Multi-stage Performance AC/DC EMI Filter

**Features and benefits**
- FN 2070 two-stage filters are designed for easy and fast chassis mounting.
- FN 2070 filters are also available as B versions without Y-capacitors for medical applications as well as A version with low capacitance for safety critical applications with necessity for low leakage currents.
- All filters provide a high conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior.
- FN 2070 two-stage filters are designed for high frequency attenuation.
- FN 2070 filters are also available as single-stage filters (FN 2030 series).
- FN 2070 filters are also available with differential mode choke (FN 2080 series).
- Various terminal options allow you to select the desired connection style.

**Technical specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage*</td>
<td>250 VAC, 50/60 Hz; 250 VDC</td>
</tr>
<tr>
<td>Operating frequency</td>
<td>DC to 400 Hz</td>
</tr>
<tr>
<td>Rated currents</td>
<td>1 to 36 A at 40°C max</td>
</tr>
<tr>
<td>High potential test voltage</td>
<td>P -&gt; PE 2000 VAC for 2 sec, P -&gt; PE 2500 VAC for 2 sec (B types), P -&gt; N 1100 VDC for 2 sec</td>
</tr>
<tr>
<td>Temperature range (operation and storage)</td>
<td>-25°C to +100°C (25/100/21)</td>
</tr>
<tr>
<td>Certified to</td>
<td>UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 (applies to AC and DC applications)</td>
</tr>
<tr>
<td>Flammability corresponding to</td>
<td>UL 94 V-2 or better</td>
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<td>Design corresponding to</td>
<td>UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939</td>
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<tr>
<td>MTBF @ 40°C/230 V (Mil-HB-217F)</td>
<td>1,550,000 hours, 1,600,000 hours (B types)</td>
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</table>

*maximum RMS operating voltage at rated frequency or the maximum DC operating voltage

**Typical applications**
- Electrical and electronic equipment
- Consumer goods
- Household equipment
- Building automation
- Industrial applications
- Machinery
- Medical equipment
- Electronic data processing equipment
- Office automation and datacom equipment
- Various noisy applications requiring good filter performance
- Single Phase Motor Drives

**Typical electrical schematic**

```
  P           CK       L            R       CK       L          P'
  N           Cy       Cy
  PE          Line
  Load
```
## Filter selection table

<table>
<thead>
<tr>
<th>Filter*</th>
<th>Rated current @ 40°C (25°C)</th>
<th>Leakage current** @ 250 VAC/50 Hz (@ 120 VAC/60 Hz)</th>
<th>Inductance L [mH]</th>
<th>Capacitance Cx [μF]</th>
<th>Capacitance Cy [nF]</th>
<th>Resistance R [kΩ]</th>
<th>Input/Output connections</th>
<th>Weight [g]</th>
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<tbody>
<tr>
<td>FN 2070-1-..</td>
<td>1 (1.2)</td>
<td>0.66 (0.38)</td>
<td>22</td>
<td>0.33</td>
<td>4.7</td>
<td>1000</td>
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<td>190</td>
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<tr>
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<tr>
<td>FN 2070-6-..</td>
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<td>-06 -07</td>
<td>450</td>
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<td>220</td>
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<td>0.47</td>
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<td>25 (28.8)</td>
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<td>2</td>
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<td>760</td>
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<td>FN 2070 A-36-08</td>
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<tr>
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<td>3 (3.5)</td>
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<td>-06 -07</td>
<td>790</td>
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</table>

Enhanced performance

<table>
<thead>
<tr>
<th>Filter*</th>
<th>Rated current @ 40°C (25°C)</th>
<th>Leakage current** @ 250 VAC/50 Hz (@ 120 VAC/60 Hz)</th>
<th>Inductance L [mH]</th>
<th>Capacitance Cx [μF]</th>
<th>Capacitance Cy [nF]</th>
<th>Resistance R [kΩ]</th>
<th>Input/Output connections</th>
<th>Weight [g]</th>
</tr>
</thead>
<tbody>
<tr>
<td>FN 2070 M-1-06</td>
<td>1 (1.2)</td>
<td>3.69 (2.13)</td>
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<td>0.33</td>
<td>47</td>
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<td>0.47</td>
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<td>3.69 (2.13)</td>
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<td>FN 2070 M-25-08</td>
<td>25 (28.8)</td>
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</tbody>
</table>

* To compile a complete part number, please replace the -.. with the required I/O connection style (e.g. FN 2070-25-08, FN 2070B-10-06).

** Maximum leakage under usual AC operating conditions (acc. IEC 60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level. Leakage current for DC application is 0 mA;
Typical filter attenuation

Per CISPR 17; A=50 Ω/50 Ω sym; B=50 Ω/50 Ω asym; C=0.1 Ω/100 Ω sym; D=100 Ω/0.1 Ω sym

1 A: Standard type
   A type
   B type
   Enhanced performance

3 A: Standard type
   A type
   B type
   Enhanced performance

6 A: Standard type
   A type
   B type
   Enhanced performance

10 A: Standard type
   A type
   B type
   Enhanced performance

12 A: Standard type
   A type
   B type
   Enhanced performance
Mechanical data

Connection style -06, 1 and 3 A types

Connection style -07, 1 and 3 A types (same dimensions as style -06)

Connection style -08, 10 to 16 A types

Connection style -08, 25 and 36 A types
### Dimensions

<table>
<thead>
<tr>
<th></th>
<th>1 A</th>
<th>3 A</th>
<th>6 A</th>
<th>10 A</th>
<th>12 A</th>
<th>16 A</th>
<th>25 A</th>
<th>36 A</th>
<th>Tolerances</th>
</tr>
</thead>
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<tr>
<td>A</td>
<td>85 ±0.5</td>
<td>85 ±0.5</td>
<td>113.5</td>
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<td>156</td>
<td>119</td>
<td>156</td>
<td>156</td>
<td>±1</td>
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<tr>
<td>B</td>
<td>54 ±0.5</td>
<td>54 ±0.5</td>
<td>57.5</td>
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<td>57.5</td>
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<tr>
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**Connection style -06**

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**Connection style -07**

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**AWG type wire**

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<th>AWG 18</th>
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**Wire length**

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**Connection style -08**

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**Recommended torque (Nm)**

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<th>1.2 - 1.3</th>
<th>1.2 - 1.3</th>
<th>1.2 - 1.3</th>
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**Earth terminal**

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<th>1.5 - 1.7</th>
<th>1.5 - 1.7</th>
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</table>

All dimensions in mm; 1 inch = 25.4 mm

Please visit [www.schaffner.com](http://www.schaffner.com) to find more details on filter connectors.
Headquarters, global innovation and development

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