

Custom Filter Plates

High Volume Industrial

As a long-term producer of filter plates for industrial applications, API Technologies understands the cost requirements of this market. In turn, we have established a program to develop and manufacture custom designed filter plates for cost sensitive industrial applications.

We have engineered a variety of capacitive only filter elements that provide excellent RF isolation from 5 MHz to 1 GHz and beyond. To determine the available capacitance values, contact API. Our technical staff will work with you to develop a solution that meets your system and budget needs.

Military/High Reliability

Improving the electromagnetic compliance (EMC) of electronic systems is an area of intense focus within the defense and avionics industries. To achieve this goal, many companies are replacing discrete filter elements and surface mount filters with feed-through filter plate assemblies for higher frequency isolation.

API will custom design a filter plate that meets your size, material and filtering requirements. We are capable of providing stringent testing and analysis of our filter plate assemblies to MIL-F-15733 and MIL-F-28861.



Custom Capabilities

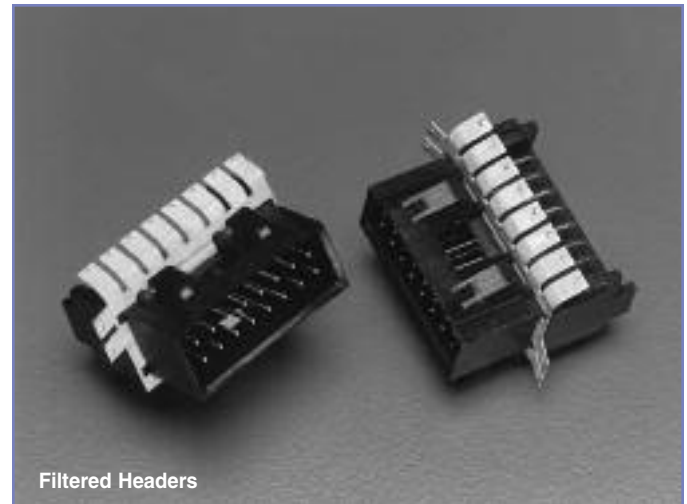
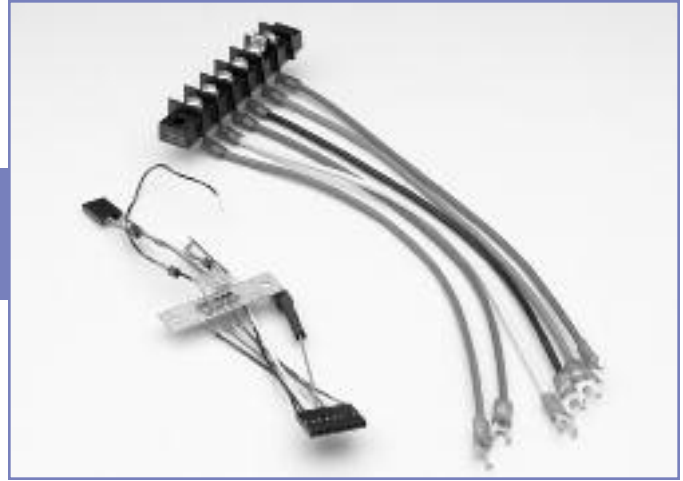
In addition to our custom filter plates, API Technologies' Spectrum Control brand offers a number of value-added features designed to complement your manufacturing operation. Our marketing and engineering staff will evaluate your design or manufacturing parameters and develop a filter solution which provides increased filtering performance economically.

API Capabilities

- Custom assemblies with varying cable lengths and impedances for high clock speeds associated with digital electronics
- Integrate a filter solution with other components to ensure a completely functional device
- Perform EMC evaluations on your equipment, recommending proper placement of EMI/RFI filtering components

Filtered Headers

Replace the unfiltered connector on your PC board with API's low cost filtered header. This innovative new product allows you to meet EMC emissions and susceptibility standards with minimal or no board change.

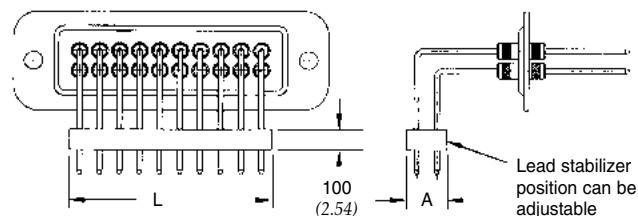
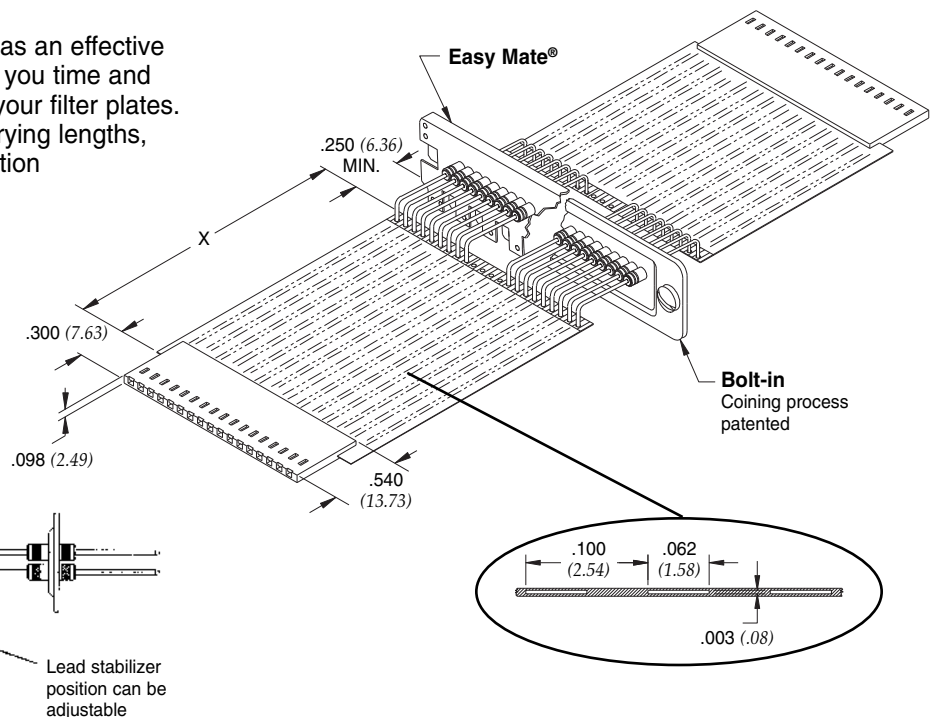


Flat Conductor Cables

Flat conductor cables are often selected as an effective method of interconnection. API can save you time and money by installing conductor cables to your filter plates. Flat conductor cables are available in varying lengths, conductor counts, and in several termination configurations.

Lead Stabilizer

API has developed a filter plate lead stabilizer bar to protect leads during installation and ensure proper alignment to PCB.



Filter Selection

EMI Filter Performance

The electrical characteristics table and insertion loss graphs indicate the performance of feed-through capacitors and Pi type filters. Utilize this information to specify the EMI filtering components included in your filter plate.

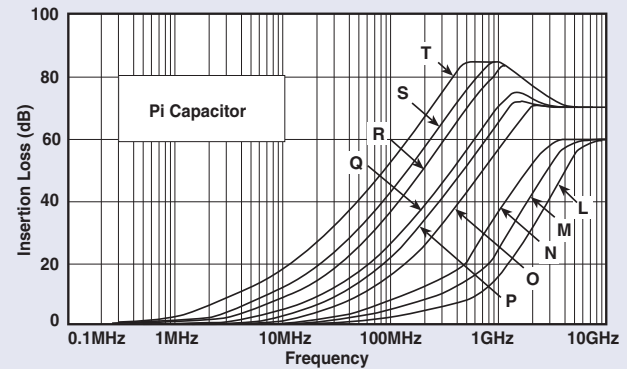
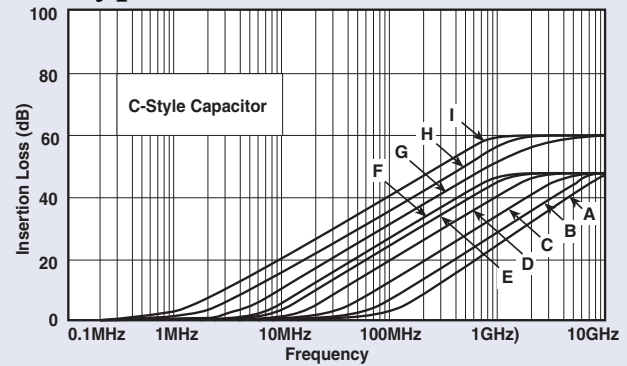
Custom Filtering

API Technologies' Spectrum Control line of filter plates are engineered to accommodate selective line filtering. Several different types of filters may be specified in a single, easy to install filter plate, allowing you to facilitate a wide range of filtering requirements.

For selective line filtering, provide a sketch indicating the filters and positions required. The example below represents a 10 pin, 2 row plate with six 1000 pF feed-through capacitors and four 1700 pF Pi type filters.

Part Number							
Based on front view of plate	10	F	F	F	R	R	6
	1	F	F	F	R	R	5

Typical Insertion Loss



Above curves represent application of proper grounding fundamentals, for assistance consult with API.

Filter Designation	Filter** Circuits	Capacitance		3 dB Max Cut-off Frequency (MHz)*	Working Voltage DC -55°C to +125°C	Minimum Insertion Loss - Decibels (dB) 50 ohm system per MIL-STD-220 (no load)							
		Value	Tolerance			5 MHz	10 MHz	20 MHz	50 MHz	100 MHz	200 MHz	500 MHz	1 GHz
A	C	68 pF	±20%	77	100V	—	—	—	—	—	3	10	16
B		100 pF	±20%	53	100V	—	—	—	—	1	6	14	19
C		135 pF	+100/-0%	23	100V	—	—	—	1	5	10	16	20
D		470 pF	±20%	11	100V	—	—	2	7	13	19	25	27
E		820 pF	±20%	6	100V	—	2	6	12	18	24	30	33
F		1000 pF	±20%	5	100V	—	3	7	14	20	26	32	35
G		1500 pF	±20%	3.5	100V	1	4	10	16	22	29	36	37
H		2500 pF	+100/-0%	1.3	100V	5	11	17	23	29	35	38	40
I		4000 pF	+100/-0%	.8	100V	9	15	21	27	34	38	42	46
J	Insulated	10 pF	Max.	635	100V	—	—	—	—	—	—	—	
K	Grounded Insert					—	—	—	—	—	—	—	
L	Pi	68 pF	±20%	65	100V	—	—	—	—	1	6	17	23
M		100 pF	±20%	46	100V	—	—	—	—	2	9	22	28
N		135 pF	+100/-0%	25	100V	—	—	—	1	6	17	26	34
O		470 pF	±20%	11	100V	—	—	—	9	18	22	36	43
P		820 pF	±20%	6	100V	—	—	4	13	23	31	45	52
Q		1000 pF	±20%	5	100V	—	2	7	16	24	36	51	59
R		1700 pF	+100/-0%	1.9	100V	1	6	14	28	35	49	64	69
S		2500 pF	+100/-0%	1.3	50V	4	9	16	28	41	54	70	70
T		5000 pF	+100/-0%	.7	100V	9	15	28	41	53	66	70	70

* 3 dB cut-off frequency calculated at the maximum capacitance.

** For Hi-Density centers (2 mm) only C style filters are available, to a maximum of 4000pF.

All high density capacitors are 50 volts @ 125°C.

Custom Filter Plates

Filter Plate Design Inquiry Form

General Information

Customer: _____	Location: _____
Address: _____	
City: _____	State: _____ Zip: _____
Contact: _____	Title: _____
Phone: _____	Fax: _____

Project Information

Project name: _____	Annual usage: _____	Target price: _____
Intended application: _____	Quote quantity: _____	
Function of circuit filter is used in: _____	Target cost: _____	

Functional Detail NOTE: Bold lettering represents standard, readily available material (Circle the appropriate parameters needed)

<u>Lead Diameter</u>				<u>Total Lead Length</u>			<u>Lead Material</u>		<u>Lead Plating</u>			
0.020"	0.025"	0.032"	0.040"	0.700"	1.00"	1.102"	Phosphor Bronze	Copper	Gold	Tin	Silver	
Base Plate Material												
Brass UNS C26000/C27000 Cold Rolled Steel (CRS) UNS G10080/G10180 Aluminum UNS A93003/A96061 Beryllium Copper* <small>* For Beryllium Copper, ask about our new "Easy Mate[®]" Plate</small>												
<u>Plate Thickness (± 0.002")</u>						<u>Plating of Base Plate</u>						
(0.010" for Easy Mate[®]Jr.)		(0.020" for Bolt-in)				0.026"	0.033"	0.041"	Tin	Silver	90/10 Solder	Nickel
Center-to-Center Spacing						Standard (inch):			0.079	0.100		
(Not all capacitances available on all centers)						Metric (mm):			2	2.54		

Detailed Sketch and Comments Area

Include Mounting Detail