

## Safe and ergonomic EMC/EMI filter with very low leakage current



- | Light weight plastic enclosure design
- | Very low filter leakage current
- | Hinged safety covers
- | Embedded filter terminals
- | Different performance levels
- | Environmental friendly design without potting compound



### Technical specifications

|                                                  |                                                             |
|--------------------------------------------------|-------------------------------------------------------------|
| <b>Maximum continuous operating voltage</b>      | 250 VAC, 50/60 Hz                                           |
| <b>Operating frequency</b>                       | dc to 400 Hz                                                |
| <b>Rated currents</b>                            | 6 to 20 A @ 55 °C                                           |
| <b>High potential test voltage</b>               | P/N -> E 2500 VAC for 60 sec *<br>P -> N 1100 VDC for 2 sec |
| <b>Temperature range (operation and storage)</b> | -25 °C to +100 °C (25/100/21)                               |
| <b>Flammability corresponding to</b>             | UL 94 V-0 (safety covers UL94V-1)                           |
| <b>Design corresponding to</b>                   | UL 1283, CSA 22.2 No. 8 1986,                               |
| <b>MTBF @ 40°C/230V (Mil-HB-217F)</b>            | > 180,000 hours                                             |
| <b>Design corresponding to</b>                   | IEC/EN60939, EN60601-1                                      |

\* Type testing only

### Approvals



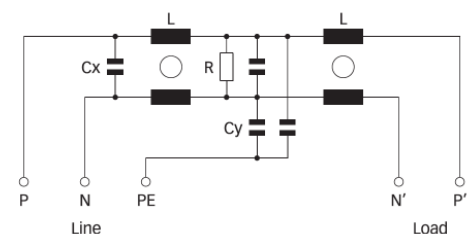
### Features and benefits

- | A plastic housing and a metal ground plate are cleverly combined to get the lowest possible product weight without compromising EMC behaviour
- | The embedded terminals from Schaffner guarantee user-friendly handling and reliable, long-lasting electrical connection
- | Captive hinged protective covers contribute to overall safety by offering protection against unintended contact with live conductors. They are included in the standard scope of delivery without any extra cost
- | Very low leakage current values make the filters suitable for grids with very tough requirements or sensitive GFCIs, and for applications which set value on safety and reliability
- | FN 2450 feature an ecologically conscious construction without the use of potting compound or banned substances (RoHS). Used raw materials can be easily separated at the end of the product life time for proper and environmentally safe disposal

### Typical applications

- | Electrical and electronic equipment
- | Test and measurement devices
- | Medical devices n Industrial automation
- | Small machines
- | Office automation equipment

### Typical electrical schematic



## Filter selection table

| Filter*               | Rated current<br>@ 55 °C (40 °C) | Leakage current**<br>@ 250 VAC/50 Hz | Inductance<br>L | Capacitance |            | Resistance<br>R | Input/Output<br>connections                                                         | Weight<br>[g] |
|-----------------------|----------------------------------|--------------------------------------|-----------------|-------------|------------|-----------------|-------------------------------------------------------------------------------------|---------------|
|                       | [A]                              | [mA]                                 | [mH]            | Cx<br>[μF]  | Cy<br>[nF] | [MΩ]            |                                                                                     |               |
| <b>FN 2450G-6-61</b>  | 6 (6.8)                          | 0.73                                 | 10.5            | 0.47        | 4.7        | 1               |  | 210           |
| <b>FN 2450G-10-61</b> | 10 (11.4)                        | 0.73                                 | 4.9             | 0.47        | 4.7        | 1               |                                                                                     | 210           |
| <b>FN 2450G-16-61</b> | 16 (18.2)                        | 0.73                                 | 1.84            | 0.47        | 4.7        | 1               |                                                                                     | 210           |
| <b>FN 2450G-20-61</b> | 20 (22.8)                        | 0.73                                 | 0.94            | 0.47        | 4.7        | 1               |                                                                                     | 210           |
| <b>FN 2450F-6-61</b>  | 6 (6.8)                          | 0.52                                 | 10.5            | 0.47        | 3.3        | 1               | -61                                                                                 | 210           |
| <b>FN 2450F-10-61</b> | 10 (11.4)                        | 0.52                                 | 4.9             | 0.47        | 3.3        | 1               | -61                                                                                 | 210           |
| <b>FN 2450F-16-61</b> | 16 (18.2)                        | 0.52                                 | 1.84            | 0.47        | 3.3        | 1               | -61                                                                                 | 210           |
| <b>FN 2450F-20-61</b> | 20 (22.8)                        | 0.52                                 | 0.94            | 0.47        | 3.3        | 1               | -61                                                                                 | 210           |
| <b>FN 2450B-6-61</b>  | 6 (6.8)                          | 0.002                                | 10.5            | 0.47        |            | 1               | -61                                                                                 | 210           |
| <b>FN 2450B-10-61</b> | 10 (11.4)                        | 0.002                                | 4.9             | 0.47        |            | 1               | -61                                                                                 | 210           |
| <b>FN 2450B-16-61</b> | 16 (18.2)                        | 0.002                                | 1.84            | 0.47        |            | 1               | -61                                                                                 | 210           |
| <b>FN 2450B-20-61</b> | 20 (22.8)                        | 0.002                                | 0.94            | 0.47        |            | 1               | -61                                                                                 | 210           |

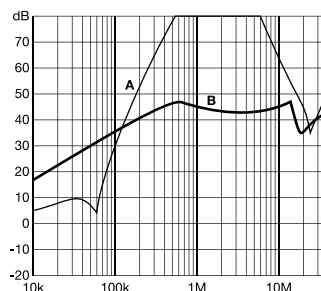
\* The letter following FN2450 represents the value of the Y-capacitor and is directly related to the performance and leakage current of the filter. Other Y-capacitor values are available upon request.

\*\* Maximum leakage current under normal operating conditions. Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

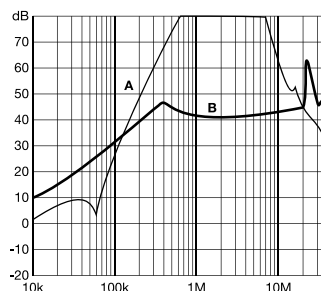
## Typical filter attenuation

Per CISPR 17; A = 50 Ω/50 Ω sym; B = 50 Ω/50 Ω asym

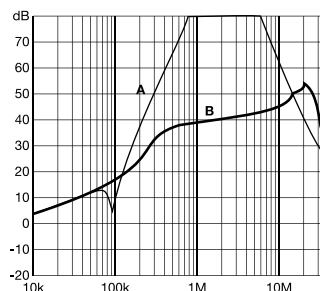
6 A types



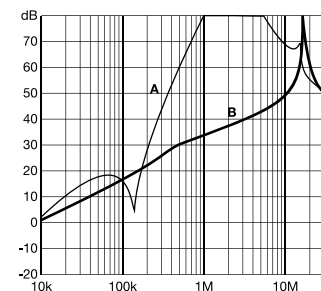
10 A types



16 A types



20 A types



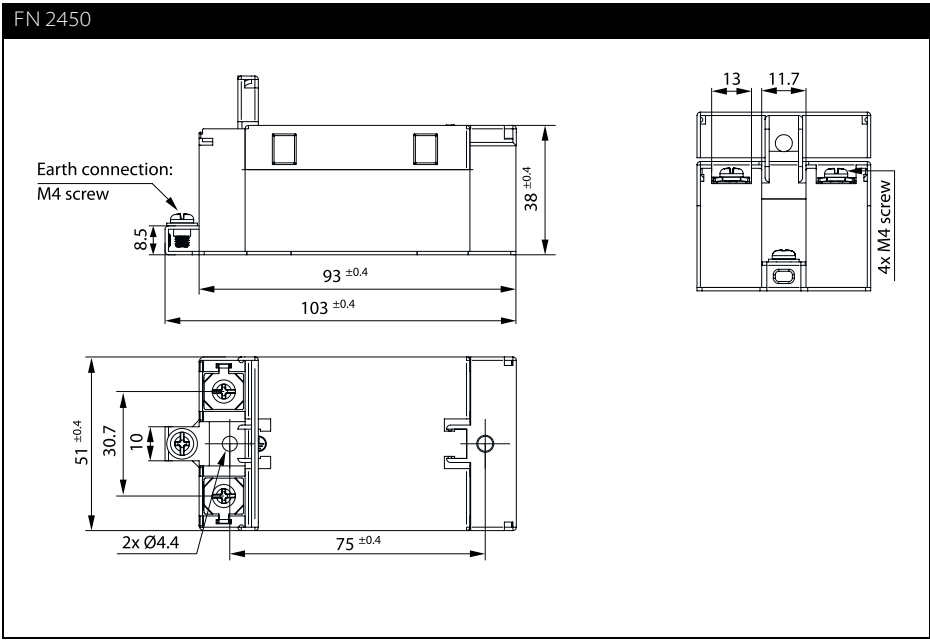
Installation



FN 2450 are delivered with closed plastic covers and fastened terminals. To install the filter please proceed as follows:

- Mount the filter on a metal surface with two appropriate bolts
- First connect the green/yellow wire to the earth stud of the filter
- Gently lift the two hinged plastic covers. n  
Untighten the terminals with an appropriately sized screw driver
- Connect phase and neutral wires with cable lugs by pushing down and tightening the bolts
- Please note the torque recommendation on the next page
- Push the safety covers back into their locked position to finish the filter installaton

Mechanical data



Filter input/output connector cross sections

|                      | -61 (6 A)                 | -61 (10 A)                | -61 (16 A)               | -61 (20A)             |
|----------------------|---------------------------|---------------------------|--------------------------|-----------------------|
|                      |                           |                           |                          |                       |
| Flex wire            | 1.3 - 2.5 mm <sup>2</sup> | 1.3 - 2.5 mm <sup>2</sup> | 4 - 6 mm <sup>2</sup>    | 4 - 6mm <sup>2</sup>  |
| AWG type wire        | AWG 13 - AWG 16           | AWG 13 - AWG 16           | AWG 12 - AWG 10          | AWG 12 - AWG 10       |
| Ring/fork lug (W/d)* | max. 11 mm/min. Ø 4.3 mm  | max. 11 mm/min. Ø 4.3 mm  | max. 11 mm/min. Ø 4.3 mm | max. 11mm/min. Ø4.3mm |
| Recommended torque   | 0.8-1 Nm                  | 0.8-1 Nm                  | 0.8-1 Nm                 | 0.8 - 1Nm             |

\* Schaffner recommends the use of insulated and UL-recognized ring lugs or fork lugs of the appropriate size.

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