EMI Filtered Plates & Arrays

Our filter plates and terminal blocks provide exceptional EMI protection of signal and power lines at a lower total installed cost.

Advantages of a Filter Array

- Provide an EMI filtered signal or power line between electronic system modules
- Reduce cost - economical method to meet EMC requirements
- Reduce labor - eliminate need to assemble filters into a bulkhead
- Outperform surface mount EMI filters at frequencies above 50 MHz
- Reduce risk of damage to filter elements due to thermal shock and installation
- Improve reliability - every filter plate is 100% tested for key parameters
- Maximize real estate on PCB
- Mixed schematics in a single filter plate package

Easy Mate Filter Plates

Reduce installation time and overall cost with its patented snap-in design to maximize real estate on PCBs. The Easy Mate Jr. offers a lower profile for installation of feedthrough filters into small hardware applications, see pages 3-8.

Bolt-In Filter Plates

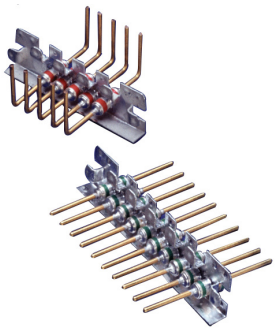
Provide EMI filtering for signal and power lines and an excellent method for electronic system interface. These plates eliminate the need to mount filters into bulkheads and are ideal for the isolation of electronic compartments to suppress EMI, see pages 9-12.

Barrier Strip Filtered Terminal Blocks

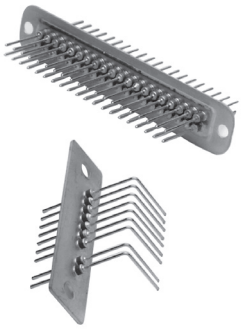
Available in 2 to 6 terminal versions and our filter elements provide high insertion loss for EMI/RFI filtering of AC and DC power and control lines, see pages 13-16.

Custom Filter Plates & Arrays

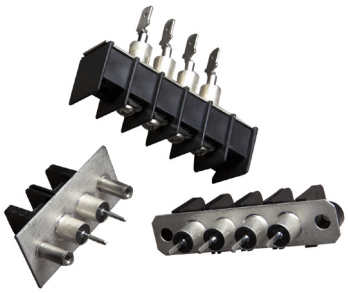
Helps to meet your design or manufacturing parameters through special mechanical and electrical specifications or by adding varying cable lengths and terminations for a complete turnkey assembly. Custom, high reliability assemblies available, see pages 17-20.



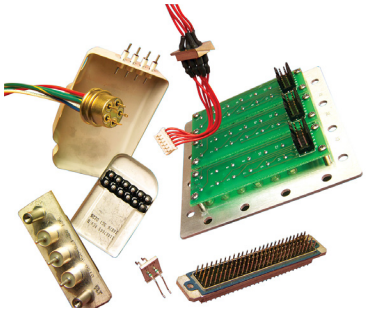
Easy Mate Filter Plates



Bolt-In Filter Plates



Filter Terminal Blocks



Custom Filter Plates & Arrays

Filter Plates

Eliminating EMI/RFI interference has become a stringently enforced matter and needs to be considered at the early stages of design for all electronic systems. Both internal and external interference sources have a major impact on the successful EMC performance of a new system.

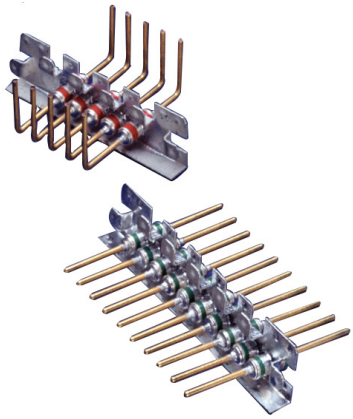
Shielding alone is unsatisfactory in shunting unwanted harmonics, conducted or radiated, on power/control lines that run through compartments of an electronic enclosure. This is particularly applicable in systems operating at frequencies above 50 MHz. Isolation and the incorporation of feedthrough filter plates to facilitate entering or leaving sensitive compartments in an assembly are excellent methods to bring electronic interdependent functions/systems into compliance.

Filter plates allow a means of interfacing voltage and/or data (controlling instructions) to distant areas of a system without compromising its performance. Filter plates provide excellent isolation from 5 MHz to 18 GHz and beyond, reduce the labor involved for installation, and reduce the risk of damaging filter elements during installation. Connecting to these filter plates is easily accomplished through several methods, including ribbon style connectors, harnesses, hard wiring, or directly soldering leads at a 90° angle to the printed circuit board.

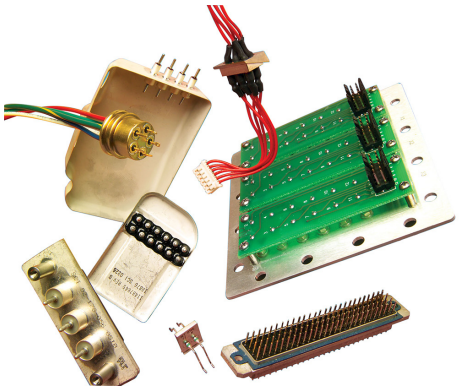
The drawings on pages 4 and 10 illustrate how filter plates are incorporated into an electronic system.

Filter Plate Advantages

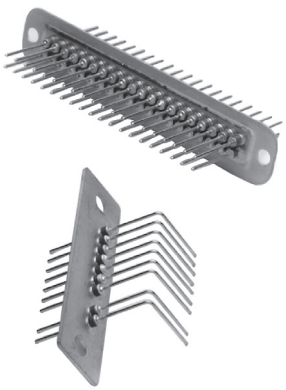
- Provide an EMI filtered signal or power line between electronic system modules
- Reduce cost - economical method to meet EMC requirements
- Reduce labor - eliminate need to assemble filters into a bulkhead
- Outperform surface mount EMI filters at frequencies above 50 MHz
- Reduce risk of damage to filter elements due to thermal shock and installation
- Improve reliability - every filter plate is 100% tested for key parameters
- Maximize real estate on PCB
- Mixed schematics in a single filter plate package



Easy Mate Filter Plates



Custom Filter Plates

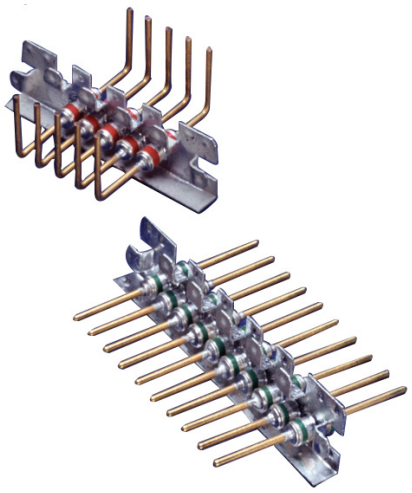


Bolt-In Style Filter Plates

Easy Mate Filter Plates

APITech developed an EMI/RFI filter plate, Easy Mate, which simplifies installation and eliminates the need for mounting hardware. The patented Easy Mate style is designed to "snap" into the chassis of electronic systems, reducing the labor required to complete a plate installation. The drawing on page 4 shows the Easy Mate installation design.

These plates are available in two lengths and in both standard density centers (.100") and high-density centers (2.00mm). Standard density Easy Mate plates offer up to 26 lines per plate in a double row configuration, while high-density plates offer up to 32 lines. Custom sizes for Easy Mate plates are available.



Easy Mate Advantages

- Reduces installation time and overall cost
- Eliminates mounting hardware and prepwork
- Improves overall quality and reliability
- Multiple dimpled finger ground contacts provide excellent long term EMI filtering from 5 MHz to 18 GHz
- Outperforms surface mount devices
- Improved reliability
- Maximize real estate on PCB
- Mixed capacitance values and schematics
- Ideal for isolation of electronics compartments
- RoHS compliant versions available

Ordering Infromation

Example: **52-898-206-BA2**

The part number shown represents an Easy Mate filter plate with 2 rows, 6 filters per row. Filters are C style with a capacitance value of 100pF. The plate length is 1.092", and the leads are bent 90° to the right side.

52	**	898	—	2		06	—	B	A	2
Filter Plates		**898** Easy Mate Standard Density **971** Easy Mate High-density*		**No. of Rows** **1** = 1 row **2** = 2 rows	No. of Filters	**No. of Lines per Row** If less than 10, use a 0 (zero) first.		**Filter Designation** A - T from selection table on page 19. ***	**Plate Length** **A** - 1.092 (27.74mm) **B** - 1.812 (46.02mm)	**Lead Configuration** **0** - Straight **1** - 90° (left) **2** - 90° (right) **3** - 90° (both)

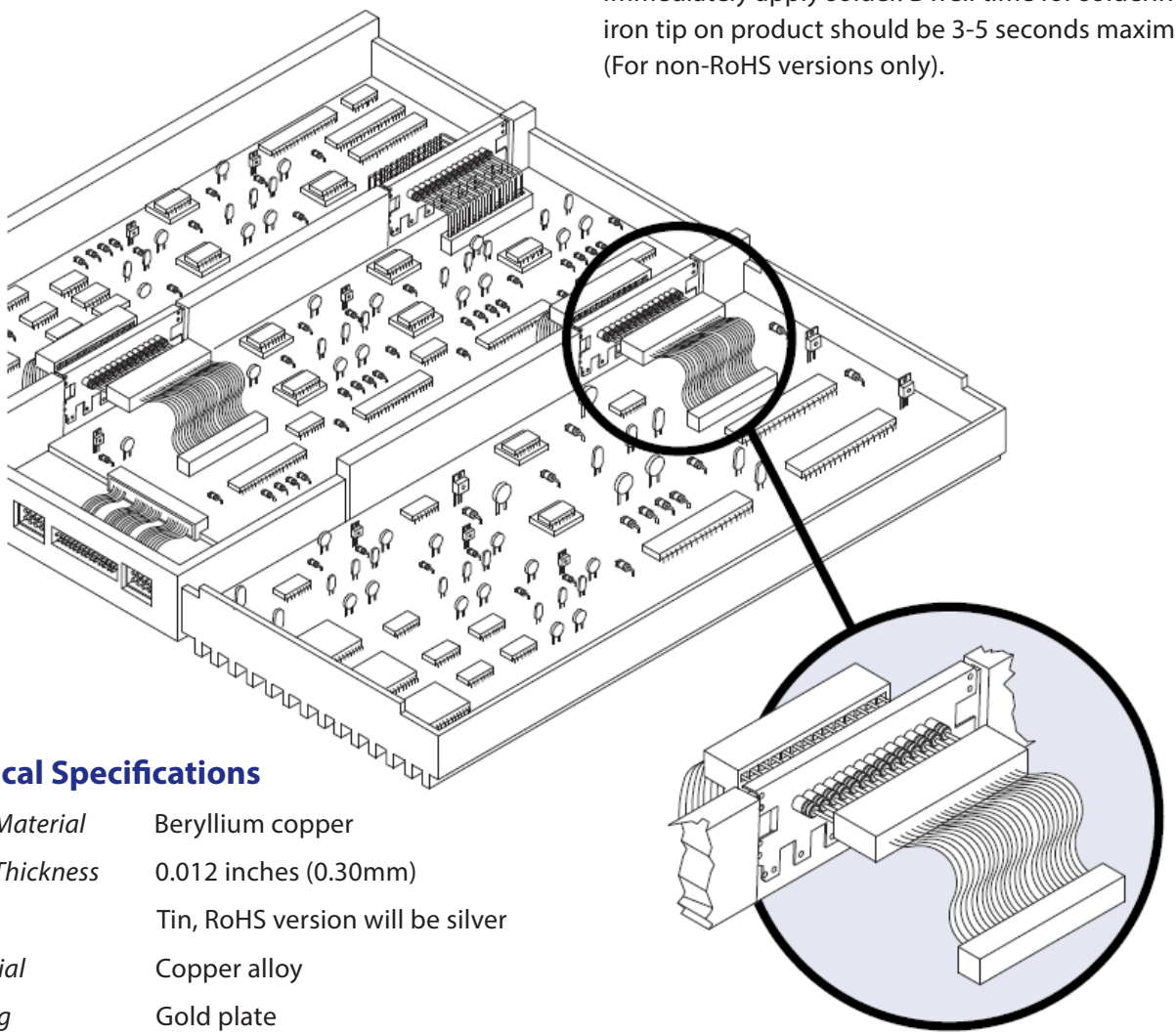
** Maximum capacitance up 400pF C style filter.*
*** Replace "-" with "F" for RoHS compliant version.*

**** To request selective line filtering, a mechanical configuration or material specification not shown in this catalog, please contact APITech. We will review your request and provide you with a part number.*

Easy Mate Filter Plates

Soldering to Filter Terminals

- Use a temperature controlled soldering iron with tip temperature of 525 ± 10° F (275 ± 5° C).
- Use an SN 63 RMA flux core solder.
- Make mechanical wire connection.
- Use heat sink next to filter body where possible.
- Clean soldering iron tip.
- Clip end of solder - remove 0.5" (12.7mm) to expose flux for soldering.
- Apply soldering iron to wire/flag junction at wetted solder tip region of iron (Wetted Bridge Method). Immediately apply solder. Dwell time for soldering iron tip on product should be 3-5 seconds maximum. (For non-RoHS versions only).



APITech's patented Easy Mate design.

Mechanical Specifications

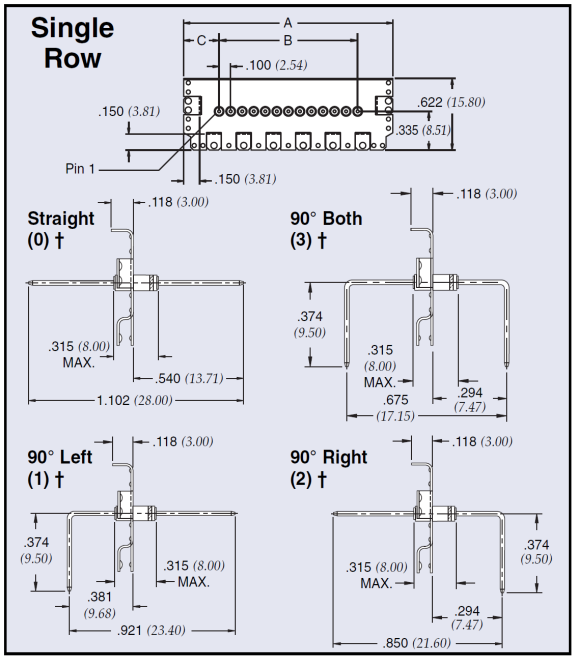
Base Plate Material	Beryllium copper
Base Plate Thickness	0.012 inches (0.30mm)
Plating	Tin, RoHS version will be silver
Lead Material	Copper alloy
Lead Plating	Gold plate
Lead Diameter	ø 0.25" (.64mm) for 0.100" centers (2.54mm) ø 0.20" (.51mm) for 0.079" centers (2.00mm)
Current Rating	5 Amps for 0.25" (.64mm) ø 3 Amps for 0.50" (.51mm) ø

Easy Mate Filter Plates

Standard Density Centers .100"

Dimensions: inches and *(mm)*

Lead Spacing: .100" *(2.54 mm)*



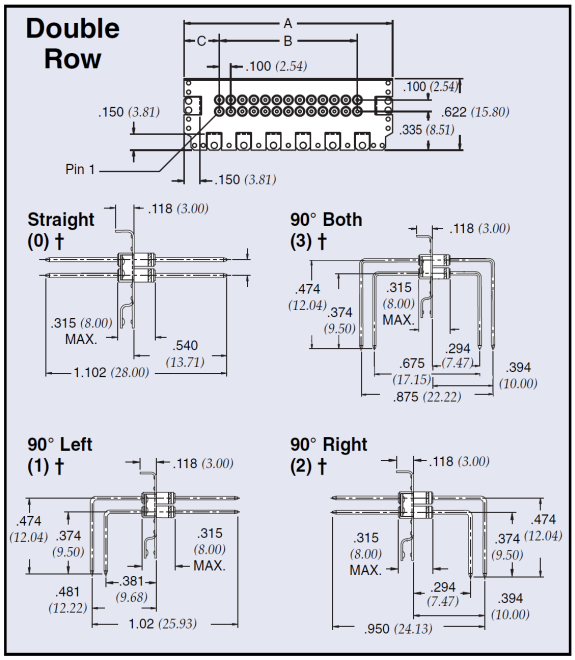
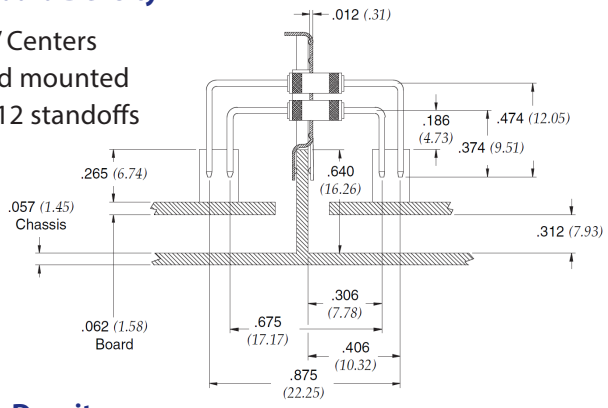


Plate length (A)	No. of filtered lines per row	52-898-XXX-XXX	
		B	C
1.092 *(27.74)*	1	0 *(0.00)*	0.496 *(12.60)*
	2	0.1 *(2.54)*	0.496 *(12.60)*
	3	0.2 *(5.08)*	0.396 *(10.06)*
	4	0.3 *(7.62)*	0.396 *(10.06)*
	5	0.4 *(10.16)*	0.296 *(7.52)*
	6	0.5 *(12.70)*	0.296 *(7.52)*
1.812 *(46.02)*	1	0 *(0.00)*	0.906 *(23.01)*
	2	0.1 *(2.54)*	0.806 *(20.47)*
	3	0.2 *(5.08)*	0.806 *(20.47)*
	4	0.3 *(7.62)*	0.706 *(17.93)*
	5	0.4 *(10.16)*	0.706 *(17.93)*
	6	0.5 *(12.70)*	0.606 *(15.39)*
	7	0.6 *(15.24)*	0.606 *(15.39)*
	8	0.7 *(17.78)*	0.506 *(12.85)*
	9	0.8 *(20.32)*	0.506 *(12.85)*
	10	0.9 *(22.86)*	0.406 *(10.31)*
	11	1.0 *(25.40)*	0.406 *(10.31)*
	12	1.1 *(27.94)*	0.306 *(7.77)*
	13	1.2 *(30.48)*	0.306 *(7.77)*

Typical Mounting Applications

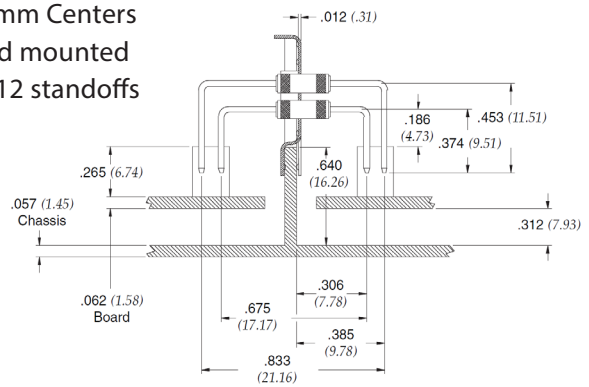
Standard Density

.100" Centers
Board mounted
to .312 standoffs



High-Density

2.00mm Centers
Board mounted
to .312 standoffs



APITech's patented Easy Mate design.

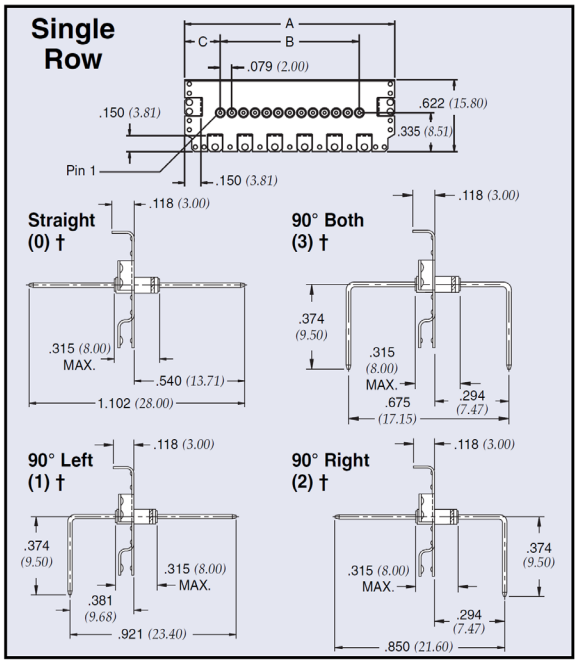
† Refers to lead configuration for part number/ordering information.

Easy Mate Filter Plates

High-Density Centers 2.00mm

Dimensions: inches and *(mm)*

Lead Spacing: .079" *(2.00 mm)*



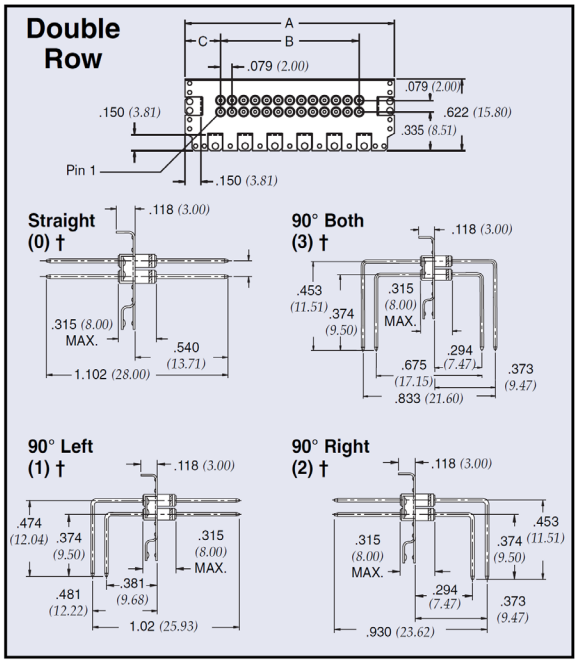
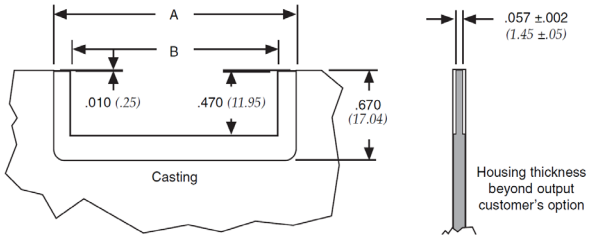


Plate length (A)	No. of filtered lines per row	52-960-XXX-XXX	
		B	C
1.092 *(27.74)*	2	0.079 *(2.00)*	0.463 *(11.77)*
	3	0.157 *(4.00)*	0.463 *(11.77)*
	4	0.236 *(6.00)*	0.385 *(9.77)*
	5	0.315 *(8.0)*	0.385 *(9.77)*
	6	0.394 *(10.00)*	0.306 *(7.77)*
	7	0.472 *(12.00)*	0.306 *(7.77)*
1.812 *(46.02)*	2	0.079 *(2.00)*	0.866 *(22.00)*
	3	0.157 *(4.00)*	0.787 *(20.00)*
	4	0.236 *(6.00)*	0.787 *(20.00)*
	5	0.315 *(8.00)*	0.709 *(18.00)*
	6	0.394 *(10.00)*	0.709 *(18.00)*
	7	0.472 *(12.00)*	0.630 *(16.00)*
	8	0.551 *(14.00)*	0.630 *(16.00)*
	9	0.630 *(16.00)*	0.551 *(14.00)*
	10	0.709 *(18.00)*	0.551 *(14.00)*
	11	0.787 *(20.00)*	0.472 *(12.00)*
	12	0.866 *(22.00)*	0.472 *(12.00)*
	13	0.945 *(24.00)*	0.394 *(10.00)*
	14	1.024 *(26.00)*	0.394 *(10.00)*
	15	1.102 *(28.00)*	0.315 *(8.00)*
	16	1.181 *(30.00)*	0.315 *(8.00)*

Easy Mate Chassis Cut-Out Design



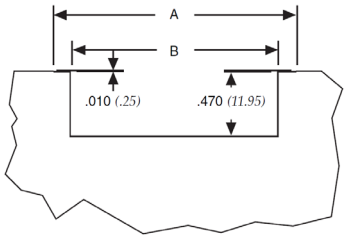


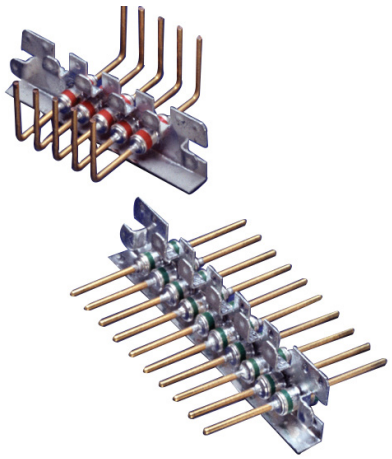
Plate length	A	B
1.092 *(27.74)*	1.117 *(28.41)*	0.816 *(20.75)*
1.812 *(46.02)*	1.837*(46.71)*	1.535*(39.04)*

APITech's patented Easy Mate design.

† Refers to lead configuration for part number/ordering information.

Easy Mate Jr. Filter Plates

APITech expanded its popular Easy Mate family by adding two more package sizes. These new sizes are lower profile and facilitate installation of feedthrough filters into small hardware applications such as PCS linear power amplifiers and RF transmitters. The Easy Mate Jr. is available in two plate lengths, .990" and 1.240", and in standard (.100") and high-density centers (2.00mm).



Easy Mate Jr. Advantages

- Reduces installation time and overall cost
- Increase flexibility with standard density centers (.100") or high-density centers (2.00mm)
- Improves overall quality and reliability
- Multiple finger ground contacts provide excellent EMIL filtering from 5 MHz to 18 GHz
- Outperforms surface mount devices
- Maximize real estate on PCB
- Mixed capacitance values and schematics
- Ideal for isolation of electronic compartments
- RoHS compliant versions available

Mechanical Specifications

Base Plate	Beryllium copper
Base Plate Thickness	.010 inches (.25mm)
Plating	Tin RoHS version will be silver
Lead Material	Copper alloy
Lead Plating	Gold plate
Lead Diameter	ø .025" (.64mm) for 0.100" centers (2.54mm) ø .020" (.51mm) for 0.079" centers (2.00mm)
Current Rating	5 Amps for .025" ø (.64mm) 3 Amps for .020" ø (.51mm)

Ordering Information

Example: **52-978-106-BA2**

The part number shown represents an Easy Mate Jr. filter plate with 6 filters. Filters are C style with a capacitance value of 100pF. The plate length is .990", and the leads are bent 90° to the right side.

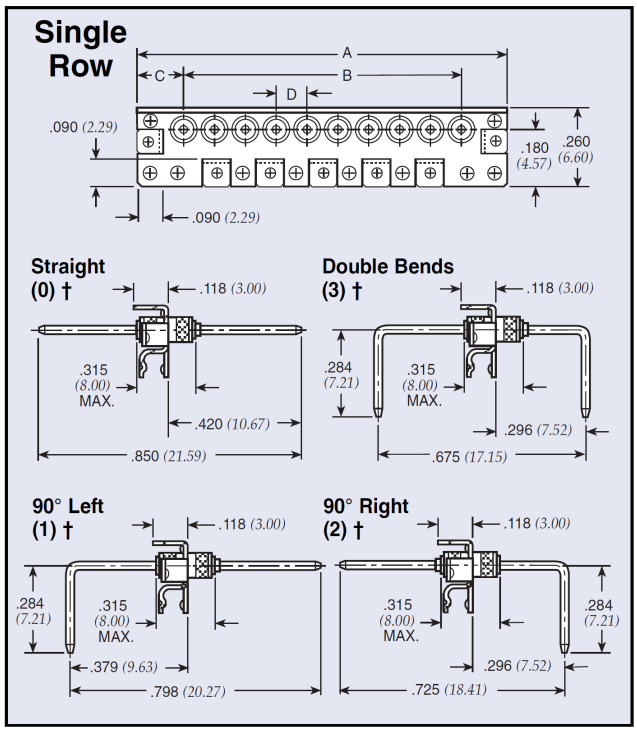
52	**	978	—	1	06	—	B	A	2
Filter Plates		**978** Easy Mate Jr. Standard Density **979** Easy Mate Jr. High-density*		**No. of Rows** **1** = 1 row	No. of Filters **No. of Lines per Row** If less than 10, use a 0 (zero) first.		**Filter Designation** A - T from selection table on page 19. ***	**Plate Length** **A** - .990 (25.15mm) **B** - 1.240 (31.49mm)	**Lead Configuration** **0** - Straight **1** - 90° (left) **2** - 90° (right) **3** - 90° (both)

**** Maximum capacitance up 400pF C style filter.***
***** Replace "-" with "F" for RoHS compliant version.***

****** To request selective line filtering, a mechanical configuration or material specification not shown in this catalog, please contact APITech. We will review your request and provide you with a part number.***

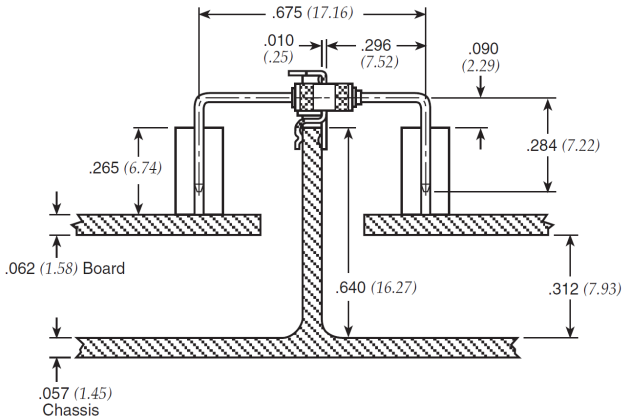
Easy Mate Jr. Filer Plates

Dimensions: inches and *(mm)*



† Refers to lead configuration for part number/ordering information.

Typical Mounting Application



APITech's patented Easy Mate design.

Standard Density Centers .100" (D)

Plate length (A)	No. of filtered lines per row	52-960-XXX-XXX	
		B	C
.990 *(25.15)*	2	0.1 *(2.54)*	0.395 *(10.03)*
	3	0.2 *(5.08)*	0.395 *(10.03)*
	4	0.3 *(7.62)*	0.295 *(7.49)*
	5	0.4 *(10.16)*	0.295 *(7.49)*
	6	0.5 *(12.70)*	0.195 *(4.95)*
	7	0.6 *(15.24)*	0.195 *(4.95)*
1.24 *(31.49)*	2	0.1 *(2.54)*	0.570 *(14.48)*
	3	0.2 *(5.08)*	0.470 *(11.94)*
	4	0.3 *(7.62)*	0.470 *(11.94)*
	5	0.4 *(10.16)*	0.370 *(9.40)*
	6	0.5 *(12.70)*	0.370 *(9.40)*
	7	0.6 *(15.24)*	0.270 *(6.86)*
	8	0.7 *(17.78)*	0.270 *(6.86)*
	9	0.8 *(20.32)*	0.170 *(4.32)*
	10	0.9 *(22.86)*	0.170 *(4.32)*

High-Density Centers 2.00mm (D)

Plate length (A)	No. of filtered lines per row	52-960-XXX-XXX	
		B	C
.990 *(25.15)*	2	0.079 *(2.54)*	0.395 *(10.03)*
	3	0.157 *(5.08)*	0.395 *(10.03)*
	4	0.236 *(7.62)*	0.295 *(7.49)*
	5	0.315 *(10.16)*	0.295 *(7.49)*
	6	0.394 *(12.70)*	0.195 *(4.95)*
	7	0.472 *(15.24)*	0.195 *(4.95)*
1.24 *(31.49)*	2	0.079 *(2.00)*	0.580 *(14.75)*
	3	0.157 *(4.00)*	0.502 *(12.75)*
	4	0.236 *(6.00)*	0.502 *(12.75)*
	5	0.315 *(8.00)*	0.423 *(10.75)*
	6	0.394 *(10.00)*	0.423 *(10.75)*
	7	0.472 *(12.00)*	0.344 *(8.75)*
	8	0.551 *(14.00)*	0.344 *(8.75)*
	9	0.630 *(16.00)*	0.266 *(6.75)*
	10	0.709 *(18.00)*	0.266 *(6.75)*

Easy Mate Jr. Chassis Cut-Out Design

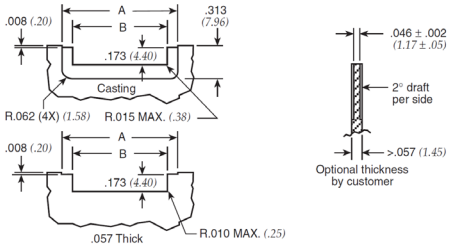
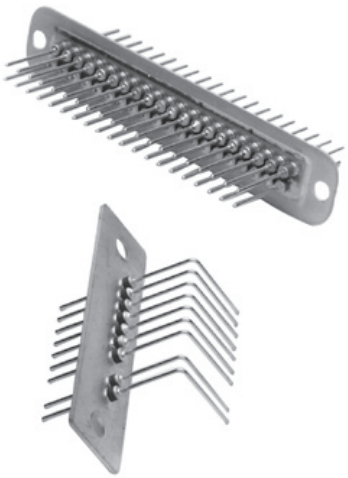


Plate length	A	B
.990 *(25.15)*	1.0.15 *(25.78)*	0.834 *(21.18)*
1.24 *(31.49)*	1.265*(32.13)*	1.084 *(27.53)*

Bolt-In Style Filter Plates

The bolt-in style plate provides an excellent method for electronic system interface and EMI filtering. Bolt-in filter plates are available in a variety of plate sizes and up to 74 lines per plate in high-density (2.00mm) and 60 pins per plate in standard density (.100"). On the larger plate sizes, APITech ensures structural integrity through a unique coining process. The drawing on the next page shows an electronic system utilizing bolt-in style filter plates.



Bolt-in Filter Plate Advantages

- Eliminates the need to assemble filters into a bulkhead
- Excellent filtering from 5 MHz to 1 GHz
- Total cost savings vs. customer installed discrete filter elements
- Ideal for isolation of electronic compartments to suppress EMI
- Outperforms surface mount filters over 50 MHz
- Improved reliability
- Mixed capacitance values and schematics
- Maximize real estate on PCB
- RoHS compliant versions available

Ordering Infromation

Example: **52-970-208-BB2**

The part number shown represents a bolt-in style filter plate with 2 rows, 8 filters per row. Filters are C style with a capacitance value of 100pF. The plate length is 1.560", and the leads are bent 90° to the right side.

52	**	970	—	2	08	—	B	B	2
Filter Plates		**970** Bolt-in Standard Density **971** Bolt-in High-density*		**No. of Rows** **1** = 1 row **2** = 2 rows	No. of Filters **No. of Lines per Row** If less than 10, use a 0 (zero) first.		**Filter Designation** A - T from selection table on page 19. ***	**Plate Length** **A** - 1.060 (26.92mm) **B** - 1.560 (39.62mm) **C** - 2.560 (65.02mm) **D** - 3.560 (90.42mm)	**Lead Configuration** **0** - Straight **1** - 90° (left) **2** - 90° (right) **3** - 90° (both)

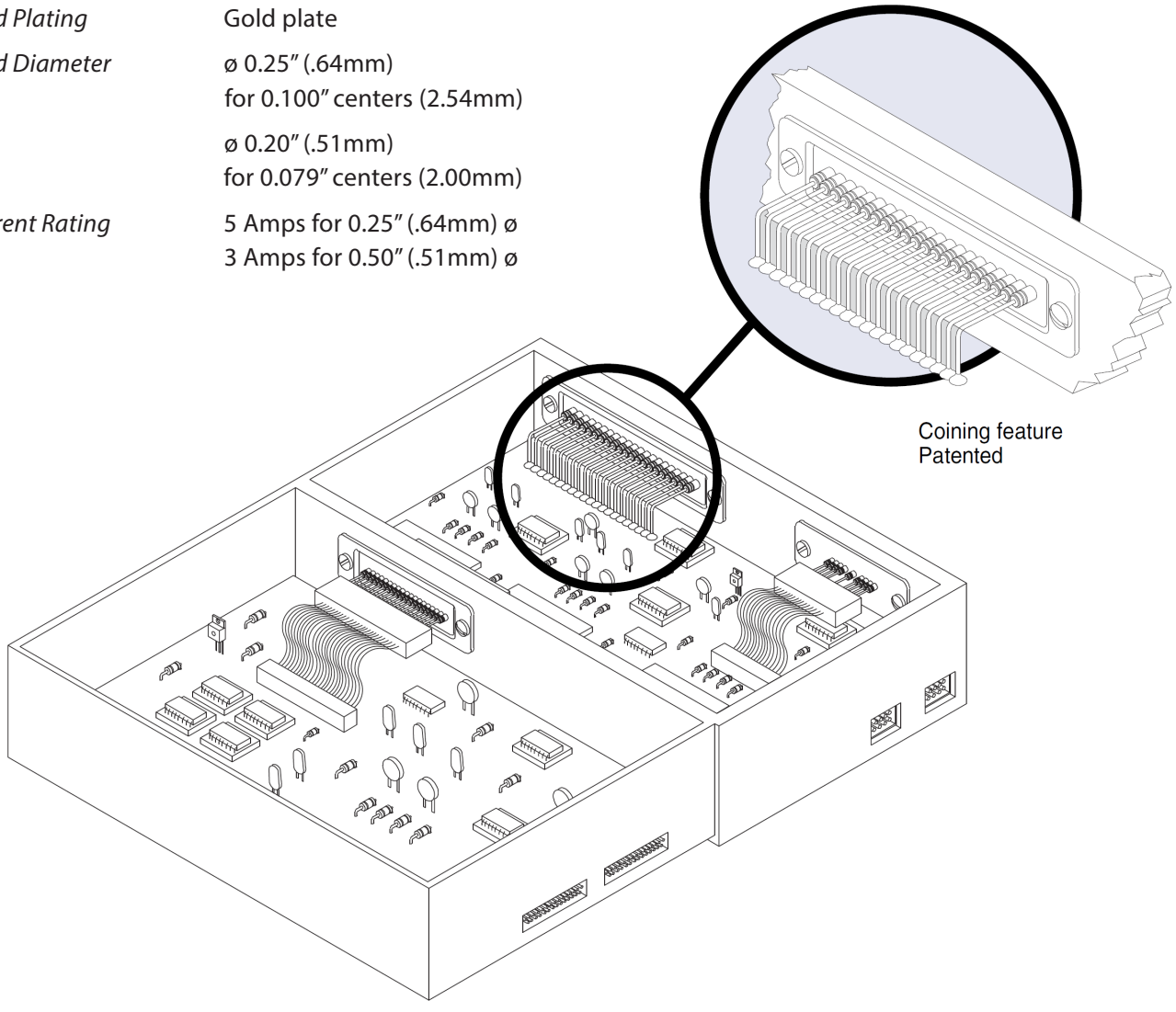
** Maximum capacitance up 400pF C style filter.*
*** Replace "-" with "F" for RoHS compliant version.*

**** To request selective line filtering, a mechanical configuration or material specification not shown in this catalog, please contact APITech. We will review your request and provide you with a part number.*

Bolt-In Style Filter Plates

Mechanical Specifications

Base Plate Material	Brass UNS C26000/C27000
Base Plate Thickness	0.020 inches (.51mm)
Plating	Tin, RoHS version will be silver
Lead Material	Copper alloy
Lead Plating	Gold plate
Lead Diameter	ø 0.25" (.64mm) for 0.100" centers (2.54mm) ø 0.20" (.51mm) for 0.079" centers (2.00mm)
Current Rating	5 Amps for 0.25" (.64mm) ø 3 Amps for 0.50" (.51mm) ø

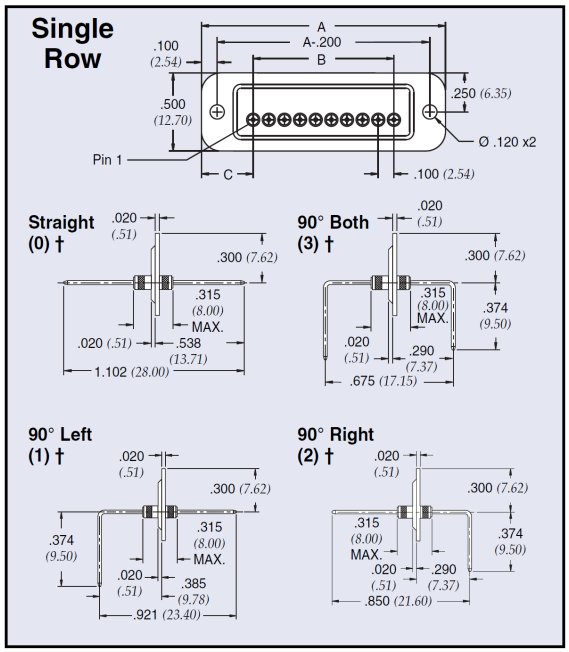


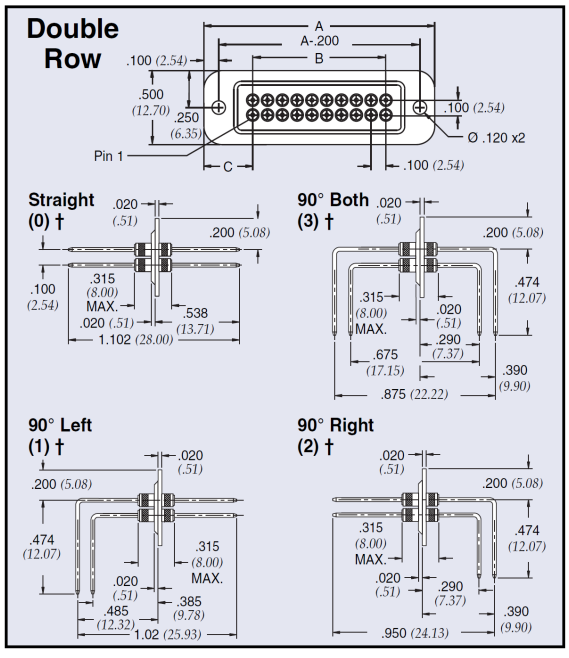
Bolt-In Style Filter Plates

Standard Density Centers .100"

Dimensions Inches and *(mm)*

Lead Spacing .100" *(2.54mm)*





Coining feature patented.

† Refers to lead configuration for part number/ordering information.

Plate length (A)	No. of filtered lines per row	52-970-XXX-XXX	
		B	C
1.060* *(26.92)*	1	0 *(0.00)*	0.53 *(13.46)*
	2	0.1 *(2.54)*	0.43 *(10.92)*
	3	0.2 *(5.08)*	0.43 *(10.92)*
	4	0.3 *(7.62)*	0.33 *(8.38)*
	5	0.4 *(10.16)*	0.33 *(8.38)*
1.560* *(39.62)*	1	0 *(0.00)*	0.73 *(18.54)*
	2	0.1 *(2.54)*	0.73 *(18.54)*
	3	0.2 *(5.08)*	0.63 *(16.00)*
	4	0.3 *(7.62)*	0.63 *(16.00)*
	5	0.4 *(10.16)*	0.53 *(13.46)*
	6	0.5 *(12.70)*	0.53 *(13.46)*
	7	0.6 *(15.24)*	0.43 *(10.92)*
	8	0.7 *(17.78)*	0.43 *(10.92)*
	9	0.8 *(20.32)*	0.33 *(8.38)*
	10	0.9 *(22.86)*	0.33 *(8.38)*
2.560 *(65.02)*	5	0.4 *(10.16)*	1.03 *(26.16)*
	6	0.5 *(12.70)*	1.03 *(26.16)*
	7	0.6 *(15.24)*	0.93 *(23.62)*
	8	0.7 *(17.78)*	0.93 *(23.62)*
	9	0.8 *(20.32)*	0.83 *(21.08)*
	10	0.9 *(22.86)*	0.83 *(21.08)*
	11	1.0 *(25.40)*	0.73 *(18.54)*
	12	1.1 *(27.94)*	0.73 *(18.54)*
	13	1.2 *(30.48)*	0.63 *(16.00)*
	14	1.3 *(33.02)*	0.63 *(16.00)*
	15	1.4 *(35.56)*	0.53 *(13.46)*
	16	1.5 *(38.10)*	0.53 *(13.46)*
	17	1.6 *(40.65)*	0.43 *(10.92)*
	18	1.7 *(43.18)*	0.43 *(10.92)*
	19	1.8 *(45.72)*	0.33 *(8.38)*
	20	1.9 *(48.26)*	0.33 *(8.38)*
3.560 *(90.42)*	13	1.2 *(30.48)*	1.13 *(27.70)*
	14	1.3 *(33.02)*	1.13 *(27.70)*
	15	1.4 *(35.56)*	1.03 *(26.16)*
	16	1.5 *(38.10)*	1.03 *(26.16)*
	17	1.6 *(40.65)*	0.93 *(23.62)*
	18	1.7 *(43.18)*	0.93 *(23.62)*
	19	1.8 *(45.72)*	0.83 *(21.08)*
	20	1.9 *(48.26)*	0.83 *(21.08)*
	21	2.0 *(50.80)*	0.73 *(18.54)*
	22	2.1 *(53.34)*	0.73 *(18.54)*
	23	2.2 *(55.88)*	0.63 *(16.00)*
	24	2.3 *(55.42)*	0.63 *(16.00)*
	25	2.4 *(60.96)*	0.53 *(13.46)*
	26	2.5 *(63.50)*	0.53 *(13.46)*
	27	2.6 *(66.04)*	0.43 *(10.92)*
	28	2.7 *(68.58)*	0.43 *(10.92)*
	29	2.8 *(71.12)*	0.33 *(8.38)*
	30	2.9 *(73.66)*	0.33 *(8.38)*

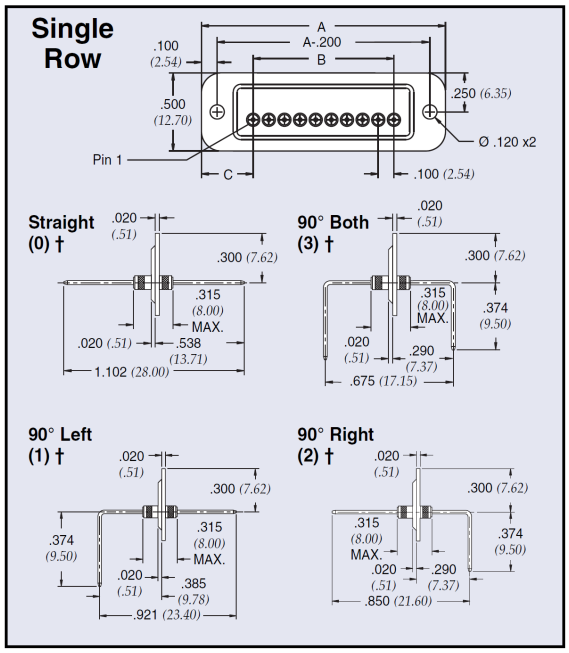
* For plate widths 1.060 and 1.560 there will be no coining. For these plates, increase dimensions to the right .020". Thus, any dimension on left will be reduced by .020.

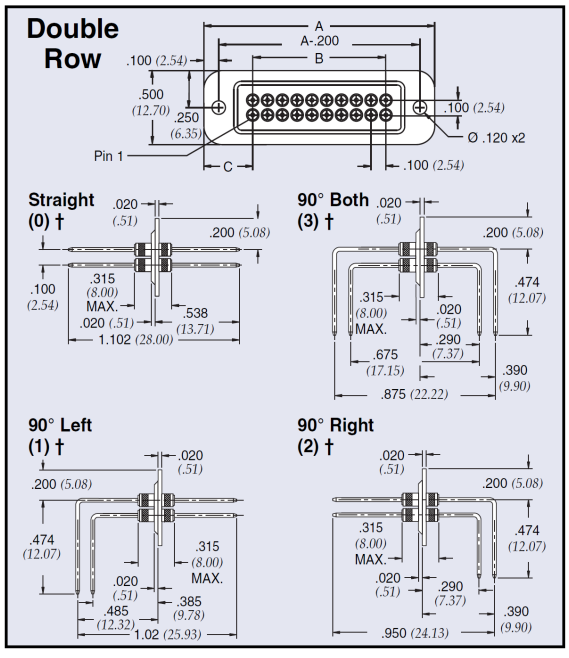
Bolt-In Style Filter Plates

High-Density Centers 2.00mm

Dimensions Inches and *(mm)*

Lead Spacing .079" *(2.00mm)*





Coining feature patented.

† Refers to lead configuration for part number/ordering information.

Plate length (A)	No. of filtered lines per row	52-970-XXX-XXX	
		B	C
1.060* *(26.92)*	1	0 *(0.00)*	0.53 *(13.46)*
	2	0.1 *(2.54)*	0.43 *(10.92)*
	3	0.2 *(5.08)*	0.43 *(10.92)*
	4	0.3 *(7.62)*	0.33 *(8.38)*
	5	0.4 *(10.16)*	0.33 *(8.38)*
1.560* *(39.62)*	1	0 *(0.00)*	0.73 *(18.54)*
	2	0.1 *(2.54)*	0.73 *(18.54)*
	3	0.2 *(5.08)*	0.63 *(16.00)*
	4	0.3 *(7.62)*	0.63 *(16.00)*
	5	0.4 *(10.16)*	0.53 *(13.46)*
	6	0.5 *(12.70)*	0.53 *(13.46)*
	7	0.6 *(15.24)*	0.43 *(10.92)*
	8	0.7 *(17.78)*	0.43 *(10.92)*
	9	0.8 *(20.32)*	0.33 *(8.38)*
	10	0.9 *(22.86)*	0.33 *(8.38)*
2.560 *(65.02)*	5	0.4 *(10.16)*	1.03 *(26.16)*
	6	0.5 *(12.70)*	1.03 *(26.16)*
	7	0.6 *(15.24)*	0.93 *(23.62)*
	8	0.7 *(17.78)*	0.93 *(23.62)*
	9	0.8 *(20.32)*	0.83 *(21.08)*
	10	0.9 *(22.86)*	0.83 *(21.08)*
	11	1.0 *(25.40)*	0.73 *(18.54)*
	12	1.1 *(27.94)*	0.73 *(18.54)*
	13	1.2 *(30.48)*	0.63 *(16.00)*
	14	1.3 *(33.02)*	0.63 *(16.00)*
	15	1.4 *(35.56)*	0.53 *(13.46)*
	16	1.5 *(38.10)*	0.53 *(13.46)*
	17	1.6 *(40.65)*	0.43 *(10.92)*
	18	1.7 *(43.18)*	0.43 *(10.92)*
	19	1.8 *(45.72)*	0.33 *(8.38)*
	20	1.9 *(48.26)*	0.33 *(8.38)*
3.560 *(90.42)*	13	1.2 *(30.48)*	1.13 *(27.70)*
	14	1.3 *(33.02)*	1.13 *(27.70)*
	15	1.4 *(35.56)*	1.03 *(26.16)*
	16	1.5 *(38.10)*	1.03 *(26.16)*
	17	1.6 *(40.65)*	0.93 *(23.62)*
	18	1.7 *(43.18)*	0.93 *(23.62)*
	19	1.8 *(45.72)*	0.83 *(21.08)*
	20	1.9 *(48.26)*	0.83 *(21.08)*
	21	2.0 *(50.80)*	0.73 *(18.54)*
	22	2.1 *(53.34)*	0.73 *(18.54)*
	23	2.2 *(55.88)*	0.63 *(16.00)*
	24	2.3 *(55.42)*	0.63 *(16.00)*
	25	2.4 *(60.96)*	0.53 *(13.46)*
	26	2.5 *(63.50)*	0.53 *(13.46)*
	27	2.6 *(66.04)*	0.43 *(10.92)*
	28	2.7 *(68.58)*	0.43 *(10.92)*
	29	2.8 *(71.12)*	0.33 *(8.38)*
	30	2.9 *(73.66)*	0.33 *(8.38)*

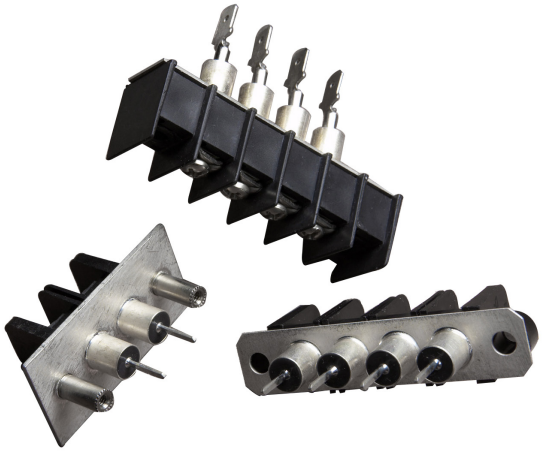
* For plate widths 1.060 and 1.560 there will be no coining. For these plates, increase dimensions to the right .020". Thus, any dimension on left will be reduced by .020.

Barrier Strip Filtered Terminal Block

The barrier strip filtered terminal block is designed to provide excellent EMI/RFI filtering of AC and DC power and control lines. This terminal block is available in various sizes, with terminals for soldering or spade lugs. Application examples include filtering power supplies in telecommunications equipment, metering, industrial controls, instrumentation, and electronic processing equipment.

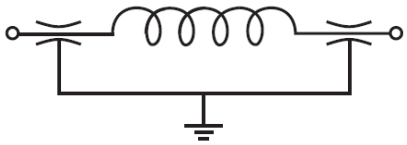
Features

- UL recognized and CSA approved for DC voltages
- E133076, UL 1059
- LR92537, CSA STD 22.2 N°158-1987, and ECN584B
- Filter element provides high insertion loss for EMI/RFI filtering of AC and DC power and control lines
- Rugged construction provides protection to filtering element; especially useful for repeated changes in wiring or field connections
- 2 to 6 terminals available (combine if larger number of terminals needed)
- Cost-effective solution for industrial interconnection EMI filtering problems
- Termination options available: straight lead, male or female disconnects, pigtail (12 AWG = 0.081" (2.05mm); 22 AWG = 0.025" (0.64mm)
- RoHS compliant versions available



Circuit Schematic

Pi Filter



Mechanical Specifications

Center Spacing	438" (11.1 mm)
Wire Size	AWG #12 max for 20A
Screw Size	20A - #6-32, zinc-plated philslot screws
Molded Material	Black, UL rated 94VO thermoplastic
Tightening Torque	9 in.-lbs. max.
Terminal	Brass, tin-plated

Electrical Specifications

Operating Temperature	-55° C to 105° C
Working Voltage	100VDC
Capacitance	2,500 pF to 5,200 pF
Dielectric Withstanding Voltage	1700VDC
Current Rating	20A
D.C. Resistance	01 ohms max.

Typical Loss (dB) In 50 Ohm Circuit

Frequency	Insertion Loss (dB)
30 MHz	22
50 MHz	32
100 MHz	48
300 MHz	70
500 MHz	75
1000 MHz	75

Barrier Strip Filtered Terminal Block

Ordering Information

Example: **52-160-006-A A00**

The part number shown represents a barrier strip terminal block with six terminals and rated for 20 Amps. Male disconnects (.250") are the method of termination.

52 –* **160** – **006** – **A**

Barrier Strip Terminal Block
160 - Front panel mount
188 - Rear panel mount

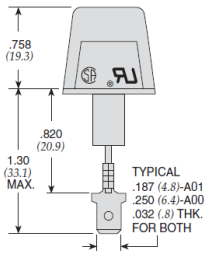
Number of Terminals
002 - 2 terminals through
006 - 6 terminals

Current Rating
A - 20 Amps

For instructions on soldering to filter terminals, please refer to page 4.

**** Replace "–" with "F" for RoHS complaint version.***

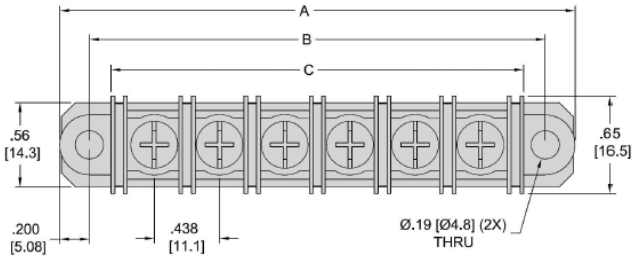
A00 Dimensions in inches (mm)

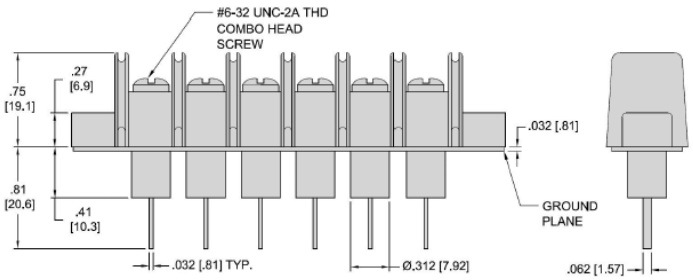


Special Terminations Code
Note: Leave blank if ordering standard product.
Male quick disconnects directly on terminal block.
A01 - .187 (4.8)
A00 - .250 (6.4)

Custom designs available. Contact APITech.

Front Panel Mount





20 Amps

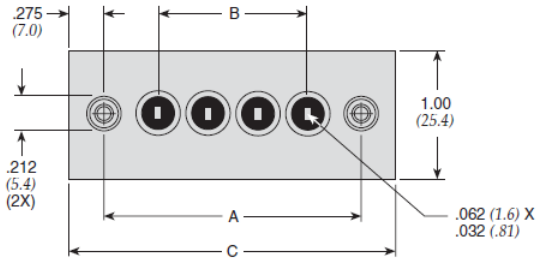
Dimensions in inches (mm)

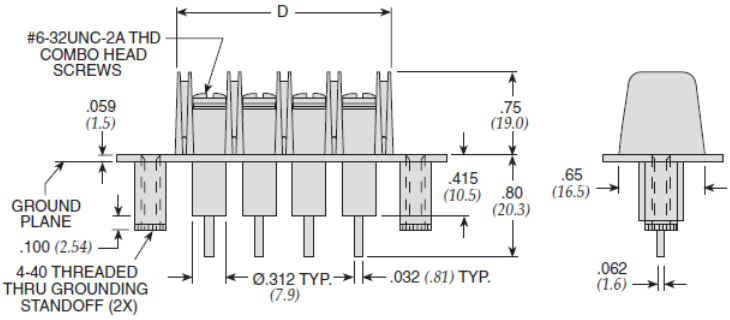
Part Number	Number of Circuits	A In.	A (mm)	B In.	B (mm)	C In.	C (mm)
* 52-160-002-A	2	1.71	*(43.4)*	1.31	*(33.3)*	1.02	*(25.9)*
52-160-003-A	3	2.15	*(54.6)*	1.75	*(44.5)*	1.46	*(37.1)*
52-160-004-A	4	2.59	*(65.8)*	2.19	*(55.6)*	1.90	*(48.3)*
52-160-005-A	5	3.02	*(76.7)*	2.62	*(66.5)*	2.32	*(58.9)*
52-160-006-A	6	3.46	*(87.9)*	3.06	*(77.7)*	2.77	*(70.4)*

€ Also available through APITech's authorized European distributors/agents.

Barrier Strip Filtered Terminal Block

Rear Panel Mount





20 Amps

Part Number	Number of Circuits	A		B		C	
		In.	(mm)	In.	(mm)	In.	(mm)
* 52-160-002-A	2	1.71	(43.4)	1.31	(33.3)	1.02	(25.9)
52-160-003-A	3	2.15	(54.6)	1.75	(44.5)	1.46	(37.1)
52-160-004-A	4	2.59	(65.8)	2.19	(55.6)	1.90	(48.3)
52-160-005-A	5	3.02	(76.7)	2.62	(66.5)	2.32	(58.9)
52-160-006-A	6	3.46	(87.9)	3.06	(77.7)	2.77	(70.4)

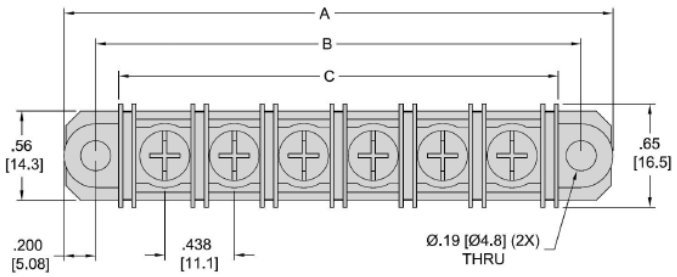
Dimensions in inches (mm)

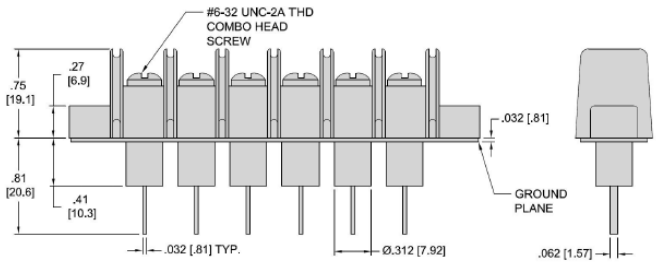
250 Volt AC Rated Filtered Terminal Blocks

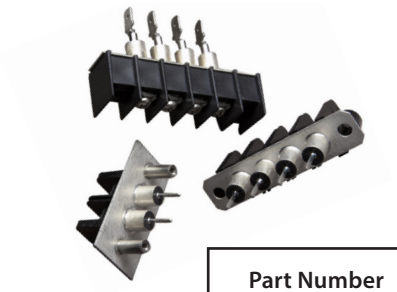
APITech's line of filtered terminal block provides superior EMI/RFI filtering of AC power and control lines. This terminal block is available in various sizes, with terminals for soldering, spade lugs, or wire pigtails. Termination options available: straight lead male or female disconnects, or wire pigtails in lengths to your specification.

Features

- UL recognized and CSA approved for AC voltages
- E133076, UL 1059
- LR92537, CSA STD 22.2 N°158-1987, and ECN584B
- Termination options available: straight lead, male or female disconnects, pigtail (12 AWG-22 AWG)







Applications

- Metering equipment
- Programmable controllers
- Industrial process control
- Heavy equipment controls
- Power supplies
- Regulators
- Surge sensing equipment
- Power factor correction
- Telecommunications power management, ATM, Sonet, etc.
- Medical equipment

Electrical Specifications

Operating Temperature	-55° C to +105° C
Voltage Rating	250VAC
Current Rating	20 Amps
Wire Range	12-22AWG
Torque	9 lb-in.
Capacitance	2000pF to 5200pF
Dielectric Withstanding Voltage	1500VAC @ 25° C

Mechanical Specifications

Center Spacing	.438" (11.1 mm)
Wire Size	AWG #12 max. for 20 Amp
Screw Size	20A - #6-32, zinc plated philslot
Molded Material	UL rated 94VO polyamide
Tightening Torque	9 in.-lbs. max.
Terminal Options	Straight lead, male or female disconnects, pigtail

Part Number	Number of Circuits	A		B		C	
		In.	*(mm)*	In.	*(mm)*	In.	*(mm)*
52-257-002	2	1.71	*(43.4)*	1.31	*(33.3)*	1.02	*(25.9)*
52-257-003	3	2.15	*(54.6)*	1.75	*(44.5)*	1.46	*(37.1)*
52-257-004	4	2.59	*(65.8)*	2.19	*(55.6)*	1.90	*(48.3)*
52-257-005	5	3.02	*(76.7)*	2.62	*(66.5)*	2.32	*(58.9)*
52-257-006	6	3.46	*(87.9)*	3.06	*(77.7)*	2.77	*(70.4)*

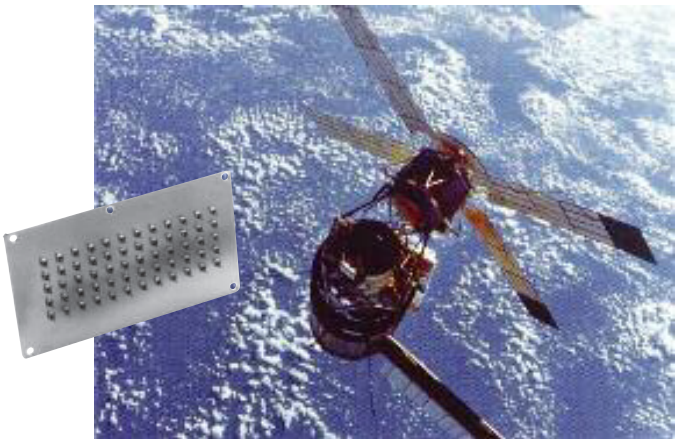
Dimensions in inches (mm)

Custom Filter Plates & Arrays

High Volume Industrial

As a long-term producer of filter plates for industrial applications, APITech 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.

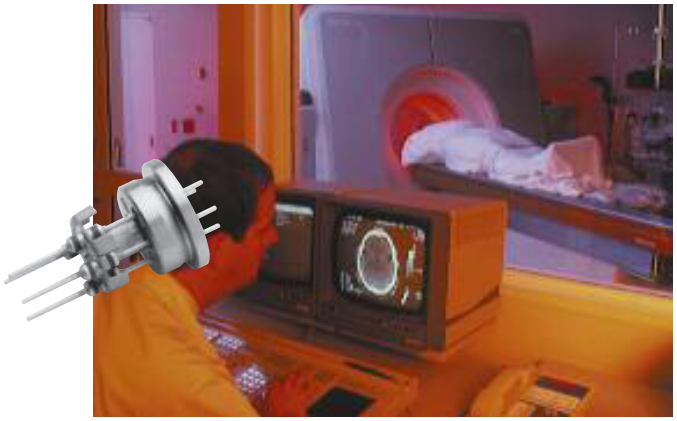
We have engineered a variety of capacitive only filter elements that provide excellent RF isolation from 5 MHz to 1 GHz and beyond. To determine the available capacitance values, contact APITech. Our technical staff will work with you to develop a solution that meets your system and budget needs.



Military/High Reliability

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

APITech 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-PRF-15733 and MIL-PRF-28861.



Custom Filter Plates & Arrays

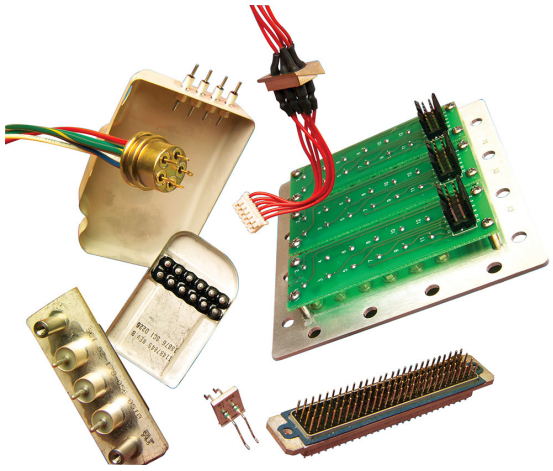
Custom Capabilities

APITech will custom design a filter plate or terminal block that meets your size, material and filtering requirements. We have engineered a variety of capacitive only filter elements that provide excellent RF isolation from 5 MHz to 1 GHz and beyond. In addition, we are capable of providing stringent testing and analysis of our filter plate or terminal block assemblies to MIL-PRF-15733 and MIL-PRF-28861.

In addition to our standard and custom filter plates and terminal blocks, we offer a number of value-added features designed to complement your manufacturing operation. Our product team will evaluate your design or manufacturing parameters and develop a filter solution which provides increased filtering performance economically.

APITech Capabilities

- Custom assemblies with varying cable lengths and terminations
- 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
- Custom high reliability assemblies



Filtered Headers

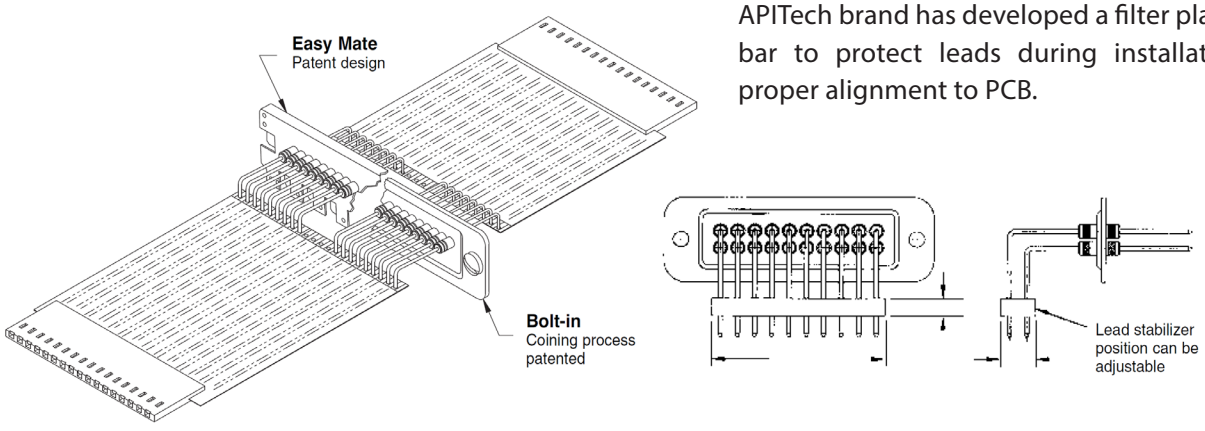
Replace the unfiltered connector on your PC board with APITech's low cost filtered header. This innovative new product allows you to meet EMC emissions and susceptibility standards with minimal or no board change.

Flat Conductor Cables

Flat conductor cables are often selected as an effective method of interconnection. APITech 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

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



Custom Filter Plates & Arrays

Custom Capabilities

EMI Filter Performance

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

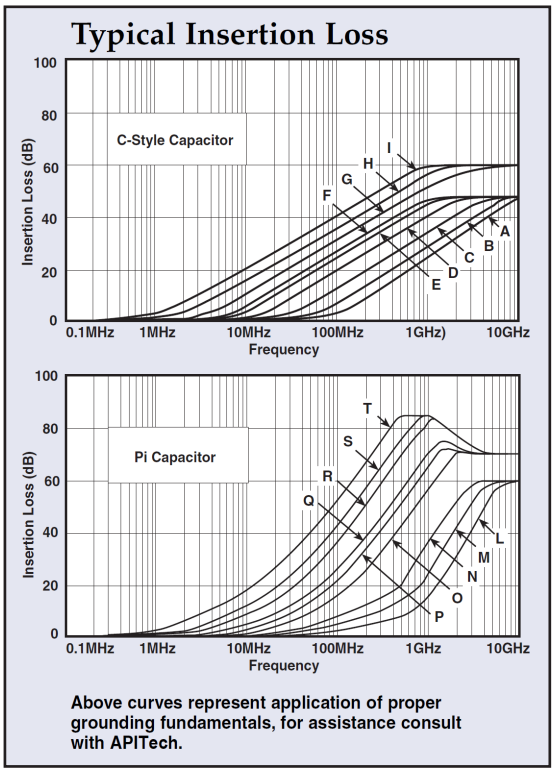
Custom Filtering

APITech's 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 feedthrough 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



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

Filter Designation	Filter** Circuits	Capacitance		3 dB Max Cut-off Frequency (MHz)	Working Voltage DC -55°C to +125°C	Minimum Insertion Loss - Decibles (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		68pF	±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	C	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		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	Pi	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	5	14	28	35	49	64	69
S		2500 pF	±100/-0%	1.3	50V	4	6	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.