

FILTER CIRCULAR CONNECTORS



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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 the standard non-filtered connectors.

Smiths Connectors 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 Connectors 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

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

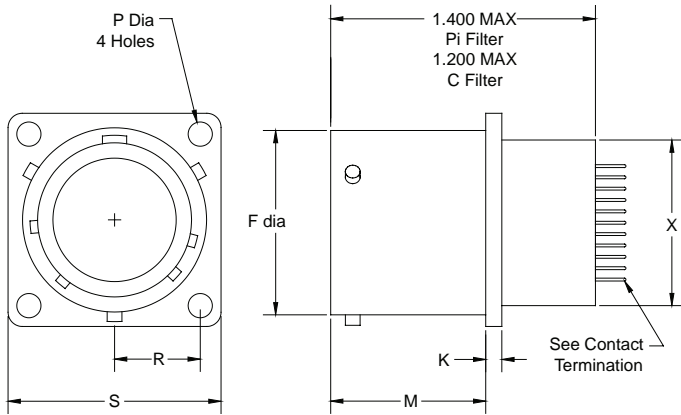
There is considerable unused space available in a standard non-filtered connector. Smiths Connectors takes advantage of this space by removing components from elsewhere in the system and integrating them within the connector freeing up valuable board space. Isolating components electrically eliminates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

MATERIALS 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

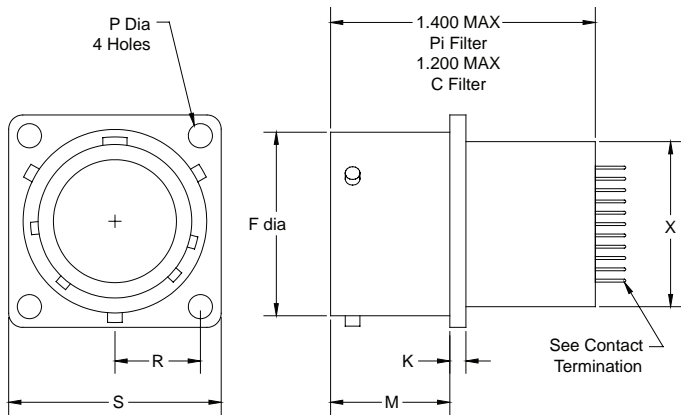
Smith Connectors provides specialty, enhanced performance connectors and cable assemblies and as such does not currently offer circular, rack and panel, or D-subminiature connectors that are listed on military standard Qualified Products Lists (QPL) per applicable detail specification sheets. Smith Connectors'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

▶ MS27505 SQUARE FLANGE RECEPTACLE REAR MOUNT



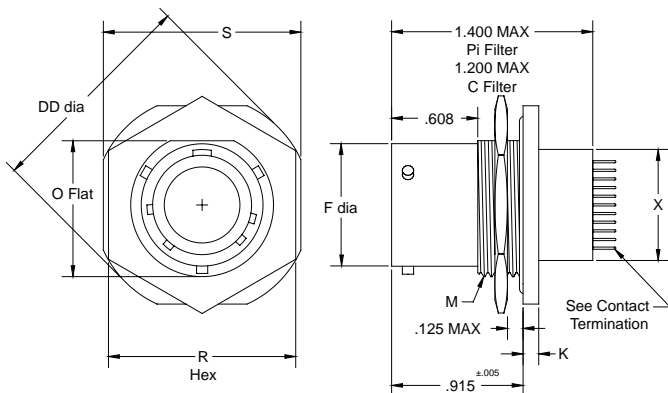
Shell Size	F ± .001 -.005	K ± .015 -.000	M ± .000 -.005	P Dia ± .010 -.005	R BSC	S ± .020	X Max. Dia
9	.572	0.085	0.820	0.128	0.3595	0.938	.500
11	.700				0.406	1.031	.620
13	.850				0.453	1.125	.740
15	.975				0.4845	1.219	.890
17	1.100				0.531	1.312	1.000
19	1.207	0.115	0.790	0.147	0.578	1.438	1.120
21	1.332				0.625	1.562	1.250
23	1.457				0.6875	1.688	1.390
25	1.582				.750	1.812	1.500

▶ MS27466 SQUARE FLANGE RECEPTACLE FRONT MOUNT



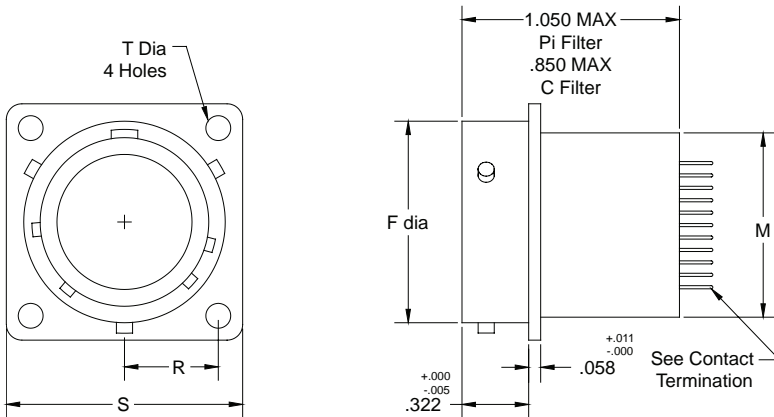
Shell Size	F ± .001 -.005	K ± .015 -.000	M ± .000 -.005	P Dia ± .010 -.005	R BSC	S ± .020	X Max. Dia
9	.572	0.085	0.632	0.128	0.3595	0.938	.500
11	.700				0.406	1.031	.620
13	.850				0.453	1.125	.740
15	.975				0.4845	1.219	.890
17	1.100				0.531	1.312	1.000
19	1.207	0.115	0.602	0.147	0.578	1.438	1.120
21	1.332				0.625	1.562	1.250
23	1.457				0.6875	1.688	1.390
25	1.582				.750	1.812	1.500

▶ MS27468 JAM NUT RECEPTACLE



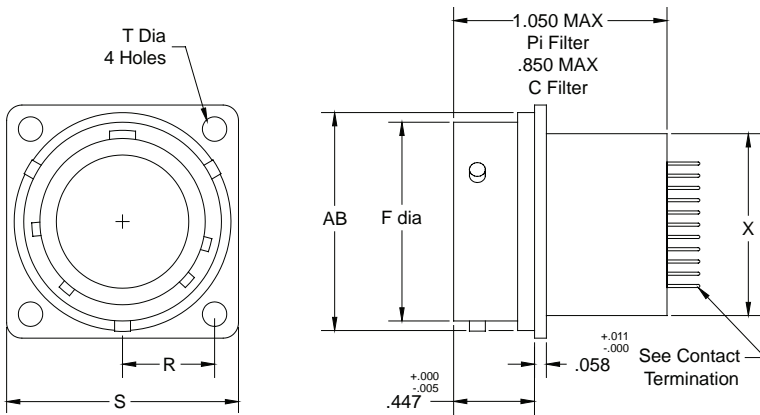
Shell Size	F ± .001 -.005	K ± .015 -.000	M Thread	O Flat ± .000 -.010	R Hex ± .017 -.016	S ± .016	X Max. Dia	DD ± .016
9	.572	0.085	.6875-24	.655	.875	1.062	.500	1.188
11	.700		.8125-20	.755	1.000	1.250	.620	1.375
13	.850		1.000-20	.942	1.188	1.375	.740	1.5
15	.975		1.125-18	1.066	1.312	1.500	.890	1.625
17	1.100		1.250-18	1.191	1.438	1.625	1.000	1.75
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

▶ **MS27508 SQUARE FLANGE RECEPTACLE REAR MOUNT**



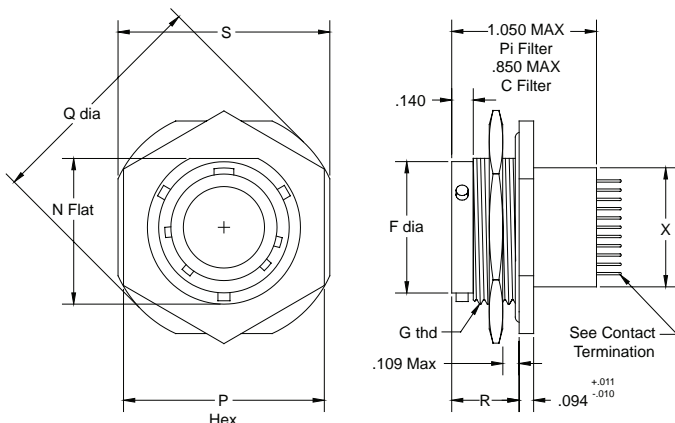
Shell Size	F ± .001 -.005	T ± .010 -.005	R BSC	S ± .020	X Max. Dia
8	0.473	0.12	0.297	0.828	0.5
10	0.59		0.3595	0.954	0.62
12	0.75		0.406	1.047	0.74
14	0.875		0.453	1.141	0.89
16	1.000		0.4845	1.234	1
18	1.125		0.531	1.328	1.12
20	1.25		0.578	1.453	1.25
22	1.375		0.625	1.578	1.39
24	1.5	0.147	0.6875	1.703	1.5

▶ **MS27499 SQUARE FLANGE RECEPTACLE FRONT MOUNT**



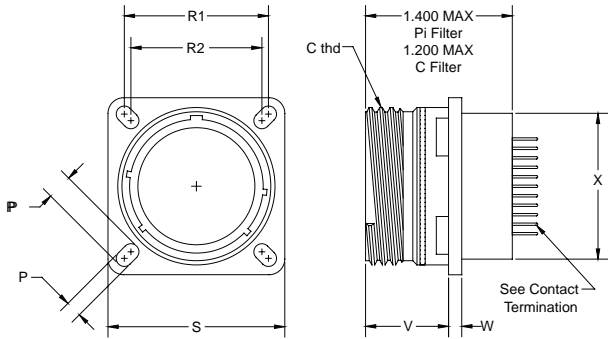
Shell Size	F ± .001 -.005	T ± .010 -.005	R BSC	S Max	X Max	AB Max
8	0.473	0.120	0.297	0.828	0.500	0.547
10	0.590		0.360	0.954	0.620	0.672
12	0.750		0.406	1.047	0.740	0.844
14	0.875		0.453	1.141	0.890	0.969
16	1.000		0.485	1.234	1.000	1.094
18	1.125		0.531	1.328	1.120	1.219
20	1.250		0.578	1.453	1.250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



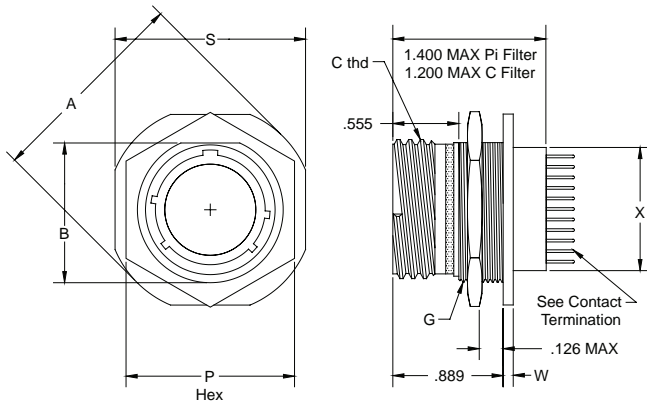
Shell Size	F ± .001 -.005	N + .001 -.006	G Thread	P Hex + .017 -.016	Q + .016	S + .016	X Max. Dia	R ± .005
8	.473	.817	.875-20	1.062	1.375	1.250	.500	0.438
10	.590	.941	1.000-20	1.188	1.5	1.375	.620	
12	.750	1.065	1.125-18	1.312	1.625	1.500	.740	
14	.875	1.190	1.250-18	1.438	1.75	1.625	.890	
16	1.000	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	2.39	2.265	1.500	

▶ **D38999/20 BOX MOUNT RECEPTACLE**



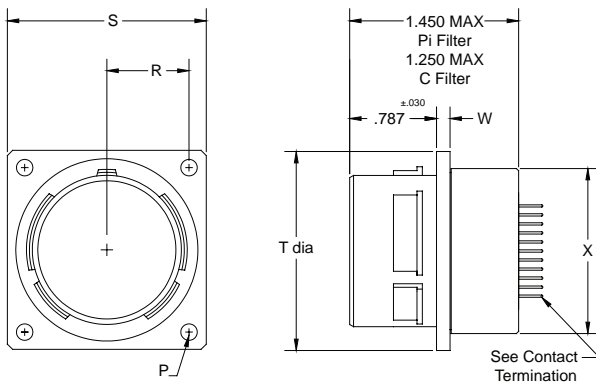
Shell Size	C Thread .1 Pitch .3 Lead	P ± .008	R1 BSC	R2 BSC	V Max	W Max	X Max	PP Max ± .008	S + .012
9	0.625	0.128	.719	.564	.820	.098	.500	.194	.937
11	.750		.812	.719			.620		1.031
13	.875		.906	.812			.740		1.126
15	1.000		.969	.906			.890		1.220
17	1.188		1.062	.969			1.000		1.311
19	1.250	1.156	1.062	1.120	1.437				
21	1.375	0.154	1.250	1.156	.790	.126	1.250	.242	1.563
23	1.500		1.375	1.250			1.390		1.689
25	1.625		1.500	1.375			1.500		1.811

▶ **D38999/24 JAM NUT RECEPTACLE**



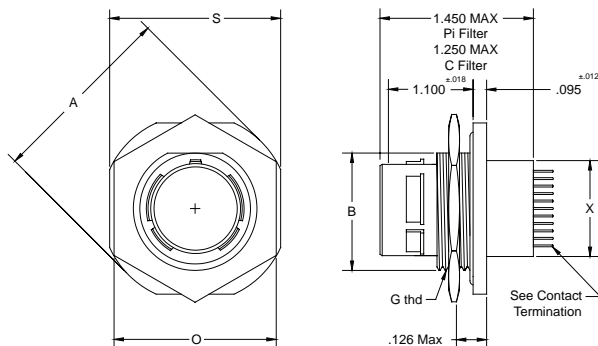
Shell Size	A ±.012	B +.004 -.006	C Thread .1 Pitch .3 Lead	G Thread 6g .10R	P Hex	S ±.015	W +.028 -.004	X Max
9	1.189	.651	.625	M17X1	.945 .912	1.063	.087	.500
11	1.374	.751	.750	M20x1	1.062 .0983	1.252		.620
13	1.500	.938	.875	M25x1	1.260 1.234	1.374		.740
15	1.625	1.062	1.000	M28x1	1.456 1.424	1.500	.118	.890
17	1.812	1.187	1.1875	M32x1	1.614 1.581	1.626		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		

▶ **D38999/40 BOX MOUNT RECEPTACLE**

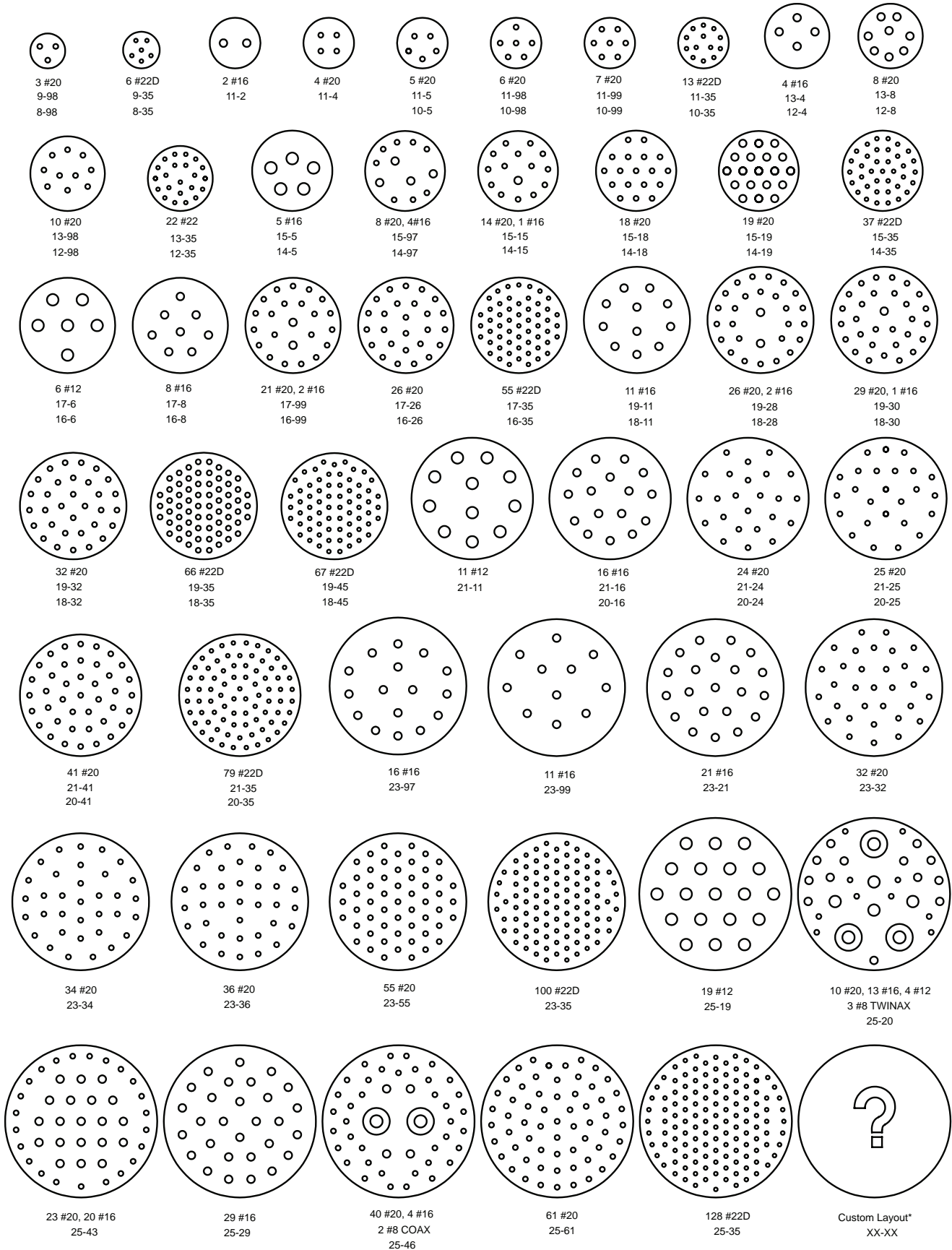


Shell Size	T ±.008	W ±.010	P ±.008	R BSC	S ±.021	X Max
11	0.786	0.093	0.139	0.406	1.029	0.620
13	0.912			0.453	1.124	0.740
15	1.036			0.485	1.218	0.890
17	1.162			0.531	1.312	1.000
19	1.286			0.578	1.439	1.120
21	1.412	0.124	0.150	0.625	1.561	1.250
23	1.536			0.688	1.706	1.390
25	1.662			0.750	1.813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

▶ **D38999/44 JAM NUT RECEPTACLE**

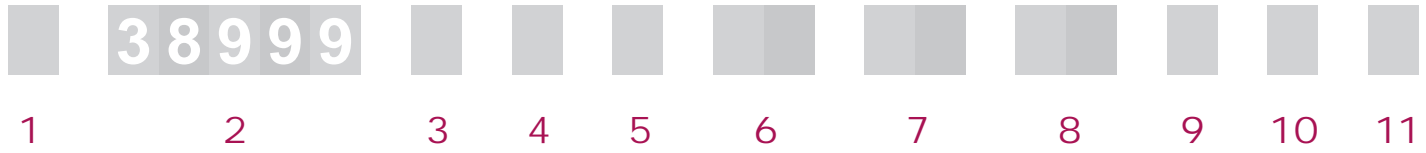


Shell Size	B Flat ±.004	G THD 6g 0.1R	A Dia. ±.020	O Hex ±.013	S ±.020	X Max
11	0.938	M25x1	1.500	1.250	1.374	0.620
13	1.062	M28x1	1.622	1.405	1.5	0.740
15	1.1875	M31x1	1.749	1.600	1.622	0.890
17	1.318	M34x1	1.937		1.78	1.000
19	1.4375	M38x1	2.015	1.796	1.89	1.120
21	1.562	M41x1	2.138	1.954	2.016	1.250
23	1.6875	M44x1	2.268		2.138	1.390
25	1.812	M47x1	2.390		2.141	2.264



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

HOW TO ORDER



1 ▶ FILTER TYPE

P, L, C

2 ▶ PREFIX

3 ▶ SERIES

A I **B III** **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

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
 Consult factory for alternate plating options

7 ▶ SHELL SIZE

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

11 ▶ POLARIZATION

N, A, B, C, D, E



Type T



Type B

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 the standard non-filtered connectors.

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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 Connectors 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

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.

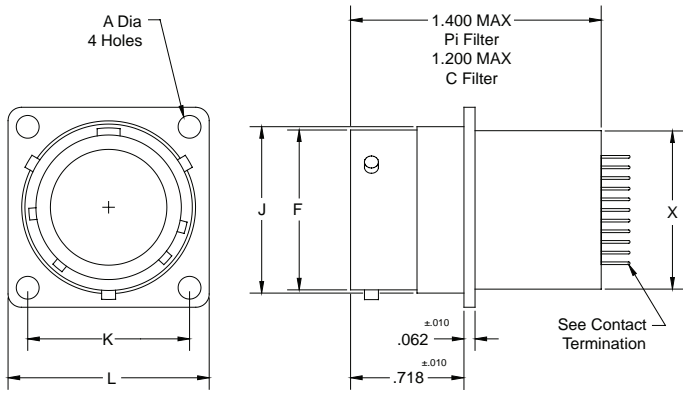
INTEGRATION

There is considerable unused space available in a standard non-filtered connector. Smiths Connectors 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.

MATERIALS AND FINISHES

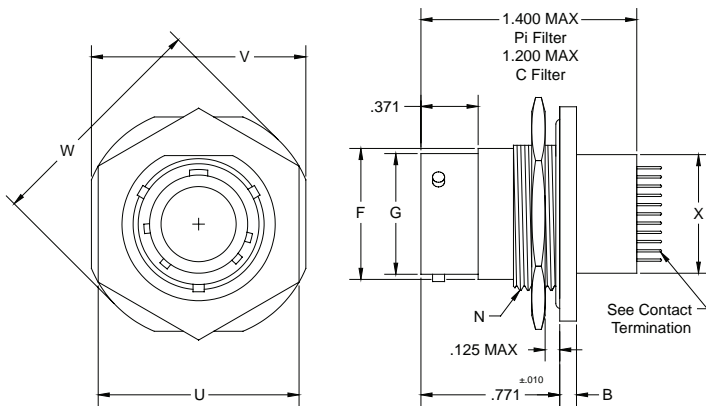
Shell	Aluminum alloy/Steel/Composite
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet & Seal	Silicon base elastomer
Jam Nut	Aluminum alloy
Ground Plane	Brass, silver plate
Capacitor	Barium Titanate
Inductor	Ferrite bead

► **SQUARE FLANGE RECEPTACLE - TYPE B**



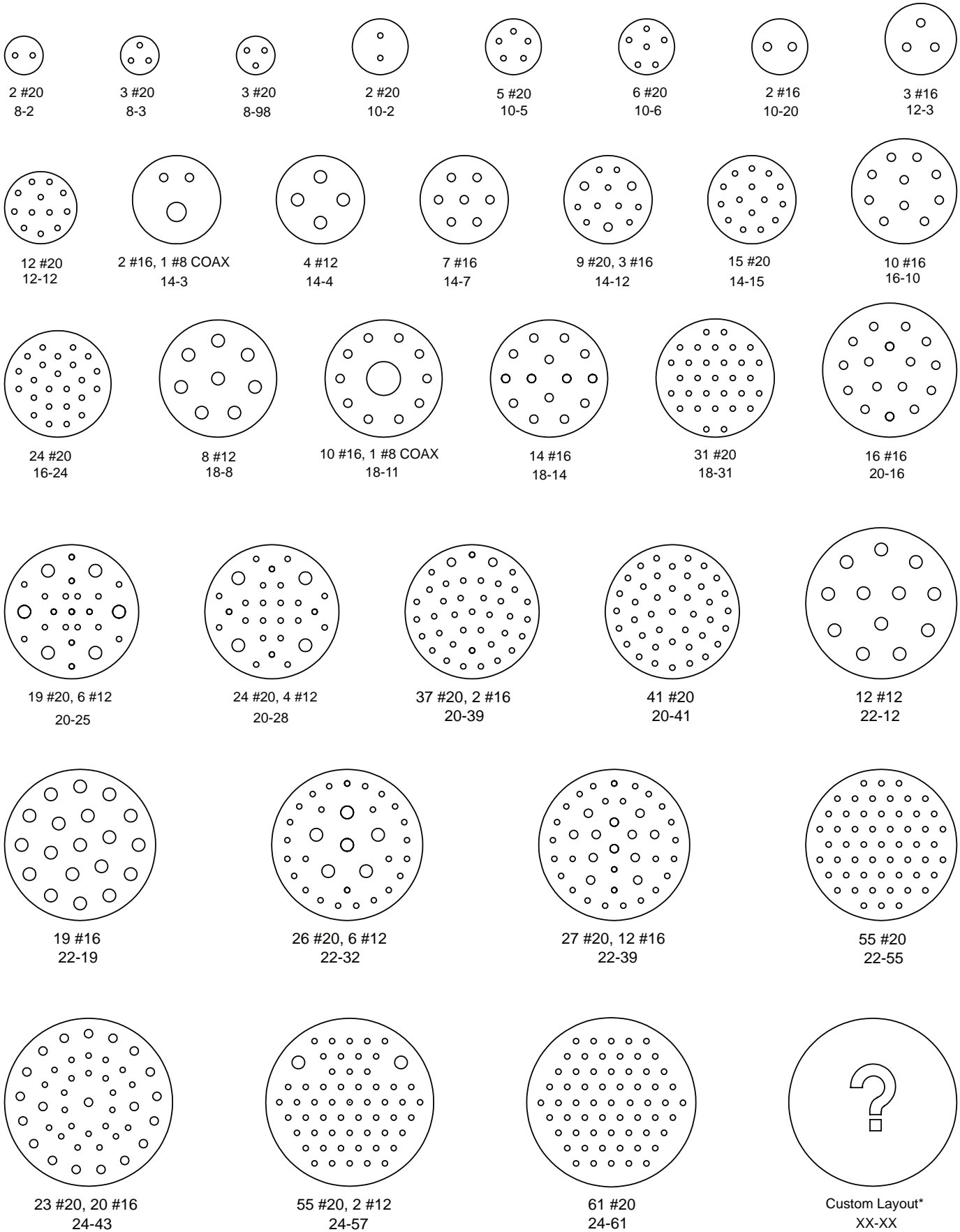
Shell Size	A Max	K BSC	L	J Dia	F Dia	X Max Dia
8	.120	.594	.812	.561	.536 .531	.500
10	.120	.719	.937	.696	.659 .654	.620
12	.120	.812	1.031	.875	.829 .824	.740
14	.120	.906	1.125	.925	.898 .893	.890
16	.120	.969	1.250	1.062	1.025 1.020	1.000
18	.120	1.062	1.343	1.187	1.131 1.126	1.120
20	.120	1.156	1.437	1.312	1.256 1.251	1.250
22	.120	1.250	1.562	1.437	1.381 1.376	1.390
24	.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	.137 .097	.561	.536 .531	.625-20	.670	.979	1.068	.500
10	.137 .097	.696	.659 .654	.750-20	.796	1.104	1.192	.620
12	.113 .097	.875	.829 .824	.9375-20	.984	1.291	1.380	.740
14	.137 .097	.935	.898 .893	1.000-20	1.046	1.391	1.505	.890
16	.137 .097	1.062	1.025 1.020	1.125-20	1.171	1.516	1.630	1.00
18	.137 .097	1.187	1.131 1.126	1.250-18	1.296	1.641	1.756	1.120
20	.137 .097	1.312	1.256 1.251	1.375-18	1.484	1.766	1.860	1.250
22	.168 .128	1.437	1.381 1.376	1.500-18	1.609	1.954	2.068	1.390
24	.168 .128	1.562	1.506 1.501	1.625-18	1.734	2.079	2.160	1.500

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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

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, 6, 7, 8, 9



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 interchangeable and interchangeable with the standard non-filtered connectors.

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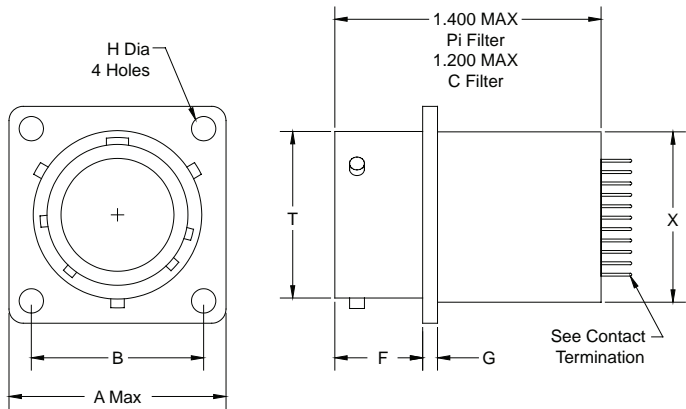
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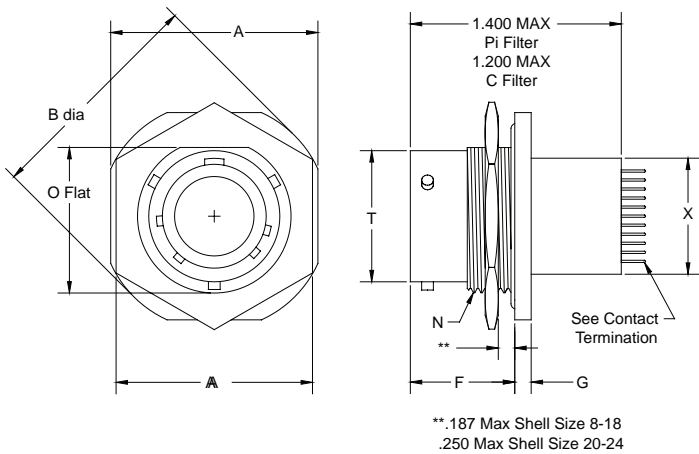
MATERIALS AND FINISHES	
Shell	Aluminum alloy
Insulator	High grade plastic/epoxy
Contacts	Copper alloy, gold plate
Grommet & Seal	Silicon base elastomer
Jam Nut	Aluminum alloy
Ground Plane	Brass, silver plate
Capacitor	Barium Titanate
Inductor	Ferrite bead

▶ MS3470 SQUARE FLANGE RECEPTACLE



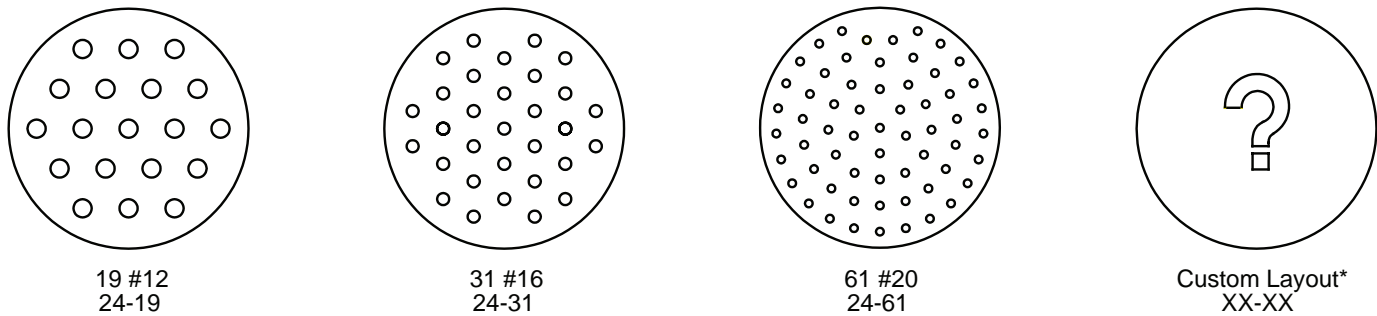
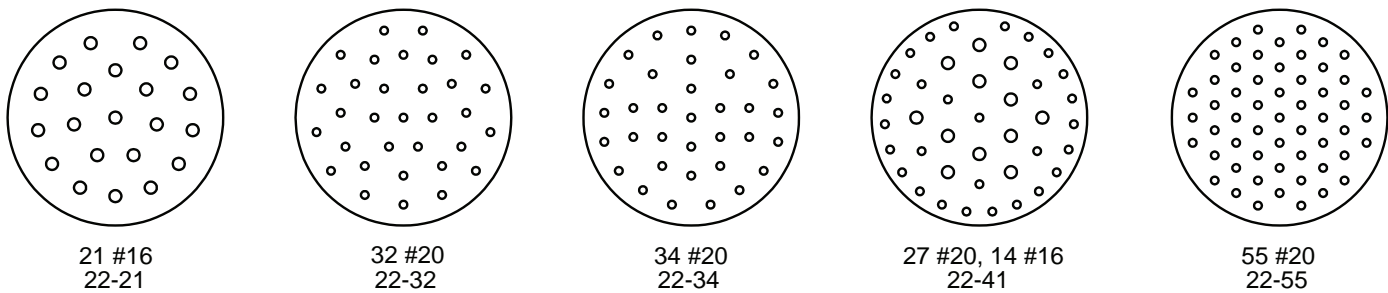
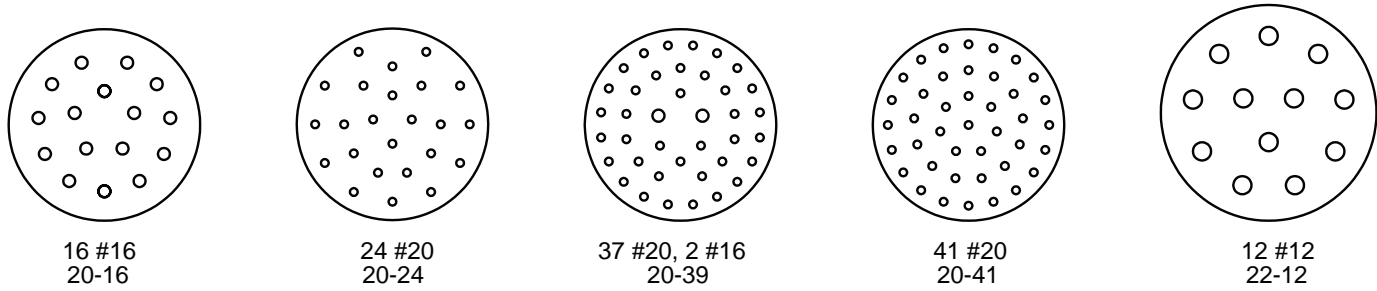
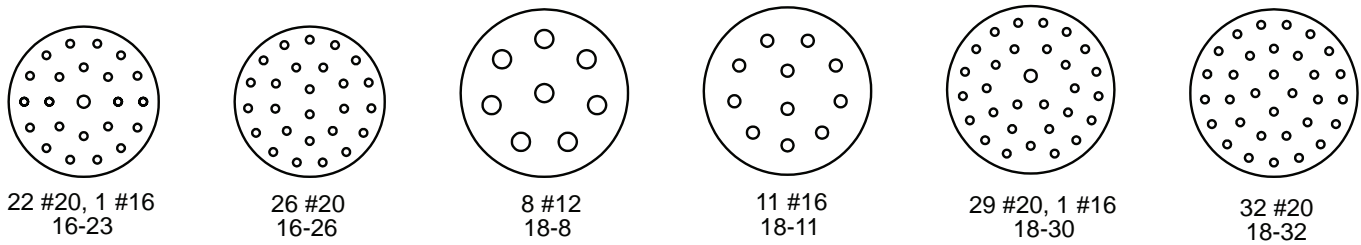
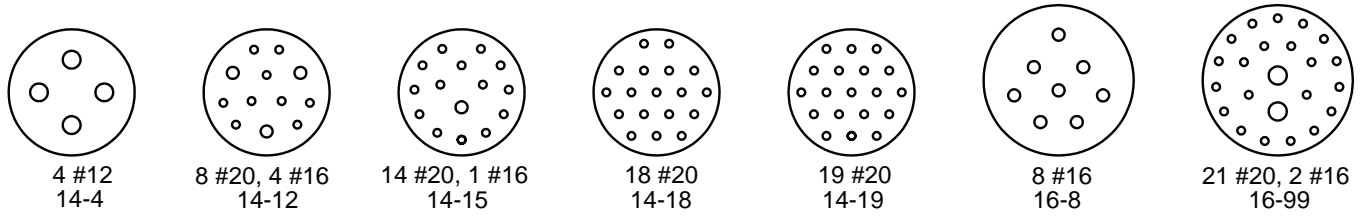
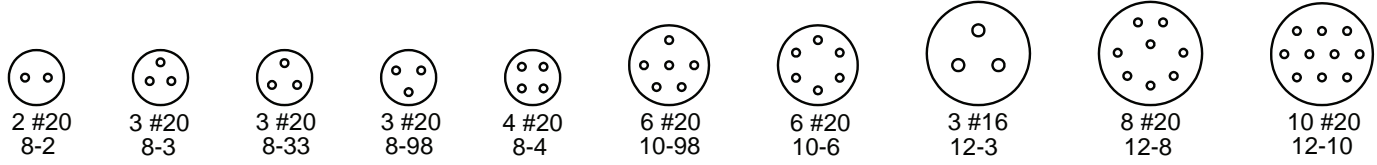
Shell Size	A Max	B BSC	F	G Dia	H Dia	T Max	X Max Dia
8	.828	.594	.462 .431	.078 .046	.120	.474 .468	.500
10	.954	.719				.591 .585	.620
12	1.047	.812				.751 .745	.740
14	1.141	.906				.876 .870	.890
16	1.231	.969				1.001 .995	1.000
18	1.328	1.062				1.126 1.120	1.120
20	1.458	1.156	.587	.110	1.251 1.245	1.250	
22	1.578	1.250	.556		1.376 1.370	1.390	
24	1.703	1.375	.620 .589		.078	.147	1.501 1.495

▶ 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	.954 .923	1.078 1.047	.707 .658	.113 .086	.5625-24	.525	4.74 4.68	.500	0.787
10	1.078 1.047	1.203 1.172			.6875-24	.650	.591 .585	.620	0.892
12	1.266 1.235	1.391 1.360			.875-20	.813	.751 .745	.740	1.079
14	1.391 1.360	1.516 1.485			1.000-20	.937	.876 .870	.890	1.205
16	1.516 1.485	1.641 1.610			1.125-18	1.061	1.001 .995	1.00	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 .797	1.954 1.923	.772 .721	.148 .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	2.203			1.625-18	1.561	1.501 1.495	1.500	1.829
	2.047	2.172							

Smith Connectors 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. Smith Connectors' connectors are fully intermateable with applicable QPL products and meet the applicable requirements of all military standards listed in this catalog.



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

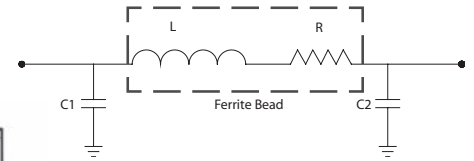
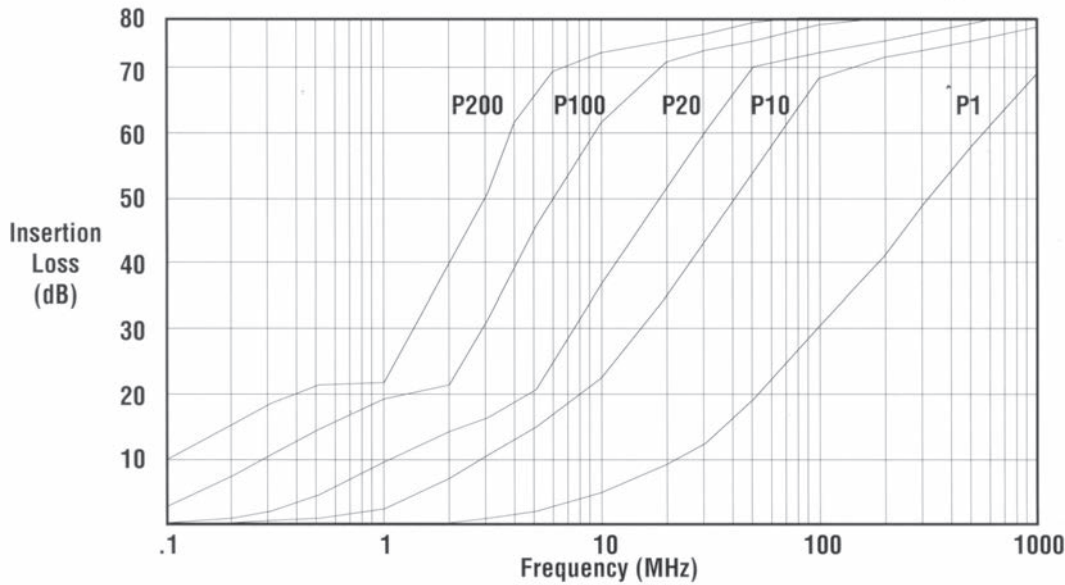
9 ▶ POLARIZATION

N, W, X, Y, Z

▶ ELECTRICAL 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

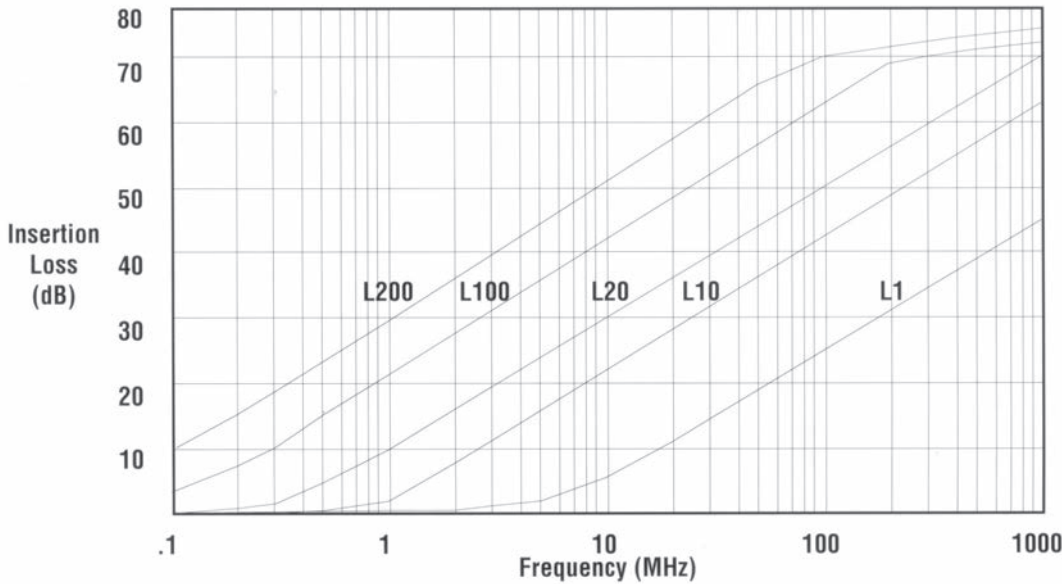
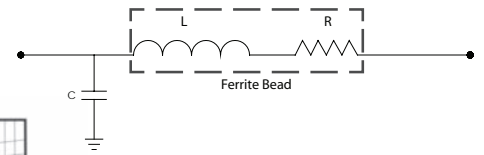
FILTER DESCRIPTION	SEE NOTES	P200	P100	P76	P38	P20	P10	P8	P4	P2	P1
Capacitance in Nanofarads @ 1Khz, 1VRMS		160	80	60	30	16	8	6.4	3.2	1.6	.8
		240	120	91	46	24	12	9.2	4.8	2.4	1.2
Minimum No Attenuation loss @ 25°	Freq Mhz										
	.1	8	4.1	3	1	.3	.1	-	-	-	-
	1.0	22.2	19.6	18.2	13.3	8.2	3.9	2.9	.9	.2	-
	2	32.8	21.7	19.7	16.8	12.7	8	6.6	2.9	1	.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 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					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.									
DVV Sea Level w/ 50 micro-amps max. charge/discharge	250 VDC					500 VDC				

▶ 'L' SECTION CURVES



▶ INSERTION LOSS TABLE

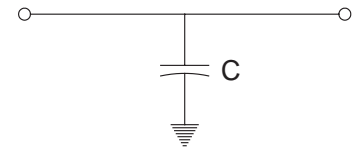
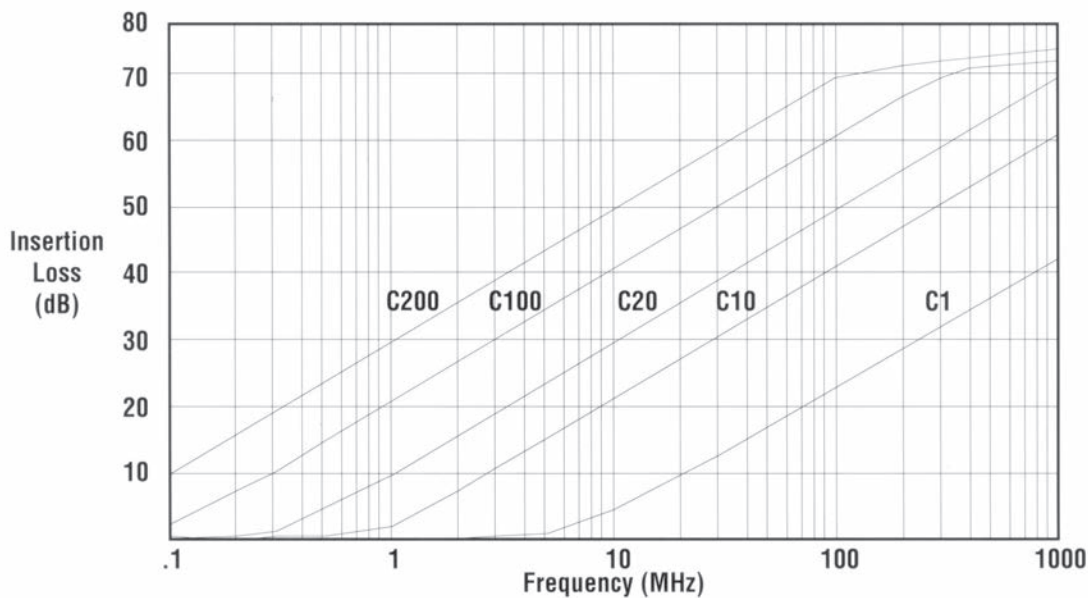
FILTER DESCRIPTION	SEE NOTES	L200	L100	L76	L38	L20	L10	L8	L4	L2	L1
Capacitance in Nanofarads @ 1Khz, 1VRMS		160	80	60	30	16	8	6.4	3.2	1.6	.8
		240	120	91	46	24	12	9.2	4.8	2.4	1.2
Minimum No Attenuation loss @ 25°	Freq Mhz										
	.1	8.6	4.1	3	1	.3	.1	-	-	-	-
	1.0	28	22	20.1	14.2	8.6	4	3	.9	.2	-
	2	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 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					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				

▶ '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	80	60	30	16	8	6.4	3.2	1.6	.8
		240	120	91	46	24	12	9.2	4.8	2.4	1.2
Minimum No Attenuation loss @ 25°	Freq Mhz										
	.1	8.6	4.1	3	1	.3	.1	-	-	-	-
	1.0	28	22	20.1	14.2	8.6	4.1	3	1	.3	.1
	2	34	28	26.1	20.1	14.2	8.6	7	3	1	.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

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



MATERIALS 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 pA-100 mA	1%+10 pA	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

Smith Connectors' Filter Connectors meet or exceed the applicable requirements of the following specifications:

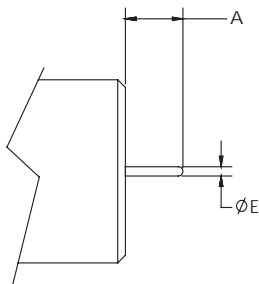
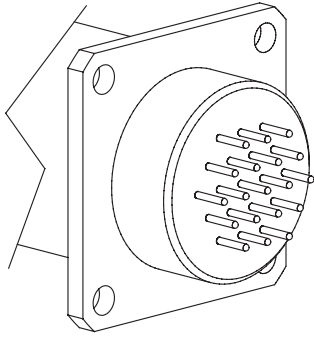
- MIL-DTL-38999 MIL-C-26482
- MIL-DTL-83723 MIL-DTL-26500
- MIL-DTL-24308 MIL-DTL-83723
- MIL-DTL-83513 MIL-C-81511
- MIL-DTL-83527 ARINC 600
- ARINC 404 (MIL-C-81659)

Smith Connectors connectors can meet qualification requirements of MIL-DTL-38999, MIL-C-26482, ARINC 404 (MIL-C-81659), and ARINC 600. Smith Connectors 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.

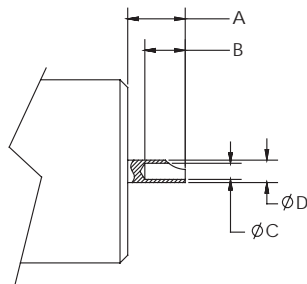
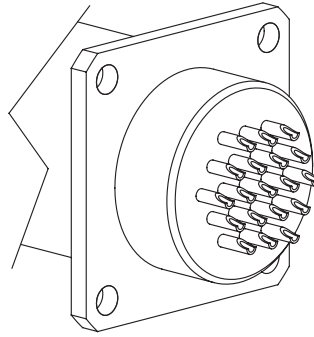
All specifications subject to change without notice.

Smith Connectors provides specially, 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. Smith Connectors' connectors are fully intermateable with applicable QPL products and meet the applicable requirements of all military standards listed in this catalog.

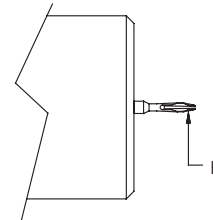
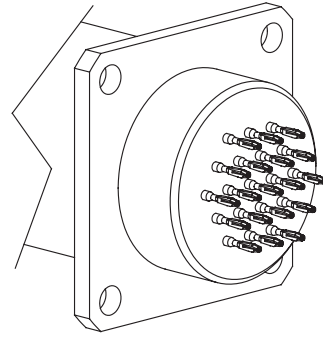
PC TAIL



SOLDER CUP

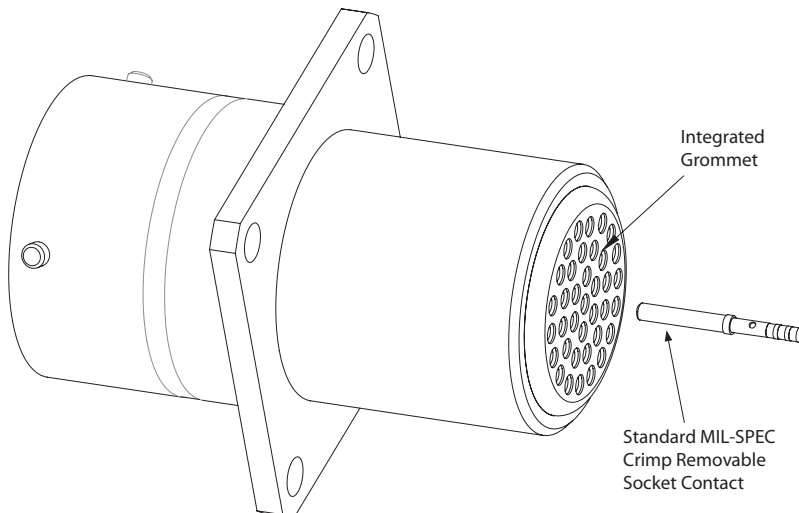


COMPLIANT PRESS-FIT (SOLDERLESS)



DIMENSIONS						
Contact Size	A + .025	B	C	D	E + .003	F
22	0.175	.125 .094	.040 .035	.055 .051	.020	PCB Finished Hole 0.026 + .002
20		.156 .125	.048 .042	.088 .061	.030	Consult factory for alternate size
16		.172	.082 .069	.103 .097	.050	
12		.141	.120 .112	.142 .136	.065	

Crimp / Removable*



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

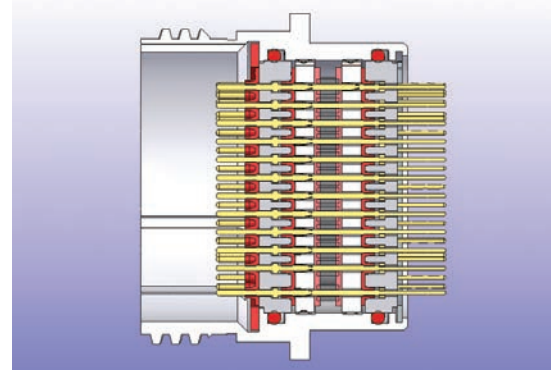
Smith Connectors offers filtered connectors that are capable of providing exceptional low pass filtering and effective insertion loss without the use of soldered components.

Smith Connectors 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.

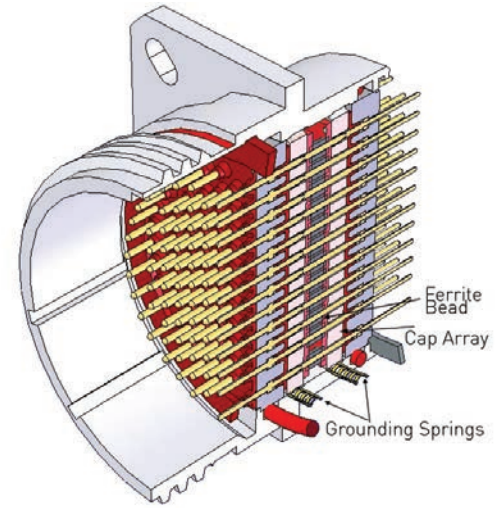
Solderless filter connectors contain a specially designed contact clip to make the connection from the signal/power contact to the capacitor array. An EMI ground spring provides a low resistance path between the capacitor array and connector shell. These connectors meet the same stringent electrical 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

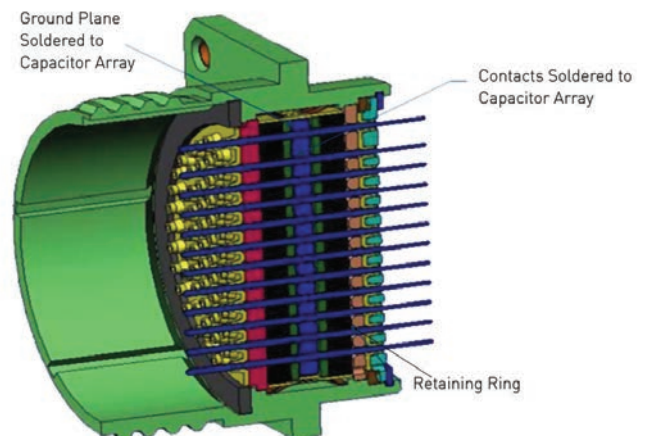
- ▶ RoHS Compliant
- ▶ No Solder design (not potted)
- ▶ Reworkable filter module assembly
- ▶ Modular construction
- ▶ High temperature lead free solder tolerant
- ▶ Qualification data available upon request



Solderless Filter Assembly



Solder Filter Assembly



MATERIALS 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



Non-filter applications can easily be upgraded to EMI/Transient protection without modification to the system with Smith Connectors' 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.

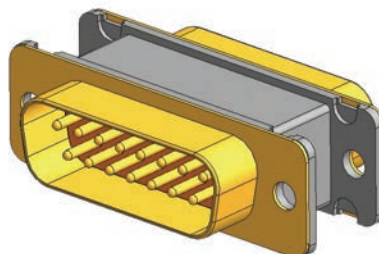
MIL-DTL-38999 Series I Adapter



MIL-DTL-38999 Series III Adapter



MIL-DTL-24308 D-Subminiature Adapter





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