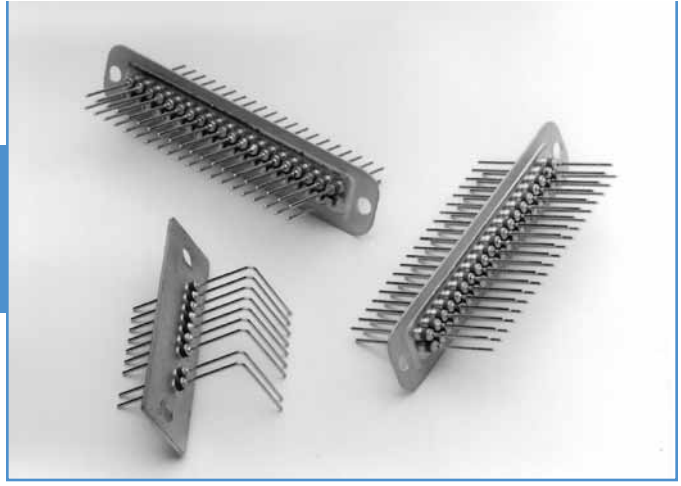
SPECTRUM CONTROL INC.

# 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 hi-density (2mm) and 60 pins per plate in standard density (.100"). On the larger plate sizes, Spectrum ensures structural integrity through a unique, patent pending, coining process. The drawing on page 111 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
- Available in RoHS compliant versions

## Ordering Information

***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 Hi-density *

**No. of Rows**

**1** = 1 row
**2** = 2 rows

**No. of Filters**

**Number of Lines per Row**

If less than 10, use a 0 (zero) first.

**Filter Designation**

A - T from table on page 118. ***

**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 to 4000pF C style filter*

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

*** *To request selective line filtering, a mechanical configuration or material specification not shown in this catalog, please complete and forward the design inquiry form on page 121. We will review your request and provide you with a part number.*





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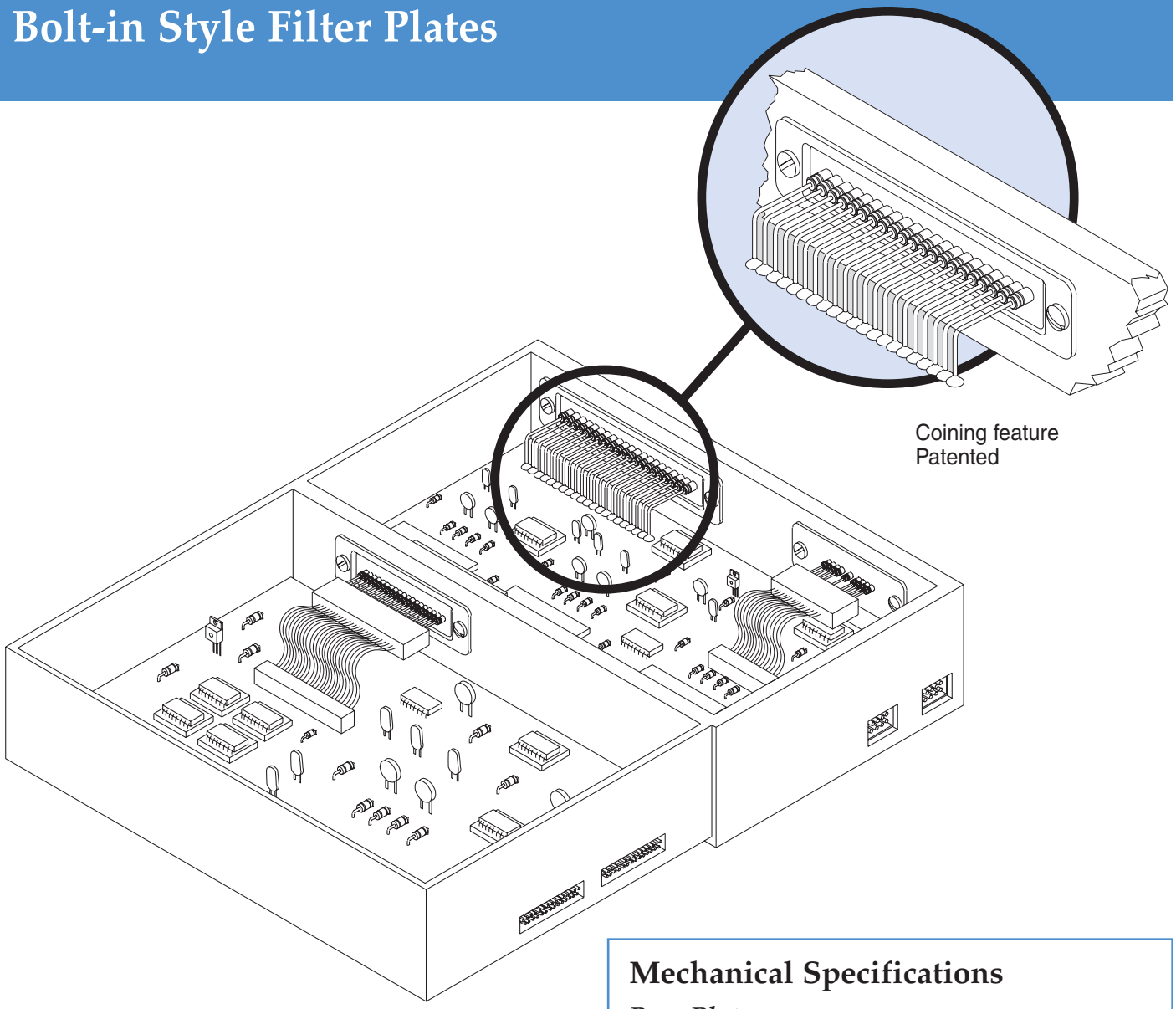


## Mechanical Specifications

*Base Plate Material* ..... Brass UNS C26000/C27000

*Base Plate Thickness* ..... .020 inches (.51mm)

*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" (.64mm) ø
3 Amps for .020" (.51mm) ø

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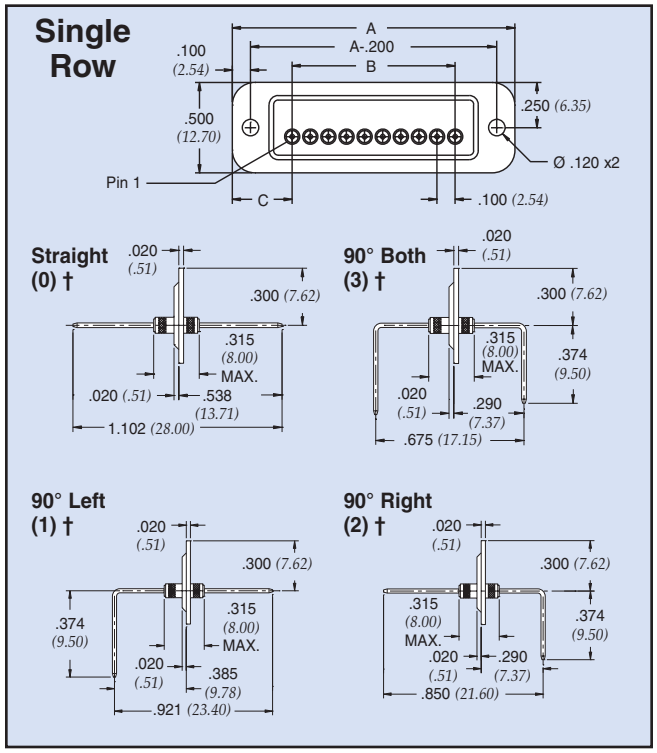
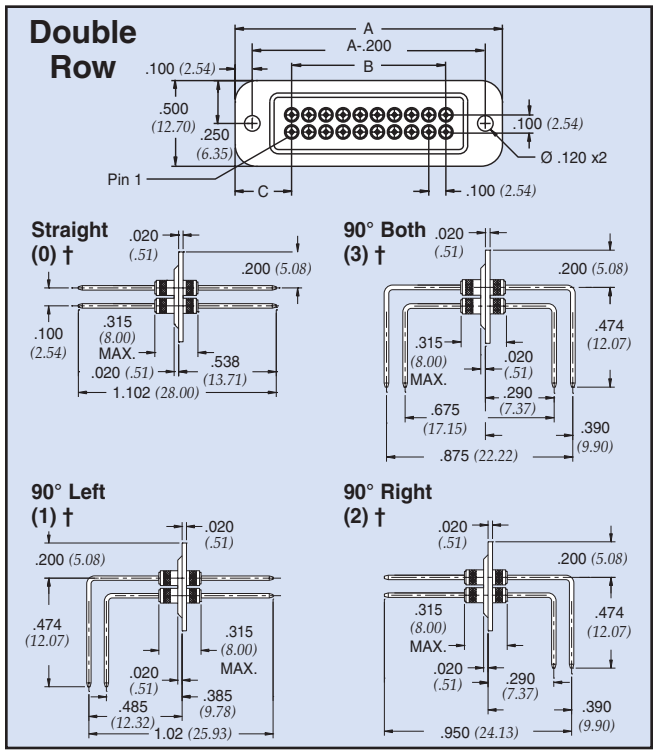
# Bolt-in Style Filter Plates
## Standard Density Centers .100"

**Dimensions:** inches and *(mm)*
**Lead Spacing:** .100" *(2.54 mm)*




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 | | 52-970-XXX-XXX 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 | (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 | (40.64) | 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 | (40.64) | 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 | (58.42) | 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.**

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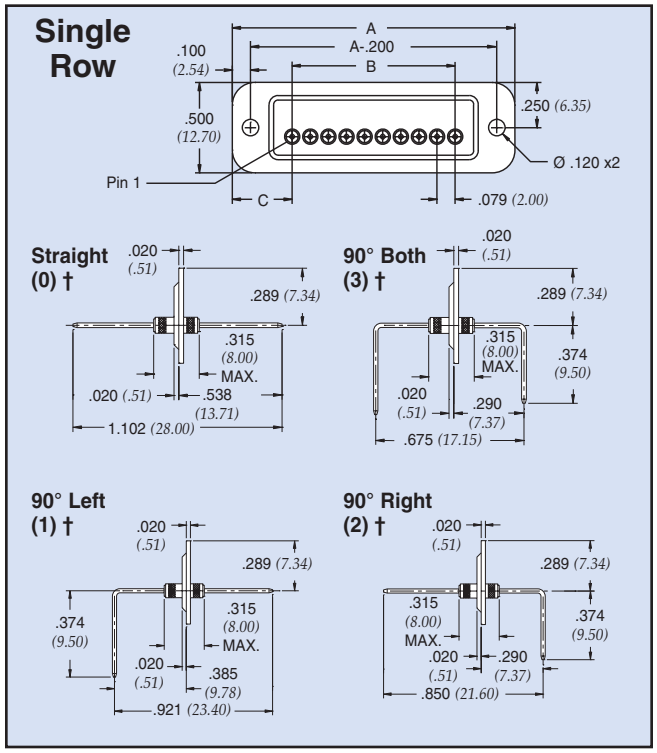
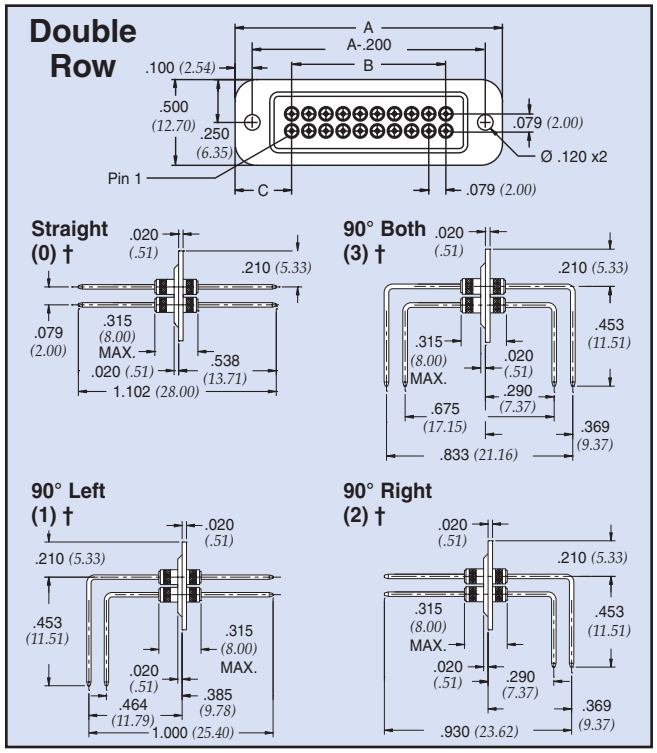
SPECTRUM CONTROL INC.

# Bolt-in Style Filter Plates
## Hi-Density Centers 2mm

**Dimensions:** inches and *(mm)*
**Lead Spacing:** .079" *(2.00 mm)*




Coining feature patented
† Refers to lead configuration for part number/ordering information

| Plate length (A) | No. of filtered lines per row | 52-971-XXX-XXX B | 52-971-XXX-XXX C |
|---|---|---|---|
| 1.060 * (26.92) | 2 | 0.079 (2.00) | 0.487 (12.38) |
| | 3 | 0.157 (4.00) | 0.409 (10.38) |
| | 4 | 0.236 (6.00) | 0.409 (10.38) |
| | 5 | 0.315 (8.00) | 0.330 (8.38) |
| | 6 | 0.394 (10.00) | 0.330 (8.38) |
| 1.560 * (39.62) | 3 | 0.157 (4.00) | 0.662 (16.81) |
| | 4 | 0.236 (6.00) | 0.662 (16.81) |
| | 5 | 0.315 (8.00) | 0.583 (14.81) |
| | 6 | 0.394 (10.00) | 0.583 (14.81) |
| | 7 | 0.472 (12.00) | 0.504 (12.81) |
| | 8 | 0.551 (14.00) | 0.504 (12.81) |
| | 9 | 0.630 (16.00) | 0.426 (10.81) |
| | 10 | 0.709 (18.00) | 0.426 (10.81) |
| | 11 | 0.787 (20.00) | 0.347 (8.81) |
| | 12 | 0.866 (22.00) | 0.347 (8.81) |
| 2.560 (65.02) | 10 | 0.709 (18.00) | 0.886 (22.51) |
| | 11 | 0.787 (20.00) | 0.886 (22.51) |
| | 12 | 0.866 (22.00) | 0.807 (20.51) |
| | 13 | 0.945 (24.00) | 0.807 (20.51) |
| | 14 | 1.024 (26.00) | 0.729 (18.51) |
| | 15 | 1.102 (28.00) | 0.729 (18.51) |
| | 16 | 1.181 (30.00) | 0.650 (16.51) |
| | 17 | 1.260 (32.00) | 0.650 (16.51) |
| | 18 | 1.339 (34.00) | 0.571 (14.51) |
| | 19 | 1.417 (36.00) | 0.571 (14.51) |
| | 20 | 1.496 (38.00) | 0.492 (12.51) |
| | 21 | 1.575 (40.00) | 0.492 (12.51) |
| | 22 | 1.654 (42.00) | 0.414 (10.51) |
| | 23 | 1.732 (44.00) | 0.414 (10.51) |
| | 24 | 1.811 (46.00) | 0.335 (8.51) |
| | 25 | 1.890 (48.00) | 0.335 (8.51) |
| 3.560 (90.42) | 20 | 1.496 (38.00) | 0.993 (25.22) |
| | 21 | 1.575 (40.00) | 0.993 (25.22) |
| | 22 | 1.654 (42.00) | 0.914 (23.22) |
| | 23 | 1.732 (44.00) | 0.914 (23.22) |
| | 24 | 1.811 (46.00) | 0.835 (21.22) |
| | 25 | 1.890 (48.00) | 0.835 (21.22) |
| | 26 | 1.969 (50.00) | 0.757 (19.22) |
| | 27 | 2.047 (52.00) | 0.757 (19.22) |
| | 28 | 2.126 (54.00) | 0.678 (17.22) |
| | 29 | 2.205 (56.00) | 0.678 (17.22) |
| | 30 | 2.283 (58.00) | 0.599 (15.22) |
| | 31 | 2.362 (60.00) | 0.599 (15.22) |
| | 32 | 2.441 (62.00) | 0.520 (13.22) |
| | 33 | 2.520 (64.00) | 0.520 (13.22) |
| | 34 | 2.598 (66.00) | 0.442 (11.22) |
| | 35 | 2.677 (68.00) | 0.442 (11.22) |
| | 36 | 2.756 (70.00) | 0.363 (9.22) |
| | 37 | 2.835 (72.00) | 0.363 (9.22) |

*** 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.**

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