

## 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.



# 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.

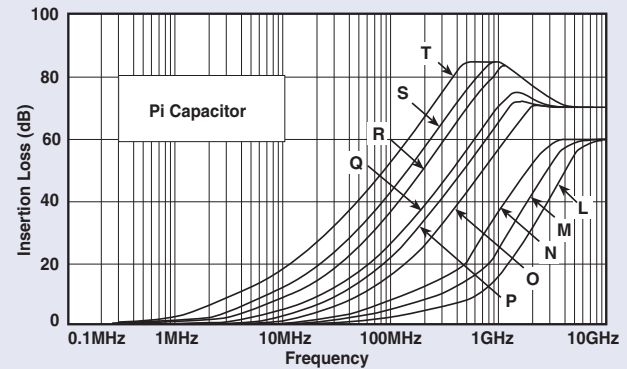
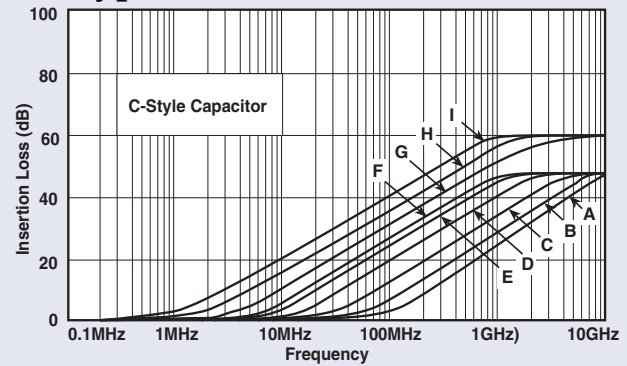
## Custom Filtering

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	10 F F F R R 6				
Based on front view of plate	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"	<b>0.025"</b>	0.032"	0.040"	0.700"	1.00"	<b>1.102"</b>	<b>Phosphor Bronze</b>	Copper	<b>Gold</b>	Tin	Silver	
<b>Base Plate Material</b>												
<b>Brass UNS C26000/C27000</b> Cold Rolled Steel (CRS) UNS G10080/G10180 Aluminum UNS A93003/A96061 Beryllium Copper* <small>* For Beryllium Copper, ask about our new "Easy Mate<sup>®</sup>" Plate</small>												
<u>Plate Thickness (± 0.002")</u>						<u>Plating of Base Plate</u>						
<b>(0.010" for Easy Mate<sup>®</sup>Jr.)</b>		<b>(0.020" for Bolt-in)</b>				0.026"	0.033"	0.041"	<b>Tin</b>	Silver	90/10 Solder	Nickel
<b>Center-to-Center Spacing</b>						Standard (inch):			0.079	<b>0.100</b>		
(Not all capacitances available on all centers)						Metric (mm):			2	<b>2.54</b>		

### Detailed Sketch and Comments Area

Include Mounting Detail