

# High-current EMC/RFI Filter

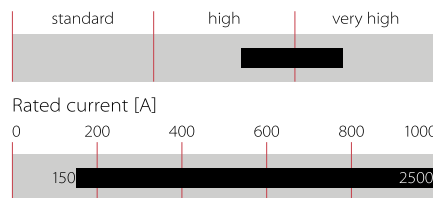


- Off-the-shelf high power filter for rated currents up to 2500 A
- HV versions designed for 690 VAC IT power networks
- Busbars for convenient and universal electrical connection
- Protective plastic covers optionally available for unsurpassed safety



### Performance indicators

Attenuation performance



## Technical specifications

|  |  |
|--|--|
| <b>Maximum continuous operating voltage</b>      | 3x 520/300 VAC (FN 3359)<br>3x 690/400 VAC (FN 3359 HV)  |
| <b>Operating frequency</b>                       | dc to 60 Hz  |
| <b>Rated currents</b>                            | 150 to 2500 A @ 50°C   |
| <b>High potential test voltage</b>               | P → E 2700 VDC for 2 sec (FN 3359)<br>P → E 2150 VDC for 2 sec (FN 3359)<br>P → E 3100 VDC for 2 sec (FN 3359 HV)<br>P → P 3000 VDC for 2 sec (FN 3359 HV) |
| <b>Protection category</b>                       | IP 00  |
| <b>Overload capability</b>                       | 4x rated current at switch on,<br>1.5x rated current for 1 minute, once per hour   |
| <b>Temperature range (operation and storage)</b> | -25°C to +100°C (25/100/21)  |
| <b>Flammability corresponding to</b>             | UL 94 V-2 or better  |
| <b>Design corresponding to</b>                   | UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939   |
| <b>MTBF @ 45°C/480 V (Mil-HB-217F)</b>           | 130,000 hours  |

### Approvals



(600 VAC)

### Features and benefits

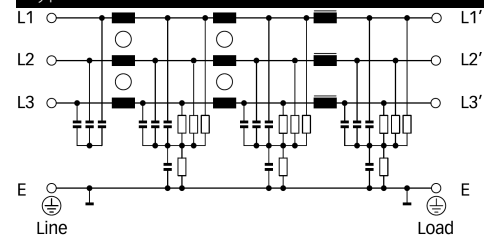
- High-power filter for Class A compliance. With approval measurement also Class B compliance possible for some applications
- Extremely compact high-current filter solution with minimum space requirement
- FN 3359 HV versions for 690 VAC are also designed for use in IT power networks
- Optionally available transparent protective covers for all filters up to 1000 A, to protect the installer, operator or inspector from undeliberate touching of life conductors. They can easily be retrofitted even if the filter is already installed and connected
- FN 3359 also improves conducted immunity of installations

### Typical applications

- High-power motor drives, inverters and converters
- Industrial three-phase systems
- Entire factories, plants and installations
- Large UPS
- Machinery
- Mining equipment
- Photovoltaic systems with galvanic isolation\*
- Wind turbines



\* For EMI solutions for PV system without galvanic isolation, please contact your local Schaffner partner.

### Typical electrical schematic



Note: HV versions without discharge resistor to ground.

## Filter selection table

| Filter             | Rated current<br>@ 50°C (40°C) | Typical drive<br>power rating* | Leakage current**<br>@ 480 VAC/50 Hz | Power loss<br>@ 25°C/50 Hz | Input/Output<br>connections   |   | Weight | Protective<br>covers*** |
|--------------------|--------------------------------|--------------------------------|--------------------------------------|----------------------------|---|---|--------|-------------------------|
|                    | [A]                            | [kW]                           | [mA]                                 | [W]                        |  |  | [kg]   | Order code              |
| FN 3359-150-28     | 150 (164)                      | 75                             | <6                                   | 24                         | -28   |   | 6.5    | 801917                  |
| FN 3359-180-28     | 180 (197)                      | 90                             | <6                                   | 34                         | -28   |   | 6.5    | 801917                  |
| FN 3359-250-28     | 250 (250)                      | 132                            | <6                                   | 49                         | -28   |   | 7.0    | 801918                  |
| FN 3359-320-99     | 320 (350)                      | 160                            | <6                                   | 19                         |   | -99   | 10.5   | 801919                  |
| FN 3359-400-99     | 400 (438)                      | 220                            | <6                                   | 29                         |   | -99   | 10.5   | 801919                  |
| FN 3359-600-99     | 600 (657)                      | 315                            | <6                                   | 44                         |   | -99   | 11.0   | 801920                  |
| FN 3359-800-99     | 800 (876)                      | 400                            | <6                                   | 39                         |   | -99   | 18.0   | 806276                  |
| FN 3359-1000-99    | 1000 (1095)                    | 560                            | <6                                   | 60                         |   | -99   | 18.0   | 806276                  |
| FN 3359-1600-99    | 1600 (1600)                    | 900                            | <6                                   | 131                        |   | -99   | 27.0   | n.a.                    |
| FN 3359-2500-99    | 2500 (2500)                    | 1320                           | <6                                   | 300                        |   | -99   | 55.0   | n.a.                    |
| FN 3359 HV-150-28  | 150 (164)                      | 110                            | <6                                   | 24                         | -28   |   | 6.5    | 801917                  |
| FN 3359 HV-180-28  | 180 (197)                      | 132                            | <6                                   | 34                         | -28   |   | 6.5    | 801917                  |
| FN 3359 HV-250-28  | 250 (250)                      | 200                            | <6                                   | 49                         | -28   |   | 7.0    | 801918                  |
| FN 3359 HV-320-99  | 320 (350)                      | 250                            | <6                                   | 19                         |   | -99   | 10.5   | 801919                  |
| FN 3359 HV-400-99  | 400 (438)                      | 315                            | <6                                   | 29                         |   | -99   | 10.5   | 801919                  |
| FN 3359 HV-600-99  | 600 (657)                      | 500                            | <6                                   | 44                         |   | -99   | 11.0   | 801920                  |
| FN 3359 HV-800-99  | 800 (876)                      | 630                            | <6                                   | 39                         |   | -99   | 18.0   | 806276                  |
| FN 3359 HV-1000-99 | 1000 (1095)                    | 710                            | <6                                   | 60                         |   | -99   | 18.0   | 806276                  |
| FN 3359 HV-1600-99 | 1600 (1600)                    | 1320                           | <6                                   | 131                        |   | -99   | 27.0   | n.a.                    |
| FN 3359 HV-2500-99 | 2500 (2500)                    | 2000                           | <6                                   | 300                        |   | -99   | 67.0   | n.a.                    |

\* Calculated at rated current, 480 VAC (FN 3359)/690 VAC (FN 3359 HV) and  $\cos \phi=0.8$ . The exact value depends upon the efficiency of the drive, the motor and the entire application.

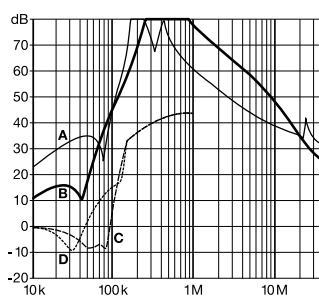
\*\* Maximum leakage under normal operating conditions. Note: if two phases are interrupted, worst case leakage could be much higher than the value shown.

\*\*\* Please contact your local Schaffner partner to order the optional protective covers with the order code in the table above (n.a.: not available)

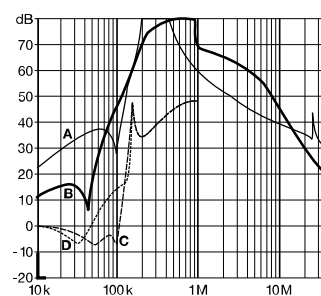
## Typical filter attenuation

Per CISPR 17; A=50  $\Omega$ /50  $\Omega$  sym; B=50  $\Omega$ /50  $\Omega$  asym; C=0.1  $\Omega$ /100  $\Omega$  sym; D=100  $\Omega$ /0.1  $\Omega$  sym

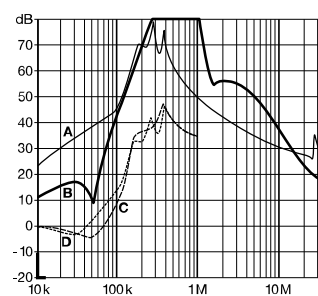
150 to 180 A types



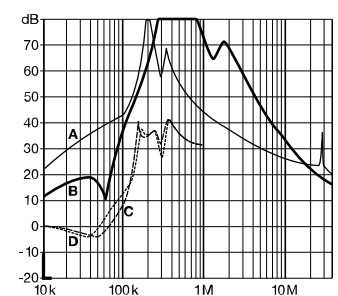
250 to 600 A types



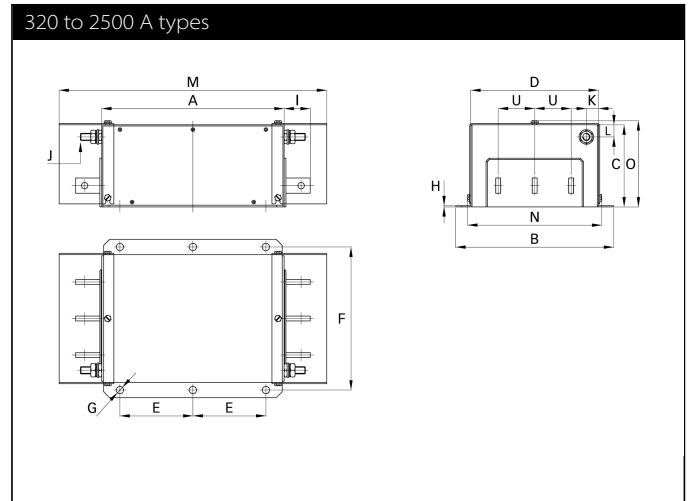
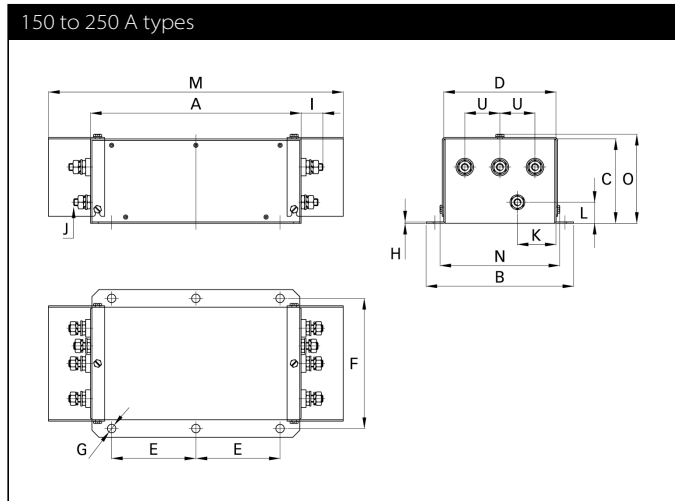
800 and 1000 A types



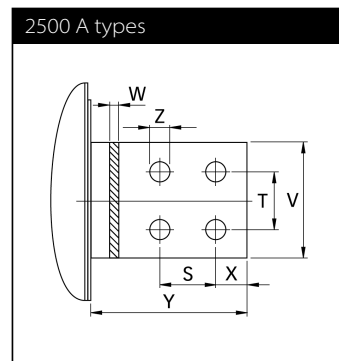
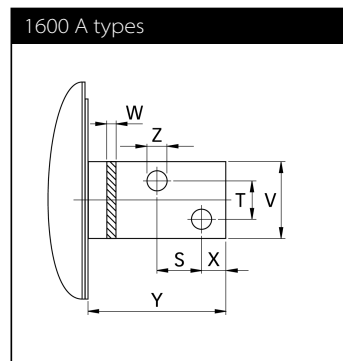
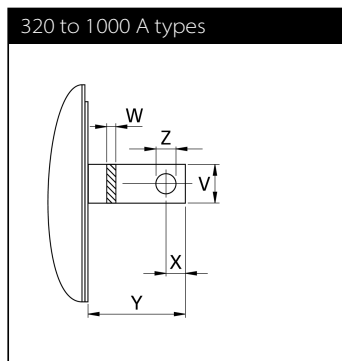
1600 and 2500 A types



### Mechanical data



### Busbar connections



### Dimensions

|          | 150 A | 180 A | 250 A | 320 A | 400 A | 600 A | 800 A | 1000 A | 1600 A | 2500 A |
|----------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| <b>A</b> | 300   | 300   | 300   | 300   | 300   | 300   | 350   | 350    | 400    | 450    |
| <b>B</b> | 210   | 210   | 230   | 260   | 260   | 260   | 280   | 280    | 300    | 370    |
| <b>C</b> | 120   | 120   | 125   | 115   | 115   | 135   | 170   | 170    | 160    | 220    |
| <b>D</b> | 160   | 160   | 180   | 210   | 210   | 210   | 230   | 230    | 250    | 300    |
| <b>E</b> | 120   | 120   | 120   | 120   | 120   | 120   | 145   | 145    | 170    | 200    |
| <b>F</b> | 185   | 185   | 205   | 235   | 235   | 235   | 255   | 255    | 275    | 330    |
| <b>G</b> | Ø12   | Ø12   | Ø12   | Ø12   | Ø12   | Ø12   | Ø12   | Ø12    | Ø12    | Ø14    |
| <b>H</b> | 2     | 2     | 2     | 2     | 2     | 2     | 3     | 3      | 3      | 3      |
| <b>I</b> | 33    | 33    | 33    | 43    | 43    | 43    | 53    | 53     | 93     | 110    |
| <b>J</b> | M10   | M10   | M10   | M12   | M12   | M12   | M12   | M12    | M12    | M12    |
| <b>K</b> | 55    | 55    | 62.5  | 20    | 20    | 20    | 25    | 25     | 25     | 25     |
| <b>L</b> | 30    | 30    | 35    | 20    | 20    | 20    | 25    | 25     | 25     | 25     |
| <b>M</b> | 420   | 420   | 420   | 440   | 440   | 440   | 510   | 510    | n.a.   | n.a.   |
| <b>N</b> | 171   | 171   | 191   | 221   | 221   | 221   | 241   | 241    | n.a.   | n.a.   |
| <b>O</b> | 127   | 127   | 132   | 122   | 122   | 142   | 177   | 177    | n.a.   | n.a.   |
| <b>S</b> |       |       |       |       |       |       |       |        | 26     | 35     |
| <b>T</b> |       |       |       |       |       |       |       |        | 26     | 35     |
| <b>U</b> | 50    | 50    | 55    | 60    | 60    | 60    | 60    | 60     | 60     | 100    |
| <b>V</b> |       |       |       | 25    | 25    | 25    | 40    | 40     | 60     | 80     |
| <b>W</b> |       |       |       | 6     | 6     | 8     | 8     | 8      | 10     | 15     |
| <b>X</b> |       |       |       | 15    | 15    | 15    | 20    | 20     | 17     | 20     |
| <b>Y</b> |       |       |       | 40    | 40    | 40    | 50    | 50     | 93     | 110    |
| <b>Z</b> |       |       |       | Ø10.5 | Ø10.5 | Ø10.5 | Ø14   | Ø14    | Ø14    | Ø14    |

All dimensions in mm; 1 inch = 25.4 mm  
 Tolerances according: ISO 2768-m/EN 22768-m  
 (n.a.: not applicable)

Please visit [www.schaffner.com](http://www.schaffner.com) to find more details on filter connectors.



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