

Filter Circular Connectors



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MIL-DTL-38999 Connectors

MIL-DTL-38999 filter connectors are designed to meet or exceed all applicable requirements of Series I, II, III and IV. Filter connectors are intermateable and interchangeable with standard non-filtered connectors.

Smiths Interconnect designs and manufactures a full spectrum of sophisticated filter connector products. Our specialty is in the design of interconnect solutions addressing EMI/RFI filtering, and transient protection to meet demanding HIRF and Lightning requirements.

In addition to MIL-Spec interface type products, many of our designs are unique, built to conform to customer specifications requiring a high level of integration, special packaging, and critical electrical performance. Innovation is our distinction and our products address a wide variety of applications. Our achievements lead the industry in the design and manufacture of special filter connector products.

Our Design Strategy

Smiths Interconnect's design strategy for filter connectors is based on extensive experience with filter capacitor arrays and diodes. Our engineers understand the extreme environmental conditions that can cause a filter or diode to fail or, worse yet, cause a system dysfunction. This design strategy is built on the foundation of system reliability and the efficient use of available space. The capacitor array is protected from thermally induced mechanical stresses by a barrier located between the capacitor array surface and the epoxy filled region. This barrier isolates the epoxy and the ceramic array and prevents damage to the array from the expansion influence of the epoxy.

Modularization

Smiths Interconnect uses a disciplined design approach that employs methods of grouping multiple components into subassemblies wherever feasible. Such subassemblies may include a filter module, diode module, circuit assembly module and a transition interface assembly. Modularization results in cleaner, more standardized designs that provide flexibility in maintaining and upgrading the connector. An important advantage of modularization is that individual modules may be removed or replaced in the field without disturbing other subassemblies and components.

Integration

There is considerable unused space available in a standard non-filtered connector. Smiths Interconnect takes advantage of this space by removing components from elsewhere in the system and integrating them within the connector, freeing up valuable board space. Isolating components electrically eliminates external wire connections and decreases crosstalk. The connector shell protects critical components from environmental or mechanical damage.



Material and Finishes

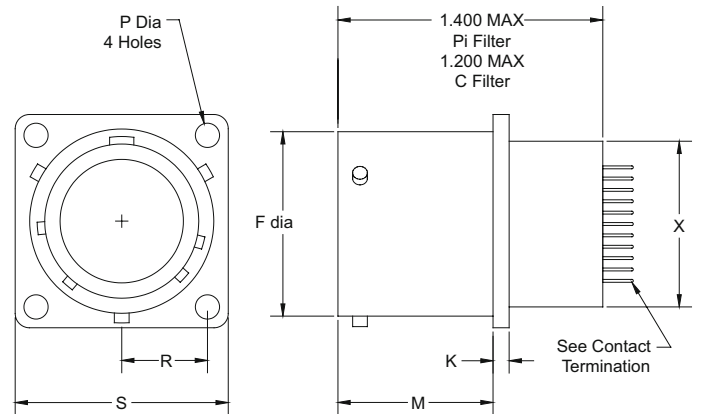
Shell	Aluminum alloy/Steel/Composite
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet & Seal	Silicon base elastomer
Jam Nut	Aluminum alloy
Ground Plane	Brass, silver plate
Capacitor	Barium Titanate
Inductor	Ferrite bead

Smiths Interconnect provides specialty, enhanced performance connectors and cable assemblies and as such does not currently offer circular, rack and panel, or D-subminiature connectors that are listed on military standard Qualified Products Lists (QPL) per applicable detail specification sheets. Smiths Interconnect's connectors are fully intermateable with applicable QPL products and meet the applicable requirements of all military standards listed in this catalog.

MIL-DTL-38999 Series I

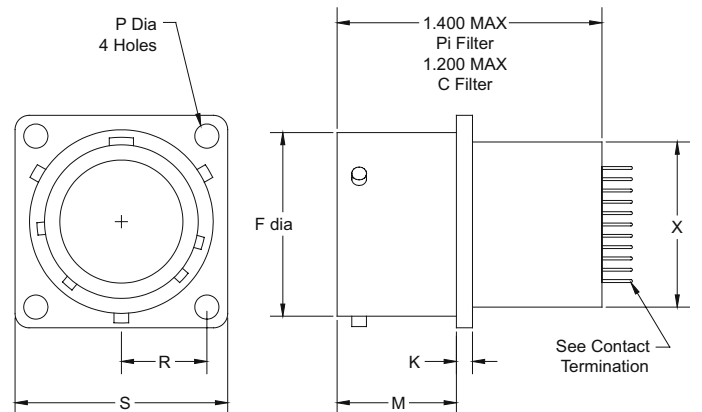
MS27505 Square Flange Receptacle Rear Mount

Shell Size	F ±.001 -.005	K ±.015 -.000	M ±.000 -.005	P Dia ±.010 -.005	R BSC	S ±.020	X Max. Dia
9	0.572	0.085	0.820	0.128	0.3595	0.938	0.500
11	0.700				0.4060	1.031	0.620
13	0.850				0.4530	1.125	0.740
15	0.975				0.4845	1.219	0.890
17	1.100				0.5310	1.312	1.000
19	1.207	0.115	0.790	0.147	0.5780	1.438	1.120
21	1.332				0.6250	1.562	1.250
23	1.457				0.6875	1.688	1.390
25	1.582				0.7500	1.812	1.500



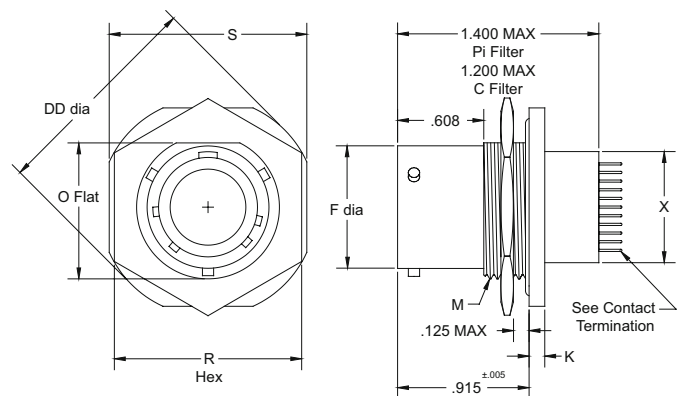
MS27466 Square Flange Receptacle Front Mount

Shell Size	F ±.001 -.005	K ±.015 -.000	M ±.000 -.005	P Dia ±.010 -.005	R BSC	S ±.020	X Max. Dia
9	0.572	0.085	0.632	0.128	0.3595	0.938	0.500
11	0.700				0.4060	1.031	0.620
13	0.850				0.4530	1.125	0.740
15	0.975				0.4845	1.219	0.890
17	1.100				0.5310	1.312	1.000
19	1.207	0.115	0.602	0.147	0.5780	1.438	1.120
21	1.332				0.6250	1.562	1.250
23	1.457				0.6875	1.688	1.390
25	1.582				0.7500	1.812	1.500



MS27468 Jam Nut Receptacle

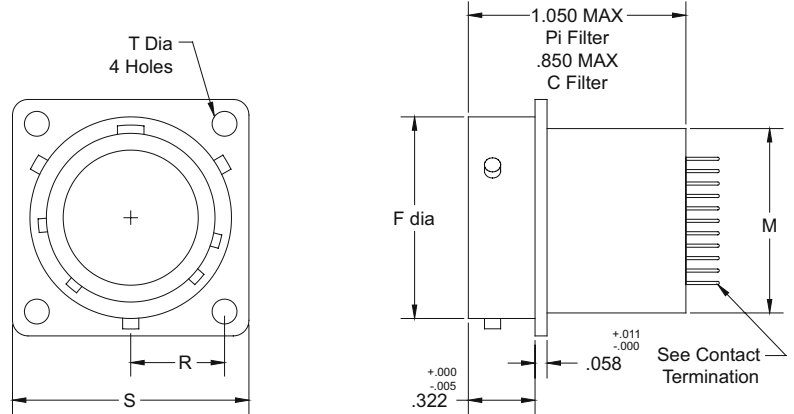
Shell Size	F ±.001 -.005	K ±.015 -.000	M Thread	O Flat ±.000 -.010	R Hex ±.017 -.016	S ±.016	X Max. Dia	DD ±.016
9	0.572	0.085	0.6875-24	0.655	0.875	1.062	0.500	1.188
11	0.700		0.8125-20	0.755	1.000	1.250	0.620	1.375
13	0.850		1.000-20	0.942	1.188	1.375	0.740	1.500
15	0.975		1.125-18	1.066	1.312	1.500	0.890	1.625
17	1.100		1.250-18	1.191	1.438	1.625	1.000	1.750
19	1.207	0.115	1.375-18	1.316	1.562	1.812	1.120	1.938
21	1.332		1.500-18	1.441	1.688	1.938	1.250	2.062
23	1.457		1.625-18	1.566	1.812	2.062	1.390	2.188
25	1.582		1.750-18	1.691	2.000	2.188	1.500	2.312



MIL-DTL-38999 Series II

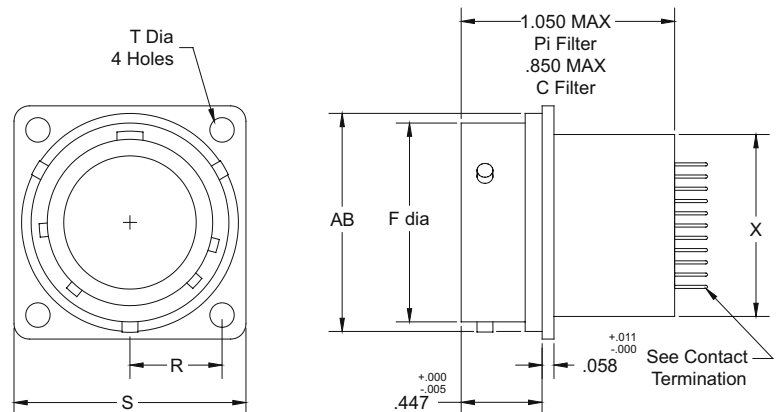
MS27508 Square Flange Receptacle Rear Mount

Shell Size	F ±.001 -.005	T ±.010 -.005	R BSC	S ±.020	X Max. Dia
8	0.473	0.120	0.2970	0.828	0.50
10	0.590		0.3595	0.954	0.62
12	0.750		0.4060	1.047	0.74
14	0.875		0.4530	1.141	0.89
16	1.000		0.4845	1.234	1.00
18	1.125		0.5310	1.328	1.12
20	1.250		0.5780	1.453	1.25
22	1.375		0.6250	1.578	1.39
24	1.500	0.147	0.6875	1.703	1.50



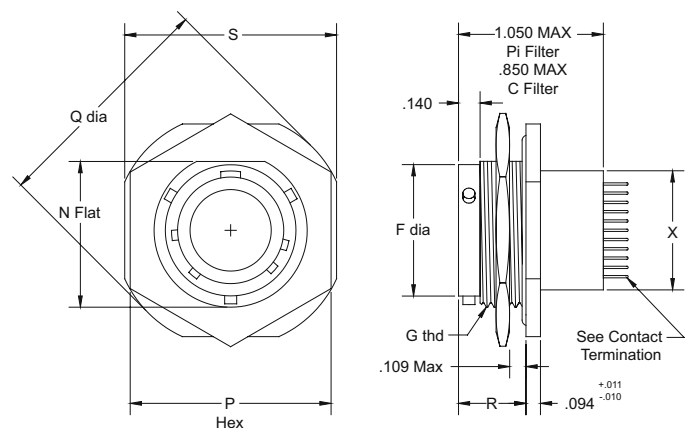
MS27499 Square Flange Receptacle Front Mount

Shell Size	F ±.001 -.005	T ±.010 -.005	R BSC	S Max	X Max	AB Max
8	0.473	0.120	0.297	0.828	0.500	0.547
10	0.590		0.360	0.954	0.620	0.672
12	0.750		0.406	1.047	0.740	0.844
14	0.875		0.453	1.141	0.890	0.969
16	1.000		0.485	1.234	1.000	1.094
18	1.125		0.531	1.328	1.120	1.219
20	1.250		0.578	1.453	1.250	1.344
22	1.375		0.625	1.578	1.390	1.469
24	1.500	0.147	0.688	1.703	1.500	1.594



MS27474 Jam Nut Receptacle

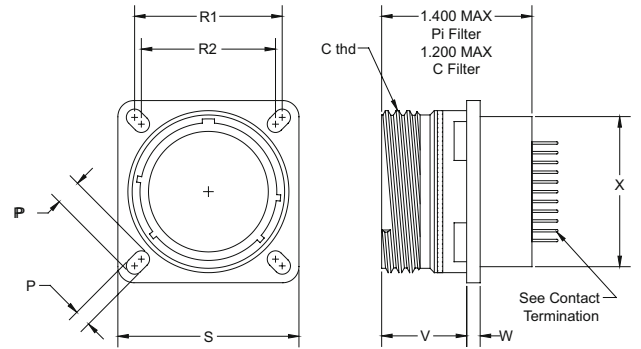
Shell Size	F ±.001 -.005	N +.001 -.006	G Thread	P Hex +.017 -.016	Q +.016	S +.016	X Max. Dia	R ±.005
8	0.473	0.817	0.875-20	1.062	1.375	1.250	0.500	0.438
10	0.590	0.941	1.000-20	1.188	1.500	1.375	0.620	
12	0.750	1.065	1.125-18	1.312	1.625	1.500	0.740	
14	0.875	1.190	1.250-18	1.438	1.750	1.625	0.890	
16	1.000	1.320	1.375-18	1.562	1.938	1.781	1.000	
18	1.125	1.440	1.500-18	1.688	2.016	1.890	1.120	
20	1.250	1.565	1.625-18	1.812	2.141	2.016	1.250	0.464
22	1.375	1.690	1.750-18	2.000	2.265	2.140	1.390	
24	1.500	1.815	1.875-16	2.125	2.390	2.265	1.500	



MIL-DTL-38999 Series III & IV

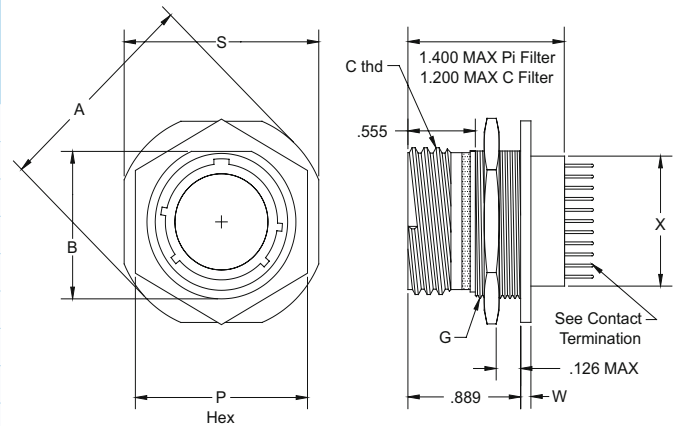
D38999/20 Box Mount Receptacle

Shell Size	C Thread .1 Pitch .3 Lead	P ±.008	R1 BSC	R2 BSC	V Max	W Max	X Max	PP Max ±.008	S +.012	
9	0.625	0.128	0.719	0.564	0.820	0.098	0.500	0.194	0.937	
11	0.750		0.812	0.719			0.620		1.031	
13	0.875		0.906	0.812			0.740		1.126	
15	1.000		0.969	0.906			0.890		1.220	
17	1.188		1.062	0.969			1.000		1.311	
19	1.250		1.156	1.062			1.120		1.437	
21	1.375	0.154	1.250	1.156	0.790	0.126	1.250	0.242	1.563	
23	1.500		1.375	1.250			1.390		1.689	
25	1.625		1.500	1.375			1.500		1.500	1.811



D38999/24 Jam Nut Receptacle

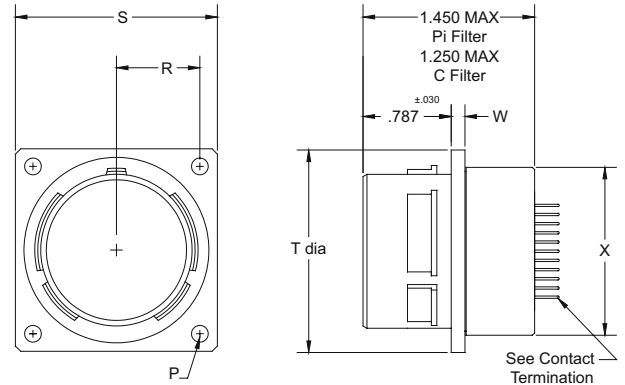
Shell Size	A ±.012	B +.004 -.006	C Thread .1 Pitch .3 Lead	G Thread 6g .10R	P Hex	S ±.015	W +.028 -.004	X Max
9	1.189	0.651	0.625	M17X1	0.945 0.912	1.063	0.087	0.500
11	1.374	0.751	0.750	M20x1	1.062 0.983	1.252		0.620
13	1.500	0.938	0.875	M25x1	1.260 1.234	1.374		0.740
15	1.625	1.062	1.000	M28x1	1.456 1.424	1.500		0.890
17	1.812	1.187	1.1875	M32x1	1.614 1.581	1.626	0.118	1.000
19	1.938	1.312	1.250	M35x1	1.811 1.781	1.811		1.120
21	2.062	1.437	1.375	M38x1	1.968 1.938	1.937		1.250
23	2.188	1.562	1.500	M41x1		2.063		1.390
25	2.312	1.687	1.625	M44x1		2.189		1.500



MIL-DTL-38999 Series III & IV

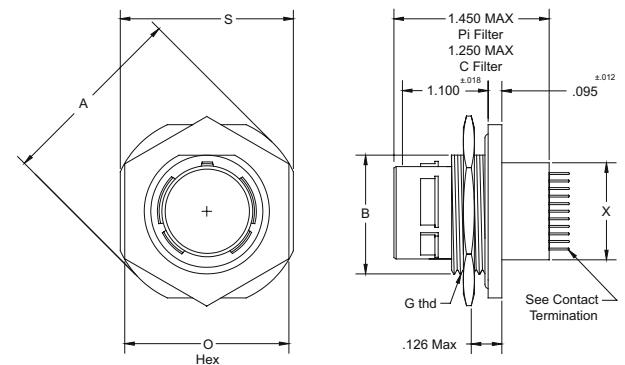
D38999/24 Box Mount Receptacle

Shell Size	T ±.008	W ±.010	P ±.008	R BSC	S ±.021	X Max
11	0.786	0.093	0.139	0.406	1.029	0.620
13	0.912			0.453	1.124	0.740
15	1.036			0.485	1.218	0.890
17	1.162			0.531	1.312	1.000
19	1.286			0.578	1.439	1.120
21	1.412	0.124	0.150	0.625	1.561	1.250
23	1.536			0.688	1.706	1.390
25	1.662			0.750	1.813	1.500

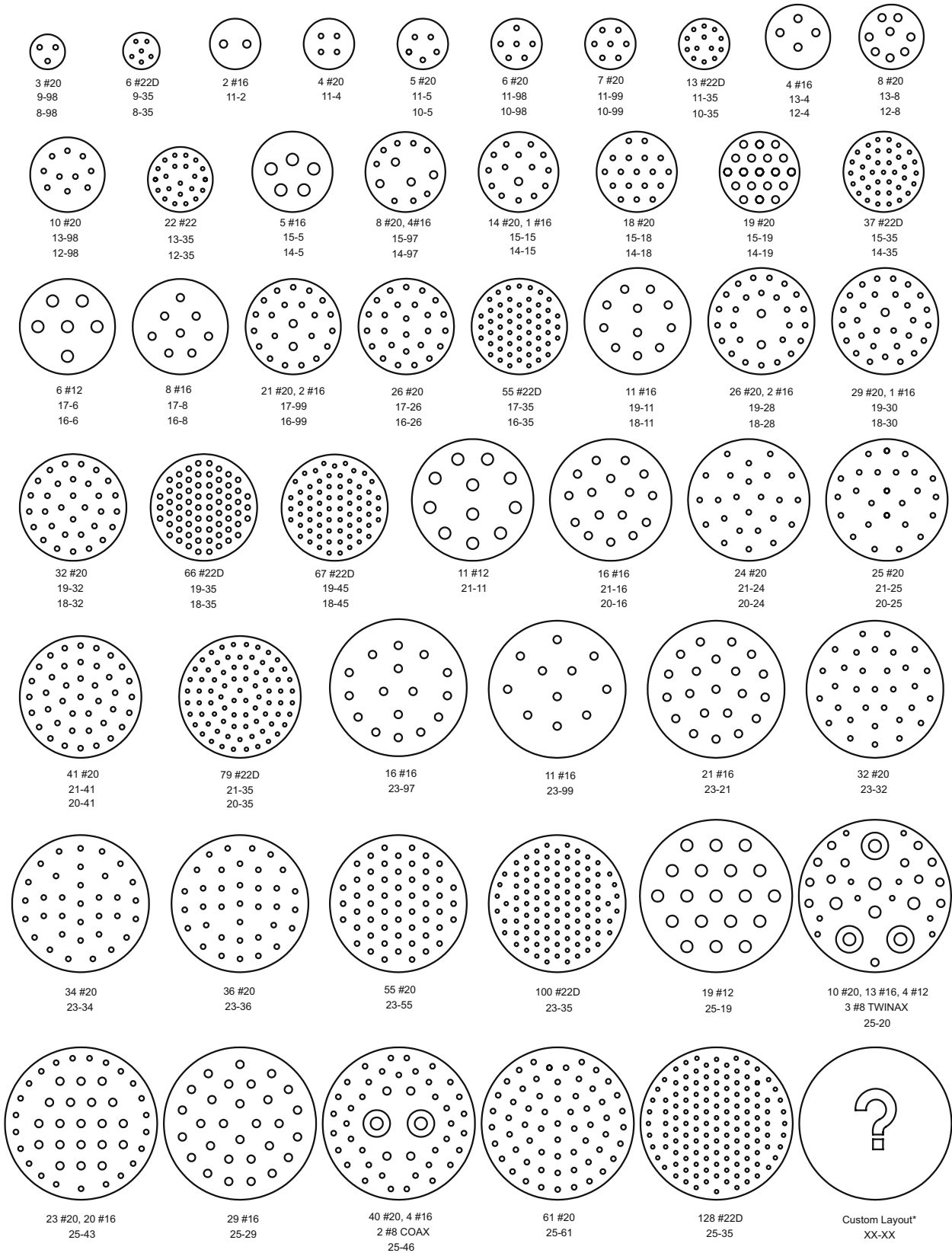


D38999/44 Jam Nut Receptacle

Shell Size	B Flat ±.004	G THD 6g 0.1R	A Dia. ±.020	O Hex ±.013	S ±.020	X Max
11	0.938	M25x1	1.500	1.250	1.374	0.620
13	1.062	M28x1	1.622	1.405	1.500	0.740
15	1.1875	M31x1	1.749	1.600	1.622	0.890
17	1.3180	M34x1	1.937		1.780	1.000
19	1.4375	M38x1	2.015	1.796	1.890	1.120
21	1.5620	M41x1	2.138	1.954	2.016	1.250
23	1.6875	M44x1	2.268		2.138	1.390
25	1.8120	M47x1	2.390		2.264	1.500



MIL-DTL-38999 Layouts



*Odd Numbered Shell Sizes Series I, III & IV, Even Numbered Shell Sizes Series II

MIL-DTL-38999 Connectors

How to Order



	3	8	9	9	9							
1	2	3	4	5	6	7	8	9	10	11		

1 Filter Type	P , L , C						
2 Prefix							
3 Series	A I B II C III D IV						
4 Shell Style	J Jam Nut (Rear Mount) B Box Mount (Series II) W Wall Mount (Front or Rear Mount)						
5 Mounting	F Front Mount R Rear Mount						
6 Material/Plating	<table border="0"> <tr> <td>C Aluminum Alloy/Cadmium Over Nickel</td> <td>N Aluminum Alloy/Electroless Nickel</td> </tr> <tr> <td>S Stainless Steel/Electrolyte</td> <td>CC Composite/Cadmium Over Nickel</td> </tr> <tr> <td>CN Composite/Electroless Nickel</td> <td>SP Stainless Steel/Passivated</td> </tr> </table> <p>Consult factory for alternate plating options</p>	C Aluminum Alloy/Cadmium Over Nickel	N Aluminum Alloy/Electroless Nickel	S Stainless Steel/Electrolyte	CC Composite/Cadmium Over Nickel	CN Composite/Electroless Nickel	SP Stainless Steel/Passivated
C Aluminum Alloy/Cadmium Over Nickel	N Aluminum Alloy/Electroless Nickel						
S Stainless Steel/Electrolyte	CC Composite/Cadmium Over Nickel						
CN Composite/Electroless Nickel	SP Stainless Steel/Passivated						
7 Shell Size	<table border="0"> <tr> <td>9 Thru 25 Series I, III, and IV</td> </tr> <tr> <td>8 Thru 24 Series II</td> </tr> </table>	9 Thru 25 Series I, III, and IV	8 Thru 24 Series II				
9 Thru 25 Series I, III, and IV							
8 Thru 24 Series II							
8 Insert Arrangements							
9 Contact Type	P Pin S Socket						
10 Contact Termination	S Solder Cup P PC Tail C Crimp						
7 Polarization	N , A , B , C , D , E						

MIL-DTL-83723

MIL-DTL-83723 Series III / MIL-DTL-26500 filter connectors are designed to meet or exceed all applicable requirements of the military specifications. The filter connectors are intermateable and interchangeable with standard non-filtered connectors.

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Modularization

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Integration

There is considerable unused space available in a standard non-filtered connector. Smiths Interconnect takes advantage of this space by removing components from elsewhere in the system and integrating them within the connector, freeing up valuable board space. Isolating components electrically eliminates external wire connections and decreases crosstalk. The connector shell protects critical components from environmental or mechanical damage.



Type T



Type B

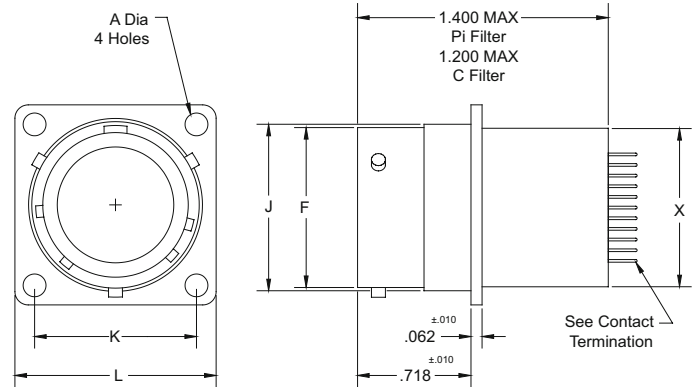
Material and Finishes

Shell	Aluminum alloy/Steel/Composite
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet & Seal	Silicon base elastomer
Jam Nut	Aluminum alloy
Ground Plane	Brass, silver plate
Capacitor	Barium Titanate
Inductor	Ferrite bead

MIL-DTL-83723

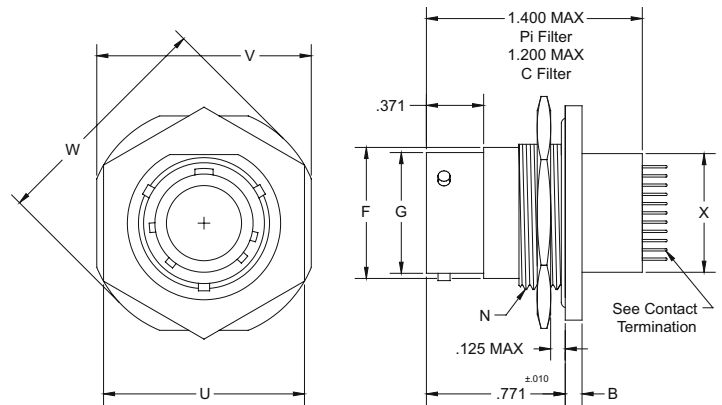
Square Flange Receptacle - Type B

Shell Size	A Max	K BSC	L	J Dia	F Dia	X Max Dia
8	0.120	0.594	0.812	0.561	0.536 0.531	0.500
10	0.120	0.719	0.937	0.696	0.659 0.654	0.620
12	0.120	0.812	1.031	0.875	0.829 0.824	0.740
14	0.120	0.906	1.125	0.925	0.898 0.893	0.890
16	0.120	0.969	1.250	1.062	1.025 1.020	1.000
18	0.120	1.062	1.343	1.187	1.131 1.126	1.120
20	0.120	1.156	1.437	1.312	1.256 1.251	1.250
22	0.120	1.250	1.562	1.437	1.381 1.376	1.390
24	0.149	1.375	1.703	1.562	1.506 1.501	1.500



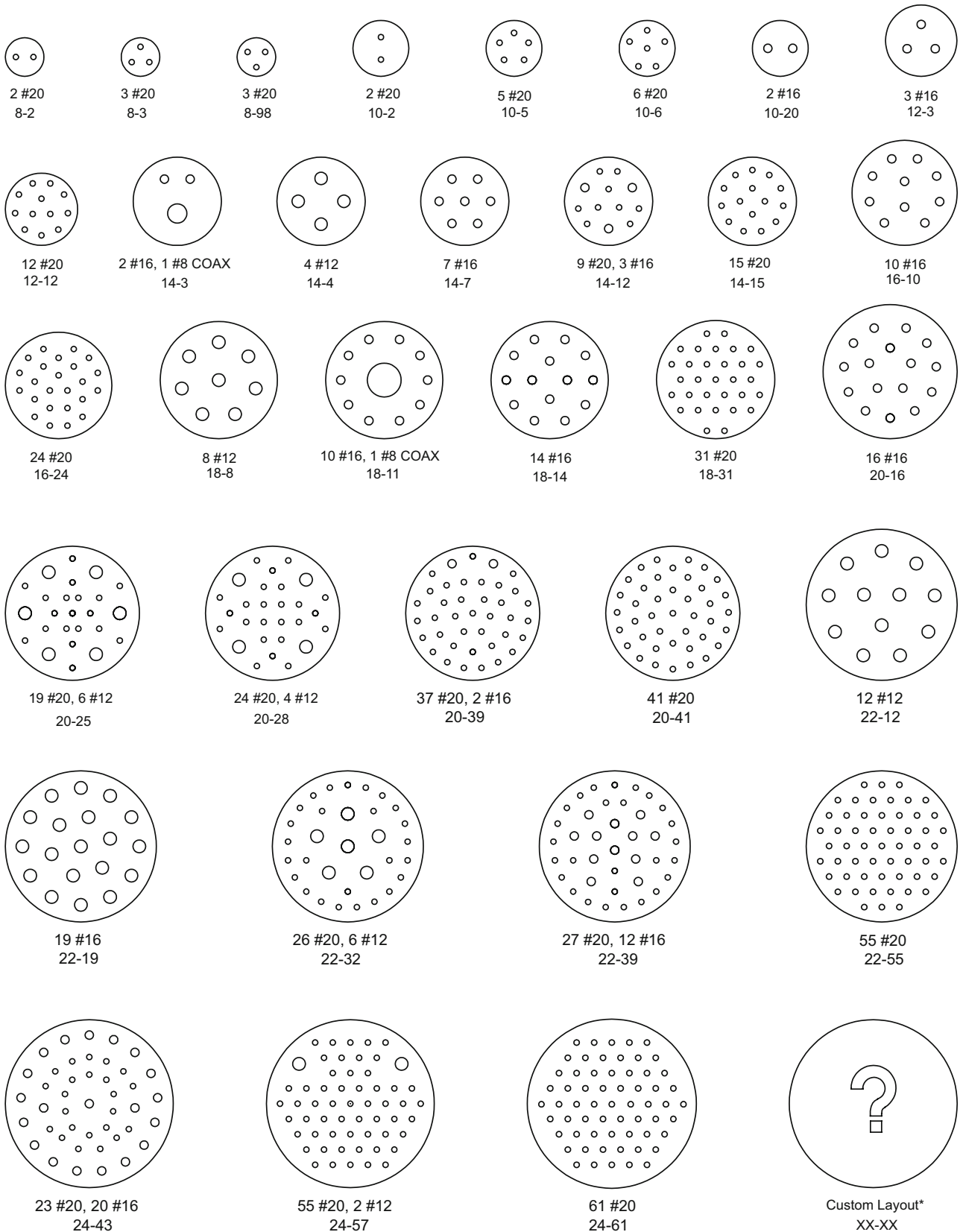
Jam Nut Receptacle - Type B

Shell Size	B	F Dia	G Dia	N Thrd	U	V	W	X
8	0.137 0.097	0.561	0.536 0.531	0.625-20	0.670	0.979	1.068	0.500
10	0.137 0.097	0.696	0.659 0.654	0.750-20	0.796	1.104	1.192	0.620
12	0.113 0.097	0.875	0.829 0.824	0.9375-20	0.984	1.291	1.380	0.740
14	0.137 0.097	0.935	0.898 0.893	1.000-20	1.046	1.391	1.505	0.890
16	0.137 0.097	1.062	1.025 1.020	1.125-20	1.171	1.516	1.630	1.000
18	0.137 0.097	1.187	1.131 1.126	1.250-18	1.296	1.641	1.756	1.120
20	0.137 0.097	1.312	1.256 1.251	1.375-18	1.484	1.766	1.860	1.250
22	0.168 0.128	1.437	1.381 1.376	1.500-18	1.609	1.954	2.068	1.390
24	0.168 0.128	1.562	1.506 1.501	1.625-18	1.734	2.079	2.160	1.500



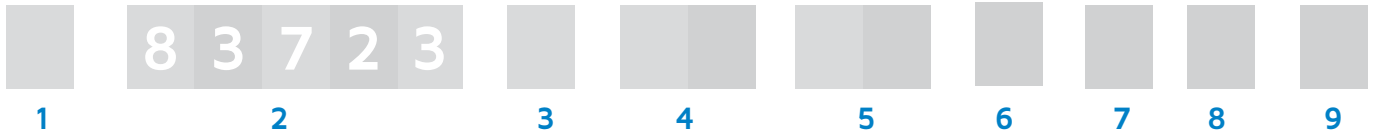
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MIL-DTL-83723 Layouts



MIL-DTL-83723

How to Order



1 Filter Type	Pi , L , C
2 Prefix	
3 Shell Style	J Jam Nut F 4 Hole Flange
4 Shell Size	8 Thru 24
5 Insert Arrangement	
5 Contact Type	P Pin S Socket
6 Contact Termination	S Solder Cup P PC Tail C Crimp
7 Plating	C Olive Drab Cadmium Over Nickel N Electroless Nickel
8 Polarization	N , 6 , 7 , 8 , 9

MIL-C-26482

MIL-C-26482 Series II / MIL-DTL-83723 Series I filter connectors are designed to meet or exceed all applicable requirements of the military specifications. The filter connectors are intermateable and interchangeable with standard non-filtered connectors.

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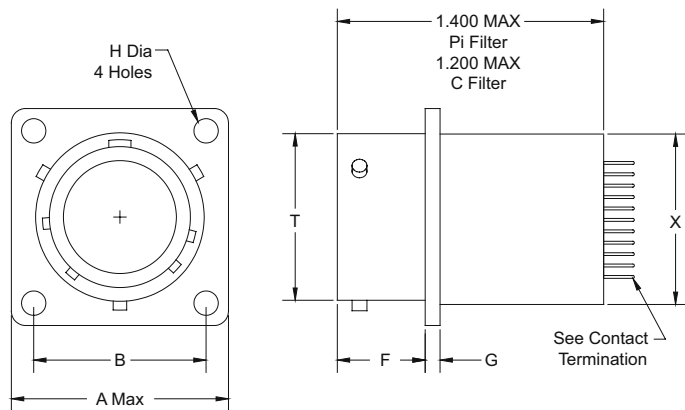
Material and Finishes

Shell	Aluminum alloy
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet & Seal	Silicon base elastomer
Jam Nut	Aluminum alloy
Ground Plane	Brass, silver plate
Capacitor	Barium Titanate
Inductor	Ferrite bead

MIL-C-26482

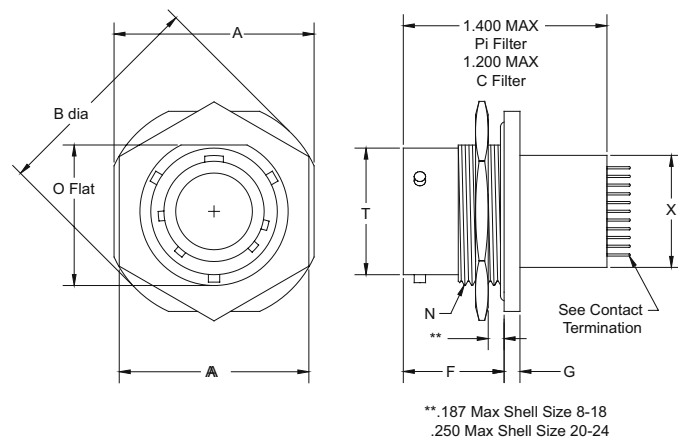
MS3470 Square Flange Receptacle

Shell Size	A Max	B BSC	F	G Dia	H Dia	T Max	X Max
8	0.828	0.594	0.462 0.431	0.078 0.046	0.120	0.474 0.468	0.500
10	0.954	0.719				0.591 0.585	0.620
12	1.047	0.812				0.751 0.745	0.740
14	1.141	0.906				0.876 0.870	0.890
16	1.231	0.969				1.001 0.995	1.000
18	1.328	1.062				1.126 1.120	1.120
20	1.458	1.156	0.587	0.110	1.251 1.245	1.250	
22	1.578	1.250			1.376 1.370	1.390	
24	1.703	1.375	0.620 0.589	0.078	0.147	1.501 1.495	1.500



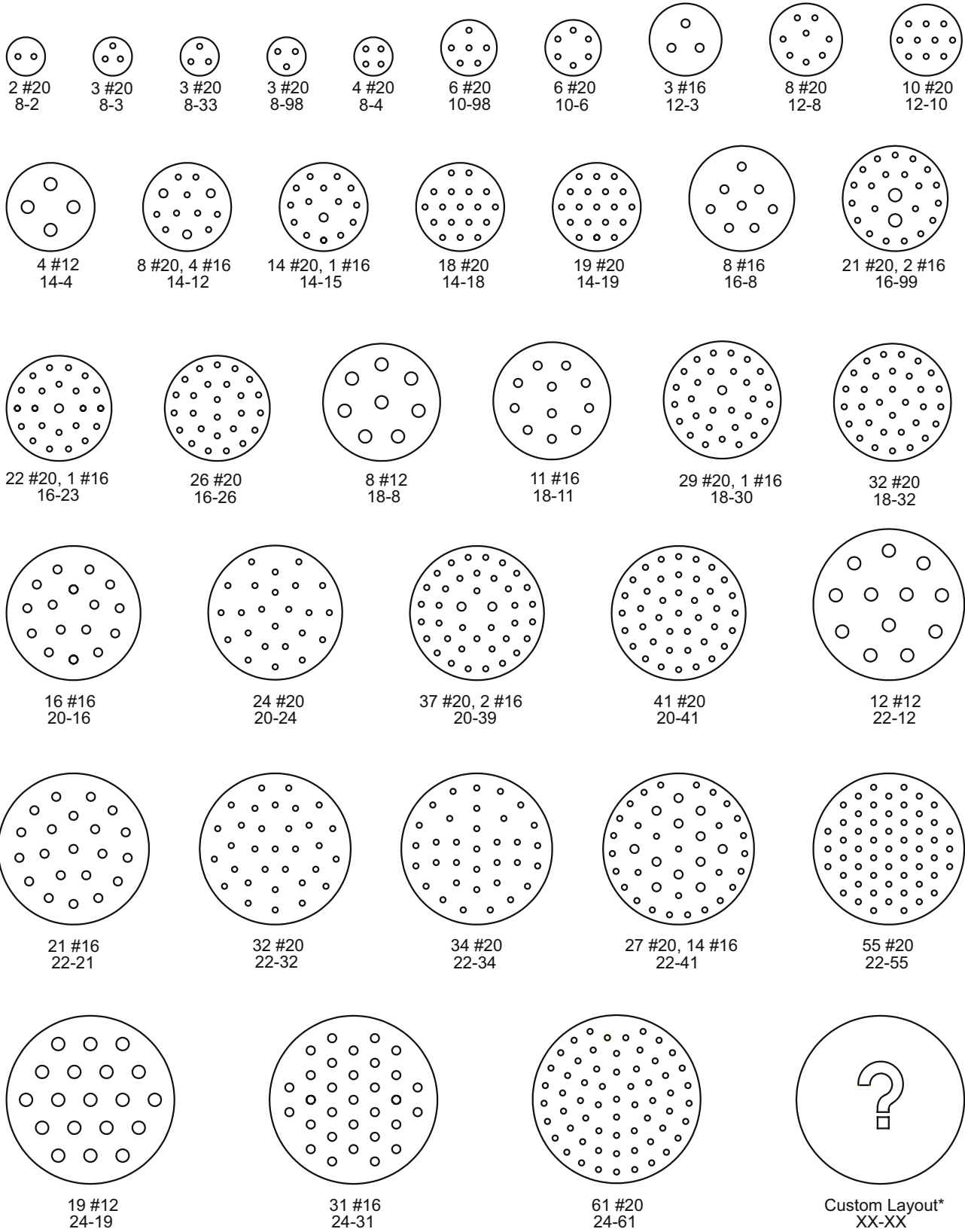
MS3474 Jam Nut Receptacle

Shell Size	A Max	B Dia	F	G Dia	N	O 1.005 Flat	T Dia	X Max Dia	AA Hex Dia
8	0.954 0.923	1.078 1.047	0.707 0.658	0.113 0.086	0.5625-24	0.525	4.740 4.680	0.500	0.767
10	1.078 1.047	1.203 1.172			0.6875-24	0.650	0.591 0.585	0.620	0.892
12	1.266 1.235	1.391 1.360			0.875-20	0.813	0.751 0.745	0.740	1.079
14	1.391 1.360	1.516 1.485			1.000-20	0.937	0.876 0.870	0.890	1.205
16	1.516 1.485	1.641 1.610			1.125-18	1.061	1.001 0.995	1.000	1.329
18	1.641 1.610	1.766 1.735			1.120-18	1.166	1.126 1.120	1.120	1.455
20	1.828 0.797	1.954 1.923	0.772 0.721	0.148 0.096	1.375-18	1.311	1.251 1.245	1.250	1.579
22	1.954 1.923	2.078 2.047			1.500-18	1.436	1.376 1.370	1.390	1.705
24	2.078 2.047	2.203 2.172			1.625-18	1.561	1.501 1.495	1.500	1.829



Smiths Interconnect provides specialty, enhanced performance connectors and cable assemblies and as such does not currently offer circular, rack and panel, or D-subminiature connectors that are listed on military standard Qualified Products Lists (QPL) per applicable detail specification sheets. Smiths Interconnect connectors are fully interchangeable with applicable QPL products and meet the applicable requirements of all military standards listed in this catalog.

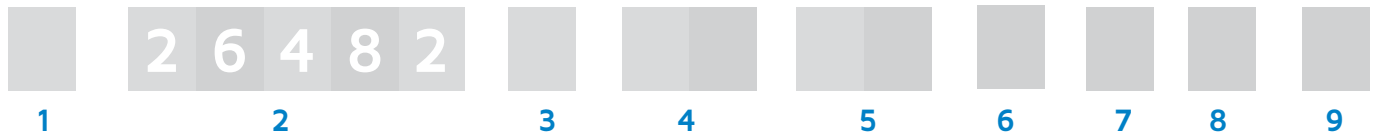
MIL-C-26482 Layouts



MIL-C-26482



How to Order



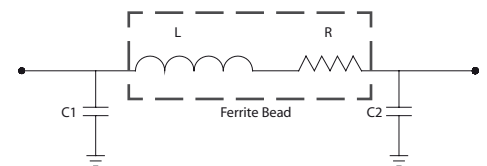
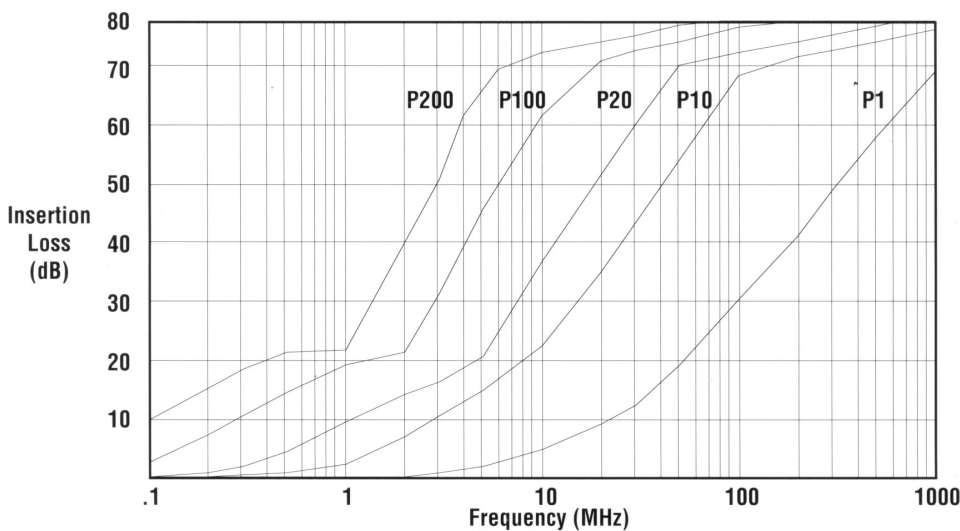
1 Filter Type	Pi , L , C ,
2 Prefix	
3 Shell Style	J Jam Nut B Box Mount W Wall Mount
4 Shell Size	8 Thru 24
5 Insert Arrangement	
6 Contact Type	P Pin S Socket
7 Contact Termination	S Solder Cup P PC Tail C Crimp
8 Plating	C Olive Drab Cadmium Over Nickel N Electroless Nickel
9 Polarization	N , W , X , Y , Z

Electrical Performance

Electrical Characteristics - 'Pi' Section

Filter Description	P200	P100	P76	P38	P20	P10	P8	P4	P2	P1	
Operating Temperature Range						-55°C to +125°C					
Voltage Rating	100 VDC					200 VDC-120 Vrms 400 Hz					
Current Rating DC						15 amps size 16 7.5 amps size 20 5 amps size 22					
Insulation Resistance						5000 megohms min. @100 VDC					
Current Rating R.F.						3.0 amps max.					
DWV Sea Level w/ 50 micro-amps max. charge/discharge	250 VDC					500 VDC					

'Pi' Section Curves



Insertion Loss Table

Filter Description	See Notes	P200	P100	P76	P38	P20	P10	P8	P4	P2	P1
Capacitance in Nanofarads @ 1Khz, 1VRMS		160 240	80 120	60 91	30 46	16 24	8 12	6.4 9.2	3.2 4.8	1.6 2.4	0.8 1.2
Minimum No Attenuation loss @ 25°	Freq Mhz										
	0.1	8	4.1	3	1	0.3	0.1	-	-	-	-
	1.0	22.2	19.6	18.2	13.3	8.2	3.9	2.9	0.9	0.2	-
	2	32.8	21.7	19.7	16.8	12.7	8	6.6	2.9	1	0.3
	10	73.5	61	57	44.4	31.5	20.6	18.3	12.8	8.1	4.0
	100	85+	85+	85+	85+	78	65.8	61.9	49.6	37.3	25.6
500-1k	85+	85+	85+	85+	85+	85+	80	75	64	52	

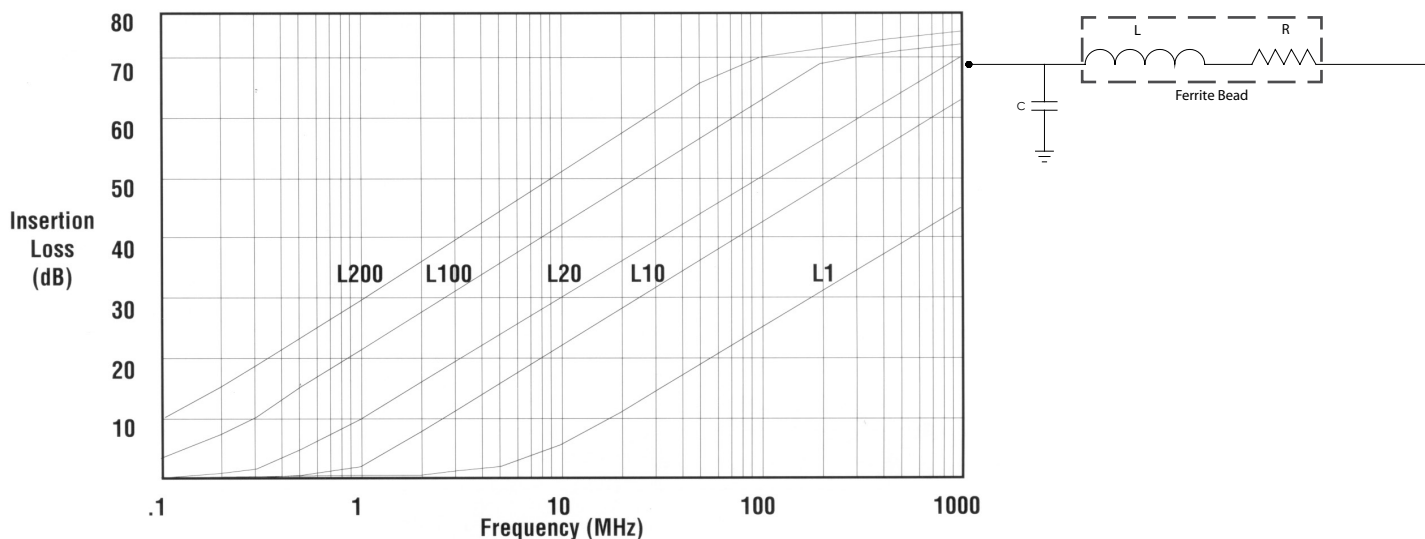
- Notes:
1. P200 & P100 Capacitance Values for Size 20 Contact Arrangement & Larger
 2. No Load Minimum Attenuation Values per MIL-STD-220
 3. Capacitance in Nanofarads (Nominal Value)
 4. Consult Factory for Higher Voltages & Capacitance Values

Electrical Performance

Electrical Characteristics - 'L' Section

Filter Description	L200	L100	L76	L38	L20	L10	L8	L4	L2	L1
Operating Temperature Range	-55°C to +125°C									
Voltage Rating	100 VDC									
Current Rating DC	200 VDC-120 Vrms 400 Hz									
Insulation Resistance	15 amps size 16 7.5 amps size 20 5 amps size 22									
Current Rating R.F.	5000 megaohms min. @100 VDC									
DWV Sea Level w/ 50 micro-amps max. charge/discharge	3.0 amps max.									
	250 VDC									
	500 VDC									

'L' Section Curves



Insertion Loss Table

Filter Description	See Notes	L200	L100	L76	L38	L20	L10	L8	L4	L2	L1
Capacitance in Nanofarads @ 1Khz., 1VRMS		160 240	80 120	60 91	30 46	16 24	8 12	6.4 9.2	3.2 4.8	1.6 2.4	0.8 1.2
	0.1	8.6	4.1	3	1	0.3	0.1	-	-	-	-
	1.0	28	22	20.1	14.2	8.6	4	3	0.9	0.2	-
	2	34.3	28.3	26.3	20.3	14.4	8.8	7.2	3.1	1	-
	10	49	43	41.1	35	29	23	21.1	15.1	9.5	4.8
	100	69.9	63.9	62	55.9	49.9	43.9	42	35.9	29.9	23.9
	500-1k	83.7	77.7	75.8	69.7	63.7	57.7	55.8	49.7	43.7	37.7

Notes:

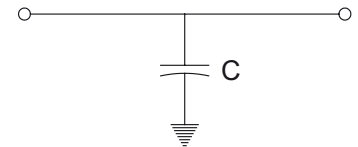
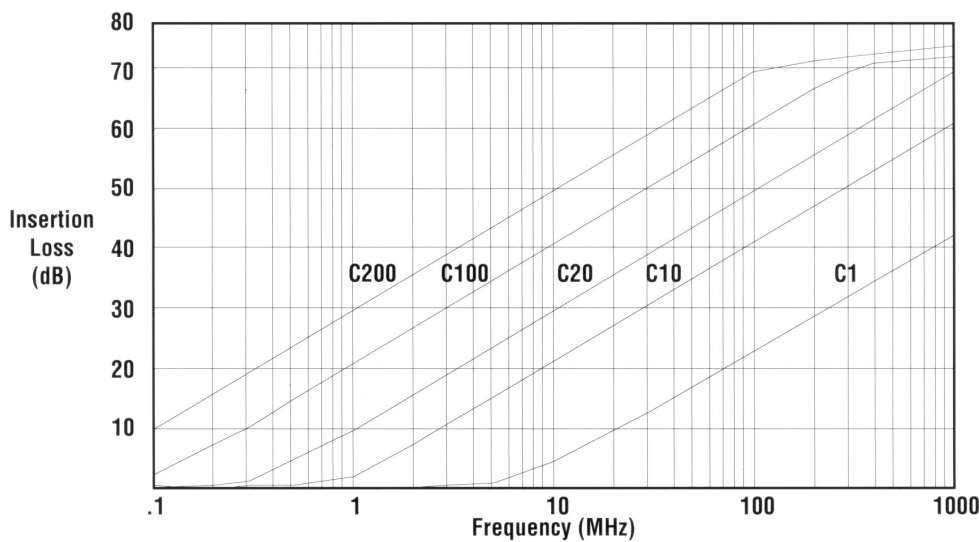
1. L200, L100 & L76 Capacitance Values for Size 20 Contact Arrangement & Larger
2. No Load Minimum Attenuation Values per MIL-STD-220
3. Capacitance in Nanofarads (Nominal Value)
4. Consult Factory for Higher Voltages & Capacitance Values

Electrical Performance

Electrical Characteristics - 'C' Section

Filter Description	C200	C100	C76	C38	C20	C10	C8	C4	C2	C1
Operating Temperature Range	-55°C to +125°C									
Voltage Rating	100 VDC									
Current Rating DC	200 VDC-120 Vrms 400 Hz									
Insulation Resistance	15 amps size 16 7.5 amps size 20 5 amps size 22									
Current Rating R.F.	5000 megaohms min. @100 VDC									
DWV Sea Level w/ 50 micro-amps max. charge/discharge	3.0 amps max.									
	250 VDC									
	500 VDC									

'C' Section Curves



Insertion Loss Table

Filter Description	See Notes	C200	C100	C76	C38	C20	C10	C8	C4	C2	C1
Capacitance in Nanofarads @ 1Khz, 1VRMS		160 240	80 120	60 91	30 46	16 24	8 12	6.4 9.2	3.2 4.8	1.6 2.4	0.8 1.2
Minimum No Attenuation loss @ 25°	Freq Mhz										
	0.1	8.6	4.1	3	1	0.3	0.1	-	-	-	-
	1.0	28	22	20.1	14.2	8.6	4.1	3	1	0.3	0.1
	2	34	28	26.1	20.1	14.2	8.6	7	3	1	0.3
	10	48	42	40	34	28	22	20.1	14.2	8.6	4.1
	100	68	62	60	54	48	42	40	34	28	22
500-1k	82	76	74	68	62	56	54	48	42	36	

Notes:

1. C200, C100 & C76 Capacitance Values for Size 20 Contact Arrangement & Larger
2. No Load Minimum Attenuation Values per MIL-STD-220
3. Capacitance in Nanofarads (Nominal Value)
4. Consult Factory for Higher Voltages & Capacitance Values

Performance Data

Smiths Interconnect connectors conform to the applicable military specifications and standards for materials, finishes and mechanical form, fit, and function. Filter connectors are fully interchangeable and interchangeable in most instances with standard non-filtered QPL MIL-SPEC connectors.



Material and Finishes

Shell & Jam Nut	Aluminum Alloy Electroless Nickel per MIL-C-26074
Pin Contacts	Brass per ASTM B16 Gold Plate per MIL-G-45204
Socket & Contacts	Copper Alloy Gold Plate per MIL-G-45204
Insulators	High Grade Plastic/Epoxy
Seal & Grommet	Silicon Base Elastomer

Production Automation Test System Measurements

	Range	Accuracy	Notes
Capacitance	1 pF-1µF	0.2% + 0.1 pF	1
DF	0.00001-10	1%	2
Inductance	100 nH-10KH	0.2%+10 nH	1
IR	1 K Ohm - 5 T Ohm	1%	3,4,5
DWV	10 µA-100 mA	1%+10 µA	3,4,6
VR	10 mV-100V	0.2% + 10 mV	7
Ground & Contact Resistance	0.1 mV-1V	0.1%+0.1 mV	7

Notes:

1. Frequency = 20 Hz to 1 MHz
2. Dissipation factor
3. With 5-500 Volts applied
4. Measures each pin to all other pins grounded to shell
5. Insulation resistance
6. Dielectric withstanding voltage
7. Isource = 1nA-1A

Performance Data

Smiths Interconnect Filter Connectors meet or exceed the applicable requirements of the following specifications:

- MIL-DTL-38999
- MIL-DTL-83723
- MIL-DTL-24308
- MIL-DTL-83513
- MIL-DTL-83527
- ARINC 404 (MIL-C-81659)
- MIL-C-26482
- MIL-DTL-26500
- MIL-DTL-83723
- MIL-C-81511
- ARINC 600

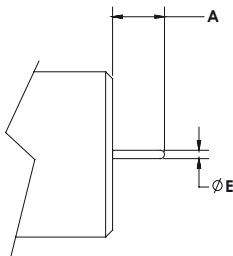
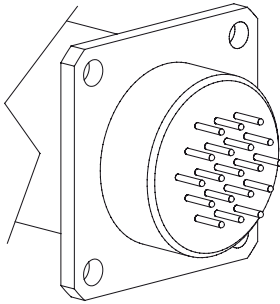
Smiths Interconnect connectors can meet qualification requirements of MIL-DTL-38999, MIL-C-26482, ARINC 404 (MIL-C-81659), and ARINC 600. Smiths Interconnect can perform most test requirements in-house. This includes both electrical and mechanical testing for qualification, engineering evaluation and final acceptance. All products are available for space grade applications.

All specifications subject to change without notice.

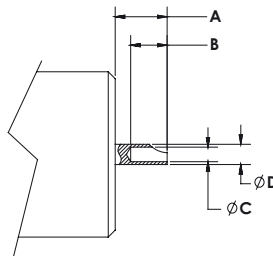
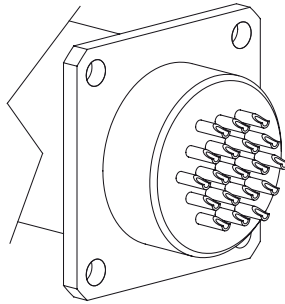
Smiths Interconnect provides specialty, enhanced performance connectors and cable assemblies and as such does not currently offer circular, rack and panel, or D-subminiature connectors that are listed on military standard Qualified Products Lists (QPL) per applicable detail specification sheets. Smiths Interconnect connectors are fully interchangeable with applicable QPL products and meet the applicable requirements of all military standards listed in this catalog.

Contact Termination

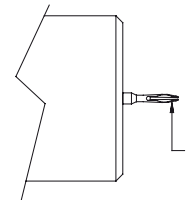
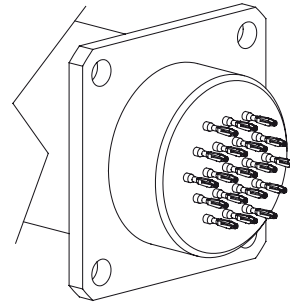
PC TAIL



SOLDER CUP

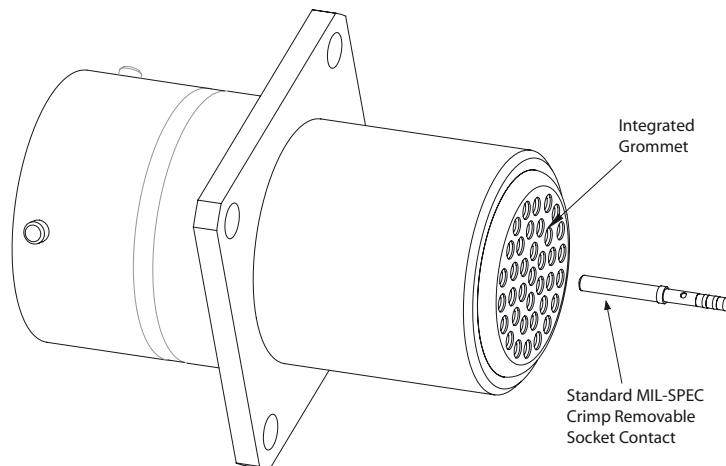


COMPLIANT PRESS-FIT (SOLDERLESS)



Contact Size	A +.025	B	C	D	E +.003	F
22	0.175	0.125 0.094	0.040 0.035	0.055 0.051	0.020	PCB Finished Hole 0.026 + 0.002
20		0.156 0.125	0.048 0.042	0.088 0.061	0.030	Consult factory for alternate size
16		0.172 0.141	0.082 0.069	0.103 0.097	0.050	
12		0.120 0.112	0.142 0.136	0.065		

Crimp / Removable*



* Add 0.700" to overall length for crimp removable connector with integrated grommet.

Solderless Filter Connectors

Smiths Interconnect offers filtered connectors that are capable of providing exceptional low pass filtering and effective insertion loss without the use of soldered components.

Smiths Interconnect has qualified the solderless filter connector design to the applicable requirements listed in MIL-DTL-38999. For the qualification test report summary, please visit the technical notes section of our website.

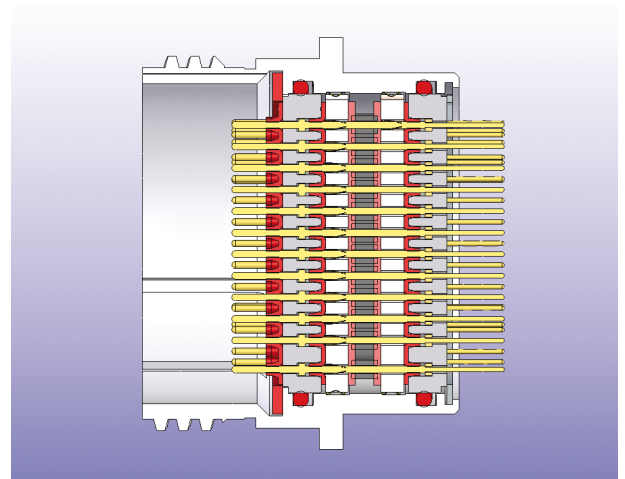
Solderless filter connectors contain a specially designed contact clip to make the connection from the signal/power contact to the capacitor array. An EMI ground spring provides a low resistance path between the capacitor array and connector shell. These connectors meet the same stringent electrical and mechanical requirements of soldered type filter connectors. A uniquely designed seal allows for water wash immersion of the connector in the unmated condition.

Benefits of Solderless Filter Technology

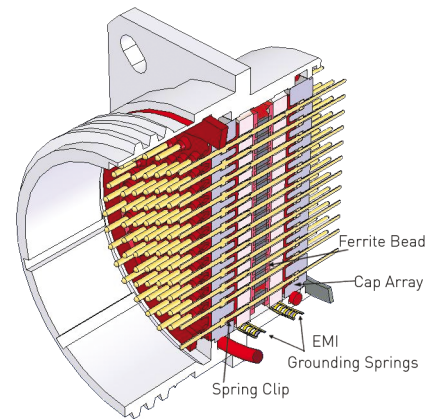
- RoHS Compliant
- No Solder design (not potted)
- Reworkable filter module assembly
- Modular construction
- High temperature lead-free solder tolerant
- Qualification data available upon request

Material and Finishes

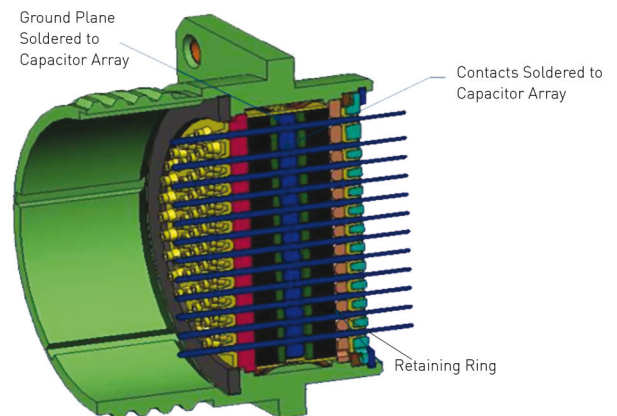
Connector Shell	Aluminum alloy/Steel/Composite
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet & Seal	Silicon base elastomer
Jam Nut (if used)	Aluminum alloy
Capacitor	Barium Titanate
Inductor	Ferrite bead



Solderless Filter Assembly



Solder Filter Assembly



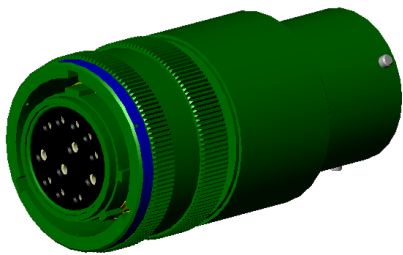
Filter Adapters

Non-filter applications can easily be upgraded to EMI/Transient protection without modification to the system with Smiths Interconnect In-Line Filter Adapters. Filter adapters provide the system designer great flexibility in situations where the filtering or system requirements are subject to change. The adapters are designed to be installed between the existing plug and receptacle without having to re-wire or disassemble the system. Both in-line cable and bulkhead/panel mount versions are available.

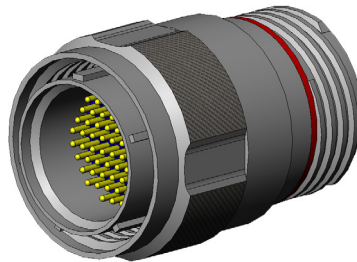
Adapters can be built for any connector series including: MIL-DTL-38999, MIL-C-26482, MIL-DTL-83723, MIL-DTL-24308, MIL-DTL-83513, ARINC 404, and ARINC 600. Consult the factory for more information.



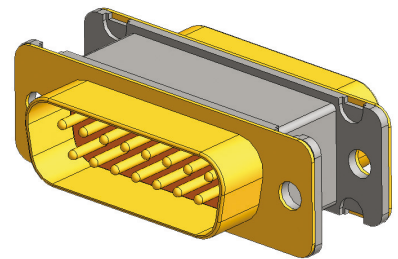
**MIL-DTL-38999
Series I Adapter**



**MIL-DTL-38999
Series III Adapter**



**MIL-DTL-24308
D-Subminiature Adapter**



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