts unless ordered less contacts (L/C) as follows: Two spare contacts for each size contact utilized and at least 15% of the number of contacts but no less than three sealing plugs are provided. No insertion/removal tools are provided. No spares are required for shielded contacts.

Note 2: Proper part number marking has no "0" in front of single digit shell size (8), and no "0" in front of single digit layouts. Example: MS24264R8B3SN and MS24264R18B8P6. Please note that in this series "N" for normal is included in part number marking.

MS24264RB**
Wall Mounting Receptacle
AE664RB**



Bayonet Coupling, Crimp Removable, Front Release

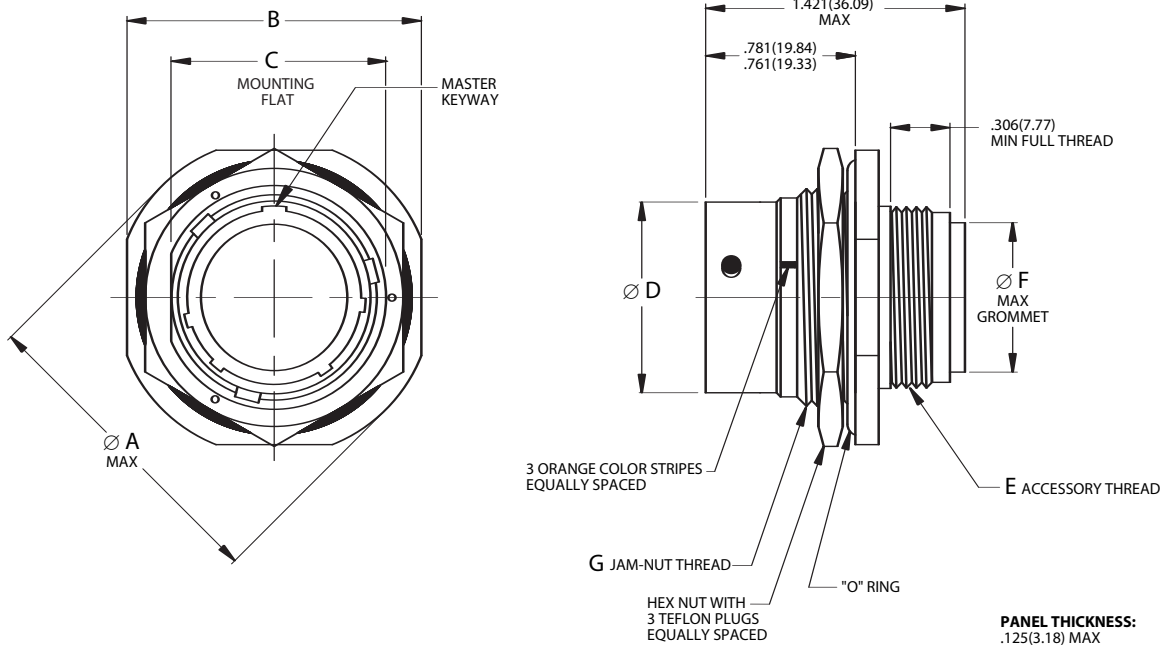


PANEL THICKNESS:
.125(3.18)MAX

Page 111	Completed Part Number
Page 120	Contacts, Sealing Plugs and Tools
Page 123	Insert Arrangements
Page 110	Performance Specifications
Page 122	Insert Availability and Contact Information
Page 118	Polarization

Shell Size	A		B		Ø C		Ø D		E	Ø F	
	±.005	±.13	(TP)		+0.00	+0.00	+0.00	+0.00	Accessory Thread Class 2A	Maximum	
	inch	mm	inch	mm	inch	mm	inch	mm			
8	.812	20.62	.594	15.09	.125	3.18	.536	13.61	7/16-28UNEF	.328	8.33
10	.937	23.80	.719	18.26	.125	3.18	.659	16.74	9/16-24UNEF	.420	10.67
12	1.031	26.19	.812	20.62	.125	3.18	.829	21.06	3/4-20UNEF	.580	14.73
14	1.125	28.58	.906	23.01	.125	3.18	.898	22.81	13/16-20UNEF	.664	16.87
16	1.250	31.75	.969	24.61	.125	3.18	1.025	26.04	15/16-20UNEF	.769	19.53
18	1.343	34.11	1.062	26.97	.125	3.18	1.131	28.73	1-1/16-18UNEF	.902	22.91
20	1.437	36.50	1.156	29.36	.125	3.18	1.256	31.90	1-3/16-18UNEF	1.033	26.24
22	1.562	39.67	1.250	31.75	.125	3.18	1.381	35.08	1-5/16-18UNEF	1.152	29.26
24	1.703	43.26	1.375	34.93	.154	3.91	1.506	38.25	1-7/16-18UNEF	1.282	32.56

Bayonet Coupling, Crimp Removable, Front Release



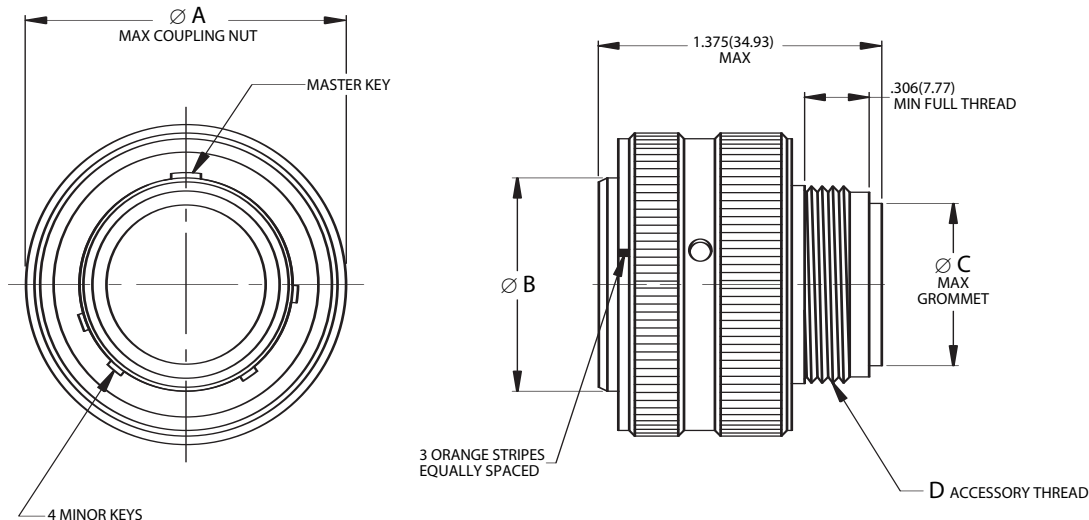
Page 111	Completed Part Number
Page 120	Contacts, Sealing Plugs and Tools
Page 123	Insert Arrangements
Page 110	Performance Specifications
Page 122	Insert Availability and Contact Information
Page 118	Polarization

Shell Size	Ø A		B		C		Ø D		E	Ø F		G
	Maximum		±.005	±.13	±.003	±.08	+0.00	+.00	Accessory Thread Class 2A	Maximum		Jam Nut Thread Class 2A
	inch	mm	inch	mm	inch	mm	inch	mm		inch	mm	
8	1.068	27.13	.979	24.87	.593	15.06	.536	13.61	7/16-28UNEF	.328	8.33	5/8-20UN
10	1.192	30.28	1.104	28.04	.718	18.24	.659	16.74	9/16-24UNEF	.420	10.67	3/4-20UNEF
12	1.380	35.05	1.291	32.79	.905	22.99	.829	21.06	3/4-20UNEF	.580	14.73	15/16-20UNEF
14	1.505	38.23	1.391	35.33	.968	24.59	.898	22.81	13/16-20UNEF	.664	16.87	1-20UNEF
16	1.630	41.40	1.516	38.51	1.093	27.76	1.025	26.04	15/16-20UNEF	.769	19.53	1-1/8-20UN
18	1.740	44.20	1.641	41.68	1.217	30.91	1.131	28.73	1-1/16-18UNEF	.902	22.91	1-1/4-20UN
20	1.860	47.24	1.766	44.86	1.342	34.09	1.256	31.90	1-3/16-18UNEF	1.033	26.24	1-3/8-18UNEF
22	2.040	51.82	1.954	49.63	1.467	37.26	1.381	35.08	1-5/16-18UNEF	1.152	29.26	1-1/2-20UN
24	2.160	54.86	2.079	52.81	1.592	40.44	1.506	38.25	1-7/16-18UNEF	1.282	32.56	1-5/8-18UNEF

MS24266RB**
Straight Plug
AE666RB**



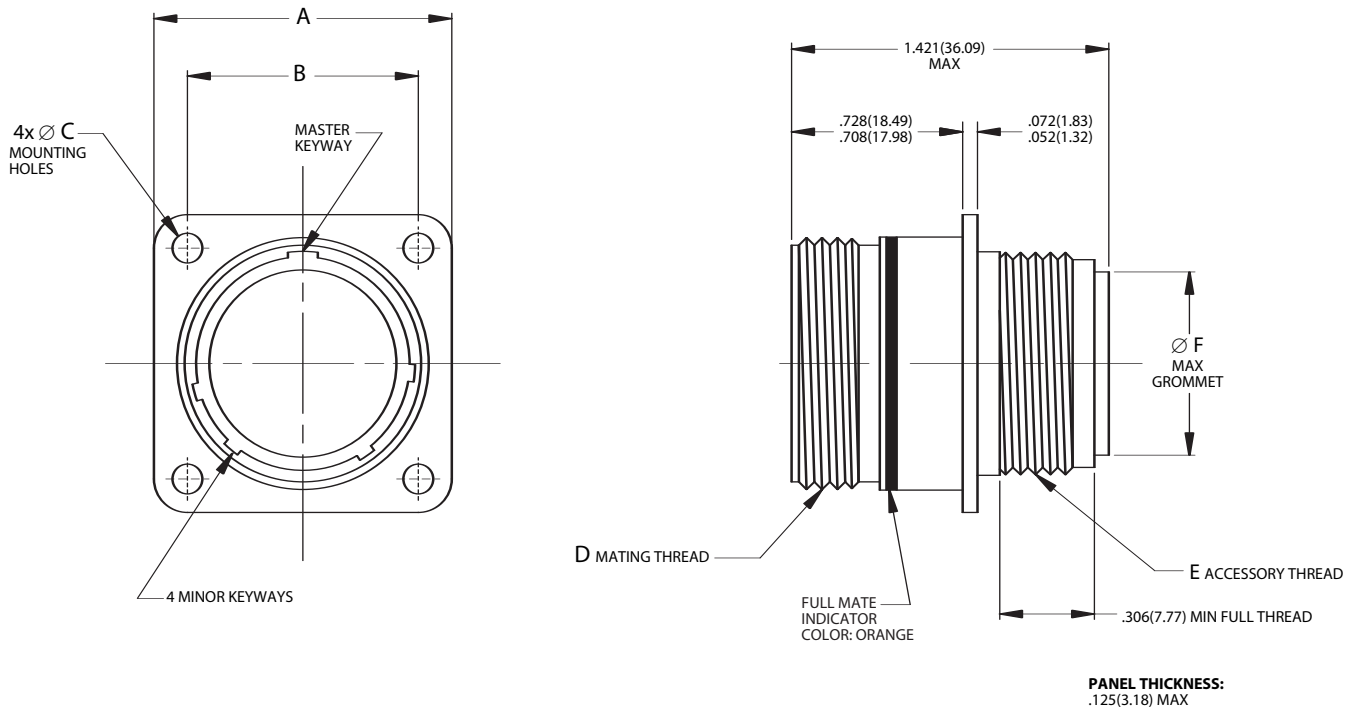
Bayonet Coupling, Crimp Removable, Front Release



Page 111	Completed Part Number
Page 120	Contacts, Sealing Plugs and Tools
Page 123	Insert Arrangements
Page 110	Performance Specifications
Page 122	Insert Availability and Contact Information
Page 118	Polarization

Shell Size	Ø A		Ø B		Ø C		D
	Maximum		+ .000 - .005	+ .00 - .13	Maximum		Accessory Thread Class 2A
	inch	mm	inch	mm	inch	mm	
8	.776	19.71	.424	10.77	.328	8.33	7/16-28UNEF
10	.906	23.01	.526	13.36	.420	10.67	9/16-24UNEF
12	1.078	27.38	.696	17.68	.580	14.73	3/4-20UNEF
14	1.141	28.98	.765	19.43	.664	16.87	13/16-20UNEF
16	1.266	32.16	.892	22.66	.769	19.53	15/16-20UNEF
18	1.375	34.93	.998	25.35	.902	22.91	1-1/16-18UNEF
20	1.510	38.35	1.123	28.52	1.033	26.24	1-3/16-18UNEF
22	1.625	41.28	1.248	31.70	1.152	29.26	1-5/16-18UNEF
24	1.760	44.70	1.373	34.87	1.282	32.56	1-7/16-18UNEF

Threaded Coupling, Crimp Removable, Front Release



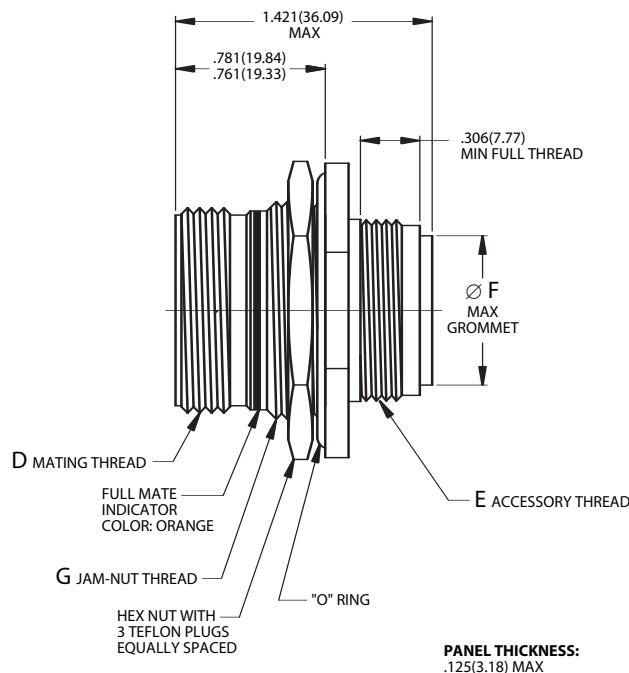
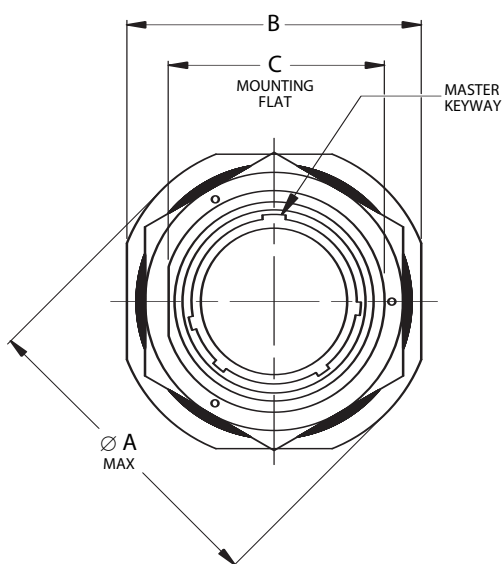
Page 111	Completed Part Number
Page 120	Contacts, Sealing Plugs and Tools
Page 123	Insert Arrangements
Page 110	Performance Specifications
Page 122	Insert Availability and Contact Information
Page 118	Polarization

Shell Size	A		B		Ø C		D	E	Ø F	
	±.005	±.13	(TP)		+.000	+.00	Mating Thread Class 2A	Accessory Thread Class 2A	Maximum	
	inch	mm	inch	mm	inch	mm			inch	mm
8	.812	20.62	.594	15.09	.125	3.18	9/16-24UNEF	7/16-28UNEF	.328	8.33
10	.937	23.80	.719	18.26	.125	3.18	11/16-24UNEF	9/16-24UNEF	.420	10.67
12	1.031	26.19	.812	20.62	.125	3.18	7/8-20UNEF	3/4-20UNEF	.580	14.73
14	1.125	28.58	.906	23.01	.125	3.18	15/16-20UNEF	13/16-20UNEF	.664	16.87
16	1.250	31.75	.969	24.61	.125	3.18	1-1/16-18UNEF	15/16-20UNEF	.769	19.53
18	1.343	34.11	1.062	26.97	.125	3.18	1-3/16-18UNEF	1-1/16-18UNEF	.902	22.91
20	1.437	36.50	1.156	29.36	.125	3.18	1-5/16-18UNEF	1-3/16-18UNEF	1.033	26.24
22	1.562	39.67	1.250	31.75	.125	3.18	1-7/16-18UNEF	1-5/16-18UNEF	1.152	29.26
24	1.703	43.26	1.375	34.93	.154	3.91	1-9/16-18UNEF	1-7/16-18UNEF	1.282	32.56

MS24265RT**
Jam Nut Receptacle
AE665RT**



Threaded Coupling, Crimp Removable, Front Release

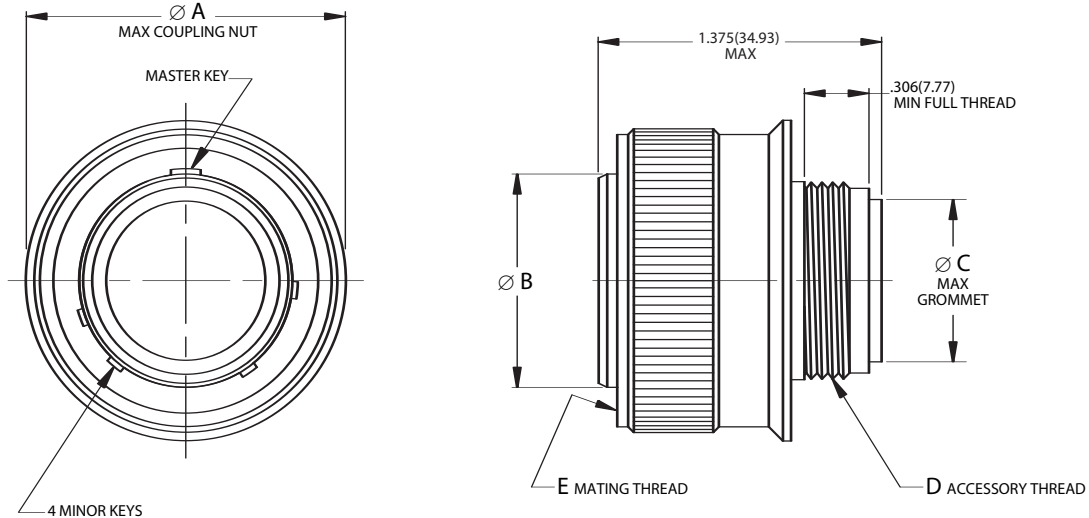


PANEL THICKNESS:
.125(3.18) MAX

Page 111	Completed Part Number
Page 120	Contacts, Sealing Plugs and Tools
Page 123	Insert Arrangements
Page 110	Performance Specifications
Page 122	Insert Availability and Contact Information
Page 118	Polarization

Shell Size	Ø A		B		C		D	E	Ø F		G
	Maximum		±.005	±.13	±.003	±.08	Mating Thread Class 2A	Accessory Thread Class 2A	Maximum		Jam Nut Thread Class 2A
	inch	mm	inch	mm	inch	mm			inch	mm	
8	1.068	27.13	.979	24.87	.593	15.06	9/16-24UNEF	7/16-28UNEF	.328	8.33	5/8-20UN
10	1.192	30.28	1.104	28.04	.718	18.24	11/16-24UNEF	9/16-24UNEF	.420	10.67	3/4-20UNEF
12	1.380	35.05	1.291	32.79	.905	22.99	7/8-20UNEF	3/4-20UNEF	.580	14.73	15/16-20UNEF
14	1.505	38.23	1.391	35.33	.968	24.59	15/16-20UNEF	13/16-20UNEF	.664	16.87	1-20UNEF
16	1.630	41.40	1.516	38.51	1.093	27.76	1-1/16-18UNEF	15/16-20UNEF	.769	19.53	1-1/8-20UN
18	1.740	44.20	1.641	41.68	1.217	30.91	1-3/16-18UNEF	1-1/16-18UNEF	.902	22.91	1-1/4-20UN
20	1.860	47.24	1.766	44.86	1.342	34.09	1-5/16-18UNEF	1-3/16-18UNEF	1.033	26.24	1-3/8-18UNEF
22	2.040	51.82	1.954	49.63	1.467	37.26	1-7/16-18UNEF	1-5/16-18UNEF	1.152	29.26	1-1/2-20UN
24	2.160	54.86	2.079	52.81	1.592	40.44	1-9/16-18UNEF	1-7/16-18UNEF	1.282	32.56	1-5/8-18UNEF

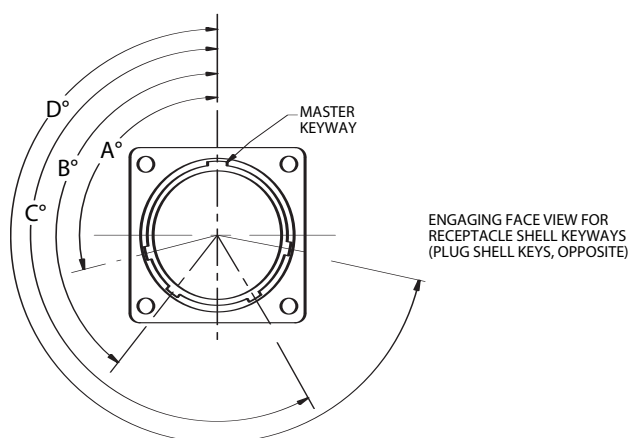
Threaded Coupling, Crimp Removable, Front Release



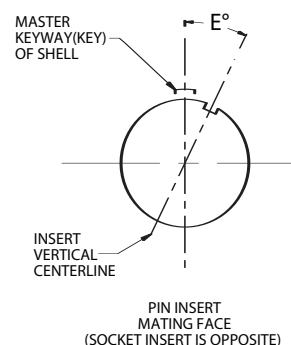
Page 111	Completed Part Number
Page 120	Contacts, Sealing Plugs and Tools
Page 123	Insert Arrangements
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Shell Size	Ø A		Ø B		Ø C		D	E
	Maximum		+0.00 -0.005	+.00 -.13	Maximum		Accessory Thread Class 2A	Mating Thread Class 2B
	inch	mm	inch	mm	inch	mm		
8	.776	19.71	.424	10.77	.328	8.33	7/16-28UNEF	9/16-24UNEF
10	.906	23.01	.526	13.36	.420	10.67	9/16-24UNEF	11/16-24UNEF
12	1.078	27.38	.696	17.68	.580	14.73	3/4-20UNEF	7/8-20UNEF
14	1.141	28.98	.765	19.43	.664	16.87	13/16-20UNEF	15/16-20UNEF
16	1.266	32.16	.892	22.66	.769	19.53	15/16-20UNEF	1-1/16-18UNEF
18	1.375	34.93	.998	25.35	.902	22.91	1-1/16-18UNEF	1-3/16-18UNEF
20	1.510	38.35	1.123	28.52	1.033	26.24	1-3/16-18UNEF	1-5/16-18UNEF
22	1.625	41.28	1.248	31.70	1.152	29.26	1-5/16-18UNEF	1-7/16-18UNEF
24	1.760	44.70	1.373	34.87	1.282	32.56	1-7/16-18UNEF	1-9/16-18UNEF

Shell Keying



Insert Clocking

**Notes:**

1. In the normal position (N), the insert centerline coincides with the centerline of the master keyway (key) of the shell: $E = 0^\circ$.
2. In the alternate keying positions (6, 7, 8, 9 and Y), the minor keyways (keys) are positioned with reference to master key/keyway as indicated in the keying position table below.
3. In the alternate insert clocking positions (1, 2, 3, 4 and 5), the pin insert (viewing from the mating side) is rotated counter-clockwise relative to the centerline of the master keyway (key) of the shell. The socket insert is rotated clockwise.

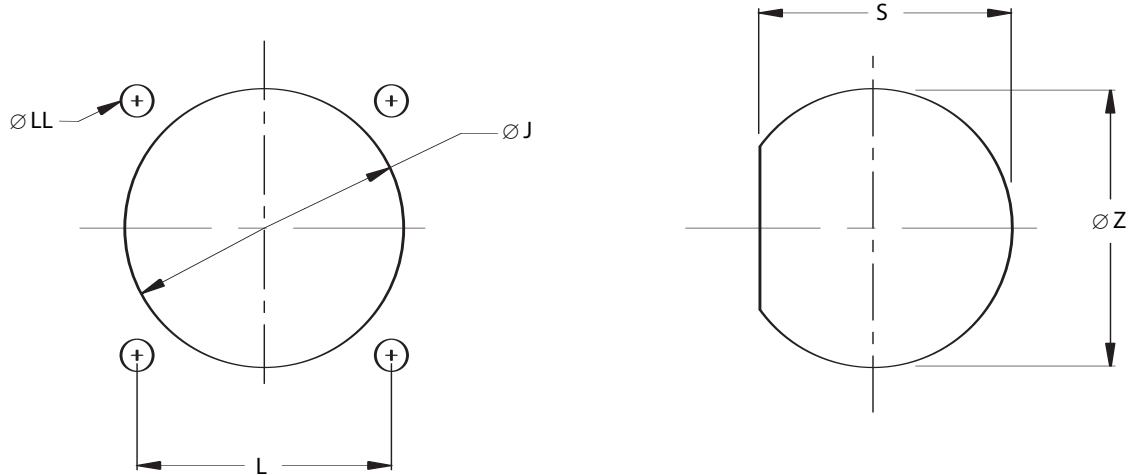
Shell Size	Polarizing	Key/Keyway Positions				Insert Position
	Position	A°	B°	C°	D°	E°
8*, 10	N	105	140	215	265	0
	6	102	132	248	320	0
	7	80	118	230	312	0
	8	35	140	205	275	0
	9	64	155	234	304	0
10 only	Y**	25	115	220	270	0
12 thru 24	N	105	140	215	265	0
	6	18	149	192	259	0
	7	92	152	222	342	0
	8	84	152	204	334	0
	9	24	135	189	240	0
	Y**	98	152	268	338	0
10 thru 24	1†	105	140	215	265	10
	2†	105	140	215	265	20
	3†	105	140	215	265	30
	4†	105	140	215	265	40
	5†	105	140	215	265	50

* Per MIL-STD-1554, keyed position Y and clocked positions 1, 2, 3, 4 and 5 are not available in shell size 8.

† Per MIL-STD-1554, insert positions 1 thru 5 are inactive for new design.

** Alternate positions "Z" and "10" are cancelled and superseded by Position "Y".

Panel Cutouts



Note: Maximum panel thickness of .125 inch (3.18 mm).

Flange and Jam Nut Mounting Dimensions

Shell Size	L		Ø J		Ø J		Ø LL		S		Ø Z	
	(TP)		For Back Mounting Minimum		For Front Mounting Minimum		+.000 -.009		±.005 ±.13		±.005 ±.13	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
8	.594	15.09	.620	15.75	.447	11.35	.125	3.18	.605	15.37	.635	16.13
10	.719	18.26	.748	19.00	.572	14.53	.125	3.18	.730	18.54	.760	19.30
12	.812	20.62	.913	23.19	.760	19.30	.125	3.18	.917	23.29	.947	24.05
14	.906	23.01	.980	24.89	.822	20.88	.125	3.18	.980	24.89	1.010	25.65
16	.969	24.61	1.107	28.12	.948	24.08	.125	3.18	1.105	28.07	1.135	28.83
18	1.062	26.97	1.209	30.71	1.072	27.23	.125	3.18	1.225	31.12	1.260	32.00
20	1.156	29.36	1.337	33.96	1.192	30.28	.125	3.18	1.350	34.29	1.385	35.18
22	1.250	31.75	1.452	36.88	1.322	33.58	.125	3.18	1.475	37.47	1.510	38.35
24	1.375	34.93	1.577	40.06	1.442	36.63	.154	3.91	1.600	40.64	1.635	41.53

MIL-DTL-26500**Contacts, Tools and Seal Plugs****MS2426*/AE66***

Contacts, Plastic Insertion/Removal Tools and Seal Plugs

Contact Size	Application	Pin Contacts	Socket Contacts	Seal Plugs	Insertion/Removal Tools
					Plastic
	Type	Military No.	Military No.	Military No.	Military No.
20	Power/Signal	M39029/31-241	M39029/32-260	MS27488-20-1	N/A
16	Power/Signal	M39029/31-229	M39029/32-248	MS27488-16-1	N/A
12	Power/Signal	M39029/31-235	M39029/32-254	MS27488-12-1	N/A
8 Coax	Coax	M39029/54-343	M39029/55-345	MS27488-8-1	N/A

Crimping and Metal Insertion/Extraction Tools

Contact Size/Type	Crimp Tool	Positioner	Positioner	Insertion Tool	Extraction Tool
		For Pin Contacts	For Socket Contacts	Metal	Metal
	Military No.	Military No.	Military No.	Military No.	Military No.
20	M22520/1-01	M22520/1-02	M22520/1-02	M81969/17-03	M81969/19-07
	M22520/2-01	M22520/2-02	M22520/2-02		
16	M22520/1-01	M22520/1-02	M22520/1-02	M81969/17-04	M81969/19-08
12	M22520/1-01	M22520/1-02	M22520/1-02	M81969/17-05	M81969/19-09
8 Coax Inner	M22520/2-01	M22520/2-24	M22520/2-24	M81969/17-06	M81969/19-03
8 Coax Outer	M22520/5-01	M22520/5-10	M22520/5-10		

Contact and Wire Data

Contact Size	Test Current	Potential	Crimp Well Data			Wire Range		Finished Wire Ø Range			
	DC Test	Drop	Well Dia.	Minimum Well Dept				Minimum		Maximum	
	Amps	Millivolts	inch	inch	mm	AWG	mm ²	inch	mm	inch	mm
20	7.5	55	.049 ±.001	.267	6.78	24-20	.20-.52	.040	1.02	.090	2.29
16	13.0	49	.067 ±.001	.236	5.99	20-16	.52-1.31	.068	1.73	.130	3.30
12	23.0	42	.100 ±.002	.236	5.99	14-12	2.08-3.31	.106	2.69	.170	4.32

Note 1: Test Current and Maximum Voltage Drop when tested with silver-plated wire at 25°C.

Note 2: No plastic Insertion/Removal tools are supplied as part of contact packages when ordering 26500 connectors. Metal insertion and extraction tools must be ordered separately.



MIL-DTL-26500 Contact Installation Instructions MS2426*/AE66*

Contact Installation Instructions

Crimping Contacts

1. Select the appropriate crimp tool and ensure that the proper crimp head positioner is used.
2. Cycle the tool to be sure the indentors are open.
3. Determine the correct selector setting for the wire size from the data plate on the positioner (turret head assembly) and set the selector knob on the crimp tool to match.
4. Place the contact, mating end first, into the tool.
5. Insert the stripped wire into the hollow end of the contact. Be sure the wire is inserted as far as it will go.
6. Close the tool completely to crimp. Unless the tool is closed completely, the tool will not release the contact.
7. Remove the crimped contact from the tool. Check the inspection hole to verify that the wire is fully inserted.

Insertion of Contacts

1. Before inserting the contacts, unscrew the accessories (clamps, backshells or adapters) from rear of plug or receptacle. Slide the hardware over the wire bundle in the proper order for reassembly after all the contacts are inserted.
2. To assist insertion of contacts, lubricate insulator (grommet) cavities with isopropyl alcohol. Alcohol will evaporate and will not leave a conductive film. **Caution: Never use any lubricant other than isopropyl alcohol.**
3. Place the correct insertion tool on the contact so that the wire runs along the groove in the tool. (Tool tip will butt against the shoulder.) Hold the plug or receptacle body firmly.

4. Beginning with a center cavity, insert the contact into the insulator with a slow, even pressure until the contact snaps into position. Make sure the contact and tool are held perpendicular to the face of the insert during the contact installation or the grommet could be damaged.
- 4.1 If contacts are not inserted all the way prior to removing insertion tool, do not try to reinsert the insertion tool. Instead, remove the contact and try again; otherwise reinserting the insertion tool may damage the inside of the contact cavity.
5. Remove tool and check the face of the connector for proper contact installation. Proper installation may also be checked by pulling back lightly on the wire to make sure the contact is properly seated.

Completion

After all the cavities have been filled, slide the hardware back into position on the connector and tighten.

Extraction of Contacts (Rework)

1. Slide the hardware back over the wire bundle.
2. Select the appropriate tool. Place tool over the contact on mating side and insert into the cavity.
3. Exert nominal force axially to release retention clip. Spacer sleeve will shoulder at face of insulation when tool is inserted to proper depth.
4. Push extraction plunger to force the contact out of the rear of the insert.
5. Grasp contact or wire and pull the wired contact out of the rear of the insulator.
6. Remove extraction tool axially.
7. After using the extraction tool, the spacer sleeve should be set forward in the last notch to protect the end of the plunger guide.

Size	Pin Contact	Socket Contact	Basic Crimp Tool	Positioner	Insertion Tool	Removal Tool
20	M39029/31-241	M39029/32-260	M22520/1-01	M22520/1-02 Red	M81969/17-03	M81969/19-07
			M22520/2-01	M22520/2-02		
16	M39029/31-229	M39029/32-248	M22520/1-01	M22520/1-02 Blue	M81969/17-04	M81969/19-08
12	M39029/31-235	M39029/32-254	M22520/1-01	M22520/1-02 Yellow	M81969/17-05	M81969/19-09

MIL-DTL-26500 Bayonet and Threaded Insert Availability and Contact Information per MIL-STD-1554



Insert Availability and Contact Information

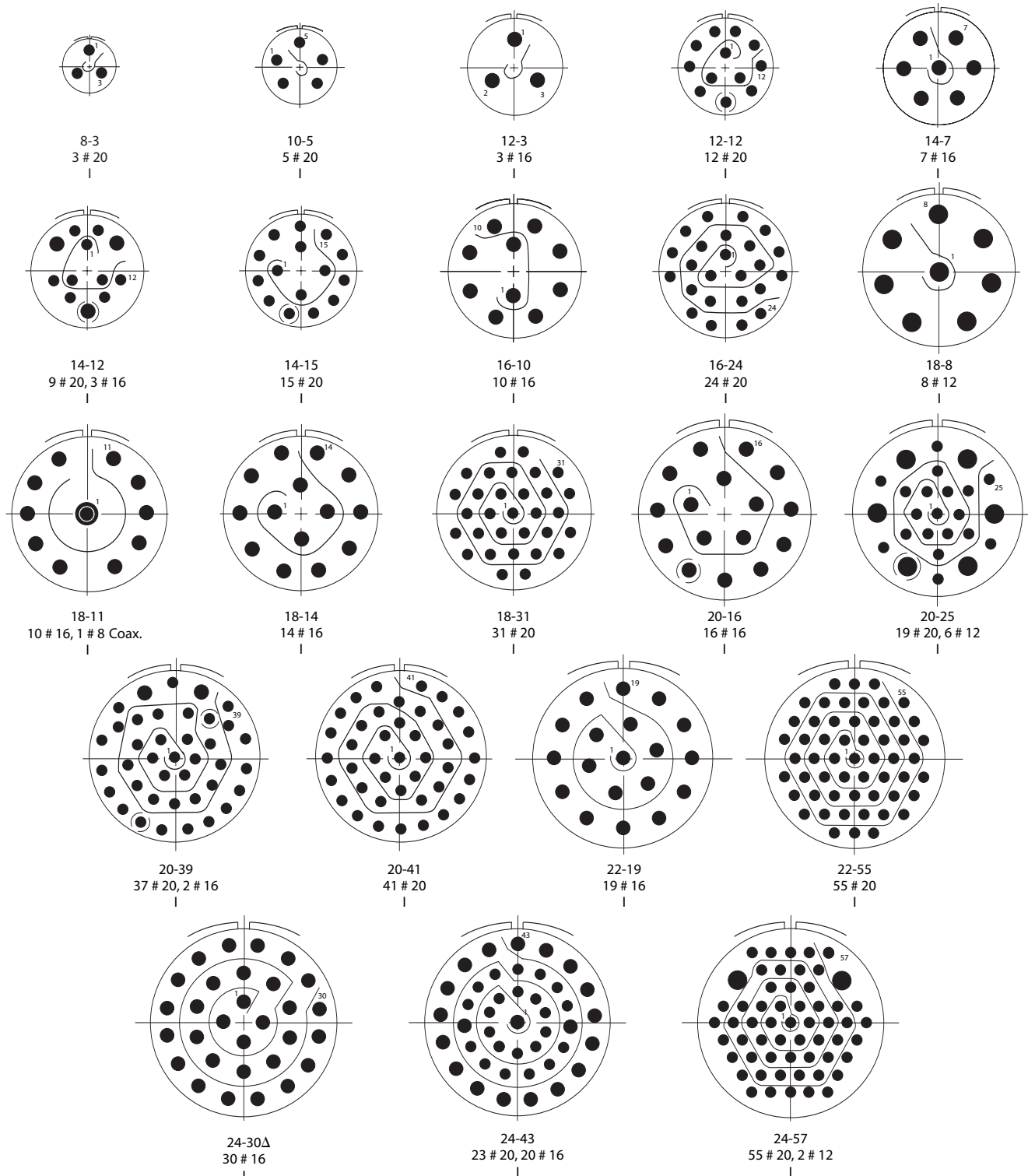
Insert Arrangement	Aero-Electric		Total	Quantity of Contacts				Service	Alternate Positions				
	Status		No. of	(by Size)					(Insert Rotation in Degrees)				
	QPL'd	Tooled	Contacts	20	16	12	# 8 Coax	Rating	1*	2*	3*	4*	5*
8-3	Yes	Yes	3	3				I	N/A	N/A	N/A	N/A	N/A
10-5	Yes	Yes	5	5				I	10	20	30	40	50
12-3	Yes	Yes	3		3			I	10	20	30	40	50
12-12	Yes	Yes	12	12				I	10	20	30	40	50
14-7	Yes	Yes	7		7			I	10	20	30	40	50
14-12	Yes	Yes	12	9	3			I	10	20	30	40	50
14-15	Yes	Yes	15	15				I	10	20	30	40	50
16-10	Yes	Yes	10		10			I	10	20	30	40	50
16-24	Yes	Yes	24	24				I	10	20	30	40	50
18-8	Yes	Yes	8			8		I	10	20	30	40	50
18-11	Yes	Yes	11		10		1	I	10	20	30	40	50
18-14	Yes	Yes	14		14			I	10	20	30	40	50
18-31	Yes	Yes	31	31				I	10	20	30	40	50
20-16	Yes	Yes	16		16			I	10	20	30	40	50
20-25	Yes	Yes	25	19		6		I	10	20	30	40	50
20-39	Yes	Yes	39	37	2			I	10	20	30	40	50
20-41	Yes	Yes	41	41				I	10	20	30	40	50
22-19	Yes	Yes	19		19			I	10	20	30	40	50
22-55	Yes	Yes	55	55				I	10	20	30	40	50
24-30**	N/A	Yes	30		30			I	10	20	30	40	50
24-43	Yes	Yes	43	23	20			I	10	20	30	40	50
24-57	Yes	Yes	57	55		2		I	10	20	30	40	50

* Per MIL-STD-1554, insert positions 1 thru 5 are inactive for new design.

** Non MIL-STD-1554 layout, available to Aero-Electric part number only.



Insert Arrangements Views



Δ Non MIL-STD-1554 layout, available to Aero-Electric part number only.

Part Number Cross Reference



Part Number Cross Reference, Status and Availability

Military	Available	Description	Contact	Military	Status*	Superseding	Available
Part	from	Shell Type	Style	Specification & Series	of	Equivalent**	from
Number	Aero			(MIL-DTL-)	Document	MS Number	Aero
D38999/20	Yes	Wall Mount Receptacle	P & S	38999 Series III	Active	—	—
D38999/21	No	Box Mount Receptacle, Hermetic	C, P, X	38999 Series III	Active	—	—
D38999/22	No	Dummy Receptacle	—	38999 Series III	Active	—	—
D38999/23	No	Jam Nut Receptacle, Hermetic	C, P, X	38999 Series III	Active	—	—
D38999/24	Yes	Jam Nut Receptacle	P & S	38999 Series III	Active	—	—
D38999/25	No	Solder Mount Receptacle, Hermetic	C, P, X	38999 Series III	Active	—	—
D38999/26	Yes	RFI Grounding Plug	P & S	38999 Series III	Active	—	—
D38999/27	No	Weld Mount Receptacle, Hermetic	C, P, X	38999 Series III	Active	—	—
D38999/28	No	Hex Mounting Nut (Jam Nut)	—	38999 Series III, IV	Active	—	—
D38999/29	No	Lanyard Release Plug, Pin Contact	P	38999 Series III	Active	—	—
D38999/30	No	Lanyard Release Plug, Socket Contact	S	38999 Series III	Active	—	—
D38999/31	No	Lanyard Release Plug, SS 25, Pin	P	38999 Series III	Active	—	—
D38999/32	No	Metal Protective Cover, Plug	—	38999 Series III	Active	—	—
D38999/33	No	Metal Protective Cover, Receptacle	—	38999 Series III	Active	—	—
M38999/1	No	Grommet Nut (E-Nut)	—	38999 Series I, II	Canceled, Superseded by	M85049/27	No
M38999/2	No	Boot Adapter	—	38999 Series I, II	Canceled, Superseded by	M85049/62	No
M38999/3	No	EMI/RFI Crimp Ring Adapter	—	38999 Series I, II	Canceled, Superseded by	M85049/33-2	No
M38999/4	No	Individual Shield Termination Backshell	—	38999 Series I, II	Canceled, Superseded by	M85049/30	No
M38999/5	No	Straight Backshell, EMI, Environmental	—	38999 Series I, II	Canceled, Superseded by	M85049/17	No
M38999/6	No	Straight Backshell, Non Environmental	—	38999 Series I, II	Canceled, Superseded by	M85049/29	No
M38999/7	No	Straight Backshell, EMI/RFI	—	38999 Series I, II	Canceled, Superseded by	M85049/36	No
M38999/8	No	90° Split Backshell, EMI/RFI	—	38999 Series I, II	Canceled, Superseded by	M85049/37	No
M38999/9	No	Dummy Receptacle	—	38999 Series I	Active	—	—
M38999/10	No	Dummy Receptacle	—	38999 Series II	Active	—	—
M83723/1	No	Narrow Flange Mount Receptacle	S	83723 Series I	Canceled, Superseded by	MS3470	Yes
M83723/2	No	Narrow Flange Mount Receptacle	P	83723 Series I	Canceled, Superseded by	MS3470	Yes
M83723/3	No	Wide Flange Mount Receptacle	S	83723 Series I	Canceled, Superseded by	MS3472	Yes
M83723/4	No	Wide Flange Mount Receptacle	P	83723 Series I	Canceled, Superseded by	MS3472	Yes
M83723/5	No	Jam Nut Receptacle	S	83723 Series I	Canceled, Superseded by	MS3474	Yes
M83723/6	No	Jam Nut Receptacle	P	83723 Series I	Canceled, Superseded by	MS3474	Yes
M83723/7	No	Cable Connecting Receptacle	S	83723 Series I	Canceled, Superseded by	MS3471	Yes
M83723/8	No	Cable Connecting Receptacle	P	83723 Series I	Canceled, Superseded by	MS3471	Yes
M83723/9	No	Narrow Flange Mt. Recept., Hermetic	P	83723 Series I	Canceled, Superseded by	MS3440	No
M83723/10	No	Wide Flange Mt. Recept., Hermetic	P	83723 Series I	Canceled, Superseded by	MS3442	No
M83723/11	No	Solder Mount Receptacle, Hermetic	P	83723 Series I	Canceled, Superseded by	MS3443	No
M83723/12	No	Jam Nut Receptacle, Hermetic	P	83723 Series I	Canceled, Superseded by	MS3449	No
M83723/13	No	Straight Plug	S	83723 Series I	Canceled, Superseded by	MS3476	Yes
M83723/14	No	Straight Plug	P	83723 Series I	Canceled, Superseded by	MS3476	Yes
M83723/15A	No	90° Strain Relief	—	83723 Series I, III	Canceled, Superseded by	M85049/51	No
M83723/15N	No	Grommet Nut (E-Nut)	—	83723 Series I, III	Canceled, Superseded by	M85049/31	No
M83723/15S	No	Straight Strain Relief	—	83723 Series I, III	Canceled, Superseded by	M85049/52	No
M83723/16A	No	90° Heat Shrink Boot	—	83723 Series I	Active	—	—
M83723/16M	No	Boot Adapter	—	83723 Series I	Active	M85049/60-2	No
M83723/16S	No	Straight Heat Shrink Boot	—	83723 Series I	Active	—	—

* Active – recommended for new design; Inactive – not recommended for new design; Canceled – must use superseding part.

** Equivalent part from newer Series/Spec is intermateable and intermountable; some differences in accessory threads and contact release may exist.

Note: Aero-Electric manufactures MIL-DTL- 26482 Series 2, MIL-DTL-5015 Series III (Rear Release), MIL-DTL-26500, MIL-DTL-83723 Series III and MIL-DTL-38999 Series I, II and III. Only part numbers covered by these specifications are listed.

Part Number Cross Reference, Status and Availability

Military	Available	Description	Contact	Military	Status*	Superseding	Available
Part	from	Shell Type	Style	Specification & Series	of	Equivalent**	from
Number	Aero			(MIL-DTL-)	Document	MS Number	Aero
M83723/17	No	Cable Connecting Receptacle	S	83723 Series II	Inactive, Use	MS3451	Yes
M83723/18	No	Cable Connecting Receptacle	P	83723 Series II	Inactive, Use	MS3451	Yes
M83723/19	No	Wall Mount Receptacle	S	83723 Series II	Inactive, Use	MS3450	Yes
M83723/20	No	Wall Mount Receptacle	P	83723 Series II	Inactive, Use	MS3450	Yes
M83723/21	No	Box Mount Receptacle	S	83723 Series II	Inactive, Use	MS3452	Yes
M83723/22	No	Box Mount Receptacle	P	83723 Series II	Inactive, Use	MS3452	Yes
M83723/23	No	Straight Plug	S	83723 Series II	Inactive, Use	MS3456	Yes
M83723/24	No	Straight Plug	P	83723 Series II	Inactive, Use	MS3456	Yes
M83723/25	No	Wall Mount Receptacle, Hermetic	P	83723 Series II	Canceled, Superseded by	MS3142	No
M83723/26	No	Solder Mount Receptacle, Hermetic	P	83723 Series II	Canceled, Superseded by	MS3143	No
M83723/27A	No	90° Heat Shrink Boot	—	83723 Series II	Inactive	—	—
M83723/27M	No	Boot Adapter	—	83723 Series II	Inactive	—	—
M83723/27S	No	Straight Heat Shrink Boot	—	83723 Series II	Inactive	—	—
M83723/28	No	Seal Plugs	—	83723 Series I, III	Canceled, Superseded by	MS27488	Yes
M83723/29	No	Pin Contacts (0 thru 16)	P	83723 Series II	Canceled, Superseded by	M39029/29	Yes
M83723/30	No	Socket Contacts (0 thru 16)	S	83723 Series II	Canceled, Superseded by	M39029/30	Yes
M83723/31	No	Insertion/Extraction Tools (20, 16, 12)	—	83723 Series I, III	Canceled, Superseded by	M81969/14	Yes
M83723/32	No	Insertion/Extraction Tools (0, 4, 8)	—	83723 Series II	Canceled, Superseded by	M81969/14	Yes
M83723/33	No	Pin Contacts (20, 16, 12)	P	83723 Series I, III	Canceled, Superseded by	M39029/4	Yes
M83723/34	No	Socket Contacts (20, 16, 12)	S	83723 Series I, III	Canceled, Superseded by	M39029/5	Yes
M83723/35A	No	90° Backshell with Cable Clamp	—	83723 Series II	Inactive	—	—
M83723/35N	No	Grommet Nut (E-Nut)	—	83723 Series II	Inactive	—	—
M83723/35S	No	Straight Backshell with Cable Clamp	—	83723 Series II	Inactive	—	—
M83723/36	No	Pre-wired Plug for 8-2, 8-3, 8-4 Layouts only	P	83723 Series I	Canceled	—	—
M83723/37	Yes	Pre-wired Plug for 8-2, 8-3, 8-4 Layouts only	S	83723 Series I	Inactive	—	—
M83723/38	No	Pre-wired Narrow Flange Receptacle for 8-2, 8-3, 8-4 Layouts only	P	83723 Series I	Canceled	—	—
M83723/39	No	Pre-wired Narrow Flange Receptacle for 8-2, 8-3, 8-4 Layouts	S	83723 Series I	Canceled	—	—
M83723/40	No	Pre-wired Wide Flange Receptacle for 8-2, 8-3, 8-4 Layouts	P	83723 Series I	Canceled	—	—
M83723/41	No	Pre-wired Wide Flange Receptacle for 8-2, 8-3, 8-4 Layouts	S	83723 Series I	Canceled	—	—
M83723/42	No	RFI Grounding Plug	P	83723 Series I	Canceled, Superseded by	MS3475	Yes
M83723/43	No	RFI Grounding Plug	S	83723 Series I	Canceled, Superseded by	MS3475	Yes
M83723/44	No	Metal Protective Cover, Receptacle	—	83723 Series I	Canceled, Superseded by	MS3181	No
M83723/45	No	Dummy Receptacle	—	83723 Series I	Canceled, Superseded by	MS3115	No
M83723/46	No	Metal Protective Cover, Plug	—	83723 Series I	Canceled, Superseded by	MS3180	No
M83723/47	No	Shield Termination I, RFI Grounding	—	83723 Series I	Canceled,	M85049/26	No
M83723/48	No	Pre-wired RFI Plug for 8-2, 8-3, 8-4 Layouts only	P	83723 Series I	Canceled	—	—
M83723/49	No	Pre-wired RFI Plug for 8-2, 8-3, 8-4 Layouts only	S	83723 Series I	Canceled	—	—

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** Equivalent part from newer Series/Spec is intermateable and intermountable; some differences in accessory threads and contact release may exist.

Note: Aero-Electric manufactures MIL-DTL- 26482 Series 2, MIL-DTL-5015 Series III (Rear Release), MIL-DTL-26500, MIL-DTL-83723 Series III and MIL-DTL-38999 Series I, II and III. Only part numbers covered by these specifications are listed.

Part Number Cross Reference



Part Number Cross Reference, Status and Availability

Military	Available	Description	Contact	Military	Status*	Superseding	Available
Part	from	Shell Type	Style	Specification & Series	of	Equivalent**	from
Number	Aero			(MIL-DTL-)	Document	MS Number	Aero
M83723/50A	No	90° Cable Tie Strain Relief	—	83723 Series II	Inactive	—	—
M83723/50B	No	45° Cable Tie Strain Relief	—	83723 Series II	Inactive	—	—
M83723/50R	No	Straight Cable Tie Strain Relief	—	83723 Series II	Inactive	—	—
M83723/51A	No	Environmental 90° Backshell	—	83723 Series II	Canceled	—	—
M83723/51B	No	Environmental 45° Backshell	—	83723 Series II	Canceled	—	—
M83723/51R	No	Environmental Straight Backshell	—	83723 Series II	Canceled	—	—
M83723/52	No	Self Locking Plug, Firewall	P	83723 Series II	Canceled, Superseded by	MS3459	Yes
M83723/53	No	Self Locking Plug, Firewall	S	83723 Series II	Canceled, Superseded by	MS3459	Yes
M83723/59	No	Metal Protective Cover, Plug	—	83723 SIII, Bay & Thr	Active	—	—
M83723/60	No	Metal Protective Cover, Receptacle	—	83723 SIII, Bay & Thr	Active	—	—
M83723/61	No	Dummy Receptacle	—	83723 SIII, Bay & Thr	Active	—	—
M83723/65	No	Jam Nut Receptacle, Hermetic	P	83723 Series III, Bay	Active	—	—
M83723/66	No	Quick-Disconnect Plug, Less Lanyard	P	83723 Series III, Thr	Active	—	—
M83723/67	No	Quick-Disconnect Plug, Less Lanyard	S	83723 Series III, Thr	Active	—	—
M83723/68	Yes	Quick-Disconnect Plug, With Lanyard	P	83723 Series III, Thr	Active	—	—
M83723/69	Yes	Quick-Disconnect Plug, With Lanyard	S	83723 Series III, Thr	Active	—	—
M83723/70	Yes	Recept. Adapter for Quick-Dis. Plugs	—	83723 Series III, Thr	Active	—	—
M83723/71	Yes	Wall Mount Receptacle	S	83723 Series III, Bay	Active	—	—
M83723/72	Yes	Wall Mount Receptacle	P	83723 Series III, Bay	Active	—	—
M83723/73	Yes	Jam Nut Receptacle	S	83723 Series III, Bay	Active	—	—
M83723/74	Yes	Jam Nut Receptacle	P	83723 Series III, Bay	Active	—	—
M83723/75	Yes	Straight Plug	S	83723 Series III, Bay	Active	—	—
M83723/76	Yes	Straight Plug	P	83723 Series III, Bay	Active	—	—
M83723/77	Yes	RFI Grounding Plug	S	83723 Series III, Bay	Active	—	—
M83723/78	Yes	RFI Grounding Plug	P	83723 Series III, Bay	Active	—	—
M83723/79	No	Wall Mount Receptacle, Hermetic	P	83723 Series III, Bay	Active	—	—
M83723/80	No	Solder Mount Receptacle, Hermetic	P	83723 Series III, Bay	Active	—	—
M83723/81	No	Jam Nut Receptacle, Hermetic	P	83723 Series III, Bay	Active	—	—
M83723/82	Yes	Wall Mount Receptacle	S	83723 Series III, Thr	Active	—	—
M83723/83	Yes	Wall Mount Receptacle	P	83723 Series III, Thr	Active	—	—
M83723/84	Yes	Jam Nut Receptacle	S	83723 Series III, Thr	Active	—	—
M83723/85	Yes	Jam Nut Receptacle	P	83723 Series III, Thr	Active	—	—
M83723/86	Yes	Straight Plug	S	83723 Series III, Thr	Active	—	—
M83723/87	Yes	Straight Plug	P	83723 Series III, Thr	Active	—	—
M83723/88	No	Wall Mount Receptacle, Hermetic	P	83723 Series III, Thr	Active	—	—
M83723/89	No	Jam Nut Receptacle, Hermetic	P	83723 Series III, Thr	Active	—	—
M83723/90	No	Solder Mount Receptacle, Hermetic	P	83723 Series III, Thr	Active	—	—
M83723/91	Yes	RFI Grounding Plug	S	83723 Series III, Thr	Active	—	—
M83723/92	Yes	RFI Grounding Plug	P	83723 Series III, Thr	Active	—	—
M83723/93	No	Solder Mount Receptacle, Hermetic	P	83723 Series III, Bay	Active	—	—
M83723/94	No	Jam Nut Receptacle, Hermetic	P	83723 Series III, Bay	Active	—	—
M83723/95	Yes	Self Locking Plug	S	83723 Series III, Thr	Active	—	—
M83723/96	Yes	Self Locking Plug	P	83723 Series III, Thr	Active	—	—

* Active – recommended for new design; Inactive – not recommended for new design; Canceled – must use superseding part.

** Equivalent part from newer Series/Spec is intermateable and intermountable; some differences in accessory threads and contact release may exist.

Note 1: M83723/59, 60, 61 metal plug and receptacle covers and dummy receptacle can be used on MIL-DTL-26500 connectors.

Note 2: Aero-Electric manufactures MIL-DTL- 26482 Series 2, MIL-DTL-5015 Series III (Rear Release), MIL-DTL-26500, MIL-DTL-83723 Series III and MIL-DTL-38999 Series I, II and III. Only part numbers covered by these specifications are listed.

Part Number Cross Reference, Status and Availability

Military	Available	Description	Contact	Mil Connector	Status*	Superseding	Available
Part	from	Shell Type	Style	Specification & Series	of	Equivalent**	from
Number	Aero			(MIL-DTL-)	Document	MS Number	Aero
M83723/97	Yes	RFI Grounding, Self Locking Plug	S	83723 Series III, Thr	Active	—	—
M83723/98	Yes	RFI Grounding, Self Locking Plug	P	83723 Series III, Thr	Active	—	—
MS24264 "B"	Yes	Wall Mount Receptacle	P & S	26500 Bayonet	Inactive, Can Use	M83723/72,71	Yes
MS24264 "T"	Yes	Wall Mount Receptacle	P & S	26500 Threaded	Inactive, Can Use	M83723/83,82	Yes
MS24265 "B"	Yes	Jam Nut Mount Receptacle	P & S	26500 Bayonet	Inactive, Can Use	M83723/74,73	Yes
MS24265 "T"	Yes	Jam Nut Mount Receptacle	P & S	26500 Threaded	Inactive, Can Use	M83723/85,84	Yes
MS24266 "B"	Yes	Straight Plug	P & S	26500 Bayonet	Inactive, Can Use	M83723/76,75	Yes
MS24266 "T"	Yes	Straight Plug	P & S	26500 Threaded	Inactive, Can Use	M83723/87,86	Yes
MS25042	No	Metal Protective Cover, Plug	—	5015 Series I, II, III	Active	—	—
MS25043	No	Metal Protective Cover, Receptacle	—	5015 Series I, II, III	Active	—	—
MS25183	No	Straight Plug, Potting Seal, Solder	P & S	5015 Series I (Solder)	Inactive, Can Use	MS3456	Yes
MS27034	No	Solder Mount Receptacle, Hermetic	C, E	26500 Bay & Thr	Inactive, Use	M83723/93,90	No
MS27291	No	Straight Clamp	—	26500 Bay & Thr	Inactive	—	—
MS27466	Yes	Front Wall Mount Receptacle	P & S	38999 Series I	Active	—	—
MS27467	Yes	RFI Grounding Plug	P & S	38999 Series I	Active	—	—
MS27468	Yes	Jam Nut Receptacle	P & S	38999 Series I	Active	—	—
MS27469	No	Wall Mount Receptacle, Hermetic	C, P, X	38999 Series I	Active	—	—
MS27470	No	Jam Nut Receptacle, Hermetic	C, P, X	38999 Series I	Active	—	—
MS27471	No	Solder Mount Receptacle, Hermetic	C, P, X	38999 Series I	Active	—	—
MS27472	Yes	Front Wall Mount Receptacle	P & S	38999 Series II	Active	—	—
MS27473	Yes	Straight Plug	P & S	38999 Series II	Active	—	—
MS27474	Yes	Jam Nut Receptacle	P & S	38999 Series II	Active	—	—
MS27475	No	Wall Mount Receptacle, Hermetic	C, P, X	38999 Series II	Active	—	—
MS27476	No	Box Mount Receptacle, Hermetic	C, P, X	38999 Series II	Active	—	—
MS27477	No	Jam Nut Receptacle, Hermetic	C, P, X	38999 Series II	Active	—	—
MS27478	No	Solder Mount Receptacle, Hermetic	C, P, X	38999 Series II	Active	—	—
MS27479	No	Wall Mount Receptacle	P & S	38999 Series II	Active	—	—
MS27480	No	Straight Plug	P & S	38999 Series II	Active	—	—
MS27481	No	Jam Nut Receptacle	P & S	38999 Series II	Active	—	—
MS27482	No	Wall Mount Receptacle, Hermetic	P	38999 Series II	Canceled, Superseded by	MS27475	No
MS27483	No	Jam Nut Receptacle, Hermetic	P	38999 Series II	Canceled, Superseded by	MS27477	No
MS27484	Yes	RFI Grounding Plug	P & S	38999 Series II	Active	—	—
MS27485	No	Potting Boot Ring	—	38999 Series II	Canceled, Superseded by	M85049/58	No
MS27486	No	Potting Boot	—	38999 Series I, II	Canceled, Superseded by	M85049/75	No
MS27487	No	Straight and 90° Adapter	—	38999 Series I, II	Active	—	—
MS27488	Yes	Seal Plug (22, 20, 16, 12, 8, 4, 0)	—	All	Active	—	—
MS27489	No	Adapter Reducer	—	38999 Series I, II	Active	—	—
MS27496	Yes	Front Box Mount Receptacle	P & S	38999 Series I	Active	—	—
MS27497	Yes	Rear Wall Mount Receptacle	P & S	38999 Series II	Active	—	—
MS27498	No	RFI Plug with 90° Clamp	P & S	38999 Series I	Canceled, Superseded by	MS27467	Yes
MS27499	Yes	Front Box Mount Receptacle	P & S	38999 Series II	Active	—	—
MS27500	Yes	Straight Plug with 90° Strain Relief	P & S	38999 Series II	Active	—	—
MS27501	No	Metal Protective Cover, Plug	—	38999 Series I	Active	—	—

* Active – recommended for new design; Inactive – not recommended for new design; Canceled – must use superseding part.

** Equivalent part from newer Series/Spec is intermateable and intermountable; some differences in accessory threads and contact release may exist.

Note 1: MS24264 "T", MS24265 "T" and MS24266 "T" equivalents (M83723/82 thru 87) listed above do not apply for shell size 8.

Note 2: Aero-Electric manufactures MIL-DTL- 26482 Series 2, MIL-DTL-5015 Series III (Rear Release), MIL-DTL-26500, MIL-DTL-83723 Series III and MIL-DTL-38999 Series I, II and III. Only part numbers covered by these specifications are listed.

Part Number Cross Reference



Part Number Cross Reference, Status and Availability

Military	Available	Description	Contact	Mil Connector	Status*	Superseding	Available
Part	from	Shell Type	Style	Specification & Series	of	Equivalent**	from
Number	Aero			(MIL-DTL-)	Document	MS Number	Aero
MS27502	No	Metal Protective Cover, Receptacle	—	38999 Series I	Active	—	—
MS27504	No	Box Mount Receptacle	P & S	38999 Series II	Active	—	—
MS27505	Yes	Rear Box Mount Receptacle	P & S	38999 Series I	Active	—	—
MS27506	No	Straight Strain Relief	—	38999 Series I, II	Canceled, Superseded by	M85049/49	No
MS27507	No	90° Strain Relief	—	38999 Series I, II	Canceled, Superseded by	M85049/47	No
MS27508	Yes	Rear Box Mount Receptacle	P & S	38999 Series II	Active	—	—
MS27510	No	Metal Protective Cover, Plug	—	38999 Series II	Active	—	—
MS27511	No	Metal Protective Cover, Receptacle	—	38999 Series II	Active	—	—
MS27512	No	Hex Mounting Nut (Jam Nut)	—	38999 Series II	Inactive, Use	M53186	No
MS27513	Yes	Front Box Mt. Receptacle, Long Grommet	P & S	38999 Series II	Active	—	—
MS27515	No	Rear Wall Mount Receptacle	P & S	38999 Series I	Inactive, Use	MS27656	Yes
MS27534	No	Insertion/Removal Tools	—	38999 Series I, II	Inactive, Use	M81969/14	Yes
MS27535	No	Size 8 Coax Contact, Socket	S	38999 Series I	Inactive, Use	M39029/59	Yes
MS27536	No	Size 8 Coax Contact, Pin	P	38999 Series I	Inactive, Use	M39029/60	Yes
MS27558	No	90° Cable Support, Closed	—	26500 Bay & Thr	Inactive	—	—
MS27559	No	90° Cable Clamp	—	26500 Bay & Thr	Inactive	—	—
MS27613Δ	No	Wall Mount Receptacle, Firewall	P & S	26500 Bay & Thr	Inactive, Use	M83723/83, 82	Yes
MS27614Δ	No	Jam Nut Receptacle, Firewall	P & S	26500 Bay & Thr	Inactive, Use	M83723/85, 84	Yes
MS27615Δ	No	Ratchet Lock & Standard Plug, Firewall	P & S	26500 Bay & Thr	Inactive, Use	M83723/96, 95	Yes
MS27652	No	Wall Mount Receptacle	P & S	38999 Series I	Inactive, Use	MS27466	Yes
MS27653	No	Straight Plug	P & S	38999 Series I	Inactive, Use	MS27467	Yes
MS27654	No	Rear Wall Mount Receptacle	P & S	38999 Series I	Inactive, Use	MS27656	Yes
MS27656	Yes	Rear Wall Mount Receptacle	P & S	38999 Series I	Active	—	—
MS27657	No	Short Cable Support for Classes E, K	—	26500 Bay & Thr	Inactive	—	—
MS27661	No	Lanyard Release Plug	P & S	38999 Series I	Active	—	—
MS27662	No	Thru-Bulkhead Mounting Receptacle	C	38999 Series I	Active	—	—
MS27663-1	No	Straight Non-Metallic Strain Relief	—	38999 Series I, II	Canceled, Superseded by	M85049/45	No
MS27663-2	No	90° Non-Metallic Strain Relief	—	38999 Series I, II	Canceled, Superseded by	M85049/46	No
MS27664	No	Rear Wall Mount Receptacle	P & S	38999 Series II	Canceled, Use	MS27497	Yes
MS27667	No	Thru-Bulkhead Mounting Receptacle	C	38999 Series II	Canceled	—	—
MS27668	No	Straight Cable Tie Strain Relief	—	38999 Series I, II	Canceled, Superseded by	M85049/56	No
MS27669	No	45° Cable Tie Strain Relief	—	38999 Series I, II	Canceled, Superseded by	M85049/57	No
MS27670	No	90° Cable Tie Strain Relief	—	38999 Series I, II	Canceled, Superseded by	M85049/63	No
MS3100	No	Wall Mount Receptacle	P & S	5015 Series I (Solder)	Inactive	MS3450	Yes
MS3101	No	Cable Connecting Receptacle	P & S	5015 Series I (Solder)	Inactive	MS3451	Yes
MS3102	No	Box Mount Receptacle	P & S	5015 Series I (Solder)	Inactive	MS3452	Yes
MS3103	No	Flange Mount Receptacle, Potting Seal	P & S	5015 Series I (Solder)	Inactive	—	—
MS3105	No	Dummy Receptacle	—	5015 Series I (Solder)	Inactive	—	—
MS3106	No	Straight Plug	P & S	5015 Series I (Solder)	Inactive	MS3456	Yes
MS3107	No	Quick Disconnect Plug	P & S	5015 Series I (Solder)	Inactive	—	—
MS3108	No	90° Plug	P & S	5015 Series I (Solder)	Inactive	MS3456 & B/S	Yes
MS3110	No	Wall Mount Receptacle	P & S	26482 Series 1 Solder	Inactive, Can Use	MS3470	Yes

* Active – recommended for new design; Inactive – not recommended for new design; Canceled – must use superseding part.

** Equivalent part from newer Series/Spec is interchangeable and inter-mountable; some differences in accessory threads and contact release may exist.

Δ “Bayonet Coupling” equivalents do not exist.

Note 1: MS27615 standard threaded plug equivalent = M83723/87, 86 in K class.

Note 2: Aero-Electric manufactures MIL-DTL- 26482 Series 2, MIL-DTL-5015 Series III (Rear Release), MIL-DTL-26500, MIL-DTL-83723 Series III and MIL-DTL-38999 Series I, II and III. Only part numbers covered by these specifications are listed.

Part Number Cross Reference, Status and Availability

Military	Available	Description	Contact	Mil Connector	Status*	Superseding	Available
Part	from	Shell Type	Style	Specification & Series	of	Equivalent**	from
Number	Aero			(MIL-DTL-)	Document	MS Number	Aero
MS3111	No	Cable Connecting Receptacle	P & S	26482 Series 1 Solder	Inactive, Can Use	MS3471	Yes
MS3112	No	Box Mount Receptacle	P & S	26482 Series 1 Solder	Inactive, Can Use	MS3470	Yes
MS3113	No	Solder Mount Receptacle	P	26482 Series 1 Solder	Inactive, Use	MS3443	No
MS3114	No	Jam Nut Receptacle	P & S	26482 Series 1 Solder	Inactive, Use	MS3474	Yes
MS3115	No	Dummy Receptacle	—	26482 Series 1, 2	Inactive	—	—
MS3116	No	Straight Plug	P & S	26482 Series 1 Solder	Inactive, Can Use	MS3476	Yes
MS3119	No	Thru-Bulkhead Mounting Receptacle	S to P	26482 Series 1 Solder	Inactive	—	—
MS3120	No	Wall Mount Receptacle	P & S	26482 Series 1 Crimp	Inactive, Can Use	MS3470	Yes
MS3121	No	Cable Connecting Receptacle	P & S	26482 Series 1 Crimp	Inactive, Can Use	MS3471	Yes
MS3122	No	Box Mount Receptacle	P & S	26482 Series 1 Crimp	Inactive, Can Use	MS3470	Yes
MS3124	No	Jam Nut Receptacle	P & S	26482 Series 1 Crimp	Inactive,	MS3474	Yes
MS3126	No	Straight Plug	P & S	26482 Series 1 Crimp	Inactive, Use	MS3476	Yes
MS3127	No	Box Mount Receptacle	P & S	26482 Series 1 Crimp	Inactive, Can Use	MS3470	Yes
MS3128	No	Wall Mount Receptacle	P & S	26482 Series 1 Crimp	Inactive, Can Use	MS3470	Yes
MS3180	No	Metal Protective Cover, Plug	—	26482 Series 1, 2	Inactive	—	—
MS3181	No	Metal Protective Cover, Receptacle	—	26482 Series 1, 2	Inactive	—	—
MS3400	No	Wall Mount Receptacle	P & S	5015 SII (Front Rel)	Active	MS3450	Yes
MS3401	No	Cable Connecting Receptacle	P & S	5015 SII (Front Rel)	Active	MS3451	Yes
MS3402	No	Box Mount Receptacle	P & S	5015 SII (Front Rel)	Active	MS3452	Yes
MS3404	No	Jam Nut Receptacle	P & S	5015 SII (Front Rel)	Active	MS3454	Yes
MS3406	No	Straight Plug	P & S	5015 SII (Front Rel)	Active	MS3456	Yes
MS3408	No	90° Plug	P & S	5015 SII (Front Rel)	Active	MS456 & B/S	Yes
MS3409	No	45° Plug	P & S	5015 SII (Front Rel)	Active	MS456 & B/S	Yes
MS3412	No	Wall Mount Receptacle	P & S	5015 SII (Front Rel)	Active	MS3450	Yes
MS3436	No	RFI Plug, Utility (20-4 layout only)	P & S	5015 Series I (Solder)	Inactive	—	—
MS3440	No	Narrow Flange Mt. Receptacle, Hermetic	P	26482 Series 2	Inactive	—	—
MS3442	No	Wide Flange Mt. Receptacle, Hermetic	P	26482 Series 2	Inactive	—	—
MS3443	No	Solder Mount Receptacle, Hermetic	P	26482 Series 2	Inactive	—	—
MS3449	No	Jam Nut Receptacle, Hermetic	P	26482 Series 2	Inactive	—	—
MS3450	Yes	Wall Mount Receptacle	P & S	5015 SIII (Rear Rel)	Active	—	—
MS3451	Yes	Cable Connecting Receptacle	P & S	5015 SIII (Rear Rel)	Active	—	—
MS3452	Yes	Box Mount Receptacle	P & S	5015 SIII (Rear Rel)	Active	—	—
MS3454	Yes	Jam Nut Receptacle	P & S	5015 SIII (Rear Rel)	Active	—	—
MS3456	Yes	Straight Plug	P & S	5015 SIII (Rear Rel)	Active	—	—
MS3459	Yes	Self Locking Plug	P & S	5015 SIII (Rear Rel)	Active	—	—
MS3470	Yes	Wall Mount Receptacle	P & S	26482 Series 2	Inactive	—	—
MS3471	Yes	Cable Connecting Receptacle	P & S	26482 Series 2	Inactive	—	—
MS3472	Yes	Wide Flange Mount Receptacle	P & S	26482 Series 2	Inactive	—	—
MS3473	No	Solder Mount Receptacle, Hermetic	P	26482 Series 2	Inactive	—	—
MS3474	Yes	Jam Nut Receptacle	P & S	26482 Series 2	Inactive	—	—
MS3475	Yes	RFI Grounding Plug	P & S	26482 Series 2	Inactive	—	—
MS3476	Yes	Straight Plug	P & S	26482 Series 2	Inactive	—	—
MS3477	No	Box Mount Receptacle, Hermetic	P	26482 Series 2	Inactive	—	—
MS3479	No	Jam Nut Receptacle, Hermetic	P	26482 Series 2	Inactive	—	—
MS3507	No	Quick Disconnect Plug (20-4 layout only)	P	5015 Series I (Solder)	Active	—	—

* Active – recommended for new design; Inactive – not recommended for new design; Canceled – must use superseding part.

** Equivalent part from newer Series/Spec is intermateable and inter-mountable; some differences in accessory threads and contact release may exist.

Note: Aero-Electric manufactures MIL-DTL- 26482 Series 2, MIL-DTL-5015 Series III (Rear Release), MIL-DTL-26500, MIL-DTL-83723 Series III and MIL-DTL-38999 Series I, II and III. Only part numbers covered by these specifications are listed.

A

accessories Sometimes referred to as “Rear Accessories” or “Backshells” are mechanical devices such as strain reliefs, cable clamps, adapters, potting boots, etc., which are threaded onto the rear connector accessory threads of plug or receptacle connectors to make up the total connector assembly.

adapter A threaded ring device screwed onto the threads of an 83723 Series III threaded receptacle to accept a quick disconnect plug.

B

back mounted Rear mounted – a connector with its mounting flange mounted inside of a panel or box.

bayonet coupling A quick coupling mechanism for mating a plug onto a receptacle utilizing three equally spaced pins protruding from the receptacle shell which engage corresponding ramps milled into the coupling nut of the mating plug. Mating and unmating is accomplished by rotating the coupling nut.

BIN code Basic identification number - color bands on the wire barrel end of a contact to identify contact part number. Each BIN number corresponds to one and only one slash sheet (XX) thus identifying the complete M39029/XX-BIN part number.

boot A form placed onto the boot adapter used to environmentally seal and/or strain-relieve a cable assembly.

boot adapter A mechanical device with one side threaded onto the accessory thread of a connector (plug or receptacle) and the other side used to accept a boot.

braided Braided wire – flexible conductor made of woven or braided assembly of wires.

bussing The joining of two or more circuits.

C

cable clamp A mechanical device attached to the accessory threads at the rear of a plug or receptacle to support the cable or wire bundle, to provide strain relief and absorb vibration and shock which would otherwise be transmitted by the cable to the contact or wire crimp area.

coaxial contact A contact with two conductive surfaces – a center contact and a surrounding coaxial sleeve.

color coding A system of identification of contact insertion/extraction tools. Colors green, red, orange, blue, yellow and white indicate the proper tool to use for either insertion or extraction of appropriate contact size.

connector A mechanical device, either a plug or a receptacle, used to terminate or connect electrical conductors (pin and socket contacts) of a cable and its individual wires and provide a means to continue or terminate these conductors to a mating connector which may be mounted on electrical

equipment panels, thru bulkheads, printed circuit boards, etc.

contact Pin or socket – the conductive element of a connector which actually makes contact for the purpose of conducting electrical current. This is the heart of the connector.

contact area The actual area in contact (touching) between two conductors (pin and socket) permitting the flow of electrical current.

contact arrangement The number of contacts, their size and spacing in a connector.

contact engagement/separation force The force necessary to engage or separate pin and socket contacts.

contact resistance The electrical resistance on a mated pair of contacts (pin and socket). Resistance is measured in ohms or millivolt drop at a specified current over the engaged contacts.

contact retainer Contact retention clip – a device captivated in the hard plastic of the connector body (insert) which retains the contact in the insert.

contact retention The axial load in either direction (push or pull) which a contact can withstand without being dislodged from its normal position within the insert of the connector.

contact size A specific number indicating the size (or gauge) of the engaging end of the contact; examples: size 20, size 16, size 8, etc.

contact shoulder The flanged portion around the body of a contact which limits its forward travel into the insert and prevents it from being pushed forward out of the insert.

coupling nut/ring The movable portion of a connector plug which aids in the coupling and uncoupling of a plug and a receptacle and locks the plug and receptacle together.

crimp The physical compression (uniformed deformation) of a contact wire barrel around the conductor in order to captivate the conductor and make an electrical connection.

crimping A pressure method using a tool to mechanically secure a contact (pin or socket) to a conductor (wire).

crimp contact A contact, pin or socket, whose back portion (wire barrel) is a hollow cylinder into which a stripped wire (conductor) is inserted. The sidewalls of the wire barrel are then mechanically compressed (uniformly deformed) using a crimping tool to captivate the conductor.

crimp die Portion of the crimp tool that shapes the crimp on the wire barrel.

crimp tool Mechanical device that holds the crimp die and is used to perform the crimping function.

D

depth of crimp The distance the crimp die indenter penetrates into the wire barrel.

die closure The distance between the crimp die indenters when the crimp tool handle is at full closure. This is usually checked using a Go/No Go gauge.

dielectric A material having electrical insulating properties.

E

environmental sealing Designed in a connector using grommets, interfacial seals, peripheral seals, gaskets or potting material to keep contaminants such as dirt and moisture out of the connector.

extraction tool Removal tool – a tool used to remove contacts from a connector.

F

filter contact A contact which provides filtering of EMI signals without altering its normal function.

filter connector A connector using filtered contacts or filtered discs to filter EMI signals without altering its normal function.

front mounting A connector mounted with its mounting flange outside of a box or panel.

front release A term indicating the direction the contact removal tool must enter the connector to allow for the removal of contacts. On a front release connector, the contact removal tool must be inserted in the contact cavity from the front or face of the connector to release the contact retention clip. Whether front release or rear release, the contacts are inserted from the rear of the connector.

G

grommet A resilient elastomeric seal bonded to the rear of a connector. It is designed with internal sealing barriers that grasp and seal on the wire's insulation to prevent contaminants from entering into the rear of the connector.

grounding fingers Grounding spring – a metal band with spring fingers attached to the plug shell to ensure positive shell-to-shell grounding before the contacts engage during mating and when they disengage during unmating. They are also used to improve EMI/RFI performance.

I

insert The insulating core of the connector designed to position, retain, support and provide separation for the contacts.

insertion tool A tool used to insert contacts into a connector.

inspection hole A hole at the bottom of the contact wire barrel to permit visual inspection to ensure that the wire has been inserted to the proper depth in the wire barrel prior to crimping.

insulation Jacket – insulating material around a wire or cable.

interface The two surfaces on the contact side of a mating

plug and receptacle. The surfaces will face each other and interface when mated.

interfacial seal The sealing of mating connectors over the entire area of the interface and around each contact. This is accomplished when resilient material, with raised barriers around each cavity on the pin interface, displaces into the hard recessed (chamfered) cavities on the socket interface. This creates what is commonly called “cork and bottle seal.”

J

jacket Insulation – insulating material around a wire or cable.

K

key A rectangular projection on plug connector shell designed to slide into the rectangular slot or keyway in the mating receptacle connector to properly align and guide the two mating halves together. Generally used to obtain proper polarization.

L

lanyard A sturdy wire attached to plugs of certain connectors which allows unmating and separation of plug and receptacle by a pull on the wire (lanyard).

locator Positioner or Turret head – a mechanical device attached to a crimp tool with multiple locators to position different size contacts for crimping. It is indexed to a proper position by rotating.

M

mate The joining of two connectors.

mated pair A plug and receptacle joined or to be joined together.

millivolt drop Voltage loss due to resistance created by a crimp joint.

O

“O” ring Also referred to as peripheral seal is used around the periphery of a connector shell and is compressed internally between the plug and receptacle shells when mated to prevent contaminants from entering the connector.

P

pin contact A “male” contact with the engagement end that enters into the socket contact.

plating The overlaying of a thin coating of metal on connector shells and contacts to prevent corrosion, improve conductivity or provide for easy soldering.

plug The “free to move” or “unmounted” member of a mated pair of connectors which contains the coupling ring/nut for

coupling and locking the connectors together.

polarization Also known as clocking or keying – the mechanical arrangement of inserts or rectangular keys (projections) and keyways (slots) to ensure proper mating. It eliminates errors when mating identical connectors mounted beside each other.

positioner Locator or Turret head – a device attached to a crimp tool with multiple locators to position different size contacts for crimping. It is indexed to a proper position by rotating.

potting The permanent sealing of the back of a connector, after the wires have been inserted, with a material to keep out the contaminants and/or provide strain relief.

potting boot a form fitted onto the potting ring, which is threaded onto the back of connector, to environmentally seal/strain relieve a cable assembly.

pull out force The force necessary to separate a wire from the contact crimped to it or the force necessary to pull a properly seated contact from a connector by pulling.

pull test Tensile test – a controlled pull test on the contact crimp joint to determine its mechanical strength.

R

range Wire range – the acceptable sizes of wires accommodated by a particular contact wire barrel size. Also the acceptable diameter of wires accommodated by a sealing grommet.

rear accessories Referred to as backshells, they are mechanical devices that screw onto the accessory threads on the rear of the connector. Includes strain reliefs, clamps, adapters, potting boots, etc.

rear mounted Back mounted – a connector with its mounting flange mounted inside of a panel or box.

rear release A term indicating the direction the contact removal tool must enter the connector to allow removal of the contacts. On a rear release connector the contact removal tool must be inserted into the contact cavity from the back or rear of the connector to release the contact retention clip. Whether rear release or front release, contacts are inserted through the rear of the connector.

receptacle The fixed or mounted member of a mated pair of connectors designed to be mounted to a box, panel or bulkhead.

removal tool A device used to remove contacts from a connector.

S

safety wire A means of putting wire through holes drilled in the coupling ring/nut of a connector plug, and securing the wire to a panel or bulkhead to prevent the plug from loos-

ening or decoupling from the receptacle during vibration.

scoop proof A term to describe a longer shell design on the pin half (plug or receptacle) of a connector. The longer shell allows the pin contacts, which protrude from the face of the connector, to be recessed sufficiently so as not to be damaged if the mating shell is “scooped” into it during mating process. This prevents pins from being bent and/or contacts from being electrically shorted during mating. This is especially important when using size 22 contacts, which because of their small size, bend easily.

sealing plug A small plastic plug (MS27488-**-1, head first) inserted into the rear grommet of a connector, especially an environmental connector, to seal and prevent the entry of contaminants into any unused (unwired) cavities.

selective plating The applying of plating material to a limited area of a contact, especially areas susceptible to wear.

service rating The maximum amount of voltage or current a connector is designed to continuously carry.

shell The outside case of a connector which holds the dielectric insert and contacts.

shielded contact A contact shielded from unwanted signals (EMI/RFI) by one or more outer (protective) conductors. These contacts are not generally matched to the impedance of the cable they terminate.

socket contact A contact whose engaging end is designed to accept the entry of a pin contact.

solder contact A pin or socket contact that accepts a conductor (wire) which is soldered onto the “solder cup,” not crimped into the wire barrel.

splice Wire splice – a device used to join two or more conductors (wires).

strip To remove insulation from a conductor. Generally for inserting the conductor into the wire barrel/solder cup of a contact for a crimping/soldering operation.

T

tensile test Pull test – a controlled pull test on the contact crimp joint to determine its mechanical strength.

thermocouple contact A contact made of special material, used in connectors in high temperature applications as a means of measuring temperature electrically. Materials often used for these contacts are alumel, chromel, constantan, iron and copper.

threaded coupling A means of coupling a mating pair of connectors by engaging threads on the exterior of a receptacle with interior threads of the plug.

turret head Locator or Positioner - a device attached to a crimp tool with multiple locators to position different size contacts for crimping. It is indexed to a proper position by rotating.